

Arklow Flood Relief Scheme

Environmental Impact Assessment Report

Volume 2

EIAR Main Document



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OPW Oifig na
nOibreacha Poiblí
Office of Public Works



ARUP

Arklow Flood Relief Scheme

Volume 2

Environmental Impact Assessment Report

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Preface

This Environmental Impact Assessment Report (EIAR) for the proposed Arklow Flood Relief Scheme consists of three volumes, of which this is the **second**. The third volume of the EIAR is made up of three books.

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- Appendix 13.1 A Arklow SI Causeway 2017 (*Book 3*)
- Appendix 13.1 B Arklow SI Causeway 2018 (*Book 3*)
- Appendix 13.1 C Arklow Bridge GI Report 2019 (*Book 3*)
- Appendix 13.1 D Arklow Marsh GI Report 2019 (*Book 3*)
- Appendix 13.1 E Assessment of Proposed dredging on Marsh Hydrology (*Book 3*)
- Appendix 13.2 Figures for Chapter 13 (*Book 3*)

Chapter 14

- Appendix 14.1 Baseline Water Quality (*Book 3*)

Chapter 15

- Appendix 15.1 Legislation, Policy and Best Practice Guidance (*Book 3*)
- Appendix 15.2 Dredge Material Management Study (*Book 3*)
- Appendix 15.3 NWCPO Local Authority Waste Facility Register – Wicklow and Wexford (*Book 3*)
- Appendix 15.4 Construction & By-products Waste Management Plan (*Book 3*)

Chapter 17

- Appendix 17.1 Land-Take Assessment (*Book 3*)

Glossary of Terms

µg/L	Micrograms per litre, measurement unit for concentration in a liquid
0.5% AEP Flood Event	1 in 200-year flood event
1% AEP Flood Event	1 in 100-year flood event
AA	Appropriate Assessment – An assessment of the potential adverse significant effects of a plan or project (in combination with other plans or projects) on the Natura 2000 network of European designated sites for biodiversity as defined by the Habitats Directive
AADT	Average Annual Daily Traffic
ABP	An Bord Pleanála
ADCO	Archaeological Diving Company Ltd
AEP	Annual Exceedance Probability
AHAU	Architectural Heritage Advisory Unit
AQS	Air Quality Standards
Aquifer	A geological unit that stores and transmits significant quantities of groundwater under normal hydraulic conditions
AWP	Aerial Work Platforms
BAT	Best Available Techniques
BEC	Botanical, Environmental and Conservation Consultants
BH	Borehole
Birds Directive	European Council Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds
BLP	Byrne Looby & Partners
BPM	Best Practicable Means
BS	British Standard
BSI	British Standards Institution
BWI	Birdwatch Ireland
c	circa
C&D	Construction and Demolition
C.Eng	Chartered Engineer
CAAS	Conservation and Amenity Advice Service
CBWMP	Construction and By-Products Waste Management Plan
CC	County Council
CCTV	Close Circuit Television
CDHC	Courtney Deery Heritage Consultancy
CEMP	Construction Environmental Management Plan
CFRAM	Catchment Flood Risk Assessment and Management
CFRB	Central and Regional Fisheries Boards
Ch	Chainage

CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide equivalency
COMAH	Control of Major Accident Hazards involving Dangerous Substances
CORA	CORA Consulting Engineers
COVID-19	Coronavirus Pandemic 2019
CPO	Compulsory Purchase Order
CPT	Cone Penetration Testing
CSO	Central Statistics Office
CTMP	Construction Traffic Management Plan
D/S	Downstream
DaS	Dumping at Sea
dB	decibel
dB _(A)	The “A” suffix denotes the fact that the sound levels have been “A-weighted” in order to account for the non-linear nature of human hearing.
DCCAE	Department of Communications, Climate Action and Environment
DECLG	Department of the Environment, Community and Local Government
DEFRA	Department for Environment, Food & Rural Affairs
DHLGH	Department of Housing, Local Government and Heritage
DIN	Dissolved Inorganic Nitrogen
DO	Dissolved Oxygen
DoEHLG	Department of the Environment, Heritage and Local Government
E	Easting
EA	Environment Agency
EC	European Council
EcIA	Ecological Impact Assessment
ED	Electoral Divisions
EEC	European Economic Community
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
ELRA	Environmental Liabilities Risk Assessment
EMRA	Eastern and Midland Regional Assembly
EPA	Environmental Protection Agency
EQR	Ecological Quality Ratio
ERBD	Eastern River Basin District
ESB	Electricity Supply Board
ETS	Emissions Trading Scheme
EU	European Union

