



An
Bord
Pleanála

Inspectors Report

ABP-306146-19 & ABP-306199-19

Development

ABP-306146-19- Application for Approval for Foynes to Limerick Road (including the Adare Bypass) including all ancillary and consequential works under section 51 of the Roads Act 1993, as amended.

ABP-306199-19 - Application for Approval of three road Schemes under section 49 of the Roads Act 1993, as amended.

Location

Shanagolden, Craggs, Askeaton West, Lismakeery, Nantian, Riddlestown, Rathkeale Rural, Rathkeale Urban, Dromard, Croagh, Adare North, Adare South, Clarina and Patrickswell, Co. Limerick.

Applicant

Limerick City and County Council

Type of Application

ABP-306146-19 – Approval under 51 of the Roads Act, 1993, as amended.

ABP-306199-19 - Approval under Section 49 of the Roads Act, 1993, as amended.

Observers (Section 51)	Refer to Table 1 in Section 4
Prescribed Bodies	Refer to Table 1 in Section 4
Objectors to the Approval of Schemes (Section 49)	Refer to Table 23 in Section 14.
Date of Site Inspection	25 th June and 15 th October 2020.
Inspector	Patricia Calleary
Specialists	Dr Maeve Flynn – Senior Ecologist (An Bord Pleanála) and Mr Jer Keohane – External Consultant
Appendices	<ul style="list-style-type: none"> A. Oral Hearing Overview B. List of Documents presented at the oral hearing C. Biodiversity and Appropriate Assessment (prepared by Dr Maeve Flynn, Board’s Senior Ecologist). D. Soils & Geology, Hydrology and Hydrogeology Assessments (prepared by Mr Jer Keohane, External consultant)

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1.0 Introduction

- 1.1. The report sets out an assessment of two concurrent applications received by An Bord Pleanála on the 11th of December 2019 (File References: ABP-306146-19 and ABP-306199-19), the details which are set out below.

File Reference: ABP-306146-19

- 1.2. An application has been made to An Bord Pleanála by Limerick City and County Council, as the Roads Authority, in which approval is sought for development under **Section 51 of the Roads Act 1993, as amended**, and **Part XAB of the Planning and Development Act 2000, as amended**. The proposed road development (PRD) is referred to as the 'Foynes to Limerick Road (including the Adare Bypass)'. This application is accompanied by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS).

File Reference: ABP-306199-19

- 1.3. Under **section 47 of the Roads Act 1993, as amended**, Limerick City and County Council has made 'the Foynes to Rathkeale Protected Road Scheme 2019, Rathkeale to Attyflin Motorway Scheme 2019 and the Foynes Service Area Scheme 2019', which are collectively referred to as the 'Schemes' and which form part of the Foynes to Limerick Road (including Adare Bypass).
- 1.4. This application was subsequently submitted to An Bord Pleanála for approval under **Section 49 of the Roads Act 1993, as amended**. An Bord Pleanála can approve the schemes, with or without modifications, or may refuse to approve the schemes. If the schemes are approved, the Roads Authority would, *inter alia*, be authorised to compulsorily acquire land, buildings and any rights in relation to land specified in the approved schemes.
- 1.5. The full extent of the lands, comprising c.399 hectares (ha)¹ required for the schemes as described, including the public and private rights of way, wayleaves and right of access are shown outlined on the deposited maps, FLRS-DEP-PRO-01 to 13 inclusive, FLRS-DEP-MOT-01 to 12 inclusive and FLRS-DEP-SER-01, details of which are contained in the submitted schedules as received by the Board.

¹ As updated in Section 4.15 (Land Acquisition) of the Corrigenda submitted to the Board on 15th of February 2021.

2.0 Existing Site Location and Context

- 2.1. The site of the PRD is presented on an array of drawings with an overview presented in Figure 1.1 (location plan) submitted with the EIAR. The site generally follows the linear route of the PRD. It is located in a predominantly rural/agricultural area in County Limerick located close to the communities of Foynes, Askeaton, Rathkeale, Croagh, Adare and Patrickswell. Travelling from west to east, it extends from Foynes, at the western end to the existing M20 motorway at Attyflin, a short distance east of Adare.
- 2.2. The existing N69 national secondary road (Foynes to Askeaton) travels through an agricultural landscape predominately comprising high-quality grassland with scattered housing, agricultural holdings/farms and businesses that are accessed off the road.
- 2.3. The existing R518 regional road (Askeaton to Rathkeale) also travels through an agricultural landscape with scattered housing and agricultural holdings/farms accessed off this stretch of road. The R518 joins the N21 to the north of Rathkeale.
- 2.4. After passing Rathkeale, the N21 national primary road continues east towards Croagh. A previous upgrade of the N21 involved a partial bypass of Croagh. The N21 continues further east to Adare village and continues through the village. Thereafter, it continues further east towards Limerick city, coming to an end in the townland of Attyflin, at a grade-separated junction of the N20 and M20.
- 2.5. The existing road network in Limerick includes the following national routes:
 - M20 Motorway for 9.5km from Rossbrien Junction on the M7/N18 Limerick Southern Ring Road, extending westward to Attyflin Junction southwest of Patrickswell;
 - N20 single carriageway road towards Cork extending southward from Attyflin Junction;
 - N21 single carriageway road towards Tralee in County Kerry from Attyflin Junction, passing through Adare and continuing westward bypassing Rathkeale;

- N69 single carriageway road from the Dock Road Junction on the N18 Limerick Southern Ring Road, extending westward to Foynes and onward to Tralee in County Kerry;
- M7 / N18 Limerick Southern Ring Road;
- N24 Tipperary Road.

2.6. The existing core and comprehensive network layers are indicated on the maps contained in Annex I of the European Union (EU) Regulation No.1315/2013 (the TEN-T regulation) and include the core network layer connecting Shannon-Foynes Port to Limerick city along the existing N69 national layer. The comprehensive network layer is shown as extending along the N21 single carriageway road in County Limerick. Further detail on the TEN-T network is set out in the assessment below.

3.0 Proposed Development

3.1. The PRD, referred to as the **Foynes to Limerick Road (including Adare Bypass)** relates to a proposal for a new road from the N69 at Shannon-Foynes port to the existing N21/M20 at Patrickswell to the east of Adare via the towns of Askeaton and Rathkeale. It is 35km in length. It is stated that the primary aims of the PRD are to fulfil the TEN-T regulation to provide a high-quality access to Shannon-Foynes Port and to relieve major traffic congestion on the N21 at Adare. The PRD would deliver both the Core and Comprehensive layers of the TEN-T network as a single combined new route in the county.

3.2. The physical elements of the proposal are set out in detail on the public notice. The full extent of the PRD is represented on the suite of drawings which accompany the application and in the EIAR.

3.3. The PRD would comprise four distinct sections and the type of road and a brief description for each section are set out below.

- **Section A (ch.1+000 to ch.7+320):** This section of proposed road commences just south of Foynes and would extend south and eastwards for approximately 6.3km to Ballyclogh, 2km west of the town of Askeaton, where a roundabout is proposed. It would comprise a **Type 2 dual carriageway**.

- **Section B (ch.10+000 to ch.11+940):** This section would extend eastward from the Ballyclogh roundabout for approximately 1.9km, connecting with the existing N69 route at the western edge of Askeaton. It would comprise a **Type 1 single carriageway**.
- **Section C (ch.20+000 to ch.29+250):** This section would extend southeast from Ballyclogh roundabout towards Rathkeale for approximately 9.3km where it would join with the existing N21 (Limerick to Tralee) road on the northern side of Rathkeale. At Rathkeale, a roundabout is proposed to connect the new road from Foynes to the existing N2. It would comprise a **Type 2 dual carriageway**.
- **Section D (ch.50+000 to ch.67+500):** This section commences at the west of the proposed new roundabout at Rathkeale with a new single carriageway road (0.65km in length) to connect to the existing N21 at the R518 Askeaton Road. From the proposed new roundabout at Rathkeale, a new **M21 motorway** would extend 14km eastward from Rathkeale Junction to Monearla, bypassing the villages of Croagh and Adare, where it would join the existing N21 single carriageway. From Monearla to Attyflin, the existing N21 would be upgraded to motorway standard with 1.5km of widening, and reclassification of 2km of current dual carriageway. The PRD ends at Attyflin, where it would link in with the existing M20 motorway for onward connection to Limerick City.

3.4. A **Type 1 (Terminal) service Area** for a Heavy Goods Vehicles (HGVs) rest area on an area occupying approximately five-hectare site adjacent to Foynes port is also proposed at the western end of the PRD. It would provide access, parking, facilities building and a new at-grade junction onto the Foynes port access road.

3.5. **Sections A, B and C (Express Road)** extending from Foynes to Rathkeale would have the designation of a 'protected road', in accordance with Section 45 of the Roads Act 1993, as amended, requiring no direct access to or from the PRD other than at controlled junctions. A speed limit of 100 km/hr is in place on all national roads (including dual carriageways) throughout Ireland. Pedestrians, pedal cycles, vehicles without pneumatic tyres and animals would be prohibited from travelling a protected road.

- 3.6. **Section D (Motorway)** would have the designation of 'motorway' under Section 43 of the Roads Act 1993, as amended, which is the highest category of road, requiring no direct access with default speeds of 120km/hr and with prescribed classes of vehicles for its use. Learner drivers, vehicles under 50cc, bicycles, pedestrians, animals and invalid carriages are not allowed on motorways in Ireland.
- 3.7. The development would include the following **seven junctions**:
- two grade-separated junctions at Ardagh and Croagh (including bridges, link roads and roundabouts);
 - five at-grade roundabout junctions providing access points at Foynes, Ballyclogh and Askeaton.
- 3.8. The PRD would cross several watercourses including the River Maigne and River Deel. A total of **64 bridge structures** are included in the PRD. These include **five significant bridge structures** comprising:
- a 210m long clear-span bridge over the River Maigne at Adare;
 - four river bridges over Robertstown, Deel and Greanagh (two bridge crossings);
- 3.9. Other **bridge structures** include:
- 18 other river and stream bridges;
 - 3 railway bridges over the Foynes to Limerick Railway line;
 - 16 overbridges/underbridges for existing roads and access tracks;
 - 22 underpasses.
- 3.10. **Earthworks** would include excavation of approximately three million cubic metres of soil and rock with 2.7 million cubic metres proposed to be re-used as fill for the PRD construction. It is stated in the EIAR, Environmental Operating Plan (EOP) and at the oral hearing that earthworks would involve the processing/crushing/breaking of some of the rock into smaller size for use in the embankments.
- 3.11. It is stated that the **balance of material** required, c.1.3 million cubic metres in total, would be either sourced entirely from quarries in the region or through a combination of importing material from quarries and the sourcing of up to c.500,000 cubic metres

of material from borrow pits on site. The applicant also stated that gaining of materials may involve some modest degree of additional excavation below the level of permanent works.

- 3.12. **Unsuitable material** (c.320,000 cubic metres)² would be used mainly for landscaping and c.35,000 cubic metres of unsuitable peats and potentially some small amounts of other soft alluvium soils would be deposited on the PRD site, either in used borrow pits should they be developed or within other areas suitable for their deposition.
- 3.13. Further details of **materials balance** are set out in the Planning Assessment in Section 11 below and under the heading of Soils and Geology (Section 12.10) in the EIA section that follows.
- 3.14. **Construction compounds** are proposed at locations along the site of the PRD. The main compound, 2.5ha in size, would be sited at the proposed Rathkeale junction.
- 3.15. **Six other smaller temporary sites**, required for the construction of particular structures and bridges, excavation and processing of materials, specialised earthwork construction and at certain drainage areas may also be sited at various locations along the length of the proposed road development. compounds have been identified at the following locations:
- Foynes HGV Rest Area (ch.1+000);
 - Robertstown (ch.2+760 to ch.2+990);
 - Askeaton Tie in with N69 (ch.11+400 to ch.11+650);
 - Croagh Junction (ch.55+150 to ch.55+620);
 - Islandea (ch.60+670 to ch.60+870);
 - Ardshanbally (ch.61+800 to ch.62+050).
- 3.16. **Other works** proposed include:
- drainage culverts, pipes, ditches, ponds and drainage systems including spill containment and attenuation facilities as part of surface-water management;

² Figures of 300,000 and 320,000 cubic metres of unsuitable material are both set out in the EIAR.

- alterations to high voltage 220kV and 110kV electricity lines;
- utility diversions, including overhead and underground electricity lines, gas mains, watermains and communication cables;
- realignment of existing roads, construction of access roads and accommodation works;
- landscaping, fencing and installation of noise barriers;
- signage, lighting and other works ancillary to the construction and operation of the PRD;
- accommodation of the section of the proposed Great Southern Greenway Limerick walking and cycling route at a point where it would cross north of Rathkeale;
- a retaining wall;
- associated ancillary works.

3.17. The construction phase of the project is expected to occur over a 30-36 months (2.5 to 3 years) period using a design and build procurement contract.

3.18. A substantial amount of documentation was submitted to the Board in respect of both applications. An EIAR and an NIS have been submitted as part of the Section 51 application.

3.18.1. The EIAR comprises the following:

- Volume 1: Non-Technical Summary
- Volume 2: Main Text
- Volume 3: Figures
- Volume 4 (comprising Volume 4A and 4B): Appendices
- Volume 5 (comprising Volume 5A and 5B) Photomontages

3.18.2. The NIS comprises the following:

- Volume 1 : Main text and Appendices A-G
- Volume 2 : Appendices H-L

3.19. Further Information Request

3.19.1. Following its initial consideration of the application and submissions received from prescribed/public bodies and observers, the Board issued a request for further information from the applicant. A written response was received on the 30th of September 2020, and the further information was advertised, following which a number of submissions were received. The content of the request and the response are considered in the respective sections of the assessment below.

4.0 Submissions and Observations (Written and Oral)

4.1. Submissions/observations were received by the Board from 36 prescribed/public bodies and observers during the course of the application including at the initial application stage, further information stage and at the oral hearing. These are listed in Table 1 in the Planning Assessment and the points advanced are addressed in the relevant section(s) of my assessment. The points raised are summarised below.

4.2. Prescribed Bodies / Public Bodies

4.2.1. The primary issues raised and/or support expressed for the project are summarised below.

Adare-Rathkeale Municipal District

- on the 11th of February 2020, a motion was proposed by Councillor Stephen Keary to include a pumped sewerage main to certain specified areas as part of the PRD proposal;

An Garda Síochána, Limerick

- welcomes the proposal that will bring considerable traffic relief to the area and suggests including a speed enforcement ramp on dual carriageways for safety purposes;

An Taisce

- continued over-scaled road building would represent a misdirection of limited investment and would be contrary to addressing climate change;
- continuation of the current bulk cargo traffic through Foynes has not been justified;

- while the Adare bypass is justified, the current proposal is over-scaled and unsustainable;
- EIAR does not address overarching objective to reduce car use and dependence, and to enhance cycling;
- the further information response furnished does not address concerns raised;

Department of Culture, Heritage & the Gaeltacht (now the Department of Tourism, Culture, Arts, Gaeltacht and Sport)

- high potential that underground cultural heritage could be present within the footprint of the proposed works and recommends an underwater archaeological assessment in advance of construction to inform detailed archaeological mitigation of any impacts;
- archaeological component should be overseen by a project archaeologist;

Fáilte Ireland

- welcomes the project to bypass Adare and states that Adare is a key tourism attraction and economic driver;

Inland Fisheries Ireland (IFI) (Shannon District)

- sets out obligations under the Water Framework Directive and requires that the PRD take all necessary measures to prevent the degradation of the status of all surface waters;
- set out the need for protection of the fishery resource and associated habitats including the Lower River Shannon Special Area of Conservation (SAC);
- highlights the importance of the River Maigue for protected aquatic species, including salmonids, lamprey species, European Eel and White Clawed Crayfish;
- confirmation of records of sea lamprey in river Maigue;
- set out mitigation measures and guidelines to be followed during construction and consultation including on the EOP and specific works methods statements in advance of commencement of works;
- following receipt of further information, IFI made a further submission noting the response in relation to the presence of Sea Lamprey and the surface

water quality monitoring programme and expressed their satisfaction with the response.

Irish Water

- proposed development has the potential to impact an Irish Water Drinking Water Source at Foynes/Shannon estuary public water supply arising from the proposed crossing of the River Deel (RVB01) and works in minor watercourses discharging to the River Deel;
- seeks further information on measures to be taken to protect Irish Water's Drinking Water Source;
- requires that the applicant would submit a diversion enquiry to Irish Water as a significant number of water mains and foul sewers along the route would be impacted by the proposed works and all necessary measures to protect and maintain access to Irish Water infrastructure should be undertaken;
- following **review of further information**, stated that they have no objection to the proposed development and provide suggested conditions as set out in correspondence sent to the Board by email dated 2nd of December 2020;

Kerry County Council

- expresses support for the PRD and states that it is consistent with the national and regional policy. States that it is a key piece of infrastructure to make Kerry a more attractive location for industry and as a location in which to live, work and provide employment and would improve connectivity to enhance Kerry's tourism sector;

National Transport Authority (NTA)

- NTA supports the proposed road scheme as a means of promoting the economic development of the Limerick-Shannon Metropolitan Area and the wider Mid-West and South-West areas;

Department of Environment, Climate and Communications – Waste Policy and Resource Efficiency Division

- requests that the Local Authority consult directly with the regional waste management planning office regarding development of the final plans.

4.2.2. During the oral hearing (19th of February 2021), the Board received correspondence from Leahy Reidy Solicitors, representing the applicant, on the Foynes to Limerick Road (including Adare bypass) reference – ABP-306199-19. It was submitted that while correspondence had been sent by the applicant to the Department of Agriculture, Food and the Marine and to the Department of Transport, Tourism and Sport on the 12th of December 2019 and that the EIAR and NIS were enclosed with that correspondence, copies of certain maps, documents and other materials sent to the Board in connection with the Rathkeale to Attyflin Motorway Scheme, 2019 had not been sent to the Minister of Agriculture, Food and the Marine and the Minister for Transport, Tourism and Sport. On the 19th of February 2021, Limerick City and County Council (LCCC) subsequently forwarded copies of maps, documents and other materials originally sent to the Board in connection with the Rathkeale to Attyflin Motorway Scheme, 2019 to both the Minister for Agriculture, Food and Marine and the Minister for Transport.

4.2.3. Following the oral hearing, the Board issued written correspondence (dated the 4th of March 2021) to the office of the **Minister for Agriculture, Food and the Marine** referring to Section 227(6) of the Planning and Development Act 2000, as amended inviting observations in relation to the application or scheme concerned from the Minister for the Marine and Natural Resources. A response dated the 9th of April 2021 and received by the Board on the 14th of April 2021 stated that the Department's Marine Engineering Division reviewed the application and do not have any observations to make.

4.2.4. The Board also issued written correspondence (dated the 4th of March 2021) to the **Minister for Transport** referring to Section 227(5) of the Planning and Development Act 2000, as amended. The correspondence noted that the Local Authority had previously sent copies of maps, documents and other materials sent to the Board in connection with the application to the Minister and in its correspondence, the Board invited observations from the Minister. No response was received by the Board.

4.3. **Observers**

4.3.1. The principal general matters that were raised in submissions and of relevance to the assessment, are summarised below under thematic headings.

Policy

- proposal is not supported by policy, which instead supports the upgrade of the existing N69 under Policy IN 022 of the County Development plan;
- under the TEN-T regulations there is scope for a 'conventional strategic road, which is not a motorway or express road, but which is still a high-quality road';
- the TEN-T requirements are out of date and the regulations are under review driven by changed priorities and the need to provide a sustainable transport system. The project needs reconsideration and should not proceed until the review of the current TEN-T proposals is completed;
- transport investment set out in Ireland 2040 and related National Development Plan (NDP) is based on a continued motorway investment programme that would exacerbate car-based sprawl and undermine the modal share of rail versus road use;
- the proposal is a material contravention of the Adare Local Area Plan (LAP) land use zoning and by virtue of its scale would impact on the amenities of Adare village;
- upgrading of Foynes to Limerick railway line should take precedence over the PRD;
- material contravention of the agricultural land use zoning set out in the Adare LAP would result and this would impact the amenity value of Adare village and River walk;
- page 145 of the National Planning Framework (NPF) describes a strategic outcome as 'improving access to Ringaskiddy port' and the PRD does not achieve this, a more strategic approach would involve integrating the Foynes-Limerick motorway project to the M20 Cork-Limerick Project;

Need and Justification

- the need for a new road from Foynes to Limerick has not been justified;
- the new road does not replace the existing road, as instead it partly runs in parallel with an existing road of a good standard;
- predicted traffic movements for the proposed development have been exaggerated, based on the Shannon-Foynes Port Company Vision 2041

Masterplan, which extends beyond the N69 route, and which was prepared some time ago in 2013;

- as Croagh is already bypassed it will become an island between two bypasses;
- any time savings for bypassing of Adare would be lost in congestion in Newcastle West and Abbeyfeale;
- the 2030 rail network strategy review (2012) published by Iarnród Éireann identifies the Foynes to Limerick Railway line as a tangible asset for bulk transfer of freight and recent support for the project has been reported in the media;
- project is a hugely expensive proposal for alleviating Adare peak time only congestion and will result in shifting the current congestion onto Newcastle West and Abbeyfeale;
- bypass of Adare (and Newcastle West and Abbeyfeale on the N21) and upgrading works would be a better solution;

Justification on the basis of Shannon Foynes Port

- a significant claim for the need to build the road is based on the perceived need to retain Shannon Foynes port as a Tier 1 status. It is possible to achieve the road link element needed to retain the port's status by upgrading the N69;
- Tier 1 status is a false representation of the importance of Shannon Foynes Port and is not warranted;
- majority of bulk cargo from Foynes would be rendered obsolete when sustainable energy and resource use provisions are properly applied;
- total throughput reduced by 10% from 2018 to 2019 (references annual report);
- no evidence provided that there is any real predicted industrial expansion adjacent to Foynes;
- the throughput of freight from Shannon Foynes port should be directed onto rail transport;

- queries if the impacts of the expansion of facilities of the port of Cork's deep-water port in Ringaskiddy and the M28 Cork to Ringaskiddy Project on Shannon Foynes Port Company (SFPC) been considered;
- addition of Shannon Foynes Port to the Atlantic Corridor is primarily due to the impacts of Brexit;
- the strategic potential for the deep-water channel of the Shannon Estuary and Foynes Port offers considerable opportunities to exploit a 'ship-to-ship' movements of bulky heavy freight to Limerick, leading to a reduction of Ireland's land-freight emissions;

Climate Change and Greenhouse Gas (GHG) Emissions

- project is contrary to climate change policy;
- efforts to reduce carbon emissions will require a decrease in the use of bulky imports such as oil, coal, animal feedstuff and chemical fertiliser leading to a reduction in throughput to the port and a consequential reduction in traffic movement and this has not been addressed in the EIAR;
- a reduction in transport of liquid cargo will also occur into the future with proposals to reduce greenhouse gases, including a ban on sale of diesel cars by 2030;
- there is no evidence that the road development will have any impact on the transition to an electric fleet of vehicles;
- project is over-scaled and not in line with transport policy and would result in excessive carbon emissions, including during the construction phase;
- modal shift away from the private car is necessary to achieve climate targets;
- scheme is contrary to sustainable transport policy and the Climate legislation and policy;
- in line with the Action Plan included in the European Commission's Communication on the European Green Deal, a proposal for a revision of the TEN-T regulation is planned in the second quarter of 2021 and in that context, the approval of the PRD would be premature;

- project is not future proofed in terms of climate change and did not follow Section 28 Guidance which takes climate change mitigation into account;
- with electric vehicles (EVs), there would still be an issue with tyre erosion leading to escape of micro-plastics, which would be exacerbated by SUVs;
- the PRD would facilitate a greater number of traffic journeys and traffic volumes and thereby lead to conditions that would induce sprawl over the coming decades. Considering the 'embodied' carbon and the project life cycle, CO₂ emissions would be disproportionately and unacceptably greater, with no realistic form of carbon mitigation method to avoid such emissions;
- in addition, an excessive 'embodied carbon' emissions would arise from the construction of the motorway element.

Design (Specific Matters)

- loss of storage compound for Askeaton-Heritage and Tidy Towns committee;
- requirement for significant fill will result in exponential rise in frequency of blasting at local quarries and the impacts on individual properties, on Ballyclogh House (a protected structure) and on private wells in the Foynes/Askeaton area and the Craggs-Barrigone group water scheme have not been adequately addressed;

Alternatives and Route Selected

- route selection is fundamentally flawed and has resulted in a development option being progressed which would adversely affect the rural area in which the new carriageway is proposed;
- it would be more logical to upgrade sections of the N69, as well as the R518 and R521;
- improved road link from Port of Foynes to Limerick city and the Adare Bypass should be standalone projects as they are two very separate complex issues;
- combination of improvement works to the N69, including the provision of overtaking lanes, removal of any acute bends and opening of a rail link would provide a much more appropriate solution;

- more expansive consideration should be given to the development of a greenway in parallel to the Foynes-Limerick Road projects;
- consideration of alternatives does not satisfy the requirement for EIA. The technical assessment was carried out prior to the EIAR. Route 2 should have been advanced;
- upgrading of existing Foynes to Limerick railway would be a preferred option and would negate the need for the PRD;
- consideration of Alternatives is fundamentally flawed as they are based on transport demand projections that are inconsistent with climate targets and the delivery of the PRD goes against national climate targets;
- among the alternatives which should have been considered are improved public transport, investment in safe walking and cycling including greenways;
- option of reducing the danger of the existing route (including a bypass of Adare) should have been considered;
- the orange route, (Route 3) was selected ahead of the blue route (Route 2) through a flawed process;

Population and Human Health

- loud noise and visual changes would lead to impacts on vulnerable persons or persons with health challenges and on mental health & wellbeing;
- concerns were raised in a general sense on the potential stress and psychological impacts that would likely arise;

Noise and Vibration and Air Quality

- noise barriers will result in a visual impact;
- impacts would arise from noise generated during construction and operation phases;
- unacceptable impacts would arise from vibration on sensitive structures;
- the Transport Infrastructure Ireland (TII) noise limits of 60dB L_{den} are too high, and the World Health Organisation (WHO) published Environmental Noise Guidelines should instead have been applied;

- impacts arising from blasting (at PRD and quarries) can be felt up to a 1km radius and 150m distance is not sufficient;
- in the event of approval, structures, houses, farm buildings, bridges should be surveyed prior to the commencement of the road construction phase;
- concerns raised regarding air quality impacts;

Biodiversity

- loss of trees and hedgerows and effects on native wildlife;
- loss of wetland habitats and impacts on watercourses;
- fragmentation of habitats and the barrier effect for flora and fauna;
- use of native trees and wildflower seed in landscape and allowing natural regeneration where possible;
- impacts on badgers;
- impacts on Lesser horseshoe bat population;
- concerns relating to pollution of local streams and rivers;
- lack of information on Invasive alien plant species including Japanese knotweed;
- timing and adequacy of ecological surveys;
- adequacy of survey for protected species (including freshwater pearl mussel, White clawed crayfish, smooth newt);
- specific concerns at discrete locations including River Deel, Doohyle Lough, Blossomhill;
- impacts on Lower River Shannon SAC- location of road bridge on River Maigne;
- impacts on qualifying interest species of Lower River Shannon SAC, including Sea lamprey, River lamprey and Brook lamprey, white clawed crayfish, Atlantic Salmon and Otter;
- impacts on European Eel;

- concerns regarding adequateness of mitigation measures and proposals for monitoring;

Soils and Geology

- sourcing of fill from quarries that may not be authorised;
- given that the proposed road would be constructed in stratified geological bedrock, structural surveys should be carried out on all buildings at risk within 3km of rock extraction sites;

Water (Hydrology & Hydrogeology)

- River Deel floods over a significant catchment area through which the PRD would be constructed and the attenuation ponds would be submerged during such occurrences;
- PRD would exacerbate flooding of Lismakeery stream;
- refers to site investigation undertaken on observer's lands in which it is asserted that contaminated water (from use of lime and cement) arose at a rotary core (RC 10-09) and was directly discharged into a stream;
- there is a very limited assessment on the impact that the development will have on achieving the EU Water Framework Directive 'good' status by 2027;
- impact on Water supplies for wells and group water schemes water sources could arise;

Air quality

- concerns regarding negative air quality impacts particularly from dust arising in the construction phase and also harmful emissions from vehicles during the use of the PRD.

Cultural heritage

- the need to protect archaeology resource needs to be addressed;
- the PRD would be visually obtrusive on Clonshire castle structure and would threaten its fragile masonry structure and foundations;

- impacts on Clonshire Castle were not properly assessed and would be adversely impacted by vibration and blasting of rock;

Material Assets

- adverse impact on agriculture and land would be significant;
- adverse impacts on farm animals would arise from noise and air quality and interference with access;
- negative impacts would arise on equine enterprises from noise and air quality.

Traffic and Transportation

- construction Traffic Impacts and traffic management;
- impacts on Irish Rail network;
- HGVs will not use the proposed road as it will not provide any journey savings, but will require much larger fuel use;
- other motorists will choose to use the N69 over the N21 for journey from Limerick City to north, mid and west Kerry other than at very low traffic times as it is a more efficient route;
- chemical fertilisers imported through Foynes Port to Goulding Fertilisers in Askeaton would continue to be transported along the existing N69 and should not as such be used in traffic estimates of the proposed road and other related chapters in the EIAR. Other HGVs transporting grain from Foynes Port to Limerick would not use any new road routed via Adare;
- queries raised in relation to the journey time analysis which has been presented in the EIAR;
- the existing Foynes to Limerick railway line is in need of repair and its upgrade would serve to reduce the number of HGVs serving Foynes Port and help to retain its Tier 1 status;
- the pandemic brought about by Covid-19 has impacted on travel patterns through remote/working from home patterns and also use of technology for business, work and social activities, replacing the need to travel in person while providing opportunities for improvements and healthier lifestyles;

- need for a new transport strategy to take a multimodal approach and address over dependence on the car;
- no provision has been made for walking and cycling;
- greenway from Rathkeale to Adare and Rathkeale to Askeaton and Foynes should be included as part of the project;
- construction traffic delays would occur.

Landscape and Visual

- expresses concern regarding the loss of trees and landscaped areas with consequential loss of wildlife and resultant landscape impacts;
- raises concerns regarding an area (layby) at the Askeaton junction roundabout, which has been used as a storage compound and landscaped area;
- raised concerns regarding the damage to flowerbed areas at the Church carpark from passing construction machinery and dust;
- requests that habitat replacements should be natural and not over-structured.
- height of road embankment excessive at specific locations (e.g. over the L-1422 Blackabbey road);
- height of proposed bridge over the Greanagh river is excessive;
- PRD would give rise to visual impacts and loss of sunlight/shadow casting
- inadequate detail of landscape planting/visual screening;

Other Matters

- severance would occur because of PRD;
- concerns that the L-1422 would be used as a haulage route;
- devaluation of land including loss of potential for future development (house, quarry);
- mapping used was out of date (at one location);

- concern that the project would be procured through a design and build contract where Local Authority would have little say on how the works are carried out during the construction stage;
- Lack of economic assessment;
- A three-day golf competition in Adare would not justify the requirement for the PRD;
- Inadequate cumulative assessment undertaken;
- Concerns re blasting of rock in the context of a 'design and build' contract.

4.3.2. Submissions were received from IBEC, Limerick Chamber, Kerry Group plc and SFPC expressing their support for the project and state that the proposal is consistent with national, regional and local planning policy and is necessary for the economic growth of the southern region and the development of Shannon-Foynes port. It is also submitted that improved accessibility would support increased commercial and business links, more cost-effective movement of people and goods and a safer, shorter and more reliable journey. Reference is also made to Adare Manor hosting the Ryder Cup golf tournament (due to take place in 2027) and the importance of having the infrastructure in place for this event. SFPC made a detailed submission at the oral hearing outlining their support for the PRD on the basis that it would support the growth of the port by providing reliable road infrastructure on the EU TEN-T core network corridor.

4.3.3. Copies of all of the submissions received are on the Board's file and have been individually reviewed and considered as part of the assessment.

4.4. **Pre-Application Consultations**

4.4.1. In 2017-2018, under Section 51A of the Roads Act 1993, the applicant undertook pre-application consultations with the Board. Three pre-application consultation meetings were held between the applicant (as the prospective applicant at that time) and the Board's representatives and details are contained on file reference **13.HC0006**, which is attached to the current application files.

5.0 Planning History

5.1. The following planning history is of specific relevance.

- **MA0010/HA0027:** In March 2010, An Bord Pleanála received applications seeking approval and confirmation of a compulsorily purchase order (CPO) for the Cork to Limerick Motorway Road Development and Road schemes. Both applications were subsequently **withdrawn** in November 2011;
- **PL13.ED2048:** In August 2005, An Bord Pleanála **directed the road authority to prepare an environmental impact statement** in respect of a proposed road development comprising the N21 Adare Bypass, Co. Limerick;
- **HA0028:** In October 2012, An Bord Pleanála **refused to approve** a proposed road development (N21 Adare bypass) by Limerick County Council. The reason for refusal was based on the Board's conclusion that the development would constitute isolated infrastructure, in the context of the withdrawal of the M20 Cork to Limerick Motorway and the uncertainty of any future application. Under the related application, Ref **KA0016**, the **associated CPO was annulled** on the basis that it was not necessary because of the Board's decision to refuse to approve the Adare Bypass proposed road development;
- **ABP-301561-18:** In December 2018, An Bord Pleanála **granted permission** to SFPC for a capacity extension of Shannon Foynes port. The proposed works included modifications to the existing jetties and quays, phased expansion of the port estate and associated site development works.

6.0 Application for approval of three road schemes

6.1. An application was received by the Board on the 16th of December 2019 for approval under Section 49 of the Roads Act 1993, as amended of: the **Foynes to Rathkeale Protected Road Scheme, 2019**, (the 'Protected Road Scheme'), the **Rathkeale to Attyflin Motorway Scheme, 2019**, ('the Motorway Scheme') and the **Foynes Service Area Scheme, 2019** ('the Service Area Scheme'), the three schemes forming the Foynes to Limerick Road (including Adare Bypass).

6.2. The PRD, to which the Protected Road Scheme, Motorway Scheme and Service Area Scheme relate, would entail the acquisition of approximately 399ha of land. A

total of nine houses (of which two are currently uninhabited) are proposed to be compulsory acquired.

6.3. The Section 49 Approval application is accompanied by the following:

- original signed and sealed copies of the Foynes to Rathkeale Protected Road Scheme (schedule and deposit map sheets 1-13);
- original signed and sealed copies of the Rathkeale to Attyflin Motorway Scheme (schedule and deposit map sheets 1-12);
- original signed and sealed copies of the Foynes Service Area Scheme (schedule and deposit map sheet 01 of 01);
- copy of letter of approval from Transport Infrastructure Ireland (TII);
- copy of Certificate of Acting Senior Planner (LCCC);
- copy of report from Senior Engineer, Mid-West National Road Design Office to Director of Services (Physical Directorate);
- copy of Report from Director of Services (Physical Directorate) to Chief Executive;
- Chief Executive's order no. CE/2019/144 dated 3rd December
- copy of certificate of posting of notices;
- copy of the notices issued to landowners/lessees/occupiers in the prescribed form;
- copies of newspaper notices (Irish Independent dated 12th of December 2019 and Limerick Leader dated 14th of December 2019);
- copy of certificate of the person who served the notices for the extinguishment of public and private rights of way;
- copy of sample site notice re extinguishment of public and private rights of way;
- copy of certificate of posting to prescribed bodies;
- list of prescribed bodies notified of the proposed road development;
- copy of notice in the prescribed form issued to the prescribed bodies;
- certificate of receipt of Notices by LCCC;
- certificate of Project Engineer, Roughan & O'Donovan (ROD)-AECOM Alliance.

6.4. The format of all three Schemes is the same.

- 6.5. 1. Under the **Rathkeale to Attyflin Motorway Scheme, 2019** it is proposed to:
- (a) compulsorily acquire the land or substratum of land described in **Schedule 1**;
 - (b) compulsorily acquire the rights in relation to land described in **Schedule 2** (not applicable);
 - (c) extinguish over the land referred to in subparagraphs (a) and (b)–
 - (i) the public rights of way described in Part 1 of **Schedule 3**, and
 - (ii) the private rights of way described in Part 2 of **Schedule 3**;
 - (d) prohibit, close, stop up, remove, alter, divert or restrict a means of direct access to or from the proposed protected road, in respect of the land described in **Schedule 4**;
 - (e) prohibit, close, stop up, remove, alter, divert or restrict a means of direct access to or from the proposed protected road, in respect of land used for a specified purpose described in **Schedule 5** (not applicable);
 - (f) prohibit or restrict the use of the proposed protected road or a particular part thereof by the types of traffic or the classes of vehicles specified in **Schedule 6** (not applicable);
 - (g) revoke the planning permissions for the development of land described in **Part 1 of Schedule 7** (not applicable);
 - (h) modify the planning permissions for the development of land described in **Part 2 of Schedule 7** to the extent specified in that Part (not applicable).
2. The lands or substratum of land described in Schedules 1 and 4 and the rights of way described in Schedule 3 are individually numbered and shown on the scheme maps.

- 6.6. 1. Under the **Foynes to Rathkeale Protected Road Scheme 2019**, it is proposed to:
- (a) compulsorily acquire the land or substratum of land described in **Schedule 1**;
 - (b) compulsorily acquire the rights in relation to land described in **Schedule 2** (not applicable);
 - (c) extinguish over the land referred to in subparagraphs (a) and (b)–
 - (i) the public rights of way described in Part 1 of **Schedule 3**, and

- (ii) the private rights of way described in Part 2 of **Schedule 3**,
- (d) prohibit, close, stop up, remove, alter, divert or restrict a means of direct access to or from the proposed protected road, in respect of the land described in **Schedule 4**;
- (e) prohibit, close, stop up, remove, alter, divert or restrict a means of direct access to or from the proposed protected road, in respect of land used for a specified purpose described in **Schedule 5** (not applicable);
- (f) prohibit or restrict the use of the protected road or a particular part thereof by the types of traffic or the classes of vehicles specified in **Schedule 6** (Part 1);
Note: Part 2 (not applicable);
- (g) revoke the planning permissions for the development of land described in **Part 1 of Schedule 7** (not applicable);
- (h) modify the planning permissions for the development of land described in **Part 2 of Schedule 7** to the extent specified in that Part;

2. The land or substratum of land described in Schedules 1, 4 and 7 and the rights of way described in Schedule 3 are individually numbered and shown on the scheme map.

6.7. Under the **Foynes Service Area Scheme, 2019** it is proposed to:

- (a) compulsorily acquire the land or substratum of land described in Schedule 1;
- (b) compulsorily acquire the rights in relation to land described in Schedule 2 (not applicable);
- (c) extinguish over the land referred to in subparagraphs (a) and (b)–
 - (iii) the public rights of way described in Part 1 of **Schedule 3**, and
 - (iv) the private rights of way described in Part 2 of **Schedule 3**, (Both parts not applicable);
- (d) prohibit, close, stop up, remove, alter, divert or restrict a means of direct access to or from the proposed protected road, in respect of the land described in **Schedule 4**;

- (e) prohibit, close, stop up, remove, alter, divert or restrict a means of direct access to or from the proposed protected road, in respect of land used for a specified purpose described in **Schedule 5** (not applicable);
- (f) prohibit or restrict the use of the protected road or a particular part thereof by the types of traffic or the classes of vehicles specified in Schedule 6 (not applicable);
- (g) revoke the planning permissions for the development of land described in **Part 1 of Schedule 7** (not applicable);
- (h) modify the planning permissions for the development of land described in **Part 2 of Schedule 7** to the extent specified in that Part (not applicable).

6.8. The land or substratum of land described in Schedules 1 and 4 are individually numbered and shown on the scheme maps.

6.9. During the oral hearing, a modification to the Schedule and Deposit maps was brought forward by the applicant in respect of the Foynes to Rathkeale Protected Road Scheme 2019 and a typographical error was corrected on a Deposit Map in respect of the Rathkeale to Attyflin Motorway Scheme 2019. These are considered under the assessment of the Section 49 application in Section 14 below.

6.10. The **Planner's Certificate** certifies that the PRD, as outlined in the submitted drawings, is in accordance with the Limerick County Development Plan 2010-2016 (as extended until the new plan is prepared) and with the proper planning and sustainable development of the County of Limerick and the PRD would give effect to and facilitate the implementation of the County Development Plan.

6.11. The report by the **Director of Services (Physical Directorate)** states that the land and all rights in the land required for this road development are necessary, sufficient and suitable for it and the proposed extinguishments of public and private rights of way, the acquisition of all other rights, restrictions of access and the modification of planning permission are necessary for the road development, to which the Schemes relate. It is also stated that it would be convenient to effect acquisition of the land and all other rights in the land by the making of a Motorway Scheme, Protected Road Scheme and Service Area Scheme. A recommendation is put forward by the Director

of Services that LCCC compulsorily acquire the required lands to deliver the PRD as well as recommending the forwarding of the application to An Bord Pleanála.

- 6.12. The certificate from the **Senior Engineer** sets out that the PRD is supported by wider and local planning policy and is consistent with the proper planning and sustainable development of the area and applicable planning and related policy. A recommendation is put forward that LCCC compulsorily acquire the required lands to deliver the PRD, as well as recommending forwarding of the application to An Bord Pleanála.
- 6.13. The full extent of the lands required for the schemes as described, including the public and private rights of way, wayleaves and right of access, are shown outlined on the deposited maps relating to the three schemes.

7.0 **Objections to the Section 49 Application**

- 7.1. The owners (or reputed owners), lessees (or reputed lessees) and occupiers, were informed of the making of the Motorway Scheme, Protected Road Scheme and the Service Area Scheme, respectively and of the process by which an objection/submission could be made to the Board.
- 7.2. The Board received 122 written objections to the Section 49 application which included a number of submissions from the same landowners, in addition to the observations received in respect of the proposed project. At the time of writing this report, many of the objections were withdrawn and 34 objections (29 parties) remain. The names of the remaining parties and a summary of their objections, together with the applicant's response presented at the oral hearing in briefs of evidence and expanded on during the hearing, are set out in Section 14 below.

8.0 **Policy Context**

- 8.1. The following sets out a list of the primary applicable **European, National, Regional and Local policy** framework relevant to the assessment of the applications. The relevant provisions set out therein have been referenced throughout the assessment.

European Policy

- Regulation (EU) No. 1315/2013 of the European Parliament and of the Council of 11th of December 2013 on Union guidelines for the development of the trans-European transport network (**TEN-T regulation**);
- Regulation (EU) 2021/1153 of the European Parliament and of the Council of 7th of July 2021 establishing the Connecting Europe Facility;
- Proposal for a Regulation of the European Parliament and of the Council on Union guidelines for the development of the trans-European transport network, amending Regulation (EU) 2021/1153 and Regulation (EU) No 913/2010 and repealing Regulation (EU) 1315/2013 (forwarded to the Council and Parliament on 14th of December 2021);
- Regulation (EU) 2021/1119 of the European Parliament and of the Council of the 30th of June 2021 establishing the framework for achieving climate neutrality and amending regulations (EC) No. 401/2009 and (EU) 2018/1999 ('European Climate Law');
- Directive 2014/52/EU amending Directive 2011/92/EU (EIA Directive) on the assessment of the effects of certain public and private projects on the environment;
- 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;
- Directive 2000/60/EC (Water Framework Directive)
- The European Green Deal (July 2021);
- Decision 1/COP 21 – Adoption of the Paris Agreement (December 2015) (The Paris Agreement);
- Sustainable and Smart Mobility Strategy – putting Europe transport on track for the future (2020);
- Ports 2030 – Gateways for the Trans-European Transport Network.

National Policy

- Project Ireland 2040 – National Planning Framework (2018) (NPF) & National Development Plan (2021-2030) (NDP);
- National Ports Policy (Department of Transport, Tourism and Sport (2013));
- Programme for Government – Our Shared Future (Government of Ireland, 2020);
- Spatial Planning and National Roads: Guidelines for Planning Authorities, (DoECLG, 2012);
- National Roads Authority Service Area Policy (TII, 2014);
- Road Safety Strategy (2021 – 2030);
- Smarter Travel: A Sustainable Transport Future (2009-2020);
- National Cycle Policy Framework (2009-2020);
- National Biodiversity Action Plan (2017-2021);
- Climate Action Plan 2019 and Climate Action Plan 2021;
- Climate Action and Low Carbon Development Amendment Act 2021 amending Climate Action and Low Carbon Development Act 2015;
- (NDP Review - Climate & Environmental Assessment of NDP Review Spending proposals (2021);
- Rail Freight Strategy 2040 (Iarnród Éireann / Irish Rail).

Regional Policy

- Regional Spatial and Economic Strategy (RSES) for the Southern Region (2019-2031);
- Mid-west Area Strategic Plan (2012 – 2030);
- Draft Limerick Shannon Metropolitan Area Transport Strategy 2040;
- Strategic Integrated Framework Plan for the Shannon Estuary (2013 – 2020);
- Shannon-Foynes Port Company Masterplan – Vision 2041 (2013);

Local Policy

- Limerick County Development Plan (2010 – 2016) (as extended until the new plan is prepared);
- Draft Limerick Development Plan 2022-2028;

- Southern Environs Local Area Plan 2021-2027;
- Adare Local Area Plan 2015-2021 (as extended until February 2024).

8.2. In addition to the above, the following Environmental Impact Assessment Guidance are of relevance.

Environmental Impact Assessment Guidance

- Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2002);
- Advice notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003);
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports – Draft August 2017 (EPA, 2017);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (DHPLGH, 2018)³;
- Environmental Impact Assessment of National Road Schemes - A Practical Guide, Revision 1 (TII, 20 November 2008);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017);
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (EC, 2013);
- Environmental Management and Assessment guidance note on ‘Assessing Greenhouse Gas Emissions and Evaluating their significance’ (IEMA, 2017).
- Guidelines on the Treatment of Tourism in an Environmental Impact Statement (Fáilte Ireland, 2011).

Other Policy, Guidelines and Standards

8.2.1. The PRD is stated by the applicant to have been designed in accordance with TII Standards and TII Environmental Assessment and Construction Guidelines. These are set out on TII website www.tiipublications.ie and include guideline documents prepared by TII and others that were formerly published by the National Roads Authority (NRA).

³ Department of Housing, Planning and Local Government and Heritage (at the time of publication)

- 8.2.2. Other supporting policy, technical guidance documents and technical standards are drawn on by the applicant and considered as relevant in the assessment below.

9.0 Oral hearing

- 9.1. The Board held an oral hearing over a period of nine days in February 2021 for both the Section 51 application (ABP-306146-19) and the Section 49 application (ABP-306199-19). The hearing was held by virtual means. This was a change to the established way of holding oral hearings where these are generally held at a venue close to the project with participants attending in person. The change to virtual hearings was brought about by the Covid-19 pandemic and related restrictions in gatherings and the movement of people that applied at that time.
- 9.2. A detailed agenda was prepared and updated as the hearing progressed, and a copy of the agenda and updates were placed on the Board's website. The hearing was conducted broadly across a format comprising two distinct Modules, with the **Section 51 Approval module** taking place on Days 1 to 6 (inclusive) of the Hearing and the **Section 49 Approval of Schemes/CPO Module** followed across Days 7 to 9 (inclusive). In the interest of being efficient and to avoid repetition, where any party made a submission on one module (e.g. Section 49 Approval of Schemes/CPO module) and requested their submission to be also considered across the second module (e.g. Section 51 Approval module), this was facilitated where relevant.
- 9.3. A list of participating parties and topics presented at the oral hearing are set out in **Appendix A** (Overview of oral hearing and participants) and a list of all documents received and accepted by the Board's inspector at the oral hearing are set out in **Appendix B** (List of documents presented at the oral hearing) attached to this report. Each document presented at the hearing is assigned a reference number and they are all contained within the Board's file. The Board retained the services of Mr Pierce Regan, Artane Recording Studio, to record the proceedings. This recording constitutes the official record of the proceedings. Reference is made throughout the following assessments to information and detail provided at the hearing.
- 9.4. At the oral hearing, the applicant was represented by:

- Mr Jarlath Fitzsimons - Senior Counsel (SC) and Mr Declan McGrath - Senior Counsel (SC) (and Leahy Reidy Solicitors);
- Mr Seamus MacGearailt – ROD-AECOM Alliance Consulting Engineers (Project Director);
- Ms Maria Woods – Senior Planner LCCC & Mr John O'Malley - Kieran O'Malley & Co. (Planning and Policy Context);
- Ms Jennifer Harmon - AWN Consulting (Noise and Vibration);
- Dr Martin Hogan - Corporate Health Ireland (Population and Human Health);
- Mr Paul Murphy - EirEco Environmental Consultants (Biodiversity and NIS);
- Dr Tina Aughney - Bat Eco Services (Biodiversity – Bats);
- Mr John Brophy - Botanical Environmental Consultants Ltd. (BEC) (Biodiversity - fen habitat for Whorl Snails (Vertigo sp));
- Mr Fintan Buggy - ROD-AECOM Alliance Consulting Engineers (Soils and Geology);
- Mr Anthony Cawley - Hydro Environmental (Hydrology & Hydrogeology);
- Dr Edward Porter - AWN Consulting (Air Quality and Climate);
- Ms Faith Bailey - Irish Archaeology Consultants Ltd. (Archaeology, Architecture and Cultural Heritage);
- Mr John Bligh - John Bligh & Associates (Material Assets and Land - Agricultural and Non-Agricultural);
- Mr Michael P. Sadlier - Equine & Veterinary Consultancy (Material Assets - Equine);
- Mr Philip Shiels - ROD-AECOM Alliance Consulting Engineers (Traffic);
- Mr Mark Boyle - Murray and Associates (Landscape and Visual).

10.0 Assessment Overview

10.1. The first sections of this assessment deal with the **approval application under section 51 of the Roads Act 1993, as amended**. The **Planning Assessment** deals

with matters of consideration for the proper planning and sustainable development of the area. This is followed by the **Environmental Impact Assessment (EIA)**, which deals with the significant effects of the development on the environment under Directive 85/337/EEC (as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC) and codified by Directive 2011/92/EU, as amended by Directive 2014/52/EU (the 'EIA Directive'). Thereafter the **Appropriate Assessment** deals with the implications of the PRD for significant effects on European sites of relevance in view of the sites conservation objectives under Article 6(3) of Directive 92/43/EC (the Habitats Directive).

- 10.2. The assessment of the **application for approval of the schemes under section 49 of the Roads Act 1993, as amended**, follows. Reference is made throughout to the documentation on the file, including the EIAR and NIS, in addition to the information provided in submissions/objections and at the oral hearing.
- 10.3. An Bord Pleanála's Inspectorate Ecologist, Dr Maeve Flynn (BSc., PhD, MCIEEM), was appointed by the Board to carry out an examination and assessment of the information presented for Biodiversity in the EIAR, and all related supplementary information provided. Dr Flynn also examined and evaluated the information required for the Appropriate Assessment (AA), providing a recommended AA screening determination and appropriate assessment of implications of the proposed road scheme on the integrity of European Sites. Both reports prepared by Dr Flynn are contained within Appendix C attached to this report.
- 10.4. The Board also engaged Mr Jer Keohane (BSc, MSc, FCIWEM, C.Geol, C.WEM, MIEI), a geotechnical specialist and hydrogeological engineer, to carry out an examination and assessment of the information presented on Soils and Geology and Water (Hydrology and Hydrogeology) environmental topics in the EIAR. Mr Keohane's reports are contained within Appendix D attached to this report.

11.0 **Planning Assessment**

11.1. **Introduction**

- 11.1.1. The topics that are of particular relevance to the planning assessment are set out in bullet form below. A number of legal and procedural issues arose during the course

of both the Section 51 and 49 applications in written format and at the oral hearing, and these are also addressed in this section under the heading of Legal and Procedural.

- Legal and Procedural (Section 51 and 49 Applications);
- Policy Considerations;
- Project Need and Justification;
- Climate;
- Project Design and Construction – Elements of Significance;
- Acquisitions/Demolition of Houses;
- Other specific issues raised in submissions (Section 51 Approval Application)⁴.

11.1.2. The planning assessment of the PRD has had regard to all the information on file, including the original documentation received with the main document being the EIAR, the Board's request for further information and the applicant's response, submissions and observations received from third parties and prescribed/public bodies and information presented at the oral hearing by both the applicant, observers, prescribed/public bodies and objectors to the Section 49 application.

11.1.3. As there is a degree of overlap between the topics covered in this section and the EIA section of the project, this section should be read in conjunction with section 12 (Environmental Impact Assessment) of this report. There is some repetition within each assessment which is unavoidable given the extensive nature of the project and the need to ensure that a robust and accurate assessment has been carried out.

11.1.4. A list of observers, prescribed bodies and public bodies are set out in Table 1 below. (Note: See Clarifications on Submissions/Objections received under the heading of Legal and Procedural in Section 11.2 of the Planning Assessment below).

⁴ Issues raised in objections to the Section 49 application are dealt with in Section 14 of this assessment report.

Table 1 List of Observers, Prescribed and Public Bodies

Submission/ Observation Reference No.	Observer	Participated in Oral hearing (Yes/No)
Prescribed/Public Bodies		
Env-1	Adare Rathkeale Municipal District - Limerick City & County Council	No
Env-2	An Garda Síochána	No
Env-3, FI-1	An Taisce	Yes
Env-8	Department of Culture, Heritage & the Gaeltacht	No
Env-11	Fáilte Ireland	No
Env-15, FI-5	Inland Fisheries Ireland	Yes
Env-16, FI-6	Irish Water	No
Env-20 and Env-21	Kerry County Council	No
Env-28	National Transport Authority (NTA)	No
FI-3	Department of the Environment, Climate and Communications - Waste Policy & Resource Efficiency	No
Observers (Business Interest Groups)		
Env-14	IBEC	Yes
Env-23	Limerick Chamber	Yes
Observers (Community Groups)		
Env-4 and Env-5	Askeaton-Ballysteen Community Council	No
Observers (Businesses)		
Env-22	Kerry Group plc	No
Env-30	Shannon-Foynes Port Company	Yes
Observers (Members of the Public and Public Representatives)		
Env-7	Bryan & Maeve Smyth	Yes
Env-9	Eamonn & Lorraine Kirby	No
Env 10	Eileen Sheehan	No
Env-12	Frank O’Riordan	No
Env-13, FI-4	Ian Gilvarry	Yes
Env-17	John Dillon	No
Env-18	John G. Horan	No

Env-19	Kathleen O'Connor	Yes
Env-25, FI-7	Mary Brosnan	No
Env-26	Michael & Robert Kelly	No
Env-27	Niall Collins TD	No
Env-29	Robert & Margaret Frost	No
Env-31, FI-8	Simon White & Others	No
Env-33	Councillor Stephen Keary	Yes
Env-34	William O'Meara & Others	No
FI-2	Conor Enright	No
Env-32/Sch-123	Stephanie Shine	Yes
Sch-34 and Sch-35 (on the Section 49 application)	Francis and Ann O'Kelly (Also party to a landowner objection under Section 49). Presented to both the Section 51 and 49 Module of the oral hearing)	Yes
Sch-9 (on the Section 49 application)	Bryan and Iseult Murphy Note: A landowner objection on the Section 49 application was received from Mr Bryan Murphy. At the oral hearing, Mr O'Donnell (representing the Murphys) requested that the objections raised would also be considered on the Section 51 application.	Yes
Env-35	Mr Tony Lowes for Friends of the Irish Environment	Yes
Env-36	Duncan Stewart, Architect	Yes

11.2. Legal and Procedural

11.2.1. A number of observers and affected landowners raised issues relating to legislative and procedural issues are addressed below.

Scope of the Board's Jurisdiction

11.2.1. Mr Eamon Galligan SC (on instructions from Harrison O'Dowd Solicitors) represented SFPC at the oral hearing. In his legal submission he submitted that while it is permissible to modify the Schemes or the proposed development, such modification should not undermine the achievement of the primary purpose of the PRD. He referred to the primary purpose, as advanced by the applicant, as the necessity to provide a high standard of road infrastructure that meets the requirements of the TEN-T regulations. He put forward the view that the overall need for the PRD would not be satisfied unless the Foynes to Rathkeale Protected Road

Scheme, 2019 was approved. Mr Galligan also made the point that Shannon-Foynes Port is a strategic port in European and national policy, however it is connected to a secondary national route and a regional route which is inconsistent with the requirements of the TEN-T regulation. He submitted that the TEN-T regulation requires a 'motorway' or 'express road' on the core road network and that this would complete the graduation of Shannon-Foynes port from being essentially a regional port to one of national and European importance.

11.2.2. These and other points made by SFPC and its team are considered where relevant in my assessment below.

EIAR carried out is inadequate

11.2.3. One of the issues raised by a number of observers on the Section 51 application and objectors to the Section 49 application concerned the adequacy of the information contained in the EIAR and the ability of the Board to carry out an environmental impact assessment. A number of parties who submitted written submissions on the Section 51 application and/or objections on the Section 49 application and who participated at the oral hearing stated that the EIAR was inadequate. Mr Fitzsimons SC, for the applicant, addressed this point by setting out the legislative context in which the EIA must be carried out under the provisions of the EIA Directive. The nature of the assessment which must be carried out is set out in Article 3 of the EIA Directive. Article 5(1) sets out the information to be provided by the developer. The EU (Roads Act 1993) (Environmental Impact Assessment) (Amendment) Regulations 2019 [S.I. No. 279 of 2019] ('the 2019 EIA Regulations') amended the provisions of the Roads Act 1993, which had the effect of transposing the EIA Directive for the purpose of the development consent procedure under section 51 of the Road Act 1993, as amended.

11.2.4. The EIAR comprises a detailed suite of documents and drawings. They set out the detail that are required under Article 5(1) of the EIA Directive and Section 50(2)(b) of the Roads Act 1993, as amended. In his response to legal submissions, Mr Fitzsimons referred to **Klohn v. An Bord Pleanála [2009] 1 I.R. 59**, where in the High Court, it was held by McMahon J. that the content of an environmental impact statement (now an EIAR) is determined by the wording of the legislation and that 'the adequacy is determined by the decision maker'.

11.2.5. Having reviewed the EIAR, the supporting documentation, submissions raised by observers and prescribed/public bodies, the applicant's response and having considered the matters raised at the oral hearing, I am satisfied that the information is sufficiently described to allow the Board to carry out a robust and accurate assessment of the development for the purposes of the carrying out of EIA pursuant to Article 5 of the EIA Directive and Section 51 of the Roads Act 1993, as amended.

11.2.6. Section 12 (Environmental Impact Assessment) deals with the effects of the project on the environment as part of the EIA process and sets out a **reasoned conclusion on the significant effects** of the PRD on the environment as is required under Article 1(2)(g)(iv) of the EIA Directive and Section 51(5)(c) of the Roads Act 1993, as amended.

EIAR did not adequately consider alternatives

11.2.7. Several submissions on the **Section 51 application seeking approval of the PRD** and objections to the **Section 49 application seeking approval of the Schemes**, contend that the EIAR did not adequately consider alternatives, stating that this is contrary to the EIA Directive. It is also submitted that some potential routes were dismissed too early in the process and should have been brought forward for consideration of alternatives. I discuss the matter of Alternatives in detail in Section 12.2 within the EIA section of my report below. In terms of the legal requirement, Article 5(1)(d) of the EIA Directive, generally mirrored by Section 50(2)(b)(iv) of the Roads Act 1993, as amended, sets out the following is required:

a description of the **reasonable alternatives studied by the developer**, which are **relevant to the project** and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment. [Inspector's emphasis in bold]

11.2.8. Mr Jarlath Fitzsimons refers to the Brief of Evidence (Part B) presented by Mr Seamus MacGearailt at the oral hearing which also included a response to the submissions made in respect of alternatives. It is evident from the information submitted that numerous alternatives were studied by the developer, and these have been set out and detailed. The consideration of alternatives included the publication of a route selection report in 2016, outlining a number of options and the rationale for progressing the preferred option is clearly set out. I am satisfied having regard to the

information provided on alternatives as set out in Section 12.2 below, that the EIAR has provided a description of the reasonable alternatives studied by the developer, being those that are relevant to the project and its specific characteristics. The developer provided the main reasons for the options chosen taking into account the effects of the project on the environment. Of relevance, there is no obligation on the developer to conduct a full EIA on **all** alternatives considered in the process as was held by Allen J. in **Kemper v. An Bord Pleanála [2020] I.E.H.C. 601**. Overall, I conclude that the legal requirement set out in Article 5(1)(d) and Annex IV.2 of the EIA Directive and Section 50(2)(b)(iv) of the Roads Act 1993, as amended, in respect of 'reasonable alternatives' has been met.

Legal requirements in respect of the acquisition of property and rights

- 11.2.9. In his submission the Oral Hearing, Mr Michael O'Donnell BL on behalf of Bryan and Iseult Murphy (Sch-9) stated that the proposed compulsory purchase of the lands proposed to be acquired can only be exercised in accordance with the requirements of the constitution and respecting the property rights of the affected landowner. Mr O'Donnell also stated that the Board must apply a test of proportionality. Mr Fitzsimons referred to the proportionality test, in accordance with the European Convention on Human Rights Act 2003 and submitted that there is overwhelming evidence to satisfy the requirement given the need for the schemes as being one which advances the common good. As these matters relate exclusively to the Section 49 application, I have dealt with them in Section 14 below (Assessment of Application for approval of Schemes).

Modifications to Scheme(s) Schedules and Deposit Maps

- 11.2.10. As stated earlier, during the course of the oral hearing a modification to the CPO Schedule and Deposit maps was brought forward by the applicant to reflect the interest of Barrigone Group Water Scheme Ltd. on 12 plots as set out in Table 1 of the Legal Submissions, together with the correction of a typographical error in the deposit map in relation to Plot 309. I am satisfied that, in the context of an EIA required to be conducted by the Board on the application for approval of the PRD, the Board has jurisdiction to consider modifications to a scheme (or schemes) pursuant to subsection 51(3) of the Roads Act 1993, as amended. I have taken

these into account in Section 14 of my assessment below (Assessment of Application for approval of Schemes).

Requirement for consideration of the Habitats Directive

- 11.2.11. Notwithstanding any provision of the Roads Acts 1993, as amended, the Board in its role as the competent authority shall only give consent for the PRD after having determined that the development would not adversely affect the integrity of a European site. In this regard, an Appropriate Assessment has been carried out in accordance with the requirements under Article 6(3) of the Habitats Directive and the provisions of Part XAB of the PDA 2000, as amended. I also refer the Board to the recommended determination under Section 13 below (Appropriate Assessment) which is informed by the Appropriate Assessment report prepared by Dr Maeve Flynn set out in Appendix C.

Scientific Expert Reports

- 11.2.12. During the course of the oral hearing a number of parties presented evidence. Certain scientific experts were also in attendance and presented expert scientific evidence/reports. These have been considered as relevant in both the Section 51 and 49 applications. Copies are placed on the Board's file.
- 11.2.13. At oral hearing, two parties, Mr Gilvarry (Env-13 and FI-4) on day 6 during the Approval Module element, and Mr O'Donnell representing Mr and Mrs Murphy (Sch-9) on day 9 during the CPO module, sought to introduce new information in the format of reports prepared by scientific experts: (i) water quality and protected aquatic species (Mr Gilvarry's submission) and (ii) hydrogeology (Mr O'Donnell representing Mr and Mrs Murphy).
- 11.2.14. These reports had not been presented to the Board in advance of their participation at the hearing and the expert authors of both reports were not available to present their reports or to be questioned by the inspector or the applicant. For these reasons, the inspector did not accept the reports and both parties were made aware of the inspector's decision on this matter at the hearing. The Board will note that in setting the agenda for the hearing, all parties participating in the hearing were requested to submit any written copies of submissions in digital format to the Board two days in advance of their participation. This request was not complied with by the two parties concerned.

11.2.15. While both parties queried the inspector's decision not to accept the aforementioned reports while they were presenting evidence to the oral hearing, the provisions of section 135(2) of the Planning and Development Act 2000, as amended, provides that 'the person conducting the oral hearing of an appeal, a reference or an application, shall have discretion as to the conduct of the hearing'. There was no onus on the inspector to receive new expert information in written format without advance notice including the non-availability of the expert to present their reports and to be available for questioning by the applicant and by the inspector. In both instances the inspector gave the parties the opportunity to have the experts attend the hearing and present their reports later on the day but this did not transpire. In the case of Mr and Mrs Murphy (Sch-9), Mr O'Donnell stated that another expert, Dr Imelda Shanahan, who presented expert evidence on Noise and Vibration and Air Quality, could also present the hydrogeological report in place of the report author. The inspector did not allow this on the basis that it would not achieve the required outcome of allowing the expert who prepared the report to be available to answer questions on it from the applicant and the inspector. Notwithstanding the inspector's decision in this matter, no party was prevented from raising concerns on water quality, hydrology, hydrogeology or related matters as an integral part of their own submissions to the hearing.

11.2.16. Each individual/group who expressed an interest in making a submission was facilitated during the course of the hearing to do so. The option to prepare a written submission and read its content into the record was available to all parties and no party were prejudiced in any way by the decision not to accept additional expert reports that were sought to be submitted at a late stage in the process and in the absence of the expert's presence at the hearing.

Clarifications on Submissions/Objections Received

11.2.17. A submission received from **Ms Stephanie Shine** on the Section 51 application was recorded initially as Env-32 and renumbered to Sch-123 given that Ms Shine was a party to an objection made on the Section 49 application at that time. However, given the issues raised by Ms Shine concern matters which are solely of relevance to the Section 51 Approval Application, and the relevant objection to the Section 49 application was subsequently withdrawn, the issues raised are addressed in the planning assessment and EIA sections of my report.

- 11.2.18. An objection to the Section 49 application (Sch-122) was received in the name of **Reps of Trevor Shier c/o Lowell Shier**. This objection was subsequently withdrawn by Nagle Agricultural consultants acting on behalf of the landowner. A second submission/objection was received in the name of Mr Lowell Shier and was recorded under the Section 51 application (Env-24). As the issues raised by Mr Shier in this submission concern the plot of his landholding that would be the subject of the compulsory purchase acquisition (Plot 126a.102 and 126a.101) if the schemes are approved, I have addressed the submission/objection under my consideration of the Section 49 application in Section 14 below (Assessment of Application for Approval of Schemes).
- 11.2.19. A submission/objection was lodged in respect of the Section 49 application by Ms Megan O’Kelly on behalf of her parents **Francis and Ann O’Kelly** (Sch-34). A second submission/objection was received from FBA on behalf of Francis O’Kelly (Sch-35). At the oral hearing, Ms Finola McCarthy solicitor, of Ronan Daly Jermyn, made a detailed oral submission during both the Section 51 and Section 49 modules. I have dealt with the points advanced in the assessment of both applications. However, to minimise repetition, where issues are dealt with in one or other assessment parts, in general they are not repeated in consideration of the other assessment part.
- 11.2.20. An objection to the Section 49 application (Sch-9) was received from Ciaran Sudway and Associates on behalf of **Bryan Murphy**. At the oral hearing, Mr Michael O’Donnell BL, instructed by William Fry Law firm, represented Mr Bryan and Mrs Iseult Murphy. During the oral hearing, Mr O’Donnell requested that the issues raised and the points made at the hearing would be considered as relevant in the Board’s assessment of both the Section 51 and 49 applications. The inspector agreed to do so. Mr O’Donnell was accompanied by colleagues, Dr Imelda Shanahan and Dr D.P. Leadon who presented expert technical evidence. Mr Murphy also read a statement and participated in the hearing.

11.3. Policy Considerations

Introduction and Background

- 11.3.1. It is submitted by the applicant that the PRD is required to fulfil a hierarchy of major economic, planning and transport policy objectives across European Union, National, Regional and Local Policy and that the fulfilment of these objectives supports the sustainable and economic development of Ireland, the southern region and Limerick City and County.
- 11.3.2. At a **European level**, it is submitted that the primary need for the PRD stems from the European policy to provide TEN-T Core Network standard road infrastructure for access to the Shannon-Foynes Tier 1 Port at Foynes, Co. Limerick, and the TEN-T Comprehensive Network standard road infrastructure on the Limerick to Kerry route.
- 11.3.3. At a **national** level, the key relevant national policy objectives are to support the core port of Shannon-Foynes, to provide efficient and effective transport links to the national road network and to improve the route between Limerick and towns in south-west Limerick through the bypassing of Adare.
- 11.3.4. **Regional** policies are also outlined and include the provision of improved road infrastructure to realise the potential of the Limerick Shannon Metropolitan Area, to support economic growth of the Shannon Estuary and to facilitate a connecting road between Tralee and Limerick city, including a bypass of Adare.
- 11.3.5. At a **local** policy level, it is stated that the PRD is required to provide key transportation links, improve quality of life, improve local journey times and to enhance amenities and heritage within towns, such as Adare, by relieving congestion.
- 11.3.6. **Specific objectives** presented by the applicant include economy, safety, environment, accessibility and social inclusion and integration. It is evident from the information submitted that the existing national road network comprising the N69 road on the core TEN-T network and the N21 on the comprehensive TEN-T network do not meet the TEN-T network requirements and neither do they facilitate the achievement of the policy and objectives outlined above, matters which are expanded on below.

European Policy

Trans-European Transport Network (TEN-T)

11.3.7. European Union (EU) Regulation No.1315/2013 (the TEN-T regulation) sets out the current Trans-European Transport Network (TEN-T) policy that addresses the development of a Europe-wide network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports and railroad terminals.

11.3.8. The ultimate objective is to close gaps, remove bottlenecks and technical barriers and to strengthen social, economic and territorial cohesion in the EU. The policy supports the construction of new physical infrastructure and the application of innovation, new technologies and digital solutions to all modes of transport. The TEN-T comprises two network layers comprising:

- the **core** Network that includes the most important network connections, linking the most important roads and this is to be completed by 2030.
- the **comprehensive** network covers all European regions and is to be completed by 2050.

11.3.9. It is submitted by the European Commission, that when the TEN-T network is complete, it will cut travel times between these cities. The network is available to view on the TENtec Interactive Map Viewer (europa.eu) available at:

<https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html>

11.3.10. Ireland had originally one core layer on the TEN-T network corridor crossing the country, the **North Sea-Mediterranean Corridor** (NSMED), which extends eastwards through Belgium and the Netherlands and westwards through Dublin and Cork, with a connection to Limerick and the core port of Shannon Foynes Port.

11.3.11. The TEN-T regulation places a duty on the Member States of the EU to improve their transport infrastructure, in order to eventually bring all States to a shared EU standard. In terms of EU funding and financing, the TEN-T regulation is directly linked to the Regulation of the Connecting Europe Facility (CEF).

11.3.12. At the oral hearing, the applicant's team outlined that since the withdrawal of the United Kingdom from the EU under Brexit, modifications have been put forward for the Core Network Corridors and as things then stood, Shannon Foynes port was proposed to be included on a further corridor, the Atlantic Corridor, linking Ireland's core ports directly to Le Havre and Saint Nazaire in France. This was represented by

the applicant as Figure 1 - Modified Core Network Corridors under Connecting Europe Facility 2 (CEF 2.0) in the applicant's Brief of Evidence on planning and policy presented to the oral hearing by Ms Maria Woods of LCCC and assisted by Mr John O'Malley of Kieran O'Malley & Co. Ltd. It was also referenced in detail in the submission made by SFPC. At that stage, it was pending regulation. On the 14th of July 2021, subsequent to the oral hearing, Regulation (EU) 2021/1153 of the European Parliament and of the Council came into force and has the effect of establishing the CEF 2.0. The aim of the CEF is to accelerate investment in the field of trans-European networks.

- 11.3.13. Section 3 of the regulation sets out the requirements in respect of road transport infrastructure. Article 17(1)(a) sets out, among other requirements, that the road transport infrastructure shall comprise high quality roads and parking and rest areas with Article 17(3) setting out that such (high quality) roads shall be **motorways**, **express roads** or **conventional strategic roads**. Article 3(a) defines a **motorway** as a road 'specially designed and built for motor traffic, which does not serve properties bordering on it and which is provided, except at special points or temporarily, with separate carriageways for the two directions of traffic, separated from each other by a dividing strip not intended for traffic or, exceptionally, by other means; does not cross at grade with any road, railway or tramway track, bicycle path or footpath and is specially sign-posted as a motorway'.
- 11.3.14. Article 3(b) defines an **express road** as 'a road designed for motor traffic, which is accessible primarily from interchanges or controlled junctions and which prohibits stopping and parking on the running carriageway; and does not cross at grade with any railway or tramway track' and Article 3(c) defines a **conventional strategic road** as 'a road which is not a motorway or express road, but which is still a high-quality road'.
- 11.3.15. Article 19 sets out priorities for road infrastructure development including (a) improvement and promotion of road safety, (b) use of Intelligent Transport Systems (ITS), (c) introduction of new technologies and innovation for the promotion of low carbon transport, (d) provision of appropriate parking space for commercial users offering an appropriate level of safety and security and (e) the mitigation of congestion on existing roads.

- 11.3.16. Article 38(1) identifies the core network by reference to maps contained in Annex 1 and sets out that the core network shall consist of those parts of the comprehensive network which are of the highest strategic importance for achieving the objectives of the TEN-T network policy. Article 38(2) sets out that the core network shall be interconnected in nodes and provide for connections between Member States. Article 38(3) requires that the core network is developed by the end of 2030.
- 11.3.17. Article 39(2)(c) sets out that that the road infrastructure on the core network shall meet the requirements under Article 17(3)(a) (a motorway) or 17(3)(c) (express road), **unless exempted in duly justified cases** under Article 39(3). In addition, it requires the development of **rest areas on motorways** approximately every 100 km in line with the needs of society, of the market and of the environment, in order to provide appropriate parking space for commercial road users with an appropriate level of safety and security. It also requires the availability of alternative clean fuels.
- 11.3.18. Article 41(2) sets out a requirement for maritime ports of the core network indicated in Part 2 of Annex II shall be connected with the **railway and road** (and where possible waterway transport infrastructure of the TEN-T network by 31st of December 2030, save where physical constraints prevent such a connection.
- 11.3.19. Excluding Section B (Ballyclogh to Askeaton), the PRD would otherwise form part of both the core and comprehensive network layers and, accordingly, is clearly required to be a 'Motorway' or an 'Express Road'. Sections A (Foynes to Ballyclogh) and C (Ballyclogh to Rathkeale) would provide 15.6km of Type 2 dual carriageway 'Protected Road' extending from Foynes to Rathkeale and Section D (Rathkeale to Attyflin) would provide 17.5km of dual carriageway motorway from Rathkeale to Attyflin, including the proposed bypass of Adare. The new national roads classification would align with the TEN-T regulations for both the 'core' and 'comprehensive' road types.
- 11.3.20. In relation to submissions raised querying the justification for including a motorway element (instead of a dual carriageway) in Section D, I have dealt with such issues under the heading of '**Project Need and Justification**' and '**Road Design and Construction -Elements of Significance**' in this planning assessment and also under the heading of '**Traffic**' in the EIA section of this report. However, in terms of European policy, which requires either a motorway or express road on the core

network, there is no policy requirement to exclude a motorway as a design response for the PRD, which would form part of the TEN-T core road network.

- 11.3.21. It is evident that the PRD would provide an important part of the TEN-T network in the Limerick area, which in turn would provide for improved integration of the region and of Ireland with the rest of the EU. This is particularly so, in the post Brexit context, where a need for more direct shipping links that bypass the United Kingdom has been identified.
- 11.3.22. In submissions made to the Board on the application and during the course of the oral hearing, it was stated that in line with the Action Plan included in the European Commission's Communication on the **European Green Deal**, a proposal for a revision of the TEN-T regulation was at that time planned in line with the European Green Deal and in that context, the approval of the PRD would be premature and in conflict with the current TEN-T strategic direction. The European Green Deal is a set of policy initiatives approved by the European Commission in 2020 with the overarching aim that the EU would become climate neutral by 2050 and to emit net zero greenhouse gases from that point on. On 9th of July 2021, the European Green deal has more recently been strengthened through Regulation (EU) 2021/1119 (**EU Climate Law**), which enshrines in law the EU's objective of becoming climate neutral by 2050, and the intermediate target of reducing net GHG emissions by at least 55% by 2030 when compared to 1990.
- 11.3.23. In May 2021, and since the oral hearing, the EC carried out an evaluation of the Regulation (EU) No.1315/2013 (May 2021) and delivered a report (Commission Staff Working Document Evaluation of the Regulation (EU) 1315/2013 on Union Guidelines for the development of a trans- European transport network). It is stated in the Evaluation Report, that by implementing the core network, the highest benefits can be gained for wider transport policy objectives, including decarbonisation objectives and user benefits through reduced transport times and lower transport cost. It is also stated in the report that the TEN-T performance on such indicators as modal shift, better quality, spreading of electric fleet is dependent on co-ordinated efforts in TEN-T and related policy. The report sets out that the development of the dual layer TEN-T network with the core and the comprehensive networks remains relevant on the path towards completion aimed for 2030/2050.

11.3.24. In relation to the objective of zero GHG emissions by 2050, the evaluation found that mobility necessitates a wide range of new initiatives within and across **all** transport modes, but that these can only achieve full benefit when built on a strong EU-wide infrastructure policy. Under a heading of 'lessons learnt', it is stated that the **'reduction of transport emissions by 90% by 2050 cannot be achieved without a proper TEN-T network allowing for greener transport'**. The evaluation carried out found that there is a need for an integrated network approach and to identify measures to ensure completion of the network on time. In this regard, it is very clear that the outcome of the TEN-T regulation evaluation has in fact strengthened the policy support for the development of the core and comprehensive components of the TEN-T network for all modes of transport, including road-based transport. More recently again, in December 2021, the Commission brought forward a legislative proposal for a regulation for the European Parliament and of the Council on Union Guidelines for the development of the TEN-T transport network proposing to amend Regulation (EU) 2021/1153⁵ and Regulation (EU) No 913/2010⁶ and repealing Regulation (EU) 1315/2013⁷. Currently the aforementioned legislative proposal is with the European Parliament and Council of the EU for its consideration. If approved, the aim of the proposed TEN-T regulation is to build an effective EU-wide and multimodal network of rail, inland waterways, short sea shipping routes and roads which are linked to urban nodes, maritime and inland ports, airports and terminals across the EU.

11.3.25. The problems addressed by the revision are identified as including an insufficient and/or incomplete TEN-T infrastructure standard and a lack of integration of standards for alternative fuels infrastructure on the TEN-T with negative impacts on climate and environment. It is set out in the proposal that the TEN-T policy seeks to 'build a reliable, seamless and high quality trans-European transport network which ensures sustainable connectivity throughout the EU without physical gaps, bottlenecks or missing links by 2050. This network will contribute to the good functioning of the internal market, to the economic, social and territorial cohesion of

⁵ Regulation (EU) 2021/1153 of the European Parliament and of the Council of 7th of July 2021 establishing the Connecting Europe Facility

⁶ Regulation (EU) No 913/2010 of the European Parliament and of the Council of 22nd of September 2010 concerning a European rail network for competitive freight

⁷ Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11th December 2013 on Union guidelines for the development of the trans-European transport network

the EU territory and to the European Green Deal objectives. It should be gradually developed in steps, with intermediate deadlines in 2030 and 2040’.

11.3.26. The TEN-T policy’s stated aims are that of reaching four main objectives that include:

- making transport greener by providing the appropriate infrastructure basis to alleviate congestion and reduce GHG emissions and pollution of air and water by making **each mode of transport** more efficient **and** by enabling increased transport activity by **more sustainable forms of transport**;
- facilitating seamless and efficient transport by removing bottlenecks and missing links and improving multimodality and interoperability;
- striving to increase the resilience of TEN-T to climate change and other natural hazards or human-made disasters with costs of greenhouse gas emissions are integrated in the cost-benefit analysis;
- improving the efficiency of the TEN-T governance.

11.3.27. In relation to road transport, Item 48 of the proposal states that road transport accounts for three-quarters of the total inland freight transport and for 90% of the total inland passenger transport. It notes the importance of road transport and the commitment to improve road safety in line with the milestone of the ‘**Sustainable and Smart Mobility Strategy (2020)**’, stating that there is a need to improve the safety of the road infrastructure. The standards and requirements of the proposed new TEN-T regulation are directly connected with the relevant objectives of other transport sector/fields, including EU legislation on road safety.

11.3.28. In relation to the **comprehensive network**, under the proposed new TEN-T regulation, it is stated that this should be a Europe-wide transport network ensuring accessibility and connectivity of all regions in the Union, including the outermost regions and other ‘remote, rural, insular, peripheral and mountainous’ regions as well as sparsely populated areas, and strengthening social, economic and territorial cohesion between them.

11.3.29. In the context of the pressing need to reduce GHG emissions, the delivery of the TEN-T network evidently remains a key pillar in achieving a high-quality and safer road network to allow for greener transport brought about by reduced congestion,

improved flow of traffic and corresponding reduction in transport emissions. It is clearly evident that road transport will continue to be a major component of transport across Ireland and the EU into the future and as submitted by the applicant, the PRD would allow for improved, safer and more efficient and infrastructure for public and private vehicles. By 2030, the aim is to have at least 30 million zero-emission cars in operation on European roads.

TEN-T network - Ports

- 11.3.30. There are four ports on the TEN-T Core Network, Dublin, Belfast, Cork and Shannon-Foynes and, as stated above, Shannon-Foynes is on both the NSMED Core Network Corridor and the post-Brexit Atlantic corridor. Article 41(2) of the TEN-T regulations require Member States to ensure that ‘Maritime ports of the core network shall be connected with the railway and road and, where possible, inland waterway transport infrastructure of the trans-European transport network by 31st December 2030, except where physical constraints prevent such connection’.
- 11.3.31. SFPC who operate Shannon Foynes port made a written submission on the application and presented a further submission at the oral hearing. The company’s chief executive officer, Mr Pat Keating, and a team of specialists (Mr Garry Rowan of HRA Planning, Mr Colm McCarthy, an economic consultant, Mr William Batt of Indecon International Economic Consultants and Mr Christy O’Sullivan of ILPT Consulting) led by Mr Eamon Galligan SC asserted that the inclusion of the port on the core network is of the highest level in the context of nine core corridors overall in the EU. The Port company representatives also stated that the elevation attributed to Shannon Foynes Port indicates the strategic importance that the EU places on the port in the post-Brexit context and that Ireland is in a unique position to support further development of the NSMED and Atlantic corridors. SFPC also submitted that the PRD would provide the necessary road infrastructure to deliver the required standard of access to the port, as well as providing an efficient and safe link to the national road network at Limerick to enable the port to deliver its planned growth.
- 11.3.32. It is asserted by a number of observers, that the proposed TEN-T regulation requires the maritime ports on the core network to be connected with the railway. This is fully acknowledged. However, this requirement does not displace the parallel requirement for the core ports to also be connected to the TEN-T road infrastructure, noting and

as set out above, the TEN-T policy requires the connection of maritime ports on both the core and comprehensive TEN-T networks to both rail **and** road infrastructure. In relation to a submission by Mr Simon White and others (Env-31 and FI-8) that if the rail was delivered, the requirement of the road would disappear, I do not share that view, having regard to the demonstrated need for the road infrastructure as part of the TEN-T network.

TEN-T network – Rest Area

- 11.3.33. Article 30(2)(c) of the TEN-T regulation sets out a requirement for ‘rest areas’ on motorways approximately every 100km, including a requirement to provide appropriate parking space for commercial road users with an appropriate level of safety and security. It also requires the availability of alternative clean fuels.
- 11.3.34. In respect of the PRD for which approval is sought, a rest area for HGVs is proposed to be sited at the western terminal of the route at Shannon-Foynes port. It would provide parking for up to 35 HGVs and would provide an area for drivers to rest and to use shower and toilet services and would achieve the requirement of the TEN-T regulation set out. I have reviewed the rest area in more detail in consideration of national policy below.

Ports 2030 – Gateways for the Trans European Transport Network

- 11.3.35. This document is broadly a communication and implementation plan for the TEN-T policy on maritime ports. It sets out that ports will have a key role to play in the development of an efficient and sustainable TEN-T network by diversifying transport choices and contributing to multimodal transport. It provides a list of the 328 TEN-T maritime ports by country, including Shannon Foynes port as a core port on the TEN-T network.

Closing Comment on European Policy

- 11.3.36. It is clear that Europe’s transport systems are on a pathway towards achieving sustainable and smart and resilient mobility. This is set out in the ‘Sustainable and Smart Mobility Strategy’ and together with the TEN-T policy has a collective aim to make all transport modes more sustainable. Road infrastructure continues to form a key strategic element of the TEN-T network and the PRD would form part of both the core and comprehensive network components in a partially combined arrangement. The delivery of the PRD serving the core and comprehensive components of the

TEN-T network is clearly supported by the current and evolving European policy, including climate policy.

National Policy

National Planning Framework and National Development Plan 2018-2028 (Project Ireland 2040 – Building Ireland’s Future)

- 11.3.37. The **National Planning Framework (NPF)** was published on the 16th of February 2018, in tandem with the then ten-year **National Development Plan 2018-2027 (NDP)**, and they are collectively referred to as ‘**Project Ireland 2040 – Building Ireland’s Future**’. The NPF envisages a population increase of between 340,000 and 380,000 (National Policy Objective (**NPO**) **1b**) and an increase of around 225,000 additional people (i.e. 880,000 in total) by 2040 in employment (**NPO 1c**) in the Southern region by 2040. Under Section 4.3 (Planning for Ireland’s Urban Growth) and **NPO 2a**, the NPF envisages the four cities and suburbs of Cork, Limerick, Galway and Waterford to **each** grow by at least 50% to 2040 and to enhance their significant potential to become cities of scale.
- 11.3.38. Limerick City and suburbs has a recorded population of 94,000 in 2016 and the minimum target for 2040 is 141,000. **NPO 3b** sets out the objective to ‘deliver at least 50% of all new homes that are targeted in the five cities and suburbs of Dublin, Cork, Limerick, Galway and Waterford’.
- 11.3.39. The NPF includes two national strategic policy objectives (NSOs) of relevance to the assessment of the PRD including:
- **NSO 2** (Enhanced Regional Accessibility): ‘Inter-Urban Roads’ - maintaining the strategic capacity and safety of the national road network, including planning for future capacity enhancements;
 - **NSO 6** (High-Quality International Connectivity): ‘Ports’ - improve land transport connections to the major ports, including enhancing road connectivity to Shannon-Foynes port, including local bypasses.
- 11.3.40. The support for the sustainable growth of Shannon-Foynes port, which is relevant in this assessment, in addition to **NSO 6** referred to above is also expressed through **NPO 39** (Support the sustainable growth and development of the maritime economy) of the NPF. In consideration of this objective, the NPF sets out that there are major

redevelopment projects taking place at our Tier 1 ports (i.e. Dublin, Cork and Shannon-Foynes) at present and that these developments will result in a greater concentration of traffic through these ports, with implications for shore-based and marine-based infrastructure’.

- 11.3.41. While the PRD would be delivered in Limerick, it would also improve accessibility to Kerry. Kerry County Council expressed support for the proposal stating that it would make Kerry a more attractive place in which to live, work and provide employment while also enhancing Kerry’s tourism sector and stated that the proposals are consistent with the NPF and in particular **NSO 2** and **NPO 39** that I have referred to above.
- 11.3.42. Under ‘key future growth enablers for Limerick’ the need for ‘enhanced road connectivity to Shannon Foynes Port, including local by-passes’ is set out.
- 11.3.43. The **National Development Plan 2021-2030 (NDP)** sets out the investment priorities that underpin the implementation of the NPF, through a total investment of approximately €165 billion for the ten-year period specified. The NDP is stated to have been designed to ensure that it supports the Government’s climate ambitions which are included in the plan alongside a requirement for 2:1 investment in favour of public transport including cycling/walking options. Major road projects, including the current PRD (N21/N69 Limerick to Adare/Foynes) are included. The reinstatement of the Foynes to Limerick rail freight corridor is also prioritised under the NDP, on the basis that it would also strengthen access routes to Shannon Foynes port.
- 11.3.44. The NDP includes investment allocation for BusConnects to be brought forward in Dublin, Cork, Galway, Limerick and Waterford, while around €350 million is allocated to renew and expand rural and regional buses. In addition, the Government has committed to ensuring there are almost one million electric cars travelling on Irish roads by 2030, contributing to a 51% reduction in emissions by 2030.
- 11.3.45. At the oral hearing, Mr Tony Lowes for Friends of the Irish Environment (Env-35) stated that the NDP is not a plan or programme within the definition of the Strategic Directive (2001/42/EC) (Strategic Environmental Assessment Directive) but rather is a budgetary plan. I am satisfied that it is the complementary document to the NPF setting out the investment priorities, and it is clearly of relevance that the PRD is

included in the NDP. Both the NPF and updated NDP collectively form '**Project Ireland 2040 – Building Ireland's Future**'.

National Ports Policy (Department of Transport, Tourism and Sport 2013)

11.3.46. This policy sets out categorisation of ports under three categories comprising:

- Ports of National Significance (Tier 1);
- Ports of National Significance (Tier 2);
- Ports of Regional Significance.

11.3.47. As stated above, Shannon-Foynes port is one of three ports that fall within the category of a port of national significance (Tier 1) and the document notes the importance of the transport network to accommodate large volumes of traffic with connections to the TEN-T core road and rail networks. Section 4.4 of the document notes that 'effective hinterland connections are critically important to any port's ability to facilitate large volumes of traffic'. In its submissions in written format and at the oral hearing, An Taisce (Env-3 and FI-1) represented by Mr Ian Lumley and Ms Phoebe Duvall put forward a view that the Tier 1 status assigned to Foynes is a false representation of the importance of the port because the majority of bulk cargo from Foynes would be rendered obsolete when sustainable energy and resource use provisions are properly applied. Reference was made in their submission to the reduction of coal imports which it is stated would occur because of the closure of Moneypoint electricity generating station and the inevitable decline in agricultural imports, liquid fuel and construction imports. It is also submitted by An Taisce that in any event the cargo should be directed onto rail transport. Similar points were expressed by Mr Simon White (Env-31 and FI-8).

11.3.48. At the oral hearing, Mr Colm McCarthy on behalf of SFPC provided an economic assessment on the need for the PRD to support the development of the port. In his submission, he included an outline of the past decrease of the use of the railway line until the service closed in 2002. He stated that freight has been a declining business for Irish rail in recent decades and in his evidence, he included a chart showing the total annual rail tonnages across the State from 1975 and 2017 (CSO). He stated that tonnages peaked in 1978 with 3,800,000 tonnes after which a steady decline occurred over the years with the lowest at approximately 600,000 across all years

from 2017 to 2020 and 346,000 in 2019. Mr McCarthy also stated that the total tonne-kilometres carried by rail in Ireland currently is below 1% of the road freight volume. He provided an explanation for the decline on the fact that Ireland is a small country with few high-volume internal trip lengths of 200 kilometres with bulk commodities such as coal or iron ore largely absent. He also pointed out that Northern Ireland has discontinued rail freight altogether. He expressed a view that while SFPC has stated its support for the reopening of the railway line, it would be unlikely to pass a cost-benefit evaluation, essentially because of sufficient passenger volume.

11.3.49. While it is acknowledged that the cargo volume transported by rail has fallen, there is policy support for reversing this trend. As set out in the recently published **Rail Freight 2040 strategy (Irish Rail)**, the reinstatement of the rail connection to Shannon Foynes port is seen as fundamental to the growth objectives for both intermodal and bulk traffic at the port as part of improving connectivity along the western seaboard. I note in particular that the strategic document sets out that reinstating the line would give customers more options and support projected traffic growth resulting from mining, power generation and container transport in the region as well as passenger services which could be provided along the route at a later date. In respect of Foynes, the target set out is for 2% to 6% of the container market by rail nationally within two years aiming to grow this significantly to deliver an alternative to Dublin Port in the longer term.

11.3.50. In relation to the concerns raised by observers and An Taisce that agricultural related cargo throughput would decline due to a reduction in the national dairy herd and reduced use of fertilisers, Mr McCarthy set out that Ireland does not consume vast quantities of dairy products since most output is exported. He also stated that Ireland is a low-cost and low-carbon producer of livestock products relative to EU and is of the view that the volume of emissions debited for agriculture may be revised downwards. In relation to coal and liquid hydrocarbon fuels, he stated that heavy fuel could disappear from the generation mix. He clarified that coal volumes have almost all come through Moneypoint rather than Shannon Foynes and therefore the closure of Moneypoint is not material in that regard. Mr McCarthy further stated that aviation and marine transport would take longer to convert to green fuels. He referred to the provision of importation and support services for the

offshore wind industry as a source of new business for Foynes. He also outlined that there is a possibility of transfer of Limerick Dock cargo volumes that could be accommodated at Shannon Foynes, though this point was not further advanced in his Brief of Evidence.

- 11.3.51. Mr William Batt (Indecon International Economic Consultants) provided an overview of a socio-economic assessment of the PRD. He outlined that the port handles 18% of the throughput of goods moved through the State with a value of €7.7 billion annually. He advanced his view of the strong economic rationale for the delivery of the PRD stating that it would enable Shannon-Foynes Port to develop into the future, responding to Brexit implications by offering direct services to Europe and by acting as a catalyst for wider economic development.
- 11.3.52. Evidence on traffic presented by Mr Christy O'Sullivan (ILPT Consulting) on behalf of the port company outlined that the N69 would become more congested and progressively less suitable to accommodate the port's access needs, resulting in increase in travel times and reduction in journey reliability if the PRD was not realised. He reaffirmed the stated need for the development to facilitate the growth of the port to sustain the Tier 1 port located on the TEN-T core network.
- 11.3.53. Mr Garry Rowan (HRA Planning) noted that the policy document acknowledges Shannon Foynes port as the largest bulk port in the country handling 20% of all sea borne trade and 63% of dry-bulk cargo in the State and that it acknowledges the diversification by SFPC into other sectors.
- 11.3.54. Having reviewed the relevant policy outlined above and having taken account of the evidence presented by observers outlined above and the evidence presented by SFPC team at the hearing, it is clear that the port falls within a Tier 1 category and there is no objective basis to conclude that this is an incorrect assignment. It is also clear that the inclusion of Shannon Foynes port on both the NSMED Corridor and the Atlantic Corridor under Regulation 2021/1153 (CEF 2.0) strengthens its position an important connection with Europe and the delivery of the PRD would align with the strategic context of the port.
- 11.3.55. I also note that NSO 6 (High Quality International Connectivity) of the NDP 2021-2030 list the completion of Shannon Foynes port as a major investment. Under the heading of Ports, also in the NDP, it notes the major capital infrastructure

programmes ongoing in Tier 1 ports, including Shannon Foynes. It is set out that these will enhance national and international connectivity and provide for increases in trade and increased tonnage and throughput.

11.3.56. It is also clear that the delivery of the PRD would provide the necessary infrastructure to accommodate the HGV traffic to and from the Port on a TEN-T core road network and would provide for improved and effective connections.

11.3.57. I am very mindful, as outlined above, that there is also a requirement that the TEN-T regulation requires maritime ports on the core network to be connected to the railway by December 2030 and those on the comprehensive network to be connected to the railway by December 2050 as part of the TEN-T wider objective to build an effective EU-wide and multimodal transport network. The requirement for rail freight is strengthened at a national level through **Rail Freight Strategy 2040** recently launched by Irish Rail and referred to above. The current proposal would not preclude the achievement of this parallel requirement. However, it is clear that even with the delivery of the rail, a high-quality road connecting the port to the national road network would remain a much-needed priority in line with the TEN-T regulation and national objectives. Rail Freight Strategy 2040 notes that by 2040, HGV traffic is projected to increase nationally by 74% over 2016 levels.

11.3.58. Overall, the delivery of the PRD would greatly assist in the achievement of the policy set out in support of Shannon Foynes port in its context as a Port of National Significance (Tier 1).

Programme for Government – Our Shared Future 2020

11.3.59. In relation to new transport infrastructure set out in the Programme for Government, the Government states its commitment to a 2:1 ratio of expenditure between new public transport infrastructure and new roads over its lifetime. It is also stated that the Government will **‘continue to invest in new roads infrastructure to ensure that all parts of Ireland are connected to each other’**. Under the heading National Development Plan (Page 26), the recognition of improved connectivity to deliver economic prosperity and environmental sustainability is set out. It is also set out under the same heading that the process of review of the NDP and updating the NPF will not frustrate or delay existing projects. As set out above, the PRD is

specifically included in the NDP 2021-2030, and it is therefore clearly evident that the delivery of the PRD remains a national priority.

Spatial Planning and National Roads: Guidelines for Planning Authorities, DoECLG 2012

- 11.3.60. These guidelines state that the primary purpose of the national road network is to provide strategic transport links between the main centres of population and employment, including key international gateways such as the main ports and airports, and to provide access between all regions. It is set out that considerable investment has been made in the national road network to date and the importance of maintaining the efficiency, capacity and safety of the network is emphasised. 'Strategic Traffic' is defined as 'major inter-urban and inter-regional traffic which contributes to socio-economic development and to the transportation of goods and products, especially traffic to/from the major ports and airports'. The Guidelines state that the planning system must ensure that the strategic traffic function of national roads is maintained, and that Development Plans must protect the capacity, efficiency and safety of these roads. Guidance is also provided in terms of the location of on-line motorway service areas, which it is stated are brought forward by local authorities/TII and that they should incorporate parking and facilities for refuelling, refreshment and toilet facilities. It is also submitted that the service areas are designed to discourage infrastructure becoming destinations in their own right.
- 11.3.61. The delivery of the PRD as a key strategic national road infrastructure element would align with the intention of the guidelines set out above, particularly in providing strategic transport links between Limerick, Foynes and the southern region.

National Roads Authority Service Area Policy (2014) and DN-GEO-038 – Location and Layout of Service Area (2017)

- 11.3.62. I have outlined the requirements for parking and rest areas under the heading of TEN-T network-Rest Areas above. At a national level, the NRA 'Service Area Policy' (2014) sets out the proposed location and types of service areas envisaged on the national road network. It envisages that the Limerick to Foynes road would include a Type 1 Service area and the precise location would be determined as part of the scheme development in consultation with TII, although it is set out that it may be near the port of Foynes. By way of comparison, Type 2 Service Areas are smaller

rest areas and include 'a small-scale service area providing parking, picnic and toilet facilities but without a main amenity building or fuel facilities'.

11.3.63. The later TII design publication, 'Location and Layout of Service Area' (2017) introduced a third Service Area Type, Type 1(Terminal) Service area. This type of service area is defined in Section 1.4 of the document as 'a service area located in the vicinity of the terminal of a route, within or adjacent to a port or similar facility, designed to provide appropriate safe and secure parking for commercial vehicles'. Terminal service areas are envisaged to contain amenities and facilities to cater primarily for the needs of commercial traffic appropriate to the level of demand expected at the particular location subject to the approval of TII. It is this third category of service area that is proposed as part of the PRD and its function and use readily fits the category. Section 4 of the aforementioned TII design standard provides further detail on the general layout and design of the Service area.

11.3.64. I am satisfied that the Service Area (Type 1 – Terminal) Service Area proposed aligns with applicable TII Policy and the design is considered appropriate.

Road Safety Strategy (2021-2030)

11.3.65. The recently published road safety strategy has an ambition of reaching 'Vision Zero' which is a long-term goal aimed at eradicating road traffic deaths and serious injuries by 2050 through a safe systems approach delivered through seven priority interventions. The interventions comprise **safe roads and roadsides**, safe vehicles, safe road use, post-crash response, safe and healthy modes of travel and safe work-related road use. As an interim measure, the strategy seeks to adopt a transformational and partnership-based approach to road safety to achieve a 50% reduction in deaths and serious injuries by 2030. The strategy is accompanied by the 2021-2024 action plan which sets out high-impact actions. Under the action of safe roads and roadsides, an included action is to increase the length of divided roads on the National Primary Network from 1,310km (2020) to 1,366 km (2024). The PRD would help achieve this action, by providing a safer road with separate/divided carriageways and it would assist in delivering the wider vision of reducing road deaths and serious injuries. The matter of road safety is revisited in the EIA section under consideration of 'Population and Human Health' in Section 12.7 of the EIA section below.

Smarter Travel – A sustainable Transport Future (2009-2020)

- 11.3.66. The aim of the Smarter Travel document is to encourage sustainable travel choice and to ensure that there are real alternatives to the private car mainly through an improved public transport service and investment in cycling and walking. Action 4 requires the delivery of public transport, cycling and the promotion of more sustainable travel patterns, generally in many existing urban centres. Action 12 seeks to implement more radical bus priority and traffic management measures to improve the punctuality and reliability of bus services and to support more efficient use of bus fleets. Under the heading of Roads (p.51), it is stated that the investment in roads would remove bottlenecks, ease congestion and pressure in towns and villages and provide the necessary infrastructural links to support the National Spatial Strategy⁸.
- 11.3.67. It has been asserted by observers that increasing road capacity can have an undesirable effect of attracting more road-based transport. This point was articulated by Mr Duncan Stewart (Env-36) and also by Mr Ian Lumley (Env-3 and FI-1) for An Taisce at the oral hearing. However, as set out in the EIAR and at the oral hearing, the applicant contends that the PRD is first and foremost necessary and it would result in more reliable, safer and an improved journey amenity. In turn, I agree as is also asserted by the applicant that the PRD can provide an improved infrastructural basis for road-based public transport as a meaningful alternative to the private vehicle and therefore offer the travel choice envisaged in Smarter Travel. The removal of traffic from the existing towns and villages along the N21 and N69 and the consequential removal of congestion particularly in Adare, would also allow these urban centres to be revitalised and connected along quieter local roads, while also allowing communities to access an improved bus service.
- 11.3.68. It has also been suggested in submissions received by observers, including An Taisce (Env-3 and FI-1) and Mr Ian Gilvarry (Env-13 and FI-4) that the PRD would not support alternative sustainable modes, for example walking, cycling or rail. It is true to say that there is no cycling or pedestrian infrastructure put forward as part of the proposal. However, I do not believe the provision of such infrastructure alongside a strategic road comprising dual carriageway and motorway infrastructure as part of

⁸ The National Spatial Strategy has since been replaced with the National Planning Framework.

the core and comprehensive components of the TEN-T network would be safe, pleasant or appropriate. I fully recognise and acknowledge the need to promote and support active travel in the form of cycling and walking, but not in my view as a replacement to the TEN-T core and comprehensive road infrastructure. The segregation of higher speed road traffic from local traffic would improve safety for all road users including vulnerable road users in particular. As set out above, the PRD would support the delivery of road based public transport, including bus and taxi transport. I have also set out that the delivery of the PRD as part of the road-based infrastructure is binding under the TEN-T regulations but does not in any way preclude the upgrading of the rail network or the delivery of dedicated/ alternative walking and cycling routes. It is clear at all policy levels that road and rail infrastructure are both required.

