
Chapter 18

Material Assets: Utilities

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18. MATERIAL ASSETS: UTILITIES

18.1 Introduction

This chapter provides an overview of the utilities present in the vicinity of the proposed project, and sets out the baseline conditions, impacts and proposed works to be carried out to the utility assets.

Utilities refer to the services provided to consumers that fall under the following criteria:

- Gas transmission and distribution pipework.
- Potable water mains.
- Foul or combined sewers.
- Surface water sewers.
- Electricity transmission and distribution networks (underground cables and overhead lines).
- Fibre telecommunications.

Following the data collection, impacts of the works on existing utilities were identified. In some cases, diversions were evaluated as necessary (e.g., where bridges are to be reconstructed). In other cases, utility protections were evaluated as sufficient. Initial proposed diversion routes were presented to utility providers to gain agreement in principle. Any comments regarding the proposals have been incorporated into the design.

Construction strategies for diversions, protections, and any potential works are addressed in Section 5.3.5 of Chapter 5 Construction Strategy of this EIAR.

Surface Water Drainage is addressed in Chapter 10 Water (including Hydrology & Flood Risk) of this EIAR.

18.2 Legislation and Guidance

18.2.1 Legislation

Córas Iompair Éireann is applying to An Bord Pleanála for a Railway Order for the DART+ West project under the Transport (Railway Infrastructure) Act 2001 (as amended and substituted) (“the 2001 Act”) and as recently further amended by the European Union (Railway Orders) (Environmental Impact Assessment) (Amendment) Regulations 2021 in Statutory Instrument No. 743/2021 (“the 2021 Regulations”). The purpose of the 2021 Regulations was to give further effect to the transposition of the EIA Directive (EU Directive 2011/92/EU as amended by Directive 2014/52/EU) on the assessment of the effects of certain public private projects on the environment by amending the 2001 Act. This material assets, utilities impact assessment has been undertaken in accordance with these requirements.

18.2.2 Guidance

This chapter has been prepared following the guidance documents below:

- Environmental Protection Agency (EPA) (2022), *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*.
- Environmental Protection Agency (EPA) (2015), *Advice Notes for Preparing Environmental Impact Statements*.
- Environmental Protection Agency (EPA) (2003), *Advice notes on Current Practice in the Preparation of Environmental Impact Statements*.

18.3 Survey methodology

18.3.1 Data Collection and Collation

The identification of utilities and infrastructure within the study area commenced with compilation of existing utility records from utility providers detailed Table 18-1 below. This list was compiled from experience from previous infrastructure projects.

Table 18-1 Utility providers

Stakeholder	Department
Local Authorities	
Fingal County Council	Water
	Drainage (foul and surface water)
Dublin City Council	Water
	Drainage (foul and surface water)
	Fibre Optic and CCTV
State / Semi-State Organisations	
Aurora Telecom (subsidiary of Gas Networks Ireland)	GNI Telecoms Network
ESB Networks	Distribution – Medium and Low Voltage
ESB Networks International	High Voltage 38kv
	High Voltage 110/220kv
Gas Networks Ireland (GNI)	Distribution
	Transmission
Irish Water	Water supply
	Foul sewerage
	Major projects – Greater Dublin Drainage Project
Virgin Media Ireland	Telecom
Zayo (EU Network)	Telecom
Third Party Communication Systems	
British Telecom (BT) Ireland	Telecom
ENET	Telecom
Three Ireland	Telecom
Vodafone Ireland	Telecom
EIRCOM (EIR)	Telecom
Transport Infrastructure (excluding roads)	
Privately Owned Utilities	
T50 Telecoms (TBC)	Private fibre network at Barberstown

Where existing utility records received from utility providers and surveys procured provided vague information, detailed ground investigation in the form of exploratory holes and slit trenches were undertaken where required. Site reconnaissance and topographical surveys were undertaken to accurately map the location of chambers and other utility infrastructure such as overhead lines. Additionally, supplementary information was requested from the utility providers, which offered the clarifications required.

Information obtained was used to determine potential clashes between existing utilities and assets and the permanent and temporary works required for the proposed project. Section 18.7 of this chapter discusses this point in more detail.