Excavation (Archaeology)	For archaeology, excavation means the manual and mechanical excavation by an archaeologist-led team with specific objectives as regards information, preservation, recording, etc. of archaeological information. Its purpose is to fully investigate archaeological deposits and features
Ex-situ	Outside, off-site, or away from its natural location
FIEI	Fellow of the Institution of Engineers in Ireland
FL	Flood Management Objectives (Wicklow County Development Plan 2016-2022)
FP	Flood Risk Strategy Policy (Regional Planning Guidelines)
FRMP	Flood Risk Management Plan
FRS	Flood Relief Scheme
GDA	Greater Dublin Area
GDG	Gavin & Doherty Geosolutions
GHG	Greenhouse Gas
GI	Geotechnical Investigations
GII	Ground Investigations Ireland
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GNI	Gas Networks Ireland
GPS	Global Positioning System
Groundwater	Water that occupies pores and crevices in rock and soil, below the surface and above a layer of impermeable material
GRP	Glass fibre Reinforced Plastics
GSI	Geological Survey of Ireland
ha	Hectares
Habitat	The dwelling place of a species or community which provides a particular set of environmental conditions
Habitats Directive	European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
HDV	Heavy Duty Vehicle
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
hr	Hour
HSE	Health Service Executive
Hz	Hertz
IAC	Irish Archaeological Consultancy
IAQM	Institute of Air Quality Management
IAS	Invasive Alien Species
IASMP	Invasive Alien Species Management Plan
ICE	Inventory of Carbon and Energy
IE	Industrial Emissions
IEC	International Electro-Technical Commission
IED	Council Directive 2010/75/EU on Industrial Emissions Directive

IEMA	Institute of Environmental Management & Assessment
IFI	Inland Fisheries Ireland
IGI	Institute of Geologists of Ireland
In-situ	In its original place, for archaeology it refers to the preservation of archaeological sites/features without disturbance
IPPC	Integrated Pollution Prevention and Control
ISO	International Standards Organisation
ITM	Irish Transverse Mercator
IW	Irish Water
IWDG	Irish Whale and Dolphin Group
kHz	Kilohertz
Km	kilometre
kV	Kilo Volts
L _{A90}	Sound level that is exceeded for 90% of the sample period (A-weighted). It is typically used to describe background noise
L _{Aeq}	The equivalent continuous sound level, used to describe a fluctuating noise in terms of a single noise level over the sample period (A-weighted).
L _{Aeq T}	The equivalent continuous sound level, used to describe a fluctuating noise in terms of a single noise level over a particular time period (A-weighted).
LAP	Local Area Plan
LCAs	Landscape Character Areas
LEDs	Light Emitting Diodes
LGV	Light Goods Vehicle
LI	Landscape Institute
LI	Locally Important Aquifer- Bedrock which is Moderately Productive only in Local Zones
LiDAR	Light Detection and Ranging. Remote sensing method used to examine the surface of the Earth.
LOAEL	Lowest Observed Abnormal Effect Levels
L _w	Sound power level. This refers to the total sound power emanating from an object.
m	meters
Made Ground	Deposits which have accumulated through human activity and may consist of natural materials, e.g. clay and/or man made materials, e.g. refuse
mBGL	Meters Below Ground Level
MCA	Multi-Criteria Assessment
MCIEEM	Member of the Chartered Institute of Ecology and Environmental Management
MDD	Maximum Dry Density
Mg	milligram
Mg/L	Milligrams per litre
MHW	Mean High Water

MIAI	Member of the Institute of Archaeologists of Ireland
MIEI	Member of the Institute of Engineers Ireland
mm	millimetres
MMO	Marine Mammal Observer
mOD	metres above Ordnance Datum
MOU	Memorandum of Understanding
Mt	Million Tonnes
MV	Medium Voltage
MW	Mega Watts
N	Nitrogen
N	Nothing
NAF	National Adaptation Framework
Natura 2000	the European network of nature conservation areas, including Special Areas of Conservation, and Special Protection Areas under the Birds Directive, provided for by Article 3(1) of the Habitats Directive
NBDC	National Biodiversity Data Centre
NDP	National Development Plan
NEEAP	National Energy Efficiency Action Plan
NG4	Noise Guidance note for scheduled activities
NGR	National Grid Reference
NH ₃	Ammonia
NH ₄	Ammonium
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
NIS	Natura Impact Statement
nm	Nanometre
NMI	National Museum of Ireland
NMPF	National Marine Planning Framework
NMS	National Monuments Service
NO ₂	Nitrogen Dioxide
non-ETS	non-Emissions Trading Scheme
NO _x	Nitrogen Oxides
NPF	National Planning Framework
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
NREAP	National Renewable Energy Action Plan
NRMM	Non-Road Mobile Machinery
NRVs	Non Return Valves
NSPs	Noise Sensitive Properties
NSS	National Soil Survey