National Cycle Policy Framework (2009-2020)

- 11.3.69. This document creates a vision that all cities, towns, villages and rural areas would be bicycle friendly and cycling would be a normal way to get about, especially for short trips. Chapter 2 includes Interventions – Planning and Infrastructure. These include reducing volumes of through traffic, especially HGVs, in city and town centres, and provision of dedicated signed rural cycling networks.
- 11.3.70. As set out in Chapter 4 of the EIAR and in Mr MacGearailt's Brief of Evidence at the oral hearing, with the PRD in place, there is potential for the adjoining rural local road network to cater for safe and pleasant cycling on a route generally in parallel with the PRD. While these local roads would not be exclusively for cycling or pedestrians, the volume of traffic would be much reduced, and the speeds of traffic movement would also be lower. Beyond this, cycling routes can be separately brought forward by LCCC. Alternative routes for cyclists and pedestrians in the general area are illustrated in Plates 4.5 to 4.52 of Chapter 4 of the EIAR.
- 11.3.71. The Limerick Greenway recreational walking and cycling route forming part of the Great Southern Trail Greenway (comprising the Limerick Greenway and North Kerry Greenway) has been partly developed along the former railway line from Rathkeale westward to Newcastle West and Abbeyfeale, for a distance of approximately 40km and opened to the public in July 2021. It is proposed to extend this route eastward to

Limerick City and westward through County Kerry to Tralee as part of the wider Great Southern Trail Greenway.

11.3.72. The PRD would overlap with this proposed greenway route over a distance of approximately one kilometre, north of Rathkeale. Provision has been made in the design of the PRD for the extension of the greenway, through inclusion of a 6m wide corridor along the road embankment, where the PRD would encroach on the former railway reservation. An underpass is proposed at ch.28+250, where the future greenway extension would cross the PRD. The diversion is shown on Plate 4.24 in the EIAR and based on a review of the details provided, I note that the PRD has been designed to ensure that the delivery of the proposal to extend the Limerick Greenway and the wider Great Southern Trail Greenway through Limerick and north Kerry would not be hindered.

11.3.73. Overall, I am satisfied that separating strategic traffic away from local road users would result in an indirect benefit for pedestrians, cyclists and other vulnerable road users who can continue to use existing roads. As I have outlined above, the bringing forward of additional walking/cycling infrastructure would not be impeded by the delivery of the PRD.

Note: Sustainable Mobility Policy review

11.3.74. The Department of Transport are currently reviewing sustainable mobility policy and have undertaken public consultation. The review will result in the development of a new 10-year sustainable mobility policy framework. It will replace the existing sectoral policy documents which were published in 2009 - Smarter Travel: A Sustainable Transport Future 2009-2020 and the National Cycle Policy Framework 2009-2020.

National Biodiversity Action Plan (2017-2021)

11.3.75. The National Biodiversity Action Plan 2017-2021 published by the Department of Culture, Heritage and the Gaeltacht sets out the objectives, targets and actions for biodiversity to be undertaken by a wide range of government, civil society and private sectors to achieve Ireland's vision for Biodiversity. This plan provides a framework to track and assess progress towards Ireland's vision for Biodiversity over a five-year timeframe from 2017 to 2021. Seven objectives are identified, and these are underpinned by specific targets.

- 11.3.76. The plan includes the following vision: ‘That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally’.
- 11.3.77. Of note, TII are identified as lead/key partners in Target 4.4 ‘Harmful invasive alien species are controlled and there is reduced risk of introduction and/or spread of new species’ listed below (part of overall Objective 4 Conserve and restore biodiversity and ecosystem services in the wider countryside).
- 11.3.78. The actions associated with the target include:
- Action 4.4.2: Develop national and whole island plans to implement the EU Invasive Alien Species (IAS) Regulation and relevant sections of Ireland’s EU (Birds and Natural Habitats) Regulations 2011, including: development and adoption of biosecurity plans in relevant state bodies; a Rapid Response Protocol for the island of Ireland; coordination and collation of invasive species surveillance and monitoring data; and work with Northern Ireland and UK authorities on invasive species of mutual concern;
 - Action 4.4.3: Continue and enhance measures for eradication, where feasible, control and containment of invasive species;
 - Action 4.4.4: Encourage horticultural nurseries to produce native species, varieties and landraces from appropriate native sources for public and private sector plantings. Public bodies will endeavour to plant native species in order to reduce importation of non-native species, varieties and landraces.
- 11.3.79. The plan is addressed in the EIA and AA sections of the assessment below.

Regional Policy

Regional Spatial & Economic Strategy for the Southern Region (2019-2031)

- 11.3.80. The ‘Regional Spatial & Economic Strategy for the Southern Region’ (2019-2031) (RSES) supports the implementation of national policy at a regional level. A number of regional policy objectives (RPOs) are set out. The ‘N21/N69 Foynes to Limerick Road Scheme (including Adare Bypass)’ is included under **RPO 167** (National Road Projects). **RPO 146** (High Quality International Connectivity – Ports) refer to the need to strengthen and maintain access to ports through enhanced transport networks

and improved journey times and includes support for the PRD. **RPO 140** (International Connectivity) supports the enhancement of the region's international connectivity including the TEN-T of railway lines, roads, inland waterways, maritime shipping routes, ports, airports and railroad terminals. **RPO 142** (strengthen investment to deliver actions under National Ports Policy) requires the support and strengthening of Tier 1 ports.

- 11.3.81. A Metropolitan Area Strategic Plan (MASP) for Limerick is included in the RSES and an extract of Map 3.4 of the RSES was presented by the applicant at the oral hearing. At this point, it is of relevance to recap that the NPF supports an ambitious population growth target for Limerick of 50% by 2040. The RSES predicts populations of 159,136 and 172,188 for the Limerick Shannon MASP Area for the years of 2026 and 2031 respectively against a 2016 baseline of 132,420.
- 11.3.82. Under **Objective 8** 'Strategic Road Infrastructure' of the RSES, the Foynes to Limerick Road Scheme (including Adare Bypass) is listed as a project to deliver the sustainable development of strategic road infrastructure for the Limerick Shannon Metropolitan Area and to improve transport connectivity to the wider region. The PRD is also listed as a transport investment priority for the Southern Region as a point within Transport Objective D of Section 6.3.6.4 of the RSES which sets out to 'Support inter-regional connectivity with the metropolitan area, enhanced road connectivity to Shannon-Foynes Port, including local by-passes via Foynes to Limerick (including Adare bypass) National Road Scheme'.
- 11.3.83. **Section 8.6** of the RSES sets out support for the continued development of Shannon Foynes port and promotes the inclusion of the port onto the EU core network corridor as it brings significant investment opportunities in the form of foreign direct investment (FDI) potential and as well as supporting enhanced connectivity with Ireland's European partners. Limerick Shannon MASP Policy Objective 16(b) sets out an objective to support and promote the inclusion of Shannon Foynes Port onto the EU core network corridor, as it would bring significant investment opportunities to the region.
- 11.3.84. The PRD is clearly supported by a host of policies and objectives contained in the RSES, as outlined in summary above. It would improve access and connectivity in the region and between the region and the wider area and serve to enable the

planned growth of Limerick city to the scale envisaged while supporting European and international connectivity through Shannon-Foynes port.

Mid-West Area Strategic Plan (2012 – 2030)

- 11.3.85. The Mid-West Area Strategic Plan (MWASP), prepared by LCCC, is stated to have been developed to contribute to the policy framework which will guide the physical and spatial development of the region to 2030. The plan includes 13 national road recommendations including recommendation no.4 'construct the Adare Bypass, improve the Foynes Port Link' (p.70) and no.13. 'Upgrade road access to Foynes Port to Motorway standard' (p.77). The PRD would align with the relevant recommendations outlined with regard to road infrastructure.

Draft Limerick Shannon Metropolitan Area Strategic Transport Strategy 2040

- 11.3.86. The Limerick Shannon Metropolitan Area Strategic Transport Strategy (L-SMATS) document was prepared by the NTA, TII, LCCC and Clare County Council. It sets out a framework for investment in transport for the Limerick-Shannon Metropolitan Area for the next 20 years and includes proposals for the significant development of the cycle network and enhancement of bus services and infrastructure. It includes an objective (Objective RS4 National Roads) to deliver the N69/M21 Foynes to Limerick Road (including Adare Bypass) to TEN-T standard and the PRD is therefore supported by policy outlined in this transport strategy for the Limerick Shannon Metropolitan area. It is acknowledged that this strategy is at draft stage and as yet is not finalised.

Strategic Integrated Framework Plan for the Shannon Estuary (2013 – 2020)

- 11.3.87. The Strategic Integrated Framework Plan for the Shannon Estuary sets out an overall strategy for the proper sustainable growth, development and environmental management of the Shannon Estuary Region for the next 30 years. The N69 is highlighted as being a strategic transport corridor providing key connections and linkages. It states that TII has instructed Limerick City and Council to progress the Foynes to Limerick major road improvement scheme. It is evident that the PRD would align with the objectives set out in this plan and would also improve access at a number of strategic designated locations, including marine related and tourism uses set out in the plan.

Shannon-Foynes Port Company Masterplan – Vision 2041 (2013)

- 11.3.88. The Shannon-Foynes Port Company Masterplan – Vision 2041 prepared by SFPC is a thirty-year masterplan setting out a port development strategy that is aligned with all stakeholder interests for the Port of Foynes. Chapter 8 (Transport and Connectivity) sets out the deficiencies of the existing road network, stating that it has been a long-term objective of SFPC to support the development of a new link road between the N69 and the N21 which would provide for a high-quality link between the routes. The masterplan outlines that throughputs for Foynes were projected at up to five million tonnes per annum in 2041. At the oral hearing, Mr Keating for SFPC, in acknowledging that cargo mix would inevitably change over time, with some cargos likely to decline, set out that the business development pipeline is likely to surpass the growth identified in Vision 2041. He stated that in addition to the growth of existing cargos, new business growth would realise in the area of wind turbines for the envisaged offshore renewable energy and alternative fuel transshipment/production, environmentally friendly/more sustainable agricultural fertilisers, establishing a Foynes logistics hub and a global transshipment facility for intermodal cargos. It was also stated the expectation is that Foynes Port could accommodate between 30 and 50 cruise calls per annum by 2025. With average passengers per call of between 1,500 and 2000 passengers this equates to a lower end of 45,000 tourists per annum and the PRD would improve connectivity for cruise operators. At the oral hearing, SFPC stated that a failure to develop the road would result in a predicted loss of trade from Foynes port of €6.1 billion in present value terms over the period 2020-2041.
- 11.3.89. It is evident that there are realistic expectations for a major increase in freight movements through the port. It is also evident that the growth of the port is currently constrained by the poor-quality road access and the provision of the PRD would address this constraint and enable further expansion of the port as envisaged in the masterplan to meet the expected demand. This is particularly pertinent in a post-Brexit situation, where the critical need for ports in the south and southwest of Ireland to provide enhanced cargo services directly to Europe that by-pass the UK is required and as I have outlined above, Shannon Foynes is on two such routes.

Local Policy

Limerick County Development Plan 2010-2016 (as extended until the new plan is prepared)

11.3.90. The Limerick County Development Plan 2010-2016 has been extended until such time as the new plan is prepared and is the applicable statutory plan for the area. Variation No. 6 to the Plan, which was adopted in April 2018, includes policy support for the Foynes to Limerick Road. Table 8.3 (Proposed National Road Improvements) includes the following:

- **N21 to N69** - Design, reserve land for and commence construction of a new road between the N21 at Rathkeale and the N69 at Foynes as resources become available;
- **N21 Tralee Road (and Killarney Road)** - Design, reserve land for and commence construction of a bypass of Adare and N21 Route Improvements from Adare to the County boundary, as resources become available;

11.3.91. The Plan includes provisions for the proposed road development in specific core strategic policies (CPs) including **CP 01** (implement relevant European, national and regional regulations, guidelines and strategies at County level), **CP 03** (provide for an enhanced quality of life for all) and **CP 07** (facilitate the provision of the County's infrastructure in a sustainable and efficient manner).

11.3.92. Relevant objectives that support the PRD include:

- **IN O20: Service Areas:** Support the National Roads Authority⁹ in ensuring suitable service areas serving motorways and high-quality dual carriageways;
- **IN O22: Promotion of improvements to the N69 Limerick to Foynes:** It is the objective of the Council to promote the strategic improvement of the N69 between Limerick City and Foynes to facilitate traffic by heavy goods vehicles into this important port from an easterly direction;
- **IN O23: Protection of proposed National Road improvements:** It is the objective of the Council to protect, where relevant and as identified by the NRA or the County Council as Roads Authority, the corridors, routes and

⁹ Now Transport Infrastructure Ireland

roads, necessary for the planning, construction, and completion of the improvement works as listed in Table 8.3;

Note: Table 8.3 sets out a list of proposed national road improvements including the N21/N69: Design, reserve land for and commence construction of a new road between the N21 at Rathkeale and the N69 at Foynes as resources become available and N21 Tralee Road (Design, reserve land and commence construction of a bypass of Adare and N21 Route Improvements);

- **IN O24: Enhancing Connectivity with the Estuary:** It is an objective of the Council, as resources become available and in consultation with TII, to design, reserve land for and commence construction of a new road from the N69 and the strategically important port of Foynes to the national primary road network and Limerick Gateway to provide for improved vehicular connectivity;
- **SE O3: Port Facilities:** The Council will support efforts to expand and upgrade the port facilities available in Foynes Harbour in line with the Strategic Integrated Framework Plan for the Shannon Estuary and the Vision 2041 Shannon Foynes Port Company Masterplan;
- **SE O4: Rail Transport:** It is an objective of the Council to safeguard the Limerick-Foynes rail line against encroachment by inappropriate uses that could compromise the long-term development of the rail facility;

11.3.93. Landscape policy and objectives are considered in the EIA section under the heading of Landscape and Visual (Section 12.19).

11.3.94. In submissions received in written format and at the oral hearing, it was asserted that the County Development Plan envisages an upgrade of the N69 and N21 as per INO22 and not a road solution of the scale proposed. In response, the applicant explained that this objective supports improvements to the N69 and that this road would remain in use as a regional road classification with a reduced level of traffic post the development of the PRD. It is also submitted that the objective IN O22 does not alter objective IN O23 and IN O24, which support the PRD, including the Adare bypass. It was argued in submissions that IN O24 was added as a variation to the development plan through a flawed process. There is no evidence put forward that this is the case and of relevance, the variation was not challenged. As it stands,

Objective IN O24 is contained in the Development Plan including variations and remains a valid objective in support of the PRD.

11.3.95. In conclusion, it is clearly evident that the PRD would allow for the realisation of the policies and objectives outlined in the applicable Limerick County Development plan.

Draft Limerick Development Plan 2022-2028

11.3.96. LCCC published its draft plan on the 26th of June 2021 and public consultation for that stage of the process ran from that date to the 6th of September 2021. The draft plan sets out the blueprint for the physical socio-economic and environmental development of the functional area of Limerick for the six-year period between 2022 and 2028.

11.3.97. Section 4.9 of the draft plan includes support for the economic development and growth of the marine economy and sets out four capacity enhancements including the Upgrade of the Limerick to Foynes road network. Objective **ECON O44** relates to Shannon Foynes Port and sets out the support for the expansion of the Port at Foynes and to promote and support Shannon Foynes Port Company's Masterplan Vision 2041. There are a host of other policies and objectives set out in the draft plan which give support for various sectors including agriculture and equine industry, housing, economy, environment, heritage, landscape and green infrastructure. Policies and objectives are also included to support the transitioning to a low carbon economy.

11.3.98. Chapter 6 of the plan deals with Sustainable Mobility and Transport and includes Policy **TR P4** (Delivery of Transport Infrastructure in line with National Policy). Key projects listed as being critical to enable growth in Limerick include Foynes to Limerick (including Adare Bypass) Road, which it is stated would link the port of Foynes with the M7/N18 at Limerick and enhance regional and international connectivity. Objective **TR O2** also supports the delivery of the PRD. Other policies and objectives (**TR P2, TR P3 and TR P5**) support the promotion of sustainable transport and the delivery of modal shift (**TR O13**).

11.3.99. Objective **TR O9** seeks to ensure that all future and retrofitted transport infrastructure is climate proofed through design and construction. Walking and cycling infrastructure is supported by Objectives **TR O14** and **TR O15**. Objective **TR O17** supports and encourages public transport. There is no specific reference in the draft

plan to bringing the Limerick to Foynes Railway line into operation, however, Objective **TR O22** seeks to retain the rail line and avoid encroachment of inappropriate development which might compromise the line's potential future use. Objective **TR O32** sets out the support for the continued development of Shannon Foynes Port as an EU Core Network Port (TEN-T) together with Limerick Docks as marine related assets, in accordance with the 2013 National Ports Policy.

- 11.3.100. Under section 4.8.2 (Rural Tourism), it is stated that Adare Manor and Limerick propose playing host to the Ryder Cup golf tournament in 2027 and that LCCC will work collaboratively to ensure that the appropriate infrastructure and transport provisions are in place. The Draft Plan does not elaborate further or set out the appropriate infrastructure or transport provisions.
- 11.3.101. During the oral hearing, Limerick Chamber in stating their support for the PRD, referred to the need to have it delivered in time for the Ryder Cup golf tournament, which, as I understand, is intended to be hosted in Adare Manor Hotel & Golf Resort in 2027. Others who objected to the development, for example Simon White and others stated that the Ryder Cup golf tournament is a short-term event that can be facilitated with good traffic management.
- 11.3.102. It is clear there are multiple policies and objectives that support the development of the PRD set out in the Draft Limerick Development Plan 2022-2028, however, the plan is currently in draft form. The plan is intended to be finalised in June 2022.

Southern Environs Local Area Plan 2021-2027

- 11.3.103. LCCC prepared the Southern Environs Local Area Plan (LAP) 2021-2027, which was adopted by the elected members of the Metropolitan District of LCCC on the 19th of April 2021 and took effect on 31st of May 2021. Section 11.1 makes reference to ensuring that development does not prejudice the future development or impair the capacity of the planned core network under TEN-T regulations, including 'the Foynes to Limerick Road (including Adare Bypass)' project.
- 11.3.104. Chapter 11 of the LAP (Transport and Movement) includes the following objectives:
- **TM O11:** Protect capacity of the national road network..... and ensure development does not prejudice the future development or impair capacity of the planned core network under TEN-T regulations, which includes the N/M20

Cork to Limerick Schemes and Foynes to Limerick Road (including Adare Bypass) projects.

- **TM O27:** Support delivery of strategic road infrastructure identified in the RSES including Foynes to Limerick Road Scheme (including Adare Bypass).
- **TM O20:** Retain the Limerick to Foynes rail line and avoid encroachment of inappropriate development that may compromise the line's potential future use.

11.3.105. The PRD is clearly supported by this plan by reference to specific objectives outlined above. In relation to Objective **TM O20**, the PRD does not in any way compromise the bringing forward of the Limerick to Foynes rail line. Where it crosses the existing railway line, currently a single rail line, it provides additional space for a second line, which the applicant stated accords with Irish Rails requirements. Plate 4.58 of Chapter 4 (Description of the Proposed Road Development) of the EIAR shows a typical railway bridge.

Adare Local Area Plan 2015-2021 (as extended until February 2024)

11.3.106. Chapter 6 (Transport) outlines that the N21 Limerick to Killarney Road passes through the centre of Adare village causing serious traffic congestion issues throughout the year, but particularly in the summer months with tourist traffic to and from the southwest. The following policies and objectives are relevant:

- **Policy T1:** improve accessibility and reduce dependence on private car transport;
- **Policy T2:** ensure that all proposals shall comply with the policies, objectives and development management standards of the Limerick County Development Plan, 2010 – 2016 in relation to transport and infrastructure;
- **Objective T1:** provide a bypass for Adare to relieve traffic congestion in the village for the convenience and safety of road users;
- **Objective T3:** encourage walking and cycling as more convenient, popular and safe methods of movement in Adare, and facilitate the provision of an attractive and coherent network of off-road footpaths and cycle facilities;

- **Objective T4:** facilitate measures to improve public transport infrastructure within Adare and networks to adjacent settlements and Limerick City;
- **Objective T8:** protect existing rail route against encroachment by inappropriate uses that could compromise the long-term development of the rail facility.

11.3.107. The delivery of the Adare bypass as part of the PRD would reduce congestion and improve accessibility to and through Adare.

11.3.108. As stated earlier, I am satisfied that the PRD does not prohibit the delivery of future public transport including the railway and would provide improved and safer road infrastructure in which to induce a greater public transport service by providing for more reliable journey times and improved journey experience. Neither would it preclude the bringing forward of cycling and walking infrastructure.

11.3.109. At the oral hearing, Ms Finola McCarthy, solicitor, of Ronan Daly Jermyn representing Francis and Ann O’Kelly (Sch-34 and 35) asserted the view that the PRD would result in a material contravention of the zoning objectives of the Adare LAP. Responding to this point, Mr Kieran O’Malley stated his disagreement. He explained that the land use zoning matrix contained in Table 10.2 of the Adare LAP is intended to be non-prescriptive and does not include all classes of development and that it doesn’t include roads as a class of development in any case. In noting this point, I am aware that roads are not normally included as specific classes of development in a development plan zoning matrix which instead provides a guide for general classes of development. The bringing forward of roads is one that falls to policy and objectives within the wider plans such as in the Adare LAP and the Limerick County Development Plan. As I have set out above, there is clear policy support for the PRD contained in policy and objectives in the relevant local plans. I am also satisfied as was asserted by Mr O’Malley at the oral hearing that there are no competing objectives and in conclusion on this matter, I am satisfied that the proposal would not result in a material contravention of the agricultural zoning of the Adare LAP.

11.3.110. Overall, I am satisfied that the PRD would align with the policies and objectives of the Adare LAP including those listed above.

Concluding Comments on Policy

11.3.111. Overall, it can be reasonably concluded that the PRD accords with a host of relevant policies outlined above at a European, National, Regional and local level. It would deliver a TEN-T standard combined core and comprehensive road network and allow Shannon-Foynes Tier 1 port to be connected to the road infrastructure, would deliver improved road infrastructure, provide suitable infrastructure for improved road safety and the delivery of greener/more sustainable forms of road-based transport. It would serve to realise planned future population and economic growth in Limerick and the Southern region as envisaged in the NPF and RSES for the Southern Region. Notwithstanding this conclusion reached, noting concerns raised by observers in relation to the lack of a need for the project and that it is over-scaled, I have dealt with the related issue of **Project Need and Justification** directly below, followed by other matters of relevance in the consideration of whether or not the project can be considered acceptable having regard to the principles of proper planning and sustainable development.

11.4. Project Need and Justification

11.4.1. The background and justification for the PRD are set out in Chapter 2 (Policy and Need) of the EIAR and were again outlined and expanded on by the applicant's team, primarily Mr MacGearailt, Ms Maria Woods of LCCC and Mr John O'Malley of Kieran O' Malley & Co. Ltd. at the oral hearing. It is submitted that the primary need for the PRD is to address the inadequacies of the existing roads, to meet the TEN-T Core Network standard road infrastructure to the Shannon-Foynes Tier 1 Port, to meet the TEN-T Comprehensive Network standard road infrastructure on the Limerick to Kerry route, in accordance with TEN-T policy, and to alleviate the severe traffic congestion in and around Adare. Key relevant policies and objectives have been outlined and considered under the heading of Policy Context above where I have concluded that the PRD is strongly supported by policy at a European, national, regional and local level. National and regional policy, including policies in the NPF and the RSES for the Southern region that are underpinned by balanced regional development and managing economic growth to enable all parts of the country to grow and prosper. The current programme for Government: Our Shared Future reiterates the importance of the provision of infrastructure and services, that will align

with the NPF, to ensure balanced and sustainable development by developing the cities of Cork, Galway, Limerick and Waterford to develop as viable alternatives to Dublin. As stated above, the NPF includes ambitious population growth targets of 50% for these cities by 2040 against a baseline of 2020 and ambitious population and employment growth for the region and set out above. It is clearly evident that the PRD is a vital part of the combination of transport infrastructure needed to support connectivity which in turn is needed to deliver balanced regional development envisaged.

- 11.4.2. In the EIAR and at the oral hearing, the applicant submitted that the PRD would bring many benefits. In engineering and planning briefs of evidence presented, the applicant's team set out that it would provide a standard of access to meet the requirements of the TEN-T and noted the need to provide improved connection between the Tier 1 port of Shannon Foynes, Limerick city and the hinterland. It was also submitted, and I would agree that the PRD would improve road safety, journey time and the reliability for private, commercial and public road-based transport services. It would provide bypasses of six urban settlements, including the unique historic village of Adare, which I note would improve quality of life for those communities while allowing the village centres to be revitalised. It was further submitted that as a result of the transfer of traffic onto the PRD, conditions would improve for local travel and cycling and walking through reduced traffic volumes on the existing roads.
- 11.4.3. In the EIAR under the heading of traffic analysis, Mr Philip Shiels outlined the benefits, emphasising the improved safety and potential reduction of collisions while under the heading of Population and Human Health, Dr Martin Hogan also outlined the benefits that would be felt by the community including improved journey amenity and road safety and better access to health services.
- 11.4.4. A number of written and oral submissions were received from observers and prescribed bodies, public bodies and interest groups supporting the proposal. **Fáilte Ireland** stated its support to bypass Adare and states that Adare is a key tourism attraction and economic driver. **Kerry County Council** expresses support on the basis of connectivity and consistency with the NPF and stated that when delivered, it would make County Kerry a more attractive place in which to live, work and provide employment while also enhancing Kerry's tourism sector.

- 11.4.5. **IBEC** states that the PRD would lead to many benefits for the commercial and business sector by providing improved accessibility and future proof the region from potential impacts of Brexit and would support the development of tourism in the region. **Limerick Chamber** stated that the PRD would provide the transport infrastructure to achieve the objective of the NPF/Project 2040 to deliver balanced regional development. It was also stated by Limerick Chamber that the PRD would facilitate economic development in the Shannon estuary region, and it would support the significant opportunity for regional tourism. **Kerry Group Plc** stated that the PRD is vitally important for the competitiveness and attractiveness of the region for future economic development and retention of existing employment. **NTA** set out their support for the PRD as a means of promoting the economic development of the Limerick-Shannon metropolitan area and the wider region.
- 11.4.6. A detailed submission was made by representatives from **SFPC**, and I have considered this in some detail in Section 11.3 (Policy Considerations) above. A number of other observers who made submissions on certain aspects of the application, also expressed their support for the PRD in principle.

Existing N69 and N21 roads

- 11.4.7. In the EIAR and in evidence to the oral hearing, the applicant's team provided a profile of both the N69 national secondary road (on the TEN-T core network) and N21 national primary road (on the TEN-T comprehensive network) roads as they currently exist, and I refer to the main points set out directly below.
- 11.4.8. Existing average annual daily traffic (AADT) volumes on the **N69** national secondary road between Foynes (6,350) and Mungret (11,750) are well above the 5,000 vehicles per day (AADT) design standard. It is also submitted that because of the poor road alignment and the number of access points and junctions along the N69, it is currently on the borderline of meeting the minimum safety standards for a Type 3 single carriageway. Having reviewed the information and having travelled the N69, it is clearly evident that apart from some short sections of the road where improvements have taken place, the section of the N69 between Foynes and Limerick is below the required standards to address traffic capacity and road safety. Some sections along the route have a collision rate twice above the national average.

- 11.4.9. A number of observers raised concern with the proposal on the basis that the existing carriageway could be improved to the required standard and that this was what is envisaged in the Limerick County Development plan. This option was considered as part of the route selection stage as a 'do minimum' upgrade option but was ruled out as it was not considered a feasible option to improve the route to the required standards for the TEN-T regulation, due to the high level of road frontage development along the route the resultant need for significant levels of property acquisition and associated impacts on residences, business and agricultural enterprises along the N69 route. Noise levels were found to be in excess of 60dB L_{den}^{10} (base year) and would increase in the 'do-minimum' scenario because of the expected increase in traffic levels. The upgrade of the N69 was also found to have potential to impact on a number of European designated sites, including the Askeaton Fen Complex SAC (site code: 002279) and the Lower River Shannon SAC (site code:002165) and River Shannon and River Fergus Estuaries Special Protection Area (SPA) (site code: 004077). It is evident therefore that the upgrade of the N69, in addition to not meeting the road transport infrastructural requirements of a TEN-T network, would be likely to present substantive impacts for sensitive receptors. For these reasons and others outlined under the headings of Consideration of Alternatives (Section 12.2) and Traffic (Section 12.18) in the EIA section of this report, the upgrade of the existing N69 to the required TEN-T core and comprehensive network standard is clearly not a realistic option.
- 11.4.10. The **N21** national primary route lies south of the N69 and connects Limerick to Tralee. From a capacity perspective, the existing (2017) AADT volumes on the N21 between Rathkeale (12,950 AADT) and Attyflin (16,900 AADT) are already in excess of the operating capacity (11,600 AADT) of a single carriageway road operating at an operation 'level of service' D. The level of service of a road is a quality measure of operating conditions, with six levels ranging from A (best) to F(worst). At Levels of Service D, freedom to manoeuvre within traffic is limited, with minor incidences leading to queuing, and reduced comfort levels for drivers. Major traffic delays are currently experienced through Adare Village (18,300 AADT) on the N21, and it is evident as submitted that these existing delays would continue to disimprove over

¹⁰ L_{den} Day-evening-night level is a descriptor of noise level based on energy equivalent noise level (L_{eq}) over a whole day with a penalty of 10 dB(A) for night-time noise (23.00-7.00) and an additional penalty of 5 dB(A) for evening noise (i.e. 19.00-23.00).

time as traffic levels increase in line with the projected growth in population and employment in the wider region.

- 11.4.11. Overall, in relation to the N21, while approximately two thirds of the N21 route between Attyflin and Rathkeale is considered to be good quality road, meeting some of the TEN-T requirements in terms of alignment, it is constrained in terms of traffic flow because of the multiple accesses and minor junctions. It was submitted at the oral hearing that this is the type of road where there is a particular risk of high-speed head-on collisions and a corresponding greater likelihood of serious injuries and fatalities. The point was also made that road safety on the N21 would diminish due to growing traffic flows on rural sections that already exceed the capacity of a single carriageway road.

Adare bypass

- 11.4.12. The justification for including a **bypass of Adare village** is set out as being identified in policy along with the need to remove the traffic pressure and congestion and delays through the village and to provide improved access within the village. Traffic delays have been well reported and at the oral hearing, Mr MacGearailt provided photographic evidence of the typical level of congestion experienced in Adare (Slide 7 and Slide 8) within his Brief of Evidence presented on the first day of the oral hearing. It is submitted that such traffic congestion can extend from Adare for over 5km to Attyflin Junction at Patrickswell and beyond. It is evident that the function and experience of this unique historic village is currently undermined by the heavy flow of through traffic and the associated noise and air pollution.
- 11.4.13. It is of relevance to note that under file reference **HA0028** considered by An Bord Pleanála, a bypass of Adare was previously proposed south of the village connecting to the planned M20 Cork to Limerick Motorway. The application was refused approval in October 2012 by the Board, on the basis that it constituted isolated development, with reference made in the Board's decision to the withdrawal of the M20 Cork to Limerick scheme at that time. A new proposal for this road infrastructure is currently being developed and the details are set out on a website (www.corklimerick.ie) with the latest information on the project website setting out that an online public display platform has been developed on the project website and will go live on the 30th of March 2022.

11.4.14. The bypass of Adare proposed as part of the current PRD proposal would form part of an integrated road development. With the bypass in place and the strategic onward traffic transferred to the new road, Adare would have potential to become a more pleasant place for the retail, residential and visiting communities. It is acknowledged that a loss of trade for some businesses that depend on passing trade would likely result, in the short term at least, and this is addressed later in my assessment under the heading of Population and Human Health in the EIA section of this assessment. However, I am satisfied that the removal of through traffic would bring many benefits for Adare village and its function and the benefits would far outweigh any negative impacts.

Service Area

11.4.15. The **Type 1 (Terminal Service Area)** is stated to be required for heavy goods vehicles (HGVs). A 'terminal service area' for heavy goods vehicles (HGVs) is proposed to be located beside the entrance to Shannon-Foynes port, with shower and toilet facilities. This aligns with the standards set out in TII Publication 'The Location and Layout of Service Areas' (2017). By providing safe and secure parking, together with toilet facilities, the terminal service area would serve the needs of HGV traffic adjacent to Shannon-Foynes Port who may have travelled or would be intending to travel a lengthy journey. As it is adjacent to the port, it is also reasonable to note that additional services, including food/restaurant, would be available in Foynes and the Service Area is not envisaged in policy to provide such additional services. The location of the Service Area would be connected to Foynes village via a footpath and public lighting for a distance of 700m.

Scale of the Proposed Road and Cross-Section

11.4.16. Concerns were raised in submissions that the PRD brought forward for approval is larger in scale than that required in TEN-T policy. In particular, it was stated by a number of observers that the motorway element along Section D is excessive and cannot be justified. It was also asserted that the proposed route would be considerably longer than the existing N69 route from Limerick to Foynes and which is currently along the core element of the TEN-T network. It was also submitted that a dual carriageway and a smaller bypass of Adare would be a more optimal solution. At the oral hearing, Mr Duncan Stewart (Env-26), architect, stated that the extra

length of road, together with the motorway's much higher traffic speeds of 120 km/hr would add between 20% and 30% of additional fuel-consumption and CO₂ emissions, which would amplify operational emissions to between 50% and 60% higher in diesel fuel use and that this would occur each year by the lock-in effect of the motorway when compared to an upgrade of the N69. Mr Stewart also submitted that the PRD would facilitate a greater number of traffic journeys and traffic volumes and thereby lead to conditions that would induce sprawl over the coming decades. A similar point in relation to sprawl was advanced by Mr. Tony Lowes on behalf of Friends of the Irish Environment (Env-35) who stated that the PRD would fail to curtail sprawl and congestion.

- 11.4.17. Furthermore, Mr Stewart asserted that taking into account the 'embodied' carbon and the project life cycle, CO₂ emissions would be disproportionately and unacceptably greater, with no realistic form of carbon mitigation method to avoid such emissions. It was also asserted by An Taisce (Env-3 and FI-1) that a switch to EVs would not address congestion, noise pollution and other forms of car-generated pollution, including micro-plastics released through tyre wear. Mr Lowes on behalf of Friends of the Irish Environment (Env-35) also stated that EVs would be inefficient in terms of resource consumption.
- 11.4.18. These concerns warrant concerns in the context of proper planning and sustainable development of the area. This is because motorway infrastructure has particular implications for the size and scale of the physical infrastructure, noting the higher speeds afforded to motorways as distinct from dual carriageways, the larger junction arrangements and the greater land take that is required for motorways.
- 11.4.19. The applicants case for the longer route is addressed in the EIAR and in the engineering briefs of evidence at the oral hearing. It is submitted that the PRD would serve as one combined solution to upgrade the core network (previously envisaged along the N69) and the comprehensive network (previously envisaged along the N21) and that the combined 35km long route forming part of the core and comprehensive layers of the TEN-T network would be approximately one third less in overall length than two separate routes serving each of the routes individually with a combined overall length of 52km. It was asserted by Mr MacGearailt at the oral hearing that the proposed combined route would avoid a proliferation of local environmental constraints and it would require the use of fewer resources/materials

and would generate less carbon emissions than that of two individual schemes. As set out in this assessment above, the PRD would reduce the journey time from Limerick to Foynes by between nine and 15 minutes. Having regard to the above, I am satisfied that the provision of a combined route to serve the core and comprehensive layers of the network in County Limerick is justified.

- 11.4.20. In relation to the provision of a motorway component, Mr Shiels explained that while a Type 1 Dual carriageway, with a capacity of 42,000 AADT, would cater for the projected traffic demand of between 23,650 AADT (Rathkeale) and 30,450 AADT (Attyflin), under the TII high traffic growth scenario, a motorway with a capacity of 52,000 AADT would cater for the projected traffic in 2039 in all TII growth scenarios and provide sufficient capacity for further increases in traffic beyond 2039 (design year). Mr Shiels also outlined that while there are differences between both a Type 1 Dual carriageway and a motorway, they both have the same width and a motorway has a lower collision rate (0.02 collisions per million vehicles travelled) than that of a Type 1 Dual carriageway (0.033 collisions per million).
- 11.4.21. While I note the concerns raised in relation to this matter, as it is stated that the PRD would have an operational lifespan of 60 years and noting the planned levels of growth for Limerick as set out in the NPF and taking into account Shannon Foynes port in its role as a Tier 1 port of national significance, I am satisfied that a motorway is appropriate for and proportionate to the traffic needs along this section (Section D) of the route when taking the operational lifetime into account, which I agree is the correct approach.
- 11.4.22. It is further stated that the proportion of HGVs would be especially high at up to 26% for Sections A and C on the Foynes to Rathkeale link. Based on traffic requirements, a single carriageway road type would suffice on this part of the route, having regard to capacity requirements. However, in the context of such high numbers of HGVs and for the need to improve road safety, I agree as submitted that a Type 2 Dual carriageway would be a more appropriate road type.
- 11.4.23. At the oral hearing, Mr Shiels presented an illustrative comparison of cross sections (Figure 16) and stated that the more common type of dual carriageway road in Ireland is a Type 1, with a paved width of 21.6m. The Type 2 dual carriageway design proposed as part of the current proposal has an overall paved width of 16.5m

and for comparison purposes, a type 1 single carriageway has an overall paved width of 12.3m. The main difference in the Type 2 dual carriageway and the Type 1 dual carriageway is the hard shoulder included in a Type 1 dual carriageway but not in the Type 2 dual carriageway. The net overall width between the Type 1 and Type 2 dual carriageway is 4.3m equating to c.10% of the typical 50m overall width of the PRD and it is stated that the additional carriageway is 6% of the total cost of the project which it is submitted is a marginal cost increase relative to the combined additional benefits. Having regard to the information advanced as outlined above and by reference back to the policy considerations dealt with above (Section 11.3), I am satisfied that the Type 2 dual carriageway for sections A and C of the PRD are both reasonable and appropriate.

11.4.24. In relation to related submissions put forward by An Taisce (Env-3 and FI-1) that the Board have no evidence regarding the extent of likely future expansion of cargo to and from Shannon-Foynes port, it is of relevance to note that in written correspondence and at the oral hearing, SFPC set out that the PRD is necessary to provide the much-needed transport infrastructure to meet the company's planned development of the port and that the cargo tonnage at the port is set to double in the period of 2011 to 2041.

11.4.25. Permission has been granted by An Bord Pleanála under Planning ref: **ABP-301561-18** for expansion of the port estate and as stated earlier, the need to enhance road connection to the port is included in the NPF under NSO 6 – High Quality International Connectivity and the completion of investment at the port is included in the current NDP 2021-2040. Recent plans have been presented by SFPC for investment, funded by the SFPC and the EU, for infrastructure to develop Shannon Estuary as an international hub for floating offshore wind generation. I am satisfied that there is clear and convincing evidence of realistic future expansion of cargo to and from the port and these have been taken into consideration in the applicant's traffic analysis. I also note the policy support for the port and for the population and economic growth for Limerick and the southern region as set out earlier in my assessment.

Journey Improvement

11.4.26. With the PRD in place, journey time savings of between nine and 15 minutes on average, improved journey reliability and reduction in noise and improvements in air quality through existing populated areas would all result. As set out in the policy section above, the PRD would provide an infrastructural basis for improving road safety, which is a matter that warrants high consideration given the significant positive outcome of improved road safety including reduction of loss of life and serious injuries for individuals and reduction of associated negative impacts for communities.

Cycling and Pedestrian Considerations

11.4.27. Observers raised concerns regarding the absence of any cycling and pedestrian infrastructure as part of the PRD. I fully acknowledge the pressing need to support active modes of transport and have dealt with the matter in consideration of policy above, where I have concluded that the PRD would not preclude the bringing forward of cycling and pedestrian infrastructure. In addition, the applicant intends to encourage cycling and walking along quieter roads that run generally in parallel with the PRD and directional signage is proposed to be erected along such local roads. There are five identified cycling routes (off road) in County Limerick, with the Limerick Greenway, of most relevance to this assessment. I have noted above that it is the stated intention of the Local Authority to bring forward an extension of the existing/recently opened Limerick Greenway and I am satisfied that the PRD would not prevent its delivery. I also note from the Local Authority website, limerick.ie that in December 2021, LCCC welcomed the announcement from the government of further funding for greenways in the county. A number of projects that would secure funding are at various stages, one which is in the study area, along the existing N21 for a greenway between Rathkeale-Adare-Patrickswell and which at that point in time (December 2021) was reported on the Local Authority's website as being at scope/pre-appraisal/feasibility stage in the process. It is clearly evident that cycling and pedestrian and greenway planning is a priority for the Local Authority and while it is separate from the specific project currently in front of the Board, the related policy is highly relevant in delivering the wider sustainable/active travel agenda. The delivery of the PRD would have no negative consequences for the bringing forward of cycling and pedestrian infrastructure planned.

Conclusion - Project Need and Justification

11.4.28. The pressing need for the PRD is clear from the rationale put forward by the applicant, including to address inadequacies of the existing road network, to meet policy objectives, to meet the TEN-T Core Network standard road infrastructure to the Shannon-Foynes Tier 1 Port and the TEN-T Comprehensive Network standard road infrastructure on the Limerick to Kerry route, to improve connectivity for the region and beyond, to improve road safety and to remove inefficient traffic delays and congestion through Adare in particular, and also at Croagh. It would also provide an improved environment for the functioning and growth of a reliable road based public transport service. It is considered, therefore, that the need and justification for the proposed development has been adequately established. In relation to the road design and type of road selected, I have addressed this matter above and in further detail under the heading of 'Road Design and Construction – Elements of significance' in Section 11.6 below and also under the heading of Material Assets – Traffic in the EIA section (Section 12.18) of my assessment. In respect of design and cross section, I have concluded that the road types and cross-sections chosen are proportionate and responsive to the forecast traffic volumes. While not forming a part of the project for which approval is sought from the Board, I am satisfied that the bringing forward of additional walking/cycling infrastructure would not be impeded as a result of the PRD if approved and the existing road network, with reduced traffic volumes would become safer for active travel modes including cycling and walking.

11.5. Climate

Background and context

11.5.1. Given the many negative effects from climate change that have already been observed in Ireland, Europe and worldwide, there is an accepted pressing need for urgent and immediate action to prevent what scientists have called a 'climate catastrophe'. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. It released its sixth assessment report on 28th of February 2022 which states that 'Climate change

is a grave and mounting threat to our wellbeing and a healthy planet. Our actions today will shape how people adapt and nature responds to increasing climate risks.’

- 11.5.2. In this context, the consideration of the impact of the PRD on climate change is central to my overall assessment as presented below.
- 11.5.3. A number of parties including Mr Ian Gilvarry (Env-13 and FI-4), Mr Conor Enright (FI-2), Mr Tony Lowes for Friends of the Irish Environment (Env-35), Mr Ian Lumley and Ms Phoebe Duvall for An Taisce (Env-3 and FI-1) and Mr Duncan Stewart (Env-36) expressed concern that the PRD would facilitate unsustainable road-based transport stating that it would be contrary to climate change policy and contrary to related efforts to address climate change. It was also stated that in light of the **European Green Deal** and a planned review of the TEN-T regulation, both set to advance the climate change agenda, approval of the development would be premature.
- 11.5.4. I have dealt with issues raised in relation to the bringing forward the PRD road infrastructure in the context of the European Green Deal objectives as strengthened by Regulation (EU) 2021/1119 EU Climate Law under the heading of Policy Considerations in Section 11.3 above. There is strong policy support to address climate change in all sectors and I also note that the proposed TEN-T regulation, that was initiated as an action of the European Green Deal continues to strongly support the delivery of the TEN-T network including the road-based infrastructure component. It is specifically stated in the proposed TEN-T regulation that the realisation of the TEN-T network would create the enabling conditions in terms of infrastructure basis to make **all** transport modes more sustainable. The proposed regulation notes that the aim is for at least 30 million zero-emission cars and 80,000 zero-emission trucks to be in operation on EU roads by 2030, and most cars, vans and buses and new heavy-duty vehicles should be zero-emission by 2050.
- 11.5.5. On the 17th of June 2019, Ireland’s **Climate Action Plan 2019 (CAP19)** was published. It outlines the status across key sectors including electricity, transport, built environment, industry and agriculture. It also outlines the various measures required for each sector to achieve the decarbonisation targets set out in the Plan while working towards net zero emissions by 2050. This 2019 Plan was in place when the applicant lodged the application including at the time of the oral hearing.

New climate policy, including the subsequent **Climate Action Plan 2021(CAP21)** is referred to later in this report under the heading of ‘Climate Policy updates since the oral hearing’.

Applicant’s Approach to the Assessment of the PRD in the context of Carbon Emissions

Summary of Information presented by the applicant in the EIAR

- 11.5.6. Decision No 406/2009/EC (EU Effort Sharing Decision) (ESD) established binding annual GHG emission targets for Member States for the period 2013-2020. These targets concern emissions from most sectors not included in the EU Emissions Trading System (EU ETS) including emissions from transport, buildings, agriculture and waste. For the year 2020, the target set for Ireland was for emissions remaining below **20% below their level in 2005** which was Ireland’s contribution to the overall EU objective to reduce emissions by 20% by 2020 compared to 1990 levels.
- 11.5.7. In that context, the applicant undertook a climate assessment based on the methodology in Annex 2 of the Design Manual for Roads and Bridges (DMRB) (UK Highway Agency, 2007) as set out in Chapter 13 of the EIAR. The assessment concluded that the **construction phase** emissions for the three years of the estimated construction period would equate to 60,477 tonnes CO₂ equivalent (CO₂eq)¹¹, which in turn would amount to 0.05% per annum of Ireland’s EU 2020 target of **37,942,682** in the non-ETS tonnes CO₂eq emissions (set out in EU Commission Decision 2017/1471 that revised Member States’ annual emissions allocations for the period from 2017 to 2020) for 2020.
- 11.5.8. The impact of the **operational phase** of the PRD on emissions of CO₂eq was assessed in the EIAR using the DMRB screening model (Table 13.14 of the EIAR). It was projected by the applicant in that assessment that in 2024 (opening year), the PRD would result in an increase of CO₂eq emissions that would equate to 0.058% of Ireland's EU 2020 Target (Emission Ceiling). In the design year of 2039, the PRD was assessed as increasing CO₂eq emissions by 0.078% of Ireland’s EU 2020 Target. This EU 2020 target was applicable at the time the application was lodged with the Board, however, Ireland’s obligations under the ESD finished in 2020.

¹¹Carbon Dioxide Equivalent (CO₂eq) is a unit of measurement that is used to standardise the climate effects of various [Greenhouse Gases](#).

Summary of Information presented by the applicant at RFI stage

- 11.5.9. During the course of the application, the Board sought further information from the applicant, including information on the effects of the project on climate concerning the design, construction and operation of the PRD over its lifetime.
- 11.5.10. Looking at a longer horizon, the EU Effort Sharing Regulation EU/2018/842 (ESR) established binding annual greenhouse gas emission targets for **non-ETS** sectors in Member States for the period 2021 to 2030. The ESR set Ireland a target of **30% reduction in emissions in respect to non-ETS sectors by 2030 compared to 2005 levels within the overall EU objective to reduce its emissions by 40% by 2030 compared to 1990 levels.**
- 11.5.11. To reflect the updated targets established through the ESR, the applicant's assessment was updated by comparing the projected emissions that would arise from the PRD relative to Ireland's 2030 emissions targets. The applicant stated that it had updated the climate assessment model by using the current Emission Factors Toolkit (Version 10.1, August 2020). In addition the extent of the road network previously included in the assessment was expanded to include regional and local road links. The updated assessment was stated to have taken account of the targets for EVs outlined in the CAP19 that was relevant at the particular time.
- 11.5.12. The updated information presented as part of the RFI response revealed a net increase between the 'do something' and 'do minimum' scenario for the PRD in 2024 (the opening year) as 1,211 CO₂eq (0.0027% contribution of Ireland's 2030 emissions target) and in 2039 as 1,778 CO₂eq (0.0039% contribution of the emissions target). In calculating the GHG emissions (expressed as CO₂eq) as a percentage of Ireland's 2030 emissions limits, the denominator used by the applicant was **45,700,000 tonnes CO₂eq** which is the sum of Ireland's Emissions Trading Scheme (ETS) and non-ETS targets for 2030. At this point it is not clear why the ETS targets were included in the denominator since these relate to electricity generation and large industry installations and are dealt with at an EU level. Ireland's non-ETS target for 2030 was set out in Commission Implementing Decision (EU) 2020/2126 of 16th of December 2020 pursuant to Regulation (EU) 2018/842 of the European Parliament and of the Council. Specifically, the target emissions ceiling for 2030 is **33,381,312 tonnes CO₂eq**. The contribution of the emissions from the PRD

would be greater if expressed as a percentage of the non-ETS target (33,381,312 tonnes CO₂eq) only. I estimate that it would equate to c.0.0037% (based on Opening Year 2024 emissions) and 0.005% (based on Design Year 2039 emissions).

However, as the figure is very small in relative terms and the difference would be minimal, the inclusion of the ETS emissions targets in the denominator would not make any material difference in the calculated percentage figure.

11.5.13. A further observation on the information furnished at the RFI stage (Table 11.A) is that while the gross 'do-minimum' and 'do-something' emissions were considerably higher in the RFI response than those set out originally in the EIAR, the **net increase** between both scenarios presented was considerably lower for each of the years, 2024 and 2039. This reduction resulted largely as a result of the inclusion of the targets set out in CAP19 for EV uptake and corresponding reduction in emissions at the RFI stage as these were not accounted for as part of the initial figures presented in the EIAR.

11.5.14. To add context to the figures presented by the applicant, it was stated as part of the RFI response that by reference to a study carried out in 2011 (Monahan, 2011)¹², in 2039 the PRD would lead to an increase in carbon emissions equivalent to 35 houses excluding electricity, and an additional two to three houses when electricity is taken into account. I have considered the aforementioned study which is a case study of the embodied carbon and energy analysis of house construction in which the embodied carbon was found to be 35 tonnes of CO₂ for a three-bedroom semi-detached house made with a 'factory-built, foam insulated, timber frame and assembled in modules at the building site, where it was clad with larch planks'. While not referred to by the applicant the study also drew a comparison between this specific house type and similar houses constructed using more traditional methods. One such traditionally constructed structure, a masonry house, was found to have 51% more embodied carbon when compared to the timber framed, larch-clad house used by the applicant in its comparison. The applicant's figure of 35 house equivalent would appear to be understated when compared to masonry/concrete-built houses which, when adjusted by 51%, would be the equivalent of the embodied

¹² Monahan J. & Powell, J.C. (2011) An embodied carbon and energy analysis of modern methods of construction in housing A case study using a lifecycle assessment framework January 2011 Energy and Buildings 43(1):179-188 DOI:10.1016/j.enbuild.2010.09.005.

carbon of approximately 53 houses. While this adjusted figure is not one that could be considered high, I draw attention to the fact that the CO_{2eq} levels that were compared in Table 11.A of the RFI document is the difference in the 'do something' and 'do minimum' scenarios and relates to future net increase in CO_{2eq} emissions from increased operational traffic. I do not consider the comparison drawn between **net increase of CO₂ emissions in a year (2030) during the operation/use of the road** to that of the emissions likely to be generated from **the construction phase of a house** to be an appropriate comparison as there are very clear differences at play between the comparables outlined.

- 11.5.15. It is also submitted (Table 11.B of the RFI response) that the impact of the electricity used to charge EVs in 2039 is 123 CO_{2eq} tonnes/annum, which is 0.001% of Ireland's ETS 2030 target and takes into account the CAP19 target for 70% renewable electricity generation to be in place by 2030. I am satisfied that this is accurate noting the ETS emissions reported by the EPA for Ireland in 2005 were 22,398,000 tonnes CO_{2eq} tonnes and that the 2030 ETS target laid down in Directive 2003/87/EC is set at 43% below Ireland's 2005 ETS allocation.
- 11.5.16. The proposed emissions associated with the **construction phase** of the development are calculated by the applicant as equating to 107,700 tonnes CO_{2eq} over the three-year construction period (an increase from 60,477 tonnes CO_{2eq} submitted with the EIAR), stated by the applicant to be 0.11% of Ireland's non-ETS 2030 emission target. While not explicitly set out, the figure of 0.11% would appear to have been arrived at by apportioning the applicant's updated construction figure (107,700 tonnes CO_{2eq}) over the three-year construction period, equating to 35,900 tonnes CO_{2eq} per year or 0.11% when expressed as a percentage of the non-ETS 2030 emissions target for 2030.
- 11.5.17. The breakdown of the activities between the different phases of PRD are set out in Table 11.C of the applicant's RFI response (GHG emissions during construction and maintenance of the proposed road development) which includes a figure for total emissions of 205,281 CO_{2eq} for all activities associated with **construction and maintenance**. In addition, Table 11.E provides values of embodied carbon emissions that would arise during maintenance of the PRD. The applicant has stated that based on the three-year construction and 60 years operational lifespan, GHG emissions would reach at most 0.01% of Ireland's 2030 emissions targets (section

11.29 of the RFI document). This figure of 0.01% would appear to have been arrived at by apportioning the **collective construction and maintenance estimated emissions** (205,281 tonnes CO₂eq) across the entire planned lifespan of 60 years of the project and the output expressed as a percentage of the non-ETS emissions per year (33,381,312 tonnes of CO₂eq).

- 11.5.18. At this stage I note that construction GHG emissions have been accounted for by the applicant as set out above where a contribution of 0.11% was arrived at based on the three-year construction programme. I believe the apportioning of the construction phase emissions over the three-year construction period to be a more accurate representation of its actual contribution to the emissions targets per year than apportioning the emissions generated during the three-year construction phase across the 60 years which obviously results in a lower yearly percentage figure.

Summary of Information presented by the applicant at the Oral Hearing

- 11.5.19. At the oral hearing, the annual GHG emissions for the operation phase were presented in Table 4.1 of the 'Air and Climate' Brief of Evidence and are the same as those presented with the response to the RFI request. As the figures are discussed above, they are not repeated here.

Mitigation Measures (EIAR, RFI and Oral Hearing)

- 11.5.20. Mitigation measures are set out in Section 13.6.1.2 of Chapter 13 of the EIAR, in response to the RFI and were also set out in Dr Porter's Brief of Evidence presented at the oral hearing. These measures primarily include the efficient use of construction plant, minimising waste and avoiding construction related congestion both on roads and internally around the site. These are standard best practice construction measures and are likely to have been included in the 107,700 tonnes CO₂eq arrived at for construction phase emissions.
- 11.5.21. It is also stated that the embodied carbon of the proposed combined road solution put forward in the design has resulted in a reduction of 52,311 tonnes CO₂eq emissions over the three-year construction period when compared to providing a non-combined design with two separate roads. While not stated, it would appear that the 107,700 tonnes CO₂eq arrived at for construction phase emissions would also have included the aforementioned 52,311 tonnes CO₂eq savings in what I consider to be a result of design choices at the outset and cannot be considered as additional

mitigation measures that would further reduce the 107,700 tonnes CO₂eq emissions set out.

- 11.5.22. It was stated in the EIAR that it is proposed to provide 181ha of planting which, in addition to mitigating impacts on sensitive receptors and biodiversity, would also provide carbon offsetting throughout the operational stage. It was also stated that based on a potential minimum CO₂eq uptake rate (and based on 181ha of planting), this would offset/sequester up to 1,964 tonnes of CO₂eq per year over the 60-year life of the project.
- 11.5.23. In the response to the RFI, this figure of 181ha was set out together with an additional 9ha of treeline planting that was not calculated as part of the EIAR. At this stage, it was submitted that the benefit of the tree planting in terms of carbon sequestration amounts to c.30,000 tonnes CO₂eq over the 60-year lifetime of the PRD (equating to 500 tonnes of CO₂eq per year) which is significantly less than the 1,964 tonnes of CO₂eq set out in the EIAR. It was also stated, based on the 30,000 tonnes of CO₂eq, that this is equivalent to offsetting 28% of the GHG emissions associated with the construction of the proposed development or 31% of the annual maintenance phase GHG emissions. Additional smaller areas of planting within the CPO line were also referenced as having the potential to provide additional sequestration.
- 11.5.24. I note that the PRD delivery would involve a loss of c.23.3km hedgerow and 15.8km of treeline. However, I also note that c.45km of new treeline/hedgerow planting is also proposed which in terms of carbon sequestration would broadly balance the loss of trees and hedgerows, noting that it would take time for the new planting to mature. I am therefore satisfied that it is correct that the treeline/hedgerow replacement has not been included in the calculation of carbon sequestration or in mitigation.
- 11.5.25. Other mitigation measures included in the Schedule of Commitments (Item OH.2) presented during the oral hearing include the use of 45,000 cubic metres of concrete to be based on Ground Granulated Blast Furnace Slag (GGBFS) rather than traditional Portland cement. It is submitted that this would have a saving of approximately 1,200 tonnes CO₂eq during construction.

11.5.26. The shift to low emission/EVs and other greener technologies and fuels is considered to have a significant role to play in reducing emissions from road-based travel. While there is a noted shift in policy towards sustainable and active travel, there is currently no policy that requires excluding new road development projects and it is evident that road transport is essential for the economy and society worldwide. It is also evident as I have addressed elsewhere that the provision of a high-quality road at this location is strongly supported by policy at all levels. It would provide an infrastructural basis for improved traffic flow, reduction of traffic congestion and delays and corresponding unintended GHG emissions.

Residual impacts set out by the applicant

11.5.1. The applicant's findings of residual impacts of the PRD on climate at various stages (application, RFI and oral hearing) are set out below followed by a summary that I have included in Table 1 that follows.

Residual Impacts (EIAR)

11.5.2. The predicted impact on climate during the **construction phase** was rated in the **EIAR** as **short term, negative but overall, not significant**. The applicant concluded that climate impacts of the PRD in the operational phase would be **imperceptible and long-term**.

Residual Impacts (RFI)

11.5.3. At the **RFI** stage, the predicted impact of GHG emissions during the **construction and maintenance phases** is rated by the applicant as **long-term, negative** but, overall, **not significant**. In terms of operation, it was submitted by the applicant at the RFI Stage that it is not possible to identify the specific effect on climate of any one road project in isolation at a local level as the impact of global GHG emissions is intertwined. It was stated that any emissions from the PRD would be **imperceptible in this context**. It was also noted that, while globally there is certainty of the warming of the earth due to anthropogenic GHG emissions, there is significant uncertainty associated with how global climatic trends will be reflected at the regional and local scale (IPCC, 2015).

Residual Impacts (Oral Hearing)

- 11.5.4. At the oral hearing, while there was no material difference to the residual impacts previously put forward at the RFI stage, the applicant put forward an altered finding stating that the **construction and operation phase** of the PRD would be likely to have a **significant negative impact** on GHG emissions and climate. It was further submitted that this rating of significant negative impact aligns with the Institute of Environmental Management and Assessment (IEMA) guidance note on 'Assessing Greenhouse Gas Emissions and Evaluating their significance' (IEMA, 2017) which sets out that 'The GHG emissions from all projects will contribute to climate change' and in the absence of a defined threshold (e.g. national sector specific targets and trajectories) any increase or decrease to carbon emissions may be considered as '**significant**'. I have set out a summary of the applicant's findings of residual effects at various stages of the application in Table 2.

11.5.5. **Table 2** summary of applicant's assessment of residual impacts of the PRD on climate (Application, RFI and Oral hearing).

Project Element/Phase	Application stage/ EIAR impact rating	RFI response impact rating	Oral hearing impact rating
Construction	short-term, negative but overall, not significant		
Construction and Maintenance		long-term, negative but, overall, not significant	
Operation	imperceptible and long-term.	imperceptible	
Construction and Operation Phase			significant negative impact

Climate Policy Updates (since the oral hearing)

11.5.8. There has been a substantial amount of policy and legislative change brought forward as Ireland, Europe and society in general come to terms with the urgent need to address the threat of climate change. The main policy changes of relevance that have emerged since the oral hearing are set out below.

11.5.9. On the 30th of June 2021 the European Commission adopted Regulation (EU) 2021/1119 (EU Climate Law) which established the framework for achieving Climate neutrality in the EU by 2050 including an intermediate target of at **least 55% net reduction in GHG emissions by 2030 (compared to a baseline of 1990)**. On foot of the 2021 European Commission Regulation it is proposed to update EU climate legislation including the EU ETS, Regulation (EU) 2018/842 (Effort Sharing Regulation), along with transport and land use legislation, setting out how the Commission intends to reach EU climate targets under the European Green Deal. This climate law is also in line with the Paris Agreement to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C.

- 11.5.10. The **Climate Action and Low Carbon Development Amendment Act 2021**, amending the Climate Action and Low Carbon Development Act 2015, was signed into Irish law on the 23rd of July 2021. The Act provides the framework for Ireland to meet its international and EU climate commitments and to become a leader in addressing climate change. It aims to achieve a **51% reduction in overall GHG emissions by 2030 (compared to 2018 levels)** and sets out a path to reach net-zero emissions by 2050.
- 11.5.11. Based on EPA published information Ireland's national total GHG emissions for 2018 is 67,312,041 tonnes of CO_{2eq}. By applying a 51% reduction, this equates to 32,982,900 t CO_{2eq} as a 51% reduction target in 2030. As set out above the estimated GHG emissions that would be attributed to the PRD is calculated by the applicant as 107,700 tonnes CO_{2eq} over a three-year period. When divided over each of the 3 years, this equates to 35,900 tonnes CO_{2eq} per year. The emissions from the construction of the PRD (per year) would equate to c.0.11% of the 2030 target set out in the Climate Action and Low Carbon Development Amendment Act 2021. It is reasonable to assume that the PRD would be constructed prior to 2030 and on the basis that it is on the core layer of the TEN-T network that has to be delivered by 2030. In that context, the 2030 GHG emissions target is an appropriate target on which to measure the contribution of the PRD against.
- 11.5.12. As a party to the Paris agreement, Ireland is required to submit Nationally Determined Contributions (NDCs) or climate action plans outlining its strategies and targets to tackle climate change. On the 4th of November 2021 **the Climate Action Plan 2021 (CAP21)** was published. It is a sectoral roadmap for meeting Ireland's 2050 national climate objective, required to be prepared under the Climate Action and Low Carbon Development Acts 2015 to 2021. CAP21 proposes 500,000 (14%) daily public transport and active travel journeys, a 14% increase on current levels. This is intended to be achieved through the implementation of major transport projects such as Bus Connects, Connecting Ireland Rural Mobility Plan, expanding rail services and infrastructure in and around major urban centres and increase in walking and cycling investments. In relation to traffic, a target of increasing the fleet of EVs and low emitting vehicles (LEVs) to 945,000 by 2030 (to include cars, vans, trucks, buses, and an expanded electrified rail network) is also proposed. CAP21 is intended to support the goals of Project Ireland 2040. The emissions from the

construction of infrastructure, such as **road building**, are primarily addressed in the Enterprise chapter. The production of cement for use in concrete in particular, as well as improving the way resources are used across supply chains, is also addressed in that chapter. The Built Environment chapter contains a section on promoting low carbon construction. In that chapter there is information on what is proposed to support the development of alternative low-carbon construction materials and technologies and the regulatory framework that must be put in place to support these. It is anticipated that this development will reduce embodied carbon associated with construction. The Transport chapter specifically addresses emissions from vehicles.

11.5.13. On the 25th of October 2021 the Climate Change Advisory Council proposed the first three carbon budgets to cover three five-year periods: 2021 to 2025 (an average of -4.8%), 2026 to 2030 (an average of -8.3%), and 2031 to 2035 (an average of -3.5% provisional). These budgets were presented to the Houses of the Oireachtas by the Minister on the 6th of December 2021. Dáil Éireann referred the carbon budgets to the Joint Committee on Environment and Climate Action on the 7th of December for detailed scrutiny. The Committee reported its recommendations to the Houses in February 2022. In particular the Committee recommended that the carbon budgets, as proposed by the Climate Change Advisory Council, be approved by the Houses. When approved, the Minister will apply the carbon budget to prepare sectoral emissions ceilings for relevant sectors of the economy.

11.5.14. As referred to earlier in this assessment under the heading of ‘Policy Consideration’, the **NDP 2021-2030** lists the PRD as a project to be delivered during the life of the plan. The NDP is aligned with the NPF which collectively form Project 2040. The NDP has been designed to ensure that it supports the government’s climate ambitions set out in CAP21 and as part of its preparation it was the subject of a climate and environmental assessment to ensure that it aligned with the principle of a green recovery. I have considered the assessment (**Climate & Environmental Assessment of NDP Review Spending proposals**). That assessment recognises that new roads may result in an increase in GHG emissions, however it also recognises that the adverse impact of a new road on GHG emissions would be mitigated to some degree once vehicle fleets are fully transitioned to EVs powered by fully decarbonised electricity supplies.

- 11.5.15. A new global agreement, the ‘Glasgow Climate Pact’, was adopted at the **COP26**¹³ summit in Glasgow in November 2021. The agreement aims at reducing the worst impacts of climate change. In relation to emissions, it was agreed that countries would meet in 2022 to pledge further cuts to emissions of CO₂. The aim is to keep temperature rises within 1.5 degrees Celsius in line with the **Paris Agreement** that was adopted at COP21 in Paris in 2016.
- 11.5.16. While climate policy and legislation at national and European level is rapidly developing and evolving, the ultimate goal of achieving climate neutrality, or net zero emissions by 2050, remains consistent.

Evaluation of Significance

- 11.5.17. It is evident at the outset that the receptor for GHG emissions is the global climate as effects of GHG emissions are not geographically limited and all development has the potential to result in effects on climate. I agree with a similar point made by the applicant at RFI stage and as set out above. The applicant based its findings of ‘imperceptible’ (at RFI stage) on the point made that the impact of all global greenhouse gas emissions is intertwined. I note that while there is convincing scientific evidence of the global climate emergency that exists and the urgent action needed to address climate change, there is currently no specific guidance on determining the significance of GHG emissions attributed to any specific project for the purpose of EIA. Neither is there any industry-wide agreed threshold for GHG emissions which if exceeded could be deemed as ‘significant’ in terms of its impact.
- 11.5.18. The applicant presented their assessment based on the contribution of GHG emissions to binding EU targets for Ireland which is the standard approach in the absence of sectoral and local carbon budgets. However, I am mindful that this is a very broad tool to apply to an individual development and must be viewed as such.
- 11.5.19. In his Brief of Evidence presented at the oral hearing, Dr Porter on behalf of the applicant stated that he based his rating of residual impacts as ‘significant’ on the basis of revised policy and greater societal concern. He stated that the applicant’s conclusion aligns with the aforementioned IEMA guidance which sets out that, in the absence of a defined threshold, any increase or decrease to GHG emissions might

¹³ COP ‘Conference of the parties’. The conference held in Glasgow on 13th November 2021 was the 26th annual summit.

be considered **significant**. In relation to the point made on revised policy and greater societal concern, I note that there has been a strengthening of climate policy leading up to and following the oral hearing. However, the specific rationale for the applicant's changed rating of impact from 'not significant' (construction and maintenance) and 'imperceptible' (operation) to a much higher impact rating of 'significant' (construction and operation) from the RFI stage (September 2020) to the oral hearing (February 2021) was not expanded upon. In relation to the second point advanced by the applicant, that the impact rating of 'significant' aligns with the aforementioned IEMA guidance that any increase or decrease to carbon emissions might be considered as **significant**, it is important to consider this in the spirit of the overall guidance set out. Section 6.2 of the guidance document (Contextualising a project's carbon footprint) states that 'under the principle that all GHG emissions will contribute to climate change and thus might be considered significant, **and** the ongoing research of how to actually measure significance, **it is down to the practitioner's professional judgement on how best to contextualise a project's GHG impact**'. Therefore, while the aforementioned IEMA guidance document makes reference to any GHG emissions potentially being 'significant', it is clear that the intention of the guidance is that the rating of the level of 'significance' of impact in the context of EIA for any particular project is to be decided through professional judgement having regard to the project context. In the absence of any other specific guidance on evaluating the level of significance, this is a reasonable interpretation of the spirit of the IEMA guidance and one that I consider in the next section.

Project Benefits

- 11.5.20. The many benefits of the project have been set out earlier under the heading of 'Policy Consideration' and 'Project Need and Justification'. In relation to climate, benefits include delivery of a more efficient, higher quality and less congested road infrastructure along the TEN-T core and comprehensive network in County Limerick. This in turn would provide an infrastructural basis for more efficient and safer and greener road-based public and private transport.
- 11.5.21. As set out earlier, in addressing concerns raised by parties, a proposal for a new TEN-T regulation was published by the European Commission in December 2021 as a key action of the European Green Deal on climate change. As also stated above, the European Green Deal has since been strengthened by the aforementioned EU

Climate Law. The updated policy seeks to make transport greener and more sustainable by providing the appropriate infrastructure basis to alleviate congestion and reduce GHG emissions and pollution of air and water quality by making **each mode of transport** more efficient **and** by enabling increased transport activity by **more sustainable forms of transport**. EU Climate law strongly supports the bringing forward of the entire TEN-T network, including the road-based infrastructure.

- 11.5.22. Having reviewed all relevant national and EU climate policy, I do not consider that there is an inherent contradiction in investing in planned new road infrastructure while at the same time seeking to work towards net zero emissions/climate neutrality by 2050. The policy and need for the PRD as part of the TEN-T network has been demonstrated as outlined earlier in this assessment and the project has emerged as the chosen alternative following a rigorous evaluation of reasonable alternatives and a clear reason for the choice of alternative taking into account the effects of the project on the environment. The NDP includes the PRD and it also includes a range of detailed measures to reduce road transport GHG emissions. Thus the NDP, together with the NPF as Project 2040, recognises that new road infrastructure can be achieved in tandem with GHG reduction measures.
- 11.5.23. While I acknowledge that the construction of the PRD in particular will generate GHG emissions as set out, this must be seen in the context of providing strategic infrastructure that will benefit Shannon-Foynes port which is of national strategic importance as well as Limerick City, County, the Southern Region, State and European Union. As stated above in consideration of policy (Section 11.3 of the Planning Assessment), the NPF and the RSES support ambitious population and economic growth for Limerick and the southern region.
- 11.5.24. The development would deliver the much-needed high quality road network on the core and comprehensive TEN-T network, connecting Shannon-Foynes port of national significance (Tier 1) with suitable road infrastructure, while reducing congestion in towns and villages, particularly Adare and Croagh. Its delivery would not impede the corresponding measures to improve public transport, including bus, rail, and active travel modes. The operational phase GHG emissions from private car use will also reduce over time as the national vehicle fleet becomes increasingly decarbonised.

Other Matters raised in submissions (Climate Change)

11.5.25. Mr Duncan Stewart (Env 36) and Mr Lowes on behalf of Friends of the Irish Environment, (Env-35) made reference to the potential for inducing settlement sprawl in an unplanned manner and consequential additional traffic volumes and that the assessment of the PRD does not take account of likely increases in emissions over time on that basis. However, the PRD is strongly grounded in policy and would support the policy for planned growth of Limerick and the southern region and the functioning and expansion of the core port of Shannon-Foynes. I have set out the rationale for the provision of the motorway element under the heading of 'Project Need and Justification' above and I am wholly satisfied that it is appropriate in terms of capacity, safety and is proportionate for the traffic needs having regard to the planned population and economic growth as envisaged in the NPF and RSES. Beyond that, the specifics of planning the future of where people live and work is a matter to be guided by planning policy, including policy and objectives set out in the relevant development plans which themselves would be required to follow national and regional strategic planning policy.

Climate Vulnerability and Adaption

11.5.26. In the course of the application the Board requested further information from the applicant on the resilience of the development to climate change including the adaption of the PRD to take account of the impact of climate change over its lifetime. The applicant's response stated that the PRD was designed to be resilient to the effects of climate change in the construction and operation phases. It outlined that the road levels for the mainline were sufficiently elevated above the 1% Annual Exceedance Probability (AEP) flood event¹⁴ and that a freeboard allowance of at least 600mm has also been incorporated into the finished road levels in accordance with TII and OPW guidelines. It is also stated that the detail flood models were developed for several sections of the alignment. These are set out in the response. They include Foynes HGV Rest Area, Robertstown Crossing, Ahacronane Crossing, Lismakeery Crossing, Deel Crossing, Blossomhill and Greanagh and Maigne Crossing. The applicant also outlined in the EIA (Hydrology) and RFI and again at

¹⁴ Annual Exceedance Probability (AEP) refers to the probability of a flood event of a given magnitude being equalled or exceeded in any given year. A 1% AEP flood event has a 1%, or 1 in a 100, chance of occurring or being exceeded in any given year.

the oral hearing that all crossings have been designed to allow for a 20% uplift for climate change in line with the mid-range future scenario (MRFS) which is seen as the more likely estimate of climate change by 2100. In addition a freeboard of at least 300mm is incorporated to the soffit level of all other watercourse crossing.

- 11.5.27. In relation to the attenuation ponds, these have been sized based on climate change increase in rainfall intensity of 20% to allow for higher future inflows from the PRD while maintaining the same outfall discharge rate. Reference is made to the EOP which also accounts for the effects of climate change during construction. For example, construction compounds and machinery re-fuelling would avoid flood risk areas.
- 11.5.28. During construction the effects on climate would be inherently linked to the consumption of materials, the generation and disposal of waste and the transport of these to and from the site. In general there would be no requirement to export waste soil materials, with the exception of small amounts of contaminated soil, from the site of the PRD. Practically all the natural soil and rock material excavated would mainly be re-used in connection with the project, with the remainder stored on the site (35,000 cubic metres of peats and an additional very small amount of other soft soils). Minimising waste of materials due to poor timing or over ordering on site will help to minimise the carbon footprint of the site. Materials would be reused where possible. In addition, materials will be sourced locally where possible to reduce the embodied emissions associated with transport.
- 11.5.29. A Construction Stage Traffic Management Plan would be implemented throughout the construction stage to avoid congestion and thus reduce emissions. All plant and machinery would be maintained and serviced regularly and measures to prevent delivery vehicles from idling would be implemented.
- 11.5.30. I am satisfied based on a review of the information provided on the design throughout the EIAR, the drawings presented and further information provided at the oral hearing, that the PRD has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and changing climatic conditions. Chapter 4 (Design of the Proposed Road Development) and Chapter 10 (Hydrology) outline the drainage strategy which is focussed on mirroring the natural hydraulic regime and

management of the drainage to protect water quality. All outfalls from the proposed road drainage system will be attenuated to accommodate a 1% AEP rainfall event to achieve greenfield runoff rates prior to discharge to the receiving watercourse. The effects of potential flooding, including allowance for climate change, has been considered in the drainage design and in the design of all river crossing structures.

Inspectors Conclusion on Climate

Climate Change

- 11.5.31. While the **operation and maintenance** phases of the PRD would generate GHG emissions, based on all of the information on this file, including the applicant's assessment and the submissions received, I am satisfied that the GHG emissions would not be so significant as to have a long-term detrimental impact on the Government's ability to meet its 2030 GHG emissions targets and the target of reaching climate neutrality by 2050. The clear intention at EU and national level is that the decarbonisation of the transport network will require a broad range of measures, particularly the move towards EVs and LEVs, the use of other forms of non-fossil based alternative fuels, and the use of electricity generated from renewable sources for charging of batteries for EVs.
- 11.5.32. However, the need for the road infrastructure to serve the many requirements as outlined is clear and underpinned by policy at all levels including the binding requirements to deliver the road-based components of the TEN-T core and comprehensive network by 2030 and 2050.
- 11.5.33. Following my assessment of the project it is my considered professional opinion, noting the strong policy support for addressing climate change and for the related completion of the comprehensive TEN-T network, that the effect of the PRD on climate would be no greater than **slight negative** in terms of rating of significance in accordance with EIA and the consideration of the proper planning and sustainable development. With an efficient road network achieving all the policy objectives outlined above and allowing a safe and improved journey experience with reduced congestion along the strategic route, improving connectivity between the Tier 1 Port and Limerick and the wider region, the impact rating of slight negative may be less overall. However, noting the continued use of the existing N69 and N21 for local traffic, a conservative finding of 'slight negative' is reasonable. My finding of 'slight

negative' rating of impact is lower than the applicant's revised rating of impact 'significant negative' as presented at the oral hearing and slightly above their rating of 'imperceptible negative' as set out in the EIAR and RFI.

11.5.34. In relation to the **construction** phase, it is clearly acknowledged that the PRD is a major construction project, and the construction phase would undoubtedly generate the greatest level of GHG emissions when compared to the operation or maintenance phases year on year. Noting the information provided, including the extent of emissions that would likely be generated and mitigation measures proposed, based on my professional judgement I conclude that the environmental effects on climate would be no greater than **moderate negative** for each of the three years of the construction phase of the project. This is at variance with the applicants finding for the construction phase which is 'not significant' at the EIAR and RFI stages and 'significant' at the oral hearing.

11.5.35. I have provided a summary of my assessment ratings in respect of climate change below.

Table 3 –Inspector findings of significance on climate change arising from the PRD.

Construction	Operation and Maintenance Phases
Short-term, moderate negative (for up to three years)	No greater than slight negative and long-term.

Climate Adaption

11.5.36. In respect of climate adaption, the proposed road development has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and climatic conditions. Flood risk has been considered in the hydrology assessment where the risk is deemed to be very low.

11.6. Road Design and Construction – Elements of Significance

11.6.1. I have examined the details of the road design and outline my considerations on the main design features and matters relating to construction below, as part of my assessment on the Section 51 approval application. As there is a degree of overlap

between the matters covered in this section and the EIA of the project, I recommend that it should be read in conjunction with section 12 (Environmental Impact Assessment).

Proposed Road Cross-Sections

- 11.6.2. The road cross-sections are presented in Figures 4.69 and 4.70 of Volume 3 (Figures) of the EIAR. As set out earlier in this assessment, the TEN-T guidelines as laid down by Regulation (EU) No 1315/2013 require that roads on the core and comprehensive components of the network are high quality roads with Article 17(3) setting out that such (high quality) roads shall be **motorways, express roads or conventional strategic roads**.
- 11.6.3. For the three sections of road on the combined core and comprehensive network (Sections A,C and D) this requirement would be fulfilled in terms of the design. Issues raised about the scale of the PRD have been considered in Section 11.4 (Project Need and Justification) above, where I have concluded that the road types and cross section advanced for each of the sections of road have been informed by TEN-T requirements and also by future capacity. Section B (Ballyclogh to Askeaton) is not on the main access route to Shannon-Foynes Port and would carry much lower HGV traffic than the remaining sections. As such, this section proposes a Type 1 Single Carriageway.
- 11.6.4. I am satisfied that the cross-section of the PRD mainline is not over-engineered or over-specified, but instead is proportionate and responsive to the forecast target growth for Limerick of 50% by 2040 and ambitious population and employment growth and associated traffic volumes and does not include capacity beyond that which is appropriate to reasonably sustain the PRD for its envisaged 60-year lifespan.

Extent of Bridge Structures

- 11.6.5. There are 64 bridge structures proposed along the route of the PRD, including five significant river bridges, the largest of which is over 210m length of clear-span bridge over the River Mague at ch.60+925, Adare. The structure is a three-span steel-concrete composite, multi-girder bridge. The bridge has been designed to avoid adverse impacts on the Lower River Shannon SAC and to avoid intrusion into the ecologically sensitive area of the river between the existing flood bunds on either

side of the river channel. The potential biodiversity impacts and impacts on the conservation objectives of the Lower River Shannon SAC have been considered in the design of the River Maigue Bridge crossing and the stated construction methodology. These issues are considered in detail in Chapter 7 (Biodiversity) of the EIAR and in the assessment carried out on Biodiversity by Dr Flynn. In addition, the Appropriate Assessment section (Section 13) of this report considers potential impacts on the conservation objectives of the Lower River Shannon SAC. The design of the proposed River Maigue crossing is such that it would also protect water quality and would not exacerbate any flood risk.

- 11.6.6. The River Deel bridge at ch.24+010 is an 84m three-span bridge located upstream of Askeaton. At Robertstown (ch.2+650), the PRD would cross both the existing N69 road and the Robertstown River, west and south of the existing river bridge. The PRD would cross the River Greanagh at two locations, a single-span bridge crossing at ch.58+175 and a three-span (81m) bridge crossing at ch.59+250.
- 11.6.7. Other larger bridge structures include three railway bridges and 16 road bridges. Smaller scale structures include 22 minor underpass structures for farm access and 18 minor watercourse bridges. I am satisfied that the scale and number of structures proposed are justified for a road development of this nature on the basis of the structures being necessary, typical and not excessive and the impacts of the structures have been considered as part of the EIA and AA.
- 11.6.8. Drawings and photomontages of the proposed structures are shown in Plate 4.53 to Plate 4.63 of Chapter 4. General arrangement details and construction sequencing of the River Maigue Bridge Crossing (RVB04) are presented in Figures 4.72 to 4.75 (inclusive) in volume 3 – Figures of the EIAR. A photomontage of RVB04 is also illustrated in Plate 4.47 of Chapter 4.
- 11.6.9. In relation to other watercourse crossings, flow capacity has determined the structural clearances, and in many cases, these have been designed to accommodate mammal passages along the banks of the watercourse, and/or bottomless structures, so as not to disturb the riverbed in the interests of aquatic ecology. Culverts have been designed in accordance with appropriate TII and relevant Construction Industry Research and Information Association (CIRIA) Standards. Culverts comprise a variety of sizes from concrete pipe (for small drains

and ditches) and concrete boxes (for streams and minor watercourses). They have been sized to convey the 1% AEP flood flow with an allowance of 20% for climate change and have a minimum freeboard depth of 300mm.

- 11.6.10. The potential for environmental impacts of the construction of the hydraulic structures has been set out in the EIA section of this report under the heading of Hydrology and the accompanying assessment on hydrology carried out by Mr Keohane. Having regard to the design of structures and mitigation measures set out, including adherence to the EOP and Construction Erosion and Sediment Control Plan (CESP), no significant impacts are envisaged.

Pavement

- 11.6.11. The volume of pavement for the PRD would be 310,000 cubic metres of which 280,000 cubic metres would be utilised for the main PRD and 30,000 cubic metres would be used for the side roads.

Junctions and Tie-in Points

- 11.6.12. The PRD proposes to include seven junctions, two grade-separated junctions at Adare and Croagh that would include structures, link roads and six roundabouts. The remaining five junctions would be at-grade roundabout type junctions, providing access to Foynes, Ballyclogh, Askeaton and two at Rathkeale. The junction types and rationale for each are set out in Chapter 4 (Description of the Proposed Road Development) of the EIAR. Junction design and layouts are illustrated in Figures 4.59 to 4.68 of Volume 3 (Figures) of the EIAR. I am satisfied that the scale and number of junctions proposed is standard for a road development of this nature. It is inevitable that significant temporary works and traffic management measures would be required to facilitate the passage of traffic on the existing N21 and N69 at these locations.

Bypasses

- 11.6.13. The mainline plan and profile are illustrated in Figures 4.25 to 4.49 and the plan is also illustrated overlain on aerial photography in Figures 4.1 to 4.24 of Volume 3 (Figures) of the EIAR. The PRD would bypass six urban settlements including Adare and Croagh on the N21 and the villages of Mungret, Clarina, Kildimo and Kilcornan on the N69. I would agree as submitted, that these would improve the amenity and quality of life for the communities who live in and around these settlements, through

reduced congestion and associated decreased air and noise pollution, though there would be a loss of passing trade for some established businesses, in the short term at least. I have dealt with impacts on existing trade in these settlements and on the communities in general under the heading of ‘Population and Human Health’ in the EIA section of this assessment below.

Earthworks

11.6.14. The extent of earthworks is one of the most significant construction elements of the PRD. This is because of the nature of the project involving the excavation of approximately three million cubic metres of soil and rock and the importation of between 800,000 and 1.3 million cubic metres of fill (depending on availability of materials from potential borrow pits on site). It is evident from a review of the vertical alignment of the PRD mainline, that substantial sections of the road would be formed as embankments, largely as it would seem, due to the existing surrounding topography, the need to minimise large junctions with other roads and the need for bridge crossings.

11.6.15. Details of the amount of cut and fill along each section of the PRD alignment are set out in Chapter 4 (Description of the Proposed Road Development) and for ease of reference, I have provided a summary in Table 4 below.

Table 4 Cut and Fill along each section of the PRD.

Cut/Fill	Section A	Section B	Section C	Section D	Total
Fill	3.7km (59%) is proposed to be constructed on fill.	All of Section B (1.9km) is proposed to be constructed on fill.	All of Section C (9.3km) is proposed to be constructed on fill.	9.5km (68%) of Section D is proposed to be constructed on fill.	24.4km (77%) of the entire PRD is proposed to be constructed on fill.
Cutting	2.6km (41%) is proposed to be constructed in cutting			4.5km (32%) is proposed to be constructed in cutting.	7.1km (23%) of the entire PRD is proposed to be constructed in cutting.

11.6.16. Based on a review of data from the ground investigation, excavated rock would account for 70% of the suitable cut material that would be won on site. The main areas of cut material arise from two large cuttings at Mulderricksfield in Section A at the western end and at Ballycannon/Croagh in Section D centrally located along the length of the PRD.

Materials Balance

11.6.17. The following table summarises the materials balance for the construction of the PRD as presented by the applicant in the EIAR (Table 4.20 of Chapter 4 – Project Description), the response to the RFI and in briefs of evidence and responses to questioning at the oral hearing.

Table 5 Materials Balance Summary

Material	Volume / Percentage of Material	Comments
Total Required Material to deliver the PRD		
Total material required for the PRD road construction.	4 million cubic metres	This includes all suitable material including rock and suitable engineering /structural fill for embankment construction and for capping material and includes for the replacement of soft ground. It does not include topsoil.
Materials Available on the site of the PRD		
Total Cut (Rock and other suitable and unsuitable materials).	3 million cubic metres	A total of 1.9 million cubic metres of suitable rock is estimated to become available from areas of 'cut' within the PRD site; Other than rock, the figure of 3 million cubic metres of total cut includes 1.1 million cubic metres of other cut materials (suitable and unsuitable). Of this figure of 1.1 million tonnes of other cut material, 800,000 cubic metres is deemed suitable for structural fill material

		<p>and 300,000 cubic metres¹⁵ is deemed unsuitable material for use as structural fill. The unsuitable material is stated to include 35,000 cubic metres of peat;</p> <p>Initially in Chapter 4 (Section 4.11.2 – Earthworks Quantities) and Chapter 8 (Section 8.4.1.7 – Soft Ground Improvement) of the EIAR, it is set out that all of the unsuitable material would be used for landscaping/capping, however, it was clarified in the RFI response and at the oral hearing, that unsuitable material that would not be used in landscaping and capping would be deposited on site, potentially within worked out borrow pits. With the exception of a small amount of contaminated material, there would generally be no requirement to export unsuitable material off the site.</p>
Total suitable structural fill material on the site of the PRD.	2.7 million cubic metres	This would include 1.9 million cubic metres of suitable rock and 800,000 cubic metres of other cut materials (both suitable and unsuitable).
Rock as a percentage of total cut.	63% of total cut	Calculation: 1.9 million ÷ 3 million (cubic metres) expressed as a percentage.
Rock as a percentage of all of the suitable material.	70% of suitable material	Calculation: 1.9 million ÷ 2.7 million (cubic metres) expressed as a percentage.
Materials Deficit and Sources of Additional Materials		
Materials Deficit	1.3 million cubic metres (4 million less 2.7 million) cubic metres	1,150,000 cubic metres of structural fill required for road construction and 150,000 cubic metres of suitable material required for capping.

¹⁵ A figure of 300,000 cubic metres and 320,000 cubic metres are used by the applicant. This is discussed in my assessment below.

Sources of Additional Suitable Structural Fill Material for road construction.	1.3 million cubic metres (Materials Deficit)	<p>It is stated that borrow pits may be developed on the PRD site to win 500,000 cubic metres of required structural fill material. It is also stated that a modest degree of additional excavation may also be used to gain some of the required resources;</p> <p>It is also stated that ground improvement methods may be employed so as to reduce the volume of unsuitable material for structural fill;</p> <p>The balance of material (likely to be 800,000 cubic metres) would be imported onto the site from quarries in the region;</p> <p>While the use of borrow pits and other methods outlined are a possibility, the EIAR has also considered the need for importing all of the required material (1.3 million cubic metres of fill) in its assessment of impacts.</p>
Other Material on the site of the PRD (Topsoil)		
Topsoil	415,000 cubic metres	This volume of topsoil is in addition to the suitable material set out above and would be removed initially and stored on site for re-use for landscape purposes.

Processing of Excavated Rock

11.6.18. With regard to rock arising from excavation on the PRD site and which is proposed to re-use for fill, it is stated in the EIAR that earthworks would involve the processing of excavated material into suitable construction material. Processing areas have been identified as the potential locations of smaller site compounds. At the oral hearing, Mr MacGearailt clarified that the earthworks would include some crushing/breaking of rock into smaller size which he stated would not be very fine, rather sufficient for transport and re-use as general fill in embankments, however for

the base layer, rock in a coarser state would be used without the need to be broken up.

11.6.19. In Chapter 12 (Noise and Vibration), it is stated that rock crushing activities would be located at source within the two main cuttings and would be set back from noise sensitive areas. It is stated in the EOP that while the exact locations of rock processing facilities would be determined by the appointed contractors, it is likely that this activity would take place within the road cutting itself.

11.6.20. For reasons of clarity, I have taken the approach in my assessment that crushing of rock at source and that processing of excavated material in the compounds is a likely part of the earthworks and associated operations. The environmental effects that could potentially arise with crushing and processing involving the breaking of rock into smaller size particles are considered throughout my assessment including the EIA, as relevant.

Sequencing

11.6.21. At the oral hearing, in response to questioning, Mr MacGearailt stated that for the most part, the sequencing of operations would follow best practice whereby excavated material would be taken from source directly to its area of fill in the locations of the embankments and there would be generally no need for doubling handling. He stated that some material would be stored temporarily on site for use in the embankment formation. He also stated that a certain amount of soft material, c.150,000 cubic metres, that would not be suitable for engineering/structural fill, would instead be saved on site for later re-use in connection with capping and landscaping.

Sourcing of Materials from quarries and borrow pits

11.6.22. A number of quarries in the vicinity have been identified as having potential for sourcing material required for the construction and these include:

- Joseph Hogan Ltd., Ballylin, Foynes, Co. Limerick, 10km north-west of Rathkeale;
- Liam Lynch (Quarries) Ltd., Kilfinny, Co. Limerick, 12km east of Rathkeale;
- Roadstone, Bunratty West, Newmarket on Fergus, Co. Clare, 45km from Rathkeale and 30km from Adare.

- 11.6.23. An Taisce raised concerns in their submission that materials could be sourced from unauthorised quarries. I note the commitment set out in the EIAR and at the oral hearing that while the contractor may source material from other quarries than those specifically listed above, only quarries that conform to all necessary statutory consents would be permitted for use by the appointed contractor. I note this commitment is included as a mitigation measure in Chapter 19 of the EIAR and will form part of the overall schedule of environmental commitments which I consider acceptable.
- 11.6.24. It is stated that borrow pits may be developed on site to obtain up to 500,000 cubic metres of required structural/engineering fill material. The balance of material (likely to be 800,000 cubic metres in the event that the borrow pits are developed) would be imported onto the site from quarries in the region. While the use of borrow pits are a possibility, the EIAR has also considered the need for importing all of the required material (1.3 million cubic metres of fill) should the borrow pits not be used. The applicant has stated that sufficient material can be sourced from quarries in the region should the entire amount be required to be imported.

High Embankments

- 11.6.25. Areas of high embankments, defined as embankments greater than 7m high are set out in Table 8.5 of Chapter 8 (Soils and Geology) of the EIAR. Environmental effects from earthworks including the construction of high embankments have been examined and assessed by Mr Jer Keohane in his report on Soils and Geology. Mr Keohane noted the underlying soils beneath the embankments are mainly glacial till derived from limestone bedrock, which are suitable soils for receiving and sustaining the PRD.
- 11.6.26. Mr Keohane addressed matters such as rock excavation methods, unsuitable/soft soils, contaminated soils and made-up ground, slope stability and soil improvement in his consideration of the soils and geological environment and arising impacts. He also dealt with matters of construction dewatering and addressed drainage and flood risk in the hydrogeological and hydrological assessments. In general, it is considered in respect of these matters, that the PRD is designed based on a sound understanding of the existing environment and its delivery would avoid any adverse impacts on the soils and geology and the water (hydrology and hydrogeology)

environment in the short-term during construction or in the long term for the operation phase. The matters of environmental effects are addressed in the respective sections in the EIA section below.

Construction Compounds

11.6.27. Construction compounds would generally be located at the various access points from public roads and where bridges are to be constructed. The main construction compound would be located on a 2.5ha site immediately west of the proposed Rathkeale Junction as shown in Plate 4.82 – Main Construction Compound of Chapter 4 of the EIAR. Potential locations have been identified for smaller compounds and these have also been identified in Chapter 4. A general restriction would apply such that no construction compounds would be located within 100m of any occupied house, so as to limit the risk of noise and dust nuisance. It is also stated in Chapter 12 that all construction compounds would be set back 100m from sensitive receptors. I am satisfied that the construction compounds have been well considered and while the precise location of all of the compounds (outside of the main compound) are not identified, a number of potential locations have been set out and construction compounds are an acceptable part of the overall PRD and would be removed on completion of the works, or phases.

Road Drainage

11.6.28. A traditional form of road drainage including an open ditch generally located at the toe of embankments would generally be employed. The drainage is designed so as to replicate in as far as is practical, the existing drainage regime, particularly in relation to run-off rates and watercourse outfalls, while at the same time providing improved water quality treatment by means of wetland ponds prior to discharge. The drainage design includes the use of 42 attenuation ponds and a small number of detention basins. The attenuation ponds are generally designed to retain a permanent depth of water that would sustain marshy plant types and various species of fauna, so as to add to the local ecology. It is submitted and I would agree that with suitably flat side-slopes (1:5), there is no requirement for protective fencing. Where the PRD is in areas of cut, the proposed drainage system would mainly consist of swales at the rear of the verges. The drainage design would follow various applicable TII Standards and UK CIRIA guidelines and would be carried out in

accordance with the requirements of OPW and IFI. The design of these elements of the PRD is considered to be sufficiently considered and overall is acceptable and appropriate in the context of the receiving environment.

Construction Traffic and Haul Routes

11.6.29. The haulage of materials to-and-from the site of the PRD has potential to cause a significant temporary impact for both road users and residents living along the haul roads. It is proposed that access to the site for the mainline works would be primarily off and along the following national and regional roads, at seven locations, as shown in Figure 4.71a in Volume 3. These include:

- N21 at three locations: (i) east of Adare, (ii) at Croagh and (iii) at Rathkeale;
- N69 at three locations at (i) Foynes, (ii) Robertstown and (iii) Askeaton;
- R518 at Graigeen, north of Rathkeale.

11.6.30. For the construction of the **River Maigue Bridge**, a western access route would be required from the L-1423 (Station Road), just north of Adare village. Construction materials for the western part of the bridge, including sections of bridge beams, would be delivered to the site along this western access route through Adare village. This arrangement is stated to be necessary, as a temporary bridge would not be provided across the River Maigue during construction, primarily to avoid the tidal zone of the river channel.

11.6.31. For the **River Deel Bridge**, the main construction access would be from the south, off the R518 at Graigeen, north of Rathkeale. A secondary access route would be required from the north, through Askeaton and along the L-1423 (Station Road) for delivery of materials for the western abutment and pier. It is stated that the main bridge beams can be delivered from the eastern side, via the main access route from the R518 at Graigeen, and each of the three spans can be progressively erected from east to west across the river.

11.6.32. Beyond those described above, it is also set out that **construction access** would not be permitted off local roads, other than for light vehicles for personnel to gain access to bridge construction sites. HGVs would be required to use a temporary haul road along the route of the proposed road development, from the nearest access point on a National or Regional Road.

11.6.33. During the construction phase, a total of 233,000 **truck movements** over 600 construction days equating to 87 HGVs per hour over a 9-hour working day are envisaged. The operating hours for construction traffic delivering bulk materials to the site through Adare on the N21 would not operate beyond 16:00 on all days, and through weekends. I am satisfied that this is a reasonable proposal to reduce general traffic delays and inconvenience for the Adare and surrounding community.

Temporary Traffic Management

11.6.34. Temporary Traffic Management and Road Diversions are set out in Table 4.21 of the EIAR, and it is stated that all temporary diversions, lane closures, one-way systems, signage and temporary safety measures would be carried out in accordance with Chapter 8 of the Traffic Signs Manual (Department of Transport, 2019) and that public information would be made available on the website for the PRD and a project liaison officer would be appointed for the duration of the construction works by LCCC. A construction stage traffic management plan is also proposed.

11.6.35. The section of the N21 east of Adare up to Attyflin junction further east, that is to be constructed on-line as a motorway, would require extensive traffic management during construction due to the requirement of switching traffic lanes and the use of hard shoulders in order that two-way traffic flow can be maintained alongside the works. The duration of these on-line works, together with the work required to the existing services, is estimated to be between six and eight months and the management of traffic has been appropriately considered in the EIAR. It would comprise a combination of alternating temporary traffic transitions from one side to the other and include short-term temporary diversions and one-way traffic for temporary periods or at off-peak times, subject to agreement with the Roads Authority and An Garda Síochána.

11.6.36. A question arose at the oral hearing from Brian and Maeve Smyth (Env-7) regarding traffic management for the communities. Mr Smyth stated that the proposals for traffic management should be reviewed to ensure no 'rat run' from Lantern Lodge Roundabout via the Thatch Pub to Ballingarry Road around the southern side of Adare. In response, the applicant stated that works for the PRD are unlikely to cause additional congestion in Adare, as they can be constructed off-line to the north. The applicant also stated that the only element of works that would require traffic

management on the N21 at Adare will be for the tie-in of the new road to the existing road at Monearla 1km east of the Lantern Lodge junction, and on-line improvement works along the existing N21 over a length of 2km eastwards to Attyflin. During those works it is intended that a single traffic lane would be retained in both directions so that traffic delay is minimised. There would also be a temporary road speed limit. I also note that the works would be of relative short duration of about six months at this location. The concerns raised are noted and have been adequately addressed by the application in both the design and the response given at the oral hearing.

- 11.6.37. I am satisfied that the construction traffic and access arrangements are well considered and while there will undoubtedly be traffic delays and inconvenience and diversions required during the construction phase, the intention is that the traffic would be managed so as to minimise the disruption to the communities.

Utilities/Services

- 11.6.38. The applicant has stated that it has been determined in consultation with ESB Networks that the existing 220kV transmission line at ch.25+050 would require raising to provide adequate clearance for the electricity lines crossing the route of the PRD. The existing tower, 24m in height, would be replaced with a higher tower, 34m in height. Details have been provided of same in Chapter 4 of the EIAR and on Drawing No. PG567-D004-714-001-000 within Volume 3 (Figures) of the EIAR and on Plates 4.74 to 4.76 of Chapter 4.
- 11.6.39. Some works to 110kV transmission lines are also stated to be required at three locations, including at ch.5+420, ch.11+085 and ch.26+710. At ch.26+710 new and altered poles are required. The existing poles are 17-18m in height would be replaced by 21m height poles above ground level. Details have been illustrated in Drawings no. PG567-D004-483-001-000 and PG567-D004-485-001-000 within Volume 3 (Figures) and on Plates 4.77-4.80 of Chapter 4 of the EIAR. Existing 38kV powerlines at five identified locations would also be required. It is generally proposed that overhead electricity lines along the mainline would be diverted under embankment or along cuttings under the carriageway.
- 11.6.40. Gas main diversions are required at Rincullia (ch.4+190) and to the north-east of Croagh Village (ch.54+700) and these will be undertaken by Gas Networks Ireland

(GNI) on behalf of the contractor. Other utilities and services including foul water and water mains and telecommunications would be diverted or protected, as appropriate.

11.6.41. I am satisfied that services and utilities have been adequately considered. There would be some short-term impacts where services are being diverted, however, these can be carried out with appropriate mitigation measures in place so as to avoid any significant adverse impacts. Where landowners are affected by inclusion of the lands for diversion of the gas main within their lands and where objections remain, these have been considered as appropriate in Section 14 (Assessment of application for approval of schemes) below.

Safety Barriers and Clear Zones

11.6.42. Safety barriers would be required in places, because, as I would note, not all hazards can be relocated outside of the clear zone area. The safety barriers would serve to truncate the clear zone at the barrier by providing protection. These would be provided in accordance with TII Publication 'Road Restraint Systems (Vehicle and Pedestrian) for Roads and Bridges (2019)'. This TII publication referring to clear zones as a vital component of a 'forgiving roadside' defines the clear zone as 'the total width of traversable land on the nearside or offside of a road which is to be kept clear of unprotected hazards. This width is available for use by errant vehicles'. Table 3.1 of the TII document provides clear zone widths for various design speeds and horizontal radius.

PRD Boundary Fencing

11.6.43. The fence-type proposed along both the mainline PRD (national road) and the side-roads (non-national road and tie-in locations) complies with TII Specification for Road Works – Fencing and Environmental Noise Barriers (2018). Where permanent fencing occurs within the clear zone area it would generally be **timber post and tension mesh fencing** type, in accordance with TII standard **CC-SCD-00320**. It is stated that at locations beyond the clear zone the fence, generally on non-national side-road tie-ins with the PRD, may be timber post and rail construction with PVC coated chain link complying with TII standard **CC-SCD-00301**.

