

20. Environmental Impact Tables

20.1 Introduction

20.1.1 This chapter provides a summary of the environmental impacts that have been described in each environmental topic chapter.

20.1.2 Table 20.1 below reports the environmental impacts associated with the Scheme, proposed mitigation where appropriate, and the identification of residual effects.

Table 20.1: Summary of Environmental Impacts (continued over)

| Item | Description of Potential Impact | Mitigation Objective and Commitment | Sensitivity / Value of Receptor | Duration of impact Short / Long term | Magnitude of Impact With Mitigation | Significance of Impact with mitigation | Mitigation Item No. |
|--|---|---|---------------------------------|--------------------------------------|-------------------------------------|--|---------------------|
| Land Use (Chapter 8) | | | | | | | |
| 1. | Loss of Residential properties | Minimise loss of residential properties and residential gardens. Minimise loss of amenity to neighbouring properties. | High | Long Term | Severe Adverse Impact | Significant | LU1 |
| 2. | Loss of Agricultural land | Minimise loss of agricultural land. Maintain field access and hedgerows. | Low / Medium | Long Term | Severe Moderate Impact | Not Significant | LU2 |
| Geology & Soils (Chapter 9) | | | | | | | |
| 3. | Inhalation/Ingestion/ Dermal contact with contaminated soils and dusts. | Reduce risks to construction workers health | High | Short | Moderate | Slight | GEO1 |
| 4. | Inhalation/Ingestion/ Dermal contact with contaminated soils and dusts. | Reduce risks to fauna health | Low | Short | Slight | Slight | GEO2 |
| 5. | Plant uptake of contaminated soils as a result of disturbance of contaminants | Reduce risks to floral communities | Low | Short | Slight | Slight | GEO3 |
| 6. | Infiltration of contaminants through the soil. | Reduce risk to groundwater | Low | Short | Slight | Slight | GEO4 |

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| 7. | Runoff of contaminants from site works. | Reduce risk to groundwater and surface waters | Moderate | Short | Slight | Slight | GEO5 |
| 8. | Generation of fugitive contaminated dusts | Reduce risks to nearby receptors including residential properties. | High | Short | Slight | Slight | GEO6 |
| 9. | Health and/or explosive risks associated with soil gases | Reduce risks associated with soil gases | High | Short | | Negligible | GEO7 |
| Water Quality and Drainage (Chapter 10) | | | | | | | |
| 10. | Sediment mobilisation and spillage or discharge of other pollutants in watercourses (Construction Phase) | To prevent pollution of watercourses from construction operations. | Low to Medium | Short Term | Low Adverse | Slight to Negligible Adverse | WQ1 |
| 11. | Flood risk to surrounding land from development (Construction Phase) | To maintain the existing flow capacity of watercourse channels during construction operations. | High | Short Term | Negligible Adverse | Slight Adverse | WQ2 |
| 12. | Alteration / addition of watercourse crossings (Construction Phase) | To minimise changes to the channel and bank of a watercourse during construction operations. | Low to Medium | Short Term | Negligible to Medium Adverse (depending on watercourse) | Slight to Negligible Adverse | WQ3 |
| 13. | Potential disturbance of groundwater movement (Construction Phase) | To minimise changes to the groundwater regime during construction | Medium | Short Term | Negligible Adverse | Negligible Adverse (moderate confidence) | WQ4 |

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| 14. | Potential contamination to shallow groundwater (Construction Phase) | To prevent pollution of groundwater from construction operations | Medium | Short Term | Low Adverse | Slight Adverse | WQ5 |
| 15. | Discharge of road run off to watercourses (Operational Phase) | To prevent pollution of watercourses from surface water run off from the road once in operation | Low to Medium | Long Term | Negligible to Low Adverse | Negligible to Slight Adverse (moderate confidence) | WQ6 |
| 16. | Discharge of pollutants from other road and infrastructure maintenance (Operational Phase) | To prevent pollution of watercourses from the operation of the road | Low to Medium | Long Term | Negligible Adverse | Negligible Adverse | WQ7 |
| 17. | Flood Risk to surrounding land from development (Operational Phase) | To maintain or improve flow capacity of new / extended culverts passing under the finished road alignment. | High | Long Term | Negligible Adverse to Negligible Beneficial | Slight Adverse to Slight Beneficial | WQ8 |
| 18. | Alteration / addition of watercourse crossings (Operation Phase) | To minimise permanent changes to the channel and bank of a watercourse from the final design for watercourse crossings. | Low to Medium | Long Term | Negligible to Medium Adverse | Negligible to Slight Adverse | WQ9 |
| 19. | Run off from the Scheme into watercourses (Operation Phase) | To restrict the run off from the outfalls for the Scheme to acceptable levels in comparison to the watercourse channels. | Low to Medium | Long Term | Low Adverse | Negligible to Slight Adverse | WQ10 |
| 20. | Alteration to land drainage patterns (Construction and Operation Phase) | To minimise the impact of the completed road on the land drainage patterns. | Low to Medium | Long Term | Negligible Adverse | Negligible Adverse | WQ11 |

