

# Laois - Kilkenny Reinforcement Project Environmental Reports

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## Route Corridor Assessment – Soils and Geology

**Submission to:** ESB International

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## 1. Introduction

This section provides an assessment of the potential route corridors within the study area for the proposed Laois Kilkenny Reinforcement Project. The purpose of this assessment is to recommend the route corridor that will have the least potential environmental impacts in terms of soils and geology. This report was prepared by Mr. Brian Tiernan, Environmental Consultant – AWN Consulting.

A previous report identified the most significant constraints within the study area (*Study Area Constraints Report – Soils & Geology, AOS Planning Ltd. October 2010*).

The key constraints identified in relation to soils and geology are the following:

- Sloping ground and soft ground including blanket peat
- Areas of made ground
- Areas where rock is close to the surface
- Geological heritage areas.

The potential route corridors have been designed having regard to the identified constraints. The purpose of this section is to provide the Lead Consultant, ESBI, with an assessment identifying the most to least preferred corridor nodes.

## 2. Assessment of Route Corridors

The magnitude of potential impacts are defined in accordance with the criteria provided in the EPA publication "Guidelines on the Information to be contained in Environmental Impact Statements" (2002), outlined in Tables 2.1 and 2.2:

Quality of Impacts	Description
Positive Impact	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or removing nuisances or improving amenities).
Neutral Impact	A change which does not affect the quality of the environment.
Negative Impact	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

**Table 2.1 Impact Assessment Criteria (Quality)**

<b>Magnitude of Impact</b>	<b>Description</b>
Imperceptible	An impact capable of measurement but without noticeable consequences.
Slight	An impact that alters the character of the environment without affecting its sensitivities.
Moderate	An impact that alters the character of the environment in a manner that is consistent with existing or emerging trends.
Significant	An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Profound	An impact which obliterates all previous sensitive characteristics.

**Table 2.2 Impact Assessment Criteria (Magnitude)**

Estimation of the magnitude of the potential impacts on soils & geology for the Western 110kV Route Corridor option between Nodes 1, 5, 10 (and associated 400kV Route Corridor) are shown in Table 2.3:

<b>Attribute</b>	<b>Attribute Importance</b>	<b>Potential Impact</b>	<b>Level of Impact</b>
Excess excavated soil and rock generated during the construction stage	Low	Excess soil and rock is expected to be minimal due to the nature of the proposed development; however excess soil will require off-site disposal or recovery at a nearby permitted/ licensed waste facility.	Slight Negative
Soil and subsoil quality	Low	Irreversible loss of small proportion of local low fertility soils. Disruption of soil is expected to be minimal due to the nature of the proposed development.	Slight Negative
Soil contamination during the construction phase	Low	Contamination caused by accidental spillages/leaks during construction. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
On-site maintenance during the operational phase	Low	Contamination caused by accidental spillages/leaks during on-site maintenance. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
Volume of peat and/or soft organic soil underlying route options is small on a local scale (Node 1-10 at Rosconnell Glebe, 2km South of Ballinakill, Co. Laois)	Low	Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment	Slight Negative

**Table 2.3 Estimation of Magnitude of Potential Impacts on**

**Soils & Geology (Western 110kV Route Corridor option between Nodes 1–10 and associated 400kV Route Corridor)**

Estimation of the magnitude of potential impacts on soils & geology for the Eastern 110kV Route Corridor option between Nodes 1–10 (and associated 400kV route corridor) are shown in Table 2.4:

<b>Attribute</b>	<b>Attribute Importance</b>	<b>Potential Impact</b>	<b>Level of Impact</b>
Excess excavated soil and rock generated during the construction stage	Low	Excess soil and rock is expected to be minimal due to the nature of the proposed development; however excess soil will require off-site disposal or recovery at a nearby permitted/ licensed waste facility.	Slight Negative
Soil and subsoil quality	Low	Irreversible loss of small proportion of local low fertility soils. Disruption of soil is expected to be minimal due to the nature of the proposed development.	Slight Negative
Soil contamination during the construction phase	Low	Contamination caused by accidental spillages/leaks during construction. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
On-Site Maintenance during the operational phase	Low	Contamination caused by accidental spillages/leaks during on-site maintenance. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
Volume of peat and/or soft organic soil underlying route options is small on a local scale (Node 1-10 at Aghamucky, 4km East of Castlecomer, Co. Kilkenny)	Low	Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment	Slight Negative
Areas of Geological Heritage: Kyle Spring (Node 1-10)	High	The GSI have stated that there are no set distance requirements for proposed developments in the vicinity of areas of geological interest. Consultation should take place with the GSI during the EIS stage to ensure that structures are located at a suitable distance from the area of geological interest.	Slight Negative

