

# i. PREFACE

THIS ENVIRONMENTAL IMPACT STATEMENT CONSISTS OF THE FOLLOWING DOCUMENTS:

## Volume 1

- NON-TECHNICAL SUMMARY

## Volume 2

- MAIN REPORT

## Volume 3

- FIGURES

# Volume 4

## APPENDICES

### ○ PART 2: Chapters 12 to 15

## Document Control

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## ACKNOWLEDGEMENTS

This Environmental Impact Statement (EIS) has been prepared and coordinated by Sligo County Councils National Roads Design Department<sup>3</sup> under the auspices of the National Roads Authority and with the assistance of specialist Environmental sub-consultants as outlined below.

Detailed reports from specialists are available for review in the National Road Design Department of Sligo County Council, Market Yard, Sligo, as are the Constraints Study Report, the Route Selection Report and the Design Report which were prepared during the design process.

### EIS Compilation

The National Road Design Department of Sligo County Council is responsible for the following elements of the EIS publication:

- Compilation of the EIS including development of the following chapters:
  - o Introduction;
  - o Background to the *Proposed Road Development*;
  - o Alternatives Considered;
  - o Description of the *Proposed Road Development*;
  - o Impact Assessment- Introduction;
  - o Schedule of Commitments and summary of proposed ameliorative measures;
  - o Summary of Cumulative Impacts.

### Environmental Impact Assessment

Sligo County Council have commissioned the following specialist sub-consultants to carry out an assessment of environmental effects, significant impacts and proposed mitigation measures based on pre-determined specific baseline information.

Study/Element	Consultant
Socio-Economic.	Optimize Consultants, Barracks House, Croghan, Boyle, Co. Roscommon.
Agriculture and Non Agricultural property.	Philip Farrelly, Unit 5A Fingal Business Park, Balbriggan, Co. Dublin.
Flora, Fauna and Fisheries.	Ecofact Environmental Consultants, Tait Business Centre, Domonic Street, Limerick City.
Landscape and Visual.	MosArt Ltd., The Phoenix Centre, Block 6,

<sup>3</sup> Which is contained within the Directorate of Infrastructural Services.

Study/Element	Consultant
	Broomhall Business Park, Wicklow, County Wicklow.
Hydrology & Hydro- Geology; Soils & Geology.	Minerex Environmental Ltd., Taney Hall, Eglinton Terrace, Dundrum, Dublin 14.
Noise & Vibration; Air Quality and Climate Change.	AWN Consulting, The Tecpro Building, IDA Business and Technology Park, Clonshaugh, Dublin 17.
Archaeology, Architectural and Cultural Heritage.	ADS Ltd., Windsor House, 11 Fairview Strand, Fairview, Dublin 3.

## Design

The National Road Design Department of Sligo County Council is responsible for the design of the *Proposed Road Development* with input at various stages from specialist sub consultants including *inter-alia*:

- Aecom;
- Hydro Environmental; and
- AGL Consulting;

