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INTRODUCTION

15.1 All of the reasonably predictable significant impacts of the proposed development and the measures in place to mitigate them have been outlined in the EIAR. However, for any development with the potential for significant environmental impacts there is also the potential for interaction amongst these impacts. The result of these interactions may either exacerbate the magnitude of the impact or ameliorate it. The interaction of impacts on the surrounding environment needs to be addressed as part of the Environmental Impact Assessment process.

15.2 This Environmental Impact Assessment Report was prepared by SLR Consulting on behalf of Kilsaran Concrete Unlimited Company as an integrated document, rather than a collection of separate reports. The impacts that arise as a result of the interaction between several aspects of the development have therefore been addressed in the main body of each EIAR chapter.

The Interaction of the Foregoing

15.3 The interaction between the various environmental topics has been covered within each of the EIAR Chapters, 4 through to 14, where relevant. For example, the interaction of geology and groundwater has been addressed in EIAR Chapter 6 – Land, Soils and Geology, and EIAR Chapter 7 - Water.

15.4 The environmental components which might potentially be impacted by a development of this kind and at this location have been identified through the site assessment as follows:

- effects on land use and amenity;
- impacts on local sensitive receptors;
- loss of natural heritage and wildlife habitats and disturbance to flora and fauna;
- impacts on surface water and groundwater;
- impacts on soils, sub-soils and bedrock geology;
- nuisance potential and / or public health effects due to noise, dust, or lighting emissions;
- impacts on local archaeology;
- change in landscape character or views;
- impacts on material assets such as infrastructure or local utilities.

15.5 A matrix method has been used, in which the environmental components addressed in the previous chapters of this EIAR have been placed on both axes of a matrix. Where interactions arise between two environmental components, the intersection square along a row or column of the matrix in **Table 15-1** overleaf is shaded green.

15.6 The purpose of the effects matrix is to identify potential interactions. Details of interactions and their significance are dealt with in the relevant chapter of the EIAR, the purpose of this chapter is to ensure a cross-check is made that all possible interactions have been identified.

Table 15-1
Impact Interaction and Interrelationships Matrix

	Biodiversity	Land, Soils & Geology	Water	Air Quality	Climate	Noise / Vibration	Landscape & Visual	Traffic	Cultural Heritage	Population & Human Health	Material Assets
Biodiversity		■	■	■		■	■				
Land, Soils & Geology	■		■	■			■	■	■	■	
Water	■	■			■		■			■	■
Air Quality	■	■			■		■	■		■	
Climate			■	■			■	■			
Noise / Vibration	■						■	■		■	
Landscape & Visual	■	■	■	■	■	■			■	■	
Traffic		■		■	■	■				■	■
Cultural Heritage		■					■			■	
Population & Human Health		■	■	■		■	■	■	■		■
Material Assets			■					■		■	

POTENTIAL INTERACTIONS

Biodiversity

15.7 The application site is not subject to any statutory or non-statutory designation and no such sites will be directly or indirectly impacted upon through the continuance of use and extension of the existing quarry.

15.8 St Gorman's Well is a candidate Natural Heritage Area located approximately 1.6 km west of the Rathcore Quarry site boundary. It is an ephemeral or seasonal pool that when water levels are sufficiently high, can overflow as a spring. The assessment within the Biodiversity and Water Chapters provides a thorough review of the potential links between the proposed development, the water environment and the potential ecological resources associated with them.

15.9 The potential damage of land and soil handling to grassland habitat and orchids is addressed though EIAR Chapter 5 – Biodiversity and Chapter 6 – Land, Soils and Geology.

15.10 Landscaping and restoration measures described in Chapter 13 – Landscape include features to minimise loss of and enhance the biodiversity on-site.

15.11 Potential interactions associated with the extraction and processing activities on wildlife features are also discussed in Chapter 8 – Air Quality, Chapter 10 – Noise & Vibration and Chapter 13 – Landscape.

Land, Soils and Geology

15.12 As set out above, the potential impact of soil handling and land use in general has been considered in terms of potential knock-on effects for biodiversity. Quarrying activities such as excavation, and earth moving can generate dust, particularly in dry weather conditions. The extent of dust generation is dependent on the nature of the material (soils, sands, gravels, silts rocks etc.) and the location of the extraction activity. In addition, the potential for dust dispersion depends on the local meteorological factors such as rainfall, wind speed and wind direction. These site-specific interactions have been considered in EIAR Chapter 8 – Air Quality.

15.13 Stripping and management of soils and subsoils has potential to mobilise contaminants to surface and groundwaters. During operation of the plant and machinery on site it is appropriate to adopt best working practices and measures to protect the local surface water. EIA Chapter 7 – Water provides an analysis of the potential significance of effects of interactions between water and soils. EIAR Chapter 4 – Population and Human Health uses information from Chapter 6 – Land, Soils and Geology and Chapter 7 to assess the potential for disturbance to amenity or harm to human health.

