



Humber Low Carbon Pipelines

Preliminary Environmental Information Report
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nationalgrid

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Appendix 17.1 Assessment Criteria Tables

Table 1: Estimating the importance of water environment attributes

Importance/ sensitivity of resource or receptor	Criteria	Typical Examples	
Very high	Nationally significant attribute of high importance	Surface water quality	Site protected/designated under European Commission (EC) or United Kingdom (UK) legislation (Special Area of Conservation, Special Protection Area, Site of Special Scientific Interest, Ramsar site, salmonid water) Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and a Q95 ¹ ≥1.0 m ³ /s
		Flood risk	Essential infrastructure or highly vulnerable development
High	Locally significant attribute of high importance	Surface water quality	Watercourse having a WFD classification shown in an RBMP and a Q95 <1.0 m ³ /s
		Flood risk	More vulnerable development
Medium	Of moderate quality and rarity	Surface water quality	Watercourses not having a WFD classification shown in an RBMP and Q95 >0.001 m ³ /s
		Flood risk	Less vulnerable development
Low	Lower quality	Surface water quality	Watercourses not having a WFD classification shown in an RBMP and Q95 ≤0.001 m ³ /s
		Flood risk	Water compatible development

¹ Q95 = The flow equalled or exceeded in a watercourse 95% of the time.

Table 2: Estimating the magnitude of an impact on an attribute

Magnitude of impact	Criteria	Typical Examples	
Major adverse	Results in loss of attribute and/or quality and integrity of the attribute	Surface water quality	Loss or extensive change to a fishery Loss or extensive change to a designated nature conservation site Reduction in water body WFD classification
		Flood risk	Increase in peak flood level (1% Annual Exceedance Probability (AEP)) >100 mm
Moderate adverse	Results in effect on integrity of attribute, or loss of part of attribute	Surface water quality	Partial loss in productivity of a fishery Pollution of a non-potable source of abstraction Degradation of regionally important public water supply or loss of major commercial/ industrial/agricultural supply Contribution to reduction in water body WFD classification
		Flood risk	Increase in peak flood level (1% AEP) >50 mm
Minor adverse	Results in some measurable change in attribute quality or vulnerability	Surface water quality	Low risk of pollution Minor effects on water supplies
		Flood risk	Increase in peak flood level (>10 mm)
Negligible	Results in effect on attribute, but of insufficient magnitude to affect the use or integrity	The proposed project is unlikely to affect the integrity of the water environment.	
		Surface water	Negligible risk of pollution from runoff or accidental spillage pollution incidents.
		Flood risk	Negligible change in peak flood level ($\leq \pm 10$ mm).
Minor beneficial	Results in some beneficial effect	Surface water	Some improvement/reduction of an existing polluting discharge.

Magnitude of impact	Criteria	Typical Examples	
	on attribute or a reduced risk of negative effect occurring	Flood risk	Creation of flood storage and reduction in peak flood level (1% AEP) >10 mm
Moderate beneficial	Results in moderate improvement of attribute quality	Surface water	Contribution to improvement in water body WFD classification
		Flood risk	Creation of flood storage and reduction in peak flood level (1% AEP) >50 mm
Major beneficial	Results in major improvement of attribute quality	Surface water	Removal of existing polluting discharge or removing the likelihood of polluting discharges occurring to a watercourse. Improvement in water body WFD classification
		Flood risk	Creation of flood storage and reduction in peak flood level (1% AEP) >100 mm
No change	No loss or alteration of characteristics, features, or elements; no observable impact in either direction.		

Hydromorphology

LA113 does not provide a prescriptive assessment methodology, therefore the assessment was undertaken using professional experience and with reference to published literature, namely the 'Guidebook of Applied Fluvial Geomorphology' (Ref 1) and the 'River Hydromorphology Assessment Technique Training Manual' (Ref 2).

Existing watercourse importance has been classified in line with the criteria set out in Table 3, which was derived from information presented in the River Hydromorphology Assessment Technique Training Manual (Northern Ireland Environment Agency, 2014).

Table 3: Hydromorphology importance criteria

Importance	Criteria
Very high	<p>Varied morphological features with no sign of channel modification, displaying natural flow regime and fluvial processes.</p> <p>Sediment regime that is in equilibrium and provides a diverse mosaic of habitat types suitable for species sensitive to changes in turbidity</p>
High	<p>Predominantly natural water feature with a range of morphological features (e.g. varied, natural bank profiles, pools, riffles, bars). Limited signs of artificial modifications.</p> <p>Sediment regime that provides suitable habitat for species sensitive to changes in turbidity e.g. migratory salmon, freshwater pearl mussel</p>
Medium	<p>Water feature with channel cross-section partially modified in places but exhibiting some morphological features (e.g. pools, riffles, depositional bars). Varied flow types but with an obviously impacted natural flow regime.</p> <p>Sediment regime that provides some physical habitat for species sensitive to changes in turbidity</p>
Low	<p>Water feature that has been extensively modified (e.g. by culverting, impoundment, addition of bank protection, or to perform a flood defence or drainage function). Exhibits limited to no morphological diversity, with uniform flow, bed and bank profiles and low energy.</p> <p>Sediment regime that provides for very limited physical habitat for species sensitive to changes in turbidity</p>

Similarly to defining watercourse importance, there is little guidance on the classification of the potential magnitude of hydromorphological impacts. Criteria for assessing the magnitude of

impacts are presented in Table 4. These were developed with reference to published literature (Ref 1, Ref 2).

Table 4: Hydromorphology impact magnitude criteria

Importance	Criteria
Major adverse	<p>Significant impacts on the bed, banks and vegetated riparian corridor, resulting in changes to sediment transport, load and turbidity</p> <p>Significant alterations to channel planform and/or cross-section</p> <p>Significant shift away from baseline conditions at the water body scale</p>
Moderate adverse	<p>Some changes to bed, banks and vegetated riparian corridor, resulting in some changes to sediment transport, load and turbidity at the multi-reach scale</p> <p>Some alterations to channel planform and/or cross-section</p> <p>A shift away from baseline conditions with impacts at the multi-reach scale</p>
Minor adverse	<p>Limited impacts on bed, banks and vegetated riparian corridor resulting in limited changes to sediment characteristics. Small changes to channel planform and/or cross-section and a minimal shift from baseline conditions; localised impacts up to the reach scale</p>
Negligible	<p>Minimal or no measurable change from baseline conditions. Any impacts highly localized; no impacts at the reach scale</p>

References

Ref 1 Sear D.A., Newson M.D., Thorne C.R. (2010). *Guidebook of Applied Fluvial Geomorphology*.

Ref 2 Northern Ireland Environment Agency (2014). *River Hydromorphology Assessment Technique Training Manual*.

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