18.4 Consultation

As part of the proposed project design development, IDOM undertook consultations with infrastructure and utility stakeholders to identify the location, size and/or number and status of material assets within the study area. This early engagement established communication channels with utility providers and aided in the identification of high-risk and/or high-value utilities and assets. The design development of potential diversions and proposed utilities were advanced based on these consultations. Key stakeholders such as ESB, Irish Water, EIR, Transport Infrastructure Ireland (TII), Dublin City Council (DCC), Fingal County Council (FCC), Kildare County Council (KCC) and Meath County Council (MCC).

18.5 Study Area

The study area has been defined with reference to the potential for impact from the proposed development and the availability of relevant information. The study area includes all lands directly affected by the proposed project.

18.6 Assessment methodology

The assessment of the potential impact of the proposed project on infrastructure and utilities has been undertaken in accordance with the following:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022) and in compliance with Directive 2014/52/EU of 16 April 2014 on the assessment of the effects of certain public and private projects on the environment (EIA Directive) and other relevant guidance detailed in Section 18.2.
- EU Commission Guidance: Environmental Impact Assessment of Projects - Guidance on Scoping (EU 2017) - Environmental Impact Assessment of Projects - Guidance on the Preparation of the Environmental Impact Assessment Report (EU 2017).

The description of impacts under various headings and further details on the definitions of impacts on the environment as contained in Section 3.7.3 of EPA Guidelines (2022) are developed in this chapter.

18.6.1 Baseline Assessment Methodology

The baseline environment is defined as the existing environment against which future changes can be measured. The baseline infrastructure and utilities environment has been defined through a desktop study, consultation with relevant stakeholders and field surveys. The baseline environment is then categorised using the criteria outlined in Section 18.6.8 and baseline ratings are assigned. These baseline ratings are then used to inform the assessment of impact significance.

18.6.2 Zone A

18.6.2.1 Connolly Station

Connolly Station is a crucial junction for rail traffic to and from the North (Dublin Connolly - Malahide - Drogheda - Dundalk – border) and suburban line (Connolly - North Strand - Glasnevin - Islandbridge Junction). The works proposed in this area have the aim of increasing the passenger capacity in the station. Utilities within the working area and immediate vicinity are listed in Table 18-2. No utility diversions are foreseen as a result of the station's construction works.

Table 18-2 Utilities at Connolly Station

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Unknown	30+000	Gas - Low Pressure, Gas duct	GNI	Preston St. Access	125, PE80-25 mba	Protection

Protection strategy of utilities to follow shall be in accordance with Section 5.3.5.10 of Chapter 5 of the EIAR.

18.6.2.2 OBO11 Prospect Road, Glasnevin

Since there is not enough OHLE clearance beneath OBO11, track lowering has been proposed below this bridge, which is located in Glasnevin, on Prospect Road. Utilities within the working area and immediate vicinity are listed in Table 18.3 below. An IW drainage pipe underneath the tracks is awaiting confirmation on whether it is required to be diverted.

Table 18-3 Utilities at OBO11

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-006	32+980	Electric - Medium/Low Voltage, Underground cable	ESB	Bridge Deck	Unknown	None
UE-HV-003	32+980	Electric - High Voltage, Underground cable	ESB	Bridge Deck	Unknown	None
UG-MP-004	32+980	Gas - Medium Pressure, Gas duct	GNI	Bridge Deck	Unknown	None
UG-LP-001	32+980	Gas - Low Pressure, Gas duct	GNI	Bridge Deck	Unknown	None
UW-WM-020	32+980	IW – Watermain, Watermain duct	Irish Water	Bridge Deck	152.4, Cast Iron	None
UW-WM-021	32+980	IW – Watermain, Watermain duct	Irish Water	Bridge Deck	228.6, Cast Iron	None
UT-ER-013	32+980	Telecoms, Eircom ducts	Eircom	Bridge Deck	Unknown	None
UT-VM-006	32+980	Telecoms, Virgin duct	Virgin	Bridge Deck	Unknown	None

No utility diversions are foreseen as a result of the track lowering

18.6.2.3 Glasnevin Substation

Glasnevin substation is located within a greenfield area adjacent to playing pitches north of the railway, near Clareville Court residential area. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in Table 18-4 below and interventions (specified below) are foreseen.