**Table 2.4 Estimation of Magnitude of Potential Impacts on**

**Soils & Geology (Eastern 110kV route corridor option between Nodes 1–10 and associated 400kV Route Corridor)**

Estimation of the magnitude of potential impacts on soils & geology for the route corridor options between Nodes 8–10 (110kV Sub-Route Corridor) and 9-10 (Central 110kV Route Corridor) and associated 400kV route corridor are shown in Table 2.5:

<b>Attribute</b>	<b>Attribute Importance</b>	<b>Potential Impact</b>	<b>Level of Impact</b>
Excess excavated soil and rock generated during the construction stage	Low	Excess soil and rock is expected to be minimal due to the nature of the proposed development; however excess soil will require off-site disposal or recovery at a nearby permitted/ licensed waste facility.	Slight Negative
Soil and subsoil quality	Low	Irreversible loss of small proportion of local low fertility soils. Disruption of soil is expected to be minimal due to the nature of the proposed development.	Slight Negative
Soil contamination during the construction phase	Low	Contamination caused by accidental spillages/leaks during construction. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
On-Site Maintenance during the operational phase	Low	Contamination caused by accidental spillages/leaks during on-site maintenance. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
Areas of Geological Heritage: Timahoe Esker (Node 8-10 and Node 9-10)	High	The GSI have stated that there are no set distance requirements for proposed developments in the vicinity of areas of geological interest. Consultation should take place with the GSI during the EIS stage to ensure that structures are located at a suitable distance from the area of geological interest.	Slight Negative

**Table 2.5 Estimation of Magnitude of Potential Impacts on Soils & Geology (Nodes 8-10 and 9–10 and associated 400kV route corridor)**

Estimation of the magnitude of potential impacts on soils & geology for the route corridor options between the following nodes are shown in Table 2.6:

- Nodes 1-2 (Central 110kV Route Corridor)
- Nodes 2-3 (Central 110kV Route Corridor)

- Nodes 2-4 (110kV Sub-Route Corridor)
- Nodes 3-4 (Central 110kV Route Corridor)
- Nodes 3-7 (110kV Sub-Route Corridor)
- Nodes 4-6 (Central 110kV Route Corridor)
- Nodes 5-6 (110kV Sub-Route Corridor)
- Nodes 6-7 (Central 110kV Route Corridor)
- Nodes 7-8 (Central 110kV Route Corridor)
- Nodes 7-9 (Central 110kV Route Corridor)

Attribute	Attribute Importance	Potential Impact	Level of Impact
Excess excavated soil and rock generated during the construction stage.	Low	Excess soil and rock is expected to be minimal due to the nature of the proposed development; however excess soil will require off-site disposal or recovery at a nearby permitted/ licensed waste facility.	Slight Negative
Soil and subsoil quality	Low	Irreversible loss of small proportion of local low fertility soils. Disruption of soil is expected to be minimal due to the nature of the proposed development.	Slight Negative
Soil contamination during the construction phase.	Low	Contamination caused by accidental spillages/leaks during construction. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative
On-Site Maintenance during the operational phase	Low	Contamination caused by accidental spillages/leaks during on-site maintenance. The likelihood of contamination occurring is low however if it does occur, the extent of the soil contamination would need to be determined, sampled and tested before being transported to an appropriately licensed facility by permitted contractors.	Slight Negative

**Table 2.6 Estimation of Magnitude of Potential Impacts on Soils & Geology (Nodes 1-2, 2-3, 2-4, 3-4, 3-7, 4-6, 5-6, 6-7, 7-8, 7-9)**

### 3. Preferred Route Corridor Options

The potential impacts relating to the soils and geology are generally related to the construction phase and the management of machinery on site. The application of mitigation measures highlighted will help ensure that the potential impacts for all route options are imperceptible during the construction phase and the operational phase.

In terms of the route corridor selection the level of impact identified was slight negative for all route corridors. The least preferred options would be the Western 110kV Route Corridor (Nodes 1-10) and the Eastern Route Corridor (Nodes 1-10) and the associated 400kV Route

Corridor due to the presence of blanket peat. The less preferred options would be Nodes 8-10 and 9-10 (and the associated 400kV Route Corridor) due to the locations of site of geological significance. The remaining nodes display potential impacts that are common to all and would be the preferred options in terms of soils and geology.