Environmental Impact Assessment Report

Volume 2 of 3 – Main Report

For

FURTHER DEVELOPMENT OF UMMERA GRAVEL PIT MACROOM, COUNTY CORK



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TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY 1
1. INTRODUCTION 5
1.1 LEGISLATIVE CONTEXT 5
1.2 PROJECT BACKGROUND 6
1.2.1 Section 261 Application 7
1.2.2 Section 261A Process 7
1.3 PRE-SUBMISSION CONSULTATION 8
1.4 SCOPING 9
1.5 CONTRIBUTORS 12
1.6 FORMAT OF EIAR 12
1.6.1 Technical Difficulties 13
2. DESCRIPTION OF DEVELOPMENT 17
2.1 SITE SETTING 17
2.1.1 Settlement Pattern 17
2.2 DESCRIPTION OF EXISTING PIT 18
2.2.1 Extraction Operations 18
2.3 DESCRIPTION OF PROPOSED DEVELOPMENT 18
2.3.1 Site Plant 19
2.3.2 Settlement Ponds 20
2.3.3 Power Supply 21
2.3.4 Fuel Storage 22
2.3.5 Water Usage 22
2.3.6 Welfare Facilities 22
2.3.7 Working Hours 22
2.3.8 Security 23
2.3.9 Lighting 23
2.3.10 Waste Management 23
2.3.11 Proposed New Infrastructure 23
2.4 ENVIRONMENTAL MONITORING 24
2.5 LIFESPAN & RESTORATION 25
2.6 ALTERNATIVES 25
3. POPULATION & HUMAN HEALTH 29
3.1 HUMAN BEINGS IN THE EXISTING ENVIRONMENT 29
3.1.1 Recreation and Amenity 31
3.1.2 Settlement Pattern near Site 32
3.2 PUBLIC HEALTH & EXTRACTION INDUSTRY 32
3.3 IMPACTS ASSESSMENT 33
3.3.1 Health and Safety 33
3.3.2 Socio-Economics 33
3.3.3 Recreation, Amenity & Tourism 33
3.4 AVOIDANCE, REMEDIAL OR REDUCTIVE MEASURES 34
3.4.1 Health and Safety 34
3.4.2 Socio-Economics 34
3.4.3 Recreation, Amenity & Tourism 34
3.5 CUMULATIVE IMPACTS 34
3.6 RISK OF MAJOR ACCIDENTS OR DISASTERS 34
3.7 DIFFICULTIES ENCOUNTERED IN COMPILING 34
3.8 INTERACTIONS 34
3.9 RESIDUAL EFFECTS 35
3.10 CONCLUSIONS ON POPULATION & HUMAN HEALTH 35

4. MATERIAL ASSETS 36
4.1 INTRODUCTION 36
4.1.1 Scope & Purpose 36
4.1.2 Policies & Guidelines 36
4.1.3 Source of Baseline Data 36
4.1.4 Assessment Methodology 37
4.1.5 Consultation 37
4.2 EXISTING ROAD NETWORK 38
4.2.1 Traffic Counts 39
4.2.2 Site Entrance 41
4.2.3 Road Safety 42
4.3 IMPACT ASSESSMENT 44
4.3.1 Do Nothing Impact 44
4.3.2 Worst-Case Scenario 45
4.3.3 Construction & Operational Impacts 45
4.3.4 Restoration Phase 45
4.4 MITIGATION MEASURES 46
4.4.1 Operational Phase 46
4.4.2 Restoration Phase 46
4.5 RISKS OF MAJOR ACCIDENTS OR DISASTERS 46
4.6 DIFFICULTIES ENCOUNTERED IN COMPILING 46
4.7 INTERACTIONS 46
4.8 RESIDUAL EFFECTS 46
4.9 CONCLUSIONS ON ROADS, TRAFFIC & TRANSPORT 47
5. NOISE 49
5.1 INTRODUCTION 49
5.1.1 Assessors 50
5.2 CRITERIA 51
5.2.1 Difficulties Encountered 54
5.2.2 Uncertainty 54
5.3 RECEPTORS 54
5.4 BASELINE SOUNDSCAPE 56
5.5 PROPOSED FUTURE DEVELOPMENT 59
5.6 IMPACT ASSESSMENT 60
5.6.1 Do Nothing Impact 60
5.6.2 Operational Phase 60
5.7 FUTURE TRENDS 63
5.8 POPULATION & HUMAN HEALTH 63
5.9 MITIGATION 64
5.10 CUMULATIVE EFFECTS 64
5.11 RESIDUAL EFFECTS 65
5.12 GLOSSARY OF TERMS 67
6. AIR QUALITY, CLIMATE & CLIMATE CHANGE 69
6.1 INTRODUCTION 69
6.1.1 Scope & Purpose 69
6.1.2 Policies & Guidelines 70
6.1.3 Sources of Baseline Data 71
6.1.4 Assessment Mythology 72
6.1.5 Consultation 72
6.1.6 Climate Change & Greenhouse Gases 73
6.1.7 Ireland's Greenhouse Gas Emissions 73
6.2 RECEIVING ENVIRONMENT 74
6.2.1 Air Quality in the Existing Environment 74
6.2.2 Local Climate Conditions 76
6.2.3 Climate Change & Predicted Trends 77
6.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT 78

6.4 IMPACT ASSESSMENT 79
6.4.1 Air Quality 79
6.4.2 Climate & Climate Change 80
6.4.3 Carbon Emissions 82
6.4.4 Do Nothing Impact 83
6.4.5 Construction, Operational & Restoration Phases 83
6.5 AIR & CLIMATE –MITIGATION MEASURES 85
6.5.1 Construction, Operational & Restoration Phases 85
6.5.2 Monitoring 86
6.5.3 Worse-Case Scenario 86
6.6 CUMULATIVE IMPACTS 86
6.7 RISK OF MAJOR ACCIDENTS OR DISASTERS 86
6.8 DIFFICULTIES ENCOUNTERED IN COMPILING 87
6.9 INTERACTIONS 87
6.10 RESIDUAL EFFECTS 87
6.11 CONCLUSION ON AIR AND CLIMATE 87
7. WATER (HYRDOLOGY & HYDROGEOLOGY) 89
7.1 INTRODUCTION 89
7.1.1 Scope & Purpose 89
7.1.2 Policies & Guidelines 89
7.1.3 Sources of Baseline Data 90
7.1.4 Assessment Methodology 90
7.1.5 Consultation 92
7.2 HYDROLOGY IN THE EXISTING ENVIRONMENT 92
7.2.1 Runoff Estimates 93
7.2.2 Surface Water Quality 94
7.2.3 Surface Water Usage 96
7.2.4 Flooding 97
7.2.5 Importance of Surface Water / Hydrology Attributes 98
7.2.6 Hydrogeology / Groundwater 99
7.2.7 Groundwater Usage 100
7.2.8 Groundwater Vulnerability 101
7.2.9 Groundwater Quality 101
7.2.10 Importance of Groundwater / Hydrogeology Attributes 101
7.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT 101
7.4 IMPACT ASSESSMENT 101
7.4.1 Impact Assessment Methodology 101
7.4.2 Do Nothing Impact 103
7.4.3 Worst-Case Scenario 103
7.4.4 Operational Phase 104
7.4.5 Restoration Phase 104
7.5 MITIGATION MEASURES 105
7.5.1 Operation Phase 105
7.5.2 Restoration Phase 106
7.6 CUMULATIVE IMPACTS 106
7.7 RISKS OF MAJOR ACCIDENTS OR DISASTERS 106
7.8 DIFFICULTIES ENCOUNTERED IN COMPILING 106
7.9 INTERACTIONS 106
7.10 RESIDUAL EFFECTS 107
7.11 CONCLUSIONS 107
8. LAND, SOILS & GEOLOGY 113
8.1 INTRODUCTION 113
8.1.1 Scope & Purpose 113
8.1.2 Policies & Guidelines 113
8.1.3 Sources of Baseline Data 113
8.1.4 Assessment Methodology 114
8.1.5 Consultation 115

8.2 RECEIVING ENVIRONMENT 115
8.2.1 Overburden Geology 115
8.2.2 Bedrock Geology 115
8.2.3 Economic Geology 116
8.2.4 Geological Heritage Sites 116
8.2.5 Land Use 117
8.2.6 Existing Slope Stability 117
8.2.7 Contaminated Land 117
8.2.8 Ground Investigations 117
8.2.9 Importance of Soil & Geology Attributes 118
8.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT 118
8.4 IMPACT ASSESSMENT METHODOLOGY 118
8.4.1 Do Nothing Impact 119
8.4.2 Worst-Case Scenario 119
8.4.3 Operational Phase 119
8.4.4 Restoration Phase 120
8.5 MITIGATION MEASURES 120
8.5.1 Operational Phase 120
8.5.2 Restoration Phase 120
8.5.3 Monitoring 121
8.6 CUMULATIVE IMPACTS 121
8.7 RISK OF MAJOR ACCIDENTS OR DISASTERS 121
8.8 DIFFICULTIES ENCOUNTERED IN COMPILING 121
8.9 INTERACTIONS 121
8.10 RESIDUAL EFFECTS 121
8.11 CONCLUSIONS 122
9. ARCHITECTURAL, ARCHAELOGICAL & CULTURAL HERITAGE 125
9.1 INTRODUCTION 125
9.2 METHODOLOGY 125
9.3 EXISTING ENVIRONMENT 127
9.3.1 The Landscape 127
9.3.2 Archaeological and Historical Development of the Study Area 127
9.3.3 Buildings 128
9.3.4 Field Inspection 128
9.3.5 Archaeological Assessment 129
9.3.6 Previous Assessments 130
9.3.7 Planning History 131
9.3.8 Field Inspection 132
9.4 IMPACT OF THE DEVELOPMENT 132
9.5 WORST CASE SCENARIO 132
9.6 MITIGATION MEASURES 133
9.7 CONCLUSIONS AND RECOMMENDATIONS 133
9.8 BIBLIOGRAPHY 133
10. BIODIVERSITY 140
10.1 INTRODUCTION 140
10.1.1 Description of the Existing Quarry 140
10.2 METHODOLOGY 140
10.2.1 Desk Study 140
10.2.2 Consultation 141
10.2.3 Zone of Influence 141
10.2.4 Ecological Field Surveys 142
10.2.5 Aquatic Ecology 143
10.2.6 Evaluation Ecological Receptors 144
10.2.7 Determining Ecologically Significant Effects 144
10.2.8 Precautionary Principle 144
10.2.9 Mitigation 145

10.3 EXISTING ENVIRONMENT 145
10.3.1 Protected Sites 145
10.3.2 Flora and Fauna (Desktop Information) 149
10.3.3 Field Survey Results 156
10.3.4 Summary of Habitats within the Gravel Pit 176
10.3.5 Invasive / Non-native species 177
10.3.6 Fauna 177
10.3.7 Aquatic Ecology 182
10.4 IMPACT ASSESSMENT 188
10.4.1 Do Nothing Impact 188
10.4.2 Potential Impacts of the Development 188
10.4.3 Impact on Sites Designated for Nature Conservation 189
10.4.4 Impacts on Semi-natural Habitats 190
10.4.5 Impacts on Fauna 192
10.4.6 Impacts on Aquatic Ecology / Water Quality 194
10.5 MITIGATION MEASURES 196
10.5.1 Birds & Mammals 196
10.5.2 Bats 196
10.5.3 Aquatic Fauna 196
10.5.4 Water Quality 197
10.5.5 Invasive Species 197
10.6 RESIDUAL EFFECTS 197
10.7 BIBLIOGRAPHY 200
11. LANDSCAPE AND VISUAL ASSESSMENT 206
11.1 INTRODUCTION 206
11.1.1 Scope & Methodology 206
11.2 EXISTING LANDSCAPE 209
11.3 SCOPE OF IMPACTS - CHARACTERISTICS OF PROPOSED DEVELOPMENT 210
11.4 IMPACT ASSESSMENT 210
11.4.1 Impact Assessment Methodology 210
11.4.2 Do-Nothing Scenario 211
11.5 IMPACTING FEATURES OF THE GRAVEL PIT 211
11.5.1 Removal of Agricultural Land 211
11.5.2 Extraction Operations 215
11.5.3 Site Infrastructure 215
11.6 GENERAL IMPACT ON LANDSCAPE CHARACTER 215
11.7 GENERAL IMPACT ON VISUAL CHARACTER 216
11.8 PHOTOGRAPHIC ILLUSTRATION 216
11.9 VISUAL IMPACT ON VIEWS FROM RESIDENCE & ROADS 216
11.10 LANDSCAPE PLAN TO MITIGATE VISUAL IMPACT 217
11.11 CUMULATIVE IMPACTS 218
11.12 RISKS OF MAJOR ACCIDENTS OR DISASTERS 219
11.13 DIFFICULTIES ENCOUNTERED IN COMPILING 219
11.14 INTERACTIONS 219
11.15 RESIDUAL EFFECTS 219
11.16 CONCLUSIONS ON LANDSCAPE 219
12. INTERACTION OF THE FOREGOING 231
12.1 IMPACT INTERACTIONS 231
12.1.1 Roads & Traffic 231
12.1.2 Noise 232
12.1.3 Population & Human Health 232
12.1.4 Air Quality, Climate & Climate Change 232
12.1.5 Land, Soils & Geology 232
12.1.6 Water (Hydrology & Hydrogeology) 232
12.1.7 Archaeology & Cultural Heritage 232
12.1.8 Biodiversity 232
12.1.9 Landscape 233
12.2 CONCLUSIONS ON THE INTERACTION OF THE FOREGOING 233
13. REFERENCES 234

LIST OF TABLES

PAGE

TABLE 1-1: LIST OF CONSULTEES 8
TABLE 1-2: ORGANISATION OF TOPICS WITHIN EIAR 11
TABLE 1-3: EIAR CONTRIBUTORS 12
TABLE 2-1: HOUSES WITHIN 500M OF LAND OWNERSHIP BOUNDARY 17
TABLE 3-1: AGE DISTRIBUTION OF MACLONEIGH POPULATION – 2022 CENSUS 30
TABLE 3-2: OCCUPATIONS OF MACLONEIGH POPULATION – 2022 CENSUS 30
TABLE 3-3: EMPLOYMENT BY INDUSTRY – 2022 CENSUS 30
TABLE 3-4: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 35
TABLE 4-1: SUMMARY OF TRAFFIC COUNT DATA – JANUARY 2007 39
TABLE 4-2: SUMMARY OF TRAFFIC COUNT DATA – MAY 2019 40
TABLE 4-3: SUMMARY OF TRAFFIC COUNT DATA – OCTOBER 2019 40
TABLE 4-4: SUMMARY OF TRAFFIC COUNT DATA – MARCH 2026 40
TABLE 4-5: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 47
TABLE 5-1: EPA IMPACT ASSESSMENT SCHEME 51
TABLE 5-2: ASSESSMENT OF IMPACT BY REFERENCE TO EXISTING NOISE LEVELS 53
TABLE 5-3: NOISE STATION DETAILS 56
TABLE 5-4: NOISE DATA SUMMARY 56
TABLE 5-5: ONSITE PLANT SOURCES 59
TABLE 5-6: OPERATING HOURS 59
TABLE 5-7: NOISE LEVELS AT 10M FROM BERM CONSTRUCTION PLANT (DB) 61
TABLE 5-8: RESIDUAL IMPACTS ASSESSED USING EPA AND IEMA GUIDANCE 65
TABLE 5-9: SUMMARY OF EFFECTS 65
TABLE 6-1: AIR QUALITY LIMITS FOR THE PROTECTION OF HUMAN HEALTH 70
TABLE 6-2: AIR QUALITY LIMITS FOR THE PROTECTION OF VEGETATION / ECOSYSTEMS 70
TABLE 6-3: GOOD AIR QUALITY INDEX CONCENTRATIONS 74
TABLE 6-4: SUMMARY OF DUST MONITORING RESULTS 75
TABLE 6-5: CLIMATIC DATA FROM CORK AIRPORT SYNOPTIC STATION 76
TABLE 6-6: SUMMARY OF CLIMATE OBSERVATIONS AND PROJECTIONS FOR IRELAND 77
TABLE 6-7: DUST EMISSION MAGNITUDE 79
TABLE 6-8: SENSITIVITY OF THE AREA TO DUST SOILING EFFECTS ON PEOPLE & PROPERTY 79
TABLE 6-9: SENSITIVITY OF THE AREA TO HUMAN HEALTH IMPACTS 80
TABLE 6-10: SENSITIVITY OF THE AREA TO ECOLOGICAL IMPACTS 80
TABLE 6-11: RISK OF DUST IMPACTS – EARTHWORKS & TRACKOUT 80
TABLE 6-12: PROBABILITY SCORES 81
TABLE 6-13: SEVERITY SCORES 81
TABLE 6-14: RISK RATING MATRIX 81
TABLE 6-15: CLIMATE CHANGE RISK ASSESSMENT 82
TABLE 6-16: SUMMARY OF CARBON EMISSIONS 82
TABLE 6-17: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 87
TABLE 7-1: ESTIMATION OF IMPORTANCE OF HYDROLOGY ATTRIBUTES 91
TABLE 7-2: ESTIMATION OF IMPORTANCE OF HYDROGEOLOGY ATTRIBUTES 91
TABLE 7-3: MONTHLY AND ANNUAL AVERAGE RAINFALLS (MM) 93
TABLE 7-4: SUMMARY OF SURFACE WATER SAMPLE RESULTS 95
TABLE 7-5: TOTAL SUSPENDED SOLIDS RESULTS 95
TABLE 7-6: SUMMARY OF ON-SITE + NEIGHBOURING WELLS 99
TABLE 7-7: ESTIMATION OF MAGNITUDE OF IMPACT ON HYDROLOGY ATTRIBUTE 102
TABLE 7-8: ESTIMATION OF MAGNITUDE OF IMPACT ON HYDROGEOLOGY ATTRIBUTE 102
TABLE 7-9: RATING OF SIGNIFICANT ENVIRONMENTAL IMPACTS 103
TABLE 7-10: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 107
TABLE 8-1: ESTIMATION OF IMPORTANCE OF SOIL & GEOLOGY ATTRIBUTES 114
TABLE 8-2: SUMMARY OF BEDROCK GEOLOGY IN MACROOM AREA 116
TABLE 8-3: ESTIMATION OF MAGNITUDE OF IMPACT ON GEOLOGY ATTRIBUTE 118
TABLE 8-4: RATING OF SIGNIFICANT ENVIRONMENTAL IMPACTS 119

TABLE 8-5: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 121
TABLE 9-1: CRITERIA & DEFINITIONS FOR DESCRIBING EFFECTS 125
TABLE 9-2: ENGLISH TRANSLATIONS OF TOWNLAND NAMES 130
TABLE 10-1: LOCATION OF MACROINVERTEBRATE SAMPLING SITES 144
TABLE 10-2: EUROPEAN SITES WITHIN 15KM OF UMMERA 147
TABLE 10-3: NHA AND PNHAS WITHIN 5KM OF UMMERA 148
TABLE 10-4: NBDC DATABASE RARE AND PROTECTED FLORA AND FAUNA 149
TABLE 10-5: NBDC RARE AND PROTECTED FLORA AND FAUNA - 2026 149
TABLE 10-6: NPWS DATA REQUEST - 2020 150
TABLE 10-7: NBDC BAT RECORDS W37 150
TABLE 10-8: BAT HABITAT SUITABILITY INDEX FOR THE STUDY AREA 151
TABLE 10-9: WFD SW MONITORING OF WATERBODIES WITHIN AREA (2007-2024) 152
TABLE 10-10: Q-VALUE RECORDED ON THE R. LANEY RIVER – 2008 - 2023 152
TABLE 10-11: PHYSIO-CHEMICAL RESULTS OF 2019 & 2026 MONITORING 154
TABLE 10-12: WFD GROUNDWATER MONITORING OF WATERBODIES (2007-2024) 155
TABLE 10-13: LOCATION OF INVASIVE SPECIES NOT LISTED ON THE 2011 REGULATIONS 177
TABLE 10-14: BIRD SPECIES RECORDED ON SITE 177
TABLE 10-15: BIRDS RECORDED DURING 2026 SURVEY 179
TABLE 10-16: MAMMAL SIGNS / SPECIES RECORDED ON SITE 180
TABLE 10-17: RESULTS OF 2026 BAT ACTIVITY SURVEY 181
TABLE 10-18: SITE 1 MACROINVERTEBRATE TAXA LIST - 2019 182
TABLE 10-19: SITE 1 MACROINVERTEBRATE TAXA LIST – 2026 183
TABLE 10-20: SITE 2 MACROINVERTEBRATE TAXA LIST - 2019 185
TABLE 10-21: SITE 2 MACROINVERTEBRATE TAXA LIST - 2026 185
TABLE 10-22: SMALL STREAM RISK SCORES 186
TABLE 10-23: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 199
TABLE 11-1: RATING OF LANDSCAPE SIGNIFICANCE & SENSITIVITY 207
TABLE 11-2: RATING OF VISUAL SIGNIFICANCE / SENSITIVITY 208
TABLE 11-3: CRITERIA FOR ASSESSMENT OF MAGNITUDE OF LANDSCAPE & VISUAL EFFECTS 211
TABLE 11-4: RESULTS OF ASSESSMENT 217
TABLE 11-5: SUMMARY OF POTENTIAL IMPACTS, MITIGATION & RESIDUAL EFFECTS 219
TABLE 12-1: INTERACTION MATRIX 231

LIST OF FIGURES

PAGE

FIGURE 1-1: SITE LOCATION MAP 14
FIGURE 1-2: SECTION 261 APPLICATION MAP 15
FIGURE 1-3: HISTORIC PLANNING & LEASE BOUNDARIES 16
FIGURE 2-1: HOUSE LOCATION MAP 27
FIGURE 2-2: PROPOSED SITE LAYOUT MAP 28
FIGURE 3-1: ELECTORAL DIVISION MAP 29
FIGURE 3-2: KEY TOURISTS ASSETS IN COUNTY CORK 31
FIGURE 4-1: ROAD NETWORK NEAR UMMERA GRAVEL PIT 48
FIGURE 5-1: NOISE ACTION PLAN ROUND 4 ROAD MAPPING 54
FIGURE 5-2: NOISE SENSITIVE RECEPTORS 55
FIGURE 5-3: NOISE MONITORING STATIONS 57
FIGURE 5-4: MODEL OUTPUT – BERM CONSTRUCTION NEAR COTTAGE (H2) TO SOUTH 62
FIGURE 5-5: MODEL OUTPUT – BERM CONSTRUCTION NEAR FARMHOUSE (H3) TO SOUTHWEST 63
FIGURE 6-1: DUST MONITORING LOCATION MAP 88
FIGURE 7-1: CATCHMENT OF LANEY 040 - WFD RIVER SUB-BASIN 108
FIGURE 7-2: LOCAL SURFACE WATER DRAINAGE 109
FIGURE 7-3: BEDROCK AQUIFER MAP 110
FIGURE 7-4: AQUIFER VULNERABILITY MAP 111
FIGURE 7-5: GROUNDWATER FLOW MAP 112
FIGURE 8-1: OVERBURDEN GEOLOGY MAP 123
FIGURE 8-2: BEDROCK GEOLOGY MAP 124
FIGURE 9-1: RECORD OF MONUMENTS FOR COUNTY CORK 134
FIGURE 9-2: PLAN OF STRUCTURE NO. 3 (BUILDING 2) AND ASSOCIATED OUTBUILDINGS 135
FIGURE 10-1: NATURA 2000 SITES WITHIN 15KM 202
FIGURE 10-2: NHAS & PNHAS WITHIN 15KM 203
FIGURE 10-3: HABITAT MAP - 2026 204
FIGURE 10-4: HABITAT MAP OF UMMERA GRAVEL PIT – 2019 205
FIGURE 11-1: VIEW POINT LOCATION MAP 220
FIGURE 11-2: VIEW NO.1 – FROM LOCAL ROAD L-7478 LOOKING EAST – 2020 221
FIGURE 11-3: VIEW NO.1 – FROM LOCAL ROAD L-7478 LOOKING EAST – 2026 221
FIGURE 11-4: VIEW NO.1 – FROM LOCAL ROAD L-7478 LOOKING EAST – FOLLOWING RESTORATION 222
FIGURE 11-5: VIEW NO.2 - FROM LOCAL ROAD L-3423-20 LOOKING SOUTH – 2020 223
FIGURE 11-6: VIEW NO.2 - FROM LOCAL ROAD L-3423-20 LOOKING SOUTH – 2026 223
FIGURE 11-7: VIEW NO.3 - FROM LOCAL ROAD L-34231-0 LOOKING NORTH – 2020 224
FIGURE 11-8: VIEW NO.3 - FROM LOCAL ROAD L-34231-0 LOOKING NORTH – 2026 224
FIGURE 11-9: VIEW NO.3 - FROM LOCAL ROAD L-34231-0 LOOKING NORTH – FOLLOWING RESTORATION 225
FIGURE 11-10: VIEW NO.4 - FROM FARM LANE LOOKING NORTH – 2020 226
FIGURE 11-11: VIEW NO.4 - FROM FARM LANE LOOKING NORTH – 2026 226
FIGURE 11-12: VIEW NO.4 - FROM FARM LANE LOOKING NORTH – FOLLOWING RESTORATION 227
FIGURE 11-13: PHASING PLAN 228
FIGURE 11-14: ARTIST IMPRESSION – GRAVEL PIT AT FULL EXTENT 229
FIGURE 11-15: ARTIST IMPRESSION – RESTORED GRAVEL PIT 230

LIST OF PLATES

PAGE

PLATE 2-1: VIEW OF WASHING PLANT FROM THE EAST 19
PLATE 2-2: SETTLEMENT PONDS (EASTERN POND FILLING; VIEW FROM EAST) 20
PLATE 2-3: SETTLEMENT PONDS (VIEW FROM EAST & WEST) 21
PLATE 2-4: OVERFLOW SETTLEMENT POND (LOOKING SW) & INLET STRUCTURE) 21
PLATE 2-5: OVERFLOW SETTLEMENT POND (LOOKING SW) & INLET STRUCTURE) 21
PLATE 2-6: NEW SITE OFFICES / STORES / WELFARE FACILITIES 22
PLATE 2-7: PROPOSED FUEL STORAGE SHED & REFUELLING PAD 24
PLATE 4-1: VIEW OF PIT ENTRANCE FROM LOCAL ROAD L-3423 – LOOKING NORTH 38
PLATE 4-2: VIEW OF L-3423 / R618 JUNCTION FROM LOCAL ROAD 38
PLATE 4-3: TRAFFIC COUNT MOVEMENTS 39
PLATE 4-4: VIEWS FROM SITE ENTRANCE LOOKING NORTH AND SOUTH 42
PLATE 4-5: WARNING SIGNAGE ON APPROACH TO ENTRANCE – FROM NORTH & SOUTH 42
PLATE 4-6: RSA COLLISON DATA FOR PERIOD 2005-2015, ALL VEHICLES 43
PLATE 4-7: RSA COLLISON DATA FOR PERIOD 2005-2015, GOODS VEHICLES 43
PLATE 4-8: RSA COLLISON DATA FOR PERIOD 2005-2015, ALL VEHICLES 44
PLATE 5-1: N1, LOOKING NE TOWARDS PUBLIC ROAD 57
PLATE 5-2: N2, LOOKING WEST TOWARDS QUARRY 58
PLATE 5-3: N3, LOOKING NORTH TOWARDS QUARRY 58
PLATE 5-4: N4, LOOKING W TOWARDS DWELLINGS IN DISTANCE 58
PLATE 6-1: AIR QUALITY LEVELS AT MACROOM MONITORING STATION 74
PLATE 6-2: VIEW OF GRAVEL PIT FROM WEST – A) 2005 AND B) 2026 84
PLATE 7-1: FLOODING EXTENT FOR CLASHAVOON STREAM & LANEY RIVER 97
PLATE 7-2: CORK CDP 2022 FLOOD ZONES A & B 98
PLATE 7-3: OPW NIFM EXTENTS – HIGH END FUTURE SCENARIO 98
PLATE 7-4: GROUNDWATER LEVEL FLUCTUATION IN WELL W1 – 04 NOV TO 01 DEC 2019 100
PLATE 7-5: GROUNDWATER LEVEL FLUCTUATION IN WELL W1 – 14 TO 18 AUGUST 2026 100
PLATE 7-6: PROPOSED WEIR MODIFICATION (EXISTING & PROPOSED) 106
PLATE 9-1: VIEW OF STRUCTURE 1 LOOKING NORTHEAST 136
PLATE 9-2: VIEW OF STRUCTURE 2 LOOKING NORTHWEST 136
PLATE 9-3: VIEW OF RUINED HOUSE STRUCTURE 3 LOOKING SOUTHWEST 136
PLATE 9-4: VIEW OF CO071-058----LOCATION: FULACHT FIA LOOKING SOUTHWEST 137
PLATE 9-5: VIEW OF CO071-057----LOCATION: STANDING STONE LOOKING WEST 137
PLATE 9-6: AERIAL VIEW OF APPLICATION AREA 138
PLATE 9-7: PANORAMIC VIEW OF EXISTING GRAVEL PIT LOOKING WEST 139
PLATE 9-8: VIEW OF AREA 2 LOOKING NORTHEAST 139
PLATE 9-9: PANORAMIC VIEW OF AREA 3 LOOKING WEST 139
PLATE 9-10: PANORAMIC VIEW OF AREA 4 LOOKING NORTH 139
PLATE 10-1: ACTIVE QUARRY HABITAT 157
PLATE 10-2: ACTIVE QUARRY HABITAT - 2026 157
PLATE 10-3: BARE GROUND HABITAT 158
PLATE 10-4: ED2 HABITAT - 2026 158
PLATE 10-5: RECOLONISING BARE GROUND 159
PLATE 10-6: RECOLONISING BARE GROUND 159
PLATE 10-7: RECOLONISING BARE GROUND HABITAT 160
PLATE 10-8: PLATE 10-3 ED3 HABITAT - 2026 160
PLATE 10-9: DEPOSITING LOWLAND RIVER (FW2) 161
PLATE 10-10: DRAINAGE DITCH (FW4) 161
PLATE 10-11: DRAIN ALONG ACCESS ROAD – 2026 162
PLATE 10-12: WESTERN SETTLEMENT POND (JULY 2019) 162
PLATE 10-13: WESTERN SETTLEMENT POND (DECEMBER 2019) 163
PLATE 10-14: SETTLEMENT PONDS – 2026 163
PLATE 10-15: SCRUB HABITAT 164

PLATE 10-16: SCRUB ADJACENT TO THE CLASHAVOON STREAM 164
PLATE 10-17: BRACKEN SCRUB HABITAT 165
PLATE 10-18: SCRUB HABITAT IN BACKGROUND - 2026 165
PLATE 10-19: WD1 HABITAT - 2026 166
PLATE 10-20: WILLOW DOMINATED DRY WOODLAND (WN) 167
PLATE 10-21: WILLOW DOMINATED DRY WOODLAND (WN) 167
PLATE 10-22: WILLOW DOMINATED DRY WOODLAND (WN) WEST OF CLASHAVOON STREAM .. 168
PLATE 10-23: SEMI NATURAL WOODLAND IN BACKGROUND - 2026 168
PLATE 10-24: WET WILLOW-ALDER-ASH WOODLAND HABITAT 169
PLATE 10-25: HEDGEROW NEAR THE SOUTHERN SITE BOUNDARY 169
PLATE 10-26: TREELINE ALONG THE EASTERN SIDE OF THE SITE 170
PLATE 10-27: TREELINE ALONG THE NORTH-EASTERN SIDE OF THE SITE 170
PLATE 10-28: DRY MEADOWS AND GRASSY VERGES HABITAT 171
PLATE 10-29: GS2 HABITAT 2026 171
PLATE 10-30: WET GRASSLAND HABITAT 172
PLATE 10-31: NEUTRAL GRASSLAND (GS1) 173
PLATE 10-32: MIXED BROADLEAVED WOODLAND 174
PLATE 10-33: HEDGEROW NEAR THE NORTHERN SITE BOUNDARY 174
PLATE 10-34: TREELINE ON SOUTHERN BOUNDARY 175
PLATE 10-35: TREELINE ADJACENT TO THE CLASHAVOON 175
PLATE 10-36: BRACKEN SCRUB HABITAT 176
PLATE 10-37: SITE 1: SAMPLING SITE DOWNSTREAM OF ABSTRACTION POINT - 2019 183
PLATE 10-38: SITE 1: SAMPLING SITE DOWNSTREAM OF ABSTRACTION POINT - 2026 183
PLATE 10-39: MAN-MADE WEIR ON CLASHAVOON STREAM 184
PLATE 10-40: PUMPHOUSE AND SW ABSTRACTION POINT 184
PLATE 10-41: SITE 2 SAMPLING SITE - 2019 186
PLATE 10-42: SITE 2 SAMPLING SITE - 2026 186
PLATE 11-1: 1995 OSI AERIAL PHOTOGRAPH 212
PLATE 11-2: 2000 OSI AERIAL PHOTOGRAPH 213
PLATE 11-3: 2005 OSI AERIAL PHOTOGRAPH 214
PLATE 11-4: 2018 GOOGLE AERIAL PHOTOGRAPH 214

EXECUTIVE SUMMARY

The subject of this Environmental Impact Assessment Report (EIAR) is the further development of the Ummera gravel pit, located near Macroom County Cork.

The application for the further development of the gravel pit was lodged with An Bord Pleanála in September 2020 – case number ABP-308194-20. On 01 October 2025 An Coimisiún Pleanála (ACP) requested that the EIAR be updated and resubmitted by 01 April 2026. As all surveys, including ecological surveys, needed to be updated, an extension was sought (and granted in letter dated 12 February 2026) to 31 August 2026. A copy of both letters is provided in Appendix 1-1. As requested by ACP changes/updated to the text are clearly identified. This is mostly done by track-change. Old photographs and figures are replaced with updated ones where needed.

The gravel pit is owned and operated by Drimoleague Concrete Works Ltd (DCWL). The EIAR is prepared in support of the Section 37L planning permission application for the gravel pit. A substitute consent application was submitted for the gravel pit in accordance with An Bord Pleanála decision (dated 24 February 2014) to uphold the Council's determination (dated 23 August 2012) requiring DCWL to apply for substitute consent. The application for substitute consent was submitted to An Bord Pleanála in August 2020. In accordance with Section 37L of the Planning & Development (Amendment) (No. 2) Regulations 2015, an application is being made for further development of the Ummera gravel pit. The application extends to 15.5 hectares (ha) and includes for the continued extraction within the existing footprint, expansion into approximately 2ha of mostly agricultural land, processing of gravel, use of existing site infrastructure, construction of a fuel storage shed, concrete refuelling pad and pavement of access road, and restoration of the site. A 15-year lifespan is sought for the further development.

Gravel has been extracted from the Ummera site since the 1940's. Murnane & O'Shea Ltd (M&OS) (an affiliate of DCWL) became involved in the site in or around 1978. M&OS leased a portion of the land, including an existing gravel pit, and continued extraction activities at the northwest corner of the site. In 1978, M&OS applied for and secured planning permission for '*Gravel Plant in Existing Pit*' (i.e. a washing plant) – planning number 1365/78 refers. The washing plant installed with the benefit of that planning permission is that still used at the gravel pit. Furthermore, it is the only washing plant at the site, so intensification cannot be said to have occurred. Fluctuations in production down through the years is a function of economic activity.

Prior to the 1978 permission, in 1976, a competitor (Daniel & Sean Lordan) applied for planning permission for '*Opening of Gravel Pit*' nearby and in the same landholding – planning number 375/76 refers. Permission was granted, but was not commenced, so lapsed on 07 April 1981; no gravel extraction occurred within the area subject of planning 375/76 within that 5-year period (i.e. no extraction occurred within the red-line boundary of 375/76).

Since its interest in the site from 1978, M&OS/DCWL has maintained a continuous presence at the Ummera gravel pit. DCWL registered the gravel pit in 2004 – QR01 refers. In August 2020, DCWL applied for substitute consent as directed by the planning authorities.

The Applicant

The applicant for this further development of Ummera gravel pit is DCWL. DWCL is based at Bredagh Cross, Drimoleague where it operates a concrete ready-mix and concrete products manufacturing facility. It also operates a few quarries / gravel pits in the West Cork region, including Ummera gravel pit. DCWL is involved in the supply of raw materials for the construction industry in West Cork. These projects require the use of large volumes of concrete, aggregate and concrete products. The supply of such raw materials is critical for the continued development of, for example, residential housing and infrastructure on both a local and regional scale. DCWL meets this demand with the operation of a number of rock quarries, gravel pits and production facilities in West Cork. The company provides an important service in meeting the development needs of the region.

The Consultants

Keohane Geological & Environmental Consultancy (KGEC) (Ivy House, Clash, Carrigrohane) is a Cork-based consultancy specialising in geological and environmental sciences. In recent years, Keohane Geological & Environmental Consultancy has prepared planning applications and/or EISs for several quarries / gravel pits in Munster.

Atkins

Atkins prepared the biodiversity chapter for the original EIAR but did not have the capacity to be involved with the update of the surveys and biodiversity chapter.

Atkins is a multinational engineering and design consultancy, providing expertise to help resolve complex challenges presented by the built and natural environment. Atkins leads the way across a diverse range of disciplines, including architecture, environment, transport and roads, water, engineering and quantity surveying. Atkins is involved in a wide variety of projects from architects designing the world's tallest buildings to improving the efficiency of major public transport systems. Atkins Ireland currently has offices in Dublin, Cork and Galway. Atkins Ireland possesses a significant breadth of knowledge and depth of skills and experience for the ultimate benefit of our clients. We offer our skills over the full spectrum of client requirements, from one expert for one day to the planning, implementation and long-term management of major projects.

Atkins has provided ecological support in the preparation of the EIAR for the further development of Ummera gravel pit. In Ireland, the Atkins Ecology team has developed considerable experience and a proven track record in providing specialist ecological consultancy and undertaking high quality ecological work for a range of clients. Our ecology team provided specialist ecological advice; undertakes ecological assessments and surveys, and provides ecological solutions to meet the project needs and balance the ecological impacts against likely biodiversity gains. In addition to our locally based ecological staff, we can also draw on over 70 professional and experienced ecologists in the UK thus providing access to substantial additional resources and specific environmental expertise to meet the needs and resources required by a given project. Atkins also routinely works with a range of specialist ecological consultants in order to provide our Clients with the expertise appropriate to specific project requirements (e.g. the need to undertake bat surveys).

JKW Environmental Ltd

JKW Environmental Ltd is an independent environmental and ecological consultancy providing specialist services to support planning, development and land management projects throughout Ireland. The company provides ecological expertise across a range of project types, with services including ecological impact assessment, Appropriate Assessment, biodiversity assessment, protected species surveys, habitat surveys and ecological monitoring.

JKW Environmental Ltd has considerable experience in the preparation of ecological assessments and in providing specialist ecological input to Environmental Impact Assessment Reports (EIARs). The company undertakes ecological surveys and assessments in accordance with relevant Irish and European legislation, policy and best-practice guidance, providing practical and proportionate ecological advice throughout the planning and development process.

JKW Environmental Ltd has provided specialist ecological services in support of the further development of Ummera Gravel Pit, including ecological field surveys, habitat assessment, protected species surveys and the preparation of the updated Biodiversity Chapter of the EIAR. JKW Environmental Ltd has also prepared the standalone Ecological Impact Assessment (EcIA) and Appropriate Assessment Screening Report for the proposed development

Damian Brosnan Acoustics / MKO Planning & Environmental Consultants

Damian Brosnan Acoustics merged with MKO Planning & Environmental Consultants in 2023. Damian Brosnan is Principal Consultant with Damian Brosnan Acoustics, which specialises in environmental noise, and undertakes projects such as noise impact assessments, predictive modelling, nuisance investigation, and noise management. Damian has a Postgraduate Diploma in Acoustics & Noise Control (Institute of Acoustics, 2009) and an MSc (Distinction) in Applied Acoustics (University of Derby, 2015). He is a member of the Institute of Acoustics (MIOA), and secretary of the Irish IOA branch. He is also a member of Engineers Ireland (MIEI) and a founding member of the Association of Acoustic Consultants of Ireland. Damian has been working in acoustics since 1996, formerly as a Noise Officer with Cork County Council, and as partner with DixonBrosnan Environmental Consultants. To date, he has worked on several hundred noise projects, including a large number of quarry projects. Damian is engaged with continuing professional development through the IOA and Engineers Ireland.

MKO is an Irish environmental consultancy, with several expert teams specialising in areas such as ecology, ornithology, landscape and acoustics. With over 230 employees across various teams, MKO is the largest provider of specialist environmental services in Ireland and is ISO accredited. The MKO acoustics team has worked on some of Ireland's largest and most complex projects and is particularly experienced with the quarrying industry.

Dr. Charles Mount

Charles Mount is an Archaeologist with more than ~~30~~ 35 years' experience of archaeology, cultural heritage and project management. Dr. Mount is a Project Archaeologist with ~~Bord na Móna, where he manages the excavation and post-excavation programme, and~~ the Irish Concrete Federation, where he oversees the archaeological aspects of quarry development. He was formerly Archaeological Officer with the Heritage Council and archaeologist with the Archaeological Survey of Ireland. He is a member of the Institute of Archaeologists of Ireland ~~and the Discovery Programme~~. Dr. Mount is a graduate of University College Dublin with an M.A, and Ph.D. in Archaeology and he has completed the UCD Diploma course in EIA and SEA Management. He has worked in a variety of archaeological, heritage and management roles within the university, state, semi-state and private sectors. He is license eligible and has directed and participated in archaeological excavations throughout Ireland and Britain. He has managed a wide range of archaeological projects involving specialists drawn from a range of disciplines. He has extensive experience of Environmental Impact Assessment gained over the last ~~30~~ 35 years in a wide range of industries in the private and semi-state sectors including extractive, transport, energy, waste, residential and agri-food. He has a research interest in prehistoric archaeology and has published research papers and excavation reports in Irish and international journals, conference proceedings and thematic volumes.

MHL & Associates *Consulting Engineers*

MHL & Associates Consulting Engineers (MHL), founded in 1999, is a firm of consulting engineers with offices in Cork City and Tralee who offer a comprehensive range of services to both the public & private sectors. The company is led by its four directors: Ken Manley, Brian Loughrey, Brian Murphy and James Daly. MHL have extensive knowledge of the Traffic and Transportation sector working with both public and private clients. MHL have carried out a multitude of Traffic & Transport Assessments, Traffic Modelling Studies, Feasibility Studies & Mobility Management Plans for a wide array of projects and clients. MHL applies in-house expertise in conjunction with established traffic analysis software which includes Paramics Discovery, LinSig, Junctions 10 PICADY, OSCADY & ARCADY and also the TRICS traffic generation database.

EIAR Structure

An Environmental Impact Assessment (EIA) is required for the extractive industry which fall within category 19 of the Fifth Schedule Part I, category 2(b) of the Fifth Schedule Part II and category 13(a) of the Fifth Schedule Part II of the Planning & Development Regulations 2001 (S.I. 600 of 2001).

Category 2(b) of the Fifth Schedule Part II states:

'*Extraction of stone, gravel, sand and clay, where the area of extraction would be greater than 5 hectares*'.

Category 13(a) of the Fifth Schedule Part II states:

'Any change or extension of development which would:-

(i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this schedule, and

(ii) result in an increase in size greater than –

- *25 per cent, or*
- *An amount equal to 50 per cent of the appropriate threshold,*

whichever is greater.

The application for further development extends to 15.5ha, which includes the yard area, settlement ponds, areas used for aggregate and silt storage, active extraction areas and future extraction areas. The current and future extraction areas are above the 5ha threshold, so an EIA is required.

The EIAR has been prepared using the grouped format structure as recommended in the EPA's '~~*Guidelines on the Information to be contained in Environmental Impact Statements*~~[1], '*Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)*'[2], '~~*Revised Guidelines on the information to be contained in Environmental Impact Statements*~~'[3] ~~and~~ '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*'[4] '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*'[5] and *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*[6]. ~~The latter are draft (dated August 2017) and will be reviewed when new regulations transposing Directive 2014/52/EU[7] are published~~.

Using the grouped format structure, the EIAR examines each topic as a separate section. Each specialist section refers to the relevant specialist topic using the following general structure:

- The existing / baseline environment.
- Impact assessment, including cumulative, of the gravel pit, which addressed the likely significant effects that are likely to occur because of the gravel pit operations.
- Impact mitigation which are being implemented or which will be implemented to avoid, reduce and/or mitigation impacts identified.
- Post mitigation residual impact.
- Operational monitoring.

The EIAR is submitted in three volumes:

- Volume 1: Non-Technical Summary
- Volume 2: Main Report
- Volume 3: Appendices

The non-technical summary provides an overview of the work presented in the main body of the EIAR. It is a shortened and simplified version of Volume 2 but contains all the key information presented in a non-technical format.

Scoping of the EIAR was developed from the Sixth Schedule of the Planning & Development Regulations 2001, Directive 2014/52/EU and in consultation with the relevant organisations. The main body of the EIAR describes the development, and examines the direct and indirect impacts of the development on the following aspects of the environment:

- Population & Human Health
- Biodiversity
- Land
- Soil
- Water
- Air & Climate
- Cultural Heritage
- Material assets
- Landscape
- Interaction of the Foregoing

For each topic, a screening process was undertaken to identify those topics that are important / relevant to the development – refer to Section 1.4. ~~As discussed in Section 1.4, some aspects of the environment were screened out.~~ For each topic discussed, the impacts (direct and indirect) are identified, and mitigations are discussed where appropriate. Cumulative impacts associated with nearby developments are also assessed, where appropriate.

1. INTRODUCTION

1.1 Legislative Context

The European Court of Justice (ECJ) decision in July 2008 prohibited application for retention permission for developments requiring EIA, except in exceptional circumstances. Section 23(c) of the Planning & Development (Amendment) Act 2010 provided that the planning authority cannot accept a planning application for retention which would have required an EIA, a determination as to whether EIA was required or an appropriate assessment (AA). While Section 23(c) only came into effect on 31 March 2011, planning authorities were instructed not to accept such applications since October 2008.

The ECJ ruling did however allow for the regularising of developments requiring EIA through the substitute consent process. Section 57 of the Planning & Development (Amendment) Act 2010 makes provision for the substitute consent process. In circumstances where the county council serves notice on a developer requiring it to apply to An Bord Pleanála (now An Coimisiún Pleanála) for substitute consent, it must be accompanied by a rEIS (now rEIAR) and / or a remedial Natura Impact Assessment (rNIS). The substitute consent provisions commenced on 21 September 2011.

A special provision ('sunset provision') was made for quarries with retention, EIA and/or AA issues whereby the operators were required to apply for substitute consent without proving exceptional circumstances. Section 75 of Planning & Development (Amendment) Act 2010 inserts a new section (Section 261A) into the 2000 Act which requires each planning authority to assess the status of each quarry/gravel pit in its functional area with regard to EIA / AA compliance, followed by an assessment of its planning status. These assessments were completed by the local authorities in 2012 and determinations issued to affected quarry operators.

In August 2012, Cork County Council made a determination that DWCL should have carried out EIA for the Ummera gravel pit, but didn't, so was instructed to apply to An Bord Pleanála for substitute consent. The substitute consent application to be accompanied by a remedial EIS (now remedial EIAR). In September 2012, DCWL made an application to An Bord Pleanála for a review of the Council determination. On 24 February 2014 following its review, An Bord Pleanála decided to confirm the Council's determination requiring DCWL to apply for substitute consent including a remedial EIS (rEIAR). This was delayed in the courts for a number of years. In August 2020, DWCL submitted an application for substitute consent to An Bord Pleanála. In correspondence dated 01 October 2025, ACP requested DCWL to submit / resubmit information / reports relating to exceptional circumstances, Appropriate Assessment, and the Water Framework Directive. The requested information was submitted to ACP by 01 April 2026. A decision on the Substitute Consent application is pending.

The European Union (Environmental Impact Assessment and Habitats) Regulations 2015 (SI No. 301 of 2015) amends the Planning & Development Act, 2000 with the insertion of Section 37L. Section 37L states:

> *(1) Where an application for substitute consent is or was required to be made by the owner or operator of a quarry pursuant to subsection (7), (10) or (12) of section 261A, the owner or operator may apply for permission to further develop that quarry in accordance with this section*.

Applications for further development are to be made to An Bord Pleanála within 6 weeks of the making of the substitute consent application. The particulars of applications being made under Section 37L are set out in the Planning & Development (Amendment) (No. 2) Regulations 2015 (SI No. 310 of 2015). In September 2020, DCWL ~~is making~~ made ~~an~~ the application to An Bord Pleanála for further development of the Ummera gravel pit / quarry (as a gravel pit / quarry) under the provisions of Section 37L.

In correspondence dated 01 October 2025 ACP requested that the EIAR be updated with new survey data and restructured having regard to the 2022 EPA EIAR Guidelines[5]. The letters from ACP are provided in Appendix 1-1.

1.2 Project Background

Gravel extraction has been ongoing at the Ummera site since the 1940's. This has been confirmed by locals living near the site. The presence of gravels is noted on the Geological Survey of Ireland (GSI) field sheets dating from the 1860's. The 1934 edition of the OSI mapping doesn't indicate the presence of extraction operations, while the 2,500-scale revised edition of 1974 shows extraction operations at the northwest corner of the site. OSI mapping and aerial photography can only confirm that the pit opened between 1934 and 1974. Figure 1-1 shows the site location.

The land comprising Folio CK3263 was owned by Denis McSweeney of Ummera, Macroom and extending to approximately 30ha. The property was in the same folio since 1912. Mr. McSweeney farmed the land. Sometime in the 1940's, gravel extraction commenced at the northern perimeter of the landholding. The pit was operated for a time in the 1950's/1960's by Peter Moynihan.

In 1976 Daniel & Sean Lordan applied for planning permission for '*Opening of Gravel Pit*' nearby and in the same landholding – planning number 375/76 refers. The subject site consisted of one field extending to an area of 3.1ha. Permission was granted, but was not commenced, so lapsed on 07 April 1981; no gravel extraction occurred within the area subject of planning 375/76 within that 5-year period by any operators (i.e. no extraction occurred within the red-line boundary of 375/76). The extent of the 1976 planning application is shown on Figure 1-3.

Murnane & O'Shea Ltd (M&OS) (an affiliate of DCWL) became involved in the site in or around 1978. M&OS leased an area of land, including the existing gravel pit, and continued extraction activities at the site. In 1978, M&OS applied for and secured planning permission for '*Gravel Plant in Existing Pit*' (i.e. a washing plant) – planning number 1365/78 refers. The extent of the 1978 planning and original lease area is shown on Figure 1-3. The washing plant installed with the benefit of that planning permission is that still used at the gravel pit. Furthermore, it is the only washing plant at the site, so intensification cannot be said to have occurred. Fluctuations in production down through the years has been a function of economic activity.

The washing plant and settlement lagoons were installed at the pit in late 1978 / early 1979. The original settlement lagoon is located to the west of the gravel pit and on the opposite side of the road (local road L-3423-20) – between the public road and the Clashavoon (Bealick) Stream. At the request of the South-Western Regional Fisheries Board (SWRFB - now Inland Fisheries Ireland, IFI), settlement lagoons were constructed within the gravel pit in the 1980's. There were concerns that the original lagoon was too close to the stream. While the original lagoon continued to be used, it acted only as a polishing lagoon; it is now overgrown and no longer used in the pit operations or cleaned out.

Between 1978 and 2003, DCWL renewed its lease, naturally expanding the lease area to the east and south as extraction progressed. In 1995/96, the washing plant was relocated within the gravel pit – from the northwest corner to its current location, along with enlargement of the settlement lagoons. The entrance into the gravel pit was also relocated from the northwest corner to its current location around that time. In 2003, DCWL purchased approximately 20.22ha of Folio CK3263 containing the gravel pit and land into which the gravel pit would be expected to be developed.

In July 2003 Cork County Council issued a warning letter to M&OS pursuant to Section 152 of the Planning & Development Act 2000 alleging unauthorised intensification of quarrying activities at the Ummera pit. Fehily Timoney & Co (FTC) responded to the allegation of unauthorised development, refuting same. In January 2004, Cork County Council sent further correspondence claiming a 15-fold increase in the quarrying area since 1978 and a 25-fold increase in extraction rate. Following a meeting with Cork County Council in February 2004, FTC submitted a comprehensive rebuttal of the Council's allegations on 15 March 2004. The Council didn't respond to FTC's submission. DCWL continues to operate a gravel pit at the site.

1.2.1 Section 261 Application

In September 2004, DCWL applied to Cork County Council to have the gravel pit registered under Section 261 of the Planning & Development Act 2000 – registration number QR01 refers. The workable area identified in the Section 261 application was the landownership bounded by the public roads – an area of 17ha within a landownership of approximately 20.22ha. Refer to Figure 1-2 showing the Section 261 application map.

Cork County Council published a notice in the Irish Examiner on 18 March 2005 indicting its intention with regard to the quarry registration as follows:

- *To modify and add to conditions relating to the area covered by the permission granted under Ref No. 76/375, and*
- *To require a planning application and submission of an Environmental Impact Statement on the balance of the total quarry area*.

DCWL was notified by the Council in correspondence dated 14 September 2005, indicating it would proceed with its intention as advertised on 18 March and as quoted above. DCWL made a submission to the Council dated 24 October 2005 detailing a number of issues with the Council's intended approach to the quarry registration. Following that submission, Cork County Council changed its intended quarry registration approach. In correspondence dated 28 October 2005, the Council indicted that it:

> '*now intends to modify and add to the conditions that were imposed on the QR01 quarry under planning permission ref no. 76/375*'. The rational for this change in approach was '*that there are a significant number of quarries for which registration has been sought and where planning permission has been granted on only part of the active quarry site. We now consider that the appropriate course of action in such cases is to modify and add to condition relating to any relevant previous planning permission*'.

While DWCL didn't agree with the specifics of the approach, it was prepared to operate the gravel pit under imposed planning conditions and environmental controls. It is noted that the permission (76/375) on which the Council intended to use as a vehicle to impose planning conditions had lapsed without being commenced and so should not have been used. DCWL submitted the further information requested by the Council in its 28 October 2005 correspondence.

On 07 September 2006, Cork County Council issued a notice under Section 261 subsection 6 of the Planning & Development Act 2000 of its decision to modify and add conditions (64 No.) imposed under planning permission Reg No 375/76. A number of conditions were appealed to An Bord Pleanála. In June 2007, An Bord Pleanála amended and removed a number of conditions. From June 2007, DCWL operated the gravel pit having regard to conditions imposed on its operation.

1.2.2 Section 261A Process

As outlined in Section 1.1 above, Cork County Council was required (under Section 75 of Planning & Development (Amendment) Act 2010) to assess the status of quarries in its functional area with respect to EIA / AA compliance. On 23 August 2012, Cork County Council issued its decision for Ummera under Section 261A(3) on foot of a determination under Section 261A(2) – refer to Appendix 1-1. The determination was that:

> *'Quarry development was undertaken post 1st February 1990 that would, having regard to the Environmental Impact Assessment Directive, have required an environmental impact assessment but that such an assessment was not carried out or made'.*

The reason for the determination was given as:

> *'The quarry development expanded by 3.84 hectares post 1995….This expansion results in the quarry being greater than 5ha in surface area and therefore results in an increase in size greater than 25% of the quarry area and 50% of the appropriate 5ha threshold. Accordingly, EIA is required under Class 13 of Part 2, Schedule 5 of the Planning & Development Regulations 2001, as amended'.*

In September 2012, DCWL made an application to An Bord Pleanála for a review of the Council determination. An Bord Pleanála was requested to quash the Determination and Decision of Cork County Council and to conclude that, without a basis for a determination under Section 261A(2), that No Further Action is the appropriate result of the Section 261A review process with respect to the Ummera site.

On 24 February 2014 following its review, An Bord Pleanála decided to confirm the Council's determination requiring DCWL to apply for substitute consent including a remedial EIS – refer to letter in Appendix 1-1. DWCL sought, and was granted, leave from the high court to apply for judicial review of An Bord Pleanála's decision in April 2014, with Cork County Council named as a notice party. The case was adjourned a number of times pending the outcome of the 'the McGrath case' as to the constitutionality of Section 261A of the Planning & Development Act 2000 – McGrath Limestone Works v An Bord Pleanála, Ireland and the AG. In March 2020, the case was adjourned generally due to HSE covid 19 restrictions

DCWL submitted a substitute consent application with rEIAR in August 2020. The rEIAR was prepared in accordance with Section 177F of the Planning & Development (Amendment) Act 2010. In correspondence dated 01 October 2025, ACP requested DCWL to submit / resubmit information / reports relating to exceptional circumstances, Appropriate Assessment, and the Water Framework Directive. The requested information was submitted to ACP by 01 April 2026. A decision on the Substitute Consent application is pending.

As noted in Section 1.1, Section 37L of the of the Planning & Development (Amendment) (No. 2) Regulations 2015 (SI No. 310 of 2015) provides for applications to be made by operators to An Bord Pleanála for further development of gravel pits/quarries within 6 weeks of making a substitute consent application. The application for the further development of the gravel pit was lodged with An Bord Pleanála in September 2020 – case number ABP-308194-20. On 01 October 2025, ACP requested that the EIAR be updated and resubmitted by 01 April 2026. As all surveys, including ecological surveys, needed to be updated, an extension was sought (and granted in letter dated 12 February 2026) to 31 August 2026. A copy of both letters is provided in Appendix 1-1.

1.3 Pre-Submission Consultation

In the course of the preparation of the EIAR, KGEC and the specialist sub-consultants contacted a number of organisations and individuals. These are referred to in each section of the EIAR as appropriate. The organisations contacted are summarised in Table 1-1. Consultation correspondences received in 2026 are provided in Appendix 1-2.

Table 1-1: List of Consultees

Organisation	Response Received	
	2020	2026
Geological Survey of Ireland, Department of Communications, Climate Action & Environment	Yes	Yes
Transport Infrastructure Ireland	Yes	Yes
Department of Transport, Tourism & Sport / Department of Transport	Yes	No
Air Quality Section, Department of Communications, Climate Action and Environment	No	Yes
Office of Public Works	No	No
Failte Ireland	No	Yes
Cork County Council – Macroom Area Engineer's Office	No	No
Cork County Council – NRDO	---	Yes
Department of Culture, Heritage and the Gaeltacht – DAU / NPWS - Development Applications Unit	Yes	Yes
Environmental Protection Agency	Yes	Yes
Inland Fisheries Ireland	Yes	Yes
Uisce Éireann / Irish Water	---	Yes

1.4 Scoping

The scoping process determines the areas or aspects, which are important during the environmental assessment of the development. It was used to eliminate those aspects of the environment that are less important. The level of work carried out for each topic reflects the potential impact on that aspect of the environment that may have occurred during the lifetime of the gravel pit, as identified during the scoping process.

An initial scoping of possible impacts of the gravel pit was carried out in accordance with Article 3 of Directive 2011/92/EU as amended by Article 3(1) of Directive 2014/52/EU. The Directive lists 10 areas, which should be assessed:

- Population & Human Health
- Biodiversity
- Land
- Soil
- Water
- Air & Climate
- Cultural Heritage
- Material assets
- Landscape
- Interaction of the Foregoing

For each aspect of the environment assessed, an assessment on major accidents and natural disasters is provided.

The scoping process was based on:

- Examination of documentation relating to the S261 application process for the Ummera gravel pit and other gravel pits / quarries in similar circumstances.
- Examination of documentation relating to the S261A determination and An Bord Pleanála's review.
- Examination of documentation relating to the substitute consent application for the Ummera gravel pit.
- The operational experience gained in the past ~~40~~ 45 years at Ummera gravel pit.
- Review of available company files and correspondence relating to the gravel pit.
- Experience of the consultants in preparing environmental impact assessments for gravel pits / quarries.

The areas identified during the scoping process as being the most significant issues were noise, traffic, dust, groundwater and surface water. The emphases placed on potential impacts following the scoping process are described below:

Population & Human Health

Aspects of population and human health include health & safety, socioeconomics, tourism, noise and air quality. The gravel pit is located on private lands with restricted access. It is, and has been, operated in accordance with relevant health and safety regulations. It provides employment for one operative, with additional employment provided to ancillary supports such as HGV drivers, mechanics, suppliers etc. As such, no significant impacts affecting human beings in the surrounding environment in terms of health & safety, socioeconomics and tourism are envisaged. These issues are addressed in Chapter 3. Factors that are considered significant in the context of the gravel pit in terms of population and human health include noise and air quality.

Gravel pit workings can increase background noise levels. For nearby residents, this can be a concern. This topic is addressed in Chapter 5. A noise survey was carried out to assess noise impacts from the extraction and processing activities, with measurements recorded with and without the processing plant in operation. Noise surveys were updated in May 2026. The current operations will be the same for the further development of the gravel pit, with the working face moving to the south and southwest.

The operations at the gravel pit have given rise to fugitive dust emissions in the past. This is documented in correspondence submitted to the S261 application. A dust suppression system was installed to dampen down dust in periods of dry windy weather. This issue is addressed in Chapter 6.

Biodiversity

The gravel pit is located in a rural setting dominated by dairy and beef farming. The site of the Ummera gravel pit was formerly grazing land. The gravel pit is not connected with any designated site. The development of the gravel pit has resulted in a greater range of habitats then would otherwise have been present at Ummera. This includes nesting habitats for Sand martin. Biodiversity is discussed in Chapter 10. Ecology surveys were updated in 2026.

Land

The landholding extends to 20.22ha, most of which is directly used for extraction-related activities – active extraction area, processing area, open storage of aggregate, settlement lagoons, screening berms etc. A small area is still used for agriculture, mainly silage cutting, and an area with old farm buildings. The proposed further development will deepen the gravel pit but also extend into agricultural lands. The surrounding lands are dominated by dairy and beef farming. The after-use proposals for Ummera gravel pit are to restore the site back to mainly agricultural use, with some aspects of the gravel pit maintained for biodiversity. This is addressed in Landscape & Visual Impact. Land use is discussed in the new chapter heading of Land, Soils & Geology – Chapter 8.~~is therefore not considered under a separate chapter heading.~~

Soils

Geology and hydrogeology are important considerations for the Ummera gravel pit. The overburden deposits are a natural non-renewable resource. While the gravel deposit is not classified as an aquifer, groundwater is encountered as springs. The surrounding area is not serviced by mains water, so private wells are used for drinking water supply – both domestic and agricultural supplies. ~~Groundwater is therefore included in this chapter, but with cross reference to surface water where appropriate. These~~ Soils and geology are discussed in Chapter 8 (Land, Soils & Geology). Hydrogeology is discussed in Chapter 7 – Water (Hydrology & Hydrogeology).

Water

The gravel pit is in the catchment of the Sullane River, with the Bealick / Clashavoon Stream forming the western and northern landholding boundary. The Bealick / Clashavoon Stream is used to abstract water for use at the gravel pit. The Bealick / Clashavoon Stream and Laney River have good to excellent water quality, with gravel beds that are suitable for salmonid spawning. Washing of gravel has been carried out at the gravel pit since installation of the washing plant in 1978/79. A number of correspondences are on file from the SWRFB (now IFI) relating to concerns on the settlement lagoons and storage of silt. It is also raised in the An Bord Pleanála inspector's report relating to the appeal of the Council's S261A determination. For these reasons, hydrology and surface water are important factors in the assessment and in particular the management of surface water and wash water at the site. ~~This~~ Water is discussed in Chapter 7, which now includes hydrogeology. Aquatic ecology is discussed in Chapter 10 - Biodiversity.

Air and Climate

Activities at the gravel pit could result in dust emissions from the site, which could affect air quality. Fugitive dust emissions are influenced by local climatic conditions; dry windy weather can exasperate dust emissions, while wet weather will minimise emissions. Good site management can further mitigate against fugitive dust emissions. This issue is addressed in Chapter 6. It is not considered that Ummera gravel pit will have any significant impact on climate / climate change. If climate change predictions of increased rainfall extremes occur, the runoff from the site will increase. This is addressed in Chapter 7 in the context of the management of water.

Material Assets

Material assets include built services, roads & traffic and waste management. Roads & traffic are considered the primary aspect of interest for the gravel pit. Waste management isn't a significant aspect but is addressed in Chapter 2 – Project Description.

The immediate area of the gravel pit is serviced by undivided local roads. Gravel pits give rise to increased local HGV traffic. The volume of HVG traffic to/from Ummera gravel pit is directly related to the annual extraction rates. Typically, there has been approximately 50,000 tonnes/annum of aggregate produced at the pit. This results in approximately 10 loads per day on average. Most of the aggregate produced ~~has been~~is taken to Bredagh Cross, using local road L-3423-20/0 to access the regional ~~and national~~ road network. Roads & Traffic are addressed in Chapter 4, with updated traffic counts carried out in 2026 and assessment of the effects of opening of the Macroom By-pass. MHL prepared the Traffic & Transport Assessment which is provided in Appendix 4-2 to this EIAR.

Landscape and Visual Impact

Extraction operations at Ummera have been established for over half a century. The operations in their current scale are established since the late 1970's. The main operations are well screened from the nearby local roads and nearby dwellings. There is mature tree growth along the northern, western and south-western perimeters. Screening berms were established around 2005 along the eastern perimeter. Intermittent screening berms are used at the margin of the extraction area for further visual screening. Landscape and visual impact are discussed in Chapter 11.

Cultural Heritage

Disturbance of the ground during topsoil / subsoil stripping and gravel excavations can have an impact on archaeological features – damage to known monuments/features and uncovering of previously unknown archaeology. There are two recorded monuments within the landholding – a fulacht fiadh and a gallan stone. Both are avoided in the design of the gravel pit for further development. Dr. Charles Mount prepared the archaeological assessment, which is included as Chapter 9.

Table 1-2 shows the organisation of the topics within the EIAR. It is noted that there are several issues cutting across a few prescribed environmental factors; these are cross referenced where appropriate in each chapter and discussed in Chapter 12 – Interactions of the Foregoing.

Table 1-2: Organisation of Topics within EIAR

Prescribed Environmental Factor	rEIAR Chapter Heading	Chapter Number	Topics Addressed
Population & Human Health	Population & Human Health	3	– Demographics – Health & Safety – Socioeconomics – Tourism
	Noise & Vibration	5	– Pit Noise – Cross reference to health
Biodiversity	Biodiversity	10	– Flora, fauna, aquatic ecology
Land	Land, Soils & Geology—	—8	Land use is also addressed in several other chapters including landscape.
Soil	Land, Soils~~,~~ & Geology ~~& Hydrogeology~~	8	– Land Use – Overburden – Bedrock – ~~Hydrogeology~~
Water	Water (~~Surface Water &~~ Hydrology & Hydrogeology)	7	– Water Quality – Water Use – Runoff Volumes & Treatment Capacity – Flooding – Groundwater
Air & Climate	Air, Climate & Climate Change	6	– Air Quality – Local Climatic Conditions – Climate Change
Material Assets	Material Assets	4	– Roads & Traffic
Cultural Heritage	Architecture, Archaeology & Cultural Heritage	9	– Archaeology – Cultural Heritage – Architecture

Prescribed Environmental Factor	rEIAR Chapter Heading	Chapter Number	Topics Addressed
Landscape	Landscape & Visual Assessment	11	– Landscape Context – Landscape Character – Views & Prospects

1.5 Contributors

The EIAR was co-ordinated by Keohane Geological & Environmental Consultancy. Specialist sub-consultants employed with reference to specific portions of the study are summarised in Table 1-3.

Table 1-3: EIAR Contributors

Company Name	Topic Addressed
KGEC	Overall EIAR Coordinator Geology, Hydrogeology, Hydrology, Traffic, Landscape
MHL	Traffic & Transport Assessment
KGEC	Planning Drawings
Atkins	Biodiversity – original EIAR Chapter and 2019 / 2020 surveys
JKW Environmental Ltd	Updating Biodiversity Chapter and updated 2026 surveys
Charles Mount	Archaeological Impact Assessment
Dixon Brosnan / MKO	Noise & Vibration

1.6 Format of EIAR

An EIA is required for the extractive industry which fall within category 19 of the Fifth Schedule Part I, category 2(b) of the Fifth Schedule Part II and category 13(a) of the Fifth Schedule Part II of the Planning & Development Regulations 2001 (S.I. 600 of 2001).

Category 2(b) of the Fifth Schedule Part II states:

> '*Extraction of stone, gravel, sand and clay, where the area of extraction would be greater than 5 hectares*'.

Category 13(a) of the Fifth Schedule Part II states:

> *'Any change or extension of development which would:-*
>
> *(i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this schedule, and*
>
> *(ii) result in an increase in size greater than –*
>
> - *25 per cent, or*
> - *An amount equal to 50 per cent of the appropriate threshold,*
>
> *whichever is greater.*

Annex I and Annex II of Directive 2011/92/EU (as amended by Directive 2014/52/EU) lists projects and activities that require assessment. Annex II refers to quarries and extensions but doesn't give thresholds – these are to be set by the Member States. The transposing of Directive 2014/52/EU ~~has not yet been transposed~~doesn't set limits for quarries, so the limits provided in S.I. 600 of 2001 are used.

The proposed further development area extends to an area greater than 5ha, so an EIA is required in accordance with Category 2(b) of the fifth Schedule Part II.

The EIAR was prepared having regard to guidelines issued by a number of Government and Industry Agencies, including:

- ~~*Guidelines on the Information to be Contained in Environmental Impact Statements*~~[1].
- *Advice notes on Current Practice (in the preparation of Environmental Impact Statements)*[2].

- ~~*Revised Guidelines on the information to be contained in Environmental Impact Statements*[3].~~
- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*[4].
- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*[5].
- *'Quarries and Ancillary Activities – Guidelines for Planning Authorities', DofEHLG, April 2004*[8].
- *'Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-schedule Minerals)', EPA 2006*[9].
- *'Integrated Pollution Control Licensing, BATNEEC Guidance Note for the Extraction of Minerals', (EPA, 1997)*[10].
- *'Environmental Code', Irish Concrete Federation, October 2005*[11].

The BATNEEC Guidance Notes for the Extraction of Minerals is used only as a reference document. The activity in question is not required to have an IPC licence (now IPPC). However, where appropriate, some of the principles outlined in that document are adopted for the control of emissions from the gravel pit.

The EIAR has been prepared using the grouped format structure as recommended in the EPA's '~~Guidelines on the Information to be contained in Environmental Impact Statements~~, 'Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)', ~~'Revised Guidelines on the information to be contained in Environmental Impact Statements'~~ and the 2022 version of the 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'. ~~The latter are draft (dated August 2017) and will be reviewed when new regulations transposing Directive 2014/52/EU[75] are published~~.

Using the grouped format structure, the EIAR examines each topic as a separate section. Each specialist section refers to the relevant specialist topic using the following general structure:

- The existing / baseline environment.
- Impact assessment, including cumulative, of the further development of the gravel pit, which addressed the significant effects that are likely to occur as a result of the gravel pit operations.
- Impact mitigation which is being or will be implemented to avoid, reduce and/or mitigation impacts.
- Post mitigation residual impact.
- Operational monitoring.

The EIAR is submitted in three volumes:

- Volume 1: Non-Technical Summary
- Volume 2: Main Report
- Volume 3: Appendices

The non-technical summary provides an overview of the work presented in the main body of the EIAR. It is a shortened and simplified version of Volume 2 but contains all the key information presented in a non-technical format.

Scoping of the EIAR was developed from the Sixth Schedule of the Planning & Development Regulations 2001, Directive 2014/52/EU, EIAR Guidelines and in consultation with the relevant organisations. The main body of the EIAR describes the development and examines its impacts on the aspects of the environment as discussed in Section 1.4.

1.6.1 Technical Difficulties

There were no technical difficulties encountered during the environmental assessment conducted for the proposed further development of Ummera gravel pit.

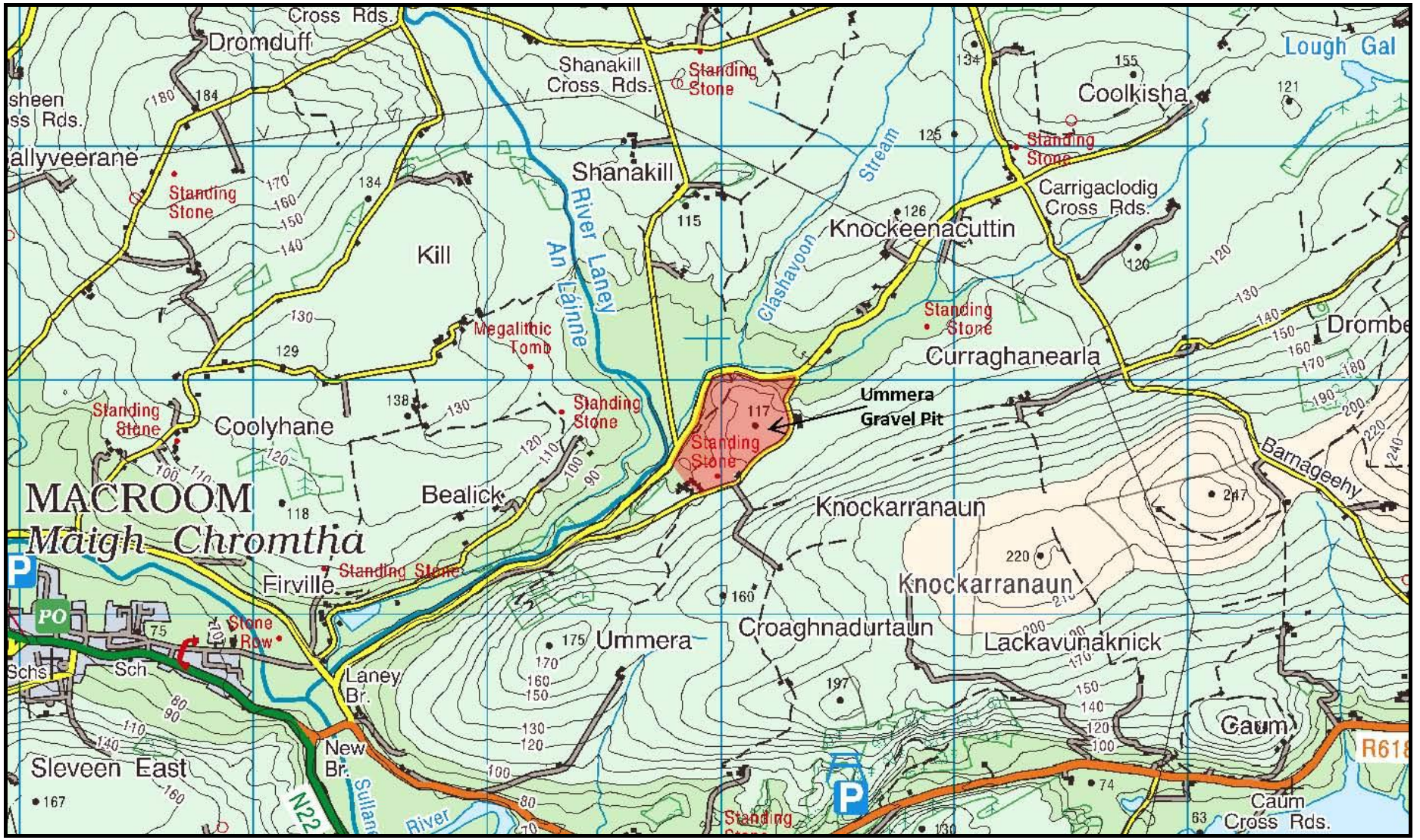


Figure 1-1: Site Location Map

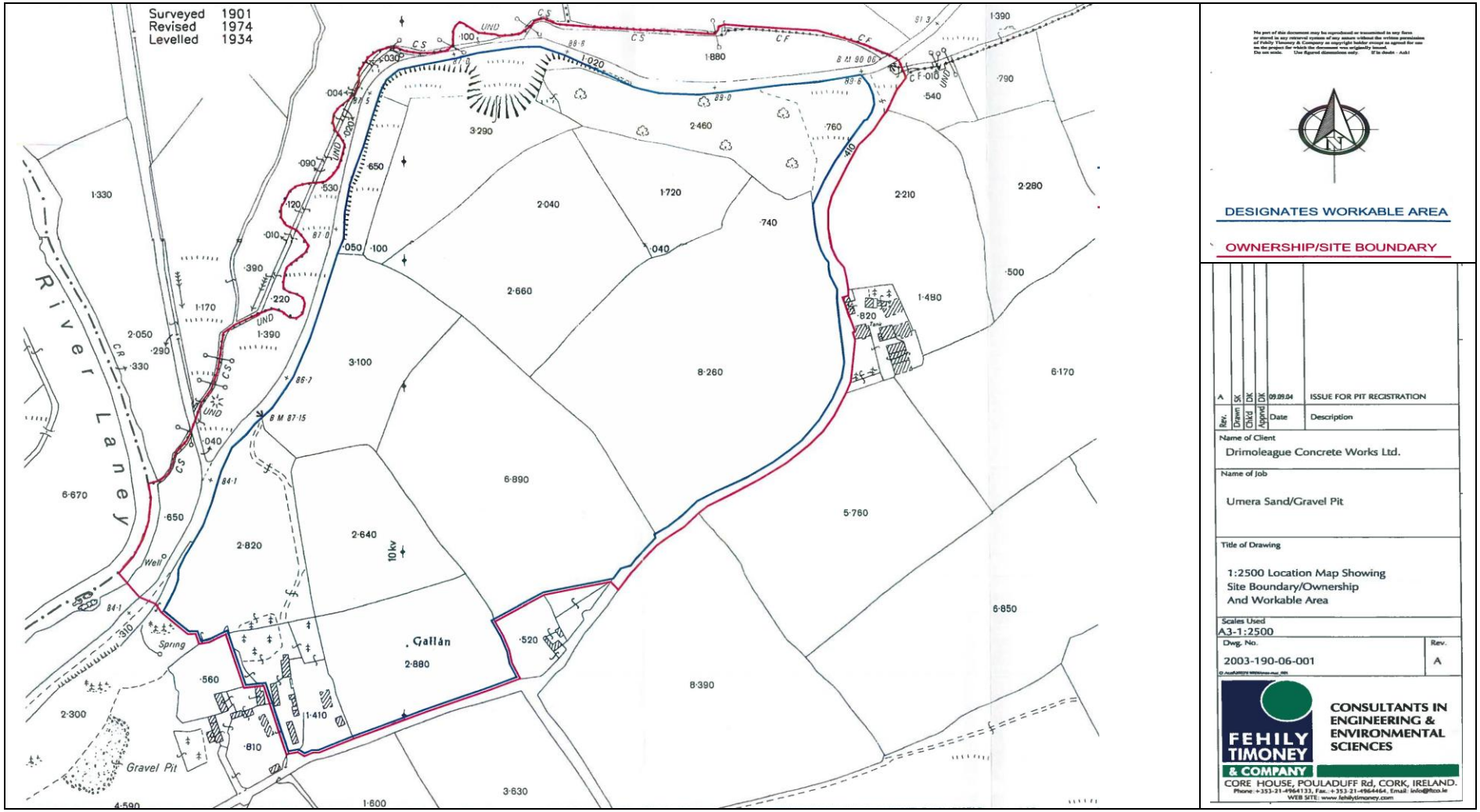


Figure 1-2: Section 261 Application Map

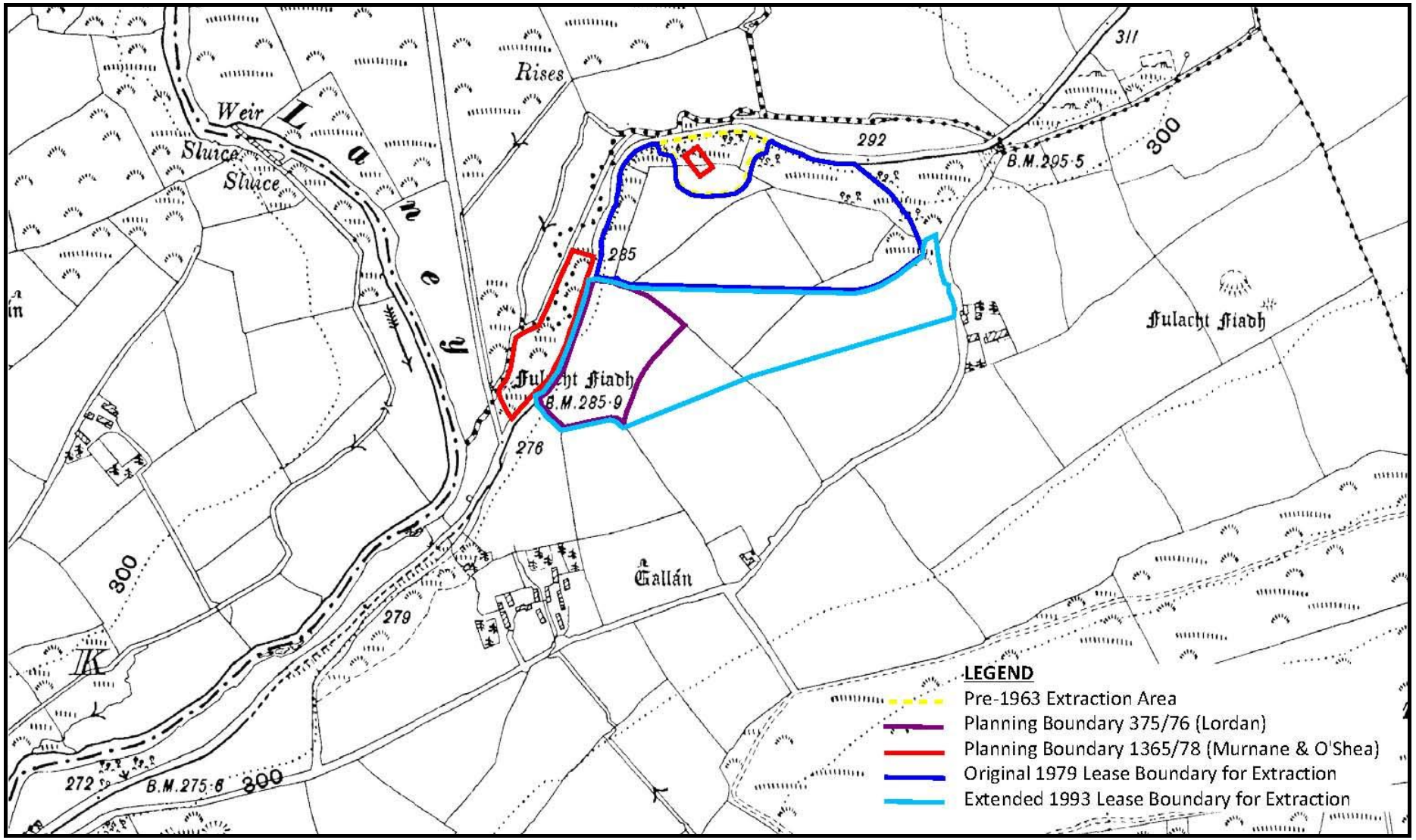


Figure 1-3: Historic Planning & Lease Boundaries

2. DESCRIPTION OF DEVELOPMENT

2.1 Site Setting

The existing gravel pit is in a rural setting in the townland of Ummera, approximately 2.5km to the northeast of Macroom. The site location is shown on Figure 1-1. The gravel pit is located in a landholding of approximately 20.22ha, of which 17ha was included for registration under Section 261 – refer to Figure 1-2. This 17ha of land is not interrupted by any natural or man-made boundaries. The remaining lands in the folio comprise public roads or is separated from the 17ha by public roads. Areas within the 17ha not worked are used for grazing and host the old farmhouse and farm buildings. Part of the landholding is located between the public road and the Clashavoon Stream; the original settlement pond for the gravel pit is located in this area. The surrounding land use is predominantly grazing.