NSS	National Spatial Strategy
NTS	Non-Technical Summary
OD	Ordnance Datum
Odex	Overburden Drilling Excentric
OMC	Optimum Moisture Content
OPW	Office of Public Works
OS	Ordnance Survey
OU/m ³	Odour units per metre cubed
P	Phosphorous
P < 0.05	Probability value to determine level of statistical significance within a 95% confidence interval.
PAH	Polycyclic aromatic hydrocarbons
PCP	Pest Control Plan
PCU	Passenger Car Units
PfG	Programme for Government
PFRA	Preliminary Flood Risk Assessment
pH	Potential of Hydrogen, measure of acidity or alkalinity of solution
PID	Public Information Day
PIR	Strategic Recommendations (Regional Planning Guidelines)
PM ₁₀	Particulate matter less than 10µg (dust)
PM _{2.5}	Particulate matter less than 2.5µg (dust)
pNHA	proposed Natural Heritage Area
PO ₄	Phosphate
Pollution	The direct or indirect alteration of the physical, chemical, thermal, biological, or radioactive properties of any part of the environment in such a way as to create a hazard or potential hazard to the health, safety or welfare of living species.
ppm	Parts Per Trillian
PPV	Peak Particle Velocity
PTS	Permanent Threshold Shift
PWS	Public Water Supply
Q	Quarter
Q value	Biotic Index value to determine water quality
QI	Qualifying Interests
Quaternary	The most recent Period of geological time (the last two million years)
RA	River Access
RBMP	River Basin Management Plan
RC	Reinforced Concrete
RE	Resident Engineer
Red List	In relation to protected species of birds

REDOX	Oxidation-reduction. This is a chemical reaction involving the transfer of electrons between two chemical species, whereby reducing environments are characterised by a gain of electrons and oxidising environments by a loss of electrons.
Rhizome	Underground stem of plants, laterally growing and capable of producing the root and shoot system of a new plant
River Basin District (RBD)	The area of land from which all surface run-off flows through a sequence of streams rivers, and possibly lakes into the sea at a single river, mouth, estuary or delta
RMBP	River Basin Management Plan
RMP	Record of Monuments and Places
RNLI	Royal National Lifeboat Institution
RPG	Regional Planning Guides
RPO	Regional Policy Objectives
RPS	Record of Protected Structures
RSES	Regional Spatial and Economic Strategy
s	seconds
SAC	Special Area of Conservation
SC	Site Compound
SCI	Special Conservation Interest
SEA	Strategic Environmental Assessment
SEVESO site	Sites that are regulated under the EU SEVESO Directives due to the presence of dangerous substances in sufficient quantities
SFE	Standard Factorial Error
SFRA	Strategic Flood Risk Assessment
SI	Site Investigations
SIMPROF	Similarity Profile Routine
SMR	Sites and Monuments Records
SOAEL	significant observed adverse effect level
SPA	Special Protection Area
SS	Suspended Solids
SSE	SSE Energy Services plc (formerly Scottish and Southern Energy plc)
Subsoils	Soil lying immediately under the surface soil.
SUDS	Sustainable Urban Drainage Systems
SW	Stormwater
SWO	Storm Water Overflow
TA Luft	Technical Instructions on Air Quality Control – TA Luft. In accordance with article 48 of the Federal Emission Control Law (BimSchG) dated 15 March 1974 (BGBl. Ip. 721) Federal Ministry for Environment, Bonn 1986.
TBM	Tunnel Boring Machine
TCA	Townscape Character Assessment
TDs	Teachta Dála – Members of Parliament

TFS	Transfrontier Shipment
TII	Transport Infrastructure Ireland
TMP	Traffic Management Plan
TOC	Total Organic Carbon
TON	Total Organic Nitrogen
TTS	Temporary Threshold Shift
TVAS	Thames Valley Archaeological Consultancy, Ireland
U/S	Upstream
UAIA	Underwater Archaeological Impact Assessment
UAU	Underwater Archaeological Unit
UK DMRB	United Kingdom Design Manual for Roads and Bridges
UKEA	United Kingdom Environment Agency
URDF	Urban Regeneration Development Fund
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
VC	Vibrocores
Vehs	Vehicles
VPDP	Visual Representation of Developmental Proposals
W	Watts
WA	Work Area
WAC	Waste Acceptance Criteria
WCC	Wicklow County Council
WCPD	Wicklow County Development Plan
WFD	Water Framework Directive
WHO	World Health Organisation
WP	Work Packages
WWDA	Wastewater Discharge Authorisations
WwTP	Wastewater Treatment Plant
WZ	Waterfront Zone
Y	Year
ZAP	Zone of archaeological potential