Dunmanway to Clashavoon 110kV Overhead Line Environmental Reports

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Assessment of Corridors Report – Hydrology and Hydrogeology

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 110kV line from the 220/110kV Clashavoon station to the 110kV station in Dunmanway, Co. Cork. The purpose of this assessment is to recommend the route corridor that causes the least environmental impacts in terms of the water environment (hydrology and hydrogeology).

A previous Constraints Report identified the most significant constraints within the study area.

The key constraints in relation to water are the following:

- Physical constraints – rivers, lakes and reservoirs located across the study area.
- Historical flooding
- Groundwater Supplies – a number of groundwater supplies have been identified from the GSI well database. Additional public or private water supplies may be present in the area.

The potential route corridors have been designed having regard to the identified constraints.

2. Assessment of Route Corridors

The magnitude of potential impacts is 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)

Magnitude of Impact	Description
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)

Western Corridor

Attribute	Attribute Importance	Impact	Level of Impact
The following Quality EPA Quality Class A (Biotic Index Q4, Q5) rivers are located along the route corridor: Laney, Sullane, Lee and Toon.	Very High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
The following additional rivers are located along the route corridor: Foherish, and Cummernamart.	High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
Current WFD Status of rivers along route. All rivers along the route corridor are expected to achieve 'Good Status'	Very High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
Locally Important bedrock Aquifer at different sections along route corridor.	Medium	Impact on groundwater abstraction rate and recharge	Slight Negative
Poor Bedrock Aquifer at different sections along route corridor.	Low	Impact on groundwater abstraction rate and recharge	Slight Negative
Aquifer Vulnerability - Extreme & High	High	Impact on groundwater quality and water supply quality	Slight Negative

Table 2.3 Estimation of Magnitude of Impact on Water (Western Corridor)

Central Corridor

Attribute	Attribute Importance	Impact	Level of Impact
The following EPA Quality Class A (Biotic Index Q4, Q5) rivers are located along the route: Lee and Cummer.	Very High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
The following EPA Quality Class B (Biotic Index Q3-4) river is located along the route: Blackwater	High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
The following additional rivers are located along the route corridor: Clashavoon Stream, Aghthying Stream, Buingea River, Owenbaun Stream, and Glasheenacauha Stream.	High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
Current WFD Status of rivers along route. The River Blackwater is at risk of not achieving 'Good Status'	Very High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
Locally Important bedrock Aquifer at different sections along route corridor.	Medium	Impact on groundwater abstraction rate and recharge	Slight Negative
Locally Important gravel Aquifer, at Warrenscourt, 2km northwest of Kilmurray.	Medium	Impact on groundwater abstraction rate and recharge	Slight Negative
Poor Bedrock Aquifer at different sections along route corridor.	Low	Impact on groundwater abstraction rate and recharge	Slight Negative
Aquifer Vulnerability - Extreme & High	High	Impact on groundwater quality and water supply quality	Slight Negative

Table 2.4 Estimation of Magnitude of Impact on Water (Central Corridor)

Eastern Corridor

Attribute	Attribute Importance	Impact	Level of Impact
The following EPA Quality Class A (Biotic Index Q4, Q5) rivers are located along the route: Bride and Cummer	High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
The following EPA Quality Class B (Biotic Index Q3-4) river is located along the route: Blackwater	High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
The following additional rivers are located along the route corridor: Aghthying Stream and Glasheenacauha Stream.	High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
Current WFD Status of rivers along route. The River Bride is expected to achieve 'Good Status'. The Rivers Bandon and Cummer are at risk of not achieving 'Good Status'	Very High	Some construction works on site may take place in the vicinity of watercourses in the riparian zone.	Slight Negative
Locally Important bedrock Aquifer at different sections along route corridor.	Medium	Impact on groundwater abstraction rate and recharge	Slight Negative
Poor Bedrock Aquifer at different sections along route corridor.	Low	Impact on groundwater abstraction rate and recharge	Slight Negative
Aquifer Vulnerability - Extreme & High	High	Impact on groundwater quality and water supply quality	Slight Negative

Table 2.5 Estimation of Magnitude of Impact on Water (Eastern Corridor)

3. Preferred Corridor Option

The potential impacts relating to the water environment are considered slight negative and are generally exclusively related to the construction phase. The application of the mitigation measures will ensure that the residual impacts of each route option 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.