11.6.44. For farm holdings with equine livestock, where permanent fencing occurs within the clear zone area along the main PRD alignment, it would comprise a timber post and tension post and tension mesh stud fencing in accordance with TII standard **CC-**

SCD-00321. At locations beyond the clear zone, it is stated that the fence may be timber post and rail construction with PVC coated chain link complying with TII standard **CC-SCD-00302.**

- 11.6.45. In addition to the fencing outlined, in Section 7.5.4.2 (Operation Stage Mitigation for fauna) in Chapter 7 (Biodiversity) of the EIAR, it is also stated that mammal resistant fencing would be put in place at mammal (otters and badgers) crossing points extending 500m either side of the crossing points. Locations of mammal passages along the proposed road development are detailed in Tables 7.12a to 7.12d. By reference to TII 'Standard Construction details (SCD) 300 Series' (April 2017) also outlined, I am satisfied that the mammal resistant fence type is of a type set out in TII standard **CC-SCD-00324.** It is also stated that where there is an overlap of stock-proof fencing and mammal resistant fencing at culvert/underpass locations, stock-proof fencing would be required to be adjusted to allow for unimpeded access to the underpass.
- 11.6.46. The main fencing types proposed are illustrated in Plate 4.72 (CC-SCD-0320 - Typical timber post and tension mesh) and Plate 4.73 (CC-SCD-0301-Typical Timber Post and Rail Fence) of Chapter 4 the EIAR and these were also presented as part of the Material Assets and Land Agriculture and Non-Agriculture Brief of Evidence at the oral hearing.
- 11.6.47. Fencing along the mainline would be maintained into the future by the Local Authority. Along the non-national side-road tie-ins with the proposed road, the stated intention is that the fencing type would be maintained by the landowner.
- 11.6.48. The type of fencing along the mainline of the PRD was a matter of debate and discussion at the oral hearing. During the second module addressing objections from affected landowners under the Section 49 application, concern was expressed by a number of landowners represented by Mr Richard Rea of Martin & Rea (Tipperary Office) who own and operate equine enterprises, that the fencing type for those properties was not adequate. It was suggested by Mr Rea and his team that a double post and rail (preferably electrified) fence would be more appropriate and necessary to protect horses from noise and visual stimuli.
- 11.6.49. In considering the appropriate boundary fencing, the key point I note is that TII have updated their standards for fencing types along national roads, having more recently

moved away from a post and rail fence as the rails were considered a hazard in the event of errant vehicles or a road collision (with road boundary fencing). The applicants proposal is for fencing in accordance with the updated/current policy, 'Specification for Road Works – Fencing and Environmental Barriers' (TII, 2018). Section 6.2 (Roadside Permanent Fencing) of the aforementioned TII document sets out:

'Permanent fencing **adjacent to national roads** shall be timber post and tension Mesh fence complying with this specification and as per the TII publications SCDs contained in Appendix 3/2. The details within CC-SCD-00320 for a timber post and tension mesh fence or CC-SCD-00321 timber post and tension mesh stud fence shall be used as appropriate. Where such fencing is required to be mammal proof, it shall be as per CC-SCD-00324 mammal resistant timber post and tension nesh fencing'.

11.6.50. Section 6.3 (Non-Roadside Permanent Fencing) sets out:

'Permanent fencing installed **as part of a national road scheme which is not erected adjacent to the road** such as for accommodation works may be timber post and rail fence with four rails complying with IS 435 or another appropriate fence type chosen from the TII Publications SCDs contained in Appendix 3/2'.

11.6.51. I am satisfied that the types of fencing proposed are in line with the latest TII standards that were brought forward to improve road safety. For ease of reference for the Board, I have placed a copy of the five fence types outlined above being those that would be used in connection with the project on the application file. Should a second/inner fence be considered appropriate on the landowners property, this would be an accommodation works matter between the Roads Authority and the individual landowners of equine enterprises.

11.6.52. It is submitted that where boundaries at houses are proposed to be removed as part of the works, they would generally be replaced on a like-for-like basis, subject to agreement on accommodation works with individual property owners. This is reasonable and acceptable.

Signage and Lighting

11.6.53. Directional signs and regulatory signs would be provided in accordance with the Traffic Signs Manual referred to above. Tourist signs are proposed to be provided in accordance with NRA document 'Policy on the Provision of Tourist and Leisure Signage on National Roads (2011)'. Road lighting is proposed to be confined to all roundabout junctions and immediate approaches.

Other

11.6.54. Other construction works are outlined and include the construction of noise bunds and barriers, landscaping and habitat creation, ancillary roadworks and accommodation works for affected landowners (access roads, entrances, fences, gates, ducting and reconnection of severed services). A Garda Enforcement Layby is proposed on the proposed motorway section (Section D) at ch.53+500 eastbound and ch.53+350 westbound, between the Rathkeale and Croagh junctions. Several other laybys would be provided along the protected road from Rathkeale to Foynes as shown on the drawings contained in Volume 3. Details of noise barriers proposed along the route are considered in detail in the EIA section below under the heading of 'Noise and Vibration' and location of permanent noise barriers are illustrated in Figures 12.1 to 12.23 (Noise Monitoring Locations and Mitigation) of Volume 3 of the EIAR.

Environmental Operating Plan

11.6.55. An EOP has been developed for the proposed road development, stated to be in accordance with the TII Guidelines for the Creation and Maintenance of an Environmental Operating Plan. A copy is included in the EIAR (Appendix 4.1 of Volume 4). It is stated that it would be finalised by the successful contractor in agreement with LCCC and would be implemented during the construction phase. It sets out environmental requirements and mitigation measures and would include any relevant conditions that might be attached to the Board's order in the event that the Board approve the PRD. It includes a CESP and procedures to be followed in the event of a pollution incident on site and measures to prevent the spread of invasive species and biosecurity management.

11.6.56. Having reviewed the EOP, I am satisfied that it includes best practice measures that are relevant to the project, and it is also stated that relevant guidance current at the

time of construction would be followed. It also includes methodologies for the implementation of the environmental commitments and mitigation measures where applicable. I note the commitment that the appointed contractor would be required to appoint an independent Site Environmental Manager (SEM) to ensure the EOP is properly implemented and to provide independently verifiable audit reports. It is further stated that the results would be stored in the SEM's monitoring file and would be available for inspection / audit by the Client, National Parks and Wildlife Service (NPWS) or IFI staff.

11.6.57. Furthermore, as is also set out in Chapter 19 of the EIAR and the EOP, in order to ensure the successful development and implementation of the EOP, the Contractor would appoint an independent Ecological Clerk of Works (ECoW). The principal functions of the ECoW are stated as:

- to provide ecological supervision of the construction of the proposed road development and thereby ensure the full and proper implementation of the mitigation prescribed in this NIS and in Chapter 7 (Biodiversity) of the EIAR;
- to regularly review the outcome of the specialist hydroacoustic monitoring and, on that basis, make any necessary adjustments to the mitigation;
- to carry out weekly inspections and reporting on the implementation of the Contractor's Biosecurity Protocol.
- during the preparation of the Contractor's EOP, the SEM may, as appropriate, assign other duties and responsibilities to the ECoW. In exercising his/her functions, the ECoW will be required to keep a monitoring file and this will be made available for inspection or audit by LCCC, the NPWS or IFI at any time.

Waste Management

11.6.58. Measures for dealing with the treatment, storage and recovery or disposal of waste are also included within the EOP which contains a chapter on Construction and Demolition Waste Management, and it is stated that the contractor would develop the Construction and Demolition Waste Management Plan. Section 7.2.6 (Auditing) outlines that the contractor would record the quantity and types of waste materials leaving the site. It also sets out that a Waste Management Co-ordinator (WMC) would be appointed by the contractor to assume responsibility for the further

development of the plan and the management and treatment of all waste materials generated during the construction phase.

- 11.6.59. I am satisfied that the management of waste has been appropriately considered and waste would be managed in accordance with the waste hierarchy and the Waste Management Act 1996, as amended, and all associated regulations as well as the requirements of the relevant waste management plans.

Issues raised regarding specific elements of the design

- 11.6.60. Councillor Stephen Keary (Env-33) stated at the outset that he supports the development of the PRD. He also stated that an economic assessment of the PRD was not carried out and that due consideration was not given to hinterland businesses and fragmented farmsteads. He requested that the two interchanges with Adare and Croagh would be relocated to more acceptable locations. He also requested that the PRD from Rathkeale to Foynes would be a dual carriageway and that a greenway from Rathkeale to Adare and Rathkeale to Askeaton/Foynes should be included. He suggested that the PRD should facilitate the laying of a watermain and pumped foul sewer from a point near Adare to Foynes/Askeaton.
- 11.6.61. In response to this submission at the oral hearing, the applicant stated that the planning and design of the PRD included an economic assessment. It was stated that when complete and operational, the PRD would have significant positive economic impacts for the local community. The applicant also stated that here is no engineering evidence advanced as to justify relocating the interchanges/junctions with Adare and Croagh sought. Noting the request for the laying of a watermain and pumped foul sewer, this is a matter for Irish Water and I note that it was not requested by Irish Water in their submissions to the Board. I am satisfied that the applicant has adequately addressed the issues raised in the submission and no further issues arise in respect of this submission.
- 11.6.62. William O'Meara (Env-34) & Others and Conor Enright (FI-2) raised specific concerns regarding potential flooding at Lismakeery. In response, the applicant states that a flood model was developed as part of the approval process under Section 50 of the Arterial Drainage Act 1945 as amended in respect of culverts and therefore, careful consideration has been given to the existing flood regime. This issue has been considered by Mr Jer Keohane in his assessment of the hydrology of

the area, as set out in the EIA section of this report. I am satisfied that having regard to the hydrology assessment, no worsening of existing flood conditions would arise as a result of the construction of the scheme.

- 11.6.63. Adare-Rathkeale Municipal District, LCCC (Env-1) stated that they included a motion to include a pumped sewerage main to Bunlicky, Mungret as part of the development. The applicant stated that such infrastructure is not normally provided within the route of a motorway and would be more appropriately located along other existing roads from which routine maintenance may be undertaken more safely. I note that no such additional infrastructure has been included as part of the PRD at this point.
- 11.6.64. An Garda Síochána (Env-2) set out its welcome for the proposal, stating that it would bring considerable traffic relief to the area and suggests including a speed enforcement ramp on dual carriageways for safety purposes. I note that it is stated in Chapter 4 of the EIAR that a Garda enforcement layby would be provided on the proposed motorway section and that several other laybys would be provided along the protected road from Rathkeale to Foynes as shown on the drawings in Volume 3.
- 11.6.65. Mr O'Donnell representing his clients, the Murphys (Sch-9), advanced the point that in his view the development was not adequately described. He questioned the applicant on various matters regarding proposals for processing of materials, sequencing of works and storage of material on site. I am satisfied that the processing and crushing of materials would likely occur as a part of the earthworks as would temporary storage of material for re0. The earthworks have been adequately identified in the EIAR and clarified further at the oral hearing to allow a full and proper planning assessment, EIA and AA to be carried out as necessary.

11.7. Acquisition/Demolition of houses

- 11.7.1. Seven houses associated with non-agricultural properties (including one that is uninhabited) are proposed to be acquired/demolished to facilitate the delivery of the PRD. In addition, a further two houses (including one that is uninhabited) associated with agricultural holdings are proposed to be acquired/demolished. I note that these houses are identified in Figures 4.25-4.49 (Mainline Plan & Profile) and I have taken note of their locations during my site inspections. It is proposed that Mr and Mrs

Francis O’Kelly’s home at Ardshanbally (ch.61+175) would be acquired and demolished to facilitate construction of the PRD east of the proposed River Maigue crossing and just west of the Foynes-Limerick railway line. The owners of this property, represented by Ms Finola McCarthy, solicitor at Ronan Daly Jermyn, made a detailed submission at the oral hearing in respect of both the Section 51 and 49 approval applications. I have outlined their specific concerns mainly in Section 14 of this report which deals with the application under Section 49 for the three schemes and also under the headings of alternatives in the EIA section (Section 14). In order to minimise repetition, I do not repeat all of the issues, however, the acquisition of the house and the matters raised warrant addressing in the planning assessment.

- 11.7.2. Having reviewed the drawings and documents and the applicant’s assessment and additional information provided at the hearing, the acquisition and demolition of the O’Kelly home would undoubtedly result in profound negative impacts for the property owners, who after many years of enjoyment, would have to vacate their home and move to alternative accommodation if the applications made under Section 51 and 49 are approved. It is clear nonetheless, that it is not possible to avoid the acquisition and demolition of this house, having regard to the many constraints that arise in the need to carefully design the road through the environment. There are two major constraints identified in the area of relevance to the O’Kelly home, the River Maigue to the west and the Limerick to Foynes Railway line immediately to the east. A further consideration is the proximity of the proposed connection of the new road to the existing N21 at Clonunion/Monearly 2.3km to the east of the O’Kelly house.
- 11.7.3. The house in question is an adapted and extended traditional cottage structure resulting in a modern family home and the site and house are uniquely located in a tranquil/peaceful area along the River Maigue. While I consider the homeowners concerns to be entirely understandable and it is a matter of regret that this house would be lost to make room for the PRD mainline, I am also satisfied that it is necessary and that there is no reasonable alternative available that would prevent it’s loss. I refer the Board to the consideration of alternatives, a matter also raised Ms McCarthy on behalf of the O’Kellys, dealt with in Section 12.2 (Consideration of Alternatives) of my assessment.
- 11.7.4. While no submissions were received from observers in respect of the remaining houses proposed to be acquired/demolished, I have also examined and evaluated

the loss of these properties and I note that they vary in their state of building repair/condition. I would agree with the applicant's rating set out under the heading of 'Materials Assets – Non-Agricultural property', that the loss of six of these houses, which are stated to be occupied, would result in profound impacts for the owners. The remaining three, including two that are uninhabited would result in one house with an impact rating of 'very significant' and two with a rating of 'significant' in the context of EIA.

- 11.7.5. The unavoidable acquisition of houses must be considered and balanced against the overall benefits that the road brings to the region. I am satisfied having reviewed the design in detail, that the number of houses required to be acquired/demolished has been minimised in the design. Having regard to my earlier assessment under the headings of 'Policy Considerations' and 'Project Need and Justification' above and the 'Consideration of alternatives' in the EIA section (Section 12.2), it is clear that the PRD is grounded in policy at a European, National, regional and local level, sufficient reasonable alternatives have been considered, the objectives of the road have been clearly set out and the delivery of the PRD would meet the stated objectives which are considered reasonable. Overall, while the acquisition/demolition of nine houses (including two that are uninhabited) would lead to 'significant' to 'profound' negative impacts for the owners, having regard to the overall purpose of the road and the wider positive public benefits that would result, I am satisfied that this is acceptable in light of proper planning considerations as underpinned by the exigencies of the common good.

11.8. Other Site/Property Specific issues raised in submissions

- 11.8.1. A number of concerns of a general nature were raised in written submissions to the Board and at the oral hearing. These are set out under grouped themes in Section 4 (Submissions and Observations – written and oral) above and have been considered throughout my assessment as appropriate. In addition, a number of observers raised concerns specific to the impact of the PRD on their homes or properties, and where the submissions were received on the Section 51 approval application, they are dealt with below. Where objections specific to the approval of the schemes under Section 49 and corresponding CPO, they are dealt with under the assessment of the

application for approval of Schemes section of this report in Section 14, largely under the heading of 'Section 49 Site-Specific objections' in section 14.10.

Eamonn & Lorraine Kirby (Env-9) – Property D59-005

11.8.2. Eamon and Lorraine Kirby are residents of a house located 300m south of the PRD at Kilnockan, 2km west of Adare. While welcoming the PRD in principle, the Kirbys assert that at this location close to their house, the elevated road embankment would have a 'very real visual intrusion on the landscape' and a 'significant visual impact on our property and that of our neighbours'. It was also set out that a previous submission was made to LCCC requesting that the L-1422 (Blackabbey Road) would be built over the new road to reduce the height of the mainline embankment and reduce the amount of importation of earthworks fill. It was also submitted that the clearance over the Greanagh river appears to be excessive and should be reduced. The observers also expressed concern regarding noise impacts. At the oral hearing, Mr MacGearailt outlined that the need to cross the River Greanagh a short distance to the east with sufficient flood clearance over this tidal watercourse bounded by flood bunds as being a key factor in the design of the PRD at this location. He provided a drawing (Fig 3.4 of his Brief of Evidence) showing the alternative arrangement which would entail lifting the L-1422 Blackabbey road onto an even higher embankment than that proposed for the mainline, which would be a few meters above ground level after crossing the nearby river. I note as submitted by Mr MacGearailt, this would have a considerably greater visual impact for all houses in this location and the local road embankment would be closer to the Kirby house (140m) than the PRD mainline embankment (280m). In this regard, while I acknowledge the concerns raised, it is clear that the design response at this location is preferable in terms of visual impact than the alternative put forward in the submission. At the location, a noise barrier (NB-019) is proposed to be placed between the PRD and the Kirby property, following which a residual impact of 57dB L_{den} (2024 – opening year) and 58dB L_{den} (2039 – design year) is predicted. It is therefore evident that the design goal in respect of noise would not be exceeded at the Kirby house. I note that the residual visual impact is slight negative after year 1 and imperceptible after year 15 which is acceptable. I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Mr Ian Gilvarry (Env-13 and FI-4)- Property D57-015

11.8.3. At the oral hearing, Mr Gilvarry set out his background health issues and put forward details of his house design, which was architecturally designed to make the best use of sunlight and daylight pattern changes. Mr Gilvarry expressed concerns that his house and the occupants would suffer unacceptable negative effects due to the road being elevated within close proximity to his home with resultant visual and landscape impacts and loss of sunlight/daylight and impacts from light pollution. Mr Gilvarry also stated that there would be extensive increase in noise which would negatively impact on the occupants of his home. It was clarified at the oral hearing that Mr Gilvarry's property is located some 200m northwest of rail bridge structure (RB02) and I have also confirmed this in my examination of the drawings. The location of Mr Gilvarry's house relative to the PRD is also shown in Figure 10.1 of Mr MacGearailt's Brief of Evidence (Part B). While the PRD would be 7m above ground level as it passes Mr Gilvarry's house, the separation distance and orientation are such that no loss of sunlight, or lighting pollution at Mr Gilvarry's house would result. Currently, there is a two-storey house in the neighbouring property to the south (c.10m from the house) and a line of mature trees along the rail line which are higher than the proposed rail bridge at this location. The residual impacts set out in the landscape chapter are moderate (year 1) and slight effects (year 15 – long-term operational), which is acceptable. At the hearing, Ms Jennifer Harmon confirmed that noise mitigation in the form of a 3.5m high noise barrier (NB-026) is proposed at this property based on noise levels associated with the design year of 2039, as set out in Table 12.11 (Predicted Noise Levels at Receptors Requiring Mitigation) of Chapter 12 and illustrated in Figure 12.18 (Noise Monitoring Locations & Mitigation – Section D, Sheet 6 of 11) of Volume 3 (Figures) of the EIAR. It is submitted that the noise level for this property would be 56dB L_{den}, which is below the design goal and which I consider to be acceptable.

11.8.4. Mr Gilvarry also outlined that the background mapping used for the route selection stage did not include his home. This point is noted; however, this relates to the background OSI mapping, and following a planning search at the time of the Route Selection process in 2015, the house was added as a planning permission within the study area and considered by the applicant. I am satisfied that Mr Gilvarry's house location was known to the design team and considered in their design of the road.

While noting the site-specific concerns raised in this submission, I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Mr John Dillon (Env-17) – Property D56-012A

- 11.8.5. Mr Dillon expressed concerns that the PRD would give rise to visual and noise impacts on his home which is close to Clonshire Castle and it would negatively impact on the setting of the castle. The house is a considerable distance from the PRD. I have measured it to be c.310m from the PRD mainline in Section D.
- 11.8.6. I note that the property has been assessed as part of the visual impact assessment (Chapter 11-Landscape and the residual visual impact is shown as moderate (construction-Year 1) and slight in the long term (operational stage) in year 15 for this receptor in Figure 11.7 (The Landscape – Impact Ratings and Mitigation for Section D).
- 11.8.7. I also note that a noise barrier (NB-021) is proposed south of the PRD mainline in Section D, north of the property. While not specifically assessed because of its location removed from the PRD and outside of the study area for the assessment of noise and vibration where noise sensitive locations were assessed for a distance of 300m from the centreline of the PRD, a property north of Mr Dillon's property (D56-012) and closer to the PRD has been assessed as having a residual impact of 57dB L_{den} (2024) and 58dB L_{den} (2039) and therefore meets the TII design goal of 60dB L_{den} in respect of noise. It is therefore evident that Mr Dillon's property would also meet the TII design goal given that it is further removed from the PRD. I have dealt with noise as a topic in Section 12.8 (Noise and Vibration) in the EIA section below. I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.
- 11.8.8. In relation to concerns also raised in this submission concerning Clonshire Castle, the issues raised are dealt with under the respective headings (Landscape & Visual and Noise & Vibration) in the EIA section (Section 12) of this assessment report.

Mr John G Horan (Env-18) – Property D59-007

- 11.8.9. Mr Horan sets out that the PRD would give rise to visual impacts and loss of sunlight and shadow casting on his house and would also result in unacceptable noise

impacts. It is evident that, having regard to the separation distance of 240m between his house and the PRD, and that the house is located to the south of the PRD, no loss of light could conceivably occur. In his submission, Mr Horan also raises concerns regarding the height of the road embankment at 9.2m above the existing ground level of the proposed bridge over the Greanagh River. In response on this matter, the applicant asserts that views of the bridge would be partially screened by trees and river embankments in the intervening landscape, so the residual impact is considered slight and negative. I would agree with the findings of the applicant's visual impact assessment that following implementation of mitigation and noting the intervening natural screening by intervening landscape that the residual impact would be slight negative during the construction phase and not significant during the long term/operation of the PRD.

- 11.8.10. In respect of noise impacts, at this location, a noise barrier (NB-028) is proposed and the residual noise limit would be 55dB L_{den} in 2024 (opening year) and 56dB L_{den} in 2039 (design year), both meeting the design goal and therefore the residual impact is acceptable for this property. In respect of visual impacts, the residual rating is slight (year 1) and imperceptible in the long-term operational phase (year 15). I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Kathleen O'Connor (Env-19) – Plot of Land at ch.56+600

- 11.8.11. Ms O'Connor raised concerns that the PRD would sever the link between a site given to her from her father and that of her mother's home. She raised concerns that site was intended for the building of a house and that it would become unusable and devalued as a result of the PRD. In response, Mr MacGearailt explained that there were various constraints at this particular location, including existing houses, and while designing the road, it required traversing the avenue to the family home (Property D57-001), however, in respect of the road itself, he stated that the consciousness of PRD in the landscape would reduce over time. To address the severance, an underpass has been provided which is generous in size. The site in question would be subject to planning permission, while it was not assessed as a sensitive receptor, as it doesn't contain a house, an adjoining house (D56-013) was assessed as having a moderate negative impact in respect of noise as a result of the PRD. While I acknowledge that the PRD would traverse the avenue leading to the

family home where the observer's mother resides, having regard to the number of houses and other environmental considerations at this location, it was the most appropriate line to pass through the environment at this location. I am satisfied that they have been adequately addressed largely by the proposal for the provision of the underpass and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Frank O'Riordan (Env-12) – Property D59-009

- 11.8.12. The observer raised concerns regarding noise impacts on his property. The property is located c.200m south of the PRD. A noise barrier (NB-029) is proposed to mitigate traffic noise at this property. The residual traffic noise level for this property is 57dB L_{den} , which is below the TII design goal and is acceptable. In respect of visual impacts, the residual rating is slight (year 1) and imperceptible in the long-term operational phase (year 15). I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Eileen Sheehan (Env-10 & Env-27) -Property located 1.6km from PRD and not mapped.

- 11.8.13. The observer raised concerns regarding noise. **Niall Collins TD** also made a representation on Ms Sheehan's behalf. The property is located 1.6km north of the PRD and I am satisfied that adequate noise mitigation is incorporated along the full extent of the project, as discussed in the previous section and forms part of the Schedule of Environmental Commitments. I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Michael and Robert Kelly (Env-26) – Property A06-006

- 11.8.14. Michael and Robert Kelly (Env-26) expressed concerns that mitigation measures to reduce the impact on his retained property are not explained and state other concerns regarding planting / screening / landscaping in the vicinity of their property. I am satisfied that there would be no direct impact on this property. At the oral hearing, the applicant gave an overview of proposals for screen planting and a proposal for a boundary timber post and rail fence at the property. The operational noise level associated with this property is 54dB L_{den} , which is below the operational

traffic noise design goal. In respect of visual impacts, the residual rating is rated as imperceptible impact in (year 1) and in imperceptible in the long-term operational phase (year 15). I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Robert and Margaret Frost (Env-29) – Property D60-013

- 11.8.15. This observer raised concerns around noise and air impacts and a significant decrease in the enjoyment of their property from traffic noise associated with the PRD. The applicant provided details of screen planting and noise barriers and when taken in conjunction with the distance of the house from the mainline (165m), the effects on views of the house are considered to be permanent, slight and negative. The operational noise level associated with this property is 60dB L_{den}, which meets the operational traffic noise design goal. In relation to concerns regarding air quality, Mr Shiels stated at the oral hearing that the screening air dispersion modelling study found that predicted concentrations of CO, Benzene, NO₂, PM₁₀ and PM_{2.5} were below their respective limit values at all residential locations, with the proposed road development in place as outlined in Section 13.5.3.1 of Volume 2 and Appendix 13.2 of Volume 4A of the EIAR. Furthermore, I note it was demonstrated in Chapter 13 (Air Quality and Climate) of the EIAR and at the oral hearing that dust minimisation measures would be sufficient to ensure that the air quality impacts during the construction phase would not be significant. In respect of visual impacts, the residual rating is slight (year 1) and imperceptible in the long-term operational phase (year 15). I am satisfied that they have been adequately addressed and there are no remaining issues specific to this property that would prevent the approval of the PRD.

Ms Stephanie Shine (recorded as **Env-32** and renumbered as **Sch-123**) -Property D57-016

- 11.8.16. I note that the property/house is located c.270m from the PRD relates to Ms Shines family home. The issue raised by Ms Shine centres around impacts on the health and wellbeing of occupants of the home. Ms Shine states that a family member is particularly vulnerable to impacts from health impacts from the PRD. The response from members of the applicant's team sets out proposals for landscaping and noise

barriers and I note with the noise barrier in place, the operational noise level associated with the property would be 55dB L_{den}, which is below the design goal, and which is acceptable. In respect of visual impacts, the residual rating is moderate (year 1) and slight in the long-term operational phase (year 15). These impacts are considered acceptable. The concerns raised concerning health impacts are addressed under the heading of Population and Human Health in Section 12 (Environmental Impact Assessment) in this assessment.

Other matters

- 11.8.17. Concerns were also raised in submissions regarding impacts on specific homes because of matters of **noise** and **vibration**, **dust** and **visual** impacts from the road itself and associated structures. Certain parties raised concerns about impacts on the **health** of occupants, including those who may have underlying needs or health conditions. These matters have been dealt with largely under the respective sections of the EIA assessment stage of this report and the conclusions are such with the adoption of mitigation as set out, there is nothing that would undermine the proper planning and sustainable development of the area.
- 11.8.18. In a number of submissions, concerns were raised about the impact of the proposed road on the **value of properties** or loss of potential to develop houses on sites that would otherwise be suitable for houses. It is acknowledged that a road scheme can have a negative impact on property prices where it results in the loss of amenity, but every effort has been made to minimise impacts on noise, landscape and visual amenities. I am satisfied those measures proposed would not result in significant impact on the value for the majority of properties.
- 11.8.19. In relation to specific issues raised in objections to the application for the approval of the schemes, these have been considered as relevant in Section 14 (Assessment of Application for Approval of Schemes).

Concluding comments on Site Specific Issues

- 11.8.20. I note the specific concerns raised by observers which I have dealt with directly above and as relevant throughout the assessment. While I acknowledge the concerns raised, I am satisfied that they have been adequately addressed by the applicant in the design and mitigation measures and that any remaining matters would not justify a refusal to approve the application, having regard to the wider

benefits of the proposals. I have dealt with concerns regarding perceived environmental impacts in the EIA section of this report.

11.9. Conclusion on proper planning and sustainable development

- 11.9.1. The proposed Foynes to Limerick, including Adare Bypass, accords with the relevant policy at a European, National, regional and local level. It would deliver a TEN-T standard combined core and comprehensive network that would in turn offer improved road infrastructure between Shannon Foynes port, Limerick, a Tier 1 port of national importance on the TEN-T network, and Limerick and with the national road and TEN-T network. The proposed road development would improve the integration of Ireland with the rest of the European Union especially in a post-BREXIT context with an established need for more direct shipping links that bypass Britain and with a realistic expectation for an increase in cargo movements through Shannon Foynes port.
- 11.9.2. It would also provide for the planned population growth of 50% by 2040 for Limerick as envisaged in the National Planning Framework set out under Project Ireland 2040 together with supporting national policies including enhanced regional accessibility and improving transport connections to the major ports including Shannon-Foynes Port.
- 11.9.3. It has been demonstrated that there is a clear and pressing need for an improved quality road to meet the growth of heavy traffic to Foynes and the population and economic growth of Limerick and the Southern region envisaged in multiple planning documents. The current N69 is heavily constrained, suffers from severe traffic pressure and has a very poor road safety record and cannot reasonably cater for the realistic strategic planned population and economic growth of the region.
- 11.9.4. The PRD would bring many benefits including improving road safety, journey time and reliability and would reduce low-speed stop-and-go traffic movements and associated congestion particularly in Adare. This would allow a better flow of traffic and the delivery of an improved infrastructural basis for more efficient and safer road-based transport including greener and more sustainable road-based public and private transport options.

- 11.9.5. While it is acknowledged that the construction and operational phase would generate greenhouse gas emissions, these would not be so significant as to have a long-term detrimental impact on the Government's ability to meet its 2030 greenhouse gas emissions targets and the future target of reaching climate neutrality in 2050. The clear intention at an EU and national level is that the decarbonisation of the transport network will require implementing of a range of measures, including the switch to electric and low-emissions vehicles and also the use of other forms of non-fossil based alternative fuels, and the use of electricity generated from renewable sources for charging of batteries for electric vehicles.
- 11.9.6. By 2030, Europe's Sustainable Mobility and Transport Strategy aims to have at least 30 million zero-emission cars in operation on European roads and the overall aim is to make each mode of transport more efficient by enabling increased transport activity by more sustainable forms of transport. Ireland's aim as set out in Climate Action Plan 2021 is to have almost one million passenger electric vehicles (EVs) on Irish roads by 2030.
- 11.9.7. Notwithstanding the clear and urgent need to address climate change, following policy review at an EU-level, the binding requirements for the delivery of the road-based components of the TEN-T core and comprehensive network by 2030 and 2050 remain a key pillar in achieving a high-quality and safer road network that would allow for improved, safer and more efficient public and private road-based transport. It is also clear that the TEN-T regulation require both the rail **and** road to be connected to the TEN-T core and comprehensive networks. The road infrastructure would not preclude the future reopening and operation of the Foynes to Limerick railway line and both would facilitate the planned population and economic growth for the region.
- 11.9.8. When taken in context and noting the need, policy support and benefits of the proposed road development as outlined, the impacts on the global climate receptor would not be significant negative.
- 11.9.9. The proposed road development has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and climatic conditions including flood risk.

- 11.9.10. It is clear that there are some significant to profound negative impacts associated with this project most notably for those people whose houses would be compulsorily acquired. However, having regard to the overall purpose of the road and the wider positive public benefits that would result, I am satisfied that this is acceptable in light of proper planning considerations as underpinned by the exigencies of the common good.
- 11.9.11. Overall, it is reasonable to conclude that the consequences for proper planning and sustainable development in the area would be largely positive. None of the matters that negatively weigh against the proposed road development are sufficient as to outweigh the advantages of the PRD through the policy and the benefits of improved travel conditions benefits. It is therefore concluded that there is a clear justification in favour of granting approval for the PRD as sought.

12.0 Environmental Impact Assessment

12.1. Introduction

- 12.1.1. This section of the report comprises an Environmental Impact Assessment (EIA) of the proposed development and should be read in conjunction with relevant sections of the Planning Assessment (section 11) and the Appropriate Assessment (section 13).
- 12.1.2. Section 50(1) of the Road Act 1993, as amended, sets out the categories of road development subject to EIA and requiring an Environmental Impact Assessment Report (EIAR). In the current application, an EIAR is required for the PRD as its proposed total length is approximately 35km, including a section of motorway of approximately 17.5km and a new bridge of over 100 metres length over the River Mague.
- 12.1.3. LCCC has submitted an EIAR (prepared by ROD-AECOM) which is presented in a 'grouped format' including the following:
- Volume 1: Non-Technical Summary
 - Volume 2: Main Text (Chapters 1-19)
 - Volume 3: Figures

- Volume 4A and Volume 4B: Appendices
- Volume 5A and Volume 5B: Photomontages.

- 12.1.4. I have carried out an examination of the information presented by the applicant, including the EIAR, the response to the further information request, the submissions made during the course of the application and at the oral hearing, the corrigenda, further corrigenda, supplementary information and the additions to the schedule of commitments and the Protected Road scheme schedule and Scheme deposit map – issue 2.
- 12.1.5. This section of the report comprises an Environmental Impact Assessment (EIA) of the proposed development and should be read in conjunction with relevant sections of the Planning Assessment (section 11) and the Appropriate Assessment (section 13).
- 12.1.6. Section 50(1) of the Road Act 1993, as amended, sets out the categories of road development subject to EIA and requiring an Environmental Impact Assessment Report (EIAR). In the current application, an EIAR is required for the PRD as its proposed total length is approximately 35km, including a section of motorway of approximately 17.5km and a new bridge of over 100 metres length over the River Maigne.
- 12.1.7. In carrying out my assessment on environmental impacts, I have also received expert advice from Dr Maeve Flynn (An Bord Pleanála's senior ecologist) with regard to Biodiversity and from Mr Jer Keohane (geotechnical specialist and hydrogeological engineer) with regard to Soils and Geology and Water (Hydrology and Hydrogeology) environmental factors.
- 12.1.8. I am satisfied that the EIAR adequately identifies and describes the effects including direct, indirect and cumulative effects, short, medium and long-term and those effects that are positive and negative, of the proposed development, on the environment. I am also satisfied that the information provided is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the project on the environment, taking into account current scientific knowledge and methods of assessment.

12.1.9. Overall, I am satisfied that the information contained in the EIAR is up to date and complies with the requirements of Section 50(2)(b) of the Roads Act 1993, as amended together with Article 3, 5 and Annex IV of the EIA Directive.

12.2. Consideration of Alternatives

12.2.1. The consideration of alternatives is described in Chapter 3 of the EIAR prepared by Mr Seamus MacGearailt. In submissions made to the Board and at the oral hearing, concerns were raised that certain alternatives were not given due consideration or were dismissed too early in the process. These matters are addressed in the assessment below.

12.2.2. Article 5(1)(d) of the EIA Directive requires the following in respect of alternatives.

a description of the **reasonable alternatives studied by the developer**, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.

12.2.3. Annex (IV) (Information for the EIAR) provides more detail on 'reasonable alternatives':

2. A description of the **reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer**, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

12.2.4. Furthermore, Section 50(2)(b) of the Roads Act 1993, as amended, requires the EIAR to contain:

a **description of the reasonable alternatives studied by the road authority or the Authority**, as the case may be, which are relevant to the proposed road development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed road development on the environment.

12.2.5. I have reviewed the applicant's consideration of alternatives as set out in Chapter 3 of the EIAR. The first stage of the route selection process comprised a constraints

study to identify the nature and extent of relevant significant constraints within a defined study area.

- 12.2.6. Alternatives including **‘do-nothing’**, **‘do-minimum’** (as base cases) and **‘do-something’** scenarios were considered in accordance with the TII Project Appraisal Guidelines for National Roads (TII, 2016) which implement the Guidelines on a Common Appraisal Framework for Transport Projects and Programmes (Department of Transport, Tourism and Sport, 2016).
- 12.2.7. It is evident that the ‘do-nothing’ scenario would not meet the objectives of delivering the TEN-T requirements for the ‘core’ and ‘comprehensive’ elements of the TEN-T network in County Limerick. Specifically, this ‘do-nothing’ scenario would not permit the N69 to meet the TEN-T requirements for the connection between the Shannon-Foynes port and the core component of the TEN-T network for reasons including that it is sub-standard and has numerous existing direct accesses and issues with congestion and delays along sections of the N21 including at Adare and Croagh in particular. In addition arising from the continued growth in traffic travelling the route, the ‘do-nothing’ scenario would result in adverse environmental impacts in towns and villages along the route with worsening traffic congestion predicted in Adare village, in particular along the N21. I agree with the approach taken in ruling out, early in the process, the ‘do-nothing’ option as a feasible option.
- 12.2.8. The ‘do-minimum’ scenario examined the replacement and upgrades to the existing road infrastructure in order to meet the TEN-T requirements and the demands for the next 30 years. A number of observers submitted that this option should not have been discounted and that it was the option included in the current Limerick County Development Plan. In considering this point I note that the applicant concluded that the online upgrade of the N69 would not meet the requirements of the infrastructure forming part of the TEN-T network and would give rise to adverse impacts to sensitive environmental receptors.
- 12.2.9. The existing noise levels experienced by properties along the N69 and N21 are in excess of 60dB with the base year traffic flows. With traffic flows set to increase into the future as outlined by the ‘do-minimum’ traffic scenario in Chapter 5, it is stated that noise levels would also increase.

- 12.2.10. The upgrade of the existing N69 would have the potential to impact on a number of European designated sites, due to its location in the groundwater catchment of the Askeaton Fen Complex SAC (site code: 002279), and its crossing of the River Maigue which is part of the Lower River Shannon SAC (site code: 002165) and River Shannon and River Fergus Estuaries Special Protection Area (SPA) (site code: 004077). It is also in close proximity to other European sites including the Curraghchase Woods SAC (site code: 000174) the Barrigone SAC (site code: 000432), the Churchfield inlet (designated under the Lower River Shannon SAC) and the River Shannon and River Fergus Estuaries SPA (site code: 004077).
- 12.2.11. A further complication set out is the need to provide for local accesses and the need to accommodate slow-speed traffic, such as agricultural vehicles, on the route if it were on-line, which is simply not compatible with a motorway or express road standard, as required for the TEN-T core network layer.
- 12.2.12. On the N21 the key problem identified is traffic congestion at Adare and the need to bypass Adare over a length of 6km and Croagh over a length of 3km. A dual carriageway road is required as a minimum with the motorway deemed the most appropriate design by the applicant, primarily based on reasons of capacity requirements. Given the need to maintain the existing road for use by non-motorway traffic and noting the multiple direct accesses that exist, the 'do-minimum' option cannot be reasonably considered as a suitable option. I agree with the rationale put forward for the need for a motorway as outlined under various headings in the planning assessment section and in the EIA section (Traffic). There is no doubt in my mind that the 'do-nothing' or 'do-minimum' are not realistic options or reasonable alternatives.
- 12.2.13. The 'do-something' option was considered under the headings of alternative modes, management and investment options. In consideration of **alternative modes** and associated infrastructure, consideration was given to whether or not the transport demand could be catered for by railway. There are no such existing rail freight services in operation at present in the Limerick region, and the Shannon-Foynes Port Company has indicated that all of their current customers require road access to the port. It was submitted that the outcome of the assessment determined that investment in a road is necessary to achieve the project objectives including providing the high-quality road between Shannon-Foynes Port and the existing TEN-

T core road network. Non-motorised modes would not be realistic or reasonable alternatives.

- 12.2.14. In written submissions received and submissions made at the oral hearing it was contended by a number of parties that alternative modes including the railway were not adequately considered. The applicant set out, and I have noted above, that under the current TEN-T regulations there is a requirement for a high-quality road to be provided between Shannon-Foynes Port and the existing TEN-T Core network.
- 12.2.15. As already stated, the TEN-T regulation requires the connection of Shannon-Foynes port to the core element of the road **and** the rail network. Therefore, the delivery of the rail network alone would not meet the objectives of the project.
- 12.2.16. In a detailed presentation made at the oral hearing SFPC outlined their future growth projections. It was submitted that the TEN-T regulation requires Foynes Port to be connected to the core rail network and this is part of a separate study by Iarnród Eireann, supported by SFPC, as rail would serve the movement of certain large/bulk goods. It was also stated by SFPC that due to their dispersed customer base, road access would be required into the future to meet distribution patterns.
- 12.2.17. I accept the argument advanced by SFPC that even with the future potential for some share of freight traffic to transfer from road to rail, a large volume of freight traffic would nonetheless require road-based movements. It was also submitted that without the improvement of the N21 the capacity of the road-based public service transport, for example bus transport between Limerick , Tralee and Killarney, would remain constrained and unreliable.
- 12.2.18. Having regard to the oral and written submissions received and accepting the need to move from roads to more sustainable modes of transport, a transfer from road to rail transport services would not achieve the project objectives for the ‘core’ and ‘comprehensive’ elements of the road-based infrastructure on the TEN-T network. I have dealt with the specific requirements and the overall project objectives under the heading of ‘Policy considerations’ and ‘Project need and Justification’ in the Planning Assessment in section 11. I have dealt with the positive impacts and benefits that the PRD would generate in terms of providing an infrastructural basis for safer, more sustainable and more reliable road-based public and private and public under the same headings and also under the heading of ‘Climate’ in the Planning Assessment

in section 11. I am satisfied that the PRD is designed so as not to conflict with the re-opening of the railway line. It is clear that a high-quality road and rail service are both required. The delivery of rail alone, or the railway and 'do-minimum' road options, would not be sufficient to meet the required project objectives or the projected traffic demand.

12.2.19. In considering **alternative management options**, it is stated that the major constraint is the traffic congestion because of the high volume of HGV traffic and the absence for feasible options for the redirection of this traffic. Management options such as the restriction of HGVs along the N21 or through the village of Adare would not be feasible as Shannon-Foynes Port operates 24 hours per day. Accordingly this option was ruled out and I am satisfied that given the population and economic growth envisaged for the region as set out in the NPF and discussed in the planning assessment above, together with the corresponding predicted traffic growth, the objectives would not be achieved by alternative management of the existing road infrastructure.

12.2.20. Section 3.4 provides a summary of the **alternative investment options** considered earlier in the route selection study. The options considered included: (i) the M20 Cork-Limerick Motorway, (ii) the N21 Adare Bypass and (iii) the N21 Abbeyfeale to Adare. All these options have either been withdrawn from the road approval application process, refused approval, or suspended. I am satisfied with the conclusion reached on this alternative option; that it was deemed appropriate to advance the current proposal as a distinct development.

12.2.21. The **constraints study** identified key environmental restrictions. The concentration of biodiversity constraints in the central part of the study area posed a significant environmental constraint, including wetland sites that are hydrologically connected and part of the Askeaton Fens Complex Special Area of Conservation (SAC). Additional European sites which are part of the Natura 2000 Network in the central part of the study area included the Barrigone SAC and Curraghchase Woods SAC. Other environmental constraints identified include geology, hydrogeology, hydrology, ecology, archaeology, architecture and cultural heritage, population and human health, noise and vibration, air quality and climate, agriculture, and landscape and visual amenity.

- 12.2.22. In the **route selection process** seven alternative broad route corridors and three variants were identified. These are illustrated in Plate 3.4 of Chapter 3 (Alternatives) and in Fig. 3.2 in Volume 3 of the EIAR (Broad Route Corridor Options – Stage 1). They are labelled A-H, J and K. These corridors were assessed in accordance with the TII Project Management Guidelines for National Roads (2010).
- 12.2.23. Under **stage 1** of the route selection Assessment, stage 1A comprised 11 variations of broad route corridors arranged by different combinations of various sections. These were assessed under the headings of Engineering, Environment and Economy at which point two corridors were discounted from further consideration. Stage 1B assessment identified a preferred single option within each of the initial broad corridors. Stage 1C assessment led to the shortlisting of four route corridor options. These are shown in Plate 3.6 (Refined Route Corridor Options 1-4) and Figures 3.3 to 3.7 of Volume 3 of the EIAR (300m wide Route Corridor Options). Following the completion of Stage 1 Assessment, six broad corridors were eliminated from further assessment and four resulting options were brought forward to Stage 2 for further appraisal.
- 12.2.24. The four shortlisted route corridor options resulting from the stage 1 Assessment were as follows:
1. Route Corridor Option 1 (Red)
 2. Route Corridor Option 2 (Blue)
 3. Route Corridor Option 3 (Orange)
 4. Route Corridor Option 4 (Green)
- 12.2.25. The **Stage 2** Options Appraisal comprised the definition of the route corridors, public consultation and the appraisal of options leading to a preferred route corridor. The four route corridor options are stated to have been presented at a public consultation event in March 2015 and that in excess of 1,000 submissions were received from the public on the Route Corridor Options presented.
- 12.2.26. As part of the Stage 2 Route Corridor Assessment, further environmental assessments were carried out on the individual route corridor options presented at the public consultation. The stated purpose of these assessments was to identify specific issues likely to affect the selection of a preferred route corridor. This resulted

in the adoption of four changes to the route corridor options as set out in section 3.7.3 of Chapter 3 of the EIAR (**Refinement of Route Corridor Options**).

- 12.2.27. The **four route corridor options** were then compared using the five Common Appraisal Criteria of (1) Environment, (2) Economy, (3) Safety, (4) Accessibility & Social Inclusion and (5) Integration in line with the TII Project Appraisal Guidelines. A route corridor options assessment matrix was developed from the results of the assessment, and this was followed by a further assessment of preferences. The results of the route options preferences are presented in Table 3.1 (**Route Corridor Option Assessment Matrix**) of Chapter 3 of the EIAR. As a check, an additional analysis was carried out of the preferences identified under each of the assessment criteria applied. This assessment matrix is presented in Table 3.2 (**Route Corridor Option Preference Matrix**) of Chapter 3.
- 12.2.28. **Route Corridor Options 1 and 4** both scored low because of environmental impacts, in particular biodiversity/ecological impacts and because these routes are close to and could directly impact on numerous sites in the Askeaton Fen Complex SAC. The location of these is presented in the EIAR and images illustrating challenges posed for progressing these route corridor options were presented at the oral hearing.
- 12.2.29. In relation to Option 1 (Red), at the oral hearing Mr MacGearailt presented images that illustrated challenges posed for this route or any route option that would follow along, or close to, the existing N69 in the Kilcornan area. He presented aerial images showing SACs located directly adjacent to the existing road. These locations include Curraghchase where the Curraghchase Woods SAC lies directly adjacent to the south of the N69, and Ballyvogue and Glenameade where the Askeaton Fen Complex SAC is located adjacent to both sides of the N69.
- 12.2.30. In addition, there are significant difficulties presented by existing development with access onto the N69 in the Kilcornan area, including a national school, an entrance to a forest park, a public house, 31 houses in three clusters, and Kilcornan Graveyard and Church. There are six local road junctions along this area. Mr MacGearailt also presented photographs and aerial images of these areas in his submission to the oral hearing.

- 12.2.31. In assessing the option to upgrade the N69, it was considered that an off-line section would be required between the two aforementioned SACs at Curraghchase. However, this off-line section would result in the road passing through a woodland and a former go karting track and it would require the demolition of three houses. It was also set out that it could result in indirect impacts to the hydrological regime that connects the SACs. Using the methodology of numerical scoring outlined in Table 3.1, the outcome of this assessment identified **Route Corridor Options 2 and 3** as equally preferred options. Using the methodology outlined in Table 3.2 (a ranking system) resulted in Route Corridor Option 3 assessed as the preferred option.
- 12.2.32. Because of the closeness of the results of the assessment of Route Corridor Options 2 and 3, a further localised assessment was carried out along the portion of the route where the two routes differ in location. This area of relevance comprises an 8km stretch between Ballingarrane (north of Rathkeale) and Gortnagrour (west of Adare). Table 3.3 of the EIAR provides a comparison of both local options.
- 12.2.33. On an overall score for environmental criteria, Route Corridor Option 3 achieved a higher score of 23 over Route Corridor Option Corridor 2 which achieved a score of 20 across the combined environmental factors and hence emerged as the preferred option. I have reviewed this table and I note that Route Corridor Option 3 scored lower (major negative) than Route Corridor Option 2 (moderately negative) in terms of impact on non-agricultural properties. Route Corridor Option 3 also scored lower (moderately negative) than Route Corridor Option 2 (minor negative) in terms of soils, geology and waste. For the other seven factors, Route Corridor Option 3 achieved an equal score for two factors and scored higher than Route Corridor Option 2 for the remaining five factors. Overall, Route Corridor Option 3 scored higher than Route Corridor Option 2. It is stated that the assessment had input from the wider project team of experts.
- 12.2.34. This **emerging preferred route corridor (Route Corridor Option 3)** was displayed at public events held on the 1st and 2nd of December 2015 following which 370 submissions were received. The preferred route is illustrated in Plate 3.17 of Chapter 3 of EIAR. The route was further refined in response to the submissions received.

- 12.2.35. Further **design refinements** are stated to have continued between 2016 and 2019 until the final design was fixed and the preparation of the EIAR commenced. These included further localised refinement of the route.
- 12.2.36. In addition to the route corridor options, **design alternatives** were also considered throughout the design process. An incremental analysis of the carriageway type was undertaken to inform the selection of the cross-section for the proposed road development as part of the design process. This included an assessment of the operating capacity of the Foynes to Rathkeale section of the PRD. A Volume/Capacity (V/C) Ratio was undertaken for Section A (Foynes to Ballyclogh), Section B (Ballyclogh to Askeaton) and Section C (Ballyclogh to Rathkeale).
- 12.2.37. These alternatives included the selection of preferred cross section, alternatives considered at interfaces with other roads, junctions, bridge crossings, local road crossings, closures and diversions, upgrades of existing roads and making provision for the future M20 Motorway between Cork and Limerick.
- 12.2.38. In relation to the **HGV service area**, it is stated that a Type 1 (Terminal) Services area for HGVs is necessary to meet the requirements of TII Standard: The Location and Layout of Service Areas (2017). Three alternative sites, A, B and C, were assessed and these are shown in Plate 3.75 of Chapter 3. The site chosen, Site C was selected on the basis of fewer impacts on nearby housing, flooding and biodiversity.

Submissions on Alternatives

- 12.2.39. A summary of the points raised by observers on the alternatives is detailed in section 4 (Submissions and Observations – Written and Oral). I have dealt with the legal requirement of the consideration of alternatives in section 11.2 in which I concluded that the assessment of alternatives is in accordance with Article 5(1)(d) of the EIA Directive and Section 50(2)(b)(iv) of the Roads Act 1993, as amended.
- 12.2.40. Other submissions asserted that the route selection process was inadequate as Route Corridor Option 1 or 4 would be preferable and more beneficial for HGV traffic. In the submissions it is suggested the approach used to compare route options was flawed, specifically when Option 3 and Option 2 were compared. In response the applicant referred to the methodology contained in the Route Selection Report (Page 6/63 of Volume 1) and I am satisfied that the properties along the full extent of

Option 3 and Option 2 routes were reviewed and included in the assessment. I am also satisfied that the assessment is robust and accurate.

- 12.2.41. It was also submitted that the size and scale of the project is excessive and that a bypass of Adare and upgrades to the N69 would suffice. It was further stated that the Foynes to Limerick Railway as a future mode was not adequately considered and that consideration of alternatives did not take climate change into account. Other submissions questioned why a bypass south of Adare was not progressed and another questioned the need for a proposed bridge over the Lower River Shannon SAC when there was a feasible alternative south of Adare. One submission stated that Route Corridor Option 2 would be preferable in terms of its carbon footprint. Other submissions stated that some route options were rejected prematurely and that the preferred route was favoured as it is the only route that had site investigation carried out. One submission raises a number of issues with the route selection at Blossomhill and Ballycannon where ecological constraints are considered to exist.
- 12.2.42. Route Corridor Option 1 was not chosen on the basis that it ranked 'least preferred' across all assessment headings. Route Corridor Option 4 was not chosen as it ranked second lowest. At the oral hearing Mr MacGearailt on behalf of the applicant stated that a southern bypass of Adare was excluded because of the additional length of road required and that while the route chosen requires a significant bridge structure over the River Maigue, where it falls within the Lower River Shannon SAC, impacts are adequately mitigated by suitable design of a clear spanning bridge over the river and this has been discussed with the NPWS. In relation to Route Corridor Option 2 it is stated that, while it is slightly shorter than Route Corridor Option 3, the minor reduction in the length of road (3%) would not outweigh the various other advantages of the Route Corridor Option 3 in terms of environmental impacts.
- 12.2.43. Regarding submissions that the project is excessive and that improvements to the N69 to Foynes and a bypass of Adare would be sufficient, it is asserted that the PRD is consistent with the requirements of the EU for bringing the core and comprehensive components of the TEN-T network in County Limerick up to the required standard. It is also asserted that in this 'do-minimum' alternative option, it would be necessary to construct a new road off-line from the existing N69 which would generate severe impacts on properties along the road and on environmental sensitivities including numerous European sites.

- 12.2.44. It is also stated that a local bypass of Adare would not address the problem of high traffic volumes on the N21 west of Adare which would remain sub-standard and would not serve to deliver the requirement to have a TEN T Core Network Express Road access to Shannon Foynes Port in place by 2030. In relation to the use of railway not being given serious consideration, it is stated and I have set out earlier, that the TEN-T regulations require both a railway **and** a high-quality road to be provided to the port. This is set out in a binding TEN-T regulation and it is not an either (rail) or (road) choice; both are required. It is submitted that all the route options were developed to also accommodate the future reopening of the Foynes to Limerick railway line and that in the event that freight traffic could be transferred onto the railway line, a large volume of freight traffic by road would continue to be required for reasons outlined including planned population and economic growth of the region and the dispersed customer base of Shannon-Foynes port.
- 12.2.45. With regard to climate considerations, cognisant of the ongoing transition to more sustainable modes of transport, notwithstanding that the construction, operation and delivery of the subject road project would generate GHG emissions, there is no policy basis for excluding road-based transport particularly given the wider policy support for the project at EU and national level. These matters are dealt with as relevant throughout the assessment, particularly in section 11 (Planning Assessment) under the headings of 'Policy Considerations' and 'Climate'.
- 12.2.46. Francis and Anne O'Kelly (Sch-34 and 35) whose house at Ardshanbally, northeast of Adare would be compulsorily acquired, through their solicitor Ms Finola McCarthy of Ronan Daly Jermyn, questioned what alternatives were considered to avoid impacts on residential properties. In response the applicant stated that while it would be desirable to avoid the O'Kelly house if possible, the acquisition of their house could not be avoided because of two major constraints: the River Maigue to the west; and the Limerick to Foynes Railway line immediately to the east. It was also stated that a further consideration is the proximity of the proposed connection of the new road to the existing N21 at Clonunion/Monearly, 2.3km to the east of the house. At the oral hearing Mr MacGearailt stated that the applicant's team explored a potential alternative alignment across the River Maigue. As would require passing through a cluster of ten houses at Mondellihy it was not developed further during route selection. I have reviewed the design drawings presented and note that this

situation is accurate. The house in question is a family home in a tranquil area along the River Maigue. It is entirely understandable why the owners question the alternatives pursued and seek to know if there may have been one that would avoid the need to acquire their home. While I acknowledge this situation, I am satisfied that, when the alternatives were narrowed down through the stages, there is no reasonable alternative available that would prevent the loss of the house and site.

12.2.47. In view of the examination of alternatives outlined above and having regard to the characteristics of the proposed development, I am satisfied that the applicant has adequately identified and assessed the reasonable alternatives which are relevant to the project and that were studied by the developer and the main reasons for the option chosen by LCCC, taking into account the effects of the project on the environment, have been clearly set out in the EIAR and at the oral hearing particularly in part B of the engineering Brief of Evidence delivered by Mr MacGearailt at the oral hearing.

12.2.48. I accept that negative impacts leading to significant environmental effects would arise because of the need to acquire and demolish nine houses. However these cannot reasonably be avoided. I am satisfied that the applicant has adequately demonstrated that a considerable number of alternatives were considered at clearly defined stages of the project and the number of demolitions and acquisitions were restricted to the least possible number as described by the applicant at the oral hearing.

12.2.49. Having regard to the requirement to avoid the significant environmental effects of the project, I am satisfied that the consideration of reasonable alternatives is comprehensive and robust and complies with Article 5(1)(d) and Annex (IV) of the 2014 EIA Directive, and section 50(2)(b) of the Roads Act 1993, as amended.

12.3. Public Consultation

12.3.1. Non-Statutory public consultation events were held throughout the planning and design stages. These included a Constraints Study public consultation (July 2014), a Route Selection Process public consultation (March 2015) and a Preferred Route Corridor public display event (December 2015). A dedicated local liaison team was established in the mid-west National Road Design Office (MWNRDO) Limerick

during the route selection phase. The liaison team held meetings with people affected by the project and a continuous communication channel has been maintained.

- 12.3.2. I am satisfied that the opportunity for participation by the public has been sufficient. The planning application was made accessible to the public by electronic means and in paper copy, and sufficient time was allowed for making submissions to the Board in written format and at the oral hearing in accordance with section 51(3) of the Roads Act 1993, as amended.
- 12.3.3. The matters raised in submissions on the proposed project were addressed by the applicant at the oral hearing. I have considered these throughout my assessment. Where issues were raised on the section 51 application, these have been largely dealt with in the consideration of the Planning Assessment, EIA and AA sections and in the specialist reports prepared by Dr Flynn and Mr Keohane that are contained in Appendices C and D respectively. Issues raised solely by objectors to the section 49 approval application have been dealt with in section 14: Assessment of Applications for Approval of Schemes. However as the issues overlap to some extent, the full assessment report should be read as one.

12.4. Vulnerability to risks of major accidents and/or disasters

- 12.4.1. With regard to the effects of the project on the environment arising from its vulnerability to risks of **major accidents** and/or **disasters**, as is required to be identified, described and assessed in accordance with Article 3(2) of the EIA Directive, this matter is addressed in Chapter 18 of the EIAR (Major Accidents and Natural Disasters), led by Ms Gemma Rothwell of ROD-AECOM Alliance.
- 12.4.2. A list of major events for consideration in the context of significant effects on the environment from its vulnerability to risks of major accident and/or disasters within the meaning of the EIA Directive are set out in Table 18.2 (Major Accidents and Disaster Screening) of the EIAR.
- 12.4.3. These events are categorised under the headings of geological disasters, hydrological disasters, meteorological disasters, space disasters, transport disasters, engineering accidents/failures and industrial accidents, crime/civil unrest and disease. A stage 1 screening exercise was carried out as a first step. Where the risk

of significant effect was considered remote, the major accidents and disasters were screened out. The list of potential major accidents and disasters considered in the screening stage included those that would be of relevance to climate change. These are largely included under the meteorological disasters heading. Examples include the occurrence of floods, blizzards, drought, thunderstorms and wildfires.

- 12.4.4. A stage 2 screening was carried out in which major accident/disaster events that would have a realistic risk of occurrence and to which the PRD would be vulnerable were identified. This list also included those that would be potentially vulnerable to environmental effects arising from climate change.
- 12.4.5. The stage 1 and stage 2 screening exercises resulted in a refined list of events which were brought forward to stage 3 assessment. The major events shortlisted are set out in Table 18.3 and comprise sinkholes, floods, road accidents, utilities failure, mining industry and animal and plant disease.
- 12.4.6. In respect of the events identified for stage 3 assessment, I have outlined the reason for their consideration and assessment, their potential receptors and mitigation measures. With the adoption of the mitigation measures outlined in the EIAR and listed in Table 18.3, none were deemed to give rise to residual significant effects on the environment.
- 12.4.7. In relation to sites governed by the EU Council Directive 2012/18/EU on the Control of Major Accident Hazards involving Dangerous Substances (Seveso III Directive) as implemented by the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the COMAH Regulations), controls are required to be put in place on developments at qualifying establishments and in the vicinity of these establishments. In terms of land use planning, the Health and Safety Authority (HSA) as the central competent Authority is required to provide technical advice either on a general level or on a case-by-case basis where development would be carried out within a specified 'consultation distance'.
- 12.4.8. In respect of Seveso III Directive/COMAH regulations, there are two tiers of establishment which relate to the quantities of dangerous substances present. Depending on quantity, an establishment may be upper-tier or lower-tier. Upper-tier establishments have greater quantities of dangerous substances present and

therefore are obliged to comply with additional requirements specified in the COMAH Regulations.

- 12.4.9. Table 18.4 of chapter 18 sets out a list of the Seveso/COMAH establishments that are located within 10km of the PRD site. These establishments, five in total, are listed on the HSA website. Two of the establishments, Atlantic Fuel Supply Company Ltd. And Goulding Chemicals Ltd. are 'upper-tier establishments'. The remaining three, Analog Devices International Electronics (integrated circuit) manufacturing, Grassland Agro Agrochemical (fertiliser) manufacturing, and Inter Terminals Shannon Ltd. are 'lower-tier establishments'. Potential hazards associated with upper tier Seveso establishments within 10km of the PRD are also included in Table 18.5.
- 12.4.10. The applicant stated that they consulted with the HSA as the competent authority in respect of land use planning under the COMAH regulations. They were informed by the HSA that the consultation distances are 300m in respect of the two closest Seveso sites, Atlantic Fuel Supply Company Ltd. and Inter Terminals Shannon Ltd. As both sites are situated at a distance greater than 300m from the PRD, and therefore outside the consultation distance, I am satisfied, as stated by the applicant, that there was no requirement to consult further with the HSA in respect of technical advice.
- 12.4.11. It is concluded that the project is not of a nature that would result in it generating a risk of major accidents and/or natural disasters on any Seveso establishments, largely on the basis of the characteristics of the PRD as a project and the separation distances from Seveso/COMAH establishments. Otherwise, as discussed in various chapters of the EIAR including Chapter 5 (Traffic Analysis) and Chapter 6 (Population and Human Health) of the EIAR, it is considered that the completion of the PRD would reduce the risk of road traffic collisions involving HGVs carrying toxic and /or explosive substances to and from industrial facilities in the study area, including to and from the above Seveso/COMAH establishments of relevance to the PRD.
- 12.4.12. Having regard to the assessment undertaken I am satisfied that consideration of the effects of the project on the environment arising from its vulnerability to risks of major accidents and/or disasters, including those likely to be caused by climate change,

have been comprehensively addressed in the EIAR. I am satisfied that the PRD, a major engineering project requiring large scale earthworks, is not of a type likely to cause significant effects on the environment arising out of **major accidents** or **disasters** within the meaning of the EIA Directive and the Roads Act 1993, as amended. The project has been designed with a demonstrated knowledge of the baseline biodiversity, geological, geotechnical, hydrological and hydrogeological environment. It is designed to current engineering standards and on the basis of avoiding significant environmental effects and adopting appropriate mitigation measures.

12.5. Difficulties Encountered

12.5.1. Difficulties encountered in preparing the EIAR have been outlined by the applicant's team in respect of each of the topics examined. These include:

Population and Human Health

- It is stated that no difficulties were encountered in respect of this environmental topic. It is however clarified in the assessment that the Health Impact Assessment put forward by the applicant is not intended to be a stand-alone document but rather one that informs the EIA process. I agree that it must be read in the context of its purpose which is to allow the Board to carry out an environmental impact assessment.

Noise and Vibration

- none reported by the applicant's team.

Biodiversity

- none reported by the applicant's team.

Soils and Geology

- none reported by the applicant's team.

Hydrogeology and Hydrology

- none reported by the applicant's team.

Air and Climate

- It is submitted by the applicant that the UK DMRB screening model (UK Highways Agency, 2007) is the recommended tool by TII (2011) for assessing potential air quality impacts from road schemes but that it is somewhat out of date and does not account for the implementation of new climate legislation and increased uptake in EVs, alternative fuels and new technologies. It is also submitted that the pollutant concentrations predicted for 2039 would likely be lower than detailed in the EIAR. However, for the purposes of the assessment, the worst-case approach was adopted in order to be conservative in the assessment.
- With respect to the assessment of 'Climate' as an environmental factor, I note that the estimation of GHG emissions is associated with a range of assumptions and limitations and there is limited guidance available for estimating climate change impact in the EIA. Climate policy and emissions targets have been strengthened significantly through changes to national and EU policy and legislation since the applicant carried out an assessment of the climate impact of the development, in particular since the oral hearing took place in February 2021. These legislative and policy changes are relevant considerations in my examination and evaluation of the information provided and I have had due regard to the updated measures in my assessment. I refer to section 11.5 of the Planning Assessment, (Climate).

Cultural Heritage

- The applicant stated that not all land was accessible for field inspection or geophysical survey. Consequently, previously unknown archaeological remains may be located in these areas. However, all areas would be subject to comprehensive testing prior to construction in order to identify any previously unrecorded archaeological remains and to allow appropriate mitigation strategies to be formulated.

Material Assets and Land – Agriculture (and Equine)

- none reported by the applicant's team.

Material Assets – Non-Agriculture

- none reported by the applicant's team.

Traffic

- none reported by the applicant's team.

Landscape and Visual

- none reported by the applicant's team.

12.5.2. I am satisfied that while there are some difficulties encountered as set out above, none are such that would prevent the Board from carrying out an environmental impact assessment and reaching a reasoned conclusion on the significant environmental effects on the environment arising from the PRD.

12.6. Assessment of Environmental Effects

12.6.1. The likely significant direct and indirect effects of the development are considered under the following headings, after those set out in Article 3 of the EIA Directive 2014/52/EU:

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

12.6.2. I have examined the information presented by the applicant, including the EIAR, the response to the request for further information, additional material presented at the oral hearing, and submissions made in the course of the application and during the oral hearing by the prescribed and public bodies and observers. I have also considered the applicant's response to the submissions at the oral hearing. A summary of the submissions received in respect of the section 51 application is set out in section 4. The main issues raised that are specific to EIA are set out and evaluated under the respective headings below and as appropriate in the reasoned

conclusion and recommendation that follows. Where submissions have raised issues in respect of the planning and sustainable considerations, these are dealt with under section 11. As there is a degree of overlap it is recommended that both sections are read together.

12.6.3. The following environmental factors are considered in my assessment below.

- Population and Human Health
- Noise and Vibration
- Biodiversity
- Soils and Geology
- Water - Hydrology
- Water - Hydrogeology
- Air and Climate
- Cultural Heritage
- Material Assets and Land - Agricultural
- Material Assets and Land - Agriculture (Equine)
- Material Assets and Land - Non-Agricultural
- Traffic
- Landscape and Visual
- Cumulative Impacts and Interactions

12.6.4. In relation to the impacts identified, I have had regard to the mitigation and monitoring measures set out by the applicant in each specific chapter and also in chapter 19 (Mitigation and Monitoring Measures) of the EIAR. Table 19.1 of Chapter 19 sets out a list, including description, of general mitigation and monitoring measures that the appointed contractor will be contractually required to implement. The Mitigation Measures document forms the basis of the Schedule of Commitments which the appointed contractor for the project would be required to comply with. Additional commitments were added to the Schedule during the oral hearing that took place on the 16th of February 2021.

12.6.5. An EOP has been developed for the proposed road development in accordance with the TII Guidelines for the Creation and Maintenance of an EOP. It includes a CESP that addresses water control mitigation. It is stated that the EOP is required to be finalised by the successful contractor in agreement with LCCC and would be

implemented by the contractor in the course of the construction phase. As referenced in the planning assessment (section 11), I note the commitment given by the applicant that the appointed contractor would be required to employ an independent SEM to ensure the EOP is properly implemented and to provide independently verifiable audit reports.

12.7. Population and Human Health

Background and Context

12.7.1. **Population and human health** as environmental factors are collectively addressed in chapter 6, volume 2 of the EIAR. At the oral hearing, Dr Martin Hogan of Corporate Health Ireland presented a Brief of Evidence on these factors and addressed related concerns raised in submissions and objections in respect of both the approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). I note the study team outlined in Appendix 1.1 references Mr John Finnegan as a principal contributor in respect of chapter 6.

Study Area

12.7.2. The PRD study area is presented as extending to either side of the current N69 between Foynes and Askeaton, the current R518 between Askeaton and Rathkeale, the current N21 between Rathkeale and the location of the proposed tie-in with the M20 motorway east of Adare. The area is accurately described as being predominately rural with low density housing along the existing road networks and includes the settlements of Foynes, Askeaton, Croagh, Adare and Patrickswell. Foynes is described in chapter 6 as having a nationally important deep-water port and related industrial activity. Askeaton and Rathkeale are described as largely providing an important trade/market and a service function for the settlement areas and the surrounding hinterland. Croagh is described as a small settlement on the N21 that services local and passing trade. Adare, located 15km west of Limerick along the N21, is described as an attractive historic village with tourism playing a significant role in the town. Adare has been designated as a 'Heritage Village' by Fáilte Ireland. It is stated in a number of chapters in the EIAR and by various experts at the oral hearing that Adare is significantly constrained by traffic congestion. I also

note the situation from my visits to the area. Smaller villages in the study area include Kilcornan, Kildimo, Clarina and Mungret along the N69. In relation to Electoral Divisions (EDs), 14 are included in the study area and these are set out in Table 6.6 of Chapter 6 (Population of the Study Area).

Guidelines and Data

12.7.3. The guidelines that have informed the applicant's assessment on population are set out in section 6.2.3 of chapter 6 and primarily include EPA guidelines on EIA. The data sources used to gain an understanding of the community/baseline environment are set out in section 6.2.4. They include demographic data from the CSO and the design documents and drawings that describe the development. The human health impact assessment was also prepared in accordance with EPA guidelines and other supporting guidance and data sources as detailed in chapter 6, section 6.5 (Human Health Impact Assessment - Methodology). The assessment also followed guidance set out in 'Health in Environmental Impact Assessment - A Primer for a Proportionate Approach' (Institute of Environmental Management and Assessment (IEMA), 2017). This document states that there should be a greater emphasis on health outcomes (the potential effects on human health) than on health determinants (emissions which could have the potential to have health effects).

Existing Population Profile

12.7.4. The guidelines that have informed the applicant's assessment on population are set out in section 6.2.3 of chapter 6 and primarily include EPA guidelines on EIA. The data sources used to gain an understanding of the community/baseline environment are set out in section 6.2.4. They include demographic data from the CSO and the design documents and drawings that describe the development. The human health impact assessment was also prepared in accordance with EPA guidelines and other supporting guidance and data sources as detailed in chapter 6, section 6.5 (Human Health Impact Assessment - Methodology). The assessment also followed guidance set out in 'Health in Environmental Impact Assessment - A Primer for a Proportionate Approach' (Institute of Environmental Management and Assessment (IEMA), 2017). This document states that there should be a greater emphasis on health outcomes (the potential effects on human health) than on health determinants (emissions which could have the potential to have health effects).

Applicant's Approach and Methodology

12.7.5. It is stated that the assessment of human health was carried out in the context of EIA with a focus on likely significant effects on the environment and is not otherwise intended to be a standalone Health Impact Assessment. The methodology adopted for the assessment was to use a **health-based standards approach** to assess health protection as a result of environmental emissions on the basis that health-based standards are set to protect individual receptors against negative human health effects. It was stated that the level at which the standard is set is chosen in order to protect the vulnerable rather than the robust individuals in society. At the oral hearing Dr Hogan stated that the standard measures of significance are set at levels where there would be no significant health effects. The point advanced is that once the acceptable standards or limit values for environmental emissions are not exceeded, for example air quality and noise, then no significant adverse impact on human health would conceivably arise. Dr Hogan stated that the health-based standards approach is consistent with the latest draft guidelines on the Information that must be contained in Environmental Impact Assessment Reports (EPA, 2017). Having reviewed the relevant guidelines I agree that this approach aligns with the spirit of the aforementioned guidance for assessment of likely significant effects on the environment an EIAR. Section 3 (p.29) of the guidance states that 'the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc.'. While I note that this guidance is currently in draft form, I am satisfied that the approach is consistent with the guidelines on the 'Information to be contained in Environmental Impact Statements' (EPA, 2002) which includes guidance that 'the practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors for analysis relating to the environment' (Section 2.4.2 Health & Safety).

12.7.6. Overall, I am satisfied that this approach to the assessment is correct in the context of the Board's requirement under the EIA Directive and the provision of the Roads Act 1993, as amended, which is to reach a reasoned conclusion in respect of the **likely significant effects on the environment** resulting from the proposed development.

Road Safety

- 12.7.7. In relation to road safety, the EIAR presents information on road traffic collision occurrences in the study area along the N69 and N21 for the period 2008-2015. This is based on data obtained from the Road Safety Authority (RSA) database. The locations of the recorded collisions are set out in Chapter 6, Table 6.9: Collision Data (2008-2015) and illustrated in Plate 6.1: N69 RSA Collision Data: 2008-2015 and Plate 6.2: N21 RSA Collision Data: 2008-2015.
- 12.7.8. The data on recorded collisions, presented by Dr Hogan, was updated by Mr Shiels in his evidence on traffic analysis presented to the oral hearing. The update includes data for 2016 that became available since the planning application was lodged. The updated information shows that in the period 2008 and 2016 one fatal, five serious and 95 minor casualties were recorded on the N69 corridor. On the N21 corridor during the same period seven fatal, 17 serious and 123 minor casualties were recorded. Figure 7 in the Brief of Evidence presented by Mr Shiels illustrates the updated collision records (N69 & N21 Corridor Collisions: RSA Data 2008 – 2016).
- 12.7.9. Figure 8 in the traffic analysis Brief of Evidence (N69 & N21 Corridor Collisions: TII Network Safety Analysis) provides an update to reflect 2016-2018 safety ranking data in accordance with TII Publication – Network Safety Analysis (2017). The figure highlights that there are a number of sections, most notably on the N69 corridor, with a collision ranking of ‘twice above (national) average’.
- 12.7.10. European road assessment program (EuroRAP) assesses roads in Europe to show how well they protect life in the event of a road collision. Based on the EuroRAP road protection score, for which a star rating has been assigned to sections of road based (between one-star for worst and five-star for best), the N69 between Foynes and Limerick has been attributed a one-star rating indicating the highest level of risk to vehicle occupants. The N21 has a two-star rating over its entire length which is also sub-optimal. Overall, it is clearly evident that the N69 and N21 both currently have poor safety ratings. These ratings are shown in Plate 6.5 (EuroRAP Star Rating Map Source Map Source: EuroRAP 2008: Ireland Results) of Chapter 6 of the EIAR.

Predicted Impacts – Population

- 12.7.11. The main impacts on population are identified in Chapter 6 and are discussed below.

Operational Impacts – Population

Journey Time and Reliability

- 12.7.12. I agree as asserted that users of the PRD would experience a significant to very significant positive impact in terms of journey time savings and journey reliability. These improvements would be brought about as a result of separating the strategic through traffic onto a new high-quality road away from local traffic. With the PRD in place, road users would be able to avoid the significant congestion and traffic delays that currently exist in and around Adare which would also add to the improvements. An example was provided whereby the journey time from Attyflin to Foynes, which is currently 32 minutes off-peak, would reduce by approximately seven minutes for light-goods vehicles and 12 minutes for HGVs and in the order of 15 to 20 minutes during peak times.

Improved Road Safety

- 12.7.13. Based on modelling undertaken as part of the traffic analysis, a reduction in the number of collisions in the study area of 427 over the 30-year appraisal period is predicted. This is estimated to translate to a reduced occurrence of 659 casualties, including 11 fatalities, 36 serious injuries and 612 slight injuries. Noting the potential to reduce the risk of road collisions and consequently reduce the extent of fatalities and serious injuries, I agree that the applicant's rating of profound (positive) impact outlined is reasonable on a macro level, while I recognise that there are many other factors including driver behaviour that would also influence the likely impact of the PRD on road safety. As I have noted under the heading of Policy Considerations in the Planning Assessment above, the recently published Road Safety Strategy 2021-2030 sets a long-term goal to eliminate road traffic deaths and serious injuries on Irish roads by 2050 through a number of interventions including 'safe roads and roadsides'. The new road infrastructure would contribute to achieving this aim by providing significantly safer road infrastructure including divided carriageways along sections A, C and D.
- 12.7.14. The reduction of traffic on **existing roads** is predicted by the applicant as resulting in an indirect significant positive impact on road safety at a local level, particularly in and around villages including Adare and Croagh on the N21 which would be bypassed. The settlements of Kilcornan, Kildimo, Clarina and Mungret along the N69

would also experience a significant decrease in traffic as through traffic transfers to the PRD. These settlements would also experience indirect positive impacts. The safety at schools and other community facilities where children would be dropped off would also improve. I also agree as stated that an improved environment would also lead to a safer and improved journey experience for pedestrians and cyclists on the rural roads in the vicinity of the PRD because of reduced traffic volumes on these roads.

Amenity Impacts

12.7.15. As traffic volumes would reduce, I agree as stated that towns and villages that are bypassed would enjoy much-improved amenity because of reduced noise and visual intrusion and reduced community severance.

12.7.16. I also agree that communities living and working along the N21 and N69 would similarly experience a much-improved environment because of the reduced volume of traffic and reduced exposure to noise and air pollution as a result. However, I believe this must be put in context with the potential increase in noise and air pollution that could occur on communities and sensitive receptors living along the new road infrastructure. I have considered these impacts on individual receptors under the respective headings of Noise and Vibration and Air Quality in later sections.

Economic and Socio-Economic Impacts

12.7.17. The delivery of the PRD would result in significant positive socio-economic impacts and benefits because it would facilitate transport of goods and people in a more timely, reliable and efficient manner. The bypassing of Adare in particular as well as Croagh would facilitate these villages in enhancing their social and economic purpose. For example, when traffic congestion and delays are removed, this would lead to improved opportunities for new and existing businesses in and around the village centres. The reduction in traffic and congestion in Adare historic village would also enhance its position as a tourist destination.

12.7.18. Negative economic impacts are identified as including a loss of passing trade for certain businesses where they are situated on existing roads that would be bypassed. These include businesses in Adare and Croagh along the N21 and in the villages of Kilcornan, Kildimo, Clarina and Mungret along the N69. A fuel station

premises on the N21 in Adare is also identified as being potentially adversely impacted because of a large decrease in passing traffic. These effects would be ameliorated to an extent by the provision of a junction from the PRD serving Adare, which would allow motorists to break their journey at Adare. Loss of passing trade is also anticipated for a fuel service station at Smithfield on the N21, east of Croagh, which would result in a significant negative effect for this business. Other businesses would also be impacted by the PRD resulting in a slight to moderate negative impact for those businesses that predominately rely on passing trade. It is stated that motorists would have the opportunity to exit from the PRD at Croagh Junction and travel 0.5km on the link road, west of the service station, to avail of the services.

12.7.19. The loss of passing trade is noted. However, experience from other towns and villages that have been bypassed shows that while the loss of trade can be a feature in the short term, the removal of traffic from the town and village centres can improve the urban environment and its economic function in the longer term while also improving access to and connectivity between these centres and the communities and hinterlands they serve. I anticipate that, in the operation and use of the new PRD, there would be broader positive impacts on the local towns and villages that are bypassed following initial short-term negative impacts. I acknowledge that fuel stations businesses located in the bypassed towns would continue to be negatively impacted by the loss of passing trade.

Operation Stage Severance

12.7.20. Moderate to slight negative impacts would include severance because of the closures or diversions of four local roads. These roads are identified in Table 6 below together with the applicant’s impact rating.

Table 6 Road Closures/Diversion required and associated severance impacts

Road closure/Diversion	Impact set out by applicant in Chapter 6 (Population and Human Health) of the EIAR.
L-6068 at Rincullia (Robertstown / Barrigone area east of Foynes) will be permanently closed.	Moderate impact as a result of a 3 minute (typical) increases in journey time.
Coopers Lane (Mulderricksfield): A private access will be replaced by a	Slight impact due to the length of the diversion

new access track 300m east with a bridge over the PRD.	
L-8027 Clogh Road intersects the L-6023 at Blossomhill Road and will be severed by the proposed motorway section. A new link road will be provided over a length of 0.5km.	Slight impact due to the length of the diversion.
L-8026 at Clonshire More (near Croagh): This road is proposed to be diverted eastwards to the L-8025. An underpass will be provided for pedestrians.	Slight impact with an increased journey time of 2 minutes for vehicular traffic and a 3-to-4-minute walk for pedestrians

12.7.21. Negative impacts from severance would also be felt by local residents where the road divides family and friends and acts as a physical barrier. This was articulated by Kathleen O'Connor (Env-19) as the owner of a plot of land (potential house site) south of the PRD at ch.56+600, a matter that I have dealt with in the planning assessment above.

12.7.22. While causing severance at specific locations, the PRD would provide a relief from severance within Adare, in particular because of reducing the through traffic volumes and associated traffic congestion. I also note that positive impacts, in the form of relief of severance, would arise because of improvement of connectivity to community services and places of businesses and employment.

Construction Impacts - Population

12.7.23. Construction works for the PRD are stated as having a potential negative impact because of severance during periods of traffic delays and inconvenience at specific locations, for example where the construction of the PRD would cross existing roads at new junctions and bridges. The PRD would also have a negative impact on general amenity where the construction works would take place close to residences or where local roads would be realigned. These impacts would be unavoidable; however, roadworks are a commonplace occurrence and impacts can be addressed through good construction traffic management and best practice measures, a matter I have dealt with under the heading of mitigation below.

Human Health Impacts (Construction and Operation)

12.7.24. The impacts on human health identified that in the 'do-nothing' scenario, traffic would continue to grow and negative impacts currently experienced by road users would further increase. It is submitted that the risk of road collisions would also persist. In my view this could further increase in light of the planned growth for Limerick provided for in the NPF and the corresponding increase in road traffic that would arise.

Health Protection

12.7.25. In relation to health protection, the applicant's assessment drew on the findings of assessment of other chapters/environmental topics (such as noise and vibration, air quality, soil and water) that are also set out in the EIAR. The assessment concluded that once the relevant limit values or guideline standards are not exceeded, for example the limit values of the Air Quality Standards Regulations 2011 that transposed the CAFÉ Directive 2008/50/EC, there would be no adverse health impacts as a result of the PRD through pathways of noise and air emissions, soils and/or water quality. I generally agree with this finding. However, effects on health were raised in a number of submissions and I have addressed these in my assessment below.

12.7.26. In considering operational noise impacts when designing new road schemes, TII noise guidelines set out a goal to reduce the individual noise experienced from traffic to 60dB L_{den} and/or the 'do-something' noise levels for the operation phase. In the current proposal this level can be achieved for the majority of receptors and is discussed in further detail under the heading of 'Noise and Vibration' in Section 12.9. It is also submitted that at a population level, there would be a significant net positive effect on human health and the project goes some distance to achieving the recent World Health Organisation (WHO) 'Environmental Noise Guidelines for the European Region' (2018) (WHO Noise guidelines) recommendation 'to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure'. The applicant's use of the TII guidelines over the WHO Noise guidelines was discussed in detail at the oral hearing. This matter is considered in detail later in this assessment and also in the assessment of Noise in Section 12.8.

- 12.7.27. It is submitted in the health assessment that significant noise impacts would not arise during construction because the appointed contractor would be contractually required to adhere to binding noise levels and hours of operation. In this respect the contractor would be required to take specific noise abatement measures and comply with the recommendations of British Standards Institute (BSI) standard BS 5228-1:2009+A1: 2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Noise and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001 and the TII Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2013). These measures specify noise levels that are deemed acceptable in terms of construction noise for new national roads. They are also set out in Table 12.1 of Chapter 12 of the EIAR (Maximum Permissible Noise Levels at the Façade of Dwellings During Construction Phase). A noise level of 70dB $L_{Aeq, 1hr}$ is the limit set for construction during daytime hours.
- 12.7.28. The noise assessment notes the potential for temporary significant residual noise impact at properties within 80m of high intrusive activities, which would occur primarily during rock breaking activity, even with noise mitigation in place. Given that the noise would be temporary and transient for sensitive receptors along the route corridor as the work progresses, and that it would be largely controlled to within the levels as outlined (with exceptions outlined), the conclusion reached of no significant adverse impact on human health is generally accurate.
- 12.7.29. Vibration and infrasound impacts from **blasting, rock breaking and piling** are not considered to have any significant negative health impacts on the basis that such occurrences would be momentary and appropriately managed (See Section 12.9 – Noise and Vibration).
- 12.7.30. In relation to **air quality**, as set out in Section 12.13 above, provided air quality standards are not exceeded, which is the conclusion of Chapter 13 (Air Quality and Climate) it is concluded that the impact of construction is likely to be short-term and imperceptible with respect to human health.
- 12.7.31. In consideration of impacts on human health as a result of **water quality, flooding and soils**, also set out above, I would agree that having regard to the findings of no significant effects on the environmental factors of Hydrology, Hydrogeology and Soils

and Geology, no adverse effects on human health could reasonably arise. In considering the potential presence of **radon**, while radon gas may be released during construction, the scientific evidence is that it would be immediately dissipated in the open air and would not cause harm in an open, outdoor environment. Accordingly, I am satisfied that radon that may be present in the ground would not cause adverse health impacts and no mitigation is required in this respect.

Psychological Health

- 12.7.32. In oral and written submissions received, issues were raised regarding the psychological impact of the PRD on persons living proximate to the construction site in the short term, and on persons living proximate to the road when completed in the long term. It was submitted that these residents would experience adverse effects on their mental health and wellbeing through induced stress and anxiety from increased noise, vibration from rock blasting and a reduction in air quality. In response, Dr Hogan referred to the positive health impacts which would arise from the delivery of the PRD and in his assessment such impacts would be **significant positive**. He stated that the 'do-nothing' scenario, where traffic congestion and delays persist, would have a greater potential for adverse psychological impacts. I agree with this conclusion based on the benefits that would ensue from the PRD as outlined earlier. I also agree with Dr Hogan's acknowledgement, stated at the oral hearing, that the benefits of the PRD would not be felt equally by every individual.
- 12.7.33. Dr Hogan also acknowledged that while there would likely be some anticipatory anxiety and fear of what might result, based on previous experience anticipated issues do not generally materialise to the same extent that is often feared at the outset. I note in particular that stress and anxiety cannot be ruled out for persons/families whose homes would be acquired compulsorily or where the operation of an established enterprise would be profoundly adversely impacted. I have addressed the impacts arising on families who would lose their homes in the planning assessment earlier and in section 12.17 (Material Assets – Non-Agriculture). I have also noted the objection received from the O'Kellys as a party affected by the proposed CPO. This point is also addressed in section 14 (Assessment of Application for Approval of Schemes).

Health Improvement

12.7.34. It is stated in the applicant's assessment that with the PRD in place, conditions on existing roads would improve, albeit as an indirect result of the PRD, as it would lead to an improved environment for active exercise in the form of walking and cycling. The improved conditions would also facilitate greater social interaction in the community, which may have been restricted due to excessive traffic levels. As stated by Dr Hogan, physical activity and exercise are well recognised for reducing the risk associated with many health conditions. Dr Hogan also stated that it is well reported through medical research findings that people who regularly exercise experience a greater state of wellbeing. These points are accepted, and it may also be observed that residents living along these roads would experience a quieter, safe and healthy living environment overall.

Access to Community Services

12.7.35. I also agree that the PRD has the potential to result in benefits from improved access to community, healthcare and education services through enhanced public and private road-based transport with a safer and more reliable journey experience. It is also submitted that reduced access times for emergency services would help save lives. It is further submitted that arising from improved access to services and connectivity, there is potential for socio-economic gain including economic growth, which in turn can lead to decreasing social inequality with positive health outcomes. Based on a review of the information, these findings are accurate.

Mitigation – Population and Human Health

Community Severance

12.7.36. Mitigation measures that are presented include those incorporated into the design of the PRD at the outset such as keeping the road network connected and the provision of underpasses, bridges and diversions. The local road at Rincullia (L-6068) is proposed to be closed. However as there would be no resulting community severance at this location, no mitigation is required to be implemented. Another three local roads at locations outlined in Table 6 are also proposed to be closed. Alternative accesses for these roads are proposed with a resulting impact rating of 'slight'. Having reviewed the design drawings and documentation and inspected the road locations, I agree with these findings. Proposed traffic management measures

and diversions during the construction phase are detailed in Chapter 4: Description of the Proposed Road Development of the EIAR; section 4.16.5 (Traffic Management) and Table 4.21 (Temporary Traffic Management and Road Diversions).

Economy and Tourism

12.7.37. Directional signage in accordance with the Traffic Signs Manual is proposed at the approaches to junctions along the route at Adare, Croagh, Rathkeale, Ballyclogh, Askeaton and Foynes to direct drivers towards these local destinations. It is submitted that these measures would minimise, or perhaps prevent, community severance and help lessen the potential loss of passing trade. I agree with this finding in general. As I have acknowledged earlier in this assessment the fuel service stations that would be bypassed are an exception to this. I am also of the view that there would likely be a moderate or significant negative for those particular businesses who rely on passing trade for a large part of their business model. None of the owners or representatives of the fuel stations have submitted observations on the application.

Human Health

12.7.38. No specific mitigation is proposed for human health apart from proposals to address other environmental factors, including in particular, noise, vibration and air quality. As set out in chapter 12 of the EIAR (Noise and Vibration), impacts from construction noise would be mitigated through specific noise abatement measures and compliance with appropriate noise levels. During operation, low noise road surfacing and noise barriers are proposed as the primary mitigation measure and would serve to adequately mitigate potential impacts from traffic noise to acceptable levels. These are discussed in greater detail under the respective headings of noise and vibration below.

Psychological Health

12.7.39. As noted, a level of stress and anxiety could not be ruled out for persons whose homes are proposed to be acquired compulsorily or, in the operation of an established enterprise, those whose business would be significantly impacted. While I note that there is no means to mitigate such losses through the EIA process, it is

proposed that the applicant would proactively engage with affected individuals and landowners.

WHO Environmental Noise Guidelines v TII Noise Guidelines in respect of Human Health Assessment

- 12.7.40. A number of submissions raised in written format and at the oral hearing contend that the standards set out in WHO Environmental Noise Guidelines for the European Region, 2018 (WHO Guidelines) should have been applied in the assessment, rather than the applicant's use of TII Standards set out in the 'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes' 2014 (TII Guidelines). These WHO Guidelines recommend reducing noise levels produced by road traffic below 53dB L_{den} , as road traffic noise above this level is associated with adverse health effects. For night noise exposure, the guidelines recommend reducing noise levels produced by road traffic during night-time below 45dB L_{night} , as night-time road traffic noise above this level is associated with adverse effects on sleep.
- 12.7.41. At the oral hearing, Dr Hogan outlined the relationship between the WHO Guidelines and the TII Guidelines. He stated that the WHO Guidelines are applicable in guiding policy at a wider population level and are not relevant for setting noise limits on individual receptors. He also stated that the WHO readily acknowledges that guidelines cannot be reasonably achieved at every individual residence and the TII Guidelines should be viewed as providing the most relevant achievable goal to protect individual receptors. He also stated that the TII Guidelines and the WHO Guidelines should be viewed as complementary, not competitive.
- 12.7.42. Dr Hogan further stated that the 53dB L_{den} level set by the WHO is based on 'annoyance criteria' as opposed to serious health effects, and that the WHO guidelines suggest that if a level was set to 'cardiovascular criteria' alone the level would likely be in the order of 59.3dB L_{den} . The point being made is that the noise limit for serious or significant health effects (rather than annoyance) is closely aligned to the TII design goal of 60dB L_{den} , which is the design goal applied by the applicant. This point was repeated by Ms Jennifer Harmon at the oral hearing in dealing with noise as an environmental factor.

12.7.43. Dr Hogan provided further information on how the noise criterion of 59.3 dB L_{den} is calculated, stating that:

‘It is conservatively calculated at the level of noise that may be associated with a 5% increase in relative risk of a cardiovascular event. For the vast majority of people, the risk of a cardiovascular event in the next year is less than 1%. For an individual who has that risk of 1%, even allowing for the worst effects, the risk is 1.05%. The difference is therefore imperceptible on an individual basis. It is simply a far less significant effect than other risk factors, which is the reason that it is not considered one of the factors when calculating one’s own cardiovascular risk. On an individual basis it simply is not significant. However, when one applies this across a large population, such as the population of Europe, even small changes can make a significant difference. This explains why the WHO Guidelines are applicable for populations but not for individuals.’

12.7.44. Based on the information provided at the oral hearing as set out above and having reviewed the WHO and TII Guidelines, I note that the WHO Guidelines focus on the WHO European Region and provide policy guidance to Member States and as set out by Dr Hogan, are relevant in bringing forward noise policy at a population level. According to Dr Hogan, data from previous WHO Guidelines show that well over 50% of the population of Europe is exposed to noise that exceeds these levels.

12.7.45. The TII guidelines are applied to determine acceptable noise levels for individual receptors in respect of new national road schemes in Ireland, and to inform the need or otherwise for noise mitigation measures. I am satisfied that the correct noise guidance was applied by the applicant in the design of the PRD. I am also satisfied that there is no contradiction between the TII and WHO Guidelines as these serve different purposes. I have also addressed this issue in my assessment under the separate heading of ‘Noise and Vibration’. The TII Guidelines have been used in the assessment of all new national road projects in Ireland since their publication in 2014. I am satisfied that they provide current guidance for the PRD on noise and in respect of the related impacts on population and human health.

Other Matters raised in Submissions

Health Impacts on vulnerable individuals

- 12.7.46. Concerns were raised by observers including Mr Ian Gilvarry (Env-13 and FI-4) and Ms Stephanie Shine (Env-32/Sch-123)¹⁶ regarding how the PRD would specifically impact vulnerable individuals, for example those with particular medical needs and/or underlying background health conditions. regarding the impact of the PRD on vulnerable individuals, for example those with particular medical needs and/or underlying background health conditions. In responding to these concerns, Dr Hogan stated that vulnerable individuals are protected through health-based standards, particularly adherence to relevant standards or limits for noise, vibration and air quality. He stated that so long as the applicable standards or limits are not exceeded, vulnerable people in society would be appropriately protected from resulting impacts on health. Other issues raised by both parties have been considered earlier in section 11.8 in the planning assessment (Other Site/Property Specific issues raised in submissions).

Impacts of Motorway on residents mental health and wellbeing

- 12.7.47. At the oral hearing Ms Stephanie Shine (Env-32/Sch-123) submitted that the applicant had not adequately addressed the effects of a motorway on the mental health of residents. She referred to a Glasgow study of health impacts of a new motorway. Ms Shine stated that the study found that there was a negative impact on the mental wellbeing of local residents. In response Dr Hogan stated that it is difficult to compare a motorway in an urban area in Glasgow to the proposed motorway and that no previous motorway projects have been associated with adverse impacts on mental health.
- 12.7.48. I have considered the study referred to entitled 'Effects of living near an urban motorway on the wellbeing of local residents in deprived areas'¹⁷ (2016). It relates to the construction of a new motorway extension of eight kilometre, comprising six

¹⁶ In relation to numbering of this submission, refer to Clarifications on Submissions/Objections in the planning assessment above.

¹⁷ Effects of living near a new urban motorway on the travel behaviour of local residents in deprived areas: Evidence from a natural experimental study (2016) Authors: Louise Foley, Richard Prins, Fiona Crawford, Shannon Sahlqvist, David Ogilvie on behalf of the M74 study team University of Edinburgh.

lanes, located in a built-up regeneration area of Glasgow city (M74). The aim of the study was to examine the effects of the motorway extension on the travel and activity patterns, injuries and wellbeing of residents in the local area.

- 12.7.49. The study found some evidence that living near a newly constructed or existing urban motorway had a negative impact on local residents' mental wellbeing. While this conclusion is noted, it is appropriate to understand the particular circumstances of the Glasgow M74 extension and the characteristics of the environment in the study area. The study did not assess impacts on individual receptors. The circumstances and urban site context of the Glasgow motorway extension and the design of the motorway comprising six lanes, are not comparable to the proposal before the Board which is the construction a motorway with four lanes (Section D) in an area that is predominately rural in nature.

Potential Stress and Psychological Impacts

- 12.7.50. Concerns were raised by Mr Conor Enright (FI-2) regarding potential stress and psychological impacts as a result of the PRD. I have dealt with these impacts earlier in the assessment where I note that some anticipatory anxiety cannot be ruled out for certain affected individuals, in particular for those whose homes would be acquired compulsorily. I also conclude that beyond this, there is no scientific evidence that adverse psychological health impacts would be brought about by the delivery of road infrastructure where appropriate mitigation measures are adopted, which I believe to be the case in respect of the current PRD proposal.
- 12.7.51. I am satisfied that matters raised in the relevant submissions and observations made have been addressed by the applicant and do not alter the findings in my assessment of impacts on population and human health.

Residual Impacts – Population and Human Health

- 12.7.52. I agree, as submitted, that residual impacts would be largely **significant to very significant** positive in terms of population at a community level. I also agree that the transfer of traffic onto the new road infrastructure would improve journey safety and reliability and would provide a better experience for local road users. With the delivery of the PRD the existing road network would become more suitable for outdoor activity and recreation such as walking, running or cycling, physical activity that is well recognised for promoting health and wellbeing. It is acknowledged that

some significant negative impacts would arise for specific businesses, particularly businesses in Adare and Croagh, as well as in other villages along the N21 and the N69 that are heavily reliant on passing trade. Signposting is proposed to direct road users to the services at these locations which would reduce the negative impact that would occur. While loss of passing trade would lessen over time for the majority of affected businesses, dependent on the level of their reliance on this trade, some businesses including fuel stations may continue to experience moderate to significant impacts.

12.7.53. With respect to human health, I am satisfied that with effective mitigation of environmental effects, particularly noise, vibration and air quality, no residual adverse human health impacts would continue at a community or individual level. For reasons outlined, I am satisfied that the correct TII noise guidelines were applied in designing the PRD, including proposed mitigation measures in the form of noise barriers. I am also satisfied that there is no contradiction between the application of the TII and WHO Guidelines on environmental noise as each serve different purposes.

Inspector's Conclusion on Population and Human Health

12.7.54. I have considered all of the written and oral submissions made in relation to noise and vibration matters, in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and the evidence presented at the oral hearing by all parties including observers, I am satisfied that a comprehensive and accurate assessment of the impacts of population and human health has been carried out and put forward by the applicant.

12.7.55. At a community level, the PRD would result in significant to very significant positive impacts (benefits) on population arising from improved safety for road users and improved journey times, reliability, amenity and connectivity. Specifically, it would deliver improved connectivity between Limerick city, Shannon Foynes port and the immediate areas of the southern region as well as nationally and on the road-based infrastructure (core and comprehensive components) of the TEN-T road network connecting Ireland to Europe, which would benefit the movement of goods and people and the wider economy and society.

- 12.7.56. Some negative impacts would arise for specific businesses particularly in Adare and Croagh as well as other villages along the N21 and the N69 that are largely reliant on passing trade, though signposting is proposed to direct road users to the services at these locations which would reduce the impact. However, it is acknowledged that while loss of passing trade will lessen over time for the majority of affected businesses, some individual businesses may continue to experience moderate to significant impacts.
- 12.7.57. With the removal of strategic transport from the existing road network, the bypassed villages have potential to improve their urban environment and economic, tourism and social potential and regain their sense of place. The removal of congestion in Adare would be a particular benefit. The existing road network would become more suitable for improved outdoor recreational activity and active travel including walking and cycling which are recognised as a means of improving health and wellbeing.
- 12.7.58. With respect to human health, I am satisfied that with effective mitigation of environmental effects, particularly noise, vibration and air quality, no residual adverse human health impacts would continue at a community or individual level.
- 12.7.59. It is acknowledged that individuals whose homes would be compulsorily acquired may experience a level of stress or anxiety as a result of the process and there are no means to mitigate such losses through the EIA process. However, while this negative impact is unavoidable, it would not equate to a significant adverse impact on human health and is considered acceptable in the wider context of the overall public benefits of the proposed road development. It is proposed that the applicant would proactively engage with affected individuals and landowners in this regard.
- 12.7.60. Negative impacts that are predicted to arise can be avoided, managed, and mitigated to an acceptable level by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. Therefore, the proposed development would not have any remaining unacceptable significant direct, indirect, or cumulative residual impacts in the short, medium and long term on population or human health.
- 12.7.61. It is acknowledged that the health benefits of the proposed road development would not be felt equally by every individual in the community.

12.8. Noise and Vibration

Introduction and Background

- 12.8.1. **Noise and Vibration** as environmental factors are addressed in Chapter 12 of Volume 2 of the EIAR. At the oral hearing, Ms Jennifer Harmon of AWN Consulting Ltd. presented a Brief of Evidence on these factors and addressed related concerns raised in submissions and objections in respect of both the approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended).
- 12.8.2. Noise and vibration from the PRD, during both the construction and operation phases were raised as issues by several parties in written format and at the oral hearing. It is acknowledged by the applicant, and I also note that given the nature of the project, a large-scale road infrastructure development, involving extensive earthworks, construction phase noise and vibration impacts are unavoidable.
- 12.8.3. The applicant's assessment on noise and vibration was informed by desk research, data gathered from baseline noise surveys and predicted noise levels during operation from noise modelling. The assessment focused on sensitive receptors, largely residential properties, within a study area of approximately 300m from the centreline of the PRD and along sections of existing roads where changes in traffic volumes are anticipated. I am satisfied that residential and other sensitive properties outside of these locations would not be subject to significant adverse impacts from noise and/or vibration during either the construction or operation phase. Impacts on equine enterprises from noise and vibration sources are addressed in this assessment under a separate heading of Material Assets and Land – Agriculture (Equine).
- 12.8.4. I note as set out in Chapter 12 that there are no statutory guidelines relating to noise from road schemes in Ireland. Instead, the most commonly applied standard is 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes' (TII, 2004) and the 'Good Practice Guidelines for the Treatment of Noise during the Planning of National Road Schemes' (TII, 2014). Both documents specify that the following absolute noise design criterion for new national road schemes in Ireland is appropriate.

- Day-evening-night value of 60dB L_{den}.

12.8.5. Noting the absence of an Irish or international standard relevant to construction noise, the TII Guidelines set out that reference can be made to BS 5228 - 1:2009+A1: Code of Practice for Noise and Vibration Control on Construction and Open Sites Part 1: Noise. This BSI standard was also used by the applicant in conjunction with the TII Guidelines for the assessment of construction noise. Part 2 (Vibration) of the standard was also used for the assessment of construction vibration.

Baseline / Existing Environment

12.8.6. To gain an understanding of the baseline/existing noise environment, attended noise surveys were carried out by the applicant's team at 73 locations using a Larson Davis 831 Sound Level Meter. Unattended noise surveys were also carried out at 31 locations using a Brüel & Kjær Type 2250 Sound Level Meter. Table 12.6 of Chapter 12 provides a summary of all baseline noise data gathered for each of the survey locations and the locations are illustrated in Figures 12.1-12.23 (Noise Monitoring Locations and Mitigation) of Volume 3 of the EIAR. A breakdown of the results for all attended and unattended survey locations was included in Appendix 12.2 (Tables A.12.2.1 to A.12.2.32) of Appendix A of a Supplementary information document submitted to the Board during the oral hearing.

12.8.7. Having reviewed the information in the EIAR, I am satisfied that the baseline surveys were taken at representative locations along the route of the PRD mainline and the wider study area. In general, it was found through survey information gathered that properties facing directly onto existing roads experience noise levels in excess of 60dB L_{den}. Properties in more rural settings, where these are set back from the roads, were found to experience lower noise levels, generally in the range of 45-60dB L_{den}, depending on local noise sources such as agricultural works/machinery and existing traffic.