15.14 Chapter 12 – Cultural Heritage provides an assessment of the potential for earthworks and other land / soil handling to disturb any important cultural features, including below ground. Chapter 13 – Landscape provides details on the potential interactions between stockpiling and views and the proposals for incorporation of soils removed for landscaping and restoration purposes. Chapter 14 – Traffic uses details on projected levels of soil and stone transportation as a core assumption in regard to likely traffic generation as a result of the proposed development.

Water

15.15 Chapter 7 of the EIAR assesses the potential for the proposed extraction and processing operations to impact water quality. The information on water resources and quality is cross referenced in Chapter 5 – Biodiversity and considered in relation to its impact on ecological habitats directly and through hydrological pathways to ecological receptors. Similarly, watercourses are a potential pathway and/or receptor for soil related impacts, thus the interactions between these are dealt with in Chapter 6 – Land, Soils and Geology as well as in Chapter 7 - Water. EIAR Chapter 4 - Population and Human Health, Chapter 13 – Landscape and Chapter 14 - Material Assets use information from Chapter 7 - Water to assess the potential for disturbance to water supplies, landscape changes and harm to human health.

15.16 Chapter 9 – Climate uses information in the water assessment in relation to meteorological data and flooding in order to assess the vulnerability of the application site to climate change.

Air Quality

15.17 The assessment for potential air quality impacts from the proposed development has been based on details on soil handling and storage as presented and assessed in Chapter 6 – Land, Soils and Geology, and likely generation of traffic as set out in Chapter 14 - Traffic.

15.18 Chapter 4 - Population and Human Health uses information from Chapter 8 – Air Quality to assess the potential for disturbance from dust or harm to human health from air pollutants specified by industry guidelines. Chapter 5 – Biodiversity considers the proximity of designated ecological features to determine whether any potential impacts from air quality changes can be predicted.

Climate

15.19 Chapter 7 – Water contains information on rainfall and flooding vulnerability which informs drainage and other design requirements to ensure that project climate change scenarios are planned for. Chapter 8 – Air Quality includes a range of baseline data in relation to meteorological conditions which are important considerations in climate assessment. Assumptions regarding the rate of vehicle / trip generation set out in the traffic assessment in Chapter 14 of the EIAR have been used to inform the climate change assessment.

Noise and Vibration

15.20 Predictions of changes to the noise environment include assumptions set out in Chapter 14 – Traffic in relation to trip generation and vehicle movements.

15.21 Chapter 4 - Population and Human Health uses information from Chapter 10 – Noise and Vibration to assess the potential for disturbance from or harm to human health from noise sources in accordance with maximum limits specified by industry guidelines. Chapter 5 - Biodiversity considers the proximity of designated ecological features to determine whether any potential impacts from increased noise levels can be predicted.

Landscape and Visual

15.22 The proposed landscaping of the proposed development, which is presented and assessed in Chapters 2 & 13 of the EIAR has potential to influence the biodiversity of the site, appropriate management of soil, the screening of noise and air / dust emissions, and therefore disturbance to local residents. Long term planting proposals and water features have potential to contribute to climate adaptation and carbon sequestration.

15.23 Potential impacts to landscape and views at the application site could impact on the value of cultural features and this is assessed in Chapter 12 – Cultural Heritage.

Traffic

15.24 Traffic generated from the proposed development have been used to inform the air, climate and noise assessments set out in Chapters 8, 9 and 10, respectively of the EIAR. Those traffic estimates have largely been based on assumptions set out in Chapter 6 – Land, Soils and Geology in relation to the extent of soils and materials requiring stripping / removal from the application site.

15.25 The interactions and assessments between these chapters have been used to inform the assessments of disturbance and health impacts to the local population and to the material asset resources of the local area.

Cultural Heritage

15.26 Chapter 12 – Cultural Heritage provides an assessment of the potential for earthworks and other land / soil handling to disturb any important cultural features, including below ground and this has been informed by information set out in Chapter 6 – Land, Soils and Geology. Chapter 13 – Landscape provides details on the potential interactions between landscape and view changes in relation to any culturally important features that could be sensitive and negatively impacted.

15.27 The interactions and assessments between these chapters have been used to inform the assessments of amenity to the local population (through enjoyment of cultural heritage assets) and to the material asset resources of the local area.

Population and Human Health

15.28 The assessments set out Chapter 6 - Land, Soils and Geology, Chapter 7 – Water, Chapter 8 - Air Quality, Chapter 9 – Noise & Vibration, Chapter 11 – Material Assets, Chapter 13 – Landscape and Chapter 14 – Traffic have been integral in assessing the potential for disturbance to amenity or harm to human health.

Material Assets

15.29 Material assets, by definition, includes land use, cultural heritage features and traffic, which are all assessed within their respective chapters of the EIAR.

15.30 Chapter 11 of the EIAR considers those material assets not considered elsewhere within it, and relates mainly to service infrastructure. The interactions between these assets are considered in Chapter 7 – Water (supply and treatment) and Chapter 14 – Traffic (road capacity). Chapter 6 – Land, Soils and Geology considers use of land resources within that chapter itself. Chapter 4 – Population and Human Health takes information contained in Chapter 11 on service infrastructure in order to predict any disturbances or impact to supplies to local residents.