

Table of Contents

		Chapter/Page No.
1.0	Introduction	
1.1	Introduction and Terms of Reference	1/1
1.2	Definition of EIA and EIAR	1/2
1.3	EIA Legislation	1/3
1.4	EIA Guidelines	1/4
1.5	Screening – Requirement for an EIA	1/5
1.6	Scoping	1/5
1.7	Purpose of this EIAR	1/7
1.8	Objectives of this EIAR	1/7
1.9	Format and Structure of this EIAR	1/9
1.10	EIA Project Team	1/12
1.11	Non-Technical Summary	1/14
1.12	Links Between EIA and Appropriate Assessment	1/15
1.13	Availability of EIAR Documents	1/15
1.14	Impartiality	1/15
1.15	Statement of Difficulties Encountered	1/15
1.16	Quotations	1/16
1.17	EIA Quality Control and Review	1/16
1.18	Errors	1/16
2.0	Project Description and Alternatives	
2.1	Introduction and Terms of Reference	2/1
2.2	Site Location and Description	2/1
2.3	Project Overview	2/3
2.4	Statutory Planning Context	2/5
2.5	Alternatives Examined	2/6
2.6	Characteristics of the Project	2/15
2.7	The Existence of the Project	2/20
2.8	Related Development and Cumulative Impacts	2/24
3.0	Population and Human Health	
3.1	Introduction	3/1
3.2	Study Methodology	3/1
3.3	Existing Receiving Environment (Baseline Situation)	3/2
3.4	Characteristics of the Proposed Development	3/5
3.5	Potential Impact of the Proposed Development	3/5
3.6	Potential Cumulative Impacts	3/9
3.7	‘Do Nothing’ Impact	3/9
3.8	Avoidance, Remedial & Mitigation Measures	3/10
3.9	Predicted Impact of the Proposed Development	3/10
3.10	Monitoring	3/11
3.11	Reinstatement	3/11
3.12	Interactions	3/11
3.13	Difficulties Encountered in Compiling	3/11
3.14	References	3/11

4.0 Archaeology and Cultural Heritage

4.1	Introduction	4/1
4.2	Study Methodology	4/1
4.3	Existing Receiving Environment (Baseline Situation)	4/5
4.4	Characteristics of the Proposed Development	4/19
4.5	Potential Impact of the Proposed Development	4/20
4.6	Potential Cumulative Impacts	4/22
4.7	'Do Nothing' Impact	4/22
4.8	Avoidance, Remedial and Mitigation Measures	4/22
4.9	Predicted Impact of the Proposed Development	4/24
4.10	Monitoring	4/25
4.11	Reinstatement	4/25
4.12	Interactions	4/25
4.13	Difficulties Encountered in Compiling	4/25
4.14	References	4/25

5.0 Architectural Heritage

5.1	Introduction	5/1
5.2	Study Methodology	5/1
5.3	Existing Receiving Environment (Baseline Situation)	5/2
5.4	Characteristics of the Proposed Development	5/13
5.5	Potential Impact of the Proposed Development	5/14
5.6	Potential Cumulative Impacts	5/14
5.7	'Do Nothing' Impact	5/15
5.8	Avoidance, Remedial and Mitigation Measures	5/15
5.9	Predicted Impact of the Proposed Development	5/16
5.10	Monitoring	5/17
5.11	Reinstatement	5/17
5.12	Interactions	5/17
5.13	Difficulties Encountered in Compiling	5/17
5.14	References	5/17

6.0 Biodiversity

6.1	Introduction	6/1
6.2	Study Methodology	6/1
6.3	Existing Receiving Environment (Baseline Situation)	6/4
6.4	Characteristics of the Proposed Development	6/9
6.5	Potential Impact of the Proposed Development	6/9
6.6	Potential Cumulative Impacts	6/11
6.7	'Do Nothing' Impact	6/12
6.8	Avoidance, Remedial and Mitigation Measures	6/12
6.9	Predicted Impact of the Proposed Development	6/14
6.10	Monitoring	6/14
6.11	Reinstatement	6/14
6.12	Interactions	6/14
6.13	Difficulties Encountered in Compiling	6/15
6.14	References	6/15