Construction Noise

12.8.8. Based on Table 1 (Maximum permissible noise levels at the façade of dwellings during construction) drawn from TII Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII, 2004) and Table 6.1 (Maximum permissible noise levels at the façade of dwellings during construction) drawn from

Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (TII, 2014), noise levels deemed acceptable for construction of new national roads are set out in Table 12.1 (Maximum permissible noise levels **at the façade of dwellings** during construction phase) of Chapter 12 of the EIAR. The noise criteria set out include:

- 70dB $L_{Aeq, 1hr}$ for Monday to Friday 07.00 to 19.00 hrs,
- 60dB $L_{Aeq, 1hr}$ for Monday to Friday 19:00 to 22:00 hrs,
- 65dB $L_{Aeq, 1hr}$ for Saturdays 08.00 to 16.30 hrs and
- 60dB $L_{Aeq, 1hr}$ for Sundays and Bank Holidays 08:00 to 16:30hrs.

12.8.9. TII noise guidelines do not specify night-time construction noise limits and as such, guidance was drawn from BS 5228-1: 2009+A1 (Part 1). Table 12.2 (Example Night-time Construction Noise Thresholds at Dwellings) includes threshold values of 45dB $L_{Aeq,T}$ (Category A), 50dB $L_{Aeq,T}$ (Category B) and 55dB $L_{Aeq,T}$ (Category C). The different categories relate to ambient noise levels as explained in Chapter 12. The night-time threshold values outlined align with the noise threshold values set out in Table E.1 (Example Threshold of potential significant effect at dwellings) of BS 5228-1:2009+A1:2014.

12.8.10. The classification of impacts relating to **changes in traffic noise** along existing road links during the **construction phase** is set out in Table 12.4 (Classification of Magnitude of Noise Impacts in the Short Term) of Chapter 12. Impacts are stated to be based on the ratings taken from the UK's DMRB guidance, Volume 11 Section 3 Part 7 (2011) for the 'short term' impact ratings.

12.8.11. I note as outlined by the applicant that it is not reasonably possible to predict noise levels that would arise from construction activities at any specific location as construction activities by their nature are variable. Instead, the applicant's approach to the assessment of construction noise was to gauge the noise levels that would arise for typical construction activities by reference to the likely combination of plant/machinery that would normally be used in such an earthworks project and thereafter to predict the likely noise levels at varying distances from the construction noise source for the activities. The predicted noise levels at distances ranging from 10m to 250m from the three types of construction activities are set out in Table 12.7

(Indicative Construction Noise Calculations at Varying Distances) of Chapter 12. For ease of reference and as it is central to the assessment of environmental effects resulting from noise impacts, the information contained in Table 12.7 and related information on the three bands of construction activities are reproduced in Table 7 below.

Table 7 Information contained in Table 12.7 of Chapter 12 - Indicative Construction Noise Calculations at Varying Distances

Construction Activities	Combined L _{Aeq} at 10m	Calculated Noise Level at Increasing Distances					
		20m	50m	80m	100m	150m	250m
Construction activities with highest noise levels including: Rock breaking/ drilling/ rock crushing/ impact piling.	95	87	79	75	73	70	65
Normal Road Construction works including: Site clearance/ utilities/ excavation & fill/ structures / Road works	85	77	69	65	63	60	55
Lower noise emissions including: Site Compounds / Landscaping/ Concreting Works	78	69	62	57	55	52	48

12.8.12. The noise levels generated from the various construction activities set out in Table 12.7 of the EIAR (and repeated in Table 7 above) are then compared with the adopted noise criteria based on the TII guidelines that are set out in Table 12.1 of Chapter 12 of the EIAR and discussed above. Where any exceedances of the recommended noise criteria are predicted at sensitive properties, it is stated that noise mitigation would be used during construction. This matter of construction mitigation is revisited under the heading of mitigation below.

12.8.13. I have followed the applicant's methodology and I consider the methodology to be robust and appropriate. The overarching aim is to control construction noise at

source in the first instance followed by applying mitigation measures where works are proximate to sensitive properties if exceedance of the noise criteria would occur.

Operation Noise

12.8.14. In relation to **operational noise**, the noise design criterion of **60dB L_{den}** is adopted based on the TII guidelines. Following the guidance set out in the guidelines, mitigation is required if three conditions, set out below, are met.

- The combined expected maximum traffic noise level, i.e. the relevant noise level, from the PRD together with other traffic in the vicinity is greater than the design goal of 60dB L_{den};
- The relevant noise level is at least 1dB more than the expected traffic noise level without the PRD in place;
- The contribution to the increase in the relevant noise level from the PRD is at least 1dB.

12.8.15. To assess the operation noise from traffic, noise levels were modelled at 458 assessment locations. The locations were stated to represent the closest noise sensitive receptors to the PRD and locations along the existing road network were also used. The locations of the receptors that were modelled are illustrated in Figures 12.1-12.23 (Noise Monitoring Locations and Mitigation) in Volume 3 of the EIAR. Proprietary noise calculation software was used for the purposes of this impact assessment and the details are outlined in Section 12.4.2.1 (Noise in Operation Phase – Road Traffic) of Chapter 12.

Type 1 (Terminal) Service Area

12.8.16. In relation to the noise expected from HGVs (including their refrigeration units) that would use the Service Area west of Foynes, and in the absence of TII guidance for **stationary noise sources**, the applicant drew on guidance from BS 8233-2014- Guidance on sound insulation and noise reduction for buildings. The values of relevance for dwellings are set out in Table 12.5 (Summary of Recommended **Internal Noise Levels** from BS 8233 – 2014) of Chapter 12 of the EIAR. I consider this to be appropriate guidance and I note the values set out therein. **External noise levels** at residential properties were set by factoring in the degree of noise reduction by a partially open window (15dB) resulting in the following criteria for the nearest noise sensitive properties external to the site:

- Daytime & Evening (07:00 to 23:00hrs) 55dB L_{Aeq}
- Night-time (23:00 to 07:00hrs) 45dB L_{Aeq}

LCCC Noise Action Plan (2018 - 2023)

12.8.17. The LCCC Noise Action Plan (NAP) includes the following onset noise levels for assessment of noise management measures, which it is stated are based on EPA guidance.

- 70dB L_{den}
- 57dB L_{night}

12.8.18. These levels are used by the applicant in conjunction with a decision matrix to identify areas that would require noise mitigation along the route of the PRD. In relation to road traffic noise for national roads, the NAP refers to the TII guidelines for the setting of operational noise design goals.

Predicted Noise Levels

12.8.19. Predicted noise levels for **receptors requiring mitigation** are set out in Table 12.11 within Chapter 12. The information provided in the table includes the predicted noise level L_{den} (dB) values for each of the 'do minimum' and 'do something' scenarios for the opening year (2024) and design year (2039) (without mitigation).

12.8.20. Within Appendix 12.1 (Residual Traffic Noise Levels) of Volume 4A of the EIAR, Table A.12.1 (Predicted Residual Noise Levels at Receptors after Mitigation) presents the predicted noise levels L_{den} (dB) values for the 'do minimum' and 'do something' L_{den} (dB) scenarios for the opening year (2024) and design year (2039) for **all locations modelled after mitigation** and in addition it includes a predicted residual noise level L_{night} (dB) for each receiver location. I have reviewed the locations set out and am satisfied that they are representative of the sensitive receptors within the study area.

Construction Vibration

12.8.21. It is submitted that vibration standards are generally split into two categories which comprise (i) **cosmetic/structural damage to buildings** and (ii) **human comfort**. In both instances, the magnitude of vibration is considered in terms of peak particle velocity (PPV) which refers to the movement within the ground of molecular particles. With regard to cosmetic or structural damage to buildings, the TII guidelines include

design goals which if applied would protect buildings from damage. These values are set out in Table 12.3 (Allowable Vibration During Road Construction in order to Minimise the Risk of Building Damage) of Chapter 12. The allowable vibration is expressed as PPV for three frequency levels as follows:

- **8mm/s** for a frequency less than 10Hz,
- **12.5mm/s** for frequency levels of 10- 50 Hz,
- **20mm/s** for frequency levels of 50- 100Hz (and above).

12.8.22. In terms of human tolerances of vibration, it is stated that vibration of 0.15-0.3mm/s can generally be tolerated and that higher levels can also be tolerated for single events of short-term duration in projects, such as construction, when the source of vibration is known. An example is given of blasting and piling, two of the primary sources of potential vibration during the construction phase of the PRD, that can typically be tolerated at vibration levels up to **12 mm/s** (blasting) **and 6 mm/s** (piling) for day-time periods if adequate public relations are in place.

12.8.23. In relation to construction vibration, The TII guidelines recommends a PPV design goal of **12mm/s** for **blasting** control. Air overpressure (AOP) (also known as an air blast) is also a material consideration. AOP occurs with the release of energy in the form of a wave from blasting events. EPA Guidance 'Environmental Management in the extraction industry' (2006) recommend a **PPV limit of 12mm/s** in addition to an acceptable limit for **AOP of 125dB (Lin¹⁸)** peak value. The EPA recommends blasting is only carried out between 09:00 – 18:00 Monday to Friday. BS 6472 - 2:2008: 'Guide to Evaluation of Human Exposure to vibration in buildings, Part 2: Blast induced vibration' notes that for up to three blasts per day, a PPV limit value between **6 and 10mm/s** is considered reasonable for long term blasting operations from surface mineral extraction sites. The standard also outlines that higher levels may be more appropriate for projects of short-term duration, where good public relations are in place and property surveys would be undertaken.

Operation Vibration

12.8.24. It is submitted by the applicant, and I would agree by reference to the TII guidelines, that ground vibration produced by road traffic is unlikely to cause perceptible

¹⁸ L_{in} refers to a liner value which is unweighted

structural vibration to properties located close to the PRD once the road surface is well-maintained. On that basis, the need for assessment for vibration impacts was scoped out, which is acceptable. I am satisfied that during operation, ground vibration would not lead to significant adverse impacts on structures during the use or operation of the road.

Noise Impacts – Construction Stage

- 12.8.25. By reference to Table 12.7 (Indicative construction noise calculations at varying distances), **construction activities with highest noise levels** (L_{Aeq} up to 95dB at 10m) are associated with works including rock breaking, rock drilling, rock crushing and some impact piling works. For these activities, the daytime construction noise limit value of 70dB L_{Aeq} Monday to Friday (07:00 to 19:00 hrs) is stated as likely to be exceeded at distances of up to 150m from the works boundary in the absence of any noise mitigation. Weekend (65dB L_{Aeq} Saturday, 60dB L_{Aeq} Sunday) and evening (60dB L_{Aeq}) construction noise limits are stated as likely to be exceeded at distances up to 250m in the absence of mitigation.
- 12.8.26. During the carrying out of **normal road construction works**, including site clearance, excavations and road works with noise level of 85dB L_{Aeq} at 10m distance, the daytime construction noise limit value of 70dB L_{Aeq} Monday to Friday (07:00 to 19:00 hours) is assessed by the applicant as likely to be exceeded at distances of up to 50m from the works boundary. Weekend and evening construction noise limits would be likely to be exceeded at distances up to 150m in the absence of mitigation.
- 12.8.27. It is submitted that during general site work with **lower noise emissions** (a noise level of 78dB L_{Aeq} at 10m) the daytime construction noise limit value of 70dB L_{Aeq} Monday through Friday (07:00 to 19:00hrs) can be complied with at distances of 20m and beyond. It is also set out that evening and weekend construction noise limits would be exceeded at distances up to 80m in the absence of mitigation.
- 12.8.28. Without noise mitigation, I agree that at locations where and at times when the noise limit values set out in Table 12.1 of Chapter 12 would be exceeded, significant impacts would arise for sensitive properties located within the applicable distance for the calculated noise level in respect of the three categories of construction activities set out.

- 12.8.29. In relation to noise from **construction compounds**, the main compound is stated to be likely to be located within lands immediately west of the proposed Rathkeale Junction. While other locations would be selected by the appointed contractor, six potential locations have been identified and the locations are set out above. It is proposed to set the compounds back by at least 100m from noise sensitive locations. Based on recommended noise levels from BS 8233: Guidance on sound insulation and noise reduction for buildings (2014) as set out in Table 12.5 (Summary of Recommended Internal Noise Levels from BS 8233: 2014) of Chapter 12, construction noise emission limits can be complied with at this distance and beyond. Accordingly, I am satisfied that no unacceptable adverse noise impacts on sensitive receptors would arise from construction compounds because of the separation distances applied and that the construction noise emissions limits would be complied with.
- 12.8.30. I note that **night-time construction** is required for certain works to avoid road closures and associated impacts during day-time periods. These have been stated to include locations where overbridges are required to be constructed, such as the Robertstown overbridge crossing the N69, the L-1220 south at Ballyclogh, the R518 at Graigeen Letteragh road, N21 West at Rathkeale and the existing N21 at Attyflin tie-in. Without the adoption of mitigation, impacts on sensitive receptors could arise during these night-time works.
- 12.8.31. Impacts from **construction traffic noise** was also considered. Table 12.8 of Chapter 12 presents indicative construction traffic noise calculations at varying distances. Along the N21 and N69 national roads, due to the existing high volumes of traffic, the change in noise levels from the addition of construction traffic is assessed by the applicant as increasing between 0.7dB $L_{Aeq,T}$ to 1.2dB $L_{Aeq,T}$ and I would agree that this is minor perceptible impact. Along the R518 regional road, noise levels are predicted to increase by 2.6dB $L_{Aeq,T}$, leading to a stated minor perceptible impact. Along the local roads L-1220, L-1222, L-1422, L-1423, noise levels are calculated to experience the greatest impact with a resultant overall increase in noise level along these roads between 3.7-6.6dB $L_{Aeq,T}$ which could be considered moderate to major perceptibility impact. However, it is assessed that the overall noise level along these roads would remain moderate, between 54-55dB

$L_{Aeq,T}$ at 10m from the road edge and with an impact rating deemed to be moderate, short-term impact.

12.8.32. Overall, during the construction phase, the assessment has determined that noise impacts would largely be negative, moderate and short-term. In some instances where higher noise activities are involved closer to properties, impacts would be negative, significant and temporary.

12.8.33. I consider the assessment of construction noise to be robust and accurate and while noting the difficulty of predicting the actual construction noise at any specific location with a high level of accuracy, the applicant has provided a sound basis for their prediction of noise levels based on construction activity and distances from noise sources by reference to relevant established guidance. Mitigation, where required, is considered below.

Vibration Impacts – Construction Stage

12.8.34. Construction stage vibration impacts on sensitive properties are stated to be largely associated with excavation, rock-breaking and blasting operations. Potential for vibration occurrences relating to piling operations, demolition and movement of HGVs along roads are also outlined.

Piling Vibrations

12.8.35. It is stated that proximity of sensitive receptors to **piling works** is limited to the Robertstown bridge construction and the intention for this location is that low vibration methods involving bored or augured piles would be used rather than driven piles. However, for the purposes of the assessment, and taking a precautionary approach, vibration levels associated with driven piles are assumed. BS 5228-1:2009+A1:2014: Part 2 (Vibration) includes measured magnitudes of vibration associated with different piling types. Table 12.9 (Vibration Magnitudes Associated with Steel Sheet Piling) of Chapter 12 reproduces vibration magnitudes associated with steel sheet piling for varying soil conditions, pile dimension, distances and PPV values. It is evident that the assessment focused on sheet piling as there are no locations (other than Robertstown bridge considered above) requiring **piled foundations** that are located at distances of 20m or less from dwellings with the nearest dwellings located at distances of 50m or more from proposed bridges that may require piled foundations.

12.8.36. In relation to assessment of vibration associated with sheet piling, I would agree as set out that the soil conditions relating to soft ground clay conditions (first row of Table 12.9) are the most likely ground conditions to be encountered where piling is proposed. I note as set out that the PPV values outlined in Table 12.9 (for soft to medium clay conditions) vary between 4.3-0.5mm/s depending on distance of 10-20m. These are well below the PPV values outlined in Table 12.3 referred to above such as to avoid cosmetic or structural damage to buildings.

Ongoing Construction

12.8.37. While there is potential for vibration to be generated through ground, based on vibration levels obtained of up to 1.49-0.24 PPV (mm/s) in a staged/trial rock-breaking activity using a 6-tonne breaker, it is considered that vibration impacts from rock-breaking and demolition works would be considered as **not significant and short term** in respect of **building response**. It is also of relevance to note that any construction activities undertaken on the site would be required to operate below the recommended vibration criteria set out in Table 12.3.

12.8.38. During surface construction works, comprising piling and rock breaking, the vibration limits (PPV) set within Table 12.3 of Chapter 12 referred to above relate to minimising risk of building damage. These PPPV limits would be perceptible to humans and would potentially cause a **significant impact** over temporary periods in terms of **human perceptibility**.

12.8.39. Overall, I would agree with the significance rating of impacts put forward by the applicant by reference to the applicable standards and guidance and from information gathered during the staged trial of rock-breaking undertaken. I have taken into account the recommended vibration criteria set out in Table 12.3 in respect of allowable vibration during road construction to minimise the risk of building damage and the vibration values of 0.15-0.3 mm/s where vibration typically becomes perceptible and up to 12 mm/s (blasting) and 6 mm/s (piling) that can be tolerated during daytime once good communication and public relations are in place.

12.8.40. **Blasting** of rock is expected to be employed at the 19m deep cut at Mulderricksfield (ch.5+150 to ch.6+400) and potentially at the lowest levels of cut at Ballycannon (ch.52+400 to ch.56+000). At the other two smaller cuttings at Ardaneer (ch.1+350 to ch.1+750) and Islandea (ch.60+000 to ch.60+500), there is stated to be less

likelihood that blasting would be required, however, taking a precautionary approach, blasting has been assumed by the applicant in their assessment of construction noise and vibration impacts in all four areas of cuttings identified. The distances of sensitive buildings to road cuttings are set out in Table 12.10 of Chapter 12 and range from 50m to 200m proximate to all four areas of potential cut and between 120m and 200m within the areas of deepest area of cut at Mulderricksfield.

- 12.8.41. It is stated that blast events would be clearly perceptible at the nearest sensitive receptors due to PPV and AOP levels with impacts predicted to be significant, momentary and localised. I consider the rating of impact as 'significant' to be appropriate and as I note it is not possible to reliably calculate AOP due to variability of meteorological conditions. I note however that the AOP would be controlled at source through careful blast design. The applicant, referencing BS 5228-2 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration notes that there is no known evidence of structural damage to structures from excessive AOP levels from quarry blasting in the UK.

Operation Phase Noise and Vibration Impacts

- 12.8.42. Based on meeting the three criteria contained in the TII guidance as set out under the heading of Operational Noise (Road Traffic) above, noise mitigation would be required at 121 properties. These properties are located along Sections A, C and D of the route of the PRD.
- 12.8.43. In considering the proposed **HGV Service Area**, the main operational noise anticipated would be from HGVs operating refrigeration units. It has been assessed that when combined with road traffic noise in the area, the contribution of activities from this area is determined to lie below 60dB L_{den} at a number of receiver locations and the noise impacts predicted to arise from the service area is rated as not significant.
- 12.8.44. As set out above, based on the TII guidelines, perceptible **road traffic vibration** is predicted to be avoided once the road surface is well-maintained.

Mitigation for Noise and Vibration Impacts – Construction Stage

- 12.8.45. It is stated that the construction contract documents would specify the construction noise criteria included in Chapter 12 and the construction works would be required to

operate within them. The appointed contractor would be required to manage noise and vibration aspects of the project in accordance with BS 5228-1 and 2:2009+A1:2014 (2014) Code of practice for noise and vibration control on construction and open sites, Noise and Vibration and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001.

- 12.8.46. This document provides practical measures that limit the hours in which noisy activities are permitted, provision of acoustic screening for noisy activities, use of silencers on equipment, siting of noisy mobile equipment away from sensitive receptors, and the provision of relevant training with respect to minimising noise disturbance.
- 12.8.47. Specific control measures relating to construction activities undertaken by the contractor would be set out within the construction noise and vibration management plan to be prepared in advance of the works and updated as the construction phase progresses. The contractor would also be required to conduct construction noise predictions prior to works taking place and put in place the most appropriate noise control measures depending on the level of noise reduction required at any one location.
- 12.8.48. It is submitted that where replacing a noisy item of plant is not a practical option, consideration would be given to noise control 'at source'. It is therefore proposed to adopt the concept of 'Best Available Techniques' as defined in 2010/75/EU of the European Parliament and of the Council (2010) on industrial emissions (Industrial Emissions Directive). In this context it is explained in Chapter 12 that 'best' means 'the most effective in achieving a high general level of protection of the environment as a whole' and 'techniques' include 'both the technology used and the way in which the installation is designed, built, managed, maintained, operated and decommissioned'. I would agree that the 'Best Available Techniques' require a degree of balance to be struck between the attainment of environmental benefits and the likely cost arising. A number of examples to explain the concept of 'Best Available Techniques' are provided in Chapter 12 relating to practical noise control at source techniques.
- 12.8.49. Reference is made in a general sense to the use of noise screening for construction in the form of construction noise barriers which can vary in height and length. An

example was provided in the EIAR of a standard 2.4m high 'construction site hoarding' stating that it would provide a sufficient level of noise screening once it is installed at a suitable position between the source and receiver. Annex B of BS 5228-1:2009+A1:2014 provide typical details of acoustic screens and I have reviewed these. The examples set out in this Annex include Figures B.1 (example of machine enclosure), B.2 (typical acoustic shed) and B.3 (example of acoustic open-sided shed).

- 12.8.50. Furthermore, as set out in Chapter 12, if exceedances are found through on-going monitoring during construction, the contractor would be contractually obliged to cease operations causing noise exceedance until suitable protections are adopted to prevent further exceedances.
- 12.8.51. I also note that at certain specific locations, construction noise barriers are referenced in Chapter 15 Materials Assets and Land – Agriculture and expanded in Mr Michael Sadlier's Brief of Evidence on Equine. It is also stated in Chapter 12 that in some instances materials such as topsoil or aggregate along the proposed road development can provide a degree of noise screening if placed between the source and the receiver. I am satisfied that once the noise criteria outlined are not exceeded, the mitigation measures for construction noise are acceptable.
- 12.8.52. In relation to addressing night-time noise, where construction would be required, it is submitted that specific noise limits for night-time works would be considered on its individual merits and would take account the pre-existing noise environment and that best practice noise control measures would be put in place to limit noise emissions to appropriate thresholds at dwellings taken from BS 5228-1:2009+A1:2014 (Part 1: Noise).
- 12.8.53. It is also proposed that a designated noise liaison officer would be appointed during construction and that all noise complaints would be logged and followed up in a prompt fashion by the liaison officer. In my view, this, together with the proposal for communication between the contractor and noise sensitive areas are key management measures.
- 12.8.54. During the construction phase, **noise monitoring** is proposed to be undertaken at sensitive locations to ensure that the relevant noise limits outlined in Table 12.1 of

the EIAR, which are drawn from TII guidance and BS 5228-1:2009+A1:2014, are not exceeded.

- 12.8.55. It is stated that vibration would be controlled so that any construction activities undertaken on the site would operate below the PPV limit values set out in Table 12.3 'Allowable Vibration During Road Construction in Order to Minimise the Risk of Building Damage' of Chapter 12, discussed above. Accordingly, I am satisfied as set out that the construction of the PRD would not be likely to give rise to vibration that would lead to cosmetic or structural damage to buildings.
- 12.8.56. In relation to vibration levels giving rise to human discomfort, measures that would be implemented to mitigate the impact include the undertaking of a clear communication programme, employing less intensive working methods/plant where feasible, isolation vibration applied to plant and creating cut-off trenches to isolate the vibration transmission paths. It is also stated that monitoring would be undertaken at identified sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values.
- 12.8.57. Pre- and post- property condition surveys to be undertaken by a chartered surveyor, or a chartered structural engineer would be offered to owners of all buildings within 50m of the PRD boundary and to those within 150m of any blasting works which is the distance set to protect the closest properties to a potential blast area. An exception on distance is made for Ballyclogh House located c.500m south of the cutting at Mulderricksfield (ch.5+150 to ch.6+400). While this structure is located well outside the zone of influence of blasting, its owner is also intended to be offered a condition survey because structure, a two-storey house, built c. 1780 which is a protected structure, is particularly sensitive and as I would note it is relatively close to the area of deepest cut at Mulderricksfield. The proposal for a condition survey on this property has been added to the schedule of commitments (OH.47) presented during the oral hearing.

Mitigation for Blasting and Air Overpressure

- 12.8.58. In relation to mitigation for blasting and AOP, blast design control measures would follow guidance and recommendations set out in BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites-Vibration. Section 12.5.2 (Construction Phase Mitigation for Blasting and Air Overpressure) of

Chapter 12 sets out a number of blast control measures to be adopted so as to ensure that blasting operations would be controlled. Key measures proposed include using professionally trained blast contractors, restriction of hours of blasts and undertaking trial blasts.

12.8.59. In addition, a Public Communications Strategy would be implemented by the contractor prior to the commencement of any blast works in close proximity (<50m) to occupied buildings with potential for high vibration levels.

12.8.60. While recognising that blasting would generate vibration and noise, the impacts associated with each blast event would be short-term in duration. I consider that the use of appropriately controlled blasts in accordance with a blasting programme that is communicated to local residents is acceptable and would offset the need for extended periods of conventional rock breaking that would otherwise be required to extract suitable rock material.

Operational Stage Mitigation (Noise and Vibration)

12.8.61. In order to reduce noise from traffic, a low noise road surface (LNRS) is proposed along sections A, C and D of the PRD and at the existing N21 tie in location at the east end of Section D and the Adare link road. It is stated that noise generated by this type of surface is 2.5dB below the noise level that would be generated on a hot rolled asphalt (HRA) surface.

12.8.62. Predicted noise levels at receptors requiring mitigation are set out in Table 12.11 of Chapter 12. Permanent noise barriers are proposed at 121 specific receptors that were determined following modelling to require mitigation. Houses that are proposed to be demolished have not been included which is acceptable. It is stated that noise barriers would take the form of proprietary acoustic screens, solid block walls, earth berms or other solid structures. The barriers would have a sound insulation performance of B3, as classified in European Standard 'Road traffic noise reducing devices - Test method for determining the acoustic performance' (EN 1793) Part 2. Absorptive barriers would have a minimum absorptive index of A3, as classified in EN 1793 Part 1.

12.8.63. The location of the noise barriers for the operation stage are illustrated in Figures 12.1 to 12.22 in Volume 3 of the EIAR and set out in Table 12.14 of Chapter 12 of the EIAR by reference to incident properties, road link and chainage. In total, a total

length of c.15.5km of noise barriers ranging in height from 2.0-3.5m is proposed along the mainline of the PRD. For the most part the barriers would be located along Section D of the route of the motorway section, primarily because this section would carry the greatest volume of traffic and would pass closer to more houses than the remainder of the route. While not stated, I also note that cars can travel at faster speeds on motorways (120 km/hr) than dual carriageways (100km/hr) or on the single carriageway road in Section B (100 km/hr) and that would also contribute to the higher traffic noise levels and requirement for noise mitigation. As stated above, a number of additional/supplementary barriers have been specified to reduce visual and noise impacts at locations where the PRD traverses equine enterprises. I have dealt with these in Section 12.16: Materials Assets and Land – Agriculture (Equine)’ below.

Residual Impacts – Noise and Vibration

Construction Noise

- 12.8.64. I note that for the most part, during construction, with the adoption of mitigation, the construction activities would operate within the established acceptable noise criteria at daytime periods set out in Table 12.1 (Maximum Permissible Noise Levels at the Façade of Dwellings During Construction Phase). However, it is stated that even with noise mitigation in place, there is potential for temporary significant impact at properties up to 80m from high intrusive construction activities, primarily rock breaking and rock drilling activities.
- 12.8.65. Construction traffic noise would give rise to a short-term moderate impact at four local roads that may be used for access to the proposed works. For the remainder of construction activities beyond 50m from the works, with the implementation of controlled mitigation measures, the applicant asserts that construction activities can generally operate within the adopted noise limits for daytime periods at the nearest properties to the works. Based on the information provided, I consider this finding to be accurate.

Construction Vibration

- 12.8.66. It has been assessed that the standard construction activities can operate within the recommended vibration limits for residential and other light-framed buildings. It was

also concluded that potential vibration impacts from blasting at the most sensitive properties can be adequately mitigated to within acceptable levels.

- 12.8.67. I note that the impacts from blasting have been rated as not significant and short term in terms of building response and up to significant over temporary periods in relation to human perceptibility, which I am satisfied is acceptable noting the mitigation measures and public communications strategy proposed.

Operation Stage Noise

- 12.8.68. Predicted residual noise levels for receptors post mitigation are set out in Table 12.15 (Predicted Residual Noise Levels at Receptors after Mitigation) of the EIAR and updated as Table 12.3 (Predicted Noise Levels at Receptors Requiring Mitigation) in the corrigendum submitted to the Board on the 15th of February 2021. As is also stated, with the adoption of mitigation measures, traffic noise levels at or below 60dB L_{den} can be achieved and/or the 'do-something' noise levels can be reduced to the equivalent 'do-minimum' traffic noise levels at the majority of locations. There are two locations where the residual 'do-something' noise level would be above the 'do-minimum' scenario **and** above the 60dB L_{den}. In considering these exceedances, modelled location D51-001a relates to the rear façade of a property facing towards the new motorway section. Due to the traffic noise post mitigation, an increase of 1dB is calculated above the 'do-minimum' scenario. The difference in traffic noise of such a magnitude is considered negligible and not perceptible. A reduction in noise level of 8dB L_{den} is predicted along the front façade of the same property due to the reduction in traffic along the existing N21. This would result in a perceptible reduction in traffic noise along this façade. Calculated noise level at modelled location D64-001 is less than 1dB above the 'do minimum' value, which I would agree is imperceptible in terms of significance. It is of relevance to note that the TII noise guidance document notes that the attainment of the design goal may not always be possible and/or it may be unsustainable to increase barrier dimensions in situations where the result would be a reduction of 1dB or less.
- 12.8.69. While above the design goal of 60dB L_{den}, calculated noise levels at modelled locations C26-008 (61dB L_{den}), C27-002 (63dB L_{den}) and C27-009 (62dB L_{den}) are below the 'do minimum' value and accordingly are not considered exceedances.

12.8.70. It is evident that the PRD would result in a reduction in traffic volumes along the existing road network, as traffic is diverted onto the PRD once in operation. Of the 467 locations modelled and assessed, 30% (143 noise sensitive locations) have been predicted through modelling to experience either a reduction or no change in noise levels as a result of the PRD. In the wider road network, it has been assessed that the greatest reduction in traffic volumes would be experienced along sections of the N69 between Foynes and Limerick and along the N21 between Rathkeale and Adare with reductions in traffic noise of between 1dB(A) and 7dB(A) along the N69 and between 10dB(A) and 13dB(A) along the N21 between Rathkeale and Adare resulting in a **positive impact** for those properties in terms of noise reduction.

Other Matters/Submissions

WHO Environmental Noise Guidelines v TII Noise Guidelines in respect of Noise Assessment

12.8.71. Numerous submissions were received by the Board in both written format and at the oral hearing, querying why the more recent WHO Environmental Noise Guidelines for the European Region (2018) were not used as opposed to the TII Guidelines that were used in the assessment of acceptable operational noise. Dr Hogan dealt with this from a human health perspective, and I have outlined the key points made under the heading of Population and Human Health above.

12.8.72. Ms Harmon also responded to these queries broadly stating that the WHO Noise Guidelines relate to noise effects at a population and policy level and should not be viewed as 'limit values' for specific properties/receptors and that instead the TII guidelines are intended for this purpose.

12.8.73. I have read and considered the WHO guidelines in detail. They provide recommendations for protecting human health from exposure to environmental noise originating from various sources including transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. The purpose of the document is set out in the foreword in which it is stated that 'they provide robust public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise'.

12.8.74. The guidelines set out a series of specific recommendations for various noise sources and each recommendation is rated as either 'strong' or 'conditional'. In

relation to 'strong' recommendations, the guidelines state that these 'can be adopted as policy in most situations'.

12.8.75. In relation to road traffic noise, the following recommendations with a rating of 'strong' are set out:

- For **average noise exposure**, the Guideline Development Group ('GDG') strongly recommends reducing noise levels produced by road traffic below **53dB L_{den}**, as road traffic noise above this level is associated with adverse health effects.
- For **night noise exposure**, the GDG strongly recommends reducing noise levels produced by road traffic during night-time below **45dB L_{night}**, as night-time road traffic noise above this level is associated with adverse effects on sleep.
- To reduce health effects, the GDG strongly recommends that policymakers implement suitable measures to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions, the GDG recommends reducing noise both at the source and on the route between the source and the affected population by changes in infrastructure.

12.8.76. In respect of implementation of the WHO guidelines, Section 5 sets out 'The WHO guideline values are evidence based public health-oriented recommendations. As such, they are recommended to serve as the basis for a policymaking process in which policy options are considered. In the policy decisions on reference values, such as noise limits for a possible standard or legislation, additional considerations – such as feasibility, costs, preferences and so on – feature in and can influence the **ultimate value chosen as a noise limit**'. It is evident therefore that the guidelines do not set noise limits or thresholds to be applied at an individual property level.

12.8.77. In her evidence to the oral hearing, Ms Harmon noted that the WHO's recommended traffic noise level of 53dB L_{den} is based on a level at which 10% of the population are estimated to be 'highly annoyed' by road traffic noise. This level is 6dB below the noise level determined for increased risks relating to incidence of Ischaemic Heart Disease (IHD), i.e. 59dB L_{den}, which she notes is only 1dB below the TII noise design goal of 60dB L_{den}. I have dealt with this matter in consideration of impacts on human

health above in which I note that the collective point made is that ‘annoyance’ arising at a level of 53dB L_{den} does not equate to ‘significant health effects’ and ‘significant health effects’ are more likely to arise at a level of 59dB L_{den} which closely aligns with the TII design goal of 60dB L_{den}. By reference to Table 15 (Summary of the assessment of the strength of the road traffic noise recommendation) of the guidelines, I am satisfied that this conclusion is correct.

- 12.8.78. In her evidence to the oral hearing, Ms Harmon also stated that the day-time traffic noise level of 53dB L_{den} set out in the WHO Guidelines would simply not be achievable. Even with mitigation in place, she stated that 85% of the modelled locations would exceed this level of 53dB L_{den}. Ms Harmon put this in context by outlining that in order to reduce traffic noise below the 53dB L_{den}, traffic flows would need to be reduced by 80%, which is clearly not a realistic option and as I have set out above, having regard to the purpose of the guidelines is not required to be achieved.
- 12.8.79. It is also of relevance to note that, while **Directive 2002/49/EC of the European Parliament and of the Council** (Environmental Noise Directive) (END) includes a requirement to report and publicise any noise limit values in place, it does not require noise limit values limits/thresholds to be introduced within member states or by competent authorities. Furthermore, the Environmental Noise Regulations 2006 that gave effect to the ‘END’ on the assessment and management of noise and does not contain noise limit values.
- 12.8.80. The EPA are the delegated national authority for the purpose of the Environmental Noise Regulations 2006. The regulations set out a two-stage process for addressing environmental noise including the requirement for the preparation of strategic noise maps and noise action plans. I also note that Section 2.1.5 of the Limerick City and Council NAP, refers specifically to the TII guidance documents for the setting of operational noise design goals.
- 12.8.81. With respect to noise limits, on their website, the EPA have set out the following
- ‘In view of the 2018 WHO guidance and the flexibility afforded by the END to allow countries to report noise levels below the mandatory reporting requirements, due consideration of feasibility, costs and preferences should be given before guidance on values or noise limits is introduced (by the

relevant department). These considerations are acknowledged in the WHO guidelines’.

- 12.8.82. Similar to my conclusion on this matter in my assessment of Human Health above, I am satisfied that the TII guidelines are applicable to individual receptors on national new roads such as that currently proposed, whereas the WHO guidelines should be considered in terms of the population as a whole and for setting a guideline of what is desirable for populations at a strategic/policy level. It is very clear that the aforementioned values are not meant to be taken as noise limits values/thresholds for individual receptors and as I have also noted, the END and Environmental Noise Regulations 2006 do not contain noise limit values.
- 12.8.83. For the reasons outlined, I am satisfied that the TII guidance applied in the noise assessment of the operation of the PRD is the correct applicable guidance.

Route Selection

- 12.8.84. Mary Brosnan (Env-25 and FI-7) stated that no consideration was given to noise impact at design stage, and that this became an afterthought once the design was complete. I note the applicant’s response that the vertical and horizontal alignment of each route formed part of the impact assessment and the methodology used as outlined in Section 5.2.1 of Volume C of the Route Selection Report, led to Option 3 being selected as the most preferred option from a noise consideration. Having reviewed and considered the route selection report, I am satisfied that appropriate options were assessed having regard to noise impacts as part of the route selection process as set out in 6.12.1 (Noise and Vibration) of Volume 1 of the report. Section 5 (Assessment of Route Corridor Option) of the Route Selection Report includes an assessment of potential impact in terms of noise based upon the number of noise sensitive receptors within specified distance bands from each of the route options. The full Noise and Vibration Report is contained within Appendix C of Volume 3 (Appendices) of the Route Selection report.

Construction Phase Noise

- 12.8.85. A common issue raised in many of the written objections and observations and raised by many parties at the oral hearing centered on the construction phase noise and vibration impacts. Where specific property owners/occupiers raised these issues on the Section 51 approval application, I have addressed these in the planning

assessment above and others that raised issues in the Section 49 application are addressed in Section 14 below.

- 12.8.86. At a more general level and having regard to the nature and scale of the PRD, it is clear that high levels of construction noise would be generated during the construction phase, and this has been acknowledged by the applicant. The greatest noise impacts would arise during excavation works, in areas of rock removal in particular. The locations and distances from construction works where noise mitigation is required have also been identified. Table 12.1 of Chapter 12 of the EIAR includes the permissible noise levels at the façade of dwellings during construction.
- 12.8.87. During the course of the oral hearing, Dr Imelda Shanahan (TMS Environment Ltd.) on behalf of Mr and Mrs Murphy (Sch-9) set out a number of concerns with the information contained in Chapter 12. She asserted that it is possible that 85dB would be experienced for long periods during construction and that haulage vehicles could generate noise of up to 95dB. In response, Ms Harmon, referring to Table 12.7 of the EIAR and Section 12.4.1.1 of the EIAR, identified the range of construction noise levels likely to be encountered. She gave an example from the table where a noise level at 77dB L_{Aeq} (without mitigation) would be reduced to 70dB L_{Aeq} with mitigation. She stated that reference in Dr Shanahan's report to haulage vehicles emitting noise of 95dB is not information contained in the EIAR. Having reviewed the drawings, particularly the vertical section alignments and also details of the geotechnical investigation at the location of where the road would traverse Mr and Mrs Murphy's house (D56-011) location at ch.56+450, I am satisfied that the location of rock excavation is sufficiently removed from the Murphy house such that significant impacts from noise on the Murphy house from this activity would not arise. The type of activity closest to the Murphy house is that of embankment formation and haulage of material and these works comprise normal road construction activities that would not generate high noise levels. I am satisfied that taking account of the information put forward in the EIAR, the likely noise limits during construction would be contractually required to be within/below the relevant noise limit values, and I note that if any exceedances are found through on-going monitoring during construction, the contractor would also be contractually obliged to cease operations causing noise exceedance until suitable protections are adopted to prevent further exceedances.

12.8.88. Further discussion arose on noise impacts associated with the Murphys' equine enterprise. This is discussed in Section 12.16 under the heading of 'Materials Assets and Land – Agriculture (Equine)' below and also in Section 14 (Assessment of Application for Approval of Schemes) of this report.

Operational Phase Traffic Noise

12.8.89. A number of observers raised concerns that the operational traffic noise levels would be unacceptable, and that mitigation put forward is not adequate. In response, the applicant acknowledged that while there would be an increase in the noise experienced by receptors located in proximity to the PRD, the levels were acceptable by reference to the TII noise guidelines. In addition to the LNRS, a total of 45 noise barrier structures over a total length of approximately 15.5km are included along the length of the project. The residual traffic noise levels with mitigation are presented in Table 12.15 of Chapter 12 of the EIAR. I am satisfied that the mitigation proposed is appropriate and that following the adoption of the mitigation, the noise levels would be within the TII noise goal 60dB L_{den} or otherwise acceptable for reasons outlined above. Noise mitigation within the EIAR forms part of the Schedule of Environment Commitments for the project.

12.8.90. I have also considered whether or not noise values would reduce when the numbers of EVs on the roads would increase. However, I note from various reported studies that the noise reduction of EVs by comparison to conventional vehicles is negligible when traffic moves at higher speeds than 30 km/hr.

Vibration Impacts during general construction and blasting

12.8.91. Concerns were raised by observers regarding impacts of vibration for general construction and from blasting events. I have dealt with these matters in detail above. Noise and vibration mitigation measures for each work area will be determined taking account of the various control measures included and assessed within Section 12.5 of Chapter 12 of the EIAR. I note that, similar to noise limit values, vibration limit values are contained in the Schedule of Environmental Commitments, and these will be required to be implemented during construction. It is of relevance to note that the applicant would be contractually required to ensure that the mitigation measures within the Schedule of Commitments are adhered to during construction.

12.8.92. It is acknowledged and I note that for areas of rock where drill and blast methods would occur, these would generate clearly perceptible noise and ground vibration levels during a blast event. However, blasting events are momentary and impacts on building response can be controlled through the use of the limit values discussed in Section 12.2.2.1 of Chapter 12 of the EIAR. Specifically, the blast would be designed to ensure the vibration and AOP values are not exceeded at the closest sensitive buildings to the works. As set out in Section 12.5.3 (Construction Phase Mitigation for Vibration) of Chapter 12 of the EIAR, property condition surveys would be offered for all buildings within 50m of the proposed development boundary and those within 150m of proposed blasting works along the project and for Ballyclogh House, a protected structure, located 500m from potential blasting works.

Vibration Impacts on Clonshire Castle

12.8.93. Concerns were raised at the oral hearing by Mr O'Donnell on behalf of Mr and Mrs Murphy (Sch-9) on the impact of the PRD on Clonshire Castle as a result of vibration. At the oral hearing, Dr Shanahan expressed her view that the limits set in the EIAR are too high to protect Clonshire Castle from vibration impacts. In response, Ms Harmon stated that the structure would not be affected by vibration impacts as the type of works (construction of embankments, filling and haulage of material) at the location in the area proximate to the castle are minimal in terms of vibration impacts. She also stated that the vibration limits contained in the EIAR are highly conservative and are adequate to protect vulnerable structures.

12.8.94. At the oral hearing, Mr MacGearailt stated that a cutting commences c.400m west of Murphy lands and this cutting only becomes significant at a point 1.2km from the Murphy lands and thereafter extends to 4km. He stated that rock of any significance would only be encountered 2km from the Murphy property. I have reviewed the drawings and site investigation records including the mainline plan and profile drawings and I am satisfied that this statement is largely correct. Based on my review of the Ground Investigation drawings, I note that the PRD vertical alignment would transition from 'at grade' to 'cut' at approximately ch.56+100, c.400m from the Murphy lands commencing at approximately ch.56+400. The cutting depth would not be substantial until approximately ch.54+500, with a total cut depth of c.7.5m encountered at that location at Ballycannon which is some 2.1km from the lands and Clonshire castle. I am satisfied that Clonshire castle is sufficiently removed from any

potential rock excavation requiring blasting (as clarified at the oral hearing) and is therefore well outside of the zone of influence of vibration impacts from these activities.

12.8.95. I note that otherwise in respect of Cultural Heritage, a written and photographic survey of the setting of the castle structure in order to mitigate operational impacts is committed to.

12.8.96. I am satisfied that matters raised in the relevant submissions and observations have been addressed by the applicant and do not alter the findings of impacts in my noise and vibration assessment.

Inspector's Conclusion on Noise and Vibration

12.8.97. I have considered all of the written and oral submissions made in relation to noise and vibration matters, in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and presented at the oral hearing, I am satisfied that a detailed assessment of the noise and vibration on sensitive receptors in the area that could potentially be impacted by the PRD has been undertaken.

12.8.98. During the construction phase, there would be an inevitable increase in noise levels as a consequence of the construction activity. At locations where, and at times when, the construction noise limit values deemed acceptable with reference to TII Guidance documents and as set out in Table 12.1 of Chapter 12 (Noise and Vibration) of the EIAR, would be exceeded, significant impacts would arise for sensitive properties.

12.8.99. The applicant's strategy is that of controlling noise levels at source in the first instance followed by the use of mitigation at sensitive properties to prevent exceedance of the noise criteria/limit values. Contractual obligations would ensure that construction operations causing noise exceedance would be suspended until suitable protections are adopted to prevent any further exceedance. A designated noise liaison officer would be appointed to site during construction works.

12.8.100. It is acknowledged however, that notwithstanding implementation of noise mitigation measures, a potential temporary significant impact would likely remain at properties up to 80m distance from high intrusive activities, primarily at areas of rock breaking.

Where night-time works would be required at specific locations, noise limits would be applied taking into account the pre-existing noise environment.

- 12.8.101. Vibration impacts from rock-breaking activities are rated as not significant and short-term in terms of building response, and up to significant over temporary periods in relation to human perceptibility. Clear communication and vibration monitoring are proposed.
- 12.8.102. Blasting of rock is proposed at specific areas of deep cut and whilst high noise levels are associated with an individual blast, the effects would be momentary. The design of all blasts would be undertaken to ensure the limit value for Peak particle velocity is not exceeded at the nearest sensitive buildings. The control of air overpressure at receiver locations would be undertaken at source through careful blast design. A Public Communications Strategy would be implemented prior to the commencement of any blast works and property condition surveys will be offered for all buildings within 50m of the proposed development boundary and those within 150m of proposed blasting works along the project and Ballyclogh house, which is a sensitive structure for the reasons set out in the assessment above. Vibration and noise monitoring would be undertaken during all blast events.
- 12.8.103. During operation, whilst the proposed road development would result in increased operational noise levels at noise sensitive locations along its route, with the incorporation of effective noise mitigation measures, traffic noise levels at or below the adopted Transport Infrastructure Ireland absolute noise design criterion of 60dB L_{den} can be achieved and the 'do-something' noise levels can be reduced to the equivalent 'do-minimum' traffic noise levels for the majority of sensitive receptors. This would protect the majority of the exposed population being 'highly annoyed' by road traffic noise.
- 12.8.104. Exceedances would arise at two properties who would experience a residual noise impact marginally in excess of the Transport Infrastructure Ireland absolute noise design criterion. Noting the provisions of the Transport Infrastructure Ireland Guidelines for such a scenario, and also noting the need to balance the provision and scale of noise barriers against other consideration, such as visual impact, the proposed development would not have any unacceptable direct, indirect or cumulative noise and vibration impacts.

- 12.8.105. A positive significant impact would be experienced at properties along the existing N69 and N21 national roads where traffic would be diverted from, and a reduction in noise would arise in these areas.
- 12.8.106. For reasons outlined in the assessment, it can be concluded that the correct Transport Infrastructure Ireland guidance was applied in respect of the design of the noise mitigation along the proposed road development and that there is no contradiction between the 'Good Practice Guidelines for the Treatment of Noise during the Planning of National Road Schemes' (TII, 2014) and Environmental Noise Guidelines for the European Region, (WHO, 2018), as they serve different purposes.

12.9. Biodiversity

Introduction

- 12.9.1. **Biodiversity**, including, flora, fauna and fisheries as environmental factors are addressed in Chapter 7 of Volume 2 of the EIAR. At the oral hearing, Mr Paul Murphy of EirEco presented a Brief of Evidence on biodiversity and the Natura Impact Statement (NIS). Mr Murphy addressed concerns raised in submissions and objections in respect of the Approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). In addition, Dr Tina Aughney presented a Brief of Evidence as expert witness on Bats with particular emphasis on the Lesser Horseshoe Bat, and Mr John Brophy presented as expert witness on Fen habitat and the whorl snail *Vertigo moulinsiana*.
- 12.9.2. A NIS was also submitted to inform Appropriate Assessment (AA) under Article 6(3) of the Habitats Directive, which assesses the implications of the proposed development on the integrity of European Sites designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA) in view of the sites conservation objectives.
- 12.9.3. Further information was submitted by the applicant in response to a request from the Board. This included a NIS addendum which updated information on the presence of Sea Lamprey in the River Maigne and updated mitigation measures required. An extended period of pre-construction monitoring of watercourses was also submitted as part of the further information submitted.

12.9.4. An Bord Pleanála's Inspectorate Ecologist, Dr Maeve Flynn was appointed by the Board to carry out an examination and assessment of the information presented for biodiversity in the EIAR. This examination included all related supplementary information provided, further information supplied related to Biodiversity and briefs of evidence and clarifications presented by the applicant's team to the oral hearing and submissions related to biodiversity. Dr Flynn also examined and evaluated the information required for Appropriate Assessment and provided a recommended AA screening determination and appropriate assessment of implications of the proposed road scheme on the integrity of European Sites. The full report (Assessment of significant effects on the environment in respect of Biodiversity) is available in Appendix C to this Assessment Report.

12.9.5. I have reviewed the examination and assessment conducted by the Inspectorate Ecologist and agree with the findings that:

- the technical content of the biodiversity chapter (and associated appendices) and ecological impact assessment prepared by the by ROD-AECOM appointed specialists is sufficient to undertake a full assessment of the direct and indirect effects of the proposed development;
- the scope, structure and content of the biodiversity/ ecological impact assessment is in accordance with published good practice;
- there is evidence that pre-application advice from the NPWS and IFI was received and accounted for in the biodiversity assessment and also further information submitted (in relation to IFI);
- ecological survey methods for habitats, flora and fauna are clearly described and are in accordance with best practice and data presented is up to date;
- methodologies followed TII industry specific guidelines;
- protected species and habitats likely to be significantly affected are clearly and correctly identified and adequate surveys have been undertaken to inform the EIAR and the EIA to be conducted by the Board;
- invasive and non-native plant species have been clearly and correctly identified and the EOP Section 9 deals adequately with the management of these species during construction;

- the applicant has described and assessed all likely significant effects on biodiversity clearly, stating the geographical scale and magnitude of significance.

12.9.6. In developing the road alignment through the constraints and route selection process, sensitive environmental sites between Limerick and Foynes were taken into consideration with avoidance of direct impacts on the extensive Askeaton Fen Complex SAC, Curraghchase woods SAC and Barrigone SAC.

12.9.7. The PRD involves one significant bridge crossing of the River Maigue, which is within the Lower Shannon SAC and all watercourses impact by the road scheme are connected to the SAC. The Shannon and Fergus Estuaries SPA overlaps the main estuarine area of the SAC and is within the zone of influence of the PRD.

Biodiversity Impacts

12.9.8. A description of the predicted impacts for biodiversity is provided in section 7.4 of Chapter 7 (Biodiversity) of the EIAR, followed by mitigation measures to ameliorate impacts set out in section 7.5, and residual impacts are detailed in section 7.6. The proposed mitigation measures and their location are presented in Figures 7.25 to 7.47 of Volume 3 of the EIAR.

12.9.9. In her report, Dr Flynn summarises the predicted direct and indirect impacts on biodiversity during the construction and operation of the PRD and mitigation measures designed to reduce those impacts and any residual impacts in a series of tables, a number of which are reproduced in this section for ease of reference.

Designated sites

12.9.10. The Appropriate Assessment (recommended determination) in respect of the PRD which is based on scientific information provided by the applicant in the form of the NIS, has ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the Lower River Shannon SAC, The River Shannon and River Fergus Estuaries SPA in view of the sites' conservation objectives. The potential for any adverse effects was also excluded for Curraghchase Woods SAC and Askeaton Fen Complex SAC. No reasonable scientific doubt remains as to the absence of such effects.

- 12.9.11. General concerns relating to protected sites, as relevant to the EIA, are detailed below and as part of the assessment of Key Ecological Receptors (KERs).

Lower River Shannon SAC

- 12.9.12. While the proposed bridge crossing of the River Maigue is a permanent intrusion into the Lower River Shannon SAC, it has been designed to avoid direct impacts on habitats and species for which the SAC is designated. The clear span structure design will avoid direct impacts on the river channel and protected aquatic species, including Atlantic Salmon and lamprey species. Otter movements and habitat availability will not be impeded by the design. Short-term moderate to significant negative impacts on riparian habitats and water quality predicted during the construction and operational phase would be mitigated by detailed soil management and pollution control measures as set out in section 7.3 of the EIAR, the EOP and CESP and schedule of commitments. The management of invasive species would be achieved through the biosecurity protocol as detailed in the EOP. I agree with the conclusion that no significant negative residual impacts would occur during the construction or operation of the PRD at this location.
- 12.9.13. I acknowledge that the submission by IFI on the inclusion and integration of Sea Lamprey (qualifying interest species for the Lower River Shannon SAC) in the EIA and NIS has been addressed by the applicant as part of the further Information supplied and the applicant has agreed to all IFI requests regarding the application of mitigation measures and pre-construction survey. I am satisfied that all issues and concerns raised by IFI have been addressed and assessed adequately.

River Shannon and River Fergus Estuaries SPA

- 12.9.14. As designed, the PRD would not directly impact on the SPA, however direct and proximate hydrological connections to the site could result in ingress of construction related pollutants during construction and polluted runoff/ accidental spillages during operation, which could result in temporary moderate to significant impacts in the absence of mitigation measures. Any significant disturbance to wintering birds has been excluded due to distance and intervening buffering habitats. The possibility of impacts on ex-situ foraging or roosting sites for bird species associated with the SPA has also been excluded based on survey and detailed examination and assessment.

I am satisfied that with the implementation of water protection measures outlined, no significant negative impacts would arise for this SPA site.

Other designated sites

- 12.9.15. The potential for direct and indirect effects on other SAC sites including Askeaton Fen complex and Barrigone SAC have been ruled out. Curraghchase Woods SAC is 3.6kms north of the PRD. Mitigation measures to provide continuity of linear habitats for Lesser Horseshoe bat commuting in the wider countryside include provision of underpass locations and extensive planting along the boundary of the proposed road development linked to existing linear habitat features in the landscape.

Protected plant species

- 12.9.16. Two protected species for which there are records, occur within the area of the proposed river crossing of the River Maigue. Potential impacts on Triangular club-rush (*Schoneoplectus triqueteter*) and Opposite leaved pondweed (*Groenlandia densa*) during construction will be avoided. Any indirect effects during operation from shading of the bridge deck are not considered significant and there would be no change in habitat distribution or area. The protected Hairy violet (*Viola hirta*) was not recorded at sites including Robertstown, Rincullia or Craggs, where suitable habitat was present.

Key Ecological Receptors (KERs)

- 12.9.17. In her assessment of impacts on KERs, the Inspectorate Ecologist finds that long term to permanent moderate negative impacts are likely for 16 KERs due to unavoidable habitat loss, fragmentation or hydrological changes. These impacts are summarised below in Table 8, where the sites have been categorised according to ecological importance (international to local importance (higher value)). I accept that while mitigation measures would ameliorate negative impacts for many sites, permanent moderate negative impacts cannot be excluded for eight ecological sites.

Table 8 Summary of predicted impacts on Key Ecological Receptors

Key Receptors	Ecological	Predicted impact	Mitigation: See EIAR 7.5.3 , EOP and Schedule of commitments	Residual impact
International importance				
KER 2 lower River Shannon at Churchfield (includes SPA)		Indirect impacts- water quality. Temporary moderate to significant during construction Long term moderate negative during operation	Water pollution prevention measures	Imperceptible
KER 7 Ballyellinan (Annex I alkaline Fen)		Permanent slight negative (no habitat loss but sensitive to alteration of hydrology)	Embankment designed not to encroach on fen habitat	Temporary slight negative
KER11 Lismakeery (Annex I alkaline Fen and <i>V. moulinsiana</i>)		Permanent moderate negative habitat loss (20%) and fragmentation of site	Maintenance of hydrological functioning under the road Inclusion of remaining area of fen habitat within CPO area	Permanent moderate negative
KER 26 Lower River Shannon SAC at Islandea (Bridge crossing at river Maigue)		Short term moderate – significant negative impacts No direct impacts on QI features Long term moderate negative during operation	(see Table above for designated sites)- water quality protection measures, habitat exclusion zones, design of bridge crossing	Slight negative
National Importance				
KER 21 Blossomhill (mosaic of lake and fen habitat -Annex I)		Permanent moderate negative (slight negative if impacts confined to temporary)	Design to avoid hydrological impacts on site. Water pollution prevention measures	Slight negative
County Importance				

KER 5 Craggs (mosaic of alluvial woodland- Annex I)	Permanent moderate negative	protection of riparian habitat Water quality protection measures	Permanent moderate negative
Local Importance (Higher Value)			
KER 3 Robertstown, KER 9 Cloonreask, KER 14 Nanatinan, KER 15 Feeagh, KER 16 Graigenn, KER 17 Graigenn/Ballingarrane, KER 18 Ballingarrane, KER 19, Kyletaun, KER 20 Kyletaun, KER 24 Gortnagrour, KER25 Rower More	Permanent moderate negative loss of habitat and dissection site – at 11 sites	Habitat exclusion zones to protect remaining habitat, retaining or creating continuity of habitat where possible and/or with mitigation planting	Permanent moderate negative (n= 6 sites) Slight negative (n= 5)
KER 10 Ballycullen, KER 23 Clonshire More, KER27 Gortaganniff	Permanent slight negative (habitat		Permanent slight negative

Impacts on other ecological sites

- 12.9.18. Seven ecological sites rated of local importance (lower value) would be impacted through habitat loss and fragmentation. By applying the mitigation measures comprised of habitat exclusion zones during construction and the eventual off-setting of habitat loss by landscaping, I agree that the residual impact on these sites would not be significant but would be permanent slight negative.

Watercourses and aquatic species

- 12.9.19. The applicant has identified 20 watercourses crossed by the PRD and a full description is presented in section 7.3.8 and summarised in Table 7.8 of Chapter 7, I also refer the Board to Section 12.11 below (Water-Hydrology) and Mr Keohane's accompanying assessment also on Hydrology contained within Appendix D. In her assessment, Dr Flynn provides a summary of the direct and indirect impacts that could arise during the construction and operational phase of the PRD and the mitigation measures proposed to reduce such effects. Detailed mitigation measures designed to protect water quality, riparian habitats and protected aquatic species during construction and operation are presented in section 7.5.3 of Chapter 7 of the EIAR, the EOP and schedule of commitments.

12.9.20. Moderate to significant impacts are predicted for most watercourses in the absence of mitigation measures. Impact severity will be reduced to no/imperceptible residual effects with the implementation of pollution prevention measures and avoidance of direct impacts on protected aquatic species in all instances except where physical alteration of a stream is required. Moderate negative residual effects that are predicted to reduce over time where habitat reconnection is achievable, are likely in instances where modifications of channel morphology through culverting and or channel realignment are required.

Fauna

12.9.21. A summary of the potential significant impacts (direct and indirect) on fauna is tabulated in Dr Flynn's assessment and reproduced below in Table 9. Key species considered are set out below in Table 9. Species listed on Annex II and Annex IV of the EU Habitats Directive are identified in addition to bird species listed on Annex I of Directive 79/409/EEC as amended by 2009/147/EC (Birds Directive).

12.9.22. A summary of all mitigation measures for fauna is provided in tables 7.12a to 7.12d - and Figures 7.25-7.47. Landscaping measures are illustrated in Figures 11.1-11.24 (EIAR vol 3).

Table 9 Summary of Impacts on Fauna

Fauna /group	Construction impacts	Operational impact	Mitigation EIA/AR 7.5.3 , EOP and Schedule of commitments	Residual impact
Otter Annex II (QI of Lower River Shannon SAC) Annex IV	Short term Localised disturbance, displacement Water quality effects on prey abundance (no holts affected)	Risk of mortality Disturbance from noise, lights Interruption of movements, habitat fragmentation Water quality effects on prey abundance	Continued movement facilitated-retained riparian habitat/ culverts with ledges or mammal pass culverts, mammal fencing Water quality protection measures (EOP) Pre-construction surveys	Imperceptible
Badger	Direct impacts on five setts (no main setts) temporary disruption of territory, slight negative-temporary-short term (setts require exclusion under license)	Risk of mortality, ongoing disturbance	pre-construction survey, sett monitoring, sett protection, sett exclusion Mammal fencing, mammal underpass post construction monitoring	Slight negative
Bats (general) Annex IV	Slight to moderate negative impact: Disturbance and Impacts on commuting and foraging bats: hedgerow and treeline loss. Roosts in 3/10 buildings (to be	Moderate negative impact Loss and fragmentation of foraging habitats, reduced availability of roost sites Disturbance from lighting	Full mitigation set out in four season bat report Pre-clearance survey, Derogation licensees Sensitive tree felling, alternative roosts, surveys, supervision by bat expert Provision of alternative roost	Slight negative

	demolished) derogation licences 103 mature trees: possible bat roost		sites, landscaping measures Detailed lighting plan	
Lesser Horseshoe Bat Annex II (QI of Curraghchase Wood SAC) Annex IV	Loss of commuting habitat and connections in the wider countryside Moderate negative	Loss of commuting habitat Isolation of population Moderate to significant negative	Connection of linear features to proposed landscaping, and underpasses	Minor (Slight) negative
Birds (general)	Loss of nesting and foraging habitat, disturbance of breeding birds Impact level not specified	Permanent loss and fragmentation of nesting and foraging habitats Mortality of birds	Landscaping measures to provide alternative nesting and foraging habitat	Slight negative (reducing over time)
Barn Owl (Red list-of high conservation concern)	Negligible: no direct impacts	Increased risk of mortality permanent significant negative effect	Landscape design See plate 7.15 reproduced below	Not quantified Significantly reduced mortality compared to other road schemes in SW.
Amphibians and reptiles	Direct impacts on ponds at Robertstown- Slight negative	No negative impacts Attenuation ponds may provide habitat	No specific measures	Imperceptible
Invertebrates Vertigo mouliniana Annex II (not listed as a QI for SAC within the study area)	Direct impacts- loss of habitat 20% at Lismakeery Permanent moderate negative	Changes to hydrogeology of the site	Maintenance of hydrological conditions at sites. Retention of remaining habitat at Lismakeery	Permanent moderate negative- reduced to slight negative if additional Fen habitat acquired

- 12.9.23. Plate 7.15 of Chapter 7 of the EIAR includes a Schematic landscape design to reduce the risk of Barn Owl traffic mortality, based on expert advice and from evidence from other road schemes in Southwest Ireland, including the Tralee by-pass.
- 12.9.24. The risk of accidental transfer of non-native invasive species and diseases will be minimised by the implementation of measures that have been incorporated into the EOP (Section 9).

Residual effects on Biodiversity

- 12.9.25. The construction and operation of a road scheme of the magnitude proposed cannot be facilitated without impacts on biodiversity. Overall, I am satisfied that the applicant has identified and evaluated the impacts in a manner in line with EIA legislation and current best practice guidance and that where potentially significant effects have been identified, mitigation measures have been proposed to reduce impacts to a non-significant level (where significant would mean an impact which, by its character, its magnitude, duration or intensity alters a sensitive aspect of the environment: EPA, 2017).
- 12.9.26. I agree with Dr Flynn's assessment that the applicant has addressed the issues of habitat loss and fragmentation, and the barrier effect of the PRD. The evaluation of these impacts is based on best practice guidance, and I consider that the evaluation is appropriate and does not underestimate the likely effects. These impacts have been evaluated as permanent moderate negative effects for 16 KERs and minor negative at three sites in the absence of mitigation. I agree with the conclusion that the most severe residual impacts predicted are permanent moderate negative on 8 KERs, where habitat loss and fragmentation cannot be avoided or fully mitigated.
- 12.9.27. The total length of hedgerows and treelines to be lost as a result of the PRD includes 23.3km of hedgerows and 15.8km of treelines. Where watercourses require culverts or channel realignments, there would be permanent habitat loss. Mitigation measures have been designed with the landscape specialists to reduce impacts to non-significant levels over time through the extensive replacement planting of trees and shrubs and the realignment of wildlife corridors where possible (Figures 7.25-7.47 of Volume 3 of the EIAR).
- 12.9.28. The locations of underpasses which allow permeability between both sides of the road have been carefully selected and underpass culverts which have been

designed based on movements of lesser Horseshoe Bats throughout the landscape and will also accommodate badger and other small mammals. In her assessment of the application of key actions to facilitate wildlife movements, Dr Flynn determined concerns that sufficient wildlife permeability has not been designed from the start are unjustified.

12.9.29. Three wetland habitats comprising the Annex I habitat Alkaline fens (7230) which support Annex II listed *V. moulinsiana* are impacted by the PRD. These sites include KER 7 Ballyellinan, KER 11 Lismakeery and KER 21 Blossomhill. Having reviewed Dr Flynn's assessment of the applicant's proposals, I am satisfied that the measures proposed for Ballyellinan and Blossom Hill will ensure that the PRD will not result in significant residual effects at these sites and that the acquisition of additional lands at Lismakeery will ensure the continued presence of *V. moulinsiana* at this site.

12.9.30. Monitoring of construction works, and the implementation of mitigation measures is clearly described in the EIAR and associated EOP. It is proposed that a SEM will be appointed by the eventual contractor to implement the EOP and an Ecological Clerk of Works would also be appointed to provide ecological supervision of the construction of the PRD to ensure the full and proper implementation of the mitigation and monitoring prescribed in the NIS and Biodiversity impact assessment. These commitments are included in Chapter 19 (Mitigation measures) and the EOP.

Other Matters/Submissions

12.9.31. I am satisfied that submissions and observations related to Biodiversity have been taken into account in the overall examination, analysis and assessment of significant effects on Biodiversity. In her assessment, Dr Flynn addressed submissions made in respect of biodiversity, including the adequacy of ecological surveys, habitat fragmentation, and the effectiveness of proposed mitigation measures. I am satisfied that given the nature of the submissions and the responses, no change to the rating of impacts arises.

Inspector's Conclusion on Biodiversity

12.9.32. I have considered all of the written and oral submissions made in relation to biodiversity in addition to those specifically identified in the assessment carried out by the Board's Inspectorate Ecologist, Dr Flynn. I have reviewed all of the

information and the assessment carried out by Dr Flynn for the Board, with the main points summarised above.

- 12.9.33. While the PRD is a major engineering project with potentially significant impacts on biodiversity, I am satisfied that a detailed assessment of the biodiversity in the area that would be impacted by the PRD has been undertaken. Key ecological receptors including protected nature conservation sites and species, ecological sites and individual species have been assessed and appropriate mitigation measures has been put forward. Following implementation of mitigation measures outlined, the PRD would not result in any significant negative impacts on biodiversity within the study area.
- 12.9.34. The measures taken to avoid, prevent, reduce and offset significant adverse effects on the environment, in particular on species and habitats protected under the Habitats Directive, Birds Directive and the Wildlife Act 1976, as amended, will contribute to the avoidance of a deterioration in the quality of the environment and significant loss of biodiversity.
- 12.9.35. Residual impacts on biodiversity will remain even after the application of mitigation measures due to habitat loss and fragmentation with permanent moderate negative impacts at 8 no. Key Ecological Receptor sites. Of these, KER 11 involves the loss of and fragmentation of Annex I Alkaline Fen habitat and effects on the whorl snail *V. moulinsiana*.
- 12.9.36. Significant adverse effects on species and habitats protected under Council Directive 92/43/EEC (Habitats Directive) and Directive 2009/147/EC (Birds Directive) are excluded through avoidance of direct impacts by project design and the application of mitigation measures to prevent deterioration of water quality and disturbance of species.
- 12.9.37. Significant residual effects on movements of Lesser Horseshoe Bat in the wider landscape, on Barn owl and badgers will be avoided through the application of mitigation measures designed to maintain ecological connectivity throughout the landscape and the application of specific landscape design measures. Any remaining residual effects are of a slight negative magnitude, reducing over time as landscape measures mature.

12.10. Soils and Geology

Introduction

- 12.10.1. **Soils and geology** are addressed primarily in Chapter 8 (Soils and Geology) of Volume 2 of the EIAR, in the response to a request for further information and at the oral hearing by Mr Seamus MacGearailt and Mr Fintan Buggy of ROD-AECOM. The Board engaged Mr Jer Keohane, a geotechnical specialist and hydrogeological engineer, to carry out an examination and assessment of the information presented for Soils and Geology. Mr Keohane's report is contained within Appendix D attached to this report.
- 12.10.2. In terms of **land**, this is dealt as an environmental topic under the heading Material Assets and Land – Agriculture in Section 12.15 and in Material Assets (Non-agriculture) in Section 12.17 of my assessment below. In view of the inter-relationship with water, I also recommend that this section is read in conjunction with the assessment of hydrology in section 12.11 and hydrogeology in section 12.12 of this assessment report, together with separate assessment reports on these environmental topics that have also been prepared by Mr Jer Keohane and which are also contained in Appendix D.
- 12.10.3. I have reviewed the information set out in the EIAR and the assessment reports prepared by Mr Keohane and I am satisfied that the technical content of the soils and geology chapter (and associated appendices) prepared by ROD-AECOM appointed specialists together with additional information furnished in response to the RFI and at the oral hearing is adequate to undertake a full assessment of the direct and indirect effects of the proposed development on the soils and geological environment.
- 12.10.4. The issue of environmental effects on ecologically sensitive areas of wetland habitats/soft ground is addressed by the applicant in Chapter 7 (Biodiversity) of the EIAR as part of the identification and assessment of impacts on key ecological receptors (KERs). The relevant impacts are identified and evaluated in the Biodiversity section (Section 12.9) of this report informed by scientific advice from Dr Maeve Flynn, the Board's senior ecologist. Appropriate Assessment is considered in Section 13 of this assessment report and a copy of both the Biodiversity Assessment

and Appropriate Assessment reports, both prepared by Dr Flynn are contained within Appendix C attached.

Baseline / Existing Environment

- 12.10.5. The applicant's understanding of the baseline environment was informed by desk studies, consultations and a programme of geotechnical site investigations comprising trial pits, borehole/rotary core sampling and dynamic probing. The rotary core drilling was used to obtain core samples through the soil strata and bedrock.
- 12.10.6. Geophysical surveys were also carried out at various locations along the route of the PRD including at areas of known or suspected karst activity. Where potential areas of karstification were recorded, the ground conditions were verified by undertaking additional boreholes and rotary cores. The applicant provided details of the ground investigation locations and soil types encountered, and these are illustrated in Figures 8.1 to 8.24 of Volume 3 of the EIAR. I have found these figures useful as they also include a longitudinal profile showing the existing topographical levels, underlying soils depths and types, depth to the top of the rock encountered and the depth of the rock layer underneath the site of the PRD. The figures also include the proposed road profile (including levels). The areas of the 'cut', 'fill/embankment formation' and 'works at grade' are also shown on the ground investigation figures.
- 12.10.7. For the majority of the route of the PRD, the rock that was encountered in the ground investigations was primarily limestone with some mudstone encountered at three locations (north of Rathkeale, Gortnagrour and Rower More). Weathering of rock was noted in the top 1-4m underlain by more competent rock below this level.
- 12.10.8. Based on a review of the Geological Survey of Ireland (GSI) database, and as verified through the ground investigations, the subsoils along the route of the PRD comprise mainly glacial till derived from limestone bedrock. Soft soil deposits were encountered at 15 localised areas along the route, and for these areas the locations, range of depths and soil types are detailed in Table 7.A (Areas of Significant Soft Ground) of the RFI response and discussed in Mr Keohane's report.
- 12.10.9. I agree with Mr Keohane that the ground conditions are evidently well understood by the applicant and are adequate to bring forward a detailed design and to sustain and support the road development in the long term.

Materials Balance

- 12.10.10. The project is a major engineering project requiring a substantial earthworks element. The volume of each material type is set out in Table 4.20 (Earthworks Volumes) contained in Chapter 4 of the EIAR, and a Materials Balance summary is provided in Table 4 of Section 11.6 (Road Design and Construction – Elements of Significance) above and in Mr Keohane’s assessment report. A total of four million cubic metres of materials is required overall for the construction of the project. Within the project site, three million cubic metres of material would be excavated. This includes 1.9 million cubic metres of suitable rock, 1.1 million cubic metres of other cut materials (suitable and unsuitable subsoils). Of this 1.1 million cubic metres of other cut materials, 800,000 cubic metres is deemed suitable for structural/engineering fill material and 300,000 cubic metres (or 320,000 cubic metres as set out in Chapter 8 of the EIAR and by Mr Buggy at the oral hearing) is deemed unsuitable material for structural/engineering fill. In total approximately 2.7 million cubic metres of fill would be gained from areas of ‘cut’ within the site.
- 12.10.11. Based on the materials balance outlined above, there is an overall deficit of material of 1.3 million cubic metres predicted. It is stated that borrow pits may be developed on site to obtain up to 500,000 cubic metres of required structural/engineering fill material. The balance of material (likely to be 800,000 cubic metres in the event that the borrow pits are developed) would be imported onto the site from quarries in the region. While the use of borrow pits are a possibility, the EIAR has also considered the need for importing all of the required material (1.3 million cubic metres of fill) should the borrow pits not be used. The applicant has stated that sufficient material can be sourced from quarries in the region should the entire amount be required.
- 12.10.12. I agree with Mr Keohane’s finding that the materials deficit is relatively high but not unusual for a major roads project. At the oral hearing, Mr MacGearailt explained that the deficit arose because of the specifics of the project and that it is governed by the topography crossed, environmental constraints and the need to optimise the PRD design.

12.10.13. Of the 300,000¹⁹ cubic metres of unsuitable engineering fill material on site, the majority would be used for non-structural fill or for landscaping purposes. The balance, comprising c.35,000 cubic metres of peat and possibly some additional smaller amounts of unusable inert material, would be placed in worked out borrow pits or other areas suitable for deposition along the site. I am satisfied that the amount of material to be deposited on site in borrow pits/or other areas across the site is likely to be small in relative terms and the measures proposed combined with the general measures outlined in the EOP and accompanying would be sufficient to ensure that no adverse environmental impacts would arise on the local soils and geological environment.

12.10.14. Separate to the volume of materials outlined above, topsoil amounting to approximately 415,000 cubic metres would be generated on the site. This topsoil would be stripped, stored for a temporary period, likely up to the completion of the main earthworks, where it would then be reused for landscaping purposes. This is standard practice for roads and other such engineering projects where the topsoil is stripped and retained on site and is then reused for landscaping. With the adoption of best practice in the proper management of this material as detailed in Chapter 6 of the EOP and accompanying CESP, significant adverse impacts would be avoided.

Soft Ground Improvement

12.10.15. Ground improvement as a method of reducing the volume of unsuitable material is referenced but not elaborated on in Section 4.11.2 (Earthworks Quantities) of Chapter 4 of the EIAR. At the oral hearing, Mr Buggy stated that ground improvement options could include the use of lime modification, vertical drains or surcharge as feasible options, however, as also outlined, taking a precautionary approach, excavation of the total 320,000 cubic metres of soft/unsuitable soil was assumed in the assessment of predicted impacts on soils and geology in Chapter 8.

12.10.16. These referenced methods of ground improvement are all standard engineering methods for improving and strengthening soft soils for engineering/earthworks projects including road infrastructure. Lime stabilisation is a method where long-term

¹⁹ It is noted that both the figure of 320,000 and 300,000 cubic metres are referenced throughout the EIAR and RFI and at the oral hearing, however, the difference is not considered material in the context of management, impacts or mitigation.

strength of soft soils is gained through a pozzolanic reaction between the lime and the soft soils. The use of vertical drains in road embankment construction accelerates the consolidation of the ground upon which the embankment would be placed when compared to the situation without drainage intervention. The application of surcharge involves the application of additional designed loadings that result in a controlled primary consolidation settlement within a shorter timeframe after which the additional surcharge loading is removed. More often than not vertical drains and surcharge loading are used together. I note Mr Keohane stated that he is satisfied that once soil improvement would be undertaken by a competent contractor, it is well understood, and no additional environmental impacts would be created. I also note the commitment for the appointment of a SEM to ensure that the environmental commitments and the EOP are fully executed for the duration of the works.

12.10.17. Mr Buggy, for the applicant, also noted that while soils improvement is a possibility, provision has been made for the removal of all of the soft/unsuitable soils from beneath the PRD footprint.

Soils and Geology Impacts

12.10.18. Having regard to all of the information on file and the contents of Mr Keohane’s assessment and to my own knowledge and experience, the **potential impacts** on the soils and geological environment that are likely to arise during construction are set out in Table 10 below. At this stage, I have taken account of the avoidance of impacts in the design together with the adoption of best practice and proper management of activities of relevance to soils and geology.

Table 10 Soils and Geology impacts likely to arise during the PRD **construction phase**

Construction phase Element Impacts	Impact rating on Soils and Geological Environment (with the adoption of avoidance of impacts and adoption of best practice)
Deep cuttings	No/imperceptible negative impact; positive educational impact/ benefit as a result of exposing geological strata to view.
Rock excavation methods	No/imperceptible negative impact

Processing of rock (crushing/breaking) for transport and use in embankment formation	No/imperceptible negative impact
Karst	No/imperceptible negative impact
Construction dewatering	No/imperceptible negative impact on soil and geology. Further addressed in Chapter 9 – Hydrogeology.
Construction of high embankments	No/imperceptible negative impact
Soft/unsuitable soil	No/imperceptible negative impact
Ground improvement	No/imperceptible negative impact
Temporary storage of excavated materials (for re-use)	No/imperceptible negative impact
Excavation for significant structures	No/imperceptible negative impact
Contaminated soils and made ground	No/imperceptible negative impact
Sources of materials (Quarries and Borrow Pits)	Slight to moderate negative impact in terms of use of resources
Materials deposition areas (worked out Borrow pits or other areas suitable for deposition on site)	No/imperceptible negative impact
Loss of peat soils	Slight negative impact
Slope stability in soil cuttings	No/imperceptible negative impact

12.10.19. In relation to the **operational phase** of the PRD, I would agree as outlined in Chapter 8 of the EIAR and in Mr Keohane’s report that no significant adverse impacts on soils or geology would result as the ground conditions are such that a design of the road infrastructure can be brought forward, and the PRD can be supported and sustained in the long term.

Mitigation

12.10.20. While no adverse impacts greater than imperceptible are predicted to arise in respect of the soils and geological environment outside of the loss of resources rated as ‘slight to moderate’, general mitigation measures have been set out including adherence to the EOP and the associated CESP contained therein, which contains a

number of overarching measures largely to protect water quality in adjoining watercourses and groundwater.

12.10.21. I note that any karst voids encountered as part of the earthworks would be filled with concrete, however, this is best practice and a precautionary measure (rather than mitigation), as set out above.

Residual Impacts

12.10.22. Overall, based on the level of detail provided, which adequately identified the potential impacts, I agree with the conclusions reached that any negative impacts would be no greater than moderate (from loss of resources) in terms of significance rating and therefore no significant adverse effects would arise on the soils and geological environment.

12.10.23. I agree as set out that the deep cuttings along the PRD may result in a slight positive educational benefit in terms of the enhancement of geological heritage features where geological strata are exposed to view. In his assessment, Mr Keohane referred to Sections 4.4.1 and 5.5.2 of the TII adopted design guidelines 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (NRA, 2008) wherein it is stated that 'in some cases road development may actually facilitate enhanced geological understanding of a site by exposing more rock sections in (say) a new road cutting'.

Other Matters /Submissions

12.10.24. A number of matters specific to soils and geology were raised by observers in written format and at the oral hearing. These have been addressed in Mr Keohane's report. The matters raised included:

- additional impacts arising from increased production of quarries to meet the demand are not addressed;
- duration of the earthworks programme;
- nature and depth of rock and excavation methods;
- processing, harnessing, crushing of rock;
- sequencing of operations;
- buildability of road on soft ground;

- poor record keeping and quality of site/ground investigations undertaken.

12.10.25. In response to issues raised in submissions by An Taisce (Env-3 and FI -1) concerning potential for the Local Authority supporting unauthorised quarries, a commitment was given at the oral hearing and this commitment is also set out in Item 4.11 of Chapter 19 (Mitigation and Monitoring Measures) and within Chapter 4 of the EIAR (Description of the Proposed Road Development) that while the appointed contractor may source material from quarries other than the three that are identified in Chapter 4 of the EIAR, only quarries that conform to all necessary statutory consents would be permitted for use by the contractor.

12.10.26. At the oral hearing, Mr O'Donnell BL representing Mr and Mrs Murphy (Sch-9) expressed concern about processing of materials and storage of materials on site and advanced his view that the development had not been adequately described. This matter is dealt with in detail in Mr Keohane's assessment in which he notes that these operations are a standard part of the earthworks programme and are adequately dealt with in the EIAR. Following assessment on these matters, Mr Keohane stated his satisfaction that once the rock is excavated and reused in the manner proposed including adhering to the measures set out in the EOP and CESP, no significant adverse impacts on the **soils and geological** environment would arise. Having regard to the information put forward in Chapter 4 (Description of the Project), Chapter 8 (Soils and Geology) and Mr Keohane's assessment, I am equally satisfied that no significant effects are likely from the processing of rock on site by effectively breaking it into smaller particle sizes suitable for transport and for embankment fill.

12.10.27. I also note as outlined by Mr Keohane, that in relation to the location of rock excavation of relevance to Mr O'Donnell's clients (Mr and Mrs Murphy), Mr MacGearailt stated that in this area (Ballycannon) west of the Murphy lands, rock would be broken up as it is being excavated and that no additional processing or crushing is in fact proposed at that location. Mr MacGearailt also explained that soft materials would be temporarily stored on site for reuse in connection with the project. These elements are inherent parts of the earthworks associated with a road project.

12.10.28. A submission from the Department of the Environment, Climate and Communications - Waste Policy & Resource Efficiency (FI-3) requested that the

applicant consult with the Regional Waste Management Planning Office regarding the final plans in respect of waste, and the applicant has confirmed their stated intention to do so and this commitment (to consult with the Regional Waste Management Planning Office prior to the construction phase) has been added to the schedule of commitments under OH.49.

12.10.29. I am satisfied having regard to the details provided in the EIAR, RFI and the responses given at the oral hearing, and noting the assessment of the issues raised in Mr Keohane's report on Soils and Geology, the issues raised have been adequately addressed and no additional adverse impacts on the geological environment arise.

Inspector's Conclusion on Soils and Geology

12.10.30. I have considered all of the written and oral submissions made in relation to soils and geology in addition to those specifically identified in the assessment prepared by Mr Keohane as the external consultant who reported on this matter.

12.10.31. There will be impacts associated with the loss of soil along the route and the use of natural resources, including aggregates, to construct the proposed road development. These would be mitigated to some extent by the re-use of excavated materials in the construction process and potentially in the development of on-site borrow pits or the use of ground improvement methods. Other construction phase impacts would be avoided, managed and/or mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan and the additions to the Schedule of Environmental Commitments. Therefore, it can be reasonably concluded that no significant adverse impacts would arise on soils or geology as a result of the construction and operational phases of the development. The deep cuttings may result in a minor positive educational impact or benefit as a result of facilitating an enhanced geological understanding of a site by exposing geological strata to view.

12.10.32. As stated above, the impacts in relation to land are addressed under the heading of Materials Assets and Land-Agriculture and Materials Assets and Land-Non-Agriculture.

12.11. Water-Hydrology

- 12.11.1. **Hydrology** is addressed primarily in Chapter 10 (Hydrology) of Volume 2 of the EIAR, in the response to a request for further information and at the oral hearing by Mr Anthony Cawley of Hydro Environmental Ltd. I also note that in the study team outlined in Appendix 1.1, Mr Richard Reid of ROD-AECOM Alliance was referred to as a principal contributor to Chapter 10. The Board engaged Mr Jer Keohane to carry out an examination and assessment of the information presented for Hydrology.
- 12.11.2. A key document followed by the applicant in respect of the drainage design is the TII's publication 'Road Drainage and the Water Environment' (March 2015). In view of the inter-relationship with soils, geology and hydrogeology, I recommend that this section is read in conjunction with the assessment of soils and geology in section 12.10 (above) and hydrogeology in section 12.12 (below) of this assessment report, together with separate assessment reports on these environmental factors also prepared by Mr Jer Keohane and all which are contained in Appendix D attached to this report.
- 12.11.3. As identified by Mr Keohane, the applicant's assessment focussed on the potential for impacts on the receiving watercourses that would be crossed by the PRD and also the impacts on surface watercourses that would receive discharge from road drainage outfalls. It also considered the potential of flooding and flood risk, morphological changes to watercourses and impacts on sites of ecological importance proximate to surface watercourses. The applicant's assessment was informed by desk studies, consultation with prescribed/public bodies and detailed stream surveys and observations of potential areas of flood risk. It followed relevant legislation and guidelines, including TII adopted guidelines on 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (NRA, 2008) and 'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' (DoEHLG, 2009).
- Directive 2000/60/EC (Water Framework Directive)**
- 12.11.4. The Board will be aware that Directive 2000/60/EC (Water Framework Directive) (WFD) sets out the legal framework to protect and restore clean water and to ensure its long-term sustainable use. The core requirements of the WFD have been

transposed into Irish law through the European Communities (Water Policy) Regulations 2003 as amended and the WFD applies to rivers, lakes, groundwater, and transitional coastal waters. In addition, the European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended, and the European Communities Environmental Objectives (Groundwater) Regulations 2010 as amended give effect to the measures needed to achieve surface water and groundwater environmental objectives.

- 12.11.5. The main objectives are: to prevent deterioration of the status of all bodies of surface water including the maintenance of high status in High status objective water bodies, to protect and enhance and restore all bodies of surface water with the aim of achieving good status (or high status where designated), to protect and enhance all artificial and heavily modified bodies of water with the aim of achieving good ecological potential and good surface water chemical status, and to progressively reduce pollution from priority substances and cease or phase out emission, discharges and losses of priority hazardous substances within river basin districts by 2027.
- 12.11.6. The overall status of a surface water body is assessed as a combination of ecological status and chemical status. For a surface water body to be in overall 'good status', both its ecological and its chemical status must be at least 'good'. The overall status of a groundwater body is assessed as a combination of quantitative status and groundwater chemical status. The status of the water body is determined by the least favourable of the component assessments.
- 12.11.7. River Basin Management Plans (RBMPs) are used as a tool of achieving the protection, improvement and sustainable use of the water environment across Europe. These plans are prepared in 6-year cycles, during which a programme of measures must be implemented so as to achieve water quality objectives. Ireland is currently operating on its second-cycle river basin management plan that covers the period 2018-2021 with the third plan to cover the period 2022-2027 currently at draft stage and at public consultation stage up to 21st of March 2022.
- 12.11.8. With respect to surface water body status, ecological status is rated from 'high' to 'poor' status, while chemical status is measured as either 'good' or 'fail' status.

Baseline / Existing Environment

- 12.11.9. In accordance with the WFD, there is one single national River Basin District in Ireland, which is broken down into 46 catchment management units. These 46 catchment management units have been broken down further into 583 sub-catchments. The site/route is located in the Shannon Estuary South catchment.
- 12.11.10. There are 21 watercourse crossings and 32 surface water outfall discharge locations along the route of the PRD. All other culvert crossings would cross local drainage channels or drainage ditches. Ten Rivers have been identified comprising Rivers Ahacronane, Deel (x 2 locations), Greanagh A, Greanagh B, Clonshire River, River Maigne (x 2 locations) and Barnakyle. The locations of each of the major watercourses are illustrated in Figure 10.1 (Watercourse Regional Overview) within Volume 3 of the EIAR. Figure 10.2 illustrates catchments and sub-catchments.
- 12.11.11. The rivers along the PRD route and study area are stated to mainly feature a range of 'poor' to 'moderate' water quality status ratings. In accordance with the most up to date EPA data for the period 2013-2018 (2nd RBMP cycle), these ratings as indicated by the applicant are correct.

Road Drainage

- 12.11.12. Figures 10.3 to 10.25 within Volume 3 (Figures) of the EIAR illustrate the Drainage Design proposals across the four sections (A to D) of the PRD and study area. These figures show the road drainage, direction and outfall, road drainage catchment, locations and types of existing and proposed culverts, structures and bridges, attenuation ponds and watercourse directions. I am satisfied that when read in conjunction with the drainage proposals outlined in Chapter 4 (Description of the Proposed Development) of the EIAR, the applicant's drainage proposals are clearly presented. Generally, the drainage is designed as a traditional form of open ditch drainage natural drainage regime. The design approach is that the existing drainage regime would be maintained insofar as possible, and it would only be altered where a change in direction or outfall is required. All outfalls from the proposed road drainage system will be attenuated prior to discharge to the receiving watercourse. The attenuation system has been designed to accommodate a 1 in 100-year rainfall event to achieve green-field run-off rates. A typical attenuation pond is shown in Plate 4.67 of Chapter 4. Where the proposed road development is in areas of cut,

the proposed drainage system would mainly consist of swales at the rear of the verges, with an example shown in Plate 4.71 of Chapter 4.

12.11.13. I am satisfied that the drainage design is well considered and provides sustainable solutions while focussing on maintaining the natural drainage regime and minimising pollution risk.

Flood Risk Assessment

12.11.14. The applicant carried out a flood risk assessment (FRA) and a summary of the outcome is set out in Table 10.12 of Chapter 10. It is stated that the FRA found minimal flood risk at watercourse locations modelled. The road drainage design centred on maintaining the natural drainage regime so that it would not cause any increase or exacerbate the existing flood risk situation.

12.11.15. All proposed culvert structures are designed with a capacity to pass the estimated 1% AEP flood flow with appropriate allowances for statistical error and climate change. A minimum freeboard allowance of greater than 300mm between the soffit level and the design flood level is proposed at all culverts. In most cases, for other reasons of access and biodiversity mitigation, the clearance provided for larger structures is considerably greater than the required minimum.

12.11.16. Based on a review of the drawings and the relevant information in Chapter 4, Chapter 10, RFI response, information presented at the oral hearing, it is evident that all culverts have been designed to the appropriate standards and are adequately sized. I note in particular that they have been designed with a 20% allowance for climate change. I also agree with Mr Keohane's conclusion that there would not be any increase in the existing flood risk regime and no adverse impacts would arise as a result of the design of hydraulic structures. Having examined the information set out in Chapter 10 (Hydrology) and related chapters and having reviewed the drainage design, I agree with this conclusion.

Hydrological Impacts

12.11.17. Having regard to all of the information on file and the contents of Mr Keohane's assessment and my own review of the information provided, the **potential impacts** on the hydrological environment that I consider are likely to arise during construction are presented in Table 11 below.

Table 11 Hydrological Impacts likely to arise during the **construction phase** of the PRD.

Construction phase Element Impacts	Impact rating on Hydrological Environment pre-mitigation
<p>Construction of structures near or in watercourses could alter the stream/river bed and bank morphology with the potential to alter erosion and deposition rates either locally or downstream;</p> <p>Construction activities / earthworks (including excavation of rock, processing and fill) either in or adjacent to the watercourse channels can lead to an increased turbidity through re-suspension of bed sediments and release of new sediments that may negatively alter aquatic ecology.</p>	<p>Various rating of impact – slight to significant</p>
<p>General hydrological impacts arising during operation including permanent interference with watercourses, removal of flood storage, changes in morphology, interference with drainage and deterioration of water quality</p>	<p>Various rating of impact – slight to significant</p>
<p>Flood Risk to the PRD including resilience to climate change</p>	<p>Imperceptible impact following the carrying out of a flood risk assessment and noting the design allowance for climate change</p>
<p>Impact of hydraulic structures on flood risk</p>	<p>Slight/imperceptible negative impact at a local level</p>
<p>Change in watercourse morphology from stream diversion</p>	<p>Various ratings of impact – slight to moderate negative</p>
<p>Impact on Water quality from drainage outfalls</p>	<p>Taking account of the managed drainage design on the new PRD and the reduction of vehicles on the existing road network, a slight net positive impact could arise.</p>

Impact on Water quality from accidental spillage	Taking account of the managed drainage design and the lower risk of collisions on the safer road infrastructure, an imperceptible positive impact could arise (noting the low-risk occurrence in any case).
Impact on flooding/morphology from storm drainage	Imperceptible to moderate negative depending on the size of the catchment.
Indirect impacts on Natural Heritage - the Lower River Shannon SAC	Direct impacts on the Lower River Shannon SAC would be confined to the River Mague crossing. While all watercourses within the zone of influence of the PRD are part of the wider lower River Shannon SAC catchment, and by extension the overlapping River Shannon and River Fergus SPA, indirect imperceptible hydrological effects on the SAC from other watercourse crossings.
Impact on Water supply sources (Irish Water abstraction point downstream of river crossing RVB01)	Slight to moderate adverse
Impacts from Borrow pits	Slight to moderate negative impact from unmanaged surface water run-off
Deposition Areas (worked out borrow pits or other areas along the route of the PRD)	Slight to moderate negative impact from unmanaged surface water run-off

Operational Impacts on Hydrology

12.11.18. The main impact that could arise during the operation phase is from increased runoff to watercourses at proposed storm outfalls, due to road pavement (impervious area), leading to increased local flood risk. A deterioration in water quality could also arise both from routine runoff and from contaminants entering the drainage outfalls in the event of a road collision or similar incident.

12.11.19. The applicant carried out a water quality risk assessment in accordance with TII standard 'Road Drainage and the Water Environment' (June 2015), which found that

the overall spillage risk for the development would be less than 0.4% or 1:250-year probability. This is a very low risk level and given this finding and noting that volumes arising would also be very low, I am satisfied that there is not likely to be significant contamination of watercourses as a result of an accidental spillage occurrence in the event of a road collision. Accordingly, no specific mitigation measures are required. The point is also made that the risk of road traffic collisions would reduce because of the new road infrastructure which is safer. I agree that the PRD would give rise to a net positive impact in this sense, although it would be imperceptible (positive) having regard to the low risk of probability of spillage occurrence in any case.

Routine Road Runoff on Receiving Waters

- 12.11.20. A **Highways Agency Water Risk Assessment Tool (HAWRAT)** assessment was carried out for all 32 outfalls along the PRD. The HAWRAT is an evidence-based risk assessment tool incorporating biological/ecological considerations in combination with hydraulics and traffic characteristics. It applies a tiered/stepped approach used to assess the effects of road runoff on surface water quality. It uses pollution thresholds based on UK field research programmes, which are consistent with the requirements of the WFD. The EPA have acknowledged the method of assessment used by HAWRAT and its use in EIA.
- 12.11.21. A copy of the HAWRAT assessment output was presented by the applicant at the oral hearing. It was used by the applicant to test 10,000 to 50,000 vehicles/day range which is above the projected traffic figures for the PRD and is therefore robust because the pollutant concentrate for lower realistic traffic would be less. All of the outfalls passed the assessment and according to Table 5.2 (Assessment of Outcomes and Actions to Take) of 'Road Drainage and the Water Environment including Amendment No.1, (TII, June 2015), no further action is required.
- 12.11.22. I would therefore agree with Mr Keohane that the assessment undertaken has demonstrated that the water quality would not be affected by the PRD drainage discharges at all outfalls. In his assessment, Mr Keohane states his agreement with the applicant that this represents an anticipated imperceptible impact to water quality of receiving surface waters. Given the outcome of the HAWRAT, it can be also concluded that the PRD would not prevent the achievement of the aim of the WFD to achieve 'good ecological and chemical status' with regard to surface water.

12.11.23. I would therefore agree with Mr Keohane that the assessment undertaken has demonstrated that the water quality would not be affected by the PRD drainage discharges at all outfalls.

Mitigation

Construction Phase Mitigation

12.11.24. The principal measure to avoid hydrological impacts involves adherence to the EOP, which is included in Appendix 4.1 of the EIAR. The EOP sets out detailed measures for water quality protection including specific mitigation measures for working on all major river crossings. Other mitigation measures have been outlined in Mr Keohane's report and these are largely based on adherence to the relevant technical guidance documents for working over or near water, for example, Protection and Conservation of Fisheries Habitats with particular reference to road construction, (Shannon Regional Fisheries Board), Control of water pollution from linear construction projects Site guide (C649) (CIRIA) and Guidelines for the crossing of watercourses during the construction of National Road Schemes (NRA, 2006).

12.11.25. The following specific measures have been prescribed in order to protect all catchment, watercourses and ecologically sensitive or protected areas:

- minor watercourse diversions/realignments would be carried out in the dry and when the channel has become established, the watercourse would then be diverted onto the new alignment;
- runoff from any material deposition areas, whether they would be in worked out borrow pits or in other areas within the PRD site, would be contained and treated in temporary settlement ponds upstream of its outfall to the receiving watercourses.

Operational Stage Mitigation

12.11.26. At the outset, I note that the drainage strategy broadly centres on mirroring the natural hydraulic regime and management of the drainage to protect water quality. The drainage system would incorporate a range of pollution control measures, including filter drains, sealed drainage systems, use of a vegetated lined wetland system upstream of outfalls and through the incorporation of engineered attenuation

ponds. Storm runoff management through attenuation would reduce risk of flooding to 1% AEP flood event. Other localised mitigation measures are also outlined.

Additional Measures

- 12.11.27. A number of additional measures relating to hydrology were also put forward at the oral hearing (OH.4 to OH.45 inclusive). To a large extent these include adherence to **IFI** recommendations to monitor watercourses for water quality for a period of 12 months pre-construction and the adherence to a range of standard best practice management measures.
- 12.11.28. In correspondence submitted following receipt of the response to the request for further information, **Irish Water** advised that they were satisfied that the applicant has provided information on mitigation measures that would be put in place to ensure protection of public drinking sources in the area, and they further stated that they have no objection in principle to the proposed development. Irish Water recommend conditions to be attached should the Board approve the development.
- 12.11.29. With regard to the requirements of the WFD in terms of maintaining, protecting and enhancing the water quality status of the receiving watercourses and groundwater, I agree with Mr Keohane's findings that the design of the PRD satisfies these requirements through the provision of comprehensive and robust storm water collection and treatment measures, with controlled discharge at the proposed road drainage outfalls. The PRD is also likely to indirectly enhance water quality to a degree, due to the transfer of a greater volume of traffic onto the road infrastructure with improved managed drainage. While the existing network would remain, a reduced volume of traffic would also lead to more dilute run-off with lower concentrations of contaminants derived from tyres, exhaust particulate matter and hydrocarbons and a corresponding reduction in uncontrolled road runoff entering adjacent watercourses.

Residual Impacts

- 12.11.30. Having reviewed the information submitted and considered the submission of all parties, I am satisfied that the EOP and CESP which document the environmental management and mitigation approach that would be adopted and implemented during the construction phase, are suitably robust and appropriate and would avoid significant impacts on water quality. I agree with the conclusions reached that any

residual impacts would be no greater than imperceptible to slight significant rating and therefore no significant adverse effects would arise on the hydrological environment.

12.11.31. I would agree that a slight positive impact on water quality in watercourses in the study area would result as the proposed road drainage would improve the current situation of untreated storm drainage being discharged from the existing N21 and N69 roads, contributing to the objectives of the WFD and the corresponding River Basin Management Plan in respect of protecting and improving water quality. As a result of the managed drainage and pollution control measures that will be put in place, the risk from accidental spillages from traffic would lead to an imperceptible positive residual impact when compared to the current situation, which is less controlled.

12.11.32. Overall, I consider that subject to the mitigation proposed, the PRD would not prevent or delay any watercourse in attaining 'good' ecological and chemical status as required by the WFD and no significant adverse effects would arise on the hydrological environment.

Other Matters /Submissions

12.11.33. A number of hydrology matters specific to soils and geology were raised in written format and at the oral hearing. These have been addressed in Mr Keohane's report. The matters raised included:

- general impacts from construction and earthworks;
- impact on watercourses and risk of flooding;
- submergence of attenuation ponds;
- excessive clearance of the Greanagh River at Kilnockan;
- impact on achievement of WFD objective aiming for 'good status' water quality by 2027;
- impacts on existing drainage from road run-off.

12.11.34. I am satisfied having regard to the details provided in the EIAR, RFI and the responses given at the oral hearing, and noting the assessment of the issues raised in Mr Keohane's report on Hydrology, the issues raised have been adequately

addressed and no adverse impacts remain. The design of all hydraulic structures is such that there would not be any resultant increase the frequency, depth or extent of flooding.

12.11.35. I am satisfied having regard to the details provided in the EIAR, RFI and the responses given at the oral hearing, and noting the assessment of the issues raised in Mr Keohane's report on Hydrology, the issues raised have been adequately addressed and no additional adverse impacts on the hydrology environment arise.

Inspector's Conclusion on Hydrology

12.11.36. I have considered all of the written and oral submissions made in relation to hydrology in addition to those specifically identified in the assessment carried out by Mr Keohane who reported on this matter.

12.11.37. Surface water quality impacts arising from the construction phase and earthworks would be avoided, managed and/or mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan, and the Construction Erosion and Sediment Control Plan contained within that plan, and the additions to the Schedule of Environmental Commitments as well as through obtaining necessary consents and consultation with prescribed bodies including Inland Fisheries Ireland and Irish Water.

12.11.38. During the operational phase, water quality impacts arising from road runoff or accidental spillages would be mitigated through the design of the drainage system for the proposed road development and in particular the use of attenuation ponds. The proposed drainage system would incorporate a range of pollution control measures, including filter drains, sealed drainage systems, use of a vegetated lined wetland system upstream of outfalls and through the incorporation of engineered attenuation ponds. Stormwater runoff management through attenuation would reduce risk of flooding to 1% annual exceedance probability flood event.

12.11.39. The proposed road development is also likely to indirectly enhance water quality to a degree, due to the transfer of a greater volume of traffic onto the new road infrastructure with improved managed drainage.

12.11.40. It is demonstrated that with the adoption of the mitigation outlined, there is no risk that the surface water bodies would fail to achieve or maintain the environmental

objectives set out in the Water Framework Directive as a result of the proposed development, alone or cumulatively with other projects.

- 12.11.41. Subject to implementation of the mitigation measures proposed, it can be reasonably concluded that no significant adverse direct impacts would arise on water (hydrology) as a result of the construction and operational phases.

12.12. **Water - Hydrogeology**

- 12.12.1. **Hydrogeology** is addressed primarily in Chapter 9 (Hydrogeology) of Volume 2 of the EIAR, in the response to a request for further information and at the oral hearing by Mr Anthony Cawley of Hydro Environmental Ltd. I also note that in the study team outlined in Appendix 1.1, Mr Richard Reid of ROD-AECOM Alliance was referred to as a principal contributor to Chapter 10. The Board also engaged Mr Jer Keohane to carry out an examination and an assessment of the information presented for Hydrogeology.
- 12.12.2. In view of the inter-relationship with hydrology and also soils and geology, I also recommend that this section is read in conjunction with the assessment of soils and geology in section 12.10 and hydrology in section 12.11 (both above) of this assessment report, together with separate reports on these environmental factors also prepared by Mr Jer Keohane.
- 12.12.3. I have reviewed the examination and assessment conducted by Mr Keohane and I am satisfied that the technical content of the hydrogeology chapter (and associated appendices) prepared by ROD-AECOM appointed specialists together with additional information furnished in response to the RFI and at the oral hearing is adequate to undertake a full assessment of the direct and indirect effects of the proposed development.
- 12.12.4. The applicant's assessment was prepared in accordance with the established guidelines for the completion of an EIAR by the EPA and by reference to TII design guidelines, including 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2008) and 'Road Drainage and the Water Environment' (2015).
- 12.12.5. The applicant's understanding of the existing hydrogeological environment was derived initially from a review of data sources of published information including OSI,

GSI, Teagasc, EPA, LCCC, NPWS, OPW mapping and Met Éireann meteorological data and River Basin Management Plan for Ireland (2018-2021) (DHPLG).

