
Appendix A11.1

Screening Process

APPENDIX A11.1 – SCREENING PROCESS

The table below screens the elements of the project for their potential to impact the hydrogeological environment. It first considers the elements of the project with are distributed throughout the scheme such as construction compounds, the catenary system and substations, then the stations and depots, then the crossing points. Lastly it considers a range of miscellaneous elements that do not fit into the other categories such as sidings and other smaller buildings.

Table A11-1 Screening of elements for potential hydrogeological effects

Type	Element	Description (based on Chapter 4 and 5)	Potential Impacts	Magnitude after best practice mitigation	Conclusion	Further Analysis
Distributed elements	Construction Compounds	In general, significant earthworks such as excavations are not required. The exception is Navan Road Parkway compound, due to ground irregularity at this site.	Groundwater pollution Pollution during construction phase - mitigated through best practice.	Negligible	Outline pollution prevention mitigation - No further assessment required.	See Section 11.5.2.1
			Alteration in groundwater flow patterns Limited excavation means that there is very limited potential to change groundwater flows.	Negligible	Only compound at Navan Road requires further assessment.	See Section 11.5.2.2.3
	Catenary System	The foundations for the OHLE supports shall generally be concrete bored pile foundations Installing a concrete pile starts with drilling a vertical hole into the soil using a rotary augering machine from track level. Alternative boring equipment can be outfitted with specially designed drilling tools, buckets, and grabs to remove the soil and rock. The drilling process may include driving a temporary steel tube, or sleeve, into the soil. This remains in place in the upper portion of the hole until the pile is poured with concrete.	Groundwater pollution Pollution during construction phase - mitigated through best practice. Mitigation may include baseline monitoring and monitoring of concrete pour during construction phase to limit loss of concrete to surrounding ground.	Negligible	Outline pollution prevention mitigation - No further assessment required.	See Section 11.6.2
			Alteration in groundwater flow patterns. Due to small size very limited is expected as where piles are below groundwater levels, owing to their limited footprint area groundwater is expected to flow around the piles.	Negligible	No further assessment is required except to assess impacts on groundwater receptors which are classified as very important.	See Section 11.6.2
	Substations	The construction of the substation building will follow this sequence: <ul style="list-style-type: none"> • Site clearance and earthworks • Utilities diversion • Foundation and piles • Concrete slab • Facade and finishes • Pavement Works 	Groundwater pollution. Assumed that all substations will be constructed to appropriate standards to ensure they do not pose a potential pollution source.	Negligible	No Further Assessment Required.	N/A
			Alteration in groundwater flow patterns. Anticipated relatively small footprints with shallow foundations, therefore assumed to have negligible effect on shallow groundwater moments.	Negligible	No Further Assessment Required.	N/A

Type	Element	Description (based on Chapter 4 and 5)	Potential Impacts	Magnitude after best practice mitigation	Conclusion	Further Analysis
Stations	Spencer Dock and Zone B	<ul style="list-style-type: none"> Access ramp in Dockland's compound New slab track configuration at Spencer Dock-Docklands-East Wall area Retaining Walls Spencer Dock Station Attenuation Tank. 	<p>Alterations in groundwater flow patterns.</p> <p>Dewatering work in construction phase to maintain dry working environments.</p> <p>Potential creation of large-scale groundwater barrier in operational phase.</p>	See Section 11.5.3.1 and 11.5.2.2	Further assessment required.	See Section 11.5.3.1 and 11.5.2.2
	Connolly Station	Limited below ground works proposed. Foundations for the new structure will be built using reinforced concrete pile caps with micropiles and micropiles inside the walls	<p>Changes in groundwater flow patterns.</p> <p>Micropiles have limited potential to lead to alteration of groundwater flow patterns.</p> <p>Potential for micropiles to create a pollution pathway for contamination is dealt with in Chapter 9.</p>	Negligible	No further assessment required.	N/A
	Maynooth and Zone F Including OBG23a crossing	<p>Various including</p> <ul style="list-style-type: none"> Modifications to the Maynooth Station. Construction of the new Maynooth Substation. Modifications to the existing siding at Maynooth Station. Track doubling from Maynooth Station to the new depot. Construction of the new UBG22A, UBG22B, UBG22C & OBG23A structures. Construction of the new depot Access Road. Construction of the new depot. The proposed compensatory storage 	<p>Alterations in groundwater flow patterns.</p> <p>Earthworks, drainage and development of areas of hardstand.</p> <p>Construction of compensatory flood water storage areas.</p>	See Section 11.5.3.6	Further assessment required.	See Section 11.5.3.6
Level Crossings	Arched Bridges OBG5 Broombridge OBG11 Castleknock Bridge OBG14 Cope Bridge	Underpinning of existing foundations using lateral micropiles to strengthen existing foundations, if necessary	<p>Alterations in groundwater flow patterns.</p> <p>Micropiles have limited potential to change groundwater flow patterns.</p>	Negligible	No further assessment required.	N/A
	Ashtown Level Crossing	<p>The proposed road would drop to an approximate level of 37.5m OD under the railway which is at a level of 45.6m OD at the bridging point.</p> <p>Based on the information available, the road alignment will be a rock cutting on approach to the underpass. This is typically overlaid by made ground in the vicinity of the bridge crossing and made ground overlying glacial till on the approaches.</p>	<p>Alterations in groundwater flow patterns.</p> <p>The underpass will be constructed below the local water table.</p>	See Section 11.5.3.4	Further assessment required.	See Section 11.5.3.4
	OBG23A	Excavation and construction of foundations. The pad or piled foundation could be designed at each support. The final	Alteration in groundwater flow patterns	See Section 11.6.1	Impacts are likely to be negligible,	See Section