Table 18-4 Utilities at Glasnevin Substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Electric - Medium / Low Voltage, underground duct	ESB	Within the working area	3x185xC	Yes

The utility outlined above shall be permanently diverted following the strategy outlined in Chapter 5 Section 5.3.5.5 of the EIAR.

18.6.3 Zone B

18.6.3.1 Spencer Dock

The proposed Spencer Dock Station provides good integration with the surrounding buildings by aligning the station's platform to the 2014 North Lotts and Grand Canal Dock Planning Scheme gridlines. Utilities within the working area and immediate vicinity are listed in Table 18-5 below and the highlighted utility will require a diversion.

Table 18-5 Utilities at Spencer Dock Station

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
N/A	40+170/20+165	IW – Watermain	Irish Water	South of the station	300 at 24MWG	Yes
N/A	40+170/20+165	IW – Gravity Foul ¹	Irish Water	South of the station	450	None
N/A	40+170/20+165	IW – Gravity Foul	Irish Water	East of the station	1000 Brick	Yes
N/A	40+170/20+165	IW – Gravity Foul	Irish Water	East of the station	525	Yes

¹ Safe system of works to be in place during the works around utility. Utility to be protected during construction works and realigned safely.

The utility outlined above shall be permanently diverted following a strategy outlined in Chapter 5 Section 5.3.5.1 of the EIAR.

18.6.3.2 OBD228 Sherriff Street Bridge

As part of the design of the proposed Spencer Dock Station, part of the existing Sheriff Street Bridge must be demolished during the construction of the Spencer Dock Station and will then be rebuilt. The bridge is located on Sheriff Street Upper Bridge, north to the future Spencer Dock station. Utilities within the working area and immediate vicinity are listed in Table 18-6 below and interventions (specified below) are foreseen in those highlighted.

Table 18-6 Utilities at OBD228

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
N/A	40+170/20+165	Electric - Low Voltage, Underground cables	ESB	Bridge Deck	3x1x400XLP / 2 x 70 mm	Yes
N/A	40+170/20+165	Electric - Medium Voltage, Underground cables	ESB	Bridge Deck	2x3x400XLP / 2 x 70 mm	Yes
N/A	40+170/20+165	Electric - High Voltage, Underground cables	ESB	Hanging on side of Bridge Deck	3x1x500 / 3 x 60 mm	Yes
N/A	40+170/20+165	Gas, gas duct	GNI	Bridge Deck	180	Yes
N/A	40+170/20+165	IW – Watermain, watermain pump	Irish Water	Bridge Deck	125 HPPE at 17MWG	Yes
N/A	40+170/20+165	IW – Gravity, foul pipe	Irish Water	Underground, Spencer Dock	1000 mm 1200 mm	None
N/A	40+170/20+165	Telecom, virgin duct	Virgin	Bridge Deck	1x48F and 1x96F	Yes

In addition to the foreseen permanent diversions, temporary diversions are also expected for those same utilities during the bridge reconstruction works. The strategy to be followed to carry out this temporary diversion shall be in accordance with Chapter 5 Section 5.3.5.9 of the EIAR.

18.6.3.3 Docklands Station

Due to the construction of Spencer Dock Station and the permanent way works to take place north of the station, utilities of the existing Docklands station within the working area are listed in Table 18-7 below and interventions are foreseen in those highlighted.

Table 18-7 Utilities at Docklands Station

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
N/A	40+200	Pumped, foul pipe	Iarnród Éireann	Underground, Under tracks	50mm	Yes
N/A	40+200	Drainage surface water	Iarnród Éireann	Underground, Under tracks	300mm	Yes

Pumped foul pipe services Docklands Station only and is currently connected to existing network at Abercorn Road. Existing pipe to be decommissioned and a proposed connection made to existing network at Mayor Street Upper.

Current drainage surface water connection to existing attenuation tank at Spencer Dock is to be decommissioned. Drainage will be connected to new Spencer Dock attenuation tank.

The utility outlined above shall be permanently diverted following a strategy outlined in Chapter 5 Section 5.3.5.1 of the EIAR.