The site is accessed from regional road R584-12 (formerly the National Primary Route N22 but renumbered following the phase 1 opening of the Macroom By-pass in December 2022) via regional road R618, local road L-3423-0 and local road L-3423-20. The pit entrance is from local road L-3423-20.

The site varies in elevation between approximately 85mOD and 115mOD. The site entrance is at an elevation of approximately 85mOD, rises to the east to approximately 115mOD. The floor of the gravel pit is at an elevation of approximately 91mOD.

2.1.1 Settlement Pattern

The settlement pattern in the area is one of scattered farmhouses and once-off housing. There are 14 dwellings within 500m of the land ownership boundary offset. These are listed in Table 2-1 and are shown on Figure 2-1. As shown in Table 2-1:

- There are 6 houses within 500m of the further development boundary.
- Two houses, H1 and H2 are located nearest the further development boundary at approximately 15m and 40m respectively.

Table 2-1: Houses within 500m of Land Ownership Boundary

House No.	Distance from Landowner Boundary (m)	Distance from S37L Planning Boundary (m)	Year House Constructed	Comment
H1	5	15	pre-1930's	---
H2	35	40	pre-1913	---
H3	45	50	pre-1842	---
H4	365	370	pre-1974	---
H5	500	600	pre-1995	---
H6	490	780	pre-1913	---
H7	470	555	2003-2004	03/5671
H8	475	560	1987-1988	87/439
H9	455	540	1974-1975	73/3311
H10	100	230	2002-2003	02/3366
H11	155	280	1981-1982	81/1880
H12	395	520	pre-1934	---
H13	480	610	1990-1991	90/1105
H14	500	645	1984-1985	84/2447

2.2 Description of Existing Pit

The activities at Ummera gravel pit consist of extraction of sand & gravel in an area currently extending to approximately 3.4ha, with yard area, settlement ponds and stockpile areas extending to approximately 7.1ha.

Breakdown of Gravel Pit Areas
Land holding (folio CK114765F) = 20.22ha
Section 261 application area = 17ha
Substitute Consent area = 10.5ha
Further Development area = 15.5ha
Additional S37L Area = 1.8ha-extraction + 0.2ha berms (included in 15.5ha)

The further development area includes the area covered by the substitute consent application, the original settlement ponds and areas along the eastern, southern and southwestern perimeter of the landholding. This approximately 2ha area is largely grazing land or occupied by temporary screening berms. The area occupied by the old farm buildings (at the southwestern corner of the landholding and the southernmost part of the grazing land (where the gallan stone is located) are not included in the further development area.

2.2.1 Extraction Operations

The gravel is won using a track-mounted excavator which selects suitable material for processing; silty material is set to one side for later use in restoration. The track-mounted excavator is brought to site periodically to stockpile material near the working face prior to washing. A front-end loader is used to draw material from the working face to the washing plant. Material is tipped into a hopper with a coarse screen that rejects stones greater than 60mm in diameter; smaller material drops onto the conveyor which takes it to the washing plant. Various aggregate sizes are screened and directed into concrete bunkers below the washing plant. The wash water is directed into the settlement ponds carrying silts and fines. This washing plant has been used at the gravel pit since the late 1970's and has been at its current location since the late 1980's. Blasting is not carried out at the pit.

The processes and activities at the gravel pit are summarised as follows:

1. Topsoil and overburden are stripped from the area from which gravel is to be extracted. Stripping is carried out using an excavator. A dumper is used to draw soil around the site if necessary. The topsoil and overburden are used to provide temporary screening around the working area.
2. The deposit is variable in content (variable grain size), so is worked in different areas to achieve the desired blend of aggregate sizes to suit demand. Silt / clay layers occur in the deposit and these are set aside using an excavator.
3. Gravel is loaded into the washing plant using the front-end loader. The washing plant screens the aggregate into a number of size fractions, including sand, 6 to 10mm stone, 10 to 20mm stone, 20 to 50mm stone and 50mm^{+} stone.
4. Silts and fines are carried to the settlement ponds by the wash water. The ponds are cleaned periodically, and the silt is stored to the west and east of the of the ponds where it dries out. The silt will be used for future restoration. Occasionally, there is demand for this silt for use as bedding sand.

The site layout, showing the proposed further development area, is provided as Figure 2-2. Figure 2-2 has been updated to illustrate the future extraction areas yet to exploited. The main elements of the gravel pit are described in the subsection below.

2.3 Description of Proposed Development

It is proposed to increase the footprint of the existing gravel pit by approximately 2ha with extension to the east, south and southwest. The extent of the extension has been informed by site constraints including the standing stone, the ecology around the old farm buildings and offset from adjoining properties. Of the 2ha of 'new' area, approximately 1.8ha will be extraction footprint and the remainder taken up with berms.

The further development of the gravel pit has been designed having regard to Sand and Gravel Production[12], the QNJAC Quarry Design[13] and A Quarry Design Handbook[14]. Gravel deposits remain in the existing void and will continue to be worked. The washing plant and existing infrastructure will continue to be used. A number of improvements to the site infrastructure are also proposed.

The proposed development is summarised as follows:

- Total area of further development extending to 15.5ha.
- Extension of existing gravel pit to the south, east and southwest into an area of approximately 2ha, 1.8ha of which will be new extraction area.
- Continued working of the existing gravel pit.
- Inclusion of the original settlement pond (between the public road and Clashavoon Stream).
- Continued use of the existing site infrastructure including, access road, washing plant, settlement ponds, site offices, open storage of aggregates and all ancillary infrastructure.
- Construction of a bunded fuel / oil storage shed and concrete refuelling pad.
- Paving of the site access road from the public road to the site office.
- Construction of earthen screening berms and native tree planting.

The current gravel pit activities will continue for the further development. Activities at the further development are discussed below. The proposed site layout is shown on Figure 2-2.

2.3.1 Site Plant

The plant used on site include:

- A stationary washing plant powered by an electrical motor – see Plate 2-1
- A Volvo front-end loader used for loading raw material into the washing plant and loading trucks.
- A water pump powered by electrical motor located adjacent to the Clashavoon Stream. The pump has a capacity of 74m^3/hr at a head of 15m – the height between the intake and the wash plant. This pump is used to top up the water recirculation system.
- A second pump powered by electrical motor located in the western pond, adjacent to the site office, to recirculate wash water. It has capacity of 135m^3/hr.
- Track-mounted excavators are hired-in when needed to clean out the settlement ponds, segregate materials at the working face and strip topsoil. Dumpers are also hired-in when needed for this work.



Plate 2-1: View of Washing Plant from the East

2.3.2 Settlement Ponds

The recycling of wash water has seen several changes since the washing plant was installed in 1978 / 79. The current arrangements are as follows:

- The settlement ponds (4 No.) are located to the north of the washing plant through which water is circulated. Raised gravel platforms were installed to permit access to the ponds by excavators during cleaning. These divide the ponds originally installed in 1980's and 1990's and seen on the aerial photography – see Figure 2-2. The water circulation through the ponds is as follows:
  - Water is pumped from the western pond into the washing plant. This is topped up with water abstracted from the Clashavoon Stream, if needed.
  - The used water is discharged to the eastern pond and flows from pond to pond, back to the western pond to the pump intake. The ponds are connected by 300mm ϕ HDPE pipes. These are set at levels so that water flows from east to west through the ponds with water decanted from the surface.
- The original pond is located between the public road and the Clashavoon Stream. It is no longer used. The water abstraction point is located at the northern end of this pond. There is a small pump house at this location.
- There is an overflow from the western pond which decants water from the pond when water levels rise due to rainwater ingress into the settlement ponds. This overflow directs water to a settlement pond adjacent to the access road. It also takes runoff from the western side of the yard area. This pond discharges clean water back to the roadside drain. As the settlement ponds collect runoff from the eastern side of the yard area and the area east of the washing plant, there is surplus water in the settlement ponds in periods of heavy rainfall. This pond now takes this excess water.

The settlement ponds in the wash water recirculation system are approximately 3m deep with surface areas (from east to west) of 980m^2, 1,200m^2, 1,000m^2 and 1,750m^2 (total area = 4,930m^2; total volume = 14,790m^3). The pump capacity is 135m^3/hr, so in a working day, approximately 800m^3 of water is used for washing. The retention time in the ponds is therefore approximately 18.5 days (which increases to 21 days when weekends are factored), which is sufficient to settle silt and clay particles. The travel path through the ponds is approximately 250m. This capacity will decrease as silt builds up over time. Ponds are cleaned approximately once per year. Plate 2-2 shows the settlement ponds following construction in March 2020 and Plate 2-3 shows recent photographs of the ponds (August 2026).



Plate 2-2: Settlement Ponds (Eastern Pond Filling; View from East)



Plate 2-3: Settlement Ponds (View from East & West)

The overflow pond adjacent to the access road is 60m long and approximately 14m wide, with a surface area of approximately 580m^2. The pond is 1m deep (to the invert of the discharge pipe), giving a capacity of approximately 580m^3. Plate 2-4 shows the overflow settlement pond following its construction and Plate 2-5 is a recent photograph of the pond (July 2026).



Plate 2-4: Overflow Settlement Pond (Looking SW) & Inlet Structure)

~~To date, no discharge from the overflow pond has been observed.~~



Plate 2-5: Overflow Settlement Pond (Looking SW) & Inlet Structure)

2.3.3 Power Supply

The power supply to the site is mains ESB supply. The mains supply is taken from an overhead 10kV powerline that crosses over the western side of the pit. The supply enters the pit from a pole-mounted transformer at the north-western corner of the pit; located adjacent to the original location of the washing plant. An underground cable goes to the electrical panel located adjacent to the site office. There is no back-up generator at the pit. This has been the power supply arrangement to the gravel pit since the late 1970's.

2.3.4 Fuel Storage

Refuelling of site plant takes place in the yard area of the gravel pit. Fuel is stored in a self-bunded plastic tank with ~~1,300~~1,476 litre nominal capacity. Plastic drums (20 litres typical) of oil are stored in ~~the body of a small truck used as~~ a recently constructed storage shed / site office. As noted, a fuel storage shed and concrete refuelling pad is proposed as part of the further development.

2.3.5 Water Usage

Water is used at the gravel pit for washing gravel, as described in Section 2.3.2 – rainfall runoff is captured and topped up from the Clashavoon Stream, if needed.

Water has also been used for dust suppression; a sprinkler system was installed along the site access road, around the floor of the pit and around the working face of the pit in the late 1990's. Water used for dust suppressed had been sourced from the Clashavoon Stream and stored in a 26m^3 tanker. In recent years, there has not been a requirement for dust suppression, and the infrastructure has fallen into disrepair. It can be put back into use if required.

There are no groundwater supply wells at the gravel pit.

Potable water is brought to site by the site manager for personal use.

Water used in the welfare facilities is tapped from the water supply to the washing plant via a ½-inch line.

2.3.6 Welfare Facilities

~~The site office and welfare facilities are located in the yard area of the gravel pit, adjacent to the site office.~~ A new site office, stores and welfare facility was constructed in 2024 near the location of former site office (now used for storage)– refer to Plate 2-6. Foul effluent is treated in the on-site septic tank and percolation area. This will be replaced by a sealed 2.2m^3 underground tank which will be emptied periodically by an appropriately licensed contractor.



Plate 2-6: New Site Offices / Stores / Welfare Facilities

2.3.7 Working Hours

Condition No.3 of quarry registration QR01 gives the working hours as:

- Weekdays – 07:00 to 19:00
- Saturdays – 07:00 to 14:00
- No operations on Sunday or Public Holidays

In practice however operations at the pit do not generally commence until 09:00. The closing time is 18:00, with earlier closing times in winter months. The pit generally closes at 13:00 on Saturdays. The longer hours are required for flexibility. The pit will not open on Sundays or Public Holidays. These operating hours are largely in accordance with the DEHLG Quarries & Ancillary Activities – Guidelines for Planning Authorities, April 2004.

2.3.8 Security

The pit entrance gate is locked outside working hours. This is a 2.3m high steel gate. The perimeter of the landholding is fenced with a 1.7m-high timber post and wire security fence. Warning signs are affixed to the fence at intervals warning of the presence of the active gravel pit. The settlement lagoons have been fenced off from the yard area. This fence was damaged during ~~recent~~ rearrangement of the pond layout in March 2020 and has been replaced.

2.3.9 Lighting

There is no flood lighting at the gravel pit. There are lights on the front-end loader. Generally, however, the pit isn't worked after nightfall.

2.3.10 Waste Management

Waste generated at the gravel, and its recycling, recovery or disposal, includes:

- Stripped topsoil / subsoil will be reused on site for berm construction and in final restoration of the gravel pit. It is not envisaged that any soil will be taken off site for disposal.
- Silt, which is the waste material from the washing process, will be stored on site for reuse in the restoration of the site.
- Domestic type waste generated by site workers is taken off-site by the workers each day.
- Scrap metal will be stored on site and periodically collected by a licensed contractor for recycling.
- Foul effluent from the welfare facilities is treated on site in a septic tank. This will be replaced with a sealed 2.2m^3 underground tank.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for re-cycling by a licensed contractor.

2.3.11 Proposed New Infrastructure

The following infrastructure is proposed to be installed at the gravel pit:

- Concrete refuelling pad.
- Fuel storage shed.
- Sealed wastewater collection tank to replace the existing septic tank.

A concrete refuelled pad consisting of a reinforced 6m x 6m bermed concrete slab with falls to a grit trap and oil trap. A fuel storage shed will be located adjacent in which diesel will be stored as well as oils. Plate 2-7 shows the proposed infrastructure. It is also proposed to pave the access road into the pit (from the public road to the site office).

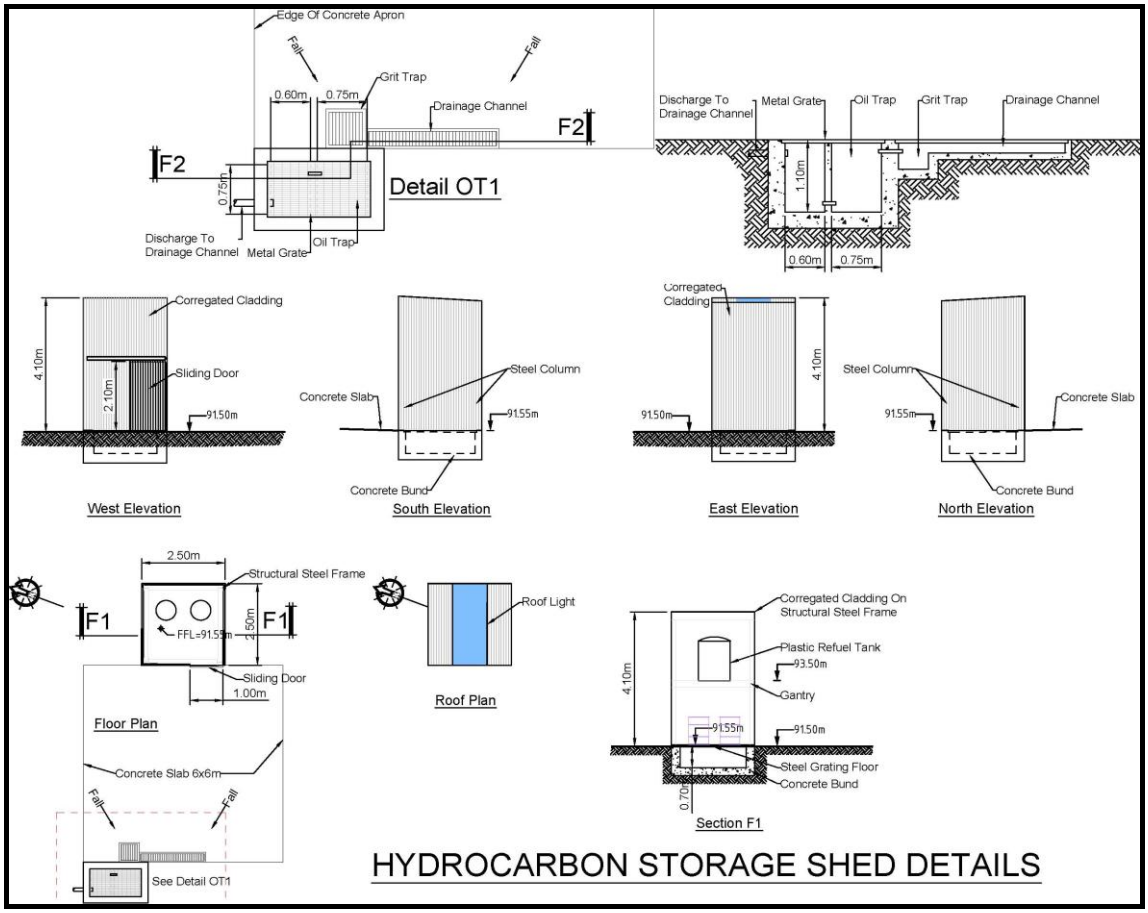


Plate 2-7: Proposed Fuel Storage Shed & Refuelling Pad

2.4 Environmental Monitoring

DCWL has an Environmental Management System (EMS) in place for the operation of the Ummera gravel pit.

Environmental monitoring at the pit has been conducted intermittently in the past. Going forward, monitoring will be conducted during the lifetime of the operations to assess the effects on the environment so that operational changes and improvements can be made where appropriate. The proposed monitoring programme will form part of an Environmental Management System (EMS) for the pit is as follows:

1. Dust – twice annually between April and September at 3 locations (D1, D2 and D3) on the site perimeter.
2. Noise – Once annually at 3 noise sensitive locations (N1, N2, and N3) – one-hour intervals.
3. Groundwater – Groundwater level monitored monthly at the site boreholes (BH1 – BH3). Levels at the nearest neighbouring supply wells will also be carried out with permission from the owners – i.e. at H1, H2, H3 and H4.
4. Surface Water – Twice annually at three locations (SW1, SW2 and SW3); upstream and downstream of the site in the Clashavoon Stream and Laney River. Parameters to be tested are:
    a. pH (field measurement)
    b. Temperature (field measurement)
    c. Electrical Conductivity (field measurement)
    d. Dissolved Oxygen (field measurement)
    e. Turbidity (field measurement)
    f. Total Suspended Solids (laboratory analysis)

Monitoring points are shown on Figure 4-1 (noise monitoring locations – N1, N2 and N3), Figure 6-1 (dust monitoring locations – D1, D2 and D3), Figure 7-2 (surface water monitoring locations – SW1, SW2 and SW3), and Figure 7-5 (well locations – BH1, BH2, BH3, W1, W2, W3 and W4).

2.5 Lifespan & Restoration

Section 4.9 of the Department Guidelines[8] deals with the lifespan of planning permissions for quarries. It states –

> '*Where the expected life of the proposed quarry exceeds 5 years it will normally be appropriate to grant permission for a longer period (such as 10 - 20 years), particularly where major capital investment is required at the outset. In deciding the length of the planning permission, planning authorities should have regard to the expected life of the reserves within the site. The purpose of setting a finite period is not to anticipate that extraction should not continue after the expiry of that period, but rather to enable the planning authority, in conjunction with the developer and environmental authorities, to review changes in environmental standards and technology over a decade or more since the original permission was granted. In considering whether a further permission should be granted, the planning authority should have regard (inter alia) to the following factors:*
>
> *(a) The extent of the remaining mineral resources and*
> *(b) The extent of existing capital investment in infrastructure, equipment, etc*

Ummera gravel pit has been in operation since the 1940's with the current arrangements coming into effect since the late 1970's. There are reserves at the site for a further 15 years approximately, so this application (under Section 37L of the EU (Environmental Impact Assessment and Habitats) Regulations 2015) is being made for the continued operations at Ummera. Restoration and after-care of the quarry is addressed in Section 3.6 of the Guidelines. It states -

> *'All proposed extractive development proposals must be accompanied by detailed restoration and after-care plans (although in the case of sites with a long working life, it may be appropriate to establish the need for such plans at the outset, while leaving the details to be agreed either on a phased basis or towards the end of the extractive process). Progressive restoration should be employed where relevant and practicable, e.g. for sand and gravel pits'.*

It is proposed to return the Ummera gravel pit to agricultural use after extraction is completed. While it would have been preferable to commence phased restoration of the pit, the nature of the deposits has made this difficult to date; the gravel deposit is not homogeneous. Going forward, phased restoration will need to be implemented to better manage the silt cleaned from the settlement ponds and reduce the area of land with exposed soils. The restoration plan for the gravel pit is provided in Figure 11-6.

2.6 Alternatives

The assessment of reasonable alternatives is an integral part of an EIA and is normally carried out in terms of alternative locations, design, size, scale and technology (processes). Alternative mitigation is discussed in each chapter where appropriate. For the Ummera gravel pit, assessment of alternatives is limited as it is a well-established operational pit with extractable reserves nearing completion.

- Alternative locations are not relevant for its further development.
- The heterogenous nature of the deposit dictates the design approach to phasing of extraction and restoration.
- The size of the additional extraction area is limited to the peripheries of the existing footprint. The depth of excavation is limited by the groundwater table. Excavation below the groundwater table was not considered and is not proposed.

- The scale of the operation is small and will remain so for the remaining lifespan of the gravel pit. The extraction and processing will remain the same; alternatives are not practicable.
- Alternatives to restoration proposals were assessed. This included retaining the elements of the gravel pit that would support a greater biodiversity. For example, retaining a pit face for sand martin nesting and retaining the settlement ponds to provide an aquatic habitat. Maintaining a short section of pit face is included to provide nesting habitat for sand martin. However, retaining the settlement ponds is not included in the final restoration as they present long-term safety risks for future users of the site. As such, the restoration of the pit to agricultural lands while retaining a section of pit face and large areas of woodland to provide biodiversity was considered the optimal approach to the site's restoration.

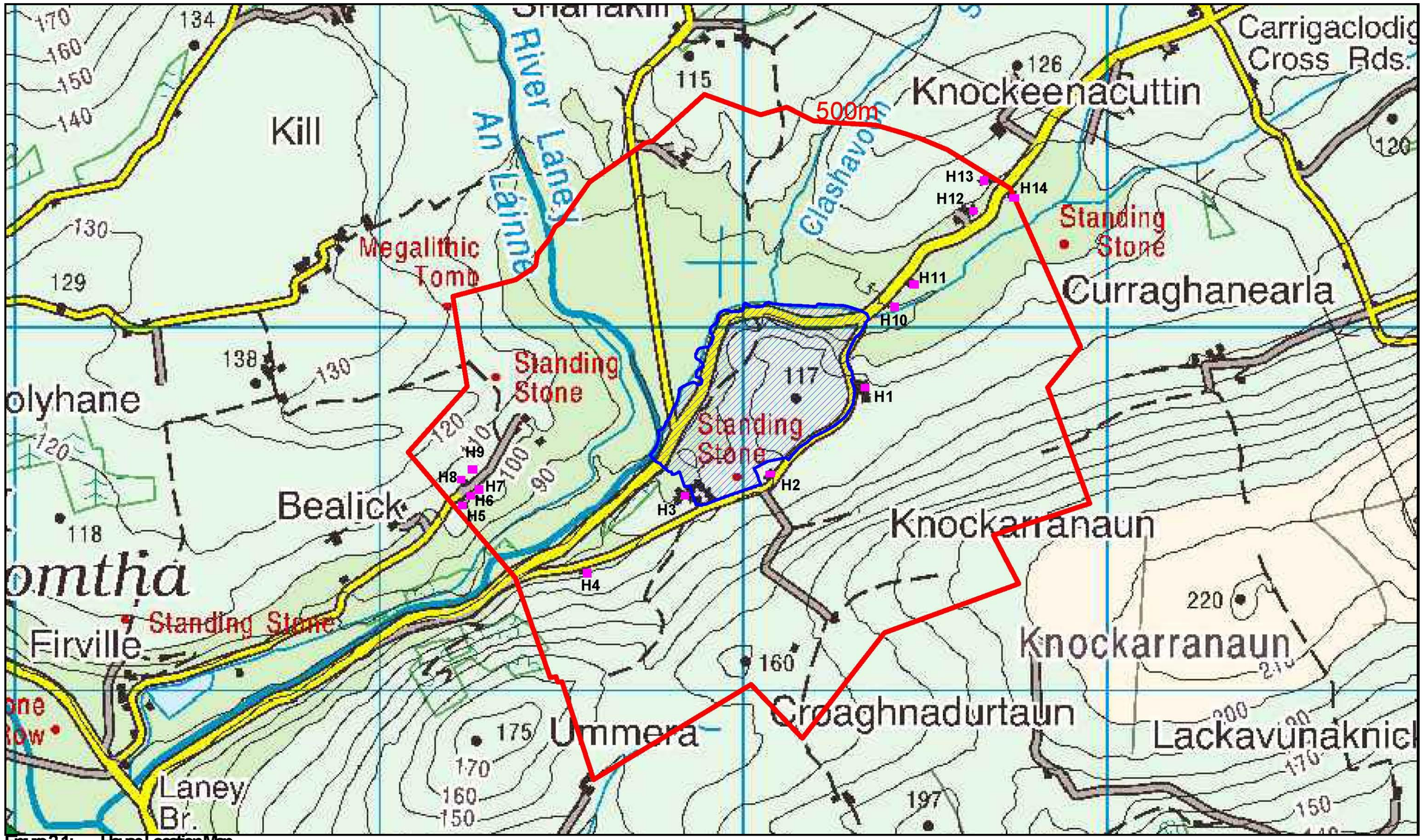
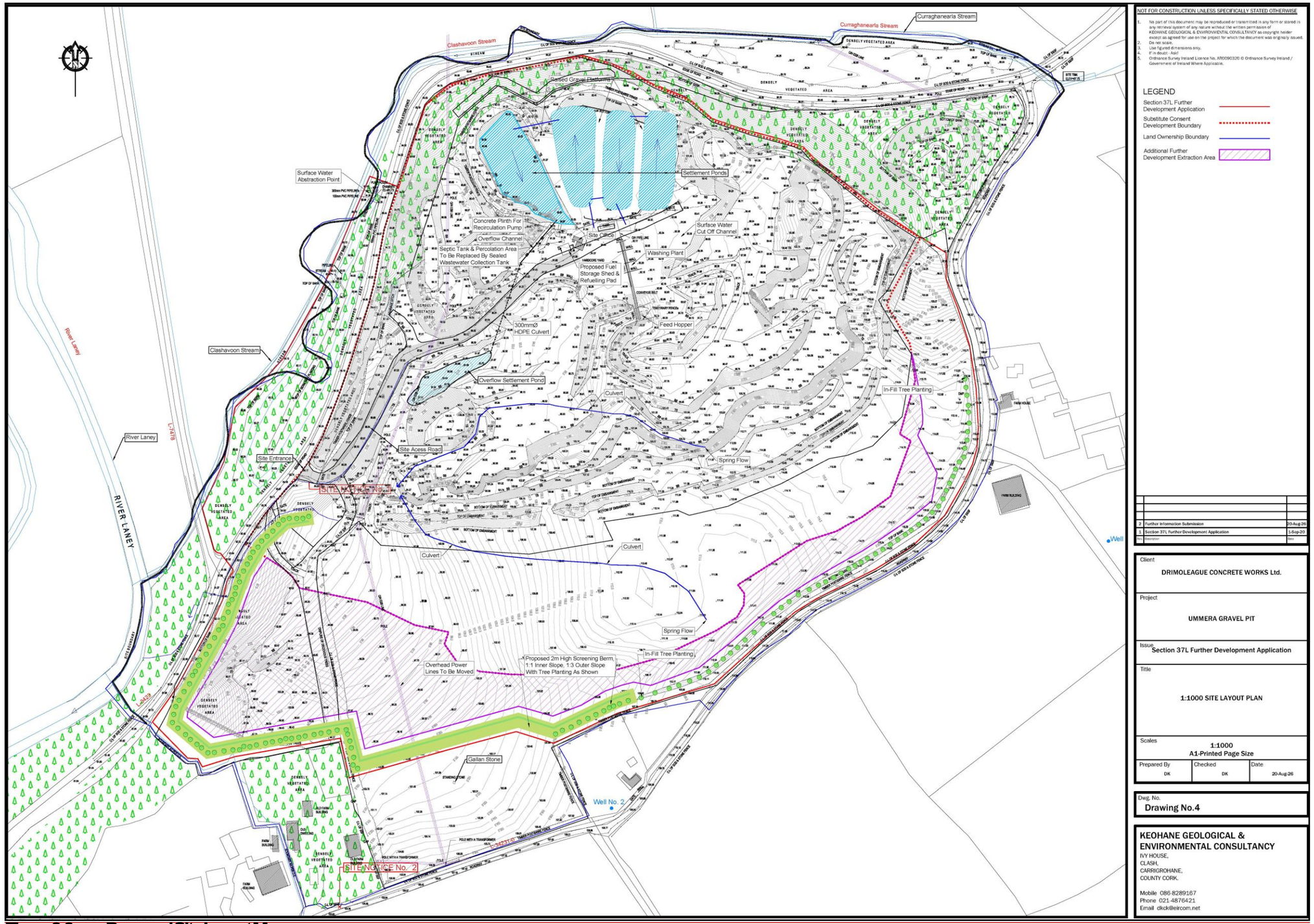


Figure 2-1: House Location Map



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LEGEND

- Section 37L Further Development Application
- Substitute Consent Development Boundary
- Land Ownership Boundary
- Additional Further Development Extraction Area

No.	Description	Date
2	Further Information Submission	20-Aug-26
1	Section 37L Further Development Application	1-Sep-20

Client: DRIMOLEAGUE CONCRETE WORKS Ltd.

Project: UMMERA GRAVEL PIT

Issue: Section 37L Further Development Application

Title: 1:1000 SITE LAYOUT PLAN

Scales: 1:1000 A1-Printed Page Size

Prepared By	Checked	Date
DK	DK	20-Aug-26

Dwg. No. Drawing No.4

KEOHANE GEOLOGICAL & ENVIRONMENTAL CONSULTANCY
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Figure 2-2: Proposed Site Layout Map

3. POPULATION & HUMAN HEALTH

This chapter of the EIAR addresses human beings in the vicinity of the site. It assesses the local population, settlement patterns and human health; the significant effects associated with the gravel pit on these aspects; and the mitigation measures being implemented or proposed to be implemented to remedy the impacts identified are also presented. The aspects covered include demographics, public health and quarries, socio-economics and tourism. As per the guidelines, '*consideration of human health effects resulting from the construction and operation of a project should focus on health issues arising in the context of the other environmental factors listed in Article 3 of the Directive/ Section 171A of the Act' and 'the assessment of impacts on population & 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'.* The other areas examined with respect to the effects of gravel extraction on population and human health ~~humans~~ are noise (Chapter 5), traffic (Chapter 4), air & climate (Chapter 6) and visual impacts (Chapter 11). The factors of these environmental aspects as they relate to population & human health are summarised in this chapter of the EIAR. Cumulative impacts are discussed where relevant.

3.1 Human Beings in the Existing Environment

Ummera gravel pit is in a rural setting approximately 2.5km to the northeast of Macroom. It is in the electoral division (ED) of Macloneigh, as shown on Figure 3-1. Macloneigh ED is large, extending to 30.7km^2 and wrapping around Macroom Town. The nearest settlements are Macroom, Carrigadrohid and Coachford. The nearest town is Macroom, 2.5km to the southwest. Figure 2-1 (Discovery Series Map No. 79) shows the site location map.

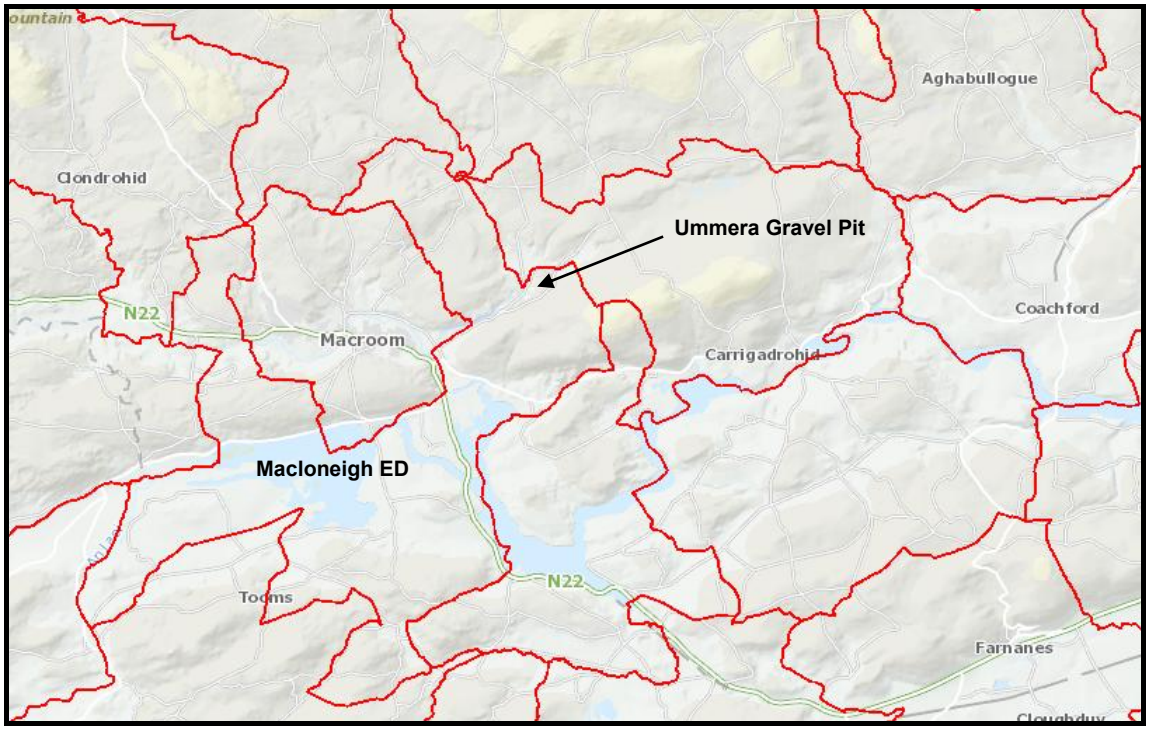


Figure 3-1: Electoral Division Map

According to the Central Statistics Office (CSO), the population of County Cork in ~~2016~~ 2022 was 360,152~~417,211~~, making up ~~8.76~~6.99% of the entire population of the State. The rural / urban split of the State is 37.3% / 62.7%. The 2022 population shows a decrease from the 2016 County Cork population of 417,211. This reflects the expansion of the city functional area in May 2019 when 148km^2 of County Council functional area, including a population of approximately 85,000, transferred to the city functional area.

The ~~2016~~ 2022 figures for the State represent an ~~3.88~~% increase over the ~~2011~~2016 census population figures, representing a faster growth rate than the ~~period 2006 – 2011 (of 1.6%)~~ previous two census. The population of ~~County~~ Cork (City and County) grew by ~~4.4~~7.8% over the 5-year period ~~2011-2016~~ 2016-2022. The 2022 census indicates a total population of the Macloneigh ED of 905 – 439 males and 466 females. This ED has a population density of 30 people/km^2. The age distribution of this population is provided in Table 3-1.

Table 3-1: Age Distribution of Macloneigh Population – 2022 Census

Age Range	Male	Female	Total
0 to 4 years	22	28	50
5 to 9 years	31	35	66
10 to 14 years	25	31	56
15 to 19 years	23	23	46
20 to 24 years	22	18	40
25 to 29 years	19	23	42
30 to 34 years	24	24	48
35 to 39 years	21	24	45
40 to 44 years	35	34	69
45 to 49 years	33	32	65
50 to 54 years	31	28	59
55 to 59 years	37	39	76
60 to 64 years	33	21	54
65 to 69 years	22	29	51
70 to 74 years	22	23	45
75 to 79 years	19	20	39
80 to 84 years	10	16	26
85 + years	10	18	28
TOTAL	**439**	**466**	**905**

The occupations for the Macloneigh ED population in 2022 are summarised in Table 3-2.

Table 3-2: Occupations of Macloneigh Population – 2022 Census

Age Range	Male	Female	Total
Managers, Directors and Senior Officials	17	14	31
Professional Occupations	47	57	104
Associate Professional and Technical Occupations	26	27	53
Administrative and Secretarial Occupations	10	28	38
Skilled Trades Occupations	65	10	75
Caring, Leisure and Other Service Occupations	1	25	26
Sales and Customer Service Occupations	8	17	25
Process, Plant and Machine Operatives	25	5	30
Elementary Occupations	21	10	31
Not stated	16	11	27
TOTAL	**236**	**204**	**440**

A population of 498 between the ages of 20 and 64 years and a total employment of 440, suggests a unemployment rate of 13.2%. The industries in which the population are employed are summarised in Table 3-3.

Table 3-3: Employment by Industry – 2022 Census

Age Range	Male	Female	Total
Agriculture, forestry and fishing	33	5	38
Building and construction	25	3	28
Manufacturing industries	35	26	61
Commerce and trade	58	41	99
Transport and communications	17	9	26
Public administration	14	8	22
Professional services	25	71	96
Other	19	30	49
TOTAL	**226**	**193**	**419**

Data presented in Tables 3-1 to 3-3 is sourced from the Central Statistics Office (CSO) website – https://www.cso.ie. The CSO groups quarrying with 'Manufacturing Industries'. The operator of the Ummera gravel pit doesn't live in the Macloneigh ED so is not represented in these figures. Other support workers (maintenance workers, electricals, machinery drivers, etc,) engaged periodically may live locally and perhaps represented in these figures.

3.1.1 Recreation and Amenity

Tourism is recognised in the Cork CDP as playing an important contribution to the socioeconomics of the County and is strongly encouraged. County Cork is recognised as one of the leading tourist counties in Ireland, being the most visited outside Dublin. It is recognised as an important contributor to the local economy. Bord Failte provides figures for 2012 on a county basis (Bord Failte, 2012)[15]. For County Cork, there were 1,228,000 overseas visitors which generated €399M in revenues. Tourism has been identified as an important sector for job creation in the County.

The scenery and natural heritage of County Cork is the primary tourist attraction. There are a range of attractions from mountains, lakes, rivers, rugged coastlines, woodlands etc. with their associated activities including trekking, hill walking, mountaineering, water sports, fishing, sailing etc. The CDP lists '*Fota Wildlife Park, ~~Blarney Castle,~~ Middletown Distillery – Jameson Experience, Cobh Heritage Centre, Kinsale (including Charles Fort), Mizen Head Signal Station, Garnish Island, West Cork Model Railway, Barryscourt Castle, Desmond Castle, Dursey Island Cable Car, ~~Gougane~~ Guagán Barra, Cobh Cathedral, Bantry House and Gardens, ~~and~~ Doneraile House and Park, Skibbereen Heritage Centre, Spike Island, Camden Fort, Youghal Clock Tower and Mallow Castle*' as key tourist attractions of national importance with and significant visitor numbers. Figure 3-2 shows the key tourist assets in County Cork (Figure ~~8~~10-1 of the CDP).

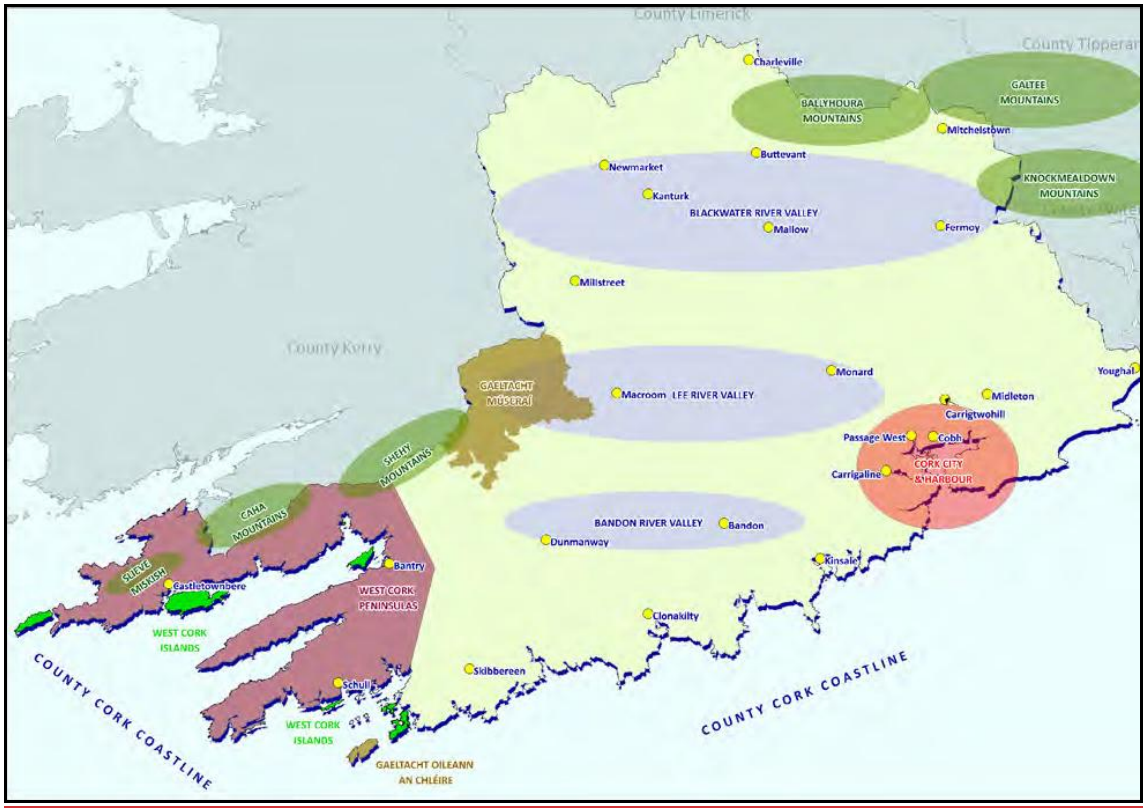


Figure 3-2: Key Tourists Assets in County Cork
Source – Cork County Development Plan ~~2014~~2022

The Ummera gravel pit is located within the Lee River Valley area but is not located along the main tourists' routes through the valley – N22 (Cork to Killarney) or R618 (Blarney to Macroom).

3.1.2 Settlement Pattern near Site

As noted in Section 2.1.1, the settlement pattern in the area is one of scattered farmhouses and once-off housing. There are 14 dwellings within 500m of the landownership boundary offset. These are listed in Table 2-1 and are shown on Figure 2-1. As shown in Table 2-1, the nearest dwelling is 5m from the ownership boundary and 15m from the Section 37L application boundary. Approximately half of the houses were built since the gravel pit was opened.

There are no live planning applications for houses within 500m of the landownership boundary. One planning permission for a house (06/6619) within the 500m offset has lapsed.

3.2 Public Health & Extraction Industry

The issues associated with public health and gravel pits relate to noise, air quality, water and traffic. Noise is discussed in Chapter 5; air quality is discussed in Chapter 6; water is discussed in Chapter 7; and traffic is discussed in Chapter 4. The significant effects associated with the gravel pit on these aspects of public health are:

Noise

1. Noise levels are not expected to have exceeded relevant emission limit levels at the nearest receptors during its lifetime. The workings (processes and intensity) at the gravel pit have remained largely unchanged for many decades, apart from the natural progression of the working face to the south.
2. Working hours are generally kept to 9am – 5pm during weekdays and 9am to 1pm on Saturday.
3. Potholes occurring in the access road are periodically repaired to reduce truck noises.

It is determined that the workings at the gravel pit have not given rise to noise nuisance for local residence and based on modelling for the further development, will not give rise to nuisance in the future.

Air Quality

1. Dust nuisance has given rise to complaints from the nearest residents located downwind of the gravel pit with respect to the predominant wind direction. These were most pronounced in the late 1990's / early 2000's.
2. A dust suppression system was installed in the late 1990's at the gravel pit, which extended along the access road and along the top edge of the working face. The pipework for this spray system has fallen into disrepair. However, dust emissions in recent years have not given rise to complaints.
3. Fugitive dust emissions from the gravel pit are monitored. Results generally indicate compliance with emission limit values.
4. The material processed is washed, so doesn't give rise to dust emissions. The finer product is stored in concrete bins and protected from wind. The coarser material is stored in the open, but too large to give rise to dust emissions. Dried silt is the greatest risk of fugitive dust emissions. The silt is seeded with grass to reduce erosion potential. A programme for using this silt in site restoration will also be implemented.
5. In addition, it is intended to pave the access road from the site entrance to the site office. This will be kept clean, so HGVs entering/leaving the site are less likely to give rise to fugitive dust emissions. A speed limit of 15kph will be imposed for traffic accessing the gravel pit.

Water

1. Uncontrolled discharges of surface water carrying silt could impact surface water quality. This could potentially affect water quality at downstream abstraction points. The closest downstream public drinking water supply is located at Inniscarra Dam. A comprehensive and effective settlement pond arrangement has been constructed to prevent silt-laden stormwater discharging from the site.
2. Spillage of diesel could impact groundwater and/or surface water quality. Again, this could potentially affect drinking water supply sources. A small volume of diesel (1,487 litre tank) is stored at the gravel pit. No spillage incident has occurred at the pit. Proposals for a concrete refuelling pad is included with this application.

Traffic

1. The entrance to the gravel pit has good sight lines for HGVs entering from and leaving to the south – the predominant direction of travel. Improvements will be made to increase the sightline distances to the south.
2. DWCL HGVs access the regional ~~/ national~~ road network within 2.1km.
3. There is warning signage at the approach to the pit entrance, and an additional sign will be erected further south for traffic on the southern approach to give greater warning.
~~3.~~4. Modelling, based on traffic counts and projected pit traffic, indicates ample capacity the junctions between the pit and the former N22.

3.3 ~~Human Beings –~~ Impacts Assessment

3.3.1 Health and Safety

The pit manager has been / is responsible for safety issues on site. Potential hazards may occur in an active gravel pit from construction and operation practices and include:

- Equipment/plant movement around the gravel pit.
- Working near open water (i.e. working near the settlement ponds or Clashavoon Stream).
- Truck traffic to and from the gravel pit.
- Personal injury.
- Noise from plant and machinery.
- Fire.
- Failure of working faces / silt stockpiles.

While the gravel pit is located on private lands and unauthorised access is discouraged, it is possible for unauthorised access to the gravel pit. Unmitigated, the continued operation and restoration of the gravel pit is likely to have imperceptible, local, medium-term negative effects on the health & safety of workers, local population and human health.

3.3.2 Socio-Economics

The gravel pit directly employs 1 fulltime worker, 2 additional workers on occasion and (indirectly) up to 5 drivers employed by DCWL to draw aggregate from the gravel pit. These numbers will remain reasonably consistent during the further development of the gravel pit. Some of the workers perhaps live locally, so directly support the local economy. The aggregates produced will continue to directly support the local construction industry. Unmitigated, the continued operation and restoration of the gravel pit is likely to have imperceptible, medium-term positive effects on socio-economics of the local population.

3.3.3 Recreation, Amenity & Tourism

The gravel pit is in a rural settling distant from any population centres, local amenities (GAA clubs, churches, schools, parish halls, etc.) or tourist destinations. The Laney River holds populations of salmon and trout, so may be used for recreational fishing, although the dense bankside woodland is a constraint. There are no way-marked walking or cycling routes near the gravel pit; the closest are located in Farran Woods (10km to the southeast) and Boggeragh Mountains – Duhallow Way (10km to the north). No direct or indirect significant impacts on tourism, recreation or local amenities are envisaged to occur in the future. It is not visible from any of the tourist assets in the Mid Cork area. The amenity of each residence could potentially be impacted by extraction activities by way of HGV traffic, noise and dust. These are discussed in detail in Chapters 4, 5 and 6, respectively. Unmitigated, the continued operation and restoration of the gravel pit is likely to have imperceptible, medium-term negative effects on the amenity of the local population. It is unlikely to have any effect on tourism or recreational fishing.

3.4 Avoidance, Remedial or Reductive ~~Human Beings – Mitigation~~ Measures

3.4.1 Health and Safety

The approach to ensuring safe and healthy working conditions for employees at the gravel pit that has been implemented at the site are summarised as follows:

- The pit is operated in accordance with the Safety, Health & Welfare at Work (Quarries) Regulations 2025[16].
- Identifications of hazards associated with each activity.
- Assessment of risk associated with each hazard.
- Provision of safety training and instruction.
- Provision of protective equipment.
- Consultation with employees on health and safety matters.
- Obtaining copies of sub-contractor's health and safety plans.
- Auditing by an independent safety consultant.

Security at the site to deter unauthorised access include security gate, perimeter fencing and warning signage. The settlement ponds are fenced off. An earthen berm has been constructed along the southern side of the ponds to stop vehicles. The need to add or replace warning signage will be kept under review.

3.4.2 Socio-Economics

No mitigation measures are deemed necessary for socio-economics.

3.4.3 Recreation, Amenity & Tourism

No significant impacts are envisaged with respect to recreation and tourism, so no mitigation has been implemented in this regard. Protection of amenity for the local population relates to control of emissions, including dust and noise.

3.5 Cumulative Impacts

A small borrow pit is located on the hillside to the south and overlooking the gravel pit. This is used infrequently by the landowner to dress farm lanes. Cumulative effects are unlikely. Apart from this borrow pit, there are no projects planned or permitted in the vicinity of the Ummera gravel pit that are likely to result in cumulative effects on the population and human health.

3.6 Risk of Major Accidents or Disasters

The risk of major accidents or disasters arising from the continued operation of this small-scale gravel pit is negligible. There is no material stored or used on site in quantities that presents a risk to the surrounding population or human health. The operation of the gravel pit doesn't present an increased risk of flooding in the catchment. The stockpiles and quarry faces are maintained in a safe condition, so risk of soil instability is low.

3.7 Difficulties Encountered in Compiling

There were no difficulties encountered in compiling the population & human health chapter.

3.8 Interactions

Interactions associated with population & human health and other aspects of the environment (i.e., air, noise traffic and water) have already been discussed.

~~3.5~~3.9 Residual Effects

The residual effects following mitigation are summarised in Table 3-4.

Table 3-4: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effect - Significance
Health & Safety	Public - Dust	Dust emissions are likely to have a slight medium term negative local effect on the nearby population.	Dust suppression measures. Paving access road. Screen planting to shelter the gravel pit from wind. Monitoring programme.	Imperceptible
	Public - Noise	No adverse impacts on the local population or on human health are expected.	Plant and machinery maintenance including exhaust and silencer systems. No excessively noisy plant to be used on site. Truck and plant horns not to be used. Access road to be paved and maintained.	Imperceptible
	Public - Safety	Imperceptible, local, medium-term negative effects on the health & safety of local population.	Restricted access – security gate and fencing. Warning signage.	Imperceptible
	Employee - Safety	Imperceptible, local, medium-term negative effects on the health & safety of workers.	Training. Health & Safety procedures.	Imperceptible
Socio-Economics	Employment	Local direct employment and supply of raw materials to the construction industry– imperceptible positive effects	None.	Imperceptible
Recreation, Amenity & Tourism	Recreation	No significant impacts predicted on local recreational facilities – rivers, lakes, way-marked ways etc.	None.	Imperceptible
	Amenity	Amenity of local residence could be impacted by HGV traffic (road users), noise and dust.	Refer to Tables 4-5 (traffic), Tables 5-8 and 5-9 (Noise) and Table 6-17 (dust / air quality).	Traffic – Potentially Significant Noise – Imperceptible Dust / Air Quality – Imperceptible
	Tourism	No direct or indirect impacts on tourism is predicted	None.	Imperceptible

~~3.6~~3.10 Conclusions on Population & Human Health ~~Human Beings~~

The Ummera gravel pit has not had a significant negative impact on human health or population in the local area. Measures have been put in place and are proposed to control emissions from the gravel pit.

4. MATERIAL ASSETS

4.1 Introduction

This chapter of the EIAR addresses roads and traffic in the existing environment. It assesses the local road network and traffic patterns; the significant effects that might be associated with the further development of the gravel pit; and the mitigation measures being implemented or proposed to be implemented to address the impacts identified are also presented.

Other material assets typically discussed in this chapter include built services and waste management. Built services include electricity, telecommunications, gas, water supply and sewage infrastructure. The area is not serviced by mains water, mains sewer or mains gas, so this infrastructure is not relevant to the assessment. The gravel pit is in the catchment of the Inniscarra Reservoir, a major drinking water source. This is assessed and discussed in Chapter 7 (Water – Hydrology & Hydrogeology). Overhead telecommunications lines follow the public roads in the vicinity of the site and will not be affected. One overhead electricity line traverses the western side of the site. The line will be moved to accommodate the further development of the gravel. This work will be carried out by ESB Networks (the distribution system operator). This is performed routinely by the ESB with brief supply outage. It will not affect the asset. Waste management is discussed in Section 2.3.10.

4.1.1 Scope & Purpose

This chapter of the EIAR provides details of the traffic and transport related to the development. It identifies the road network, existing traffic levels, junction capacity and road safety. It provides baseline data based on publicly available information and traffic counts carried out as part of this assessment.

The purpose of the assessment is to identify the potential direct and indirect impacts of the proposed development on the traffic, transport and road network, and to assess the potential impacts in the context of other developments (proposed / completed) to determine cumulative effects. Having identified and quantified the potential impacts, to detail measures to avoid, mitigate and / or reduce significant potential negative impacts for the operational and restoration phases, where relevant.

4.1.2 Policies & Guidelines

In addition to the EIA Guidelines, there are several guidelines relied upon in the preparation of this chapter. These include:

- National Roads Authority (May 2014) Traffic and Transport Assessment Guidelines NRA, Dublin.
- Institution of Highways & Transportation (1994) Guidelines for Traffic Impact Assessment IHT, London.
- National Roads Authority (2000) Road Geometry Handbook NRA, Dublin.
- National Roads Authority (revised 2003) Design Manual for Roads and Bridges NRA, Dublin.
- Department of Transport (May 2019) Design Manual for Urban Roads and Streets.

4.1.3 Source of Baseline Data

The sources of baseline data include:

- Project-specific traffic counts – provided in Appendix 4-1.
- Traffic counts for the R618 provided by Cork County Council (for other projects) – provided in Appendix 4-1.
- RSA Ireland Road Collisions - https://www.rsa.ie/road-safety/statistics/collisions.
- Traffic & Transport Assessment prepared for this project by MHL Consulting Engineers – provided in Appendix 4-2.

4.1.4 Assessment Methodology

A Traffic and Transportation Assessment (TTA) has been prepared in accordance with the NRA's 2014 publication "Traffic and Transport Assessment Guidelines" and the "Guidelines for Traffic Impact Assessments" as published by the Institution of Highways & Transportation U.K. in 1994. The TTA is included as Appendix 4-2 of this EIAR. The purpose of a TTA is to assess the potential traffic impact of a development on the existing road network and propose any necessary mitigation measures to best accommodate the expected traffic volumes generated by the further development of the gravel pit. It is also a requirement to ensure that proposals promote more efficient use of investment in transportation infrastructure and promote road-safety.

Key parameters relating to the traffic modelling carried out included: junctions to be assessed, trip generation, trip distribution, and assessment years.

Traffic surveys were carried out previously for the gravel pit on 16 January 2007, 30 May 2019 and 08 October 2019. These traffic counts were carried out at the priority junction (Junction 1) immediately south of the gravel pit entrance. More recently, traffic counts were carried out on 12 March 2026 at this junction. These 4 no. traffic counts were 12-hour manual recordings. Further peak-hour counts were conducted at the regional road junctions to the south of the pit on 02 July 2026 (Junctions 2 and 3). The data was used to model the capacity of the junctions used by HGV traffic associated with the gravel pit.

4.1.5 Consultation

A consultation package was sent to the Area Engineer's Office of Cork County Council, Cork County Council National Roads Design Office, Transport Infrastructure Ireland and the Department of Transport. No submission was received from the Area Engineer's Office or the Department of Transport. Cork County Council National Roads Design Office acknowledged receipt of the consultation and requested further information, which was forwarded to them. No further response was received. The response from Transport Infrastructure Ireland is provided in Appendix 1-2 and summarised below.

Transport Infrastructure Ireland (TII)
TII responded by email on 08 June 2026. It advised that the EIAR should '*demonstrate that the proposed development will not adversely affect the safety, capacity or operational efficiency of the national road network*'. In this regard it recommended that:

- It be demonstrated that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of the national road network.
- There be consultation with the Local Authority and NRDO with regard to any proposed road schemes.
- Haul routes be identified.
- A TTA be carried out.
- TII publications be consulted.

The recommendations provided by TII were followed and where appropriate present in this chapter of the EIAR. It is noted that DCWL HGV's do not use the national road network; the haul route to Bredagh Cross uses the regional and local road network. Prior to the opening of the Macroom Bypass, a short section of the N22 formed part of the haul route. However, since the opening of the Bypass, this section of road has been recategorised as a regional road.

4.2 Existing Road Network

The nearest national road to the Ummera gravel pit is the N22, which runs in an east-west direction approximately 3km to the south of the gravel pit. The N22 has been upgraded ~~is scheduled to be upgraded in 2020-2021 with the construction~~ with the opening of the Macroom Bypass in three phases since December 2022, being fully open in November 2023. Following the opening of the bypass, the section of the former N22 between Coolcour (eastern end of bypass) and Ballyvourney (western end of bypass) has been recategorised as a regional road – R584 and R618. The gravel pit is accessed from ~~the N22 using the~~ regional road R618 (Macroom – Coachford road) and local road L-3423. The entrance to the gravel pit is from local road segment L-3423-20 – see Plate 4-1. This road passes between the gravel pit (extraction area) and the original settlement ponds used for treating wash water; and also forms the northern boundary of the pit. Local road L-34231-0 forms the eastern and south-eastern boundary of the gravel pit. The road network is shown on Figure 4-1. HGV traffic from the gravel pit generally turns left (south) from the gravel pit, travelling towards the ~~N22~~R618. Most of the gravel extracted is taken to the DCWL's production facility in Bredagh Cross Drimoleague.

The L-3423 / R618 junction (identified as Junction 2 in the traffic count data and in Figure 4-1) is the first major junction encountered by HGV traffic exiting the gravel pit. The junction is at the outside of a 90º curve in the R618, so sightlines are good at this junction; visibility to the left (east) is approximately 160m and visibility to the right (south) is approximately 150m. Plate 4-2 shows the views at this junction for traffic entering the R618. The Macroom Bypass passes over the R618 just south of Junction 2, as seen in Plate 4-2. DCWL HGVs travel to the ~~N22~~R618 / R584-12 junction (identified as Junction 3 in the traffic count data and in Figure 4-1), travel east turning onto the ~~R587~~ R584-18. At Toons Bridge, the haul route goes left onto the R587 and heads south through Kilmichael, joining the R585 at Gloun Cross. From Shanlargh to Dunmanway, the road number reverts back to the R587. From ~~and into~~ Dunmanway to Drimoleague, the route follows the R586. At the western side of Drimoleague the route turns left onto the R593.for approximately 5.8km, where it turns left onto local road L-4231 ~~and from there~~ to Bredagh Cross, Drimoleague.



Plate 4-1: View of Pit Entrance from Local Road L-3423 – Looking North



Plate 4-2: View of L-3423 / R618 Junction from Local Road

4.2.1 Traffic Counts

DCWL engaged Abacus Transport Surveys to carry out a traffic count for the gravel pit in 2007. The traffic count was conducted on 16 January at the junction (L-3423 / L-7478 junction – Junction 1) just south of the pit entrance between 07:00 and 19:00. Six movements were recorded as shown in Plate 4-3. The hourly movements are summarised in Table 4-1. The detailed traffic count data is provided in Appendix 4-1.

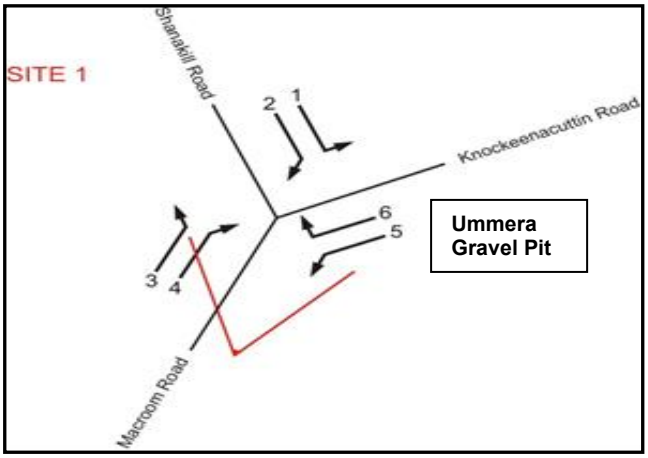


Plate 4-3: Traffic Count Movements

Table 4-1: Summary of Traffic Count Data – January 2007

Time Period	Movement												Total
	1		2		3		4		5		6		
	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	
7 – 8	0	0	0	3	0	1	0	0	0	14	0	0	18
8 – 9	0	0	2	7	0	4	2	5	0	20	0	0	40
9 – 10	0	0	1	3	1	3	3	19	2	29	0	1	62
10 – 11	0	0	0	2	0	3	0	9	1	16	0	0	31
11 – 12	0	0	0	2	0	6	2	17	1	13	0	0	41
12 – 13	1	1	1	3	1	2	1	20	2	14	1	2	50
13 – 14	0	1	0	3	1	5	0	11	1	9	0	0	31
14 – 15	1	0	0	2	0	7	2	11	3	7	2	0	36
15 – 16	3	0	0	2	0	2	0	21	1	17	2	0	48
16 - 17	2	0	1	2	1	8	1	9	2	10	3	0	39
17 – 18	0	0	1	6	0	11	1	18	1	14	0	0	52
18 - 19	0	0	0	2	0	7	0	32	0	6	0	0	47
TOTAL	7	2	6	32	4	59	12	172	14	169	8	3	495

Notes:

1. 'Other' refers to cars, buses and light good vehicles, which would generally not be associated with the gravel pit.

The total daily traffic flow through the junction during the day was 495 vehicles, with peak flows occurring between 09:00 – 10:00 in the morning. Traffic flow volumes fell into late morning with a slight spike approaching lunchtime and peaking again between 17:00 and 18:00. During the hours of peak traffic volumes, most of the traffic travelled straight through the junction along the L-3423, passing the pit entrance. Approximately 10.3% of the traffic are HGV's of which 50.9% are likely to be associated with Ummera gravel pit; the number of HGVs entering/existing the pit were not recorded, but those making movement 4 and 5 are assumed to be pit traffic, but this likely overestimates gravel pit HGV traffic.

The traffic count was repeated on 30 May 2019 between 07:00 and 19:00 at the same location, with the same movements recorded. Traffic entering and leaving the gravel pit was noted. The count data is summarised on Table 4-2.

Table 4-2: Summary of Traffic Count Data – May 2019

Time Period	Movement												Total
	1		2		3		4		5		6		
	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	
7 – 8	0	0	3	9	0	2	0	2	1	17	0	0	34
8 – 9	0	2	0	6	0	6	1	9	0	22	0	1	47
9 – 10	0	0	0	13	1	12	0	11	0	26	0	1	64
10 – 11	0	2	2	12	0	8	2	16	1	10	0	2	55
11 – 12	0	0	0	9	0	6	1	19	2	28	0	0	65
12 – 13	0	0	0	3	1	6	0	24	0	18	0	2	54
13 – 14	0	0	1	5	0	10	1	20	0	25	1	0	62
14 – 15	0	2	0	7	0	4	0	13	1	23	0	0	49
15 – 16	0	0	0	7	1	8	0	27	0	15	0	0	58
16 - 17	0	0	0	7	1	16	0	21	0	11	0	2	58
17 – 18	0	0	1	5	3	17	0	24	0	17	0	0	67
18 - 19	0	0	0	6	0	11	0	23	0	22	0	0	62
TOTAL	0	6	7	89	7	106	5	209	4	234	1	8	676

A further traffic count was carried out on 08 October 2019 when schools were opened. The traffic count replicated the count of May 2019. The count data is summarised on Table 4-3. The 2019 traffic count data is provided in Appendix 4-1.

Table 4-3: Summary of Traffic Count Data – October 2019

Time Period	Movement												Total
	1		2		3		4		5		6		
	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	
7 – 8	0	0	3	7	0	3	0	2	1	16	0	0	32
8 – 9	0	1	0	8	1	6	1	9	0	25	0	1	52
9 – 10	0	0	0	12	1	9	1	11	0	27	0	1	62
10 – 11	0	2	2	10	0	5	3	16	1	10	0	2	51
11 – 12	0	0	1	8	0	8	1	16	3	19	0	0	56
12 – 13	0	0	0	2	2	6	0	18	0	9	0	1	38
13 – 14	0	0	1	4	0	9	2	17	0	22	1	0	56
14 – 15	0	1	0	6	0	4	1	12	0	21	0	0	45
15 – 16	0	0	0	7	1	7	2	21	0	10	0	0	48
16 - 17	0	0	0	9	1	14	2	17	0	7	0	2	52
17 – 18	0	0	1	6	3	16	0	20	0	18	0	0	64
18 - 19	0	0	0	6	0	11	0	22	0	18	0	0	57
TOTAL	0	4	8	85	9	98	13	181	5	202	1	7	613

The traffic counts in 2019 show a 36% (May) and 24% (October) increase in traffic movements over the 12-year period between the count dates. There is a reduction in the 'other' vehicle types between May and October, which is attributed to the absence of agricultural activity. Traffic associated with the gravel pit during the 2019 counts included:

- 2 No. workers' vehicles accessing the gravel pit at 09:00 and leaving at 17:00.
- 2 No. and 4 No. HGV loads in May and October, respectively.
- 2 No. and 1 No. tractor trailer loads in May and October, respectively.
- 1 No. car with trailer in both May and October.

The traffic count at Junction 1 was repeated in March 2026 – following the opening of the Macroom Bypass. The count data is summarised on Table 4-4. The 2026 traffic count data for Junction 1 is also provided in Appendix 4-1.

Table 4-4: Summary of Traffic Count Data – March 2026

Time Period	Movement												Total
	1		2		3		4		5		6		
	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	
7 – 8	0	0	2	10	1	3	1	8	0	11	0	0	36
8 – 9	0	0	1	23	1	15	0	18	0	36	0	1	95
9 – 10	0	1	1	16	0	5	1	16	2	29	0	0	71
10 – 11	0	0	0	8	0	8	2	11	0	18	0	0	47
11 – 12	0	0	0	8	0	8	2	11	0	18	0	0	47
12 – 13	0	0	0	11	0	8	0	19	0	13	0	1	52
13 – 14	0	0	0	6	0	10	0	14	0	14	0	0	44

Time Period	Movement												Total
	1		2		3		4		5		6		
	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	HGV	Other	
14 – 15	0	1	0	11	0	9	0	18	1	20	0	0	60
15 – 16	0	0	1	9	1	13	1	11	0	19	0	1	56
16 - 17	0	0	0	9	0	17	0	23	1	150	0	0	65
17 – 18	0	0	0	12	2	19	0	31	0	18	0	0	82
18 - 19	0	0	0	6	0	11	0	18	0	17	0	0	52
TOTAL	0	2	5	129	5	126	7	198	4	228	0	3	707

The traffic count in 2026 shows a 4.6% and 15.3% increase in traffic movements over the 7-year period for the May 2019 and October 2019 count dates, respectively. The HGV traffic in March 2026 (21 no. movements) at Junction 1 is less than half of that recorded in October 2019 (46 no. movements) and approximately 50% lower than that recorded in May 2019 (32 no. movements). The higher HGV traffic recorded in 2019 may be associated with the supply of materials to the Macroom Bypass construction.

There is only one employee at the pit, and this will continue for the further pit development. The rate of extraction is expected to vary up to 50,000 tonnes per annum, which works out at 1,000 tonnes/week on average. Data for the last 12 months (July 2025 to June 2026) indicates that the extraction has been approximately 25,000 tonnes. It is mostly articulated lorries that draw gravel for DCWL to Bredagh Cross. These can take 30 tonnes/load. DCWL also sell directly to other carriers / contractors / individuals who use rigid body trucks mostly, but some might use articulated trucks. Gravel is also sold by the tonne drawn by cars/vans w-trailers and small OVG1 (mini tippers). For the last 12 months, monthly tonnages ranged up to 3,000 tonnes, with up to 115 loads – made up of 30% articulated; 30% cars with trailers or small tippers (loads <10 tonne); and 40% rigid body HGVs or tractors with trailer. The TTA assessed 50,000 tonnes/annum. The HGV traffic is spread out across the day.

On 02 July 2026, further manual traffic counts were conducted at the junctions to the south of the gravel pit (along the route to Bredagh Cross) during peak traffic periods. This data is used to model the junctions' capacity and is presented in the TTA report – Appendix 4-2. The L-3423 / R618 junction is referred to as Junction 2 and the R618 / R584 junction is referred to as Junction 3.

4.2.2 Site Entrance

The current entrance to the gravel pit was created in the 1990's using an existing agricultural entrance. The original pit entrance was located at the northwest corner of the pit with limited sightlines in both directions. The current access road to the gravel pit from local road L-3423-20 is unpaved. The entrance is just north of the junction of the L-3423-0 and L-7478. The L-3423 has an ~~80kph~~ 60kph speed limit, Speed limits on local rural roads were reduced nationally from 80kph to 60kph in February 2025. The sightlines at the pit entrance are approximately 220m to the north and 70m to the south. Ideally, these would be ~~160m~~ 120m for a road with a speed limit of ~~80kph~~60kph. Plate 4-4 shows the views at the pit entrance – August 2026. Sightlines for HGVs entering the pit from the south are good, with visibility of approximately 220m. Hedgerow maintenance is carried out to maintain the slight line distances.

The gate is set back 18m from the road edge allowing a HGV pull off the road safety if the gate is closed.

Warning signage was erected at the approaches to the entrance since DWCL commenced using it in the 1990's – see Plate 4-5.



Plate 4-4: Views from Site Entrance Looking North and South



Plate 4-5: Warning Signage on Approach to Entrance – from North & South

4.2.3 Road Safety

Collison data is available online from the Road Safety Authority – http://www.rsa.ie/en/RSA/Road-Safety/RSA-Statistics/Collision-Statistics/Ireland-Road-Collisions/. Plate 4-6 shows all collisions in the vicinity of Ummera gravel pit for the period 2005 to 2015 and categorised as Fatal, Serious and Minor. Plate 4-7 shows the collisions for the same period but involving only goods vehicles. The year 2005 is the earliest collision data available from this online source.

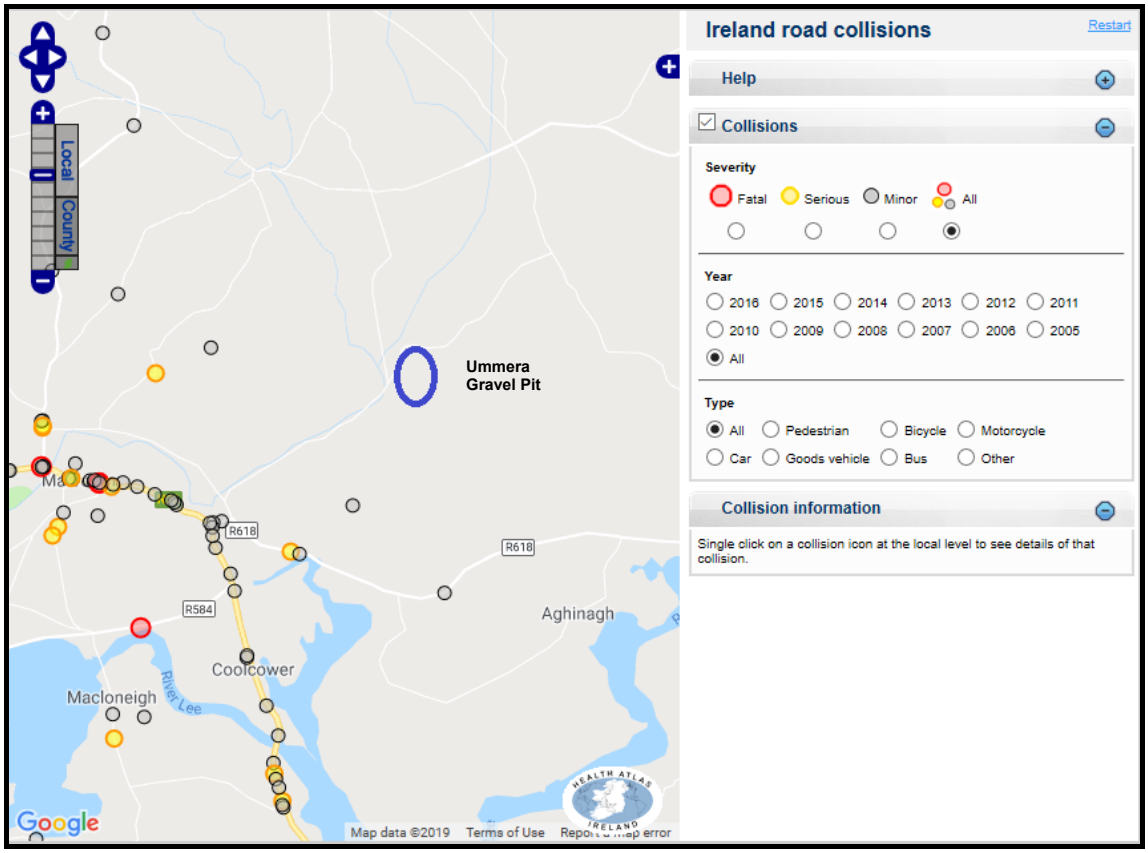


Plate 4-6: RSA Collison Data for Period 2005-2015, All Vehicles

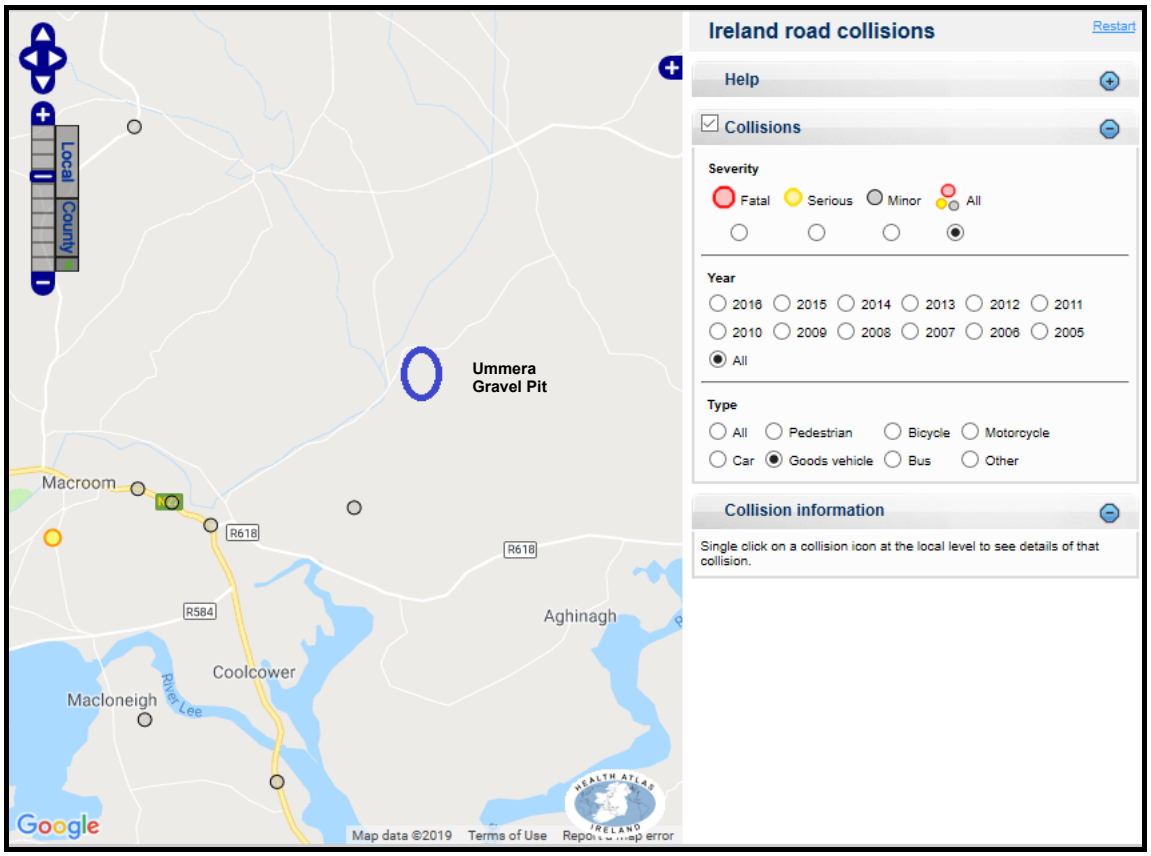


Plate 4-7: RSA Collison Data for Period 2005-2015, Goods Vehicles

As seen on Plates 4-6 and 4-7, there have been no recorded collisions on the local road (L-3423) servicing the gravel pit. Four minor collisions are recorded near the former N22 / R618 junction, one of which involved a goods vehicle. It has been confirmed with DCWL that none of the collisions involved HGVs from the gravel pit.