Consultations were undertaken by the applicant's team with regulatory / prescribed bodies including GSI, NPWS, OPW and LCCC Environment and Water Services Departments.

- 12.12.6. Field surveys were carried out and, as set out above, a programme of site investigations was undertaken. Geophysical surveys were carried out at various locations along the route including at areas of known or suspected karst activity.

Directive 2000/60/EC (Water Framework Directive)

- 12.12.7. As stated above under the heading of hydrology, the main objectives of the WFD are to prevent or limit the input of pollutants into groundwater and to prevent the deterioration of the status of all bodies of groundwater, and to reverse any significant and sustained upward trend in the concentration of any pollutant resulting from the impact of human activity. For natural waters these environmental objectives relate to achieving or maintaining **good or high ecological status** and **good chemical status for surface waters** and **good chemical and quantitative status for groundwaters**. The overall status of a groundwater body is assessed as a combination of quantitative status and groundwater chemical status. The status of the water body is determined by the least favourable of the component assessments.

- 12.12.8. The main objectives are: to prevent deterioration of the status of all bodies of surface water including the maintenance of high status in High status objective water bodies, to protect and enhance and restore all bodies of surface water with the aim of achieving good status (or high status where designated), to protect and enhance all artificial and heavily modified bodies of water with the aim of achieving good ecological potential and good surface water chemical status, and to progressively reduce pollution from priority substances and cease or phase out emission, discharges and losses of priority hazardous substances within river basin districts by 2027.

- 12.12.9. The overall status of a surface water body is assessed as a combination of ecological status and chemical status. For a surface water body to be in overall 'good status', both its ecological and its chemical status must be at least 'good'. The overall status of a groundwater body is assessed as a combination of quantitative

status and groundwater chemical status. The status of the water body is determined by the least favourable of the component assessments.

- 12.12.10. River Basin Management Plans (RBMPs) are used as a tool of achieving the protection, improvement and sustainable use of the water environment across Europe. As also stated above, Ireland is currently operating on its second-cycle river basin management plan that covers the period 2018-2021 with the third plan to cover the period 2022 – 2027 currently at draft stage and at public consultation stage up to 21st of March 2022.

Baseline / Existing Environment

- 12.12.11. Information on the hydrogeological environment is set out in Chapter 9 (Hydrogeology). The majority of the PRD is underlain by Regionally important karst aquifer with conduit flow (Rkc) and Regionally important karst aquifer with diffuse flow (Rk) both of which are found in the Waulsortian Limestones. For the remaining sections, it is underlain by a locally important bedrock aquifer at the end of the PRD at Foynes in Section A (ch.0 to ch.4+000) and in Section D north of Adare (ch.60+000 to ch.62+000). The location of these aquifers is shown in Figure 9.4 of Volume 3 of the EIAR.
- 12.12.12. Section A, B and C pass through the Askeaton GWB and Section C also passes through a portion of the Shanagolden GWB. Section D passes through the Fedamore GWB and a portion of the western end of Section D is situated within the Newcastle West GWB. A number of Group Water Schemes (GWS) are located within the Askeaton and Fedamore GWB, due to the productive nature of the limestone.
- 12.12.13. There are a number of karst hydrogeological features, namely four turloughs and numerous springs in the study area. There are also a number of European sites which form part of the Natura 2000 network within the study area that are of significance for the hydrogeological environment. These include the Lower River Shannon SAC (site code no. 002165) and Askeaton Fen Complex SAC (site code no 002279). Four KERs comprising hydrogeological-sensitive (groundwater fed) fen wetland habitats were noted in the EIAR and considered in Mr Keohane's assessment report.

- 12.12.14. By reference to the GSI mapping, aquifer groundwater vulnerability to pollution is based on four groundwater vulnerability categories that comprise: Extreme (E), High (H), Moderate (M) and Low (L). In the study area, vulnerability is found to be generally rated as high (H) to extreme (E) and Extreme with outcropping (X). This is largely due to the shallow / absent sub-soils over karst bedrock. It was found through site investigation that some areas of Section A would not align with the GSI rating of 'Extreme (X)' because of deeper depths of between 10.4m and 17m permeable soils above. In the remainder of A and all of B, C and D, the intrusive site investigations largely agreed with the GSI mapping data with respect to groundwater vulnerability of Extreme (X), Extreme (E) and High (H).
- 12.12.15. Under the WFD, groundwater has just two statuses – 'good' and 'poor'. Table 9.5 (Groundwater Bodies) of Chapter 9 sets out that three of the four GWBs (**Askeaton, Newcastle West and Fedamore**) were assigned 'poor' WFD quality status and being 'at risk' of not achieving 'good' status. It was also stated that **Shanagolden GWB** had a 'good' quality status and 'probably not at risk' and **Askeaton South Fens GWDE** did not have any data reported for either GWB quality status or risk status. As stated by Mr Keohane and as I have also verified, these assignments align with those that are contained in a water information resource 'watermaps – our plan' which is available on a web resource with historic data, watermaps.wfdireland.ie.
- 12.12.16. Mr Keohane carried out a review of current EPA mapping (February 2022), which revealed different data than was set out by the applicant in Table 9.5. It was found to reveal that the five aforementioned GWBs have a reported 'good quality' status under the WFD quality assessments and a risk category of 'under review' for each of the GWBs. Mr Keohane notes that the EPA data is more up to date and it has been considered in his assessment which I am satisfied is the correct approach. I have also reviewed the EPA mapping (<https://gis.epa.ie/EPAMaps/Water>) and concur with Mr Keohane's findings on 'quality' and 'risk' status for the aforementioned applicable groundwater bodies.
- 12.12.17. Groundwater is abstracted at various locations along the PRD route for domestic and farm supplies, commercial supplies.

- 12.12.18. Of particular importance are two group water schemes (GWSs), Craggs-Barrigone GWS with its supply borehole in Section A (west of Askeaton) and Croagh Farrandonnelly GWS with its supply borehole in the centre of Croagh village and within the Fedamore GWB in Section D. The location of both supply boreholes and their approximate zone of contribution are illustrated in Figures within Chapter 9.
- 12.12.19. Having considered all of the information presented and drawing on publicly available resources, particularly the EPA mapping resource, the features of greatest importance in terms of assessment of the hydrogeological impacts that could arise as a result of the delivery of the PRD include the two European sites (Askeaton Fen Complex SAC and Lower River Shannon SAC), a Bedrock aquifer classified by the GSI as a Regionally important Karst Aquifer (Rkc and Rkd) and the two GWSs (Craggs/Barrigone GWS and Croagh-Farrandonnelly GWS).

Hydrogeological Impacts

- 12.12.20. Having regard to all of the information on file and the contents of Mr Keohane's assessment, the **potential impacts** on the hydrogeological environment that are likely to arise during construction are presented in Table 12 below.

Table 12 Hydrogeological Impacts likely to arise during the **construction phase** of the PRD.

Construction phase Impacts	Impact rating on Hydrogeological Environment
Impacts on Groundwater Resources (Aquifers)	Moderate negative
Impacts on Bedrock aquifer characteristics	Slight to Moderate negative for regionally important aquifers and imperceptible for locally important aquifers
Impacts on Nature Conservation (European Sites)	Imperceptible negative
Impact on Surface Karst Features (Turloughs and Springs)	Imperceptible negative
Impacts on KERs	Slight negative for KER 4 (increased frequency of localised groundwater

	<p>flooding and localised pollution to the bedrock aquifer).</p> <p>Moderate negative for KER 7, Ker 11 and KER 21 for localised groundwater flooding and imperceptible negative with respect to localised pollution of bedrock aquifer</p>
<p>Impact on GWSs</p> <ul style="list-style-type: none"> • Craggs-Barrigone GWS • Croagh- Farrandonnelly GWS 	<p>Moderate negative impact as a result of reduction in water supply yield at the GWS borehole and contamination of the water supply from road drainage entering the aquifer through weathered bedrock</p>
<p>Impacts on private groundwater supplies along the PRD</p>	<p>Imperceptible negative for the majority and slight negative for remainder</p>
<p>Impacts from Borrow pits</p>	<p>Imperceptible negative</p>
<p>Deposition Areas (worked out borrow pits or other areas along the route of the PRD)</p>	<p>Slight negative impact of groundwater water from peat soils and fines from other alluvium soils</p>
<p>Construction Dewatering</p>	<p>Dewatering will only be carried out locally where groundwater table is encountered in excavations.</p> <p>No adverse impacts</p>
<p>Ground Improvement</p>	<p>No adverse impact as engineering techniques well understood</p>
<p>Contaminated soils and made ground</p>	<p>No adverse impact as material would be removed in accordance with the provisions of the Waste Management Act 1996, as amended and associated regulations and relevant plans.</p>
<p>Slatted / Slurry Tanks</p>	<p>Concerns raised by observers that these could be impacted and cause</p>

	leaking and pollution and pollution to groundwater. Low number and Slight impact considered.
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12.12.21. I am satisfied that no new/additional impacts would arise at the operational phase, however, impacts that arise during construction could prevail for a period into the operation phase.

Mitigation

12.12.22. It is stated in the EIAR and noted in Mr Keohane’s assessment that avoidance as a mitigation measure was employed during the route selection stage and the design stage, and where avoidance was not possible, local modifications were employed to avoid or reduce impacts on the hydrogeological environment.

12.12.23. Beyond this, general mitigation measures to address impacts on aquifers and groundwater resources are set out in Section 9.5.1.1 for both the operation and construction phases with the main measure being that of adherence to best environmental practices and measures that are set out in the EOP. Other measures that are set out include the following:

Operation Phase

- where significant groundwater flows are encountered in deep bedrock cut sections, mitigation would involve either piping, construction of gravel-filled pathways or short diversions;
- the appointed contractor would be made aware of any areas of potential karst features located at shallow depths, and site traffic in these areas should be kept to a minimum to reduce the potential compression and collapse of subsurface flow features;
- sealing of water supply and springs located underneath the footprint of the PRD;
- in areas of extreme to high areas of aquifer vulnerability a sealed drainage system is proposed as an inherent part of the drainage design;

- KERs would be protected through ‘neutral design’ drainage and protection and maintaining of drainage regime;
- if a permanent reduction in yield at Craggs-Barrigone GWS arises, and a suitable alternative borehole cannot be found, LCCC have confirmed a permanent connection of the Public Water Supply to the Limerick City Regional Supply Scheme at Clarina would be facilitated. The cost of this permanent connection, should it be required, would also be borne by LCCC. These assurances were added to the schedule of commitments (OH.52) at the oral hearing.

Construction Phase

- all groundwater supplies that are currently in use and that lie within the footprint of the PRD would be either replaced by either a new supply or by connecting to an existing public supply or GWS;
- should a temporary reduction in yield occur at the Craggs-Barrigone GWS, two options are proposed: (i) connection of the public water supply to the GWS reservoir in advance of the main construction of the PRD or (ii) in the event of a significant impact to quality or yield of the source as a result of the PRD, provide a new suitably located replacement/additional borehole and pump system.
- in respect of Croagh-Farrandonnelly GWS, prior, during and post-construction monitoring would be undertaken, with provision of a replacement borehole or connection to a public water supply, in the event of a significant impact in quality or yield;
- subject to agreement with the relevant landowner, all groundwater supplies within 300m of 5m-deep road cutting areas would be monitored for water level and quality. The applicant has set out their commitment to providing an alternative supply via connection to a public or GWS, should this be required.
- in areas of extreme vulnerability, soiled runoff would be passed through a settlement pond system prior to discharge;
- carry out pre- and post-condition surveys on slatted tanks in respect of two landowners (CPO plot no. 324 – Miriam Linehan and CPO plot no. 133 –

Patrick O'Connell) as was added to the schedule of commitments under OH 48).

12.12.24. I am satisfied that appropriate mitigation measures have been put forward to ameliorate or reduce potential impacts associated with the construction and operation of the road, and that there are adequate safeguards proposed to ensure the protection of the hydrogeological environment during the construction and operational phases of the project.

Residual Impacts

12.12.25. I am satisfied having regard to the details provided in the EIAR, RFI and the responses given at the oral hearing, and noting the assessment of the issues raised in Mr Keohane's report on hydrogeology, the issues raised have been adequately addressed and no adverse impacts remain. Overall, I consider that the PRD would not prevent or delay any groundwater body in attaining 'good' chemical and quantitative status as required by the WFD and no significant adverse effects would arise on the hydrogeological environment.

Other Matters / Submissions

12.12.26. A number of matters specific to soils and geology were raised in written format and at the oral hearing. These have been addressed in Mr Keohane's report. The matters raised included:

- extent of dewatering not adequately considered;
- concerns re: negative impacts on Craggs-Barrigone GWS;
- concerns re: loss of water for individual landowners (GWSs and private wells);
- concerns re: impacts on septic tank and percolation area;
- concerns re: impact on slatted/slurry tanks;
- presence of springs at Doohyle Lough not adequately considered;
- risk of peat slide;
- concerns re impacts on geomorphology of a private well as a result of dewatering at Clonshire

12.12.27. I am satisfied having regard to the details provided in the EIAR, RFI and the responses given at the oral hearing, and noting the assessment of the issues raised in Mr Keohane's report on Hydrogeology, the issues raised have been adequately addressed and no additional adverse impacts on the hydrogeology environment arise.

Inspector's Conclusion on Hydrogeology

12.12.28. I have considered all of the written and oral submissions made in relation to soils and geology in addition to those specifically identified in the assessment made by the consultant who reported on this matter.

12.12.29. Groundwater quality impacts arising from the construction phase and earthworks would be avoided, managed and/or mitigated by the measures that form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan and the Construction Erosion and Sediment Control Plan and the additions to the Schedule of Environmental Commitments.

12.12.30. There would be impacts on a number of existing wells which would be lost as a result of the proposed development. This will be mitigated by the provision of replacement wells or alternative water sources, as appropriate.

12.12.31. If a permanent reduction in yield at Craggs-Barrigone Group Water Scheme arises, and a suitable alternative borehole cannot be found, the developer has confirmed a permanent connection would be facilitated.

12.12.32. Impacts on groundwater-dependent habitats will be avoided through the alignment and design of the road development or mitigated through measures such as flow control and pollution control measures. There will be no groundwater lowering within groundwater bodies that support groundwater-dependent habitats within a European Site.

12.12.33. It is demonstrated that with the adoption of the mitigation outlined, there is no risk that the ground water bodies would fail to achieve or maintain the environmental objectives set out in the Water Framework Directive as a result of the proposed development, alone or cumulatively with other projects.

12.12.34. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on the hydrogeological environment.

12.13. Air and Climate

Introduction and Background

- 12.13.1. Air Quality and Climate as environmental factors are addressed in Chapter 13 of Volume 2 of the EIAR. At the oral hearing, Dr Edward Porter of AWN Consulting Ltd. presented a Brief of Evidence on these factors and addressed related concerns raised in submissions and objections in respect of the Approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). I also note that in the study team outlined in Appendix 1.1, Ms Clare Nolan of AWN Consulting Ltd. was referred to as a principal contributor to Chapter 13.
- 12.13.2. I have focussed on the impact of the PRD on Air Quality below, however, I have also considered climate and GHG emissions earlier in the Planning Assessment and recommend that these sections are considered together in respect of Air and Climate for the purpose of the Board's requirement to carry out EIA.
- 12.13.3. Air quality significance criteria were assessed by the applicant on the basis of compliance with the appropriate standards or limit values set out in the Air Quality Standards Regulations 2011, which give effect to Directive 2008/50/EC (Clean Air for Europe (CAFÉ) Directive). The limit values/standards of relevance based on the regulations are set out in Table 13.1 (Air Quality Standards Regulations) of Chapter 13 of the EIAR and are presented in Table 13 below.

Table 13 Air Quality Standards of relevance drawn from the Air Quality Standards Regulations 2011

Pollutant	Limit value for the protection of	Limit Type	Value $\mu\text{g}/\text{m}^3$
Nitrogen Dioxide (NO ₂)	Human Health	Hourly limit with ≤ 18 exceedances p.a.	200
		Annual Mean	40
Oxides of Nitrogen	Vegetation	Annual Mean	30

(NO _x)			
Particulate Matter (as PM ₁₀)	Human Health	24-hour limit for protection of human health with ≤35 exceedances p.a.	50
		Annual Mean	40
Particulate Matter (as PM _{2.5})	Human Health	Annual Mean	20 (1 st Jan 2020)
Benzene (C ₆ H ₆)	Human Health	Annual Mean	5
Carbon Monoxide (CO)	Human Health	8-hour Average	10,000 (or 10 mg/m ³)

12.13.4. Ireland's emission targets are 10.9 kt (85% below 2005 levels) for Sulphur Dioxide (SO₂), 40.7 kt (69% reduction) for NO_x, 51.6 kt (32% reduction) for non-methane Volatile Organic Compounds (NMVOCs), 107.5 kt (5% reduction) for NH₃ and 11.2 kt (41% reduction) for PM_{2.5} by 2030.

12.13.5. In relation to the **construction phase**, the applicant's assessment focussed on identifying the existing baseline levels of PM₁₀, PM_{2.5} in the region of the PRD by drawing on available EPA monitoring data. In addition, the impacts of the PRD on air quality as a result of dust were assessed through a qualitative assessment in accordance with 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' (TII, 2011). Impacts from construction phase traffic were scoped out from assessment on the basis that the criteria set out in the UK DMRB guidance (UK Highways Agency, 2007) on which the aforementioned TII guidance is based are not met. These criteria of relevance are set out in Section 13.3.1.1 of Chapter 13.

12.13.6. The air quality assessment for the **operational phase** drew on publications by the EPA and guidance documents published by the UK Department for Environment, Food and Rural Affairs (DEFRA) (2016 and 2018). TII refers to the UK DEFRA guidance and methodology in its document referred to above. Following initial scoping the key pollutants reviewed were NO₂, PM₁₀, PM_{2.5}, Benzene and CO, with particular focus on NO₂ and PM₁₀. The key pollutant concentrations were predicted for sensitive receptors, largely residential properties, considered likely to be impacted by the PRD in the opening year (2024) and design year (2039).

Regional Air Quality and Climate Impacts

12.13.7. The impact of the PRD at a national / international level was assessed using the procedures given by TII referred to above and the methodology provided in Annex 2 in the UK DMRB (2018). The assessment on regional air quality and climate focused on determining the resulting change in emissions of volatile organic compounds (VOCs), nitrogen oxides (NO_x) and carbon dioxide (CO₂).

Ecological Sites

12.13.8. Potential impacts on ecological sites from any changes in air quality (NO_x) and from NO₂ dry deposition arising from the operation of the PRD are addressed under the heading of Biodiversity and in the Appropriate Assessment, and the inter-relationships between these factors are also considered in Section 12.20 below. In line with the TII guidance on air quality as referenced above, only European sites within 200m of affected roads require quantitative air quality assessment. The applicant therefore focused the examination and assessment on the Lower River Shannon SAC at the proposed bridge crossing of the River Maigne (Biodiversity: KER 27) and at Churchfield /Robertstown at the western extent of the PRD, which is also within the River Shannon and at River Fergus Estuaries SPA.

Air Quality of the Baseline Environment

12.13.9. The assessment of the receiving environment is set out in Section 13.4 of Chapter 13 of the EIAR and discussed below. Shannon Airport meteorological data was examined for the period of 2014-2018, which found the predominant wind direction to be westerly to southerly with moderate wind speeds averaging 4.7m/s in 2018. The wind speeds and direction were considered in the applicant's assessment.

Local Air Quality

12.13.10. The applicant's estimates of the current background levels of PM₁₀, PM_{2.5}, Benzene and CO for the study area are set out in Table 14 below. NO₂ was obtained from monitoring using nitrogen dioxide passive diffusion tubes over a two-month period (December 2017-February 2018) at nine locations close to the route of the PRD and the results of the monitoring was combined with EPA monitoring data. NO_x was estimated from EPA monitoring data. PM₁₀ and PM_{2.5} monitoring program was carried out at a rural location, c.3km south of Askeaton over a 63-day period

(December 2017 to May 2018) by means of a Turnkey Instruments® Osiris environmental dust monitor and the results were combined with EPA background data. Benzene was estimated based on the EPA monitoring data in the region. The background level of CO was estimated based on the EPA monitoring data and reduction factors provided by TII and UK DEFRA (2018) documents.

12.13.11. The approximate locations of the baseline monitoring station (NO₂ diffusion Tube and PM Osiris Monitoring Location) are set out in Plate 13.2 within Chapter 13.

Table 14 Current background levels of NO₂, PM₁₀, PM_{2.5}, Benzene and CO

NO ₂	NO _x	PM ₁₀	PM _{2.5}	Benzene	CO
12 µg/m ³	10 µg/m ³	15 µg/m ³	10.5 µg/m ³	0.2 µg/m ³	0.6 mg/m ³

12.13.12. The estimated background air quality values for the project area are well below the limit values set out in the Air Quality Standards regulations 2011. These are set out in Table 13.1 of Chapter 13. The baseline assessment of the receiving environment has found that the area currently experiences good air quality. This is consistent with its largely rural location where the predominant land use is agriculture. While there are three EPA licenced sites within the study area, these sites have emission limits stipulated in their respective licences and as such would not reasonably impact significantly on the air quality of the study area. I note, as stated by the applicant, (Section 13.4.1 – Air Quality) that background concentrations for the study area incorporate emissions from these existing sources.

Predicted Impacts (Air Quality)

Construction Phase

12.13.13. It is submitted, and I would agree, that the greatest potential impact on air quality during construction would arise from dust and PM₁₀/PM_{2.5} emissions. Table 13.9 (Assessment Criteria for the Impact of Dust from Construction, with Standard Mitigation in Place) contained within Chapter 13 provides assessment criteria for the impact of dust, PM₁₀ and vegetation effects from construction sites for different scale projects (major, moderate and minor) by reference to the aforementioned ‘Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes’ (TII, 2011). The PRD would fit the category of a major construction project on a large construction site and by reference to Table 13.9 sets out that

soiling could arise up to 100m from source, PM₁₀ could arise up to 25m from source and vegetation effects could also arise up to 25m from source, all with standard mitigation in place.

Operation

Impacts on Local Air Quality along the PRD route

- 12.13.14. Road traffic is expected to be the dominant source of emissions during the operational phase. Assessment was undertaken using the UK DMRB air dispersion model performed at 22 sensitive receptors for the baseline scenario (2017), the opening year (2024) and the design year (2039). A description of the receptors modelled is presented in Table 13.11 of Chapter 13 and their location are illustrated in Figure 13.1 of Volume 3 of the EIAR. TII significance criteria were adopted for the PRD, and these are detailed in Tables 13.2, 13.3 and 13.4 within Chapter 13. In order to determine the degree of impact in the Air Quality modelling assessment, results of the 'do-something' scenario (with the PRD) were compared against the 'do-minimum' scenario (without the PRD).
- 12.13.15. The screening air dispersion modelling study found that predicted concentrations of CO, Benzene, NO₂, PM₁₀ and PM_{2.5} were below their respective limit values, at all residential locations including the 22 identified potential worst-case receptors, with the PRD in place.
- 12.13.16. Not all of the residential receptors along the route of the PRD were included in the modelling. This was explained by the applicant by reference to the guidance contained in the DMRB (UK Highways Agency, 2007) and TII (2011). It is clearly evident that properties along the existing N69 and N21 routes would experience beneficial air quality impacts due to the transfer of traffic from these existing roads onto the new road.
- 12.13.17. At the oral hearing it was explained that emissions of pollutants from road traffic would be better controlled by diverting traffic away from heavily congested areas such as Adare and more free flow of traffic than those experienced in more built-up areas with more frequent stop-start movement and queuing and with vehicles travelling at optimal speeds.

12.13.18. The applicant's assessment concluded that the impact of the PRD in place (do-something scenario) in terms of NO₂, PM₁₀, PM_{2.5}, CO and Benzene would be localised, imperceptible negative and long term when compared with the do-nothing / baseline scenario. Having evaluated the information provided and in particular by comparing the absolute concentration in relation to Air Quality Standards Regulations 2011 limit values set out in Table 13.4 the rating is accurate. Overall, I note that the levels of traffic-derived air pollutants for the proposed road development would not exceed the ambient air quality standards either with or without the PRD in place.

Impacts on Regional Air Quality

12.13.19. The impact of the proposed road development at a national/international level was assessed using the procedures given by TII guidelines referred to above and the methodology provided in Annex 2 in the UK Design Manual for Roads and Bridges (2018) and the UK Department for Environment, Food and Rural Affairs (2016). The assessment focused on determining the resulting change in national emissions reductions of NMVOCs, NO_x and CO₂. In relation to SO₂ which is also a national emission/pollutant source with a commitment for reduction, given the predominately rural nature of the site of the PRD and that the concentration of maximum permitted sulphur content in road fuels has been reduced over time, it can be concluded that the contribution of SO₂ would be negligible. Therefore, I am satisfied that no detailed monitoring or assessment of SO₂ is required.

12.13.20. The results of the applicant's assessment are presented in Table 13.14 (Regional Air Quality Assessment & Operational Phase Climate Assessment). In the design year of 2039, the predicted impact of the changes in AADT is to increase NO_x (i.e., NO and NO₂) levels by **0.163%** of the NO_x emissions ceiling and increase NMVOC levels by **0.019%** of the NMVOC emissions ceiling in 2039 under Directive 2016/2284 (On the Reduction of National Emissions of Certain Atmospheric Pollutants) / European Union (National Emission Ceilings) Regulations 2018. The table also includes an assessment of CO₂ emissions, a matter that I have dealt with separately in the Planning Assessment under the heading of Climate (Section 11.5).

12.13.21. Overall, it has been concluded that the likely impact of the PRD on Ireland's obligations under the targets to reduce certain atmospheric pollutants set out in

European Union (National Emission Ceilings) Regulations 2018 which gave effect in Ireland to Directive EU 2016/2284 are imperceptible negative and long-term. I would agree with this conclusion on the basis that the impact of the PRD on Ireland's legally binding obligations under the targets set out by the regulations are negligible.

Impacts - HGV Service Area

12.13.22. Given that the closest sensitive receptor is some 220m from the site and outside of the distance of 200m and other criteria set out in the UK DMRB guidance (UK Highways Agency, 2007) on which the aforementioned TII guidance is based are not met, a detailed assessment is not required. Notwithstanding this, an assessment of the HGV service area was carried out using the UK DMRB screening model and it assumed that 100% of the HGVs accessing the port accessed the service area. The assessment focussed on the two closest houses stated to be A00-011 and A00-021 and found that there would be an imperceptible increase in pollutant concentrations as a result of the HGV service area. I note that there are other houses in the same general location with similar separation distances. The impact of the proposed HGV service area on air quality and also on climate was found to be **imperceptible negative and long term**. Given the location and separation distances and the applicable guidance, I agree with this rating of significance.

Air Quality Impact to Sensitive Ecosystems (Operation)

12.13.23. NO_x and NO₂ are identified as of concern in relation to sensitive ecosystems. Section 13.5.3.2 of the EIAR provides a full description and assessment of the likely NO_x and NO₂ dry deposition rates (worst case) at the two European sites (Lower River Shannon SAC and River Shannon & River Fergus Estuaries SPA at Robertstown) were identified as being within a zone of influence of such impacts. The possibility of effects on other ecological sites / receptors was ruled out on the basis of being outside of the zone of influence. Tables 13.12 and 13.13 show NO_x levels and NO₂ dry deposition rates at 20m intervals along a 200m transect from the centreline of the PRD.

12.13.24. The potential impacts of NO_x (NO and NO₂) emissions and NO₂ dry deposition rates arising from the operation of the scheme on European sites within 200m of the PRD, have been included in the assessment by Dr Flynn under the heading of Appropriate Assessment and are also considered in the Biodiversity assessment.

12.13.25. I note and agree with the conclusions reached by Dr Flynn that the impacts identified, which relate to an increase in NO_x and NO₂ dry deposition from the operation of the PRD at the River Maigue bridge crossing within the Lower River Shannon SAC at Ardshanbally, do not represent a significant increase over the background levels at a distance of >20m from the roads centre line (for NO_x, marginally above the limit value for the protection of vegetation of 30 µg/m³ at 0m and 20m) and would not give rise to any adverse effects on the SAC site integrity. This conclusion was reached based on the marginal increase of ambient NO_x within a narrow band and that the habitats present are not considered sensitive to a marginal increased loading in Nitrates and taking the conservation objectives of the site into account. Similarly, based on the findings on the Appropriate Assessment carried out by Dr Flynn, the PRD would not have any adverse effect on the River Shannon and River Fergus Estuary SPA and the Lower River Shannon SAC. The PRD would cause a decrease in NO_x and NO₂ dry deposition rates at this location when assessed against the 'do nothing' scenario.

Mitigation Measures

Construction Phase – Local Air Quality

12.13.26. As stated above, a dust management plan has also been prepared and is included in Appendix 13.3 of Volume 4A of the EIAR. It includes a number of construction phase mitigation measures including:

- vehicles leaving the site would pass through a wheel wash facility;
- speed restriction of 20 km/hr would be applied as an effective control measure for dust;
- as main site traffic exists, inspections of public roads for cleanliness would be carried out;
- storage of overburden so that it would be protected from exposure to wind;
- use of bowsers or suitable watering equipment would be used during dry weather periods;

12.13.27. It is also submitted that the procedures of the dust minimisation plan would be strictly monitored and assessed. In the event of dust nuisance occurring outside of the site

boundary, procedures would be implemented to rectify this problem before resumption of operations.

- 12.13.28. I am satisfied that with the implementation of the measures outlined, dust emissions arising from the site would be managed so as not to cause any dust nuisance at nearby houses. I would note however that in respect of assessment of the impact of dust and soiling, the potential distance for significant effects provided in Table 13.9 already include standard mitigation measures. This point was also made by Dr Shanahan who presented expert evidence at the oral hearing on behalf of Mr and Mrs Murphy (Sch-9).

Operation Phase – Local Air Quality

- 12.13.29. I note that the applicant outlined that the trend in air pollutants from road-based vehicles is likely to reduce in line with Government and EU policy, for example with the expected update of EVs and improved engine technology. However, these improvements would occur with or without the PRD in place but nonetheless are relevant in noting the expected trend with respect to air quality. These improvements would also lead to a reduction in GHG emissions, a matter I have addressed in the planning assessment under the heading of 'Climate'.
- 12.13.30. It is also submitted, and I agree as set out under the heading of Population and Human Health (section 12.7) and Traffic (Section 12.18) in this EIA section of my assessment, that the PRD would facilitate more efficient traffic movement away from heavily congested areas, including Adare village, and would give rise to a more efficient journey where private and public road-based vehicles would be able to travel in optimal speeds without idling and delay occurrences, which would also lead to an improvement in air quality.
- 12.13.31. Beyond this, there are no specific measures proposed in relation to air quality during the operation phase. I would conclude that no such measures are required.

Monitoring for Dust Deposition (Construction)

- 12.13.32. There are currently no national or EU air quality standards with which levels of dust deposition can be compared. However, the Technical Instructions on Air Quality Control (TA Luft, 2002) provide a guideline for the rate of dust deposition of 350 mg/m²/day averaged over one year. This value is used by the EPA and applied as a

30-day average (+/- 2 days), in its document 'Environmental Management in the Extractive Industry (Non-Scheduled Minerals)' (EPA, 2006).

12.13.33. As set out in Section 13.6.3 of the Chapter 13, monitoring of construction dust deposition at nearby sensitive receptors (houses) during construction is also proposed to be carried out to check if mitigation measures are working satisfactorily. It is stated that this can (rather than would) be carried out using the Bergerhoff method in accordance with the German Standard VDI 2119. It is also stated that the TA Luft, 2002 limit value is 350mg/m²/day during the monitoring period between 28 and 32 days.

12.13.34. At the oral hearing, Dr Shanahan expressed concern that no commitment was given that the TA luft limit of 350mg/m²/day would in fact be complied with. In response, Dr Porter stated that it is the applicant's intention to endeavour to meet the TA Luft limit and that if the standard was not met, the applicant would carry out further mitigation. While the details of further mitigation are not set out, it is reasonable to assume that such measures would include enhanced dust suppression such as additional spraying of water. However, Dr Shanahan's point is well made and in order to strengthen the applicant's stated intention to adopt the TA luft limit (350mg/m²/day) as a limit across a 30-day average and to mitigate further as outlined should that limit not be met, I recommend that this measure is secured by adding it to the schedule of commitments in the event that the Board are minded to approve the road development.

12.13.35. No monitoring of dust is proposed for the operational phase which I am satisfied, having regard to the findings of my assessment on air quality, is not required.

Residual Impacts – Air Quality

12.13.36. With the adoption of the measures contained in the Dust Management Plan, I am satisfied that dust would not pose nuisance at nearby receptors. The PRD would lead to a more efficient traffic movement away from built up / heavily congested areas with positive impacts on air quality arising at those locations during operation.

12.13.37. Overall residual impacts on air quality during construction and operation phases would be no greater than imperceptible negative in the short term (construction) and long term (operation) phases.

Residual Impacts – Climate

- 12.13.38. I have set out my assessment on climate in the Planning Assessment above in which I focussed on the effects of GHG emissions from the PRD (construction and operation) on climate change. Following assessment, I concluded that the effect of the PRD phases would be slight negative (operation and maintenance phases) and moderate negative (construction phase).
- 12.13.39. I refer the Board back to Section 11.5 of my planning assessment (Climate) for further discussion and assessment. No significant environmental effects on climate would arise from the PRD.

Other Matters/Submissions

- 12.13.40. Issues were raised in observations/submissions, including Conor Enright (FI-2) and Dr Shanahan on behalf of Bryan and Iseult Murphy (Sch-9) regarding emissions, most notably dust impacts arising during **construction**. Askeaton-Ballysteen Community Council (Env-4 and Env-5) also express concern regarding the impact of dust on their flowerbed planting in the church graveyard proximate to the Askeaton roundabout.
- 12.13.41. A dust management plan (Appendix 13.3) has been prepared for the construction phase of the project and the appointed contractor would be required to adhere to the commitments set out in that plan. I have highlighted the main measures above. I am satisfied that the dust minimisation measures outlined, coupled with the monitoring of these dust suppression measures to verify their effectiveness at sensitive locations, would be sufficient to ensure that the air quality impacts during the construction phase would not be significant. To secure compliance with the TA Luft limit value of 350mg/m²/day applied as a 30-day average, an addition to the schedule of commitments is recommended as set out below in the recommended schedule of conditions. This includes where an exceedance of the TA Luft limit occurs in respect of dust levels, additional environmental commitments, for example more regular spraying of water would be implemented.
- 12.13.42. Other submissions, including Askeaton-Ballysteen Community Council (Env-4 and Env-5) and also Robert and Margaret Frost (Env-29) raised concerns regarding the air quality during the **operation** phase. In this regard, I have dealt with this matter above and note the results of the air dispersion modelling study which predicted that

concentrations of CO, Benzene, NO₂, PM₁₀ and PM_{2.5} were below their respective limit values at the 22 worst-case receptors identified. The impact of air quality on equine enterprises also raised by Mr and Mrs Murphy (Sch-9) is considered under the heading of Material Assets and Land – Agriculture (Equine).

- 12.13.43. An Taisce (Env-3 and FI-1) raised a specific issue in relation to the impacts of other forms of car-generated pollution, including micro-plastics. In response, the applicant referred to TII Guidance which in turn notes that although the DMRB model does not account for particulate matter (PM) emissions from ‘wear and tear’, where predicted concentrations are well below (<75% of the ambient limit value), then tyre and bear wear is unlikely to be a significant issue. Matters / concerns raised in submissions on climate have been dealt with in the Planning Assessment under the heading of Climate in Section 11.5.

Inspector’s Conclusion on Air Quality and Climate

- 12.13.44. I have considered all of the written and oral submissions made in relation to air quality and climate, in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and presented at the oral hearing, I am satisfied that a detailed assessment of the air quality on sensitive receptors in the area and at a regional level that could potentially be impacted by the PRD has been undertaken. I am also satisfied that a detailed assessment on the impacts of the PRD on the climate has also been undertaken.

Air quality

- 12.13.45. In respect of air quality, the residual impacts on air quality during construction and operation phases would be no greater than imperceptible for the construction and operation phases.

- 12.13.46. Potential air quality impacts would be avoided, managed and mitigated by the measures that form part of the proposed scheme, the proposed mitigation measures such as the dust minimisation plan and the commitments set out in the Schedule of Environmental Commitments and through suitable conditions.

Climate

- 12.13.47. The proposed road development has been assessed in the context of a broad ranging climate focussed policy, including the Paris Agreement, the European Green

Deal and EU Climate Law, The Climate Action and Low Carbon Development Amendment Act 2021 and Ireland's national Climate Action Plan 2021 (CAP21), all which set out aims and objectives for reducing emissions on the trajectory to a climate neutral Europe in 2050. The National Development Plan is aligned with the National Planning Framework, which collectively form Project 2040. The National Development Plan has been designed to ensure that it supports the government's climate ambitions set out in the Climate Action Plan 2021.

- 12.13.48. In the context of the pressing need to reduce greenhouse gas emissions, the clear intention at an EU and national level is that the decarbonisation of the transport network will require taking on board a range of measures including the move towards EVs and LEVs, the use of other forms of non-fossil based alternative fuels and the use of electricity generated from renewable sources for charging of batteries for EVs.
- 12.13.49. The binding requirements for the delivery of the road-based components of the TEN-T core and comprehensive network by 2030 and 2050 are a key pillar in achieving a high-quality and safer road network in which to allow for more sustainable transport brought about by reduced congestion, improved flow of traffic and corresponding reduction in transport emissions.
- 12.13.50. By 2030, the objective of Europe's proposed Sustainable Mobility and Transport Strategy is that there will be at least 30 million zero-emission cars in operation on European roads, and the overall aim is to make each mode of transport more efficient and by enabling increased transport activity by more sustainable forms of transport. Ireland's aim, as set out in Climate Action Plan 202, is to have almost one million passenger electric vehicles on Irish roads by 2030.
- 12.13.51. The greenhouse gas emissions that would be generated would not be so significant as to have a long-term detrimental impact on the Government's ability to meet its 2030 and 2050 carbon targets. Noting the calculations set out in the inspector's assessment and having regard to the objectives of the project and the strong policy support for the project at an EU, national, regional and local level, it can be concluded that the environmental effects on climate would be short-term moderate adverse during construction (where the greenhouse gas emissions are highest) and slight adverse during operation.

12.13.52. In respect of climate adaption, the proposed road development has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and climatic conditions. Flood risk has been considered in the hydrology assessment where the risk is deemed to be very low.

12.14. Cultural Heritage

Introduction and Background

12.14.1. **Archaeological, Architecture and Cultural Heritage** are collectively addressed in Chapter 14 of Volume 2 to the EIAR. At the oral hearing, Ms Faith Bailey of Irish Archaeology Consultants Ltd. presented a Brief of Evidence on these factors and addressed related concerns raised in submissions and objections in respect of the Approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). I also note that in the study team outlined in Appendix 1.1, Ms Grace Corbett of Archaeology Consultants Ltd. was referred to as a principal contributor to Chapter 14.

Study Area and Methodology

12.14.2. The study area is defined as an area measuring 250m from the edge of land take required for the proposed road development, which I note is significantly wider than the recommended 50m from centreline measurement of the proposed road set out in the 'Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes (2005b)'. A description of the receiving environment is set out in Section 14.3 of Chapter 14.

12.14.3. The assessment was informed by various information including the following:

- record of monuments and places (RMP);
- sites and monuments record (SMR);
- National monuments in State care database;
- preservation orders;
- the Register of Historic Monuments;

- topographical files of the National Museum of Ireland;
- cartographic sources;
- documentary sources;
- development plans;
- National Inventory of Architectural Heritage County Limerick (Architectural & Garden Survey);
- aerial photographs;
- LiDAR assessment;
- excavations bulletins (1970–2018);
- placename analysis.

12.14.4. The assessment was also informed by field inspections and geographical surveys, including LiDAR survey of the receiving environment and geophysical survey of selected areas along the route of the PRD.

12.14.5. The assessment methodology followed TII guidelines ‘Guidelines for the Assessment of archaeological heritage impacts of national road schemes’ (2005a) and ‘Guidelines for the assessment of architectural heritage impacts of national road schemes’ (2005b), as well as by the EIA guidance and advice notes of the Environmental Protection Agency (EPA). Relevant legislation, standards and guidelines are set out in Section 14.4.2 and sources of data used in the assessment are set out in Section 14.2.3 of Chapter 14.

Receiving Environment

12.14.6. Baseline information relating to the known and potential archaeological, architectural and cultural heritage assets in the receiving environment are contained within Appendices 14.1 – 14.9 and the heritage assets are illustrated in Figures 14.1-14.23 in Volume 3 of the EIAR.

Archaeology

12.14.7. Table 14.3 (Archaeological Heritage Sites within the Receiving Environment) of Chapter 14 of the EIAR provides a list of the 122 archaeological monuments and features, (AH1-122) identifying their location in terms of chainage and townland and

whether or not they are afforded statutory protection. Appendix 14.1 includes Historical and Archaeological background information and descriptions of the sites, and their features are set out in Appendix 14.2 (Recorded Monuments located within the receiving environment). It is noted that changes are proposed to the listed records and that four redundant records (AH18, 35, 38 and 50) are due to be removed at the next revision, as they have been classed by the DCHG as non-archaeological records. It is also submitted that the medieval settlement of Clonshire (AH 89) would not be included in the next revision as its current location is not known, however, it is stated that it may be located in the vicinity of Clonshire Castle–Hall House (AH 69).

12.14.8. It is stated that seven sites (AH 68, 75, 78, 79, 84, 88 and 118) are listed on the SMR and do not currently have statutory protection, however, these are expected to be added to the RMP at the next revision. It is also stated that there are a further number of archaeological sites (AH 67, 70 – 74, 76, 77, 80–83, 85–87, 94, 101, 103, 105–107, 109, 111–113 and 115), listed on the SMR, but without statutory protection, and that these have been preserved by record through archaeological excavation.

12.14.9. It is set out that three monuments within the study, a cashel at Milltown North (AH 22), a castle within cashel at Milltown north (AH 23), a souterrain at Milltown North cashel (AH 88) are each subject to a preservation order, while one is a National Monument, Desmond Castle, Adare (AH 91). Within the Limerick County Development Plan 2010-2016 (as extended), five sites are classified as protected structures (AH1, 53, 56, 69 and 91). Sixteen fulachtaí fia/burnt mounds (AH 68, 72–73, 75, 78–79, 81, 85, 87, 94 103, 105–106, 109, 111 and 113) were recorded within the study area as were three prehistoric sites (AH 51, AH 110 and AH 67).

12.14.10. It is also stated that 28 sites are classified as ringforts (AH 2-4, 6, 8, 10-12, 15-16, 19, 22, 25-27, 29-30, 32-33, 37, 39, 52, 90, 96 and 119-122), and a further 35 are classified as enclosures (AH 7, 9, 13, 20-21, 24, 31, 40-44, 46-49, 57-61, 62-66, 84, 92, 97, 99, 102, 104, 108,114 and 118). A crannóg (AH 34) is also located within the study area for cultural heritage.

12.14.11. Five medieval castles (AH 1, 17, 23, 69 and 91) have been recorded within the study area and there are a number of other medieval remains in Adare village, comprising

a church, graveyard and chapel (AH 53, 54 and 56). The medieval towns of Adare (AH 117), Rathkeale (AH 116) and Askeaton are all located either within or adjacent to the study area. The remaining sites listed include mills (AH 14, AH 36 and AH 98), burial grounds (AH 5, AH93 and AH95) and other miscellaneous sites.

LiDAR Sites

12.14.12. Following the route selection assessment, a **LiDAR** survey was undertaken along the preferred route corridor, which identified 93 previously unrecorded potential archaeological sites. It also provided additional detail on the morphology and condition of known monuments that are set out in Table 14.3 and referred to above. The LiDAR sites, (LI1-97) are presented in Table 14.4 (LiDAR sites within the receiving environment) and include 59 possible ringforts/enclosures/cashels, 16 field systems, five possible small medieval settlements and other potential archaeological features. The LiDAR report is contained within Appendix 14.3 (LiDAR Assessment) of Volume 4A of the EIAR.

Geophysical survey

12.14.13. A **geophysical survey** comprising use of a magnetometer and resistivity survey were also carried out under licence at 70 selected sites along the PRD. Table 14.5 presents new archaeological sites and features identified during the geophysical surveys. The geophysical report is contained within Appendix 14.5 (Geophysical report) of Volume 4B of the EIAR.

National Museum of Ireland topographical files

12.14.14. Information from the **National Museum of Ireland topographical files** is summarised in Section 14.3.4 of Chapter 14 in which the site of human burials in Robertstown (IA / 12 / 64, AH 5), a small bronze chisel (1961:275–8), bronze ring (1995:47), musket balls (1995:48–54) and copper coins (1995:55–66) from Cloonreask and a gold band from Rathkeale (record only) are listed. Full details of the finds are set out in Appendix 14.4 (Stray Archaeological Finds from within the Receiving Environment) of Volume 4B of the EIAR.

Architecture/Built Heritage Sites

12.14.15. Table 14.6 (Built Heritage Sites Within the Receiving Environment) of Chapter 14 of the EIAR presents details of 49 **built heritage (BH) sites**, (BH1- BH49), including 27

protected structures identified in the Limerick County Development Plan 2010-2016 (as extended) and 21 structures recorded by the National inventory of Architectural Heritage (NIAH). There is one Architectural Conservation Area (ACA) in the study area, at Adare (BH 35). While the PRD connects with Askeaton in Section B and Rathkeale in Section D, based on a review and scaling of the mainline alignment maps, I note that the PRD study area would lie outside of their respective ACAs. Further details of the BH sites are contained within Appendix 14.6 (Protected Structures and NIAH Structures within the Receiving Environment) of Volume 4B of the EIAR.

Designated Landscapes

12.14.16. A total of 18 designed landscapes, DL1-18 have been identified within the receiving environment of the PRD and are presented in Table 14.7 (Designed landscapes within the receiving environment) and further details are given in Appendix 14.7 (Designed landscapes within the receiving environment) of Volume 4B of the EIAR.

Cultural Heritage

12.14.17. Outside of formal designated buildings/sites/features, there are 132 various **cultural heritage sites**, (CH1-132), comprising vernacular buildings or other such sites and features including houses, bridges and limekilns and these are set out and detailed in Table 14.8 of Chapter 14 of the EIAR.

Townland Boundaries and Placename analysis

12.14.18. The study area comprises 74 **townland boundaries**, (TB1-54), including 54 which would be traversed by the PRD. The names and details of those traversed by the PRD are listed in Table 14.9 (Townland boundaries crossed by the proposed road development) of Chapter 14. An analysis of **placenames** was undertaken and detailed in Table 14.10 (Placename analysis) under the headings of Barony, Parish, Townland, Irish name and translation.

Areas of archaeological potential

12.14.19. A total of 23 **areas of archaeological potential** (AAP1-23) within the boundary of the PRD have been identified through desk research and the findings are presented in Table 14.11 (Areas of archaeological potential within the boundary of the

proposed road development) of Chapter 14. The area largely comprises streams, rivers, wetlands and areas of cut peat.

12.14.20. Archaeological investigations which have taken place in advance of other developments are illustrated in Figures 14.1–14.23 (Archaeology, Architectural & Cultural Heritage sites). Details of previous excavations undertaken within the receiving environment are set out in Appendix 14.14.

Predicted Impacts

Construction Impacts

12.14.21. Construction activities of the PRD would give rise to direct and indirect impacts on certain sites and features, and these are set out in Tables 4.12 to 14.18 of Chapter 14. I have examined the information in the tables and corresponding figures, and I have presented summaries of those sites that would have an impact rating of ‘significant’ or greater in respect of cultural heritage below.

12.14.22. In relation to potential impacts to **archaeological heritage assets recorded by the RMP and SMR**, the significance ratings for each asset are set out in Table 14.12 and the following table (Table 15) provides a summary of those deemed as having an impact rating of ‘significant’ or greater.

Table 15 Summary of construction impacts to archaeological heritage assets (extracted from Table 14.12 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	List of Assets with potential for impacts (significant or greater)
Direct negative	Profound Negative	5 sites	AH 7, AH 58, AH 60, AH 62 (enclosures), AH 8 (ringfort-rath)
Direct negative	Very Significant Negative	2 sites	AH39 (ringfort-rath), AH 75 (fulacht fia)
Direct negative	Significant Negative	1 site	AH 64 (possible enclosure)

12.14.23. In relation to impacts to **archaeological heritage assets identified during LiDAR survey** the significance ratings for each asset are set out in Table 14.13 and the

following table (Table 16) provides a summary of those deemed as having an impact rating of 'significant' or greater.

Table 16 Summary of construction impacts to archaeological heritage sites identified during LiDAR survey (Extracted from Table 14.13 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	List of Assets with potential for impacts (significant or greater)
Direct Negative	Profound Negative	6 sites	LI 18 (enclosure) LI 34 (possible enclosure), LI 40 (small enclosure/possible ringfort) LI63 (mound/enclosure), LI 75 (circular enclosure), LI 76 (oval enclosure)
Direct Negative	Very Significant Negative	2 sites	LI 57 (moated site), LI 74 (Possible farmshed)
Direct Negative	Significant Negative	15 sites	LI 4 (oval raised area/possibly modified natural platform), LI 7 (extensive field system), LI 9 (ringfort), LI 16 (possibly settlement cluster/enclosures), LI 17(probable ringfort), LI 22(extensive field system), LI 29 (enclosure), LI 30 (flattened terrace with possible associated field system), LI 36 (possible field boundaries), LI 56 (possible enclosure), LI 58 (possible row of settlement plots), LI 62 (enclosure), LI 64 (extensive field system), LI 67 (possible banked enclosure), LI 83 (possible ringfort).

12.14.24. In relation to impacts to **archaeological heritage assets identified during Geophysical survey**, the significance ratings for each asset are set out in Table

14.14 and the following table (Table 17) provides a summary of those deemed as having an impact rating of 'significant' or greater.

Table 17 Summary of construction impacts to archaeological heritage assets identified during geophysical survey (Extracted from Table 14.14 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	List of Assets
Direct Negative	Profound Negative	1 site	M-44 (possible enclosure)
Direct Negative	Very Significant Negative	9 sites	M-17, M-19/ER-8, M-20, M-21/ER-17, M-27, M-43 (enclosures/possible enclosure) M-22a-two possible ring ditches, M-26/ER-19 (extensive possible habitation site), M-32/ER-20 (possible habitation site)
Direct Negative	Significant Negative	6 sites	M-24 (extensive possible habitation site), M-28 (possible ditch), M-31/ER-25 (two possible features), M-34/ER-21 (linear features, possible ditches or trackway), M-38a (curvilinear features), M-41 (circular ditched features).

12.14.25. In relation to impacts to **Architectural heritage assets** the significance ratings for each asset are set out in Table 14.15 and none are rated as significant for any of the architectural heritage sites/assets within the study area as a result of construction.

12.14.26. In relation to construction impacts to **Designated Landscapes**, one such landscape, Landscape DL1 (Ballyclogh Demesne), is rated as significant direct negative, and others are set out in Table 14.16.

12.14.27. A range of **Cultural Heritage Assets** were identified along the route of the PRD. The significance ratings for each asset are set out in Table 14.17 of Chapter 14, and

the following table (Table 18) provides a summary of those deemed as having an impact rating of significant or greater.

Table 18 Summary of Construction Impacts to Impacts to Cultural Heritage Sites (Extracted from Table 14.17 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	Cultural Heritage Assets
Direct Negative	Profound Negative	1 site	CH 103 (pillbox)
Direct Negative	Very Significant Negative	1 site	CH 125 (curvilinear feature)
Direct Negative	Significant Negative	34 sites	CH 4, CH 5 (relic field system), CH 6, CH 8 (relic field system and linear and pit features), CH 11 (possible enclosure), CH 46 and CH64 (site of limekiln), CH 62 (site of quay) CH 55, CH 61, CH 63, CH 67 (vernacular building), CH 78, CH 82, CH 87, CH 89, CH 90, CH 91, CH 93, CH 95, CH 97, CH 98, CH 108, CH 115, CH 116, CH 10, CH 15, CH 23, CH 126 (Site of vernacular structure), CH 100 (vernacular farm structures), CH 101), CH 102 (gate post/standing stone), CH 121 (site of small structure), CH 132 (railway structure (culvert))

12.14.28. In relation to construction impacts to **Areas of Archaeological Potential**, the significance ratings for each asset are set out in Table 14.18. All sites, 23 in total, have been assigned a significance impact of moderate to profound which is reasonable on the basis that they relate to as yet undiscovered archaeological features.

12.14.29. In relation to construction impacts to **Townland Boundaries**, there would be a moderate negative impact on sections of 54 townland boundaries²⁰ from ground disturbance associated with the construction of the PRD.

12.14.30. In relation to construction impacts on **Unidentified Archaeological Features**, including features identified as potentially of archaeological origin in the geophysical survey, it is acknowledged, and I would agree that there is a resultant potential for moderate to profound direct negative impact on those features.

Operational Impacts

12.14.31. In relation to operational impacts to **archaeological heritage assets** recorded by the **RMP** and **SMR**, the significance ratings for each asset are set out in Table 14.19 (Operational Impacts: Archaeological Heritage). The following table (Table 19) provides a summary of those deemed as having an impact rating of significant or greater including one significant positive impact.

Table 19 Summary of operational impacts to archaeological heritage assets recorded by RMP and SMR (Extracted from Table 14.19 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	Archaeological Sites
Indirect positive	Significant Positive	1 sites	AH 117 (Adare Town)
Indirect negative	Significant Negative	1 site	AH 69 (Castle-Hall House at Clonshire More) ²¹

12.14.32. In relation to operational impacts to **archaeological heritage assets identified during LiDAR survey**, the significance ratings for each asset are set out in Table 14.20, and no assets are deemed as having a significant impact.

12.14.33. In relation to impacts of **Architectural heritage assets** the significance ratings for each asset are set out in Table 14.21 (Operational Impacts: sites identified by LiDAR) of Chapter 14, the following table (Table 20) provides a summary of those

²⁰ It is stated in the EIAR – Non-Technical summary that 49 of the 54 boundaries would be impacted on during the construction phase.

²¹ Updated from 'moderate negative' significance rating to 'significant negative' in the schedule of commitments dated 16th of February 2021 presented to the oral hearing.

deemed as having an impact rating of significant or greater including one significant positive.

Table 20 Summary of operational impacts to architectural heritage assets (Extracted from Table 14.21 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	Cultural Heritage Sites
Indirect Negative	Very Significant Negative	1 site	BH 26 (concrete pill box (3)
Indirect Negative	Significant Negative	7 sites	BH 3 (Castle Farm House), BH 9 (Cregaun House), BH 17 (St. Robert's RC Church) BH 20 (Ballycullen House), BH 25 (Concrete Pillbox (1), BH 29 (Duneeven House), BH 34 (Hall House)
Indirect Positive	Significant Positive	1 site	BH 35 (Adare ACA)

12.14.34. While the applicant lists Clonshire Castle as a Hall House classification under Built Heritage classification (BH 34), I note that Clonshire castle is classified as a 17th century house in the RPS in the current Limerick Development Plan and has the same classification in the draft plan that is currently in progress.

12.14.35. In relation to **operational impacts to designated landscape**, the significance ratings for each asset are set out in Table 14.22 and no such landscapes are deemed as having a significant impact as a result of the PRD.

12.14.36. In relation to **operational impacts to cultural heritage sites** the significance ratings for each asset are set out in Table 14.23 and the following table (Table 21) provides a summary of those deemed as having an impact rating of significant or greater.

Table 21 Summary of Operational Impacts to Cultural Heritage (Extracted from Table 14.23 of Chapter 14 of the EIAR)

Potential Impact Type	Significance Rating	Number	Cultural Heritage Sites
Indirect Negative	Very Significant Negative	1 site	CH 104 (Pillbox)
Indirect Negative	Significant Negative	3 sites	CH 37 (Ballingarrane /Kyletaun), CH 49 (Clonshire Bridge), CH 131 (Railway structure (culvert))

Mitigation

12.14.37. Mitigation measures are outlined in Section 14.6 (Mitigation and Monitoring) of Chapter 14 under the three sub-headings of Archaeology, Architecture and Cultural Heritage. Appendix 14.13 (Mitigation Measures and the Cultural Heritage Resource) outlines mitigation strategies and provides a series of recommendations that are proposed to ameliorate impacts where avoidance and preservation in-situ are not possible. I have considered these and provide a summary of the main mitigation measures below.

Summary of Mitigation and Monitoring for Archaeology (Section 14.6.1 of Chapter 14)

- **Exclusion zones** have been defined around a number of recorded monuments and archaeological sites (AH 4, 24, 64 and LI 13 and 25) located on lands required for the construction phase. It is acknowledged that the full extent of AH 64 (possible enclosure) is currently unknown and there is a potential significant impact to part of the monument during construction.
- **Measured surveys** of upstanding archaeological monuments directly impacted by the PRD (AH 7 and 39) would also be carried out. In addition, a full written and photographic record would be made of the setting of a number of assets.

- A **written and photographic record** would be made of the following assets in order to mitigate the operational impacts: AH 2, 4, 9, 16, 19, 21, 24, 29, 32, 33, 34, 41, 42, 57, 59, 61, 64, 69 and LI 10, 14, 28, 37, 38, 53, 54, 59, 69, 70.
- A **programme of archaeological test excavations** would be carried out prior to construction under appropriate licence and any archaeological features or deposits that would be encountered would be excavated and preserved by record (if that is deemed the most appropriate manner in which to proceed). It is stated that the test excavations would target the sites and areas of archaeological and cultural heritage potential (including **all** AAPs), as well as **all** known archaeological sites (AH), LiDAR sites (LI), newly identified archaeological sites resulting from geophysical survey (M/E) and previously undisturbed areas within the boundary of the proposed road development.

Summary of Mitigation for Architecture (Section 14.6.2 of Chapter 14)

- Concrete Pillbox BH 26 would be **preserved in situ** and its form and setting would be recorded²²;
- It is submitted that care would be taken to **avoid impact** with BH 1 and an area around the structure would be fenced off during construction if needed;
- A full **written and photographic record** would be made of the setting of Architectural Assets: BH 2, 3, 4, 6, 8, 9, 14, 17, 20, 25, 26, 27, 29, 32, and 34;
- Assets DL 1, 2, 3, 5, 6, 8, and 9 would be subject to a **written and photographic record** prior to the construction of the proposed road development in order to mitigate construction and operational impacts.

Summary of Mitigation and Monitoring for Cultural Heritage (Section 14.6.3 of Chapter 14)

- Pillbox CH 103 which would be **removed** and options for its **relocation** outside of the cutting would be explored. The advice of a conservation and

²² CH 103 and CH 104 are referred to in Section 14.6.2, however, as these relate to Cultural heritage assets, they are addressed in this assessment under 'summary of mitigation and monitoring for cultural heritage' below.

structural engineer would be sought to advise on the feasibility of relocation. Their form and setting would be recorded.

- **Exclusion zones** have been defined around a number of cultural heritage assets (CH 16, 92 and 104 -pillbox) located on lands required for the construction phase so that these assets are preserved in-situ. Pillbox CH 104 would be **preserved in situ** and its form and setting would be recorded.
- Prior to construction, railway culvert (CH 131) would be **preserved in situ**. The railway structure would be subject to a measured, written and photographic survey. All CH sites (CH 67, 100, 102, 115 and 132) that include built heritage remains and that would be directly impacted by the PRD would be subject to a detailed written and photographic survey and test trenching would be carried out where appropriate. Culvert CH 132 would also be subject to a measured survey and stone from this asset would be retained for future use.
- A full **written and photographic record** is proposed to be made for the setting of a number of Cultural Heritage Assets (CH 1, 3, 9, 14,18, 19, 20, 22, 29, 31, 35, 37, 40, 42, 43, 44, 45, 47, 49, 56, 60, 65, 68, 69, 85, 106, 107, 109, 112, 113, 119, 120, 123, 124 and 127).
- Archaeological **underwater or wade surveys** would be carried out at any natural watercourses to be impacted upon by the PRD in accordance with Ministerial Directions and under the supervision of a TII Project Archaeologist. This includes 12 streams that are identified in Section 14.6.3 of Chapter 14.
- Any currently surviving section of Townland Boundary (TB) to be impacted upon would be subject to a detailed **written and photographic survey** (to include test trenching where appropriate). This includes all townland boundaries listed in Table 14.9 except for TB 48-52, which has been previously impacted by the construction of the N21. These would be carried out in accordance with Ministerial Directions and under the supervision of a TII Project Archaeologist. Provision shall be made available for the excavation leading to preservation by record of any archaeological features

and / or deposits that may be identified if that is deemed the most appropriate manner in which to proceed.

Submission received from the Department of Culture, Heritage and the Gaeltacht (DCHG) (Env-8)

- 12.14.38. In its correspondence to the Board, the DCHG stated that the predicted impacts on the construction of the PRD upon the sub-surface archaeological remains identified (thus far) have been adequately addressed in the supplied documentation. The Department also noted that there is a high potential that evidence of underwater historical cultural heritage could be present within the footprint of the PRD and advises the carrying out of a detailed underwater archaeological impact assessment in advance of construction. This measure has been added to the schedule of commitments under ref: OH.46 presented to the hearing on 16th of February 2021.
- 12.14.39. The department also recommend that all mitigation measures detailed in Section 14.6 of the EIAR are carried out in full in advance of the commencement of any construction works and that the archaeological component of the scheme is overseen by a project archaeologist.
- 12.14.40. I am satisfied, as outlined above, that potential for impact on watercourses has been identified and adequately addressed by Ms Bailey at the oral hearing and I particularly note the stated intention to carry out confirmatory underwater archaeological assessments in advance of construction, informed by wade surveys to confirm the efficacy of relevant mitigation measures. It is acceptable that such surveys would be carried out pre-construction and would be carried out under the supervision of a project archaeologist appointed by TII. As stated above, this measure has been added to the Schedule of Commitments.
- 12.14.41. In relation to the wider recommendation that the archaeological component of the scheme is overseen by a project archaeologist, I am satisfied that this is committed to in the mitigation measures set out in Section 14.6.1 of the EIAR and reflected in the Schedule of Commitments that would form part of the contractual framework for delivery of the PRD.

Residual Impacts

12.14.42. It is submitted in the EIAR and at the Oral hearing that following mitigation measures outlined, there would be no significant negative residual impacts on archaeological, architectural or cultural heritage resource as a result of the construction or the operation of the PRD. I would note that, as set out in the EIAR, there would be an indirect significant positive impact to the historic village and conservation area at Adare (BH 35). Having regard to the information provided and my evaluation of same, I am satisfied that following the adoption of mitigation outlined, no significant negative impacts on the archaeological, architectural or cultural heritage environment would remain.

Other Matters/Submissions

12.14.43. During the course of the application, issues were raised on archaeological, architectural and cultural heritage. One submission by Askeaton-Ballysteen Community Council (Env-5) raised concerns that an area of local historical interest associated with 'Going's Cross' would be destroyed or lost. In response, Ms Bailey firstly set out the location which is c.970m north of the PRD at ch.52+050 and she provided an overview of its location in Figure 1 during her submission presented at the hearing. She also provided a summary of a reported ambush of Major Going in or around 13th of October 1821 when he is stated to have set out from Castletown for Rathkeale along the Curraheen Road. Based on the research presented and referenced, it is clear that the site of Going's Cross, located c.900m from the PRD is significantly far enough removed from the site of the PRD such that it would not be impacted by its delivery.

12.14.44. Concerns regarding an adverse impact on the setting of Clonshire Castle (ch.56+450) at Clonshire More, was also raised in a written submission by John Dillon (Env-17). Mr O'Donnell representing Bryan and Iseult Murphy (Sch-9) at the oral hearing also introduced concerns regarding the effects that the PRD would have on Clonshire Castle and Hall House. Mr O'Donnell described Clonshire Castle as a 12th century medieval castle structure, onto which a Hall House has been attached.

12.14.45. Clonshire Castle has been referenced in the applicant's assessment as both a Hall House (built heritage) and a Castle-Hall house (archaeology). I note that the structure is classified on the Sites and Monuments Record as a Castle-Hall House

classification under LI020-159 (Date of data update by source June 2021) in data held by the National Monuments Service and available to view on the (Historic Environment Viewer (archaeology.ie). This classification (Castle - hall-house) is set out in the definitions provided by the National Monuments Service (Archaeological Survey of Ireland) as

‘A building, usually two storeys high with a first-floor entrance, which leads to a single undivided chamber/hall open to the roof and extending the length of the building. They date primarily to the 13th and 14th centuries in Ireland, often continuing to be occupied, in a modified form, throughout the medieval period’.

- 12.14.46. In terms of the assessment of cultural heritage, the applicant applied an archaeology reference, AH 69. It is also set out by the applicant as a Hall House classification under the Record of Protected Structures (RPS) No. 266 and is assigned a Built Heritage (BH) reference of BH 34 in their assessment. Having reviewed the RPS, I have found a classification for the castle structure as a 17th Century House (rather than Hall House) in respect of BH 34. However, it is correctly recorded as a protected structure in the assessment.
- 12.14.47. As detailed in Tables 14.19 and 14.21 of Chapter 14 of the EIAR, prior to the application of mitigation, the predicted impact of the PRD on the castle as an archaeological heritage site (AH 69) is rated as significant indirect permanent negative (as updated in Corrigenda submitted to An Bord Pleanála on Monday 15th of February 2021). As a Built Heritage (BH) site, it is rated in the EIAR as significant indirect negative impact. Clear views of the castle are available from the local road to the north, which would be bridged over by the PRD.
- 12.14.48. Mr O’Donnell expressed concerns that the applicant’s expert had only carried out a windshield survey of Clonshire Castle and had not inspected the structure in any detail. In response, Ms Bailey explained that she obtained documented records of the structure and that her team colleagues had inspected the Castle structure.
- 12.14.49. Following mitigation, which I note includes a proposal for undertaking a full written and photographic record of the Castle structure setting and proposals for natural screening, as shown in a series of photomontages produced for the Landscape and Visual Chapter (Volume 5B of the EIAR, Viewpoint 20), I am satisfied that no

significant residual impact on the **castle-Hall-house** structure, represented as AH 69 (Archaeological Heritage) and BH 34 (Built Heritage) would remain.

12.14.50. Mr O'Donnell expressed his view that Clonshire Castle could or is worthy of being a national monument noting that that the fact that it is in private ownership is not an impediment for it being or worthy of being a national monument. The term 'national monument' as defined in Section 2 of the National Monuments Act (1930) means a monument 'the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto...'

12.14.51. In support of this argument, he referred to a legal case, **Dunne & Lucas v. Dun Laoghaire Rathdown county council** (hereafter referred to as Dunne & Lucas). In this regard, I have read the relevant legal cases and I firstly note that from the years 2003 to 2005 a series of court cases were brought in relation to the construction of the M50 motorway through the outer revetments of a medieval castle in Carrickmines in County Dublin. In February 2003, Dunne & Lucas challenged the validity of the M50 scheme on the basis of its potential impact on the remains of Carrickmines Castle and that no Section 14 consent had been granted. The High Court rejected the claims, however, an interlocutory injunction was granted in the Supreme Court. This injunction was subsequently lifted when, following an application by the Council, the Minister for Environment, Heritage and Local Government granted the consent. Subsequent issues regarding the transfer of functions and powers from the Commissioners of Public Works to the (then) Minister for Arts Culture and the Gaeltacht to the Commissioners of Public Works (Functions and Powers) Act, 1996 were remedied through the courts.

12.14.52. While I note the point made by Mr O'Donnell BL and that the Dunne & Lucas cases relate to a national monument, in the current application before the Board, as confirmed by Ms Bailey at the hearing, and as I have also checked from the appropriate records referred to above, Clonshire Castle is not in State Guardianship or the subject of any preservation order and is not designated a national monument under the National Monuments Act 1930, as amended. In support of his case that the structure is / or is worthy of being a national monument, Mr O'Donnell stated that the Murphys had received a form of consent, which he referred to as a 'section 247' consent from the OPW to restore the structure. I note that Section 14 of the National

Monuments Act 1930 (as amended) requires that the consent of the Minister is required for archaeological works at or near a national monument in the ownership or guardianship of the Minister or a local authority or to which a preservation order applies. No evidence of any such consent from the minister was furnished to the Board at the hearing and it would appear that the OPW have no function as the consenting authority and no evidence of any such consent was furnished.

12.14.53. As pointed out by Ms Bailey for the applicant and by Mr O'Donnell for the Murphys and as I have also set out above, the structure is recorded as a 'protected structure' within the current Limerick county development plan 2010-2016 (as extended). This matter is not in dispute. Mr O'Donnell informed the hearing that the curtilage of a protected structure also enjoys the 'protected' status in the same way as the structure itself. This point is also noted and not in dispute. He made the point that, in his view, the applicant failed to establish the curtilage and while the PRD could impact the curtilage of the castle, the applicant hadn't properly investigated the impacts that might arise on the curtilage. In response, Ms Bailey asserted that the castle is in ruinous condition and has no defined curtilage, for example, she stated that it has no defined garden or entrance. Accordingly, she stated that the indirect impacts on the structure were considered. In relation to the curtilage, she stated that she examined the LiDAR survey which flagged a potential field system (LI 68) 95m south of the PRD. I note that in Table 14.4 of the EIAR, this is set out as measuring 181m x 115m at ch.56+450. Ms Bailey stated that the PRD would not impact on the LiDAR anomaly as it is located outside of the PRD footprint. She also referred to geophysical surveys M-34 (magnetometry survey) and ER-21 (resistivity surveys) that were carried out by the applicant as part of their assessment. I note that the geophysical survey results within the boundary of the PRD are set out in Table 14.5 of Chapter 14 and include Site Code reference M-34/ER-21 at ch.56+150 to ch.56+500 in the townland of Graigue. It is referred to as 'Linear features, possible ditches or trackway - A range of linear and curvilinear features of unknown origin with little to no pattern in distribution' to the east of AH 69-Clonshire Castle-Hall-house and to the east of Areas of Archaeological Potential (AAP) 17. Within Table 14.18 (Impacts of Areas of Archaeological Potential) AAP 17 is classified as 'Clonshire River (Also Townland Boundary 33), presence of alluvium'.

- 12.14.54. I note the point advanced by Mr O'Donnell regarding the curtilage of a protected structure also having statutory protection under Part IV of the Planning and Development Act 2000, as amended. I have viewed aerial photography and I have viewed the castle from the adjoining local road and considered the points made by Ms Bailey at the oral hearing, and I am satisfied that the points advanced that the structure does not have a distinctive visual curtilage are accurate. I note that Mr O'Donnell disagreed with the applicant's finding that the structure is in a ruinous condition.
- 12.14.55. Issues were also raised by Mr O'Donnell and Dr Shanahan representing the Murphys, regarding the negative effects that vibration may have on the Castle-Hall House structure. This matter has been dealt with in the consideration of Noise and Vibration in Chapter 12. The key point made and which I accept is that the area of **significant rock where blasting may be required** is sufficiently removed from the Clonshire Castle so as to avoid adverse impacts from vibration on the structure as it is clearly outside the zone of influence for such vibration impacts including from rock blasting events. Overall, I am satisfied that Clonshire Castle has been adequately assessed in terms of cultural heritage in the EIAR.
- 12.14.56. In a submission from Conor Enright (FI-2) concerns have also been raised regarding the impact blasting could have on Ballyclogh House. In response, Ms Bailey referring to the applicant's noise and vibration assessment stated that Ballyclogh house is located outside the zone of influence with respect to vibration impacts from blasting. In relation to the specific consideration of Archaeological, Architectural and Built Heritage, it is stated that Ballyclogh House is located outside of the 250m study area and reaffirms its finding that the only impact would be in the operation phase which would be a moderate impact on the former demesne landscape, parts of which lie within the 250m study area. However, as outlined above in my assessment of Noise and Vibration, Ballyclogh House would also be offered pre- and post- structural condition surveys because as a protected structure, it is particularly sensitive. This has been added to the schedule of commitments (OH.47) presented at the oral hearing.
- 12.14.57. In relation to the submission from Francis and Anne O'Kelly (Submission Sch-34 and 35), whose home is proposed to be acquired at Ardshanbally, I note the applicant has listed the property and site as a cultural heritage site (CH 63 – vernacular

building) within Table 14.8 (Cultural Heritage Site within the receiving environment) of Chapter 14. At the oral hearing, the applicant stated its intention to add the property to the schedule of commitments in terms of undertaking a photographic and written record. This has not been included in the Additions to the Schedule of Commitments document submitted to the Board on the 16th of February 2021. This matter of its addition can and should be addressed by way of a condition requiring it is added to the schedule of commitments in the event the Board are minded to approve the development.

12.14.58. I am satisfied that matters raised in the relevant submissions and observations have been addressed by the applicant and do not alter the findings of impacts in my archaeological, architectural and cultural heritage assessment.

Conclusion on Archaeology, Cultural Heritage and Architectural Heritage

12.14.59. I have considered all of the written and oral submissions made in relation to archaeological, architectural and cultural heritage, in addition to those specifically identified in this section of the report. I am satisfied that a detailed assessment of the archaeological, architectural and cultural heritage resource that could potentially be impacted by the PRD has been undertaken.

12.14.60. There would be potentially significant negative direct and indirect impacts on a number of archaeological and built heritage sites which will be mitigated by exclusion zones, measured surveys, written and photographic records, a programme of archaeological test excavations carried out in accordance with Ministerial Directions issued to Limerick City and County Council under Section 14A(2) of the National Monuments Acts (1930 – 2014), preservation in situ or relocation of assets (in certain instances) and underwater or wade surveys on 12 streams carried out in accordance with Ministerial Directions issued to Limerick City and County Council under Section 14A(2) of the National Monuments Acts (1930 – 2014).

12.14.61. The archaeology aspects would be carried out under the supervision of a project archaeologist appointed by Transport Infrastructure Ireland. Potential impacts on unknown archaeological features will be mitigated or avoided through monitoring of construction works by an archaeologist and excavation where appropriate.

12.14.62. Where impacts have been identified, as set out above, these would be avoided, managed or mitigated by a range of measures forming part of the proposed

development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Archaeology, Cultural Heritage and Architectural Heritage** resource within the study area.

12.15. Material Assets and Land – Agriculture

Introduction and Background

- 12.15.1. Material Assets and Land - Agriculture is addressed in Chapter 15 of Volume 2 of the EIAR. At the oral hearing, Mr John Bligh of John Bligh and Associates presented a Brief of Evidence on this environmental factor and addressed related concerns raised in submissions and objections in respect of both the approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). The study area comprises the agricultural land and property that would be directly impacted by the PRD. This includes 105 agricultural properties on approximately 323ha of agricultural lands, 2.5ha of other lands and 5.4ha of public road.
- 12.15.2. The methodology adopted to assess the agricultural impacts included the evaluation of the baseline environment (i.e. types of farms and their sensitivity), an evaluation of the nature and magnitude of the effects on each farm and the effects on farming along the route of the PRD. Having considered the sensitivity of the baseline and the magnitude of effects, the impact significance is predicted for each land parcel affected by the PRD.
- 12.15.3. It is stated in the EIAR that the assessment comprised a desktop survey of project mapping and information followed by roadside surveys of areas potentially impacted by the PRD, followed by detailed farm surveys, landowner consultation and walkover surveys (where possible).
- 12.15.4. Mr Bligh stated that landowner consultation took place with 103 property owners and that of the remaining two landowners, one was not available, and the other did not participate in the consultation at that time. The applicant considers that the available data was sufficient for the agricultural impact appraisal. It is stated that walkover farm surveys of affected lands were conducted, and detailed questionnaires were

completed to inform the assessment of the impact of the PRD on agricultural land / farms and to explore mitigation measures that could be adopted to reduce negative impacts.

12.15.5. While this section of my report deals with all agricultural enterprises that would be impacted by the PRD, I have considered agricultural holdings where equine enterprise formed a part or the whole of the agricultural activity in greater detail under a specific heading of Materials Assets and Land – Agriculture (Equine) in Section 12.16 that follows.

Baseline / Existing Environment

12.15.6. The agricultural lands in the study area are described in Chapter 15 as comprising high-quality grassland. The topography varies from flat to undulating with elevations of between 10m and 50m.

12.15.7. The soils in the study area are set out by reference to Soils association (Teagasc, Cranfield University, 2014) and for the most part comprise, principally Elton (luvisols / soils with clay-enriched subsoils) and Ballinacurra (Calcareous brown earths/loamy soils) and to a much lesser extent Soil Associations Gurteen (typical Alluvial Gley), Boyne (Alluvial Gley soil) and peats.

12.15.8. There are 105 agricultural properties and farming enterprises that would be directly impacted by the PRD. The farming enterprises comprise specialist beef (36.8%), specialist dairy (14.2%), mixed grazing livestock (11.3%), specialist equine (5.7%), farms where the main enterprise is dairy (5.6%), leased lands (22.6%) and farms with significant equine interests (3.8%). A small number of farms are stated as having an element of forestry or peat harvesting activity as part of their greater farming enterprises. I note that farms 021 (John Brennan) and 026 (Ruairí Brennan) are categorised as 'leased-short term'. At the oral hearing, Mr Bligh stated that this was information available to him at the time of his meetings with landowners. However, Mr Bligh stated that he subsequently noted when Mr Sadlier attended the Brennan properties, that Mr Sadlier was informed that the three Brennan properties (021-John Brennan, 023-Sam Brennan and 026-Ruairí Brennan) operated as a single farm enterprise and he stated that this information could be corrected in his evidence to the hearing. This update is considered in my assessment. At the oral

hearing, Mr Richard Rea stated that Mr Ruairí Brennan grazes 15 cattle and 20 horses and this information is also noted.

12.15.9. The average farm size in the study area is stated to be 38.9ha, which is above the national (32.4ha) and county (34.5ha) average farm size. Details of the individual farm holdings within the study area are outlined in Table 15.6 and the location of farm holdings are illustrated in Figures 15.1-15.23 contained in Volume 3 of the EIAR.

12.15.10. The baseline rating applied to agricultural holdings was based on a number of factors including farm type, farm size, land quality, sensitivity to construction and operational impacts. The baseline rating criteria used are set out in Table 15.2 of Chapter 15. The magnitude of impact criteria are set out in Table 15.3 and the likely significance of impacts are set out in Table 15.4. Baseline ratings assigned for agricultural property are set out in Table 15.5.

Impacts on Agricultural Land

Operation Impacts

12.15.11. The predicted operational impacts on each farm, together with the specific mitigation are set out in Table 15.6 (Assessment of the Impact of the Proposed Road on Agricultural land). The primary impacts on agricultural farms are identified as including reduction in agricultural area/ land-take, land severance, impact on farm buildings/facilities and other associated impacts such as impacts on land drainage and services. I would agree as submitted, that while the loss of land would not be significant at a national or county level, it would be significant on some individual farms. In the absence of mitigation, increased management would also be required on farm holdings where severance of lands would result during operation.

12.15.12. A summary of the number of farms with varying magnitude and significance of impact is set out in Table 15.7 (Summary of the Impact on Agricultural land pre-mitigation). The magnitude of impact ranges from 'very low' to 'very high' with 43 farms (41%) falling into the 'high' or 'very high' category. These relate to farms that could either not continue or could continue but with significant management changes to their farming activities or enterprises.

- 12.15.13. The significance of impact prior to mitigation was determined by combining the magnitude of impact with the baseline rating for each farm. It is stated that there are nine farms (8.6% of total) where the significance of impact is rated as **profound**, and seven farms (6.7%) rated as **very significant**. These impacts are stated to be due to the individual or combined impact of land-take, land severance and / or the impact on essential farm buildings or facilities. On 26 farms (24.8% of total), the level of impact is rated as **significant**. On 32 farms (30.4% of total), the level of impact is rated as **moderate** and the remaining 31 farms are rated as having an impact as **slight** or **not significant**. One such farm (021) was stated to be leased/short term and rated as slight (prior to mitigation).
- 12.15.14. Should the PRD be approved, the resultant compulsory acquisition would include the acquisition of two (including one uninhabited) houses on agricultural properties and these are considered, together with other houses proposed to be acquired/ demolished from non-agricultural land under the heading of Material Assets – Non-agricultural in Section 12.17 below.
- 12.15.15. In relation to dairy farms, these are stated to be generally intensively stocked and, as a result, are particularly sensitive to a reduction in the area of the milking platform due to land take and / or land severance. Equine livestock used for the breeding and training of horses as also regarded in the assessment as sensitive to impacts and these impacts are considered under the heading of Material Assets and Land-Agriculture (Equine) in Section 12.16 below.

Construction Impacts

- 12.15.16. Construction phase impacts have been identified as comprising impacts on livestock arising from noise and dust that might adversely affect the wellbeing of farm animals.
- 12.15.17. I would also note and agree in terms of potential impacts on equine enterprises that horses are by their nature, sensitive to unexpected stimuli such as certain noise occurrences (in particular) and also visual impacts that may be associated with the construction and operation of the PRD. These construction phase impacts are also considered under the heading of Material Assets and Land-Agriculture (Equine) in Section 12.16 below.
- 12.15.18. Other impacts considered include changes to field/paddock layout, farm water and power infrastructure, livestock and grassland management, loss of farm buildings

and handling facilities directly impacted and loss or restricted access to facilities from lands severed by the proposed road and disturbance of field drainage and services resulting in potentially significant negative impacts on the operation of farm enterprises during construction.

12.15.19. In the absence of mitigation, increased management would also be required on farm holdings where severance of lands would result during construction.

Mitigation

Operation phase Mitigation

12.15.20. For the operation phase, impacts and proposed mitigation measures on identified individual affected agricultural properties have also been set out in Table 15.6 of Chapter 15. Details of mitigation measures are described in Section 15.5. The measures put forward include specific mitigation for each farm, largely including farm underpasses, overbridges, access tracks, boundary fencing and provision of field gates.

12.15.21. Fencing would follow 'Specification for Road Works – Fencing and Environmental Barriers' (TII, 2018). I have dealt with the fencing type proposed and concerns raised in submissions and objections concerning fencing in Section 11.6 (Road Design and Construction – Elements of Significance) in Section 11 (Planning Assessment) above. The key point I note is that TII have updated their policy/specification for fencing types along national roads, having more recently moved away from a post and rail fence as the rails were considered a hazard in the event of a road collision (with road boundary fencing) and the applicants' proposal is to provide fencing in accordance with the updated/current policy referred to above.

12.15.22. Outside of the main fencing types, where boundaries at houses are required to be removed, replacement boundary treatment is proposed on a like for like basis.

12.15.23. It is submitted that all existing land drains and watercourses severed by the PRD would either be directed to a culvert under the proposed road and / or associated side road realignments or would be incorporated into the new road drainage system. Assurances were given at the oral hearing that the new drainage system would not increase the risk of flooding. It is also stated that services that are interfered with

would be repaired/replaced without unreasonable delay. Ducting for the restoration of water and power supply services would be provided, as necessary.

- 12.15.24. It is further stated that where access would be removed or restricted, it would be restored. Details of proposed access accommodation structures serving individual landholdings are set out in Table 15.8 of Chapter 15. These largely comprise 24 farm underpasses, an access track across a stream and three overbridges. I am satisfied that these measures adequately address severance.
- 12.15.25. Environmental noise barriers (including supplementary equine barriers) proposed for the operational stage of the PRD are illustrated in Figures 12.1 to 12.23 of Volume 3 of the EIAR. The requirement for noise barriers is also discussed and assessed under the respective headings of Noise and Vibration in Section 12.8 above and Materials Assets and Land-Agriculture (Equine) in Section 12.16 below and in Section 14 (Assessment of Application for Approval of Schemes) of the assessment in respect of individual affected landowners. Chapter 13 (Air Quality and Climate) presents a series of measures to control dust. Specific mitigation measures on individual farms are set out in Table 15.6 of Chapter 15.
- 12.15.26. Measures such as compensation for land acquisition and disturbance have not been considered as mitigation. This is a matter to be agreed through a separate process, where in default of agreement, compensation is a matter to be decided by an arbitrator.

Construction phase Mitigation

- 12.15.27. Construction noise and dust would be mitigated through measures outlined in Chapter 12 (Noise) and Chapter 13 (Air Quality and Climate) and through good communication between the contractor and each affected landowner, to prevent undue disturbance/nuisance due to noise and dust and to allow for the movements of livestock away from the construction works location at critical times. Access to lands would be restored without undue delay and where possible with agreement of the landowner. Temporary fencing and access gates would be erected as required.
- 12.15.28. Where drainage would be impacted, temporary measures would be considered on a site-specific basis. Where access to either piped water or drinking points on watercourses would be affected, a temporary alternative water source or electricity supply would be provided.

Residual Impacts

- 12.15.29. A summary of residual impacts on agriculture during construction is provided in Table 15.9 of Chapter 15. Following mitigation, no profound or very significant residual impacts on agriculture are predicted to remain as a result of the proposed road development.
- 12.15.30. A summary of the applicant's rated residual impact on agriculture is set out in Table 15.9 of Chapter 15. For **22 farms, the residual impact has been rated as significant negative**. This includes two plots of agricultural land (035 and 103), both that include a house. On 49 farms, residual impacts have been rated as moderate negative and the remaining farms are rated as slight negative (27) or not significant (7). The contents of Table 15.9 were prepared on the basis of the three Brennan farms operating as individual enterprises and I note that while they have three different landholdings, they operate as one enterprise. Mr Rea disagreed with the finding of residual impact as moderate Ruairi Brennan's farm. While noting the point made, I also believe that given the mitigation measures proposed, including the underpass through farm 026, on balance the rating of moderate significant is fair and reasonable. I have dealt with other matters of relevance to the Section 49 application in Section 14 (Assessment of Application for approval of schemes) below, mainly under the heading of Section 49 – Site-Specific Objections.
- 12.15.31. Having regard to the assessment conclusion on noise and vibration and also air quality, as set out under separate headings, I do not consider that noise and vibration or impacts from dust or air quality are likely to result in significant impacts on agricultural practices or livestock. I have dealt with impacts on horses and equine enterprises separately in the following section of my assessment. Given that services can generally be reinstated, or alternative services provided, I do not consider it likely that significant residual impacts would arise as a result of this issue. I have revisited the loss/acquisition of the houses on agricultural properties in Section 12.17 (Materials Assets and Land – Non-Agriculture) below. While I note that some affected landowners dispute the applicant's rating of impact, I am satisfied that the impacts have been adequately assessed, and following the mitigation proposed, the findings of residual impacts are accurate. Generally, where residual impacts are rated as significant, these relate to significant reduction in agricultural area due to the main road alignment and in two cases the loss of a house.

Other Matters/Submissions

12.15.32. There are several objections by landowners who would be directly impacted by the compulsory acquisition of property and rights in relation to land specified in the three road schemes. As such I have dealt with these in that part of my assessment of the Section 49 application below in Section 14. In relation to other submissions raised relating to Agriculture on the Section 51 approval application, a submission from Simon White and others (FI-8) raised concern that the land take is substantial and unnecessary. I note that while there would be significant impacts arising from land take on some individual agricultural holdings, the proposed extent of land acquisition is reasonable and proportionate to the stated purpose of the PRD underpinned by the exigencies of the common good. This is a matter that I again revisit in my consideration of the Section 49 application in Section 14 below.

Inspector's Conclusion on Material Assets and Land - Agriculture

- 12.15.33. I have considered all of the written and oral submissions made in relation to Materials Assets & Land - Agriculture, in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and presented at the oral hearing, I am satisfied that a detailed assessment of the Materials Assets & Land - Agriculture resource that could potentially be impacted by the PRD has been undertaken. Each agricultural holding has been individually assessed and appropriate mitigation has been put forward.
- 12.15.34. The acquisition of the land required to construct the proposed road development would have a range of negative impacts on farms and their landowners and occupants, including impacts that are significant, very significant and profound. Other related impacts arise because of issues such as severance, impacts on farm viability, disruption and impacts on the availability of services. Following mitigation, significant impacts would remain for 22 landowners.
- 12.15.35. The loss of land and property required to develop the proposed road development would not be avoided, mitigated or otherwise addressed by means of condition. There is no mitigation for this impact within the Environmental Impact Assessment process. Impacts due to land severance are mitigated to a degree through the proposed provision of alternative access arrangements and services. However, the agricultural enterprises that are significantly adversely affected are likely to require

major changes to their operations, management and scale and there is no mitigation for this impact within the Environmental Impact Assessment process.

- 12.15.36. With regard to the other potential impacts assessed under this environmental heading, significant potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions.

12.16. Material Assets and Land – Agriculture (Equine)

Introduction and Background

- 12.16.1. Chapter 15 (Material Assets and Land-Agriculture) of Volume 2 of the EIAR, prepared by Mr John Bligh of John Bligh and Associates, addressed the impacts of the PRD on equine enterprises. It was dealt with as a specific topic in evidence to the oral hearing by Mr Michael Sadlier, a veterinary surgeon and a principal at Equine and Veterinary Consultancy (EVC). Both Mr Sadlier and Mr Bligh addressed concerns raised in submissions and objections in respect of both the approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). Other members of the applicant's team dealt with related matters.
- 12.16.2. The study area considered for Materials Assets and Land (Agriculture) is set out in Section 12.15 above. It is stated to comprise the agricultural land and property that would be impacted by the PRD. At the outset, I note that there is a strong equine industry in Limerick and the study area is well represented by equestrian centres, prominent stud farms and training enterprises. Mr Sadlier stated that he met with six of the ten equine stakeholders. He explained that three stakeholders politely refused to meet with him and that he discussed the one stakeholder that he did not contact with Mr Bligh and agreed with Mr Bligh's assessment and conclusions reached in respect of those properties.
- 12.16.3. In evidence given by Mr Sadlier to the oral hearing, equine enterprises were identified as comprising 10 predominately equine farms (Farm Reference No.s 023, 024, 040, 042, 062, 080, 084, 086, 089 and 090) representing 9.5% of the study area and five farms that have an equine element as part of a mixed farm enterprise (Farm

Reference No.s 007, 026, 046, 094 and 103) representing 2.9% of the study area. As clarified by Mr Bligh at the oral hearing and referred to in Section 12.15 (Materials Assets and Land (Agriculture) above, Farm 023 (Sam Brennan) and Farm 026 (Ruairi Brennan) together with John Brennan's farm (021) evidently collectively operate as one farm enterprise.

- 12.16.4. The equine farms were further classified in terms of their sensitivity as outlined in Section 3.5 of Mr Sadlier's evidence to the oral hearing. These comprise one farm rated 'very high sensitivity', two farms rated 'high sensitivity', five farms rated 'medium sensitivity' and seven farms rated 'low and very low' sensitivity.

Predicted Impacts

- 12.16.5. The predicted impacts in relation to all agricultural land, including land in respect of equine enterprises are set out in Table 15.6 of Chapter 15 of the EIAR.
- 12.16.6. In his evidence to the oral hearing, Mr Sadlier stated that impacts would likely arise on horses who become exposed to abnormal noise and visual stimuli during the construction phase of the development and that these impacts may be quite intrusive to horses in the **immediate vicinity**. Mr Sadlier explained that construction noise can trigger horses to go into either 'fight' mode where the horses assess the perceived threat of noise or 'flight' mode where they run away to escape the perceived threat generated by noise. He stated that scientific studies have shown that the nearer the unfamiliar or familiar stimuli are to a horse, the more likely the horse is to demonstrate the 'flight' response and similarly the further away the stimuli, the more likely a horse is to demonstrate the 'fight' response. He also stated, and I particularly note, that the issue with horses taking on a 'flight' response is that they can injure themselves, their riders and other personnel. In relation to the operational stage, Mr Sadlier stated that while noise and visual stimuli are associated with traffic, horses are adaptive to environmental changes and quickly adapt to aural and visual stimuli associated with normal traffic flow.
- 12.16.7. Mr Sadlier referred to the mitigation measures proposed in Chapter 15 (Material Assets and Land-Agriculture) of the EIAR. He also referred to Section 12.5 of Chapter 12 (Noise and Vibration), which includes a commitment to having a designated noise liaison officer who would follow up noise issues/complaints arising during the construction phase and the implementation of a public communications

strategy by the contractor prior to the commencement of any blasting of rock. I also note that Section 15.6.1 of Chapter 15 states that good communication between the contractor and the landowners would help to prevent undue disturbance to farm animals and would facilitate a lead-in period to allow animals to be moved away from the construction work during critical times.

- 12.16.8. Environmental noise barriers are proposed at several locations along the alignment of the PRD mainline. The specific locations are set out in Table 12.4 of Chapter 12 (Noise and Vibration) of the EIAR, and their locations are illustrated in Figures 12.1 to 12.22 in Volume 3 of the EIAR. For the most part, the noise barriers are intended to protect houses and their owners/occupants from noise impacts associated with road traffic when the road becomes operational. Supplementary equine noise barriers are also proposed at specific locations along the road alignment, largely as extensions of the main noise barriers. These would serve to provide additional noise and visual mitigation for equine enterprises. I draw the Board's attention to the changes to the location of supplementary equine fences contained in the Corrigenda submitted to An Bord Pleanála on Monday 15th of February 2021 during the oral hearing.
- 12.16.9. There was much discussion and debate during the course of the oral hearing regarding the impact of construction and operation noise on horses. A number of specific objections to the Section 49 application were raised on this matter.
- 12.16.10. Mr and Mrs Murphy (equine enterprise no.86) did not raise any objection in relation to equine matters in their written submission to the Board, prior to the hearing. However, at the hearing, Mr O'Donnell BL and his expert team raised a number of concerns regarding impacts arising from the PRD on the Murphy equine enterprise, disputing the applicant's finding of 'moderate' significant residual impact rating. Central to their argument was that Section D of the PRD (motorway) would be considerably closer to the Murphy equine activity than the applicant had assessed. It was asserted that the horses use all of the land and not just the arena and facilities that lie further away from the PRD mainline. At the oral hearing, Dr Shanahan and Mr Murphy both stated that a foaling shed and quarantine box are located in an area of land that comprises Clonshire Caste, which Dr Shanahan referred to as the Castle lands, located south of the PRD mainline alignment. Of relevance, it was asserted by Dr Shanahan that those facilities and areas and land used by horses directly

adjacent to the proposed land take were not considered in the applicant's assessment of environmental effects.

12.16.11. Dr D.P. Leadon, a specialist in equine medicine, representing Mr and Mrs Murphy at the oral hearing, stated that horses are 'flight' animals and distrust every change at first until they learn that a stimulus like a sound is not dangerous. Dr Leadon acknowledged that horses can habituate to certain types of background noise, giving an example of a horse becoming familiar with the sound of a train more quickly when it passes at regular times than if it were only to occur only once in a while. Dr Leadon also asserted that the habituation process can take between three days and two weeks. In his evidence to the hearing, he stated that horses do not tolerate noise levels above 100dB and that they have been known to demonstrate disturbed behaviour when they experience intermittent episodes of noise at 65dB which he stated can disrupt horses sleep pattern and give rise to adverse effects on their wellbeing, immune system and performance.

12.16.12. There was some disagreement on recollections regarding landowner meetings between the applicant's team and Mr Murphy at the hearing. On behalf of the applicant, Mr Bligh, dealing with the topic of Material Assets and Land - Agriculture stated that a pre-arranged meeting took place between himself (Mr Bligh) and Mr Murphy at Mr and Mrs Murphy's property. Mr Bligh stated that at that meeting, his understanding was that the foaling took place in the main yard and equine facilities located north of the PRD mainline. During the hearing, Mr Murphy disputed Mr Bligh's recollection, stating that no such meeting took place. Mr Murphy also stated that in addition to not having met Mr Bligh, he did not decline to meet with Mr Sadlier as was also claimed by the applicant's team, but rather requested that any meeting with Mr Sadlier would take place with his veterinary expert, Dr Leadon. While there is uncertainty regarding the applicant's representation at the Murphy's landholding, and consequently on whether or not the foaling normally takes place at the main facilities or elsewhere as described, I note that Mr Murphy has clarified relevant matters in respect of the operation of his enterprise at the oral hearing. These matters clarified include that foaling and quarantine both take place in the plot of land to the south of the PRD mainline away from the main facilities, and as I note, closer to the mainline and CPO lands than the main equine yard and facilities to the north. I have taken this

information presented by Mr Murphy and his representing team into account in my assessment.

- 12.16.13. It is understandable that the Murphys would be concerned regarding the potential for negative impacts to arise on their equine business during the construction and operation of the PRD. Mr Sadlier acknowledges that negative impacts would arise from unpredictable noise during construction and as stated above, he asserted that horses become habituated to operational road traffic in a short timeframe.

Operation Noise Impacts

- 12.16.14. The potential noise impacts during the **operation stage** would be mitigated by the proposal for noise barriers as illustrated in Figure 12.17 (Noise Monitoring Locations and Mitigation Section D, sheet 5 of 11), including in particular NB-023 (2.5m high from ch.56+400 to ch.6+875) to the north of the PRD mainline and NB-020 (2m high from ch.56+300 to ch.56+500) and NB-021 (2.5m high from ch.56+500 to ch.56+730) to the south of the PRD mainline, both at the location of the Murphy equine lands.
- 12.16.15. It is of relevance to note that at its closest point, the east gable of the Murphy house (D56-011) is located c.120m from the PRD mainline (bottom of embankment) and c.140m from the finished road (top of the embankment). The house is predicted to experience a noise level of 65dB L_{den} during operation/use of the road in the design year (2039) without mitigation in place and 57dB L_{den} during operation/use of the road in the design year (2039) with mitigation in place. By reference to the information submitted with the Corrigenda submitted to An Bord Pleanála on Monday 15th of February 2021, the main equine facilities (D56-016), c.240m to the north of the PRD mainline embankment would likely experience a noise level of 53dB L_{den} (with mitigation) while a neighbouring property (D56-013), c.50m to the south and closer to the PRD mainline embankment than the stated foaling shed location, is predicted to experience a noise level of 56dB L_{den} (with mitigation) during the operation/use of the PRD. The location of these receptors relative to the PRD are also illustrated in Figure 12.17.
- 12.16.16. These noise levels (with mitigation) are below the TII operational design goal of 60dB L_{den} which is set out in the guidelines as being applicable to new road schemes. The design goal has been applied to the operation phase of the current

road scheme as outlined in Chapter 12 (Noise and Vibration) and the justification for its use has also been set out. During operation, the main equine facilities would therefore experience a noise level below the aforementioned TII design goal of 60dB L_{den} .

12.16.17. In relation to the use of open fields adjacent to the PRD mainline, it is well understood that horses adapt to loud noises in open fields. This point was made by Mr Sadlier during the hearing in which he differentiated the situation where horses can choose to move away from noise sources in an open field as against those who are in facilities such as an arena and where they don't have such a choice. I also note that it is not uncommon to see a range of horse breeds and horse varieties grazing adjacent to busy roads without any apparent distress or disturbance.

Construction Noise Impacts

12.16.18. In relation to **construction impacts**, it is firstly of relevance to recall that, as set out in Chapter 12 (Noise and Vibration) of the EIAR, there is no published Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Table 12.1 (Maximum Permissible Noise Levels at the Façade of Dwellings During Construction Phase) in Chapter 12 sets out indicative noise levels that TII have deemed acceptable and included in their noise guidelines. I have set out the levels above in my consideration of noise as an environmental factor and as stated I note that the levels set out in the TII Noise guidelines align with those set out in BS 5228-1: 2009+A1 2014 (Part 1: Noise) and are appropriate for use in the assessment. The levels of greatest relevance are 70dB L_{Aeq} , 1hr (Monday to Friday 07.00 to 19.00 hrs) and 65dB L_{Aeq} (Saturdays 08.00 to 16.30hrs).

12.16.19. Table 12.7 (Indicative Construction Noise Calculations at Varying Distances) of Chapter 12 then sets out noise levels associated with construction activities at varying distances which I am satisfied follows the methods of calculation of estimated construction noise described in BS 5228-1: 2009+A1 2014 (Part 1: Noise).

12.16.20. By reference to the values set out in Table 12.7 referred to above and the separation distances between the PRD mainline embankment and the facilities and arena to the north (190m to the arena and 240m to the main facilities), the noise levels for the type of works comprising construction of embankments and the haulage of material

past the Murphy equine lands would range between 60dB L_{Aeq} at the arena and 63dB L_{Aeq} at the stables/facilities.

- 12.16.21. On the lands to the south where Dr Shanahan states in Section 6.3.5 of her Brief of Evidence presented on behalf of the Murphys that the foaling shed and quarantine box are located, c.75m and 70m respectively from the **closest construction boundary**, I firstly note that the road embankment is further removed, an estimated 100m from the location of quarantine box (as the stated closest structure) as broadly indicated on Figure 4 of Dr Shanahan's Brief of Evidence. By reference to Table 12.7 (Chapter 12) and noting the type of works at the Murphy lands outlined, the calculated noise level would be c.63dB L_{Aeq} at that location. It is acknowledged that the attenuation pond would be closer to the indicated location of the quarantine box, however, the excavation of an attenuation pond would be of short duration and would be of a nature and scale that would not reasonably give rise to unacceptable noise levels for the equine enterprise.
- 12.16.22. By reference to the permissible noise levels set out in Table 12.1, all of these noise levels lie below the noise level of 70dB L_{Aeq} that is deemed acceptable for weekday daytime and 65dB L_{Aeq} deemed acceptable for Saturday daytime construction activity.
- 12.16.23. The values set out in Table 12.7 were disputed by Dr Shanahan for Mr and Mrs Murphy, who contended that the actual noise levels would be considerably higher because of the applicant's underestimation of the noise levels from the likely combination of machinery at this location. Ms Harmon for the applicant disagreed with this assertion and stated that the noise limits set out in the noise assessment are a correct reflection of the likely noise considering the nature of the operations, largely consisting of fill and haulage, that would arise during construction.
- 12.16.24. I have read all of the information on the file including the information contained in Chapter 12 (Noise and Vibration) and I have also listened to and considered the submissions made at the oral hearing, as well as the submissions made in writing. I am satisfied that the applicant's noise assessment follows appropriate guidance and recognised engineering standards and is an accurate and fair representation of the noise levels that would likely arise during construction. While I note that the level of 70dB L_{Aeq} (weekday daytime) and 65dB L_{Aeq} (Saturday daytime) relates to maximum

permissible noise levels at the façade of dwellings during construction and are not therefore specific limits for noise tolerance thresholds for horses, they provide a reasonable understanding of the acceptable level of construction noise for sensitive receptors.