## LIST OF ABBREVIATIONS

AA	<i>Appropriate Assessment</i>	EAR	<i>Environmental Assessment Report</i>
AADT	<i>Average Annual Daily Traffic</i>	EC	<i>European Community</i>
AAP	<i>Area of Archaeological Potential</i>	ED	<i>Electoral Division</i>
AEP	<i>Annual Exceedance Probability</i>	EEC	<i>European Economic Community</i>
AGI	<i>American Geological Institute</i>	EIA	<i>Environmental Impact Assessment</i>
ASL	<i>Above Sea Level</i>	EIS	<i>Environmental Impact Statement</i>
ATC	<i>Automatic Traffic Counts</i>	EM	<i>Electromagnetic Flow Meter</i>
BAP	<i>Biodiversity Action Plan</i>	EMD	<i>Exploration and Mining Division</i>
BD	<i>Bridge Document</i>	EOP	<i>Environmental Operating Plan</i>
BH	<i>Bore Hole</i>	EPA	<i>Environmental Protection Agency</i>
BKL	<i>Bricklieve Limestone Formation Lower</i>	EPH	<i>Extractable Petroleum Hydrocarbons</i>
BKU	<i>Bricklieve Limestone Formation Upper</i>	ESB	<i>Electrical Supply Board</i>
BOD	<i>Biochemical Oxygen Demand</i>	EU	<i>European Union</i>
BS	<i>British Standards</i>	FOSD	<i>Full Overtaking Sight Distance</i>
BSBI	<i>Botanical Survey of the British Isles</i>	FE	<i>Standard Factorial Error</i>
BTO	<i>British Trust of Ornithology</i>	GSI	<i>Geological Survey of Ireland</i>
c.	<i>circa or approximate distance</i>	GWB	<i>Groundwater Body</i>
CAFE	<i>Cleaner Air for Europe</i>	GDWTE	<i>Groundwater Dependent Terrestrial Ecosystem</i>
CBA	<i>Cost Benefit Analysis</i>	HAWRAT	<i>Highways Agency Water Risk Assessment Tool</i>
CBR	<i>California Bearing Ratio</i>	HECRAS	<i>Hydrologic Engineering Centres River Analysis System</i>
CDB	<i>Congested District Boards</i>	HGV	<i>Heavy Goods Vehicle</i>
CDP	<i>County Development Plan</i>	HRI	<i>Heritage Rating Index</i>
CGSJ	<i>Compact Grade Separated Junction</i>	HSE	<i>Health Service Executive</i>
Ch.	<i>Chainage</i>	ICD	<i>Inscribed Circle Diameter</i>
CHC	<i>Cultural Heritage Constraint</i>	IEEM	<i>Institute of Ecology and Environmental Management</i>
CHG's	<i>Greenhouse Gases</i>	IFI	<i>Inland Fisheries Ireland</i>
CLASP	<i>Community of Lough Arrow Social Project</i>	ING	<i>Irish National Grid</i>
CO	<i>Carbon Monoxide</i>	IPCC	<i>Intergovernmental Panel on Climate Change</i>
CO <sub>2</sub>	<i>Carbon Dioxide</i>	IPPC	<i>Integrated Pollution Prevention Control</i>
COD	<i>Chemical Oxygen Demand</i>	IS EN	<i>Irish Standard European Norm</i>
CPO	<i>Compulsory Purchase Order</i>	ITM	<i>Irish Transverse Mercator</i>
CRTN	<i>Calculation of Road Traffic Noise</i>	IUCN	<i>International Union for Conservation of Nature</i>
cSAC	<i>Candidate Special Area of Conservation</i>	LG	<i>Lisgorman Shale</i>
CSO	<i>Central Statistics Office</i>	LMA	<i>Lands Made Available</i>
Cu	<i>Shear Strength</i>	MAC	<i>Maximum Acceptable Concentration</i>
DEHLG	<i>Department of Environment, Health and Local Government</i>	MCC	<i>Manual Traffic Counts</i>
DX	<i>Watercourse Crossing for Hydrological Impact Assessment</i>	MCV	<i>Moisture Condition Value</i>
		MIU	<i>Major Inter Urban</i>