Plate 4-8 shows the updated RSA collision data for 2016 to 2024. As shown on Plate 4-8, there were no collisions recorded on the local road serving the gravel pit. There was a non-serious collision at / near Junction 2; 2 no. collisions at the Macroom side of Junction 3 (one non-serious and one serious) The collision resulting in the serious injury occurred between 12am and 4am, so was not related to the gravel pit. Another non-serious collision occurred on the R584 involving a pedestrian. Again, it has been confirmed with DCWL that none of the collisions involved HGVs from the gravel pit.

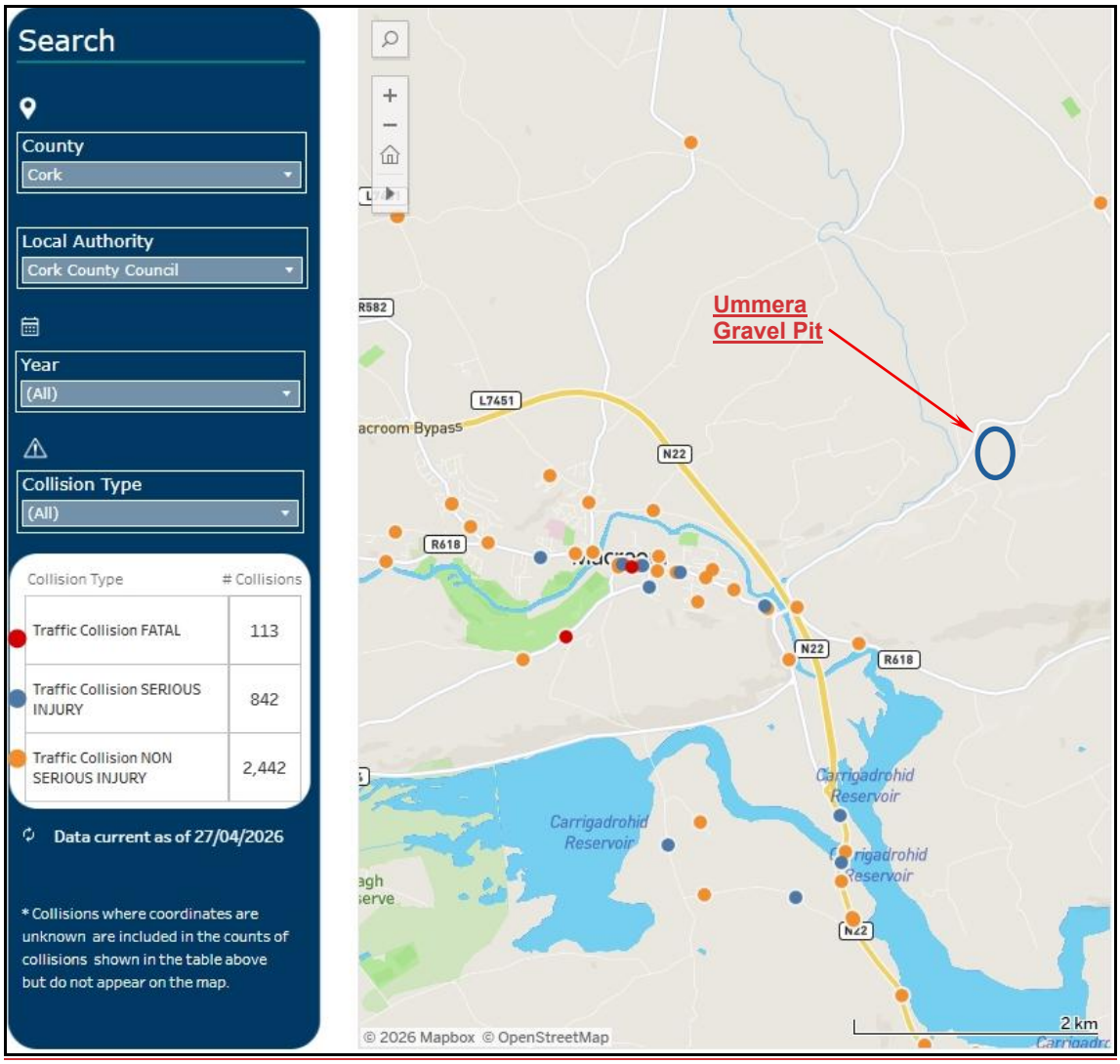


Plate 4-8: RSA Collison Data for Period 2005-2015, All Vehicles

4.3 Impact Assessment

4.2.44.3.1 Do Nothing Impact

If the further development of the gravel pit is not advanced, the site will be returned to mostly agricultural use. The traffic associated with Ummera will be displaced to another existing or new gravel pit.

~~4.2.5~~4.3.2 Worst-Case Scenario

In the evaluation of junction capacity in the TTA, the future year performance assessments undertaken include robust growth factors by TII. Therefore, the predicted effects on the three junctions assessed represent a worst-case scenario. The three junctions maintain a 'free-flow' or 'reasonably free-flow (no delay incurred)' level of service at the maximum peak modelled in design year 2042.

For transport of aggregate, a major accident on the public road would be a worse-case scenario, or spillage of aggregate on the public road contributing to a major accident. Carriers are loaded to avoid spillage of aggregate. All DCWL drivers are trained and experience and maintain current certificate of professional competence (CPC). Risk of road collisions can't however be eliminated as third parties could be involved and while unlikely, could be significant. However, this isn't specific to the further development of the Ummera gravel pit; that risk is present for all road users.

~~4.2.6~~4.3.3 Construction & Operational Impacts

As the gravel pit is operational, the construction phase impacts are discussed with the operational phase. The proposed infrastructural improvements proposed will not have any significant effects on traffic and transport. The gravel pit generates a small volume of HGV traffic on local road L-3423 – up to 10 loads (20 movements) per day typically. Spread over an 8-hour day, this equates to between 2 and 3 HGV movements per hour. These volumes will be representative of HGV traffic during its further development and ~~is considered an insignificant traffic impact~~so the further development will likely result in an imperceptible, neutral, regional medium-term effect. It is noted that the HGV traffic associated with the gravel pit doesn't conflict with the peak traffic movements recorded on the L-3423 – i.e. car traffic between 08:00 and 09:30 and 16:30 to 18:00.

The low volumes of HGV traffic have not impacted significantly on the quality of the local road and this will not change for the further development of the gravel pit.

Sightlines at the pit entrance are below ideal distances, however, most of HGVs enter the gravel pit from the south from which drivers have sight distances of 220m and similarly for HGV traffic leaving the pit. The below-optimal sightline distance to the south of the pit entrance, if unmitigated, presents a likely medium-term slight negative local effect. The below optimal sightline distance increases the risk of collision for traffic going north from the gravel pit.

The opening of the Macroom bypass ~~(currently under construction)~~ in November 2023 has ~~will~~ resulted in less HGV traffic on the sections of the ~~R610 and N22~~R618 and R584 used by HGVs from the gravel pit travelling to Bredagh Cross. ~~The Macroom bypass is scheduled to open in mid-2023.~~ This is a likely positive not significant medium-term local effect.

The risk of road collision is discussed in Section 4.3.2. While the risk of a traffic collision involving a DCWL truck is low, the consequences of one could be significant for other road users but the effects are indeterminable for the purposes of the EIA.

4.3.4 Restoration Phase

The restoration phase of the gravel pit will have similar potential impacts to the operational phase. The volume of HGV traffic generated during restoration is expected to be less than that of the operational phase. It will include HGV traffic associated with the removal of plant and machinery, removal of waste concrete and possible the importation of greenfield soil & stone. The removal of plant, machinery and waste concrete will generate up to 30 loads over a 4-to-6-week period. This would likely result in an imperceptible, neutral, regional temporary effect. The restoration of the gravel pit may involve importation of greenfield soil & stone under Article 27. This is likely to in an imperceptible, neutral, regional temporary effect. A similar volume of HGV traffic would be generated during this activity to that of the current gravel pit operations.

~~4.3~~4.4 Mitigation Measures

4.4.1 Operational Phase

The site entrance into the gravel pit was relocated from its original location in the 1990's. This entrance provides improved sightlines for HGVs entering and leaving the gravel pit and also improves sight stopping distances for traffic passing the site. The ditch to the south of the entrance has been battered back to improve sight distances and the hedgerows are cut periodically to remove obstructions and maintain sight distances. These maintenance activities will be continued by the operator. The ditch to the south of the entrance will be battered back further to increase the sightline to the optimal 120m distance for a 60kph speed limit.

While most of the other traffic is local or commuter traffic and familiar with the presence of the Ummera pit, warning signs are in place on the approaches to the site for drivers unfamiliar with the area. A second warning sign will be erected 150m south of the site entrance on the L-3423; the existing sign is 50m from the pit entrance and greater warning to drivers unfamiliar with the area will improve traffic safety.

The access road into the gravel pit will be paved with associated improvements to drainage at the entrance.

The public road will be kept clean and any debris brought onto the road from the gravel pit will be promptly removed.

4.4.2 Restoration Phase

No further mitigation measures are required for the restoration phase of the gravel pit.

4.5 Risks of Major Accidents or Disasters

The likelihood of an accident occurring involving gravel pit traffic is unlikely with access to the site solely from the L-3423 and the safety improvement proposed. The gravel pit has been using the existing entrance over 30 years with incident. The proposed improvements will reduce the risk of an accident at the entrance further. As discussed in Section 4.3.2, risk of road collision involving DCWL HGVs can't be eliminated.

4.6 Difficulties Encountered in Compiling

There were no difficulties encountered in the preparation of this Chapter.

4.7 Interactions

Interactions associated with traffic and transport with other aspects of the environment include:

- Soils & Geology – The rate of extraction of the gravel is directly related to the volume of HGV traffic.
- Population & Human Health – The demand of aggregate is linked to socio-economic activity, population growth, building activity etc, which is turn dictates the volume of HGV traffic.

4.8 Residual Effects

The residual effects following mitigation are summarised in Table 4-5.

Table 4-5: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects - Significance
HGV Traffic Volume	Increased HGV traffic on local & regional road network	Imperceptible, neutral, regional medium-term effect, as HGV volumes will remain largely unchanged.	Working hours of pit generally doesn't coincide with peak traffic hours.	Imperceptible
Entrance Sightlines	Road safety for HGV drivers and other road users passing entrance	Likely medium-term slight negative local effect in terms of accident risk.	Improve sightlines to south of entrance. Roadside hedge maintenance in sightline triangle. Warning signage.	Imperceptible
Road Safety	HGV drivers and other road users	Road collision – potentially significant for road users (local / regional population).	Trained & experienced drivers with CPC.	Indeterminable but potentially significant
Road Capacity at Peak Hours	Junction capacity	Unlikely negative local not significant brief effects.	Continued low extraction rate.	Imperceptible

4.44.9 Conclusions on Roads, ~~&~~ Traffic & Transport

The Ummera gravel pit generates a small volume of HGV traffic on local road L-3423, typically less than 10 HGV loads per day. This low volume of HGV traffic will remain at these levels for the further development of the gravel pit. The presence of the gravel pit and associated HGV traffic hasn't resulted in collisions, likely a result of local users being aware of its presence and the possibility of meeting HGVs on the local road network. Additional warning signs and improved sightline distances will improve road safety, particularly for users unfamiliar with the area.

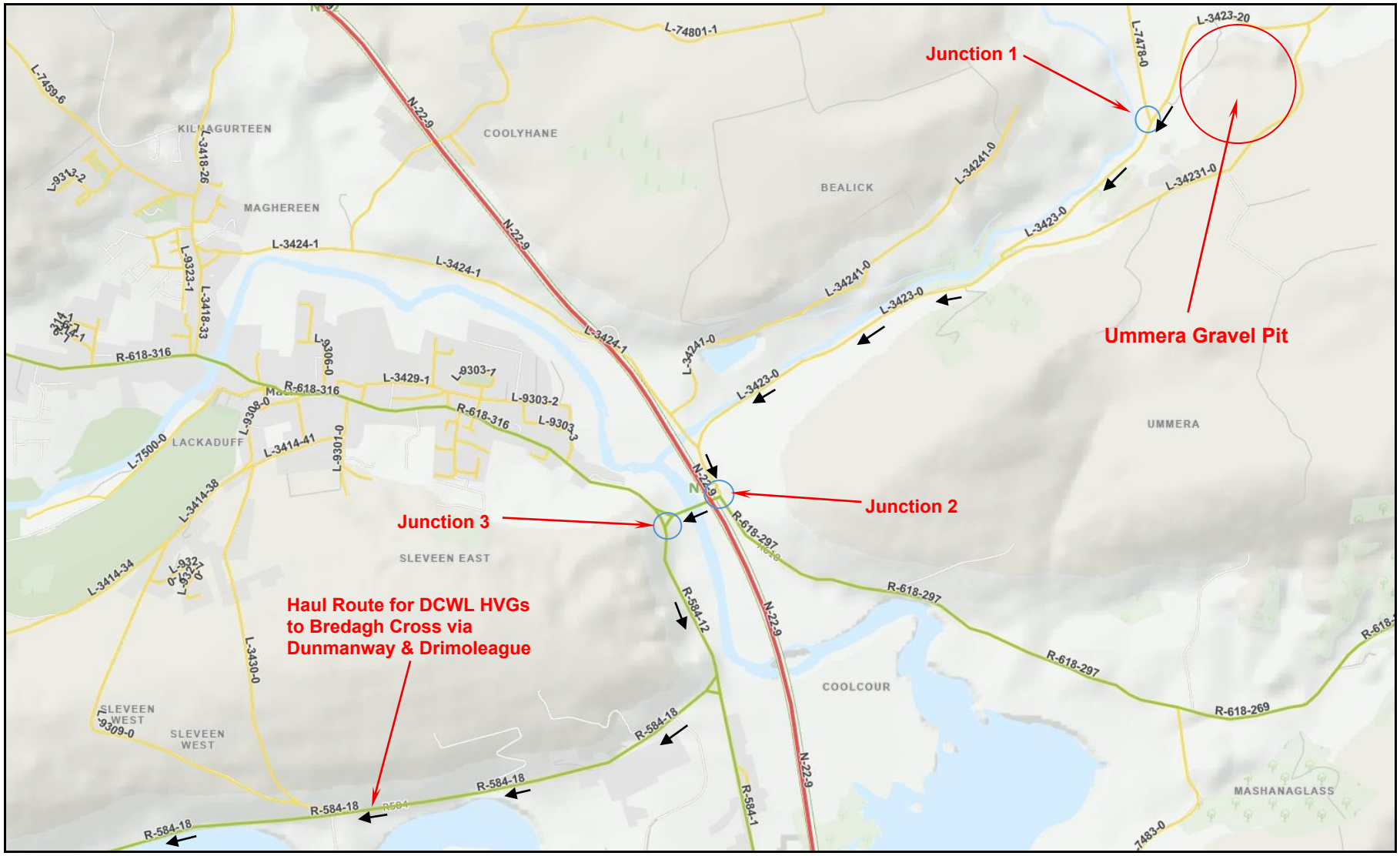


Figure 4-1: Road Network Near Ummera Gravel Pit

5. NOISE

5.1 Introduction

Damian Brosnan Acoustics, now MKO, was instructed by KGEC, on behalf of its client DCWL, to ~~carry out an~~update the assessment of potential noise impacts with respect to the further development of the Ummera gravel pit, Macroom. It is proposed to extract downwards below the existing ground elevation in the current works area, and also to extend horizontally to the south and southwest. The assessment ~~is required for inclusion~~ was included in an EIAR ~~to be~~ included with an application to An Bord Pleanála in September 2020 for further development, following the ~~recent~~ application for substitute consent. In correspondence dated 01 October 2025, An Coimisiún Pleanála (ACP) requested that the EIAR be updated, including updates of the noise monitoring and assessment. ~~The~~This assessment relates to impacts which may arise with the further development of the gravel pit.

While the further development will not require construction works in the conventional sense, it is proposed to store overburden in a perimeter berm around the extension area. As construction of the berm will be a short-term operation undertaken prior to excavation in the extension area, and as the berm will subsequently provide acoustic screening with respect to receptors, the overburden removal and berm construction operation may be considered a temporary construction activity, and is therefore assessed in light of construction criteria identified below

Potential noise and vibration impacts are typically divided into the following categories:

- Construction phase noise impacts on surrounding receptors.
- Construction phase vibration impacts on surrounding receptors.
- Operational phase noise impacts on surrounding receptors.
- Operational phase vibration impacts on surrounding receptors.

Sand and gravel extraction operations typically do not give rise to groundborne vibration and thus vibration has been scoped out of this assessment. Impacts are assessed in the context of relevant limits and guidance, and mitigation measures are identified where required.

~~The assessment has been undertaken with reference to *Advice notes for preparing environmental impact assessment reports* (EPA, 2015, draft) and *Guidelines on the information to be contained in environmental impact assessment reports* (EPA, 2017, draft). In keeping with these, this assessment describes the existing environment (baseline); identifies, describes and assesses the noise effects of the proposed further development; proposes mitigation and monitoring measures where appropriate; and identifies any residual effects remaining.~~

The following documents were consulted in the preparation of this assessment:

- *Guidelines on the information to be contained in environmental impact assessment reports (Environmental Protection Agency, 2022).*
- *Guidelines on community noise* (World Health Organisation, 1999).
- ~~*Draft guidelines for noise impact assessment* (Institute of Environmental Management and Assessment, and Institute of Acoustics, 2002).~~
- *Quarries & ancillary activities: Guidelines for planning authorities* (Department of the Environment, Heritage & Local Government, 2004).
- Environmental management guidelines: Environmental management in the extractive industry (non-scheduled minerals) (EPA, 2006).
- British Standard BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound (2019)
- Directive 2002/49/EC of the European Parliament and of the Council Relating to the Assessment and Management of Environmental Noise (2002), transposed into Irish law by the European Communities (Environmental Noise) Regulations 2018 (SI No. 549/2018).
- Night noise guidelines for Europe (World Health Organisation, 2009).

- ~~BS 4142:2014 Methods for rating and assessing industrial and commercial sound (British Standards Institution, 2014).~~
- *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites Part 1: Noise* (British Standards Institution, 2014).
- *Guidelines for environmental noise impact assessment* (Institute of Environmental Management and Assessment, 2014).
- *NG4 Guidance note for noise: Licence applications, surveys and assessments in relation to scheduled activities* (Environmental Protection Agency, 2016).
- *Cork County Council Noise Action Plan 2024-2028* (Cork City Council and Cork County Council, 2025).
- *International Standard ISO 1996-2:2017 Acoustics – Description, measurement and assessment of environmental noise, Part 2: Determination of environmental noise levels (2017).*

A baseline noise survey was undertaken in accordance with *International Standard ISO 1996-2:2017 Acoustics – Description, measurement and assessment of environmental noise, Part 2: Determination of environmental noise levels* (2017)~~, while predictive modelling was carried out using *International Standard ISO 9613-2:1996 Acoustics: Attenuation of sound during propagation outdoors – Part 2 General method of calculation* (1996)~~.

5.1.1 Assessors

The acoustic assessment was undertaken by undertaken by Damian Brosnan (MKO Project Director, Acoustics) and Sinéad Fagan (MKO Acoustic Consultant). Sinéad has over 18 years of experience in private practice and holds an MA in Environmental Resources Management. She has a Certificate of competence in environmental noise measurement from the Institute of Acoustics (IOA) and is a technician member. Prior to joining MKO, Sinéad worked in environmental consultancy, undertaking baseline noise surveys across a range of challenging environments.

Damian has over 30 years of experience in both private practice and local authority, and holds an MSc in Applied Acoustics. He has completed the IOA post-graduate diploma, and now presents tutorials to the next generation of students on IOA courses. Prior to joining MKO, Damian worked as an acoustic consultant, specialising in environmental impact assessment. Previously, Damian worked with Cork County Council's Environment Department. Damian is a corporate member of the IOA and sits on the Irish branch committee. He is also a founding member of the Association of Acoustic Consultants of Ireland, an industry body founded to promote acoustics best practice in Ireland. Damian has presented acoustic evidence in a number of court hearings and oral hearings. He is the lead author of *Environmental noise guidance for local authority planning & enforcement departments* (Association of Acoustic Consultants of Ireland, 2019).

~~5.1.1 Statement of Authority~~

~~The assessment was undertaken by Damian Brosnan, who has the following qualifications and experience:~~

- ~~BSc (Honours) 1993 (University College Cork).~~
- ~~Postgraduate diploma in Acoustics & Noise Control 2009 (Institute of Acoustics).~~
- ~~MSc (Distinction) in Applied Acoustics 2015 (University of Derby).~~
- ~~Certificate of competence in workplace noise risk assessment (Institute of Acoustics).~~
- ~~Member of Institute of Acoustics (MIOA) & secretary of Irish IOA branch.~~
- ~~Founding member of Association of Acoustic Consultants of Ireland (AACI).~~
- ~~Member of Engineers Ireland (MIEI).~~
- ~~Engaged with continuing professional development through IOA & EI.~~
- ~~Working in noise since 1996, and has worked on several hundred noise projects.~~
- ~~1996-2001: Noise Officer with Cork County Council.~~
- ~~2001-2014: Partner with DixonBrosnan Environmental Consultants, specialising in EIA.~~
- ~~2015 : Principal at Damian Brosnan Acoustics.~~

5.2 Criteria

~~The then Department of the Environment, Heritage & Local Government (**DOEHLG**) document *Quarries & ancillary activities: Guidelines for planning authorities* (2004) sets out guidance for local authorities in the assessment of quarry planning applications. Although initially issued to provide guidance with respect to the 2005-2007 quarry registration process as set out in S.261 of the Planning & Development Act 2000, the DOEHLG document remains valid and in force. The DOEHLG document draws on guidance presented in Environmental Protection Agency (**EPA**) report number MS-2000-M1, subsequently published in 2006, and titled *Environmental management guidelines: Environmental management in the extractive industry (non-scheduled minerals).*~~

Noise impacts are assessed with reference to terminology set out the 2022 Environmental Protection Agency (**EPA**) report *Guidelines on the information to be contained in environmental impact assessment reports*. The most relevant aspects of the EPA scheme are summarised in Table 5-1.

Table 5-1: EPA Impact Assessment Scheme

Factor	Effect	Description
Quality	Positive	Improves quality of environment
	Neutral	No effects or imperceptible effects
	Adverse	Reduces quality of environment
Significance	Imperceptible	Capable of measurement, but without significant consequences
	Not significant	Causes noticeable changes to soundscape, but without significant consequences
	Slight	Causes noticeable changes to soundscape without affecting its sensitivities
	Moderate	Alters soundscape in manner consistent with existing and emerging baseline trends
	Significant	Alters soundscape due to source character, magnitude, duration or intensity
	Very significant	Significantly alters soundscape due to source character, magnitude, duration or intensity
	Profound	Obliterates soundscape
Duration	Brief	<1 day
	Temporary	<1 year
	Short term	1-7 years
	Medium term	7-15 years
	Long term	15-60 years
	Permanent	>60 years
Extent & Context	Extent	Size of area and population affected by an effect
	Context	Degree to which project conforms or contrasts with baseline soundscape
Impact type	Indirect	Secondary impacts not directly caused by project, often occurring at some distance
	Cumulative	Combined impacts attributable to project in tandem with other projects
	Worst case	Impacts where mitigation measures substantially fail
	Indeterminable	Where full consequences of change in soundscape cannot be described
	Irreversible	Impacts to soundscape which are permanent and cannot be undone
	Residual	Degree of soundscape change which will arise after implementation of mitigation
	Synergistic	Where resultant effect exceeds sum of individual component effects

There are no national mandatory noise criteria specified with respect to quarries. Several guidance documents of relevance have been issued by various authorities, as discussed below.

Most environmental noise guidance documents issued across Europe ultimately derive limits from guidance issued by the World Health Organisation (**WHO**). The WHO document *Guidelines on Community Noise* (1999) sets out guideline values considered necessary to protect communities from environmental noise. With respect to residential settings, the document notes that an outdoor $L_{Aeq\ 16\ h}$ level of 55 dB is an indicator of serious annoyance during daytime and evening hours, with 50 dB being an indicator of moderate annoyance. The 55 dB criterion was first suggested by the WHO in their 1980 document Environmental Health Criteria 12.

Since 1980, the 55 dB criterion has become the de facto daytime limit applied by most Irish regulatory authorities to commercial and industrial operators. Although the WHO criterion applies to daytime periods of 16 hours, authorities typically specify shorter periods. A period of one hour has become conventional practice with respect to quarries. Compliance with a one-hour criterion, timed to coincide with the loudest onsite activity, will guarantee compliance with an $L_{Aeq\ 16\ h}$ criterion. Updates to WHO guidance in 2009 and 2018 do not have any implications for daytime noise emissions from quarries.

The WHO criterion most likely informed the 55 dB $L_{Aeq\ 1\ h}$ limit recommended by the then Department of the Environment, Heritage & Local Government (**DOEHLG**) in their 2004 document *Quarries & Ancillary Activities: Guidelines For Planning Authorities*. The document sets out guidance for local authorities in the assessment of quarry planning applications. Although initially issued to provide guidance with respect to the 2005-2007 quarry registration process as set out in S.261 of the Planning & Development Act 2000, the DOEHLG document remains valid and in force. The document draws on guidance presented in Environmental Protection Agency (**EPA**) report MS-2000-M1, subsequently published in 2006, and titled *Environmental Management Guidelines: Environmental Management In The Extractive Industry (Non-Scheduled Minerals)*. With respect to noise, the DOEHLG document states:

> *In areas of higher background noise levels, the EPA recommends that ideally, if the total noise level from all sources is taken into account, the noise level at sensitive locations should not exceed a $L_{Aeq\ (1\ hour)}$ of 55 dB(A) by daytime and a $L_{Aeq\ (15\ minutes)}$ of 45 dB(A) by nightime. Audible tonal or impulsive components in noise emissions (e.g. the reversing siren on a lorry, required for safety reasons) can be particularly intrusive, and such components should be minimised at any noise-sensitive location*

The DOEHLG guidance and the related EPA document recommend a daytime noise limit of 55 dB, measured using the $L_{Aeq\ 1\ h}$ parameter, approximately equivalent to the average noise level from all on-site sources measured over one hour. The documents additionally recommend that audible tonal and impulsive components be minimised. The limit is typically applied at offsite noise sensitive locations, defined by the EPA as:

> *Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires absence of noise at nuisance levels.*

From the foregoing, a 55dB daytime $L_{Aeq\ 1\ h}$ limit is considered the most suitable criterion with respect to the proposed development, applicable at offsite receptors during daytime working hours. The criterion relates to the specific $L_{Aeq\ 1\ h}$ parameter i.e. the noise level specifically attributable to all sources at the DWCL site, and thus excludes extraneous offsite sources such as traffic. The criterion applies externally at sensitive receptors.

Noise impacts may be assessed by reference to existing background levels. The degree of impact is proportional to the magnitude of increase attributable to the proposed development. There is no clear guidance here. The most commonly applied standard here is *British Standard BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound* (2019) which provides for the comparison of specific $L_{Aeq\ T}$ levels (i.e. noise levels attributable to the source in question) with background levels, and provides an indication of impact depending on the difference. Specific levels may be rated to take tonal, impulsive and other characteristics into account.~~There is no clear guidance here. *British Standard BS 4142:2014 Methods for rating and assessing industrial and commercial sound* (2014) notes that an increase of 5dB suggests an adverse impact. This is consistent with the DOEHLG document which notes that '*complaints will result where the noise from quarrying and associated activities are between 5 to 10dB above the background noise levels*'. The 5dB increase represents a 'slight impact' in the *Draft guidelines for noise impact assessment* (Institute of Environmental Management and Assessment, and Institute of Acoustics, 2002). For the purposes of this assessment, the existing DCWL operation is considered part of the background noise environment, having been in operation at this location for several decades.~~

The standard notes that the background noise environment may include existing industrial emissions unrelated to the specific source. Given that the applicant's quarry has been in operation at this location for serval decades it is considered that the existing quarry forms part of the background soundscape and any BS 4142 assessment requires consideration of impacts in

this context. For the purposes of this assessment, the existing DCWL operation is considered part of the background noise environment.

BS 4142:2014 states that a difference of 10 dB or more between specific and background levels is indicative of a significant adverse impact. A difference of 5 dB suggests an adverse impact, with lower differences suggesting reduced impacts. This is consistent with the DOEHLG document which notes:

> *Noise-sensitive uses in the vicinity of a quarry, such as dwellings, schools, hospitals, places of worship or areas of high amenity, require that the amount of noise be minimised. The sensitivity to noise is usually greater at night-time (20.00 to 08.00) than during the day, by about 10 dB(A). Many quarries are situated in areas of low background noise and it is appropriate to consider this when setting noise limits. In general, it can be expected that complaints will result where the noise from quarrying and associated activities are between 5 to 10 dB above the background noise levels.*

In accordance with guidance given in *British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise* (2014), a 65dB $L_{Aeq\ 1\ h}$ criterion is considered applicable to the construction phase of the proposed development. As noted in above, this criterion is relevant to overburden removal and berm construction.

Noise impacts may also be assessed by reference to *Guidelines for Environmental Noise Impact Assessment* (Institute of Environmental Management and Assessment, 2014) which sets out guidance on impacts by comparison with ambient levels. Table 5-2 sets out a scale adapted from IEMA and EPA guidance. The table is considered relevant to total ambient $L_{Aeq\ T}$ levels i.e. $L_{Aeq\ T}$ levels attributable to the proposed development may be compared to existing $L_{Aeq\ T}$ levels.

Table 5-2: Assessment of Impact by Reference to Existing Noise Levels

Change	Impact	Effect
<2 dB	Imperceptible	Capable of measurement, but without significant consequences
2-4 dB	Not significant	Causes noticeable changes to soundscape, but without significant consequences
4-6 dB	Slight	Causes noticeable changes to soundscape without affecting its sensitivities
6-10 dB	Moderate	Alters soundscape in manner consistent with existing and emerging baseline trends
10-15 dB	Significant	Alters soundscape due to source character, magnitude, duration or intensity
15-20 dB	Very significant	Significantly alters soundscape due to source character, magnitude, duration or intensity
>20 dB	Profound	Obliterates soundscape

The *Cork Noise Action Plan 2024-2028* was issued by Cork County Council in 2025. Preparation of the plan is a requirement of *Directive 2002/49/EC of the European Parliament and of the Council relating to the assessment and management of environmental noise* (2002), transposed into Irish law by the *European Communities (environmental noise) Regulations 2018* (SI No. 549/2018) and the *European Communities (environmental noise) Regulations 2021* (SI No. 663/2021). The directive requires preparation of noise plans for all roads with annual traffic volumes over 3 million vehicles. The nearest major road subject to mapping is the national route N22 1.9 km southwest of the site, and thus within audible range of the study site. The local road network in the vicinity of Ummera is not subject to mapping. In this context, the proposed development will not have any implications for the noise action plan.

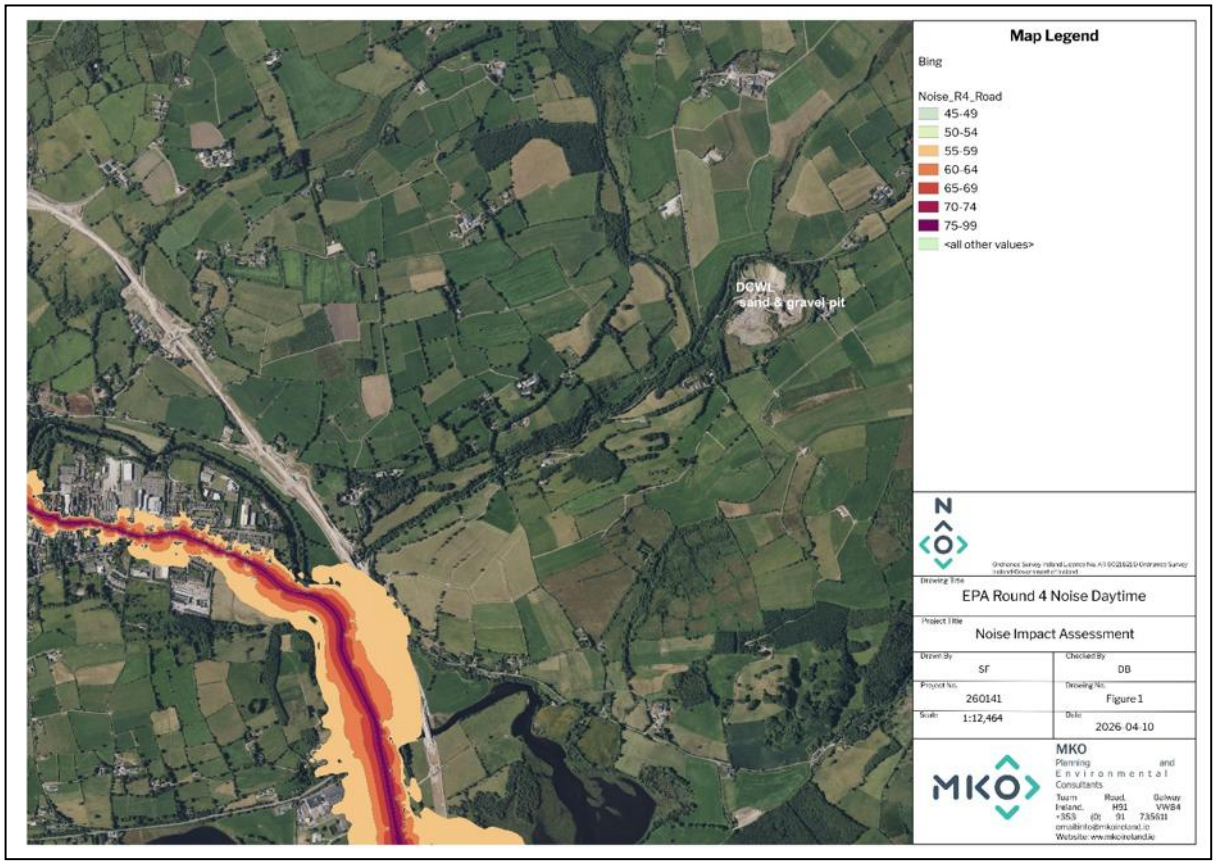


Figure 5-1: Noise Action Plan Round 4 Road Mapping

5.2.1 Difficulties Encountered

No difficulties were encountered in undertaking the noise impact assessment. The assessment of impacts was facilitated by the presence of an existing quarry above the same footprint, and the availability of monitoring records.

5.2.2 Uncertainty

The potential sources of uncertainty relevant to this assessment:

Baseline noise levels are used to inform the assessment process. Levels were measured through a survey undertaken in accordance with *International Standard ISO 1996-2:2017 Acoustics – Description, measurement and assessment of environmental noise, Part 2: Determination of environmental noise levels (2017)*. Potential for uncertainty was minimised throughout the survey process, and survey equipment was calibrated in accordance with the requirements of the standard. Nonetheless, environmental noise measurement typically include a margin of uncertainty. The standard uncertainty value attributable to the equipment is 0.5 dB (IEC 61672-1 class 1 value). While measured baseline noise levels apply chiefly to conditions prevailing only during the survey period, levels are likely to be reasonably representative of a wider range of conditions.

5.3 Receptors

Local road L-3423 runs northeast from Macroom through the townland of Ummera. Approximately 2.5km from Macroom, the road curves around the northern side of the gravel pit. A small third-class road 1.3km in length curves around the southern side of the site, connecting to the L-3423 at both ends. The applicant's holding occupies much of the area between the two roads. At this location, the ground elevation rises gently southeast, and extraction at the site has been carried out into the slope.

The northern and western boundaries of the DCWL site are formed by local road L-3423. The southern boundary of the working area adjoins pasture in the DCWL holding, beyond which lies the third-class road. Both roads converge outside the eastern boundary of the site.

There are no receptors on the applicant's holding, and no receptors directly adjoin the existing working area or proposed extension area. The nearest receptors (Figure 5-2) are as follows:

- Two dwellings northeast of the converged roads outside the northeast corner of the site, the nearer of which lies 250m from the pit area. Several dwellings lie further northeast. The proposed extension will not shorten this separation distance.
- A farmhouse on the third-class road, 60m from the working area. This represents the closest receptor. The proposed extension will not shorten this separation distance.
- A cottage 140m south of the current working area. It is proposed to extend the extraction area south towards this dwelling, and the separation distance will reduce to approximately 70m.
- A farmhouse 200m southwest of the current working area. This separation distance will decrease to approximately 50m.
- A cottage 540m southwest of the working area. The separation distance here will reduce to 370m.
- Several dwellings also to the southwest, the nearest of which is 680m from the working area. This distance will reduce to 540m as a result of the proposed extension.
- The nearest receptor to the north is 720m from the site. The proposed extension will not alter this distance.
- The nearest receptor to the south lies over 1.4km from the site.

Land use in the local area is predominantly agricultural, with the chief exception being the DCWL sand and gravel workings. The chief noise sources present in the local environment are DCWL operations, agricultural activity and road traffic. Traffic noise occurs intermittently throughout the day from the L-3423 and from road traffic to the north which is audible over the plain. N22, Macroom Bypass traffic to the south is audible during quieter periods.



Figure 5-2: Noise Sensitive Receptors

5.4 Baseline Soundscape

The baseline soundscape was assessed through ~~two daytime noise surveys~~ historic data from 2019 and more recent survey data from March 2026. In 2019 there were two surveys carried out by Damian Brosnan Acoustics. The first was undertaken on 24 October 2019 while the DCWL washing plant was not operating. Although the DCWL loader was in limited use during the survey, there was minimal offsite impact, and measured levels are considered representative of the residual soundscape i.e. the noise environment in the absence of DCWL emissions.

As the baseline soundscape arguably includes existing DCWL operations, which have been carried out at the study site for several decades, a second survey was undertaken 31 October 2019 while the gravel pit was in full operation. During this survey, noise emissions arose from the on-site washing plant in continuous use, the front-end loader in almost continuous use, and from sporadic truck movements.

In 2026 a noise survey was carried by MKO personnel. Again, as the baseline soundscape arguably includes existing DCWL operations, this survey was carried out while DCWL operations were underway, from 10:00 – 16:00hr on Thursday 19 March 2026. Noise sources included the continuous operation of the wash plant, a front-end loader and occasional truck movements.

Further measurements were recorded from 07:30–00:00hr and 16:00–17:00hr when wash plant was not operating. During this survey, noise emissions arose from the front-end loader and from sporadic truck movements.

During ~~both~~ all surveys, monitoring was undertaken at four locations representing the nearest receptors (Figure 5-2, Plates 5-1 to 5-4, Table 5-3). Survey details, equipment specifications and weather conditions are listed in Appendices 5-1 and 5-2. Time history profiles are presented in Appendix 5-3, and noise data in Appendix 5-4. Data are summarised in Table 5-4.

Table 5-3: Noise Station Details

Ref.	ITM NGR	Location	Reason for selection
N1	537307 574078	Adjacent to road junction outside NE corner of site	To represent dwellings 100m further NE
N2	537237 573893	Field on E side of gravel pit	To represent farmhouse 30m E
N3	537018 573691	Field on S side of gravel pit	To represent cottage 40m SE
N4	536877 573792	W corner of gravel pit	To represent dwellings 680m WSW

Table 5-4: Noise Data Summary

DCWL	Parameter	N1	N2	N3	N4
DCWL Operating 2026	$L_{Aeq\ 1\ h}$ (dB)	49	49	44	46
	$L_{AF90\ 1\ h}$ (dB)	38	39	37	42
DCWL operating 2019	$L_{Aeq\ 1\ h}$ (dB)	47	45	37	40
	$L_{AF90\ 1\ h}$ (dB)	36	40	39	35
DCWL shut down 2026	$L_{Aeq\ 1\ h}$ (dB)	51	51	44	46
	$L_{AF90\ 1\ h}$ (dB)	37	40	37	41
DCWL shut down 2019	$L_{Aeq\ 1\ h}$ (dB)	48	42	44	41
	$L_{AF90\ 1\ h}$ (dB)	38	35	34	33

None of the stations was significantly influenced by DCWL loader or truck activity due to the low audibility of these emissions, and thus measured $L_{Aeq\ 1\ h}$ levels were dominated by extraneous sources such as road traffic noise and agricultural activities at N2. The $L_{AF90\ 1\ h}$ parameter describes emissions from the DCWL washing plant when operating, due to their continuous and steady character.

In 2026, $L_{AF90\ 1\ h}$ levels measured when the washing plant was shut down were 37-41 dB. Levels rose slightly to 37-42 dB when the plant was operating, showing little difference between surveys. At N2, the increase in the $L_{AF90\ 1\ h}$ level, while DCWL operations were shut down was likely due to farmyard plant.

In 2019, $L_{AF90\ 1\ h}$ levels measured when the washing plant was shut down were 33-38dB. Levels rose to 35-40dB when the plant was operating, showing an increase of up to 5dB ~~(a decrease evident at N1 was most likely attributable to falling ambient levels due to reduced watercourse flow nearby)~~.

As noted above, the existing DCWL operation may be considered part of the baseline soundscape, and thus measured background $L_{AF90\ 10\ min}$ levels of ~~36-40dB~~35-43dB are considered representative of the baseline.



Figure 5-3: Noise Monitoring Stations



Plate 5-1: N1, looking NE towards public road



Plate 5-2: N2, looking West towards Quarry



Plate 5-3: N3, looking North towards Quarry



Plate 5-4: N4, Looking W towards Dwellings in Distance

A noise impact assessment requires a comment on the likely progression of local noise levels into the future, in the absence of the proposed development. Should the development not proceed, it is expected that DCWL operations will gradually wind down. Ultimately the washing plant would be removed and the extraction area would be restored and returned to agricultural use. Noise emissions thereafter will arise from associated land management practices.

Outside the DCWL site, the existing soundscape is likely to remain unchanged in the short term. As the L-3423 is not a major commuter route, and does not connect any settlements to Macroom or national route N22, the road is unlikely to see major changes in traffic patterns in the short term.

~~Construction of the proposed Macroom bypass has commenced. The new road will run within 1.7km of the DCWL site. A review of the project EIS[17] indicates that ambient noise levels are not predicted to increase in the vicinity of the applicant's site. Thus cumulative impacts are not expected~~.

5.5 Proposed Future Development

At present, extraction of sand and gravel is concentrated at the southeast side of the site. At the active face, aggregates are removed by the resident front-end loader, and transported by the loader to the washing plant located near the site centre, between the working area and the settlement lagoons. As with all sand and gravel pits, extraction may be moved around within the pit in order to optimise use of the deposit.

Noise emissions arise currently from the loader, used regularly throughout the day, and from the washing plant which runs continuously most days. Emissions also arise sporadically from trucks which access the stockpile area adjacent to the washing plant. The number of truck loads exported is typically 10 per day on average, equivalent to one per hour.

At intervals, typically once per year, a mid-sized tracked excavator is imported to the site in order to remove and stockpile overburden ahead of the working face. This event typically lasts one week each time. It is also used to clear out the settlement ponds at infrequent intervals

On-site plant sources are described in Table 5-5. Operating hours permitted by the current S.261 registration are listed in Table 5-6. The DCWL pit is a small-scale operation, with only one full-time employee based on-site.

Table 5-5: Onsite plant sources

Plant	Usage	Location
Washing plant	Used continuously throughout working day	Between working area and lagoons
Mid-sized front-end loader	Used almost continuously throughout working day	1 Around washing plant area; 2 Between plant and working face; 3 Between plant and stockpile area
Mid-sized tracked excavator	Imported once per year for approx. one week each time; used almost continuously throughout working day during each event	Ahead of main working face
Trucks	10 loads exported per day on average	Tracking between entrance and stockpile area

Table 5-6: Operating Hours

Day	Hours
Monday-Friday	07:00 to19:00
Saturday	07:00 to 14:00
Sunday & public holidays	Closed

It is proposed to continue operations as above, extracting sand and gravel from various points around the site as required. The current planning application seeks to allow a downward and lateral expansion of the extraction void mostly to the south / southwest into agricultural fields (see Chapter 2), with a marginal increase along the eastern face.

There will be no significant implications for the noise regime. Operations will continue as before, with the front-end loader transferring aggregates from the working face to the washing plant. The washing plant and adjacent stockpile will not see any changes, and the number of truck loads exported will continue as at present. When required, a tracked excavator will be imported

to remove and stockpile overburden in perimeter berms and to clean out the settlement ponds. This procedure may also require use of a 6x6 dump truck in order to relocate the existing berms.

5.6 Impact Assessment

5.6.1 Do Nothing Impact

If the further development of the gravel pit is not advanced, the site will be returned to mostly agricultural use. The noise associated with this restoration work will occur earlier than would otherwise be the case. Operational noise associated with extraction activities will be displaced to another existing or new gravel pit.

5.6.2 Operational Phase

Noise emissions will continue as at present, and noise levels at surrounding receptors are likely to be similar to those measured during the surveys ~~of 31 October 2019~~ when operations were underway. Noise data measured ~~31 October 2019~~on 19 March 2026 may be summarised as follows:

- At N1, the washing plant was slightly discernible. Measured $L_{AF90\ T}$ levels were not representative of washing plant imissions (see glossary) due to continuous intrusion from a nearby watercourse. The washing plant contribution was thus less than the measured $L_{AF90\ 1\ h}$ range of 37-42 dB. The loudest loader movements were slightly audible here.
- The washing plant was continuously audible at a low level at N2 when farmyard plant was not in operation. The washing plant contribution was less than the measured $L_{AF90\ 1\ h}$ levels of 36-45 dB. The 9 dB variation attributable to farmyard plant activity.
- The washing plant was continuously slightly audible at N3. Measured $L_{AF90\ 1\ h}$ levels of 36-38 dB here were not representative of plant immissions due to distant N22 traffic audible to the south. The loader was slightly audible here on occasion.
- The washing plant was continuously audible at a low level at N4, where measured $L_{AF90\ 1\ h}$ levels of 41-43 dB were representative of plant immissions. Loader movements were also slightly audible here. $L_{Aeq\ 1\ h}$ levels at N4 were dominated by road traffic outside the boundary.

Measured data during 2026 survey indicate that audible washing plant immissions currently give rise to specific $L_{Aeq\ T}$ levels less than 45 dB at all stations. At N2, farmyard activities and plant occasionally dominated at this monitoring location, contributing to the $L_{AF90\ 1\ h}$ levels. Loader operations generate negligible contributions due to their low amplitude and infrequent occurrence.

Noise data measured 31.10.19 may be summarised as follows:

- At N1, the washing plant was slightly discernible continuously. Measured $L_{AF90\ T}$ levels were not representative of washing plant immissions (see **glossary**) due to continuous intrusion from a nearby watercourse. The washing plant contribution was thus less than the measured $L_{AF90\ 1\ h}$ range of 36-37dB. The loudest loader movements were slightly audible here.
- The washing plant was continuously audible at a low level at N2, and measured $L_{AF90\ 1\ h}$ levels of 39-42dB are representative of the plant, with the 3dB variation attributable to plant load. The loader was also slightly audible here at intervals.
- The washing plant was barely discernible at N3. Measured $L_{AF90\ 1\ h}$ levels of 30-32dB here were not representative of plant immissions due to distant N22 traffic audible to the south. The loader was slightly audible here on occasion.
- The washing plant was slightly audible continuously at N4, where measured $L_{AF90\ 1\ h}$ levels of 35-38dB were representative of plant immissions. Loader movements were also slightly audible here. $L_{Aeq\ 1\ h}$ levels at N4 were dominated by road traffic outside the boundary.

Measured data indicate that audible washing plant immissions currently give rise to specific $L_{Aeq\ T}$ levels less than 40dB at N1, N3 and N4. At N2, the nearest station to the operations area, washing plant levels rise to 42dB. Loader operations generate negligible contributions due to their low amplitude and infrequent occurrence. DCWL noise levels are thus markedly lower than the 55dB $L_{Aeq\ 1\ h}$ limit recommended by the DOEHLG. No tones or impulses were noted in site emissions.

Historically and presently DCWL noise levels are markedly lower than the 55 dB $L_{Aeq\ 1\ h}$ limit recommended by the DOEHLG. Loader operations consistently generate negligible contributions due to their low amplitude and infrequent occurrence. During all surveys no tones or impulses were noted in site emissions.

The proposed development will involve loader operations in new zones around the perimeter of the site. These will be located close to the southern and south-western boundaries. At surrounding receptors, noise impacts associated with the expansion of loader operations into these new areas will be minimal for several reasons:

- Apart from two dwellings near the southwest corner, separation distances with respect to receptors will remain significantly large and will be several hundred metres at a minimum. Loader operations in the proposed extension areas are therefore likely to be inaudible at all receptors apart from the two nearest dwellings. This is consistent with data measured during the surveys ~~of 31 October 2019~~.
- Although the working face will approach to within 50m of the cottage to the south, it is noted that the pit floor elevation will be approximately 5m below existing ground elevation. The cottage will be afforded screening by the working face, and by a perimeter berm above the face, resulting in an acoustic barrier approaching 8m in height. The 8m barrier and 50m separation distance are likely to render the loader faintly audible at worst at the cottage, when working at this end of the site.
- At the farmhouse outside the southwest corner, a perimeter berm will similarly provide acoustic screening. It is noted that this dwelling lies over 400m from the washing plant and stockpile area.

From the foregoing, noise emissions from the washing plant, loader and trucks will be satisfactory in the context of existing ambient noise levels. A negligible increase in noise levels is expected at receptors, resulting in an imperceptible impact.

In contrast, noise emissions from overburden removal and berm construction are likely to be more clearly audible at the two receptors near the southwest corner. Berm construction near the receptors is likely to be required only once during the lifetime of the proposed development, lasting for 1-2 weeks. The greatest impact will arise when berm construction approaches the closest point with respect to these dwellings.

Overburden removal at the site usually involves use of a single tracked excavator. As the proposed expansion will require the levelling of an existing berm along the edge of the working area, and the relocation of the stored soil to a new berm along the perimeter of the proposed extension area, it is likely that a 6x6 dump truck will also be required for this project. Noise emissions from a typical mid-sized tracked excavator and 6x6 dump truck are presented in Table **5-7**, taken from BS 5228-1:2009+A1:2014.

Table 5-7: Noise Levels at 10m from Berm Construction Plant (dB)

Plant	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Total $L_{Aeq\ T}$
Tracked excavator (25 t)	95	84	79	73	70	68	64	57	77
6x6 dump truck	85	80	77	72	74	70	65	58	78

Berm construction activity was modelled using DGMR iNoise v2020 software. Input parameters were as follows:

- Model algorithm: *International Standard ISO 9613-2:1996 Acoustics: Attenuation of sound during propagation outdoors – Part 2 General method of calculation* (1996).
- Soft ground assumed throughout.
- No screening.
- Receiver height: 4m.
- Levels not rated for character.

- Plant output data taken from Table 5-5. 31.5 Hz levels (not provided in BS 5228) assumed to be same as 63 Hz levels.
- Activity assumed at nearest point of berm to each receptor.

The model output is shown in Figures 5-4 and 5-5. $L_{Aeq\ 1\ h}$ levels predicted at the dwellings (close to their respective facades) during local berm construction will be 57dB at the cottage to the south, and 58dB at the farmhouse to the southwest. These levels will remain below the 65dB criterion identified in Section 5-2 with respect to the berm construction phase. It is reiterated that this activity is expected to last 1-2 weeks and will occur once in these zones during the lifetime of the project. At the end of the project, soil stored in the berms is likely to be redistributed across the worked areas as part of the final reinstatement works. Noise emissions during this period are likely to be similar to the berm construction works, and thus noise levels at the nearest receptors will again remain below the 65dB criterion.

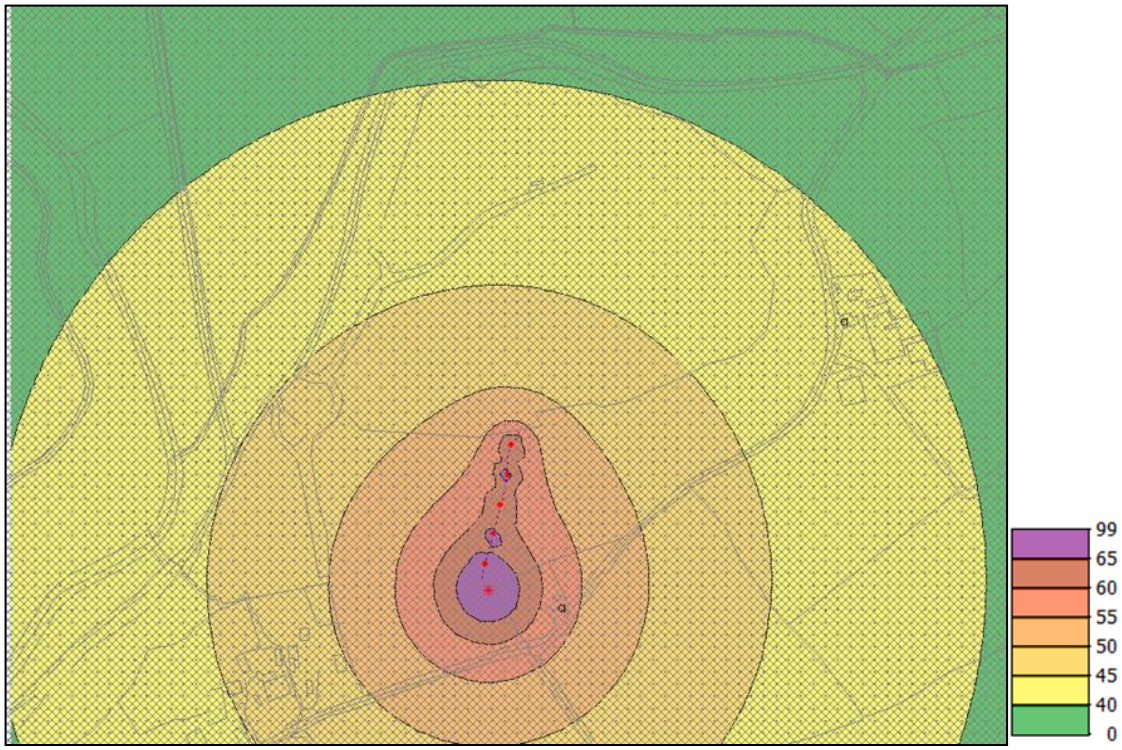


Figure 5-4: Model Output – Berm Construction near Cottage (H2) to South

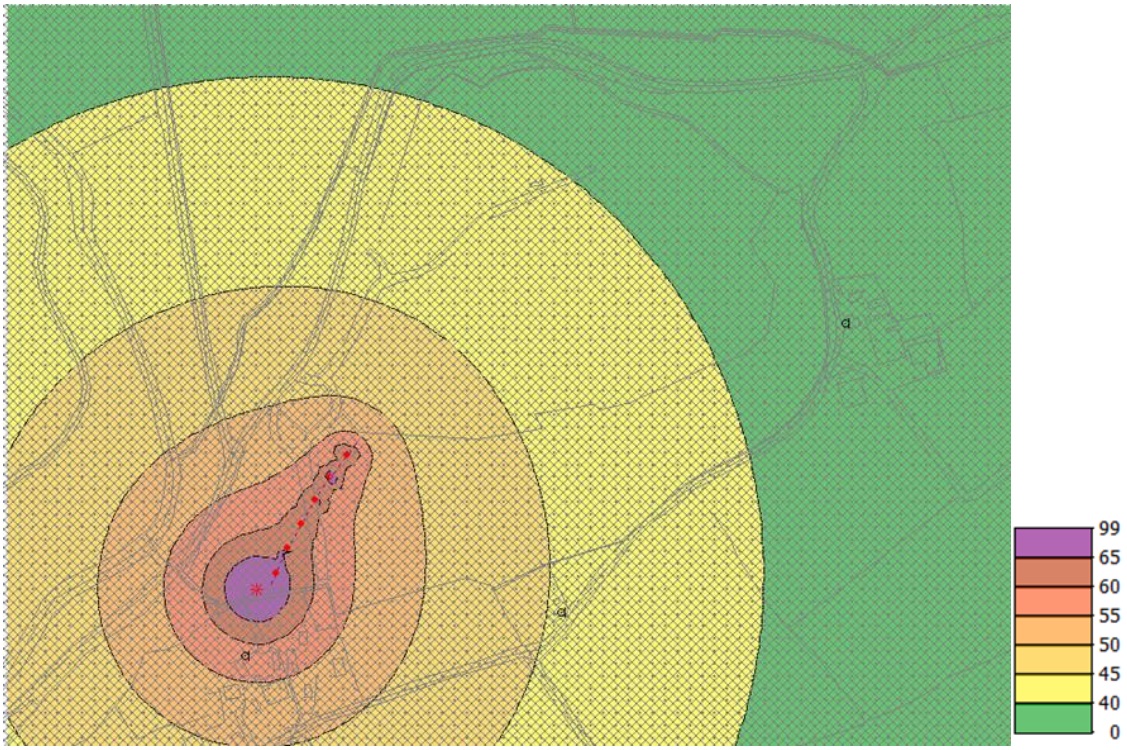


Figure 5-5: Model Output – Berm Construction near Farmhouse (H3) to Southwest

5.7 Future Trends

EPA EIAR guidance recommends that a noise impact assessment should include a description of the likely evolution of the future receiving acoustic environment in the absence of the proposed development. The local noise environment is rural in character, with the soundscape dominated by birdsong/calls, agricultural activity, barking, and local and distant traffic. In the short and medium term, traffic volumes may increase into the future, due to population growth. An increase in traffic volumes is likely to result in an increase in ambient noise levels. Although the proportion of electric vehicles in the national car fleet is likely to rise, traffic noise levels throughout the local area are dominated by tyre rolling noise rather than engine and transmission noise. Tyre rolling noise generated by electric vehicles is similar to than arising from conventionally powered vehicles.

Should the proposed development not proceed, operations are likely to continue as at present. In due course, extraction in the quarry will cease as the deposit available in the currently permitted area is exhausted. No noise emissions will arise other than those from land management practices, depending on how the site is used into the future.

~~5.7~~5.8 Population & Human Health

~~Many noise standards and guidance documents published by various authorities over the last three decades have been informed by criteria recommended by the World Health Organisation (WHO). Their first noise guidance document issued in 1980 concluded that a daytime $L_{Aeq,T}$ limit around 55dB may be considered a suitable environmental health goal for external noise levels in residential areas, and that levels below 55dB are 'desirable to prevent any significant community annoyance'.~~

~~Building on extensive research in the interim, the 1999 WHO document *Guidelines for community noise* includes more specific guidance. The recommended outdoor daytime criterion with respect to serious annoyance remains at 55dB, with 50dB added as an indicator of moderate annoyance, both as façade $L_{Aeq\ 16\ h}$ levels. The 55dB daytime criterion recommended by the 1999 WHO document appears frequently in various guidance documents, including EPA~~

~~guidance. The 55dB limit discussed in Section 5-2 above is ultimately derived from the WHO guidance~~.

The assessment of impacts on human health is typically undertaken by reference to WHO guidance, which has been revised over the last four decades according as noise and health studies have been published. The WHO currently recommends the following:

- In residential settings, a daytime/evening $L_{Aeq\ 16\ h}$ level of 50 dB is an indicator of moderate annoyance.
- A night-time $L_{Aeq\ 8\ h}$ level of 45 dB is recommended to prevent sleep disturbance, although this may reduce to 40 dB in future years.
- With respect to short term impulsive sources, the WHO recommends a night-time L_{AFmax} limit of 60 dB outside bedroom windows during night-time hours.

Although the WHO notes that 50dB is an indicator of moderate annoyance, regulatory authorities typically do not apply a 50dB limit to daytime operators. This is most likely linked to the differing time intervals: the 55 and 50dB WHO criteria relate to a 16-hour day, whereas quarry noise limits are usually specified over 1 hour. Thus, compliance with a 55dB limit for each hour of a 9 to 10-hour working day is likely to facilitate compliance with a 50dB limit over a 16-hour day.

On the basis of the above, it is considered that a 55dB $L_{Aeq\ 1\ h}$ limit provides a sufficient degree of protection to human health. $L_{Aeq\ 1\ h}$ levels attributable to day-to-day operations at the DCWL sand and gravel pit are comfortably below this criterion at present and will remain below the criterion throughout the lifetime of the proposed further development. Thus, no adverse impacts on the local population or on human health are expected.

~~5.8~~5.9 Mitigation

Measured noise data indicate that $L_{Aeq\ 1\ h}$ levels attributable to current DCWL operations are considerably below the 55dB criterion at off-site receptors. Levels are expected to remain comfortably below the criterion throughout the lifetime of the proposed development. During periods of overburden removal and berm construction, including berm construction events close to the two nearest dwellings, $L_{Aeq\ 1\ h}$ levels will be lower than the 65dB criterion applicable to this activity. Thus, no mitigation measures are specifically warranted. However, the applicant proposes to apply the general noise mitigation measures below:

- All plant on site, both fixed and mobile, will be maintained in accordance with manufacturer's recommendations. In particular, exhaust and silencer systems will be maintained in a satisfactory condition.
- Any plant introduced to the site will not be excessively noisy. Where possible, noise data provided by the supplier will be consulted.
- It is recommended that use of truck and plant horns on site is prohibited, including on the site access road.
- It is recommended that the access road be maintained in a satisfactory condition, and that any potholes which may generate rattles in empty truck bodies are repaired immediately. As noted, it is intended to pave the access road into the site.

5.10 Cumulative Effects

Noise surveys and site inspections indicate that there are no existing noise sources of significance in the surrounding area which could give rise to cumulative noise impacts. The chief noise sources in the local area are road traffic and sporadic agricultural activities. It follows that no receptor will be exposed to cumulative noise impacts resulting from the proposed development in conjunction with other existing offsite activities.

In order to assess potential future cumulative impacts, the local authority planning register was inspected to identify all permitted but unbuilt projects out to a radius of 1km from the quarry. No proposed developments of significance were identified.

5.11 Residual Effects

Residual impacts assessed using EPA and IEMA guidance are summarised in Table 5-8. It is important to note that, given the presence of quarrying at this location for many decades, existing quarry operations are considered to form part of the baseline environment, and changes in soundscape resulting from the proposed development may be assessed by reference to this baseline.

Table 5-8: Residual Impacts Assessed using EPA and IEMA Guidance

Source	Receptors	Factor	Impact
Excavation & Loading in Pit	All receptors	Levels	No changes in noise levels expected
		Quality	Neutral
		Significance	Imperceptible
		Duration	Long term
Processing & Ancillary Activities	All receptors	Levels	No changes in noise levels expected
		Quality	Neutral
		Significance	Imperceptible
		Duration	Long term
Berm Construction	All receptors	Levels	57 dB at R02; 58 dB at R03
		Quality	Slight adverse at two nearest receptors
		Significance	Slight to moderate
		Duration	Temporary

BS 4142 notes that a difference of 10dB or more between specific and background levels is indicative of a significant adverse impact. A difference of 5dB suggests an adverse impact, with lower differences suggesting reduced impacts. For the purposes of this assessment, the existing quarry is considered to form part of the background. No increase will arise in quarry noise levels at receptors, and thus no adverse impact will occur in the context of BS 4142.

Impacts and effects are summarised in Table 5-9. No cumulative impacts are identified. Noise impacts will be imperceptible to not significant at nearest receptors, and entirely imperceptible at more removed receptors.

Table 5-9: Summary of Effects

Factor		Effect
Quality		Neutral at all receptors. *Positive (improves soundscape); Neutral (no perceptible changes); Adverse (reduces quality of soundscape)*
Significance		Imperceptible to not significant. *Imperceptible (capable of measurement, but without significant consequences, <2 dB change); Not significant (causes noticeable changes to soundscape, but without significant consequences, 2-4 dB change); Slight (causes noticeable changes to soundscape without affecting its sensitivities, 4-6 dB change); Moderate (alters soundscape in manner consistent with existing and emerging baseline trends, 6-10 dB change); Significant (alters soundscape due to source character, magnitude, duration or intensity, 10-15 dB change); Very significant (significantly alters soundscape due to source character, magnitude, duration or intensity, 15-20 dB change); Profound (obliterates soundscape, >20 dB change)*
Duration		The lifetime of the proposed development is likely to be up to 15 years and will thus be medium term. *Momentary (seconds or minutes); Brief (<1 day); Temporary (<1 year); Short term (1-7 years); Medium term (7-15 years); Long term (15-60 years); Permanent (>60 years)*
Frequency		Emissions will arise Mon- Fri 0700-1900 and Sat 0700-1400 *Occurrence of impacts*
Extent & Context	Extent	Local only. *Development area size, receiving area affected, number of receptors affected, proportion of population affected*

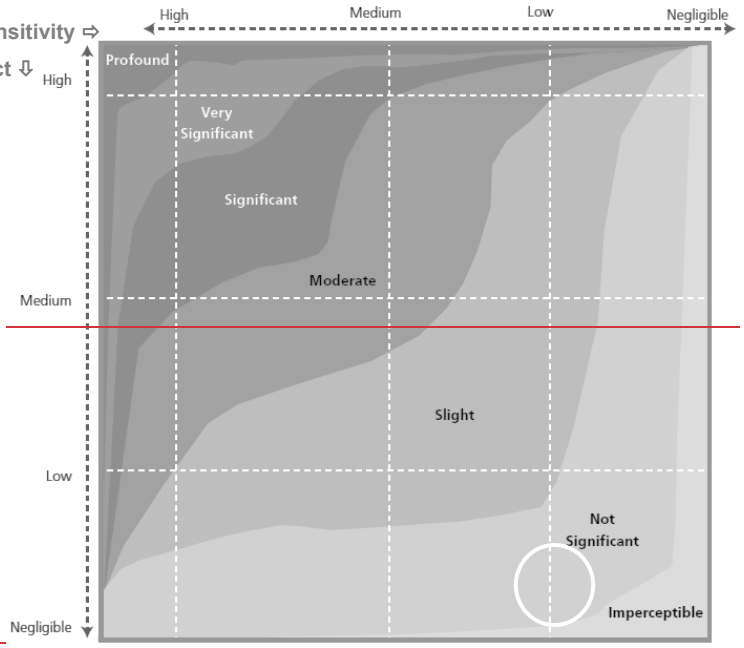
Factor		Effect
	Context	The proposed development is entirely consistent with local context, given the presence of quarrying at this location since 1940s. *Conformity or contrast with existing and emerging soundscape*
Impact type	Indirect	None identified. Truck movements exceptionally low in context of traffic volumes. *Secondary impacts not directly attributable to development, often removed from site*
	Cumulative	None identified *Combined impacts with other projects or sources*
	Worst case	None identified. No critical noise mitigation measures in place at present or historically, and no such measures required. *Where mitigation measures substantially fail*
	Indeterminable	None identified *Where full consequences of change in soundscape cannot be described*
	Residual	See **Error! Reference source not found.**.
	Synergistic	None identified *Where synergistic effect is greater than sum of its constituents*

5.9 Summary of Effects

Impacts and effects are summarised in Table 5-6. No cumulative impacts are identified. Noise impacts will be imperceptible to not significant, on the basis that the proposed development will represent a continuation of the existing operation. During the 1 to 2-week period when berm construction is underway in proximity to the two nearest dwellings, impacts will increase to slight adverse, and will be mitigated by their temporary effect.

Table 5-6: Assessment of impacts & effects.

From *Draft guidelines on the information to be contained in EIARs* (EPA, 2017)
Quality Neutral at most receptors, as no changes will arise over existing soundscape. Slight adverse at two nearest receptors during local berm construction. *May be: **positive** (improves soundscape); **neutral** (no perceptible changes); **adverse** (reduces quality of soundscape)*
Significance Imperceptible to not significant, increasing to slight to moderate at two nearest dwellings during local berm construction. *May be: **imperceptible** (capable of measurement, but without significant consequences, <2 dB change); **not significant** (causes noticeable changes to soundscape, but without significant consequences, 2-4 dB change); **slight** (causes noticeable changes to soundscape without affecting its sensitivities, 4-6 dB change); **moderate** (alters soundscape in manner consistent with existing and emerging baseline trends, 6-10 dB change); **significant** (alters soundscape due to source character, magnitude, duration or intensity, 10-15 dB change); **very significant** (significantly alters soundscape due to source character, magnitude, duration or intensity, 15-20 dB change); **profound** (obliterates soundscape, >20 dB change)*
Extent Local only. *Refers to: development area size, receiving area affected, number of receptors affected, proportion of population affected*
Context Conforms with soundscape, as pit has been worked since 1940s. *Refers to: conformity or contrast with existing & emerging soundscape*
Probability Likely. *May be: **likely** (reasonably expected to occur); **unlikely** (reasonably expected not to occur)*
Duration Medium to long term. Local berm construction works will be temporary. *May be: **momentary** (seconds or minutes); **brief** (<1 day); **temporary** (<1 year); **short term** (1-7 years); **medium term** (7-15 years); **long term** (15-60 years); **permanent** (>60 years)*

~~From *Draft guidelines on the information to be contained in EIARs* (EPA, 2017)~~
~~**Frequency**~~ ~~Monday-Saturday.~~ ~~*Refers to: occurrence of impacts*~~
~~**Reversibility**~~ ~~Impacts may be reversed at any time in the future.~~ ~~*May be: **reversible** (may be undone in the future); **irreversible** (cannot be undone following onset, thus permanent)*~~
~~**Indirect impacts**~~ ~~None identified. Truck movements exceptionally low in context of traffic volumes.~~ ~~*Refers to: secondary impacts not directly attributable to development, often removed from site*~~
~~**Cumulative impacts**~~ ~~None identified. N22 project EIS suggests no increase in ambient noise levels will occur locally. Given the low intensity of extraction, no cumulative impacts with road traffic will occur.~~ ~~*Refers to: combined impacts with other projects or sources*~~
~~**Worst case impact**~~ ~~No critical noise mitigation measures in place at present or historically, and no such measures required.~~ ~~*Refers to: situation where mitigation measures substantially fail*~~
~~**Indeterminable impacts**~~ ~~None likely.~~ ~~*Refers to: situation where full consequences of change in soundscape cannot be described*~~
~~**Residual impact**~~ On the basis of the foregoing, the overall residual impact is circled white in the diagram. 
~~**Summary of effects**~~ ~~Noise impacts considered to be imperceptible to not significant at nearest receptors, and entirely imperceptible at more removed receptors. Temporary slight to moderate at two nearest dwellings during local berm construction (1-2 weeks).~~ ~~*Refers to consequence of impacts*~~

~~5.10~~5.12 Glossary of Terms

Ambient	Total noise environment at a location, including all sounds present.
A-weighting	Weighting or adjustment applied to sound level to approximate non-linear frequency response of human ear. Denoted by suffix A in parameters such as $L_{Aeq\,T}$, $L_{AF10\,T}$, etc.
Background level	A-weighted sound pressure level of residual noise exceeded for 90 % of time interval T. Denoted $L_{AF90\,T}$.
Decibel (dB)	Unit of noise measurement scale. Based on logarithmic scale so cannot be simply added or subtracted. 3 dB difference is smallest change perceptible to human ear. 10 dB difference is perceived as doubling or halving of sound level. Examples of decibel levels

	are as follows: 20 dB: very quiet room; 30-35 dB: night-time rural environment; 55-65 dB: conversation; 80 dB: busy pub; 100 dB: nightclub. **Throughout this report noise levels are presented as decibels relative to 20 µPa**.
Effect	Consequence of an impact.
Emissions	Noise originating from source under consideration, spreading spherically, hemispherically or otherwise into surrounding environment.
Fast response	0.125 seconds response time of sound level meter to changing noise levels. Denoted by suffix F in parameters such as $L_{AF10\,T}$, $L_{AF90\,T}$, etc.
Free field	Measurement position removed from acoustically reflective surfaces other than ground.
Frequency	Number of cycles per second of a sound or vibration wave. Low frequency noise may be perceived as hum, while whine represents higher frequency. Range of human hearing approaches 20-20,000 Hertz.
Hertz (Hz)	Unit of frequency measurement.
Immissions	Inward noise received at receptor, whether from all sources (ambient) or source under consideration (specific).
Impact	Change resulting from an action, such as implementation of a project.
Impulse	Noise which is of short duration, typically less than one second, sound pressure level of which is significantly higher than background.
Interval	Time period T over which noise parameters are measured at position. Denoted by T in $L_{Aeq\,T}$, $L_{AF90\,T}$, etc.
$L_{Aeq\,T}$	Equivalent continuous sound pressure level during interval T, effectively representing average A-weighted noise level of ambient noise environment.
$L_{AF10\,T}$	Sound pressure level exceeded for 10% of interval T, usually used to quantify traffic noise.
$L_{AF90\,T}$	Sound pressure level exceeded for 90% of interval T, usually used to quantify background noise. May also be used to describe noise level from continuous steady or almost-steady source, particularly where local noise environment fluctuates.
Noise sensitive location	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires absence of noise at nuisance levels.
Residual level	Noise level remaining when specific source is absent or does not contribute to ambient.
Soundscape	Acoustic environment as perceived, experienced or understood by listeners, taking context into account.
Specific level	$L_{Aeq\,T}$ level produced by specific noise source under consideration during interval T, measured directly or by estimation or calculation.
Tone	Character of noise caused by dominance of one or more frequencies which may result in increased noise nuisance.
	In this report units are generally presented using US National Institute Of Standards & Technology guidelines.

6. AIR QUALITY, CLIMATE & CLIMATE CHANGE

6.1 Introduction

This chapter of the EIAR addresses air quality and climate in the existing environment; extraction activities can potentially impact on local air quality associated with the release of dust, and greenhouse gases (GHG) and particulates from exhaust fumes of diesel engines (HGVs, mobile quarry plant). It assesses the significant direct and indirect effects that might occur on air quality and climate because of the further development of the gravel pit and its resilience to climate change / extreme weather events. The mitigation measures being implemented or proposed to be implemented are also presented.

6.1.1 Scope & Purpose

The objectives of the air quality assessment are to:

1. Determine the baseline air quality at the Ummera gravel pit.
2. Identify human receptors where a potential significant increase in dust and / or particulate concentrations, due to the further development of the gravel pit, may occur.
3. Identify sensitive habitats where a potential significant increase in dust and / or particulate concentrations, due to the further development of the gravel pit, may occur.
4. Determine suitable mitigation measures to reduce significant air quality effects to an acceptable level.
5. Propose a monitoring programme to measure the effectiveness of the proposed mitigation measures.

According to the Institute of Air Quality Management Guidelines (IAQM, 2024), an air quality (dust) impact assessment is normally required when:

1. There is a human receptor within:
    a. 250m of the boundary of the site and/or
    b. 50m of the route(s) used by construction vehicles on the public roads, up to 250m from the site entrance.
2. There is an ecological receptor within:
    a. 50m of the boundary of the site, and/or
    b. 50m of the route(s) used by construction vehicles on the public roads, up to 250m from the site entrance.

Dust and particulate emissions can give rise to, or exasperate, adverse health conditions such as heart or lung problems. The purpose of this chapter is to present the procedures and protocols to be employed by DCWL during the lifetime of the gravel pit to control and minimise dust and particulate emissions from the site and avoid impacts on health / wellbeing of the neighbouring population or affect nearby vegetation / ecosystems.

This chapter of the EIAR also provides details of the existing climate at the project site. It identifies the existing climatic conditions and trends based on historic data available from Met Eireann. The purpose of the assessment is to identify and assess the potential direct and indirect climate change impacts of the further development of the gravel pit and its resilience changes in climate / climate extremes. It discusses the climate change policies relating to the extractive industries. Cumulative impacts are assessed with other permitted and planned projects. Mitigation measures are proposed to avoid or reduce effects associated with the potential impacts.

6.1.2 Policies & Guidelines

Air Quality

There are several government policies and industry guidelines to which this air quality assessment has regard. These include:

1. The European Commission Air Quality Framework Directive, 1996 and its four "daughter" directives, which lay down limits for specific pollutants:
    a. 1st Daughter Directive: Sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead.
    b. 2nd Daughter Directive: Carbon monoxide and benzene.
    c. 3rd Daughter Directive: Ozone.
    d. 4th Daughter Directive: Polyaromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air.
2. The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC), May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives.
3. Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011), which transposed the Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC).
4. Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022), which replaced S.I. No. 180 of 2011.
5. The fourth Daughter Directive was transposed into Irish legislation by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).

The air quality limit values for the protection of human health and the protection of vegetation are set in Tables 6-1 and 6-2, respectively.

Table 6-1: Air Quality Limits for the Protection of Human Health

Pollutant	Averaging Period	Limit Value µg/m³	Limit Value ppb	Basis of Application of Limit Value	Attainment Date
SO_2	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year	01 Jan 2005
	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year	
NO_2	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year	01 Jan 2010
	year	40	21	Annual mean	
PM_{10}	24 hours	50	---	Annual mean	01 Jan 2005
	year	40	---	Annual mean	
$PM_{2.5}$ Stage 1	year	25	---	Annual mean	01 Jan 2015
$PM_{2.5}$ Stage 2	year	20	---	Annual mean	01 Jan 2020
Lead	year	0.5	---	Annual mean	01 Jan 2005
Carbon Monoxide	8 hours	10,000	8,620	Not to be exceeded	01 Jan 2005
Benzene	year	5	1.5	Annual mean	01 Jan 2010

Table 6-2: Air Quality Limits for the Protection of Vegetation / Ecosystems

Pollutant	Averaging Period	Limit Value µg/m³	Limit Value ppb	Basis of Application of Limit Value	Attainment Date
SO_2	year	20	7.5	Annual mean	19 July 2001
	01 Oct to 31 Mar	20	7.5	Winter mean	
$NO + NO_2$	year	30	16	Annual mean	19 July 2001

Relevant industry guidelines include:

1. Department of the Environment, Heritage and Local Government, April 2004. *Quarries and Ancillary Activities – Guidelines for Planning Authorities.*
2. Irish Concrete Federation, October 2005. *Environmental Code.*
3. Environmental Protection Agency, 2006. *Environmental Management Guidelines – Environmental Management in the Extractive Industry (Non-Scheduled Minerals).*

4. Environmental Protection Agency, December 2011. *Final Draft BAT Guidance Note on Best Available Techniques for the Waste Sector: Waste Transfer and Materials Recovery.*
5. Institute of Air Quality Management Guidelines, May 2016. *Guidance on the Assessment of Mineral Dust Impacts for Planning*. Version 1.1 (currently under review).
6. Institute of Air Quality Management (IAQM), May 2020. *A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*. Version 1.1.
7. Institute of Air Quality Management Guidelines, January 2024. *Guidance on the Assessment of Dust from Demolition and Construction*. Version 2.2.
8. Transport Infrastructure Ireland, December 2025. *Air Quality Assessment of Proposed National Riads – Standard*.