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|---|--|---|---------------------------------|--------------------------------------|-------------------------------------|--|---------------------|
| 21. | Potential disturbance of groundwater movement from the new road construction (Operational Phase) | To minimise changes to the groundwater regime from the presence of the Scheme. | Medium | Long Term | Negligible Adverse | Negligible Adverse (moderate confidence) | WQ12 |
| 22. | Potential contamination to shallow groundwater (Operational Phase) | To prevent pollution of groundwater from the operation of the Scheme | Medium | Long Term | Low Adverse | Slight Adverse (moderate confidence) | WQ13 |
| Ecology and Nature Conservation (Chapter 11) | | | | | | | |
| 23. | <i>Belfast Lough SPA/Ramsar/ASSI (statutory site)</i> Possible pollution incidents to watercourses which feed directly to the Belfast Lough during construction and operation | Significantly reduce pollution risk to site through employment of SUDS techniques in the offline section and oil/fuel interceptors along the on-line sections at inflows to culverts. | International | Short term | Low | Not significant | ECOL1a and ECOL1b |
| 24. | <i>Jointure Bay Stream SLNCI</i> Direct habitat loss during construction. Possible pollution during construction and operation | Minimise loss of habitat to the woodland and riparian vegetation associated with the SLNCI Significantly reduce pollution risk to site through employment of SUDS techniques. | Local Authority Area | Long term Short term | Low Low | Not significant Not significant | ECOL2 ECOL1b |

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|------|---|---|---------------------------------|--------------------------------------|-------------------------------------|--|---------------------|
| 25. | <i>Habitats</i> Loss of habitat during construction and operation | Minimise and off-set loss of habitat. | Local | Long term | Low | Not significant | ECOL3 |
| | Possible pollution during construction and operation | Significantly reduce pollution risk to site through employment of SUDS techniques. | | Short term | | Not significant | ECOL1b |
| 26. | Invasive Species Spread of invasive Japanese knotweed during construction and operation | Eradicate invasive species on site during construction, in order to avoid risk of spreading during construction and operation | Local | Long term | Low | Significant positive | ECOL4 |
| 27. | <i>Otters</i> Loss of breeding habitat, disturbance and increased road mortalities during construction. | Minimise loss/disturbance of habitat and minimise road mortality | Northern Ireland | Short term | Low | Negligible | ECOL5 |
| | Increased potential in road kill incidents during construction | Minimise road mortality incidents | | Long term | | Low | |
| 28. | Badger Disturbance, destruction of setts and increased road mortality during construction, and increased mortality on offline section during operation | Minimise disturbance and road mortality | Northern Ireland | Short term | Negligible | Not significant | N/a |

| Item | Description of Potential Impact | Mitigation Objective and Commitment | Sensitivity / Value of Receptor | Duration of impact Short / Long term | Magnitude of Impact With Mitigation | Significance of Impact mitigation | Mitigation Item No. |
|--|--|---|---------------------------------|--------------------------------------|-------------------------------------|--|---------------------|
| 29. | Bats Loss of potential roosts or roosting and foraging habitat during construction | Minimise loss of habitat and minimise disturbance of any roost sites. | Northern Ireland | Short term | Low | Not significant | ECOL 6 |
| 30. | Breeding birds Loss of habitat and disturbance during construction. Increased disturbance and road mortality during operation | Minimise loss of habitat and disturbance of breeding birds. N/a | Local | Short term Long term | Medium Negligible | Not significant Not significant | ECOL7 |
| 31. | Wintering birds Disturbance during construction, collisions with high level machinery/structures during construction and operation | Minimise loss disturbance to wintering birds | International | Long term | Negligible | Not significant | N/a |
| Landscape and Visual Effects (Chapter 12) | | | | | | | |
| 32. | Landscape Character Areas Loss of landscape character by removal of buildings, trees and hedges, parts of gardens, walls. Introduction of new road. | Repair landscape character by replacement of walls and replanting | Medium | Long term | Low adverse | Not significant | LV1 |
| 33. | Landscape Policies Compromise Green Belt, Rural Landscape Wedge, area of Townscape Character | Repair lost landscape elements by replacement of walls, replanting and use of high quality materials. | High | Long term | High adverse | Significant | LV2 |