- 12.16.25. A point that was also asserted by Dr Shanahan, is that the horses use all of the lands including the lands directly adjoining the PRD site and the noise generated during construction would be excessive and unacceptable. As stated above, Dr Shanahan also asserted that the noise likely to be generated at these locations was not assessed. In considering this argument, I am not aware of any scientifically based acceptable noise thresholds/limits that apply to horses in either buildings or open fields. Dr Leadon's asserted that horses do not tolerate levels above 100dB and have been known to demonstrate disturbed behaviour when they experience intermittent episodes of noise above 65dB, this was disputed by Mr Sadlier for the applicant. Dr Leadon did not relate this value to any specific scientific standard, however he provided references to scientific research studies at the end of the written copy of his submission. I have read and considered these studies and I set out a number of points below.
- 12.16.26. The main study listed in the references is that of a literature review by Cornelius Huybregts, "C.N. (2008) *Protecting horses from excessive music noise – a case study*" 9th International Congress on Noise as a public Health Problem (ICBEN) 2008. It relates to a particular music festival, known as 'The Big Day out', which occurred at Flemington Racecourse, the site of Australia's most famous horse race, the Melbourne Cup.
- 12.16.27. The study was referred to in a general way by Dr Leadon and also by Mr Sadlier at the oral hearing. In the study of noise impacts on horses from the music festival, it was found that horses **in stables** exposed to noise levels of 54-70dBA $L_{Aeq, 15 \text{ minutes}}$, generally showed only low levels of agitation with exceptions relating to visual stimuli from funfair rides and high-pitched singing (squeals and screeches). The conclusion set out in that study was that while the findings of the literature review gave useful background, it provided little guidance on setting criteria. The study recognised 65dBA L_{Aeq} **as a recommended criterion for horses in stables** but stated that it is one which is **somewhat arbitrary**. Of note, there is no criterion, recommended or otherwise, set out in the same study for **horses in open fields**.

- 12.16.28. It is also of relevance to note by reference to the same literature review, that horses participating in races were found to have been exposed to 'average' noise levels of 65-70 dBA L_{Aeq} **in racing stalls** and 70-90 dBA L_{Aeq} when **moving in and out of stalls**.
- 12.16.29. I also note that the literature review set out includes the following:
- 'People who worked with horses felt that horses were likely to be noise sensitive, however, no indication of how much noise would be acceptable was identified by the same people working with and handling horses, except to note that loud bangs, such as that associated with fireworks would not be acceptable.'
- 12.16.30. It is set out in the study that the equine veterinarian's overall opinion was that the impacts on the horses were acceptable.
- 12.16.31. Having heard and considered all of the evidence of the equine experts that was presented at the oral hearing and reviewed the referenced scientific research, including the study (literature review) outlined above, there is no scientifically backed threshold/limit for construction noise levels for horses advanced that is applicable to road construction. The aforementioned recommended criterion of 65dBA L_{Aeq} for horses **in stables** related to a **music festival** and is of limited value given the entirely different noise generating activities and circumstances that apply in a road construction project.
- 12.16.32. Within this aforementioned literature review, no noise criterion that horses can tolerate in open fields has been identified. Similarly on a high-level review of other scientific studies referenced in Dr Leadon's submission, no such noise threshold/limits are identified.
- 12.16.33. The use of noise monitoring would be employed with respect to the PRD during the construction phase to ensure construction noise limits outlined in Table 12.7 are not exceeded at the specified distances and in the event of any exceedance, operations causing such exceedance would be required to cease until suitable protections are adopted to prevent any further exceedance. I am satisfied that this approach as part of the protection of equine stock from adverse impacts from noise during construction is reasonable and acceptable.

- 12.16.34. In relation to the issue of sleep disturbance in horses, Dr Leadon stated that there haven't as yet been any specific studies on the exact sound levels that affect horses' sleep. He referred to the US Environmental Protection Agency having set a maximum of 45dB to protect humans from sleeping interference and suggests that for a flight animal like a horse, at least the same norm should be applied.
- 12.16.35. In considering this point, it is firstly recognised that horses have a different sleep pattern to humans. I am aware that adult horses generally require between 2.5-5 hours sleep a day and sleep for generally 80% of their sleep cycle while standing. However, horses need to spend a minimum of 30 minutes lying down per day for the 3.5-4.5 minutes of rapid eye movement (REM) sleep needed to achieve a full daily sleep cycle.
- 12.16.36. No night-time works have been identified at locations that are in close proximity to the Murphy lands. It is also stated in Chapter 12 (Noise & Vibration) that any night-time work locations would be addressed specifically to take the pre-existing environment into account. Table 12.2 (Example Night-Time Construction Noise Thresholds at Dwellings) of Chapter 12 includes threshold values based on BS 5228-1: 2009 +A1 2014. While acknowledging the different sleep patterns of horses, there is no evidence advanced that horses would not be able to gain the sleep that they require or that their sleep patterns would be disturbed by the construction of the PRD.
- 12.16.37. Ms Harmon noted at the oral hearing that while it is accepted that horses use the open fields adjacent to the lands proposed to be acquired by CPO, in addition to the arena and buildings/facilities, there are also other areas within the overall landholding that are further removed from the construction noise source.
- 12.16.38. Construction noise barriers are referenced as a means of mitigating any expected noise exceedance of the recommended noise criteria in Chapter 12 (Noise and Vibration) and as I have set out above, following monitoring, which is also proposed, should any exceedance actually occur, there would be a contractual requirement that operations causing such exceedance would be required to cease until suitable protections are adopted to prevent any further exceedance.
- 12.16.39. I am satisfied that the noise levels committed to by the applicant for the construction phase align with the relevant TII guidelines and the recognised British Standard (BS

5228-1:2009+A1:2014). They are the noise levels applied for all new road schemes and are acceptable. I note that a number of measures for the control of noise are set out in BS 5228-1: 2009+A1:2014 and those of relevance are also committed to by the applicant as I have detailed in consideration of noise and vibration in Section 12.8 above.

12.16.40. Similar concerns regarding noise impacts and the need for construction noise barriers were raised in the Section 49/CPO module of the oral hearing by Mr Richard Rea on behalf of a number of his clients who own and operate equine enterprises and equine grazing lands proximate to the PRD. I have dealt with these concerns in Section 14 of my assessment where I have reached similar conclusions.

12.16.41. Dr Leadon also advanced arguments that dust arising from construction would contain fungal moulds including *Aspergillus spp.* and that both the dust and the fungal moulds would have a damaging effect on the respiratory systems of horses resident on the stud farm. He also stated that noxious gases from exhaust fumes during the operation phase would pose a threat to respiratory systems of the horses on the Murphy lands, in a manner akin to that of dust and fungal moulds. In considering this matter, the type of works at the location of the Murphy farm have been outlined earlier and generally comprise filling to create the embankment and hauling of inert material to and past the Murphy lands.

12.16.42. I note that dust is likely to be generated, however, a dust management plan including dust minimisation measures to be implemented during the construction phase have been detailed in Appendix 13.3 of Chapter 13. Furthermore, the procedures within the dust management plan would be monitored. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust could be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations. I am satisfied that fugitive dust emissions from the site are expected to be insignificant and would not cause any nuisance to horses in adjoining fields. As I have also set out above in consideration of Air and Climate, in order to strengthen the applicant's stated intention to adopt the TA luft limit 350mg/m²/day as a limit (as a 30-day average) and to mitigate further as outlined should that limit not be met, I recommend that this measure is secured by including it in a condition should the Board be minded to approve the development.

- 12.16.43. A scientific basis for construction works for the PRD generating a fungal mould at this location has not been set out. Therefore, the argument advanced in respect of dust and fungal mould having such an effect on horses resident on the equine farm cannot be sustained.
- 12.16.44. In relation to the operation phase, the screening air dispersion modelling study found that predicted concentrations of CO, Benzene, NO₂, PM₁₀ and PM_{2.5} would lie below their respective limit values at all residential locations including the 22 identified potential worst-case receptors, with the PRD in place.
- 12.16.45. I have set out my further considerations on air quality in Section 12.13 (Air and Climate) above. There is no scientific evidence presented to support the assertion that during the operation, noxious gases from exhaust fumes would pose a threat to respiratory systems of the horses on the Murphy lands.
- 12.16.46. In overall conclusion on this matter, I concur with the applicant's assessment of the Murphy farm as 'moderate' in terms of significance rating and this rating takes all of the impacts including the loss of land and impact on existing field boundaries into account. There is no operational severance on the Murphy lands as a result of the PRD as the L-8025 road fronting the Murphy lands to the south would remain. The points made in the observer's submission at the oral hearing are noted, and while I acknowledge that the equine enterprise would likely require increased management during the construction works at this location, I am wholly satisfied that the equine enterprise can continue without significant adverse environmental effects.
- 12.16.47. However, I believe that in recognition of the level of equine enterprises across the PRD, including the Murphy enterprise, a requirement for the appointed contractor to employ a qualified veterinary surgeon with equine expert specialism to liaise with landowners of equine farms/enterprises to ensure that equine welfare is adequately addressed during construction should be added to the Schedule of Environmental Commitments. I recommend that this is addressed in the conditions attached should the Board be minded to approve the development.

Residual Impacts

- 12.16.48. The results of the nine equine property assessments found that with the adoption of mitigation, four holdings would be significantly impacted (three directly - Farm References 080 (Hayes), 084 (Cahill) and 089 (Myers and Barnwell), and one would

be significantly indirectly impacted - Farm Reference 090 (Clonshire Equestrian Centre). Remaining farms with an equine component, five in total, would be moderately affected (Farm Reference 023 (R Brennan), 024 (T Kelly), 040 (G Hayes), 042 (Leonard) and 086 (Murphy). Having regard to the applicant's assessment of Material Assets and Land – Agricultural and to the equine Brief of Evidence presented, and to my own assessment above, these findings are generally an accurate reflection of the residual impacts. In relation to Farm Reference 023, while this is listed in the equine Brief of Evidence as representing Ruairí Brennan's farm, by reference to Table 15.6 (Assessment of the Impact of the Proposed Road on Agricultural land) in Chapter 15 and as became evident at the oral hearing, it represents Sam Brennan's farm which as set out earlier is predominately equine. Ruairí Brennan's farm reference is 026. However, it is relevant to note as I have set out above, at the oral hearing, Mr Bligh stated that his more recent understanding following landowner consultations with Mr Sadlier (which occurred subsequent to his meeting with landowners) is that the three Brennan farms operated as one farm enterprise.

Inspector's conclusion on Material Assets - Equine

- 12.16.49. I have considered all of the written and oral submissions made in relation to Materials Assets and Land – Agriculture (Equine), in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and presented at the oral hearing, I am satisfied that a detailed assessment of the Materials Assets & Land – Agriculture dealing with equine enterprises that could potentially be impacted by the PRD has been undertaken.
- 12.16.50. It is accepted that impacts on horses can arise from abnormal noise and visual stimuli during the construction phase of the development and that this may be quite intrusive to horses in the immediate vicinity. However, horses are adaptive to environmental changes and quickly adapt to aural and visual stimuli associated with normal traffic flow. In this regard and following mitigation proposed, including noise barriers and supplementary equine barriers where deemed required, impacts would be reduced to an acceptable level so that no significant impacts would arise on equine enterprises from noise or visual stimuli.

- 12.16.51. The results of the nine equine property assessments found that with the adoption of mitigation, four holdings would be significantly impacted (three directly and one indirectly). These impacts are due primarily to land loss and land severance, loss of direct access, and in one case acquisition of a farmyard and farm buildings which cannot be mitigated through the EIA process. These impacts are typical of other major road infrastructure development projects and are acceptable when the wider public interest that would be served by the project is considered.
- 12.16.52. It can therefore be concluded that the proposed road development would not have any unacceptable direct, indirect or cumulative impacts on Materials Assets and Land – Agriculture (Equine).

12.17. Material Assets – Non- Agriculture

Introduction and Background

- 12.17.1. Material Assets and Land – Non-Agriculture is addressed in Chapter 16 of Volume 2 of the EIAR. At the oral hearing, Mr John Bligh of John Bligh and Associates presented a Brief of Evidence on this factor and addressed related concerns raised in submissions and objections in respect of both the approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended).
- 12.17.2. The assessment is informed by information gathered through desk studies, site visits and during consultations with affected non-agriculture property owners. The extent of the study area is defined as the lands within the proposed development boundary. There are 72 non-agricultural properties identified that would be directly impacted by the PRD, comprising 43 residential properties, one residential and commercial property, two commercial properties, three development sites and 23 properties comprising land. With respect to non-agricultural properties, as updated at the oral hearing, the land take area would consist of a permanent acquisition of 19.8ha of non-agricultural lands.

Baseline/Existing Environment

- 12.17.3. The criteria for baseline rating are set out in Table 16.2 of Chapter 16. The magnitude of impact criteria, ranging from 'very low' to 'high' are set out in Table 16.3 and the likely rating of impacts are set out in Table 16.4.

Impacts (Operation and Construction)

- 12.17.4. The delivery of the PRD would involve the acquisition of seven houses on non-agricultural properties, one of which is uninhabited, and two houses on agricultural properties, one of which is also uninhabited. Impacts also include acquisition/reduction in area of non-agricultural properties/land and adjacent areas of public road, as well as impact on property boundaries.
- 12.17.5. Table 16.5 sets out the applicant's assessment of the impact of the PRD on the non-agricultural property. Table 16.6 provides a summary of the impacts that are predicted without mitigation. Measures to mitigate the adverse effects of the PRD are also set out in Table 16.5 and 16.6. Table 22 below provides a summary of the non-agricultural properties that would experience impacts rated as significant, very significant and/or profound (pre-mitigation), together with their impact rating, mitigation proposed and predicted residual impacts.

Table 22 Non-Agricultural Properties (summary of impacts, mitigation and residual impacts).

Property No., type and size	CPO No.	Impact Details	Impact Significance	Mitigation	Residual Impact
3 Development Land (0.1773ha)	105	Acquisition of the entire property.	Very significant	None	Very significant
5 Development Land (5.0794ha)	111	Acquisition of plot south of disused rail line and east of port access road; Reduction in area. Impact on property boundary.	Significant	None	Significant
9 Residential (0.0435 ha)	121	Reduction in curtilage area of property; No impact on existing property access; Impact on property boundary.	Significant	Replace affected property boundary.	Significant
11 Commercial (1.4222ha)	128	Reduction in area of property; No impact on existing property access; Impact on property boundary.	Significant	Replace affected property boundary.	Significant

12 Land (2.0584ha)	129	Acquisition of the entire property.	Very significant	None	Very significant
14 Residential (0.0135ha)	135	Reduction in curtilage; Impact on existing Entrance; Impact on property boundary.	Significant	Restore entrance. Reinstate affected Property boundary.	Slight
15 Residential/House (0.1722ha)	211 & 220	Acquisition of the entire property including a house.	Profound	None	Profound
22 Development Land (0.0036ha)	308	Reduction in area and public road. Alteration to site access.	Significant	Provide alternative access to the site off the side road.	Slight
30 Land (0.2635ha)	329	Acquisition of the entire property	Very significant	None	Very significant
32 Residential/ House (0.4293ha)	331	Acquisition of the entire property including a house.	Profound	None	Profound
33 Residential/ House (0.5469ha)	332 & 222	Acquisition of the entire property including a house.	Profound	None	Profound
35 Residential/House (0.5469ha)	336	Acquisition of the entire property including a house.	Profound	None	Profound
36 Residential / House (0.0569ha)	339	Acquisition of the entire property including a house.	Profound	None	Profound
44 Residential (0.0266ha)	429	Reduction in curtilage and public road; Impact on existing entrance; Impact on property boundary.	Significant	Restore entrance and access. Reinstate affected property boundary.	Slight
49 Residential (0.0176 ha)	441	Reduction in land and public road; Impact on property boundary.	Significant	Restore entrance and access. Reinstate affected property boundary.	Slight

51 Land (0.1430)	443	Acquisition of the entire property.	Very significant	None	Very significant
53 Residential (0.0199ha)	447	Reduction in curtilage area; Impact on existing entrance. Impact on property boundary.	Significant	Restore entrance and access. Reinstate affected property boundary.	Slight
54 Residential (0.0130)	450	Reduction in curtilage area; Impact on existing entrance. Impact on property boundary.	Significant	Restore entrance and access. Reinstate affected property boundary.	Slight
55 Land (0.3023)	451	Acquisition of the entire property.	Very Significant	None	Very Significant
56 Residential (0.0067ha)	453	Reduction in curtilage; Impact on existing entrance. Impact on property boundary.	Significant	Restore entrance and access. Reinstate affected property boundary.	Slight
57 Residential (0.0007ha)	458	Reduction in curtilage; Impact on existing entrance. Impact on property boundary.	Significant	Restore entrance and access. Reinstate affected property boundary.	Slight
65 Residential / House (0.1413)	475	Acquisition of the entire property including a house.	Very significant	None	Very significant
66 Residential/ House (3.6250)	476	Acquisition of the entire property including a house.	Profound	None	Profound
67 Residential (0.0065ha)	478	Impact on property boundary, shared access road and public road.	Significant	Reinstate affected Property boundary.	Slight

- 12.17.6. The applicant's assessment concluded that there would be six (8.3%) houses rated as having a **profound impact** because of the acquisition/demolition of these properties. Six (8.3%) non-agricultural properties are rated as resulting in **very significant impact** due to the acquisition of development land, land and a house. Twelve properties (16.7%) are rated as having a **significant impact** on the basis of acquisition of land, the reduction in area of property, impact on property curtilage (including access and boundaries) and impact on public road. Two properties (2.8%) are rated as having a moderate impact because of the acquisition of land or reduction in area and impact on boundary. The remaining 46 properties (63.9%) are rated as having either slight, not significant or imperceptible impacts.
- 12.17.7. Impacts arising during construction have been identified as including impacts on access to properties, disturbance from noise and vibration to those residing close to the PRD, nuisance effect from dust and disturbance to drainage and services.
- 12.17.8. Based on the information provide and my evaluation of same, I agree with the applicant's significance rating for impacts as set out in Table 22 above.

Mitigation

- 12.17.9. General mitigation measures are outlined and include maintaining access to all affected properties or restoring interrupted access without unreasonable delay. Good communication between the contractor and property owners is also proposed.

Mitigation for Operation

- 12.17.10. Engagement with property owners whose lands/properties are to be permanently acquired would take place to agree replacement boundaries generally on a like for like basis, subject to safety considerations. Reference is also made to mitigation that is specified in other chapters including Chapter 11 (Landscape and Visual), Chapter 12 (Noise and Vibration) and Chapter 13 (Air Quality and Climate).
- 12.17.11. Similar to the consideration of agricultural property, it is stated that compensation is not regarded in mitigation. As I have set out earlier, compensation is a matter to be agreed or decided upon by an arbitrator as part of a separate process.

Construction Mitigation

- 12.17.12. Condition surveys for all buildings/structures in use within 50m of the extent of the land take boundary and within 150m of any proposed blasting works along the PRD are proposed to be offered to owners.
- 12.17.13. Other measures that are proposed include traffic management measures to address impacts on access, the timing of works to limit noise and vibration, dust suppression measures and proper drainage management. An alternative source of water /electricity would be provided to ensure that disruption is minimised during the construction phase.

Residual Impacts – Non-Agricultural Property

- 12.17.14. With the adoption of mitigation outlined and noting the mitigation also set out in other chapters and outlined above, it is predicted that out of the 72 non-agricultural properties identified, the residual impacts on non-agricultural properties would be profound on six properties (relating to the acquisition of six houses), very significant on six properties (including the acquisition of one house), significant on three properties and moderate or less on the remaining 63 properties.
- 12.17.15. It is of relevance to recap that in Chapter 15 Material Assets and Land – Agriculture, the assessment of the impact of the proposed road development on agricultural property includes the acquisition of a further two houses (including one uninhabited) with a residual impact rating of ‘significant’ for both.
- 12.17.16. Overall, in respect of houses that would be acquired/demolished, nine in total (including two that are not inhabited), there would be a rating of profound on six (all on non-agricultural lands), very significant on one (on non-agricultural lands) and significant on two (on agricultural property including one that is uninhabited). Based on the information provided and my evaluation of same, I agree with the impact ratings set out above. I note in particular the rating of ‘profound’, ‘very significant’ and ‘significant’ that would arise for the homeowners whose homes listed would be compulsorily acquired. The impacts on the acquisition/ demolition of houses are discussed further below.

Acquisition/Demolition of Houses

- 12.17.17. Having reviewed all the documentation submitted on this application, I consider that the acquisition/demolition of houses is one of the most significant negative permanent impacts arising from the delivery of the PRD. At the oral hearing, Ms Finola McCarthy solicitor at Ronan Daly Jermyn, on behalf of her clients, the O'Kellys, made very articulate submissions during the consideration of both the Section 51 and Section 49 applications. I have set out the points raised in some detail in respect of the Section 51 approval application in the Planning Assessment in Section 11 above and also in respect of the Section 49 application in Section 14 below. In relation to this residential property, it has been a family home for 20 years and it is stated that Mr and Mrs O'Kelly chose to live at the location, adjacent to the River Maigue, because of their deep connection with nature and for medical and other reasons. Understandably, the O'Kellys feel aggrieved with the chosen design that requires their home to be acquired and demolished to facilitate the road alignment. The O'Kellys also note they would no longer have access to a public right of way located along the River Maigue and question why this right of way over a river walkway would also need to be compulsorily acquired.
- 12.17.18. In relation to this property, the residual impact is given the highest rating of profound in terms of significance rating, which is accurate as it reflects the deep sense of loss of their family home and access to its surroundings. I also note that there is no mitigation available in the EIA process that would reduce the impact. In addition to losing their home, the O'Kellys would also lose the house site and would need move away from the immediate location that is needed to deliver the road infrastructure. At the oral hearing, Mr MacGearailt on behalf of the applicant explained why other alternatives explored were not suitable. I have dealt with this under the heading of alternatives in Section 12.2 above. While acknowledging the profound negative impact on the O'Kellys because of the loss of their home and site, I have concluded earlier that there was no reasonable alternative available to avoid the need to acquire and demolish the house. Mr MacGearailt used the analogy during the hearing of designing the road through the environment being akin to threading the eye of a needle. It is not possible to simply move the road away at specific locations without considering the consequential impacts and having reviewed all of the design drawings I am satisfied that it is necessary to demolish the O'Kelly house. At the oral

hearing, Mr MacGearailt representing the applicant acknowledged that the acquisition and demolition of the O’Kelly home was regrettable but necessary, and for the reasons I have outlined above and also in the Planning Assessment in Section 11 above, I agree with this conclusion when the wider public benefits and the exigencies of the common good are taken into account.

12.17.19. In relation to the O’ Kellys request to maintain the public right of way between their house and the walkway, the applicant explained that in the event that the PRD and the associated compulsory acquisition are approved/confirmed by the Board, the O’Kellys would no longer own any property at this location or have any right of access across the subject property. It was further explained that the section would be subsumed as part of the CPO and would be physically buried underneath the earthworks. I am satisfied therefore that there would be no remaining lands that would require access. It was stated by the applicant that there is an access to the River Maigue on the opposite side of river, and when questioned by Ms McCarthy on behalf of the O’Kellys, the applicant acknowledged that while this access is along a well-worn track, it was unclear whether or not it was in fact a public right of way.

12.17.20. The applicant stated that should the road be approved, LCCC would engage with the O’Kellys to agree suitable arrangements for relocation of the family to allow sufficient time for an alternative home to be acquired prior to the need to vacate the house before construction commences.

12.17.21. In addition to the O’Kelly home, as concluded above, eight other houses (including two that are not inhabited) would also be acquired and suffer profound to significant residual impacts. A breakdown of the house types or conditions have not been provided, however, having regard to my site inspections and a review of their locations on the drawings and other information. I note that the structural condition/state of repair of the houses vary. While other owners of those houses have not objected or expressed concerns with the PRD in either written format or at the oral hearing, it cannot be assumed that they do not have concerns.

12.17.22. However, I also believe from my overall assessment that the greater public interest of the PRD that is identified largely under the heading ‘Project Need and Justification’ in Section 11.4 of the Planning Assessment, would outweigh the impact of the loss of these residential properties that have become necessary to be

acquired. In conclusion, I am satisfied that the remaining residual adverse impacts following mitigation would not justify a refusal to approve the road development.

12.17.23. I have otherwise assessed the acquisition of these houses as part of the consideration of Section 49 below in Section 14 in which I consider the need for the schemes and the matter of whether or not the consequential acquisition of property and property rights are proportionate to the objectives sought to be attained and other matters of relevance.

Loss of Other Non-Agricultural Property

12.17.24. The loss/acquisition of other non-agricultural property includes one plot of development land with a rating of 'very significant' and one with a rating of 'significant', three other land plots with a rating of 'very significant' and one commercial property with a rating of 'significant'. Having regard to the purpose of the PRD and in view of the compelling case made for the PRD, the greater public interest would outweigh negative impacts on these individual properties, residual impacts would not justify a reason to refuse to approve the PRD.

Inspector's Conclusion – Material Assets and Land (Non-Agricultural)

12.17.25. I have considered all of the written and oral submissions made in relation to Materials Assets & Land – Non-Agriculture, in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and presented at the oral hearing, I am satisfied that a detailed assessment of the Materials Assets & Land - Agriculture properties that could potentially be impacted by the PRD has been undertaken.

12.17.26. The proposed loss of non-agricultural land and property, following the implementation of mitigation measures where applicable, would result in significant or greater level of impact on 15 non-agricultural properties. These impacts include the combined acquisition of nine dwelling houses (including two uninhabited) from agricultural and non-agricultural lands/properties where no mitigation is available.

12.17.27. With respect to the acquisition/demolition of houses, it is acknowledged that this would result in a significant to profound permanent negative impact on homeowners, including an established family home at Ardshanbally, in particular (ch.61+175). The impact on this house and other houses and their owners and occupiers would not be

avoided, mitigated, or otherwise addressed by means of condition. There is no mitigation for this impact within the Environmental Impact Assessment process. Notwithstanding the remaining impacts rating from significant to profound, the residual impact would not justify a refusal, having regard to the compelling case for the proposed road development and the resulting wider public benefits.

- 12.17.28. In relation to the loss of land/development land and the reduction in area of a commercial building, while these would not be mitigated to below an impact rating of significant, the residual impacts would be acceptable for similar reasons set out above, including the greater public interest that would be served by the approval and delivery of the proposed road development. I am, therefore, satisfied that the proposed road development would not have any unacceptable direct, indirect or cumulative impacts on Materials Assets and Land – Non-Agriculture.

12.18. Traffic

Introduction and Background

- 12.18.1. Traffic is addressed in Chapter 5 of Volume 2 to the EIAR. At the oral hearing, Mr Philip Shiels presented a Brief of Evidence on this factor and addressed related concerns raised in submissions and objections in respect of the approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended). The applicant's traffic analysis was informed by desk research, traffic modelling and traffic surveys. The approach taken was to gain an understanding of the existing baseline environment in relation to traffic demand on the existing road network and to subsequently predict, through modelling, how the travel demand and patterns would change over time and to assess the potential impacts arising.
- 12.18.2. An analysis of traffic conditions along the N69 and N21 for (i) base year (2017), (ii) opening year (2024) and (iii) design year (2039) is presented. The analysis considered the 'do-minimum' and 'do-something' scenarios for both the opening (2024) and design years (2039), and these are discussed below.

Existing and Future Predicted Traffic

12.18.3. A profile of the N21 and N69 existing roads are set out under the heading of Project Need and Justification in Section 11.4 of the Planning Assessment above and a summary is also set out below.

N21 Road Corridor (Existing)

12.18.4. The baseline (2017) AADT volumes on the N21 between Rathkeale (12,950 AADT) and Attyflin (16,900 AADT) are stated to be in excess of their operating capacity (11,600 AADT) for a single carriageway road operating at a level of service D. It is stated and I have noted throughout my assessment above, that traffic moving through Adare on the N21 currently experiences significant congestion and delays with traffic volumes of 18,300 AADT. It is expected that these existing delays would increase over time in response to the projected growth of the region. This is particularly so with the planned population and economic growth for Limerick that has been set out in the current NPF.

12.18.5. At the oral hearing, Mr Shiels stated that the average weekday delays through Adare on the N21 are approximately six minutes in normal traffic flow times and up to 30 minutes at busy periods. It was also submitted that other towns and villages along the N69 experience high volumes of traffic including a substantial amount of HGV traffic travelling to and from Shannon-Foynes port.

12.18.6. In relation to public transport, at the oral hearing, Mr Shiels outlined that there are currently 30 daily bus services running in each direction on the N21 corridor between Tralee/Killarney and Limerick/Dublin, and these include Bus Éireann routes 13, 14, 321 and Dublin Coach route 300. It is submitted that based on CSO census 2016 data, only 0.8% of all commuting trips are undertaken by bus and over 84% of trips are undertaken by private motor vehicle. I would note that buses also experience the same delays as private motor vehicles/cars.

12.18.7. Figure 3 (N21 Corridor (Rathkeale to Attyflin) 2017 AADT and Road Capacity) included in Mr Shiels' Brief of Evidence provides a comparison between the 2017 AADT and the operating capacity along the N21 between Rathkeale and Attyflin. As stated above and as is evident from the information provided in Figure 3, all sections of the N21 corridor are operating well above their intended operating capacity.

N69 Road Corridor (Existing)

- 12.18.8. It is stated that the baseline (2017) AADT volumes on the N69 between Foynes (6,350) and Mungret (11,750) are lower than the N21, however, the N69 has a lower operating capacity as shown in Figure 5 (N69 Corridor (Foynes to Mungret) 2017 AADT and Road Capacity) of the Traffic Analysis Brief of Evidence. This is stated to be due to its varying road cross section, poor road alignment and lack of overtaking opportunities. Figure 5 provides a comparison between the 2017 AADT and the operating capacity along the N69 between west of Foynes to Mungret and as stated above and as is evident from the information presented in Figure 5, apart from 'west of Foynes', all sections of the N69 corridor are operating well above their intended operating capacity.
- 12.18.9. It is also stated that baseline average speeds along the N69 between Foynes and the N18 Dock Road Interchange are constrained to approximately 63km/hr and are projected to reduce to 52km/hr by 2039 with further growth in traffic which would bring about further delays and worsen congestion.
- 12.18.10. As outlined by Mr Shiels at the oral hearing, there are four daily bus services serving the N69 between Glin and Limerick (Bus Éireann 314) running in both directions. It was also submitted at the oral hearing that based on CSO census data (2016), only 2.9% of all commuting trips are undertaken by bus and over 84% of trips are undertaken by private motor vehicle.

Traffic Modelling

- 12.18.11. As part of the assessment, a traffic model referred to as the **Foynes to Limerick Local Area Model (LAM)** was developed and validated in accordance with Project Appraisal Guidelines (PAG) Unit 5.1 – Construction of Transport Models (TII, 2016) (PAGs).

Base Year Traffic Modelling (2017)

- 12.18.12. The study area for the traffic model is illustrated in Plate 5.5 (Traffic Model Study Area) of Chapter 5 of the EIAR. The model was informed by projections from the National Transport Model (NTpM). The NTpM is a central analysis tool that was developed by TII in 2008 for the assessment of the future strategic needs of the national road network and it is updated every 5 years by TII based on CSO results. It

is set out that the most recent update of the NTpM has taken account of the traffic growth projections of the NPF into account in relation to planned population and employment growth. The model developed by the applicant was subsequently refined to reflect local conditions in accordance with the PAGs.

Data Collection/Traffic Surveys

12.18.13. Traffic survey data used to develop and validate the Base Year Foynes to Limerick LAM included the following types:

- Origin-Destination surveys (O-D);
- Automatic traffic counts (ATC);
- Junction turning counts (JTC);
- Journey time surveys (using automatic number plate recognition cameras supplemented by Bluetooth tracking devices in Adare and use of automatic traffic counters within the study area).

12.18.14. The locations where all traffic surveys and the means of data collection were carried out are illustrated in Plates 5.1 to 5.4 of Chapter 5 of the EIAR.

Future Traffic Growth

12.18.15. A Future Year **Foynes to Limerick LAM** was developed for the 2024 (Opening Year) and 2039 (Design Year). The TII PAGs require that the PRD would be assessed using three growth scenarios (central, low and high). The TII central traffic growth was based on the population and employment projections from the NPF and the TII low and high traffic growth projections assume the same distribution, but with lower and higher total growth projections.

12.18.16. Shannon Foynes port is classed as a Special Zone in the NTpM and the projected growth was carried out via a separate process using estimated future cargo tonnages provided by SFPC from their Vision 2041 masterplan document and predicted tonnages for the port were converted to HGV movements. Table 5.1 of Chapter 5 sets out the HGV AADT projections from Shannon-Foynes Port (2039 Design year) for baseline, midline and highline scenarios. For the purpose of the EIAR it was assumed that the SFPC baseline, midline and highline HGV projections for the Port correspond with the TII low, central and high growth scenarios.

12.18.17. Light vehicles (LVs), private cars and growth in employment at Shannon-Foynes port were factored into the LAM and Table 5.2 provides forecasted LV AADT based on these projections for baseline, midline and highline figures in 2039 (design year). Table 5.3 provide details of overall trip end growth in Foynes to Limerick LAM (2017-2024) for TII Growth scenarios – central, low and high sensitivity. Table 5.4 provide details of overall trip end growth in Foynes to Limerick LAM (2017-2039). Future year models were developed for all three TII growth scenarios referred to above, though it is noted that the growth results presented in the remainder of the EIAR are based on high growth results on the basis that they represent the ‘worst-cast’ scenario.

Predicted Impacts

12.18.18. Table 5.5 (AADT Summary for 2024 Opening Year -TII High Growth) derived from the Foynes-Limerick LAM presents the traffic volumes for the 2017 base year and the forecast 2024 ‘do-minimum’ and 2024 ‘do-something’ high growth scenarios. The 2024 ‘do-minimum’ AADT and ‘do-something’ AADT (High Growth Sensitivity Scenario) are illustrated in Plates 5.8 and 5.9 respectively. In the 2024 ‘do-something’ scenario, the PRD would significantly reduce the level of traffic on the existing N69 and N21 corridors as traffic transfers to the PRD. In addition, modest reductions in traffic volumes on sections of the regional road network, such as the R518 between Rathkeale and Askeaton, are also predicted to result. By reference to the model outputs, the following impacts for the opening year are highlighted:

- reduction in traffic along the existing N69 between Foynes and Askeaton of 78%;
- reduction in traffic along the existing N69 between Askeaton and the N18 Dock Road of between 18% and 40%;
- significant reduction in traffic (79%) through Adare (resulting from the Adare By-pass);
- increase of approximately 3,450 AADT (10%) in traffic on the M20 corridor west of Raheen (Junction No. 3), as a result of traffic transferring from the N69.

12.18.19. Table 5.6 (AADT Summary for 2039 Design Year – TII High Growth) derived from the Foynes to Limerick LAM presents the traffic volumes for the 2017 ‘base year’ and the forecast 2039 ‘do-minimum’ and 2039 ‘do-something’ high growth scenarios.

12.18.20. The 2039 ‘do-minimum’ AADT and ‘do-something’ AADT (High Growth Sensitivity Scenario) are illustrated in Plate 5.10 and Plate 5.11 respectively. By reference to the model output, traffic flows in the design year (2039) ‘do-something’ scenario show a similar pattern of impacts to those of the 2024 opening year with a 77% reduction in traffic levels along the N21 through Adare in 2039 and up to 40% reductions through settlements along the N69.

Selected Road Cross-Section

12.18.21. Under the headings of ‘Project Need and Justification’ in Section 11.4 and ‘Road Design and Construction - Elements of Significance’ in Section 11.6 of the Planning Assessment above, I have examined and evaluated the basis for the road type/design and cross-section put forward along each of the sections A, B, C and D of the overall PRD. The road type/design on each section was informed by traffic surveys and modelling to establish the expected future traffic flows and includes capacity for planned growth into future years. Specifically, an incremental analysis was undertaken to inform the selection of the cross-section for the PRD. The design of the road type and cross section considered the higher-than-average HGV traffic accessing Shannon-Foynes port both now and in the future and it also took account of the higher Annual Average Weekday Traffic (AAWT) flows. I refer the Board back to my analysis of the road cross section under the headings referred to above (Section 11.4 and 11.6 of the Planning Assessment). As previously outlined under the aforementioned sections of my report, I am satisfied that the road types and cross-sections chosen are proportionate and responsive to the forecast traffic volumes that currently exist and to sustain the PRD for its intended 60-year lifetime.

Road Safety Improvements

12.18.22. The predicted benefits of the PRD, in terms of improving safety and reducing traffic collisions, has been considered in my planning assessment above and also in my assessment of population and human health in Section 12.7 where I have concluded that the PRD would bring clear benefits in terms of providing safer road infrastructure and improving road safety for all road users. Safer roads translate to saving lives and

reducing injuries leading to a positive impact/benefit at an individual level, family level and for the wider community who are also impacted by persons in the community who suffer loss of life or serious injuries as a result of road traffic collisions. As I have set out above, the Road Safety Strategy 2021-2030 has a long-term goal to eradicate road traffic deaths and serious injuries by 2050 through a number of interventions including 'safe roads and roadsides'.

Journey-Time savings

- 12.18.23. With the PRD in place, a significantly reduction in journey times between Foynes, Rathkeale, Adare and Limerick would result in savings of between nine and 15 minutes. Details of journey time reductions are set out in Table 5.9. Journey amenity and overall journey experience would also improve. I have dealt with these benefits above under the heading of Population and Human Health in Section 12.7.

Economic Assessment

- 12.18.24. Chapter 5 refers to a cost benefit analysis of the PRD, in which it was found that the PRD would generate significant economic benefits. It is stated that the analysis did not consider the wider economic benefits through better journey time reliability and travel quality. Reference is made to the benefits that the PRD would bring in supporting the development of Shannon-Foynes port, which I would agree would be significantly positive at a regional and national level. Reference is also made to the wider socio-economic and tourism benefits particularly noting the removal of traffic delays and congestion from Adare. A number of business interests expressed support for the PRD for these reasons.

Impact of Not progressing the PRD

- 12.18.25. Without the project in place, negative environmental impacts would continue due to high traffic volumes through the villages along the existing N21 corridor at Adare and Croagh, and also on the N69 at Kilcornan, Kildimo, Clarina and Mungret. This would lead to a worsening of adverse impacts on communities along the routes in terms of safety and amenity. Significant traffic delays and congestion would continue and worsen through Adare during peak times.
- 12.18.26. The expected growth of Shannon-Foynes Port and the corresponding increase in HGV traffic along the N69 and passing through various urban settlements along this

route would effectively double over time leading to significant negative impacts for local communities living along this route in terms of road safety should the road not be delivered.

12.18.27. It is stated that without the PRD, journey time and reliability between the port and the existing TEN-T core road network would worsen, and this would undermine the economic development of the southern region and fail to deliver the TEN-T requirement for core network access by 2030. Having reviewed the traffic analysis and other relevant information on the prediction of growth and increased HGVs likely to arise, I would agree with this conclusion.

Mitigation

12.18.28. No mitigation measures have been set out and I would note that given the benefits of the PRD from a traffic perspective, no specific mitigation would be required for the operational phase. I note that construction traffic has been dealt with elsewhere in Chapter 4 (Description of the Proposed Road Development) of the EIAR and in Section 11.6 (Road Design and Elements of Significance) in my planning assessment above. I note that as set out in Section 4.16.1 of Chapter 4, a construction stage Traffic Management Plan would be developed in conjunction with the LCCC Roads Section including details of routing of network traffic, temporary road closures, temporary signal strategy, routing of construction traffic, programme of vehicular arrivals, on-site parking for vehicles and workers, road cleaning and other traffic management requirements.

12.18.29. Details and indicative durations of the particular road diversions are included in Table 4.21 of the EIAR, and I would agree as noted that these traffic management measures outlined in Table 4.21 would be required to be adhered to by the successful contractor, as part of the works requirements. public information about traffic diversions would be made available on the website for the PRD, where all proposed diversions would be posted. A project public liaison officer would be appointed for the duration of the construction works by LCCC.

12.18.30. The measures outlined, including in particular the preparation and adherence to the traffic management plan would serve to minimise or avoid delays and disruption for travel by the local population during the construction period.

Residual Impacts

- 12.18.31. I would conclude from my assessment above, that no significant residual negative traffic impacts are anticipated during the construction or operational phases of the PRD. Positive impacts/benefits have been identified and outlined. For example, the PRD would allow for improved road-based public transport and improved accessibility, which would have many benefits for road users in terms of offering a reliable journey and improved journey experience and would have wider benefits in terms of delivering more sustainable reduced carbon emissions. Coupled with this, the PRD would provide the infrastructure to enable modal shift to more sustainable road-based transport options.
- 12.18.32. There are however negative impacts identified in the form of loss of trade from bypassed towns, particularly from businesses like fuel stations that rely heavily on passing trade. These have been identified and addressed above under the heading of Population and Human Health (Section 12.7) above. The positive impacts/benefits on the bypassed towns and villages are also outlined in which it is noted that the experience has shown that following a short period of adjusting, bypassed towns and villages can regain their sense of place and function in the community when the strategic through traffic has been removed.

Observed Traffic Growth (2017-2020)

- 12.18.33. At the oral hearing, it was stated that observed information on traffic growth was extracted from two permanent traffic counters located on the N69 and the N21 corridors. The new information obtained was presented in Figures 9 to 11 of Mr Shiels Brief of Evidence presented to the hearing. It is clear that on both the N69 and N21, both AADT and AAWT increased year on year up to and including 2019 and then reduced in 2020, explained to be due to the COVID-19 travel restrictions that applied at that time. Figures 12 and 13 presented at the hearing provide breakdowns on the daily average traffic and HGV traffic from 2018 (pre-Covid-19) and 2020 (with Covid-19 travel restrictions). It can be seen from the new information presented, that traffic levels were heavily influenced by government travel restrictions that were introduced in March 2020, with the easing of restrictions showing traffic levels rebounding to similar levels as previous years even with a large cohort of people working from home during this period. HGV travel levels in 2020 were similar to

those in 2018 except for the March/April 2020 period when initial travel restrictions were introduced.

12.18.34. Having reviewed more recent information on travel volumes compiled by TII and available on their website (viewed on 11th of March 2022), it is evident that following the lifting of the majority of restrictions (including travel restrictions) that applied during the Covid-19 pandemic, travel levels have rebounded nationally to levels similar to those experienced prior to the pandemic.

12.18.35. It is reasonable to therefore assume that the traffic volumes would continue to grow in line with planned population and economic growth for the area, guided by the NPF and the hierarchy of statutory plans and by climate and transport policy. I am therefore satisfied that the applicant's assessment continues to be relevant in the context of emerging recent travel volumes.

Other Matters/Submissions

12.18.36. A number of observers raised concerns regarding the size and scale of the road type proposed, setting out that the design and cross-section chosen is excessive and over-scaled and not supported by the Smarter Travel policy, including An Taisce (Env-3), Friends of the Irish Environment (Env-35) on the Section 51 Approval application and others who objected to the Section 49 application. The need for a motorway along Section D was also queried by some observers.

12.18.37. I have dealt with the delivery of the PRD from a policy perspective above where it is noted that under the TEN-T regulations only a **motorway** or an **express road** can be considered as a road options type on the Core TEN-T road network. The projected traffic volumes for the project and surrounding road network in 2039 are illustrated on Plate 5.11 of Chapter 5 of the EIAR and in Figure 14 in the traffic analysis Brief of Evidence. The road type selected for the design, including the cross-section, have also been dealt with above and in sections referred to in my planning assessment and are not repeated here except to confirm that I am satisfied that the cross-section and design is a proportionate response to the forecasted traffic volumes and in addition, it would provide a high level of safety for the communities over its intended lifetime.

12.18.38. Submissions on the Section 51 approval application were received from An Taisce (Env-3), Simon White and others (Env-31 and FI-8) and Conor Enright (FI-2).

questioning the volume of traffic from Shannon Foynes port and stating that it does not justify a new road. It was also stated that the traffic figures for the Port in Shannon-Foynes Port Company Masterplan – Vision 2041 are aspirational and relate to six different terminals. In its written submission and in evidence to the hearing, SFPC gave an outline of the current cargo throughput and the future planned growth. I have dealt with this in my planning assessment above. Under the highline growth scenario the quantum of HGV demand is predicted to increase fourfold on 2017 levels, equating to 1,700 HGVs to and from the port each day. It was also submitted by SFPC that as a result of an increase in services to support the port, an estimated increase of 2,100 vehicles would also likely result. Given the context of the existing N69 currently operating in excess of capacity (2017) and the information provided from the traffic modelling, I am satisfied that the PRD is justified in that it would provide the standard of road required to cater for current and future capacity. It would improve road safety and would also cater for the future growth of the Foynes Port.

12.18.39. The submission made by Simon White and others (Env-31 and FI-8) also stated that the transfer of port traffic, including HGVs from the N69 corridor, would be minimal as the N69 offers a more direct route from Foynes Port to the Dock Road Junction. The modelling presented in the EIAR concludes otherwise, with a projected 40% reduction in traffic east of Kildimo and a projected reduction in HGVs from 1770 per day to 390 per day with the PRD in place. Given that the new PRD would offer a safer, faster and better-quality road, I would fully expect that traffic would be attracted to transfer to the new road when it would become operational. It is acknowledged that residential and commercial properties along the existing N69 and the surrounding geographic area would continue to be served by the existing route, particularly for trips with origins/destinations along the N69.

12.18.40. Some observers (Conor Enright (FI-2), Simon White and Others (Env-31 and FI-8) and Mary Brosnan (FI-7) stated that the bypass of Adare would lead to congestion in Newcastle West and Abbeyfeale. At the hearing, the applicant stated that LCCC are currently progressing road improvements in respect of both N21 Newcastle West and Abbeyfeale. I note from the Local Authority's website that, following a period of public consultation, both the N21 Newcastle West Road and the N21 Abbeyfeale

Road Scheme are currently at Phase 3: Design and Environmental Evaluation, planned to be completed in 2023.

Inspector's Conclusion on Traffic

- 12.18.41. I have considered all of the written and oral submissions made in relation to traffic, in addition to those specifically identified in this section of the report. Having examined and evaluated all of the information available on file and presented at the oral hearing, I am satisfied that a detailed assessment of traffic has been undertaken.
- 12.18.42. The proposed road development would substantially reduce the level of traffic on the existing N69 and N21 road corridors, as traffic, including a high-volume of heavy-goods vehicles, would transfer to the proposed road development due to the journey-time saving and reliability benefits it is designed to provide. This would lead to several significant direct benefits and positive impacts including improved road safety, accessibility, improved journey times and journey reliability. It would allow for similar improvements for journeys by public transport. The proposed road development would also result in improved safety for pedestrians and cyclists because of reduction in traffic through urban settlements along the existing road network and throughout the wider rural area. It would provide enhanced opportunity for a change of travel mode when travelling between the towns and villages in the area. The road types and cross-sections chosen are justified on the basis of policy, road safety, capacity and include sufficient and proportionate headroom for future traffic needs.
- 12.18.43. It is wholly recognised that a modal shift from the private car to more sustainable modes of traffic is a necessary part of delivering sustainable transport. However, the proposed road development and public transport/active travel modes are not mutually exclusive. The proposed road development is a planned strategic TEN-T route that is necessary to allow for improved connectivity of the road-based element of transport infrastructure across the region and nationally and to link forward with European strategic road-based infrastructure.
- 12.18.44. Where negative impacts have been identified including traffic delays and diversions during the course of construction, these would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions.

12.19. Landscape and Visual

Introduction and Background

- 12.19.1. Landscape and visual effects are addressed in Chapter 11 (The Landscape) of Volume 2 to the EIAR. At the oral hearing, Mr Mark Boyle of Murray and Associates Landscape Architects presented a Brief of Evidence on these factors and addressed related concerns raised in submissions and objections in respect of the Approval application for the PRD (under section 51 of the Roads Act 1993, as amended) and the application seeking approval of the schemes (under section 49 of the Roads Act 1993, as amended).
- 12.19.2. The study area adopted for the assessment of landscape impacts comprises the site of the PRD and a distance of one kilometre in all directions, and for the visual impacts, the study area comprises 500m from the centreline of the PRD, while extending to views beyond this distance where views of the site are available.
- 12.19.3. The methodology used for the assessment broadly comprises a review of available maps, aerial photography and other information of relevance together with a review of landscape policy contained in the Limerick County Development Plan 2020-2016 (as extended). In addition, site surveys and photographic surveys were carried out to determine the landscape character. Zone of Theoretical Visibility (ZTV) mapping combined with field survey findings are stated to have been developed to determine levels of visibility for visual receptors. Baseline evaluations for visual impact were developed by the applicant with reference to TII Project Appraisal Guidelines for National Roads Unit 7.0-Multi Criteria Analysis (2016). The methodology also followed EPA Guidelines and the Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute / Institute of Environmental Assessment, 2013).
- 12.19.4. The distinction was drawn between landscape and visual impacts. **Landscape impacts** are defined in Chapter 11 as changes in the fabric, character and quality of the landscape as a result of the development. **Visual impacts** are stated to relate to changes in available views of the landscape and the effects of those changes on people.

Landscape and Visual Baseline

- 12.19.5. In relation to the **landscape baseline**, the sensitivity of landscape receptors is set out in Table 11.1 of Chapter 11, and landscape typology receptors are identified across categories from very low (Category I) to high (Category IV). Table 11.2 sets out the extent of landscape impact, by reference to EPA guidance ranging from Level 1 (imperceptible effects) to Level 7 (profound effects).
- 12.19.6. Within Chapter 11, Table 11.3 sets out **visual baseline** evaluations. These were developed by Mr Boyle by reference to TII Project Appraisal Guidelines (PE-PAG_02031 – Table 7.1.1). It sets out four categories of receptors from Category I to Category IV. Table 11.4 sets out the **extent of visual impact**, by reference again to EPA guidance and similar to landscape impacts, the visual impacts are set out as ranging from Level 1 (imperceptible effects) to Level 7 (profound effects). Table 11.5 sets out descriptions of the quality of the landscape and visual impact and Table 11.6 sets out descriptions of impact duration.

Landscape Policy

- 12.19.7. The study area includes two of the ten identified Landscape Character Areas set out in Section 7.3 (Landscape and Visual Amenity) of the Limerick County Development Plan 2010-2016 (as extended) that comprise Area 1 – Agricultural Lowlands and Area 6 – Shannon Integrated Coastal Management Zone. Section 7.3.8 (Historical Landscapes) refers to historic landscapes in Co. Limerick with areas around Adare identified as being of specific importance.
- 12.19.8. Objective EH O7 (Agricultural Lowlands Landscape Character Area) sets out specific objectives including 'encourage retention of existing features (hedgerows and trees) and their incorporation into landscaping for new development'. Objective EH O12 (Shannon Coastal Zone Landscape Character Area) sets out the specific objectives regarding the protection of views and prospects along the N69. These views lie within and to the west of Foynes and lie outside the study area.
- 12.19.9. Objective EH O5 (Enhancing Tree Cover) sets out the Council's intention that trees should be preserved. Objective EH O18 (Historical Landscape Characterisation) sets out the Local Authority's intention to develop a historical landscape appraisal process identifying key historical landscapes within County Limerick. The landscape

policy and associated objectives have been adequately considered in the applicant's assessment.

Public Amenity Areas and Walking Route

- 12.19.10. I agree as is set out that the most notable public amenity within the study area is the section of the Great Southern trail greenway. As I have referred to earlier in this assessment, it is located along an abandoned railway line from Rathkeale, extending for 40 km to the west and south through Limerick and Kerry. There is a 2.5 km stretch of 'undeveloped greenway' also following an abandoned railway line from Rathkeale to Ballingarrane, located 2.5km north of Rathkeale and within the study area. The potential future greenway users are considered as visual receptors in the applicant's assessment.
- 12.19.11. Ms Finola McCarthy on behalf of Mr and Mrs O'Kelly (Sch-34 and 35) referred to the Adare River walk. The PRD would lie c.350m north of this amenity and she raised concerns that the users of this amenity were not addressed in the EIAR.

Landscape Context & Character

- 12.19.12. The landscape context for the PRD is predominately rural and pastoral in character, dominated by fields, small to medium in size, which are divided by hedgerows and trees. There are also some areas of scrub vegetation and woodland throughout the study area. The landscape is generally low-lying and undulating. There are several historic demesne landscapes in the wider landscape area, and it is stated that the PRD is designed to avoid these. It is stated that the peripheral areas of five demesnes are within or immediately adjacent to the land-take line, but beyond that none of the demesnes would be affected either directly or in views. Land uses comprise predominately agricultural uses while other non-agricultural land-uses include residential, land/development lands, commercial and quarries.
- 12.19.13. Most of the hedgerows in the study area are mature and the study area also contains considerable numbers of parkland trees. As stated earlier in this assessment, the delivery of the PRD would involve the removal of c.23.3km hedgerow and 15.8km of treeline and c.45.2km of screening planting would be planted, however, as is acknowledged by the applicant in Chapter 11, many of the trees that would be removed are mature and the proposed replacement planting would take some time to become established. There are no tree preservation orders within the study area

and there are also no trees listed on the Tree Council of Ireland's Heritage Tree register.

Visual Amenity

- 12.19.14. The scenic quality of the study area is stated as being high with lower values around settlements comprising ribbon development. The ACAs of Foynes, Askeaton, Rathkeale and Adare that fall within the **landscape and visual study area** are stated to have medium to high visual value.
- 12.19.15. Distant views include views of the hills and Mullaghareirk Mountains along the horizon to the south and west of the study area. From elevated coastal areas to the north and west, the Shannon Estuary is a notable visual feature. However, due to the low-lying and undulating topography and intervening trees and hedgerows, I would agree as is asserted that long distance views are limited. It is stated that the landscape has a high visual absorption capacity in general, with local areas of sensitivity along the route of the PRD and wider study area.
- 12.19.16. With respect to visual impacts, as has been identified in the EIAR, I note that the majority of sensitive receptors are residential receptors. There are also specific views from public areas of particular relevance, including Knockpatrick Cemetery (A01-VP1) which is the highest point in the study area at 172m OD and with panoramic views to the east and across the Shannon estuary to County Clare. Other views include approaches to the historic Adare village on the N21 and approaches to Rathkeale on the R518.

Significance of Local Landscape and Visual Amenities

- 12.19.17. It is submitted that the landscape effects that could arise are on landscape elements that are primarily of regional and local importance. The most sensitive visual receptors relate to views from public areas that fall into Category III (High). The majority of individual houses are categorised as Category II (Medium) receptors, while residential receptors that are within 50m of the PRD are rated as Category III (High) receptors. Residential receptors at further distances of up to 200m from the PRD with open views of the infrastructure are also classed as Category III (High) receptors.

Landscape and Visual Impacts

12.19.18. The predicted landscape and visual impacts are evaluated by reference to the characteristics and resultant change envisaged by the construction and also the long-term use of the PRD. The impacts are evaluated relative to the four sections of the PRD. The sections are illustrated in Figures 11.0 to 11.23 in Volume 3 of the EIAR. A baseline description of the four sections of the PRD is set out in Chapter 11 and I have provided a summary below.

Section A: Foynes to Ballyclogh (ch.1+000 to ch.7+320)

12.19.19. This section of the PRD site lies within the Shannon Integrated Coastal Management Zone, an area of generally good scenic quality. Parts of the area surrounding the Port of Foynes and Aughinish Alumina are rated as poor quality. Otherwise, the landscape is generally agricultural in this area, with some development on the fringe of Foynes and infrastructure associated with the port.

12.19.20. The Service Area for HGVs is also proposed to be located in this section, c.350m north-east of this first roundabout, at Foynes. The site is elevated c.4m above the existing ground level. Mature vegetation along the northern boundary of the site with the railway would be retained. There are several houses and a church that are anticipated to experience visual effects due to the visibility of the PRD and the over-bridge. This area also contains the highest elevation above sea level for the PRD, up to c.53m OD with a deep cut of 19m and side slopes of exposed rock. However, houses in this area at Mulderricksfield townland would not have views of the PRD due to the depth of cut and intervening vegetation. No demesne landscapes would be affected, although it is stated that the PRD would cross agricultural lands associated with Ballyclogh House to the north of the demesne boundary. The proposed road would be visible from elevated views from Knockpatrick Cemetery in this section.

Section B: Ballyclogh to Askeaton (ch.10+000 to ch.11+940)

12.19.21. This section crosses rural landscape primarily consisting of fields bounded by hedgerows and trees. It lies within the Shannon Integrated Coastal Management Zone and is generally of good scenic quality. The PRD would be located on fill for this section, generally 2-3m in height and rising to a maximum of 7m. The area crosses several small watercourses. Generally, along the route, there are very few

houses within 500m of the PRD and given the existing landscape features, none would have unobstructed views of the PRD. There are several houses on the edge of Askeaton which would have views of the PRD. No demesne landscapes would be affected by Section B.

Section C: Ballyclogh to Rathkeale (ch.20+000 to ch.29+250)

- 12.19.22. This section of the PRD lies partially within the Shannon Integrated Coastal Management Zone landscape classification up to ch.25+800 and the remainder lies within the Agricultural Lowlands classification and is generally of good scenic quality. Settlement is relatively sparse in the northern part of this section and increases in density in the southern portion with a substantial number of visual receptors in this area around Ballingarrane. At ch.29+125 to ch.29+225 noting that the trees / hedgerows would be removed, open or partial views of the new road, Rathkeale Link Road and reconfigured junctions would be available from dwellings on the northern edge of Rathkeale. There are several watercourses and drainage channels in this section. Two demesne landscapes would be intersected by the road in Section C, including Ballyclogh House and Stoneville Demesne, and both would be peripherally impacted by the route. For the majority of this section, the PRD mainline would be on fill.
- 12.19.23. Some works to 220kV and 110kV transmission lines crossing the PRD are required in this section. The works have been outlined above in Section 11.6 under the heading of Road Design and Construction – Elements of Significance and involve the raising of pole-sets and the replacement of a tower that is 24m in height with one that is 34m in height.
- 12.19.24. The PRD would cross the path of the proposed extension to the Great Southern Trail Greenway at a 3km stretch from Ballingarrane junction to Rathkeale along the former railway line. It is stated and shown that it would intersect at a shallow angle over an extended length of 800m, requiring the removal of the railway and boundary hedges on both sides. As stated, and shown on the drawings, the PRD would provide for a replacement trail parallel to the new road with an underpass at ch.28+250, after which it would re-join the original railway line at ch.28+450 and continue south-westwards to Rathkeale.

12.19.25. The visual sequence along the R518 travelling towards Rathkeale is considered to be sensitive. The road is generally enclosed with hedges with occasional openings that allow views to St. Mary's Church in Rathkeale or the skyline of Rathkeale heritage town.

Section D: Rathkeale to Attyflin (ch.50+000 to ch.67+500) 17.5km

12.19.26. This section lies within the Agricultural Lowlands landscape classification, and is generally of good scenic quality, with some areas around the railway and N21 road with lower scenic quality. The PRD would follow a series of cut and fill sections in this area. There are several houses in this section that would have views of the PRD and /or the proposed bridges and other structures. Public visual receptors in this area include a cemetery at ch.50+250 (D50-PV1) at ch.50+250 north-east of the built-up area of Rathkeale. A section of cut for 3.6km from ch.52+400 to ch.56+000 (Ballycannon) would be up to 11m in depth at its maximum depth in or around ch.53+500. Moving east from c.56+100, this stretch would comprise predominately fill up to ch.60+000 with a maximum fill height of c.10m. The PRD would cross the River Mague at ch.60+950 on a bridge structure. The structure is designed as a three-span bridge and is c.210 in length. It is substantial in terms of size in terms of length and it would be in view of several houses. There are three demesnes that intersect with the proposed route in Section D including Smithfield House demesne, Curraghbridge House demesne and Ballycarrane House demesne. These are recorded in the NIAH Gardens & Designed Landscapes Survey. Adare Manor demesne would not be affected. I note that a substantial number of mature trees would be removed including eight mature parkland trees.

Predicted Landscape Impacts

12.19.27. Details of predicted landscape impacts are set out in Table 11.8 (Summary of Predicted Landscape Impacts, Proposed Remedial or Reductive Measures and Residual Landscape Impacts) of Chapter 11 impacts are described in Section 11.4.2 of Chapter 11.

12.19.28. I agree as submitted that the landscape impacts would be most pronounced during the construction stage, largely because of the introduction of a prominent new physical feature, the PRD and associated infrastructure, into the receiving environment. The PRD would contrast with the surrounding context and character of

the rural landscape setting. However, given the linear nature of the works, I note that impacts from the construction phase would not be long lasting and construction activities for projects of such a nature are not an unfamiliar sight which would reduce the perceived landscape impacts to a degree. Some landscape impacts that occur during construction, including the loss of mature trees and changes to the topography as well as the PRD infrastructure itself, would have longer term effects especially in the early operation phase and the impacts would generally lessen over time as the landscaping becomes established.

12.19.29. It is set out that the bridge crossing of the River Maigue in Section D would also generate significant negative landscape effects because of the scale of the proposed bridge in a sensitive landscape area. The crossing of the River Deel in Section C and the overbridge at Robertstown in Section A are also stated to result in predicted significant negative effects. The deep cut at Mulderricksfield in Section A is submitted to give rise to a significant negative landscape impact.

12.19.30. Removal of trees would be substantial at a local level. However, I agree as asserted by the applicant that it would be moderate negative within the overall landscape unit. Changes to field patterns would also result in a moderate impact. Impacts on demesne landscapes in Sections C (Ballyclogh House and Stoneville Demesne) and Section D (Curraghbridge House) are rated to be slight negative and it is submitted that the more valuable demesnes in terms of demesne landscapes, such as Adare Manor demesne, have been avoided.

12.19.31. I agree that the rerouting of a short section of the proposed extension to the Great Southern Train Greenway route would result in a neutral impact in terms of cyclists/walkers amenity and landscape values.

Predicted Visual Impacts

12.19.32. Details of predicted visual impacts are set out in Table 11.9 (Summary of Predicted Visual Impacts, Proposed Mitigation and Residual Visual Impacts) and impacts are described in Section 11.4.3 of Chapter 11. Table 11.9 includes visual impacts for each sensitive receptor, largely residential properties, and by reference to the photomontages provided in Volume 5 of the EIAR. The impacts for each identified receptor are illustrated in Figures 11.1-11.23 of Volume 3 (Figures) of the EIAR. The visual impact of the PRD on properties was raised by a number of parties in both

written and oral submissions. Such impacts would be greatest where individual receptors would have a close view of the PRD elements, or a bridge or other structure associated with the road.

12.19.33. In relation to public areas of view, views from Knockpatrick Cemetery (A01-PV1) would be slightly negatively affected by the PRD into the medium and long term. At Robertstown Church ruin and graveyard (A02-PV1 at ch.2+400) and St. Roberts Church (A02-010 at ch.2+750m) there would also be a view of the road. The future users of the proposed greenway (C27-PV1 at ch.27+250 to ch.28+550m) would have intermittent views of the PRD where there are breaks in vegetation. The realigned greenway section would run parallel to the mainline for c.600m and cross under the mainline at ch.28+225. Views of the motorway section (section D) would arise in Rathkeale Cemetery (D50-PV1 at ch.29+250) rated as a moderate negative visual impact. At a public view from receptor D61-PV1 at ch.61+600 to 62+600, the proposed Adare junction and roundabout would be visible east of the village and would join the current N21 west of Lantern Lodge, which means that one of the elements in the existing sequence is no longer part of the entrance for anyone arriving from the motorway, which is considered a slight negative impact. The link road would have a view into Adare Manor demesne/golf course, including the mature parkland trees and woodlands. The remainder of the route with the key elements would be unchanged. It is stated that the roundabout presents an opportunity to create an artistic or landscape feature at the junction. I would concur with the applicant's assertion that the reduction in traffic through Adare would result in a slight positive impact given the improvement in visual environment.

12.19.34. In relation to the Adare River walk, the PRD would lie c.350m north of this amenity and the users have not been considered as sensitive receptors. However, the impact of the River Maigue crossing in Adare, c.350m north of this amenity has been assessed. Given that the PRD and River Maigue crossing would be well separated from the recreational users of the Adare river walk, I am satisfied that no significant visual impacts would arise. A number of properties close to this location are rated as having landscape impacts of no greater than moderate in the short term and slight in the long term.

12.19.35. Outside of consideration of public views, the majority of visual receptors would experience temporary 'significant' to 'moderate' negative impacts during

construction. However, for a period of up to two years, five dwellings A02-007, A02-009, D57-007, D57-008 and D59-002 have been identified as experiencing profound negative visual impact during construction due to having strong views of the PRD under construction.

- 12.19.36. In the operational phase, prior to mitigation, it is set out that five properties (A02-007, A02-009, D57-007, D57-008 and D59-002) would experience a very significant negative impact and 32 would experience significant impacts. The impact rating and the description of impact for these receptors are set out in Table 11.7 (Summary of Significant and Very Significant Predicted Visual Impacts – Operational Stage). Table 11.9 gives the predicted visual impacts for all receptors for the operation phase. The views from a number of receptors are shown in the photomontages in Volume 5 of the EIAR, including the five receptors that would experience very significant impacts, VP3 (A02-007), VP4(A02-009), VP22 (D57-007) and VP21 (D57-008) and VP24 (D59-002). It is noted that there is a likely a typographical error on page 11/22 of Chapter 11 as it states that there are 32 receptors that would experience a significant visual impact in the operational phase (without mitigation). However, in Tables 11.7 and 11.9, there are 27 receptors recorded that would experience ‘significant’ (and 5 that would experience ‘very significant’) visual impact.

Mitigation

- 12.19.37. It is stated at the outset that the assessment has operated in a stepwise refinement method to identify and avoid impacts where possible. An example given is that the design chosen generally avoided demesne landscapes with peripheral areas of five demesnes that are within or immediately adjacent to the land-take line, however none are affected to any significant degree either directly or in views.
- 12.19.38. Landscape mitigation measures (general and specific) are set out in Section 11.5. In terms of other mitigation, the strategy adopted by the applicant is to re-integrate the PRD into the landscape through which it passes and to screen the road from affected visual receptors. Proposed landscape mitigation measures are illustrated in Figures 11.1 to 11.23 in Volume 3 of the EIAR, and it is submitted that these have been devised by reference to TII documents ‘A guide to Landscape Treatments for National Road Schemes in Ireland’ (TII, 2006) and ‘Guidelines on the Implementation of Landscape Treatment on National Road Schemes in Ireland’ (TII,

2012). Having reviewed the TII guidelines, I am satisfied that the landscape treatment generally followed the guidance therein.

General Landscape Mitigation

- 12.19.39. It is proposed that a suitably qualified landscape architect would be engaged to devise the specification for the PRD and this would include treatment of the existing vegetation, soil preparation, seeding, planting, maintenance and establishment works. In addition, requirements put forward in Chapter 7 (Biodiversity) would be coordinated with the landscaping works.
- 12.19.40. A tree and vegetation management plan would be prepared by an arborist to advise on tree retention and the protection of trees prior to construction. The plants selected for the landscape treatments are listed. They include planting of fence-lines with Hedgerows/Treelines, replacing parkland trees, screen planting measures, riparian/wetland planting, designing attenuation ponds so that they are natural barriers and passively safe, scrub planting at selected areas, grass verges planting with a low maintenance grass seed mix, wild grass/flower meadow at areas not required for screening, use of stabilising grass seeding on slopes of drains, ponds, basins and swales and leaving rock faces exposed in cut slopes as a landscape feature.
- 12.19.41. It is stated that the landscaping strategy seeks to enhance the effectiveness of the biodiversity mitigation measures. Mitigation measures to minimise the impact of the PRD on the Barn Owl (*Tyto alba*) would be integrated into the landscape treatment. At 32 locations along the PRD, specific landscape planting measures are proposed for the mitigation of impacts to Bats (discussed above under the heading of Biodiversity). It is set out in the biodiversity assessment that there is a low incidence of invasive species along the route of the PRD. Measures to control the spread of Invasive Species are outlined in the EOP contained in Appendix 4.1 of the EIAR. Embankments are designed with 1:3 slopes, which it is stated and I note are flatter than typical road embankments to result in a more sympathetic fit with the existing landscape.
- 12.19.42. It is stated that the contractor would prepare a landscape maintenance plan after the implementation of the PRD. It is stated that redundant sections of the disused road network can be reinstated as grassland, scrub or woodland where appropriate. While

this measure is included as a mitigation measure within Chapter 19 and would therefore be included in the schedule of environmental commitments, for the avoidance of doubt the requirement for reinstating the areas of disused road (rather than it being possible) should be clarified by including it in the schedule of environmental commitments. Otherwise, planting would be based on indigenous planting associated with the existing landscape and generally in line with TII Guidance.

- 12.19.43. In areas where there are views towards monuments or other landscape features in the adjacent landscape and where screening is not required, the embankments would be maintained free of planting to allow views into the landscape and enhance the tourism and scenic potential of the new road. It is submitted that this would be included at Milltown Cashel (ch.24+000 west).

Specific Landscape Mitigation

- 12.19.44. Specific landscape measures (SLMs) are proposed at 20 locations (SLM 0 to SLM 19 inclusive) to ensure elements such as bridges, roundabouts and junctions are integrated into the landscape and individual receptors visually impacted by the PRD will be treated, where necessary, with specific landscape measures.
- 12.19.45. Measures include screening of the HGV service area, screen planting at specific locations, including bridge structures, planting for biodiversity mitigation, reinstatement of stone wall sections, screening of noise barriers, protection of existing trees and vegetation and parkland tree planting.
- 12.19.46. The specific mitigation measures are set out in Table 11.8 (Summary of Predicted Landscape Impacts, Proposed Remedial or Reductive Measures and Residual Landscape) and Table 11.9 (Summary of Predicted Visual Impacts, Proposed Mitigation and Residual Visual Impacts) referred to above and their locations are shown out in Figures 11.0 to 11.26 of Volume 3 of the EIAR.
- 12.19.47. While the construction of the PRD would require the removal of a large amount of existing hedgerows and planting and the insertion of a major road and associated infrastructure within a rural or semi-rural area, the proposed landscaping works are extensive and comprehensive, and I consider that they will generally be successful in mitigating the landscape and visual impacts associated with the PRD to a

considerable extent. I am therefore satisfied with the landscaping proposals that have been provided by the applicant.

Residual Landscape Impacts

- 12.19.48. The PRD would undoubtedly be a departure from that of the existing countryside, resulting in negative landscape impacts. However, as the landscape planting would become established, it would greatly assist in integrating the PRD into the landscape, particularly as time advances. It is expected that landscaping would start to become noticeably effective by Year three with the result that residual landscape impacts would be generally slight to locally moderate at year 15. At a local level, moderate impacts may remain at year 15 in sensitive areas where large structures are proposed, for example at the crossing of the Deel River and River Maigue, and at Ballyclogh Roundabout.
- 12.19.49. A large number of trees and sections of hedgerows would be removed to facilitate the delivery of the PRD. New planting along the route is proposed, though as it is submitted, it would take some time to mature and so the overall impact on the landscape would be slight negative in the medium to long term.
- 12.19.50. I am satisfied that the PRD would generally avoid demesne landscapes and where the PRD would lie within or adjacent to such landscapes, none would be affected to any significant degree.
- 12.19.51. In terms of landscape amenity, I would agree that the PRD would not impact on public access to the landscape as all local roads and accommodation tracks are reinstated or involve minor detours, including the Great Southern Greenway trail.

Residual Visual Impacts

- 12.19.52. Residual visual impacts are assessed after a period of one year and 15 years (for both winter and summer) to ascertain impact ratings over time taking account of the planting measures. I would agree as submitted that visual impacts arising during construction would not be mitigated and would remain during this phase. However, as I have noted above, views of construction activities are not unfamiliar in the landscape and are acceptable.
- 12.19.53. During the operation phase, the main residual visual impacts associated with the PRD relate to both to the road itself and its associated structures, including

embankments, river crossings (including the River Maigue and River Deel crossing) and over and underbridges. Other visual impacts would be associated with the loss of mature trees and planting and in many cases the change in the visual amenities of the area.

12.19.54. In **year one**, it is set out that the residual visual impacts would be largely as per the predicted visual impacts as set out in Table 11.9, with four properties predicted to have a very significant negative impact and a further 30 with significant negative impacts. However, based on the information contained in Table 11.9, four properties (A02-009, D57-007, D57-008 and D59-002), are predicted to have a very significant negative impact and 25 (rather than 30) are predicted to have a significant impact rating. The reference to 30 receptors with significant negative impacts is likely a typographical error (Page 11/64 of Chapter 11).

12.19.55. Following the proposed screen planting becoming established, after approximately **15 years**, four properties (A02-009, D57-007, D57-008, D59-002) are rated in Table 11.9 as having a significant negative residual impact because of remaining views of structures associated with the PRD for the medium to long term. The views are set out in the photomontages as VP4 for receptor A02-009, VP22 for receptor D57-007, VP21 for receptor D57-008 and VP24 for receptor D59-002. I note that receptors D57-007, D57-008 are indicated as having a moderate impact (Year 15) in Figure 11 (The Landscape – Impact Rating and Mitigation Section D, Sheet 5 of 11) and it is evident that this is a colour coding error on the drawing given that these receptors were assessed as having a significant residual impact in Table 11.9 and given their proximity to the PRD. It is also stated that moderate negative impacts would persist for 26 receptors for the medium/long term. This also appears to be a typographical error (Page 11/64) as there are 27 receptors listed as having a moderate impact (winter) in Table 11.9. These impacts would remain because of the views of the road itself within the context of screen planting. For all other properties, the visual impacts would be slight, not significant, imperceptible or no impact because of the screen planting.

12.19.56. The only public amenity receptor with moderate residual negative impact into the medium to long term is identified as Rathkeale Cemetery (D50-PV1) in section D. It is stated that some positive effects may arise as a result of new views becoming available to road users, for example elevated views of the riparian landscape and of

Milltown Cashel, both close to the River Deel bridge in Section C and views of Clonshire Castle that are opened up in Section D. The reduction of traffic through Adare village would result in a slight visual improvement for the village, which I agree can be considered a positive visual impact for the local and visiting communities. Other impacts from the removal of traffic are considered in other sections of the EIA and Planning Assessment above. Potential impacts on the setting of Clonshire Castle are described in Chapter 14 and outlined above in the consideration of archaeology, architecture and cultural heritage (Section 12.14).

- 12.19.57. Based on a review of the information presented in the EIAR aided by information observed during my site inspection and noting the likely typographical and colour coding errors referred to above, I am satisfied that the impact ratings presented for the landscape and visual environment are accurate.

Other Matters/Submissions

- 12.19.58. A substantial number of submissions/objections raised concerns regarding inadequate details or levels of boundary treatment or landscape planting proposals. It is submitted that for the most part, location-specific landscape proposals would result in a neutral impact on boundaries of properties. I note that the details of boundary fencing have been dealt with and assessed above under the heading of Material Assets.
- 12.19.59. Askeaton-Ballysteen Community Council (Env-4 and 5) expressed concerns with the loss of native vegetation. The applicant's stated intention is to integrate the scheme into the existing landscape using native trees, grasses and wildflowers. Proposals for the particular area are illustrated in Figure 11.6 of Volume 2 of the EIAR and includes SLM 4 which provides for a variety of landscaping and planting measures around the roundabout and connection with the N69. Having examined Figure 11.6 (Volume 3 of the EIAR) and section SLM 4 set out in Section 11.5.2 (Specific Mitigation Measures) of Chapter 11 of the EIAR, I am satisfied that the concerns are addressed in the landscape design and the specific landscape measure put forward.
- 12.19.60. Simon White and Others (FI-8) raised concerns regarding noise barriers having aesthetic implications and that this would cause views to be blocked. It is submitted in response that while noise barriers may contribute to restricting views, they will also add to the visual screening effects of road traffic from visual receptors. I am satisfied

that an appropriate balance has been struck with regard to the proposed extent of noise barriers and the visual impacts which I consider to be acceptable. Noise barriers are a feature of all new roads and I do not consider that they would have unacceptable visual or landscape impacts.

12.19.61. A number of site/property specific issues relating to landscape and visual impacts have been raised by observers to the Section 51 application. These have been addressed in the planning assessment above in Section 11.8 under the heading of 'Other Site/Property Specific issues raised in submissions'.

12.19.62. Where property-specific concerns and objections relating to landscape and visual impact are raised by specific affected landowners in connection with the Section 49 application (and not been withdrawn), I have dealt with these in Section 14 (Assessment of Application for approval of Schemes) of this report.

Conclusion on Landscape and Visual

12.19.63. I have considered all of the written and oral submissions made in relation to landscape and visual impact matters, in addition to those specifically identified in this section of the report. It is considered that the assessment of the landscape and visual impact conducted by the applicant together with the information provided during the course of the application, including at the oral hearing, is adequate to enable a full and comprehensive assessment of the issues.

12.19.64. The construction phase of the proposed road development would result in a range of landscape and visual impacts on certain landscapes and receptors, including significant and profound impacts during construction. The mitigation measures proposed during this phase will have limited effect due to the nature and scale of the development, and it is considered that the negative landscape and visual impacts would continue during the construction phase. Having noted the linear nature of the development and that construction activities are a familiar feature in the landscape, these landscape or visual impacts would be acceptable.

12.19.65. The proposed road would contrast with the existing countryside so there is a likelihood that it will generate negative landscape impacts at a local level. However, as the new planting becomes established, the impact is considered a slight negative impact in the wider landscape context. In designing the landscape strategy, the applicant opted to use vegetation appropriate to the local landscape. Account was

taken of the requirements of ecological features and the long-term management of the landscape following completion of construction.

- 12.19.66. Following construction and again as planting becomes established, visual impacts would be reduced to no greater than moderate for the majority of receptors, however, significant impacts would remain on four properties adjacent to structures where the structures would remain visible in views for the long-term. Notwithstanding the inability of the proposed measures to mitigate the visual impact of the proposed road development on these properties, it is considered that the residual impacts following mitigation would not outweigh the public benefit of the proposed development.

12.20. Cumulative Impacts and Interactions

Cumulative Impacts

- 12.20.1. Cumulative impacts are incremental changes caused by other plans and projects that could possibly arise when considered with the current PRD proposal and these have been considered by the applicant as set out in Chapter 17 of the EIAR. The projects of relevance include development that has occurred in the past ten years as well as current developments for which planning has been received within 10km of the PRD and which are likely to result in significant cumulative effects.
- 12.20.2. Projects that were identified in the EIAR and assessed by the applicant include:
- Shannon Foynes Port Expansion (ABP Ref: 301561-18);
 - Bord na Móna smokeless and Biomass based solid fuel manufacturing and packaging facility – (APB Ref: PL91. 246279);
 - Nestlé – Wyeth Nutritionals Ireland Ltd (various developments granted under planning authority refs: 17617, 17584, 16249, 16194, 151057 and EPA IPC Licence No.P0395-03);
 - Great Southern Greenway extension submitted as a Part 8 application (Ref: 178002);
 - Adare Manor Hotel & Golf Resort refurbishment and expansion (Ref: 15/920);

- Irish Cement Ltd – Replacement of fossil fuels through the introduction of lower carbon alternative fuels (Ref: ABP: 248285 /LCCC16/345);
- Greenstar Environmental Services Ltd – proposal to increase the amount of waste accepted annually (Ref 13300);
- CPL Fuels Ireland Ltd – various permissions for works including alteration and extension to the existing (Ref: 14/603, 15/818 and 18/491);
- Housing Developments – Nasso Property Holdings Ltd. (Ref: 08/1900).

12.20.3. The future Cork to Limerick N/M20 proposal was also considered to give rise to cumulative impacts as a result of both road developments, though it is noted that there is limited information available at this point regarding that proposal.

12.20.4. The applicant submitted supplementary information during the oral hearing on 15th of February 2021. It included additional projects that would be relevant for the consideration of cumulative impacts. These include:

- Aughinish Alumina Ltd. – permission for development on site comprising a Borrow Pit for the extraction of c.374,000 cubic metres of rock over 10 years (ABP : 301011-18/ LCCC 17714);
- Infill of Land (LCCC Ref: 20954);
- Construction of a 1.7km section of a new road new road approved by LCCC under a Part 8 planning process (Ref:198011);
- IDA Ireland – permission for office/light industrial building development at Raheen - (LCCC Ref:201128);
- Update on Great Southern Greenway Extension – An extension of the greenway walking and cycling route was submitted as a Part 8 application (Ref 178002) in 2017. It would involve a 3km section between Rathkeale and Balingarrane. This was included in the EIAR, however, it was also included in the supplementary information provided at the oral hearing. It is set out that the extension was approved in August 2017 subject to a condition that the proposed works shall not be constructed until the Foynes to Rathkeale section of the Foynes to Limerick Road commences.
- Various Housing Development at Adare, Raheen and Mungret.

- 12.20.5. I have also considered both the N21 Newcastle West Road and the N21 Abbeyfeale Road Schemes. These are proposals by LCCC to relieve congestion on the N21 at these locations. They are both currently at Phase 3: Design and Environmental Evaluation.
- 12.20.6. In relation to plans, the Limerick County Development Plan 2010-2016 (as extended), the Adare Local Area Plan 2015-2021 (as extended), the RSES for the Southern Region and the NPF were considered. I am satisfied that these statutory plans collectively support the PRD at a policy level, and each were subject to Strategic Environmental Assessment (SEA) / Screening for SEA and AA/Screening for AA. Equally the draft Limerick County Development plan, currently in progress, is subject to SEA and AA.
- 12.20.7. I am satisfied that for a combination of reasons, including proposed mitigation measures outlined, the separation distance (in some instances) and the nature and location of the projects, that no additional/incremental changes that would lead to significant cumulative environmental effects beyond those already considered on an individual basis, are likely to arise from the development when taken in combination with any other known plans or projects of relevance. As such, I am satisfied that no additional mitigation is required to address **cumulative impacts**. I have considered the additional projects put forward at the oral hearing that are listed above. I have also carried out a broad review of the planning register and while additional development proposals have been brought forward and approved since the oral hearing, none are such that would give rise to additional significant cumulative environmental effects to those already outlined in the assessment above.
- 12.20.8. In relation to impacts on GHG emissions, these are global and cumulative in nature. This is because of the intertwined nature of climate and that effectively it is a single global receptor. However, as stated above, the impacts of the PRD would not give rise to significant environmental effects when taken in context of the strong policy support for the project and the parallel and pressing need to address climate change. Assuming appropriate consideration of climate policy is taken account of in the respective assessments of other projects, no significant environmental effects would arise as a result of the current proposal when taken in combination with all other relevant projects.

Impacts from Interactions

- 12.20.9. Table 17.1 (Matrix to Summarise Key Inter-relationships) of Chapter 17 presents a matrix identifying the principal interactions and interrelationships which may occur between various environmental factors. The applicant predicted that with the adoption of mitigation measures, no significant adverse effects will arise as a result of interactions / interrelationships between the various environmental topics considered, either during construction or operation.
- 12.20.10. I have considered the interrelationships between factors and whether these may, taken as a whole, affect the environment, even though the effects may be acceptable when considered on an individual basis.
- 12.20.11. The potential arises for all environmental factors to impact on population and human health. Soils & geology, hydrogeology, hydrology, landscape, noise & vibration and air quality & climate could impact on biodiversity. The details of all other interrelationships are listed in Table 17.1 and discussed in Chapter 17, all of which I have considered in my assessment.
- 12.20.12. I am satisfied that the various interactions between environmental factors were properly described in the EIAR and have been considered as part of the SEA process. I am also satisfied that, with the adoption of mitigation proposed, no additional significant environmental effects would arise as a result of **interactions** between the individual environmental factors.

Conclusion- Cumulative Impacts and Impacts from Interactions

- 12.20.13. It is considered that effects as a result of interactions, indirect and cumulative effects can be avoided, managed or mitigated by the measures which form part of the proposed development, the proposed mitigations measures detailed in the Environmental Impact Assessment Report, additional documentation furnished and with suitable conditions. There is, therefore, nothing to prevent the approval of the development on the grounds of significant environmental effects as a result of interactions between the environmental factors and as a result of cumulative impacts or impacts arising from interactions between environmental factors.

12.21. Reasoned Conclusion on Significant Effects

12.21.1. Having regard to the examination of the environmental information set out above, and in particular to the Environmental Impact Assessment Report and supplementary information provided by the applicant, and the submissions received from prescribed bodies, observers and affected landowners in the course of the application, including submissions made at the oral hearing, it is considered that the main significant direct, indirect or cumulative impacts of the proposed development on the environment are those that are set out below.

Population and Human Health

- At a community level, the PRD would result in significant to very significant positive impacts (benefits) on population arising from improved safety for road users and improved journey times, reliability, amenity and connectivity. Specifically, it would deliver improved connectivity between Limerick city, Shannon Foynes port and the immediate areas of the southern region as well as nationally and on the road-based infrastructure (core and comprehensive components) of the TEN-T road network connecting Ireland to Europe, which would benefit the movement of goods and people and the wider economy and society.
- Some negative impacts would arise for specific businesses particularly in Adare and Croagh as well as other villages along the N21 and the N69 that are largely reliant on passing trade, though signposting is proposed to direct road users to the services at these locations which would reduce the impact. However, it is acknowledged that while loss of passing trade will lessen over time for the majority of affected businesses, some individual businesses may continue to experience moderate to significant impacts.
- With the removal of strategic transport from the existing road network, the bypassed villages have potential to improve their urban environment and economic, tourism and social potential and regain their sense of place. The removal of congestion in Adare would be a particular benefit. The existing road network would become more suitable for improved outdoor recreational activity and active travel including walking and cycling which are recognised as a means of improving health and wellbeing.

- With respect to human health, I am satisfied that with effective mitigation of environmental effects, particularly noise, vibration and air quality, no residual adverse human health impacts would continue at a community or individual level.
- It is acknowledged that individuals whose homes would be compulsorily acquired may experience a level of stress or anxiety as a result of the process and there are no means to mitigate such losses through the EIA process. However, while this negative impact is unavoidable, it would not equate to a significant adverse impact on human health and is considered acceptable in the wider context of the overall public benefits of the proposed road development. It is proposed that the applicant would proactively engage with affected individuals and landowners in this regard.
- Negative impacts that are predicted to arise can be avoided, managed, and mitigated to an acceptable level by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. Therefore, the proposed development would not have any remaining unacceptable significant direct, indirect, or cumulative residual impacts in the short, medium and long term on population or human health.
- It is acknowledged that the health benefits of the proposed road development would not be felt equally by every individual in the community.
- It is acknowledged that the health benefits of the proposed road development would not be felt equally by every individual in the community.

Noise and Vibration

- During the construction phase, there would be an inevitable increase in noise levels as a consequence of the construction activity. At locations where, and at times when, the construction noise limit values deemed acceptable with reference to TII Guidance documents and, as set out in Table 12.1 of Chapter 12 (Noise and Vibration) of the EIAR, would be exceeded, significant impacts would arise for sensitive properties.
- The applicant's strategy is that of controlling noise levels at source in the first instance followed by the use of mitigation at sensitive properties to prevent

exceedance of the noise criteria/limit values. Contractual obligations would ensure that construction operations causing noise exceedance would be suspended until suitable protections are adopted to prevent any further exceedance. A designated noise liaison officer would be appointed to site during construction works.

- It is acknowledged however, that notwithstanding implementation of noise mitigation measures, a potential temporary significant impact would likely remain at properties up to 80m distance from high intrusive activities, primarily at areas of rock breaking. Where night-time works would be required at specific locations, noise limits would be applied taking into account the pre-existing noise environment.
- Vibration impacts from rock-breaking activities are rated as not significant and short-term in terms of building response, and up to significant over temporary periods in relation to human perceptibility. Clear communication and vibration monitoring measures are proposed.
- Blasting of rock is proposed at specific areas of deep cut and whilst high noise levels are associated with an individual blast, the effects would be momentary. The design of all blasts would be undertaken to ensure the limit value for Peak particle velocity is not exceeded at the nearest sensitive buildings. The control of air overpressure at receiver locations would be undertaken at source through careful blast design. A Public Communications Strategy would be implemented prior to the commencement of any blast works and property condition surveys will be offered for all buildings within 50m of the proposed development boundary and those within 150m of proposed blasting works along the project and Ballyclogh house, which is a sensitive structure for the reasons set out in the assessment above. Vibration and noise monitoring would be undertaken during all blast events.
- During operation, whilst the proposed road development would result in increased operational noise levels at noise sensitive locations along its route, with the incorporation of effective noise mitigation measures, traffic noise levels at or below the adopted Transport Infrastructure Ireland absolute noise design criterion of 60dB L_{den} can be achieved and the 'do-something' noise levels can be reduced to the equivalent 'do-minimum' traffic noise levels for

the majority of sensitive receptors. This would protect the majority of the exposed population being 'highly annoyed' by road traffic noise.

- Exceedances would arise at two properties who would experience a residual noise impact marginally in excess of the Transport Infrastructure Ireland absolute noise design criterion. Noting the provisions of the Transport Infrastructure Ireland Guidelines for such a scenario, and also noting the need to balance the provision and scale of noise barriers against other consideration, such as visual impact, the proposed development would not have any unacceptable direct, indirect or cumulative noise and vibration impacts.
- A positive significant impact would be experienced at properties along the existing N69 and N21 national roads where traffic would be diverted from, and a reduction in noise would arise in these areas.
- For reasons outlined in the assessment, it can be concluded that the correct Transport Infrastructure Ireland guidance was applied in respect of the design of the noise mitigation along the proposed road development and that there is no contradiction between the 'Good Practice Guidelines for the Treatment of Noise during the Planning of National Road Schemes' (TII, 2014) and Environmental Noise Guidelines for the European Region, (WHO, 2018), as they serve different purposes.

Biodiversity

- While the PRD is a major engineering project with potentially significant impacts on biodiversity, I am satisfied that a detailed assessment of the biodiversity in the area that would be impacted by the PRD has been undertaken. Key ecological receptors including protected nature conservation sites and species, ecological sites and individual species have been assessed and appropriate mitigation measures has been put forward. Following implementation of mitigation measures outlined, the PRD would not result in any significant negative impacts on biodiversity within the study area.
- The measures taken to avoid, prevent, reduce and offset significant adverse effects on the environment, in particular on species and habitats protected under the Habitats Directive, Birds Directive and the Wildlife Act 1976, as

amended, will contribute to the avoidance of a deterioration in the quality of the environment and significant loss of biodiversity.

- Residual impacts on biodiversity will remain even after the application of mitigation measures due to habitat loss and fragmentation with permanent moderate negative impacts at 8 no. Key Ecological Receptor sites. Of these, KER 11 involves the loss of and fragmentation of Annex I Alkaline Fen habitat and effects on the whorl snail *V. moulinsiana*.
- Significant adverse effects on species and habitats protected under Council Directive 92/43/EEC (Habitats Directive) and Directive 2009/147/EC (Birds Directive) are excluded through avoidance of direct impacts by project design and the application of mitigation measures to prevent deterioration of water quality and disturbance of species.
- Significant residual effects on movements of Lesser Horseshoe Bat in the wider landscape, on Barn owl and badgers will be avoided through the application of mitigation measures designed to maintain ecological connectivity throughout the landscape and the application of specific landscape design measures. Any remaining residual effects are of a slight negative magnitude, reducing over time as landscape measures mature.

Soils and Geology

- There will be impacts associated with the loss of soil along the route and the use of natural resources, including aggregates, to construct the proposed road development. These would be mitigated to some extent by the re-use of excavated materials in the construction process and potentially in the development of on-site borrow pits or the use of ground improvement methods. Other construction phase impacts would be avoided, managed and/or mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan and the additions to the Schedule of Environmental Commitments. Therefore it can be reasonably concluded that no significant adverse impacts would arise on soils or geology as a result of the construction and operational phases of the development. The deep cuttings may result in a minor positive

educational impact or benefit as a result of facilitating an enhanced geological understanding of a site by exposing geological strata to view.

Water – Hydrology

- Surface water quality impacts arising from the construction phase and earthworks would be avoided, managed and/or mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan, and the Construction Erosion and Sediment Control Plan contained within that plan, and the additions to the Schedule of Environmental Commitments as well as through obtaining necessary consents and consultation with prescribed bodies including Inland Fisheries Ireland and Irish Water.
- During the operational phase, water quality impacts arising from road runoff or accidental spillages would be mitigated through the design of the drainage system for the proposed road development and in particular the use of attenuation ponds. The proposed drainage system would incorporate a range of pollution control measures, including filter drains, sealed drainage systems, use of a vegetated lined wetland system upstream of outfalls and through the incorporation of engineered attenuation ponds. Stormwater runoff management through attenuation would reduce risk of flooding to 1% annual exceedance probability flood event.
- The proposed road development is also likely to indirectly enhance water quality to a degree, due to the transfer of a greater volume of traffic onto the new road infrastructure with improved managed drainage.
- It is demonstrated that with the adoption of the mitigation outlined, there is no risk that the surface water bodies would fail to achieve or maintain the environmental objectives set out in the Water Framework Directive as a result of the proposed development, alone or cumulatively with other projects.
- Subject to implementation of the mitigation measures proposed, it can be reasonably concluded that no significant adverse direct impacts would arise on water (hydrology) as a result of the construction and operational phases.

Water – Hydrogeology

- Groundwater quality impacts arising from the construction phase and earthworks would be avoided, managed and/or mitigated by the measures that form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan and the Construction Erosion and Sediment Control Plan and the additions to the Schedule of Environmental Commitments.
- There would be impacts on a number of existing wells which will be lost as a result of the proposed development. This will be mitigated by the provision of replacement wells or alternative water sources, as appropriate.
- If a permanent reduction in yield at Craggs-Barrigone Group Water Scheme arises, and a suitable alternative borehole cannot be found, the developer has confirmed a permanent connection would be facilitated.
- Impacts on groundwater-dependent habitats will be avoided through the alignment and design of the road development or mitigated through measures such as flow control and pollution control measures. There will be no groundwater lowering within groundwater bodies that support groundwater-dependent habitats within a European Site.
- It is demonstrated that with the adoption of the mitigation outlined, there is no risk that the ground water bodies would fail to achieve or maintain the environmental objectives set out in the Water Framework Directive as a result of the proposed development, alone or cumulatively with other projects.

Archaeology, Architectural and Cultural Heritage

- There would be potentially significant negative direct and indirect impacts on a number of archaeological and built heritage sites which will be mitigated by exclusion zones, measured surveys, written and photographic records, a programme of archaeological test excavations carried out in accordance with Ministerial Directions issued to Limerick City and County Council under Section 14A(2) of the National Monuments Acts (1930 – 2014), preservation in situ or relocation of assets (in certain instances) and underwater or wade surveys on 12 streams carried out in accordance with Ministerial Directions

issued to Limerick City and County Council under Section 14A(2) of the National Monuments Acts (1930 – 2014).

- The archaeology aspects would be carried out under the supervision of a project archaeologist appointed by Transport Infrastructure Ireland. Potential impacts on unknown archaeological features will be mitigated or avoided through monitoring of construction works by an archaeologist and excavation where appropriate.
- Where impacts have been identified, as set out above, these would be avoided, managed or mitigated by a range of measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Archaeology, Cultural Heritage and Architectural Heritage** resource within the study area.

Climate and Air Quality

Air Quality

- In respect of air quality, the residual impacts on air quality during construction and operation phases would be no greater than imperceptible for the construction and operation phases.
- Potential air quality impacts would be avoided, managed and mitigated by the measures that form part of the proposed scheme, the proposed mitigation measures such as the dust minimisation plan and the commitments set out in the Schedule of Environmental Commitments and through suitable conditions.

Climate

- The proposed road development has been assessed in the context of a broad ranging climate focussed policy, including the Paris Agreement, the European Green Deal and EU Climate Law, The Climate Action and Low Carbon Development Amendment Act 2021 and Ireland's national Climate Action Plan 2021 (CAP21), all which set out aims and objectives for reducing emissions on the trajectory to a climate neutral Europe in 2050. The National Development Plan is aligned with the National Planning Framework, which

collectively form Project 2040. The National Development Plan has been designed to ensure that it supports the government's climate ambitions set out in the Climate Action Plan 2021.

- In the context of the pressing need to reduce greenhouse gas emissions, the clear intention at an EU and national level is that the decarbonisation of the transport network will require taking on board a range of measures including the move towards EVs and LEVs, the use of other forms of non-fossil based alternative fuels and the use of electricity generated from renewable sources for charging of batteries for EVs.
- The binding requirements for the delivery of the road-based components of the TEN-T core and comprehensive network by 2030 and 2050 are a key pillar in achieving a high-quality and safer road network in which to allow for more sustainable transport brought about by reduced congestion, improved flow of traffic and corresponding reduction in transport emissions.
- By 2030, the objective of Europe's proposed Sustainable Mobility and Transport Strategy is there will be at least 30 million zero-emission cars in operation on European roads, and the overall aim is to make each mode of transport more efficient and by enabling increased transport activity by more sustainable forms of transport. Ireland's aim, as set out in Climate Action Plan 202, is to have almost one million passenger electric vehicles on Irish roads by 2030.
- The greenhouse gas emissions that would be generated would not be so significant as to have a long-term detrimental impact on the Government's ability to meet its 2030 and 2050 carbon targets. Noting the calculations set out above and having regard to the objectives of the project and the strong policy support for the project at an EU, national, regional and local level, it can be concluded that the environmental effects on climate would be short-term moderate adverse during construction (where the greenhouse gas emissions are highest) and slight adverse during operation.
- In respect of climate adaption, the proposed road development has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and

climatic conditions. Flood risk has been considered in the hydrology assessment where the risk is deemed to be very low.

Material Assets and Land – Agriculture

- The acquisition of the land required to construct the proposed road development would have a range of negative impacts on farms and their landowners and occupants, including impacts that are significant, very significant and profound. Other related impacts arise because of issues such as severance, impacts on farm viability, disruption and impacts on the availability of services. Following mitigation, significant impacts would remain for 22 landowners.
- The loss of land and property required to develop the proposed road development would not be avoided, mitigated or otherwise addressed by means of condition. There is no mitigation for this impact within the Environmental Impact Assessment process. Impacts due to land severance are mitigated to a degree through the proposed provision of alternative access arrangements and services. However, the agricultural enterprises that are significantly adversely affected are likely to require major changes to their operations, management and scale and there is no mitigation for this impact within the Environmental Impact Assessment process.
- With regard to the other potential impacts assessed under this environmental heading, significant potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions.

Material Assets and Land – Agriculture (Equine)

- It is accepted that impacts on horses can arise from abnormal noise and visual stimuli during the construction phase of the development and that this may be quite intrusive to horses in the immediate vicinity. However, horses are adaptive to environmental changes and quickly adapt to aural and visual stimuli associated with normal traffic flow. In this regard and following mitigation proposed, including noise barriers and supplementary equine barriers where deemed required, impacts would be reduced to an acceptable

level so that no significant impacts would arise on equine enterprises from noise or visual stimuli.

- The results of the nine equine property assessments found that with the adoption of mitigation, four holdings would be significantly impacted (three directly and one indirectly). These impacts are due primarily to land loss and land severance, loss of direct access, and in one case acquisition of a farmyard and farm buildings which cannot be mitigated through the EIA process. These impacts are typical of other major road infrastructure development projects and are acceptable when the wider public interest that would be served by the project is considered.
- It can therefore be concluded that the proposed road development would not have any unacceptable direct, indirect or cumulative impacts on Materials Assets and Land – Agriculture (Equine).

Material Assets and Land – Non-Agriculture

- The proposed loss of non-agricultural land and property, following the implementation of mitigation measures where applicable, would result in significant or greater level of impact on 15 non-agricultural properties. These impacts include the combined acquisition of nine dwelling houses (including two uninhabited) from agricultural and non-agricultural lands/properties where no mitigation is available.
- With respect to the acquisition/demolition of houses, it is acknowledged that this would result in a significant to profound permanent negative impact on homeowners, including an established family home at Ardshanbally, in particular (ch.61+175). The impact on this house and other houses and their owners and occupiers would not be avoided, mitigated, or otherwise addressed by means of condition. There is no mitigation for this impact within the Environmental Impact Assessment process. Notwithstanding the remaining impacts rating from significant to profound, the residual impact would not justify a refusal, having regard to the compelling case for the proposed road development and the resulting wider public benefits.
- In relation to the loss of land/development land and the reduction in area of a commercial building, while these would not be mitigated to below an impact

rating of significant, the residual impacts would be acceptable for similar reasons set out above, including the greater public interest that would be served by the approval and delivery of the proposed road development.

Traffic

- The proposed road development would substantially reduce the level of traffic on the existing N69 and N21 road corridors, as traffic, including a high-volume of heavy-goods vehicles, would transfer to the proposed road development due to the journey-time saving and reliability benefits it is designed to provide. This would lead to several significant direct benefits and positive impacts including improved road safety, accessibility, improved journey times and journey reliability. It would allow for similar improvements for journeys by public transport. The proposed road development would also result in improved safety for pedestrians and cyclists because of reduction in traffic through urban settlements along the existing road network and throughout the wider rural area. It would provide enhanced opportunity for a change of travel mode when travelling between the towns and villages in the area. The road types and cross-sections chosen are justified on the basis of policy, road safety, capacity and include sufficient and proportionate headroom for future traffic needs.
- It is wholly recognised that a modal shift from the private car to more sustainable modes of traffic is a necessary part of delivering sustainable transport. However, the proposed road development and public transport/active travel modes are not mutually exclusive. The proposed road development is a planned strategic TEN-T route that is necessary to allow for improved connectivity of the road-based element of transport infrastructure across the region and nationally and to link forward with European strategic road-based infrastructure.
- Where negative impacts have been identified including traffic delays and diversions during the course of construction, these would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions.

Landscape and Visual

- The construction phase of the proposed road development would result in a range of landscape and visual impacts on certain landscapes and receptors, including significant and profound impacts during construction. The mitigation measures proposed during this phase will have limited effect due to the nature and scale of the development, and it is considered that the negative landscape and visual impacts would continue during the construction phase. Having noted the linear nature of the development and that construction activities are a familiar feature in the landscape, these landscape or visual impacts would be acceptable.
- The proposed road would contrast with the existing countryside so there is a likelihood that it will generate negative landscape impacts at a local level. However, as the new planting becomes established, the impact is considered a slight negative impact in the wider landscape context. In designing the landscape strategy, the applicant opted to use vegetation appropriate to the local landscape. Account was taken of the requirements of ecological features and the long-term management of the landscape following completion of construction. Following construction and again as planting becomes established, visual impacts would be reduced to no greater than moderate for the majority of receptors, however, significant impacts would remain on four properties adjacent to structures where the structures would remain visible in views for the long-term. Notwithstanding the inability of the proposed measures to mitigate the visual impact of the proposed road development on these properties, it is considered that the residual impacts following mitigation would not outweigh the public benefit of the proposed development.