**List of Abbreviations (continued)**

NDP	<i>National Development Plan</i>	QBAR	<i>An FSR term denoting the Mean Annual Flood flow rate for a river.</i>
NF	<i>Narrow Fin drain</i>	RC	<i>Rotary Core</i>
NHA	<i>Natural Heritage Area</i>	RMP	<i>Record of Monuments and Places</i>
NIAH	<i>National Inventory of Architectural Heritage</i>	ROW	<i>Right of Way</i>
NIS	<i>Natura Impact Statement</i>	RPS	<i>Record of Protected Structures</i>
NMI	<i>National Museum of Ireland</i>	RSA	<i>Road Safety Authority</i>
NO	<i>Nitrogen Monoxide</i>	RSP	<i>Route Selection Process</i>
NO2	<i>Nitrogen Dioxide</i>	RSPB	<i>Royal Society for the Protection of Birds</i>
NOX	<i>Nitrogen Oxide</i>	RSR	<i>Route Selection Report</i>
NPV	<i>Net Present Value of Benefits</i>	RU	<i>Fish Rearing Unit</i>
NPWS	<i>National Parks and Wildlife Services</i>	SAAR	<i>Seasonal Mean Annual Average Rainfall</i>
NRA	<i>National Roads Authority</i>	SAC	<i>Special Area of Conservation</i>
NRA	<i>National Roads Authority Design Manual for Roads and Bridges</i>	SCC	<i>Sligo County Council</i>
DMRB		SEI	<i>Sustainable Energy Ireland</i>
NRA PAG	<i>NRA Project Appraisal Guidelines</i>	SI	<i>Statutory Instrument</i>
NRA PMG	<i>National Roads Authority Project Management Guidelines</i>	SL	<i>Sligo</i>
NRNS	<i>National Roads Needs Study</i>	SPA	<i>Special Protection Area</i>
NSS	<i>National Spatial Strategy</i>	SPT	<i>Standard Penetration Test</i>
NTS	<i>Non Technical Summary</i>	SUDS	<i>Sustainable Urban Drainage Systems</i>
NWRFB	<i>North Western Regional Fisheries Board</i>	TD	<i>Technical Document</i>
O3	<i>Ozone</i>	TP	<i>Trial Pit</i>
OPW	<i>Office of Public Works</i>	TSP	<i>Total Suspended Particles</i>
OS	<i>Ordnance Survey</i>	UK DEFRA	<i>UK Department for Environment, Food and Rural Affairs</i>
OSI	<i>Ordnance Survey Ireland</i>	UKDETR	<i>United Kingdom Department of Environment, Transport and Regions</i>
PCMNR	<i>Department of Communications Marine and Natural Resources</i>	UNFCC	<i>United Nations Framework Convention on Climate Change</i>
PH	<i>Probe Hole</i>	USEPA	<i>United States Environmental Protection Agency</i>
PIR	<i>Potential Impact Rating</i>	VOC's	<i>Volatile Organic Compounds</i>
PM	<i>Particulate Matter</i>	WFD	<i>Water Framework Directive</i>
PM10	<i>Particulate Matter (fine airborne particles) less than 10 micrometers in diameter</i>	WHO	<i>World Health Organization</i>
PM2.5	<i>Particulate Matter (fine airborne particles) less than 2.5 micrometers in diameter</i>	WRAP	<i>Winter Rainfall Acceptance Potential</i>
PR	<i>Preferred Route</i>	WRBD	<i>Western River Basin District</i>
PRD	<i>Proposed Road Development</i>		
PW	<i>Public Works</i>		
PVB	<i>Present Value of Scheme Benefits</i>		

## GLOSSARY OF TERMS

Below is a partial glossary of terms used in this report. The definitions herein are not to be taken as comprehensive, but solely as an aid for the non-technical reader.