7.0 Landscape and Visual Impact

7.1	Introduction	7/1
7.2	Study Methodology	7/1
7.3	Existing Receiving Environment (Baseline Situation)	7/3
7.4	Characteristics of the Proposed Development	7/7
7.5	Potential Impact of the Proposed Development	7/10
7.6	Potential Cumulative Impacts	7/10
7.7	'Do Nothing' Impact	7/11
7.8	Avoidance, Remedial and Mitigation Measures	7/11
7.9	Predicted Impacts of the Proposed Development	7/13
7.10	Monitoring	7/14
7.11	Reinstatement	7/15
7.12	Interactions	7/15
7.13	Difficulties Encountered in Compiling	7/15
7.14	References	7/15

8.0 Land and Soils

8.1	Introduction	8/1
8.2	Study Methodology	8/1
8.3	Existing Receiving Environment (Baseline Situation)	8/2
8.4	Characteristics of the Proposed Development	8/12
8.5	Potential Impact of the Proposed Development	8/13
8.6	Potential Cumulative Impacts	8/23
8.7	'Do Nothing' Impact	8/23
8.8	Avoidance, Remedial and Mitigation Measures	8/24
8.9	Predicted Impact of the Proposed Development	8/27
8.10	Monitoring	8/38
8.11	Reinstatement	8/38
8.12	Interactions	8/38
8.13	Difficulties Encountered in Compiling	8/39
8.14	References	8/39

9.0 Water

9.1	Introduction	9/1
9.2	Study Methodology	9/1
9.3	Existing Receiving Environment (Baseline Situation)	9/2
9.4	Characteristics of the Proposed Development	9/22
9.5	Potential Impact of the Proposed Development	9/24
9.6	Potential Cumulative Impacts	9/34
9.7	'Do Nothing' Impact	9/34
9.8	Avoidance, Remedial and Mitigation Measures	9/35
9.9	Predicted Impact of the Proposed Development	9/36
9.10	Monitoring	9/44
9.11	Reinstatement	9/44
9.12	Interactions	9/44
9.13	Difficulties Encountered in Compiling	9/44
9.14	References	9/44

10.0 Air Quality and Climate

10.1	Introduction	10/1
10.2	Study Methodology	10/1
10.3	Existing Receiving Environment (Baseline Situation)	10/10
10.4	Characteristics of the Proposed Development	10/13
10.5	Potential Impact of the Proposed Development	10/14
10.6	Potential Cumulative Impacts	10/18
10.7	'Do Nothing' Impact	10/18
10.8	Avoidance, Remedial and Mitigation Measures	10/19
10.9	Predicted Impact of the Proposed Development	10/21
10.10	Monitoring	10/30
10.11	Reinstatement	10/31
10.12	Interactions	10/31
10.13	Difficulties Encountered in Compiling	10/31
10.14	References	10/31

11.0 Noise and Vibration

11.1	Introduction	11/1
11.2	Study Methodology	11/1
11.3	Existing Receiving Environment (Baseline Situation)	11/4
11.4	Characteristics of the Proposed Development	11/8
11.5	Potential Impact of the Proposed Development	11/9
11.6	Potential Cumulative Impacts	11/14
11.7	'Do Nothing' Impact	11/14
11.8	Avoidance, Remedial and Mitigation Measures	11/14
11.9	Predicted Impact of the Proposed Development	11/16
11.10	Monitoring	11/17
11.11	Reinstatement	11/17
11.12	Interactions	11/17
11.13	Difficulties Encountered in Compiling	11/17
11.14	References	11/17

12.0 Material Assets

12.1	Introduction	12/1
12.2	Study Methodology	12/1
12.3	Existing Receiving Environment (Baseline Situation)	12/2
12.4	Characteristics of the Proposed Development	12/4
12.5	Potential Impact of the Proposed Development	12/5
12.6	Potential Cumulative Impacts	12/9
12.7	'Do Nothing' Impact	12/10
12.8	Avoidance, Remedial and Mitigation Measures	12/10
12.9	Predicted Impact of the Proposed Development	12/11
12.10	Monitoring	12/11
12.11	Reinstatement	12/11
12.12	Interactions	12/11
12.13	Difficulties Encountered in Compiling	12/12
12.14	References	12/12