Vulnerability to Major Accidents and Disasters

- The proposed road development, while a major engineering project requiring large scale earthworks, is not of a type likely to cause significant effects on the environment arising out of major accidents or disasters within the meaning of the Environmental Impact Assessment Directive and the Roads Act 1993, as amended. This is particularly so as the project has been designed with a demonstrated knowledge of the baseline environment. Furthermore, it is

designed to modern engineering standards and on the basis of avoiding significant environmental effects and adopting appropriate mitigation measures.

Cumulative Impacts and Impacts from interactions

- It is considered that effects as a result of interactions, indirect and cumulative effects can be avoided, managed or mitigated by the measures which form part of the proposed development, the proposed mitigations measures detailed in the Environmental Impact Assessment Report, additional documentation furnished and with suitable conditions. There is, therefore, nothing to prevent the approval of the development on the grounds of significant environmental effects as a result of interactions between the environmental factors and as a result of cumulative impacts or impacts arising from interactions between environmental factors.

Notwithstanding the conclusion reached in respect of the inability of the proposed measures to fully mitigate the significant negative residual impacts in respect of various environmental matters as set out above, it is considered that these environmental impacts would not justify a refusal, having regard to the overall benefits of the proposed road development including its identified strategic importance at European, national, regional and Local level, its role in alleviating congestion through Adare and its role in facilitating sustainable population and economic growth for Limerick and the southern region, as identified in the National Planning Framework and regional and local statutory plans. These matters outweigh any negative impacts identified in relation to the construction and operation of the proposed development.

13.0 Appropriate Assessment

13.1. Legislative context and assessment

13.1.1. I am satisfied that the proposed Foynes to Limerick Road (including Adare bypass) has been considered in light of the requirements of Sections 177U and 177V of the Planning and Development Act 2000, as amended. I consider that the Board can be

confident that the information and assessment before them is complete, precise, and definitive for the purpose of Appropriate Assessment.

13.1.2. I fully adopt the assessments undertaken by the Inspectorate Ecologist Dr Maeve Flynn and her recommended determinations for Stage 1 Screening and Stage 2 Appropriate Assessment (Appendix C of my report). I consider that both screening and Appropriate Assessment have been carried out using the best available scientific information as provided by the following:

- the Natura Impact Statement (including screening report);
- additional information sought by the Board and furnished by the applicant in relation to an NIS addendum and the inclusion of Sea Lamprey in the assessment;
- information obtained by the Board at the oral hearing including briefs of evidence and expert witness testimony;
- written and oral submissions and observations made during the course of the application;
- other relevant information such as that contained in the EIAR;

13.2. **Appropriate Assessment Screening determination (Stage 1)**

13.2.1. In screening the Foynes to Limerick Road (including Adare bypass) for appropriate assessment, it has been determined that the development alone is likely to result in significant effects on the Lower River Shannon SAC (site code:002165) and the River Shannon and River Fergus Estuaries SPA (site code: 004077) in view of a number of the conservation objectives of those sites. There is uncertainty regarding possible significant impacts on two further sites namely, Curraghchase Woods SAC (site code: 000174) and Askeaton Fen Complex SAC(site code: 002279) therefore appropriate assessment is required.

13.2.2. The possibility of significant effects has been excluded for other European sites on the basis of objective information including distance from the sites, lack of meaningful ecological connections or that connections are weak and pose no significant risk alone and there are no effects that could combine with other plans

and projects to give rise to significant in combination effects in view of the conservation objectives of those sites.

13.2.3. European sites excluded from further assessment include Barrigone SAC, Tory Hill SAC and Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

13.3. **Other Matters**

13.3.1. The AA Report addresses the third-party submissions. Dr Flynn addresses all the issues raised by the various parties, both in written format and as raised at the oral hearing. Dr Flynn succinctly addresses those issues and, where relevant, points to her response as addressed in the AA Report. Other issues raised that have not been specifically addressed within the report are fully responded to in her report. I am satisfied that all submissions and concerns raised have been adequately addressed in the AA Report.

13.4. **Appropriate Assessment and determination (Stage 2)**

13.4.1. Having carried out screening for Appropriate Assessment of the proposed development, it was concluded that it would be likely to have a significant effect on the following European sites part of the Natura 2000 network:

- Lower River Shannon SAC (site code:002165);
- The River Shannon and River Fergus Estuaries SPA (site code: 004077);

In addition, effects were considered uncertain for the following European Sites:

- Curraghchase Woods SAC (site code: 000174);
- Askeaton Fen Complex SAC (site code: 002279).

13.4.2. 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.

13.4.3. Following Appropriate Assessment informed by a Natura Impact Statement, further information, information gathered at the oral hearing, submissions and observations and including the full application of mitigation measures, it has been determined by

the inspectorate ecologist that the Foynes to Limerick Road (including Adare Bypass) development, individually or in combination with other plans or projects would not adversely affect the integrity of Lower River Shannon SAC, The River Shannon and River Fergus Estuaries SPA, Curraghchase Woods SAC or Askeaton Fen Complex SAC in view of the Conservation Objective of those sites.

13.4.4. This conclusion is based on a complete assessment of all aspects of the proposed road development including consideration of the following in view of the conservation objectives of those sites:

- It has been proven through detailed survey and analysis that there will be no loss or deterioration of Annex I or priority habitats where the proposed road scheme intersects directly with the Lower River Shannon SAC at the River Maigne bridge crossing due to the design of the scheme and no loss of supporting habitats or species required to maintain the functioning of this habitat or other Annex I habitats that form the qualifying interests of that site or other European Sites.
- Following the implementation of mitigation measures to prevent any deterioration in water quality during construction or operation, the proposed development will not adversely affect the integrity of Annex I habitats and similarly, adverse effects on Annex II aquatic species including Sea Lamprey, River Lamprey and Atlantic Salmon will be prevented.
- The Foynes to Limerick Road (including Adare Bypass) will not pose an impediment to Otter movements within or outside the Lower River Shannon SAC and mitigation measures including the installation of mammal ledges, culverts and mammal resistant fencing will reduce habitat fragmentation and ensure permeability across the footprint of the road scheme.
- Survey and analysis of wintering waterbirds including whooper swan has demonstrated that no significant levels of disturbance will arise that could undermine the conservation objectives of the bird assemblages of the SPA. Following the implementation of mitigation measures to prevent any deterioration in water quality during construction or operation, the proposed development will not adversely affect the integrity of The River Shannon and River Fergus Estuaries SPA in view of the conservation objectives for

wintering waterbird species and wetlands and waterbirds and no reasonable doubt remains as to the absence of such effects.

- Following the implementation of mitigation including dedicated passage facilities and landscaping measures to maintain habitat connectivity for Lesser Horseshoe Bats, the construction and operation of this proposed development will not adversely affect the integrity of Curraghchase Woods SAC in relation to conservation objectives for Lesser Horseshoe Bats and no reasonable doubt remains as to the absence of such effects.
- Following detailed hydrological assessment, it has been demonstrated that the PRD will not alter the hydrological regime that supports the functioning of the Fen Complex. With the implementation of integrated design measures and water quality mitigation, the construction and operation of this proposed development will not adversely affect the integrity of Askeaton Fen Complex and no reasonable doubt remains as to the absence of such effects.
- The Foynes to Limerick Road (including Adare Bypass) will, through the design and application of mitigation measures, ensure the preservation of the favourable conservation status of habitats characterised as being in favourable status and ensure that habitat characterised as being in unfavourable status will not be further harmed or rendered difficult to restore to favourable status.
- The Foynes to Limerick Road (including Adare Bypass) will, through the design and application of mitigation measures, ensure the preservation of the favourable conservation status of Annex II species characterised as being in favourable status and ensure that species characterised as being in unfavourable status will not be further harmed or rendered difficult to restore to favourable status.
- The Foynes to Limerick Road (including Adare Bypass) development will, through the design and application of mitigation measures as detailed and conditioned ensure the lasting preservation of the essential components and characteristics of European Sites.

- The mitigation measures which follow the mitigation hierarchy of avoidance, design and direct measures to reduce impacts have been assessed as effective and fully implementable.

13.4.5. Therefore, the appropriate assessment has demonstrated beyond reasonable doubt that adverse effects on the integrity of European Sites can be excluded.

14.0 Assessment of Application for approval of Schemes

14.1. Introduction and overview

14.1.1. This section of my report deals with the application for approval under section 49 of the Roads Act 1993, as amended, of the Foynes to Rathkeale Protected Road Scheme, 2019 (the 'Protected Road Scheme'), the Rathkeale to Attyflin Motorway Scheme, 2019 (the 'Motorway Scheme') and the Foynes Service Area Scheme, 2019 (the 'Service Area Scheme'), which are collectively referred to as the 'Schemes'. The schemes were made by LCCC as the roads authority under Section 47 of the Roads Act 1993, as amended and if approved by order under Section 49 by the Board, LCCC would be authorised under Section 52 to compulsorily acquire any land or any rights specified in the approved schemes. For that purpose, approval of the schemes would have the same effect as if it were a CPO in respect of that land or any rights in relation to land which, consequent on a decision made by the road authority, pursuant to section 10 (1) of the Local Government (No. 2) Act, 1960 (as inserted by section 86 of the Housing Act, 1966), had been duly made and confirmed.

14.1.2. The **total extent** of the land to be acquired would amount to c.399ha²³. The area of land to be acquired from **agricultural holdings** is c.332ha (comprising 323ha agricultural lands, 2.5ha of other lands and 5.4ha of public road). The area to be acquired from **non-agricultural properties** is 68.9ha (comprising 19.8ha of land and also 49.1ha public road).

14.1.3. The extent of land is shown shaded in yellow, blue, green and grey on the submitted Deposit Maps, FLRS-DEP-PRO-01 to 13 inclusive, FLRS-DEP-MOT-01 to 12

²³ As updated in Section 4.15 (Land Acquisition) of the Corrigenda submitted to the Board on 15th of February 2021.

inclusive and FLRS-DEP-SER-01, details of which are contained in the submitted schedules. The land uses have been set out in Chapter 15 (Material Assets and Land – Agriculture) and Chapter 16 (Material Assets and Land – Non-Agriculture) of the EIAR and are referred to, as necessary, in the assessment below.

14.1.4. Nine houses including two that are uninhabited would be acquired and overall, 72 non-agricultural properties would be directly impacted by the PRD.

14.1.5. Accommodation works are proposed to be carried out for affected landowners and these include the provision of access roads, entrances, fencing, gates, walls, ducting and the reconnection of services.

14.2. Modifications put forward by the applicant

14.2.1. During the oral hearing, LCCC applied to modify Schedule 1, Part 1; Schedule 1, Part 2; and Schedule 4 of the Foynes to Rathkeale Protected Road Scheme 2019, so as to reflect the interest of the Craggs Barrigone Group Water Scheme Ltd. in the following plots:

- Schedule 1 (Part 1) : 109a.102, 109a.110, 109a.113, 109a.114, 110a.102;
- Schedule 2 (Part 2) :109a.104, 110a.103;
- Schedule 4: 109a.104, 109a.401, 110a.401, 110a.402, 110a.103.

14.2.2. In addition, Sheet 07 of 13 of the updated deposit maps for the Foynes to Rathkeale Protected Road Scheme 2019 submitted at the oral hearing included the correction of a typographical error on the deposit map as it relates to Plot 309 (change of plot 309a.110 to 309a.116).

14.3. Overview of Objections

14.3.1. As noted in section 7 (Objections to the Section 49 Application) above, 122 objections were made from affected landowners in respect of the application seeking approval under Section 49 of the Roads Act 1993. However, at the time of finalising this report, some 34 objections (29 parties) remain, which have not been formally withdrawn. The list of affected landowners with remaining objections is set out below. For ease of reference, I have generally adopted the references used by the applicant and I set out the names of the remaining objectors below. It should be noted that a

number of parties submitted two or more objections in respect of the same plot, and these have been grouped in the assessment below.

Table 23 List of Remaining Objectors on the Section 49 application

Objection Reference	Landowner/Objector and Agent (if Applicable)	Participated in Oral hearing (Yes/No)
Martin & Rea (William Martin, Cork Office/Practice)		
Sch-7	Brendan and Emer Hayes (See also Sch-8)	Yes
Collier International		
Sch-8	Brendan Hayes (See also Sch-7)	Yes
FBA		
Sch-35, Sch-34	ABP-306199-19 - Francis O'Kelly and Francis & Ann O'Kelly	Yes
Sch-86	Patrick O'Sullivan	No
Miley Solicitors		
Sch-21	Denis Lane	Yes
Nagle Agricultural Consultants		
Sch-53	John O'Connor	No
SLR Consulting		
Sch-42	Irish Cement Ltd	No
Ciaran Sudway Associates		
Sch-37	Gerard & Donal Hayes	No
Sch-9	Bryan Murphy (Ciaran Sudway Associates (written submission); William Fry & Michael O'Donnell BL (oral hearing) on behalf of Byran and Iseult Murphy.	Yes
Sudway and Co.		
Sch-102	Sandra Barnwell & John Myers	No
Sch-14	Clonshire Equestrian Centre and Limerick Foxhounds	No
Sch-17	Cornelius Giltenane	No
Sch-47	Joan Kennedy	No
Sch-30, Sch-88 and Sch-89	Eileen Madden (Sch-30); Paul & Eileen Madden (Sch-88); Paul Madden (Sch-89)	Yes
Martin & Rea (Richard Rea, Tipperary Office/Practice)		

Sch-50	John Brennan	Yes
Sch-97	Ruairí Brennan	Yes
Sch-100	Sam & Nicola Brennan	Yes
Sch-64 and Sch-116	Maeve & Thomas Kelly (Sch-64); Tom & Maeve Kelly (Sch-116).	Yes
Sch-71	Melissa & Sean Cahill	Yes
Sch-77	Miriam O'Mahoney	Yes
Sch-95	Reps of James Reidy	No
Sch-78	Nano & Patrick Reidy	Yes
Sch-2	Aidan & Elaine Becton	No
Individuals/Groups – No representatives		
Sch-3	Aiden Hanley	No
Sch-43 and Sch-70	James A Dore (Sch-43); Mary Dore (Sch-70)	No
Sch-84	Patrick O'Connell	Yes
Sch-108	Stephen & Bridget Keary	Yes
Sch-121	Barrigone Group Water Scheme	Yes
Env-24	Lowell Shier	Yes

14.4. Assessment

- 14.4.1. As set out in the introduction and overview above, if the Board approve the schemes, this would have the same effect as if it were a CPO in respect of that land or any rights in relation to land which, consequent on a decision made by the road authority, pursuant to section 10 (1) of the Local Government (No. 2) Act, 1960 (as inserted by section 86 of the Housing Act, 1966), had been duly made and confirmed.
- 14.4.2. It is well established that a power of compulsory acquisition should only be used in the public interest and that the onus of establishing that the acquisition is in the public interest lies with the acquiring authority. As set out in the judgement of Geoghegan J. in **Clinton v An Bord Pleanála (No. 2) [2007] 4 I.R. 701** (hereafter referred to as 'Clinton'), the State's power to limit property rights is conditional on the existence of a **need for such limitation** based on the **exigencies of the common good**.
- 14.4.3. It has been suggested in 'Compulsory Purchase and Compensation in Ireland: Law and Practice, Second Edition, Eamon Galligan, and Michael McGrath (2013)', that there is requirement to satisfy the following minimum criteria:

- There is a **community need** that is to be met by the acquisition of the property in question;
- The particular property is **suitable to meet that community need**;
- Any **alternative methods** of meeting the community needs have been considered but are not demonstrably preferable (taking into account environmental effects, where appropriate);
- The works to be carried out should accord with or at least **not be in material contravention of the provisions of the statutory development plan**.

14.4.4. Furthermore, as set out in Chapter 10 of ‘Simons on Planning Law’, Third Edition, David Brown (2021) ‘proportionality of ends requires consideration of whether the measure will have an excessive or disproportionate effect on the interests of affected persons’.

14.4.5. The assessment of the application is advanced below in the context of the above tests. A number of objections received contend that the acquisition of certain lands or interests in land would be disproportionate, excessive or unnecessary. In presenting his case at the oral hearing on behalf of Bryan and Iseult Murphy (Sch-9), Mr Michael O’Donnell asserted that property rights of landowners are expressly protected under the Irish Constitution. He referred in particular to **Clinton** referenced above and also to **O’Brien v. Bord na Móna [1983] I.R. 255**. Mr Fitzsimons, for the applicant stated that the confirming authority must be satisfied that the acquisition of the property is clearly justified by the exigencies of the common good. Mr Fitzsimons also asserted that under section 47(2) of the Roads Act 1993, as amended, land can be compulsorily acquired pursuant to a motorway, protected road or service area scheme, if that land is required ‘for the purposes’ of the scheme and that includes ‘land **necessary or incidental** to the construction or maintenance’ of the proposed road development.

14.4.6. Mr O’Donnell asserted that the Board must apply a test of proportionality. Mr Fitzsimons referred to the ‘proportionality test’ being one of the consequences of the European Convention on Human Rights Act 2003 and submitted that there is overwhelming evidence to satisfy the requirement given that the need for the schemes is one that advances the common good.

- 14.4.7. In support of his case on behalf of Mr and Mrs Murphy, Mr O'Donnell BL referred to '**Wicklow County Council v Fortune**' at the oral hearing. There are a number of legal cases that refer to Ms Katie Fortune and Wicklow County Council. Those that align closest to the points made by Mr O'Donnell in respect of protecting property rights are **Wicklow County Council v Fortune (No.1) [2012] IEHC 406** and **Wicklow County Council v Fortune (No.2) [2013] IEHC 255** legal cases. In respect of the aforementioned cases, Hogan J. found that while Ms Fortune had unlawfully constructed her chalet, the guarantee of the inviolability of the dwelling in Article 40.5 of the Constitution meant that, having regard to the specific facts of that case, it should not be demolished. For clarity, it is relevant to distinguish the aforementioned 'Fortune' legal cases from the current proposal as unlike in Fortune, the current proposal does not include the acquisition of the Murphy family home (Property D56-011). Where other houses are proposed to be acquired, one objection has been received (and not withdrawn) and the concerns raised under Sch-34 and 35 and at the oral hearing are considered below. Similar concerns were raised relating to the loss of this house at the oral hearing in respect of the Section 51 application seeking approval of the PRD and these concerns have also been considered as relevant in my assessment of that application above.
- 14.4.8. Mr Fitzsimons also noted the principles that must be applied in respecting property rights of affected landowners. He referred to legal cases including **Clinton, O'Brien** referred to above and **East Donegal Co-operative Livestock Mart Ltd. v. Attorney General [1970] I.R. 317**. He also referred to **Blascaod Mór Teo v. Commissioners of Public Works (No.3) [1999] IESC 4**, where Budd J. linked the concept of the 'exigencies of the common good' (in Article 43.2.2 of the Constitution) with the doctrine of proportionality and that 'exigencies' has a connotation of more than 'useful', 'reasonable' or 'desirable', but rather means 'necessary' and implies the 'existence of a pressing social need'. He also referred to the Supreme Court case **Reid v. Industrial Development Agency [2015] 4 I.R. 494**, where McKechnie J. held in that interference with a property right must 'be justified or necessitated by the exigencies of the common good' and that the impairment of such rights 'must not exceed that which is necessary to attain the legitimate object sought to be pursued' and that the 'interference must be the least possible consistent with the advancement of the authorised aim which underlines the power'.

14.4.9. Based on all of the points advanced and by reference to legal cases outlined, I am satisfied that there is no dispute on the matter that the Board as the consenting authority must be satisfied that the acquisitions and interference with land/property rights are exercised in accordance with the requirements of the constitution, including respecting the property rights of the affected landowners and must be clearly justified by the 'exigencies of the common good', meaning that in pursuing the aims and objectives of the PRD, the required acquisitions/interference with property rights must be necessary to fulfil a pressing social need and must be based on the 'least possible' means of interference with the lands/properties. Such principles are central to my assessment below in which I address each of these criteria in turn, together with the issues arising in objections received from individually affected landowners. The Board will note that there is some overlap in my assessment below with the preceding sections of this report and, therefore, this section should be read in conjunction with same, where relevant.

14.5. **Community Need**

- 14.5.1. The pressing social and community need for the PRD is clearly necessary based on the rationale put forward by the applicant in the EIAR, particularly in Chapter 2 (Policy Context and the Need for the Proposed Development), Chapter 4 (Description of the Proposed Development) and Chapter 5 (Traffic Analysis), as well as in briefs of evidence presented to the hearing, most notably those addressing engineering, planning and traffic considerations.
- 14.5.2. The need for the schemes has been clearly set out by the applicant. Collectively they would allow the delivery of the PRD that is required to meet policy objectives at a European, national, regional and Local level in respect of road-based infrastructure. The schemes would facilitate the improvement and connectivity for the region and beyond, including connecting Limerick to the Tier-1 port of Shannon-Foynes on the TEN-T core road network. The schemes would also facilitate the improvement of road safety and would address the inefficient traffic delays and congestion on the N21 through Adare in particular and also Croagh. If approved, the schemes would facilitate an improved environment for the functioning and planned growth of the area and would provide high-quality road infrastructure to allow for safer, reliable private and public transport.

- 14.5.3. The need for a Service Area for HGV traffic is set out as providing appropriate facilities for commercial/HGV drivers and I note that it follows appropriate TII policy and standards in respect of the provision of such services. The PRD would provide bypasses of six urban settlements, including Adare and Croagh on the N21 and the villages of Mungret, Clarina, Kildimo and Kilcornan on the N69, improving amenity and quality of life for the communities who live in and around these settlements, through reduced congestion and associated air and noise pollution. It was also submitted that as a result of the transfer of traffic, conditions would improve for local travel and for cycling and walking through reduced traffic volumes on the existing road network.
- 14.5.4. The current Programme for Government reiterates the importance of the provision of infrastructure and services in accordance with the NPF to ensure balanced and sustainable development and improving connectivity and transport to enable the cities of Cork, Galway, Limerick and Waterford to develop as viable alternatives to Dublin. The NPF includes ambitious targets for 50% growth of these cities by 2040. The NDP 2021-2030 also includes the N21/N69 Limerick to Adare /Foynes as a strategic investment priority on the basis that it would improve access to Foynes Port. The Foynes rail link is also included as a strategic investment priority. The schemes would provide the basis for the delivery of the PRD and the benefits for the public interest outlined above.
- 14.5.5. In relation to the principle of proportionality, as also raised by objectors, including Mr O'Donnell on behalf of his clients, Mr and Mrs Murphy, the issue of the appropriateness of the proposed road type and cross-section arises on the basis of the question of the need for a road type that is **above the minimum road type** required under the TEN-T regulation. I have dealt with this in the preceding sections of my assessment, largely in Section 11.6 of the planning assessment (Road Design and Construction – Elements of Significance) and in EIA section 12.18 (Traffic), in which I have noted that the cross-sections proposed are greater than the **minimum** requirement for the 'core' and 'comprehensive' components of the TEN-T network in respect of Section A (Foynes to Ballyclogh), Section C (Ballyclogh to Rathkeale) and Section D (Rathkeale to Attyflin). Following further assessment, I have concluded above that the road types and cross-sections chosen are proportionate and responsive to the forecasted traffic volumes and do not include excessive

'headroom' or capacity but rather ensure that the road can sustainably cater for the expected traffic growth for its planned 60-year lifetime in line with planned population and economic growth outlined in policy.

14.5.6. While there would be remaining environmental impacts, including significant, very significant and profound impacts, for some affected landowners, in particular for people whose houses are to be acquired/demolished and for farming, equine enterprises and other businesses/enterprises, it is considered that the PRD that would be facilitated should the schemes be approved would benefit the community as a whole. The approval of the schemes and the related compulsory acquisitions are clearly justified by the exigencies of the common good. In this regard, I am satisfied and conclude that the community need for the schemes has been clearly established.

14.6. Suitability of Lands to Meet Community Need

14.6.1. The extent of land that would be compulsorily acquired if the schemes are approved is determined by the design and layout of the PRD and the associated works. I have considered the aspects of the design in Section 11.6 (Road Design and Construction – Elements of Significance) of the planning assessment above, in which I concluded that the design, specification, cross-section and other road elements are appropriate. I have also considered the relevant design aspects throughout the wider planning assessment and Environmental Impact Assessment. I am satisfied, as submitted in the applicant's legal submission, that land required for the purpose of mitigation is land which is incidental to the scheme.

14.6.2. It is considered reasonable to conclude that, having regard to the development of the route as proposed, with the exception of one plot CPO Plot No. 435 that I recommend should be omitted for reasons outlined later in my assessment, the lands proposed to be acquired are necessary to facilitate the provision of the scheme and would not exceed that which is necessary to attain the legitimate scheme aims and objectives being pursued.

14.6.3. It is also considered that with the exception of one plot CPO Plot No. 435, all of the lands identified in the schemes are required in connection with the PRD and the

lands are considered suitable to meet this community need which has been fully established.

14.7. Provisions of the Statutory Development Plan/ Planning Policy

- 14.7.1. Chapter 2 of the EIAR provides a comprehensive review of an extensive range of policy and sets out how the PRD complies with this policy. I have also considered policy in Section 11.3 above, in which I concluded that the PRD accords with European policy including the TEN-T regulation in respect of providing the 'core' and 'comprehensive' components of the TEN-T road network. I have also concluded that the PRD which is designed as a combined core and comprehensive TEN-T route complies with national, regional and local planning policy.
- 14.7.2. The planner's certificate accompanying the approval application certifies that the PRD is in accordance with the Limerick County Development Plan 2010-2016 (as extended until the new plan is prepared) and with the proper planning and sustainable development of the County of Limerick, and the PRD would give effect to and facilitate the implementation of the County Development Plan.
- 14.7.3. The Senior Engineer submits that the PRD is supported by wider and local planning policy and is consistent with the proper planning and sustainable development of the area, as well as applicable planning and related policy.
- 14.7.4. I consider that the nature and the extent of the PRD is compatible with the goals, policies and objectives set out in Project Ireland 2040, including the NPF and the NDP. It is also in compliance with the RSES for the Southern Region (2020) and multiple other policy documents that are referenced in the Planning Assessment above.
- 14.7.5. I have also dealt with policy set out in the current Limerick County Development Plan 2010-2016 (as extended until the new plan is prepared), Limerick Draft Development Plan 2022-2028 and the Adare Local Area Plan 2015-2021 (extended until February 2024) under Section 8 (Policy Considerations) above and a summary of the relevant policies and objectives is provided below.

Limerick County Development Plan 2010-2016 (as extended until the new plan is prepared)

14.7.6. I have examined the Limerick County Development Plan 2010-2016 (as extended). The plan includes policy support for the PRD in specific core strategic policies CP 01, CP 03, CP 07 and in other relevant objectives, such as IN O20 (Service Area), IN O22 (promotion of improvements to the N69 Limerick to Foynes), IN 023 (protection of proposed national road improvements), IN 024 (enhancing connectivity with the estuary) and SE O3 (port facilities).

14.7.7. I am satisfied that the PRD would allow for the realisation of the relevant policies and objectives contained in the applicable development plan for County Limerick.

Limerick Draft Development Plan 2022-2028

14.7.8. LCCC published its draft plan on the 26th of June 2021. If adopted, the plan would set out the blueprint for the physical socio-economic and environmental development of the functional area of Limerick for the six-year period between 2022 and 2028.

14.7.9. Section 4.9 of the draft plan includes support for the economic development and growth of the marine economy and sets out four capacity enhancements including the upgrade of the Limerick to Foynes road network. Objective ECON O44 relates to Shannon Foynes Port and sets out the support for the expansion of the port at Foynes and to promote and support Shannon Foynes Port Company's Masterplan - Vision 2041.

14.7.10. Chapter 6 of the plan deals with sustainable mobility and transport and includes Policy TR P4 (delivery of transport infrastructure in line with national policy). Key projects listed as being critical to enable growth in Limerick include Foynes to Limerick (including Adare Bypass) Road, which it is stated would link the port of Shannon-Foynes with the M7/N18 at Limerick and enhance regional and international connectivity. Objective TR 02 also supports the delivery of the PRD. Other policies and objectives support the promotion of sustainable transport (TR P2, TR P3 and TR P5) and the delivery of modal shift (TR O13).

14.7.11. It is noted that the aforementioned plan is in draft format, however, should the relevant policies and objectives contained therein be adopted, I am satisfied that the PRD would allow for the realisation of these policies and objectives outlined. As stated above, the draft plan is intended to be finalised in June 2022.

Adare Local Area Plan 2015-2021 (extended until February 2024)

14.7.12. Chapter 6 (Transport) of the EIAR outlines that the N21 Limerick to Killarney road passes through the centre of Adare causing serious traffic congestion issues throughout the year, but particularly in the summer months with tourist traffic to and from the southwest. The following policies and objectives are relevant:

- Policy T1: improve accessibility and reduce dependence on private car transport.
- Objective T1: provide a bypass for Adare to relieve traffic congestion in the village for the convenience and safety of road users.
- Objective T3: encourage walking and cycling as more convenient, popular and safe methods of movement in Adare, and facilitate the provision of an attractive and coherent network of off-road footpaths and cycle facilities.
- Objective T4: facilitate measures to improve public transport infrastructure within Adare and networks to adjacent settlements and Limerick City.

14.7.13. The delivery of the PRD would provide what has been stated as the much-needed bypass of Adare and by doing so would reduce traffic-delays and associated congestion, as well as improve accessibility. It would also provide an improved and less congested environment for all road users, including road based public transport services and users, while encouraging cycling and walking. It would also align with the policies and objectives of the Adare LAP as set out in bullet point above.

14.7.14. I am satisfied that the PRD does not prohibit the delivery of future public transport infrastructure by other modes, including the railway, and would provide an improved and safer road infrastructure in which to encourage a greater road based public transport service by providing for more reliable journey times and journey experience. I am also satisfied that the PRD would not preclude the bringing forward of cycling and walking infrastructure which I consider to be necessary and complementary infrastructure and as I have noted above, there are ongoing plans for an extension of the Limerick Greenway (as part of the Great Southern Trail Greenway) and other cycling infrastructure in the area as set out by Limerick County Council.

Concluding Comment on Planning Policy

14.7.15. Overall and having regard to the foregoing, I am satisfied that the PRD that would be facilitated by the approval of the schemes substantially accords with European, national and regional transportation and planning policy, and the various local policy objectives contained in the Limerick County Development Plan and the Adare Local Area Plan 2015-2021 (as extended to February 2024). It is acknowledged that the Limerick Draft Development Plan 2022-2028, is presently in preparation, however, the PRD would also be supported by the policies and objectives contained therein and it would not be premature to approve in advance of the adoption of the new development plan that is currently in draft format. According to Limerick County Councils website, Material Alterations to the draft plan are currently on public display for a period of 4 weeks from the 12th of March 2022 to 11th of April 2022 inclusive. The anticipated adoption date is June 2022. I am therefore satisfied that the PRD that would be enabled should the schemes be approved would accord with planning policy at all levels including the provisions of the statutory development plan and no material contravention of the provision of the statutory plans arise.

14.8. Alternative Methods of meeting the community need

14.8.1. The applicant's consideration of alternatives is addressed in Chapter 3 of the EIAR, and I have considered alternatives in my assessment under section 12.2 above. Alternatives including 'do-nothing', 'do-minimum' and 'do-something' scenarios were considered but were ruled out for reasons outlined. The 'do-something' scenario was considered under the headings of alternative modes, management and investment options and as part of this assessment, railway and appropriate management of existing road infrastructure were each considered. The outcome of that assessment determined that investment in a road is necessary to achieve the project objectives. Route corridors were subsequently developed and assessed in two stages. The first stage, stage one, comprised 3 sub-stages, 1A, 1B and 1C which led to the development of route options, and which were narrowed to four such options in Stage 1C. During the follow-on assessment of the four route options, they were each compared using the five common appraisal criteria in line with TII Project Appraisal Guidelines. In addition to the route corridor options, design alternatives were also considered throughout the design stage.

- 14.8.2. I am satisfied that the applicant has submitted sufficient details in terms of alternatives, including alternative options considered together with the reasons for the choice of the chosen option, and that the level of assessment provided has been clearly set out.
- 14.8.3. Objections received from affected landowners focus on the scheme having an adverse impact on property and lands as well as environmental considerations. Issues relating to property and lands are likely to arise no matter which route/alternative is chosen. It is acknowledged that the preferred route would result in some adverse impacts on some residential owners and agricultural operations. These impacts would, in many cases, be permanent 'significant' to 'profound' impacts, notwithstanding the mitigation measures proposed. It is acknowledged that there is no mitigation for loss of property in the planning and EIA process and that this is ultimately a matter to be addressed by way of compensation through a separate process.
- 14.8.4. The applicant has explored all reasonable alternatives to the compulsorily acquisition of the rights and interests sought and the process undertaken by the applicant has been rigorous and appropriate. Having considered the alternative methods put forward, I am satisfied that the proposed route alignment and the resultant affected lands represent the most reasonable means of achieving the schemes' objectives and meeting the identified community need, in the interests of the common good, whilst minimising the impacts on the environment. I am therefore satisfied that no alternative of meeting the community needs have been found to be demonstrably preferable when the environmental effects have been taken into account.

14.9. **Section 49 Objections Common to Multiple Objectors**

- 14.9.1. The concerns raised in objectors by affected landowners regarding the potential adverse effects of the schemes on their landholdings have been examined as part of this assessment. Many of the issues raised in objections relate to matters of a general nature as part of their overall submission/objections. The most common issues of a general nature that are raised concern inadequate EIAR, inadequate consideration of alternatives and route selection, impacts due to noise, dust and visual effects, impacts on human health and cumulative impacts. The Board will note

that many of the concerns raised have been addressed in preceding sections of this assessment (Section 11 – Planning Assessment and Section 12 – Environmental Impact Assessment) above and therefore this section should be read in conjunction with same where relevant. I draw the Board's attention to the Mitigation Measures document, which is submitted as part of the EIAR and supplemented by the 'Additions to the Schedule of Commitments' submitted by the applicant during the oral hearing on the 16th of February 2021.

- 14.9.2. General impacts on **agricultural lands** are outlined in Chapter 15 (Materials Assets and Land – Agriculture) of the EIAR and set out in Table 15.6 (Assessment of the Impact of the Proposed Road on Agricultural land) within the chapter. This table also provided details of mitigation measures, primarily for the operation phase, for each farm. These agricultural impacts are also considered in my assessment above (Section 12.15). Impacts on equine enterprises are dealt with by the applicant in Chapter 15 of the EIAR and in evidence to the hearing by Mr Michael Sadlier. I have also considered the impacts on equine enterprises above (Section 12.16).
- 14.9.3. General impacts on **non-agricultural property** are outlined in Chapter 16 (Material Assets and Land – Non-Agriculture) of the EIAR and set out in Table 16.5 (Assessment of the impact of the proposed road on non-agricultural property) within the chapter. The table also provides details of mitigation where applicable, largely addressing the restoration/ reinstatement of entrances/access and reinstating property boundaries. I have considered the impacts on non-agricultural property including houses above (Section 12.17).
- 14.9.4. No mitigation is available in the EIA process for the **acquisition of entire properties/houses**. As set out under the Planning and EIA sections of this report, nine houses (including two uninhabited) are proposed to be demolished with six rated as having profound impacts, one as having very significant impact and two as having significant impacts. Of the nine houses, there was only one objection received by the Board. The objection was received initially from Francis O'Kelly whose home at Ardshanbally, (ch.61+175) would be acquired and demolished to enable the construction of the PRD east of the River Maigne. Mr and Mrs O'Kelly were subsequently represented at the oral hearing by Ms Finola McCarthy, solicitor at Ronan Daly Jermyn. I have referred to the compulsorily acquisition of this house above, a family home, in the planning and EIA assessments. In addition, I have also

outlined and considered their specific concerns below in Section 14.10 of my assessment under the heading of Section 49 site-specific objections.

- 14.9.5. Some objections refer to the notices containing **incorrect information** and, as such, contend that the schemes cannot be approved. Having regard to the notices furnished to the affected landowners, I have no reason to consider that the information set out on the notices is incorrect or that the procedures required to be followed, specifically under Section 48 of the Roads Act 1993, as amended, were not followed by LCCC as the road authority prior to submitting the application to An Bord Pleanála under Section 49.
- 14.9.6. Several objections received refer to the land take as being inappropriate and/or excessive. Having reviewed the schedule and maps in the context of the project objectives, I am satisfied that only lands that are necessary for the construction and operation of the PRD, or which are required to enable the maintenance of access, are proposed to be compulsorily acquired. I am satisfied that, with one exception, all of the lands contained in the schedules to the schemes are necessary, sufficient and/or suitable for the delivery of the PRD to which the schemes relate. However, I have revisited this matter on an individual basis for the remaining landowner objections below.
- 14.9.7. It should be noted that plots demarcated in white with a red outline on the deposit maps, which are included within Schedule 4, are not proposed to be acquired as part of the three schemes. Rather, these lands are listed in Schedule 4, because it is proposed to prohibit access to or from these lands to the proposed road.
- 14.9.8. A number of affected landowners raise concerns around the delivery of the PRD under a '**Design and Build**' contract in which they fear that changes to the design may occur without further consultation with landowners. In considering this concern raised, I note as set out in Section 4.16.2 (Appointment of Contractor) of Chapter 4 of the EIAR, where it is stated that 'the design of the PRD has been developed to a stage where all potential environmental impacts can be identified, and a fully informed environmental impact assessment can be carried out'. It is further stated that the appointed contractor would be responsible for finalising the design of the proposed road development in compliance with the requirements of the EIAR and NIS (including all mitigation measures) and any development consent conditions. I

also note that the applicant outlined that minor modifications may be made to the current design at the detailed design stage to avail of opportunities to improve the design in the light of experience on the ground or other innovations. It is also stated that any such minor modifications, however, would not give rise to any impacts which are more significant than those already identified and assessed in this EIAR and NIS.

14.9.9. In considering this matter, I am satisfied that the EIAR and NIS together with other information submitted by the applicant during the course of the application, including in response to the request for further information and at the oral hearing, are sufficient to meet the requirements of the EIA Directive and Habitats Directive and to allow the Board to carry out an adequate assessment of the environmental effects of the PRD and undertake an appropriate assessment under the Habitats Directive. Beyond this, should any changes to the design be proposed subsequent to any approval, the Planning, Environmental and Appropriate Assessment implications of such changes should they arise are a matter for the applicant/developer to consider in advance of making any changes including securing additional consents should these be required.

14.9.10. In relation to **Health and Safety** concerns also raised, at the oral hearing the applicant submitted a preliminary Health and Safety plan prepared in accordance with the Safety, Health and Welfare at work (Construction Regulations) 2013-2019 together with Appendix A (Designers Assessment of Risks and Hazards), which I have considered and am satisfied is sufficiently detailed for the current design stage. The preliminary health and safety plan would be required to be further developed to the construction stage Health and Safety Plan for the construction stage and updated as necessary during construction and this requirement is one that falls within the Safety, Health and Welfare at work (Construction Regulations) 2013.

14.9.11. While some objectors have expressed a view that the **consultation with affected landowners was inadequate**, I do not share this view. I consider that the consultation process including public events and consultation with individual landowners was adequate and proportionate to the scale of acquisition proposed and the associated impacts on landowners and occupiers. I have set out a summary of the public consultation that was carried out to date in Section 12.3 (Public Consultation) above and I note in particular a liaison team was established during

the route selection stage and that through this team, a continuous communication channel has been maintained.

- 14.9.12. In relation to the **payment of advisory costs** also raised by some observers, it is considered that this is a matter to be resolved between the applicant and the individual landowner and is not subject of the decision-making process. However, an application for a contribution towards reasonable costs incurred by any person appearing at an oral hearing, relating to compulsory acquisition of land cases by the local authority involved, can be made to the Board.

14.10. **Section 49 Site-Specific Objections**

- 14.10.1. In relation to individual site-specific objections to the schemes, I have considered these issues below and have grouped them under respective agents/advisors where relevant. In the interest of avoiding repetition, where matters raised are general in nature, and where I have addressed these issues above, they are not generally repeated in considering the site-specific objections below. For the Board's ease of reference, with some minor exceptions as explained under the sub-heading of Clarifications on Submissions/Objections in Section 11.2 (Legal and Procedural) of the Planning Assessment above, I broadly use the same numbering system for affected landowners that are used by the applicant at the oral hearing in their responses to the issues raised. In each of the objections, I also include reference to the relevant landholding and/or non-agricultural property references used by the applicant in the Materials Assets and Land Chapters (Chapters 15 and 16) of the EIAR and as set out in the accompanying figures.
- 14.10.2. It should be noted that a number of parties submitted more than one objection and/or more than one party raised objections in respect of the same lands. I have amalgamated the issues raised in respect of each landholding/property.
- 14.10.3. In consideration and assessment of the submissions/objections raised, I have set out a summary of the points raised by the affected landowner and a summary of the applicant's response. This is then followed by my assessment of the issues raised in the objection and a conclusion is set out.

Parties represented by Colliers (at the oral hearing)

<p><u>Objector:</u> Brendan Hayes (Written and Oral Submission) CPO Plot No. 430 Submissions No.s: Sch-8 (Colliers) and Sch-7 (Brendan and Emer Hayes) Note: Affected landowner owns landholding reference: 080 - Table 15.6 of Chapter 15 (Material Assets and Land – Agriculture) of the EIAR.</p>	
Summary of Objection	Summary of Applicant’s response
<p>In written correspondence and at the oral hearing, Mr Callum Bain on behalf of Colliers set out the following:</p> <ul style="list-style-type: none"> • Landowner has various enterprises, including equine interests; • The proposed separation barrier between the L-1421 public road section of the overbridge and the agricultural overbridge is inadequate and suggests that a solid partition, which would act both as a sound barrier and a visual barrier, would be more appropriate; • The landowner requires clarification of how it is proposed to maintain continued access to the lands situated to the north of the proposed motorway during construction; • In light of the possible return of lands as affected by the realignment of the Gas Pipeline, requires acquiring authority to 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> • The extent of land required for the diversion of a gas pipeline has been agreed with GNI. On completion of all necessary works, any surplus lands will be considered for return to the original owners, subject to the approval of GNI and exercise of statutory powers by LCCC. Lands are stated to have been included in <u>permanent CPO</u> because of uncertainty on timeframe and duration and when lands would be available to be returned. • The proposed overbridge at Croagh is required as the motorway would pass beneath. Design of overbridge was widened by 50% to provide for an access track to link Mr Hayes’ lands on both sides of the proposed motorway; • Local Authority would agree arrangement for services with the Hayes family. It is preferable if

<p>confirm the proposed fencing in this area;</p> <ul style="list-style-type: none"> • Requested details of land drainage; • No provision has been made within the scheme to install ducting piping for the continuance of services such as electrical supply, water and effluent containment from the proposed new overbridge. <p>At the oral hearing, John Hayes (<u>son of Mr and Mrs Brendan Hayes</u>) made an oral submission reaffirming the points raised by Colliers on behalf of his father. He also stated the following:</p> <ul style="list-style-type: none"> • Current proposal would create the maximum destruction to the farm enterprise; • Increased noise and dust would arise during construction and increased noise would arise during operation; • Proposed bridge located on west side of the farm would be further away from the yard and would hinder movement of stock and machinery on the farm; • Drainage would be impeded, causing further disruption. 	<p>they are carried on the overbridge;</p> <ul style="list-style-type: none"> • Underground services would be maintained until alternative services are put in place; • Farm access track and infrastructure would be private to the Hayes family; • There would be a temporary access (diversion of the local road) provided to ensure access is maintained; • Localised traffic management would be put in place until overbridge is completed. <p><u>Landscape & Visual</u></p> <ul style="list-style-type: none"> • Screen planting measures and boundary treatment outlined (Ref: Section 11.5.1 of Volume 2 and Figure 11.16 of Volume 3 of the EIAR). <p><u>Material Assets</u></p> <ul style="list-style-type: none"> • Access to lands north of the proposed road would be provided via a private access overbridge structure (OB05) and access accommodation tracks suitable for the movement of both machinery and livestock between retained and severed lands. <p><u>Legal</u></p>
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Note: In the written submission (Sch-8) was also received from Martin & Rea (Cork office) dated 10th of March 2020 in respect of Brendan & Emer Hayes, in which matters were raised that overlap with the above and other matters that are of a general nature were also raised.

- Section 183 of the Local Government Act 2001, as amended statutory process is required before Local Authority can dispose of lands (including transfer of lands back to the landowner). Accordingly, it is not possible to be more specific regarding the transfer of lands back to the landowner.

Inspector's Assessment on Issues raised in Objection

The lands in question are located on the eastern side of the L-1421 Croagh to Cappagh Road (between ch.54+450 and ch.55+100) and comprise agricultural lands for the construction of the proposed motorway and to facilitate the diversion of an existing gas pipeline. It is stated that the extent of lands required for the diversion has been agreed with GNI.

I note that it is set out in Chapter 4 of the EIAR that gas main diversions are required at two locations, at Rincullia (ch.4+190) and to the north-east of Croagh Village (ch.54+700) and these will be undertaken by Gas Networks Ireland (GNI) on behalf of the contractor for the PRD.

In respect of the current landholding/CPO completion of all necessary works, I note the applicant's stated intention to return any surplus lands subject to necessary approvals under Section 183 of the Local Government Act 2001 which deals with disposal of Local Authority lands. Lands are stated to have been included as a permanent acquisition because of uncertainty on timeframe and duration and when lands would be available to be returned.

Severance of the main plot of land into two separated areas would result because of the land take for the road, and the loss of access to severed area and separation of the farmyard facilities from the severed areas.

Access to lands north of the proposed road would be via a private access overbridge structure (OB05) and access accommodation tracks (4.0m wide x >4.5m high) at the western side of the landholding. The applicant has stated their intention to agree the arrangement for services with the Hayes family and that

underground services would be maintained in place until alternative services are in place, which is reasonable.

In Table 15.6 of Chapter 15 (Material Assets and Land – Agriculture) of the EIAR, the residual impact on this property, referenced as Plot 80 has been rated as **significant** due to the high degree of land take.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Parties represented by FBA Consultants

Note: Francis and Ann O’Kelly (Sch-34) and Francis O’Kelly (Sch-35) were represented by FBA Consultants at the initial written objection stage. At the oral hearing, the property owners were represented by Ms Finola McCarthy, solicitor at Ronan Daly Jermyn.

<p><u>Objector:</u> Francis and Ann O’Kelly CPO Plot No. 476 Submissions No. Sch-34 and Sch-35 Note: Affected landowner owns a family home, property No.66 (Table 15.6 of Chapter 16 - Material Assets and Land – Non - Agriculture) of the EIAR.</p>	
<p>Summary of Objection</p>	<p>Summary of Applicant response</p>
<p><u>Background</u></p> <ul style="list-style-type: none"> Mr and Mrs O’Kelly own their home for 20 years (provides background for its selection as well as background health issues of Mrs 	<p><u>CPO Schedule</u></p> <ul style="list-style-type: none"> In relation to tidal area, it is correct that the Department of Agriculture, Department of Housing and the

<p>Ann O’Kelly and their deep connection with nature).</p> <p><u>Scheme Schedule</u></p> <ul style="list-style-type: none"> • In relation to plot reference 476.102, the OPW and Department of Agriculture, Food and the Marine are listed as ‘occupiers’ and the Marine Environment and Foreshore Section of the Department of Housing, Planning and Local Government is listed as the ‘owner’. States that while the OPW maintain the flood embankment, Francis O’Kelly is registered as full owner of these lands. <p><u>Route Selection process & proportionality</u></p> <ul style="list-style-type: none"> • Route selection report did not consider Adare, which was only added afterwards; • No analysis presented in the Route Selection report or in the EIAR on the assessment of Route Corridor K, which was discounted without adequate justification; • Without a Stage one preliminary Options Assessment Framework Matrix, it cannot be determined whether the decision to acquire the O’Kelly land and family home is 	<p>OPW are included in the schedule to the scheme;</p> <ul style="list-style-type: none"> • Refers to Section 227 of the PDA 2000, as amended; • Documentation was sent to the Minister of Communications and Minister of Transport on 12th December 2019; • Separately, the Department of Agriculture, Department of Housing and OPW was notified of the 10th December 2019; <p><u>Engineering</u></p> <ul style="list-style-type: none"> • At Ardshanbally there are two major constraints on the proposed road alignment that restricted the possibility of avoiding the O’Kelly house, which include the River Maigue about 100m to the west of the house (on the left), and the Limerick to Foynes railway line immediately to the east (on the right). A further consideration is the proximity of the proposed connection of the new road to the existing N21 at Clonunion/Monearla 2.3km to the east of the house; • It is necessary to cross the River Maigue in one of the few places where the angle of skew is lowest, and the river is orientated closest to a south to north direction;
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proportionate to the aim being pursued by the Council.

Assessment of Alternatives

- Consideration of alternatives starts from flawed premise as it does not consider optimal solutions for a bypass of Adare. Alternative options were not considered in respect of Adare bypass;
- Refers to the legal requirement (Article 5(1)(d) and Annex IV of the EIA Directive) and Case C-461/17, **Holohan v An Bord Pleanála** and **Kemper v. An Bord Pleanála** [2020] I.E.H.C. 601;
- Questions why unique problems of Adare weren't assessed (by-pass wasn't considered in its own right);
- Without an adequate assessment of alternatives, it cannot be determined whether the decision to acquire the O'Kelly land and family home is justified, balanced and proportionate to the legitimate objective being pursued by the Council.

Planning Policy

- Proposal is in conflict with objectives of the Limerick County Development Plan 2010-2016 (as varied and extended) including

- Regrettably it was not feasible to avoid impacting on the O'Kelly house;
- Refers to alternatives considered (Chapter 3 of EIAR) which included sufficient information for various stages of process;
- Revisited the earlier proposal which was initially put forward in conjunction with the M20; when the M20 was withdrawn, it was refused permission by the Board on the basis that it would constitute isolated infrastructure. The southern by-pass would be a 2.5km longer route.
- An alternative alignment across the River Mague would pass through a cluster of ten houses at Mondellihy on the northern side of the railway and would not be feasible;
- Regarding the loss of the public right of way: In the event the proposed road development and associated compulsory acquisition is approved by the Board, the landowner would no longer own any property at this location or have any right of access across the subject property. The section would be subsumed as part of the development and cannot be retained. There is an access to the

<p>Policy IN 022 (improvement of N69);</p> <ul style="list-style-type: none"> • Scheme is in material contravention of the agricultural zoning objective within the development boundary of the Adare Local Area Plan including agricultural zoning and it would create a new and significant demarcation of Adare’s northern boundary; • Route selection study did not assess any alternative bypass of Adare. 	<p>River Mague on the other side of the river (clarified that it is a well-worn track but doesn’t know legal status re: public or private use);</p> <ul style="list-style-type: none"> • If the schemes and compulsory acquisition are approved, LCCC will engage with the property owner to agree suitable arrangements for relocation of the family in an orderly way that provides sufficient time for an alternative home to be acquired prior to the need to vacate the house before construction commences.
<p><u>Transport Policy</u></p> <ul style="list-style-type: none"> • Contrary to Climate Action and Low Carbon Development Act 2015; • Traffic impact assessment not sufficient in light of potential changes in travel patterns including from planned reinstatement of Foynes to Limerick Railway and requirements of TEN-T regulations and wider policy to reduce car dependency. 	<p><u>Planning & Policy</u></p> <ul style="list-style-type: none"> • Disagrees that the Schemes would facilitate PRD that would be in conflict with Planning Policy (including Policy of IN 022) of the Limerick County Development plan. Refers back to Section 4.3.11 of Planning Brief of Evidence; • States that the PRD would not be in contravention of Agriculture land use in the Adare LAP. Refers to zoning matrix (Table 10.2)
<p><u>Relevance of Climate Change policy</u></p> <ul style="list-style-type: none"> • Noting the increase in GHG emissions and by reference to Friends of the Irish Environment CLG v Government of Ireland (2020) IEHC 49, Government policy 	<p>contained in the Adare LAP which is not prescriptive and doesn’t include a road in any case. However in Chapter 6 (Transport) of the plan – Objective T1 (Adare bypass) and Policy T2 (ensure that all proposals</p>

on climate became law and is therefore justifiable. The Board are obliged to refuse permission for a scheme that will increase GHG emissions as this is counter to Government policy.

Cultural Heritage

- While Council have recorded a neighbouring vernacular structure (CH 63) in the EIAR under Cultural Heritage, request that the O'Kelly property is also recorded and assessed as part of the cultural heritage assessment.
- The new junction to Adare and Adare Manor Demesne wall is rated as 'indirect negative' and 'not significant' in Chapter 13 of the EIAR. The new junction will completely change the setting of Adare Manor Demesne and landscape and cultural heritage setting of Adare village, suggest this is a significant landscape and heritage impact.

Public Right of Way

- The O'Kellys respectfully request that the Board refuse to approve the extinguishment of the public right of way in the interest of maintaining access to public amenities including

shall comply with the policies, objectives and development management standards of the Limerick County Development Plan, 2010 – 2016 in relation to transport and infrastructure) are relevant.

Material Assets

- The residual impact on this residential property was determined to be a **profound negative** impact. The primary direct impact is the acquisition of the residential property and adjoining lands.
- As the existing laneway would be buried under the earthworks, no remaining lands would require access.

Cultural Heritage

- In appendix 14.8 Vol 4B (Par 4 of Page 8) – Cottage does feature within field inspection and p.104 & 105 of Appendix. House was built in first 20 years of 20th century. No issue in adding the cottage to schedule of commitments including creating a full photographic, written and measured record should the Board approve the scheme in question.

the River Maigue as this right of way has been used by decades by the community. Removal of the public right of way would also remove CH 62 (a former active pier that served Adare manor) & future access for boating and the potential for developing this amenity along the River Maigue.

Landscape and Visual Impacts

- Proposals for monitoring measures to ensure landscaping and biodiversity mitigation measures will be monitored and maintained to ensure they are effective are not clear;
- Figure 11.13-11.23 (Landscape Impact Ratings and Mitigation, Section D Sheet 8 of 11 in the EIAR includes a legend that does not correlate with the text in the EIAR);
- Urges Board to consider very significant visual impacts of the scheme across County Limerick
- Suggests that impacts on Adare Manor Demesne are significant;
- No combined assessment of the impact of the Scheme on the 19th century settlement of Adare;

- Adare River Walk has not been assessed and is likely to be impacted.

Noise and Vibration

- Request clarification regarding what consideration has been given to reducing noise from traffic sources travelling across river systems and associated effects on surrounding environment including on River Maigue and its effects on Adare village and Adare River Walk.

Other

- The landowner requests that if the CPO is confirmed, the Acquiring Authority engage with them at the earliest juncture, so the necessary funds are made available to replace the property.
- States Engineering Brief of Evidence describes a route option that would have brought the route north of their lands and avoid their home and questions why this option wasn't furnished to the O'Kellys in 2017.
- The acquiring authority, in its oral submission on the Brief of Evidence Engineering - Part B (Responses to Submissions on Engineering Issues), noted that land adjoining

the River Maigue that belongs to the O'Kellys is not required as part of the proposed development, but it is proposed to acquire this land as there will be no way to access it and it is not currently used for agricultural purposes. The O'Kellys wish to correct the record and ask the Council to note that all of their agricultural lands are used for grazing.

Inspector's Assessment on Issues raised in Objection

The lands that are the subject matter of this approval and corresponding CPO comprise a dwelling house and adjacent land/curtilage (c.3.6ha) located between the River Maigue and the existing railway line (ch.61+50 to ch.61+500) along the route of the PRD at Ardshanbally.

The original cottage structure was built in the early part of the 20th century.

Part of these lands are included in the compulsory acquisition schedules for the construction of the proposed motorway. Lands to the north of the motorway are included for the provision of a drainage attenuation pond to control the volume and quality of surface water before discharge towards the River Maigue.

At the oral hearing, Ms Finola McCarthy made a detailed submission during the Section 49 module (and also the Section 51 module) that addressed the approval application and also on this CPO module. A number of concerns were raised as outlined above. In particular, it was stated that the acquisition of this property could have been avoided. In support of this assertion, it is submitted that the assessment of alternatives was not adequate and therefore it cannot be determined whether the decision to acquire the O'Kelly land and family home is justified, balanced and proportionate to the legitimate objective being pursued by the Council.

The applicant provided a detailed response on alternatives as summarised above. I have dealt with alternatives generally in Section 12 (EIA) and Section 14 (CPO) above. I am satisfied that reasonable alternatives were examined in detail and

where the road traverses Ardshanbally, the possibility of avoiding the O’Kelly home was met with constraints such that it was not reasonably possible to avoid the house and its acquisition is proportionate to the legitimate aim being pursued by the Council.

In relation to the objection to the extinguishment of the public right of way to the River Maigne, as the landowner would no longer own any property at this location, it is reasonable that the right of way would be extinguished. The section of the right of way would be subsumed as part of the development and cannot be retained.

In relation to the ownership of plot 476.102, the applicant stated that in respect of the tidal areas, it is correct that the Department of Agriculture, Department of Housing and the OPW are included in the schedule to the scheme.

Referring to Section 227 of the PDA 2000, as amended, the applicant stated that documentation was sent to the Minister of Communications and Minister of Transport on 12th of December 2019. Separately, the Department of Agriculture, Department of Housing and OPW were all notified on the 10th of December 2019. At the point of considering this matter, I am satisfied that in respect of plot 476.102, the Department of Agriculture, Department of Housing and the OPW are correctly included in the schedule to the scheme and in respect of Section 227 of the PDA 2000. Further correspondence was furnished to the Minister for Agriculture, Food and the Marine and the Minister for Transport following the oral hearing and, as set out above, no further comments were received.

If the schemes and compulsory acquisition are approved, the applicant has stated their intention to engage with the O’ Kellys to agree suitable arrangements for relocation of the family in an orderly and timely manner.

In Table 16.5 of Chapter 16 (Material Assets and Land – Non -Agriculture) of the EIAR, the residual impact on this residential property (No.66) has been correctly rated as **profound**.

I consider the loss of this house and land the subsequent impact for the homeowners is a matter than can only be addressed by way of compensation outside of the current application process.

I have dealt with other policy related issues and issues on climate impact raised in the objection in Section 11 (Planning Assessment) above. I have also dealt with issues relating to Noise & Vibration, Landscape & Visual and Cultural heritage in

Section 12 (EIA) above. I note that the legend set out on the drawing referred to (Sheet 8 of 11) includes text 'See EIAR Section 17.5.2'. This is likely a typographical error and meant to read 'See EIAR Section 11.5.2'.

I note the applicant has listed the property and site as a cultural heritage site (CH 63 – vernacular building) within Table 14.8 (Cultural Heritage Site within the receiving environment). At the oral hearing, the applicant also stated its intention to add the property to the Schedule of Commitments in terms of undertaking a photographic and written record. This does not appear to have occurred, by reference to the additions to the Schedule of Commitments submitted to the Board on 16th of February 2021, Therefore, a requirement to add it to the schedule of commitment should be addressed by way of a planning condition in the event of an approval.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and except for the addition of the house to the schedule of commitments (a matter that I recommend can be addressed by condition), no further issues arise.

It is acknowledged that the compulsorily acquisition of this family home is regrettable. However, it is unavoidable and necessary as the house is required to be demolished for the construction of the mainline of the PRD at this location which is justified noting the wider public benefits.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Patrick O’Sullivan (written submission only)

CPO Plot No. 128

Submission No. – SCH-86

Note: Affected landowner owns property No.11 (Table 16.5 of Chapter 16 - Material Assets and Land – Non -Agriculture) of the EIAR.

Summary of Objection

- The landowner requires a commitment that damage caused to the drainage system on the retained lands will be the responsibility of the acquiring authority.
- The Local Authority has not explained how it proposes to replace the new boundary treatment affected by the proposed scheme.

Summary of Applicant response

Material Assets

- The measures for mitigation of the disturbance to existing drainage systems on agricultural and non-agricultural property are outlined in Sections 15.6 and 16.6 of the EIAR and it is explained that:
‘In cases where drainage is impeded during construction and causes obvious difficulty to a particular property owner, temporary measures will be considered on a site-specific basis. This may include allowing waters to drain to less critical areas, so as to minimise the impact’.

Landscape & Visual

- The boundary with this property would be defined with a timber post and rail fencing (or similar) which will be planted with a mix of native hedgerow plants, as shown on Fig. 11.3 of Volume 3 of the EIAR.

Inspector’s Assessment on Issues raised in objection

The PRD would traverse lands in an east-west configuration on this landholding (commercial) between ch.4+450 to ch.4+675.

The compulsory acquisition related to this landholding would result in a reduction in area of the property by c.1.42ha. There would be no impact on the existing property access.

In respect of issues of drainage and boundary replacement raised in the objection, I am satisfied that these issues have been considered in the EIAR and mitigation measures set out as referenced by the applicant.

In Table 16.5 of Chapter 16 – ‘Material Assets and Land – Non-Agriculture’ of the EIAR, the residual impact on this commercial property (No.86) has been rated as **significant**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Parties represented by Miley Solicitors

Objector: Denis Lane (written submission by Miley Solicitors & represented by self at the oral hearing)

CPO Plot No. 120

Submission No. – SCH-21

Note: Affected landowner owns landholding reference: 019 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture)

Summary of Objection	Summary of Applicant response
<ul style="list-style-type: none"> Landowner states that he did not object previously as part of an earlier consultation phase, the current proposal would be very 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> Road has been configured as close as possible to the northern and eastern boundaries of Mr

<p>harmful to his farming enterprise. It would increase journey times and objector states that he would incur a greater cost and a disproportionate land take would result.</p> <ul style="list-style-type: none"> • Changes have been made to the proposed scheme which have exacerbated the impact on lands in his ownership - most noticeably by the addition of an attenuation pond. • There was insufficient consultation and at landowner meetings, he was not successful at altering any aspect of the proposal and that the farm complex would be seriously impacted. 	<p>Lane's property in order to minimise impact on farm.</p> <ul style="list-style-type: none"> • Landowner received the same level of consultation as others on the scheme. • Proposal for two underpasses in addition to a new access road would be provided. • Drainage attenuation ponds are necessary, and the proposed attenuation pond needs to be located to the southwest of the proposed road where enough space can be provided. • Numerous adjustments were made to the design of the proposed road development at this large agricultural property (located in the Ballyclogh area) to reduce the impact on the lands as much as possible as follows: the roundabout was moved northwards, the L-1220 side road realignment was moved eastwards, the current entrance is retained with an underpass under the proposed road, an additional access road is provided road off the local road L-1220 to south of the existing entrance.
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	<p><u>Material Assets</u></p> <ul style="list-style-type: none"> • The agricultural impact of the proposed road development has been assessed in Chapter 15 Material Assets & Land – Agriculture in the EIAR and details of the assessment of the impact on individual farms is presented in Table 15.6 of the EIAR and summarised in Section 15.4.4 of the EIAR. • The individual impact assessments reflect the direct impacts on agricultural property arising from the construction and operation of the proposed road development. <p><u>Hydrology & Hydrogeology</u></p> <ul style="list-style-type: none"> • The provision of attenuation ponds is required for the treatment of road pavement runoff in order to protect against water quality impact and against flooding impact in the receiving watercourse. • All attenuation pond facilities would be securely fenced and planted with appropriate scrubs, hedgerows and or screening planting to minimise any visual impact and the facility will be maintained by the local authority.
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Inspector's Assessment on Issues raised in objection

The PRD would traverse lands in an east-west configuration on this landholding between ch.6+200 to ch.10+050 at Junction 4 Ballyclogh roundabout and the PRD would then travel south from the roundabout to ch.20+650 at the end of the objector's lands. The land take is required to facilitate the main road alignment, a roundabout at Ballyclogh and an attenuation pond.

The farm would be divided into three plots with resultant severance and loss of access to the dwelling house and remaining area. Loss of access from severed areas to handling facilities would also result and there would be an impact on existing field boundaries.

It is proposed to provide a private access to the severed areas via an access accommodation track on Side-road 7 (L-1220) together with Accommodation Structures at ch.6+825m (4.5m in height) and ch.20+560m (3.0m in height). It is also proposed to replace the boundary with a permanent stockproof boundary.

The justification for the proposed attenuation pond at this location is set out and is reasonable. The attenuation pond would store the drainage from a 1.8km length of Section A from the west, and a 0.9km length of Section C from the south and is sized according to the required attenuation as part of the overall drainage design. In Table 15.6 of Chapter 15 (Material Assets and Land – Agriculture) of the EIAR, the residual impact on this property, referenced as Plot 19 has been rated as **moderate**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Parties represented by Nagle Agricultural Consultants

Objector: Reps of John O’Connor (written submission only)

CPO Plot No. 129

Submission No. – SCH-53

Note: Affected landowner owns property No.12 – Land (Table 16.5 of Chapter 16 – Material Assets and Land – Non-Agriculture)

Summary of Objection	Summary of Applicant response
<ul style="list-style-type: none"> Landowner has concerns regarding realignment of local road and laneway to his house and on the impacts, this would have on his children being able to get to and from their house to Adare. 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> The local road would be realigned onto a bridge over the proposed motorway. A set of steps can be included to enable the O’Connor family to access the bridge on a shorter route than the access track that will curl around on the western side.

Inspector’s Assessment on Issues raised in objection

While the property No. 12 (land) is the subject matter of the CPO, the objection relates to access from family home at a separate location away from the CPO. As set out in the applicant’s response, where the local road would be realigned at Islandea (ch.60+300 to ch.60+400), it is proposed to facilitate the O’Connor family by providing a set of steps that can be included to enable the O’Connor family to access the bridge on a shorter route than the access track that would curl around on the western side.

An extract from Figure 16.9 of Volume 3 of the EIAR was presented in the Engineering Brief of Evidence – Part B at the oral hearing (referenced as Figure 18.2).

I am satisfied that a reasonable response has been provided to the issue of access raised in this objection. I also recommend that the proposal for the stepped arrangement put forward by the applicant should be strengthened by way of a condition to add it to the schedule of commitments in the event that the Board approve the schemes.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Party represented by SLR Consulting

Objector: Irish Cement Ltd. (written submission only)

CPO Plots No. 111 and 137

Submission No. – SCH-42

Note: Affected landowner owns property No.5 (Table 15.6 of Chapter 16 - Material Assets and Land – Non - Agriculture) of the EIAR.

Summary of Objection

- Advises that, while they still hold title to these lands, both are subject to an existing compulsory purchase acquisition (ABP:13.CQ3001) under the terms of the Harbours Act by Shannon Foynes Port Company (SFPC).

Summary of Applicant response

Engineering:

- Both Irish Cement and Shannon Foynes Port Company are listed in the schedule under Owner/ Reputed Owner and was issued with a statutory notice in respect of these lands.

Inspector's Assessment on Issues raised in objection

The CPO relates to acquisition of lands for the HGV Service Area. The issue of title and the applicant's response is noted. No specific objection to the CPO has been raised.

In Table 16.5 of Chapter 16 (Material Assets and Land – Non-Agriculture of the EIAR), the residual impact on this property (No.66) has been rated as **significant**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Party represented by Ciarán Sudway Associates

Objector: Gerard & Donal Hayes

(Written submission)

CPO Plot No. 301

Submission No. – SCH-37

Note: Affected landowner owns landholding reference: 040 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture)

Summary of Objection	Summary of Applicant response
<ul style="list-style-type: none">• No ground investigation works were carried out on the lands which traverse alternative routes and therefore these were rejected prematurely.• Overhead powerlines and utility diversions are required, and the scheme does not include the acquisition of lands for easements required.• Stated that the landowners produce high value	<p><u>Equine</u></p> <ul style="list-style-type: none">• Mr Sadlier stated that he contacted the owner on two occasions, however, the landowner refused to meet with him on either occasion. He then carried out a desktop assessment of the property.• The plot is a residential and mixed enterprise farm holding comprising lands in two separate plots. Rated as being of Medium Sensitivity.• On affected plot, there will be a temporary impact on an existing hedgerow field boundary until

<p>thoroughbreds and Sport Horses on their farm, and the scheme currently before the Board has not considered the impacts on the equine enterprise.</p>	<p>landscape planting measures mature.</p> <ul style="list-style-type: none"> • There may also be temporary measures from dust and noise due to construction traffic. • General mitigation measures for agricultural properties are outlined in section 15.5 of the EIAR. • States that with the adoption of mitigation measures, moderate residual impact rating is considered appropriate. <p><u>Engineering</u></p> <ul style="list-style-type: none"> • There are no high voltage power lines in this location that require diversion. A medium voltage 38kV line crosses these lands and will be adjusted within the lands to be acquired for the proposed road development. • With mitigation in place, the residual impact will be moderate and considered appropriate.
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Inspector’s Assessment on Issues raised in objection

This CPO relates to the land acquisition of agricultural lands and roadbed to facilitate the mainline of the PRD and works to local roads at Ballynacagheragh at ch.22+550 to ch.22+850. These lands proposed to be acquired are on the southern end of the affected plot, appear to be grassland (grazed by cattle and horses) and remote from the farm building and there is no land severance. Identified impacts include a temporary impact on the existing hedgerows field boundary and impacts of dust and noise during construction. Section 15.5 of Chapter 15 of the EIAR (Material Assets – Agriculture) sets out general mitigation

measures regarding replacement access, stockproof fencing, boundary treatment, drainage, services and ducting.

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as **moderate**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Party represented by Sudway and Co.

Objector: Sandra Barnwell & John Myers (Written Submission only)

CPO Plot No. 449

Submission No. – SCH-102

Note: Affected landowner owns landholding reference: 089 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture)

Summary of Objection	Summary of Applicant response
<ul style="list-style-type: none"> • Lands are currently used for grazing horses including high value thoroughbreds and Sport Horses and this will not be possible during construction due to noise levels. • Proposals to develop an equestrian enterprise will no longer be possible. 	<p><u>Material Assets</u></p> <ul style="list-style-type: none"> • General mitigation measures will apply. Field access gates will be provided, and access will be restored to lands where it is removed or restricted. <p><u>Equine</u></p> <ul style="list-style-type: none"> • Acknowledges that horses may react differently to noise and visual

<ul style="list-style-type: none"> • Access arrangements to landholding are unclear. 	<p>stimuli that would be involved in construction.</p> <ul style="list-style-type: none"> • Provides an extract from Figure 15.17 of Volume 3 of the EIAR represented in Figure 3 of Equine Brief of Evidence. • Various mitigation measures will be implemented in order to control construction noise levels to within the noise limit values set out in Table 12.1 of the EIAR (Maximum permissible noise levels at the façade of dwellings during construction). • The most appropriate noise mitigation measures for each work area will be determined taking account of the various control measures included within Section 12.5.1 of Chapter 12 (Noise and Vibration) of the EIAR. • Lands are currently used for grazing of horses and any proposals for the development of an equestrian enterprise would be subject to the planning process. <p><u>Noise and Vibration</u></p> <ul style="list-style-type: none"> • It is acknowledged that noise will be increased in proximity to noise sensitive areas for the duration of works occurring at that location.
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	<ul style="list-style-type: none"> • High levels of construction noise are unavoidable during the construction of a large infrastructure project due to the nature of activities involved. • Given the linear nature of the works, noise emissions related to the construction phase will, however, be of short-term impact at any one area as the works progress along the length of the project. • The most appropriate noise mitigation measures for each work area will be determined taking account of the various control measures included within Section 12.5.1 of Chapter 12 (Noise and Vibration) of the EIAR.
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Inspector’s Assessment on Issues raised in objection

At this location at Gortnagrour, the PRD would traverse this landholding in a west to east orientation from ch.57+300 to ch.57+650 with a significant reduction in agricultural area where the land take is required for the main road alignment and for access to an attenuation pond immediately west of the plot. Land is stated to be used for grazing horses. The PRD would bisect the lands into two plots. For the construction phase, it is acknowledged that noise will be increased in proximity to noise sensitive areas for the duration of works occurring at that location. I note that the horses graze in the open field and as such can move away from noise sources. In addition, the applicant has put forward that mitigation for each work area will be determined taking account of the various control measures included within Section 12.5.1 of the EIAR. In Table 15.6 of Chapter 5 (Material Assets and Land – Agriculture), mitigation for the construction stage for landholding 089 includes the provision of screening of a minimum of 2.4 metres high for the construction stage along the working ground level.

For the operation phase, it is proposed to provide screening in accordance with Figure 12.17 of volume 3 (Noise Monitoring Location and Mitigation) NB-026 from ch.57+450 to ch.58+075 (north) and NB-025 from ch.57+475 to ch.58+025 (south) and a 1.5m high supplementary equine barriers from ch.57+350 to ch.57+475 (North) and ch.57+240 to ch.57+475 (South) together with screen planting shown in Figure 11.17 (The Landscape – Impact ratings and mitigation – Section D, Sheet 5 of 11) which will mitigate the noise and visual effects of the PRD.

I note the objector's stated intention to develop an equestrian enterprise, however, no such planning permission is in place at this point in time.

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as **significant**, largely because of the significant reduction in agricultural area and severance impacts.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Clonshire Equestrian Centre and Limerick Foxhounds

(Written Submission only)

CPO Plot No. 495 (prohibit any means of direct access to or from the motorway)

Submission No. SCH-14

Note: Affected landowner owns landholding reference: 090 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture) which would not be directly impacted by the CPO – Motorway scheme.

Summary of Objection

- The enterprise comprises the operation of an equestrian centre and the kennelling of the County Limerick foxhounds.
- Raises concerns regarding the proximity of the PRD to the horse lorry/car park and the outdoor and indoor riding arenas and the resultant unpredictable construction and traffic noise which will negatively impact on the operation of the equestrian centre.
- Concerns outlined in particular regarding noise related incidents that may arise for horses and riders (including riders with disability and inexperienced riders) during construction and operation of the road.
- Require mitigation measures to protect operation of the

Summary of Applicant response

Equine

- Acknowledges that horses can react to noise in an unpredictable manner when confronted with an unusual noise which could have consequences on the handlers or riders. However, horses normally acclimatise to repeated stimuli during the operation phase.
- States that during his visit to the facility, understood that disabled riders who use the facility normally used the indoor arena and that horses were either suitable riding school horses or horses brought in by the volunteers who helped with the riding lessons and that horses were pre-selected for their quiet temperament and docile nature.
- For the construction stage, a visual barrier (and screening) of 2.4m in height is proposed.
- For the operational stage, noise barrier (NB-025) of 3.5m high from ch.57+475 to ch.58+025 (south)

<p>equestrian centre, including relocation of arenas and car parking.</p> <ul style="list-style-type: none"> • Describes how foxhounds are (currently) frequently taken to the old railway bridge to access lands and to bring them swimming in local rivers and their concern that the new road will impact on this activity. • PRD construction and operation will seriously impact on management, training and exercise of foxhounds. 	<p>are proposed. A supplementary equine barrier of 1.5m height is also proposed from ch.57+240 to ch.57+475 (south) and from ch.58+025 to ch.58+150m (south) to further mitigate the noise and visual effects of operational activities.</p> <ul style="list-style-type: none"> • Screen planting will also be provided as detailed in Chapter 11 (Landscape) of the EIAR and in Figure 11.17 (Landscape – Impact ratings and mitigation – Section D). • States that mitigation would be effective in reducing construction and operational noise to a level that would allow for continued usage of the current car park by the arenas. • Foxhounds will be able to exercise on local roads for the most part during construction but there would be some temporary disruption. • Once road is developed, the foxhounds can use the new underbridge on the local road to access the old railway bridge. <p><u>Engineering</u></p> <ul style="list-style-type: none"> • The proposed road will cross the River Greanagh to the north of the old railway bridge and away from the Clonshire lands along the river.
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As updated at the oral hearing, states that the owner of the lands Reference 091 in Figure 8.4 of the Engineering Brief of Evidence (Extract from figure 15.18 of Volume 3 of the EIAR) has confirmed that access is not available from the local road to the west eastwards to the river across these fields.

Noise

- Objection refers to the closest equine buildings at Clonshire Beg (modelled reference D57-017). Reference to Table 12.14 of Chapter 12 confirms that NB-025 is specifically provided to mitigate traffic noise levels at this property. The barrier and modelled locations are illustrated in Figure 12.17 & 12.18. The residual traffic noise level in EIAR Appendix 12.1 for D57-017 is 58dB L_{den} which is below the design goal of 60dB L_{den}.

Inspector's Assessment on Issues raised in objection

There is no land take proposed from this property and as such there is no direct impact. The PRD traverses lands to the north along ch.57+650 to ch.58+150. The CPO in respect of this plot is stated to 'prohibit any means of direct access to or from the motorway'.

The objection relates to an indirect impact on the operation of the equestrian activities at the parking area and at the outdoor arena.

In Table 15.6 of Chapter 5 (Material Assets and Land – Agriculture), stated mitigation includes proposals to provide screening of a minimum height of 2.4m for the construction stage above the working ground level.

For the operational stage, substantial noise barriers are proposed as set out in the applicant's response above.

Reference to Table 12.14 of Chapter 12 confirms that NB-025 (3.5m high) would sufficiently mitigate traffic noise levels at the equine property (D57-017).

It is acknowledged that there will be some inconvenience because of closure of the Local Road L-8024, currently used for exercising horses and for bringing the horses to local rivers. It is stated that those would be minimised in terms of frequency and temporary occurrences and would be communicated to the landowner.

In Chapter 15 of the EIAR (Material Assets and Land – Agriculture), the residual impact on this property has been rated as **significant**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Cornelius Giltinane

(Written submission only)

CPO Plot No. 413

Submission No. – Sch-17

Note: Affected landowner owns landholding reference: 068 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection

- It is unclear whether the landowner will have the shared use of both underpasses (11A and 11B) and how the landowner would access the public road L-8027 or his severed lands from the access road provided as part of underpass 11A.
- Queries what would happen to the remaining triangular piece of land.
- Expresses concerns that flooding of retained property would result.

Summary of Applicant response

Engineering & Material Assets

- The small triangular area of his southern field referred to would be acquired as part of the proposed road development. It is proposed to be used for an access accommodation track to restore access from accommodation structure UP11A to the severed agricultural lands (Ref: Figure 39 – Material Assets Brief of Evidence – taken from Figure 4.40 of the EIAR).
- Access accommodation underpasses UP11A and 11B are not proposed to be shared.

Hydrology

- The drainage system for the proposed road development is designed in accordance with TII current design standards, TII Publications and the Manual of Road Works documents which incorporates best practice, including climate change allowance and robust and appropriate

	<p>precautionary principal design to avoid any unacceptable impacts on flood risk both to the development and to third party lands.</p> <ul style="list-style-type: none"> • All surface water drainage runoff from the proposed road is subject to attenuation to pre-construction levels prior to discharge into receiving watercourses. • Measures for dealing with the risk of flooding during the construction stage at watercourse crossings are dealt with in section 8.2 of the EOP.
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Inspector’s Assessment on Issues raised in objection

The small triangular area of the southern field referred to by the objector relates to land take at (ch.51+750 to ch.51+800) in connection with improvements to Sideroad 12D (L-8027) and provision of an access accommodation track to restore access from accommodation structure UP11A to the severed agricultural lands and is not intended to be shared with accommodation structure UP11B. Flooding of retained lands would be avoided, noting the design has incorporated a managed surface water drainage system. Section 8.2 of the EOP contains an incident response plan within which flooding is identified as a potential incident. Flooding has also been considered in the Section 12 (EIA) above under the heading of hydrology and in Mr Keohane’s accompanying report on hydrology. In Chapter 15 of the EIAR (Material Assets and Land – Agriculture), the residual impact on this property has been rated as **slight**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject

property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Joan Kennedy – (**Note:** Ms Kennedy is referred to as Josephine Kennedy in CPO Schedules).

(Written submission only)

CPO Plot No. 419

Submission No. – Sch-47

Note 2: Affected landowner owns landholding reference: 071 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant response
<ul style="list-style-type: none"> • The provision of a separate underpass is considered inadequate to meet the requirements of machinery that can access severed lands. • The scheme does not make any provision for the construction of ducting to bring services such as water and electricity to severed lands. • There will be a substantial increase in noise levels at objector’s property during construction and operation phases and no mitigation measures such as the installation of triple glazed 	<p><u>Material Assets</u></p> <ul style="list-style-type: none"> • Access to severed lands is proposed via an accommodation track and a separate underpass (UP12B). • Regarding impact on services, well and septic tank - Measures to mitigate the impact on agricultural and non-agricultural property arising from the proposed road development are outlined in section 15.5 of Chapter 15 and section 16.5 of Chapter 16 of the EIAR. <p><u>Noise & Vibration</u></p> <ul style="list-style-type: none"> • The residual traffic noise level in EIAR Appendix 12.1 for this property is 58dB L_{den} which is below the design goal. <p><u>Hydrology/Hydrogeology</u></p>

<p>windows have been proposed.</p> <ul style="list-style-type: none"> • The impact on the existing well, septic tank and percolation area have not been considered. 	<ul style="list-style-type: none"> • Section 5 of Chapter 9 of the EIAR provides mitigation measures for wells which were found to be at risk in the Hydrogeology assessment. • Refers to replacement of groundwater supplies that are within the footprint of the PRD either through the provision of a private supply or by providing a connection to an existing public or group water scheme where applicable or monitoring supplies where applicable. • As a general response, it is stated that all soakaway, percolation areas associated with Table 6.1 of the EPA 'Code of practice for Wastewater Treatment Systems for Single Houses' (2010) of the PRD would be decommissioned and relocated elsewhere on the affected property and designed in accordance with the EPA Code of Practice. It is also states that no such incident of this occurs along the PRD and where it does potentially occur the dwelling house is being acquired as part of the PRD.
<p>Inspector's Assessment on Issues raised in objection</p> <p>At this location, there is a significant reduction in agricultural area for the main alignment from ch.52+150 to ch.52+975 for the main road alignment and Sideroad 12D (L-8027) and access tracks. Severance of the main plot would</p>	

result with a loss of direct access. It is proposed to provide a private access to the severed area via an access accommodation structure (4.5m in height) at ch.52+150m. It is also proposed to restore access gates and to replace the property boundary with a permanent stockproof boundary.

In relation to the existing well, septic tank and percolation area, section 15.5 of Chapter 15 (Mitigation Measures for Agricultural Property) and Section 16.5 (Mitigation Measures for Non-Agricultural Property) of Chapter 16 sets out that any services that are interfered with as a result of the proposed road will be repaired / replaced without unreasonable delay. It is also stated that no such incident of domestic wastewater treatment plants or soakaways are within the setback distances required under the EPA (Code of Practice for Water Treatment systems for single houses' (2009) along the route of the PRD and where it does potentially occur the dwelling house is being acquired as part of the PRD. I note that the Code of Practice has been updated in 2021, however, the setback distance requirements have not been altered in the new code. Specifically, I note that the minimum separation distance required between a road and a septic tank/plant and infiltration/ treatment area of 4m is required and would not be exceeded with the proposal for the road infrastructure. Given that the no wastewater treatment system and/or percolation areas or soakaways would be within the setback distances referred to, there would be no impact on performance as a result of the PRD.

In relation to concerns regarding noise at the residential property, the residual noise is 58dB L_{den}, which is below the design goal and is therefore appropriate. In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as **moderate**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is

justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Eileen Madden (Sch-30), Paul Madden (Sch-89) and Paul and Eileen Madden (Sch-88)

(Written and Oral Submission)

CPO Plot No. 412 and 416

Submission No. SCH-30, 88 and 89

Note: Affected landowner owns Landholding Reference: 069 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Applicant Response
<ul style="list-style-type: none"> • The provision of a shared underpass is not sufficient to cater for the movement of animals between the two severed parts of the objectors' holding. • There appears to be no provision for ducting to bring services to the severed lands. • It is unclear from the drawings as to how the objector would access the public road, L-8027, or his severed lands from the access road provided as part of the underpass, 11A. • Clarifies that there are two loughs and any reference made to the high lough is intended to include the large and small loughs (Doohyle 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> • Soft ground is in a hollow and there are ecological and fen issues at this location. As the soft ground being in a hollow, there is no risk of landslide, and the circumstances are not comparable to other road schemes referenced as there are different geotechnical issues. • There will be construction challenges building through the soft ground. Site investigation have been carried out and there is knowledge of the engineering of the proposed road. • There would be no interaction with groundwater as part of the works. • The stream will be culverted and there won't be any change to the hydrological regime in this area.

<p>Lough - connected to a smaller lough via drainage channels).</p> <ul style="list-style-type: none"> • Area around high lough comprises a network of springs and waterlogged ground; expresses concerns about stability of soils and risk of peat slide and raises issues of potential for flooding. • A large area of farmyard would become flooded, and many local wells would be impacted because groundwater and springs are all interconnected. • Report from Mr Bill Hutch O'Malley McBeath consulting engineers included with written submission. • Concerns raised regarding protection of ecological receptors. • Concerns were raised regarding the constructability of the Motorway section (Section D) due to the instability of soils and the potential risk of peat slide, and they also refer to the potential for flooding of the farmyard and local wells because groundwater and springs are all interconnected. 	<ul style="list-style-type: none"> • A flood model has been developed and the existing flood regime in the area was taken into account in the design of culverts. There will be no worsening of existing flood conditions as a result of the construction of the scheme at this location. • These areas are well known to the design team and that there would be no interaction between the road and these springs. • As part of the road design and maintenance, neutral changes to drainage are applied. • there is no filed record documenting that pollution occurred, or that the matter was raised with supervisory staff of the project team at the time. <p><u>Biodiversity</u></p> <ul style="list-style-type: none"> • Avoidance of habitat fragmentation is a priority in terms of mitigation. • Design of scheme allows for movement of wildlife using dedicated culverts, farm underpass, clear span bridges, culverts with mammal ledges/mammal culverts at suitable locations along entire scheme.
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<ul style="list-style-type: none"> grout used in the Ground Investigation at RC10-09 was allowed to enter into a tributary of the Lismakeery Stream. 	<ul style="list-style-type: none"> EIAR Tables 7.12a-7.12d and Figures 7.25-7.45 (Volume 3) refer. Landscaping will tie-in with existing linear or other habitat features to increase attractiveness of these crossing points. All mitigation for Lesser Horseshoe Bat (and all bat species) is fully detailed and will be undertaken. Alternative route south of Adare was considered as Route K in Stage 1 of route selection process. It was discounted following assessment. A southern crossing of the River Maigue could have significant effects on the qualifying interest species, including spawning habitat albeit outside of the SAC. Habitats including fen at Blossomhill (KER 21) were evaluated as being of national importance and fully considered in the assessment. The independent ecological survey and report (Donnacha O’Cathain) and the EirEco Environmental consultants assessment came to the same conclusion that the ‘blue’ route was preferable for ecology. However other factors meant that
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	<p>the green option was selected as the preferred option.</p> <ul style="list-style-type: none"> • Full consideration was given to fen habitat in all route options at this location. • Long-eared Owl nest was found at this location. No confirmed presence of Barn Owl.
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Inspector's Assessment on Issues raised in objection

At this location, there is a significant reduction in agricultural area for the main alignment and access tracks.

Severance of one plot into two areas would result. There would be a loss of access to farmland facilities and severed areas and impact on field accesses and boundaries.

It is proposed to provide a private access to the severed lands via an accommodation structure (3.0m in height) at ch.51+800m. Field accesses would also be provided to the remaining areas. Boundaries would be replaced with a permanent stockproof boundary.

There will be a **moderate** residual impact at this property.

Biodiversity

General biodiversity issues raised are dealt with in the EIA and Inspectorate Ecologists report. The area of rich fen and flush habitat is avoided at this area (KER 21) and the predicted permanent moderate negative impact is reduced to permanent slight negative impact through design avoiding hydrological impacts on the site. This site was found to host the Annex II species of Desmoulin's whorl snail and by avoiding direct impacts on the fen and its hydrological regime there will be no direct negative effect on the whorl snail population at this site.

Buildability of the PRD

I would agree with this assertion that the volume of soft ground is modest, given my own knowledge and experience of other road projects. The nature and location of soft soil is well understood, and I am satisfied that the unsuitable

material can be safely removed or improved as outlined in my assessment above without giving rise to any adverse impacts on the soils or geological environment.

Hydrology/Hydrogeology

I am satisfied that the ground conditions are well understood and as part of the road design and maintenance, neutral changes to drainage are applied and as such I am satisfied as asserted by the applicant that there would be no additional risk of flooding at Doohyle.

Pollution

In relation to concerns that the grout used in the Ground Investigation at RC10-09 was allowed to enter into a tributary of the Lismakeery Stream, I am satisfied with the response and there is no evidence that any adverse environmental impacts were caused as a result of the geotechnical site investigation programme carried out.

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as **moderate**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Parties represented by Martin & Rea (Richard J.Rea, Tipperary Office)

John Brennan (Sch-50), Ruairí Brennan (Sch-97), Sam & Nicola Brennan (Sch-100), Maeve & Thomas Kelly (Sch-64); Thomas & Maeve Kelly (Sch-116).

Note: These four landholdings are at the same general location. ch.7+250 to ch.10+450 and ch.10+750 to ch.11+050. They were dealt with together by Mr

Richard Rea (of Martin & Rea, Tipperary office) and his team, Mr Tom Dawson (Martin & Rea), Mr Derek Long (veterinary surgeon) and Mr Karl Searson (noise expert) at the oral hearing and are also set out together in this assessment below.

Objector: John Brennan (– Father of Ruairí and Sam Brennan)

(Written and Oral Submission)

CPO Plot No. 201

Submission No. – SCH-50

Note: Affected landowner owns landholding reference: 021 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Objector: Sam and Nicola Brennan (Written and Oral Submission)

CPO Plot No. 200

Submission No. – SCH-100

Note: Affected landowner owns landholding reference: 023 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Objector: Ruairí Brennan (Written and Oral Submission)

CPO Plot No. 204

Submission No. – SCH-97

Note: Affected landowner owns landholding reference: 026 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Objector: Thomas & Maeve Kelly (Written and Oral Submission)

Plot No. 203

Submission No.s – SCH-64 and 116

Note: Affected landowner owns landholding reference: 024 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection

Summary of Applicant Response

General

- States that the classification of the land type as leased/short-term in respect of Ruairi Brennan (SCH-100) in Chapter

Material Assets

- Assessment of the Brennans three holdings is set out in Table 15.6 of Chapter 15 (Materials Assets – Agriculture) of the EIAR.

<p>15 – Materials Assets and Land-Agriculture is incorrect.</p> <ul style="list-style-type: none"> • States that severance will occur on the combined properties and the rating would be greater than moderate. • States disagreement of landscape rating on Sam Brennan’s house (slight in year 1 and imperceptible in Year 3). • Requests that a safety barrier is incorporated into underpass UP04 to protect farmer in the case that horses or cattle were to turn back in fear when passing through the underpass; • Requests that the parapet on the bridge on the L-1220 to be increased (from 1.25m) to a minimum of 1.8m (solid) in the interest of safety as three local hunts use this road for up to three times per week (during some weeks of the hunting season) with c.20-30 horses in each hunt. <p><u>Fencing and Clear zone</u></p> <ul style="list-style-type: none"> • Mr Dawson presented a number of photographs regarding fencing on other road schemes. He posed questions to the applicant on the definition of the 	<p>At the time of initial landowner meeting, land was leased-short term and this was entered into summary table. Subsequently at time of Mr Sadlier’s meeting it was clarified that all three Brennan landholdings operated as a single farm enterprise. States that this can be corrected at the evidence to the hearing.</p> <p><u>Equine</u></p> <ul style="list-style-type: none"> • Following a request by Mr Rea, Mr Sadlier provided a description of the Kelly equine enterprise. States that based on information gathered during his inspection in 2018, the Kellys live adjacent to the stable yard and that the farm comprises a barn within which there are four stables and a fodder store. Understands that the Kellys breed foals or buy them to rear and sell them as three-year-old national hunt racehorses. • Stated that the impact was correctly rated as moderate significant. • Stated that horses have individual flight zones, being a zone that horses react in. Horses habituate to stimuli and when in a field and if uncomfortable will
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clear zone and its relevance/location when the road is at grade and at depths and asked if a clear zone extends beyond the CPO line.

Landscape Impacts

- Mr Rea queried how Mr Sam Brennan's house could have a landscape rating of 'moderate and Imperceptible while Thomas Kelly's house is rated moderate and slight.

Noise (Mr Karl Searson)

- Mr Karl Searson carried out a review of acoustic aspects, including baseline noise measurements at Plot No. 023 (Sam Brennan), Plot No. 024 (Tom Kelly) and Plot 026 (Ruairi Brennan);
- In addition, it is stated that the applicant's design goal of 60dB L_{den} does not correspond with the recommendations of the WHO level of 53dB L_{den} ;
- In respect of Plots 023 (Sam and Nicola Brennan), 024 (Thomas and Maeve Kelly) and 026 (Ruairi Brennan) above, Mr Searson recommends erecting a 3.0m to 3.5m high noise

move to areas of low-level threat. Some horses have shown that they are happy to be on the side of a road, others will take avoidance measures.

- Stated that additional fencing or other mitigation on the objector's own lands can be discussed between the landowner and the local authority.

Engineering

- At Mr Kelly's property (ch.10+275 to ch.10+450), the PRD would be over 300m from the farmyard and house to the south. Construction works are quiet at this location, consisting of construction of an embankments, with low noise where machines would work at a constant rate. No loud noises would occur at this location.
- Boundary fence – timber post & rail fence requested by Mr Rea for his clients is akin to that which was used traditionally on road schemes but was found to be hazardous in certain circumstances. Therefore, TII standards have moved away to a passively safe fence (tension mesh & post fence without rails). Essentially there are no rails that could be hit or broken by a

barrier as close as practicable to the construction works and that the inner side is planted with hedgerows and the hedgerows should have an outer electric fence to dissuade equine inquisitiveness and avoid hedge nibbling. He suggests that leaving the barriers in place post construction is also an option worth considering.

- States that horses should be set back 250m from construction site and where that's not possible, alternative is a 3.5m high noise barrier and a setback of 100m (which area within the 100m can be used during quiet works only).

Boundary Fencing (Mr Derek Long - veterinary surgeon)

- Mr Long stated that he would not be satisfied with the single fence proposed as it does not have a visual barrier and the likelihood is that horses would either crash into it or jump it in their 'flight' response; Suggested that what is required is a second post and rail fence on the inner side with a visual

vehicle if it were to collide with a fence. Boundary fences that coincide with clear zone are of that type and that is the type used in the main for the PRD. Otherwise, there may be a timber post and rail fencing where appropriate mainly on local road realignment around the edge of the scheme.

- Clear zone is used for the purpose of assessing the need for safety barriers along high-speed zone. It is related to the speed of the road. As a result of safety barriers, the clear zone will not extend beyond the CPO line at this location where it would traverse the Brennan and Kelly properties.
- In relation to landscape, there is planting proposed on both side of road which will provide visual screening. Any animal will be looking at a woodland boundary as a backdrop. This will address the concern with the type of transparent fence proposed in the design.
- Some landscaping would be provided as semi-mature landscaping, other would take a number of years to become

barrier in between at a height of 5' (1.5m) rather than the proposed 1.2m and stated that there is a need to electrify the fence. (Photographs of the indicative type of fencing provided by Mr Tom Dawson of Martin & Rea).

Objector Statement (Mr Thomas Kelly)

- Mr Kelly read a submission to the hearing which largely expressed concerns regarding impacts of the construction noise on horses on his farm.
- He also raised concerns regarding drainage and flooding of the retained lands because of excess water entering the Lismakeery River which traverses the landowner's farm.

Mr Richard Rea Closing Statement.

In a closing statement, Mr Rea requests the following are provided in respect of the Brennan properties and Mr and Mrs Kelly's property.

- Construction noise barrier, a minimum of 3.5m high to be installed on both sides of the working area from ch.10+100m to ch.11+300m and that in

established. Landscaping would comprise a planted hedgerow.

- Raising the parapet on the bridge of the type requested can be considered.

Noise

- Ms Jennifer Harmon explained that the baseline noise levels presented in Table 12.1 of Appendix 12.1 (Volume 4) of the EIAR relate to traffic noise only and don't take other sources of environmental noise activity into account.
- States that the calculated noise level at the Kelly property is 53dB L_{den} , which is a very low level of traffic noise.

<p>addition to that during construction, a temporary noise barrier is erected on both sides of the L-1220 where it adjoins the three Brennan properties;</p> <ul style="list-style-type: none"> • a post and rail fence (suitable for horses) along the mainline and on the L-1220 side road. • That the Board would vary the design on the accommodation track between ch.10+900m to ch.11+000m on the north side and from ch.11+050m to ch.11+200m on the south side requiring a post and rail equine fence between the wire fence and the track provided; • A safety barrier is incorporated into underpass UP04; • The parapet on the bridge on the L-1220 is increased (from 1.25m) to a minimum of 1.8m (solid) in the interest of safety. <p><u>Other</u></p> <ul style="list-style-type: none"> • In their initial written submission received by the Board, Maeve & Thomas Kelly also raised issues concerning noise, traffic hazard, air and water quality. 	
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Inspector's Assessment on Issues raised in objection

Background/Context of Brennan and Kelly properties

- **John Brennan** (Landholding Ref: 021) (father of Ruairí and Sam Brennan) - Lands proposed to be acquired are located to the east of local road L-1220 at Ballyellinan, north of the mainline of the protected road. These lands are required for the embankment of the realigned local road, which is proposed to bridge over the mainline of the protected road. It is proposed to replace the boundary with a permanent stockproof boundary. In Chapter 15 of the EIAR (Material Assets and Land – Agriculture), the residual impact on this property has been rated as **slight**. At the oral hearing, it was clarified by Mr Bligh that all Brennan farms work collectively as one farm unit and, on that basis, the impact rating is accepted in my assessment as **moderate** in terms of significance.
- **Sam Brennan** (Landholding Ref: 023) (son of John Brennan) at ch.10+100 to 10+250. Part of these lands are required for the construction of the proposed protected road. Lands are also required for the embankment of the realigned local road L-1220, which is proposed to bridge over the mainline of the protected road. Lands are also required for stream diversions to the north and south of the protected road. In Chapter 15 of the EIAR (Material Assets and Land – Agriculture), the residual impact on this property has been rated as **moderate**.
- **Ruairí Brennan** (Landholding Ref: 026) (son of John Brennan) at ch.10+750 to ch.11+050). Land take is required to facilitate the construction of the proposed protected road and a farm access road. Lands to the south of the protected road are included for the provision of a drainage attenuation pond. Private access is proposed to the severed area via an accommodation structure (4.5m in height) and to replace a boundary with a permanent stockproof boundary. In Chapter 15 of the EIAR (Material Assets and Land – Agriculture), the residual impact on this property has been rated as **moderate**.

- **Thomas and Maeve Kelly** (Landholding Ref: 024) at ch.10+250 to ch.10+450). Part of these lands are required for the construction of the proposed protected road and a farm access road. Lands to the north of the protected road are included for the provision of a drainage attenuation pond to control the volume and quality of surface water. In Chapter 15 of the EIAR (Material Assets and Land – Agriculture), the residual impact on this property has been rated as **moderate**.

Fencing

Mr Rea and his expert team asserted that the fencing type proposed along the mainline is not suitable to protect equine stock from their 'flight' response. I have considered the fence type proposed in detail in Section 11.6 (Road Design and Construction – Elements of Significance) of the planning assessment above. The fence-type along both the mainline PRD (national road) and the side-roads (non-national road and tie-in locations) comply with TII Specification for Road Works – Fencing and Environmental Noise Barriers (2018).

Mr Richard Rea and his team, on behalf of the objectors, made a strong argument in favour of a double post and rail equine fence. Mr Long also stated that he would not be satisfied with the single fence proposed and recommended a double fence with a visual barrier and also that the fence would be electrified. This was echoed by Mr Searsons.

In response, the applicant put forward a rationale for the type of fence proposed on the basis that the traditional fencing used (a timber post & rail fence) was previously found to be hazardous and stated that TII standards have moved towards a fence without rails in order to eliminate the hazards along the clear zone.

It is submitted that this is generally the type of fence now proposed along the majority of the PRD mainline and otherwise, timber post and rail fencing is proposed in certain locations mainly on local road realignment around the edge of the scheme.

The clear zone is a desirable 'safety zone' that springs from the concept of removing and relocating obstacles such that a road can provide a more forgiving

environment for errant vehicles and to minimise the risk of road collisions. If the hazards are within the clear zone, safety barriers are provided, and these truncate the clear zone at the barrier by providing protection. In response to a question from Mr Dawson, the applicant stated that the location of the fence is outside of the clear zone, but as I understand this is only following the provision of a safety barrier along the PRD at this location.

Nonetheless, the key point of relevance is that the fence type proposed is in accordance with TII Specification for Road Works – Fencing and Environmental Noise Barriers (2018).

Having regard to the above, I am satisfied that the correct type of fence is proposed by the applicant at this location given the high priority of safety that must be adhered to in the design and use of the road. I therefore accept that the boundary fencing where the road traverses through the Brennan and Kelly properties should comply with the TII standard CC-SCD-00321 (tension mesh stud fencing).

In relation to the requirement for a visual barrier, I note that at this location screen planting would be provided (including scrub & Tree Planting as shown on Fig 11.5, which would effectively provide a visual screening between the fence and the road, but only as the landscaping matures).

I note that, and as alluded to by Mr Sadlier, additional fencing on the landowners' own property could also be considered. Given the general acceptability of the proposed fencing arrangement, I consider that any potential additional fencing on the landowners own property would be an accommodation works matter which can be discussed directly between the Local Authority and the landowner.

Request for Noise Barriers

A second issue raised centres around construction **noise** and its impact on horses on the lands at the location where the PRD would traverse the Kelly and Brennan properties.

Mr Rea requested that a noise barrier would be placed along the properties (and an intervening property on the basis that noise would not respect folio boundaries) for the construction phase and it was also recommended by Mr Rea's team that consideration should be given to leaving the noise barriers in place during operation.

The applicant's case is that no noise barriers are required at this location for noise mitigation for either the construction or operation phases.

Construction activities at this location include filling as the road would be placed on an embankment and is of a type that would not generate excessive noise. Mr Sadlier stated that horses in fields can take avoidance measures by moving to a location where levels of noise are lower. He stated that horses in a field are a different scenario to equine enterprises in buildings or arenas where horses do not have such a choice to move away from noisy environments.

The applicant's overall approach towards the protection of neighbouring equine enterprises via the provision of noise barriers during the construction phase of the PRD has been considered acceptable as set out in my assessment of the Section 51 approval application in Section 12.16 under the heading of 'Material Assets and Land – Agriculture (Equine)'. I also note, as set out by Mr Sadlier, that while noise levels would increase during the construction phase, horses can move away from noise sources in open fields. I acknowledge that this would increase the management required for such enterprises, but it would not generate any unacceptable significant adverse environmental effects.