18.6.3.4 Spencer Dock Substation

Spencer Dock substation will be located north of the existing Docklands Station and car park, near the railway junction.

No utilities have been located within the working area and the immediate vicinity of the of the substation, therefore no utility diversions are foreseen as a result of constructing the substation.

18.6.3.5 Spencer Dock to OBO36

Since there is not enough OHLE clearance beneath OBO36, track lowering has been proposed below this bridge, which is located on the GSWR line in Dublin City, on Ossory Road. Utilities within the working area and immediate vicinity are listed in Table 18-8 below and interventions (specified below) are foreseen in those highlighted.

Table 18-8 Utilities from Spencer Dock to OBO36

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
N/A ¹	20+550 / 27+030	IW – Gravity, foul pipe	Irish Water	Underneath Rail tracks	375, Cast iron	Structural protection
N/A ²	20+570 / 27+050	IW –pumped	Irish Water	Underneath Rail tracks	450, Cast iron	Yes
N/A ³	20+570 / 27+050	IW – Gravity, foul pipe	Irish Water	Underneath Rail tracks	1200, Brick	Structural protection

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-008	20+770	Electric - Medium/Low Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UG-LP-002	20+770	Gas - Low Pressure, gas ducts	GNI	Bridge Deck	Unknown	None
UW-WM-022	20+770	IW – Watermain, watermain pipe	Irish Water	Bridge Deck	152.4, Cast Iron	None
US-GS-005	20+770	IW - Gravity Foul, foul duct	Irish Water	Bridge Deck	300, Vitrified Clay	None

¹ Pipe is 2.52m under new top-of-rail levels, based on nearby manhole staff measurement.

² Nearest manhole 250m from tracks indicate shallow invert level. Depth of pipe is 1.85m.

³ Pipe is 1.7m under new top-of-rail levels, based on nearby manhole staff measurement.

A protection strategy unique to this location has been developed and is outlined in Section 5.3.5.10.1 of Chapter 5 of the EIAR.

Irish Water 450mm pumped foul pipe is to be diverted with the use of micro-tunnelling method outlined in Section 5.3.5.8 of Chapter 5 of the EIAR.

18.6.3.6 OBD227

Since there is not enough OHLE clearance beneath the three overbridges, OBD227, 227A and 227B, track lowering has been proposed below them, which are located on the MGWR line in Dublin City. The three structures are located next to each other and supports rail traffic along the Northern Line exiting/entering Connolly Station and the GSWR line (North Strand Junction). Utilities within the working area and immediate vicinity are listed in Table 18-9 below and interventions (specified below) are foreseen in those highlighted.

Table 18-9 Utilities at OBD227

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-016 ¹	40+840	Electric - Medium Voltage, underground cable	ESB	Underneath Rail tracks	4x120 mm ² / 50 mm diameter 4x185mm ² / 60 mm diameter, C	None
US - GS-013	40+840	IW – Gravity, foul pipe	Irish Water	Parallel and Close to Rail tracks	Unknown	None
N/A	40+840	Aurora, duct	Virgin	Parallel to Rail tracks	Unknown	None

¹ Track lowering will be 38 cm. No diversion required, but to proceed with caution as advised by ESB. To be included as risk.

No utility diversions are foreseen as a result of the track lowering.

18.6.3.7 OBD226

Since there is not enough OHLE clearance beneath OBD226, track lowering has been proposed below this bridge, which is located on the MGWR line in Dublin City, on Ossory Road. Utilities within the working area and immediate vicinity are listed in Table 18-10 below and interventions (specified below) are foreseen in those highlighted.