13.0 Interactions of the Foregoing

13.1	Introduction	13/1
13.2	Interactions	13/1

14.0 Principal Mitigation & Monitoring Measures

14.1	Introduction	14/1
14.2	Mitigation Strategies	14/1
14.3	Mitigation and Monitoring Measures	14/2

Figure No.	Index of Figures	Chapter/Page No.
2.0 Project Description and Alternatives		
2.1	Annotated satellite photograph showing the application site (approximate in red) and surrounding area	2/2
2.2	Proposed Phase 1 Site Layout Plan	2/4
2.3	Masterplan for the regeneration of the former Magee Barracks site (for information purposes and to allow for cumulative assessment)	2/5
2.4	Phase 1 Site Layout Plan as of April 2017 (First consultation meeting with Kildare County Council)	2/9
2.5	Phase 1 Site Layout Plan as of June 2017 (Second consultation meeting with Kildare County Council)	2/11
2.6	Phase 1 Site Layout Plan at SHD pre-application stage (September 2017)	2/12
2.7	Proposed Phase 1 Site Layout Plan	2/14
2.8	Proposed development phasing plan extract	2/16
3.0 Population and Human Health		
3.1	National monthly unemployment rate	3/3
4.0 Archaeology and Cultural Heritage		
4.1	Location of Phase 1 development site	4/1
4.2	Extract of War Office Plan showing Lock Hospital, 1878	4/6
4.3	RMP map showing proposed development site and RMP / SMR sites in its vicinity	4/10
4.4	Location of archaeological test-trenches (in blue) excavated in vicinity of proposed development site (after Archaeology Plan Ltd, 2014)	4/11
4.5	Down Survey map of the Barony of East Ophaly, c. 1656	4/12
4.6	Extract of Noble & Keenan's Map of County Kildare, 1752	4/12
4.7	Extract of first edition Ordnance Survey (OS) six-inch map, 1837-38	4/13
4.8	Extract of Ordnance Survey Town Plan of Kildare, 1870-72	4/14
4.9	War Office Plan of Lock Hospital 1878 (corrected 1882)	4/15
4.10	Extract of first edition Ordnance Survey 25-inch map, 1907-09	4/17
4.11	Extract of revised edition Ordnance Survey (OS) six-inch map, 1939	4/18
4.12	Industrial archaeological heritage sites in the vicinity of proposed development	4/20
4.13	Aerial photograph (Digital Globe, OSi 2013) showing proposed development site	4/21

4.14	Inspection / access manholes in former recreation area (those visible in aerial imagery are indicated by white arrows)	4/27
4.15	Overlay of Lock Hospital plan (1872) onto modern aerial imagery	4/29

5.0 Architectural Heritage

5.1	War Office plan of Lock Hospital (1878, corrected 1882)	5/3
5.2	Annotated 1907-09 OS map extract. The buildings of the former Lock Hospital are marked 'A'	5/4

6.0 Biodiversity

6.1	European Sites in Relation to the Study Area	6/5
6.2	Designated conservation areas (non-European sites) in relation to the study area	6/6
6.3	Habitats present in Magee Barracks (Phase 1, with Phase 2 also shown)	6/7

7.0 Landscape and Visual Impact

7.1	Landscape Context	7/4
7.2	Magee Barracks Site Appraisal	7/6
7.3	Green infrastructure Map	7/7
7.4	Landscape Masterplan (Phase 1)	7/9

8.0 Land and Soils

8.1	Bedrock geology map of the area surrounding (a) the Curragh Aquifer and (b) Pollardstown Fen	8/4
8.2	Extract from EPA soils mapping	8/5
8.3	Designated Sites (European Sites and Non-European Sites) Map	8/6
8.4	2016 site investigation locations	8/8
8.5	2017 site investigation locations	8/10
8.6	Locations of former gravel pit and water well associated with the former Lock Hospital	8/11