Climate & Climate Change

There are several global, national and local policies addressing climate change. The historic policies and strategy documents leading to, and underpinning, the current framework include the Kyoto Protocol and several White Papers and Green Papers setting targets and objectives to increase renewable energy penetration and reduce reliance on fossil fuels. More recent and current Government policies and strategies which outline targets for increased renewable energy deployment and reduction in reliance on fossil fuels to combat climate change are:

- European Council – Climate and energy policy framework for 2030[18], October 2014. This sets out new targets for carbon emission reduction, new targets for renewable energy penetration, increased energy efficiency and installation of interconnector infrastructure.
- United Nations, 2015[19]. The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels.
- The Climate Action and Low Carbon Development Act 2015. This placed national climate policy on a statutory footing for the first time in Ireland with the ultimate aim of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy by 2050. It provided for a National Mitigation Plan (NMP) to reduce greenhouse (GHG) emissions, a National Adaptation Framework (NAF) to respond to changes caused by climate change and Sectoral Adaptation Plans (SAPs). It also established the Climate Change Advisory Council (the Advisory Council), an independent advisory body tasked with assessing and advising on Ireland's transition towards a low carbon economy by 2050.
- Climate Action Plan 2019 – To Tackle Climate Breakdown[20], June 2019. This sets out the targets, strategy actions to reduce reliance on fossil fuels and reduce carbon emissions across all sectors. The consultation for the Climate Action Plan for 2021 was launched in March 2021.
- Interim Climate Actions 2021. Its purpose is to maintain a whole-of-government focus on implementation and continue to progress new climate actions while the Plan to reach 7% per annum reductions is developed.
- Climate Action Plan 2023 – This is the second annual update to Ireland's Climate Action Plan 2019. This plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, and following the introduction, in 2022, of economy-wide carbon budgets and sectoral emissions ceilings.
- Climate Action Plan 2024 – This is the third annual update to Ireland's Climate Action Plan.
- Climate Action Plan 2025 – This is the fourth statutory annual update to Ireland's Climate Action Plan under the Climate Action and Low Carbon Development (Amendment) Act 2021.

6.1.3 Sources of Baseline Data

The main sources of baseline data and information relating to air quality include:

- Air quality data – https://airquality.ie
- Rainfall data - Met Eireann www.met.ie

- Ecological receptors – NPWS – https://www.npws.ie
- Local dust deposition levels – environmental monitoring at the operational gravel pit.

The main sources of baseline data and information relating to the climate and climate change include:

- Ireland's Climate Change Assessment- Synthesis Report, EPA, 2023 - Ireland's Climate Change Assessment (ICCA) | Environmental Protection Agency
- National emissions data, Integrated Carbon Observation System (ICOS) - Monitoring & assessment: Climate change | Environmental Protection Agency
- Guidance on Integrating Climate Change and Biodiversity into EIA, EC 2013[21].
- Climate Change and Major Projects, EC 2016[22].
- Sector Planning Guidelines for Climate Change Adaptation[23], 2024.
- Local Authority Climate Action Plan Guidelines, 2023[24].
- Assessing Greenhouse Gas Emissions and Evaluating their Significance, IEMA 2022[25].

6.1.4 Assessment Mythology

The assessment of air quality and climate change was carried out with reference to relevant policies, regulations and guidelines, as listed above, and following this general methodology:

- The preliminary design of the further development of the gravel pit was reviewed to identify elements which could have the potential to impact air quality, contribute to climate change or be vulnerable to climate change / extreme weather events.
- Consultation was carried out with agencies with an interest in these topics, including Environmental Protection Agency, National Environmental Health Service (EHS) and National Parks & Wildlife Service (NPWS).
- A literature review was carried out to determine any policies and / or guidelines to which the proposal should have regard.
- A desk-based assessment of these topics was undertaken. Any particularly sensitive receptors were identified. This included a review of the biodiversity chapter of this EIAR to identify any sensitive ecological receptors. Vulnerable aspects of the project to climate change were identified.
- Field surveys were conducted to identify any site-specific air quality issues associated with the operational gravel pit. Use of diesel-powered plant, HGVs and equipment was categorised to estimate the carbon footprint of the operations. Site-specific vulnerabilities to extreme weather events at the operational gravel pit were identified.
- Findings from the desk-based study and field surveys were used to modify the site layout to protect air quality and to reduce the vulnerability of the project to climate changes.

The site walkovers and collection of data were carried out on several occasions between 2019 and August 2026. Data collected included:

- Mapping of sensitive receptors per IAQM guidelines.
- Identifying nearby land uses that could potentially contribute to degradation of air quality.
- Selection of suitable air quality monitoring locations for the further development of the gravel pit.
- Mapping of vulnerable aspects of the project to climate change forecasts, including increased rainfall, prolonged dry spells, etc

The information collected during the desk-based assessment and site walkovers were used to establish the importance, quality and sensitivity of the receiving environment.

6.1.5 Consultation

As part of the EIA process, consultation was carried out with organisations and individuals regarding the proposed development, namely Environmental Protection Agency, National and National Parks & Wildlife Service (NPWS). Acknowledgement were received, but detailed responses were not.

6.1.6 Climate Change & Greenhouse Gases

Climate change is one of the most challenging global issues facing us today. Although variation in climate is a natural process, the rate at which the climate is changing is thought to be influenced by human activities. Increased concentrations of GHG in the atmosphere, namely carbon dioxide and methane, is thought to be the main driver of climate change. The GHG come primarily from the combustion of fossil fuels in energy use. Changing climate patterns are thought to increase the frequency of extreme weather conditions such as storms, floods and droughts.

6.1.7 Ireland's Greenhouse Gas Emissions

The Climate Change Performance Index (CCPI) is an independent monitoring tool which tracks countries climate protection performance. It assesses individual countries based on:

- Climate policies
- Energy usage per capita.
- Renewable energy implementation.
- Greenhouse Gas Emissions (GHG).

The latest report (November 2025[26]) presents the assessment of climate mitigation efforts of 63 countries plus the EU. Based on the above metrics, it ranks each country's performance in each category and overall performance. In its latest report, Ireland ranks 33rd in the climate change performance index (down 4 places); it ranks 40th in the GHG emissions rating; it ranks 19th in the renewable energy rating; it ranks 30th in the energy use rating; and 31st in the climate policy rating. Ireland remains as a "low" performer in international performance.

The EPA has responsibility for developing, preparing and publishing projections of GHG emissions for Ireland and produces national GHG emissions projections on an annual basis. Ireland's 2030 target under the EU's Effort Sharing Regulation (ESR) is to limit its greenhouse gas emissions by at least 42% by 2030 compared to 2005, which means ESR emissions of 27.7Mt CO_2eq in 2030. Its latest report[27], the EPA provides an assessment of Ireland's GHG emissions projections from 2024 to 2055, using the latest inventory data for 2023 as the starting point. The focus of the assessment is out to 2030 given current national and EU 2030 climate targets. In preparing the projections, two scenarios are assessed; With Existing Measures (WEM); and With Additional Measures (WAM). GHG emissions projections show total emissions decreasing from 2021 levels by 3.3% by 2030 under the WEM scenario (i.e., a reduction from 44.9Mt CO_2eq to 43.2Mt CO_2eq) and by 16.9% under the more ambitious WAM scenario (i.e., a reduction from 44.9Mt CO_2eq to 37.3Mt CO_2eq).

Under the WEM scenario, the projections indicate that Ireland will cumulatively exceed its total ESR 2021-2030 emissions allocation of 366.3Mt CO_2eq by 68.1Mt CO_2eq. Under the WAM scenario, the projections indicate that Ireland will cumulatively exceed the ESR 2021-2030 emissions allocation by 47.6Mt CO_2eq.

The burden of GHG emission reductions is distributed across several sectors of the economy, including electricity, transport, construction, industry, agriculture and other. The quarrying sector is included in the 'industry' sector. The projected reduction in GHG emissions in this sector is from 7.0Mt CO_2eq (2018 level) to 6.1Mt CO_2eq (projected 2030 emissions) – a project reduction of 12%, against a target reduction of 35% (i.e., a reduction from 7.0Mt CO_2eq to 4.0Mt CO_2eq).

The quarrying sector, as part of the 'industry' sector, are responsible for these reduction targets to help Ireland meet its overall climate goals. This will require changes in operations, including adopting more energy-efficient technologies, reducing reliance on fossil fuels, and potentially incorporating renewable energy sources into quarrying processes.

6.2 ~~Local Climate~~Receiving Environment

6.2.1 Air Quality in the Existing Environment

EPA Air Quality Data

The EPA's Air Quality Index for Health (AQIH) for Ireland provides an indicator of air quality across the Country. Ummera gravel pit is located in Zone 80 of Region 6 (Rural West) and has an air-quality index of 3. The AQIH has a scale of 1 to 10, with 1 being Good air quality and 10 being Very Poor air quality. The AQIH is based on the measurement of five parameters. Table 6-3 lists the parameters and the range for Good air quality with an index score of 3.

Table 6-3: Good Air Quality Index Concentrations

Parameter	Units	Index 3 Air Quality Range
Ozone gas	µg/m^3 (8-hour mean)	67 – 100
Nitrogen dioxide gas	µg/m^3 (1-hour mean)	135 – 200
Sulphur dioxide gas	µg/m^3 (1-hour mean)	60 – 89
$PM_{2.5}$ particles	µg/m^3 (24-hour mean)	24 - 35
PM_{10} particles	µg/m^3 (24-hour mean)	34 - 50

Note

1. The highest (worse) concentration determines the air quality index.

The EPA maintain a network of ambient air quality monitoring sites across the Country, most of which are in urban environments. The closest to the site ~~are located near Cork City~~ is located in Macroom, in an urban environment. The most relevant parameters for the extractive industry are $PM_{2.5}$ particles and PM_{10} particles, which are only parameters monitored at the Macroom station. The readings for the past 6 months are provided in Plate 6-1.

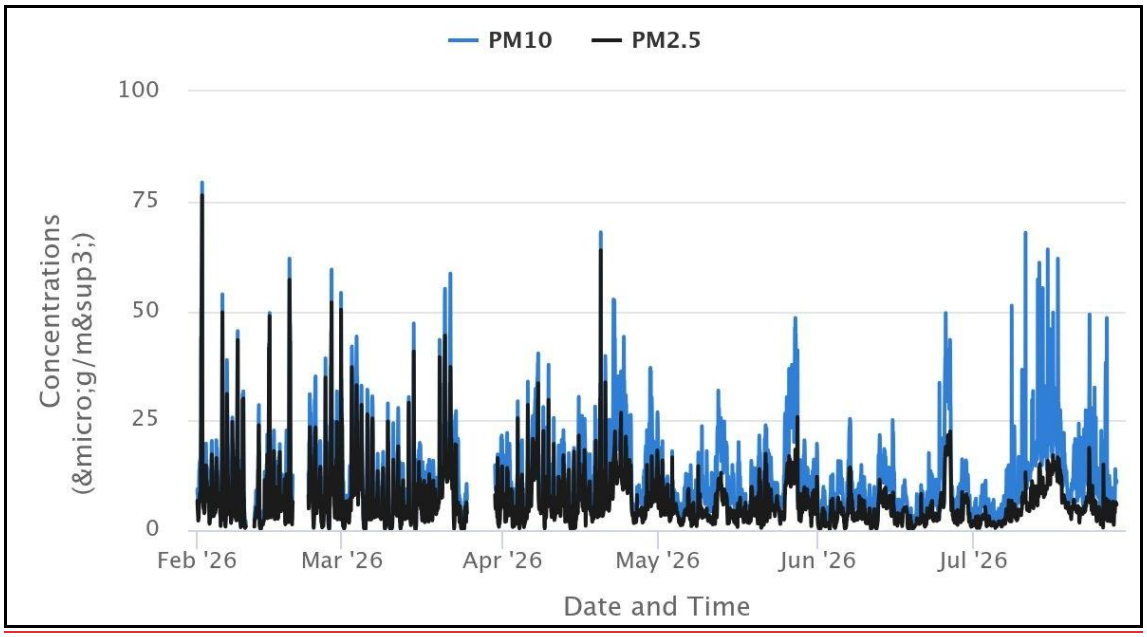


Plate 6-1: Air Quality Levels at Macroom Monitoring Station

~~Statutory Instrument No 180 of 2011 (Air Quality Standards Regulations) transposes the Ambient Air Quality and Cleaner Air for Europe (CAFÉ) Directive (2008/50/EC) in Irish legislation. The current limits (to protect human health) for $PM_{2.5}$ are 25µg/m^3 (annual mean), reducing to 20µg/m^3 (annual mean) in 2020. The limits for PM_{10} are 50µg/m^3 (24-hour mean), not to be exceeded more than 35 times per year and 40 µg/m^3 (annual mean).~~

As noted in Table 6-1, the current limits (to protect human health) for $PM_{2.5}$ is 20µg/m^3 (annual mean) and the limits for PM_{10} are 50µg/m^3 (24-hour mean) and 40 µg/m^3 (annual mean). As shown on Plate 6-1, $PM_{2.5}$ and PM_{10} are generally within these limits but do exceed limits on occasion. In 2024, for PM_{10} the annual mean was 11.9µg/m^3; the median was 10.1µg/m^3; the number of days greater than 50µg/m^3 was zero; and the daily maximum was 39.2µg/m^3. The station in Kilkitt County Monahan is in a rural setting. In 2024, for PM_{10} the annual mean was 7.1µg/m^3; the median was 5.8µg/m^3; the number of days greater than 50µg/m^3 was zero; and

the daily maximum was 30.5µg/m^3, indicating slightly better air quality than Macroom for that year.

The EPA provide country-wide maps showing the concentrations of $PM_{2.5}$, PM_{10}, Ozone and NO_2. For the Ummera site, the following annual mean for 2024 are available:

- NO_2 = <5
- O_3 = <55
- $PM_{2.5}$ = 6 - 8µg/m^3
- PM_{10} = 10 - 12µg/m^3 (for 2023 – 2024 data is not available)

Site-Specific Air Quality Data

Generally, the levels of dust in the countryside are low (<20 mg/m^2/day). From the walkover survey of the site, there is little or no indication of dust deposition along the boundary vegetation of the gravel pit. Dust monitoring has been conducted at the gravel pit at three monitoring locations – D1, D2 and D3 - using Bergerhoff dust gauges as per the German VDI 2119 Standard Method '*Measurement of Dustfall*'. D1 is located at the eastern side of the pit near house H1; D2 is located at the ~~southern end~~ southeast corner of the site near house H2; and D3 is located near site entrance. These are shown on Figure 6-1, with results summarised in Table 6-4.

Table 6-4: Summary of Dust Monitoring Results

Monitoring Period	D1 (mg/m^2/day)		D2 (mg/m^2/day)		D3 (mg/m^2/day)	
	Total	Inorganic	Total	Inorganic	Total	Inorganic
14 Jan to 11 Feb 2006	84	26	31	6	29	8
25 April to 24 May 2006	<5	<5	5	<5	<5	<5
25 Aug to 23 Sept 2006	91	50	131	93	---[1]	---[1]
14 May to 14 June 2007	362	152	137	80	1,380[1]	1,007[1]
04 Sept to 03 Oct 2007	153	112	50	39	119	100
04 Oct to 04 Nov 2019	10.55	7.22	14.45	5.56	94.5	62.8
25 May to 21 June 2022	189	97	77	39	315	295
08 Sept to 05 Oct 2022	102	64	99	63	293	105
21 June to 18 July 2023	247	97	89	52	292	123
04 Sept to 02 Oct 2023	113	65	77	41	516	470
16 May to 17 June 2024	96	19	190	89	778[1]	367[1]
04 Sept to 01 Oct 2024	93	65	109	77	206	186
09 May to 07 June 2024	84	67	210	138	111	85
27 Aug to 26 Sept 2025	193	89	73	25	92	37
22 May to 19 June 2026	168	41	30	<10	29	<10

Note:- Sample D3 vandalised.

The emission limit value for dust deposition is 350mg/m2/day as set by the Council for the site – refer to Condition 12 of QR01. The dust analysis evaluates the organic and inorganic fraction. It is the inorganic fraction that would originate from the extraction activities. Taking the inorganic fraction as originating from site activities, the dust deposition has varied from <5 to 152mg/m^2/day at D1; <5 to 138mg/m^2/day at D2; and from <5 to 295mg/m^2/day at D3. Higher values were recorded at D3 but are due to vandalism of the sampling container.

Dust is considered to include any solid matter emanating from the gravel pit or from plant and vehicles serving it, which is borne on the wind. Dust from a gravel pit is produced from the drying of silt and fines and the movement of vehicles through the site. The size of particulates typically ranges from 1 to 75 µm. The significant cause of dust emission and dispersion from a site is wind.

The EPA sets a total dust (soluble and insoluble) deposition limit of 350mg/m^2/day (as specified by the TA Luft Guidelines). This limit is also cited in the DofEHLG Guidelines. The inorganic (insoluble) fraction is attributed to the extraction activities, while the organic fraction is likely attributable to other factors, such as insects, dust from agricultural activities (hay / straw cutting), bird dropping, etc. The factors that contribute / control the distribution of dust and particulate matter are wind strength, wind direction and rainfall. These climatic conditions prevailing at the Ummera site are discussed in Section 6.2.2. In brief, the prevailing wind direction is from the southwest with an annual average wind speed of 3.6m/sec. There is on average 1,360mm of rainfall in this area per annum with 152 days per annum experiencing >1mm of rainfall.

Sensitive Receptors

The sensitive human receptors to dust and particulates are the residents nearest the gravel pit. With reference to the offset distances provided in IAQM, 2024 Guidelines (see Section 6.1.1 above), for the Ummera site, there are four dwellings within 250m of the site boundary. There are no dwellings 250m from the site entrance and within 50m of the route to / from the site – refer to Figure 2-1 (House Location Map).

There are no designated sites (SACs, SPAs or NHAs) within 2km of the site boundary. The closest is Lough Gal pNHA, located 2.3km to the northeast. There are sensitive ecological receptors including watercourses and broad-leafed woodland, within 50m of the site boundary and 250m from the site entrance and within 50m of the route to / from the site.

6.2.2 Local Climate Conditions

The long-term weather patterns at the site reflect regional conditions affecting the south Munster area. These patterns are predominantly low fronts from the west and southwest in winter months and more settled conditions during the summer months.

The nearest synoptic station to the site, for which 30-year monthly averages is available, is located at Cork Airport, approximately 30km to the southeast of the site. The grid co-ordinates for this station are W665662. It is situated at an elevation of 154mOD, approximately 50m higher than the Ummera gravel pit. Table 6-5 gives a summary of average mean temperatures, humidity, rainfall etc. based on a 30-year period between 1981 and 2010 for Cork Airport.

Table 6-5: Climatic Data from Cork Airport Synoptic Station

Monthly & Annual Mean And Extreme Values 1981-2010													
TEMPERATURE *(degrees Celsius)*	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Year***
mean daily max.	8.2	8.3	9.9	11.8	14.4	17.0	18.7	18.5	16.5	13.2	10.3	8.5	12.9
mean daily min.	3.0	3.1	4.0	4.9	7.4	10.0	11.8	11.8	10.2	7.7	5.2	3.7	6.9
mean	5.6	5.7	6.9	8.4	10.9	13.5	15.3	15.2	13.3	10.5	7.8	6.1	9.9
absolute max.	16.1	14.0	15.7	21.2	23.6	27.5	28.7	28.0	24.7	21.4	16.2	13.8	28.7
absolute min.	-8.0	-4.7	-4.3	-2.3	-0.9	3.7	6.7	5.3	2.3	-0.9	-3.3	-7.2	-8.0
mean no. of days with air frost	4.6	4.1	1.8	1.2	0.0	0.0	0.0	0.0	0.0	0.2	1.2	3.6	16.7
mean no. of days with ground frost	12.8	11.8	9.7	7.8	2.1	0.1	0.0	0.0	0.5	2.4	7.3	11.0	65.3
RELATIVE HUMIDITY ***(%)***													
mean at 0900UTC	89.8	89.4	87.8	83.1	80.6	81.3	83.2	85.4	88.4	90.1	90.7	90.5	86.7
mean at 1500UTC	83.7	78.9	75.5	71.3	70.9	71.5	72.9	72.8	75.4	80.4	83.4	85.4	76.8
SUNSHINE ***(hours)***													
mean daily duration	1.8	2.4	3.3	5.3	6.2	5.8	5.4	5.2	4.3	3.0	2.3	1.7	3.9
greatest daily duration	8.5	10.0	11.5	13.6	15.5	16.0	15.3	14.4	11.9	10.3	8.7	7.6	16.0
mean no. of days with no sun	10.1	7.9	6.3	3.1	2.1	2.5	2.0	2.6	3.6	6.4	8.6	11.9	67.1
RAINFALL ***(mm)***													
mean monthly total	131.4	97.8	97.6	76.5	82.3	80.9	78.8	96.8	94.6	138.2	120.0	133.1	1227.9
greatest daily total	45.7	49.9	55.2	34.2	34.9	59.7	73.2	60.9	58.9	52.1	47.9	41.9	73.2
mean no. of days with >= 0.2mm	20	17	19	16	15	14	15	15	16	19	19	19	204
mean no. of days with >= 1.0mm	16	13	14	11	12	10	10	11	11	15	14	15	152
mean no. of days with >= 5.0mm	9	6	5	5	5	5	5	5	5	8	7	8	73
WIND ***(knots)***													
mean monthly speed	12.1	12.0	11.6	10.3	10.1	9.4	9.0	9.0	9.4	10.7	10.9	11.6	10.5
max. gust	78	83	70	62	59	49	57	54	58	75	66	80	65.9
max. mean 10-minute speed	52	54	43	40	40	33	40	38	39	48	46	56	44.1
mean no. of days with gales	2.3	1.8	1.3	0.3	0.3	0.0	0.1	0.2	0.3	1.0	1.2	1.9	10.8
WEATHER ***(mean no. of days with..)***													
snow or sleet	3.1	3.1	2.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2	11.3
snow lying at 0900UTC	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.0
hail	1.0	1.1	1.4	1.9	0.7	0.2	0.1	0.0	0.1	0.3	0.2	0.4	7.4
thunder	0.2	0.1	0.1	0.1	0.6	0.5	0.8	0.3	0.0	0.4	0.1	0.1	3.3
fog	7.8	6.8	8.5	7.5	7.6	7.6	8.4	8.8	9.1	8.7	7.6	8.4	96.8

In addition, there is a rainfall gauge station located in Macroom (Cahirbaroule). Rainfall data is provided in Table 7-1. As shown on Table 7-1, the rainfall at the Macroom station is similar to the long-term 30-year averages for Cork Airport.

The mean annual wind speed for the site is approximately 3.6m/sec at 20m height. This is based on the ESBI wind speed maps available on the SEAI website https://maps.seai.ie/apps/WindAtlas/ .

6.2.3 Climate Change & Predicted Trends

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. The IPCC was established in 1988 by the World Meteorological Organisation (WMO) to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. The Sixth Assessment Report of the IPCC concluded that the global warming of the last 50 years is due to man-made emissions of greenhouse gases and that these changes are expected to continue and intensify. Predicted changes include.

- Average global temperatures are expected to increase by 1.4 to 4.4°C by the end of the century.
- By 2100, global sea level is expected to increase by 0.42m (0.28-0.55m; SSP1-1.9) for the very low emissions scenario and 0.82m (0.63-1.01m; SSP5-8.5) for the very high emissions scenario by the end of the century.
- The contrast between areas of wet and dry regions is to become greater, those areas currently considered dry are expected to get drier while those areas considered wet are expected to get wetter.
- The intensity of extreme weather events, e.g. storms, is expected to increase.

Observed changes in Ireland's climate are in line with global trends. Average surface temperatures have increased by approximately 0.9˚C since 1900, sea levels are rising and seasonal patterns of storms and precipitation are changing. Projections indicate that this trend will continue and intensify into the future; on average, Ireland's climate is projected to become warmer and drier, rates of sea level rise will increase, and the frequency of extreme weather events is also expected to increase. Impacts due to these changes will have a wide range of consequences to Ireland's social, environmental, and economic sectors. Table 6-6 summaries these observation and projections – source Local Authority Climate Action Plan Guidelines[23].

Table 6-6: Summary of Climate Observations and Projections for Ireland

Parameter	Observed	Projected
Temperature	The annual average surface air temperature has increased by approximately 0.9°C over the last 120 years, with a rise in temperatures being observed in all seasons[28]. The number of warm spell days has slightly increased over the last 60 years[28].	Mid-century mean annual temperatures are projected to increase by 1–1.2℃ and 1.3–1.6℃ for the intermediate (RCP4.5) and high (RCP8.5) emission scenario[29]. Heatwave events are expected to increase by mid-century; over the 20-year period (2041-2060) increases in number of events range from 1 to 8 for the intermediate emission scenario (RCP4.5) and from 3 to 15 for the high emission scenario (RCP8.5)[29].
Precipitation	Annual precipitation was 6% higher in the period 1989 to 2018, compared to the 30-year period 1961 to 1990[28]. The decade 2006 to 2015 has been shown to have been the wettest on record (1711-2016)[28].	There is an indication of a slight reduction in the annual precipitation of ≈0–6% for the RCP4.5 scenario. However, projected reductions are small (≈0%) over most of the country for both RCP4.5 and RCP8.5 scenarios. Substantial decreases in precipitation are projected for the summer months with reductions ranging from ~0% to 11% for the RCP4.5 scenario and from 2% to 17% for the RCP8.5 scenario. The frequencies of heavy precipitation events show notable increases over the year, and in the winter and autumn months "likely" projected increase in the number of very wet days of 5-19%[29].

Parameter	Observed	Projected
Wind Speed and Storms	No long-term trend in wind speed can be determined with confidence based on the limited analysis carried out to date[28]. Storm tracks over the North Atlantic-European sector shifted northward as indicated by multi-proxy indicators over the North Atlantic[30]. Most long-term studies show decadal variability for the last 100–150 years, and that there is no evidence of a sustained long-term trend in number of storm events[31].	Projections indicate a slight reduction in wind speed (10m) of 1-2.7% for the intermediate (RCP 4.5) and 1.6-3.3% for the high (RCP 8.5) emission scenarios[29]. The results show an overall reduction of ~10% in the numbers of storms and suggest an eastward extension of the more severe windstorms over Ireland from mid-century. It should be noted that since extreme storms are rare events, the storm projections should be considered with a level of caution[29].
Sea-level and Sea Surface Temperature	Satellite observations show sea level has risen by ca. 2-3mm/year since the early 1990s[28]. Average sea surface temperature at Malin Head have been 0.47ºC higher over the last 10 years compared to the period 1981-2010[28].	Relative to 1995-2014, the likely global mean sea level rise by 2100 is 0.44-0.76 m under the intermediate emissions scenario (SSP2-4.5), and 0.63-1.01 m under the very high emissions scenario (SSP5-8.5)[30]. Sea surface temperatures are projected to continue warming for the coming decade. For the Irish Sea, projections indicate a warming of 1.9℃ by the end of the century[32].

6.3 Characteristics of the Proposed Development

The main characteristics of the further development of the gravel pit that potentially impact on air quality are:

- Stripping of topsoil: Site development works will require the stripping of topsoil over a development footprint of approximately 1.7ha. If carried out in dry windy weather, it could give rise to fugitive dust emissions.
- Construction of perimeter screening berms: Heavy plant will be used to draw soil to the site perimeter to construct berms. This activity has the potential to give rise to fugitive dust emissions.
- Excavation of gravel: It is estimated that approximately 750,000 tonnes of sand & gravel will be extracted during the further development of the gravel pit. In dry windy weather, this could give rise to fugitive dust emissions.
- Movement of trucks: Trucks entering and leaving the site could raise dust, especially when traversing the currently unpaved access road.
- Emission from trucks and machinery: Exhaust fumes from trucks servicing the gravel pit and plant used to strip topsoil and load trucks will emit particulates, including NO_2, SO_2 and $PM_{2.5}$.

Climate change could potentially impact the further development of the gravel pit through the following mechanisms:

- Predicted higher temperatures combined with decreased rainfall in summer months could increase fugitive dust emissions, requiring greater dust suppression.
- Higher, more intense rainfall could result in pluvial flooding on the pit floor, temporally closing the gravel pit.

The main characteristics of the further development of the gravel pit that could potentially impact on / contribute to climate change are:

- Emissions of GHG from site machinery and trucks servicing the gravel pit.

Large parts of the landholding are covered with trees and shrubs which act as a carbon sink. The further development will result in the temporary loss of a small area of grassland until the site is restored.

6.4 ~~Air & Climate -~~ Impact Assessment

6.4.1 Air Quality

Impact Assessment Methodology

The assessment methodology follows IAQM Guidelines (2024[33]) as summarised as follows:

1. Defining the dust emissions magnitude.
2. Defining the sensitivity of the receiving environment.
3. Defining the level of risk.

Magnitude

Defining the potential dust emission magnitude assesses four activities – earthworks, construction, demolition and trackout. For the Ummera gravel pit there will be no demolition works and no significant construction, only involving paving of the access road and construction of an oil storage shed. As such, only earthworks and trackout are assessed.

With the further development of approximately 2ha, the project just falls within the 'Medium' range magnitude (i.e., 18,000m^2 to 110,000m^2 and berms 3 to 6m high per IAQM) for earthworks. It falls within the 'Large' range magnitude for trackout with greater than 100m of unpaved access road; truck number of less than 20 loads per day would place it in the 'Small' range of magnitude.

Table 6-7: Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	Not Applicable
Earthworks	Medium
Construction	Not Applicable
Trackout	Large

Receptor Sensitivity

Located in a rural area with good air quality, residents can reasonably expect enjoyment of a high level of amenity so dwellings in the area are assessed as being 'High' sensitivity receptors to dust soiling effects. With the number of, and distance to, dwellings (refer to Table 2-1), the overall sensitivity is 'Medium' as there is one house (H1) within 20m of the site boundary – see Table 6-8. [Note that, as a worse-case scenario, the closest house is used to determine receptor sensitivity].

Similarly, the residential dwellings are assessed as being 'High' sensitivity of people to the health effect of PM_{10}. With the PM_{10} in the locality between 10 and 12µg/m^3 in 2023, the overall sensitivity of the area to human health impacts is 'Low' – see Table 6-9.

There are no designated ecological sites near Ummera or red list plants on the site, so the Ummera site is assigned a 'Medium' sensitivity per the IAQM guidelines. There are broad-leaf woodland and watercourses within 20m of the site boundary, but not within 20m of the gravel extraction activities so the overall sensitivity of the area to ecological impacts is 'Low' – see Table 6-10.

Table 6-8: Sensitivity of the Area to Dust Soiling Effects on People & Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 6-9: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m³	>100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32 µg/m³	>100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28 µg/m³	>100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	<24 µg/m³	>100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	>32 µg/m³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	28 - 32 µg/m³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28 µg/m³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	<24 µg/m³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	---	≤1	Low	Low	Low	Low

Table 6-10: Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Risk of Dust Impacts

The dust emission magnitude is then combined with the sensitivity of the area to determine the risk of impacts with no mitigation applied. The level of risk for each activity is used to determine the level of mitigation required. For the Ummera site, the magnitude is assessed as 'Large' for trackout and the sensitivities of the area are categorised as 'Medium' giving, as a worse case, 'Medium Risk'. The magnitude is assessed as 'Medium' for earthworks and the sensitivities of the area are categorised as 'Medium' also giving, as a worse case, 'Medium Risk' – see Table 6-11.

Table 6-11: Risk of Dust Impacts – Earthworks & Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible Risk

6.4.2 Climate & Climate Change

Impact Assessment Methodology

In 2024, the Department of Environment, Climate & Communication published guidelines for climate change adaptation. The extractive industry is not specifically addressed in this guideline, but the general approach is adopted for this assessment. The methodology used assesses two aspects of the proposed development, as follows:

1. Potential for climate change factors impacting the proposed development and the design measures to build-in climate change resilience.

2. Potential for the proposed further development of the gravel pit to contribute to climate change.

The Institute of Environmental Management and Assessment (IEMA - now called the Institute of Sustainability and Environmental Professionals (ISEP)) guidelines, 2020[34] use a risk-based approach to assess how the proposed development is vulnerable to climate change. It uses the following steps:

1. Identifying potential climate change risks to a scheme or project.
2. Assessing these risks (potentially prioritising to identify the most severe).
3. Formulating mitigation actions to reduce the impact of the identified risks.

The assessment of risk includes assessing the likelihood (or probability) and magnitude (or severity) of the impacts identified to generate a risk rating matrix. The probability scores are summarised in Table 6-12, the severity scores are summarised in Table 6-13, and the risk rating matrix is summarised in Table 6-14.

Table 6-12: Probability Scores

Score	Probability	
0	<0.1%	<1 in 1,000
1	1%	1 in 100
2	5%	1 in 20
3	10%	1 in 10
4	20%	1 in 5
5	40%	1 in 2.5
6	70%	1 in 1.4
7	>99%	>1 in 1.01

Table 6-13: Severity Scores

Score	Severity
0	Negligible or Not Applicable
1	Very Low/Unlikely/Rare/Measurable Change
2	Low/Seldom/Marginal/Change in Serviceability
3	Occasional Loss of Some Capacity
4	Moderate Loss of Some Capacity
5	Likely Regular/Loss of Capacity and Loss of Some Function
6	Major/Likely/Critical Loss of Function
7	Extreme/Frequent/Continuous/Loss of Asset

Table 6-14: Risk Rating Matrix

Severity									
	7	0	7	14	21	28	35	42	49
	6	0	6	12	18	24	30	36	42
	5	0	5	10	15	20	25	30	35
	4	0	4	8	12	16	20	24	28
	3	0	3	6	9	12	15	18	21
	2	0	2	4	6	8	10	12	14
	1	0	1	2	3	4	5	6	7
	0	0	0	0	0	0	0	0	0
		0	1	2	3	4	5	6	7
				Probability					
Low Risk		Special Case		Medium Risk		High Risk			

This above approach is used to rate the risk of the various climate change weather events that could potentially affect the further development of the gravel pit. These are summarised in Table 6-15.

Table 6-15: Climate Change Risk Assessment

Weather Event / Consequence of Weather Event	Risk Score /(Probability x Severity) Rating	Significance of Effect
Temperature Extremes	4 x 2 = 8 / Low Risk	Not Significant
Precipitation	6 x 1 = 6 / Low Risk	Not Significant
Flooding	4 x 2 = 8 / Low Risk	Imperceptible
Storm Event	5 x 1 = 5 / Low Risk	Not Significant
Landslide	1 x 4 = 4 / Low Risk	Not Significant
Sea Level Rise	0 x 0 = 0 / Low Risk	Imperceptible
Lightning	6 x 1 = 6 / Low Risk	Not Significant
Fire	4 x 2 = 8 / Low Risk	Not Significant

The results of the climate change risk assessment are used to implement measures to improve the resilience of the proposed development to climate change. Overall, the operation of the gravel pit is resilient to the effects of climate change, with no significant effects predicted.

6.4.3 Carbon Emissions

The assessment of carbon emissions from the proposed gravel pit extension is based on the TII carbon tool[35]. The operations of the proposed further development will remain the same as the current operations. As such, the annual carbon footprint of the existing gravel will remain largely unchanged for the proposed extension. Table 6-16 summarises the predicted carbon emissions from the gravel pit extension based on TII conversion parameters

Table 6-16: Summary of Carbon Emissions

Project Phase	Activity / Description	tCO_2 Emissions
Operational Phase	Berm construction. Assume 1 no. excavator and 2 no Volvo dumpers for 1 month.	2.5
	Operational of front-end loader for loading trucks – 14,400 litres/annum	48.1 per annum
	Stripping of topsoil. Assume 1 no. excavator and 2 no. Volvo dumpers for 4 weeks.	2.5
	Transport of aggregates to Bredagh Cross. Assume 4 no. HGVs transport 3 no. loads per day – 100km round trip.	404.9 per annum
Restoration	Placement of soil and topsoil. Assume 1 no. excavator and 2 no. Volvo dumpers for 4 weeks per year on average.	2.5 per annum
Carbon Sequestration	Existing hedgerow & woodlands – approx. 3.7ha of woodland and hedgerows	-366.3
	Loss of agricultural land – 1.7ha extraction area	0
	Vegetated screen berms – 1.7ha	-168.3
TOTAL	**Projected Emission for Project (15 years)**	**6,471.2**

The annual carbon emission generated from the further development of the gravel pit averages at 431.4t CO_2eq over its 15-year lifespan. The EPA 'Irelands Climate Change Assessment' shows total carbon emissions generated for the country to be 55.01 MtCO_2eq in 2023. The proposed development will generate less than 0.001% of Ireland's annual GHG.

The 'industry' sector accounted for 6.29Mt CO_2eq of annual carbon emissions in 2023. The further development of the gravel pit will generate 0.0069% of emissions of the 'industry' sector. The contribution of the gravel pit will have likely have a direct imperceptible negative regional long-term effect on GHG emissions.

The gravel exported from the pit will be taken to Bredagh Cross for processing, manufacture of concrete and concrete products for use in the regional construction industry. Any emissions associated with these activities are considered to remote and varied to be reliably assessed. There is case law that the broader environmental impacts of raw materials production should be addressed at the national or sectoral level rather than the project level.

~~6.2.2~~6.4.4 Do Nothing Impact

If the further development of the gravel pit is not advanced, the site will be returned to mostly agricultural use. As such the potential for dust emissions from the site would be reduced. The potential impacts associated with air and climate / climate change of gravel extraction will be displaced to another existing or new gravel pit. The use of fossil fuels for the management of the agricultural lands is likely to be an order of magnitude lower than that of the quarrying operations at Ummera.

~~6.2.3~~6.4.5 Construction, Operational & Restoration Phases

The principal sources of air emissions from the gravel pit, particularly suspended particulates, occurs from the following activities:

- Stripping of the topsoil/overburden.
- Construction of perimeter berms.
- The front-end loader hauling gravel from the working face.
- Stockpiling of the material.
- Stockpiling of silt.
- Movement and loading of the haulage trucks.
- Earthworks during restoration

Dust emissions arise when an operation causes particulate matter to become airborne. This airborne dust is then available to be carried downwind from the source. The amount of dust generated and emitted from a working site and the potential impact on surrounding areas varies according to the following:

- The type and quantity of material and working method.
- Climate/local meteorology and topography i.e. wind speed and direction and annual rainfall amounts / patterns.

The stripping of topsoil/overburden has the potential to cause dust emissions. The greatest potential impact will be short-term i.e. during excavation. However, topsoil/overburden in storage can be eroded by wind. Stripped soil is stored in berms along the edge of the working face. These berms vegetate naturally with grass within a relatively short time.

Silt cleaned from the settlement ponds will dry and the surface layer can be eroded by wind. As the material cleaned from the ponds is the finer fraction, it is more susceptible to wind erosion.

As the processing of the gravel uses water, dust emissions from the processing plant is not an issue. Dust emissions can arise from stockpiles or aggregate and from HGV coming / going from the site. Potential dust particles generated from these activities within the site are expected to comprise of larger dust particulates (i.e. above 30µm). The maximum distance such particulates are likely to travel is 30 to 60m. Smaller dust particles will remain airborne for longer thus dispersing over a wider area. Particulates below 30µm-diameter, and particularly below 10µm, only form a small fraction of dust emitted from gravel pits.

The non-respirable dust fractions (i.e. >10 µm) may generate an indirect impact if dust deposition outside the site boundary continues over a period of time without amelioration (e.g. staining of vegetation). Short-term impacts may occur from visible dust clouds being generated during windy dry weather events.

Respirable dust fractions (i.e. below 10µm-diameter) potentially effect respiratory and cardiovascular systems. The emission limit values for particulate matter are summarised in Table 6-1. ~~S.I. No. 271 of 2002 relating to limit values for particulate matter in ambient air indicates a 24-hour percentile (90.4%) limit value of 50µg/m^3 PM$_{10}$.~~

Transportation of aggregates both within the site and off site has the potential to generate dust. Haulage on roadways can result in both windborne dispersion and also transfer of dust from the site. This dust nuisance may result in visual staining and soiling of nearby vegetation and buildings.

Residents of the nearest house (H1) noted nuisance dust deposition at their property in the late 1990's / early 2000's. They also noted that dust nuisance has not been an issue in recent years.

The operations at the pit have not changed in any significant way, so it is not clear why this is the case; the sprinkler system was installed in the late 1990's following complaints. It may be that as trees matured along the western boundary of the gravel pit, they protected the site from the prevailing wind direction. Plate 6-2 shows the gravel pit in 2005 (Summer) and ~~2020 (Winter)~~ 2026 (Summer) viewed from the west. ~~Although taken in Winter with no foliage on the trees, it is evident that they provide greater shelter from the wind~~ These photographs demonstrate the increase shelter provided by the trees along the western boundary.



Plate 6-2: View of Gravel Pit from West – a) 2005 and b) ~~2020~~2026

Effects on Health & Nuisance

Dust particles arising from human activity, such as earthwork sites and exhaust fumes, can have adverse health effects. Dust particles (particularly $PM_{2.5}$) can pass easily into the lungs and bloodstream increasing risk of heart and pulmonary disease. It can cause irritation of the eyes, nose, throat and skin. Dust can worsen respiratory diseases such as asthma, chronic obstructive pulmonary disease (COPD), or emphysema.

Dust can be a source of nuisance to nearby receptors due to staining of vegetation, cars, windows and laundry.

As noted in Section 6.4.1, for the Ummera gravel pit the risk of dust impact 'Medium'. The potential impacts, unmitigated, are likely to have a slight medium term negative local effect on the local nearby population.

Effects on Flora & Aquatic Environment

As set out in IAQM Guidelines (2024), fugitive dust from construction or mineral processing activity can negatively impact adjacent woodland and aquatic habitats primarily through:

- Physical smothering of vegetation, particularly at woodland edges. This can inhibit photosynthesis and gas exchange in plants and trees. Research has shown that dust deposition can reduce stomatal conductance and chlorophyll content, impacting plant function and growth.
- Alteration of leaf surface pH, especially when dusts are alkaline (e.g. cement or concrete dust). This can affect sensitive epiphytes such as mosses and lichens.
- Changes in species composition, especially in ground flora, where dust alters soil chemistry and light availability.
- Cumulative degradation of habitat quality, particularly where dust deposition occurs over long periods, leading to long-term decline in sensitive or specialist species.
- Deposition of dust into the Bandon River effecting aquatic habitats.

These effects are typically most pronounced at the woodland edge and within the first 20 to 50m from the emission source, depending on vegetation structure, meteorology, and site conditions. The potential impacts arise principally from fugitive inorganic dust emissions. The relatively low traffic volumes associated with the gravel will not give rise to significant exhaust emissions.

As noted in Section 6.4.1, the risk of dust impact on habitats is 'Medium'. The potential impacts, unmitigated, are likely to have a slight medium term negative local effect on the adjacent vegetation. Dust staining is visible on the understorey vegetation along the unpaved access road, but not noticeable in the taller scrubs and trees. It will have no measurable effect on the aquatic habitats of the Laney River or Clashavoon Stream.

~~6.3~~6.5 Air & Climate –Mitigation Measures

6.5.1 Construction, Operational & Restoration Phases

Air Quality

Several dust suppression mitigation measures have been employed at the gravel pit. These are as follows:

- The processing of aggregate is a wet process, so dust doesn't arise from the fixed plant.
- Stripped soil is stored at the top edge of the working face. These temporary berms are allowed to vegetate naturally, which reduces potential for wind erosion. The berms also shelter the working areas from wind.
- Trees were planted along the western boundary of the site. As these trees matured, they provide visual screening of the site and shelter from the predominant wind direction. The growth of these trees, and the screening and shelter they provide, is illustrated in Plate 6-2. In addition, mature trees at the southwest corner and northern boundary have been maintained.
- Silt cleaned from the silt ponds will be seeded with grass to limit the potential for wind erosion.
- A speed limit of 15kph is enforced at the site for all HGV.
- A dust monitoring programme has been implemented at the site.
- The access road into the gravel pit is currently unpaved. This road will be paved from the public road to the yard area. The road will be kept clean, so will not be a source of dust emissions. With this road paved, it is less likely that soil would be tracked onto the public road, which would give to off-site dust emissions.
- Phased restoration of the pit will be commenced, started at the northeast corner of the pit, reducing the area of exposed soils to wind erosion.

It is noted that the Macroom area is subject to high rainfall. The long term (30-year average) monthly rainfall for this area of Cork is approximately 1,200mm. The high level of rainfall will naturally suppress dust emissions from the gravel pit. As noted in Table ~~6-1~~6-5, Cork Airport has 152 days per year with greater than 1mm rainfall.

Climate & Climate Change

The mitigation measures associated with the further development of the gravel pit relate to measures to reduce GHG emissions and building-in resilience to climate change.

The mitigation measures to be implemented in relation to GHG emissions are:

- All plant and HVGs will be serviced and MOT tested to comply with emission limit standards.
- There will be no unnecessary revving of machinery and plant will be switched off when not in use.
- Boundary hedgerows and woodland will be retained, and berms will be planted with native tree and shrubs species to offset loss of agricultural land and increase carbon sequestration.
- Fires will not be permitted on site.

For some of the extreme weather events predicted due to climate change, no specific mitigation is feasible for the gravel pit. For example, for extreme temperatures, storms and lightning there are no specific mitigation measures proposed. These are largely worker safety issues and will be addressed in the company's Health & Safety Plan. Sea level rise and fluvial flooding are not relevant for the Ummera site.

The mitigation measures to be implemented in relation to climate change resilience are:

- To offset potential impacts of extreme rainfall events, which could result in pluvial flooding on the pit floor, runoff will be directed to the existing settlement ponds and the other ad-hoc retention ponds located around the pit. This will reduce the risk of pluvial flooding restricting access to pit face.

- To reduce the risk of landslide / failure of the working face:
  - A setback from the toe of the berms and working faces is provided.
  - The berms will be planted, providing bio-stability.
  - Subsoil will be placed at the base of the working face to support the pit face.
- Fires will not be permitted on site, which if allowed could spread to adjacent hedgerows fields in summer months during extreme temperature events.

6.5.2 Monitoring

A dust monitoring programme is being carried out for the existing gravel pit. This will continue during the further development of the gravel pit. Locations are shown on Figure 6-1. Site surveys will also be conducted to identify any areas with excessive dust staining. Where these occur, the source / activities causing the staining will be identified and remedial measures implemented.

Monitoring of fuel use is carried out by DCWL. Any spikes in fuel use will be investigated.

6.5.3 Worse-Case Scenario

Under worst-case conditions, the quarry's operations do not significantly impact global carbon levels.

The potential worst-case scenarios due to climate change are provided below for the various weather event. The mitigation measures to reduce potential impacts are discussed in Sections 7.5.1 and 7.5.2.

- Extreme rainfall events could result in pluvial flooding on the floor of the gravel pit. If this occurs, extraction would be suspended until water receded.
- Prolonged dry spells would increase the potential for fugitive dust emissions. This could also reduce the availability of water necessary for dust suppression.
- Prolonged heavy rains and increased storm intensity could lead to soil saturation and instability. A worst-case scenario would be near the site perimeters where the berms impose head loading on the working face. A setback from the toe of the berms and working faces is provided; the berms will be planted, providing bio-stability, and placing subsoil at the base of the working face - this will have the effect of reducing the disturbing moment of any slip circle and increasing the counterbalance moment by toe loading.
- Increased frequency of heatwaves could result in dangerously high temperatures on site.

6.6 Cumulative Impacts

The site is in a rural area with few plans or projects that could potentially result in cumulative effects. There is a small borrow pit located to the east of, and overlooking, the project site. This borrow pit is used to win stone for farm tracks. It is used infrequently, so no significant cumulative effects are predicted.

The gravel pit void will come close to the groundwater table. Risks to groundwater quality are discussed in Section 7.4.

6.7 Risk of Major Accidents or Disasters

The risks of major accidents or disasters arising from air quality or climate / climate change within the lifetime of the further development of the gravel pit are negligible.

6.8 Difficulties Encountered in Compiling

There were no difficulties encountered in the compiling the air quality and climate / climate change chapter.

6.9 Interactions

Interactions associated with air quality and climate / climate change with other aspects of the environment include:

1. Hydrology – The changing precipitation patterns predicted in Ireland due to climate change will, if realised, result in lower baseflows in streams and rivers in summer months and greater frequency of flooding in autumn and winter months.
2. Hydrogeology - The changing precipitation patterns predicted in Ireland due to climate change will, if realised, result in lower groundwater levels in summer months and higher groundwater levels in autumn and winter months – i.e., a greater seasonal fluctuation.
3. Water supply – The lower flows in rivers may affect the volume of water available for abstraction during summer months.
4. Air quality – the predicted drier, warmer summers will increase the potential for fugitive dust emissions.
5. Biodiversity – The changing climate could have wide ranging effects on the wellbeing of habitats and flora / fauna populations they support. Prolonged dry period could increase dust staining and affect plants.

6.10 Residual Effects

The residual effects following mitigation are summarised in Table 6-17.

Table 6-17: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects
Fugitive Dust	Local Residents	Dust emissions are likely to have a slight medium term negative local effect on the nearby population.	Dust suppression measures. Paving access road. Screen planting to shelter the gravel pit from wind. Phased restoration. Monitoring programme.	Imperceptible
Fugitive Dust	Ecological Receptors	Slight medium-term negative local effect on the adjacent vegetation		
Climate Change	Gravel pit operations	The operation of the gravel pit is resilient to the effects of climate change, with no significant effects predicted.	Collection of runoff in settlement ponds to avoid pluvial flooding. Pit management to reduce risk of pit face instability. No fires permitted.	Imperceptible
Carbon Footprint	Increase GHG emissions from extraction activities	The extraction and transport of gravel will have a direct imperceptible negative regional long-term effect on GHG emissions.	All plant & HGV serviced and MOT'ed. No revving of machinery. Maintain hedgerows and woodland for carbon sequestration. No fires permitted.	Imperceptible

~~6.4~~6.11 Conclusion on Air and Climate

Strict adherence to operational procedures incorporating best practice will ensure dust migration from the site will be minimised. The topographical and local climatic factors will result in the majority of airborne dust generated at the site being deposited within the site boundary. In addition, the environmental monitoring programme will highlight elevated dust emissions so that mitigation measures can be reviewed, or new ones introduced for the further development of the gravel pit. The predicted increased frequency of extreme weather events is not expected to have any significant effect on the operation of the gravel pit.



Figure 6-1: Dust Monitoring Location Map

7. WATER (HYRDOLOGY & ~~SURFACE WATER~~HYDROGEOLOGY)

7.1 Introduction

This chapter of the EIAR addresses the water environment (hydrology ~~and~~ / surface water and hydrogeology)~~in the existing environment~~. It assesses the potential significant ~~effects~~ impacts on ~~hydrology and surface~~ water environments that could result from the further development of the gravel extraction activities. The mitigation measures proposed to be implemented to avoid, reduce and mitigate the impacts identified are also presented.

7.1.1 Scope & Purpose

This chapter of the EIAR provides details of the surface water and groundwater environments in which the development is proposed. It identifies the surface water catchment(s), drainage patterns, surface water uses, runoff characteristics, flooding potential, groundwater users and hydrogeology. It provides baseline water quality data based on publicly available information and monitoring carried out as part of this assessment.

The purpose of the assessment is to identify the potential direct impacts of the proposed development on the hydrology (surface water quality, runoff characteristics etc.) and hydrogeology (groundwater quality, uses etc.) within the site and potential indirect impacts beyond the site boundary; and to assess the potential impacts in the context of other developments (proposed / completed) to determine cumulative effects. Having identified and quantified the potential impacts, to detail measures to avoid, mitigate and / or reduce significant potential negative impacts for the operational and restoration phases, where relevant. To audit the effectiveness of the mitigation measures, a site-specific water quality monitoring programme is also outlined.

7.1.2 Policies & Guidelines

There are several local, national and international policies and guidelines relied upon in the preparation of this chapter. These include:

- Water Framework Directive (2000/60/EC).
- Cork County Development Plan 2022 - 2028.
- Environmental Protection Agency, May 2022 guidelines.
- Office of the Planning Regulator, 2022.
- European Commission, 2017 EIA guidelines.
- European Commission, 2017 EIA scoping.
- European Commission, 2013 EIA incorporating climate change.
- Department of Housing, Planning and Local Government 2018 EIA guidelines.
- Office of Public Works (OPW), 2009 flood risk assessment (FRA) guidelines.
- Department of the Environment, Community and Local Government, 2014 FRA guidelines clarification.
- Institute of Geologists of Ireland, 2013 EIS (EIA) guidelines.
- National Roads Authority 2008 guidelines for geology and hydrogeology assessments.
- Construction Industry Research and Information Association (CIRIA), 2015 SuDS handbook.
- CIRIA, 2017 SuDS manual.
- CIRIA, 2006 guidance on control of water pollution from linear construction projects.
- CIRIA, 2001 guidance on control of water pollution from construction sites.
- Inland Fisheries Ireland, 2016 guidelines on protection of fisheries during construction works.

- Inland Fisheries Ireland, 2020 guidelines on planning for watercourses in the urban environment

7.1.3 Sources of Baseline Data

The main sources of baseline data and information relating to the water environment include:

- Surface water data including catchments, flows, surface water quality etc - Environmental Protection Agency www.epa.ie, www.catchments.ie and http://www.wfdireland.ie/maps.html . For the purposes of this assessment, watercourses shown on the EPA web-mapping are defined as streams / rivers, and watercourses not shown are referred to as drains (these are generally man-made field-boundary drains).
- Historical flood information and flood risk maps - Office of Public Works www.opw.ie , www.cframs.ie and www.floodinfo.ie
- Rainfall data - Met Eireann www.met.ie
- Designated sites – National Parks & Wildlife Service www.npws.ie
- Groundwater, wells, aquifers, etc - Geological Survey of Ireland - www.gsi.ie

7.1.4 Assessment Methodology

The assessment was carried out with reference to relevant policies, regulations and guidelines, as listed above, and following this general methodology:

- The preliminary design of the proposed development was reviewed to identify elements which could have the potential to impact or change the water environment.
- Consultation was carried out with agencies with an interest in the water environment, including Inland Fisheries Ireland (IFI), Office of Public Works (OPW), and Geological Survey of Ireland (GSI).
- A literature review was carried out to determine any policies and / or guidelines to which the proposal should have regard.
- A desk-based assessment of the water quality, flows, drainage pattern and uses in the catchment relevant to the proposed development, was undertaken. Any particularly sensitive receptors were identified – water abstractions for drinking water, sensitive aquatic habitats or fauna, flooding, etc. The water management proposals in the planning documentation for nearby developments were reviewed.
- Field surveys were conducted to identify any significant water features.
- A site-specific flood risk assessment was carried out to inform the potential for flooding at the site and adjacent lands.
- Review of the biodiversity chapter prepared for the project to assess the interaction of surface / groundwater with ecology, in particular the interaction of the proposed development and the presence of freshwater pearl mussels in the Laney River.
- Findings from the desk-based study and field surveys were used to modify the site layout. Further field surveys were then carried out to assess any modifications to the site layout.

The site walkovers and collection of data were carried out over the last several years. Data collected included:

- Mapping of surface water drainage.
- Collection of surface water samples for analysis.
- Measurement of groundwater levels in the on-site boreholes and nearby supply wells.
- Search for local users of surface water for drinking water supply.
- Search for local users of groundwater for drinking water supply.

The information collected during the desk-based assessment and site walkovers were used to establish the importance, quality and sensitivity of the receiving surface water (Table 7-1) / groundwater (Table 7-2) environments. This follows the NRA Guidelines (2008).

Table 7-1: Estimation of Importance of Hydrology Attributes

Importance	Criteria	Typical Examples
Extremely High	Attribute has a high quality or value on an international scale	River, wetland or surface water body ecosystem protected by EU legislation e.g. 'European sites' designated under the Habitats Regulations or 'Salmonid waters' designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988.
Very High	Attribute has a high quality or value on a regional or national scale.	River, wetland or surface water body ecosystem protected by national legislation – NHA status. Regionally important potable water source supplying >2500 homes. Quality Class A (Biotic Index Q4, Q5) Flood plain protecting more than 50 residential or commercial properties from flooding. Nationally important amenity site for wide range of leisure activities.
High	Attribute has a high quality or value on a local scale	Salmon fishery. Locally important potable water source supplying >1000 homes. Quality Class B (Biotic Index Q3-4). Flood plain protecting between 5 and 50 residential or commercial properties from flooding. Locally important amenity site for wide range of leisure activities.
Medium	Attribute has a medium quality or value on a local scale	Coarse fishery. Local potable water source supplying >50 homes. Quality Class C (Biotic Index Q3, Q2-3). Flood plain protecting between 1 and 5 residential or commercial properties from flooding.
Low	Attribute has a low quality or value on a local scale	Locally important amenity site for small range of leisure activities. Local potable water source supplying <50 homes. Quality Class D (Biotic Index Q2, Q1) Flood plain protecting 1 residential or commercial property from flooding. Amenity site used by small numbers of local people.

Table 7-2: Estimation of Importance of Hydrogeology Attributes

Importance	Criteria	Typical Examples
Extremely High	Attribute has a high quality or value on an international scale	Groundwater supports river, wetland or surface water body ecosystem protected by EU legislation e.g. SAC or SPA status
Very High	Attribute has a high quality or value on a regional or national scale	Regionally Important Aquifer with multiple wellfields Groundwater supports river, wetland or surface water body ecosystem protected by national legislation – NHA status Regionally important potable water source supplying >2500 homes Inner source protection area for regionally important water source
High	Attribute has a high quality or value on a local scale	Regionally Important Aquifer Groundwater provides large proportion of baseflow to local rivers Locally important potable water source supplying >1000 homes Outer source protection area for regionally important water source Inner source protection area for locally important water source
Medium	Attribute has a medium quality or value on a local scale	Locally Important Aquifer Potable water source supplying >50 homes Outer source protection area for locally important water source
Low	Attribute has a low quality or value on a local scale	Poor Bedrock Aquifer Potable water source supplying <50 homes

7.1.5 Consultation

As part of the EIA process, consultation was carried out with organisations and individuals regarding the proposed development, namely IFI, OPW, NPWS – DAU. and GSI. The information package sent, and the consultation responses received, are provided in Appendices 1-3 and 1-4 of this EIAR. The relevant responses are summarised here and incorporated, where appropriate, into the avoidance, mitigation and monitoring proposals for the proposed development. The OPW didn't provide a consultation response.

Inland Fisheries Ireland (IFI)

IFI responded by email to on 20 May 2026, resubmitting its correspondence sent to ABP on 30 July 2024, and raising the following points / queries:

- Water Quantity: IFI requested that abstraction of water during dry weather flows be avoided. To monitor this, establish a permanent level gauge that clearly identifies the 95%ile flow level. IFI requested that there be no extraction below the groundwater level.
- Fish Passage: IFI requested that the small weir be redesigned to allow the free passage of fish.
- Water Quality: IFI raises concerns on the discharge of silt-laden water from the quarry and the use of the original settlement pond. IFI considers that a discharge licence is required for the gravel pit.

Geological Survey of Ireland (GSI)

The GSI responded to the consultation in correspondence dated 15 June 2026. Much of its submission related to soils and geology and is discussed in Chapter 8. In relation to the water environment, the GSI advised of its programmes focused on the groundwater, flood monitoring, locations of wells and spring, etc. The GSI recommended use of its on-line data and information services. GSI also requested copies of any ground investigation reports prepared for the project.

National Parks & Wildlife Services – Development Application Unit (NPWS – DAU)

The submission of NPWS-DAU was submitted to ABP on 24 November 2000. In its submission, it noted the presence of freshwater pearl mussel (FPM) in the Laney River downstream of its confluence with the Clashavoon Stream. As a consequence, it advised that all necessary measures should be taken to avoid release of sediment and hydrocarbons to the watercourses, and that the stream quality be monitored. Note that the DAU acknowledged receipt of the 2026 consultation request but didn't submit a detailed response.

~~7.1~~7.2 Hydrology in the Existing Environment

The landholding is located within the South Western River Basin Management District and within Hydrometric Area No 19 – Lee, Cork Harbour and Youghal Bay. Hydrometric Area No 19 includes the surface catchment drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy, Battery, Co. Cork.

As shown in Figure 7-1, the Ummera Gravel Pit is in the:

- Lee, Cork Harbour and Youghal Bay WFD catchment/Hydrometric Area 19.
- Sullane_SC_020 WFD sub-catchment.
- Laney_040 WFD River sub-basin. This catchment extends to an area of 15.6km^2.

~~The gravel pit is located in the IE_SW_Laney_040 Water Management Unit, and within the catchment of the Clashavoon Stream – refer to Figure 7-1. This catchment extends to an area of 15.6km^2. The Clashavoon Stream rises in Derryroe, approximately 3km to the north of Ummera. It flows in a southerly direction and is joined by a number of smaller streams, including one (Curraghanearla Stream) that joins just north of the gravel pit. The Clashavoon Stream joins with the Laney River near the southwestern corner of the landholding. The Laney River flows southwest just west of local road L-3423. It joins with the Sullane River near Bealick Mills. The confluence of the Sullane River with the River Lee is located approximately 3km to the south of Ummera at Coolcour. This waterbody has an overall 'High' river waterbody status and is classified by the WDF as 'not at risk'~~.

There are no designated sites within the vicinity of the ~~site~~ gravel pit which could be in hydraulic connection with the gravel pit. The closest downstream sites are the Lee Valley pNHA (downstream of Inniscarra Dam) and the Great Island Channel SAC, approximately 40km to the east of Ummera.

Drainage from the landholding is generally in a westerly direction towards the Clashavoon Stream (EPA name Bealick Stream) and Laney River. Local site drainage and surface water features are shown on Figure 7-2 and consists of:

- The Curraghanearla Stream is a second order stream that rises in the townland of Coolkisha, to the northeast of the gravel pit. It flows east to west forming the north-eastern landownership boundary. It is separated from the gravel pit by the public road.
- The Curraghanearla Stream joins the Clashavoon Stream at the northern landownership boundary. The Clashavoon Stream is a third order stream that rises in the townland of Kilberrihert, to the north of the gravel pit. The Clashavoon Stream flows in a southerly direction forming the north-western and western landownership boundary. Near the south-western corner of the landownership, the Clashavoon Stream joins the Laney River.
- Rainwater runoff from the eastern side of gravel pit yard flows into the settlement ponds and is recirculated for washing gravel.
- Rainwater runoff from the western side of gravel pit yard (and overflow from settlement ponds) passes through an overflow settlement pond and flows to the roadside drain along the site access road and to the roadside drain on the L-3423.
- Groundwater springs in the southern section of the extraction area flow across the site, infiltrate back into the gravel or flow through a series of small ponds before exiting the site to the roadside drain on the L-3423 just south of the site entrance.
- The L3423 roadside drain is culverted under the L-3423 into a small densely vegetated swale. The swale is approximately 65m long and discharges to the Laney River.
- A small stream flows north from the elevated farmland to the south of the gravel pit. It flows through the old farmyard at the south-western corner of the landholding and then follows the property boundary under the L-3423, discharging to the Laney River.
- The Laney River flows southwest just west of local road L-3423. It joins with the Sullane River near Bealick Mills. The Sullane River flows generally in a southerly direction joining the River Lee's Carrigadrohid Reservoir at Coolcour / Mashanaglass.

The Curraghanearla Stream, Clashavoon Stream and Laney River are fast flowing depositing / lowland watercourses near the gravel pit. All have gravel / cobble beds.

~~7.1.1~~7.2.1 Runoff Estimates

The nearest synoptic weather station to the site is Cork Airport (W665662), 30km to the southeast of the site at an elevation of 154mOD. The mean monthly rainfall for Cork Airport synoptic station is summarised in Table 7-1. The long-term average rainfall for Cork Airport is 1,227.9 mm/annum for 1981 to 2010. An extreme rainfall event of 73.2mm/day was recorded during the 30-year period 1981 to 2010. The nearest rain gauge station is located at Macroom (Cahirbaroule) 4km to the north, at an elevation of 165mOD. The station has been operational since 2013. Monthly totals for 2017 and 2018 are also provided in Table 7-3. The lower elevation of the site suggests that annual rainfall would be in region of 1,200mm, which is in accordance with the rainfall isopleths map prepared by Met Eireann.

Table 7-3: **Monthly and Annual Average Rainfalls (mm)**

Cork Airport													
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**
1961 - 1990	148	116	97	70	84	68	65	90	97	126	109	137	**1,207**
1981 - 2010	131.4	97.8	97.6	76.5	82.3	80.9	78.8	96.8	94.6	138.2	120	133.1	**1,227.9**
1991 - 2020	131.3	97.2	91.5	86.5	80.8	83.3	87.2	94.6	92	131.2	127	136.6	**1,239**

Greatest Daily Total – Cork Airport													
1981 - 2010	45.7	49.9	55.2	34.2	34.9	59.7	73.2	60.9	58.9	52.1	47.9	41.9	**73.2**
1991 - 2020	39.3	39	55.2	37.7	34.9	51.3	73.2	59	58.9	52.1	47.9	61.4	**73.2**
Macroom (Cahirbaroule)													
2017	97.9	132.3	121.3	21.2	71.1	113.1	99.7	78.6	144	133	107.2	155.9	**1,275.3**
2018	225.8	86.4	143.2	189	75.4	32.5	40.7	31.8	---	76.2	233.3	271.1	**---**
2022	72.5	169.4	81.1	80.1	44.6	80.9	39.6	25.5	179.9	311.4	279.4	131.4	**1,495.8**

For the Cahirbaroule station, there was no rainfall depth recorded for September 2018, and data recorded for only 6 months in 2019. Since 2018, the only full year of monthly data was 2022. There is no data since September 2023. The 30-year (1991 to 2020) rainfall 1km x 1km grid data available from Met Eireann indicates a rainfall of 1,360mm/year for the Ummera site.

The catchment characteristics are quantified as soil type 2 (good winter rain acceptance potential). The runoff co-efficient of the site is estimated at 0.37. The potential for soakage is good in these gravel deposits. Based on the long-term mean annual rainfall for the Ummera area (1,360mm), the incident rainfall on the 20.22ha landholding is approximately ~~242,640~~274,992m^3 per annum. Q_{BAR} for the landholding is estimated at 2.67 l/sec/ha (or 53.96 l/sec).

The nearest gauging station downstream of the site is on the Sullane River, located just downstream of the R618 bridge. Station name is Ummera (station number 19030) but is now inactive. The EPA Hydrotool gives flow estimates for the Clashavoon Stream to its confluence with the Laney River. The catchment area extends to 11.2km^2 at the modelling node and includes the Ummera gravel pit. The EPA Hydrotool gives the long average rainfall for the catchment as 1,260mm and the dry weather flow is given at 0.027m^3/sec (i.e., 95%tile flow) or 2,333m^3/day. All this catchment is within a rural setting

~~7.1.2~~7.2.2 Surface Water Quality

The EPA monitors water quality in the rivers and streams across the country – refer to https://gis.epa.ie/EPAMaps/. There are no EPA / Council monitoring locations on either the Curraghanearla or Clashavoon streams. There are several monitoring stations on the Laney River upstream of its confluence with the Clashavoon Stream. There is one monitoring location downstream of the gravel pit on the Laney River and one on the Sullane River. ~~There are a number EPA surface water monitoring stations on the Sullane River and its tributaries.~~ The closest one downstream of the gravel pit is on the Laney River, just upstream of its confluence with the Sullane River – refer to Figure 7-1. The 2018 and 2023 EPA Q-value for this location is Q4-5, indicating high water quality status. The other EPA monitoring station on the Laney River is upstream of the Clashavoon Stream confluence. It too has a 2018 and 2021 Q-value of Q4-5, indicating that the operations at the gravel pit are not impacting water quality in the intervening river section.

To determine the water quality of the Clashavoon Stream adjacent to the gravel pit three surface water samples (SW1 to SW3) were collected, as follows:

- SW1: Clashavoon Stream, upstream of gravel pit.
- SW2: Clashavoon Stream, downstream of original settlement ponds at bridge.
- SW3; Laney River, downstream of gravel pit and downstream of drain discharge to river.

Samples were collected on 28 May, 02 July and 05 November 2019, and 19 June 2026. The surface water samples were analysed for a suite of parameters. The results are summarised in Table 7-4. Sample points are shown on Figure 7-2. Surface water monitoring is ongoing since the submission of the application in September 2020. The parameter of interest for the gravel pit is suspended solids. Results for the last four years are summarised in Table 7-5

Table 7-4: Summary of Surface Water Sample Results

Parameter	Units	Sample ID											
		SW1				SW2				SW3			
		28/5/'19	02/7/'19	5/11/'19	19/06/'26	28/5/'19	02/7/'19	5/11/'19	19/06/'26	28/05/'19	02/7/'19	5/11/'19	19/06/'26
Ammonia (NH_3)	mg/l, N	<0.2	<0.2	<0.2	0.097	<0.2	<0.2	<0.2	0.105	<0.2	<0.2	<0.2	0.087
Nitrate	mg/l, N	5.1	5.56	3.63	1.679	5.2	5.56	3.77	1.927	2.3	2.4	2.41	0.916
Nitrate	Mg/l, NO_3	---	---	---	7.436	---	---	---	8.535	---	---	---	4.057
Nitrite	mg/l, N	0.008	---	0.017	0.015	0.002	---	0.0173	0.015	0.003	---	<0.0152	0.011
Nitrite	Mg/l, NO_2	---	---	---	0.049	---	---	---	0.049	---	---	---	0.036
Orthophosphate	mg/l, P	<0.1	<0.1	0.0294	0.078	<0.1	<0.1	0.03	0.083	<0.1	<0.02	<0.02	0.069
Orthophosphate	mg/l, PO_4	---	0.108	---	0.239	---	<0.1	---	0.255	---	<0.1	---	0.212
BOD	mg/l	<4	<1	1.15	3.3	<4	<1	1.18	3.1	<4	<1	1.4	3.5
DO	O_2 (mg/l)	10.05	---	10.6	---	10.22	---	10.9	---	10.27	---	10.6	---
TSS	mg/l	<10	<2	<2	12.4	18	<2	<2	12.4	16	<2	2.45	18.0
Turbidity	NTU	---	---	---	12.28	---	---	---	11.95	---	---	---	16.95
pH	pH Units	7.41	---	7.67	7.52	7.2	---	7.68	7.35	7.38	---	7.43	7.20
Total Nitrogen	mg/l, N	5.55	---	4.03	3.039	5.69	---	4.15	3.285	2.88	---	2.62	2.228
Total Phosphorous	mg/l, P	<0.1	---	0.0556	0.169	<0.1	---	0.0574	0.170	<0.1	---	0.0393	0.179

Table 7-5: Total Suspended Solids Results

Date	Sampling Location		
	SW1	SW2	SW3
26/01/2022	<2	<2	2.45
11/07/2022	<2	<2	<2
30/11/2022	2.78	<2	<2
30/01/2023	<2	<2	<2
10/04/2023	<2	<2	<2
04/09/2023	2.4	1.6	1.6
04/12/2023	2.7	1.8	1.4
16/05/2024	3.0	2.6	10.6
05/09/2024	2.0	1.8	1.0
30/09/2024	2.6	2.4	4.2
10/12/2024	1.8	1.8	1.6
30/04/2025	1.2	1.0	1.2
27/08/2025	2.2	2.2	2.0
19/02/2026	1.4	1.6	1.8
19/06/2026	12.4	12.4	18.0

The Clashavoon Stream has 'High' water quality status (WFD Status 2010-2015 and 2019-2024) with the objective of maintaining this water quality status. It had a 'Good' WFD Status for 2013-2018. It ~~is~~ was not classified as being 'At Risk' and is currently under review. With regard to the surface water quality results in Table 7-4, t~~T~~he following surface water quality limits apply:

1. BOD
    a. Good Status river waterbody - <2.6mg/l (95%tile). There is no limit for moderate status.
2. Ammonia
    a. Good Status river waterbody - <0.140mg/l (95%tile)
3. Orthophosphate
    a. High Status river waterbody - <0.045mg/l (95%tile)
    b. Good Status river waterbody - <0.075mg/l (95%tile)
4. Dissolved Oxygen
    a. Lower Limit – 95%ile >80% saturation
    b. Upper Limit – 95%ile <120 saturation
5. pH
    a. Soft Water 4.5 < pH <9.0
    b. Hard Water 6.0 < pH < 9.0

The results collected indicate that the Clashavoon Stream has good water quality, as indicated by the results for SW1 and ~~SW3~~SW2.

The main parameter of interest from the extraction activities is suspended solids. The results indicate that the site activities are not impacting on water quality at the time of sampling. The suspended solids concentration at the downgradient sample locations range from is <2mg/l to 18mg/l. The results from 2022 – 2026 indicate that the three sampling locations, TSS was typically <10mg/l. Higher concentrations recorded in June 2026 reflect heavy rainfall in the preceding 24 hours and high river stage.

~~7.1.3~~7.2.3 Surface Water Usage

The immediate area around the site is not serviced by mains water. Private wells are used for domestic and agricultural demands. Cork County Council has a drinking water abstraction point on the River Lee at the Inniscarra Dam, approximately 18km downstream of the site. There are no known private abstraction points downstream of the site.

The gravel pit extracts water from the Clashavoon Stream for use at the washing plant. This water is recirculated through the settlement ponds. There are two hydrometric gauging stations on the streams and rivers draining the site - http://gis.epa.ie/Envision; one is located on the River Laney upstream of its confluence with the Clashavoon Stream (station name Kill) at co-ordinates 136400 / 74300; the other on the Sullane River, upstream of its confluence with the Laney River (station name Macroom). The recorder gauging station on the Laney River is just upstream of the confluence with the Clashavoon Stream. The dry weather flow at this gauging station is reported as 0.12m^3/sec and the 95%tile flow is 0.27m^3/sec. The catchment area is 84.3km^2, giving a specific dry weather flow and 95%tile flow of 1.4 and 3.2 litres per second per km^2 of catchment. The catchment of the Clashavoon Stream at the pump intake is approximately 12km^2. This gives an estimated dry weather flow and 95%tile flow of 17 litres/sec and 38.4litres/sec, respectively.

Using the online EPA Hydrotool, the 95%tile flow for the Clashavoon Stream (to its confluence with the Laney River) is ~~0.033~~0.027m^3/sec for its 11.2km^2 catchment. This is in line with the estimates from the Laney River gauging station. The Hydrotool report is provided in Appendix 7-1.

As discussed in Chapter 2, the settlement ponds have a capacity of approximately 14,970m^3 following cleaning (removal of silt). This capacity decreases over time as the ponds fill with silt. In dry periods, water will be lost through wetting of aggregate, infiltration and evaporation. Over the course of a working day, approximately 800m^3 of water is used. Assuming a 5% loss, 40m^3 of top-up water would need to be abstracted from the Clashavoon Stream. This would equate to ~~2.7~~1.7% of the dry weather flow over a 24-hour period. or 5.1% of the dry weather flow if abstracted over an 8-hour period (40m^3/2,333m^3 = 1.7%; 1.7% x 3 = 5.1%).

It is noted that topping up would only be required when the level in the last pond was too low to pump. Assuming losses of 40m^3/day, the capacity in that pond would allow for over approximately 100 days without top-up. In this time, rainfall would naturally top up the ponds and / or abstraction could be timed during high flows in the stream as requested by IFI.

~~7.1.4~~7.2.4 Flooding

The site does not flood. It is not located within the flood zones as shown in the Macroom LAP (2017). Some parts of the L-3423 and L7478 are shown as being susceptible to flooding, but this does not impact on the gravel pit. Flooding extent per the Macroom LAP is shown on Plate 7-1.



Plate 7-1: Flooding Extent for Clashavoon Stream & Laney River
Flood Zone A extent shown blue
Flood Zone B extent shown magenta

The 2022-2028 Cork CDP updates the flooding extents map from the Macroom LAP. This is shown on Plate 7-2. This shows that the flooding is less extensive than that depicted on Plate 7-1.

The national indicative fluvial mapping (NIFM) river flood extents high end future scenario is shown on Plate 7-3. This flood modelling is available for the Laney River and Bealick / Clashavoon Stream upstream of their confluence. Downstream of the confluence community-scale flood extents mapping is available (for the Laney River). As shown in Plate 7-3, flooding doesn't affect the gravel pit.

The OPW flood mapping indicates that the gravel pit is not affect by:

- Groundwater flooding.
- Past flood events.
- GSI Winter 2015/2016 Surface Water Flooding.
- GSI Maximum Historic Groundwater Flooding.
- Pluvial flooding.



Plate 7-2: Cork CDP 2022 Flood Zones A & B



Plate 7-3: OPW NIFM Extents – High End Future Scenario

7.2.5 Importance of Surface Water / Hydrology Attributes

Based on the NRA Guidelines, the importance of the site in terms of surface water and hydrology is rated as Very High. The streams and rivers are Quality Class A (Biotic Index Q4, Q5). As noted in Chapter 10 (Biodiversity), the Laney and / or Sullane rivers support brown trout, Atlantic salmon, European eel, brook lamprey and otter. There are also good salmonid spawning habitats in both rivers. Freshwater pearl mussel (FPM) has also been recorded in both rivers.

7.2.6 Hydrogeology / Groundwater

[Note this section was moved from Chapter 8 (Land, Soils & Geology). Only edits to the text are track-changed].

The Caha Mountain Formation underlying the north-western part of the site is classified by the GSI as PL – Poor Aquifer, bedrock which is generally unproductive except for local zones. The Ballytrasna Formation is classified by the GSI as LI - Locally Important Aquifer - bedrock which is moderately productive only in local zones. The gravels underlying the site are not classified as an aquifer. Groundwater springs have been encountered during excavations. These are interpreted to be perched water table siting on low permeability silts and clays encountered in the deposits. Bedrock aquifers are shown on Figure 7-3.

According to the GSI web-mapping, there are no wells within 500m of the gravel pit. The closest are located approximately 700m to the north of the gravel pit in Shanakill. Wells included in the GSI database are shown on Figure 7-3. These wells are used for domestic supply with yields in the range of 20 to 45m^3/day.

The GSI well database is not comprehensive as not all boreholes drilled are reported to them. A door-to-door survey identified six wells near the gravel pit. Details of wells identified are summarised on Table 7-6.