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|---------------------------------------|---|---|---------------------------------|--------------------------------------|--|-----------------------------------|---------------------|
| 34. | Residential receptors Intrusion into view | Soften visual intrusion by replacement of walls and replanting. | Varies | Long term | High adverse | Significant | LV3 |
| 35. | Travelling receptors Loss of attractive features of view | Soften visual intrusion by replacement of walls and replanting. | Medium | Long term | Low adverse | Slight Adverse | LV4 |
| 36. | Other receptors Loss of trees, walls, hedges | Repair lost landscape elements by replacement of walls and replanting | Low | Long term | Negligible | Not significant | LV5 |
| Cultural Heritage (Chapter 13) | | | | | | | |
| 37. | Impact on Listed Buildings | Area within 300m of proposed works | Medium | Permanent | No loss of listed buildings. Closest site is Ballynascreen House, where the proposals may encroach slightly on the front edge of the property curtilage. | Not Significant | CH1 |
| 38. | Impact on Industrial Heritage | Area within 300m of proposed works | Low | Permanent | No loss of industrial archaeological sites. | Neutral | CH2 |

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| 39. | Impact on known Archaeology | Area within 300m of proposed works | High | Permanent | Encroachment into the grounds of a site in State Care (Castle Lug). Potential adverse impact on four other archaeological sites. | Moderate adverse | CH3 |
| Air Quality (Chapter 14) | | | | | | | |
| 40. | Change in number of properties affected | Properties within 200m of strategic route | Medium | Long Term | Currently approx. 617 properties within 200m of existing A2. There would be approx. 572 properties within 200 m of the proposed route | Slight Beneficial | AQ1 |
| 41. | Change in local air quality pollutant concentrations | Properties within 200m of proposed route between Station Road and Seapark | Medium | Long Term | Slight increase in pollutant concentrations with Scheme implementation over existing. However Pollutant levels will remain well within the Relevant Air Quality Standards. | Slight Adverse | AQ2 |
| 42. | Change in local air quality pollutant concentrations | Properties within 200m of proposed route between Jordanstown and Station Road | Medium | Long Term | Negligible change in local air quality for this section of the proposed route. | Neutral | AQ3 |
| 43. | Change in local air quality pollutant concentrations | Properties in vicinity of existing A2 between Station Road and Seapark | Medium | Long Term | Properties likely to experience slight improvement in air quality, due to reassignment of traffic onto proposed dual-carriageway | Slight Beneficial | AQ4 |

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| 44. | Change in regional air quality pollutant concentrations | Within study area | Medium | Long Term | Forecasted improvement in regional air quality with Scheme implementation over existing levels. | Slight Beneficial | AQ5 |
| Traffic Noise and Vibration (Chapter 15) | | | | | | | |
| 45. | Change in number of properties affected | Properties within 300m of proposed works | Medium | Long Term | Currently approx. 752 properties within 300m of existing A2. There would be approx. 729 properties within 300 m of the proposed route | Slight Beneficial | NV1 |
| 46. | Change in noise levels | Properties within 300m of proposed works | Medium | Long Term | With Scheme implementation (incorporating low noise surfacing), noise levels will not breach Standards, except for one properties. (see below) | Slight Adverse | NV2 |
| 47. | Change in noise levels | 1 Station Road | Medium | Long Term | With Scheme implementation, there would be a predicted increase in noise levels at this location. However, the incorporation of a acoustic laminate glazing would mitigate this impact. | Slight Adverse | NV3 |
| Pedestrians, Equestrians and Community Effects (Chapter 16) | | | | | | | |