Table 18-10 Utilities at OBD226

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-014	41+020 / 10+430	Electric - Medium/Low Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UE-MV/LV-015 ¹	41+005 / 10+420	Electric - Medium Voltage, underground cable	ESB	Underneath Rail tracks	4X120C 3X185XLP	None
UE-MV/LV-015 ¹	41+005 / 10+420	Electric - Low Voltage, underground cable	ESB	Underneath Rail tracks	4x185AL	None
UE-HV-008	41+020 / 10+430	Electric - High Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UG-LP-009	41+020 / 10+430	Gas - Low Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UG-LP-010	41+020 / 10+430	Gas - Low Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UW-WM-040	41+020 / 10+430	IW – Watermain, watermain pipe	Irish Water	Bridge Deck	101.6	None
UW-WM-041	41+020 / 10+430	IW - Watermain, watermain pipe	Irish Water	Bridge Deck or Bridge East Parapet	228.6	None
UT-ER-020	41+020 / 10+430	Telecoms, ducts	Eircom	Bridge Deck	Unknown	None
US-EUN-001	41+020 / 10+430	Telecoms, ducts	EUNet work	Bridge Deck	Unknown	None
US-AUR-004	41+020 / 10+430	Telecoms, ducts	Aurora	Bridge Deck	Unknown	None
UT-VM-011	41+020 / 10+430	Telecoms, ducts	Virgin	Bridge Deck	Unknown	None
UE-HV-009 ²	41+010 / 10+420	Electric - High Voltage, underground cable	ESB	Underneath Rail tracks	3X1X400 3NO X 3X630	None
US - GS-011 ³	41+040 / 10+445	IW – Gravity, foul pipe	Irish Water	Underneath Rail tracks	550 Cast Iron	None
US - GS-012 ⁴	40+930	IW - Gravity, foul pipe	Irish Water	Underneath Rail tracks	900 Combined Brick	None

¹ Track lowering will be 25 cm. No diversion required, but to proceed with caution as advised by ESB. To be included as risk.

² Track heightening of 15cm to take place at this location.

³ Pipe is 2.12m under new top-of-rail levels, based on nearby manhole staff measurement.

⁴ Pipe is 3.56m under new top-of-rail levels, based on nearby manhole staff measurement.

No utility diversions are foreseen as a result of the track lowering.

18.6.3.8 OBD225

Since there is not enough OHLE clearance beneath OBD225, track lowering has been proposed below this bridge, which is located on the MGWR line in Dublin City, on Ossory Road. No utility interventions are foreseen due to the track lowering (See Table 18-11 below).

Table 18-11 Utilities at OBD225

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-013	41+300	Electric - Medium/Low Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UE-HV-007	41+300	Electric - High Voltage 38 kV, underground cable	ESB	Bridge Deck	Unknown	None
UG-LP-008	41+300	Gas - Low Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UG-MP-007	41+300	Gas - Medium Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UW-WM-037	41+300	IW – Watermain, watermain pipe	Irish Water	Bridge Deck	254, cast iron	None
UW-WM-038	41+300	IW – Watermain, watermain pipe	Irish Water	Bridge Deck	200, molecular PVC	None
UT-ER-019	41+300	Telecoms, duct	Eircom	Bridge Deck	Unknown	None
US-AUR-003	41+300	Telecoms, duct	Aurora	Bridge Deck	Unknown	None
UW-WM-039	41+460	IW – Watermain, watermain pipe	Irish Water	Parallel and Close to Rail tracks	101.6, cast iron	None
US - GS-009	41+460	IW – Gravity, foul pipe and watermain	Irish Water	Parallel and Close to Rail tracks	Combined brick	None

18.6.3.9 OBD224

Since there is not enough OHLE clearance beneath OBD224, track lowering has been proposed below this bridge, which is located on the MGWR line in Dublin City. No utility interventions are foreseen due to the track lowering. (See Table 18-12 below)

Table 18-12 Utilities at OBD224

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-012	41+780	Electric - Medium/Low Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UG-LP-007	41+780	Gas - Low Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UW-WM-036	41+780	IW – Watermain, watermain pipe	Irish Water	Bridge Deck	152.4, Cast iron	None
UT-ER-018	41+780	Telecoms, ducts	Eircom	Bridge Deck	Unknown	None
US - GS-008 ¹	41+580	IW – Gravity, foul – overflow pipe	Irish Water	Underneath Rail tracks	450	None

¹ Existing foul duct underneath rail tracks have been located far away from proposed track lowering and therefore will not be impacted.

18.6.3.10 OBD223

Since there is not enough OHLE clearance beneath OBD223, track lowering has been proposed below this bridge, which is located on the MGWR line in Dublin City. Utilities within the working area and immediate vicinity are listed in Table 18-13 below and interventions (specified below) are foreseen in those highlighted.