Depth to groundwater was measured in the four bored wells at neighbouring dwellings – houses H1 to H4 (well numbers correspond to house numbers used on Figure 2-1). The other wells identified are too distant from the gravel pit and separated by hydraulic barriers so can't be impacted by activities at the gravel pit. Three shallow boreholes were installed at the pit to measure groundwater levels. Wells are shown on Figure 7-5.

Table 7-6: Summary of On-Site + Neighbouring Wells

Well ID	Total Depth (m)	Depth to GW (m)	Top of Well Liner Elev. (mOD)	GW Elev. (mOD)	Comments
W1	36.4	4.2	114.81	110.61	serves H1 and farm
W2	90.1	0.14	108.14	108.00	serves H2
W3	17.4	1.31	122.86	121.55	serves ~~H1-~~H3 and farm
W4	>45	12.81	NM	~81.19	serves H4
W12	NM	NM	NM	NM	serves H10, H11 and H12 and farm
W13	NM	NM	NM	NM	serves H13
BH1	5.98	5.05	93.60	88.55	In yard – dry after installation
BH2	3.85	1.08	85.95	84.87	near site entrance
BH3	2.69	2.14	98.13	95.99	south end of extraction area

Note:
1. The measuring point for neighbouring supply wells is the top of the steel liner.
2. The measuring point for on-site boreholes is the top of the black HDPE casing.

Groundwater flow direction is this area is interpreted to be to the west - southwest, with discharge to the Bealick / Clashavoon Stream. The groundwater levels and interpreted groundwater flow are shown on Figure 7-5. The on-site boreholes were dry when measured in July and August 2026. Wells W1 to W3 recorded lower groundwater levels by approximately 3m. However, wells W1 and W3 are in constant use, supplying dairy farms, so getting static water levels was not possible during one-off measurements.

To get a better indication of groundwater levels, a datalogger was installed in well W1 in November / December 2019 to record water level fluctuation during abstraction. The data is presented in Plate 7-4. The well recovered to just over 113mOD. During pumping, drawdown was typically up to approximately 7m, but as much as 13m. This was repeated between 14 and 18 August 2026, during a prolonged dry period. The 2026 data is presented in Plate 7-5. The well recovered to just over 109mOD, approximately 4m below the winter season water level. Again, during pumping, drawdown was typically up to approximately 7m, but as much as 12m. The farmer advised that there has been no loss of yield with the well.

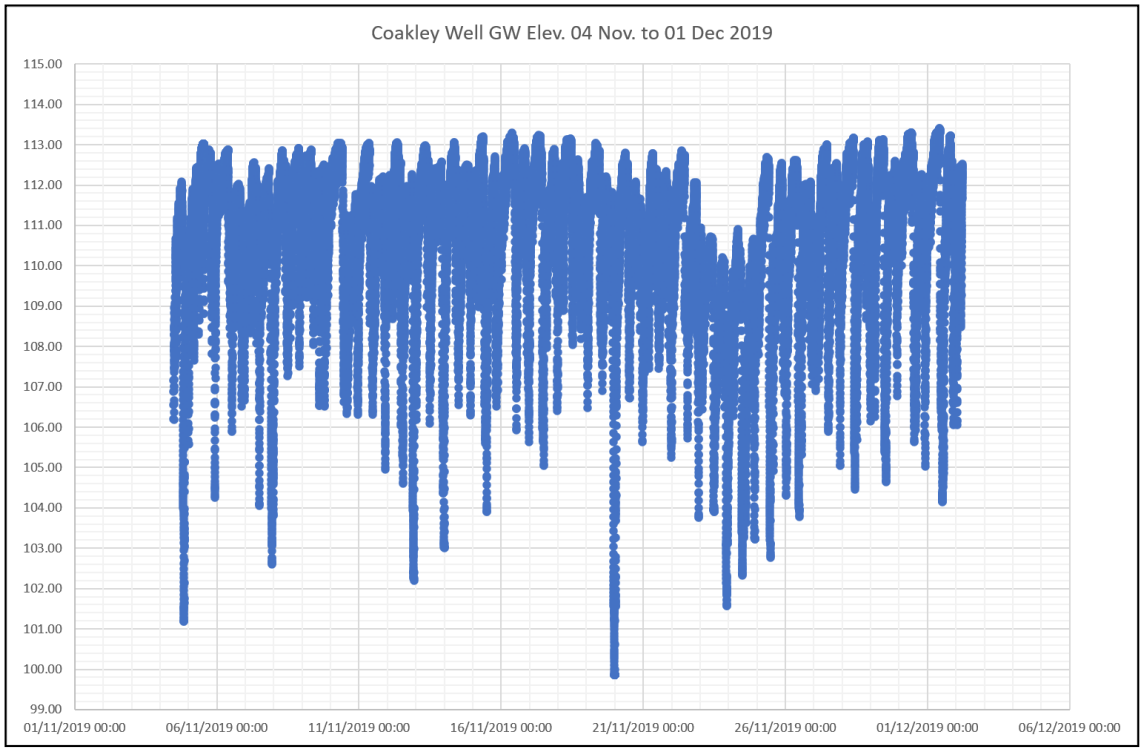


Plate 7-4: Groundwater Level Fluctuation in Well W1 – 04 Nov to 01 Dec 2019

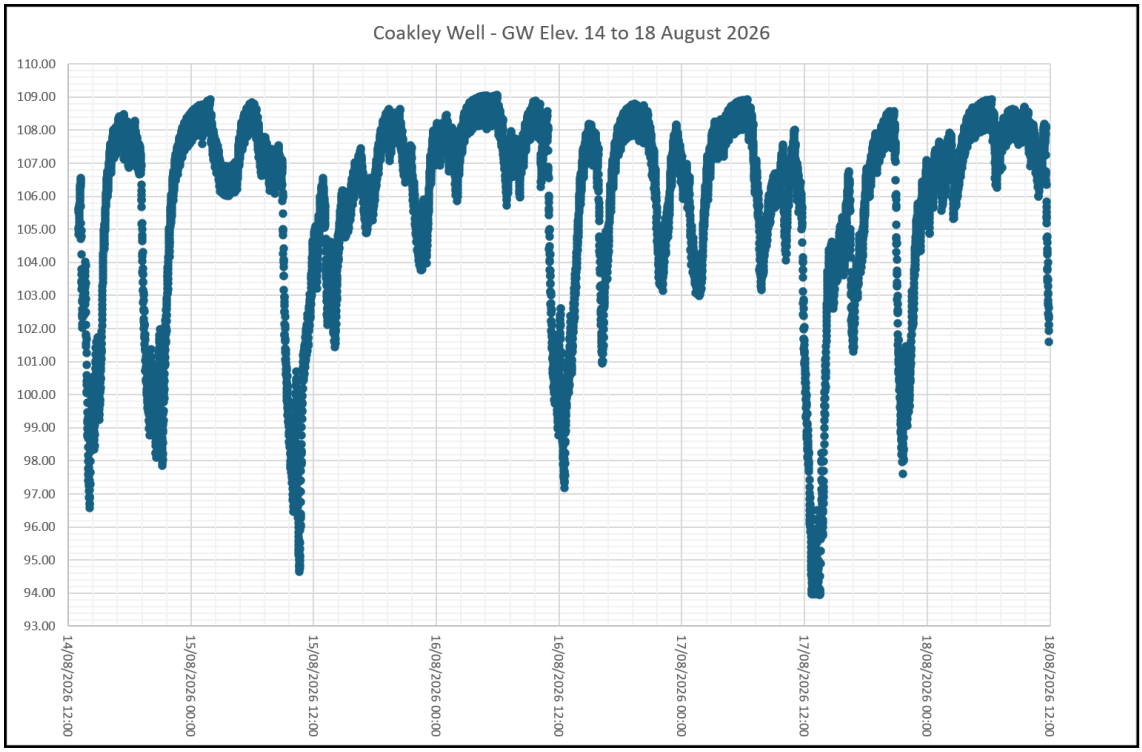


Plate 7-5: Groundwater Level Fluctuation in Well W1 – 14 to 18 August 2026

~~7.1.5~~7.2.7 Groundwater Usage

The area is not serviced by mains water. Houses and farms near the gravel pit use bored / dug wells for drinking water supply. The GSI database doesn't show any wells within approximately 700m of the gravel pit (refer to Figure 7-3), however, additional wells were identified during door-to-door surveys – refer to Table 7-6 and Figure 7-5.

There are no drinking water protection zones in the vicinity of the site. The closest is the Coachford public supply (consisting of two bored wells), approximately 8km to the east of the gravel pit. There is no hydrological connection between the gravel pit and the Coachford supply wells.

~~7.1.6~~7.2.8 Groundwater Vulnerability

The groundwater vulnerability at the gravel pit is mapped by GSI as High. For soils with high permeability, such as sand and gravels, this indicates thicknesses of greater than 3m – refer to GSI Groundwater Protection Schemes[36]. Aquifer vulnerability is shown on Figure 7-4.

~~7.1.7~~7.2.9 Groundwater Quality

Groundwater was not monitored as part of the assessment. The site is located in the Ballinhassig West Groundwater Body. This groundwater body is rated as having 'Good' status for 2010-2015, 2016-2021 and 2019-2024 under the water framework directive.

7.2.10 Importance of Groundwater / Hydrogeology Attributes

Based on the NRA Guidelines, the importance of the site in terms of groundwater and hydrogeology is rated as Medium. The bedrock aquifer is classified as locally important.

7.3 Characteristics of the Proposed Development

A detailed project description is provided in Chapter 2 of this EIAR and its characteristics that could potentially have an impact on surface water quality, hydrology and hydrogeology include:

1. Stripping of topsoil, changing surface water runoff characteristics.
2. Washing of gravel generating silt-laden wash water.
3. Storage and use of hydrocarbons, a potentially polluting material.
4. Removal of gravel, increasing aquifer vulnerability.
5. Abstraction of water from the Clashavoon Stream, potentially stressing dry weather flows.
6. Discharge to ground of treated foul effluent via the on-site septic tank and percolation area.

The potential direct impacts associated with the above works are deterioration of surface water quality leaving the site, a potential changes in volume and rates of runoff leaving the site. Unmitigated, deterioration in water quality could potentially result in indirect impacts to downstream aquatic habitats and users of surface water and / or groundwater. Unmitigated, increased runoff rates could potentially result in indirect impacts downstream such as increased erosion along the river channel and increased flood levels / extents elsewhere in the catchment. There could be indirect impacts at drinking water supply sources. Unmitigated, the abstraction from the stream could have a significant brief to temporary negative effect on aquatic fauna on the section of stream between the abstraction point and its confluence with the Laney River.

7.4 Impact Assessment

7.4.1 Impact Assessment Methodology

The criteria in the EPA Guidelines (2022) are used to evaluate and describe the potential impacts in terms of quality, significance, extent, probability and duration. The NRA guidelines are used to further rate the magnitude of the impact - these are set out in Table 7-7 (Hydrology) and Table 7-8 (Hydrogeology). Determining the significance of the impact on the feature (hydrology / hydrogeological attribute) based on the Importance of the feature and the magnitude of the impact is given in Table 7-9.

Table 7-7: Estimation of Magnitude of Impact on Hydrology Attribute

Magnitude of Impact	Criteria	Typical Examples
Large Adverse	Results in loss of attribute and / or quality and integrity of attribute	Loss or extensive change to a waterbody or water dependent habitat. Increase in predicted peak flood level >100mm. Extensive loss of fishery. Calculated risk of serious pollution incident >2% annually. Extensive reduction in amenity value.
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Increase in predicted peak flood level >50mm. Partial loss of fishery. Calculated risk of serious pollution incident >1% annually. Partial reduction in amenity value.
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Increase in predicted peak flood level >10mm. Minor loss of fishery. Calculated risk of serious pollution incident >0.5% annually. Slight reduction in amenity value.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	Negligible change in predicted peak flood level. Calculated risk of serious pollution incident <0.5% annually.
Minor Beneficial	Results in minor improvement of attribute quality	Reduction in predicted peak flood level >10mm. Calculated reduction in pollution risk of 50% or more where existing risk of 50% or more where existing risk is <1% annually.
Moderate Beneficial	Results in moderate improvement of attribute quality	Reduction in predicted peak flood level >50mm. Calculated reduction in pollution risk of 50% or more where existing risk is >1% annually.
Major Beneficial	Results in major improvement of attribute quality	Reduction in predicted peak flood level >100mm.

For the Ummera gravel pit, the magnitude of impact on the hydrology attribute is rated as Small Adverse, due to potential of Minor loss of fishery arising from abstraction during dry weather flows and the obstruction of the clear passage of fish.

Table 7-8: Estimation of Magnitude of Impact on Hydrogeology Attribute

Magnitude of Impact	Criteria	Typical Examples
Large Adverse	Results in loss of attribute and /or quality and integrity of attribute	Removal of large proportion of aquifer. Changes to aquifer or unsaturated zone resulting in extensive change to existing water supply springs and wells, river baseflow or ecosystems. Potential high risk of pollution to groundwater from routine run-off Calculated risk of serious pollution incident >2% annually.
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Removal of moderate proportion of aquifer. Changes to aquifer or unsaturated zone resulting in moderate change to existing water supply springs and wells, river baseflow or ecosystems. Potential medium risk of pollution to groundwater from routine run-off. Calculated risk of serious pollution incident >1% annually.
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Removal of small proportion of aquifer. Changes to aquifer or unsaturated zone resulting in minor change to water supply springs and wells, river baseflow or ecosystems. Potential low risk of pollution to groundwater from routine run-off. Calculated risk of serious pollution incident >0.5% annually.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	Calculated risk of serious pollution incident <0.5% annually.

For the Ummera gravel pit, the magnitude of impact on the hydrogeology attribute is rated as Small Adverse - Changes to aquifer or unsaturated zone resulting in minor change to water supply springs and wells, river baseflow or ecosystems.

Using Table 7-9, the significance of environmental impacts on water (hydrology) is Significant / Moderate, while the significance of environmental impacts on hydrogeology is Slight.

Table 7-9: Rating of Significant Environmental Impacts

Importance of Attribute	Magnitude of Impact			
	Negligible	Small	Moderate	Large
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant / Moderate	Profound / Significant	Profound
High	Imperceptible	Moderate / Slight	Significant / Moderate	Severe / Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight / Moderate

The following sections detail the potential impacts, prior to mitigation, which have been identified from the assessment methodology presented above. The main potential direct impacts of the further development of Ummera gravel pit on the surface water and groundwater environments are:

1. Deterioration of water quality from silt and / or hydrocarbons and / or discharge of foul effluent to ground.
2. Changes in runoff from a rainstorm event. This could increase the peak flow to the receiving watercourses - the Laney River and Clashavoon Stream. The possible increase in runoff results from a change in the surface runoff coefficient of parts of the gravel pit. Exposed areas of the pit are likely to result in increased percolation to the aquifer.
3. Abstraction of surface water from the Clashavoon Stream for use at the washing plant and associated weir blocking the free passage of fish.
4. Potential indirect impacts would be associated with deterioration of aquatic habitats resulting from pollution, potential for increased flooding (extends and levels) and impacts on aquatic fauna and / or users of surface water downstream of the project site. There could also be indirect impacts at the water supply source, in this case the Inniscarra Reservoir on the River Lee.

~~7.1.8~~7.4.2 Do Nothing Impact

If the further development of the gravel pit is not advanced, the site will be returned to mostly agricultural use. Surface water runoff would return to greenfield rates and volumes. The risks to surface water quality would transition from those associated with extraction activities to those associated with agriculture. The site would be restored sooner than it otherwise would be, decreasing the aquifer vulnerability across the site.

~~7.1.9~~7.4.3 Worst-Case Scenario

The worst-case scenario would be a release of a large volume of silt-laden water into the Clashavoon Stream. This would have a temporary moderate direct negative impact on water quality; suspended solids concentrations would dilute as the plume moved downstream and solids would settle in the low energy environments in the Lee Reservoir. There would be a short to medium term indirect negative impact on aquatic ecology. The risk of this occurring is very low as a number of avoidance and remedial measures have been introduced to manage washwater.

~~7.1.10~~7.4.4 Operational Phase

As noted, the area is not serviced by mains water. Each dwelling uses a bored well for water supply. There are no wells downgradient of the gravel pit with respect to groundwater flow direction (interpreted to be to the west and southwest to the Clashavoon Stream and Laney River). Excavations have not interfered with private supply wells near the gravel pit. Excavations have encountered groundwater springs, but there is no indication that this has affected the supply wells near the gravel pit~~; this is discussed further in Chapter 8~~.

Much of the incident rainfall on the site will infiltrate into the gravel deposits. However, surface water runoff from the site does occur. The activities and processes that will occur with the further development of the gravel pit and that could potentially impact upon surface water and groundwater are as follows:

- Since the installation of the washing plant, water has been abstracted from the Clashavoon Stream. A small weir has been created with boulders at the abstraction point to maintain water depth for the pump intake. This creates a small backwater upstream of the weir and creates an obstruction to the clear passage of fish. The abstraction of water, combined with the weir obstruction, represents a likely significant temporary, intermittent (during prolonged dry spells) negative effect locally in the Clashavoon Stream. The significance of these effects will reduce to imperceptible during normal flow conditions.
- Storm water runoff from exposed soils and stockpiles with subsequent sediment loading of the site drains. This is occurring also for runoff from the site access road which is unpaved. Unmitigated, sediment loading presents intermittent brief to temporary direct negative slight localised effects on water quality and a short-term indirect moderate negative impact on habitats downstream of the site (e.g., if silt were to accumulate in the gravel beds downstream of the site).
- Groundwater springs are encountered at the gravel pit. These are interpreted to be perched groundwater on low permeability layers found within the gravel deposit~~ – refer to Chapter 8~~. When flowing (in winter months), these increase the surface water discharge from the gravel pit. Measurement of groundwater levels at the three nearest upgradient wells (two of which are adjacent to the gravel pit) doesn't indicate that local supply wells have been affected. Unmitigated the release of perched groundwater to the pit surface would have a local permanent direct moderate negative effect on groundwater flow patterns.
- The storage and use of diesel and hydrocarbons on site present a risk to surface water and groundwater quality. No pollution incidents associated with hydrocarbons has occurred at the gravel pit, but its use and storage present a risk. Unmitigated and depending on the volume released, hydrocarbons reaching the surface water or groundwater environment would have a local short-term direct slight negative effect on water quality and a short term indirect slight negative effect on habitats downstream. Hydrocarbons attenuate naturally in the environment, so any negative impacts are reversible.
- The removal of subsoil and gravels has resulted in an increased vulnerability of the underlying bedrock aquifer. The area is rated as having a High aquifer vulnerability, and although the vulnerability ranking may not have increased, the absolute vulnerability has increased over the footprint of the extraction area and will increase in the further development areas.~~ This is a permanent direct negative impact.~~ Unmitigated the removal of gravel resulting in increased vulnerability represents a permanent likely moderate negative local effect, which can be partially reversed with the restoration of the gravel pit.

7.4.5 Restoration Phase

The restoration of the gravel pit is detailed in Chapter 11. It will involve removal of site plant and the return of the site to agricultural lands. This will involve large earthworks, which represent a risk of releasing silt to the surface water environment. Plant and machinery using diesel present a risk of contamination of the surface water and groundwater environments. These works would last approximately 12 months.

Unmitigated, sediment loading would result in intermittent brief to temporary direct negative slight localised effects on water quality and a short-term indirect moderate negative impact on habitats downstream of the site (e.g., if silt were to accumulate in the gravel beds downstream of the site).

Unmitigated and depending on the volume released, hydrocarbons reaching the surface water or groundwater environment would have a local short-term direct slight negative effect on water quality and a short term indirect slight negative effect on habitats downstream. Hydrocarbons attenuate naturally in the environment, so any negative impacts are reversible.

~~7.2~~7.5 Mitigation Measures

7.5.1 Operation Phase

The following measures are employed at the gravel to avoid and / or mitigate potential impacts on the surface water and groundwater environments:

1. As discussed in Chapter 2, the settlement ponds have been improved to recirculate wash water within the site proper; the original settlement pond located between the L-3423 and Clashavoon Stream is no longer used.
2. An addition surface water settlement pond has been created to treat runoff from the western yard area and overflow from the settlement ponds when inflow from rainfall runoff occurs.
3. The improvement in the recirculation of wash water has limited the volume of water abstracted from the Clashavoon Stream.
4. Hydrocarbons are stored in a self-bunded above-ground storage tank.
5. Domestic wastewater is treated with an on-site septic tank and percolation system.
6. The flow from springs is directed through the site to avoid trafficked areas. This will keep this water clean as it discharges from the site.

Addition mitigation measures are proposed to improve the surface water management at the gravel pit and to avoid / reduce impacts that might occur:

1. A concrete refuelling pad will be installed which will contain any spills during refuelling.
2. The storage of fuel and hydrocarbons will be improved. This will include the construction of a bunded storage shed adjacent to the refuelling pad. The diesel storage tank will be relocated to this shed as will the storage of oils.
3. Any maintenance or repairs to the mobile plant will be carried out on the concrete pad.
4. A spill kit will be kept in the front-end loader.
5. The access road into the site will be paved as far as the yard area. This will incorporate a concrete channel for roadside drainage. The access road will be kept clean, so runoff of silt-laden water doesn't occur.
6. Due to the low throughput, the septic tank and percolation area will be replaced with a sealed 2.2m^3 underground tank which will be emptied by a licensed contractor at regular intervals. It will be of plastic construction and located at the current location of the septic tank.
7. Surface water monitoring will be carried out as detailed in Section 2.4.
8. The weir obstruction on the Clashavoon Stream will be modified, in consultation with IFI during the appropriate season (July – September), to allow the free passage of fish. The boulders forming the weir will not extend across stream; they will be repositioned to extend a short distance upstream to direct flow towards the pump, while allowing the free passage of fish on the western side of the stream. Plate 7-6 illustrates the existing and proposed arrangement.
9. As requested by IFI, a gauge will be installed near the abstraction point and the dry weather flow (95%tile flow) level will be marked. Abstraction of water at or below this level will be avoided.

Phased restoration will be carried out during the operational using silt from the settlement ponds, inert greenfield soil & stone and stripped topsoil to provide protection to the underlying aquifer. At least 3m of unsaturated low permeability soils will be provided above the water table to maintain the High vulnerability rating at the site.



Plate 7-6: Proposed Weir Modification (Existing & Proposed)

7.5.2 Restoration Phase

The mitigation measures to be implemented during the restoration of the gravel pit in terms of water quality will be as detailed for the operational phase. The mitigation specific to the restoration phase are:

1. Phased restoration of the gravel pit will be carried out. The restoration of the gravel pit will commence at the northeastern corner of the pit and follow extraction in a southerly direction. The restoration will provide at least 3m of low permeability soils above the groundwater table, maintaining the High vulnerability rating.
2. The ponds will be the last infrastructure to be restored so are available to treat runoff water prior to discharge from site.
3. The weir on the Clashavoon Stream, as modified, will be completely removed.

7.6 Cumulative Impacts

There are no projects or plans, permitted or proposed within the study area that would results in cumulative effects on the water environment with the further development of the Ummera gravel pit. A small borrow pit is located on the hill to the south of, and overlooking, the gravel pit. No cumulative effects on the water environment are predicted.

7.7 Risks of Major Accidents or Disasters

The risk of major accidents or disasters arising from the water aspects of the further development of the gravel pit is negligible. The site isn't at risk of flooding, and the further development of the gravel pit will not increase flood risk elsewhere in the catchment. The gravel pit will continue to be operated as it has been for the past 40 years, or so, without major accidents or disasters.

7.8 Difficulties Encountered in Compiling

There were no difficulties encountered in the compiling the water chapter.

7.9 Interactions

Interactions associated with surface water, hydrology and hydrogeology with other aspects of the environment include:

- Soils & Geology - The thickness of soil over the bedrock aquifer informs the vulnerability ranking. Removal of gravel across the will increase the aquifer vulnerability.
- Soils & Geology - management of topsoil (stripping and storage) and storage of aggregate will interact with surface water quality in terms of potential soil erosion and siltation of the receiving surface water environment.
- Biodiversity - The quality of the surface water environment influences the quality of the aquatic habitats and the health of flora / fauna populations they support.

~~7.3~~7.10 Residual Effects

The residual effects following mitigation are summarised in Table 7-10.

Table 7-10: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects - Significance
Wier Obstruction	Aquatic fauna in Clashavoon Stream	Significant temporary, intermittent (during prolonged dry spells) negative effect locally	Redesign weir to allow the free passage of fish	Not Significant
Water Abstraction	Clashavoon Stream	Significant temporary, intermittent (during prolonged dry spells) negative effect locally	Increase storage of water in the 4 no. ponds. Collection of runoff water as primary top-up for settlement ponds. Establish dry weather flow level at abstraction point – install gauge. Avoid abstraction when water is at / below this level	Not Significant
Hydrocarbon Contamination	Surface Water & Groundwater	Fuel spillage or leaks present a local short-term direct slight negative effect on water quality and a short term indirect slight negative effect on habitats downstream	Improved storage and dispensing. Implementation of emergency response procedures.	Imperceptible
Silt Contamination	Surface Water	Sediment loading presents intermittent brief to temporary direct negative slight localised effects on water quality and a short-term indirect moderate negative impact on habitats downstream	Treatment of water prior to discharge from site – via a series of ponds. Closed loop recirculation of wash water. Progressive restoration to grasslands.	Imperceptible
Extraction below GW table	Groundwater + Water Supplies	Intercepting perched GW has a local permanent direct moderate negative effect on GW flow patterns. No effect on supply wells has been identified.	Extraction below the GW table will be avoided. GW level will be monitored at the on-site wells and local supply wells. Replacement supply wells will be provided if yields are affected.	Imperceptible

~~7.4~~7.11 Conclusions

Surface water management has been improved in recent years to minimise the risk of polluting the Clashavoon Stream. Runoff water from the gravel pit is treated in the on-site settlement ponds prior to recirculation or discharge from site. Additional improvements are proposed to further reduce the risk to the receiving waters. Surface water management will be kept under review during the further development of the gravel pit and improvements made when necessary. Runoff rates and volumes will return to near greenfield conditions with the restoration of the site to agricultural land use.

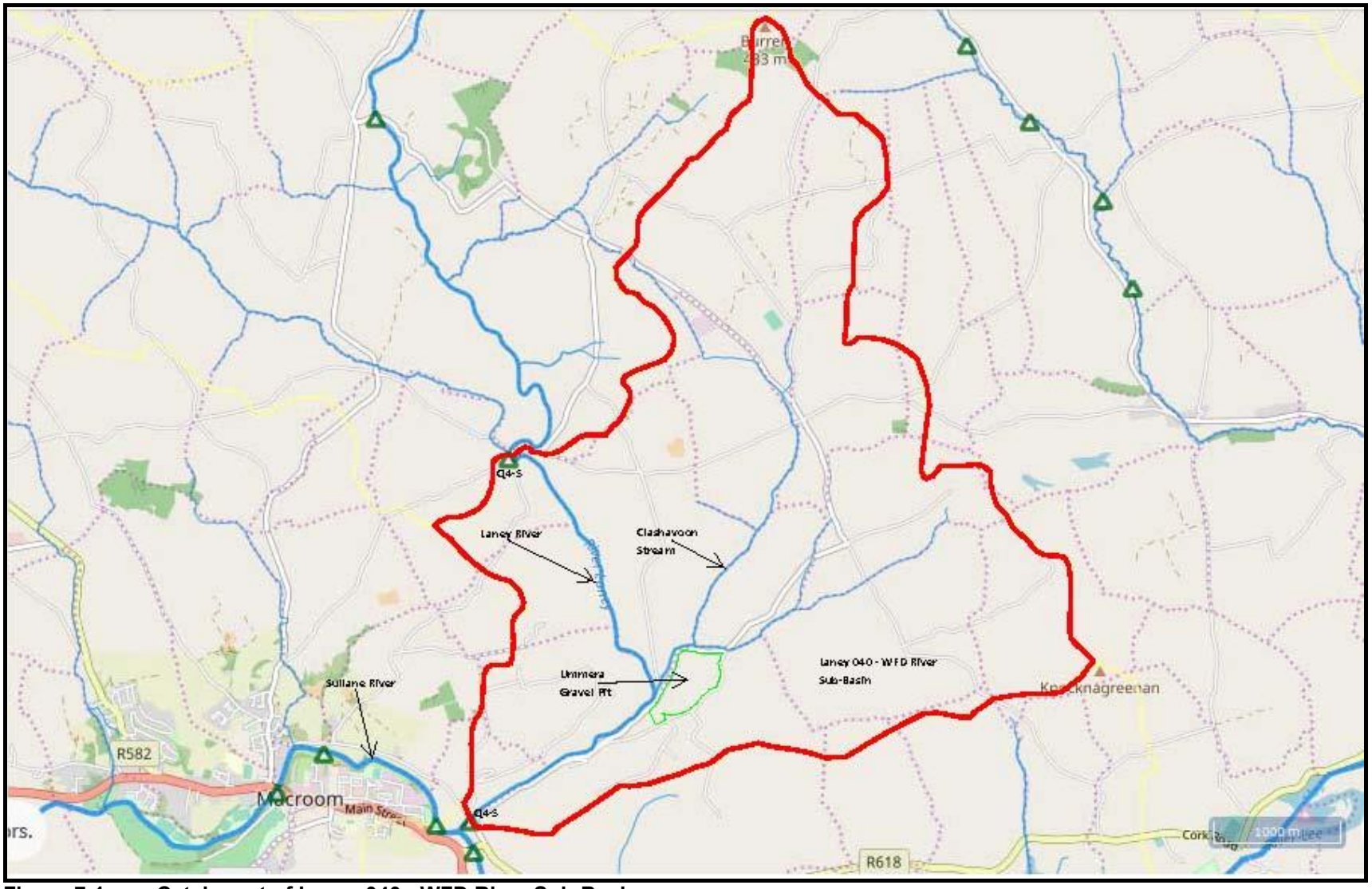


Figure 7-1: Catchment of Laney 040 - WFD River Sub-Basin

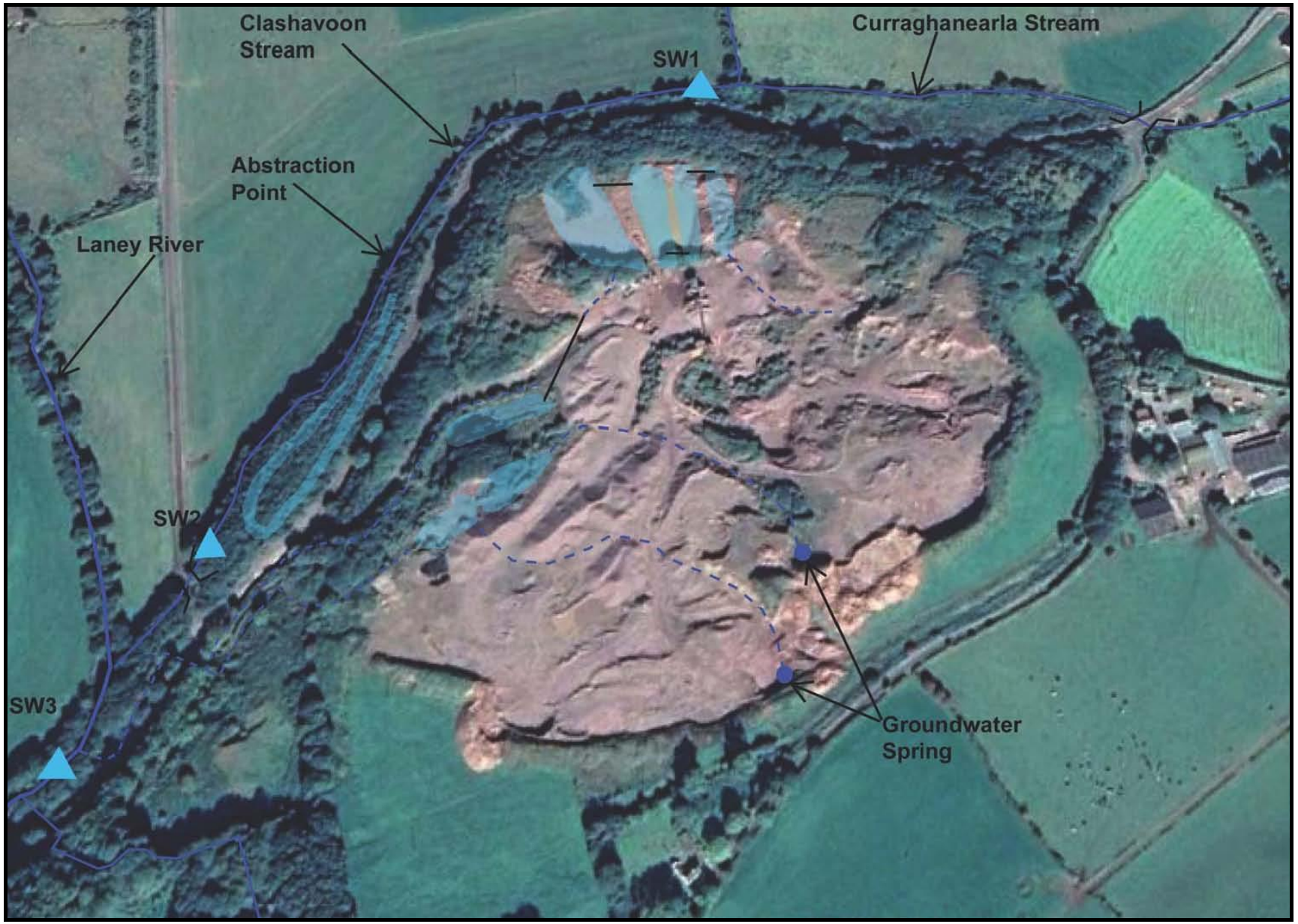


Figure 7-2: Local Surface Water Drainage

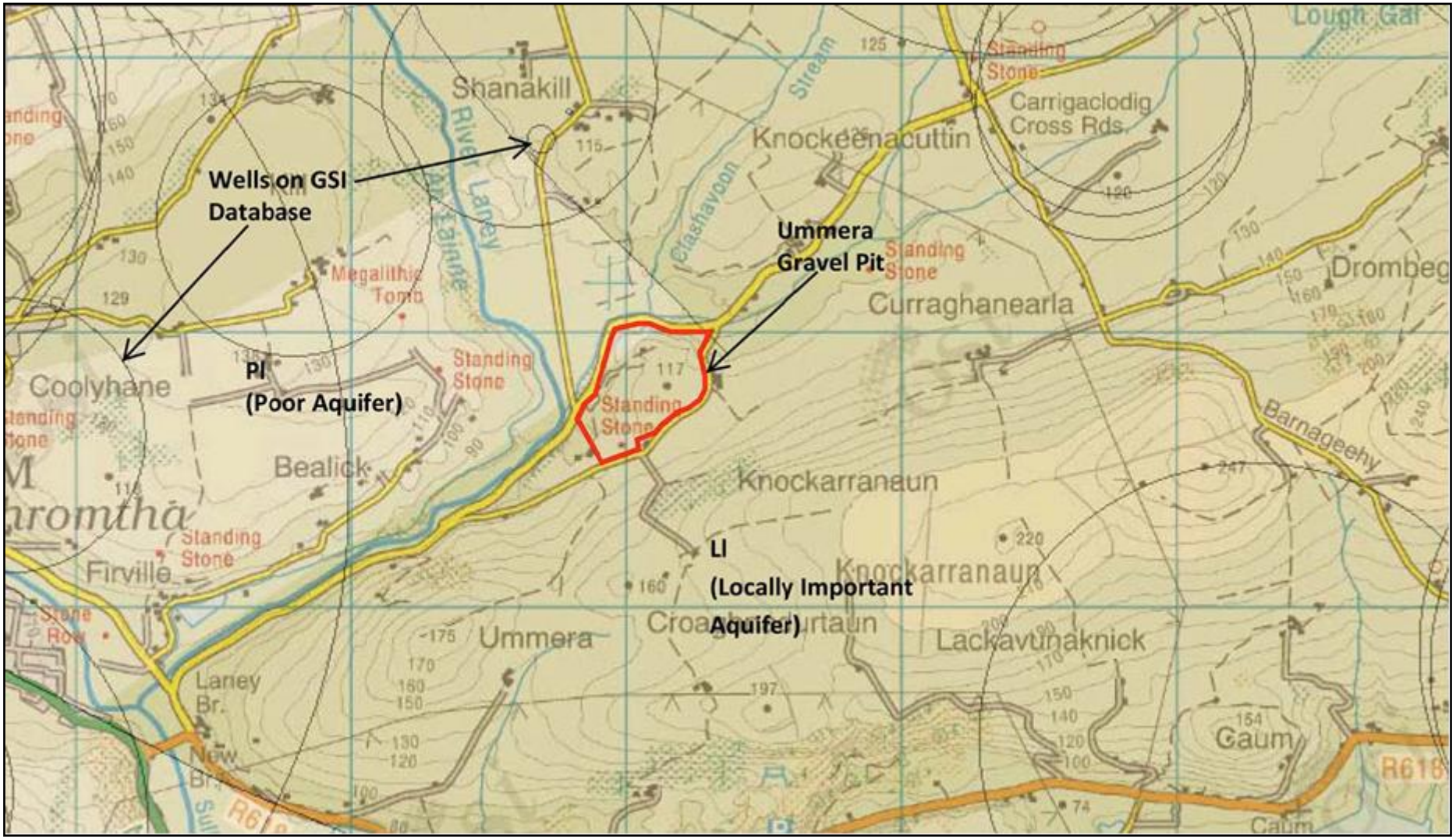


Figure 7-3: Bedrock Aquifer Map

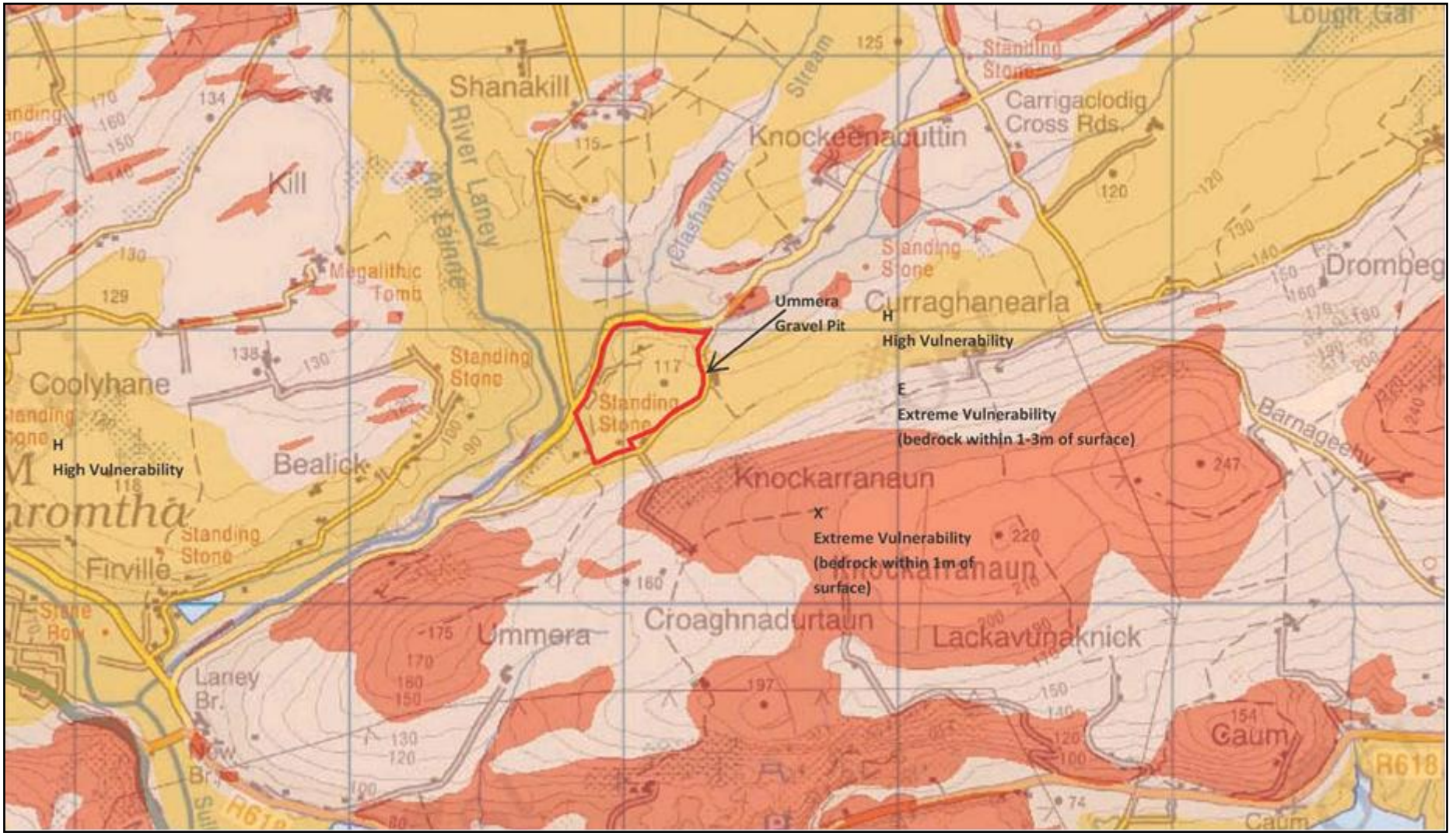


Figure 7-4: Aquifer Vulnerability Map

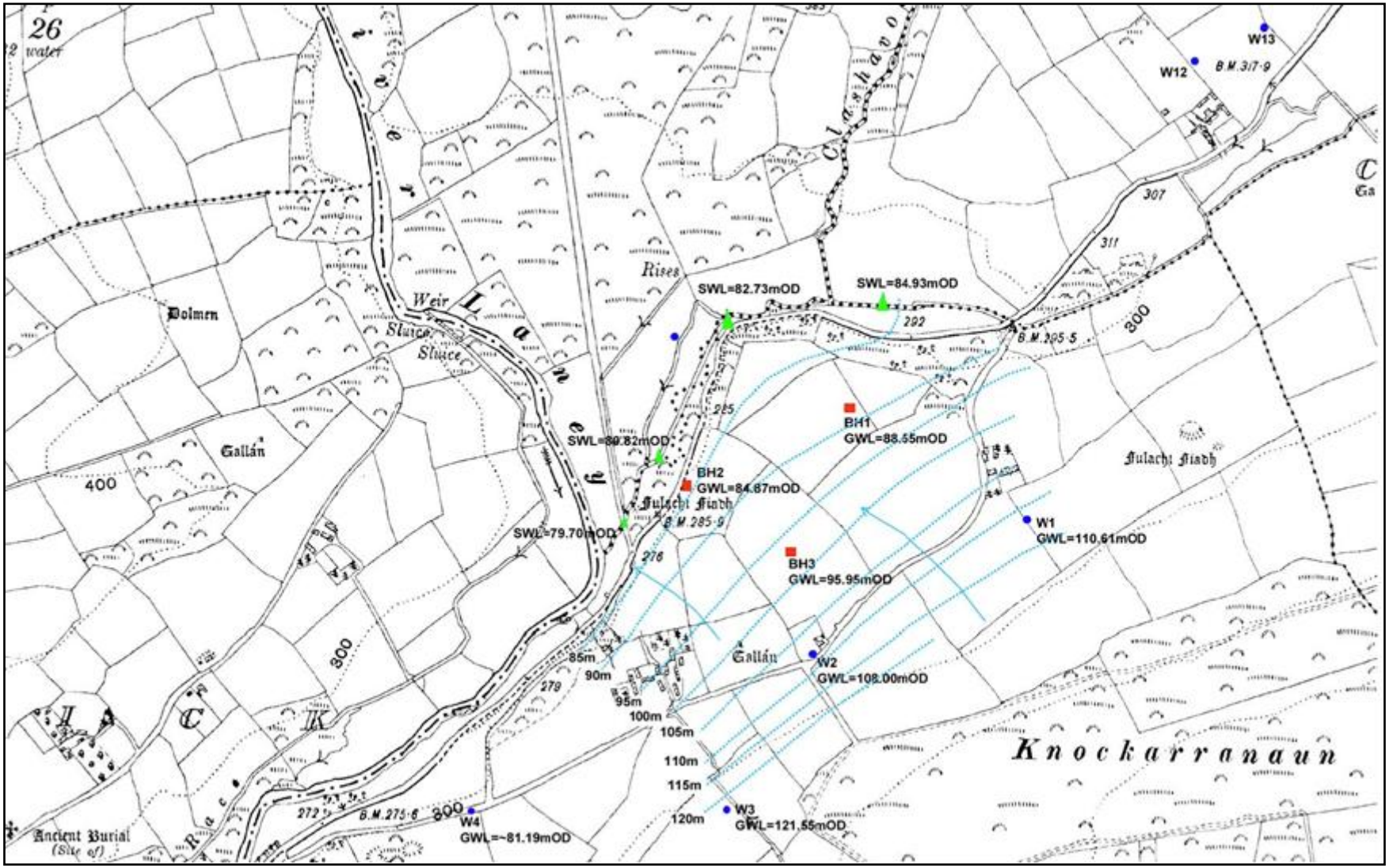


Figure 7-5: Groundwater Flow Map

8. LAND, SOILS ,& GEOLOGY ~~& HYDROGEOLOGY~~

8.1 Introduction

This chapter of the EIAR addresses land, soils and geology ~~and hydrogeology~~ in the existing environment. It assesses the significant effects on ~~the~~land, soils and geology ~~geological / hydrogeological environment~~ that could result from the further development of the gravel extraction activities. The mitigation measures proposed to be implemented to avoid, reduce and mitigate the impacts identified are also presented.

8.1.1 Scope & Purpose

This chapter of the EIAR provides details of the land use and geological environment in which the development is proposed. It identifies and describes the unconsolidated deposits, their land uses and bedrock geology underlying the site. The hydrogeology of the site is discussed in Chapter 7 (Water - Hydrology & Hydrogeology).

The purpose of the assessment is to identify the potential direct impacts of the proposed development on geology and land use within the site and potential indirect impacts beyond the site boundary; and to assess the potential impacts in the context of other developments (proposed / completed) to determine cumulative effects. Having identified and quantified the potential impacts, to recommend measures to avoid, mitigate and/or reduce significant potential negative impacts associated with the further development of the gravel pit, where relevant.

8.1.2 Policies & Guidelines

There are several local and national policies and guidelines relied upon in the preparation of this chapter. In addition to the EIAR guidelines (as referenced in Chapter 1), those specific to the land and soils aspect of the environment include:

- Cork County Development Plan 2022-2028 (CDP).
- Environmental Protection Agency, May 2022 guidelines.
- Office of the Planning Regulator, 2022.
- European Commission, 2017 EIA guidelines.
- European Commission, 2017 EIA scoping.
- European Commission, 2013 EIA incorporating climate change.
- Department of Housing, Planning and Local Government 2018 EIA guidelines.
- Institute of Geologists of Ireland, 2013 EIS (EIA) guidelines.
- National Roads Authority 2008 guidelines for geology and hydrogeology assessments.

8.1.3 Sources of Baseline Data

The main sources of baseline data and information relating to land, soils and geology include:

- Soils, bedrock, heritage etc - Geological Survey of Ireland - www.gsi.ie
- Archived maps and reports - Department of Climate, Energy & the Environment - https://secure.decc.gov.ie/goldmine/index.html
- Land use - Environmental Protection Agency - www.epa.ie
- Designated sites – National Parks & Wildlife Service www.npws.ie
- Cork County Development Plan – list of geological heritage sites in the county and land use zoning.

The literature reviewed as part of the desk study included:

1. Geology of Kerry-Cork, Geological Survey of Ireland (GSI), 1997[37].
2. Soils Association of Ireland and their Land Use Potential, M. J. Gardiner and T. Radford, National Soil Survey of Ireland, 1980[38].
3. Directory of Active Quarries, Pits, and Mines in Ireland, GSI 2014[39].

4. 2014 Cork County Development Plan.
5. Memoir of Localities of Minerals of Economic Importance and Metalliferous Mines in Ireland, The Mining Heritage Society of Ireland, 1998[40].
6. Original 6-inch field mapping sheets – www.gsi.ie .
7. Geophysical Survey to Estimate Sand & Gravel Reserves at Ummera, Macroom Co Cork[41].

~~8.1.1~~8.1.4 Assessment Methodology

The assessment of land, soils and geology was carried out with reference to relevant policies, regulations and guidelines (listed above) and following this general methodology: ~~The assessment of the impacts on geology and hydrogeology involved:~~

1. Desk study, including a review of available published literature.
2. Collection of data from Government departments including the Geological Survey of Ireland (GSI).
3. Site walkover.
4. Monitoring of water levels at site boreholes and neighbouring wells.

The assessment was prepared having regard to the Institute of Geologists of Ireland guidelines[42].

Walkover surveys took place on several occasions throughout 2019 and 2026 to supplement walkover surveys carried out previously at the gravel pit. During the site walkovers, inspections were conducted of the exposed faces of the gravel pit ~~and measurements made of groundwater levels at site boreholes and at neighbouring wells~~.

The aspects considered in the assessment were soils, land use, slope stability, bedrock geology, and the interaction of these with other aspects of the environment. These are discussed in the sub-sections below.

The information collected during the desk-based assessment, site walkovers and ground investigations were used to establish the importance, quality and sensitivity of the receiving geological environment. This follows the NRA (2008) guidelines as summarised in Table 8-1.

Table 8-1: Estimation of Importance of Soil & Geology Attributes

Importance	Criteria	Typical Examples
Very High	Attribute has a high quality, significance or value on a regional or national scale Degree or extent of soil contamination is significant on a national or regional scale Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale	Geological feature rare on a regional or national scale (NHA) Large existing quarry or pit Proven economically extractable mineral resource
High	Attribute has a high quality, significance or value on a local scale Degree or extent of soil contamination is significant on a local scale Volume of peat and/or soft organic soil underlying route is significant on a local scale	Contaminated soil on site with previous heavy industrial usage Large recent landfill site for mixed wastes Geological feature of high value on a local scale (County Geological Site) Well drained and/or highly fertility soils Moderately sized existing quarry or pit Marginally economic extractable mineral resource
Medium	Attribute has a medium quality, significance or value on a local scale Degree or extent of soil contamination is moderate on a local scale Volume of peat and/or soft organic soil underlying route is moderate on a local scale	Contaminated soil on site with previous light industrial usage Small recent landfill site for mixed wastes Moderately drained and/or moderate fertility soils Small existing quarry or pit Sub-economic extractable mineral resource
Low	Attribute has a low quality, significance or value on a local scale Degree or extent of soil contamination is minor on a local scale Volume of peat and/or soft organic soil underlying route is small on a local scale.	Large historical and/or recent site for construction and demolition wastes Small historical and/or recent landfill site for construction and demolition wastes Poorly drained and/or low fertility soils Uneconomically extractable mineral resource

8.1.5 Consultation

As part of the EIA process, consultation was carried out with organisations and individuals who might have an interest in the soils / geology and land use aspects of the project. The information package sent, and the consultation responses received, are provided in Appendix 1-2 of this EIAR. The response from GSI is summarised here and incorporated, where appropriate, into the avoidance, mitigation and monitoring proposals for the proposed development.

Geological Survey of Ireland

The GSI responded to the consultation in correspondence dated 15 June 2026. The GSI advised of its programmes focused on the various geological aspects, such as geological heritage, quaternary geology, bedrock geology, landslide susceptibility, aggregate potential etc. The GSI recommended use of its on-line data and information services. GSI also requested that access be allowed for scientific research, site investigation reports be provided to them and to consider leaving a working face exposed in the restoration scheme.

8.2 ~~Existing Geology~~ Receiving Environment

The land, soils and geology at the site is established based on available published literature, files/records made available from the GSI, GSI online web-mapping and site walkover.

8.2.1 Overburden Geology

The soils of the site are mapped as Brown Podzolics within the Rolling Lowland physiographic division. These typically comprise 60% brown podzolics, 20% acid brown earths and 20% gleys. The parent material is sandstone and Lower Avonian shale glacial tills. This soil association makes up 6.31% of the country, mostly occurring in mid, south and east County Cork.

The detail subsoil mapping for the area is taken from the GSI web-mapping. The area is dominated by tills and gravels deposited during glaciation and alluvium and peat deposited/developed post glaciation. Elevated ground in the area is mapped as having bedrock at / near ground surface.

There is evidence of at least two glaciations affecting the southwest of Ireland during the Pleistocene Epoch (1.6M years – 10,000 years ago). During the last glaciation, ice was centred to the south of the MacGillycuddy Reeks and extended radially outwards. Glaciation that affected the Macroom area resulted in ice movement eastwards from the Reeks. This resulted in the creation of glacial features such as roches moutonnees, corries and meltwater channels.

The sediments deposited from the glaciers and its meltwaters are tills and gravels. Tills derived chiefly from Devonian sandstones (TDSs) dominate the wider area. Glaciofluvial sands and gravel (GDSs) occur at the Ummera pit and predominately in the valleys of the Lee and Laney rivers. Isolated pockets of fen peat (FenPt) and blanket peat (BkPt) deposits occur scattered throughout the wider area. Geophysical survey carried out in 2003 interprets 10 to 15m of sand/gravel in the central area of the landholding, thinning to <5m towards the southern boundary. The overburden geology is of the area is shown in Figure 8-1.

8.2.2 Bedrock Geology

The geology of this area is taken from the Geological Survey of Ireland (GSI) report – Geology of Kerry-Cork (GSI, 1997). This area of County Cork is underlain by the Devonian and Carboniferous-aged rocks belonging to the Old Red Sandstone Magnafacies. This magnafacies has been subdivided into a number of regions with different stratigraphic successions. The Ummera site straddles two regions; Central Cork succession on the southern and eastern parts of the site and the Southern Derrynasaggart Mountains succession at the northern part of the site (under the settlement lagoons). The bedrock formations represented by these successions is summarised in Table 8-2. Bedrock geology is shown on Figure 8-2.

Table 8-2: Summary of Bedrock Geology in Macroom Area

Southern Derrynasaggart Mountains Succession	Central Cork Succession
Toe Head Formation [cross-bedded sandstone & mudstone]	Gyleen Formation [red siltstone and subsidiary sandstone]
Castlehaven Formation [purple mudstone, siltstone, sandstone	Ballytrasna Formation [dusky-red to purple mudstones with subordinate pale-red sandstones]
Gun Point Formation [green sandstone and purple sandstone]	
Caha Mountain Formation [purple and green siltstones and sandstones]	
Gortanimill Formation [green sandstone and purple siltstone]	Gortanimill Formation [green sandstone and purple siltstone]
Slaheny Sandstone Formation [cross-bedded sandstone & siltstone]	
Bird Hill Formation [purple sandstone & siltstone]	

The bedrock formation underlying most of the gravel pit is the Ballytrasna Formation of the Central Cork Succession. The Ballytrasna Formation is Devonian in age. It is characterised by dusky-red to purple coloured mudstone and siltstone with subordinate fine-grained pale-red sandstones. The formation varies in thickness from 360m to 1,500m. No bedrock outcrop has been observed on the site.

The north-western part of the site is underlain by the Caha Mountain Formation. The Caha Mountain Formation is Devonian in age. It consists of purple siltstones and fine-grained parallel and cross-laminated sandstones. It is 2,150m thick at its type location near Glengarriff.

Following deposition, the bedrock was uplifted and compressed during the Variscan Orogeny resulting in the folding and faulting seen today. This is dominated by northeast-southwest trending anticlines and synclines.

8.2.3 Economic Geology

The aggregate at the gravel pit is used primarily in the manufacture of concrete at DCWL's facility at Bredagh Cross, Drimoleague. It is tested for its suitability of use in these concrete products. It is also purchased by third parties for other uses.

According to the Directory of Active Quarries, Pits and Mines in Ireland, there no active quarries / gravel pits within the immediate vicinity of the site. A small number of old gravel workings are located within approximately 1km of the pit. There are a number of gravel pits to the east of Ummera near Coachford, Dripsey, Berrings and along the Bride River valley, just west of Ballincollig. There is no history of mining within the site or within the immediate vicinity of the site.

8.2.4 Geological Heritage Sites

In conjunction with the National Parks and Wildlife Service (NPWS), the GSI has been identifying sites of geological interest (geological heritage sites) across the Country since 1998. Sites are being categorised under 16 geological themes, such as economic geology, karst, Devonian, coastal, Quaternary, etc. These sites are being designated as Natural Heritage Areas or of importance at a County level. Cork County Council has developed a list of sites of geological interest for inclusion in the ~~2014~~ 2022 County Development Plan. It is an objective of the County Development Plan (Objective BE 15-2(d)) ~~(Objective HE 2-6)~~ to:

> '*Recognise the value of protecting geological features of local and national interest'.*
> '~~*Maintain the conservation value of those features of areas of geological interest that are listed in Volume 2, Chapter 3 Nature Conservation Areas, of the plan, and to protect them from inappropriate development'.*~~

Table 2.3.5 of the 2022 CDP lists 103 sites of geological interest in County Cork. These are also available for viewing on the GSI webviewer - IE GSI Geoheritage Data Ireland ITM Viewer. ~~Table 3-8 of Volume 2 of the County Development Plan lists 103 sites of geological interest in County Cork.~~ The GSI was contacted for information on the nearest sites to the gravel pit. The closest is The Gearagh on the River Lee, approximately 8km to the southwest. It is designated under the 'Fluvial and Lacustrine Geomorphology' theme for its unique part of a formerly much larger floodplain with a forested anastomosing channel system.

The gravel pit itself is not listed as being an Area of Geological Interest. All of these sites are greater than 5km from the gravel pit and there is no connectivity. As such the development has not and will not have any direct or indirect impact on geological heritage sites.

8.2.5 Land Use

The EPA Corine (2018) land use indicates that the entire gravel pit and surrounding area is mapped as agricultural areas – pastures (pastures). Per the EPA Corine land use maps, there are 26,278km^2 of pastures in Ireland.

The current land use within the landholding is a gravel pit with margins of the site used for agriculture – silage production. Approximately 3.7ha of the landholding is woodland.

The gravel pit is located in the area around Macroom zoned as Greenbelt – MM-GB1-1 – i.e., the rural housing policy area type is Town Greenbelt 1-1. It is within an area 'open to Consideration' with respect to wind energy development. It is not located in an area designated as having high value landscape.

8.2.6 Existing Slope Stability

Based on available data from the GSI, there are no records of slope failure within the project site or within 10km of it.

Landslide susceptibility mapping has been carried out by the GSI, based on slope and soil cover. Eight classifications for landslide susceptibility are mapped, ranging from Low to High. Most of the Ummera gravel pit has been mapped as 'Low' and 'Low (inferred)'. The western and northern boundaries of the existing gravel pit (along the public road) are mapped at having a 'Moderately Low' to 'Moderately High' landslide susceptibility. This classification extends southwest along the valley of the Laney River and not specifically associated with the gravel pit. Landslide susceptibility classification mapping for the gravel pit and surrounding area was not available as the GSI website was offline in July and August 2026.

There are steep slopes at the working face of the gravel pit, which shown signs of ravelling in places, which are typically for gravel pits.

8.2.7 Contaminated Land

According to EPA web-mapping, there are no land uses within or adjacent to the site that could give rise to contaminated land. Diesel is stored at the gravel pit for use in the front-end loader. There is potential for leaks or spillages to occur resulting in soil (and / or water) contamination. There have been no incidences of diesel spillage at the gravel pit, and there are no indications of soil contamination.

8.2.8 Ground Investigations

Ground investigations carried out at the gravel pit consists of a geophysical survey carried out in 2003. Shallow boreholes were installed in 2020 to monitor groundwater levels.

8.2.9 Importance of Soil & Geology Attributes

Based on the NRA Guidelines, the importance of the site in terms of soils and geology is rated Medium. This is based on the presence of Small existing quarry or pit. There are no landfills, evidence of land contamination or geological heritage sites present.

8.3 Characteristics of the Proposed Development

The main characteristics of the proposed development that could impact on land, soils, and geology are:

- Stripping of topsoil: Site development works will require the stripping of topsoil over a development footprint of approximately 1.7ha. Based on site knowledge, topsoil depth is up to 0.5m. Using this depth and taking the entire extraction footprint, it is estimated that approximately 8,500m^3 of topsoil will be stripped.
- Excavation of gravel: It is estimated that approximately 750,000 tonnes of sand & gravel will be extracted during the proposed further development of the gravel pit.
- Land use change: The further development of the gravel pit will change the land use from agricultural to extractive. This can be reversed with the restoration of the gravel pit.

8.4 Impact Assessment Methodology

The criteria in the EPA Guidelines (2022) are used to evaluate and describe the potential impacts in terms of quality, significance, extent, probability and duration as set out in Chapter 1. The NRA guidelines are used to further rate the magnitude of the impact - these are set out in Table 8-3. Determining the significance of the impact on the feature (geology attribute) based on the Importance of the feature and the magnitude of the impact is given in Table 8-4.

Table 8-3: Estimation of Magnitude of Impact on Geology Attribute

Magnitude of Impact	Criteria	Typical Examples
Large Adverse	Results in loss of attribute	Loss of high proportion of future quarry or pit reserves. Irreversible loss of high proportion of local high fertility soils. Removal of entirety of geological heritage feature. Requirement to excavate / remediate entire waste site. Requirement to excavate and replace high proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Moderate Adverse	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	Loss of moderate proportion of future quarry or pit reserves. Removal of part of geological heritage feature Irreversible loss of moderate proportion of local high fertility soils. Requirement to excavate / remediate significant proportion of waste site. Requirement to excavate and replace moderate proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Loss of small proportion of future quarry or pit reserves. Removal of small part of geological heritage feature. Irreversible loss of small proportion of local high fertility soils and/or high proportion of local low fertility soils. Requirement to excavate / remediate small proportion of waste site. Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	No measurable changes in attributes.

Magnitude of Impact	Criteria	Typical Examples
Minor Beneficial	Results in minor improvement of attribute quality	Minor enhancement of geological heritage feature.
Moderate Beneficial	Results in moderate improvement of attribute quality	Moderate enhancement of geological heritage feature.
Major Beneficial	Results in major improvement of attribute quality	Major enhancement of geological heritage feature.

For the Ummera gravel pit, the magnitude of impact on the soils / geology attribute is rated as Negligible – no measurable changes in attributes. Using Table 8-4, the significance of environmental impacts on geology is Imperceptible.

Table 8-4: Rating of Significant Environmental Impacts

Importance of Attribute	Magnitude of Impact			
	Negligible	Small	Moderate	Large
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant / Moderate	Profound / Significant	Profound
High	Imperceptible	Moderate / Slight	Significant / Moderate	Severe / Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight / Moderate

The following sections detail the potential impacts, prior to mitigation, which have been identified from the assessment methodology presented above.

~~8.2.5~~8.4.1 Do Nothing Impact

If the further development of the gravel pit is not advanced, the site will be returned to mostly agricultural use sooner than it otherwise would be. The aggregates won at the Ummera site would need to be sourced from another gravel pit.

~~8.2.6~~8.4.2 Worst-Case Scenario

The worst-case scenario would be if the further development were not permitted and the gravel resource was left in the ground. This would necessitate the development of another gravel pit, possibly a greenfield site.

~~8.2.7~~8.4.3 Operational Phase

The working of the gravel pit has resulted in the stripping of topsoil and subsoil with the removal of sand and gravel for beneficial use over a footprint area of the gravel pit. This will be increased with the further development of the gravel pit. The depth of gravel removed during the earlier periods of extraction can only be estimated at between 5 and 10m as no topographical survey is available prior to 2007. The pit faces will be up to approximately 10m high at the highest parts. The rate of extraction in recent years is approximately between 25,000 and 50,000 tonnes per annum, and this rate is expected to continue during the further development of the gravel pit. Over an expected timespan of further development, approximately 750,000 tonnes will be removed. The removal of the sand & gravel will likely result in a neutral imperceptible ~~is a~~ permanent local direct effect. The stripping of the overburden and topsoil ~~is a~~ represent a long-term not significant direct negative local effect, but reversible ~~impact~~ with the future restoration of the site.

The use of the on-site mobile plant has required on-site storage of diesel and refuelling. There is the potential for diesel to leak or spill, contaminating the underlying soils ~~and groundwater~~. However, no diesel spillage at the site have been recorded, so impact to soil ~~or groundwater~~ quality has not occurred. The continued storage of diesel at the site, and the refuelling of site plant on an unpaved yard area, does however present an on-going risk. Unmitigated, a spill of hydrocarbons would have likely negative slight local short-term effects on soil quality.

The removal of the gravel has created steel working faces, which could become unstable during the lifetime of the gravel pit. While the working faces have not failed to date and the risk is low, it is possible that this could happen. A failure of the working face, while unlikely, could result in a temporary not significant to significant (depending on what is affected – employee, public) negative effect.

8.4.4 Restoration Phase

The restoration of the gravel pit will have neutral imperceptible local permanent effect on geological aspects of the environment. The use of hydrocarbons during restoration will carry similar risks for spillage and similar effects on soil quality should one occur. In terms of land use, the restoration of the gravel pit to agricultural pastures, and in the context of 26,278km^2 of pastures in Ireland, presents a likely positive imperceptible permanent local effect.

~~8.3~~8.5 Mitigation Measures

8.5.1 Operational Phase

The impacts on the land, soils~~,~~ and geology ~~and hydrogeology~~ cannot be remedied by avoidance. Reduction and remedy measures are employed, and will continue to be employed, to limit the impacts. These include:

1. Stripped topsoil and overburden are used on site for long-term and temporary screening berms. In the long-term, stripped topsoil / overburden and silts generated from the washing process will be used in site restoration.
2. To mitigate the risk of fuel spillage to the environment, diesel is stored in a self-bunded fuel storage tank.

Additional mitigation measures are proposed for the further development of the gravel pit to improve ~~the~~ land, soils and geology ~~/ hydrogeology environment~~ and to avoid / reduce impacts that might occur:

1. A concrete refuelling pad will be installed which will contain any spills during refuelling and reduce the risk of soil (and water) contamination.
2. The storage of fuel and hydrocarbons will be improved. This will include the construction of a bunded storage shed adjacent to the refuelling pad. The diesel storage tank will be relocated to this shed as will the storage of oils.
3. Any maintenance or repairs to the mobile plant will be carried out on the concrete pad.
4. The EMS for the gravel pit includes emergency response procedures to hydrocarbon spills. The ERP will be followed to stop and contain spillages.
~~3.~~5. Any soils affected by hydrocarbon spills will be removed from site for disposal at an appropriately licensed facility.
~~4.~~6. Restoration of worked out areas of the gravel pit will commence to reduce the area of exposed soils and risk of working face failure.

8.5.2 Restoration Phase

Restoration of the gravel pit is itself a mitigation measure. The gravel pit will be restored on a phased basis. As discussed in Chapter 2, the reserve is heterogeneous, so it hasn't been worked systematically in a single direction. Instead, it has been opened in several locations to win coarser or finer material to meet requirements and to avoid silt / clay layers. DCWL will commence phased restoration of the gravel pit, starting at the north-eastern corner of the site. Silt washings and stripped topsoil (used to construct temporary screening berms) will be reused for restoration.

8.5.3 Monitoring

Monitoring of the quarry activities are carried out by the quarry manager. Slopes are inspected to ensure stability. The owners will carry out annual inspections to identify worked out areas which are available for restoration.

8.6 Cumulative Impacts

There are no projects or plans, permitted or proposed within the study area that would results in cumulative effects on land, soils or geology with the further development of the Ummera gravel pit. A small borrow pit is located on the hill to the south of, and overlooking, the gravel pit. No cumulative effects on land use soils or geology are predicted

8.7 Risk of Major Accidents or Disasters

The risk of major accidents or disasters arising from the land, soils and geology aspects of the proposed development is negligible. The working of the gravel pit has been unchanged for several decades without incident. DCWL operates the pit in accordance with its health & safety plan and in accordance with best industry practice.

8.8 Difficulties Encountered in Compiling

There were no difficulties encountered in the compiling the land, soils and geology chapter.

8.9 Interactions

Interactions associated with land, soils and geology with other aspects of the environment include:

- Hydrogeology - The thickness of soil over the bedrock aquifer informs the vulnerability ranking. Removal of gravel across the site increases the aquifer vulnerability.
- Surface Water - management of topsoil (stripping and storage) and storage of aggregate will interact with surface water quality in terms of potential soil erosion and siltation of the receiving surface water environment.
- Biodiversity – The restoration of the gravel pit and its land use post restoration will influence the biodiversity across the site. The restoration of the landbank to agricultural use will reduce the biodiversity at a local level.

8.10 Residual Effects

The residual effects following mitigation are summarised in Table 8-5.

Table 8-5: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects - Significance
Stripping	Topsoil / Overburden	A long-term not significant direct negative local effect, but reversible.	Use in screening berms. On-site reuse during restoration.	Imperceptible
Gravel Removal	Gravel reserve	Likely neutral imperceptible permanent local direct effect.	Gravel put to beneficial use in the construction industry.	Imperceptible
Erosion	Soils	Wind and rain erosion of exposed soils / silt from stockpiles and stripped areas presents short-term, slight, negative effects, with eroded soils potentially carried offsite as fugitive dust	Commence phased restoration. Planting of screening berms.	Imperceptible

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects - Significance
Contamination	Soils	Fuel spillage or leaks presenting a short-term, slight, negative, local effect	Improved storage and dispensing. Implementation of emergency response procedures. Removal & off-site disposal of contaminated soils.	Imperceptible
Slope stability	Pit face & Stockpiles	Although unlikely, could result in a temporary not significant to significant (depending on what is affected – employee, public) negative effect	Proper silt stockpile storage Signage to warn public. Progressive restoration.	Not significant
Land use	Agricultural use	Loss of agricultural pastures	Progressive restoration to grasslands.	Imperceptible

~~8.~~48.11 Conclusions

The removal of gravel from the site has been ongoing since the 1940's. The recent rate of extraction is approximately 25,000 to 50,000 tonnes per annum and a similar rate of extraction is expected over the remaining lifespan of the gravel pit, resulting in the extraction of approximately 750,000 tonnes. The gravel will be put to beneficial use in the construction industry. ~~The increased aquifer vulnerability will be mitigated with the restoration of the gravel pit and its return to agricultural land use~~.

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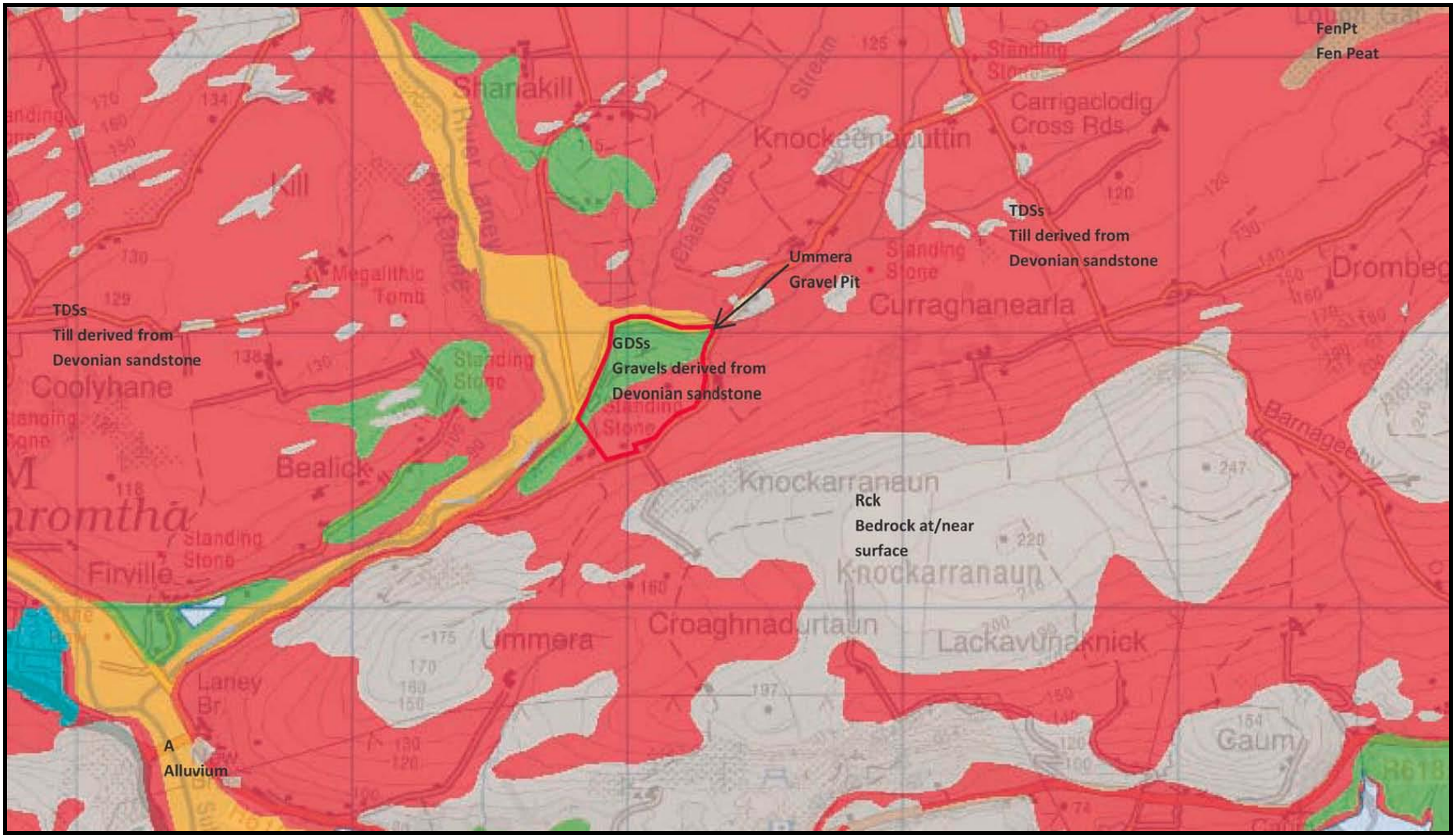


Figure 8-1: Overburden Geology Map

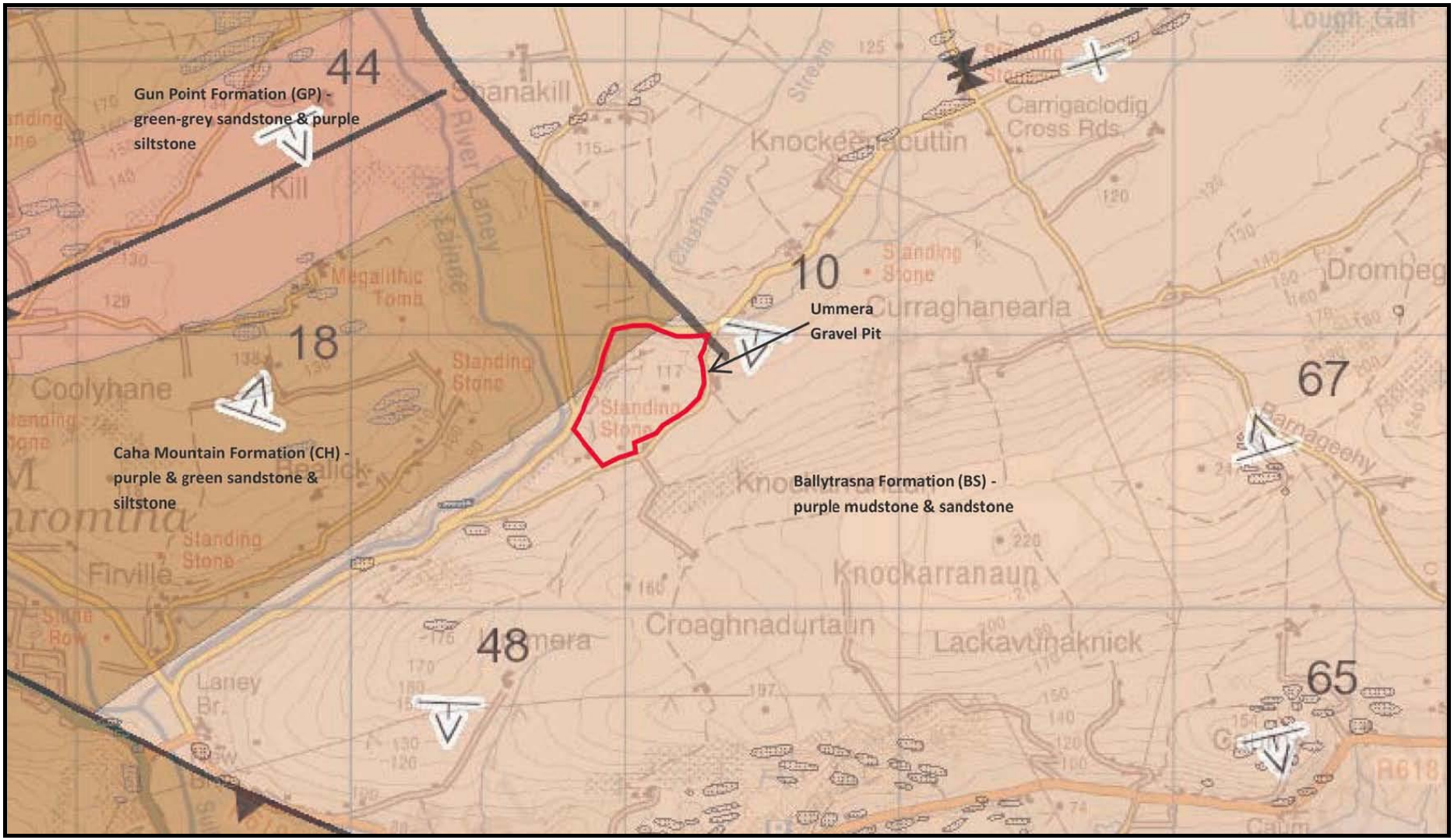


Figure 8-2: Bedrock Geology Map

9. ARCHITECTURAL, ARCHAELOGICAL & CULTURAL HERITAGE

9.1 Introduction

This Environmental Impact Assessment Report (EIAR) prepared on behalf of KGEC has been undertaken to assess the significant effects, if any, on the archaeology, cultural heritage and architecture which can reasonably be expected to occur because of the proposal to extract sand and gravel on land in the townland of Ummera, County Cork. A wide variety of paper, cartographic, photographic and archival sources was consulted. All the lands of the application area were visually inspected.

An impact assessment and mitigation strategy has been prepared. The assessment has been undertaken to assess the significant effects, if any, on the archaeology, cultural heritage and architecture which can reasonably be expected to occur because of the proposal to carry out extraction in the application area, while a mitigation strategy has been designed to remedy any significant adverse effects on cultural heritage.

The assessment was prepared by Dr. Charles Mount who has more than ~~twenty-five~~thirty years of cultural heritage assessment experience. He holds B.A., M.A. and Ph.D. degrees in archaeology as well as a professional diploma in EIA and SEA Management and is a member of the Institute of Archaeologists of Ireland.

9.2 Methodology

This study which complies with the requirements of Directive EIA 2014/52/EU is an assessment of the known or potential cultural heritage resource within a specified area and includes the information that may reasonably be required for reaching a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. It consists of a collation of existing written and graphic information in order to identify the likely context, character, significance and sensitivity of the known or potential cultural heritage, archaeological and structural resource using an appropriate methodology (EPA 2002, ~~and~~ 2003 and 2022). The criteria and definitions for describing effects set out below in Table 9-1 is drawn from the 2022 EPA Guidelines.