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		foundation design will be provided on receipt of the Geotechnical Investigation Report in the detailed design stage.	Foundations are likely not to create a groundwater boundary that would affect groundwater flow patterns. However, this should be confirmed once the foundation design are finalised.		however this should be reassessed once foundation designs are finalised.	11.6.1
	OBD 228 Sheriff Street Bridge	Excavation and construction of foundations. The pad or piled foundation could be designed at each support. The final foundation design will be provided on receipt of the Geotechnical Investigation Report in the detailed design stage.	Alterations in groundwater flow patterns. Foundations are likely not to create a groundwater barrier that would affect groundwater flow patterns. However, this should be confirmed once the foundation design are finalised.		Impacts are likely to be negligible, however this should be reassessed once foundation design is finalised.	
	Coolmine Station	Install piled foundations or install in-situ reinforced concrete spread foundations subject to detailed geotechnical investigation.	Alterations in groundwater flow patterns Foundations are likely not to create a groundwater boundary that would affect groundwater flow patterns This should be confirmed once the foundation design is finalised.		Impacts are likely to be negligible, however this should be reassessed once foundation design is finalised.	
	Porterstown Level Crossing	Install piled foundations or install in-situ reinforced concrete spread foundations subject to detailed geotechnical investigation. For the dewatering works, discrete sections of canal along a 60m length of the northern bank will be locally narrowed and dewatered to facilitate the construction of the pad foundations for the access ramp.	Alterations in groundwater flow patterns. Foundations are likely not to create a groundwater barrier that would affect groundwater flow patterns This should be confirmed once the foundation design is finalised. Dewatering is contained within a pile section. It will be surround on three sides by the canal which will be maintained, and act limit the extend of the groundwater lowering.		Impacts are likely to be negligible, however this should be reassessed once foundation design is finalised.	
	Clonsilla Level Crossing	Install piled foundations or install in-situ reinforced concrete spread foundations subject to detailed geotechnical investigation. For the dewatering works, discrete sections of canal along a 60m length of the northern bank will be locally narrowed and dewatered to facilitate the construction of the pad foundations for the access ramp.	Alterations in groundwater flow patterns. Foundations are likely not to create a groundwater barrier that would affect groundwater flow patterns This should be confirmed once the foundation design is finalised. Dewatering is contained within a pile section. It will be surround on three sides by the canal which will be maintained, and act limit the extend of the groundwater lowering.		Impacts are likely to be negligible, however this should be reassessed once foundation design is finalised.	

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	Barberstown Level Crossing	<p>The construction of the proposed approach embankments. Install piled foundations or install in-situ reinforced concrete spread foundations subject to detailed geotechnical investigation.</p> <p>The proposed Barberstown level crossing will require a new drainage system to manage surface water runoff. The drainage system will consist of carrier drains located in the traffic lanes which will be feed by traditional kerb side gullies and new streams and ditches. The design will also require the diversion of a ditches that run parallel to the canal and railway on the northern and southern side of the rail line. Attenuation ponds are incorporated in the design.</p>	<p>Alterations in groundwater flow patterns.</p> <p>Foundations are likely not to create a groundwater barrier that would affect groundwater flow patterns.</p> <p>This should be confirmed once the foundation design is finalised.</p>		Impacts are likely to be negligible, however this should be reassessed once foundation design is finalised.	
Miscellaneous	Clonsilla siding	Excavation of around 1.5m of made ground embankment. This involves widening an existing cutting by around 20m.	<p>Alterations in groundwater flow patterns</p> <p>The work like next to a section of the Royal Canal that lies in a cutting.</p> <p>The excavations are into an embankment that forms a linear mound along the site of the railway so there should be minimal excavation into natural ground.</p>	Negligible	No further assessment required	N/A
	Signalling Equipment Building (SEB), Principal Supply Points (PSP), and Telecommunication Equipment Room (TER)	<p>Land levelling and earthworks, which will consist in the contouring of the land in each location before the execution placement of the building. For that, it will be necessary to clear the land before any earthwork starts.</p> <p>Small footprint structures similar to substations</p>	<p>Groundwater pollution.</p> <p>Assumed that all substations will be constructed to appropriate standards to ensure they do not pose a potential pollution source.</p>	Negligible	No Further Assessment Required.	N/A
			<p>Alteration in groundwater flow patterns.</p> <p>Anticipated relatively small footprints with shallow foundations, therefore assumed to have negligible effect on shallow groundwater moments.</p>	Negligible	No Further Assessment Required.	N/A
	Diswellstown Junction	<p>Detailed Ground Investigation will determine the makeup and depth of the existing pavement and pavement foundation structure. The widened section of roadway will be design for the anticipated traffic volumes and tie into the existing pavement in steps in accordance with TII guidance. It is envisaged that the entire pavement within the scheme extents will be treated with a pavement inlay following completion of the works.</p>	<p>Alteration in groundwater flow patterns.</p> <p>Earthworks unlikely to have anything other than a very localised impact on groundwater patterns. Confirm once ground investigations have been conducted.</p>	Negligible	Impacts are likely to be negligible, however this should be reassessed once ground investigations completed.	See Section 11.6.1
	Tracking Lowering	Sections of track lowing range from 230mm to 787mm maximum	<p>Alteration in groundwater flow patterns.</p> <p>Long linear sections of ground lowering and improved drainage</p>	See Section 11.5.3.12	Further Assessment Required	See Section 11.5.3.12