Term	Glossary
Accommodation works	Ancillary works carried out by the road authority to mitigate the effects of the construction of a development (such as access roads)
At Grade Junction	Road junction where at least one road meets another at same level
Attenuation pond	Pond used for the collection and slow release of run-off
Borrow Pits	Excavation, within or outside the limits of the works, for producing materials necessary for its construction. Borrow Pits used for the purposes of the <i>Proposed Road Development</i> will be reinstated to original lines and levels
Chainage (Ch)	Distance in metres from start of the <i>Proposed Road Development</i>
Constructed Wetland Attenuation Facility	Attenuation Pond which will be provided as a vegetative treatment system, i.e. a pond which will incorporate ecological landscape planting
Culvert	Structure or drain for the bringing of a stream or river under a structure such as the road development proposed herein
Cutting (cut)	Section of earthworks where the indicative road level is below the original/existing ground level
Design	A design prepared for the purposes of Phase 3 and 4 of the NRA PMG
Detailed Design	A design prepared for the purposes of Phase 5 and 6 of the NRA PMG
Do Minimum	This scenario assumes construction of the <i>Proposed Road Development</i> does not take place and considers minimal maintenance and improvement to the affected section of road
Do Nothing Scenario	This scenario assumes construction of the <i>Proposed Road Development</i> does not take place
Do Something Scenario	This scenario assumes construction of the <i>Proposed Road Development</i> does take place
Enclosure	Any monument consisting of an enclosing feature such as a bank or a ditch, usually earthen, such as barrows or ringforts
Fauna	A collective term for the animals of a region
Flora	A collective term for the plants of a region
Geometrics	Details of the various vertical and horizontal curves and straights used to make up the <i>Proposed Road Development</i>
Glacial Till	A mixture of clay, silt, sand, gravel and boulders ranging in size and shape deposited by a glacier
Groundwater	Water stored in the soil and rock both above and below the water table
Habitat	The dwelling place of a species or community, providing a particular set of environmental conditions
$L_{den}$	The day-evening-night composite noise indicator adopted by the EU for the purposes of assessing overall annoyance
Mitigation measures	Measures to ease or soothe the effects of something. Mitigation measures suggest ways to avoid or lessen the negative effects of a project on the environment.
National Parks and Wildlife Service (NPWS)	This organisation has responsibility for the protection and conservation of our natural heritage

Term	Glossary
Nitrogen Dioxide	Pollutant emitted from combustion sources. Most significant source is road transport
Particulate Matter	Particulate matter (dust) generally less than 10 micrometres in diameter. Various sources including road traffic, construction works, wind-blown dusts and biological particles
Piezometer	An instrument to measure the level of the water table
Ringfort	Early Christian defended secular settlement consisting of a bank and external ditch defining a circular area that contained the dwelling structures of the occupants
Riparian	The strip of land adjacent to a natural watercourse such as a river or stream. Often supports vegetation that provides the best fish habitat values when growing large enough to overhang the bank
Salmonid Waters	Waters (generally of high quality) suitable for the maintenance of viable self-sustaining populations of wild salmon and trout

## **ADDITIONAL INFORMATION**

Additional Information not included in this EIS but which may be made available to interested parties includes *inter-alia*:

- Constraints Study Report, Sligo County Council, 2000;
- Route Selection Report, Sligo County Council, 2002;
- Addendum to Route Selection Report, Sligo County Council, 2013;
- EIS Screening Report, Sligo County Council, 2012;
- Informal Scoping Report, Sligo County Council, 2012;
- References to the Main Report of the EIS.

## ii. TECHNICAL APPENDICES CONTAINED HEREIN

The table overleaf outlines the appendices contained in this volume of the EIS. Generally page numbers of the appendices begin with the appendix number of the relevant document, e.g.:

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2	N/A	N/A	<b>1</b>
3	N/A	N/A	<b>1</b>
4	4.1	Operation Stage Drainage Information	<b>1</b>
4	4.2	Flood Risk Assessment	<b>1</b>
4	4.3	Environmental Assessment Report: Spoil Management Report	<b>1</b>
4	4.4	Outline Construction and Demolition Waste Management Plan	<b>1</b>
4	4.5	Outline Erosion and Sediment Control Plan	<b>1</b>
5	N/A	N/A	<b>1</b>
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7	7.1	Properties affected by the permanent acquisition of part of the holding	<b>1</b>
8	8.1	Considerations for the potential treatment of spoil material outside the CPO	<b>1</b>
8	8.2	Spoil Repository/Borrow Pits (Type 2) No's 1 and 2) @ Drumfin Td.: Noise & Vibration Assessments	<b>1</b>
8	8.3	Spoil Repository/Borrow Pits (Type 2) No 3 @ Cloonmeenaghan Td.: Noise & Vibration Assessments	<b>1</b>
9	9.1	Ambient Air Quality Standards	<b>1</b>
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10	10.1	Visual Impact Assessment Table; Occupied Properties	<b>1</b>
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