Table 9-1: Criteria & Definitions for Describing Effects

Type of Effects	Description
Quality of Effects	Positive A change which improves the quality of the environment.
	Neutral No effects or effects that are imperceptible, within normal bounds or variation or within the margin of forecasting error.
	Negative/adverse Effects A change which reduces the quality of the environment.
Significance of effects	Imperceptible An effect capable of measurement but without noticeable consequences.
	Not significant An effect which causes noticeable changes in the character of the environment but without noticeable consequences.
	Slight effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends.

Type of Effects	Description
	Significant effects An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very Significant effects An effect which, by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment.
	Profound effects An effect which obliterates sensitive characteristics
Describing the extent and context of effects	Extent Describe the size of the area, the number of sites, and the proportion of population affected by an effect.
	Context Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions.
Describing the Probability of effects	Likely effects The effects can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely effects The effects can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the duration and frequency of effects	Momentary effects Effects lasting from seconds to minutes.
	Brief effects Effects lasting less than a day.
	Temporary effects Effects lasting less than a year.
	Short-term effects Effects lasting one to seven years.
	Short-term effects Effects lasting seven to fifteen years.
	Long term effects Effects lasting fifteen to sixty years.
	Permanent effects Effects lasting over sixty years.
	Reversible effects Effects that can be undone, for example through remediation or restoration.
	Frequency of effects Describe how the effect will occur.
Describing the types of effects	Indirect effects Impacts on the environment which are not a direct result of the project.
	Cumulative effects The addition of minor or significant effects, including effects of other projects, to create a larger more significant effect.
	'Do-Nothing Effects' The environment as it would be in the future should the project not be carried out.
	'Worst case' effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable effects When the full consequences of a change in the environment cannot be described.
	Irreversible effects When the character distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual effects The degree of environmental change that will, occur after the proposed mitigation measures take effect.
	Synergistic effects Where the resultant effect is of greater significance than the sum of its constituents.

The study involved detailed investigation of the cultural heritage including the archaeological, architectural and historical background of the proposed development site and the surrounding area up to 1km from the development. The study area is indicated on Figure 9-1. This area was examined using information from the:

- Record of Monuments and Places (RMP) of County Cork.
- The Sites and Monuments Record.
- The Cork County Development Plan 2022-2028~~2014-20~~ including the Record of Protected Structures.
- The National Inventory of Architectural Heritage.
- Aerial photographs.
- Excavation reports.
- Cartographic.
- Documentary sources.

A field assessment was carried out on 10 October 2019 to identify and assess any known archaeological sites and structures and previously unrecorded features, possible finds and structures within the application area.

9.3 Existing Environment

9.3.1 The Landscape

The application area is situated in mid County Cork, c.2.5km northeast of the town of Macroom and c.1.7km northeast of the R618 road. It is situated on coarse loamy drift with siliceous stones that overlays compact drift with siliceous stones.

9.3.2 Archaeological and Historical Development of the Study Area

The following is a brief summary of the archaeological and historical development of the study area and the main types of sites and monuments that are known from the surrounding landscape. The information is drawn from the assessment. It is intended to indicate the types of sites and monuments known to be present in the study area as well as the pattern of landholding and to place this material in its cultural heritage context. The application area is situated in the townland Ummera, the parish of Aghinagh and the barony of Muskerry East. Note the spellings of place names varied throughout history, the historical spellings are used here.

Prehistoric Period
Prehistoric activity in the study area is indicated by a range of monument types. There is a wedge tomb in Bealick townland (RMP CO071-020----) dating from the Chalcolithic. There is also an Early Bronze Age burial cist in Bealick townland (RMP CO071-018002-) that contained cremated remains accompanied by an encrusted urn and a vase food vessel (O'Kelly 1944, Ó Ríordáin and Waddell 1993, 94). Fulacht fia, prehistoric mounds of heated stone, are known from Curraghanearla (RMP CO071-031----), Shankill (RMP CO071-026----) and Ummera (RMP CO071-059001- and CO071-059002-) townlands. There are also several standing stones known from the study area in Bealick (RMP CO071-019 ----), Coolkisha (CO071-028----), Curraghanearla (RMP CO071-030----) and Ummera townlands (RMP CO071-057----).

Early Medieval Period
The study area is situated in the barony of East Muskerry. The barony of East Muskerry was known in the early Medieval period as the cantred of Múscraige Mittíne after the sept who controlled it. The cantred was ruled by the Uí Bercháin and Uí Blaithmeic septs and the Ua Donducáin and Ua Flainn Kings (MacCotter 2008, 157-8). Settlement in the Early Medieval period is indicated by the presence of enclosed farmsteads known as ringforts. There is a ringfort known in the study area in Ummera townland (RMP CO071-059001-). Two souterrains, underground chambers, that are contemporary to ringforts probably indicated the existence of another ringfort in Ummera townland (RMP CO071-056001- and CO071-056002-). The holy well (RMP CO071-009----) and ritual bullaun stone (RMP CO071-010----) in Kill townland may indicate a medieval ecclesiastical site in the vicinity.

The Later Medieval Period
Following the submission of Dermot MacCarthy King of Desmond to King Henry II in 1171 and the occupation of the city of Cork, Robert fitz Stephen and Milo de Cogan used the city as a

base to occupy the Kingdom of Desmond. After they defeated Dermot MacCarthy, he granted them 7 cantreds of Desmond. In 1207 Richard de Cogan (son of Milo de Cogan's brother, Richard) was granted Múscraighe Mittaine by King John, which embraced the present baronies of East and West Muskerry and Barrett's.

The process of Norman infeudation is normally associated with the construction of timber castles, known as Motte and Baileys. However, there are no Motte castles known from the study area. In Ireland the manor houses of local lords were sometimes enclosed by rectangular moats and are referred to as moated sites. They are a useful indicator of Anglo-Norman settlement. However, there are no moated sites in the study area and the closest example is in Knockaneamealguylla townland (RMP CO084-031----) to the south-west of the study area. Anglo-Norman influence in the study area was short-lived. In 1353 Cormac McCarthy, King of Desmond, was granted lands around Macroom and his son Diarmaid became lord of Muskerry (Ó Murchada 1993, 216).

The Post-Medieval Period
The McSweeneys were granted Mashanaglashy, which included Ummera, by the McCarthy Lord of Muskerry in 1584 and appear to have built the tower house in the southern part of the townland (RMP CO071-096002). The Down Survey records that in 1641 Ummera townland was part of Mashanaglashy which was held by Owen McSweeney from the Earl of Clancarty, Donough MacCarthy (http://downsurvey.tcd.ie) and he is recorded as holding it in the Civil Survey of 1654-6 (Simington 1942). The Fifteenth Annual Report from the Commissioners of Public Records of Ireland (1825, 356) records that in 1703 Richard Gumbleton of Lismore held Ummerie, formerly part of the estate of Donogh late Earl of Clancarty. The lands passed to H.A. Bushe and then to the architect Sir Thomas Deane of Dundanion Castle, Cork (http://landedestates.nuigalway.ie). Lewis' Topographical Dictionary (Ahinagh, or Aghinagh, a parish) records that c.1837 Ummera was still held by Thomas Deane.

9.3.3 Buildings

Designated structures
The Cork County Development Plan 2022-2028~~2014-20~~ was examined as part of the baseline study for this section of the EIAR. The review established that there are no structures listed in the Co. Cork Record of Protected Structures situated within the application area or the study area.

Non-designated structures
The National Inventory of Architectural Heritage (NIAH) which is maintained by the Dept of Housing, Local Government and~~Culture~~, Heritage ~~and the Gaeltacht~~ was examined as part of the baseline study for this section of the EIAR on 25 September 2019 and 25 March 2026. The review established that there are no structures listed in the NIAH situated within the application area or the study area.

9.3.4 Field Inspection

On 10 October 2019 fieldwork was carried out to identify any additional non-designated structures of heritage interest in the vicinity of the application area. This involved assessing all upstanding structures that are marked on the 1938 edition of the six-inch Ordnance Survey mapping within 100m of the application area (see Figure 9-1). There are three upstanding houses with associated outbuildings situated within this area that are not of heritage interest (see below).

1. Ummera - Three-bay, two-storey house with hipped slate roof and two chimneys and rendered walls. New porch and windows and extension to the rear. Part of a farmyard consisting of outbuildings of random rubble construction, some with corrugated roofs (see Plate 9-1).
   No heritage interest.
2. Ummera - Two-bay one-storey cottage with slate roof and single chimney (see Plate 9-2).
   No heritage interest.

3. Ummera - This is a group of farmyard structures consisting of a farmhouse and 10 other structures, which are outside the further development area. The house and outbuildings were assessed and conserved by record in February 2006 by Margaret Shine for the quarry registration and then assessed by the Cork County Heritage Officer (QR01, see Figure 9-2). Building 1 is a two-bay, two-storey gable-ended out-building with random rubble construction and slate roof. Building 2 is a three-bay, two-storey gable-ended house of random rubble construction. The house has a chimney at each gable but is missing its roof (Plate 9-3). Building 3 is a range of three single-storey outhouses of random rubble construction now partly roofed. Building 4 is a range of three single-storey outhouses of random rubble construction now partly corrugated roofed. There is also a barn and shed.

   On 28 June 2006 Louise Harrington, The Cork County Heritage Officer wrote to the Planning Department Cork County Council and stated:

   '*I visited this site on the 26th June 2006. I note the archaeological record of the existing disused farmhouses. This will suffice as conservation by recording. The buildings are not protected structures nor would they be worthy of designation. There are no other architectural heritage issues on this site'*.

9.3.5 Archaeological Assessment

Recorded Monuments
There is one Recorded Monument situated within the applicant's landholding (see Appendix 9-1). There is the site of a Fulacht fia described in the RMP as:

CO071-058---- UMMERA Fulacht fia
On E side of stream, in sand and gravel works. Shown on 1938 OS 6-inch map as circular mound. No visible surface trace.

The monument is in an area that was granted planning permission by Cork County Council for settlement ponds in 1978 (Planning reg. No. PL1365/78). The site of the monument was visited on 10 October 2019 as part of this assessment. There is no visible indication of the monument in the location indicated in the Record of Monuments (Plate 9-4). This planning proposal does not include any works in the area of the site of the monument.

The closest Recorded Monument externally to the application area is a Standing Stone RMP CO071-057----. This is described in the RMP as:

CO071-057---- UMMERA Standing stone
In pasture, on S-facing slope [sic]. Stone (H 1.25m; 0.89m x 0.2m) is subrectangular in plan, long axis WNW-ESE (see Plate 9-5).

An Bord Pleanála decision relating to the registration of the gravel pit in accordance with Section 261 of the Planning & Development Act 2000 (QR01) contained condition 61 that stated the following:

> 61. *No works shall take place within a 20 metre radius of the external perimeter of monument number CO071:057, a standing stone. The area shall be appropriately protected.*
> ***Reason:*** *To ensure the continued preservation of this object of archaeological interest*.

An Bord Pleanála condition will be respected in regard to the proposed development and a 20m fenced buffer zone will be maintained around the monument.

The next closest Recorded Monument externally to the applicant's landholding is a Ringfort CO071-059001-. This is described in the RMP as:

CO071-059001- UMMERA Ringfort – rath
In pasture. Arc of hachures SE->SW depict bank on 1938 OS 6-inch map, broken line SW->SE completes circle enclosing oval area. Circular, slightly raised area (diam. 23m) enclosed by low earthen bank in parts (int. H 0.3m; ext. H 0.4m). According to local information, known as the fort field. Fulacht fiadh (CO071-059002-) c. 20m to SE of enclosure.

This monument is situated c.270m east of the applicant's landholding and is considered too ~~far~~ distant to be directly or indirectly impacted. The remaining Recorded Monuments in the study area are considered too ~~far~~ distant to have be impacted by the proposal.

Sites and Monuments Record
A review of the Sites and Monuments Record which is maintained by the Dept. of Housing, Local Government ~~Culture,~~and Heritage ~~and the Gaeltacht at~~ http://webgis.archaeology.ie/historicenvironment/ on 24 September 2019 and 25 March 2026 indicated that there are no additional sites listed in the application area or the study area.

Cartographic Sources
The Ordnance Survey 1st and 3rd edition six-inch maps of the area were examined. This analysis did not indicate any previously unrecorded archaeological sites or monuments.

Place Name Evidence
The place names were extracted from the cartography in order to facilitate the search for structures and monuments and small finds, to help identify any unrecorded monuments or structures, to search for any published papers and documents related to the study area and to assist in the study of the historical development of the area. The English translations of the townland names of the study presented below are based on the Placenames Database of Ireland. The placenames analysis did not indicate any additional cultural heritage material in the application area.

Table 9-2: English Translations of Townland Names

Townland Name	English Meaning
Bealick	ford of the flagstone
Coolkisha	corner of the hurdle
Curraghanearla	the earl's moor
Kill	church
Knockeenacuttin	hillock of commonage
Lackavunaknick	flagstones at the foot of the hill
Shanakill	old church
Ummera	a ridge

Aerial Photographs
Examination of the Ordnance Survey 1995, 2000 and 2005 imagery as well as Google Earth imagery from 2009, 2013, ~~and~~ 2018, 2020 and 2023 and Bing maps imagery from 2011 did not indicate any additional cultural heritage or archaeological sites.

Other sources
Examination of archaeological corpus works on prehistoric artefacts (Harbison 1969, Eogan 1965, 1983, 2000) and pottery (O' Ríordáin and Waddell 1993) and Iron Age material (Raftery 1984) did not reveal any additional material.

9.3.6 Previous Assessments

Examinations of the Excavations Bulletin www.excavations.ie indicated that there have been no licensed archaeological excavations carried out in the study area.

The existing gravel pit was the subject of an archaeological impact assessment carried out as part of quarry registration in accordance with Section 261 of the Planning & Development Act 2000 (QR01) in February 2006 by Margaret Shine for Sheila Lane & Associates. The assessment noted that the site of the Fulacht fia (RMP CO071-158) was inaccessible due to dense undergrowth. The assessment recommended that the standing stone (RMP CO071-158) should be preserved *in situ* within a 20m buffer zone.

On 12 June 2006 Catryn Power, the Cork County Archaeologist, wrote to the Planning Department Cork County Council and stated:

'*MS14*
Buffer Zone Condition
The development should be located no closer than 20m to the nearby archaeological monument (s). This buffer zone should be established by a suitably qualified archaeologist.

No construction works, stockpiling of topsoil etc, or any development, or landscaping and/or planting should take place within the 20m buffer zone. No trees, plants etc should be removed from the buffer zone.'

On 29 May 2006 Finola McDonald of the Development Applications Unit, Department of the Environment, Heritage and Local Government wrote to the County Secretary, Cork County Council and stated:

'*It is noted that the proposed development is within the zone of archaeological potential established around the Recorded Monument CO071:057, a standing stone, which is subject to statutory protection in the Record of Monuments and Places established under section 12 of the National Monuments (Amendment) Act 1994.*

We will have no objection from the archaeological perspective to this development proceeding, provided that the following is included as a condition in any grant of planning permission that may issue;

"*No groundworks for construction or landscaping shall take place within 30 metres of the external perimeter of monument number CO071:157, a standing stone.*

Should planting take place within this buffer zone only plants with shallow root systems should be chose"

Reason: *To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest*'.

The farm structures at the southwest of the applicant's landholding were also photographed and conserved by record as part of the archaeological assessment. On 28 June 2006 Louise Harrington, The Cork County Heritage Officer wrote to the Planning Department Cork County Council and stated:

'*I visited this site on the 26th June 2006. I note the archaeological record of the existing disused farmhouses. This will suffice as conservation by recording. The buildings are not protected structures nor would they be worthy of designation. There are no other architectural heritage issues on this site*.'

9.3.7 Planning History

The existing gravel pit commenced as a pre-1964 development. It was granted planning permission by Cork County Council in 1976 (PL 76/375 – the Lordan permission) and 1978 (PL1365/78 – the M&OS washing plant permission). The gravel pit was registered in accordance with Section 261 of the Planning & Development Act 2000 (QR01) in September 2004. Cork County Council modified and added to the conditions imposed under 76/375 in September 2006. Condition 61 stated that:

'*No groundworks, development/construction works, stockpiling of topsoil/spoil or landscaping shall take place within 30m metres radius of the external perimeter of monument CO071:057, a standing stone. This buffer zone of 30m radius shall be established by a suitably qualified archaeologist and no trees plants, etc. shall be removed from within this buffer zone*.'

A number of the conditions, including No. 61, were appealed to An Bord Pleanála in October 2006 (04.QC2002). In June 2007, An Bord Pleanála issued its decision, in relation to condition 61 the Inspector's report stated:

'Condition 61 - No works (whatsoever) to take place within 30m of Standing Stone

A 20m buffer was requested by the Heritage unit of the Authority and the company consider that sufficient. This requirement was in line with the recommendation of the company's own archaeologist.

Inspector's Recommendation
The condition, as drafted, would not appear to have had a specific site in mind. This standing stone is in the middle of an open pasture field with no trees or plants other than grass in the vicinity. I consider that fencing off appropriately an area of 20m radius will protect the standing stone.'

In its decision, An Bord Pleanála modified condition 61 to the following:

'61. No works shall take place within a 20 metre radius of the external perimeter of monument number CO071:057, a standing stone. The area shall be appropriately protected.

Reason: To ensure the continued preservation of this object of archaeological interest.'

9.3.8 Field Inspection

A field inspection was carried out on 10 October 2019. This involved an inspection of all the lands of the application area (see Plate 9-6).

Area 1 is the existing area of extraction and processing (Plate 9-7). There is no visible indication of any cultural heritage material.

Area 2 is a long and narrow area enclose by banks situated to the west of Area 1 on the west side of local road L-3423. Cork County Council granted permission for settlement ponds in this area in 1978 (Planning reg. No. PL1365/78). The area is now overgrown with woodland (Plate 9-8). Examination of the marked site of RMP CO071-058---- Fulacht fia indicated that there was no visible indication of the monument at ground level (Plate 9-4). There is no visible indication of any cultural heritage material.

Area 3 is a roughly triangular-shaped field of north-west sloping pasture enclosed by low drystone walls. The northern part of the field has been extracted and most of the field is overgrown with ferns and brambles (Plate 9-9). There is no visible indication of any cultural heritage material.

Area 4 is a six-sided field of northwest sloping pasture enclosed by low drystone walls and mature trees with the existing gravel pit at north (Plate 9-10). The Recorded Monument CO071-057---- Standing stone is situated roughly in the centre of the southern part of the field externally to the further development area (Plate 9-5). There is no other visible indication of any cultural heritage material.

9.4 Impact of the Development

There is one Recorded Monument situated within the application area, the site of a Fulacht fia RMP CO071-058---- and is in an area granted planning permission for settlement ponds in 1978 and is not visible at ground level. This planning proposal does not include any works in the area of the site of the monument and there will be no impact related to this proposal.

A Standing stone RMP CO071-057---- will be preserved *in situ* within a 20m fenced buffer zone in accordance with the 2007 decision of An Bord Pleanála (04.QC2002), and will not be impacted by the proposal.

There are no other direct or indirect impacts on any other known items of archaeology, cultural heritage or buildings of heritage interest in the application area or the vicinity.

9.5 Worst Case Scenario

In the worst-case scenario soil-stripping of the unstripped lands within the application area, in areas 3 and 4 may impact previously unknown archaeological deposits or artefacts without preservation by record taking place.

9.6 Mitigation Measures

Due to the possibility of the survival of previously unknown sub-surface archaeological deposits or finds within the unextracted part of the application area, in areas 3 and 4 all topsoil-stripping in those areas should be monitored by a qualified archaeologist.

9.7 Conclusions and Recommendations

There is one Recorded Monument situated in the application area, the site of a Fulacht fia RMP CO071-058----, which is not visible at ground level, and is not impacted by the proposal. A standing stone RMP CO071-057---- is situated outside the application area, it will be preserved *in situ* within a 20m fenced buffer zone in accordance with the 2007 decision of An Bord Pleanála (04.QC2002), and will not be impacted by the proposal. There are no other known sites of heritage interest known from the application area. Due to the possibility of the survival of previously unknown sub-surface archaeological deposits or finds within the unextracted part of the application area, in areas 3 and 4, all topsoil-stripping in those areas should be monitored by a qualified archaeologist.

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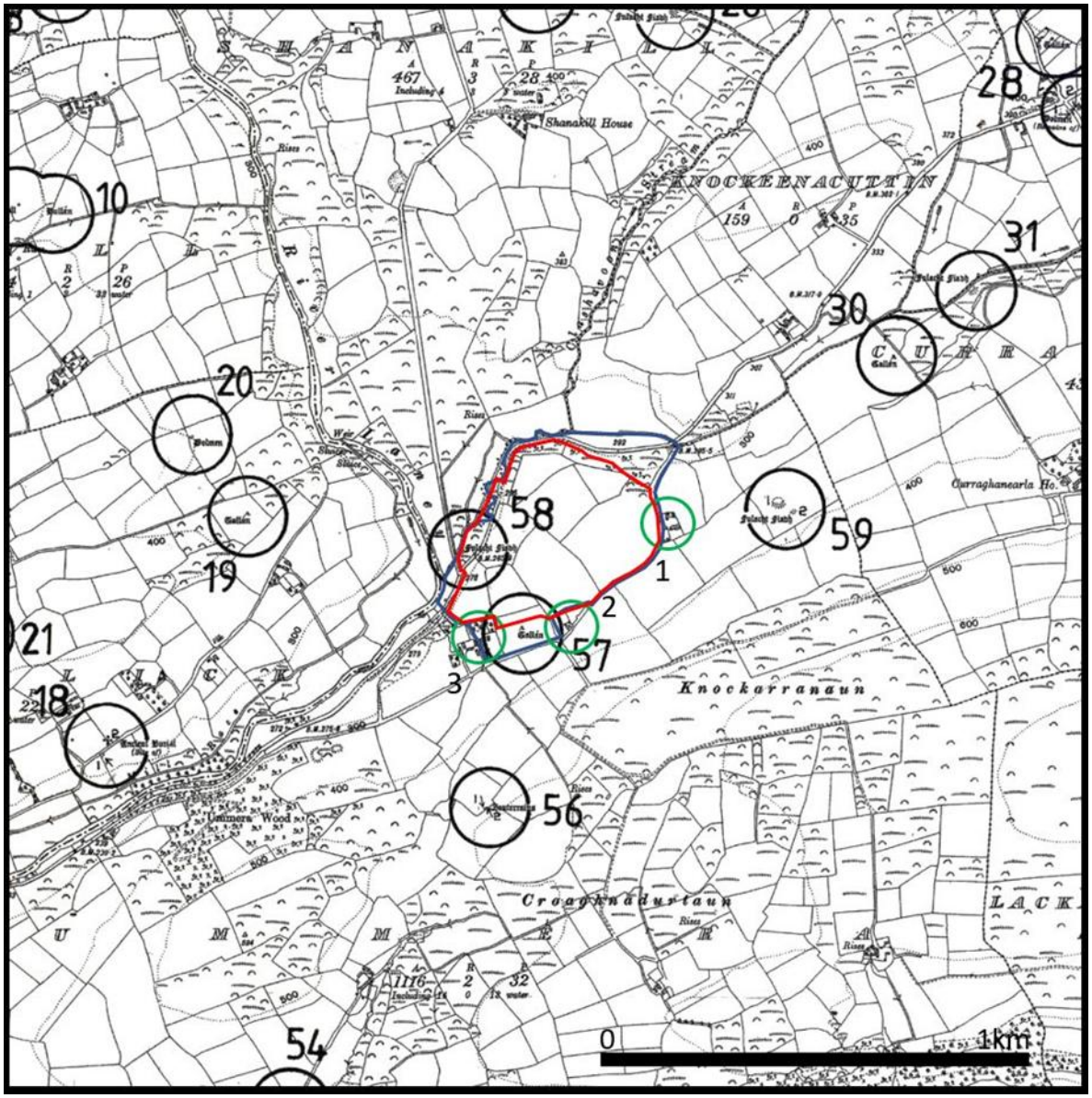


Figure 9-1: Record of Monuments for County Cork

Notes:

The assessment study area superimposed on the Record of Monuments for Co. Cork. The land under the control of the applicant is indicated with the blue line. The substitute consent area is outlined in red. Recorded monuments are indicated with black circles. The upstanding structures situated within 100m are indicated with green circles.

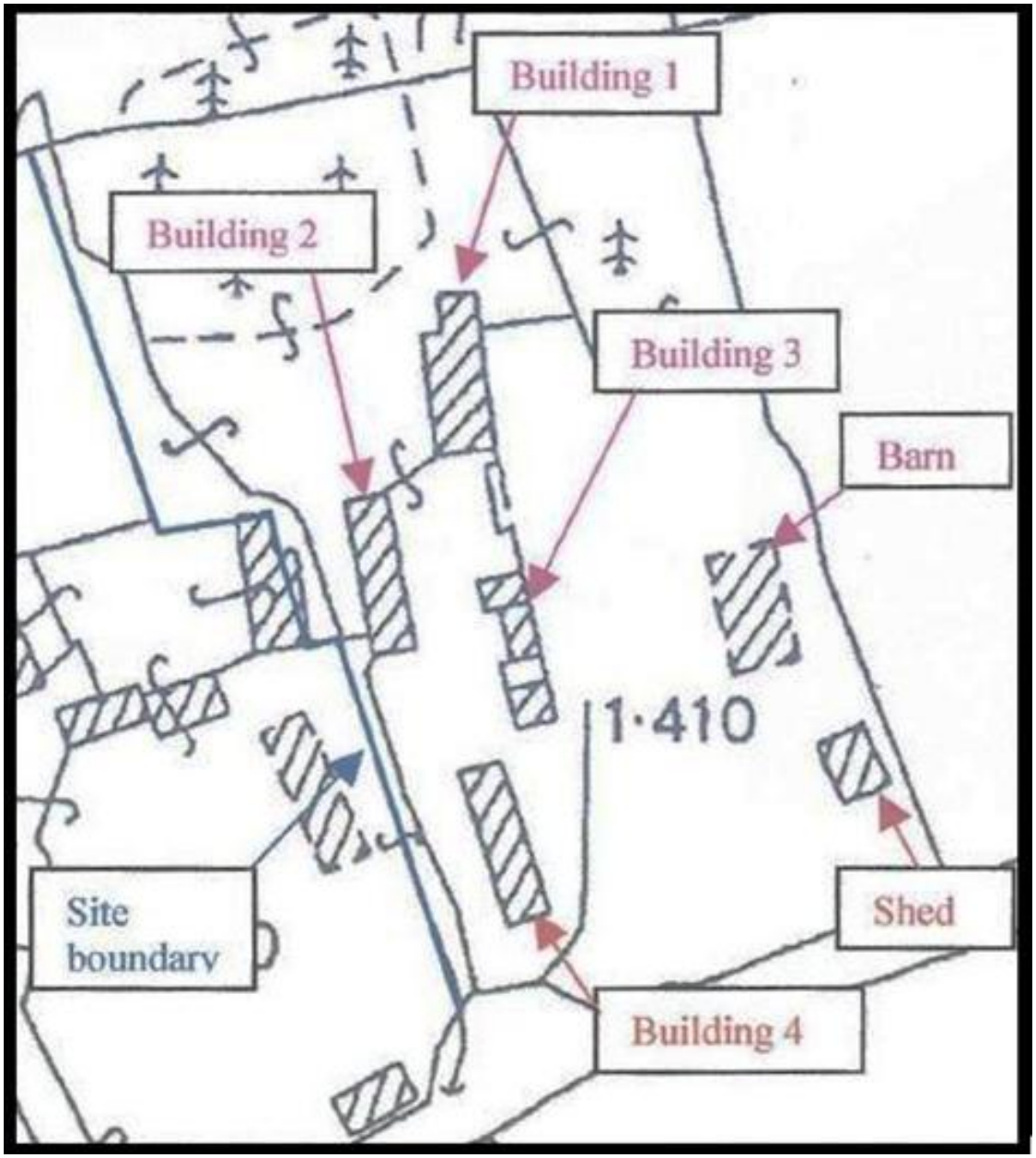


Figure 9-2: Plan of Structure No. 3 (Building 2) and Associated Outbuildings



Plate 9-1: View of Structure 1 Looking Northeast



Plate 9-2: View of Structure 2 Looking Northwest



Plate 9-3: View of Ruined House Structure 3 Looking Southwest



Plate 9-4: View of CO071-058----Location: Fulacht fia Looking Southwest



Plate 9-5: View of CO071-057----Location: Standing Stone Looking West



Plate 9-6: Aerial View of Application Area
Source - 2018 Google earth image



Plate 9-7: Panoramic View of Existing Gravel Pit Looking West



Plate 9-8: View of Area 2 Looking Northeast



Plate 9-9: Panoramic View of Area 3 Looking West



Plate 9-10: Panoramic View of Area 4 Looking North
Note - RMP CO071-057---- visible in the centre

10. BIODIVERSITY

10.1 Introduction

This chapter identifies, quantifies and evaluates the effects of future extraction activities and potential effects of a continuation of these activities on habitats species and ecosystems in the surrounding environment. It considers impacts to ecological receptors with mitigation measures used to offset or reduce the identified potential impacts. This chapter was prepared by Atkins for the September 2020 application and reviewed in 2026 by JKW Environmental Ltd with updated publicly available information and resurveying in 2026.

The development is the Ummera gravel pit where extraction of sand & gravel has taken place since the 1940's. Ummera gravel pit is located within predominantly agricultural lands in the townland of Ummera; 2.5km northeast of Macroom town (see Site Location Figure 1-1). The existing gravel pit is bound by the Clashavoon Stream and its associated woodland to the north and west.

The sand & gravel is won by excavator and front-end loader and is processed on site using a washing / screening plant. A full description of the site activities is provided in Chapter 2.

10.1.1 Description of the Existing Quarry

See Chapter 2 for full description of historical and the ongoing activities at the Ummera gravel pit.

10.2 Methodology

The methodology used to carry out the survey of the Site, to evaluate the ecological value and to prepare the biodiversity chapter is outlined in this section.

10.2.1 Desk Study

A desk study was carried out to collate the available existing ecological information on the gravel pit. Available literature on the Site (the landholding) was reviewed to inform the field work and impact assessment. A review of available mapping and aerial photography was undertaken using Bing maps and aerial photographs.

The Environmental Protection Agency (EPA) Envision mapping[1] system was used to identify any hydrological connection between the proposed project and Natura 2000 sites.

The National Biodiversity Data Centre (NBDC) was accessed for information on protected habitats and species known from the 2km grid squares W37R and W37S within which the site is located (last accessed ~~29th June 2020~~27 July 2026). Only records for the past 10 years are included within this report as older records are unlikely to still be relevant given their age and the changes in land management that has occurred in the intervening period. Bat records within 2km of the survey area were also reviewed using the NBDC website.

Birds of Conservation Concern in Ireland (BoCCI), published by Bird Watch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. (Colhoun and Cummins, 2013). The BoCCI lists birds which breed and/or winter in Ireland and classifies them into three separate lists (Red, Amber and Green) based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, those on the Amber List are of medium conservation concern and those on the Green List are not considered threatened.

[1] http://gis.epa.ie/Envision

The conservation status of mammals within Ireland and Europe is evaluated using one or more of the following documents; Wildlife Acts (1976 - 2012), the Red List of Terrestrial Mammals (Marnell *et al*., 2009) and the EU Habitats Directive 92/43/EEC.

10.2.2 Consultation

Keohane Geological & Environmental Consultancy on behalf of DCWL engaged in consultation with Inland Fisheries Ireland (IFI) and National Parks and Wildlife Service (via the Development Applications Unit of the Department of Culture, Heritage and the Gaeltacht) on the proposed Section 37L (S37L) application for Ummera Gravel Pit including future development at the site. The following is a summary of all correspondence provided to Atkins Ecology:

Development Applications Unit (NPWS)
13 February 2020
Keohane Geological & Environmental Consultancy wrote to the DAU informing the DAU/NPWS of their intention to prepare a remedial Environment Impact Assessment Report (rEIAR) for the Ummera Gravel Pit near Macroom County Cork, as well as the EIAR for the continuation and extension of gravel extraction at the site.

17 February 2020
NPWS acknowledged receipt of consultation.

24 November 2020
The DAU made a submission directly to ABP in relation to the further development of the gravel pit on 24 November 2020. In that correspondence, it noted the presence of a small population of freshwater pearl mussel (FPM) in the Laney River downstream of the site. It advised that all necessary measures should be undertaken to avoid the release of silt or hydrocarbons to the watercourses (Clashavoon Stream and Laney River), and that the stream be monitored. The DAU submission and requirements were referenced in ACP letter of 01 October 2026.

15 May 2026
Keohane Geological & Environmental Consultancy wrote to the DAU advising it that ACP had requested that the EIAR submitted in September 2020 be updated to include updating ecological surveys. The consultation was acknowledged but no submission was received.

Inland Fisheries Ireland
16 March 2020
Keohane Geological & Environmental Consultancy write to the IFI. KGEC informed the IFI of their intention to prepare a remedial Environment Impact Assessment Report (rEIAR) for the Ummera Gravel Pit near Macroom County Cork, as well as the EIAR for the continuation and extension of gravel extraction at the site.

03 April 2020
IFI acknowledge receipt of consultation and informed KGEC the application should consider; *detail and analyse the mechanisms for and impacts of all discharges and abstractions associated with the proposed developments.*

15 May 2026
Keohane Geological & Environmental Consultancy wrote to the DAU advising it that ACP had requested that the EIAR submitted in September 2020 be updated. IFI responded on 20 May 2026, providing a copy of its letter submitted to ABP on 30 July 2024. IFI raised the issues of abstraction quantity, obstruction of the free passage of fish and water quality. These issues are discussed in Chapter 8 of this EIAR – Water (Hydrology & Hydrogeology).

10.2.3 Zone of Influence

The '*zone of influence*' for a project is the area over which ecological features may be subject to significant effects because of the project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, ~~2018~~2024).

It follows that given the nature of the development at Ummera, the zone of influence will be limited to the development site and immediate environs as well as areas connected via hydrological pathways (ground or surface water) and landscape features such as hedgerows and treelines.

Determining the potential for impacts and the zone of influence is based on the source-pathway-receptor chain principle and involves assessing likely significant effects on ecological receptors within the zone of influence in relation to three pathways: -

- Surface water
- Groundwater
- Land & Air

10.2.4 Ecological Field Surveys

A summer and winter site visit were carried out on 19 July 2019 and 05 December 2019. A phase 1 habitat survey of the active gravel pit void, as well as surrounding lands within DCWL ownership were surveyed. The findings of this survey work are presented in Section 10.4. This describes habitats and species which are present on or adjoining the gravel pit. Section 10.5 then considers the potential for ecological impacts.

Any fauna, (i.e. terrestrial mammals, birds and invertebrates), noted during this survey were also recorded. During the site walkover in July and December 2019, the site was assessed in particular for the presence and signs of badger (*Meles meles*) activity. While the July site walkover was carried out outside of the more optimal survey period for badger all field boundaries were accessible and clearly visible during the walkover; these were checked again in December 2019 for the presence of badger.

JKW Environmental undertook a multidisciplinary ecological field survey of the site and adjoining lands was undertaken to establish the baseline ecological conditions of the receiving environment and to inform the Biodiversity chapter of this EIAR. The survey included a detailed walkover of the application site and lands within the zone of influence of the proposed development, with particular regard to habitats, flora, fauna and other ecological features of conservation importance.

Habitats were identified, mapped and classified in accordance with A Guide to Habitats in Ireland (Fossitt, 2000).

During the field surveys, all habitats were assessed for their suitability to support protected and notable species. Incidental records of flora and fauna were recorded throughout the survey, together with evidence of ecological connectivity, wildlife corridors and features of ecological significance.

A survey for protected terrestrial mammals was undertaken across the site. The survey comprised a systematic search for evidence of protected mammal species, including badger (Meles meles) and otter (Lutra lutra), where suitable habitat was present. Searches included an assessment for field signs such as setts, holts, couches, feeding remains, tracks, footprints, and latrines.

The site was also assessed for its suitability to support amphibians. All waterbodies, drainage features and other potentially suitable habitats within and adjoining the site were inspected and assessed for their potential to support breeding and terrestrial amphibian populations.

Bats

A specialist bat activity survey was carried out by Caroline Shiel B.Sc., Ph.D at Ummera gravel pit on 27 July 2019. One surveyor conducted an emergence watch at the site office. The second surveyor conducted an emergence survey of the farm buildings at the southern edge of the landownership. The locations of the dawn survey were decided following a walked-transect survey with hand-held bat detectors. Based on bat activity at the site, the dawn surveys took place within the vicinity of the settlement ponds, within the grass field to the south of the extraction area and along a mature treeline on the south-western landownership boundary near the old farm buildings.

Additionally, two Songmeter and four no. bat detectors were set up on site to remotely monitor bat activity at two locations overnight. These units were programmed to run from 20 minutes before sunset to 20 minutes after sunset. The first Songmeter was placed on an earthen bank at the settlement pond at the northern end of the site. The second location selected was on a track in the centre of the site. This track was lined with immature scrub willow.

On the night of 27 June 2019, two surveyors conducted emergence surveys at dusk, followed by walked transects of the site. Dawn surveys were conducted on the morning of 28 June 2019 to record any bats returning to roosts prior to sunrise. Equipment used included a Pettersson D240X time expansion bat detector, a Pettersson D200 heterodyne detector and an Echometer Touch Pro detector plugged into an ipad.

One surveyor conducted an emergence watch at the site office. The second surveyor conducted an emergence survey at the southern edge of the extraction area to investigate if bats were commuting from the farm buildings in the southwestern corner of the DWCL land holding. The dusk surveys commenced 20 minutes before sunset and lasted 1.5 hours. Result of the bat surveys carried out at Ummera are summarised in Section 10.4 (see Appendix 10-1 for full report).

Bat surveys were undertaken to assess the potential for roosting, commuting and foraging bats within the site. Habitats within the site were also assessed for their suitability to support commuting and foraging bats, and targeted bat activity surveys were undertaken where required. Bat activity surveys were also undertaken using static bat detectors deployed at suitable locations throughout the site to record bat activity and assess the use of the site by commuting and foraging bats. Recorded calls were analysed using recognised acoustic analysis software to identify species and levels of activity.

Birds

Bird surveys were undertaken to identify habitats suitable for breeding, wintering and foraging birds and to record any evidence of bird activity within the site. Particular attention was given to species of conservation concern and to habitats with the potential to support protected bird species.

Invasive Species

A survey for invasive alien plant species was undertaken across the site and adjoining lands. The survey included a systematic search for species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), together with other invasive non-native plant species known to occur in Ireland. The location, extent and abundance of any invasive species recorded were mapped and incorporated into the assessment.

10.2.5 Aquatic Ecology

Fieldwork was carried out initially on 05 November 2019. No heavy rainfall had occurred for approximately 4 days prior to sampling. Macroinvertebrate samples were taken at two sites; downstream and upstream of the surface water abstraction point. The two sampling sites are located on the Clashavoon Stream (EPA Name: Bealick) and the grid references for the sampling sites are given below. The riverbank between the two sampling sites was walked and any notable observations were recorded. The aquatic survey was repeated on 12 August 2026.

Samples were taken using a standard hand-held net (250mm width, mesh size 1mm) and comprised a 2-minute 'kick' sample with 1-minute 'stone wash'. The samples were live sorted for a minimum of 20 minutes and identified on the bankside. Macroinvertebrates were identified and abundances recorded to the level required for the Small Stream Risk Score (SSRS) method (Ryan *et al*., 2015). Taxa that are excluded from the SSRS were also identified and recorded. The abundance classes set out in the SSRS methodology are as follows:

- 1 - 5 individuals = 1
- 6 - 20 individuals = 2
- 21 - 50 individuals = 3
- 51 – 100 individuals = 4
- 101^{+} individuals = 5

Table 10-1: Location of Macroinvertebrate Sampling Sites

Site No.	Location description	Grid reference (ITM)
Site 1	Downstream of abstraction point.	536783 / 573857 (536772 / 573831)
SW abstraction point	Pump house and outfall on left riverbank upstream of man-made weir.	536873 / 574029
Site 2	Upstream of abstraction point.	536969 / 574115 9536925 / 574100)

Freshwater Pearl Mussel (*Margaritifera margaritifera*)
At sites 1 to 3, the stream was assessed for the presence of Freshwater pearl mussel (FWPM) potential habitat and potential for host fish to occur in the stream. Ecological pressures such as hydrological regime modification, land use and pollution sources were also noted within the catchment. The potential of FWMP to occur within this habitat is discussed in Section 10.4.

10.2.6 Evaluation Ecological Receptors

The evaluation and impact assessment within this report has been undertaken with reference to relevant parts of the ~~2018~~ 2024 *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland. Terrestrial, Freshwater, Coastal and Marine* - developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) as well as *Guidance on Ecological Survey and Assessment in the Republic of Ireland and Northern Ireland During the Covid-19 Outbreak* published by CIEEM in May 2020 (which was not relevant for the 2026 surveys).

The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known / published accounts of distribution and rarity where available, and professional experience:

- International (European).
- National (Ireland).
- Regional (Munster).
- County (Cork)
- Townland (Ummera).
- Local (intermediate between the Site and Townland).

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate to, for example, the quality or extent of the site or habitats therein; habitat and / or species rarity; the extent to which such habitats and / or species are threatened throughout their range, or to their rate of decline.

10.2.7 Determining Ecologically Significant Effects

The Guidelines (CIEEM, ~~2018~~2024) define an ecologically significant impact as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area.

The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified (CIEEM, ~~2018~~2024). Best scientific professional judgement has been used in some cases, to assess the significance of predicted effects in line with National Roads Authority Guidelines (NRA, 2009).

10.2.8 Precautionary Principle

The evaluation of significant effects should always be based on the best available scientific evidence. If sufficient information is not available, further survey or additional research may be required. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect should be assumed. Where uncertainty exists, it must be acknowledged.

10.2.9 Mitigation

Where significant impacts have been identified, the mitigation hierarchy has been considered, as suggested in the ~~2018~~ 2024 EcIA Guidelines (CIEEM, ~~2018~~2024) which sets out a sequential approach of avoidance of impacts where possible, application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, along with any necessary compensation measures, and opportunities for enhancement incorporated, residual impacts have then been identified.

10.3 Existing Environment

10.3.1 Protected Sites

European Designated Sites

European designated sites comprise of Special Areas of Conservation (SAC) and Special Protection Areas (SPAs). This network of European designated sites is referred to as the Natura 2000 network. SACs are designated for their biodiversity value based on the presence of Annex I habitats and Annex II species listed under the EU Habitats Directive (92/43/EEC). SPAs are designated for the protection of bird species listed on Annex I of the Bird Directive (2009/147/EC).

The Ummera gravel pit is not located within, or directly adjacent to any designated nature conservation areas.

There are 3 no. Natura 2000 sites within 15km of the study site; The Gearagh SAC (000108) (c. 3.5km southeast), The Gearagh SPA (004019) (4.6km southwest) and Mullaghanish to Musheramore Mountains SPA (004162) (c. 6.9km northwest) (Figure 10-1~~ & 10-2~~).

The Curraghanearla Stream flows in a general southwestern direction along the northern-western boundary of the site before meeting the Clashavoon Stream and discharging to the Laney River, southwest of the site (the catchment of the Laney is shown in Figure 7-1). The Laney River enters the River Sullane south of Macroom and out into the Sullane Delta where it is joined by waters flowing from the Gearagh (River Lee) – before entering the River Lee / Carrigadrohid reservoir. From here the River Lee flows towards Cork Harbour where it enters Great Island Channel SAC and the Cork Harbour SPA; 60.6km and 50.75km east of the Ummera gravel pit, respectively. Therefore, the site shares a remote hydrological connection with Great Island Channel SAC and the Cork Harbour SPA.

There is no direct hydrological link to the Gearagh SAC and the Gearagh SPA as these are upstream of the confluence of the Lee and Sullane rivers.

The groundwater flow beneath the gravel pit is not directly connected to the Gearagh SAC / SPA, nor any of the other Natura 2000 Sites within 15km. However, the groundwater likely provides baseflow to the Clashavoon Stream and Laney River, therefore a very remote hydrogeological connection exists with the site and Great Island Channel SAC and Cork Harbour SPA.

The Mullaghanish to Musheramore Mountains SPA is located to the northwest of Ummera. Watercourses draining off the SPA join the Lee west of Macroom and the River Laney upstream of the gravel pit. Groundwater flow is anticipated to follow a similar pattern; no impacts to Mullaghanish to Musheramore Mountains SPA are expected.

Natural Heritage Areas

Natural Heritage Areas (NHAs) are nationally designated sites, which are considered important for the habitat, species or geological heritage. NHAs are legally protected under the Wildlife Amendment Act 2000. Proposed Natural Heritage Areas (pNHAs) are sites that are of significance for wildlife and habitats, but which have not, as yet, been statutorily designated; however, their ecological value is recognised by Planning and Licencing Authorities.

~~There are no NHAs within 15km of Ummera gravel pit, however 5 no. pNHAs are located within 15km (Figure 10-3). The closest pNHA (Lough Gal pNHA) is located ca. 2.3km northeast of the Site. None of the pNHA sites within 15km share connectivity with the gravel pit.~~

There is one NHA within 15km of Ummera gravel pit - the Boggeragh Mountains NHA. There are six pNHAs located within 15km (Figure 10-2). The closest pNHA (Lough Gal pNHA) is located ca. 2.3km northeast of the Site. None of the pNHA sites within 15km share connectivity with the gravel pit.

All other sites designated for nature conservation are considered to be outside the potential zone of influence of the gravel pit given the separating distance (see Table 10-2); the absence of surface water pathways linking them; the absence of landscape connectivity; the localised nature of the development and / or its specific characteristics.

Nature Reserves

The Gearagh Nature Reserve is the only Nature Reserve located within 15km of the Site. This site is the largest area of alluvial woodland in Ireland; 300 ha. This site is not within the zone of influence of the project and is not considered further.

Other Non-statutory Designated Sites of Ecological Value

There are no other non-statutory designated sites of ecological value, such as, Wildlife Sanctuary, located within 15km of the gravel pit.

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Table 10-2: European Sites within 15km of Ummera

Site	Site no.	Distance	Qualifying Interests	Connectivity
The Gearagh SAC	000108	3.5km southwest	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation [3270] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0] *Lutra lutra* (Otter) [1355]	**No** There is no spatial overlap and no hydrological link between the gravel pit and the Gearagh SAC. This site is screened out and not considered further.
The Gearagh SPA	004019	4.6km southwest	Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Coot (*Fulica atra*) [A125] Wetland and Waterbirds [A999]	**No** There is no spatial overlap and no hydrological link between the gravel pit and the Gearagh SPA. Furthermore, the SPA is too remote from the quarry operation at Ummera for there to be negative impacts to birds using the SPA. This site is screened out and not considered further.
Mullaghanish to Musheramore Mountains SPA	004162	6.9km northwest	Hen Harrier (*Circus cyaneus*) [A082]	**No** There is no hydrological link between the gravel pit and Mullaghanish to Musheramore Mountains SPA. Furthermore, the SPA is too remote from the quarry operation at Ummera for there to be negative impacts to Hen Harrier in the SPA. This site is screened out and not considered further.

Table 10-3: NHA and pNHAs within 5km of Ummera

Site	Site Code	Approximate distance	Features of Interest	Connectivity
Boggeragh Mountains NHA	002447	11.6km	Boggeragh Mountains NHA consists primarily of upland blanket bog habitat. Other habitats present include heath on the slopes of the hills, headwaters and a number of small flushes and streams. Golden Plover, a Red Data Book species, occurs on the site.	**No** No hydrological connectivity or connectivity via land and air pathways. This site is screened out and not considered further.
Lough Gal pNHA	001067	2.3km	The present Natural Heritage Area includes an extensive area of freshwater marsh with abundant willow (*Salix* spp.) scrub invasion. Lesser Marshwort (*Apium inundatum*) and several pondweeds (*Potamogeton* spp.) occur on the lake. Reported a good site for wildfowl, ducks, geese and swans.	**No** No hydrological connectivity or connectivity via land and air pathways. This site is screened out and not considered further.
The Gearagh pNHA	000108	3.5km	Encompassed within The Gearagh SAC and SPA (see Table 10-2).	**No** No hydrological connectivity or connectivity via land and air pathways. This site is screened out and not considered further.
Lough Allua pNHA	001065	14.4km	Areas of alluvial woodland occur to the east of Inchigeelagh. Small islands in the braided river channel support Alder (*Alnus glutinosa*), birch (*Betula* spp.), willow, Hazel (*Corylus avellana*), Ash (*Fraxinus excelsior*), occasional oak, Ivy (*Hedera helix*) and Ramsons (*Allium ursinum*). A small population of Freshwater Pearl Mussels occurs in the permanent channels between these islands.	**No** No hydrological connectivity or connectivity via land and air pathways. This site is screened out and not considered further.
Prohus Wood pNHA	001248	9.7km	This site is a very young wood derived from widespread clearance about forty years ago (1986). The site has not developed much habitat diversity but is developing quite naturally and is of local importance. Birch (*Betula* sp.), Oak (*Querus* sp.) and Holly (*Ilex aquifolium*) are frequent, with some Willows (*Salix* sp.) and Alder (*Alnus glutinosa*) beside streams. At the lower edge thickets of Blackthorn (*Prunus spinosa*) and Hawthorn (*Crateagus monogyna*) occur with some Hazel (*Corylus avellana*).	**No** No hydrological connectivity or connectivity via land and air pathways. This site is screened out and not considered further.
Glashgarriff River pNHA	001055	4.9km	Otters use this site, a species listed under Annex II of the E.U. Habitats Directive as it is threatened in the E.U. Badgers also occur here – this species is internationally important and is listed in the Irish Red Data Book. This site includes one of the few waterfalls in the county. The flora of ferns and nonflowering plants in the glen are of interest. The presence of two protected mammal species adds further importance to the site.	**No** No hydrological connectivity or connectivity via land and air pathways. This site is screened out and not considered further.

10.3.2 Flora and Fauna (Desktop Information)

Protected / Rare Species

The National Biodiversity Data Centre (NBDC) online database[2] was searched for records within and surrounding the site; it was searched for information on protected habitats and species known from the 2km grid squares W37R and W37S within which the site is located. Bat records within 2km of the survey area were also reviewed using the NBDC website. The records returned, dated within the last 35 years, are presented in Table 10-4 below.

Table 10-4: NBDC Database Rare and Protected Flora and Fauna

Species name	Grid square	Date of last record	Source	Designation
Eurasian Badger *(Meles meles)*	W37R	02/06/2016	Mammals of Ireland 2016-2025	Wildlife Acts
Eurasian Badger	W373738[1]	2015	Badger Setts of Ireland Database	Wildlife Acts
Eurasian Red Squirrel (*Sciurus vulgaris*)	W37R	31/12/2012	Irish Squirrel Survey 2012	Wildlife Acts
West European Hedgehog (*Erinaceus europaeus*)	W37R	03/05/2016	Mammals of Ireland 2016-2025	Wildlife Acts

[1] Record from the townland of Knockarranaun to the northeast of Ummera.

The records were updated in 2026 – refer to Table 10-5.

Table 10-5: NBDC Rare and Protected Flora and Fauna - 2026

Species	Grid Square	Date of Last Record	Designation
Badger (*Meles meles*)	W37S	31/12/2006	Protected Species: Wildlife Acts
Irish Stoat (*Mustela erminea subsp. hibernica*)	W37S	20/09/2020	Protected Species: Wildlife Acts
Badger (*Meles meles*)	W37R	02/06/2016	Protected Species: Wildlife Acts
Hedgehog (*Erinaceus europaeus*)	W37R	03/05/2016	Protected Species: Wildlife Acts
Red Squirrel (*Sciurus vulgaris*)	W37R	31/12/2012	Protected Species: Wildlife Acts
Kestrel (*Falco tinnunculus*)	W37S	17/05/2020	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Blackcap (*Sylvia atricapilla*)	W37R	31/12/2011	Protected Species: Wildlife Acts
Blue Tit (*Cyanistes caeruleus*)	W37R	28/02/2021	Protected Species: Wildlife Acts
Bullfinch (*Pyrrhula pyrrhula*)	W37R	08/01/2018	Protected Species: Wildlife Acts
Coal Tit (*Periparus ater*)	W37R	28/02/2021	Protected Species: Wildlife Acts
Hooded Crow (*Corvus cornix*)	W37R	08/01/2018	Protected Species: Wildlife Acts
Jay (*Garrulus glandarius*)	W37R	21/11/2016	Protected Species: Wildlife Acts
Long-eared Owl (*Asio otus*)	W37R	27/07/2016	Protected Species: Wildlife Acts
Song Thrush (*Turdus philomelos*)	W37R	28/02/2021	Protected Species: Wildlife Acts

The absence of recent records of species from the NBDC database does not necessarily mean that it does not occur within the area, rather it has not formally been recorded as present. In addition, there are records older than 10 years for Eurasian Badger (*Meles meles*) (2006).

A data request for scientific data was summited to the NPWS for all rare/protected species; rare protected plant data; commonage areas; habitat maps and freshwater pear mussel records. The result of this request can be found in Table 10-6 below.

[2] https://maps.biodiversityireland.ie/

Table 10-6: NPWS Data Request - 2020

Taxon Common Name	Taxon Latin Name	10km Grid Square	Sample Date	Survey Name
Barn Owl	*Tyto alba*	W37	April 2009	Barn Owl Project
Barn Owl	*Tyto alba*	W37	July 2009	Barn Owl Project
Barn Owl	*Tyto alba*	W37	August 2009	Barn Owl Project
Common Frog	*Rana temporaria*	W37	September 2009	Frog IPCC data from National Frog Survey 2011
Common Frog	*Rana temporaria*	W37	March 2010	Frog IPCC data from National Frog Survey 2011
Mudwort	*Limosella aquatica*	W47	September 2014	Miscellaneous Plant Records (2015)

As detailed in Table 10-6 Mudwort (*Limosella aquatica*) was recorded within the 2km grid square of the site. These records largely relate to records from the Gearagh, to the southwest of Ummera. Mudwort is afforded legal protection in Ireland and is listed on the Flora (Protection) Order, 2015. Mudwort is described as being *of least concern* in relation to its conservation status within Ireland (Wyse-Jackson *et al*., 2016).

The NPWS data request included a GIS shapefile of FWPM records in the Lee catchment. However, due to the sensitivity of this species, this data is not included in Table 10-6 or any subsequent figures in this report; FWPM are, however, recorded in the River Laney downstream of the site.

A search of Bat Conservation Ireland's database was conducted to identify locations of bat roosts in the vicinity of Ummera. The mid-point of the site was taken as W070388. There are no known bat roosts listed within 1km of Ummera gravel pit (refer to Appendix 10-1).

When the search was extended to 10km from Ummera there were a total of 48 roosts located within the wider area. It was found that apart from roosts at a private residence at Rylane, a Ruined Cottage at Annahalla, Kilmichael, and Rockgrove House Outbuilding, Coachford (11 / 12 years ago) all other records are between 15 and 20 years old. The current status of these roosts is unknown.

Bats

The on-line mapping resource of the NBDC, allows users to search almost 2 million records available across 80 datasets. Data analysis tools enable users to refine data base searches by selecting 1km, 2km or 10km grid squares on the interactive map. All species records for the selected grid square are then available for download. The overall study area, encompassing the proposed development site is situated within the W37 10km grid square. The results of a search of the area within the W37 10km grid square, is outlined in Table 10-7 below and shows the species present and the date of the last record.

Table 10-7: NBDC Bat Records W37

Species	Last Record
Brown Long-eared Bat (*Plecotus auritus*)	10/09/2018
Common Pipistrelle (*Pipistrellus pipistrellus*)	23/06/2022
Daubenton's Bat (*Myotis daubentonii*)	23/08/2021
Leisler's bat (*Nyctalus leisleri*)	23/06/2022
Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	10/09/2018
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	23/06/2022
Natterer's Bat (*Myotis nattereri*)	10/09/2018
Whiskered Bat (*Myotis mystacinus*)	10/09/2018

The NBDC online map viewer includes an interactive layer which displays geographical areas in terms of a 'habitat suitability' index for bats. The bat suitability index ranges from 0 to 100, with 0 indicating areas considered least favourable for bats and 100 indicating areas considered most favourable for bats, in terms of habitats present. Several factors are incorporated into the model to give an overall estimate of the suitability of an area for bats, including land cover, topography, climate, soil pH and riparian habitat (Lundy, et al., 2011). The suitability index is presented for

all bat species overall, as well as by individual species. The results, outlined in Table 10-8 below, indicate that the habitats within the majority of the overall site are of moderate to high value to bats in general.

Table 10-8: Bat Habitat Suitability Index for the Study Area

Species	Bat Suitability Index
All bats	37.11
Soprano Pipistrelle	46
Leisler's bat	45
Common Pipistrelle	43
Daubenton's bat	35
Natterer's bat	47
Brown long-eared bat	54
Whiskered bat	33
Nathusius' Pipistrelle	8
Lesser Horseshoe bat	23

Protected Habitats and Species Reported Under Article 17

Under Article 11 of the EU Habitats Directive, each member state is obliged to undertake surveillance of the conservation status of the natural habitats and species in the Annexes to the Directive and under Article 17, to report to the European Commission every six years on their status. NPWS data on annexed habitats were reviewed; there are no records of Article 17 habitats located within the site (i.e. no habitats listed on Annex I of the EU Habitats Directive occur on site).

Annex I Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation [3270] has been recorded downstream of the Ummera site (NPWS, 2013).This habitat was recorded on a number of sites found on the banks of the Sullane-Lee inland delta which is referred to as 'the Gearagh' downstream of Macroom (Conaghan & Fuller, 2018). The Ummera gravel pit and connected water courses is also located within a 10km potential distribution grids squares for water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation 3260. However, due to the categorisation of this habitat type the potential distribution covers the entire country therefore this is not a clear indication of presence within the project's ZoI.

NWPS Article 17 data details the distribution of otter and FWPM within the catchment of the River Laney.

Aquatic Ecology

Surface Water/ Water Quality

On viewing the EPA map view, there are no flowing watercourses running through the active gravel pit. The Curraghanearla Stream (EPA Code: 19C86) flows in a westerly direction to the north of the site, parallel with the local road bounding the active gravel pit. The Curraghanearla stream joins the Clashavoon Stream (EPA name – Bealick Stream) at the northern boundary of the gravel pit. After this confluence the Clashovoon Stream flows in a southerly direction along the western boundary of the site.

A small unnamed stream flows north from the elevated farmland to the south of the gravel pit. It flows through the old farmyard at the south-western corner of the landholding and then follows along the proposed S37L site boundary to the southwestern, under the L-3423, discharging to the Laney River. This stream is not registered on EPA mapping (See Figure 7-2).

The Clashavoon Stream is a 3rd order stream and lies in the Sullane Water Framework Directive (WFD) sub catchment (Sullane_SC_020). The watercourse flows in a south-westerly direction, flowing under a local road, before joining the Laney River (EPA Seg Code: 19_1880) and subsequently the Sullane River. The Sullane then flows into the Carrigadrohid Reservoir meeting waters flowing out from the Gearagh SAC and SPA / the River Lee. The River Lee flows in an eastward direction through the Inniscarra Reservoir, before finally entering transitional waters at Cork City and flowing out into Cork Harbour.

The Clashavoon Stream is not sampled under the EPA's national river monitoring programme; however, the River Laney is sampled by the EPA. EPA sampling stations are located upstream and downstream of the Clashavoon – Laney confluence. The upstream station has consistently recorded High Ecological Status (Q4-5 to Q5) between 2008 and 2021, with no survey

undertaken in 2023. The downstream station has also consistently recorded High Ecological Status, with Q-values ranging from Q4-5 to Q5 between 2008 and 2023. These results indicate that the River Laney has maintained High Ecological Status throughout the monitoring period. Approximately 1.2 km upstream of the Laney–Clashavoon confluence, the River Laney has been sampled by the EPA for Water Framework Directive (WFD) assessment. WFD monitoring indicates that the upstream waterbody (LANEY_030) has maintained High Ecological Status throughout all assessment cycles (2007–2024), while the downstream waterbody (LANEY_040) was assigned Good Ecological Status during the 2013–2018 assessment cycle before returning to High Ecological Status in the 2019–2024 cycle. ~~The downstream station was last sampled 2018 and was assigned a biological water quality status of Q4-5; denoting unpolluted waters of satisfactory condition and high ecological status. In recent times the river scored Moderate status for three consecutive samples from 2012-2016; only improving lately in 2018.~~

~~Approximately 2.4km upstream the Laney-Clashavoon confluence the Laney has been sampled by the EPA. This sample site has been scored Q3-4 (Moderate) in recent times (see Table 10-7). The reduction in Q-values upstream of the confluence would suggest the upper sections of the Laney are experiencing other pressures; the Ummera gravel pit has no connection to this river section.~~

Table 10-9: WFD SW Monitoring of Waterbodies within Area (2007-~~2018~~2024)

Waterbody	Waterbody Code	WFD Status 2007-2009	WFD Status 2010-2012	WFD Status 2010-2015	WFD Status 2013-2018	WFD Status 2019-2024
LANEY_030	IE_SW_19L010400	High	High	High	High	High
LANEY_040	IE_SW_19L010500	High	High	High	~~Good~~High	High
Carrigdrohid Lake	IE_SW_19_139	Good	Moderate	Poor	Moderate	Good

Table 10-10: Q-Value recorded on the R. Laney River – ~~1973- 2018~~2008 - 2023

Year	Q-Value	Status	Q-Value	Status
	09L010400 R. Laney; upstream of Clashavoon confluence		09L010500 R. Laney; downstream of site	
~~2007~~2008	~~3-4~~ 4-5	~~Moderate~~ High	~~4~~-5	~~Good~~ High
~~2010~~2011	~~3-4~~4-5	~~Moderate~~ High	~~4~~-5	~~Good~~ High
~~2012~~2014	~~3-4~~4-5	~~Moderate~~ High	~~3-4~~ 4-5	~~Moderate~~ High
~~2013~~2017	~~3-4~~ 5	~~Moderate~~ High	~~3-4~~ 5	~~Moderate~~ High
~~2016~~2018	~~3-4~~ 4-5	~~Moderate~~ High	~~3-4~~ 4-5	~~Moderate~~ High
~~2018~~2019	4-5	High	~~4-5~~ 4-5	High
2020	5	High	5	High
2021	5	High	5	High
2023	---	---	4-5	High

Note – Data refers to EPA Segment: 19_2242.

Physical-chemical water monitoring results provided by KGEC in 2019 detailed no significant difference between samples taken up and downstream of the gravel pit. Results are provided in Table 10-11 below. Sampling points are shown on Figure 7-2.

Surface Water and Settlement Features

Presently the by-product of gravel washing at the site flows through a series of settlement ponds. Water is circulated within the ponds were water is pumped from the western pond back into the washing plant and back into the eastern pond. This is also topped up by water from the Clashavoon Stream. An emergency overflow pond is located on the west side of the site, south of the site access to road. In the event of heavy rainfall this pond will take overflow from settlement ponds. Currently this overflow pond does not have an outfall. Due to the capacity of the pond outflow here will be infrequent, only discharging periodically during prolonged periods of high rainfall via over-ground flow. See Chapters 2 and 7 for further details on flows and capacity details for settlement features at Ummera gravel pit. See Figure 7-2 for an illustration of the surface water drainage system.

A now decommissioned U-shaped settlement feature is located on the western side of road (see Figure 2-1; Site Layout Drawing). Due to upgrade works at the site no water from the site enters this settlement feature now.

The surface water runoff from the site flows to the roadside drain which flows to the Laney River (See Figure 7-2). The discharge point is located approximately 40m downstream of the Clashavoon Stream – River Laney confluence.

Table 10-11: Physio-Chemical Results of 2019 & 2026 Monitoring

Parameter	Units	Sample ID											
		SW1				SW2				SW3			
		28/5/'19	02/7/'19	5/11/'19	19/06/'26	28/5/'19	02/7/'19	5/11/'19	19/06/'26	28/05/'19	02/7/'19	5/11/'19	19/06/'26
Ammonia (NH_3)	mg/l, N	<0.2	<0.2	<0.2	0.097	<0.2	<0.2	<0.2	0.105	<0.2	<0.2	<0.2	0.087
Nitrate	mg/l, N	5.1	5.56	3.63	1.679	5.2	5.56	3.77	1.927	2.3	2.4	2.41	0.916
Nitrate	Mg/l, NO_3	---	---	---	7.436	---	---	---	8.535	---	---	---	4.057
Nitrite	mg/l, N	0.008	---	0.017	0.015	0.002	---	0.0173	0.015	0.003	---	<0.0152	0.011
Nitrite	Mg/l, NO_2	---	---	---	0.049	---	---	---	0.049	---	---	---	0.036
Orthophosphate	mg/l, P	<0.1	<0.1	0.0294	0.078	<0.1	<0.1	0.03	0.083	<0.1	<0.02	<0.02	0.069
Orthophosphate	mg/l, PO_4	---	0.108	---	0.239	---	<0.1	---	0.255	---	<0.1	---	0.212
BOD	mg/l	<4	<1	1.15	3.3	<4	<1	1.18	3.1	<4	<1	1.4	3.5
DO	O_2 (mg/l)	10.05	---	10.6	---	10.22	---	10.9	---	10.27	---	10.6	---
TSS	mg/l	<10	<2	<2	12.4	18	<2	<2	12.4	16	<2	2.45	18.0
Turbidity	NTU	---	---	---	12.28	---	---	---	11.95	---	---	---	16.95
pH	pH Units	7.41	---	7.67	7.52	7.2	---	7.68	7.35	7.38	---	7.43	7.20
Total Nitrogen	mg/l, N	5.55	---	4.03	3.039	5.69	---	4.15	3.285	2.88	---	2.62	2.228
Total Phosphorous	mg/l, P	<0.1	---	0.0556	0.169	<0.1	---	0.0574	0.170	<0.1	---	0.0393	0.179

Notes:
*SW1: Clashavoon Stream, upstream of gravel pit.
**SW2: Clashavoon Stream, downstream of original settlement ponds at bridge.
***SW3: Laney River, downstream of gravel pit and downstream of drain discharge to river.

Groundwater/ Groundwater Quality

The site is located within the Ballinhassig West groundwater body. The site is located within an area of 'High Vulnerability'. On review of the WFD Groundwater designation presented by the EPA the waterbody was found to be Good status (Table 10-12). Groundwater monitoring results provided by the EPA found the waterbody to be Good status. Groundwater seepage from the existing gravel pit drains through the central area of the extraction void. It percolates back into the gravel deposit or site, passes through a series of small ponds before discharging to a roadside drain. This drain is culverted under the public road and discharges to the Laney River.

Groundwater within the wider Ballinhassig West groundwater body has been classified as being of good status since 2007[3].

Table 10-12: WFD Groundwater Monitoring of Waterbodies (2007-~~2018~~2024)

Ground Waterbody	Code	WFD Status 2007-2012	WFD Status 2010-2015	WFD Status 2013-2018	WFD Status 2019-2024
Ballinhassig West	Ballinhassig West	Good	Good	Good	Good

Aquatic Habitats and Species

Settlement ponds are located within the northern section of the site. Amphibians such as common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) are known to use quarry ponds (Meehan, 2013); while ponds such as those on-site can provide suitable habitat for these species, silt levels are such that they are unlikely to be currently used. A small unnamed stream flows along the south-western boundary; this stream is not mapped due to its limited potential to host aquatic species.

As noted above the Clashavoon Stream is partial situated along the northern / western site boundary. Within the project zone of influence, the Clashavoon Stream and connected waterbodies hold the greatest potential to host surface water dependant habitats and species. The Sullane, of which the River Laney is a tributary, is located within the River Lee catchment and is under the management of the ESB. The establishment of two dams downstream of Macroom at Carraigadrohid and Inniscarra in the 1950's resulted in salmon stocks reducing significantly. The impact of the scheme was immediate and was related to water quality (large quantities of decomposing vegetation causing deoxygenation), discharging to the lower river from the newly flooded reservoirs upstream of Carrigadrohid and Inniscarra. Within five years of construction, the River Lee stock of salmon had collapsed (ESB, 2013). A hatchery has operated at Carrigadrohid since 1956 releasing smolt and parr downstream of Inniscarra dam.

The River Laney was noted to support good stocks of brown trout (*Salmo trutta*) and with high levels of biodiversity noted in the N22 Baile Bhuirne – Macroom EIS (McCarty Hyder, 2009). The Laney is not sampled for fish species under IFI WFD monitoring. A 2014 IFI report describes the Sullane as a riffle and glide dominated habitat, over a substrate of cobble and gravel. Brown trout was the most abundant species recorded, with salmon the second most frequently encountered; minnow, stone loach and 3-spined stickleback were also recorded during electro-fishing at the Sullane Bridge (125926 074028). The Sullane River scored Good for ecological status for 2014 WFD monitoring (Kelly *et al*., 2014).

In 2005, IFI found that fish stocks in the Inniscarra Reservoir were dominated by a large population of small to medium sized bream (*Abramis brama*), with healthy stocks of perch (*Perca fluviatilis*), roach x bream hybrids (*Abramis brama* x *Rutilus rutilus*), with rudd (*Scardinius erythrophthalmus*) and pike (*Esox lucius*) also present. IFI sampling carried out at the Inniscarra Reservoir in August 2015 found Perch was the most abundant fish species recorded, followed by roach, roach x bream hybrids, bream, gudgeon (*Gobio gobio*), eels (*Anguilla anguilla*), brown trout, pike and small numbers of salmon (*Salmo salar*) (Kelly *et al*., 2015). Brook lamprey (*Lampetra planeri*) has been recorded as spawning in the Sullane (Kurz and Costello, 1999).

There are no records for Freshwater White-clawed Crayfish (*Austropotamobius pallipes*) from the Sullane catchment. Crayfish tend to occupy river systems located in limestone catchments; due to the bedrock at Ummera it is very unlikely populations of crayfish occur here (Demers *et al*. 2005).

[3] Groundwater Quality Status https://www.catchments.ie/maps/

Freshwater pearl mussel (Margaritifera margaritifera)
The waterbodies draining the site are located within the Lee Lower *Margaritifera* Sensitive Area - designated by NPWS as a catchment of other extant populations[4], meaning there are known records of FWPM in this catchment. FWPM is protected under the Wildlife Act (1970-2000) and then secondly, as an Annex II & V species under the Habitats Directive and is extremely vulnerable to deterioration in water quality.

NPWS records indicate a small population of FWPM downstream of the gravel pit on the main channel of the River Laney (Segment Code: 19_1880) just downstream of the Clashavoon – Laney confluence (Source: NPWS Dataset Accessed 2020). No FWPM were noted on the section of the Clashavoon, which runs along the western / northern boundary of the gravel pit, during site surveys for this assessment.

Downstream, live populations of FWPM were recorded between 1987-2006 at the Laney-Sullane confluence (Source: NPWS dataset); however, during field survey work in 2007 by E. Moorkens, only dead shells were found here. A survey was carried out in 2018 along the proposed N22 corridor which included the site of the Laney-Sullane confluence. The surveyor found no mussels at this location; however the survey effort terminated at the Laney Bridge and did not extend into the upper reach of the watercourse were live mussels have been recorded in the past (Hibernica, 2018).

Invasive Species
Non-native invasive species should be considered as a potential risk to ecological diversity on site and its environs. The European Communities (Birds and Natural Habitats) Regulations 2011 S.I. 477 detail the legal context regarding the introduction and dispersal of certain non-native invasive plants and animals. Section 49 and 50 of the Regulations specify that it is an offence to disperse or spread any plant species or associated vector material listed on the 3rd Schedule of the Regulations.

No species listed under the 2011 Regulations were recorded within the 2km grid square (W37R and WS75) on the National Biodiversity Data Centre database. The closest stand of Japanese knotweed (*Fallopia japonica*) recorded on the NBDC database was in 2018 at Gearagh, Garranereagh, Co. Cork (W329707).

10.3.3 Field Survey Results

Habitats within Section 37L (S37L) Boundary
The habitats within the Site (i.e. area considered for this application for under Section 37L of the Planning and Development (Amendment) (No. 2) Regulations) as mapped in 2019 are shown on Figure 10-4 and are individually described and evaluated in the following text. The Site's boundary is featured here as a continuous red line and referred to Site Boundary within the text. The approach to determining ecological importance of the Site is set out in Section 10.2 and is based on CIEEM (2018) guidance.

A habitat survey of the site was undertaken in April and August 2026 in accordance with the Heritage Council's A Guide to Habitats in Ireland (Fossitt, 2000). The habitats recorded within the application site, as mapped in 2026, are illustrated in Figure 10-3 and comprise active quarries and mines (ED4), recolonising bare ground (ED3), spoil and bare ground (ED2), mosaics of spoil and recolonising bare ground (ED2/ED3), other artificial lakes and ponds (FL8), mixed broadleaved woodland (WD1), scrub (WS1), buildings and artificial surfaces (BL3) and (semi-)improved agricultural grassland (GA1).

Active Quarries and Mines (ED4)
This habitat was recorded within the gravel pit around the areas of active gravel extraction, recently deposited heaps of sorted aggregate and spoil along with active tracks and set down areas (see Plate 10-1). ED4 was found to be the most extensive semi-natural habitat on site. The active quarry habitat also contained a large washing / screening plant and loading bays. No vegetation was recorded in this habitat due to the high rates of disturbance. ~~This habitat is of **negligible ecological significance**.~~ However, active Sand martin (*Riparia riparia*) nest burrow clusters were located at 2 no. locations within the active southern faces on the southern side of the gravel pit; with nests also noted east of the washing plant on an inactive face.

[4] http://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=2fae3c393baa4b79b7dfb1e3c19f3fab



Plate 10-1: Active Quarry Habitat

Active Quarries and Mines (ED4) was the dominant habitat recorded within the site and occupied the majority of the central quarry floor where active extraction, processing and stockpiling operations are undertaken. This habitat comprised actively worked gravel extraction faces, haul roads, stockpiles of processed aggregate, loading areas and operational infrastructure associated with the quarry. Ongoing extraction activities result in regular disturbance, preventing the establishment of vegetation across much of the habitat.

The habitat supports little or no vegetation due to the continual movement of machinery and regular disturbance of the substrate. However, exposed quarry faces within the active workings continue to provide suitable nesting habitat for Sand Martin (Riparia riparia), with several active and inactive nesting colonies recorded during the 2026 breeding bird surveys.

The active quarry habitat is a highly modified environment with negligible ecological value, as such it is classified as Local Importance (Lower Value). Nevertheless, the exposed quarry faces provide an important breeding resource for Sand Martin.



Plate 10-2: Active Quarry Habitat - 2026

Spoil and Bare Ground (ED2)

This habitat was recorded within the western section of the Site in the form of an access road to the gravel pit from the public road and unvegetated spoil heaps – see Plate 10-~~2~~3. The roadway was c. 4 m wide and was made of gravel. The habitat was not vegetated due to the regular traffic from the site.

Recently a small section of Scrub (WS1) land was excavated to install the new emergency overflow pond at the site, forming an open exposed trench along the sites access road (See Plate 10-~~2~~3). Given water will only enter this pond when the current settlement ponds reach maximum capacity and much of the water entering this pond will be filtered through the gravely soil substrate it thought this habitat will largely remain dry and therefore ED2 in the short-term. While in the medium to long-term sections of standing water (FL8) may well form, with recolonising bare ground (ED3) and transitional scrub forming along the pond banks and dryer sections. Furthermore, during these

improvement works are the site an additional pond has been added to the existing settlement pond complex located in the north of the site. While this pond was filled with water from the washing propose the adjoining areas of the pond are now bare ground (ED2) habitat which will in the medium to long-term from recolonising bare ground.

Spoil and Bare Ground (ED2) onsite is a man-made habitat which supports little to no ecological receptors ~~and is of ***negligible ecological significance***~~.



Plate 10-3: Bare Ground Habitat

Spoil and Bare Ground (ED2) was recorded within the application site in the form of the main access road to the gravel pit from the public road together with discrete areas of exposed spoil and bare ground associated with the ongoing operation of the quarry. The access road is approximately 4 m wide and comprises a compacted gravel surface. Additional areas of this habitat were recorded adjacent to the active extraction areas, around stockpiles of processed aggregate and spoil, and surrounding sections of the settlement pond complex where recently deposited gravel and exposed substrates remain largely unvegetated. The habitat was largely devoid of vegetation due to the regular movement of vehicles and quarry machinery and the continual disturbance associated with quarry operations.

In the southern part of the site, Spoil and Bare Ground (ED2) occurs in mosaic with Recolonising Bare Ground (ED3), where areas of exposed gravel and spoil are interspersed with naturally established vegetation.

Spoil and Bare Ground (ED2) is a recently disturbed, man-made habitat that supports little vegetation due to the continual disturbance associated with quarry operations. Although the habitat is of limited botanical value, it contributes to the overall habitat mosaic within the site and has the potential to undergo natural succession where disturbance ceases. It is therefore considered to be of Local Importance (Lower Value).



Plate 10-4: ED2 habitat - 2026

Recolonising Bare Ground (ED3)

During the July and December 2019 surveys this habitat was frequently recorded across the gravel pit in the form of spoil heaps and other areas of low disturbance within the site where vegetation has begun to recolonise the exposed /disturbed surfaces. The resulting vegetation was diverse and flower-rich and supported a range of invertebrate species. The spoil heaps to the north of the site compound supported the following species: - frequent common ragwort and heath speedwell along with occasional selfheal, white clover, common centaury, creeping thistle, bramble, greater birds-foot-trefoil, gorse, grey willow, alder, Yorkshire fog, sweet vernal grass, common bent grass, trailing and St John's-wort. Rosebay willowherb, spear thistle, downy birch, sheep sorrel and heartsease occurred rarely. Springy Turf-moss (*Rhytidiadelphus squarrosus*) was abundant in places along with lichen species. The presence of sapling tree species along with bramble and gorse indicates some of this habitat is under succession to scrub in the absence of any further disturbance this habitat is denoted as WS1 Scrub - ED3 Recolonising bare ground on the habitat map.



Plate 10-5: Recolonising Bare Ground

ED3 habitat was recorded in the southern side of the site in the form of a bank along the edge of the active face of the gravel pit. Creeping thistle, Common ramping fumitory, curled dock, false oat grass and fat hen were frequently recorded. Yorkshire fog, prickly sow thistle, redshank, nettle, common ragwort, creeping buttercup, spear thistle, thyme-leaved speedwell, heartsease, common chickweed, common mouse-ear, black bindweed and knotgrass (*Polygonum* sp.) were occasionally recorded. Shepherd's purse and heath groundsel were rarely recorded.



Plate 10-6: Recolonising Bare Ground

This habitat was also recorded in the northern side of the gravel pit where a large settlement pond had dried out and the former bed of the pond is being recolonised by plants. Common ragwort and horsetail (*Equisetum* sp.) were frequently recorded along with American willowherb. Yorkshire fog, prickly sow thistle, marsh ragwort and hoary willowherb were recorded occasionally. Curled dock, reed canary grass and great willowherb occurred rarely. As part of routine operations, the pond has since been cleaned out and filled with water. These habitats are transient in nature depending on ongoing quarrying operations.