In relation to operation noise, I am satisfied that horses are known to habituate to traffic noise and as I have stated earlier, it is not uncommon to see a range of horse breeds and horse varieties grazing adjacent to busy roads without any apparent distress or disturbance.

Parapet on Bridge along local road L-1220

In relation to Mr Rea's request to raise the parapet on the bridge (OB02) along the local road L-1220 (ch.10+100), Mr MacGearailt stated at the oral hearing that this request can be considered by the applicant although I acknowledge that it was not a commitment. Nonetheless, I believe that this matter can be addressed between the applicant and the landowner in finalising the design and should the

parapet be raised to within the height requested by the affected landowner, given the nature and scale of the bridge and parapet, it would not give rise to any additional significant effects on the environment, including landscape and/or visual effects.

Safety Barrier

In relation to Mr Rea's request for a safety barrier in the underpass UP04, the rationale put forward to allow a safe space for the farmer in the event of a animals/horses were to turn back because of fear in using the underpass, this is not the function of a safety barrier, and I am not recommending that a safety barrier is placed in the underpass as safety barriers serve a different purpose and function which are not applicable at this location.

Visual impacts

In relation to the visual impacts, these have been assessed by the applicant as slight during construction and imperceptible in the long term in respect of Sam Brennan's property (B10-003) and moderate during construction and slight in the long term in respect of Thomas Kelly (C20-001). Having reviewed the drawings and photomontages, I note that the Kelly property would have more open views of Section B and C of the PRD than Sam Brennan's property. I am satisfied that the rating for both properties are correct.

Other

In respect of other issues raised in the written submission received from Thomas and Maeve Kelly, the issues raised in the objection relate to noise, traffic, air quality and water quality and have been dealt with in the EIA section of the assessment above and I am satisfied that no significant effects would arise from these environmental factors.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject properties. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Melissa & Seán Cahill (Written and Oral Submission)

CPO Plot No. 432

Submission No. – SCH-71

Note: Affected landowner owns Landholding Reference: 084 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<p><u>Mr Richard Rea</u></p> <ul style="list-style-type: none"> • Stated that the Cahills produce elite horses including horses that have competed in the Olympics in 2012 and other international events. • Stated that their outdoor sand arena is located within 16m of the proposed road and would be incapable of operating safely during road construction or when construction is completed due to noise impacts in particular. • Set out disagreement of impact post mitigation (significant) and considers it should instead be rated as profound. 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> • States that the sand arena is c.20m from the beginning of road. • The boundary treatment details for agricultural property are referenced in Section 15.5 Mitigation Measures for Agriculture in the EIAR. • In relation to fencing, visual screening would be provided by landscaping on both sides of the Askeaton link road over the full length and other significant planting which varies from place to place. • At Cahill property, the road is at grade and minimal earthworks are required.

<ul style="list-style-type: none"> • Raises questions on residual noise level (D56-004-stable with a noise level of 45dB L_{den} and D56-005-house with a noise level of 59dB L_{den}) in design year in 2039; • Following reference by applicant's equine expert on other equine enterprises, stated that Ballyellen and Baskin Lane equine enterprises referenced are not comparable with the current proposal because of location and type of equine businesses. 	<ul style="list-style-type: none"> • A temporary noise barrier is proposed (2.4m high temporary barrier) to protect their property during construction. A 3.5m permanent noise barrier (NB-019) is proposed for operation over a considerable length and would be extended by 75m for additional equine protection, as detailed in Table 15.6 (Assessment of the impact of the proposed road on agricultural land).
<p><u>Mr Derek Long (veterinary surgeon)</u></p> <ul style="list-style-type: none"> • Mr Derek Long (acting for the Cahills) stated that the mitigation proposed is not adequate and described risk of serious injury of horses and riders from exposure to unusual noise or visual stimulation and their instant instinct of 'flight' in order to survive together with the potential for unpredictable reaction. • States that the sand arena and all of the facilities should be relocated 240m to the lower side/south or discontinued and 	<p><u>Equine</u></p> <ul style="list-style-type: none"> • Assessment concludes that there would have mitigation would be required to allow the sand arena to operate. • Mitigation proposed comprises a noise barrier which also acts as visual barrier and intensive screen planting is also proposed. It is noted that the arena is quite close to the road, extreme caution would be needed when it is being used, however horses do acclimatise to different stimuli quite quickly. • One advantage of a top-class horse is their ability to compete in all forms of situations including where there are intrusions (visual and aural) on their activities. • In respect of the operation of the road, it is known that horses

<p>that the Cahill residence is acquired.</p> <ul style="list-style-type: none"> • States that a post and rail fence should be added behind the proposed TII fence with planting (to act as a visual barrier) in between both fences. • Would not be happy to have any horses within 250m of the PRD works during construction. <p><u>Noise (Mr Karl Searson)</u></p> <ul style="list-style-type: none"> • Acoustic barriers would not attenuate the noise of construction to an appropriate level and the arena would not be available during construction • the family home would not be capable of providing rooms suited to resting or sleeping or where the children may study. • It wouldn't be possible to achieve 53dB L_{den} at the Cahill property. • Mr Karl Searson carried out a review of acoustic aspects including baseline noise measurements at Plot 084 – Sean and Melisa Cahills properties. 	<p>become acclimatised to noise especially traffic noise as it is a consistent noise.</p> <ul style="list-style-type: none"> • There are resultant limitations, but the arena would not become unusable. The arena would be temporarily out of use during the erection of the barriers. Once the barrier is in place, the arena could then be used. There would be an impact during the construction phase while noise barriers are being erected. There are accommodation works that can be performed. • Land loss is a contributing factor in the impact rating in that Cahills are losing one third of their farm land. • Gave examples of equine enterprises continuing during construction, including Ballyellen equestrian centre on the Gorey Bypass and on an ongoing basis at Baskin Lane riding centre in north Dublin on a highly trafficked road in north County Dublin. • There are no defined criteria of distance of horses from construction. It is acknowledged animals that are being handled and don't have an option and therefore the barriers have been
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<ul style="list-style-type: none"> It is stated that the applicant's design goal of 60dB L_{den} does not correspond with the recommendations of the WHO recommended level of 53dB L_{den}. <p><u>Statement by Objector (Melissa Cahill)</u></p> <ul style="list-style-type: none"> Expressed concerns regarding the location of the motorway relative to the Cahill home and equine enterprise. House is located 47m from motorway and arena and stable yard is 16m away. Stated that the house would be devalued and that it is unfair that devaluation is not considered by the applicant. Cannot continue to use arena safely. <p><u>Closing Statement by Mr Rea</u></p> <ul style="list-style-type: none"> Requests that due to poor design of the road and the profound impact on the Cahill property, the Board should refuse permission in respect of Section D (or if approved that the standard for noise should be the WHO standard (53dB L_{den}) and not the TII standard (60dB L_{den})) 	<p>proposed to be put in place for construction and operation.</p> <ul style="list-style-type: none"> Potential arises for mitigation on own lands as a matter for accommodation works between the statutory authority and landowners can also be considered. <p><u>Noise</u></p> <ul style="list-style-type: none"> States that the difference between WHO & TII guidelines addressed in Dr Hogan and Ms Harmon's Brief of Evidence. The residual traffic noise level in EIAR (Appendix 12.1) for this property is 59dB L_{den} which is below the design goal. General enjoyment of the property can continue. It is mitigated to the same protection as all other properties. Level of Noise is in line with TII guidelines. Clarified that property D56-004 refers to the stable and measurement was taken on northern façade looking towards the PRD. A 2.4m high noise barrier is proposed for construction and a very extensive noise barrier of 3.5m proposed to protect the dwelling and the equine enterprise during operation.
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<ul style="list-style-type: none"> • Recommend that the horse arena and associated facilities are relocated and that the residence is acquired. • Requests a post and rail fence (suitable for horses) in respect of the Cahill property. 	<ul style="list-style-type: none"> • It is acknowledged that the property and equine enterprise are very closely located to the PRD.
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Inspector’s Assessment on Issues raised in objection

The lands to be acquired are located to the north of the existing N21 (ch.55+650 to ch.55+825). A small section of public road is also proposed to be acquired along the L-8026 to facilitate the realignment of this local road to the east of the Cahill property. The CPO at this location also entails prohibiting any means of direct access to or from the motorway.

The Cahill home and equine enterprise are located at ch.56+000 to ch.56+125 and at this location, the PRD would be located just northwest of the property. The objection centres around the impacts on the home and equine enterprise at this location because of their proximity and location relative to the PRD.

During construction, a temporary barrier, of a minimum 2.4m in height, would be erected to screen the noise and visual impacts during construction stage.

During operation, noise barriers and supplementary equine barriers would be provided as per Fig 12.16 & Fig 12.17 as follows:

- NB-019 and supplementary barriers to the south from ch.55+900 to ch.56+725 to mitigate the noise and visual effects of operational activities.
Replace boundary with permanent stockproof boundary.

There was much discussion regarding noise on both the residential property and on the equine enterprise.

The residual traffic noise level in EIAR Appendix 12.1 for this residential property is 59dB L_{den} which is below the design goal of 60dB L_{den} which is satisfactory post mitigation.

In relation to the equine enterprise, it is acknowledged that unlike horses in an open fields, the enterprise cannot readily control space for the horses that are being handled and therefore the noise barriers have been put in place for

construction and operation. It has been stated that the arena would be out of use for a short period while barriers are erected, which is acceptable.

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property, referenced as Plot 84 has been rated as being **significant**.

Mr Rea suggests that the impact post mitigation would remain as that pre-mitigation, i.e., profound. Mr Sadlier set out that land loss is a contributing factor to the finding of significant effects as Cahills would lose approximately one third of their land.

In the landscape and visual assessment, the Cahill house is set out as experiencing a moderate visual impact in year one and slight in year 15. By reference to the landscape drawings and to CP19, I agree with these ratings of visual impact.

In relation to Ms Cahill's reference to property devaluation, the impact on land values is a financial compensatory matter which does not form part of the decision-making process currently before the Board.

It is acknowledged that as a materials asset, the impact post mitigation would remain as **significant**. While this is so, the impact would be similar to other major road infrastructure projects and when taking the wider societal public benefits into account, I conclude that it is acceptable.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Miriam O'Mahony (Written and Oral Submission)

CPO Plot No. 330

Submission No. – SCH-77

Note: Affected landowner owns Property No.31 (Table 15.6 of Chapter 16 - Material Assets and Land – Non - Agriculture) of the EIAR. The CPO involves the acquisition of public road.

Summary of Objection

- It is acknowledged that the CPO relates to the public road, but the effect is quite substantial on the objector's house in terms of negative views and her house would be substantially devalued.
- LCCC should consider suitable arrangements for this and other houses in the same situation to be purchased by the Local Authority. States that it would be cost neutral as the loss would be for the person in the house and the new purchaser would then purchase the house from the Local Authority knowing in advance that the PRD is or would be in place proximate to the house.
- In light of the above, requests that the Board acquire the property. (Notes that this would have implications for other properties).

Summary of Applicant Response

Engineering

- The lands to be acquired consist of part of the public road only.
- Viewpoint 9 (volume 5A of the EIAR - photomontages) represents view in the area and in the background of this viewpoint, the gable of the objector's house can be seen.
- However, view from front would face onto an existing ditch and woodland and beyond that, additional landscaping is proposed.

Inspector's Assessment on Issues raised in objection

This CPO relates to the acquisition of a part of the public road in front (west) of a two-storey property at chainage ch.26+900 (Property No.31- C26-009). On the landscape rating it is rated as significant in year 1 and moderate in Year 15 (long term) with landscape in place including SML 10 (screening the bridge structure).

I note the issues raised in the objection concern the view from the property owner's home of the structure over R518 at Graigeen. (Ref: Plan on Aerial Photography, Ballyclogh to Rathkeale – Section C, Sheet 5 of 6). While the gable of the house can be seen in Viewpoint No.9, that viewpoint does not represent the view from the house, as it is taken at a point south of the overbridge structure (UB04) at the location of a property that would be acquired, which is south of the O'Mahony property. It shows the view looking north along the R-518, facing towards the gable of Ms O'Mahony's property rather than from her property. However, I have visited the vicinity and I am aware of the location of the objector's house and the I note the view that would be experienced from the O'Mahony property.

I note from the response and a view of the appropriate drawings, that the front view of the O'Mahony house would not face onto the overbridge structure (over the R518). The narrow field opposite the house (between the road and an existing woodland) is also included in the CPO lands. The front of the house would face onto the ditch in the foreground followed by woodland and additional landscaping to reduce the visual impact, which is acceptable. I acknowledge that the overbridge structure is relatively close to the objector's house (c.50m south of her house) and would be visible each time Ms O'Mahoney would leave her house and travels to the south along the R518. However, given the mitigation proposed and the orientation of this property which avoids direct views of the PRD and this structure, I agree with the rating of significant (short term) and moderate (long term) with respect to landscape impacts.

With regard to issues raised in relation to property devaluation, the impact on value is a financial compensatory matter which does not form part of the decision-making process currently before the Board.

I do not consider that the proposal that the Local Authority should purchase the house would be appropriate or reasonable, given that the house and associated

lands are not required for purposes associated with the PRD and that impacts on residential amenity can be mitigated to an acceptable level.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Nano & Patrick Reidy (Written and Oral Submission)

CPO Plot No. 434 (owners)

Submission No. SCH –78

Note: Affected landowner owns Landholding Reference: 083 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<p><u>Mr Richard Rea outlined:</u></p> <ul style="list-style-type: none"> • The Reidys operate a poultry enterprise and breed chickens, including breeding birds that produce hatching eggs for breeding free range boilers. Type of chicken is stated to be a Hubbard (type JA57). • States that the breeding birds are very sensitive and do not react well to noise. 	<p><u>Engineering:</u></p> <ul style="list-style-type: none"> • The design of the link road and the roundabout at Croagh has been undertaken in accordance with the relevant TII Design Standards. • The roundabout is located 45m from exit to Reidy entrance. A distance of 50m is considered normal, however the 45m proposed at this location is a minor departure which is normal and acceptable and has been approved by TII.

- Informed that if birds suffer shock, production of eggs would reduce and would not recover, which would make the enterprise uneconomic.
- Stress induced noise gives rise to difficulty with hatchability and chickens reaction to noise would cause them to run away from a noise source and this could give rise to smothering of some of the flock.
- No difficulty with noise during operation but there would be difficulty with noise during construction phase and the business cannot continue in production for a period of 2.5 years.

Mr William Morrisey

- provided expert engineering evidence on traffic. He stated that the proximity of the proposed Croagh roundabout to the west of the Reidy enterprise is unsafe with reduced sightlines for HGVs and other vehicles and should be relocated. He asked the applicant if a road

- The current situation is that of an avenue that passes their home and two neighbouring houses. Road passing by their entrances on a road with speed of 100km/hr carrying 15,000 vehicles per day,
- With the PRD in place, there will be a significant reduction in traffic to 1,500 vehicles per day – risk is reduced to 1/10th of what it is at present.
- The roundabout would reduce traffic speeds to 50km/hr. Speed will be halved and the location will become far safer.
- There is a generous entrance provision to allow incoming and exiting of HGVs at the same time.
- One road safety audit carried out to date and another one will be carried out at construction phase to confirm that the proposal is fully compliant.

Material Assets

- It is proposed to restore farm access exit onto the N21, and it will be shared with the poultry unit.
- The proposed link road is likely to be constructed over a relatively short duration (approximately four months at this location).
- The construction activity at this location would comprise a filling operation for the construction of an

<p>safety audit had been carried out.</p>	<p>embankment which is relatively quiet activity.</p> <ul style="list-style-type: none"> • An underpass is proposed to be provided which is also a quiet operation. • No excessive noise will arise.
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Inspector’s Assessment on Issues raised in objection

Part of these lands are included in the compulsory acquisition schedules for the construction of a link road which connects Junction 14 of the proposed motorway with the existing N21 at Croagh. Lands are also required for a proposed roundabout where the link road connects with the existing N21.

Lands to the west of this link road are included for the provision of a drainage attenuation pond to control the volume and quality of surface water.

Impacts would arise on existing farm access road and field boundaries.

It is proposed to restore farm access onto the N21 which would be shared with the access to the poultry unit. It is proposed to replace the boundary with a permanent stockproof boundary.

I am satisfied that the design of the link road and the roundabout at Croagh has been undertaken in accordance with the relevant TII Design Standards. The minor departure from the standard of 50m separation between an access and the roundabout to 45m has been approved by TII and is acceptable, particularly in a retrofit situation.

For the most part, works at this location would comprise a filling operation and would be relatively quiet over a shorter period (most likely to be 4 to 5 months for main works) than the objector originally feared (2.5 years).

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as being **moderate**. I would agree with this classification of the likely residual impact.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Reps of James Reidy (Written Submission only)

CPO Plot No. 435

Submission No. – SCH-95

Note: Affected landowner owns Landholding Reference: 083 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<ul style="list-style-type: none"> The land ownership description on plot 435a.101 is incorrect. 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> The land in Plot 435a.101 is a small area on the northern side of the existing N21 to the northwest of the proposed roundabout for the Croagh junction as shown ringed in yellow in Figure 4.6 and Figure 4.6a below this. The registered owner of this land according to the PRAI is 'James Reidy', therefore the land ownership description of this plot in the schedules is correct. However, there is no natural boundary around this small triangular area which is within a larger field in the ownership of Patrick and Nano Reidy.

Inspector's Assessment on Issues raised in objection

Lands in this particular plot comprise a small triangular plot included in the compulsory acquisition schedules for the construction of a link road which connects Junction 14 of the proposed motorway with the existing N21 at Croagh.

Issues raised in this objection regarding ownership are adequately addressed by the applicant.

However, based on a review of the drawings, the triangular plot appears to have formed part of the original house site and is not specifically required in connection with the Rathkeale to Attyflin Motorway Scheme, 2019.

I do not consider that its inclusion in the lands proposed to be acquired has been adequately justified by the applicant and I recommend that it is omitted.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in respect of ownership. However, for reasons that I have outlined above, I recommend that the plot is omitted from the lands to be compulsorily acquired in respect of the Rathkeale to Attyflin Motorway Scheme, 2019.

Objector: Aidan & Elaine Becton (Written Submission only)

CPO Plot No. 436

Submission No. – SCH-2

Note: Affected landowner owns Property No.45 (Table 15.6 of Chapter 16 - Material Assets and Land – Non-Agriculture) of the EIAR. The CPO relates to public road.

Summary of Objection	Summary of Applicant Response
<ul style="list-style-type: none">• General issues raised (dealt with above) and states that the proposed design is dangerous.	<p><u>Engineering</u></p> <ul style="list-style-type: none">• The lands being acquired consist of part of the public road up to the boundary wall of the property. These lands are required to realign the existing N21 for the proposed roundabout as part of the proposed junction at Croagh.

Inspector's Assessment on Issues raised in objection

Issues raised in this objection are adequately addressed by the applicant. The lands to be acquired would form a part of the public road and there is no evidence that the application for the approval of the schemes and the corresponding CPO is inappropriate or invalid or that the design is dangerous.

The design of the link road and the roundabout at Croagh has been undertaken in accordance with the relevant TII Design Standards.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Individual Objectors – No Representatives

Objector: Aiden Hanley (Written submission)

CPO Plot No. 213

Submission No. SCH-3

Note: Affected landowner owns property No.16 (Table 15.6 of Chapter 16 - Material Assets and Land – Non-Agriculture) of the EIAR. The CPO involves the acquisition of public road.

Summary of Objection	Summary of Applicant Response
<ul style="list-style-type: none">• Refers to closure of a right of way at his lands.• Seeks safe access to existing right of way to River Deel to allow for safe angling/shooting access.	<p><u>Engineering</u></p> <ul style="list-style-type: none">• The compulsory acquisition of lands at this property is solely for roadbed, that is the area of land in the public road outside the private curtilage of the property behind the boundary.

<ul style="list-style-type: none"> • Protect salmon and trout spawning ground from flooding of the River Deel 	<p>There will be restriction on access to the property from the public road.</p> <ul style="list-style-type: none"> • Access along the River Deel is provided under the proposed bridge at Ballynacaheragh townland. <p><u>Biodiversity</u></p> <ul style="list-style-type: none"> • The bridge design for the River Deel is a clear-span structure which will retain the river banks intact and allow unimpeded access for anglers along both banks of the river. All salmonid river crossings will entail clear-span structures which will avoid any alteration of the instream channels and any spawning habitat for salmonids and trout will not be impacted on.
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Inspector’s Assessment on Issues raised in objection

This CPO relates to the acquisition of roadbed only and there will be some restriction on access to the property from the private road. Access to the River Deel is satisfactorily addressed.

Due to the design of the bridge over the River Deel as a clear-span structure, and the various construction management and pollution control measures outlined, I am satisfied that salmon or trout spawning habitats would not be impacted.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is

justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: James A Dore (Sch-43); Mary Dore (Sch-70)

(Written submissions only)

CPO Plot No. 340

Submission No. SCH-43 & SCH-70

Note: Affected landowner owns Landholding Reference: 056 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<ul style="list-style-type: none"> Expresses concerns regarding noise from proposed road and safety and privacy due to proposed walkway (greenway) alongside property and resultant devaluation of property. 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> The proposed road will be at a distance of 70m from this house and will be screened from this property by the mature hedge and tree line along the edge of the former railway line, as well as by the proposed noise barriers and planting on the proposed road embankment. The proposed road development will not provide a new walkway alongside this property as part of the Protected Road Scheme. However, LCCC is separately proposing to develop the abandoned railway line at this location for an extension of the Great Southern Trail Greenway, which was approved under Part 8 planning process in 2017.

	<p><u>Landscape & Visual</u></p> <ul style="list-style-type: none"> Hedgerows are proposed along this interface to ensure that the privacy of the property is maintained. <p><u>Noise</u></p> <ul style="list-style-type: none"> The residual traffic noise level in EIAR Appendix 12.1 for the objectors dwelling is 57 dB L_{den} which meets the TII design goal.
<p>Inspector’s Assessment on Issues raised in objection</p> <p>This CPO relates to a triangular plot (ch.27+800 to ch.27+875). It is submitted that the PRD has been designed to accommodate a future section of greenway where it crosses the former railway line at this location. The separate Part 8 Greenway approval by LCCC was subject to the following additional condition: ‘That the proposed works shall not be constructed until the Foynes to Rathkeale section of the Foynes to Limerick Road commences.’</p> <p>There would be an impact on the existing field boundary which would be replaced with permanent stockproof boundary.</p> <p>The residual traffic noise level in for this property is 57dB L_{den} which is below the design goal.</p> <p>Issues raised in relation to property devaluation, the impact on value is a financial compensatory matter which does not form part of the decision-making process currently before the Board.</p> <p>In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as being slight.</p> <p>Concluding comment</p> <p>I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.</p> <p>Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject</p>	

property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Patrick O’Connell (Written and Oral Submission)

CPO Plot No. 133

Submission No. SCH-84

Note: Affected Landowner owns Landholding Reference: 015 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<ul style="list-style-type: none"> • Operates a specialist beef finishing enterprise and pedigree suckler herd in the townland of Craggs, Askeaton. • Submission raises concerns regarding continuity of access, power and water supply during construction and operation of the PRD. • Raises concerns for sightlines at the L-6062-R315 junction. • Requests that temporary surfaces during construction of access roads are adequate. • Outlines that the impact on water supply for the Craggs/Barrigone group water supply and associated costs that could arise may 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> • The L-6062 road is narrow with sharp bends at regular intervals, which constrains traffic speeds. The sightline requirements are therefore limited and would be sufficient for the safe operation of the junction in accordance with design standards. • Suitable and durable temporary surfaces will be provided during the construction on all access roads. • Pre- and post- construction structural surveys will also be provided for the landowners slatted tanks and this has been added to the Schedule of Commitments (OH.48) <p><u>Material Assets</u></p> <ul style="list-style-type: none"> • Access to retained lands will be maintained during construction until such time as the proposed access

<p>not be sustainable by the group water scheme.</p> <ul style="list-style-type: none"> • There are two slatted tanks located in close proximity (c.250m) to the new PRD and raises concerns regarding the structural integrity of these. Requests structural surveys are carried out pre and post construction. • There is a Turlough (Lough Selleher) situated c.180m from where farm buildings are located. Concerns regarding flooding that could arise from areas of cut during construction. 	<p>accommodation road (New Coopers Lane) is available for use.</p> <ul style="list-style-type: none"> • It is unlikely there will be any requirement for a permanent alternative water supply. There may be an intermittent requirement to ‘top-up’ any lag of water. Low probability of this occurring on occasional and on an intermittent basis. <p><u>Hydrology & Hydrogeology</u></p> <ul style="list-style-type: none"> • There is a high probability that the Craggs/Barrigone GWS would not be impacted by the PRD either during construction or operation phases. An alternative supply option is proposed in the event of impact so as to guarantee security of supply. • Requirement of a permanent supply is unlikely. • Any shortfall will be made available at no cost to the GWS entity.
<p>Inspector’s Assessment on Issues raised in objection</p> <p>This CPO relates to a minor reduction in agricultural area (ch.5+450 to ch.5+525) due to provision of accommodation Road 3 - New Coopers Lane at Mulderricksfield). No land severance would result. Impact would arise on existing field boundaries.</p> <p>This landowner raised specific queries outlined above and I am satisfied that they have been satisfactorily addressed by the applicant’s team.</p> <p>Access to retained lands will be maintained during construction until such time as the proposed access accommodation road (New Coopers Lane) is available for use.</p>	

In relation to the Craggs/Barrigone GWS, it is unlikely that it would be impacted by the PRD either during construction or operation phases, however, an alternative supply option is proposed in the event of impact which is acceptable at no cost to the GWS entity or the landowner in this case.

I note that pre- and post- construction structural surveys will be offered to landowners in respect of slatted tanks and this has been added to the Schedule of Commitments.

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as being **slight**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Stephen and Bridget Keary (Written and oral submission)

CPO Plot No. 417

Submission No. – SCH-108

Note: Affected landowner is the owner of landholding reference: 070 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<ul style="list-style-type: none"> • Welcomes the PRD in principle. • Suggests that the provision of an underpass (UP12A) on their lands could be avoided through consultation with the 	<p><u>Engineering</u></p> <ul style="list-style-type: none"> • The proposed underpass is intended to provide access to a parcel of land to the north of the proposed motorway for which the alternative access route by public roads to the west would be

<p>landowners (and would result in less cost).</p> <ul style="list-style-type: none"> • Underpasses UP12A and UP12B and noise barrier will have severe visual impact. (8.5m over existing land). • Design of the shared underpass will result in potential biosecurity and health issues into the future, and this has not been taken into account. Requests alternative design is put forward. • PRD would sever land drains and leave the area vulnerable to flooding. • Naturally drains at low collection point ch.52+425 and then flows north through neighbouring property; • Area of land needs to be surveyed to check that it can be drained in alternative direction in our land and ownership and allow access as drain is required to be maintained. • Loss of future earnings and site potential at this location as there is potential for four to five houses including two for objectors' daughters who 	<p>1.4km long. (Figure 17.2 of the Engineering Brief of Evidence refers).</p> <ul style="list-style-type: none"> • At a high point in the road, it is necessary to reach outfalls 2.5km to the east. It so happens that it allows the provision of the two underpasses for Mr Keary and his neighbour. The removal of the underpasses would have no benefit or knock-on impact on the use of the road itself. <p><u>Material Assets</u></p> <ul style="list-style-type: none"> • proposed access to retained lands is a private access accommodation structure (UP12A) and the associated private access accommodation tracks. (Figure 35 of the Material Assets and land-Agriculture Brief of Evidence refers). There is no shared access arrangement on this farm holding and the issue of biosecurity does not therefore arise. <p><u>Hydrology & Hydrogeology</u></p> <ul style="list-style-type: none"> • Cut-off drainage is provided at the toe of embankments and heads of cuttings, to intercept overland flows. • Drainage design has been considered as part of the underpass design and a gravity pathway identified to the north. • Drainage works that are not within the CPO lands can be carried out as part of the accommodation works.
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have recently qualified as farmers with a view to expanding beef enterprise and possibly dairy into the future.

- Request that noise mitigation would be open to further discussion should the road be approved.

Inspector's Assessment on Issues raised in objection

The CPO proposed land take for the main PRD between ch.51+850 to ch.52+225. At this location, there is a reduction in agricultural area for the main alignment as well as for sideroad 12D (L-8027 – Clogh West Road) and access tracks. Severance of one plot into two areas would result. There would be a loss of access to farmland facilities and severed areas and impact on field accesses and boundaries.

It is proposed to provide a private access to the severed lands via an underpass (4.5m in height) at ch.52+150m. Field access gate would be restored. Boundaries would be replaced with permanent stockproof boundary.

Noting the lengthy nature of the alternative access route, I consider that the provision of the underpass structure is a reasonable proposal to access the severed lands. Drainage has been adequately considered.

In relation to the loss of future development potential, I firstly note that the future development potential of any site is a matter for zoning under the Development Plan and/or a planning application to the planning authority. Beyond that, the impact on value is a financial compensatory matter which does not form part of the decision-making process currently before the Board.

In Chapter 15 of the EIAR (Material Assets – Agriculture), the residual impact on this property has been rated as being **moderate**.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Craggs/Barrigone Group Water Scheme (GWS) Ltd.

(Written and oral submission)

CPO Plot No.s Plots No.s 109a.102, 109a.110, 109a.113, 109a.114, 110.102, 109a.104, 110a.103, 109a.104, 109.401, 110.401, 110a.402, 110a.103.

Submission No. – SCH-121

Note: During the oral hearing, a modification to the CPO Schedule and Deposit maps was brought forward by the applicant to reflect the interest of Craggs Barrigone Group Water Scheme Ltd. in 12 plots set out in Table 1 of the Legal Submissions and listed above.

Summary of Objection

- Compulsory acquisition schedule doesn't include the Craggs/Barrigone GWS.
- Concerns raised regarding loss of water supply due to effects of construction works at Mulderricksfield and Craggs.
- LCCC needs to identify a location for a new borehole;
- Safety concerns for the use by their members to get to the reservoir along the new access road proposed to

Summary of Applicant Response

Engineering

- The compulsory acquisition schedule has been updated for consideration by the Board to include the Craggs/Barrigone Group Water Scheme Ltd. as having an interest in lands traversed by the water supply scheme infrastructure.
- Additional lands do not need to be acquired for the provision of a possible new borehole for this water supply scheme. In the highly unlikely event that one might be required, works would be undertaken by

<p>replace 'Cooper's Lane' a short distance to the west.</p> <ul style="list-style-type: none"> • Concerns that there hasn't been a CPO issued to landowners in the vicinity of existing source well. • Concerns raised regarding impacts on equipment. • Concerns regarding the cost of water supply if the need arises. 	<p>agreement and would remain under the current ownership and control of the GWS.</p> <ul style="list-style-type: none"> • During construction, a temporary supply would be provided if and at times that it may be required. Costs would be borne by LCCC. • In the additions to the schedule of commitments (Item OH.52) it is stated that in the unlikely event that the Craggs/Barrigone source is permanently impacted through loss of well yield due to the construction works, and a suitable alternative borehole cannot be found, LCCC have confirmed that a permanent connection of the Public Water Supply to the Limerick City Regional Supply Scheme at Clarina would be facilitated and that the cost would be borne by LCCC / Irish Water). • Fencing would be provided in accordance with Section 4.12 of the EIAR.
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Inspector's Assessment on Issues raised in objection

This objection relates to concerns that the Craggs/Barrigone GWS was not included in the compulsory acquisition schedule in the first instance and concerns regarding a loss of water supply for the GWS due to the effects of construction works at Muldericksfield and Craggs. The compulsory acquisition schedule has been updated/modified to include the Craggs/Barrigone GWS Ltd. as having an interest in lands traversed by the water supply scheme infrastructure. The applicant has given commitments regarding the provision of a temporary supply during

construction if one is required and also a permanent supply if in the unlikely event one is also required. The cost of each would be borne by the applicant.

The routings for the proposed temporary and permanent connections are shown in Figures TWM and PWM attached to the Hydrology and Hydrogeology Brief of Evidence (also submitted as part of the Supplementary Information document to An Bord Pleanála on 15th of February 2021).

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject properties. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Bryan & Iseult Murphy (Written and Oral Submission)

CPO Plot No. 445

Submission No. – SCH-9

Note: Affected landowner is the owner of landholding reference: 086 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection	Summary of Applicant Response
<p>In the initial written submission, general concerns relating to the notice served, ground investigation and acquisition of easements were raised by Ciarán Sudway & Associates Ltd.</p> <p>At the oral hearing, the following was put forward by the objectors’ team.</p>	<p>Engineering</p> <p>Mr MacGearailt provided a description of the works proximate to the Murphy property. He stated that as the road travels from west to east, it is at grade and at the Murphy property there is an embankment (up to 9m) which would be constructed in the normal fashion,</p>

Proportionality, Property rights, Balancing (Mr O'Donnell)

- Mr O'Donnell having posed questions to the applicant, expressed a view that there was no **balancing exercise**, balancing the rights of the landowner with those of the acquiring authority, was carried out by the applicant. States that the stated project need and justification for the road is not by itself a balancing exercise.
- Burden of proof regarding the compulsory acquisition rests with the acquiring authority who must be satisfied that the various tests (mainly set out in **Clinton**) have been adhered to.
- An analysis of that issue is required to be presented in the documentation and in the absence of a balancing exercise in the documentation, the Board cannot proceed to determine if the compulsory application is proportionate.

Engineering questions and comments (Mr Michael O Donnell)

- Posed a number of questions concerning aspects of the development, including the nature

(laid in layers and rolled). He set out the following:

Rock cutting

- A cutting commences c.0.5km west of the Murphy lands and this cutting only becomes significant at 1.2km from these lands and extends to 4km. Rock of any significance would only be encountered at 2km from Murphy property.
- The proposal is to remove rock and other suitable material to construct embankments. It is not intended to generally stockpile material save where small quantities of material would be stockpiled along the route for later re-use in the construction of the embankments.
- Rock would also be removed by a method of ripping and there may be a requirement for blasting in the Ballycannon area.
- Dr Shanahan raised concerns at ch.57+150 re: blasting. Road is at grade at the location of the Murphy lands, so no cutting would occur at that location.

Earthworks volumes and Soft Material

and the depth of rock excavation, harnessing/processing of materials from the excavated rock, the sequencing of operation and the stockpiling of materials on site. He questioned if the areas in which excavated material would be stored temporarily have been identified. He expressed his view that the development has not been sufficiently described and that there are insufficient details contained in the EIAR/ documentation before the Board.

- Stated that the matters raised cannot be considered standard engineering works.

Air Quality, Noise & Vibration (Dr Imelda Shanahan)

Construction Traffic

- States that the cutting adjacent to Clonshire Stud farm would provide most of the fill and soft material required for works to the east in Section D.
- Very significant volume of HGV movements per day (different scenarios provided) leading to reduced air quality and an increase in adverse health impacts.

- States that earthworks volumes are set out in Table 4.2 of Chapter 4 of the EIAR. In section D, c.600,000 cubic metres of rock are expected to be excavated.
- In addition, in Section D, a small quantum (c.150,000 cubic metres) of soft materials would be excavated and saved for landscaping / placing on top of embankments. This material would be stored temporarily on site within the CPO lands similar to topsoil.

Sequencing

- Works would be sequenced so that operations of cut and fill can take place at numerous locations along the length of the works. (Refers to Chapter 4 and Chapter 8 of the EIAR).
- Material arising from cutting further west would be transported to the vicinity of Murphy property for a length of embankment of c.800m and thereafter for embankments further east.

Air quality Impacts - construction

- Clonshire Stud farm would experience profound significant adverse impacts due to the nature and extent of the PRD, from significant dust and particulate matter including PM_{2.5} and PM₁₀ and emissions of fungal spores.
- The EIAR does not adopt TA Luft level of 350 mg/m²day. The EIAR references TII Guidelines for treatment of Air Quality during the planning and construction of national road schemes, which it is stated, is not adequate.

Air quality Impacts – operation

- In the operational stage, there would be a noticeable impact on air quality.

Noise and Vibration Impacts

- In relation to the noise expert for the applicant having stated that the equine area is c.300m away from the road, this is incorrect as the intervening field is a gallop used for the training of horses and this gallop has not been taken into account. The equine areas are very close to the PRD and in some locations are directly adjacent to it.

Processing

- Rock will be extracted by ripping (upper layer of weathered limestone), it will be broken into smaller size as it is being excavated. All information on the site investigation is set out on drawings that are contained in Volume 3 of the EIAR. No crushing is required at the Murphy lands at Clonshire.

Proportionality

- Proportionality has been considered under Project Need and Traffic analysis.
- Lands that are subject of compulsory acquisition are directly related to the scheme and are spread throughout the documentation. The justification for the additional width of the road is set out in Chapter 5 of the EIAR.
- In relation to proportionality on the road type, scale/traffic projections are dealt with in Engineering Brief of Evidence- Part A. Refers to high proportion of HGV traffic (26%), which is greater than the normal 10%. States that Mr Shiels carried out

<p>In addition, the equine area at Clonshire castle comprises buildings including a foaling shed, and a quarantine box and are not a 300m distance from the road.</p> <ul style="list-style-type: none"> • Remainder of the land is an integral part of the equine related activities; noise levels would be much greater than the applicant's assessment. • During the construction phase, the noise levels experienced are likely to be intolerable and unsafe for horses. An increase in noise level of up to 45 dB is predicted and this would equate to a noise levels 32 times louder than the measured baseline. • By reference to Section 12.4.1.1 and Table 12.7 of the EIAR, activities such as rock drilling, rock crushing will be 95dB(A) at a distance of 10m without mitigation and for activities such as filling and site clearance would be 85dB L_{Aeq} at 10m without mitigation. • Haulage vehicles would generate noise levels of up to 95dB(A) when passing. • Noise limits that are set refer to incident noise at the façade of a residential receptor and do not 	<p>an incremental analysis on what is an appropriate road type for this protected road.</p> <p>Construction Traffic</p> <ul style="list-style-type: none"> • Operational traffic in 2024 estimates c.1,500 HGV movements. Construction machinery would have large tyres and would move slower (25 km/hr) on a gravel surface. • Construction traffic (estimated as 500 vehicles per day) would be modest when compared with operation. <p>Air & Climate (Dr Porter)</p> <ul style="list-style-type: none"> • TA Luft guidelines have been referenced in Section 13.6.3 of Chapter 13 of the EIAR. States that the applicant would strive to comply with the guidelines by best practicable methods, would monitor the effectiveness of the mitigation and if required would mitigate further. • Based on TII guidance impact from PM₁₀ from major construction is limited to 25m from site/construction works. • While soiling is possible up to 100m, impact with mitigation would be less due to a number
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take account of sensitive land uses, such as the stud farm.

- Foaling Shed and a Quarantine Box are located 75m and 70m respectively from the closest construction site boundary.
- L_{AFMax} levels associated with individual events in the range of between 80 to 90dB(A) would be experienced during the construction stage at the foal shed and quarantine box.

Noise – Operation

- Design goal should be considered in the context of WHO Noise Guidelines.
- The change in noise levels would be noticeable at the Murphy property.

Vibration

- There is a risk of damage to Clonshire Castle which is a sensitive castle structure given that the vibration limits are higher than those recommended for the protection of protected structures.

Following the applicants response to matters set out in her report, Dr Shanahan added the following:

of factors. Its advantageous that there is good background air quality.

- Refers to Dust Management Plan in Appendix 13.3.
- States that he is not aware of an appropriate level of dust emissions for equine.

Noise and Vibration (Ms Jennifer Harmon)

- Disagrees with Section 6.3.2 of Dr Shanahan's report by reference to Table 12.7 and Section 12.4.1.1 of Chapter 12 of the EIAR, which correctly identify the range of construction noise levels. Reference in Dr Shanahan's report to haulage vehicles emitting noise of 95dB is not information contained in the EIAR.
- States that the Murphy property (house) and equine facilities are c.250m from the PRD. While lands are closer, they are extensive and do move away from the works to distances of up to 300m.
- Acknowledges that noise levels would be increased at the property. Mitigation has been

Air

- construction traffic cannot be compared to HGVs in operation.
- While TA Luft is mentioned in EIAR, there is no reliance on the TA Luft level of 350 mg/m²day being achieved.
- Mitigation proposed is standard and impacts identified are with standard mitigation only.

Noise and Vibration

- Duration of noise surveys is not set out in the EIAR.
- It is possible that 85dB would be experienced for long periods of time during construction.
- Limits set in the EIAR are too high to protect Clonshire Castle from vibration effects.
- Equine facilities (Gallops and field) are adjacent to the PRD and not 300m away.

Mr O'Donnell also asked a number of questions on air and noise and submitted that the impacts on equine activity were not adequately assessed by the applicant.

put forward and limits that are set are binding.

- Refers to Table 12.7 gave an examples of at a distance of 20m with a noise level of 77dB L_{Aeq} (unmitigated) would reduce to 70dB L_{Aeq} (mitigated)
- Stated that the noise levels south of the road are set out in Table 12.6 (values between 48 and 51dB).

Construction Noise & Vibration

- The scheme aligns with BS 5228-1: 2009+A1 2014 (Part 1: Noise) which at this location recommends 70dB L_{Aeq} for construction in rural locations. Refers to Table 12.7 of the EIAR.
- Rock breaking and blasting activities are well removed (c.2km) from Clonshire castle structure and the Murphy property.
- For the construction phase, a noise barrier can be installed/ incorporated along these lands / across equine enterprises. Construction site hoarding would give a correction of 10dB L_{Aeq} as a general guide.

Dr D.P. Leadon (Specialist in Equine Medicine)

Dr Leadon provided some general information on the impact of noise exposure on horses and stated the following:

- Horses are ‘flight animals’ and they distrust every change at first until they learn that a stimulus like a sound is not dangerous.
- New sounds evoke a panic reaction which can result in dangerous situations for caretakers and riders.
- Horses get startled more easily from a sound when there is also a visual combined with sound.
- Horses can habituate to certain types of background noise, for example a horse getting used of a train more quickly when it passes at regular times than if it were only to occur once in a while.
Habituation process can take between three days and two weeks.
- Referring to Dr Imelda Shanahan’s report, states that noise levels at Clonshire may exceed those in Table 12.1 of the EIAR (daytime noise levels of 80dB).

- Vibration limits set in the EIAR are highly conservative and are adequate to protect vulnerable structures.
- Regarding protection of Clonshire Castle, the type of works (construction of embankments, building up embankments, filling and haulage of material) are minimal in terms of vibration impacts.
- In relation to operational noise, provided a general overview stating that the purpose of the WHO guidelines is to protect populations/large populations across Europe and to strive to improve the health of populations. They are not set on the basis that each individual property along the road would have to meet 53dB L_{den}. If such a limit were to be achieved, it would be necessary to reduce traffic volumes by 80% which would not be reasonable or necessary. PRD aligns with principles contained in WHO guidelines (including redistribute traffic via new road, use of noise mitigation along the route and a LNRS).

<ul style="list-style-type: none"> • Horses do not tolerate levels above 100dB and demonstrate disturbed behaviour when they experience intermittent episodes of noise (65dB) which can disrupt their sleep with adverse effects to their wellbeing, immune system and performance. • Practice of foaling mares on the stud farm would have to cease because of noise. • Noise levels on the farm (including noise from blasting) would be unpredictable and intermittent and at high levels) posing problems for horses and persons responsible for their care. • Dust generated in construction would pose significant threats to normal gastro-intestinal function of horses. • The dust generated during construction would contain respirable particles and fungal moulds including <i>Aspergillus</i> spp. • Both the dust itself and the fungal moulds will have a damaging impact on the respiratory systems of the horses resident on this stud farm. • In addition to the less discernible, subtle, yet highly significant dust related, internal respiratory system 	<ul style="list-style-type: none"> • Predicted operational noise at the residential property would be 57dB L_{den}. <p>Equine (Mr Sadlier)</p> <ul style="list-style-type: none"> • States that Horses adjust to noise. • States that in Mr Murphy's presentation he stated that the foal barn and quarantine box are 100m from the PRD, however, when he (Mr Sadlier) spoke with Mr Bligh he stated that it was 240m away (at the main barn). (Inspector's note: This was disputed by Mr Murphy – See landowner meetings heading below). <p>Landowner meetings (Mr John Bligh)</p> <ul style="list-style-type: none"> • Mr John Bligh states that he met landowners along the scheme and met with Mr Murphy at his stable yard as part of a pre-arranged meeting which was organised through Mr Ciaran Sudway who had represented Mr Murphy at that time. Mr Bligh stated that he arranged the meeting in correspondence between Mr Sudway (email & phone) and with Mr Murphy
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damage, horses will cough and compromised respiratory function is performance limiting.

- Noxious gases from exhaust fumes would also pose a threat to the respiratory systems of these horses, in a manner akin to that of dust and fungal moulds.

Landowner Statement and comments by Mr Murphy

- Mr Murphy read out a statement on behalf of himself and Mrs Iseult Murphy. He provided an overview of the origin of the stud farm, the business model, customer base and success stories. Mr Murphy states that he fears that a lifetime of work would be taken away from his family as a result of the PRD.
- During the oral hearing, in response to Mr Bligh and Mr Sadlier's statements regarding landholder meetings, he stated that Mr Bligh did not attend his property and that he did not prevent Mr Sadlier from attending his property, however, requested that the visit was co-ordinated with his veterinary specialist.

(phone). He also stated that his (Mr Bligh's) understanding at that meeting was that foaling took place in the main area. He stated that he has notes to the effect that facilities at Clonshire are used by young horses that have access to the foal barn (to which Mr Bligh's understanding was that foaling took place at the main yard).

Cultural Heritage

- Ms Bailey states that a windscreen survey of Clonshire Castle was carried out as were details obtained from relevant archaeology resources.
- States that the structure is located 60m from the PRD at its closest point.
- Structure is predominately fortified in the context of a medieval house/castle in a medieval landscape. It is not a national monument in state ownership or in private ownership and State guardianship. It does not have a preservation order.
- States that in Appendix 14.4.2, the Castle-Hall-house structure is referred to as Structure AH-69

Cultural Heritage (Mr O Donnell)

- Raised concerns that the expert did not carry out a physical inspection of Clonshire castle.
- Raised a number of questions regarding the castle and hall house structures, its status and on what basis its status as a national monument (under the National Monuments Acts) has been considered. He also raised question on whether the applicant considered the curtilage of the castle as a protected structure and questioned/disagreed with the applicants view of the structure as being in a ruinous condition.
- In his closing submission, Mr O'Donnell stated his position that Clonshire castle is a 12th century structure, a medieval castle, onto which a house hall has been attached and that the applicant has misunderstood the number of serious effects which would arise.
- Insufficient survey or analysis of archaeological impacts on Clonshire castle and the hall house. Applicant didn't identify or consider the curtilage (which itself is protected given that the structure is protected).

and in Appendix 14.6 , it is recorded as a protected structure – (BH-34).

- In relation to the question on curtilage, states that she did examine the LiDAR survey and a potential field system located 95m south of the scheme (LI-68) is flagged. The PRD would not impact on this LiDAR anomaly as it is located outside of the PRD footprint.
- Geophysical surveys were recorded and (M34 – magnetometry survey finding) and ER21 – resistivity survey finding) were carried out.
- The structure doesn't have a defined curtilage, e.g., it doesn't have a garden or an entrance and hence stated that the indirect impacts on the structure were considered.
- Clonshire castle is in ruinous condition, it is not a national monument. It is listed in SMR and RMP and is a protected structure. It does not have any preservation order. It does not have any defined curtilage and the PRD would not impact on

<ul style="list-style-type: none"> • He stated that the owners have a 'section 247' consent from the OPW to restore the castle. • Referred to Dunne & Lucas as a relevant case. He stated that at the time DCC were proposing the M50 motorway; it was approved through the outer revetments of Carrickmines castle. Even though it was not in State ownership, he stated that it was a national monument. • States that similarities with Clonshire castle are particularly relevant given that the castle is very close to the road development and that it has medieval field patterns and outer defence mechanisms, none of which have been investigated. <p>Dewatering – Mr O'Donnell</p> <ul style="list-style-type: none"> • A well that the Murphys own beside the castle would be drained dry because of the fractured nature of rock and the extent of dewatering. The castle, which is in a fragile state, could also be undermined because of the land being dewatered around it. 	<p>any features identified on the LiDAR survey.</p>
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Inspector's Assessment

Overview

Bryan and Iseult Murphy are the owners of Clonshire Stud farm comprising 90 acres. The Stud farm is currently divided by the Clonshire to Cappagh road (L-8025). The business model is stated to be that of breeding and/or purchasing high quality national hunt foals for rearing and breaking and these attract high-end customers.

A reduction in agricultural area would arise to facilitate the main alignment and local road (L-8025) underbridge. No land severance would result. The PRD would be elevated above this existing road. As a result of the negative impacts (noise, air, landscape and visual) highlighted (construction and operation) the landowners fear that there is no prospect of the family equine business continuing post should the PRD and the schemes be approved.

Throughout Day 9 of the hearing, Mr Michael O'Donnell together with his team, Dr D.P. Leadon (veterinary surgeon) who dealt with matters of equine and Dr Imelda Shanahan who dealt with matters of air quality, noise & vibration presented briefs of evidence and posed a number of questions to the applicant. Both Dr Leadon and Dr Shanahan's briefs of evidence are contained in the applications file. The main points raised by Mr O'Donnell and his experts are set out in summary format under the headings above and are considered in my assessment as set out in summary below. As Mr O'Donnell requested that the points made would also be considered in the assessment of the Section 51 application, a number of points are also addressed under the respective headings of the Section 51 Approval application. Where they are addressed in that application, and to avoid repetition, I do not repeat all of the points in this assessment, however, they are considered in my assessment of both applications where relevant.

Proportionality and Balancing Exercise

In relation to the point made that the confirmation of a CPO must be exercised in accordance with the requirements of the Irish Constitution and must respect the property rights of the affected landowner, it is firstly acknowledged that ownership of land is recognised as a constitutional right and therefore carries substantial

weight. The Board as the decision-maker is required to give a high place to the right in question and not just take it into consideration. However, in view of the compelling case in the public interest that has been established, the purpose for the approval of the schemes and the corresponding CPO justifies interfering with the right of those with an interest in land affected.

In relation to proportionality, I am satisfied that the public interest outweighs the rights of Mr and Mrs Murphy as property/landowners in this case. Furthermore, I am satisfied that the approval of the schemes and the associated CPO are connected to the legitimate objective based on fair and rational considerations. The landowners property rights are impaired as little as is possible and the effects on their rights are proportionate to the objective of the schemes.

In relation to the point made that a balancing exercise was required to be carried out in order to inform the test of proportionality and that no such exercise was carried out, I am wholly satisfied that this is a matter for the Board who are required to take a balanced view between the intentions of the acquiring authority and the concerns of those with an interest in the lands and the wider public interest. As I have set out above, the compulsory acquisition of the land that would take effect if the schemes are approved is justified in the public interest and strikes a fair balance between the public interest and the requirements of the protection of individual rights.

Inadequate Development Description

In relation to Mr O'Donnell's assertion that the development is not sufficiently described, particularly in relation to rock removal, processing of material won on site and sequencing of works, I do not share this view. I am satisfied that at the outset, the nature and extent of the development is adequately described.

Furthermore, the information contained in the EIAR together with other information submitted by the applicant during the course of the application, including in response to the request for further information and at the oral hearing provides information meeting the requirements of the EIA Directive and is sufficient to allow the Board to carry out an adequate assessment of the environmental effects of the PRD. At the oral hearing, Mr MacGearailt gave further details on engineering

matters of the construction of the PRD such as excavation of rock and other materials, how it would be broken either when it is being excavated or through crushing in smaller particle size for re-use, the temporary storage of topsoil and the unsuitable materials, the reuse of some of the majority of unsuitable materials for landscaping, the placing of remaining unsuitable materials on the site within the CPO lands. He explained that the general intention is that rock and suitable materials would be excavated in areas of cut and hauled directly through the site and along the identified haul routes to their fill destination without the need to store the useable material on site, however there would also be evidently some processing as outlined.

I am satisfied that the information is comprehensive and gives a thorough understanding of the excavation (cut) and the building of embankments (fill) and the nature and extent of the development overall. The volume and types of material that would be excavated, used in fill, deposited elsewhere on site and imported have all been identified and presented on an array of engineering drawings and documents. The proposal is for a very large road project with a significant earthworks element. However, it is also a standard road project that has been evidently designed with a comprehensive and sufficient understanding of the existing environment. I have also gained a detailed understanding of the project elements in the context of the existing environment through the documentation on file and at the evidence presented at the oral hearing. I am satisfied that the matter of sequencing of works at a micro level is one that would be worked out by the appointed contractor but is otherwise a normal element of the construction phase of the project works.

Air Quality

I note that the applicant's team (Dr Porter) stated that the TA Luft guidelines were referenced in Section 13.6.3 of Chapter 13 and that the applicant would strive to comply with the guidelines by best practicable methods and would monitor the effectiveness of the mitigation and if required will mitigate further.

I note that dust and soiling are the main impacts that would arise (during the construction stage). I have had regard to the dust management plan contained in

Appendix 13.3. I am satisfied, as stated by Dr Porter, there is no scientifically identified appropriate level of dust for equine.

In my assessment of this matter, I have recommended that in the event of approval of the Section 51 application, that monitoring shall be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119 on a 30-day average and should an exceedance of the TA Luft limit occur to dust levels, additional environmental commitments, for example more regular spraying of water, shall be implemented.

In relation to impacts on horses from dust and fungal mould during the construction phase, and from other noxious gases during the operation phase, I have considered this matter in section 12.13 (Air and Climate). I find no scientific evidence to support the view that such impacts would arise from the PRD leading to significant effects on the respiratory systems of horses on the Murphy lands.

Noise

The applicant's approach to the protection of neighbouring houses and equine enterprises from noise has been set out above in my consideration of Noise in Section 12.8: Noise and Vibration and Section 12.16: Materials Assets and Land – Agriculture (Equine) above. I am satisfied that the applicant has adequately addressed the issues raised in the objection in respect of noise and there are no remaining impacts from noise that would prevent the approval of the schemes.

Cultural Heritage

I have dealt with the architectural and archaeological status of Clonshire Castle-Hall House in Section 12.14 above in which I have noted that the Castle-Hall House is a structure of significant archaeological and architectural importance in that it is a protected structure under the current Limerick County Development Plan (Reg.266 in which it is recorded as a 17th century house). It is also included within the SMR database (LI020-159 in which it is recorded as a Castle-Hall House) on the Historic Environment Viewer (archaeology.ie) (AH 69). Notwithstanding other arguments advanced by Mr O'Donnell, that it is or is worthy of being designated a national monument, Clonshire Castle-Hall-House structure is not in State

Guardianship or the subject of any preservation order and is not designated a national monument. Through my assessment above (Cultural Heritage), I have concluded that no significant residual impact on AH 69 or BH 34 would remain. The Department of Cultural, Heritage and the Gaeltacht (now Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media) were consulted and offered observations and recommendation with respect to archaeology but did not object to the development or offer any concerns regarding unacceptable impacts on Clonshire Castle-Hall-House structure.

I am satisfied that Clonshire Castle would not be affected by significant vibration impacts for reasons of it being outside of the zone of such impacts as set out in detail in Section 12.14 above.

Dewatering Impacts

The issue of potential impact on the private well source at Clonshire as a result of dewatering has been addressed under the heading of hydrogeology and in Mr Keohane's report. In his assessment on hydrogeology, Mr Keohane is satisfied that the well lies outside of the zone of influence of the areas of localised dewatering and no negative impact would reasonably occur. For similar reasons, Mr Keohane is also satisfied that the localised dewatering at Ballycannon would not give rise to impacts on lands around the castle or the castle structure.

Section 5 of Chapter 9 of the EIAR provides mitigation measures for wells which were found to be at risk in the Hydrogeology assessment.

With respect to well sources, the EIAR identifies the following mitigation measure

- All groundwater supplies identified in Table 9.18 and Figure 9.5 of the EIAR and any existing private wells within 300m of areas of road cuttings greater than 5m will be monitored (for water level and quality). This monitoring will involve quarterly monitoring for 12 months pre-construction for 12 months, bi-monthly during construction and quarterly monitoring for 12 months post-construction, subject to the agreement of the relevant land/property owner.

I am satisfied that the mitigation is adequate to address general concerns regarding the impact on wells generally on Mr and Mrs Murphy's lands.

Management/Continuation of Enterprise

The Murphy property (house) and equine facilities are located c.240m north of the PRD. However, as set out by Dr Shanahan and Mr Murphy on the day of the hearing, a quarantine box and foaling barn are stated to be located c.70m and c.75m south of the PRD. It was also stated by Dr Shanahan that the open fields adjacent to the PRD are used by horses. The point made on behalf of the Murphys in this regard is that the equine enterprise is closer to the PRD than that considered by the applicant. I acknowledge that while certain lands are closer to the PRD than the main facilities as set out by Dr Shanahan for Mr and Mrs Murphy, I also note as asserted by Ms Harmon at the oral hearing, the lands available are extensive and do move away from the works to distances of up to 300m. Impacts and inconveniences would likely occur for the Murphy equine enterprise, however, I am satisfied that these would not be significant negative. I am also satisfied that the enterprise can continue, however, I acknowledge that it would likely require additional management during the construction phase.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise. I concur with the applicant's assessment of the Murphy farm as 'moderate' in terms of significance rating under the heading of Material Assets and Land (Agriculture) and Material Assets – Equine and this rating takes all of the impacts including the loss of land and impact on existing field boundaries.

Overall, I consider that the applicant has provided sufficient detail to support its case for the compulsory acquisition of lands and rights in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Objector: Mr Lowell Shier (Written submission only)

CPO Plot No. 126

Submission No. – Env-24. Note: A second landowner objection from Repts of Trevor Shier c/o Mr Lowell Shier (Sch-122) for the same landholding was also submitted but was subsequently withdrawn.

Note: Affected landowner owns Landholding Reference: 010 (Table 15.6 of Chapter 15 – Material Assets and Land – Agriculture).

Summary of Objection

- States that his landholding is a mixture of craggy and good quality land and the intended land take would prohibit access and egress and use of lands to the waterway and for a source of water;
- Excessive noise from vehicles may affect animals;
- Lands suitable for quarrying and this potential will be lost;
- Road diversion at Creeves cross would impact on safe loading and unloading of animals and will further impact on surveillance of livestock.

Summary of Applicant Response

Engineering

- In the event the proposed road development is confirmed, and notice to treat has been served, LCCC is willing to enter into meaningful discussions with landowners subject to compulsory acquisition in relation to compensation matters.

Inspector’s Assessment on Issues raised in objection

There is no evidence to support this claim and adequate safeguards are proposed including boundary fencing along the PRD boundary.

The other point raised is that his may be suitable for quarrying, and this would not be possible because of the PRD. In relation to this point advanced, the impact is not substantiated, and I also note that the impact on value does not form part of the decision-making process currently before the Board.

Concluding comment

I am satisfied that the applicant has adequately addressed the issues raised in the objection and no further issues arise.

Overall, I consider that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject property. The acquisition is proportionate to the identified community need and is justified by the exigencies of the common good. I am satisfied that it would therefore be appropriate to approve the schemes as sought.

Concluding Comment on Site Specific Objections

14.10.6. Site specific objections submitted by landowners, as set out above, focus on the scheme having an adverse impact on property and lands. Some objectors raise concerns with indirect impacts, largely where the PRD would be proximate to their homes or businesses. The concerns raised by the objectors are entirely understandable, in that impacts of varying degrees would arise. However, on balance, I am satisfied that the significant overall benefits of the schemes for both local residents and the wider public would outweigh any remaining local impacts. Furthermore, many of the objectors' concerns would be addressed by way of adherence to best practice construction practices and through the implementation of mitigation measures, which would form part of the schedule of commitments and are binding.

14.10.7. It is acknowledged that, notwithstanding the mitigation measures proposed, permanent impacts for some properties would remain, including significant, very significant and profound impacts. This is particularly so for those persons whose houses would be acquired/demolished to facilitate the delivery of the road.

14.10.8. Notwithstanding the site-specific objections raised, I am satisfied that the applicant has provided sufficient detail to support its case for the approval of the schemes (which would have the same effect as if it were a CPO in respect of that land or any rights) in respect of the subject properties excluding Plot number 435a.101 and has adequately demonstrated that the lands and associated rights that would be affected

are required and proportionate to the identified community need for the proposed road development, and is justified by the exigencies of the common good.

14.11. Overall conclusion on Application for Approval of Schemes

- 14.11.1. The **community need** for the proposed Foynes to Rathkeale Protected Road Scheme, 2019 (the 'Protected Road Scheme'), the Rathkeale to Attyflin Motorway Scheme, 2019 (the 'Motorway Scheme') and the Foynes Service Area Scheme, 2019 (the 'Service Area Scheme'), all forming part of the Foynes to Limerick Road (including Adare bypass) has been established.
- 14.11.2. The proposed development has been designed to minimise interference with private rights as far as possible and the proposed extent of land acquisition is **reasonable and proportionate** to the stated purpose of the PRD and the lands are considered **suitable to meet this community need**, which has been fully established.
- 14.11.3. The proposed road development is **consistent with all applicable planning policy** at a European, National, regional and local level. In particular it is supported by and in accordance with the objectives of the Limerick County Development Plan 2010-2016 (as extended until the new plan is prepared) and the Adare Local Area Plan 2015-2021 (extended until February 2024). It is acknowledged that the Limerick Draft Development Plan 2022-2028, is presently in preparation, with an anticipated date of June 2022 for its adoption, however, the PRD would also be supported by the policies and objectives contained therein and it would not be premature to approve in advance of the adoption of the new development plan that is currently in draft format.
- 14.11.4. The applicant has submitted sufficient details in terms of **alternatives**, including alternative options considered and the reasons for the choice of the alignment proposed in the scheme, and that the level of detail provided has been clearly set out. All reasonable alternatives to the CPO of the rights and interests sought have been explored and the route corridor chosen is the one which best meets these objectives.
- 14.11.5. The process and procedures undertaken by the applicant have been fair and reasonable and they have demonstrated the need for the lands and that all the lands being acquired are both necessary and suitable. I have had regard to the objections raised.

14.11.6. Notwithstanding the remaining objections, I conclude that the public benefits associated with the proposed development that would be enabled should the schemes be approved, would strongly outweigh the private loss which would be suffered by those whose land would be affected by the use of CPO powers to enable the construction, operation and maintenance of the project. Any private loss suffered by individual land and property owners may become the subject matter of a claim for compensation (through a separate process), and in default of agreement, compensation is a matter to be decided by an arbitrator.

15.0 Inspector Recommendation

15.1. On the basis of the above assessments on the applications made under Section 51 (ABP-306146-19) and Section 49 (ABP-306199-19), I recommend approval of the proposed road development subject to conditions and approval of the protected road scheme, motorway scheme and service area scheme subject to modifications, all as set out in the following draft order.

16.0 Draft Board Order

Application for Approval of the protected road scheme, motorway scheme and service area scheme under section 49 of the Roads Act 1993, as amended.

APPROVE the protected road scheme, motorway scheme and service area scheme subject to the modifications set out in the schedule below based on the reasons and considerations set out under.

REASONS AND CONSIDERATIONS

Having considered the objections made to the protected road scheme, motorway scheme and service area scheme, the report of the inspector who considered the written objections and objections made or elaborated at the oral hearing, the purpose of the schemes, and having regard to:

- a) the demonstrated need to deliver the 'core' and 'comprehensive' dual layers of the road infrastructure as part of the Trans-European Transport (TEN-T) Network in County Limerick under Regulation (EU) No 1315/2013 of the European Parliament;
- b) the demonstrated need to improve road-based connectivity between the local, regional and national road network and with Shannon-Foynes Port, a port of National Significance (Tier 1) on the TEN-T network;
- c) the demonstrated community need, the public interest that would be served and the overall benefits, including benefits to a range of road users to be achieved from the use of the acquired land;
- d) European, national, regional and local planning and related policy of relevance;
- e) the proportionate design response to the identified need;
- f) the submissions and objections made to the schemes in written format and at the oral hearing by affected land and/or property owners;
- g) the report and recommendation of the inspector informed by the Biodiversity Assessment Report and Appropriate Assessment Reports dated the 10th of February 2022 prepared by Dr. Maeve Flynn (the Board's senior ecologist) and the Assessment Reports on Soils and Geology, Hydrology and Hydrogeology dated the 14th of February 2022 prepared by Mr. Jer Keohane (geotechnical specialist and hydrogeological engineer (external consultant));

it is considered that, subject to the modifications as set out in the schedule below, the acquisition by the Roads Authority of the lands in question and the extinguishment of public and private rights of way prohibiting direct access and modifying planning permission reference number 18/602 on plot 308a.701 as set out in the protected road scheme, motorway scheme and service area scheme and on the deposited maps, are necessary for the purpose stated, and that the objections cannot be sustained having regard to the said necessity.

SCHEDULE

1. The Schemes shall be modified in accordance with the revised schedules and associated deposited maps submitted by the Roads Authority to An Bord Pleanála at the oral hearing on the 23rd day of February 2021, as follows:

(i) Update Schedule 1 (Part 1), Schedule 1 (Part 2) and Schedule 4 of the 'Foynes to Rathkeale Protected Road Scheme 2019' to reflect the interest of the Cragg Barrigone Group Water Scheme Ltd. in the plots indicated as follows:

Schedule 1 (Part 1): 109a.102, 109a.110, 109a.113, 109a.114, 110a.102,

Schedule 2 (Part 2): 109a.104, 110a.103,

Schedule 4: 109a.104, 109a.401, 110a.401, 110a.402, 110a.103.

(ii) On Sheet 07 of 13 of the updated deposit maps, apply a minor modification (correction of a typographical error) in the Deposit Map as it relates to Plot 309 (change of plot 309a.110 to 309a.116) in the Rathkeale to Attyflin Motorway Scheme 2019;

Reason: To take account of updated information in respect of land ownership.

2. The Rathkeale to Attyflin Motorway Scheme, 2019 shall be modified by omitting Plot number 435a.101.

Reason: To the extent of acquisition where it is considered that land surplus to the identified purpose of the Rathkeale to Attyflin Motorway Scheme, 2019 have been included but is not required.

Application for Approval of Proposed Road Development under section 51 of the Roads Act 1993, as amended.

APPROVE the proposed road development based on the following reasons and considerations under and subject to the conditions set out below.

REASONS AND CONSIDERATIONS

In reaching its decision, the Board had regard to:

- (a) European, national, regional and local planning, transport, climate and other policy of relevance including in particular:

European Policy

- Regulation (EU) No. 1315/2013 of the European Parliament and of the Council of 11th of December 2013 on Union guidelines for the development of the trans-European transport network (**TEN-T regulation**);
- Regulation (EU) 2021/1119 of the European Parliament and of the Council of the 30th of June 2021 establishing the framework for achieving climate neutrality and amending regulations (EC) No. 401/2009 and (EU) 2018/1999 (**European Climate Law**);
- Directive 2014/52/EU amending Directive 2011/92/EU (**EIA Directive**);
- Directive 92/43/EEC (**Habitats Directive**) and Directive 79/409/EEC as amended by 2009/147/EC (**Birds Directive**);
- Directive 2000/60/EC (**Water Framework Directive**);

National, Regional and Local Policy

- Project Ireland 2040 incorporating the National Planning Framework (2018) (NPF) and the National Development Plan (2021-2030) (NDP);
- National Ports Policy (Department of Transport, Tourism and Sport (2013);
- Programme for Government – Our Shared Future (Government of Ireland, 2020);

- Smarter Travel: A Sustainable Transport Future (2009-2020);
 - National Biodiversity Action Plan (2017-2021);
 - Climate Action and Low Carbon Development Amendment Act 2021 amending Climate Action and Low Carbon Development Act 2015;
 - Regional Spatial and Economic Strategy (RSES) for the Southern Region (2019-2031);
 - Climate Action Plan 2021;
 - Limerick County Development Plan (2010 – 2016) (as extended until the new plan is prepared);
 - Adare Local Area Plan 2015-2021 (as extended until February 2024);
- (b) the design, layout and alignment of the proposed Foynes to Limerick Road (including Adare bypass);
- (c) the range of proposed mitigation measures set out in the Environmental Impact Assessment Report, Natura Impact Statement and Schedule of Environmental Commitments including the additional commitments added by the applicant during the oral hearing and the additional environmental commitments recommended by the inspector in conditions;
- (d) the submissions made in relation to the application by all parties both in written format and at the oral hearing;
- (e) the inspector's report informed by the Biodiversity Assessment Report and Appropriate Assessment Reports dated the 10th of February 2022 prepared by Dr. Maeve Flynn (the Board's senior ecologist) and the Assessment Reports on Soils and Geology, Hydrology and Hydrogeology dated the 14th of February 2022 prepared by Mr. Jer Keohane (geotechnical specialist and hydrogeological engineer (external consultant));

Appropriate Assessment Stage 1 Screening

The Board noted that the proposed road development is not directly connected with or necessary for the management of a European Site.

The Board agreed with the screening assessment and recommended conclusion carried out in the report of the inspectorate ecologist (Appropriate Assessment) as

detailed in the inspector's report that the following sites are the European Sites for which there is a likelihood of significant effects, or effects considered uncertain:

- Lower River Shannon Special Area of Conservation (site code: 002165);
- The River Shannon and River Fergus Estuaries Special Protection Area (site code: 004077);
- Curraghchase Woods Special Area of Conservation (site code: 000174);
- Askeaton Fen Complex Special Area of Conservation (site code: 002279).

Appropriate Assessment Stage 2

The Board considered the Natura Impact Statement and associated documentation submitted with the application for approval, the mitigation measures contained therein, the submissions and observations on file, including the further information response and submissions made to the oral hearing, and carried out an Appropriate Assessment of the implications of the proposed road development for European Sites in view of the Conservation Objectives for the sites. The Board considered that the information before it was adequate to allow the carrying out of an Appropriate Assessment and to allow it to reach complete, precise and definitive conclusions for Appropriate Assessment.

In completing the assessment, the Board considered, in particular, the likely direct and indirect impacts arising from the proposed development, both individually and in combination with other plans and projects, the mitigation measures which are included as part of the current proposal and additional mitigation measures recommended by the inspector in view of the conservation objectives for the European Sites. In completing the Appropriate Assessment, the Board accepted and adopted the Appropriate Assessment carried out in the inspector's report, as informed by the inspectorate ecologist report (Appropriate Assessment), of the potential effects of the proposed road development on the aforementioned European Sites, having regard to the sites' conservation objectives. In overall conclusion, the Board was satisfied that the proposed road development would not adversely affect the integrity of the Lower River Shannon Special Area of Conservation, the River Shannon and River Fergus Estuaries Special Protection Area, Curraghchase Woods Special Area of Conservation, or Askeaton Fen Complex Special Area of

Conservation, in view of the conservation objective of those sites 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 road development taking account of:

- (a) the nature, scale, location and extent of the proposed road development;
- (b) the Environmental Impact Assessment Report and associated documentation submitted in support of the application for which approval is sought, including further information received and information presented at the oral hearing,
- (c) the submissions received during the course of the application and at the oral hearing,
- (e) the inspector's report informed by the Biodiversity Assessment Report dated the 10th of February 2022 prepared by Dr. Maeve Flynn (the Board's senior ecologist) and the Assessment Reports on Soils and Geology, Hydrology and Hydrogeology dated the 14th of February 2022 prepared by Mr. Jer Keohane (geotechnical specialist and hydrogeological engineer (external consultant));

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant, adequately considers alternatives for the proposed road 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 for approval under section 51 of the Roads Act 1993, as amended.

Reasoned Conclusions on Significant Effects

Having regard to the examination of the environmental information set out above, and in particular to the Environmental Impact Assessment Report and supplementary information provided by the applicant, and the submissions received

from prescribed bodies, observers and affected landowners in the course of the application, including submissions made at the oral hearing, it is considered that the **main significant direct, indirect or cumulative impacts** of the proposed development on the environment are those that are set out below.

Population and Human Health

- At a community level, the PRD would result in significant to very significant positive impacts (benefits) on population and human health arising from improved safety for road users and improved journey times, reliability, amenity and connectivity. Specifically, it would deliver improved connectivity between Limerick city, Shannon Foynes port and the immediate areas of the southern region as well as nationally and on the road-based infrastructure (core and comprehensive components) of the TEN-T road network connecting Ireland to Europe, which would benefit the movement of goods and people and the wider economy and society.
- Some negative impacts would arise for specific businesses particularly in Adare and Croagh as well as other villages along the N21 and the N69 that are largely reliant on passing trade, though signposting is proposed to direct road users to the services at these locations which would reduce the impact. However, it is acknowledged that while loss of passing trade will lessen over time for the majority of affected businesses, some individual businesses may continue to experience moderate to significant impacts.
- With the removal of strategic transport from the existing road network, the bypassed villages have potential to improve their urban environment and economic, tourism and social potential and regain their sense of place. The removal of congestion in Adare would be a particular benefit. The existing road network would become more suitable for improved outdoor recreational activity and active travel including walking and cycling which are recognised as a means of improving health and wellbeing.
- It is acknowledged that individuals whose homes would be compulsorily acquired may experience a level of stress or anxiety as a result of the process and there are no means to mitigate such losses through the EIA process. However, while this negative impact is unavoidable, it would not equate to a

significant adverse impact on human health and is considered acceptable in the wider context of the overall public benefits of the proposed road development. It is proposed that the applicant would proactively engage with affected individuals and landowners in this regard.

- Negative impacts that are predicted to arise can be avoided, managed, and mitigated to an acceptable level by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. Therefore, the proposed development would not have any remaining unacceptable significant direct, indirect, or cumulative residual impacts in the short, medium and long term on population or human health.
- It is acknowledged that the health benefits of the proposed road development would not be felt equally by every individual in the community.

Noise and Vibration

- During the construction phase, there would be an inevitable increase in noise levels as a consequence of the construction activity. At locations where, and at times when, the construction noise limit values deemed acceptable with reference to TII Guidance documents and, as set out in Table 12.1 of Chapter 12 (Noise and Vibration) of the EIAR, would be exceeded, significant impacts would arise for sensitive properties.
- The applicant's strategy is that of controlling noise levels at source in the first instance followed by the use of mitigation at sensitive properties to prevent exceedance of the noise criteria/limit values. Contractual obligations would ensure that construction operations causing noise exceedance would be suspended until suitable protections are adopted to prevent any further exceedance. A designated noise liaison officer would be appointed to site during construction works.
- It is acknowledged however, that notwithstanding implementation of noise mitigation measures, a potential temporary significant impact would likely remain at properties up to 80m distance from high intrusive activities, primarily at areas of rock breaking. Where night-time works would be required at specific locations, noise limits would be applied taking into account the pre-existing noise environment.

- Vibration impacts from rock-breaking activities are rated as not significant and short-term in terms of building response, and up to significant over temporary periods in relation to human perceptibility. Clear communication and vibration monitoring measures are proposed.
- Blasting of rock is proposed at specific areas of deep cut and whilst high noise levels are associated with an individual blast, the effects would be momentary. The design of all blasts would be undertaken to ensure the limit value for Peak particle velocity is not exceeded at the nearest sensitive buildings. The control of air overpressure at receiver locations would be undertaken at source through careful blast design. A Public Communications Strategy would be implemented prior to the commencement of any blast works and property condition surveys will be offered for all buildings within 50m of the proposed development boundary and those within 150m of proposed blasting works along the project and Ballyclogh house, which is a sensitive structure for the reasons set out in the assessment above. Vibration and noise monitoring would be undertaken during all blast events.
- During operation, whilst the proposed road development would result in increased operational noise levels at noise sensitive locations along its route, with the incorporation of effective noise mitigation measures, traffic noise levels at or below the adopted Transport Infrastructure Ireland absolute noise design criterion of 60dB L_{den} can be achieved and the 'do-something' noise levels can be reduced to the equivalent 'do-minimum' traffic noise levels for the majority of sensitive receptors. This would protect the majority of the exposed population being 'highly annoyed' by road traffic noise.
- Exceedances would arise at two properties who would experience a residual noise impact marginally in excess of the Transport Infrastructure Ireland absolute noise design criterion. Noting the provisions of the Transport Infrastructure Ireland Guidelines for such a scenario, and also noting the need to balance the provision and scale of noise barriers against other consideration, such as visual impact, the proposed development would not have any unacceptable direct, indirect or cumulative noise and vibration impacts.

- A positive significant impact would be experienced at properties along the existing N69 and N21 national roads where traffic would be diverted from, and a reduction in noise would arise in these areas.
- For reasons outlined in the assessment, it can be concluded that the correct Transport Infrastructure Ireland guidance was applied in respect of the design of the noise mitigation along the proposed road development and that there is no contradiction between the 'Good Practice Guidelines for the Treatment of Noise during the Planning of National Road Schemes' (TII, 2014) and Environmental Noise Guidelines for the European Region, (WHO, 2018), as they serve different purposes.

Biodiversity

- While the PRD is a major engineering project with potentially significant impacts on biodiversity, I am satisfied that a detailed assessment of the biodiversity in the area that would be impacted by the PRD has been undertaken. Key ecological receptors including protected nature conservation sites and species, ecological sites and individual species have been assessed and appropriate mitigation measures has been put forward. Following implementation of mitigation measures outlined, the PRD would not result in any significant negative impacts on biodiversity within the study area.
- The measures taken to avoid, prevent, reduce and offset significant adverse effects on the environment, in particular on species and habitats protected under the Habitats Directive, Birds Directive and the Wildlife Act 1976, as amended, will contribute to the avoidance of a deterioration in the quality of the environment and significant loss of biodiversity.
- Residual impacts on biodiversity will remain even after the application of mitigation measures due to habitat loss and fragmentation with permanent moderate negative impacts at 8 no. Key Ecological Receptor sites. Of these, KER 11 involves the loss of and fragmentation of Annex I Alkaline Fen habitat and effects on the whorl snail *V. moulinsiana*.
- Significant adverse effects on species and habitats protected under Council Directive 92/43/EEC (Habitats Directive) and Directive 2009/147/EC (Birds Directive) are excluded through avoidance of direct impacts by project design

and the application of mitigation measures to prevent deterioration of water quality and disturbance of species.

- Significant residual effects on movements of Lesser Horseshoe Bat in the wider landscape, on Barn owl and badgers will be avoided through the application of mitigation measures designed to maintain ecological connectivity throughout the landscape and the application of specific landscape design measures. Any remaining residual effects are of a slight negative magnitude, reducing over time as landscape measures mature.

Soils and Geology

- There will be impacts associated with the loss of soil along the route and the use of natural resources, including aggregates, to construct the proposed road development. These would be mitigated to some extent by the re-use of excavated materials in the construction process and potentially in the development of on-site borrow pits or the use of ground improvement methods. Other construction phase impacts would be avoided, managed and/or mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan and the additions to the Schedule of Environmental Commitments. Therefore, it can be reasonably concluded that no significant adverse impacts would arise on soils or geology as a result of the construction and operational phases of the development. The deep cuttings may result in a minor positive educational impact or benefit as a result of facilitating an enhanced geological understanding of a site by exposing geological strata to view.

Water – Hydrology

- Surface water quality impacts arising from the construction phase and earthworks would be avoided, managed and/or mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan, and the Construction Erosion and Sediment Control Plan contained within that plan, and the additions to the Schedule of Environmental Commitments as well as through obtaining necessary consents and consultation with prescribed bodies including Inland Fisheries Ireland and Irish Water.

- During the operational phase, water quality impacts arising from road runoff or accidental spillages would be mitigated through the design of the drainage system for the proposed road development and in particular the use of attenuation ponds. The proposed drainage system would incorporate a range of pollution control measures, including filter drains, sealed drainage systems, use of a vegetated lined wetland system upstream of outfalls and through the incorporation of engineered attenuation ponds. Stormwater runoff management through attenuation would reduce risk of flooding to 1% annual exceedance probability flood event.
- The proposed road development is also likely to indirectly enhance water quality to a degree, due to the transfer of a greater volume of traffic onto the new road infrastructure with improved managed drainage.
- It is demonstrated that with the adoption of the mitigation outlined, there is no risk that the surface water bodies would fail to achieve or maintain the environmental objectives set out in the Water Framework Directive as a result of the proposed development, alone or cumulatively with other projects.
- Subject to implementation of the mitigation measures proposed, it can be reasonably concluded that no significant adverse direct impacts would arise on water (hydrology) as a result of the construction and operational phases.

Water – Hydrogeology

- Groundwater quality impacts arising from the construction phase and earthworks would be avoided, managed and/or mitigated by the measures that form part of the proposed scheme, the proposed mitigation measures including the Environmental Operating Plan and the Construction Erosion and Sediment Control Plan and the additions to the Schedule of Environmental Commitments.
- There would be impacts on a number of existing wells which will be lost as a result of the proposed development. This will be mitigated by the provision of replacement wells or alternative water sources, as appropriate.

- If a permanent reduction in yield at Craggs-Barrigone Group Water Scheme arises, and a suitable alternative borehole cannot be found, the developer has confirmed a permanent connection would be facilitated.
- Impacts on groundwater-dependent habitats will be avoided through the alignment and design of the road development or mitigated through measures such as flow control and pollution control measures. There will be no groundwater lowering within groundwater bodies that support groundwater-dependent habitats within a European Site.
- It is demonstrated that with the adoption of the mitigation outlined, there is no risk that the ground water bodies would fail to achieve or maintain the environmental objectives set out in the Water Framework Directive as a result of the proposed development, alone or cumulatively with other projects.

Archaeology, Architectural and Cultural Heritage

- There would be potentially significant negative direct and indirect impacts on a number of archaeological and built heritage sites which will be mitigated by exclusion zones, measured surveys, written and photographic records, a programme of archaeological test excavations carried out in accordance with Ministerial Directions issued to Limerick City and County Council under Section 14A(2) of the National Monuments Acts (1930 – 2014), preservation in situ or relocation of assets (in certain instances) and underwater or wade surveys on 12 streams carried out in accordance with Ministerial Directions issued to Limerick City and County Council under Section 14A(2) of the National Monuments Acts (1930 – 2014).
- The archaeology aspects would be carried out under the supervision of a project archaeologist appointed by Transport Infrastructure Ireland. Potential impacts on unknown archaeological features will be mitigated or avoided through monitoring of construction works by an archaeologist and excavation where appropriate.
- Where impacts have been identified, as set out above, these would be avoided, managed or mitigated by a range of measures forming part of the proposed development, proposed mitigation measures and measures within

suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Archaeology, Cultural Heritage and Architectural Heritage** resource within the study area.

Climate and Air Quality

Air Quality

- In respect of air quality, the residual impacts on air quality during construction and operation phases would be no greater than imperceptible for the construction and operation phases.
- Potential air quality impacts would be avoided, managed and mitigated by the measures that form part of the proposed scheme, the proposed mitigation measures such as the dust minimisation plan and the commitments set out in the Schedule of Environmental Commitments and through suitable conditions.

Climate

- The proposed road development has been assessed in the context of a broad ranging climate focussed policy, including the Paris Agreement, the European Green Deal and EU Climate Law, The Climate Action and Low Carbon Development Amendment Act 2021 and Ireland's national Climate Action Plan 2021 (CAP21), all which set out aims and objectives for reducing emissions on the trajectory to a climate neutral Europe in 2050. The National Development Plan is aligned with the National Planning Framework, which collectively form Project 2040. The National Development Plan has been designed to ensure that it supports the government's climate ambitions set out in the Climate Action Plan 2021.
- In the context of the pressing need to reduce greenhouse gas emissions, the clear intention at an EU and national level is that the decarbonisation of the transport network will require taking on board a range of measures including the move towards EVs and LEVs, the use of other forms of non-fossil based alternative fuels and the use of electricity generated from renewable sources for charging of batteries for EVs.

- The binding requirements for the delivery of the road-based components of the TEN-T core and comprehensive network by 2030 and 2050 are a key pillar in achieving a high-quality and safer road network in which to allow for more sustainable transport brought about by reduced congestion, improved flow of traffic and corresponding reduction in transport emissions.
- By 2030, the objective of Europe's proposed Sustainable Mobility and Transport Strategy is there would be at least 30 million zero-emission cars in operation on European roads, and the overall aim is to make each mode of transport more efficient and by enabling increased transport activity by more sustainable forms of transport. Ireland's aim, as set out in Climate Action Plan 202, is to have almost one million passenger electric vehicles on Irish roads by 2030.
- The greenhouse gas emissions that would be generated would not be so significant as to have a long-term detrimental impact on the Government's ability to meet its 2030 and 2050 carbon targets. Noting the calculations set out in the inspector's assessment and having regard to the objectives of the project and the strong policy support for the project at an EU, national, regional and local level, it can be concluded that the environmental effects on climate would be short-term moderate adverse during construction (where the greenhouse gas emissions are highest) and slight adverse during operation.
- In respect of climate adaption, the proposed road development has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and climatic conditions. Flood risk has been considered in the hydrology assessment where the risk is deemed to be very low.

Material Assets and Land – Agriculture

- The acquisition of the land required to construct the proposed road development would have a range of negative impacts on farms and their landowners and occupants, including impacts that are significant, very significant and profound. Other related impacts arise because of issues such as severance, impacts on farm viability, disruption and impacts on the

availability of services. Following mitigation, significant impacts would remain for 22 landowners.

- The loss of land and property required to develop the proposed road development would not be avoided, mitigated or otherwise addressed by means of condition. There is no mitigation for this impact within the Environmental Impact Assessment process. Impacts due to land severance are mitigated to a degree through the proposed provision of alternative access arrangements and services. However, the agricultural enterprises that are significantly adversely affected are likely to require major changes to their operations, management and scale and there is no mitigation for this impact within the Environmental Impact Assessment process.
- With regard to the other potential impacts assessed under this environmental heading, significant potential impacts would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions.

Material Assets and Land – Agriculture (Equine)

- It is accepted that impacts on horses can arise from abnormal noise and visual stimuli during the construction phase of the development and that this may be quite intrusive to horses in the immediate vicinity. However, horses are adaptive to environmental changes and quickly adapt to aural and visual stimuli associated with normal traffic flow. In this regard and following mitigation proposed, including noise barriers and supplementary equine barriers where deemed required, impacts would be reduced to an acceptable level so that no significant impacts would arise on equine enterprises from noise or visual stimuli.
- The results of the nine equine property assessments found that with the adoption of mitigation, four holdings would be significantly impacted (three directly and one indirectly). These impacts are due primarily to land loss and land severance, loss of direct access, and in one case acquisition of a farmyard and farm buildings which cannot be mitigated through the EIA process. These impacts are typical of other major road infrastructure

development projects and are acceptable when the wider public interest that would be served by the project is considered.

- It can therefore be concluded that the proposed road development would not have any unacceptable direct, indirect or cumulative impacts on Materials Assets and Land – Agriculture (Equine).

Material Assets and Land – Non-Agriculture

- The proposed loss of non-agricultural land and property, following the implementation of mitigation measures where applicable, would result in significant or greater level of impact on 15 non-agricultural properties. These impacts include the combined acquisition of nine dwelling houses (including two uninhabited) from agricultural and non-agricultural lands/properties where no mitigation is available.
- With respect to the acquisition/demolition of houses, it is acknowledged that this would result in a significant to profound permanent negative impact on homeowners, including an established family home at Ardshanbally, in particular (ch.61+175). The impact on this house and other houses and their owners and occupiers would not be avoided, mitigated, or otherwise addressed by means of condition. There is no mitigation for this impact within the Environmental Impact Assessment process. Notwithstanding the remaining impacts rating from significant to profound, the residual impact would not justify a refusal, having regard to the compelling case for the proposed road development and the resulting wider public benefits.
- In relation to the loss of land/development land and the reduction in area of a commercial building, while these would not be mitigated to below an impact rating of significant, the residual impacts would be acceptable for similar reasons set out above, including the greater public interest that would be served by the approval and delivery of the proposed road development.

Traffic

- The proposed road development would substantially reduce the level of traffic on the existing N69 and N21 road corridors, as traffic, including a high-volume of heavy-goods vehicles, would transfer to the proposed road development due to the journey-time saving and reliability benefits it is designed to provide.

This would lead to several significant direct benefits and positive impacts including improved road safety, accessibility, improved journey times and journey reliability. It would allow for similar improvements for journeys by public transport. The proposed road development would also result in improved safety for pedestrians and cyclists because of reduction in traffic through urban settlements along the existing road network and throughout the wider rural area. It would provide enhanced opportunity for a change of travel mode when travelling between the towns and villages in the area. The road types and cross-sections chosen are justified on the basis of policy, road safety, capacity and include sufficient and proportionate headroom for future traffic needs.

- It is wholly recognised that a modal shift from the private car to more sustainable modes of traffic is a necessary part of delivering sustainable transport. However, the proposed road development and public transport/active travel modes are not mutually exclusive. The proposed road development is a planned strategic TEN-T route that is necessary to allow for improved connectivity of the road-based element of transport infrastructure across the region and nationally and to link forward with European strategic road-based infrastructure.
- Where negative impacts have been identified including traffic delays and diversions during the course of construction, these would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions.

Landscape and Visual

- The construction phase of the proposed road development would result in a range of landscape and visual impacts on certain landscapes and receptors, including significant and profound impacts during construction. The mitigation measures proposed during this phase will have limited effect due to the nature and scale of the development, and it is considered that the negative landscape and visual impacts would continue during the construction phase. Having noted the linear nature of the development and that construction

activities are a familiar feature in the landscape, these landscape or visual impacts would be acceptable.

- The proposed road would contrast with the existing countryside so there is a likelihood that it will generate negative landscape impacts at a local level. However, as the new planting becomes established, the impact is considered a slight negative impact in the wider landscape context. In designing the landscape strategy, the applicant opted to use vegetation appropriate to the local landscape. Account was taken of the requirements of ecological features and the long-term management of the landscape following completion of construction.
- Following construction and again as planting becomes established, visual impacts would be reduced to no greater than moderate for the majority of receptors, however, significant impacts would remain on four properties adjacent to structures where the structures would remain visible in views for the long-term. Notwithstanding the inability of the proposed measures to mitigate the visual impact of the proposed road development on these properties, it is considered that the residual impacts following mitigation would not outweigh the public benefit of the proposed development.

Vulnerability to Major Accidents and Disasters

- The proposed road development, while a major engineering project requiring large scale earthworks, is not of a type likely to cause significant effects on the environment arising out of major accidents or disasters within the meaning of the Environmental Impact Assessment Directive and the Roads Act 1993, as amended. This is particularly so as the project has been designed with a demonstrated knowledge of the baseline environment. Furthermore, it is designed to modern engineering standards and on the basis of avoiding significant environmental effects and adopting appropriate mitigation measures.

Cumulative Impacts and Impacts from interactions

- It is considered that effects as a result of interactions, indirect and cumulative effects can be avoided, managed or mitigated by the measures which form

part of the proposed development, the proposed mitigations measures detailed in the Environmental Impact Assessment Report, additional documentation furnished and with suitable conditions. There is, therefore, nothing to prevent the approval of the development on the grounds of significant environmental effects as a result of interactions between the environmental factors and as a result of cumulative impacts or impacts arising from interactions between environmental factors.

Notwithstanding the conclusion reached in respect of the inability of the proposed measures to fully mitigate the significant negative residual impacts in respect of various environmental matters as set out above, it is considered that these environmental impacts would not justify a refusal, having regard to the overall benefits of the proposed road development including its identified strategic importance at European, national, regional and Local level, its role in alleviating congestion through Adare and its role in facilitating sustainable population and economic growth for Limerick and the southern region, as identified in the National Planning Framework and the Regional and Spatial and Economic Strategy for the southern region. These matters outweigh any negative impacts identified in relation to the construction and operation of the proposed road development.

Proper Planning and Sustainable Development

The proposed Foynes to Limerick, including Adare Bypass, accords with the relevant policy at a European, National, regional and local level. It would deliver a TEN-T standard combined core and comprehensive network that would in turn offer improved road infrastructure between Shannon Foynes port, Limerick, a Tier 1 port of national importance on the TEN-T network, and Limerick and with the national road and TEN-T network. The proposed road development would improve the integration of Ireland with the rest of the European Union especially in a post-BREXIT context with an established need for more direct shipping links that bypass Britain and with a realistic expectation for an increase in cargo movements through Shannon Foynes port.

It would also provide for the planned population growth of 50% by 2040 for Limerick as envisaged in the National Planning Framework set out under Project Ireland 2040

together with supporting national policies including enhanced regional accessibility and improving transport connections to the major ports including Shannon-Foynes Port.

It has been demonstrated that there is a clear and pressing need for an improved quality road to meet the growth of heavy traffic to Foynes and the population and economic growth of Limerick and the Southern region envisaged in multiple planning documents. The current N69 is heavily constrained, suffers from severe traffic pressure and has a very poor road safety record and cannot reasonably cater for the realistic strategic planned population and economic growth of the region.

The PRD would bring many benefits including improving road safety, journey time and reliability and would reduce low-speed stop-and-go traffic movements and associated congestion particularly in Adare. This would allow a better flow of traffic and the delivery of an improved infrastructural basis for more efficient and safer road-based transport including greener and more sustainable road-based public and private transport options.

While it is acknowledged that the construction and operational phase would generate greenhouse gas emissions, these would not be so significant as to have a long-term detrimental impact on the Government's ability to meet its 2030 greenhouse gas emissions targets and the future target of reaching climate neutrality in 2050. The clear intention at an EU and national level is that the decarbonisation of the transport network will require implementing of a range of measures, including the switch to electric and low-emissions vehicles and also the use of other forms of non-fossil based alternative fuels, and the use of electricity generated from renewable sources for charging of batteries for electric vehicles.

By 2030, Europe's Sustainable Mobility and Transport Strategy aims to have at least 30 million zero-emission cars in operation on European roads and the overall aim is to make each mode of transport more efficient by enabling increased transport activity by more sustainable forms of transport. Ireland's aim as set out in Climate

Action Plan 2021 is to have almost one million passenger electric vehicles (EVs) on Irish roads by 2030.

Notwithstanding the clear and urgent need to address climate change, following policy review at an EU-level, the binding requirements for the delivery of the road-based components of the TEN-T core and comprehensive network by 2030 and 2050 remain a key pillar in achieving a high-quality and safer road network that would allow for improved, safer and more efficient public and private road-based transport. It is also clear that the TEN-T regulation require both the rail **and** road to be connected to the TEN-T core and comprehensive networks. The road infrastructure would not preclude the future reopening and operation of the Foynes to Limerick railway line and both would facilitate the planned population and economic growth for the region.

When taken in context and noting the need, policy support and benefits of the proposed road development as outlined, the impacts on the global climate receptor would not be significant negative.

The proposed road development has been designed to current construction and design standards such that it would be resilient to impacts arising from predicted future severe weather events and climatic conditions including flood risk.

It is clear that there are some significant to profound negative impacts associated with this project most notably for those people whose houses would be compulsorily acquired. However, having regard to the overall purpose of the road and the wider positive public benefits that would result, this is acceptable in light of proper planning considerations as underpinned by the exigencies of the common good.

Overall, it is reasonable to conclude that the consequences for proper planning and sustainable development in the area would be largely positive. None of the matters that negatively weigh against the proposed road development are sufficient as to outweigh the advantages of the PRD through the policy and the benefits of improved

travel conditions benefits. It is therefore concluded that there is a clear justification in favour of granting approval for the PRD as sought.

Conditions

1.	<p>(a) The proposed development shall be carried out and completed in accordance with the plans and particulars, including the mitigation measures specified in the Environmental Impact Assessment Report and the Natura Impact Statement lodged with the application to An Bord Pleanála on the 11th day of December, 2019, as amended by the plans and particulars submitted to An Board Pleanála on the 30th day of September, 2020, and as further stated and clarified in the Schedule of Commitments submitted by the Road Authority to the oral hearing on the 16th day of February, 2021, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be prepared by the Local Authority, these details shall be placed on file prior to commencement of development and retained as part of the public record.</p> <p>(b) The updated Schedule of Environmental Commitments to include the mitigation measures outlined in the Environmental Impact Assessment Report, the schedule of commitments submitted to the Board on the 16th day of February 2021, during the oral hearing, and as required through conditions contained in this schedule, shall be implemented in full and shall be placed on the file and retained as part of the public record.</p> <p>Reason: In the interest of clarity, to mitigate the environmental effects of the development, and to protect the amenities of properties and sensitive receptors in the vicinity.</p>
2.	<p>The Environmental Operating Plan included in Appendix 4.1 of the Environmental Impact Assessment Report shall be finalised by the appointed contractor and shall be subject to formal approval by Limerick</p>

	<p>City and County Council. Any deviations shall not cause an exceedance of the environmental effects committed to in the Environmental Impact Assessment Report and Environmental Operating Plan that accompanied the application.</p> <p>It shall include all of the mitigation measures prescribed in the Environmental Impact Assessment Report and the Natura Impact Statement, as added to by additional environmental commitments submitted to An Bord Pleanála at the oral hearing on the 16th day of February, 2021. It shall also include the additional measures stipulated in the conditions of this Approval.</p> <p>The Environmental Operating Plan shall be implemented by the appointed Contractor throughout the duration of the construction phase.</p> <p>Reason: In the interest of clarity, to mitigate the environmental effects of the development, to ensure that the environmental controls committed to in the Environmental Impact Assessment Report are included and to protect the amenities of properties and sensitive receptors in the vicinity.</p>
3.	<p>(a) At detailed design stage, the applicant shall engage with Irish Water to agree adequate protection of existing significant assets and ensure appropriate access is maintained during and following construction. All works that would impact Irish Waters Assets shall be carried out in compliance with Irish Water Standards and Codes of Practice.</p> <p>(b) Where the applicant proposes a temporary or permanent connection to a public water/wastewater network operated by Irish Water, the applicant shall enter into a connection agreement with Irish Water prior to the commencement of the development and adhere to the standards and conditions set out in that agreement.</p> <p>Reason: To ensure that Irish Water’s assets are protected during the construction and to adhere to appropriate standards.</p>

4.	<p>The Schedule of Environmental Commitments shall be updated to incorporate the following <u>additional</u> commitments:</p> <p>Air Quality (Dust)</p> <ul style="list-style-type: none">a) Item Number 13.3 (Monitoring) of the Mitigation and Monitoring Measures set out in Chapter 19 of the Environmental Impact Assessment Report shall be amended to read as follows: Dust deposition monitoring shall be conducted at nearby sensitive receptors (residential dwellings) during the construction phase of the proposed road development.b) Monitoring shall be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119 on a 30-day average. Results shall be compared to the TA Luft guidelines. Should an exceedance of the TA Luft limit occur to dust levels, additional environmental commitments shall be implemented. At least one month of dust deposition shall be carried out in advance of the commencement of works to determine the baseline. <p>Biodiversity</p> <ul style="list-style-type: none">c) The developer shall develop and implement a post-construction monitoring programme for Barn Owl in line with the methods specified in the Transport Infrastructure Ireland publication titled 'The interactions between Barn Owls and major roads: informing management and mitigation' (2021). <p>Cultural Heritage</p> <ul style="list-style-type: none">d) A detailed written and photographic record shall be made of Cultural Heritage Asset CH 63, a vernacular building within Table 14.8 (Cultural Heritage Site within the receiving environment) of Chapter 14 of the Environmental Impact Assessment Report, together with its setting shall be undertaken. <p>Landscape</p> <ul style="list-style-type: none">e) Any redundant sections of the disused road network shall be reinstated as grassland, scrub or woodland.
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	<p>Other</p> <p>f) Where the local road would be realigned onto a bridge at Islandea (ch.60+300 to ch.60+400) on Figure 16.9 of Volume 3 of the Environmental Impact Assessment Report, a set of steps shall be included to enable local access on a shorter route onto the bridge than the access track on the western side.</p> <p>g) Environmental Commitment OH.48 shall be updated to include a pre- and post- condition survey for the slatted tanks/slurry storage for landholding reference number 215 on the Foynes to Rathkeale protected road scheme 2019.</p> <p>Reason: In the interests of clarity and the proper planning and sustainable development of the area, control of the environment and to ensure appropriate commitments outlined are provided.</p>
5.	<p>During the construction phase, the appointment of persons with key roles to oversee the relevant aspects of the project, including the environmental commitments that have been committed to in the Environmental Impact Assessment Report, Natura Impact Statement and the application generally, shall be executed through formal arrangements. The appointments shall include the following:</p> <p>(a) The appointed Site Environmental Manager (SEM) shall be an experienced and responsible person and shall oversee that the environmental commitments and the Environmental Operating Plan are fully executed for the duration of works, and to monitor whether the construction phase mitigation measures employed are effective in addressing the environmental impact(s) that they were prescribed for. The Site Environmental Manager shall provide independently verifiable audit reports that shall be made available for inspection or audit by Limerick City and County Council, the National Parks and Wildlife Service and Inland Fisheries Ireland staff, as appropriate. All inspections, monitoring and results shall be recorded on standard forms.</p>

(b) The developer shall ensure the appointment of an independent **Ecological Clerk of Works (ECoW)**. The principal functions of the ECoW shall be as follows:

1. To provide ecological supervision of the construction of the proposed road development and thereby ensure the full and proper implementation of the mitigation prescribed in the submitted Natura Impact Statement and in Chapter 7 of the Environmental Impact Assessment Report (Biodiversity);
2. To regularly review the outcome of the specialist hydroacoustic monitoring and, on that basis, make any necessary adjustments to the mitigation;
3. To carry out weekly inspections and reporting on the implementation of the Contractor's Biosecurity Protocol.

During the preparation of the Contractor's Environmental Operating Plan, the Site Environmental Manager may, as appropriate, assign other duties and responsibilities to the Ecological Clerk of Works. In exercising his or her functions, the Ecological Clerk of Works will be required to keep a monitoring file and this will be made available for inspection or audit by Limerick City and County Council, the National Parks and Wildlife Service and Inland Fisheries Ireland, as appropriate, at any time.

(c) The developer shall ensure the appointment of a qualified **Veterinary surgeon with equine expert specialism** to liaise with landowners who own or operate equine farms/enterprises with an equine element to ensure that equine welfare is adequately addressed during the construction phase of the development.

Reason: In the interests of clarity and the proper planning and sustainable development of the area, control of the environment and to ensure appropriate commitments (and one additional commitment) outlined are provided.

Patricia Calleary.

Patricia Calleary
Senior Planning Inspector.

21st March 2022.

Appendix A Overview of Oral hearing

Appendix B List of Documents presented to Oral Hearing

Appendix C Biodiversity and Appropriate Assessments (Dr Maeve Flynn)

Appendix D Soils & Geology, Hydrology and Hydrogeology (Mr Jer Keohane)