9.0 Water

9.1	Bedrock geology map of the area surrounding (a) the Curragh Aquifer and (b) Pollardstown Fen	9/4
9.2	Curragh and Pollardstown Fen groundwater bodies (GWBs)	9/6
9.3	Groundwater flow direction from the Curragh Aquifer to Pollardstown Fen GWBs	9/8
9.4	GSI groundwater vulnerability mapping.	9/9
9.5	Identified Source Protection Zones	9/13
9.6	Transect through Curragh Aquifer & Pollardstown Fen	9/15
9.7	Section through Curragh aquifer and Pollardstown Fen showing depths to water level and groundwater flow direction	9/16

9.8	Interpreted groundwater contours (Curragh aquifer) and Fen catchment	9/17
9.9	Designated Sites (European Sites and Non-European Sites) Map	9/18
9.10	2016 site investigation locations	9/20
9.11	2017 site investigation locations	9/21
9.12	2018 site investigation locations	9/22

10.0 Air Quality and Climate

10.1	Casement Aerodrome windrose 2011 - 2015	10/11
------	---	-------

11.0 Noise and Vibration

11.1	Site context and noise monitoring locations	11/5
------	---	------

Table No.	Index of Tables	Chapter/Page No.
1.0 Introduction		
1.1	EIA Guidelines Consulted as Part of the Preparation of this EIAR	1/4
1.2	Structure of this EIAR	1/10
1.3	EIAR specialist consultants	1/13
3.0 Population and Human Health		
3.1	Population Change at the State, County Kildare and Kildare ED Levels 2011 – 2016	3/4
7.0 Landscape and Visual Impact		
7.1	Classification of Significance of Impacts/Effects	7/2
8.0 Land and Soils		
8.1	Estimation of Importance of Sensitive Attributes	8/14
8.2	Estimation of the Magnitude of a Potential Impact on an Attribute	8/15
8.3	Estimation of the Significance of Potential Impact	8/16
8.4	Potential Construction Phase Impacts	8/17
8.5	Potential Operational Impacts	8/21
8.6	Predicted Construction Phase Impacts	8/28
8.7	Predicted Operational Impacts	8/36
9.0 Water		
9.1	Vulnerability Mapping Criteria (adapted from DELG / EPA / GSI, 1999)	9/10
9.2	Groundwater Wells Within 1 km	9/12
9.3	Infiltration Test Summary	9/19
9.4	Estimation of Importance of Sensitive Attributes	9/24
9.5	Estimation of the Magnitude of a Potential Impact on an Attribute	9/25
9.6	Estimation of the Significance of Potential Impact	9/26
9.7	Potential Construction Phase Impacts	9/27
9.8	Potential Operational Impacts	9/31
9.9	Predicted Construction Phase Impacts	9/37
9.10	Predicted Operational Impacts	9/41
10.0 Air Quality and Climate		
10.1	Air Quality Standards Regulations (based on EU Council Directive 2008/50/EC)	10/3
10.2	Definition of Impact Magnitude for Changes in Ambient Pollutant Concentrations	10/5
10.3	Air Quality Impact Significance Criteria For Annual Mean Nitrogen Dioxide and PM ₁₀ and PM _{2.5} Concentrations at a Receptor	10/6