Plate 10-7: Recolonising Bare Ground Habitat

The recolonising bare ground host common species not listed as rare, but which provide a semi-natural habitat ~~which is of some local importance for wildlife and therefore this habitat is classified as local importance (lower value).~~ A third Sand martin colony was located on an inactive quarry face on the eastern side of the gravel pit. Potential importance for nesting Sand Martin is discussed is Section 10.6.4.

Recolonising Bare Ground (ED3) was recorded throughout previously worked areas of the application site where natural vegetation has become established on disturbed quarry substrates. The habitat occurs principally within inactive areas of the quarry where disturbance has reduced, allowing pioneer and early successional vegetation to develop.

Vegetation varied depending on substrate conditions and the stage of succession. Frequently recorded species included Creeping Thistle (*Cirsium arvense*), Common Ramping-fumitory (*Fumaria muralis*), Curled Dock (*Rumex crispus*), False Oat-grass (*Arrhenatherum elatius*), Fat Hen (*Chenopodium album*), Common Ragwort (*Jacobaea vulgaris*), Heath Speedwell (*Veronica officinalis*), Yorkshire Fog (*Holcus lanatus*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Common Bent (*Agrostis capillaris*), St. John's-wort (*Hypericum* spp.), White Clover (*Trifolium repens*), Selfheal (*Prunella vulgaris*), Common Centaury (*Centaurium erythraea*), Greater Bird's-foot-trefoil (*Lotus pedunculatus*), Common Nettle (*Urtica dioica*), Creeping Buttercup (*Ranunculus repens*), Prickly Sow-thistle (*Sonchus asper*), Redshank (*Persicaria maculosa*), Spear Thistle (*Cirsium vulgare*), Thyme-leaved Speedwell (*Veronica serpyllifolia*), Heartsease (*Viola tricolor*), Common Chickweed (*Stellaria media*), Common Mouse-ear (*Cerastium fontanum*), Black Bindweed (*Fallopia convolvulus*) and Knotgrass (*Polygonum aviculare*). Rosebay Willowherb (*Chamerion angustifolium*) and Sheep's Sorrel (*Rumex acetosella*) were recorded occasionally. Springy Turf-moss (*Rhytidiadelphus squarrosus*) and various lichen species were abundant in places.

This habitat represents an early stage in the natural succession of previously disturbed quarry ground and contributes to the diversity of habitats present within the application site. In the absence of continued disturbance, these areas are likely to continue develop into scrub and woodland habitats. It is therefore considered to be of Local Importance (Lower Value).



Plate 10-8: Plate 10-3 ED3 Habitat - 2026

Depositing River (FW2)

The Clashavoon Stream (Plate 10-6) forms part of the western margin of the S37L application boundary. The stream was found to have a wetted width of c. 4 m and had a pool-riffle-glide morphology. The riverbed consisted of 20 percent boulder, 30 percent cobbles, 40 percent gravels and 10 percent fine sediment. During the site visit, the water level and flow rates were relatively high for the channel. The riparian vegetation was willow dominated dry woodland. This habitat is of ***County importance*** due to its potential to host otter (listed on Annex II of the Habitat Directive) as well as other species such as salmonids – i.e. brown trout.



Plate 10-9: Depositing Lowland River (FW2)

Drainage Ditch (FW4)

During the December 2019 survey a small drain (Plate 10-10) was recorded along the edge of the public road southwest of the gravel pit entrance and along the main entrance track to the gravel pit.

The entrance track and roadside drain was c. 3 cm wide and 5-10 cm deep and carried surface water from the gravel pit and public road to the southwest along the road before crossing under the road via culvert into a deeper drain (c. 2 m deep, c. 1 m wetted width) with more slow moving/standing water on the western side of the road which eventually flowed to the River Laney. This drain has limited potential for aquatic species or habitat and likely dries; it was not flowing during the July 2019 survey. ~~This a man-made drain which supports little to no ecological receptors and is of ***negligible ecological significance***.~~



Plate 10-10: Drainage Ditch (FW4)

A drainage ditch (FW4) was recorded along the edge of the public road southwest of the gravel pit entrance and extending along the main site access road. During the 2026 survey, the ditch was dry and heavily vegetated for much of its length.

The drainage ditch is a shallow, man-made feature which conveys surface water during periods of rainfall. At the time of the survey, no standing or flowing water was present. The ditch supported common ruderal and grassland vegetation typical of roadside drainage features and provides limited ecological value. However, it may provide temporary habitat for common invertebrates and amphibians during wetter periods.

The drainage ditch is considered to be of **Local Importance (Lower Value)**.



Plate 10-11: Drain Along Access Road – 2026

Other Artificial Lakes and Ponds (FL8)

This habitat was recorded within the northern and western section of the gravel pit during the July and December 2019 surveys. A large pond used to settle out fine sediment is located close to the northern boundary of the site. During the July site visit, the water was judged to be c. 1 to 2m at the deepest section of the pond and sediment laden. No floating vegetation was observed on the pond.



Plate 10-12: Western Settlement Pond (July 2019)

A second smaller settlement pond is located within the north-western section of the gravel pit; this was dry when viewed in the July 2019 survey and subsequently flooded at the time of the December site visit. No aquatic vegetation was recorded here. This habitat is denoted as ED3 Recolonising bare ground - FL8 Other artificial lakes in the Habitat Map; Figure 10-4.

A third smaller area of ponding surface water was also noted. This was found to be dry the July 2019 survey and filled with c. 10 - 30 cm during the December 2019 survey. This habitat is denoted as ED3 Recolonising bare ground - FL8 Other artificial lakes on the Habitat Map; Figure 10-4

Since the 2019 site surveys were undertaken, works to improve surface water retention on site took place. During these works an additional settlement pond was added to the pond complex in the northern section of the site; this is located to the east of the existing ponds. Also, the second large pond located in the northern section of the gravel pit was split into two ponds. These works removed ED2 habitat and filled the pond with water from the washing plant. While the new pond is consistent with pond habitat (FL8), its adjoining areas now bare ground (ED2). Given the nature of site it is thought the adjoining areas of the new pond will regenerate with species found within the seed bank of the site will once again colonise the area forming Recolonising Bare Ground (ED3).

Given that these ponds have ongoing maintenance requirements with water being continuously recirculation, the water levels fluctuate and with high levels of silt present, the potential for colonisation of plants and species within the ponds is limited.

While the settlement ponds did not support notable aquatic vegetation, standing waterbodies are generally scarce in the agricultural landscape of Cork. When lightly used or restored, such habitats can provide important forging habitat for bats; as well as habitat for invertebrates, amphibians and birds. ~~Such habitat is therefore of ***local importance (lower value).*** However, in their current state they are of **negligible value** ~~(see Plate 10-13).



Plate 10-13: Western Settlement Pond (December 2019)

Other Artificial Lakes and Ponds (FL8) were recorded within the application site and comprised the settlement pond complex associated with the gravel washing operations in the northern part of the site together with an additional artificial pond located adjacent to the site access road. These ponds form part of the quarry's surface water management system and vary in size and water level depending on operational requirements.

The ponds are characterised by areas of open water with exposed gravel, sand and fine sediment around their margins. The banks are generally steep and sparsely vegetated due to fluctuating water levels and periodic disturbance associated with the operation of the quarry. Limited areas of marginal vegetation have established around parts of the ponds, while recently exposed substrates support only scattered pioneer vegetation. Mallard (*Anas platyrhynchos*) was recorded utilising the ponds during the ecological surveys.

Although artificial in origin, the ponds increase habitat diversity within the application site by providing permanent aquatic habitat and supporting common waterbirds. They also provide suitable habitat for aquatic invertebrates and other common fauna associated with standing water. They are therefore considered to be of Local Importance (Lower Value).



Plate 10-14: Settlement Ponds – 2026

Scrub (WS1)

This habitat was recorded across the site and wider landholding (see below) with frequent gorse and bramble along with occasional bracken, grey willow and downy birch. A large area of scrub within the site boundary occurs in the north and western sections of the site, around the edge of the active gravel pit, and where areas of spoil have been left undisturbed. Most of the scrub on site is ca. 3m high and dense.

Isolated sections of less dense scrub were also noted within the southern and eastern section of the site growing within areas of recolonising bare ground (WS1/ED3). Scrub is common within the environs of the site and it does provide cover and potential nesting habitat for birds ~~and therefore it is classified as being of ***local ecological importance (lower value)***~~**.**



Plate 10-15: Scrub Habitat

Scrub was also recorded south of the site access road and (Plate 10-15) and consisted of frequent grey willow and bramble along with occasional gorse. Bracken and immature alder trees were recorded occasionally. A single mature Sessile oak was recorded. Nearby bramble and bracken dominated scrub encroached around the margins of the neutral grassland habitat. Soft rush, yellow flag and Yorkshire fog were also occasionally recorded in the latter. Scrub is common within the environs of the site; however, it does provide cover and potential nesting habitat for birds ~~and therefore it is classified as being of ***local ecological importance (lower value)***~~**.** Note this habitat is located in the area proposed for further extraction.



Plate 10-16: Scrub Adjacent to the Clashavoon Stream

Another area of scrub was recorded within the S37L boundary north of the ruined farmyard complex (within the south-west corner of the study area) and continued down slope and north to the road. The species present consisted of abundant bramble and bracken as well as frequent nettle. Common hogweed, ivy, ground ivy and gorse were recorded occasionally. Creeping buttercup, germander speedwell and scattered bushes of hawthorn, elder, semi mature ash and downy birch were recorded rarely.

While, such scrub is common in the local area, it is of value as it forms an ecological corridor, connecting the site and the Clashavoon Stream / Laney River valley ~~where this habitat is considered to be ***local ecological importance (higher value)***~~**.** Note examples of this habitat is located in the area proposed for further extraction.



Plate 10-17: Bracken Scrub Habitat
Note - WD1 woodland in background

Scrub (WS1) was recorded throughout the application site, occurring principally along quarry margins, disturbed ground and transitional areas between woodland and open habitats. The scrub is dominated by Gorse (*Ulex europaeus*), with Grey Willow (*Salix cinerea*) forming dense stands in places. Downy Birch (*Betula pubescens*) and Alder (*Alnus glutinosa*) occur frequently as immature or stunted trees throughout the scrub, together with abundant Bramble (*Rubus fruticosus* agg.).

This habitat represents an early successional community comprising predominantly native species and provides valuable nesting, foraging and sheltering habitat for birds, mammals and invertebrates. It also contributes to habitat connectivity throughout the application site. It is therefore considered to be of Local Importance (Higher Value).



Plate 10-18: Scrub Habitat in Background - 2026

WD1 (Mixed) Broadleaved Woodland

A northern spur of WD1 woodland was located along the public road to the east. Ash was recorded occasionally with holly and hawthorn bushes recorded frequently along with occasional elder. Bramble and nettle were frequent in the field layer along with abundant ivy. (See Plate 10-2 above). Note this habitat not located in the area proposed for further extraction.

During the December 2019 survey a second area of mixed broadleaved woodland (WD1) was recorded outside the gravel pit; around the ruined farmyard to the west.

Two areas of Mixed Broadleaved Woodland (WD1) were recorded within the application site.

A small pocket of woodland occurs in the northern section of the site. This woodland extends beyond the site boundary and adjoins the public road. Downy Birch (*Betula pubescens*) and Sycamore (*Acer pseudoplatanus*) were the principal tree species recorded, with occasional Grey Willow (*Salix cinerea*) and Ash (*Fraxinus excelsior*). Mature Oak (*Quercus sp.*) was also recorded growing alongside the public road.

A second area of Mixed Broadleaved Woodland occurs in the southern section of the site. This woodland is dominated by Sycamore, with occasional Elder occurring within the understorey. The ground layer included Bramble, Common Nettle, abundant Lesser Celandine, Bluebell, Speedwell, Ground-ivy, Herb-Robert and Common Hogweed.

A derelict stone farm building and associated outbuildings are located within this woodland area but outside the red-line boundary of the application site.

The woodland areas comprise predominantly common tree, shrub and ground-flora species and provide habitat for birds, mammals and invertebrates. They are considered to be of Local Importance (Higher Value).



Plate 10-19: WD1 Habitat - 2026

Willow Dominated Dry Woodland (WN)
[Note – this is mapped as semi-natural woodland (WN) in the 2026 habitat survey].

Three instances of this habitat were recorded within the site boundary; two wooded areas east of the public road - these areas were located on dry, steeply sloping and uneven ground; a third area of native woodland was found on the opposite side (west) of the public road on the bank of the Clashavoon River.

The two wooded areas east of the public road consisted of abundant grey willow along with occasional alder. Downy birch, sycamore and ash occurred rarely. These trees were semi-mature and grew to ca. 6m to 8m tall. The field layer contained frequent bramble, bracken, ivy and nettle. A range of species were recorded occasionally in the field layer, including gorse, greater woodrush, honeysuckle, wood avens, broad buckler fern, creeping buttercup, thyme-leaved speedwell, harts-tongue fern, wood speedwell, bugle and scaly male fern. Common figwort, common ragwort, gorse, selfheal and wood sage occurred rarely.

This habitat does not fit well with any semi-natural woodland categories outlined in Fossitt (2000); it appears to be a successional stage from willow scrub to more open woodland; the ground flora does, however, show some affinities with WN1 / WN2; most likely due to the young age of the woodland. The habitat consists of common species of tree and ground flora and contains small areas of semi-natural habitat that are of some local importance for wildlife. ~~It is therefore considered to be of *local importance (higher value)*~~**.** This habitat is also of importance for bats as it has been identified as excellent foraging site for bat communing through the Clashavoon Stream / Laney River valley; as it makes up a part of a linear habitat connected to the River Laney (this is discussed below).



Plate 10-20: Willow Dominated Dry Woodland (WN)



Plate 10-21: Willow Dominated Dry Woodland (WN)

The third and largest area of native woodland is located along the Clashavoon Stream, west of the public road. This area of woodland consists of frequent grey willow and occasional alder in the canopy along with rarely occurring elder, hawthorn and immature ash in the understory. The field layer includes abundant bramble and frequent ivy. Given this woodland and associated settlement feature (see FL8 habitat below) were established as part of the extraction operations in the late 1970's it would suggest that it should be classified as modified broad-leafed woodland (WD1). However, the ground flora found within this habitat is more typical of native woodland (WN), suggesting that a more natural woodland has become established over time.

Harts-tongue fern, scaly male fern, soft shield fern, broad buckler fern and great horsetail were recorded occasionally. Nettle, wood avens, opposite-leaved golden saxifrage, soft rush, greater woodrush and creeping buttercup were recorded rarely. A settlement pond is located within the habitat with the woodland habitat growing on raised banks (ca. 1-2 m) around this structure. No inundation or flooding from the Clashavoon stream is likely to occur as the adjacent bank rises steeply from the stream edge and the ground level stands ca. 5-6 m above the water level. The trees in the woodland grew to c. 10-15 m high and were all of similar age class.

The habitat consists of common species of tree and ground flora and contains small areas of semi-natural habitat that are of some local importance for wildlife. It is therefore considered to be of local importance (higher value). This habitat holds importance for bats as it has been identified as excellent foraging / commuting area for bats in the valley of the Clashavoon Stream / River Laney.



Plate 10-22: Willow Dominated Dry Woodland (WN) West of Clashavoon Stream

Semi-natural Woodland (WN)

Semi-natural Woodland (WN) was recorded within the western part of the application site, where it forms a broad belt along the quarry boundary and extends into adjacent woodland beyond the site boundary. This woodland is dominated by Grey Willow (*Salix cinerea*) in many areas, with Downy Birch (*Betula pubescens*) and Alder (*Alnus glutinosa*) also occurring throughout the woodland. Occasional Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*) and immature Ash (*Fraxinus excelsior*) were also recorded.

The ground flora varied throughout the woodland depending on local conditions but was generally characterised by ferns, Horsetail (*Equisetum* spp.), Common Nettle (*Urtica dioica*), Greater Wood-rush (*Luzula sylvatica*), Creeping Buttercup (*Ranunculus repens*) and Wood Avens (*Geum urbanum*).

This habitat provides structurally diverse woodland comprising predominantly native tree and shrub species and supports a range of birds, mammals and invertebrates. It also contributes to the ecological connectivity of the application site with the surrounding woodland network. It is therefore considered to be of Local Importance (Higher Value).



Plate 10-23: Semi Natural Woodland in Background - 2026

Wet Willow-Alder-Ash Woodland (WN6)

[Note – this is mapped as semi-natural woodland (WN) in the 2026 habitat survey].

A small area of this habitat was recorded just within the northern side of the site boundary adjacent to the settlement pond. Alder was abundant along with occasional grey willow. Ash was recorded rarely. The field layer consists of frequent bramble, soft rush and creeping buttercup. Wood horsetail and wood speedwell were frequently recorded along with occasional nettle, wood avens and cleavers. Drainage ditches (FS4) ca. 1m deep with pipes from the settlement ponds were observed in the habitat. The trees were semi-mature growing to ca. 10 m in height. The pattern and age class of the trees indicates that the trees in this habitat may have been planted to provide screening of the gravel pit from the public road.

This habitat did not correspond to the 'Alluvial forests' (91E0) priority habitat listed on Annex I of the EU Habitats Directive as it does not contain sufficient positive indicator species, as well as the uniform age class of the trees present and absence of mature or dead trees (based on monitoring criteria outlined by Perrin *et al*., 2008). The habitat consists of common species of tree and ground flora and contains small areas of semi-natural habitat that are of some local importance for wildlife namely foraging and nesting birds. ~~It is therefore considered to be of **local importance (higher value).**~~ This habitat holds importance for bats as it has been identified as excellent foraging / commuting area for bats in the valley of the Clashavoon Stream / River Laney.



Plate 10-24: Wet Willow-Alder-Ash Woodland Habitat

Hedgerow (WL1)

[This is mapped at Treeline (WL2) in the 2026 survey].

A length of hedgerow was recorded along the southern S37L site application boundary; it is separated from the active gravel pit by an area of dry meadow (as shown on Plate 10-25). The species present were bracken which was abundant along with frequent bramble and occasional elder and blackthorn. This feature is not species-rich and is of limited intrinsic ecological value; however, it is some local importance for local wildlife and forms an ecological link between the site and the valley of the Clashavoon Stream / River Laney. It is considered to be of ***local importance (higher value).*** Note this habitat is also the forms part of the southern land ownership boundary.



Plate 10-25: Hedgerow near the Southern Site Boundary

Treeline (i) (WL2)

A treeline was recorded on the southern and western side of the study site where mature ash and sycamore were recorded frequently along with poplar (*Populus* sp.); elder and hawthorn were recorded rarely. This treeline grew to ca. 20 m high. Along the boundary of the ruined farmyard the species present included sycamore, which was dominant in the treeline, and ash which was rarely recorded. Blackthorn grew frequently under the treeline along with elder and hawthorn which occurred rarely. The mature trees grew ca. 15-20 m high. Note this habitat is partially located in the area proposed for further extraction.

This habitat continues outside the S37L boundary forming the part of the land ownership boundary to the south.



Plate 10-26: Treeline along the Eastern Side of the Site

The treeline named above continues east, re-joining the S37L boundary, where it bounds a small cottage to the south of the site. This treeline comprised of similar composition the tree line above where blackthorn features along with elder and hawthorn occurring rarely. The mature trees grew ca. 15-20 m high and continues along the ditch forming the land ownership boundary.

Treeline (ii) (WL2)

A section of treeline was recorded within the S37L application boundary at the northeast corner of the site; separated from the gravel pit by an area of dry meadow. This habitat consists of abundant semi-mature sycamore and leyland cypress along with occasional ash. Blackthorn was recorded frequently growing beneath the mature trees. The trees grew to a height of ca. 10 m. Note this habitat is partially inside S37L boundary as it continues along the land ownership boundary to its north-eastern corner. While such habitat is common in the local area, here both treelines are of value as they form an ecological corridor, connecting the southern section of the site and the Clashavoon Stream / Laney river valley. It is considered to be of ***local importance (higher value).*** Bats were found to forage around the southern treeline (see below for commentary on significance for bat species).



Plate 10-27: Treeline along the North-eastern Side of the Site

A treeline (WL2) was recorded in the southern section of the application site, where it extends into an adjoining area of Mixed Broadleaved Woodland (WD1). The treeline is dominated by mature Sycamore (*Acer pseudoplatanus*) and forms a well-established linear landscape feature. The mature trees provide habitat for birds, bats and other fauna, while also contributing to ecological connectivity within the southern part of the site. The treeline is therefore considered to be of Local Importance (Higher Value).

Dry Meadows and Grassy Verges (GS2)

This habitat was recorded within the southern section of the site boundary. The species present included abundant false oat grass along with frequent creeping thistle. Common bent grass, Yorkshire fog, common ragwort, creeping buttercup, common mouse-ear and patches of cut leaved cranes-bill were recorded occasionally. Sweet vernal grass, germander speedwell, cocksfoot, common hogweed, white clover and tufted vetch were recorded rarely. The sward was high (c. 60 cm), coarse and lodged in places. During the December 2019 site visit it was noted this field had been cut for silage.

The habitat does not correspond to the 'lowland hay meadows' (6510) habitats listed on Annex I of the EU Habitats Directive due to the absence of high-quality indicator species, insufficient numbers of positive indicator species and excessive cover of negative indicator species based on the monitoring criteria set out in the Irish semi-natural grasslands survey 2007-2012. This is a semi-natural habitat comprised of non-threated plants species, however it is a habitat which hosts foraging areas for invertebrates and mammals and is of high biodiversity in a local context with a high degree of naturalness. ~~Therefore, it is of ***local importance (higher value).***~~ Note this habitat is located in the area proposed for further extraction.



Plate 10-28: Dry Meadows and Grassy Verges Habitat

Dry Meadows and Grassy Verges (GS2) were recorded within the southern part of the application site where they comprise a managed agricultural field. The field is cut annually for hay/silage and receives fertiliser inputs but retains a moderately diverse grassland sward.

The grassland is dominated by Common Bent (Agrostis capillaris) and Yorkshire Fog (Holcus lanatus). Common Ragwort (Jacobaea vulgaris), Creeping Buttercup (Ranunculus repens), Common Mouse-ear (Cerastium fontanum) and patches of Cut-leaved Crane's-bill (Geranium dissectum) were recorded occasionally. Sweet Vernal-grass (Anthoxanthum odoratum), Germander Speedwell (Veronica chamaedrys), Cocksfoot (Dactylis glomerata), Common Hogweed (Heracleum sphondylium), White Clover (Trifolium repens) and Tufted Vetch (Vicia cracca) were recorded rarely.

Although managed for agricultural production, the grassland supports a range of common grasses and herbaceous species and provides habitat for invertebrates and foraging birds. It is therefore considered to be of Local Importance (Higher Value).



Plate 10-29: GS2 habitat 2026

Wet grassland (GS4)

[This habitat was not recorded during the 2026 survey; it is included in the dry meadows and grassy verges (GS2) habitat].

A small area of wet grassland was recorded within the S37L site boundary, within the dry meadow habitat, south of the active gravel pit, close to the adjacent cottage. Soft rush, sweet vernal grass, common bent grass, and Yorkshire fog were recorded frequently. Greater birds-foot-trefoil and jointed rush were recorded occasionally. White clover was recorded rarely. This semi-natural habitat comprised of species common to the area and it serves as a foraging area for local invertebrates and birds. ~~Therefore, is of **local importance (higher value).**~~ Note this habitat is located in the area proposed for further extraction.



Plate 10-30: Wet Grassland Habitat

Neutral Grassland (GS1)

[This habitat was not recorded during the 2026 survey].

This habitat was recorded within the southwest corner of the S37L boundary north of the ruined farmhouse and farmyard. The species present included abundant Yorkshire fog, frequent creeping bent grass along with occasional false oat grass. Red fescue was rarely recorded. Creeping buttercup and creeping thistle were recorded frequently. Common ragwort, common nettle, common sorrel and germander speedwell were recorded occasionally. Soft rush, common mouse ear and white clover were recorded rarely.

Areas of disturbed soil due to extensive rabbit burrowing within the field contained field woodrush, ribwort plantain and sheep sorrel. The sward varied between small areas of short cropped vegetation from rabbit grazing but was mostly longer rank areas which were ca. 40 cm high and were lodged and/or tussocky. A change in ground levels in the field indicates that this area may have been used for small scale aggregate extraction in the past. The habitat is species poor and contains indicator species of agricultural improvement (common mouse ear and white clover; O'Neill *et al*., 2013) and enrichment (nettle). It is likely that this field was previously improved/semi-improved for agriculture when the adjacent farmyard was more active but has now become rank and unimproved in the absence of any management. Scrub habitat was recorded encroaching around the edges of the field. No recent management was observed with rabbit grazing the sole evidence of any recent grazing. As a result of past patterns of land use, this habitat did not fit well with the semi-natural grassland habitats listed in Fossitt (2000); it has been classified as neutral grassland due to the absence of a mowing regime within the habitat in contrast to the field adjacent to the active gravel pit which is mown for silage bales annually. This habitat contains common species and is a semi-natural habitat of some local importance; it is considered to be of ***local Importance (lower value).*** Note this habitat is located in the area proposed for further extraction.



Plate 10-31: Neutral Grassland (GS1)

Remaining Habitats within the Land Ownership

In line with best practice the lands adjacent to the Section S37L site boundary, but within the ownership boundary were surveyed and habitats recorded. The following section details the habitats recorded outside of S37L boundary but within the ownership of DWCL.

Depositing Lowland River (FW2)

As noted above the Clashavoon Stream forms part of the western boundary of the S37L application. The Curraghanearla Stream forms the north-eastern section of the land ownership boundary where its joins the Clashavoon and forms the remaining section of the north and western land ownership boundary. It was found that the Clashavoon Stream has a wetted width of c. 4 m and had a pool-riffle-glide morphology. The riverbed consisted of 20 percent boulder, 30 percent cobbles, 40 percent gravels and 10 percent fine sediment. During the site visit, the water level and flow rates were relatively high for the channel.

The riparian vegetation to the southwest was found to be willow dominated dry woodland, treeline, scrub and wet grassland on the eastern and southern side of the stream. Along the bank to the northeast the Curraghanearla Stream was bound by grassland to the south and improved grassland to the north. This habitat is of County importance due to its potential to host salmon and otter (species lists Annex II of the Habitat Directive and Wilf Acts).

Mixed Broadleaved Woodland (WD1)

This habitat was recorded immediately outside the gravel pit to the northeast. During the July 2019 and 2026 surveys this habitat was found to consist of frequent downy birch and sycamore with occasional grey willow and ash. This woodland consisted of semi-mature trees growing to c. 8 to 10 m with occasional mature oak (*Quercus* sp.) and ash growing to c. 20 m along the public roadside. This habitat does not contain rare or threated species, nor is it important at a regional level[5]. It does, however, act as an important ecological corridor in the Clashavoon Stream / Laney River corridor; and has been identified an important foraging / commuting area of bats. It is therefore considered to be of ***local importance (higher value).*** Note this habitat is outside the S37L boundary but is within the land ownership boundary.

During the December 2019 and 2026 surveys a second area of mixed broadleaved woodland (WD1) was recorded outside the gravel pit; around the ruined farmyard at the southwest corner of the landholding. Here, sycamore was recorded abundantly, in various age classes from sapling to mature. Note this habitat is located outside the S37L application boundary but within the DWCL land ownership boundary.

A third section of WD1 woodland was located on the southern section of the public road (to the northwest of the ruined farmyard, and contiguous with woodland around the farm). Ash was recorded occasionally and a small copse of mature sitka spruce was recorded on the northern boundary of the former farmyard complex. Holly and hawthorn bushes were recorded rarely along with occasional elder. Bramble and nettle were frequent in the field layer along with abundant ivy. Broad buckler fern, creeping buttercup, germander speedwell, ground ivy, navelwort, herb-robert, harts-tongue fern, scaly male fern, common hogweed and lesser celandine were recorded occasionally. Foxglove, common ragwort, wood avens and opposite leaved golden saxifrage were recorded rarely. Note this habitat is located outside the red line boundary but within the DWCL land ownership boundary.

[5] County Cork Biodiversity Action Plan 2009-2014.

A range of ruined and dilapidated stone dwelling and outbuildings as well as corrugated farm sheds were located within this area of scattered trees. The habitat consists of common species of tree and ground flora; is an area of semi-natural habitat of some local importance foraging and nesting birds; forms an ecological corridor with the Laney within other features adjacent to it and therefore considered to be of ***local importance (higher value).*** This habitat lies outside the active gravel pit and outside the proposed further development area.



Plate 10-32: Mixed Broadleaved Woodland

Hedgerow (WL2)

[This hedgerow is at the northern boundary of the landownership boundary and to the north of the local road. It is not within the S37L application boundary.]

A hedgerow was recorded along the northern margin of the wet grassland field in the north of the study site. This hedgerow consisted of frequent hawthorn and bramble as well as occasional grey willow. The bushes were ca. 4-5 m high. This feature is not species-rich and is of limited intrinsic ecological value however it has some local importance for local wildlife and forms an ecological link between the site and the valley of the Clashavoon Stream / River Laney. It is considered to be of ***local importance (higher value).*** Note this habitat is outside the S37L boundary but is within the landownership boundary.



Plate 10-33: Hedgerow near the Northern Site Boundary

Treeline (i) (WL2)

This treeline is a continuation of the treeline found within the southern boundary of the S37L area which forms the boundary of the ruined farmyard. Here the species present included sycamore, which was dominant in the treeline, and ash, poplar (*Populus* sp.), elder and hawthorn were recorded rarely. This treeline grew to ca. 20 m high. Note this habitat is outside the S37L boundary but is within the landownership boundary. It is considered to be of ***local importance (higher value).***



Plate 10-34: Treeline on Southern Boundary

Treeline (iii) (WL2)

[This treeline is at the northern boundary of the landownership boundary and to the north / west of the local road. It is not within the S37L application boundary.]

A third treeline was recorded adjacent to the Clashavoon Stream on the northern side of the study site and consisted of mature alder trees which were dominant. Immature ash trees occurred rarely. The trees were ca. 10-15 m high. Note this habitat is outside the S37L boundary but is within the landownership boundary. While such habitat is common in the local area, here the treeline is of value as they form an ecological corridor, connecting the northern section of the site and the Clashavoon Stream / Laney River valley. It is considered to be of ***local importance (higher value).***



Plate 10-35: Treeline Adjacent to the Clashavoon

Scrub (WS1)

Two areas of scrub located outside the S37L boundary were recorded 1) adjacent to the cottage at the southern site boundary and 2) within the north-eastern corner of the land ownership. This habitat consisted of bracken, which was dominant, and blackthorn which occurred occasionally. Scrub is common within the environs of the site; however, it does provide cover and potential nesting habitat for birds and therefore it is classified as being of ***local ecological importance (lower value*)**.



Plate 10-36: Bracken Scrub Habitat

10.3.4 Summary of Habitats within the Gravel Pit

Habitats within the S37L Site Boundary
While the entire landholding has been surveyed for completeness, the following habitat features are located within lands the subject of the S37L application (see Habitat Map - Figure 10-4):

- Active Quarries and Mines (ED4)
- Spoil and Bare Ground (ED2)
- Recolonising Bare Ground (ED3)
- Depositing lowland river (FW2)
- Drainage ditch (FW4)
- Other artificial lakes and ponds (FL8)
- Scrub (WS1)
- (Mixed) broadleaved woodland (WD1)
- Semi natural woodland (WN)
- ~~Willow Dominated Dry Woodland (WN)~~
- ~~Wet willow-alder-ash woodland (WN6)~~
- ~~Hedgerow (WN1)~~
- Treeline (WL2)
- Dry meadows and grassy verges (GS2)
- ~~Wet grassland (GS4)~~
- ~~Neutral Grassland (GS1)~~

Summary of habitats located within the proposed further extraction area, under the S37L application:

- Scrub (WS1)
- ~~Hedgerow (WN1)~~
- Treeline (i) (WL2)
- Dry meadows and grassy verges (GS2)
- ~~Wet grassland (GS4)~~
- ~~Neutral Grassland (GS1)~~
- (Mixed) broadleaved woodland (WD1)
- ED2/ED3 Spoil and bare ground/Recolonising bare ground

~~Recolonising bare ground (ED3) located on the fringes of the existing gravel pit are categorised as being of local importance (lower value). The remaining habitat are considered to be of local importance lower and higher value~~.

Summary of remaining habitats within the ownership of DWCL
The following habitat features are located outside the S37L application area but within the land ownership: -

- Mixed broadleaved woodland (WD1)
- Dry meadows and grassy verges (GS2)
- Hedgerow (WL2)
- Treeline (WL2)
- Scrub (WS1)

- Wet grassland (GS4)
- Depositing lowland river (FW2)

Lands adjoining the proposed S37L site include a diverse range of semi-natural habitats – including dry meadows and grassy verges (GS2); Mixed broadleaved woodland (WD1); wet grassland (GS4); Depositing lowland river (FW2) which are categorised as being of ***local ecological importance (higher value).*** The Curraghanearla and Clashavoon streams forming the northern and western boundaries are of ***County Importance***.

10.3.5 Invasive / Non-native species

No invasive plant species listed on the 2011 Regulations were recorded on site.

Single butterfly-bush (*Buddleia*) and Russian Comfrey (*Symphytum* x *uplandicum*) plants were reported within the site. Although, butterfly-bush is a considered medium impact invasive species, neither of these species are listed under the 2011 Regulations; furthermore, butterfly-bush flowers are valuable sources of nectar for butterflies.

During the December 2019 survey Montbretia *(Crocosmia X crocosmiflora)* was found on the bank at the edge of the entrance track into gravel pit while Cherry Laurel *(Prunus laurocerasus)* was recorded growing next to the ruined farmhouse. While neither species is listed under Schedule 3 of the Natural Habitats Regulations 2011, Montbretia is considered a medium impact invasive species and Cherry Laurel is listed as a High Impact[6] invasive species.

The locations of invasive / non-native species found on site are listed in Table 10-13.

Table 10-13: Location of invasive species not listed on the 2011 Regulations

Species	E_ITM	N_ITM	Notes
Buddleia	537109	573982	Single plant c. 1.5 m high within gravel pit next to access road.
Russian Comfrey	536997	573682	Single plant in field adjacent to cottage in the southern side of site
Montbretia	536881	573890	On bank at edge of entrance track into gravel pit
Cherry Laurel	536840	573604	Growing next to ruined farmhouse

A survey for invasive non-native plant species was undertaken as part of the ecological field survey in 2026. No invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) were recorded within the application site during the survey.

No Buddleia was recorded during the 2026 survey. Montbretia was recorded in the same location as 2019 during the 2026 survey.

10.3.6 Fauna

Birds

Birds seen or heard during the walkover survey in June and December 2019 were noted. The diversity of bird species on both survey days was good. The bird species observed on site are listed in Table 10-14.

Table 10-14: Bird Species Recorded on Site

Species	Notes
Rook	Recorded July 2019 and December 2019.
Goldcrest	Recorded December 2019.
Dunnock	Recorded December 2019.
Redwing	Recorded December 2019.
Redpoll	Recorded December 2019.
Hooded crow	Recorded December 2019.
Goldfinch	Recorded December 2019.
Coal tit	Recorded December 2019.

[6] https://www.biodiversityireland.ie/wordpress/wpcontent/uploads/Invasives_taggedlist_HighImpact_2013RA-1.pdf

Species	Notes
Woodcock	2 no. birds flushed at separate locations from woodland between public road and Clashavoon Stream where settlement feature is located during the December 2019 site visit.
Sand Martin	See coordinates below of active nest burrow clusters in active quarry face on southern side of gravel pit. Recorded July 2019.
Wren	Recorded July 2019 and December 2019.
Curlew	11 birds in recently cut silage field south of site. Flew off to south. Recorded July 2019.
Willow warbler	Recorded July 2019.
Blue tit	Recorded July 2019 and December 2019.
Chaffinch	Recorded July 2019 and December 2019.
Long tailed tit	Recorded July 2019 and December 2019.
Blackcap	Recorded July 2019.
Redpoll	Recorded July 2019.
Lesser black-backed gull	Flying over and adjacent to site. Recorded July 2019.
Swallow	Recorded July 2019.
Robin	Recorded July 2019 and December 2019.
Kestrel	2 birds flying through the site. Not seen again. Recorded July 2019.
Pheasant	Recorded July 2019.
Pied wagtail	Recorded July 2019 and December 2019.
Blackbird	Recorded July 2019 and December 2019.
Woodpigeon	Recorded July 2019 and December 2019.
Siskin	Recorded July 2019.
Mallard	Female flying in from west, appeared to land in the vicinity of the settlement pond. Recorded July 2019.
Linnet	Recorded July 2019.
Sparrowhawk	Hunting on the south eastern side of the site. Near to sand martin colonies. Recorded July 2019.
Buzzard	Soaring over site. Recorded July 2019.
Magpie	Recorded July 2019 and December 2019.
Great tit	Recorded July 2019 and December 2019.

Additional Notes:

3 no. Sand Martin Colonies were reported at the following locations:

- 537109 E 573812 N
- 537153 E 573814 N
- 537173 E 573896 N



Example of Sand Martin Colonies at the site

While Woodcock in on the red list of birds of conservation concern (Colhoun and Cummins, 2013), this is for birds breeding in Ireland. There is a large influx of wintering birds to Ireland which are not red listed; the birds seen at Ummera were recorded in December 2019. Curlew are also on the red list as breeding birds; there is no evidence of Curlew breeding in the area. The birds observed in July 2019 were most likely a field feeding flock which may have been migrating through the area.

The majority of birds noted are not of conservation concern (Green listed); while Goldcrest, Sand martin, Lesser-black backed gull, Sparrowhawk, Swallow and Robin are amber listed.

~~The site is considered to be of ***local importance (higher value) for birds.***~~

Birds seen or heard during the walkover survey in April 2026 were noted. The diversity of bird species on both survey days was good. The bird species observed on site are listed in Table 10-15.

Table 10-15: Birds Recorded During 2026 Survey

Species	BoCCI Status
Wren	Green
Willow Warbler	Amber
Pied Wagtail	Green
Swallow	Amber
Blackcap	Green
Rook	Green
Robin	Green
Linnet	Amber
Chiffchaff	Green
Blackbird	Green
Sand Martin	Green
Chaffinch	Green
Meadow Pipit	Red
Jackdaw	Green
Dunnock	Green
Hooded Crow	Green
Blue Tit	Green
Woodpigeon	Green
Mallard	Amber
Magpie	Green
Great Tit	Green
Goldcrest	Amber

A total of 22 bird species were recorded during the breeding bird surveys undertaken at the site. Of these, 16 species are Green-listed, five are Amber-listed (Willow Warbler, Swallow, Linnet, Mallard and Goldcrest) and one species is Red-listed (Meadow Pipit) under the Birds of Conservation Concern in Ireland (BoCCI) classification.

Evidence of breeding birds was recorded throughout the site. The most significant breeding feature comprised Sand Martin colonies, which were recorded at several locations within the gravel pit. Both active breeding colonies, containing occupied nest burrows, and older colonies of nest burrows that appeared inactive at the time of survey were recorded. These colonies were associated with exposed vertical quarry faces created during aggregate extraction.

Meadow Pipit, a Red-listed species, was recorded within the grassland habitat in the southern part of the site. The observations made during the survey were considered indicative of likely breeding within this area. Mallard, an Amber-listed species, was recorded on the settlement ponds within the site.

The remaining species recorded comprised common woodland, scrub and farmland birds including Wren, Willow Warbler, Pied Wagtail, Swallow, Blackcap, Rook, Robin, Linnet, Chiffchaff, Blackbird, Chaffinch, Jackdaw, Dunnock, Hooded Crow, Blue Tit, Woodpigeon, Magpie, Great Tit and Goldcrest. These species were recorded using the various habitats across the site for foraging, commuting and breeding, with suitable nesting habitat provided by grassland, scrub, woodland, hedgerows and quarry faces.

The site is considered to be of local importance (higher value) for birds.

Mammals

As part of the habitat survey, the field surveyor looked out for signs of mammals, notably badger setts within areas of cover, notably the adjoining hedges, where setts can often occur in the Irish agricultural landscape. Abundant rabbit sign (droppings, burrows, tracks) in area of woodland close to ruined farmhouses and adjacent grassland habitat was recorded during the December 2019 survey. No badger setts were recorded during the December survey. No observations/evidence of Wildlife Act/ European Habitats Directive protected species were noted.

No signs of otter were found on site. Otter is widespread within Ireland and it is likely that they may use the watercourse to forage. The left bank of the Clashavoon stream provides suitable riparian cover for a potential otter holt, however no otter holts were recorded at or between the two macroinvertebrate sampling sites. Overall, the site is rated as poor to moderate for otter. Otter have been recorded at on the River Laney both upstream and downstream of the Clashavoon – Laney confluence.

Details of the mammal survey are provided in Table 10-16.

Table 10-16: Mammal Signs / Species Recorded on Site

Species	E_ITM	N_ITM	Notes
Mammal burrow (prob. Rabbit or fox)	537015	573688	Fresh, partly excavated tunnel. Narrows significantly and possibly terminates quickly below ground. Fox droppings at entrance and nearby in field.
Mammal burrow (prob. rabbit)	536930	573962	Large c. 50 cm entrance. C. 30 cm burrow into soft sand. Prints in sand into entrance. Probable Rabbit. Live animals seen in immediate vicinity. No evidence of badger recorded.
Fox	536973	574052	Droppings on bed of dried out settlement pond.

~~The site is considered to be of **local importance (lower value)** for terrestrial mammals~~.

As part of the habitat survey in 2026, the site was assessed for evidence of mammal activity, with particular attention given to protected species.. Particular attention was given to identifying evidence of badger (*Meles meles*) and otter (*Lutra lutra*), including setts, holts, footprints, feeding remains, spraints and other field signs.

The stretches of watercourse adjacent to the site were surveyed for evidence of otter. No otter holts or other signs of otter activity were recorded during the surveys. However, the watercourses provide suitable habitat for commuting and foraging, and it is considered likely that otter utilise these sections of the watercourse for these purposes. The riparian corridor provides a continuous linear habitat linking the site with the wider River Laney catchment and has the potential to facilitate movement of otter through the area.

No badger setts or other evidence of badger activity were recorded during the surveys. Although suitable foraging habitat is present within parts of the site and the surrounding agricultural landscape, there was no evidence to indicate that the site is currently used by badger.

Evidence of rabbit (*Oryctolagus cuniculus*) was widespread throughout the site. Rabbit burrows were recorded within the southern section of the gravel pit, while rabbit droppings were recorded across the site, indicating that rabbits are common throughout the site. Fox (*Vulpes vulpes*) activity was also recorded, with fox scat identified within the grassland habitat in the southern section of the site.

The site is considered to be of local importance (lower value) for terrestrial mammals.

Bats

During an emergence watch at the site office and farm buildings on the southern boundary of the land holding (i.e. adjoining, but just outside the site) no bat activity was recorded (see Appendix 10-1). The farmhouse to the southwest was not surveyed at this time; it is separated from the gravel pit by trees / woodland and is not affected by ongoing works.

During the walked transects through the site, several Soprano and Common pipistrelles were recorded over the grass field to the south of the gravel pit and along the mature treeline on the south-western boundary of the site.

The dawn survey reported low levels of foraging activity. Soprano and Common pipistrelles were recorded along the mature tree line. No swarming was detected, and no bats returned to roost in the trees prior to sunrise. The bat survey report is included in full in Appendix 10-1.

Results of Songmeter recordings

- Songmeter at settlement pond – Total no. of calls = 142 calls.
  - 48.6% Common pipistrelle; 23.2% Soprano pipistrelle; 11.3% Brown long-eared; 9.8% Leisler's; 7% Whiskered/Daubenton's.
- Songmeter on track – Total number of calls = 32.
  - 65.63% Common pipistrelle; 31.25% Leisler's; 3.13% Soprano pipistrelle.

Relatively low levels of overnight bat activity were recorded on the Songmeter placed at the settlement pond and very low levels of bat activity at the central location of the gravel pit. Ummera

gravel pit is not an important foraging site for bats. However, the study found there are excellent foraging sites for bats along the route of the River Laney and the Clashavoon Stream very close to the western and northern boundary of the site. These watercourses have mature deciduous wood land along their banks.

Bat activity surveys were undertaken using a static bat detector deployed on a fence post located on a quarry mound adjacent to the settlement ponds. The detector was operational for 63 consecutive nights, from 21 April 2026 to 23 June 2026, providing a comprehensive assessment of bat activity during the main bat activity season.

A total of 2,790 bat passes were recorded during the survey period, representing six bat species. The most frequently recorded species were Common Pipistrelle (*Pipistrellus* pipistrellus) and Leisler's Bat (*Nyctalus leisleri*), accounting for approximately 45% and 38% of all bat passes, respectively. Soprano Pipistrelle (*Pipistrellus pygmaeus*) was also regularly recorded. Lower levels of activity were recorded for Brown Long-eared Bat (*Plecotus auritus*), Nathusius' Pipistrelle (*Pipistrellus nathusii*) and Daubenton's Bat (*Myotis daubentonii*).

Table 10-17: Results of 2026 Bat Activity Survey

Species	Total Bat Passes	Bat Passes per Night
Daubenton's Bat (*Myotis daubentonii*)	27	0.43
Leisler's Bat (*Nyctalus leisleri*)	1,046	16.60
Nathusius' Pipistrelle (*Pipistrellus nathusii*)	33	0.52
Common Pipistrelle (*Pipistrellus pipistrellus*)	1,268	20.13
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	361	5.73
Brown Long-eared Bat (*Plecotus auritus*)	55	0.87
Total	**2,790**	**44.29**

The results indicate that the site is used predominantly by Common Pipistrelle and Leisler's Bat, with both species recorded consistently throughout the survey period. Soprano Pipistrelle was also regularly recorded, while Daubenton's Bat, Nathusius' Pipistrelle and Brown Long-eared Bat were recorded at comparatively low levels of activity. The presence of Daubenton's Bat is consistent with the proximity of the settlement ponds and adjacent watercourses, which provide suitable foraging habitat for this species.

Amphibians

As noted above in Table 10-6 Common Frog has been located within the 2km grid square around the site. Froglets were recorded in wet grassland habitat near the abandoned farmyard (ITM: 506744 538606) and wet grassland habitat near spoil heaps (ITM: 506403 / 538569). These grasslands are not located within the active gravel pit. Frogs are common in Ireland and given the low numbers found within the site, ~~this site is of local importance (lower value) for amphibians~~. The ponds within the gravel pit provides sub-optimal habitat for Smooth Newt. Given the high sediment content it is unlikely frogs will use this habitat to breed.

As part of the ecological surveys, the site was assessed for its potential to support amphibians, with particular attention given to the suitability of on-site waterbodies for breeding. The settlement ponds and other areas of standing water within the site were inspected and assessed for habitat suitability.

The settlement ponds within the gravel pit were considered to provide poor breeding habitat for Smooth Newt (*Lissotriton vulgaris*). The ponds contain very little to no emergent aquatic vegetation, which is required by Smooth Newts for egg laying, and therefore are unlikely to support breeding populations of this species. The ponds are also relatively deep, further reducing their suitability for Smooth Newt.

The settlement ponds may provide some suitable breeding habitat for Common Frog (*Rana temporaria*), particularly around the shallow margins. In addition, several smaller areas of ponded water were recorded elsewhere within the site. While these areas may provide suitable breeding habitat for Common Frog, they are likely to be ephemeral in nature and therefore only provide temporary breeding opportunities during favourable conditions.

Common Frog has previously been recorded within the 2km grid square surrounding the site. Common Frog is widespread throughout Ireland and, based on the habitat available within the site, amphibians are considered to be of Local Importance (Lower Value).

10.3.7 Aquatic Ecology

Site 1

Site 1 is located downstream of the surface water abstraction point. The sampling site is located approximately 30m / 10m upstream of the bridge over the Clashavoon Stream. The left (eastern) riverbank is a steep bank approximately 5-6m in height, which is part of a broadleaved wooded area. The wooded area is dominated by willow and alder trees with an understorey of ferns, bramble and ivy. The right (western) riverbank is an agricultural field used for grazing animals. There is fencing along the top of the riverbank with little to no riparian margin present. Grasses, nettle and bramble were present.

The river was 2.5m / 3m wide on average and sampling depth was 10 - 20cm / 30cm. Substrate type in order of dominance was fine gravel, sand, gravel, cobble and silt. Siltation was slight mid-channel with siltation levels moderate at the margins of the channel. In slow flowing areas and pools upstream of site 1, siltation was moderate across the channel. Siltation was evident on marginal vegetation within these areas.

Site 1 was characterised by a riffle - glide sequence, comprising 80% fast glide and 20% riffle. No filamentous algae were recorded at the site. Hemlock water-dropwort (*Oenanthe crocata*) was present.

The contents of the kick sample contained a significant amount of fine detritus material. It is possible that this material is as a result of decaying algal growths during the summer months.

All taxa recorded at the site and their abundances, as defined in the SSRS methodology, are listed in Table 10-18 (2019) and Table 10-19 (2026).

Table 10-18: Site 1 Macroinvertebrate Taxa List - 2019

Taxon	Relative Abundance Class
Ecdyonurus sp.	2
Leuctra sp.	1
Hydropsychidae	1
Rhyacophilidae	1
Sericostomadidae	1
Glossosomatidae	2
Goeridae	1
Chironomidae	1
Simuliidae	2
Tipulidae	2
Ancylus fluviatilis	1
Sphaeriidae	1
Lumbricidae	1
Lumbriculidae	2
Elmidae (adults)	1
Elmidae (larvae)	2
Gammarus duebeni	4
Baetis rhodani	3

Table 10-19: Site 1 Macroinvertebrate Taxa List – 2026

Group	Taxon	Number Present	Total Relative Abundance
Group 1	Heptagenia	5	2
	Ecdyonunus	3	
Group 2	None	-	-
Group 3	Hydropsychidae	1	2
	Rhyacophila	3	
	Sericostomatidae	6	
	Glossosomatidae	7	
Group 4	Ancylus	1	3
	Lumbriculus	2	
	Chironomidae	2	
	Simulidae	5	
	Gammarus	34	
Group 5	Asellus	3	-



Plate 10-37: Site 1: Sampling Site Downstream of Abstraction Point - 2019



Plate 10-38: Site 1: Sampling Site Downstream of Abstraction Point - 2026

Surface Water Abstraction Point

The abstraction point and pumphouse are located on the left (eastern) bank of the Clashavoon Stream. A man-made weir is located immediately downstream of the abstraction point that comprises a number of large boulders. A pool is present along the left bank where the abstraction of surface water occurs. The weir results in a backwater in the Clashavoon Stream for a short stretch upstream of the weir. At the time of sampling, the water of the Clashavoon Stream was clear.



Plate 10-39: Man-made Weir on Clashavoon Stream



Plate 10-40: Pumphouse and SW Abstraction Point

Site 2

Site 2 is located upstream of the surface water abstraction point. Site 2 is located approximately 200m / 85m upstream of the weir to ensure that backwater effects were not impacting the macroinvertebrate assemblage. The surrounding environment at this site is very similar to Site 1.

The left riverbank is a stone wall that essentially acts as a retaining wall for the adjacent road. The stone wall is covered in bramble, ferns and guelder rose. The right riverbank is an agricultural field for grazing animals, which is the same field that borders Site 1. There is fencing along the top of the riverbank with little to no riparian margin present. Grasses, nettle, bramble and a hawthorn tree were present.

The river was 2.5m wide on average and sampling depth was 20cm / 30cm. Substrate type in order of dominance was sand, fine gravel, gravel, cobble and silt. Some of the cobbles were embedded. Siltation was slight within the channel.

The site was characterised by a riffle - glide sequence, comprising 50% fast glide and 50% riffle. No filamentous algae were recorded at the site.

The contents of the kick sample contained a notable amount of fine detritus material, however less than that encountered in the sample at Site 1 in 2019, but similar in 2026. It is possible that this material is as a result of decaying algal growths during the summer months.

All taxa recorded at the site and their abundances, as defined in the SSRS methodology, are listed in Table 10-20 for 2019 survey and Table 10-21 for the 2026 survey.

Table 10-20: Site 2 Macroinvertebrate Taxa List - 2019

Taxon	Relative Abundance Class
Ecdyonurus sp.	2
Perlodidae	1
Hydropsychidae	2
Rhyacophilidae	1
Glossosomatidae	2
Goeridae	2
Chironomidae	1
Simuliidae	2
Tipulidae	2
Ancylus fluviatilis	2
Sphaeriidae	1
Lumbricidae	1
Lumbriculidae	2
Elmidae (adults)	1
Elmidae (larvae)	2
Gammarus duebeni	4
Baetis rhodani	3

Table 10-21: Site 2 Macroinvertebrate Taxa List - 2026

Group	Taxon	Number Present	Total Relative Abundance
	Heptagenia	4	
Group 1	Ecdyonunus	2	2
Group 2	None	-	-
	Hydropsychidae	2	
	Rhyacophila	1	
	Sericostomatidae	10	
	Glossosomatidae	4	
Group 3	Goeridae	1	2
	Ancylus	2	
	Lumbriculus	1	
	Chironomidae	4	
	Simulidae	10	
Group 4	Gammarus	30	3
Group 5	Asellus	3	-



Plate 10-41: Site 2 Sampling Site - 2019



Plate 10-42: Site 2 Sampling Site - 2026

Small Stream Risk Scores

SSRS indicates the likelihood of a stream in achieving its Water Framework Directive objectives of 'good' status and thus, the final SSR score can be one of 'Probably not at risk', 'Indeterminate stream may be at risk', or 'Stream at risk'.

The SSRS values for each site are detailed below. The greater value a SSR score is, the less risk associated with that stream not obtaining its WFD objective of 'good' status. As can be seen from Table 10-22, both sites are categorised as being 'at risk'.

Table 10-22: Small Stream Risk Scores

Site No.	SSR Score (2019 / 2026)	Category
Site 1	6.4 / 4	Stream at risk
Site 2	6.4 / 5	Stream at risk

The Clashavoon Stream flows through an agricultural landscape with one-off single residential houses. This landscape setting can result in pressures such as increased riverbank instability and erosion, sedimentation and anthropogenic nutrient inputs that lead to eutrophication (Magette *et al*., 2007; Kelly Quinn *et al*., 2016).

The sampling sites upstream and downstream of the surface water abstraction point are very similar in channel characteristics and macroinvertebrate community composition, with SSR scores the same for both sites. Both sites are categorised as 'at risk', demonstrating that the river is experiencing pressures upstream of the gravel pit.

~~The main difference between the two sites is the amount of detritus material present in the samples and siltation within the channel. Both factors were greater at the downstream sampling site. Although the increase of these factors was not expressed in the macroinvertebrate community of Site 1, it is possible that the gradient and flow type of the Clashavoon Stream may be compensating for any potential effects from the discharge within the Clashavoon Stream.~~

~~The nature of the detritus material in the samples suggests that it is decaying algal material and it is possible that the river experiences algal blooms during summer months when flows are lower and instream temperatures are elevated. County Cork experienced significant rainfall during September and October 2019 and thus, the system would have been flushed out considerably during the 2 months prior to sampling~~.

Salmonids

The Clashavoon Stream hosts limited valuable adult and juvenile salmonid habitat. As noted above brown trout have been recorded within the Laney and therefore salmonids may enter the Clashavoon Stream, however the presence of the man-made weir is a likely obstruction to fish movements. The substrate composition of fine gravels, sand and moderate siltation presented poor adult salmon spawning habitat with no large accumulations of clean gravels or redds recorded. Some moderate juvenile habitat was present downstream of the man-made weir with small shaded pools present. However, the stream consisted mostly of fast glide and riffle flows with a moderate gradient. As stated, the presence of adult or juvenile salmonids upstream of the man-made weir is unlikely due to the weir acting as an obstruction to fish movements.

Lamprey

The absence of abundant slow-moving pools with silt laden substrates provides poor nursery habitat for juvenile lamprey in the Clashavoon Stream. Similarly, to salmonids, lamprey require physical unobstructed passage upstream through the waterbody. The presence of the man-made weir forms an obstruction to migratory adult and juvenile lamprey. Furthermore, the lack of clean gravel substrates limits the potential of lamprey spawning habitat to poor within the Clashavoon Stream.

Freshwater Pearl Mussel

The Clashavoon Stream does not provide optimal juvenile and adult FWPM habitat. The area of habitat adult and juvenile mussels can occupy and the area of spawning and nursery habitats the host fish can occupy are closely linked. Fish nursery habitat typically overlaps with FWPM habitat. The presence of sand and fine gravels present in the Clashavoon Stream presents an unstable substrate, limits FWPM's ability to anchor into the riverbed.

Water quality data is not collected on the Clashavoon Stream by the EPA. Small stream risk scores calculated as part of this study for sampling stations upstream and downstream of the gravel pit both indicate that the Clashavoon Stream is at Risk of not achieving Good status (i.e. SSR scores, based on sampling of aquatic macroinvertebrates). EPA water quality data (Q-values) is presented from stations on the River Laney upstream and downstream of the confluence with the Clashavoon. These data suggest that water quality downstream of the gravel pit broadly mirror those of the upstream station on the River Laney; with the worst case of water quality (Q2-3, Poor in 1995) noted on the River Laney upstream of the gravel pit. Currently water quality downstream of the gravel pit is Q4-5, High (2018). While negative impacts on the Clashavoon Stream have been noted, in for example correspondence, from the Fisheries Board, these data also highlight broader patterns of negative impacts on water quality in the catchment of the River Laney since 1973.

FWPM have been recorded in the River Laney. Apart from limited records there does not appear to have been a systematic survey of FWPM within the full catchment of the River Laney. It is not known if the River Laney FWPM population is a recruiting population. There was no evidence of FWPM in the Clashavoon Stream (2019 field surveys). As noted there have been negative pressures on water quality in the wider River Laney catchment; these together with release of silt from the gravel pit could have had negative impacts on FWPM within the river. However, it is not possible to identify the relative scale of impact associated with different pressures in the absence of historic data (i.e. agriculture, forestry, septic tanks, road runoff, quarrying etc.). As noted, a series of changes to the water management system and patterns of

water abstraction have been implemented on site since the 1980s with recent improvements providing a closed system for recirculating wash water.

Crayfish
Crayfish are not known from the River Lee catchment.

10.4 Impact Assessment

The potential impacts arising from the further development at the Ummera gravel pit including extension of extraction area are discussed in the following sections.

10.4.1 Do Nothing Impact

In the absence of existing site management and mitigation measures the proposed project could have a range of potential impacts on the ecological receptors within the zone of influence due to further operation at the gravel pit. The following are examples of categories of impacts generally caused during gravel extraction activities.

In the absence of further development, the potential value of the footprint of the proposed project to species such as nesting birds, foraging mammals and commuting bats would increase, provided that the linear landscape features (treelines) would not be lost due to other forms of development intensification of the existing agriculture practices. It is assumed that the area to be developed to the south of the existing gravel pit will remain in low intensive agriculture. The levels of biodiversity will be static in the short term. In the long term, given the cessation of operations is planned at the gravel pit and the restoration of thee site to agricultural lands there would be a positive effect to some groups of local birds, foraging mammals and commuting bats using the restored lands and losses to other groups which would have favoured habitats within the active gravel pit.

10.4.2 Potential Impacts of the Development

In the absence of existing site management and mitigation measures the proposed project could have a range of potential impacts on the ecological receptors within the zone of influence due to further operation at the gravel pit. The following are examples of categories of impacts generally caused during gravel extraction activities.

Physical Damage/ Habitat Loss
Physical damage includes the degradation, modification, fragmentation or loss of habitats. Direct physical damage of habitats will occur within working areas of the proposed project. Physical damage of habitats can also be an indirect impact and could occur, for example, through the introduction of fine sediments into an aquatic system, causing changes to the particle composition of the benthic habitats. Physical damage may be temporary or permanent in nature.

Disturbance
Disturbance can cause sensitive species to deviate from their normal and preferred behaviour, resulting in stress and increased energy expenditure. Disturbance can result in species being displaced from suitable habitat areas that provide areas for feeding and foraging, commuting routes, and resting and breeding sites. Physical disturbance of species can also result in direct mortalities of species and thus, disturbance impacts can be both direct and indirect and may be temporary or permanent in nature. Examples of direct disturbance includes activities such as damage to a breeding or resting site of a protected species, e.g. a bat roost, badger sett or otter holt (where these occur). Indirect disturbance may result from the presence of personnel on site during opening hours, noise emanating from the gravel pit etc.

Changes in Water Quality
The release of pollutants to water can impact upon the relevant waterbodies and the species they support. This can result in impacts such as increased turbidity of the water column, a reduction in photosynthesis, contribution to eutrophication and changes to the species composition of the system as a result. The degree of impact depends on the type of pollutant released and the nature of the receiving receptor. For example, the release of fine sediments to a stream or river is likely to cause siltation of the riverbed and interrupt the functioning of species, from aquatic plants to macroinvertebrates to fish, and larger predators that depend on these biotic groups as a food supply, e.g. otter and kingfisher. Impacts to water quality could be temporary in the form of surface water runoff, or permanent in the form of a continued discharge impacting negatively on the receiving environment.

Dispersal of Invasive Species
Non-native invasive species can have negative impacts on biodiversity. Negative impacts of non-native invasive species on native biota occur through competition, predation, herbivory, habitat alteration, disease and genetic effects such as hybridisation. The main impacts arising from the presence of non-native invasive species include a reduction in species diversity due to dense plant growth, heavy shading and disruption of trophic levels. These species can potentially be spread via plant fragments and soil containing plant material, and by vectors such as machinery and personnel.

10.4.3 Impact on Sites Designated for Nature Conservation

European Sites
The gravel pit at Ummera is not located within or immediately adjoining a European Natura 2000 site; i.e. a Special Area of Conservation or a Special Protection Area for birds.

The Gearagh SAC (000108) (c. 3.5km southwest) and The Gearagh SPA (004019) (4.6km southwest) are both located upstream of Ummera on the main channel of the River Lee. Surface waters from the gravel pit at Ummera enter the Clashavoon Stream, a tributary of the River Laney. The River Laney in turn joins the River Sullane upstream of where it meets the River Lee, in the Sullane Delta. There is not hydraulic connection with The Gearagh SAC or The Gearagh SPA.

The Gearagh SAC is designated for floating river vegetation [3260]; rivers with muddy banks [3270]; Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]; Alluvial forests [91E0] and Otter (*Lutra lutra*) [1355]. Ummera gravel pit does not overlap with the Gearagh SAC; none of the habitats within the SAC would have been, or are currently being, impacted by works at Ummera. Furthermore, none of these habitats have been identified within Ummera gravel pit, or immediately adjoining it. Furthermore, works at the gravel pit would not affect the hydrological regime of the Gearagh which supports such habitats.

Otter are widely distributed within the Lee catchment; and are likely to be using the Clashavoon Stream / River Laney, Sullane River and the River Lee downstream of the site (see e.g. NBDC webviewer). Day-to-day operations of the gravel pit would not have, and currently, do not affect usage of the neighbouring Clashavoon Stream by otter (i.e. works to not limit access to the river; or free passage up / down stream). While otter can use settlement ponds (e.g. Coolbane Quarry, West Cork also operated by DWCL), at present settlement ponds do not provide suitable habitat. However, if the settlement ponds were to be retained as part of restoration of the site, it would provide suitable habitat for otter, as well as fish and amphibians (e.g. Common frog), upon which otter prey.

Furthermore, works at the gravel pit are sufficiently distant from the Gearagh, that bird species for which the SPA have been designated would not be disturbed by traffic, washing activities, etc. and associated noise. In its current condition, the gravel pit does not support habitats that the qualifying interests of the SPA would utilise; however, if the settlement pond were to be retained as part of restoration of the site, Mallard and Coot (and perhaps Teal) would utilise these habitats and be a positive impact on the wider environment.

Due to the distances and lack of connectivity between the gravel pit and the three European sites (listed in Table 10-2 and discussed in Section 10.3.1), no significant effects are likely to occur as a result of the further development of gravel extraction operations.

An Appropriate Assessment (AA) Screening Report has been prepared by JKW Environmental (2026) to assess the potential for likely significant effects on European sites arising from the continued operation and extension of extraction activities at Ummera Gravel Pit. The AA Screening concluded that there is no source-pathway-receptor linkage between the proposed development and any European site. Accordingly, the proposed development, either alone or in combination with other plans or projects, is not likely to have a significant effect on any European site, and a Stage 2 Appropriate Assessment in the form of a Natura Impact Statement (NIS) is not required.

The nearest European sites comprise The Gearagh SAC (000108), approximately 3.5 km southwest of the site, The Gearagh SPA (004109), approximately 4.6 km southwest, and Mullaghanish to Musheramore Mountains SPA (004162), approximately 6.9 km northwest. None of these sites have direct hydrological, hydrogeological or ecological connectivity with the gravel pit, and no significant effects on their qualifying interests are predicted as a result of the proposed development.

Sites of National Importance

The gravel pit is not located within or immediately adjoining a site of national importance, i.e. a Natural Heritage Area / proposed Natural Heritage Area. The nearest such site, Lough Gal pNHA (001067) and Glashgarriff River (001055) are located on the Glashgarriff River to the northeast of Ummera. The Glashgarriff River is a short river which discharges to the Lee just below the Carrigadrochid Dam (upriver of Coachford). These are at a significant distance from the gravel pit and it is very unlikely that further development of extraction activities will negatively impacting these sites.

As above, The Gearagh is also proposed for designation as a pNHA (000108); see comments above.

Downstream of the gravel pit the nearest pNHA is the Lee Valley pNHA (000094) located downstream of Inniscarra Dam. This site occupies five separate sections of the River Lee valley, which support a diverse range of terrestrial and aquatic semi-natural habitats. However, the distance between this site and the gravel pit (ca. 30km) is such that it is very unlikely that further development of extraction activities will negatively impact on this pNHA site.

Due to the distances and lack of connectivity between the gravel pit and these pNHAs no significant affects from the further development of extraction activities are predicted.

The gravel pit is not located within or adjacent to any Natural Heritage Area (NHA) or proposed Natural Heritage Area (pNHA). The nearest designated sites are separated from the application site by considerable distances and there are no hydrological or ecological pathways linking the proposed development to these sites. Consequently, no significant impacts on nationally designated sites are predicted.

Other Sites

As noted, the Gearagh is also a Nature Reserve; see comments above. No other sites of County or Local Importance have been identified. The Gearagh Nature Reserve is located approximately 3.5 km southwest of the application site. Given the absence of any source-pathway-receptor linkage between the proposed development and the reserve, no impacts are predicted. No other designated sites of county or local importance occur within the zone of influence of the proposed development.

10.4.4 Impacts on Semi-natural Habitats

~~At present the area within the S37L site boundary supports the following range of habitats:~~

- ~~Active Quarries and Mines (ED4)~~
- ~~Spoil and Bare Ground (ED2)~~
- ~~Recolonising Bare Ground (ED3)~~
- ~~Depositing lowland river (FW2)~~
- ~~Drainage ditch (FW4)~~
- ~~Other artificial lakes and ponds (FL8)~~
- ~~Scrub (WS1)~~

- ~~(Mixed) broadleaved woodland (WD1)~~
- ~~Willow Dominated Dry Woodland (WN)~~
- ~~Wet willow-alder-ash woodland (WN6)~~
- ~~Hedgerow (WN1)~~
- ~~Treeline (WL2)~~
- ~~Dry meadows and grassy verges (GS2)~~
- ~~Wet grassland (GS4)~~
- ~~Neutral Grassland (GS1)~~
- ~~Scrub (WS1)~~

~~The gravel pit is dominated by a range of modified habitats directly related to extraction activity – i.e. ED4, ED2, ED3, FW4 and FL8. While some habitats are within the red line boundary they are located in areas that will not be impacted by proposed developments: - e.g. none of the areas of semi-natural woodland on the northern side of the public road (WN) will be impacted. Furthermore, a small area of WN6 (wet woodland) located along the northern side of the gravel pit will not be impacted; nor will the area of adjoining WD1 or the small patch of WD1 alongside the access road. Habitats buffering the northern and western settlement ponds are also to be retained. Pit faces, with sand martin nests, located east of the washing plant are also to be retained.~~

~~Of these habitats the following are located within the area identified for further extraction under the proposed S37L application and are therefore likely to be negatively impacted as works progress over time:~~

- ~~Scrub (WS1)~~
- ~~Hedgerow (WN1)~~
- ~~Treeline (i) (WL2)~~
- ~~Dry meadows and grassy verges (GS2)~~
- ~~Wet grassland (GS4)~~
- ~~Neutral Grassland (GS1)~~
- ~~(Mixed) broadleaved woodland (WD1)~~

~~While the balance within the ownership of DWCL supports:~~

- ~~Mixed broadleaved woodland (WD1)~~
- ~~Dry meadows and grassy verges (GS2)~~
- ~~Hedgerow (WL2)~~
- ~~Treeline (WL2)~~
- ~~Scrub (WS1)~~
- ~~Wet grassland (GS4)~~
- ~~Depositing lowland river (FW2)~~

~~Habitats within the existing gravel pit are predominantly of no more than local ecological importance (higher value).~~

~~The continuation of gravel extraction at the gravel pit will result in negligible impacts to existing habitats which are dependent on the extraction process e.g. Active Quarries and Mines (ED4); Spoil and Bare Ground (ED2); Recolonising Bare Ground (ED3) and transitional scrub.~~

~~Further development of the gravel pit will see extraction continue southward leading to the loss of; Scrub (WS1); Hedgerow (WN1); Treeline (i) (WL2); Dry meadows and grassy verges (GS2); Wet grassland (GS4); Neutral Grassland (GS1) and Scrub (WS1). While an area of (Mixed) broadleaved woodland (WD1) located on the western boundary is within this proposed extraction area this linear habitat provides screening and is an important corridor for fauna commuting from the Laney River and will therefore be retained. This will most likely include loss of areas of habitat of local ecological value replaced over time with a more diverse mix of semi-natural habitats that currently characterise the site (i.e. a positive impact on biodiversity).~~

The application site supports a range of habitats associated with both the active extraction area and the natural regeneration of previously worked parts of the quarry. The dominant habitats comprise Active Quarries and Mines (ED4), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3), together with smaller areas of Other Artificial Lakes and Ponds (FL8),

Mixed Broadleaved Woodland (WD1), Semi-natural Woodland (WN), Scrub (WS1), Treeline (WL2) and Dry Meadows and Grassy Verges (GS2).

The continuation of extraction activities will largely occur within the existing quarry footprint, where habitats are already characterised by active quarrying and regular disturbance. Continued extraction will therefore primarily affect habitats that are intrinsically linked to the quarrying process, including Active Quarries and Mines (ED4), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3). These habitats are dynamic in nature and are continually created and lost as extraction progresses across the site. Consequently, continued quarrying is not expected to result in any significant adverse effects on these habitats.

Further extraction will continue southwards, resulting in the progressive loss of areas of Scrub (WS1), Treeline (WL2) and Dry Meadows and Grassy Verges (GS2). These habitats are of Local Importance and are well represented within the wider surrounding landscape. Higher value woodland habitats, including Mixed Broadleaved Woodland (WD1) and Semi-natural Woodland (WN), together with the majority of the treelines around the site perimeter, will be retained, maintaining ecological connectivity with the surrounding landscape.

The settlement ponds (FL8) will continue to form part of the quarry's surface water management system. These ponds provide permanent aquatic habitat within the site and are used by common fauna, including Mallard. As the ponds will be retained, no significant impacts on this habitat are anticipated.

Overall, the proposed development is not expected to result in significant adverse impacts on habitats within the application site. The principal habitat changes will comprise the ongoing movement of the active extraction area within the quarry and the progressive loss of limited areas of scrub, treeline and grassland in the southern part of the site. The higher-value woodland habitats and aquatic features around the site margins will be retained throughout the operational life of the quarry

10.4.5 Impacts on Fauna

Birds

~~The loss of scrub and treeline habitat within the proposed extraction area due to de-vegetation and soil stripping will result in the displacement of bird species to the surrounding area. The proposed landscaping of the site to incorporate additional planting of native species will, however, provide suitable new habitat for most of the commonly occurring bird species associated with the habitats being lost. Furthermore, such scrub habitats are widespread in the wider environment.~~

~~As with the removal of vegetation, works to sand martin nesting burrows will be conducted outside the bird nesting season (March 1st – 31st August).~~

~~Continued extraction of sand and gravels will expose more areas of vertical sand cliffs / banks that offer suitable nesting habitat for Sand martin. This is a summer visitor to Ireland and feeds on small insects caught in flight, particularly over water (large numbers are recorded feeding in wetland sites such as the Gearagh). As noted, signs of nesting Sand martin were recorded in the summer of 2019, with one location supporting >30 apparently occupied nests. Moving forward, site operations will be managed to include the retention of open pit faces for nesting Sand martin. The impact on birds would therefore be assessed as being Slight negative at the local / site level only.~~

~~It is likely that the development of a more varied mix of semi-natural habitats within the gravel pit site will increase the viability of the site, not only as a refuge, but as a viable habitat for a range of birds species common throughout the Irish landscape. For example, 2 no. woodcock were recorded on the woodland west of the road in December 2019; as noted this woodland has developed from planting undertaken in the 1970s and will not be impacted.~~

~~The impact on bird species would therefore be assessed as being Slight negative at the local / site level in the short-term. With the establishment of new habitats within the active gravel pit, including pit faces for nesting sand martin, settlement ponds and areas of scrub etc., these short-term impacts would be offset while the gravel pit is still being actively managed.~~

The application site supports a diverse assemblage of breeding, foraging and commuting bird species associated with the active quarry, woodland, scrub, grassland and aquatic habitats. The most notable ecological feature recorded during the surveys was the presence of several active and inactive Sand Martin (Riparia riparia) nesting colonies within exposed quarry faces. The site also supports breeding populations of common farmland, woodland and scrub species, together with Meadow Pipit, a Red-listed BoCCI species, and several Amber-listed species including Willow Warbler, Swallow, Linnet, Goldcrest and Mallard.

The continuation of extraction activities has the potential to result in temporary disturbance to breeding birds through vegetation clearance, soil stripping and quarry operations. However, the proposed development will primarily continue within the existing operational quarry, where bird species are already habituated to ongoing quarrying activities. Higher value woodland, scrub and grassland habitats around the site margins will be largely retained, thereby maintaining breeding, foraging and sheltering habitat for the majority of species recorded.

The principal ecological consideration is the continued presence of Sand Martin nesting colonies within active quarry faces. These colonies are dependent on exposed vertical sand faces created through quarry operations. Subject to appropriate management of quarry faces and the avoidance of works affecting active nests during the bird breeding season, the continuation of quarrying is expected to maintain suitable nesting habitat for this species throughout the operational life of the quarry.

Overall, the impact on birds is predicted to be Slight Negative at the Local level.

Non-volant mammals

~~As with birds, there would be some loss of foraging habitat for terrestrial mammal; however, this is of small scale and involves habitats of local value which are well represented in the local environment. The noise from on-site plant and human presence and activity has the potential to cause disturbance to and displacement of terrestrial mammals and birds. However, the site has operated for some time as a gravel pit, so wildlife in the area has most likely habituated to patterns of activity and associated noise. Furthermore, berms to be constructed around the proposed extension area will further reduce the effects of noise on local wildlife in the wider area.~~

~~In the long term the succession and recolonisation of semi-natural habitats on the margins of the gravel pit void will provide a greater diversity of habitats for fauna. The proposed screening berms, which will bound the new extraction area to the south, will in time become colonised with scrub (e.g. gorse) and young woodland; providing cover and refuge for small mammals and birds than would be afforded by agricultural grassland and adjoining hedges; while also providing foraging opportunities and an ecological corridor to the wider Clashavoon Stream / Laney River valley for bats. No badger setts are currently located on site.~~

~~The impact on terrestrial mammals would therefore be assessed as being Slight negative at the local / site level only.~~

No evidence of badger setts or otter holts was recorded during the ecological surveys. While the adjacent watercourses provide suitable commuting and foraging habitat for otter, there was no evidence that the application site itself supports breeding or resting places for this species. Evidence of Rabbit and Fox was recorded throughout the site.

The continuation of quarry operations may result in temporary disturbance to common terrestrial mammals through noise, vehicle movements and general site activity. However, the quarry has operated at this location for many decades and mammal species present are considered to be habituated to existing operational activities. As the surrounding woodland corridors and riparian habitats will be retained, no significant impacts on mammal commuting routes are anticipated.

Overall, the impact on terrestrial mammals is predicted to be Slight Negative at the Local level

Bats

~~Relatively low levels of bat activity were recorded during the 2019 bat survey within the footprint of further development area. The study did conclude there are excellent foraging sites for bats along the route of the River Laney and the Clashavoon Stream very close to the western and northern boundary of the site. The proposed extraction includes the removal of a small section treeline however the remaining linear habitats located around the site boundary will be retained~~

~~therefore impacts to commuting bat are not predicted as a result of the proposed extraction. The findings of this survey concluded the proposed further development will have no adverse effect on bats (see Appendix 10-1). The presence of consistent standing water may be of benefit to local wildlife; especially foraging bats by providing local abundances of invertebrate prey in the sheltered micro-climate of the gravel pit base.~~

~~The impact on commuting bats would therefore be assessed as being Slight negative at the local / site level only.~~

Static bat surveys undertaken over a 63-night period recorded six bat species using the application site, with Common Pipistrelle and Leisler's Bat accounting for the majority of bat activity. Lower levels of activity were recorded for Soprano Pipistrelle, Brown Long-eared Bat, Daubenton's Bat and Nathusius' Pipistrelle. The adjacent woodland, riparian corridor and settlement ponds provide suitable foraging and commuting habitat.

The proposed development will not result in significant loss of woodland or other linear landscape features used by commuting bats. The principal commuting and foraging corridors along the woodland and watercourses surrounding the site will be retained. The settlement ponds will also remain in place and continue to provide suitable foraging habitat through supporting aquatic insect populations.

Accordingly, no significant impacts on commuting or foraging bats are predicted.

The proposed development is not expected to result in the loss of bat roosts, significant foraging habitat or commuting routes. The principal woodland and riparian corridors surrounding the site will be retained, together with the settlement ponds which provide suitable foraging habitat. Bat activity recorded during the surveys demonstrates that bats currently utilise the site alongside ongoing quarry operations. Consequently, no significant impacts on bats are predicted.

Amphibians

~~No amphibians were recorded during field surveys. Settlement ponds can be used by amphibians including Common frog and Smooth newt. While settlement ponds are present on site, they are being actively used for silt settlement and do not currently provide good habitat for amphibians. If the settlement pond were to be retained in some form as part of restoration of the site, it would provide suitable habitat for a range of species, including amphibians in the longer term.~~

~~The impact on amphibians would therefore be assessed as being negligible in the short-term and positive in the long-term if it were possible to retain surface water features in the restored site.~~

The settlement ponds within the quarry provide limited suitable habitat for amphibians. While they may offer some breeding opportunities for Common Frog, they were considered to provide poor breeding habitat for Smooth Newt due to their depth and lack of emergent vegetation. Several smaller ephemeral ponds also occur within the site and may provide temporary breeding habitat during favourable conditions.

The proposed development is not expected to result in significant impacts on amphibians, as the principal settlement ponds will be retained and no amphibian breeding populations were recorded during the surveys.

Overall, the impact on amphibians is predicted to be Imperceptible.