A2 Shore Road Greenisland

Environmental Statement

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|------|--|---|---------------------------------|--------------------------------------|-------------------------------------|-----------------------------------|---------------------|
| 48. | University of Ulster Temporary local vehicular journey/access disruption to/from the University from the A2 as junction improvements are carried out at Shore Avenue. | Control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | High | Short term | Moderate | Significant | PECE1 |
| 49. | Belfast High School Temporary local vehicular journey/access disruption to/from the school from the A2 as junction improvements are carried out at Shorelands junction to the north and Shore Avenue to the south. | Control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | Moderate | Short term | Moderate | Significant | PECE2 |
| 50. | Wavecrest Apartments Temporary local vehicular journey/access disruption to/from the A2 as junction improvements are carried out at Shore Avenue. | Control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | High | Short term | Moderate | Significant | PECE3 |
| 51. | St Colmans RC Church Temporary disruption to visitors use of A2 Shore Road and Station Road local access road link (pedestrian, cyclist and vehicular) to permit construction of roundabout and associated connecting road links. | Control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | High | Short term | Moderate | Significant | PECE4 |

A2 Shore Road Greenisland

Environmental Statement

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| 52. | Church of the Nazarene Temporary disruption to visitors use of A2 Shore Road and Station Road local access road link (pedestrian, cyclist and vehicular) to permit construction of roundabout and associated connecting road links. | Use of temporary traffic lights to control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | High | Short term | Moderate | Significant | PECE5 |
| 53. | Silverstream Primary School Temporary disruption to visitors use of A2 Shore Road and Station Road local access road link (pedestrian, cyclist and vehicular) to permit construction of roundabout and associated connecting road links. | Use of temporary traffic lights to control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | High | Short term | Moderate | Significant | PECE6 |
| 54. | Greenisland community facilities and services - <i>(from St Colmans RC Church at the southern end of Station Road to Greenisland Train Station at Northern end of Station Road)</i> Temporary disruption to visitors use of A2 Shore Road and Station Road local access road link (pedestrian, cyclist and vehicular) to permit construction of roundabout and associated connecting road links. | Use of temporary traffic lights to control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | High | Short term | Minor | Significant | PECE7 |

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| 55. | Ulsterbus | Control A2 vehicular flows during construction period – but with no temporary severance of vehicular (or pedestrian) access to/from the A2. | Moderate | Short term | Minor | Significant | PECE8 |
| Disruption Due to Construction (Chapter 18) | | | | | | | |
| 56. | Temporary Construction Compound(s). Likely loss of agricultural land during construction period. Air quality, noise and vibration, water pollution, visual amenity impacts if the site is not regulated in line with appropriate guidance. | Follow various best practice guidance outlined in individual chapters. | Low / Medium | Short term. | Minor – negligible adverse impact. | Not significant | DDC1 |
| 57. | Transportation of equipment/materials. Potential increase in traffic as a result of the requirement to transport plant equipment and materials. | Ensure material excavated on suite is re-used wherever possible. Minimise plant movement. | Low | Short term. | Minor adverse impact. | Not significant | DDC2 |
| 58. | Mud on roads. Potential safety issues during wet weather of mud collecting on the existing A2 as a result of plant movement. | Ensure construction sites have wheel-washing facilities where appropriate to ensure a reduction in excess mud being distributed on the existing road network. Improve safety. | Low. | Short term | Minor – negligible adverse impact. | Not significant | DDC3 |

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| 59. | Vehicle travellers. Impact on vehicle travellers during certain stages of construction, where access restrictions and/or diversions may be imposed. | As part of the Traffic Management Plan, the contractor should ensure that access, or alternative access, is maintained at all times during construction along the A2. | Low / Medium | Short term | Moderate adverse | Significant | DDC4 |
| 60. | Pedestrians, cyclists and equestrians. Impact on pedestrians, cyclists and equestrians during certain stages of construction, where passage along the existing A2 cannot be accommodated. | As part of the Traffic Management Plan, the contractor should ensure that access, or alternative access, is maintained at all times during construction along the A2. | Low / Medium. | Short term | Minor adverse impact | Not significant | DDC5 |
| 61. | Properties / buildings | Pre-construction condition surveys to prevent structural damage to material assets | Medium | Long term | Moderate / major adverse | Significant | DDC6 |
| Policies and Plans (Chapter 19) | | | | | | | |
| 62. | Demolition of properties in area of designed townscape value | Minimise impact of demolition and disturbance and loss of amenity to neighbouring residential properties through landscape design measures. | Medium | Long term | Severe Adverse Impact | Significant | PP1 |