10.4	Air Quality Impact Significance Criteria for Changes to Number of Days with PM ₁₀ Concentration Greater than 50 µg/m ³ at a Receptor	10/7
10.5	Sensitivity of the Area to Dust Soiling Effects on People and Property	10/8
10.6	Sensitivity of the Area to Human Health Impacts	10/8
10.7	Trends In Zone C Air Quality – Nitrogen Dioxide (NO ₂)	10/12
10.8	Trends In Trends In Zone C Air Quality – PM ₁₀	10/13
10.9	Risk of Dust Impacts – Demolition	10/15
10.10	Risk of Dust Impacts – Earthworks	10/16
10.11	Risk of Dust Impacts – Construction	10/17
10.12	Risk of Dust Impacts – Trackout	10/17
10.13	Summary of Dust Risk to Define Site-Specific Mitigation	10/17
10.14	Traffic Data used in this Assessment	10/22
10.15	Description of Sensitive Receptors (UTM Co-ordinates)	10/23
10.16	Annual Mean NO ₂ Concentrations (µg/m ³) (using Interim advice note 170/12 V3 Long Term NO ₂ Trend Projections)	10/27
10.17	Annual Mean NO ₂ Concentrations (µg/m ³) (using UK Department for Environment, Food and Rural Affairs Technical Guidance)	10/27
10.18	99.8 th Percentile of Daily Maximum 1-hour for NO ₂ Concentrations (µg/m ³)	10/27
10.19	Annual Mean PM ₁₀ Concentrations (µg/m ³)	10/27
10.20	Number of Days with PM ₁₀ Concentration > 50 µg/m ³	10/28
10.21	PM _{2.5} Annual Mean PM _{2.5} Concentrations (µg/m ³)	10/28
10.22	Maximum 8-hour CO Concentrations (mg/m ³)	10/28
10.23	Annual Mean Benzene Concentrations (µg/m ³)	10/29
10.24	Regional Air Quality Assessment	10/29

11.0 Noise and Vibration

11.1	Maximum Permissible Noise Levels at the Façade of Dwellings During Construction	10/2
11.2	Recommended Vibration Criteria During Construction Phase	10/2
11.3	Significance in Change of Noise Level	10/3
11.4	Recommended Indoor Ambient Noise Levels from BS 8233: 2014	10/4
11.5	Instrumentation Details	10/6
11.6	Summary of Noise Measurements at Location N1	10/7
11.7	Summary of Noise Measurements at Location N2	10/7
11.8	Summary of Noise Measurements at Location N3	10/7
11.9	Typical Noise Levels Associated with Construction Plant Items	10/10
11.10	Review of Potential Daytime Construction Noise Impact	10/11

11.11	Construction Traffic Noise Assessment	10/12
11.12	Change in Traffic Noise Levels with Proposed Development – Opening Year	10/13
11.13	Change in Traffic Noise Levels with Proposed Development – Design Year	10/13

Plate No.	Index of Plates	Chapter/Page No.
4.0	Archaeology and Cultural Heritage	
Plate 4.1	View southwest over Masterplan Area (Field 2) from high ridge of townland boundary	4/22
Plate 4.2	Natural gravel ridge forming Kildare / Curraghglebe townland boundary, facing northeast	4/22
Plate 4.3	Field 3, facing northwest	4/23
Plate 4.4	Earthen & hedgerow boundary between fields 2 & 3, facing southwest	4/23
Plate 4.5	Laneway along field boundary (in field 2), facing west / southwest	4/23
Plate 4.6	Wrought-iron fence between fields 1 & 2, facing northeast	4/24
Plates 4.7, 4.8	Detail of wrought-iron fence boundary (left) and track along line of former avenue in Field 1, facing southwest (right)	4/24
Plate 4.9	Main avenue facing northeast (A) and southwest (B)	4/25
Plate 4.10	View towards main barracks area from Field 1, facing southwest	4/25
Plate 4.11	Former Parade Ground, facing northeast	4/26
Plate 4.12	Line of man-holes in former recreation area, facing northeast	4/28
Plate 4.13	Man-hole with red-brick lining in former recreation area	4/28

No.	Index of Chapter Appendices
4.0	Archaeology and Cultural Heritage
4.1	Relevant Legislation
4.2	Consultation with Department of Culture, Heritage and the Gaeltacht
5.0	Architectural Heritage
5.1	Photographic Survey
6.0	Biodiversity
6.1	Outline Invasive Species Management Plan
6.1A	Japanese Knotweed Best Practice Guidelines
6.1B	Giant Hogweed Best Practice Guidelines
6.2	Bat Survey Report
7.0	Landscape and Visual Impact
7.1	Photomontages Report
8.0	Land and Soils
8.1	Phase 1 Environmental Site Assessment Report
9.0	Water
9.1	NPWS Site Synopsis for Pollardstown Fen SAC
9.2	E.U. Annex II Habitats and EU Annex IV Species Sensitivity to Changes in Groundwater
10.0	Air Quality and Climate
10.1	Ambient Air Quality Standards
10.2	Dust Minimisation Plan