10.4.6 Impacts on Aquatic Ecology / Water Quality

~~As noted, quarries can inadvertently create clean water habitats that support diverse assemblages of flora and fauna, including amphibians, macrophytes and invertebrates such as beetles, dragonflies and damselflies. The Ummera gravel pit has several functioning settlement ponds which could provide this habitat type. However, given high levels of silt input and maintenance of these ponds this succession is unlikely to occur while the gravel pit is operational. These habitats will therefore stay as negligible value for aquatic ecology during the lifetime of the gravel pit. The ponds will be removed with the restoration of the site.~~

~~The most likely threats to the integrity of a watercourse such as the Clashavoon Stream from a sand and gravel pit, such as Ummera, comes from the discharge of contaminated surface waters; in particular waters heavily contaminated by silts and fines. Other sources of contamination could include hydrocarbon release from refuelling areas or from wastewater associated with welfare facilities on site.~~

~~Water quality data is not collected on the Clashavoon Stream by the EPA. Small stream risk scores calculated as part of this study for sampling stations upstream and downstream of the gravel pit both indicate that the Clashavoon Stream is at Risk of not achieving Good status (i.e. SSR scores, based on sampling of aquatic macroinvertebrates). EPA water quality data (Q-values) is presented from stations on the River Laney upstream and downstream of the confluence with the Clashavoon. These data suggest that water quality downstream of the gravel pit broadly mirror those of the upstream station on the River Laney; with the worst case of water quality (Q2-3, Poor in 1995) noted on the River Laney upstream the gravel pit. Currently water quality downstream of the gravel pit is Q4-5, High (2018).~~

~~Recently measures have been put in place to improve water management on site with the completion of a closed recirculation system – refer to Chapter 2. Further measures such as the construction of a bunded fuel / oil storage shed, concrete refuelling pad and paving of the site access road will limit further the risk of contaminates reaching the Clashavoon Stream.~~

~~FWPM has been recorded in the River Laney. Apart from limited records there does not appear to have been a systematic survey of FWPM within the full catchment of the River Laney (see Section 10.3.7). There was no evidence of FWPM in the Clashavoon Stream (2019 field surveys). The release of silt laden waters from the site could have a significant negative impact on FWPM. However, as noted, a series of improvements to the water management system have been implemented. With careful maintenance and operation of these measures, negative impacts to water quality and sensitive species such as FWPM are not anticipated.~~

~~Similarly, salmonids and lamprey are sensitive to release of silts into aquatic environs which has the potential to cause the siltation of spawning gravels preventing spawning; covering of laid eggs and in high concentrations of suspended solids in the water may physically choke fish or disrupt feeding behaviour (Hendry & Cragg-Hine, 2003). As noted, a closed wash-water recirculation system is in operation at the gravel pit. Significant negative impacts on salmonids and lamprey are therefore not anticipated.~~

The principal potential impact of the continued operation of Ummera Gravel Pit on aquatic ecology relates to the deterioration of surface water quality through the release of suspended solids, accidental hydrocarbon spills or other contaminants entering the Bealick/Clashavoon Stream. Such impacts could adversely affect downstream aquatic habitats and sensitive aquatic species, including Freshwater Pearl Mussel, salmonids and lamprey.

The aquatic ecology baseline has been informed by the aquatic surveys undertaken in 2019, together with updated hydrological information and routine surface water monitoring undertaken between 2022 and 2026. While the Small Stream Risk Score (SSRS) assessment categorised both upstream and downstream sampling locations on the Bealick/Clashavoon Stream as "Stream at Risk", identical scores were recorded at both locations, indicating that the pressures affecting the stream originate more broadly within the catchment and are not attributable solely to quarry operations.

Since 2020, the site's water management infrastructure has been further enhanced to improve the treatment and management of surface water. Process water is managed through a closed wash-water recirculation system, with water recycled through a series of settlement ponds prior to reuse within the washing plant. Surface water runoff from the processing area is directed through the settlement pond network, while overflow passes through an additional settlement pond before discharge. Pollution prevention measures have also been strengthened through the provision of bunded fuel and oil storage, a dedicated concrete refuelling area and the paving of the site access road, reducing the potential for sediment mobilisation and accidental contamination.

Recent surface water monitoring undertaken between 2022 and 2026 demonstrates that these measures are operating effectively. EPA monitoring indicates that the River Laney both upstream and downstream of the gravel pit continues to achieve High ecological status (Q4–5), while site-specific monitoring of the Bealick/Clashavoon Stream and downstream River Laney indicates that quarry operations are not causing deterioration in downstream water quality.

Freshwater Pearl Mussel has been recorded within the downstream River Laney catchment, although no evidence of the species was recorded within the Bealick/Clashavoon Stream during the 2019 aquatic survey. Freshwater Pearl Mussel, together with salmonids and lamprey, are particularly sensitive to increases in suspended sediment and deterioration in water quality. However, given the continued operation of the site's enhanced water management infrastructure and the results of the ongoing surface water monitoring programme, significant adverse impacts on these species are not anticipated.

The settlement ponds continue to function primarily as operational infrastructure for water treatment and recirculation. Ongoing maintenance, including the periodic removal of accumulated sediments, limits their value for aquatic flora and fauna during the operational life of the quarry. Consequently, no significant impacts on aquatic habitats associated with the settlement ponds are predicted.

Overall, the continued operation of the gravel pit is not predicted to result in significant adverse impacts on aquatic ecology or water quality, and the impact is therefore assessed as Imperceptible.

10.5 Mitigation Measures

10.5.1 Birds & Mammals

Clearance of vegetation such as scrub will be carried out outside the breeding bird season from 1st March to 31st August inclusive. Where vegetation clearance cannot be avoided during this period the local authority will be consulted in advance and if it is deemed necessary then a suitably qualified ecologist will be appointed to oversee clearance of vegetation and ensure the area is free of nesting birds. The appointed ecologist will develop a method statement for the vegetation clearance in consultation with the planning authority and, if required, local NPWS staff.

While badger was not found within the site, badger could establish setts in the time prior to commencement of works. Therefore, pre-construction surveys for badger will be carried out within the gravel pit extension prior to site clearance. Note that suitable habitat will be installed along the screening berms in the form of native tree planting.

10.5.2 Bats

Working hours at the gravel pit are generally between 9am and 5pm, so artificial lighting is not required; there is no outside lighting at the gravel pit and it is not proposed to install outside lighting for its further development. While it was found that a low number of bats used the site during the 2019 survey, linear habitats to the west were found to be important features for bats commuting up the Laney River valley. The presence of flood lights could interfere with this commuting corridor, but this is avoided by the omission of flood lights in the site design.

10.5.3 Aquatic Fauna

DCWL has an Environmental Management System (EMS) in place for the operation of the Ummera gravel pit. Going forward, monitoring will be conducted during the lifetime of the operations to assess the effects on the environment so that operational changes and improvements can be made where appropriate. The proposed monitoring programme will form part of an EMS for the pit and include both surface and groundwater monitoring. This will have to take account of the presence of FWPM in the River Laney downstream of the site and ensure that the settlement pond system has sufficient capacity to prevent loss of silt laden waters to the Clashavoon Stream and the River Laney.

Recent changes to the water management onsite has reduced the requirement of abstraction from the Clashavoon Stream. Further mitigation to lower the potential for impact to fish and aquatic species will be put in place. Such measures include the placement of a screen around the abstraction point and partial removal of a weir located downstream of the abstraction point. As noted above this weir is a barrier to fish passage. The partial removal of the weir will improve access upstream for salmon and lamprey species.

Additional mitigation measures required by Inland Fisheries Ireland (IFI) will also be implemented to further reduce potential impacts on fish and other aquatic species. These measures include the installation of a screen around the surface water abstraction point and the modification of the existing rock weir downstream of the abstraction point to facilitate the free passage of fish. The modification of the weir will improve upstream access for salmonids and lamprey while maintaining the operational requirements of the abstraction system. The dry weather flow (DWF) level at the surface water abstraction point will be established, and a permanent level gauge with the DWF level clearly marked will be installed. Water abstraction from the Bealick/Clashavoon Stream will not be undertaken when water levels are at or below the established dry weather flow level, thereby ensuring that sufficient flows are maintained within the watercourse to protect aquatic habitats and fish populations.

10.5.4 Water Quality

Best practices measures in line with CIRIA's 'Environmental good practice on site guide (fourth edition) (C741) and Construction Industry Research and Information Association and the IFI's '*Guidelines on protection of fisheries during construction works in and adjacent to water*' will be adhered to.

Furthermore, improvements are proposed for the storage and dispensing of hydrocarbons (potential sources of contaminants). The improvements proposed are:

- A concrete refuelling pad will be installed which will contain any spills during refuelling.
- The storage of fuel and hydrocarbons will be in a bunded storage shed adjacent to the refuelling pad. The diesel storage tank will be relocated to this shed as will the storage of oils.
- Any maintenance or repairs to the mobile plant will be carried out on the concrete pad.
- A spill kit will be kept in the front-end loader.

The proposed measures will be carried out within 6 months of the grant of permission.

10.5.5 Invasive Species

No 3rd Schedule of the Natural Habitats Regulations, 2011 invasive species, such as Japanese knotweed, were found on site. Butterfly-bush was recorded during the desktop survey but not found onsite. Butterfly-bush is widespread within Ireland. While Butterfly-bush is classified as a medium risk invasive species, and should be treated appropriately, it is also of great value to pollinators.

Good site hygiene is required to prevent the spread of butterfly-bush and any other invasive species which may occur in the proceeding time since the site was surveyed. Tracked equipment should not be used in areas with non-native invasive species before such species have been cleared. Any areas adjoining the site that support non-native invasive species, but where excavation works are not proposed, but which may have to be accessed by machinery should be protected to avoid spreading the non-native invasive species. Should it be necessary to remove material off-site for disposal this must be done in line with appropriate Waste legislation and with the nature of the material clearly identified

10.6 Residual ~~Impacts~~Effects

~~As noted, this assessment relates to impacts from the proposed continuation and further extraction activities at Ummera gravel pit. Based on the assessment of these potential impacts~~

~~and mitigation measures proposed, the project will have a shot-term negative impact on terrestrial flora and fauna on site.~~

~~The further development at the Ummera site will result in the loss of grassland, scrub and a section of treeline. Overall, the impacts of the proposed development in the absence of mitigation would be assessed as no more than slight negative at a local / site level. Mitigation by avoidance is proposed for breeding birds, bats, aquatic fauna and to prevent the spread of invasive species. Measures to reduce the effects of artificial lighting, noise, surface water pollution and loss of habitats are also proposed. Planting of native woody species in landscaped areas is also proposed as mitigation. With careful maintenance and operation of these measures to protect water quality on site, negative impacts to water quality and sensitive species such as salmon, FWPM etc. in the adjoining catchment of the River Laney are not anticipated.~~

~~While some short-term residual effects are anticipated due to the loss of habitats while replacement habitat matures it is considered that in the long-term that such losses will be mitigated on site. Furthermore, the improvement of surface water management within the gravel pit, reduction and screening of water abstraction from the Clashavoon Stream and partial removal of the weir will have positive effect on the Clashavoon Stream, the downstream Laney River and fauna using these connected waterbodies.~~

~~In all the residual impact of the proposed development is likely to be of no more than slight negative at local / site level.~~

This assessment considers the residual ecological impacts associated with the continued operation of Ummera Gravel Pit following the implementation of the mitigation measures described in Section 10.5.

The continued operation of the quarry will result in the ongoing disturbance and periodic loss of habitats associated with active extraction. These impacts will primarily be confined to habitats of low ecological value within the operational quarry, including Active Quarries and Mines (ED4), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3). However, as extraction progresses southwards, there will also be the progressive loss of areas of Scrub (WS1), Treeline (WL2) and Dry Meadows and Grassy Verges (GS2). These habitats are of Local Importance and are well represented within the surrounding landscape. The higher value woodland habitats, together with the Bealick/Clashavoon Stream and the principal ecological corridors around the site margins, will continue to be retained.

The implementation of standard ecological protection measures, including seasonal restrictions on vegetation clearance, protection of breeding birds, retention of bat commuting corridors, continued monitoring of water quality and adherence to the site's Environmental Management System, will minimise impacts on terrestrial and aquatic biodiversity.

Since 2020, the site's water management infrastructure has been significantly enhanced through the operation of a closed wash-water recirculation system, an expanded settlement pond network, improved drainage infrastructure and enhanced pollution prevention measures. Ongoing surface water monitoring demonstrates that these measures are operating effectively and that quarry operations are not adversely affecting downstream water quality. Consequently, significant residual impacts on the Bealick/Clashavoon Stream, the River Laney or downstream aquatic receptors, including Freshwater Pearl Mussel, salmonids and lamprey, are not anticipated.

No significant residual impacts are predicted for bats, mammals or amphibians. Some localised residual impacts on breeding birds may occur as a result of the progressive southward advancement of extraction and the associated loss of scrub, treeline and grassland habitats. However, these impacts will be minimised through the implementation of the mitigation measures outlined in Section 10.5, including the management of Sand Martin nesting habitat and the timing of vegetation clearance.

Overall, the residual ecological impact of the continued operation of Ummera Gravel Pit is assessed as Slight Negative at the Local level, reflecting the ongoing progression of extraction activities and the associated loss of limited areas of scrub, treeline and grassland, while recognising that the existing mitigation measures and operational controls are effective in protecting the surrounding ecological environment.

Residual effects are summarised in Table 10-23.

Table 10-23: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects
Habitat Loss	Scrub (WS1), Treeline (WL2) and Dry Meadows and Grassy Verges (GS2)	Progressive loss of areas of scrub, treeline and grassland as extraction advances southwards.	Retention of higher-value woodland habitats and principal ecological corridors around the site margins. Implementation of habitat protection and restoration measures.	Slight Negative at Local level
Habitat Disturbance	Retained habitats adjoining the operational quarry	Localised disturbance associated with ongoing extraction activities, including dust and general operational disturbance.	Retention and protection of habitats outside the extraction footprint. Dust suppression and operational controls implemented through the Environmental Management System.	Imperceptible
Breeding Birds	Breeding bird assemblage	Loss and disturbance of nesting and foraging habitat associated with progressive vegetation clearance and extraction.	Seasonal restrictions on vegetation clearance and protection of active nests. Management of Sand Martin nesting habitat.	Slight Negative at Local level
Bats	Bat foraging and commuting habitat	Localised loss or disturbance of foraging habitat and potential disturbance of commuting routes.	Retention of principal ecological corridors and suitable boundary vegetation.	Imperceptible
Terrestrial Mammals	Mammals using the site and surrounding habitats	Localised habitat loss and disturbance associated with extraction activities.	Retention of higher-value habitats and ecological corridors and implementation of standard ecological protection measures.	Imperceptible
Amphibians	Amphibians and suitable terrestrial/aquatic habitat	Potential localised disturbance or loss of habitat associated with quarry operations.	Retention of suitable habitats outside the extraction footprint and implementation of standard ecological protection measures.	Imperceptible
Water Quality	Bealick/Clashavoon Stream and River Laney	Potential deterioration in water quality arising from sediment mobilisation or accidental pollution.	Closed wash-water recirculation system, settlement pond network, improved drainage infrastructure, pollution prevention measures, continued water-quality monitoring and adherence to the Environmental Management System.	Imperceptible
Aquatic Ecology	Freshwater Pearl Mussel, salmonids, lamprey and other downstream aquatic receptors	Potential indirect effects arising from deterioration in downstream water quality.	Continued implementation of water-quality protection, pollution prevention and monitoring measures.	Imperceptible

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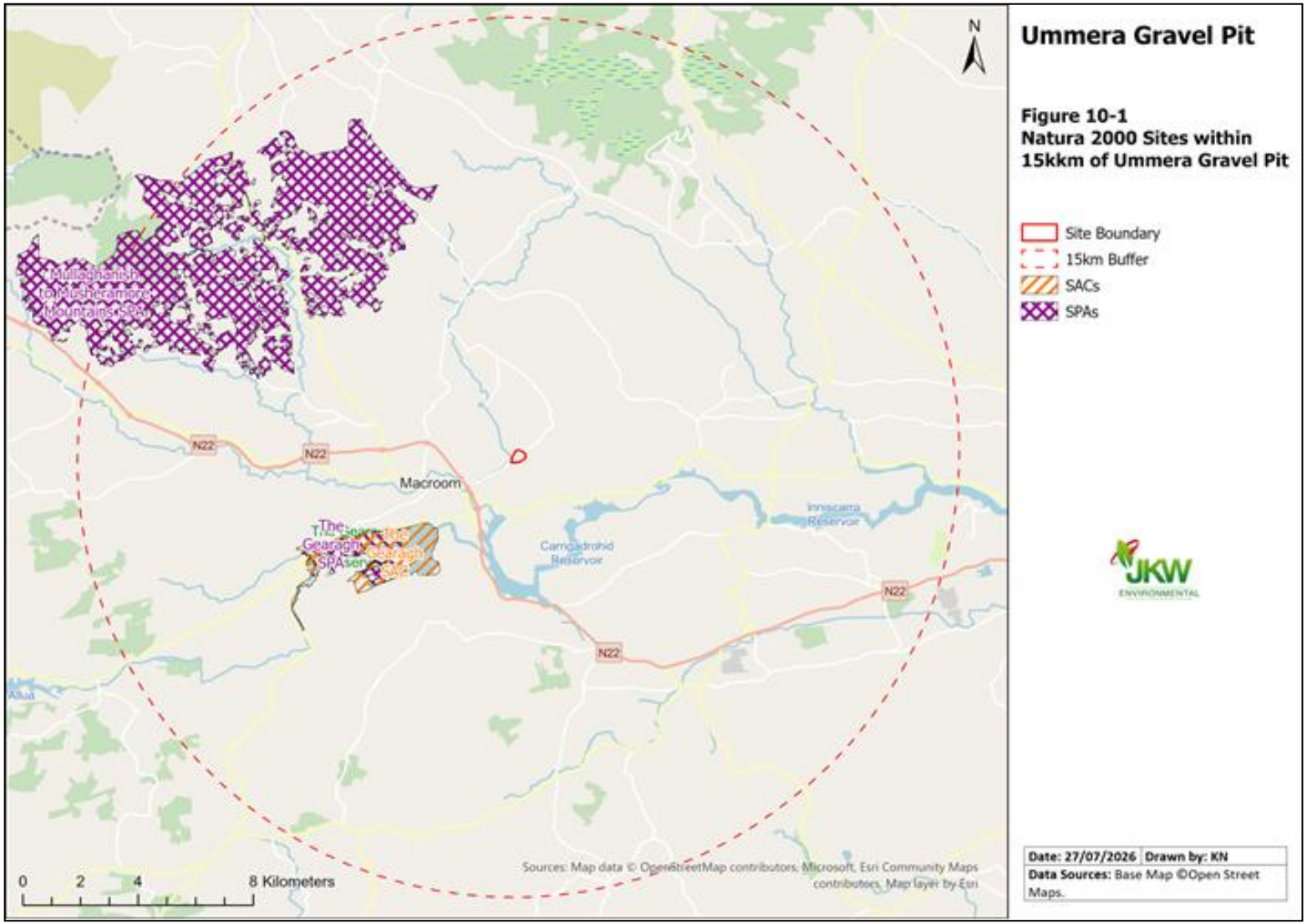


Figure 10-1: Natura 2000 Sites within 15km

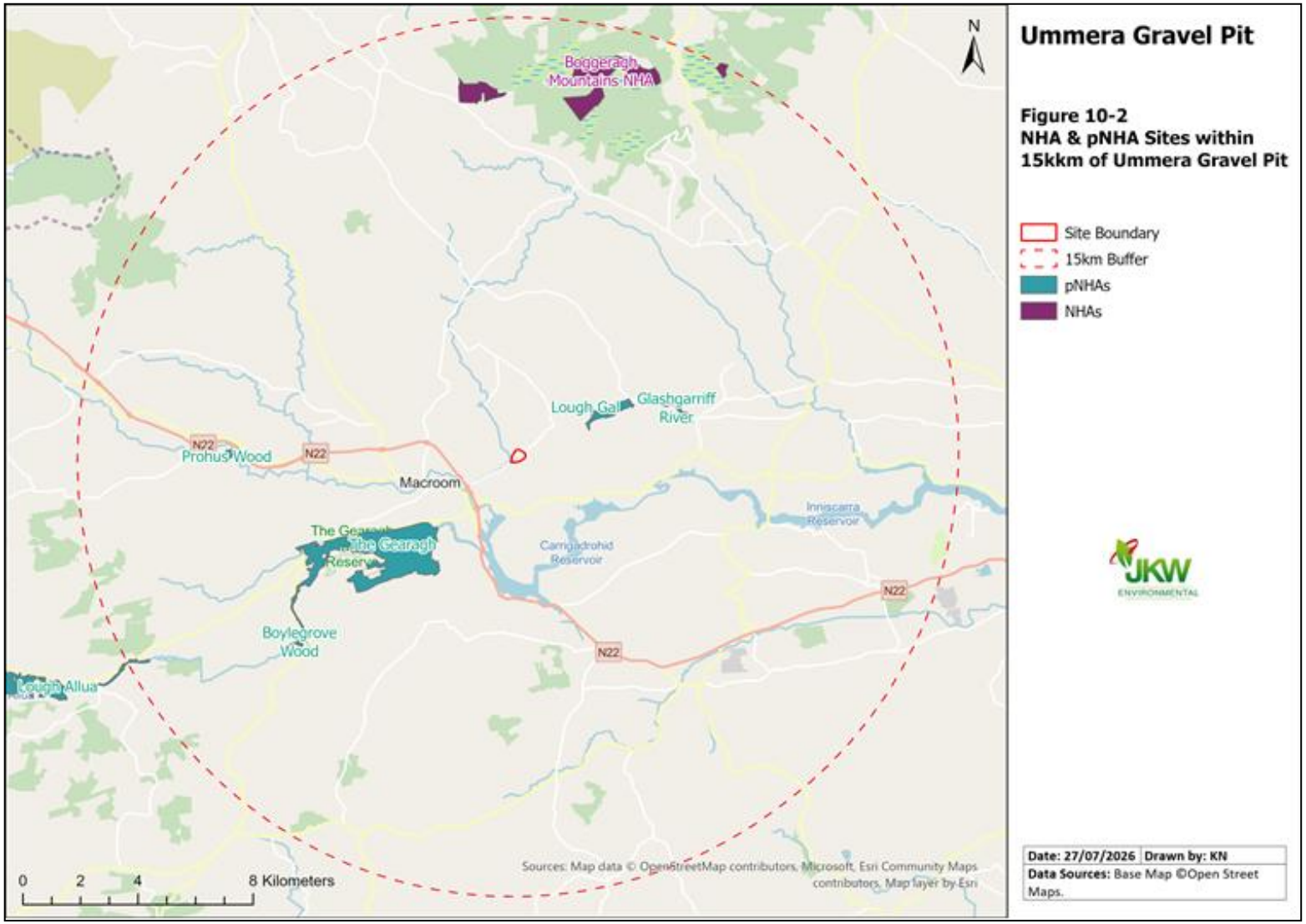


Figure 10-2: NHAs & pNHAs within 15km

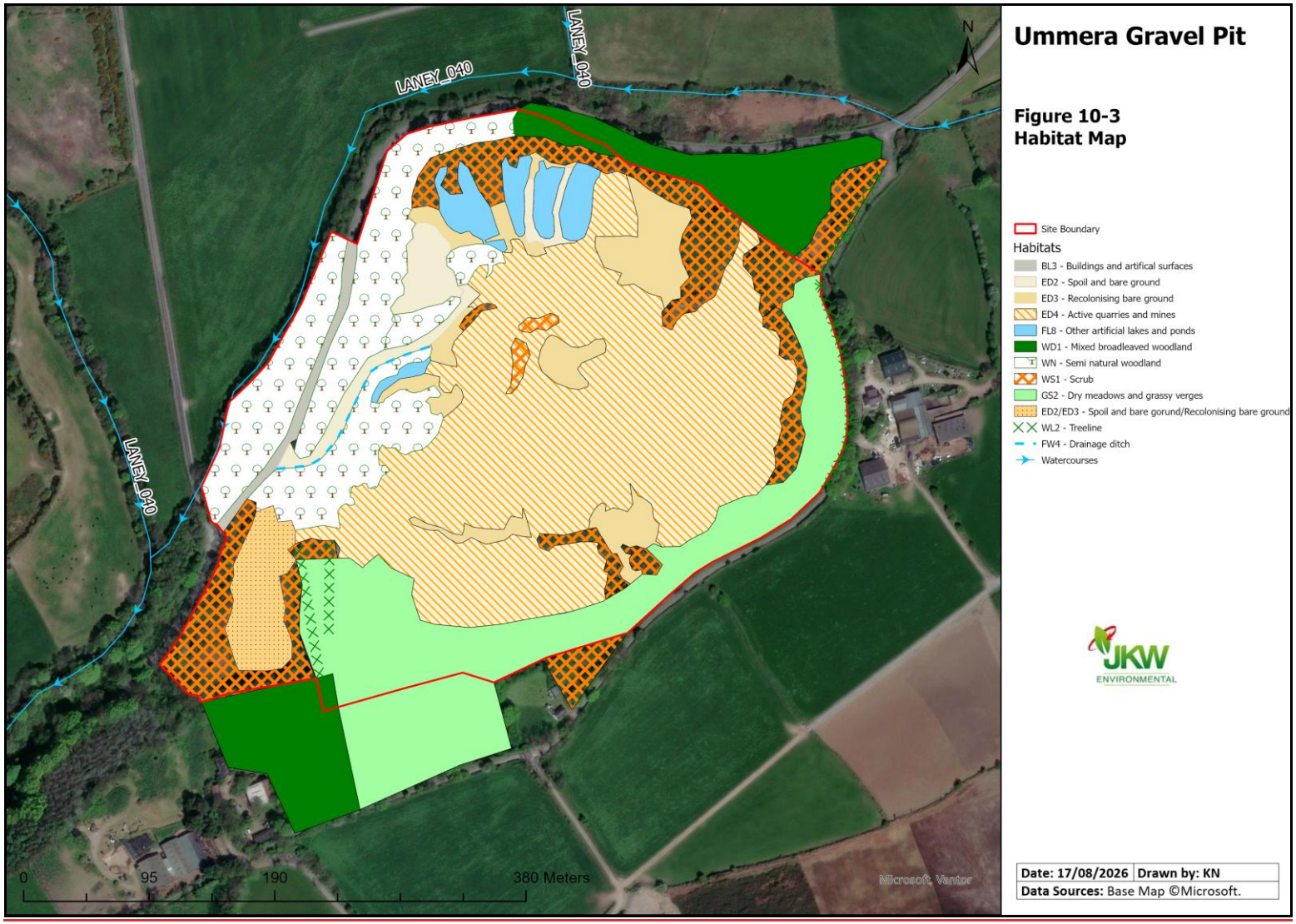


Figure 10-3: Habitat Map - 2026

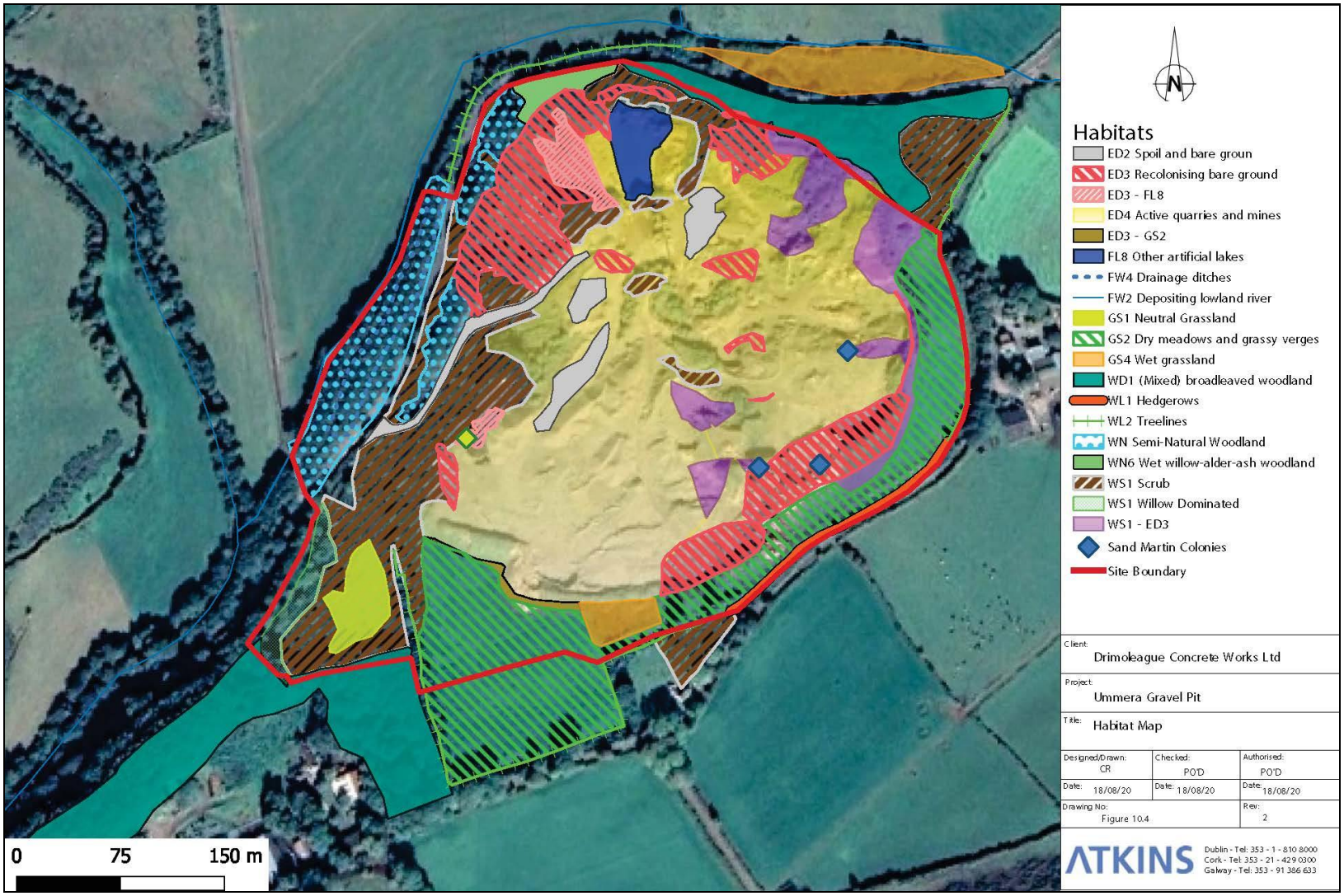


Figure 10-4: Habitat Map of Ummera Gravel Pit – 2019

11. LANDSCAPE AND VISUAL ASSESSMENT

This chapter provides a description of the existing landscape, visual character of the site and its surrounds, and the potential impact of the further development of the gravel pit thereon. The description of the area is based on survey and analysis carried out on site and aerial photography that documents the landscape changes over time. Information regarding the vegetation in the locality is derived from field observations and the biodiversity chapter.

11.1 Introduction

The term landscape refers primarily to the visual appearance of the land, including shape, form and colour, and their interaction to create specific patterns and pictures that are distinctive to particular localities. However, the landscape is not purely a visual phenomenon because its character relies closely on its physiography and its history. Hence, in addition to the scenic and/or visual dimension, there are a whole range of other dimensions to landscape, including geology, topography, soils, ecology, archaeology, landscape history, land use, buildings and settlement, architecture, cultural associations and human beings. It is not just the countryside and mountain moorlands, it is also the urban environment. It is defined by the Council of Europe (2000[43]) as '*Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'*.

Landscape requires particular consideration for extractive developments due to the importance attached to it by individuals and communities. Landscape is important because it provides, for example, a shared public resource, the setting for day-to-day living, work and recreation, an environment for wildlife, connection to the past and a sense of place, and a source of income from tourism and agriculture.

Landscape is not static; it is continually changing resulting from land use changes, population growth and new infrastructure. There is a requirement to accommodate change, but in a way that is sustainable; this means *development that meets the needs of the present without compromising the ability of future generations to meet their own needs'* (WCED, 1987[44]). This requires a balance being reached between environmental, economic and social pressures, so a robust impartial landscape and visual impact assessment (LVIA) must be undertaken.

There are two aspects of the LVIA: (a) assessment of visual effects; and (b) assessment of landscape effects. The assessment of landscape effects addresses effects on the landscape as a resource in its own right. The assessment of visual effects addresses effects on specific views and on the general visual amenity experienced by people.

In deciding on the acceptability and suitability of the proposed further development of the gravel pit, the landscape *character*, *sensitivity*, and *value* must each be assessed:

- *Landscape character* can be established for an area where there are visual distinctiveness and identity through a continuity of similar characteristics.
- *Landscape sensitivity* concerns the extent to which a landscape can accommodate change without unacceptable loss of existing character or interference with values.
- Landscape values can be described as the environmental or cultural benefits that are derived from various landscape resources. These resources may include physical and visual components as well as image of the landscape.

11.1.1 Scope & Methodology

In addition to the EPA Guidelines[5], in the preparation of EIAR, there are several guidelines used in carrying out the landscape and visual impact assessment, including:

1. Guidelines for Landscape and Visual Impact Assessment, (The Landscape Institute/Institute of Environmental Management and Assessment, UK, 2013).
2. Photography and Photomontage in Landscape and Visual Impact Assessment, (Landscape Institute Advice Note 01/11, 2011).
3. Landscape Character Assessment (LCA) and Landscape and Visual Impact Assessment (LVIA) of Specified Infrastructure Projects – Overarching Technical Document, PE-ENV-01101, Transport Infrastructure Ireland (TII), December 2020.

The approach to the assessment has regard to the above guidance documents:

- A viewshed area was drawn indicating areas from where the gravel pit could theoretically be visible.
- A windscreen survey was carried out to identify areas within the viewshed area from which the gravel pit site is visible.
- From the viewshed area map and windscreen survey, the study area was defined by a radius of up to approximately 1km from the Ummera gravel pit.
- The baseline landscape character, sensitivity and values were described. The available published landscape character for County Cork is used as a baseline for this description.
- Key viewpoints were selected from where photographs were taken to illustrate the nature and degree of visual effects.
- An assessment of the landscape and visual impacts of the further development of the gravel pit was then undertaken.
- Landscape and visual assessment of the operational, phased restoration and final restoration were carried out.

The information collected during the desk-based assessment and site walkover were used to establish the landscape and visual significance and sensitivity of the receiving environment. These are summarised in Tables 11-1 (Landscape) and 11-2 (Visual).

Table 11-1: Rating of Landscape Significance & Sensitivity

Rating of Landscape Significance & Sensitivity	Criteria / Landscape Receptor Examples
Very High	A landscape protected by an international or national designation (Special Area Amenity Order (SAAO), designated ecological landscapes (cSAC, SAC, SPA, NHA, pNHA, etc.)), Landscape Conservation Areas, UNESCO/ICOMOS Landscape Sites (World Heritage Sites/Tentative sites & Geoparks). A landscape widely acknowledged for its distinctive features and the quality and value of its elements and edge condition. A landscape with distinctive character and very susceptible to change. Distinctive/unique land uses of widely acknowledged landscape quality. Very careful and considered design and mitigation required. Landscape types may include, but are not limited to: o Nationally important tourism, cultural, recreational & amenity landscapes, open spaces and parklands. o Protected coastal landscapes / seascapes. Dark sky reserve landscapes Tranquil or remote landscapes. Absence of negative elements (e.g. volumes of traffic, noise, dereliction, unmanaged areas).
High	A landscape widely acknowledged as containing elements of national importance. National designation may apply. A landscape containing nationally important (and in some cases regionally important) historical, ecological and socio-cultural features. A landscape acknowledged for its high quality and value. A landscape having the capacity to accommodate change to a certain degree. Elements critical to maintaining the landscape character of said high-rated areas (e.g. primary or characteristic landforms, landcover, landscape types; distinctive but characteristic boundaries; etc.). Community, sports, and recreational landscapes which cannot be replaced locally. Notable high value landscape features that could not be replaced (e.g. distinctive wooded copse, historic boundaries). Landscape setting to high value cultural heritage features (archaeological and/or architectural). May have some negative elements, but otherwise contains highly rated landscape elements

Rating of Landscape Significance & Sensitivity	Criteria / Landscape Receptor Examples
Medium	A landscape that exhibits positive character. A landscape that is locally important, but that might contain some regionally important elements. A landscape of some quality and value but with some adverse conditions. A landscape whose character, land use pattern, and scale would have the capacity to accommodate change. Some negative elements/detracting features present. Elements important to but critical for maintaining the landscape character of an area (e.g. secondary landform, landcover, landscape types; general development; strong but not dominate boundaries; etc.). Commonplace but not characteristic elements with recognisable structure and characteristic patterns with some sense of place. Distinctive / unique land uses of some acknowledged landscape quality. Landscapes with some detracting features present. Sporting and recreational landscapes which could be replaced locally - but not readily without further effects. Ecological or cultural landscapes or interest - but not designated nor meriting designation. Notable landscape elements that could be replaced.
Low	A landscape of local importance but with some degraded elements or conditions. A landscape where lack of management/intervention is evident. A landscape where change is unlikely to be detrimental. Elements not important to maintaining the landscape character of an area (e.g. low value general vegetation, trees and hedgerows; contradictory landscape types; poor or discordant development; etc.). Land uses without acknowledged landscape quality. Industrial/post-industrial landscapes with little cultural heritage antiquity. Marginal land on urban fringe / some peri-urban landscapes/areas of dereliction with low aesthetics value and few elements of interest. Sporting and recreational landscapes where they can be easily replaced locally.
Very Low / Negligible	A degraded landscape. Infrastructural landscapes of no cultural heritage antiquity, including major transport corridors. Landscape where negative elements (e.g. traffic, noise, derelict, neglect, evidence of anti-social behaviour such as graffiti, vandalism, littering etc.) dominate the overall character. Brownfield sites with no associations of note. A landscape where change is likely to be positive.

Based on the above, the landscape significance and sensitivity at Ummera is rated as 'Medium' - a landscape that exhibits positive character; is locally important, but that might contain some regionally important elements; some quality and value but with some adverse conditions; and whose character, land use pattern, and scale would have the capacity to accommodate change.

Table 11-2: Rating of Visual Significance / Sensitivity

Rating of Visual Significance & Sensitivity	Criteria / Visual Receptors Examples
Very High	Designated views, viewpoints, and vistas. Areas containing protected views as outlined in Development Plans or landscape policies. Very highly aesthetic views and vistas, with lack of visual clutter and absence of traffic and other elements which may cause visual degradation. Night-time views within dark sky reserves.
High	Viewers with a proprietary interest and prolonged viewing opportunities such as local residents and frequent recreational users. Existing high-quality views from public open spaces, where viewers are likely to experience the type of change resulting from the proposed scheme as an adverse or positive change and/or the quality of the existing view, as likely to be perceived by the viewer, is assessed as being high. Views from high usage public spaces, direct observers (e.g. views from local residential properties, residential care units with direct views to the development). Non-designated views of distinctive or characteristic landscapes from general road network. Views to and from local ridges, hills, high-points, buildings of note. Views to and from sites of regional ecological and / or cultural interest. Some visual discordance in streetscape. Traffic movements distracting visually but not predominant.

Rating of Visual Significance & Sensitivity	Criteria / Visual Receptors Examples
Medium	Viewers with a moderate interest in their environment such as recreational travellers and less frequent users of recreational facilities, e.g. walkers along canal, users of any adjacent parks, who are likely to experience the type of change resulting from the proposed scheme as an adverse (or positive) change in their view and/or the quality of the existing view, as likely to be perceived by the viewer, is assessed as being medium. Viewers within a landscape dominated by traffic. Visual condition of the landscape is degraded. Non-designated views of distinctive or characteristic landscapes from general road network. Views to and from open spaces, local parks. Views from sports and recreational facilities. Views to and from sites of local ecological and / or cultural interest. Views from general community, schools, institutional buildings, and associated outdoor areas.
Low	Viewers with a passing interest in their surroundings or whose interest is not specifically focused on the landscape, e.g. workers who are likely to experience the type of change resulting from the proposed scheme as an adverse (or positive) change in their view and/or the quality of the existing view, as likely to be perceived by the viewer, is assessed as being low. Viewers within an exclusively trafficked landscape (i.e. a major roadway or adjacent to one with no mitigation). Views of unremarkable landscapes from general road network. Viewers of users of recreational facilities where the purpose of that recreation is not related to the view. Views to and from industrial landscapes of little or no cultural heritage antiquity or aesthetic merit.
Very Low / Negligible	Areas of dereliction and poor visual quality due to such elements as graffiti, vandalism, derelict and run-down buildings and structures and littering. Views to and from degraded or abandoned urban or peri-urban landscapes or areas of dereliction with very low aesthetics value and little or no elements of interest. Views to brownfield or damaged landscapes with no associations of note. Views dominated by transportation and other infrastructure of no aesthetics merit.

Based on the above, the visual significance and sensitivity at Ummera is rated as 'Low' – viewers with a passing interest in their surroundings or whose interest is not specifically focused on the landscape, e.g. workers who are likely to experience the type of change resulting from the proposed scheme as an adverse (or positive) change in their view and/or the quality of the existing view, as likely to be perceived by the viewer, is assessed as being low. The majority of the viewers is related to commuter traffic.

11.2 Existing Landscape

The Ummera gravel pit is in a landholding of 20.22ha. The further development of the gravel pit will increase the gravel pit footprint by approximately 2ha. It is in the Laney River catchment on undulating agricultural land within the wider Lee Valley catchment. Surrounding lands are used for intensive agriculture – mainly dairy and beef. Elevations undulate typically between 90 and 200mOD. The site is overlooked from the south and southeast by an east-west trending ridge, which rises to 220mOD. These elevated lands are mostly in grass. Natural woodlands follow the valleys of the Laney and Sullane rivers.

The landscape type for the Ummera area is characterised in the Cork County Landscape Strategy as Valleyed Marginal Middleground (Macroom and Environs) (Type 13a). This landscape type is found between Ballyvourney and Macroom. Ummera is situated at the southeast corner of the landscape type, which is defined by the elevated ridges to the southeast of the gravel pit. The adjoining landscape type to the southeast is Hilly River and Reservoir Valleys (Type 8).

The landscape comprises low rounded hills of Old Red Sandstone enclosing fairly broad undulating river valleys. While there is generally an appearance of roughness in this landscape type, the area in the immediate environs of Ummera are less so, with good quality agricultural land prevailing.

There are three landscape character areas within this landscape type – Kilmichael, Macroom and Ballynagree. Ummera is situated within Macroom – Broad Middle Valley of semi-rugged mosaic hills and rock outcrop, which is located in the centre of the landscape.

The site is not located within a 'High Value Landscape' as defined in the ~~2014~~ 2022 CDP. The high value landscape coincides with the Lee valley to the southeast. The gravel pit is not visible from any of the scenic routes in the wider area. The nearest scenic route is the R618 between Leemount (Carrigrohane) and Macroom (via Coachford).

Due to undulating topography and mature trees, views of the gravel pit are limited; only some overburden stockpiles are visible or the highest parts of the working face.

11.3 Scope of Impacts - Characteristics of Proposed Development

The Ummera gravel pit has and will continue to have an impact on the landscape and visual character of the surrounding areas, and in the main these impacts will be perceived as negative. Changes will continue to arise primarily from:

- The removal of existing agricultural lands. This will involve removal of pasture lands and exposing soils. The greenery of the pasture lands will be replaced by brown / red exposed soil. The larger footprint could result in greater visibility of the gravel pit and its operations.
- Continued extraction operations. The continued extraction will result in continued HGV movement through the landscape.
- Temporary storage of aggregates and silt washings. Stockpiles of aggregate can be visible from some locations.
- Construction of site infrastructure, such as screening berms. The construction of berms will result in visual intrusion or visual obstruction. This can be softened in time with planting and greening of the berms.

These changes will impact primarily on residences and roads adjacent to the east side of the gravel pit and the more distant views from the west along local road L-7478. The gravel pit is not considered to have impacts on views from other perspectives.

11.4 Impact Assessment

11.4.1 Impact Assessment Methodology

Visual impact may occur by means of intrusion and/or obstruction where these terms are defined as follows:

Visual Intrusion: Impact on view without blocking, and
Visual Obstruction: Impact on view involving blocking thereof.

~~Visual impacts by means of intrusion or obstruction on a particular view, may be viewed as positive, neutral or negative and can be rated as follows:~~

- ~~**Little/None** arises where the development is adequately screened by existing landform, vegetation or built environment.~~
- ~~**Low** arises where views affected by the development form only a small element in the overall panorama.~~
- ~~**Moderate** arises where an appreciable segment of the panorama is affected or where there is an intrusion into the foreground.~~
- ~~**High** arises where the view is significantly affected, obstructed or so dominated by the development as to form the focus of attention.~~

The criteria in the EPA (2022) Guidelines are used to evaluate and describe the potential impacts. These are summarised as follows:

- **Character, Extent, Scale and Context** of effects (*e.g.* area, number, localised, wide-spread, construction or operation, direct/indirect/cumulative, seasonal, day/night *etc.*).
- **Significance** of effects (e.g. imperceptible, not significant, slight, moderate, significant, very significant, profound).
- **Duration** of effects (*e.g.* momentary, brief, temporary, short-term, medium-term, long-term, permanent, reversible).
- **Frequency** of effects (*i.e.* will occur once, rarely, daily, monthly, constant *etc.*).

- **Probability** of effects (*i.e.* likelihood that identified effects will occur. *e.g.* likely/unlikely).
- **Quality** of effects (*i.e.* positive, neutral, negative/adverse).

The criteria for assessment of the magnitude of the landscape and visual effects are set out in Table 11-3.

Table 11-3: Criteria for Assessment of Magnitude of Landscape & Visual Effects

Magnitude of Effect	Criteria / Typical Description
Very High	Major alteration to, or complete loss of, key landscape or visual characteristics or components of the baseline condition. Effects likely to be experienced at a very large scale, considered permanent and irreversible.
High	Notable or longer-term change to a widespread area or view or a notable change in continuous or key landscape or visual characteristics or components.
Medium	Moderate or longer-term change over a restricted area or view or a moderate change in key landscape or visual characteristics or components.
Low	Minor short or medium-term change over a restricted area or view or a minor change in key landscape characteristics or components.
Negligible	Imperceptible change in key landscape or visual characteristics or components.

For the purposes of this appraisal, the visual impact is evaluated when the full extent of the gravel pit footprint is established. It is considered that this represents the visual impact at or near its maximum. Based on the criteria in Table 11-3, the magnitude of the landscape and visual effects are 'Negligible' – the further development of the gravel pit will have an imperceptible change in landscape and visual characteristics of the area.

11.4.2 Do-Nothing Scenario

If the further development of the gravel pit does not proceed, then the existing pit will be worked in accordance with its substitute consent. As such, the current land use which largely defines the baseline landscape and visual character of the site and immediate area would remain unchanged.

11.5 Impacting Features of the Gravel Pit

11.5.1 Removal of Agricultural Land

The further development area includes the area covered by the substitute consent application, the original settlement ponds and an area of approximately 2ha along the eastern, southern and southwestern perimeter of the landholding. This area is largely grazing land or occupied by temporary screening berms. Of the 20.22ha that make up DCWL's landholding, the further development area extends to 15.5ha. The remainder of the landholding comprises agricultural land and the old farmhouse and farmyard. The latter is surrounded by mature trees and is derelict; the southernmost part of the grazing land (where the gallan stone is located) is not included in the further development area. The agricultural lands are used for silage, with a small area at the north of the landholding (between the road and stream) unused.

The removal of agricultural land has been ongoing since gravel extraction commenced at Ummera. The pit has advanced to the south from the northwest corner since the 1940's. The progress is well documented since 1995 when OSi aerials became available. Aerial photography for 1995, 2000, 2005 and 2018 are provided in Plates 11-1 to 11-4, which demonstrate the progression of gravel extraction. It is apparent from the 1995 and 2000 aerial photographs that internal hedgerows were removed by the farmer (previous owner) during this period.



Plate 11-1: 1995 OSi Aerial Photograph

The 1995 aerial photograph is black & white, so detail is difficult to ascertain. The following is noted:

- The gravel pit occupies 3 or 4 fields, with four large agricultural fields to the south and southeast still used for farming with field boundary hedgerows intact.
- The gravel pit is accessed from the northwest corner. As such, the operations in the gravel pit are in view from this short section of public road.
- The currently used site access is constructed but is believed to be used by the farmer to access the agricultural lands.
- The washing plant is located at the northwest corner of the gravel pit and likely to be in clear view from the public road. Settlement ponds appear to be present to the southwest of the washing plant.
- The northeast corner of the landholding is used for silt deposition.
- The trees along the northern road boundary have been maintained.



Plate 11-2: 2000 OSi Aerial Photograph

The following is noted from the 2000 aerial photograph:

- The gravel pit occupies much the same area as that seen in the 1995 aerial photograph; extraction has moved 20 to 30m to the south.
- The hedgerows in the agricultural fields to the south and southeast have been removed.
- The gravel pit is accessed from the southwest corner, with the entrance at the northwest corner closed off. The berms constructed at the former entrance are not yet vegetated.
- The washing plant has been moved into the gravel pit – to its current location. It would therefore have been less visible from the public road. A settlement pond has been constructed within the gravel pit.
- Vegetation is developing over the silt deposited at the northeast corner of the landholding.
- The trees along the northern road boundary have been maintained and provide good screening. There is a berm along the western boundary with shrubs developing.

Aerials for 2005 and 2018 show a progression of extraction to the south.



Plate 11-3: 2005 OSi Aerial Photograph



Plate 11-4: 2018 Google Aerial Photograph

~~The removal of agricultural land is long-term, reversible and may be perceived as a negative visual impact.~~ Unmitigated, the removal of agricultural land will likely have imperceptible negative local medium-term effects. The provision of screening berms, perimeter tree planting and maintaining mature trees around the perimeter of the landholding has softened the visual impact of the progressive loss of grazing land. In the long-term, the extraction area will be restored back to agricultural use. While the removal of agricultural land will be perceived as negative, the mitigation measures that have been implemented will in the long-term have a positive impact for views towards the gravel pit – i.e. the maturing of screen planting at the gravel pit. The further development of the gravel pit will have no measurable effect on the landscape or landscape sensitivities.

11.5.2 Extraction Operations

The area of extraction currently extends to approximately 8ha, increasing steadily since extraction commenced at Ummera, partially demonstrated in Plates 11-1 to 11-4. In the past 30 years, it is estimated that approximately 500,000m^3 of sand and gravel has been removed from the Ummera pit. This is only an estimate as records of loads is not available. An estimated volume of 375,000m^3 (i.e. 750,000 tonnes) will be removed during the further development of the gravel pit over a 15-year period – i.e. approximately 50,000 tonnes/yr.

The principal visual impacts will arise from the removal of soil and grassland as extraction progresses to the south. Near views of the operations will be limited to areas to the east of the gravel pit. The nearest view being from a dwelling to the east, located along the local road that goes around the eastern side of the pit. The visual impact will be greatest when temporary screening berms are constructed around new extraction areas. Until vegetation has established, these berms contrast strongly with the intervening agricultural fields.

11.5.3 Site Infrastructure

Site infrastructure at the gravel pit has been largely unchanged for the past 20 years. It consists of a fixed washing plant and site offices and stores. Since its relocation, this infrastructure isn't visible from the public roads, so has not given rise to visual intrusion. It is proposed to continue the use of this plant at its current location. Addition infrastructure is proposed consisting of a fuel storage shed to replace the existing storage cabin. The shed will be in the yard area and will not be visible from locations outside the pit, so will have no visual impact from locations outside the pit. It will have no effect on the landscape character of the area.

Mobile plant is occasionally visible moving around the pit from some aspects, but this will not give rise to a significant visual intrusion or effect the landscape character.

11.6 General Impact on Landscape Character

Any change in a land use has a corresponding impact on the landscape character of an area. In this instance, the Ummera gravel pit has formed part of the local landscape for many decades. The gravel pit has steadily expanded from a footprint of approximately 4.2ha (estimated for 1990) to the substitute consent footprint of 10.5ha. This impact is the gradual change from pasture to extraction area. Screening berms and screen planting has been carried out as the gravel pit expanded, along with retaining mature trees, to soften the visual impact.

The degree of impact is strongly dependent on the perceptions of the surrounding population. As the gravel pit operations are well established at the site (DCWL have been established at Ummera since 1978), the perceived impacts have been much less than that of a greenfield site. The continued acceptance of further development at Ummera will be largely dependent on good site management, maintenance of effective screening provided by trees and berms, and control of emissions (namely noise and dust). It is considered that the further development of the gravel pit will have no measurable effect on the landscape character of the area.

11.7 General Impact on Visual Character

The visual impacts can be discussed in terms of the two generalised viewing areas. The first is the views of the site from the low-lying areas to the southwest and west of the site. From these areas, the topography and mature trees along the pit perimeter limit views into the gravel pit. Local road L-3423 runs along the valley of the Laney River as far as the site entrance and then follows the Clashavoon Stream passed the site. The road is bordered by mature trees for most of its length past the site, so views are restricted. The topography rises sharply along the eastern side of the L-3423, so this further restricts views into the site. The clearest views of the gravel pit are for a short section of the L-3423 approaching the site from the north, but progressive screening is provided as trees mature. Views from the west are more open towards the gravel pit. Again however, the mature trees along the western side of the pit and around the original settlement pond provide effective screening. Stockpiles do break the treeline betraying the presence of the gravel pit as does the highest section of the working face. However, on balance, the rural character of the area defined by mature trees around farmyards and along the river valleys is not interrupted by the gravel pit and the impact occurring is considered ~~negligible~~likely imperceptible local neutral medium-term effects. There will be no change to this magnitude of impact or visual effects with the further development of the gravel pit. As the trees grow during the lifetime of the gravel pit, they will provide improved screening.

Viewing areas to the east of the site are from local road L-34231-0. This road runs along the northern and eastern perimeter of the site. While the hedgerow is not dense and views into the site are available, the screening berms block views of the processing plant and aggregate stockpiles. The berms do not however block views of the landscape beyond the gravel pit. As such, the rural character of the area is not interrupted by the gravel pit and the impact occurring is considered ~~negligible~~ likely imperceptible local neutral medium-term effects. With the further development of the gravel pit, the screening berms will come closer to the road, however, they will remain approximately 100m from the road, maintaining a 30m buffer to the gallan stone. As such no change to the magnitude of impact or visual effects with the further development of the gravel pit is envisaged.

11.8 Photographic Illustration

To assess the visual extent of the gravel pit, a number of photographs were taken from locations in the surrounding area. These selected views illustrate the location and visibility of the gravel pit. The selected locations for photographic illustrations are shown on Figure 11-1 and were:

View 1: From Local Road L-7478 Looking East Toward Gravel Pit
View 2: From Local Road L-3423-20 Looking South Toward Gravel Pit
View 3: From Local Road L-34231-0 Looking North Toward Gravel Pit
View 4: From Farm Lane Looking North

Photographs from 2020 are provided in Figures 11-2, 11-5, 11-7 and 11-10 ~~to 11-5~~. Updated photographs were taken in July 2026 and presented as Figures 11-3, 11-6, 11-8 and 11-11. Photomontages are provided for views 1, 3 and 4 illustrating the restored gravel pit in Figures 11-4, 11-9 and 11-12, respectively. The gravel pit is not visible from View 2 due to screen planting.

11.9 Visual Impact on Views from Residence & Roads

Fourteen house locations (i.e. those within 500m of the ownership boundary) were identified for assessment of visual impact. Of these houses, two were considered to have a moderate visual intrusion, 8 have a slight visual intrusion and 5 houses have none (refer to Section 11.3 for explanation of terms).

Two of the houses identified had minor level of visual obstruction. The overall results of the assessment are illustrated in Table 11-3.

Table 11-4: Results of Assessment

Residence Location Reference	View No. where relevant	Distance from S37L boundary (m)	Visual Intrusion	Visual Obstruction
H1	N/A	15	Moderate	Yes (Berm)
H2	N/A	40	Moderate	Yes (Berm)
H3	N/A	50	None	None
H4	N/A	370	None	None
H5	N/A	600	Slight	None
H6	N/A	780	Slight	None
H7	N/A	555	Slight	None
H8	N/A	560	Slight	None
H9	N/A	540	Slight	None
H10	View No. 2	230	Slight	None
H11	N/A	280	Slight	None
H12	N/A	520	None	None
H13	N/A	610	None	None
H14	N/A	645	None	None

Along the local road L3423 to the west of the gravel pit, there are no views into the gravel pit. The topography naturally rises sharply from the road, so it is likely that views of the site have always been obstructed.

For the local road L34231-0 running around the eastern and southern perimeter of the site, the screening berms have progressively moved closer to the road resulting in obstruction of views. While sections of these temporary berms will move closer to the road, the impact will be negligible once vegetation is established.

The further development of the gravel pit will be well screened from local road L-7478. Berm construction will be visible from the southern end of this road, but once vegetation is established, the working in the gravel pit will not be visible. The visual impact will decrease over time from slight to negligible.

11.10 Landscape Plan to Mitigate Visual Impact

DCWL has carried out the following measures to mitigate visual impacts during the lifetime of the gravel pit:

1. Relocation of the washing plant into the gravel pit, screening it from view from public roads and surrounding areas.
2. Construction of perimeter screening berms.
3. Provision of perimeter screen planting and maintaining existing mature boundary trees.

DCWL will restore the gravel pit upon completion of extraction operations. Phased restoration will be carried out where practical; as noted the resource is not homogenous, so suitable material is taken from different placed around the pit. ~~This makes it impractical to delineate areas that will be restored sequentially.~~ Having reviewed its operations, DCWL will systematically work through the gravel pit in phases, restoring as it progresses from north to south along the eastern side of the pit and then working north along the western side. Figure 11-13 shows the proposed extraction (restoration) phasing. Phase 7 will include the removal of plant and infilling the ponds and removal of the southern berm to provide connectivity between the restored pit and southern agricultural field. Much of the site will be returned to agricultural use, with some areas retained for ecological diversity. These areas will include:

1. The original settlement pond between the road and Clashavoon Stream will be left.
2. Perimeter screen planting will be maintained.
3. A pit face will be retained to provide suitable habitat for Sand martins.

It is noted in the Department Guidelines that '*quarry restoration can not only replace, but may even add to, the diversity of plants and wildlife*'. The aim of the restoration is twofold; 1) to return most of the extraction area to agricultural use as part of a working farm and 2) enhance the local biodiversity by providing a diversity of habitats.

Figure 11-~~6~~ 15 shows the final restoration plan for the gravel pit. The restoration of the quarry will take place in several principal phases:

- Construction of perimeter berms and screen planting.
- Restoration of the pit floor to agricultural land following extraction.
- Enhancement of biodiversity.

Perimeter berms will be constructed along the landownership boundary. For the further development of the gravel pit, these will be at the southwest corner of the Section 37L boundary. Perimeter berms have already been constructed along the eastern and south-eastern perimeters. They were purposely kept low to avoid causing visual obstruction to neighbours. Infill tree planting will be carried out were needed. Tree planting will consist of:

- ~~Ash 25%~~
- Europea Aspen 10%
- Elder ~~10~~15%
- ~~Sycamore 25%~~
- Scots Pine 15%
- ~~Popular 10%~~
- Downy Birch 10%
- ~~Irish~~ Sessile Oak ~~15~~25%
- Hawthorn ~~15~~25%

This planting selection mirrors what is found in the existing treeline and in the wider area.

The temporary screening berms will not be planted with trees and this material will be reused in restoration. The temporary berms will be seeded with grass. Grass will consist of creeping fescue with clover. This will be seeded at a density of an ounce/ m^2. Seeding will preferably be carried out in spring, however it will follow the construction of the berms to ensure that the berms are greened as soon as possible after construction, to minimise erosion.

The restoration of the gravel pit void will have the following elements:

- Removal of plant and equipment. The equipment in the gravel pit may be sold, relocated to another DCWL facility, or removed from site for scrap. This process may take up to two years.
- Restoring the floor of the pit void by the placement of silt, subsoil and topsoil, followed by seeding with grass. This will require reuse of overburden and topsoil stored on site, and the importation of clean soil if there is a deficit. This work will be carried out in the two years following completion of extraction.

Where practical, exhausted extraction areas will be restored on an on-going basis following the phasing plan in Figure 11-13.

The restored gravel pit will form part of the farmed landholding and afterwards subject to normal farm management practices for grassland – fertilized, cut for silage and grazed.

The planting on the perimeter berms will have been established by the time extraction is completed and will be retained. The original settlement pond between the road and Clashavoon Stream will be left to provide biodiversity. Retaining one of the settlement ponds was considered, but was ruled out; it is unlikely that the unlined ponds would not hold water in the long term.

An artist impression of the gravel pit at full extent is provided as Figure 11-~~7~~14, and an illustration of the restored gravel pit is provided as Figure 11-~~8~~15.

11.11 Cumulative Impacts

There are no projects or plans, permitted or proposed within the landscape study area that would results in cumulative visual or landscape effects with the further development of the Ummera gravel pit.

11.12 Risks of Major Accidents or Disasters

The risk of major accidents or disasters arising from the landscape or visual aspects of further development of the Ummera gravel pit is negligible

11.13 Difficulties Encountered in Compiling

There were no difficulties encountered in the compiling the landscape and visual assessment chapter.

11.14 Interactions

The only interactions predicted with the landscape and visual aspects of the further development of the Ummera gravel pit are:

1. The planting programme for the proposed further development will likely result in slight long-term positive local effects on biodiversity.

~~11.11~~11.15 Residual Effects

The residual effects following mitigation are summarised in Table 11-5.

Table 11-5: Summary of Potential Impacts, Mitigation & Residual Effects

Impact	Affected Attribute	Potential Effects	Mitigation	Residual Effects - Significance
Visual intrusion / obstruction	Residence	Likely a long-term moderate direct negative local effect on nearest residents.	Use in screening low screening berms and screen planting	Imperceptible
Visual intrusion / obstruction	Road users	Likely a long-term imperceptible direct negative local effect on users of local road to the west, travelling east	Maintaining mature trees on west site boundary and additional tree planting	Imperceptible
Changes in landscape	Rural landscape character	No measurable change in landscape character – gravel pit is well established and now part of the local landscape	None	None
Changes in visuals	Visual character	Likely imperceptible local neutral medium-term effects on visual character	Maintaining mature trees on west site boundary and additional tree planting	Imperceptible

11.16 Conclusions on Landscape

The gravel pit is a well-established feature of the landscape. The further development of the gravel pit will not have any significant effects on the rural landscape character or views to / from the site.

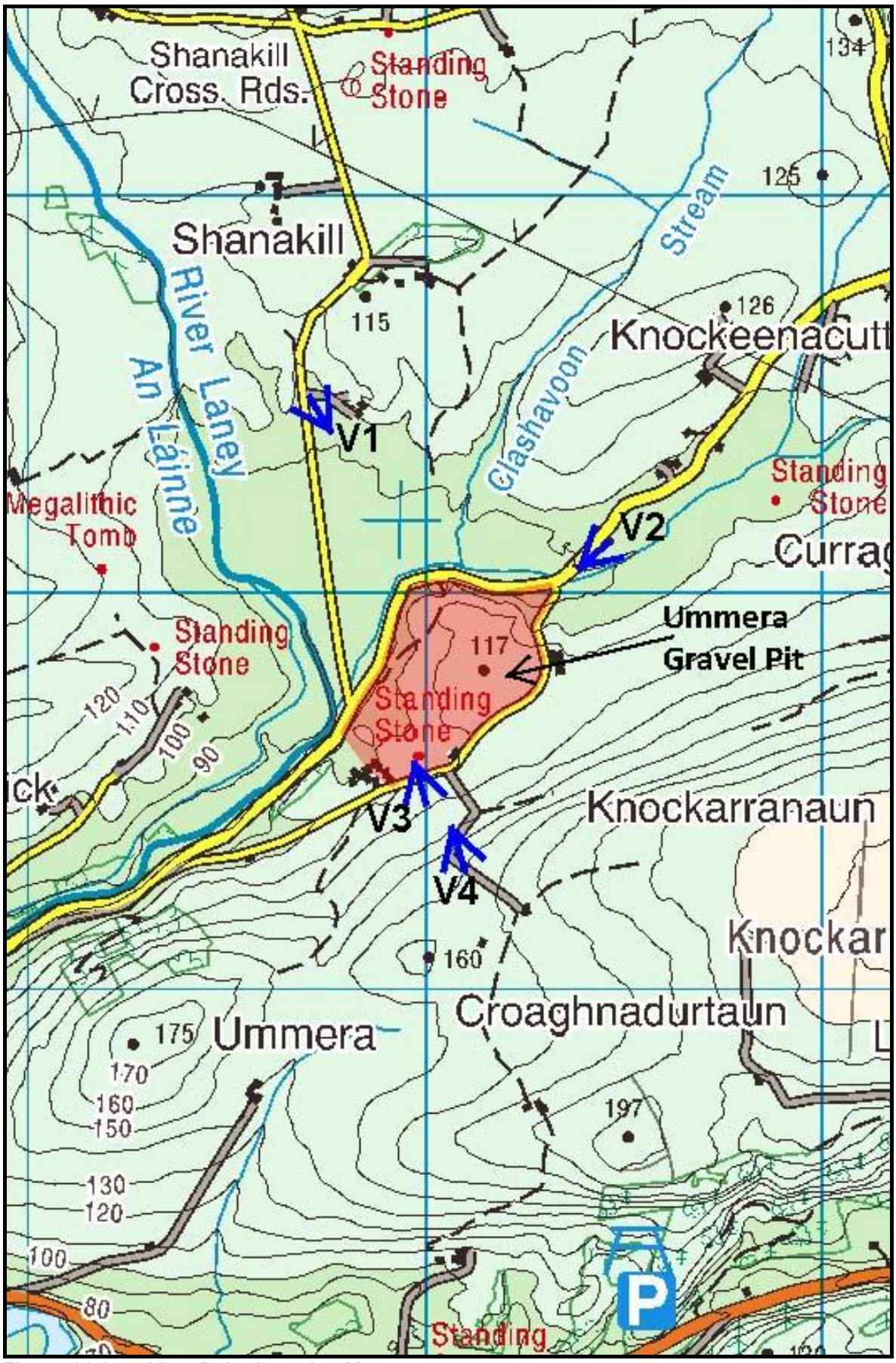


Figure 11-1: View Point Location Map



Figure 11-2: View No.1 – From Local Road L-7478 Looking East – 2020



Figure 11-3: View No.1 – From Local Road L-7478 Looking East – 2026



Figure 11-4: View No.1 – From Local Road L-7478 Looking East – Following Restoration



Figure 11-5: View No.2 - From Local Road L-3423-20 Looking South – 2020



Figure 11-6: View No.2 - From Local Road L-3423-20 Looking South – 2026



Figure 11-7: View No.3 - From Local Road L-34231-0 Looking North – 2020



Figure 11-8: View No.3 - From Local Road L-34231-0 Looking North – 2026



Figure 11-9: View No.3 - From Local Road L-34231-0 Looking North – Following Restoration



Figure 11-10: View No.4 - From Farm Lane Looking North – 2020



Figure 11-11: View No.4 - From Farm Lane Looking North – 2026



Figure 11-12: View No.4 - From Farm Lane Looking North – Following Restoration

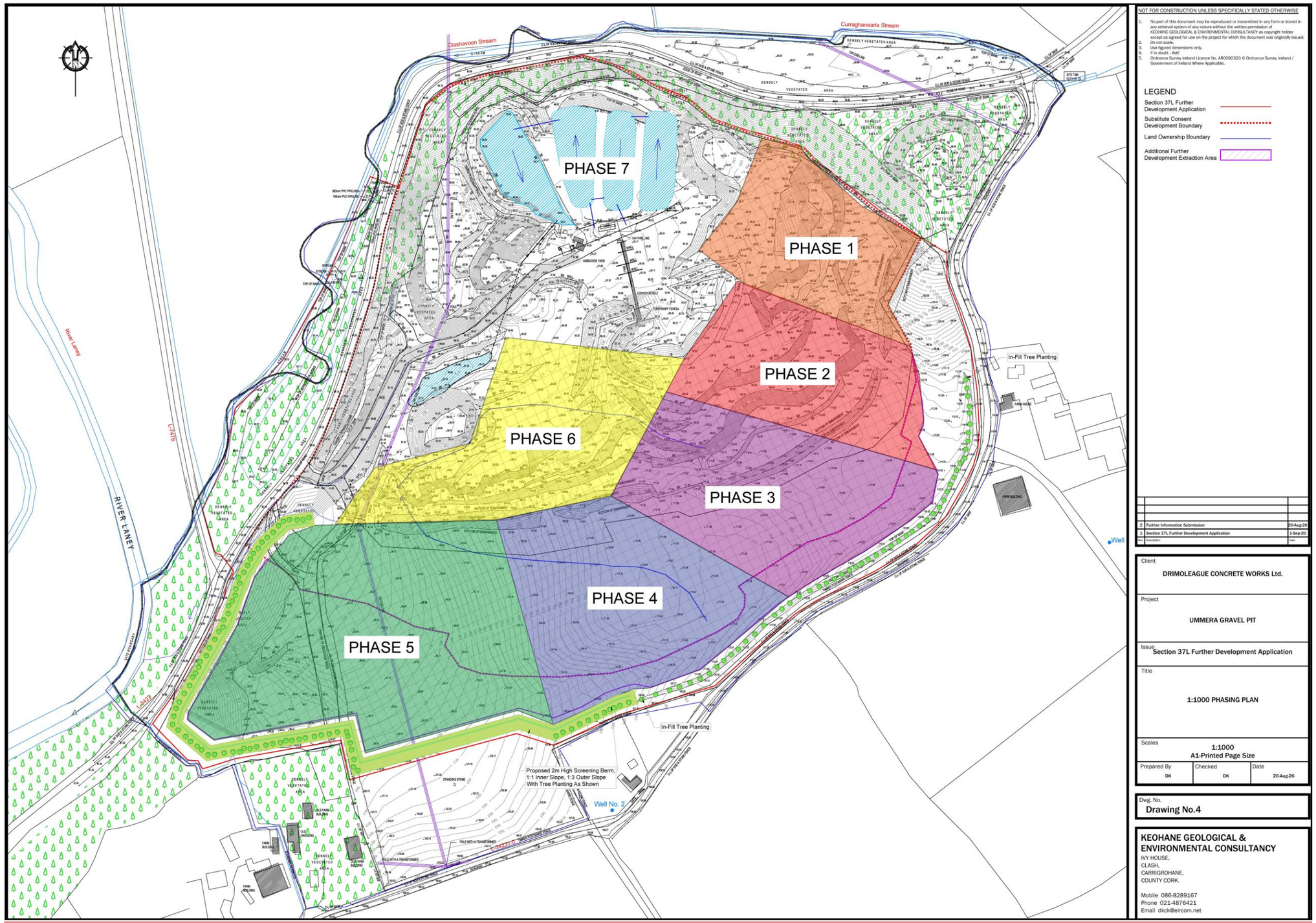


Figure 11-13: Phasing Plan



Figure 11-14: Artist Impression – Gravel Pit at Full Extent

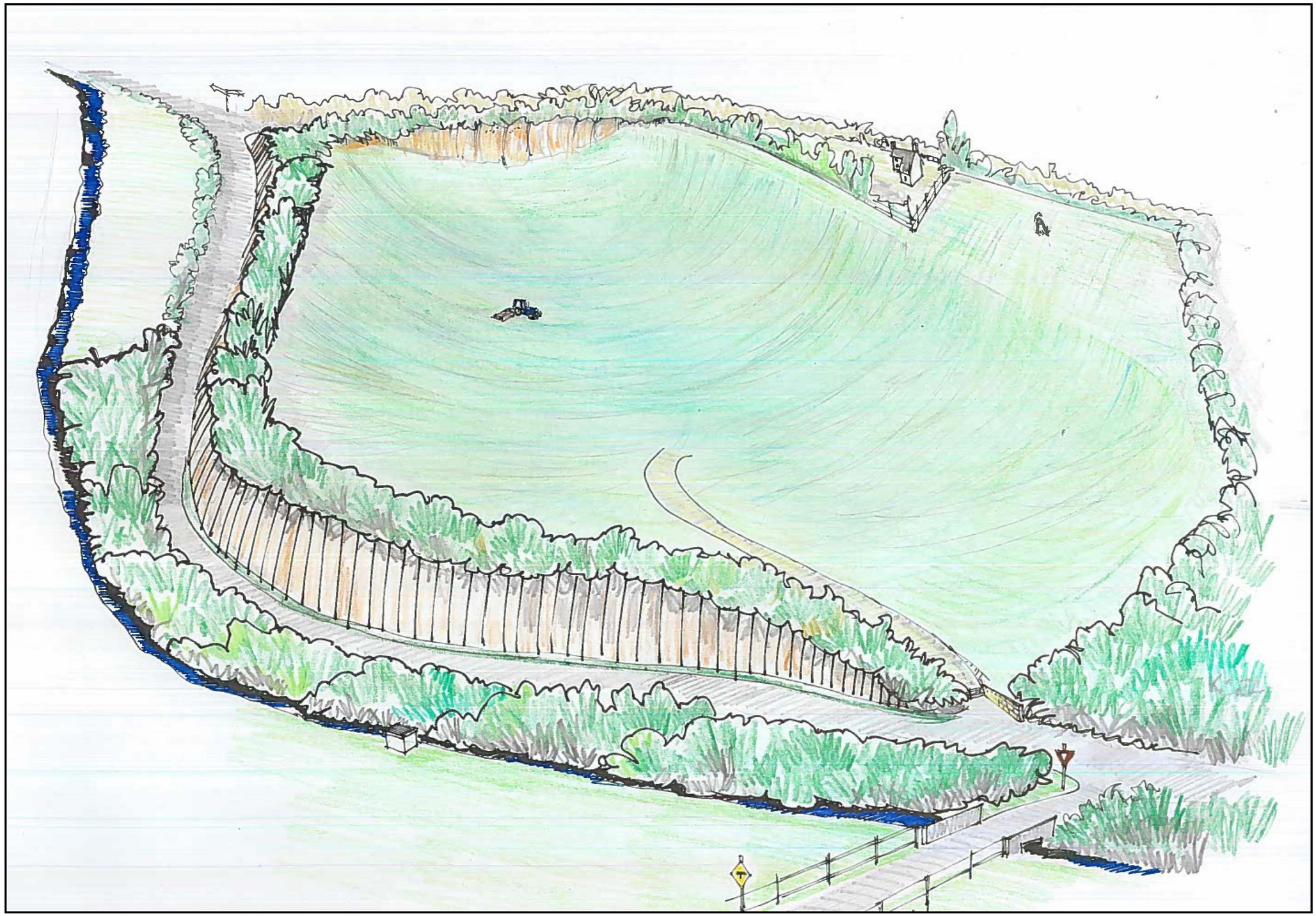


Figure 11-15: Artist Impression – Restored Gravel Pit

12. INTERACTION OF THE FOREGOING

The impacts of the proposed further development of the Ummera gravel pit have been assessed for the various aspects of the environment, as discussed in the preceding chapters. While these assessments are not conducted in isolation, their focus is on the specific aspect of the environment under consideration. This chapter reviews all the aspects of the environment and identifies interactions between them. Table 12-1 summarises the interactions for the operational phase of the gravel pit. Each aspect of the environment is listed on the left column and the top row. The interactions are discussed in terms of the impacts associated with the aspect of the environment listed in the column with the aspects of the environment listed across the row. For example, the impacts of the further gravel pit development associated with noise & vibration are discussed in terms of their interaction, where occurring, with each of the other aspects of the environment. The interaction is therefore not necessarily reciprocal.

Table 12-1: Interaction Matrix

	Material Assets (Roads & Traffic)	Noise	Population & Human Health	Air Quality, Climate & Climate Change	Land Soils &, Geology & ~~Hydrogeology~~	~~Surface~~ Water & (Hydrology & Hydrogeology)	Archaeology & Cultural Heritage	Biodiversity	Landscape & Visual Impact
Material Assets (Roads & Traffic)									
Noise									
Population & Human Health									
Air Quality, Climate & Climate Change									
Land, Soils & , Geology & ~~Hydrogeology~~									
~~Surface~~ Water & (Hydrology & Hydrogeology)									
Archaeology & Cultural Heritage									
Biodiversity									
Landscape & Visual Impact									

Legend

- No Significant Interaction
- Positive Interacting Impact
- Negative Interacting Impact
- Neutral Interacting Impact

12.1 Impact Interactions

12.1.1 Roads & Traffic

The traffic associated with the further development will be similar to the current traffic associated with the gravel pit in terms of range in volumes and operational hours. Traffic associated with the gravel pit will increase noise levels slightly and emissions from HGV have a negative impact on air quality and contribute GHG to climate change, however, the volume of HGV traffic will be unchanged. The HGVs using the local road L-3423 will have a negative impact with the local population sharing this road.

12.1.2 Noise

Noise is one of the aspects of the environment considered in terms of its impact on the local population. The operation of the gravel pit has resulted in an increase in noise locally and although within emission limit values are considered a slight negative impact. As the gravel pit advances to the south, the noise levels will increase in this direction but will stay within emission limit values. The noise from the extraction activities may also displace wildlife from the local area.

12.1.3 Population & Human Health

Human beings are discussed in terms of settlement pattern, socioeconomics and recreation and amenity. These aspects of the discussion do not have any significant interaction with other aspects of the environment. The increase in local population seen in recent years is likely to continue and may place demand on the gravel pit for house construction, which is seen as a positive impact.

12.1.4 Air Quality, Climate & Climate Change

No significant interaction is predicted between air quality, climate and climate change with other aspects of the environment during the operation of the gravel pit. Dust emissions can affect the local population and human health, however, monitoring demonstrates that fugitive dust levels are within emission limit values at the site boundaries. HGV traffic will result in particulate and GHG emissions.

12.1.5 Land, Soils &, Geology & Hydrogeology

The availability of aggregate and construction materials produced at the gravel pit has contributed to the construction of new houses to meet the demands of an increasing population and will continue to do so during its further development. Also, with farming being the main economic activity in the area, the availability of construction materials locally for the construction of farm buildings and slatted houses is seen as a benefit.

The development of the gravel pit has resulted in a greater biodiversity at the site. This is seen as a positive impact.

12.1.6 Surface Water & (Hydrology & Hydrogeology)

The on-site settlement ponds are seen as adding biodiversity locally, with the potential for attracting wildlife to the area. For example, bats are thought to feed at the settlement ponds.

Surface water quality is important for aquatic environments in the Clashavoon Stream and Laney River, in which freshwater pearl mussel have been identified. Management of wash water within the site and control of runoff has maintained the water quality in these water courses.

12.1.7 Archaeology & Cultural Heritage

No significant interaction has been identified between archaeology and cultural heritage with other aspects of the environment during the assessment period.

12.1.8 Biodiversity

No significant interaction has been identified between biodiversity with other aspects of the environment for the further development of the gravel pit.

12.1.9 Landscape

The landscaping of the site has increased the biodiversity of the local area. For example, the planting of trees at the original settlement ponds has provided shelter and foraging opportunities. Also, the exposure of sand in the working faces has attracted nesting Sand martins. These features will be retained during the restoration of the gravel pit to increase the local biodiversity.

12.2 Conclusions on the Interaction of the Foregoing

The interactions of all environmental factors indicate an overall positive development capable of the continued provision of a non-renewable aggregate resource. The main impacts have been discussed in the preceding chapters and appropriate remedial measures are presented where necessary. The further development of the gravel pit can be operated and managed so that impacts on the environment are not significant.

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