Table 18-13 Utilities at OBD223

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV / LV-011	42+200	Electric – Medium / Low Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UE-HV-005	42+200	Electric - High Voltage, underground cable	ESB	Bridge Deck	Unknown	None
UG-MP-006	42+200	Gas - Medium Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UG-LP-005	42+200	Gas - Low Pressure, gas duct	GNI	Bridge Deck	Unknown	None
UW-WM-031	42+200	IW – Watermain, watermain pipe	Irish Water	Bridge Deck or Strapped East Parapet	228.6, cast iron	None
¹ UW-WM-032	42+200	IW - Watermain, watermain pipe	Irish Water	Bridge Deck Potentially lower than Ceiling	152.64, cast iron	None
UW-WM-033	42+200	IW - Watermain, watermain pipe	Irish Water	Bridge Deck or Strapped West Parapet	800, ductile iron	None
UW-WM-034	42+200	IW - Watermain, watermain pipe	Irish Water	Bridge Deck	101.6 Ductile iron	None
US - GS-006	42+200	IW – Gravity, foul pipe	Irish Water	Parallel to Tracks	Unknown	None
UT-ER-016	42+200	Telecoms, ducts	Eircom	Bridge Deck	Unknown	None
UT-VM-010	42+200	Telecoms, ducts	Virgin	Bridge Deck	Unknown	None
US-AUR-002	42+200	Telecoms, ducts	Aurora	Bridge Deck	Unknown	None
UE-HV-006	42+210	Electric - High Voltage, underground cable	ESB	Bridge Deck	3X1X500	None
UG-LP-006	42+210	Gas - Low Pressure, gas duct	GNI	Bridge Deck or Underneath Rail tracks (to be confirmed)	12 IN /300mm, ST	None
UT-ER-026	42+210	Telecoms, ducts	Eircom	Bridge Deck	N/A	None
² UT-ER-017	42+210	GSM Pole		Outside of rail	To be confirmed	None
UW-WM-035	42+210	IW - Watermain, watermain pipe	Irish Water	Parallel and Close to Rail tracks	160, HPPE	None
US - GS-007	42+210	IW – Gravity, foul pipe	Irish Water	Parallel and Close to Rail tracks	None, Vitrified clay	None

¹ Pipe potentially lower than the bridge ceiling - it may affect the OHLE clearance.

² Pole located adjacent to fence.

No utility diversions are foreseen as a result of the track lowering.

18.6.3.11 OBD222 – OBD221

Since there is not enough OHLE clearance beneath OBD222 and OBD221, track lowering has been proposed below those bridges, which are located on the MGWR line inside Dublin. No utility interventions are foreseen due to the track lowering. (See Table 18-14 below)

Table 18-14 Utilities at OBD222-OBD221

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV / LV-010	43+090	Electric Medium/Low Voltage underground cable	ESB	Bridge Deck	Unknown	None
UE-HV-004	43+090	Electric High Voltage underground cable	ESB	Bridge Deck	Unknown	None
UG-MP-005	43+090	Medium Pressure gas duct	GNI	Bridge Deck	Unknown	None
UG-LP-004	43+090	Low Pressure gas duct	GNI	Bridge Deck	Unknown	None
UW-WM-027	43+090	Watermain pipe	Irish Water	Bridge Deck or East Parapet	152.4 mm – Cast Iron	None
UW-WM-028	43+090	Watermain pipe	Irish Water	Bridge Deck	228.6 mm – Cast Iron	None
UW-WM-029	43+090	Watermain pipe	Irish Water	Bridge Deck	406.4 mm – Cast Iron	None
UT-ER-015	43+090	Telecoms duct	Eircom	Bridge Deck	Unknown	None
UT-VM-009	43+090	Telecoms duct	Virgin	Bridge Deck	Unknown	None
UW-WM-030	43+150	Watermain pipe	Irish Water	Bridge Deck	50.8 mm – Cast Iron	None
N/A	42+895	Watermain pipe	Irish Water	Parallel and Close to Tracks	152.4 mm – n/a	None

No utility diversions are foreseen as a result of the track lowering.

18.6.4 Zone C

18.6.4.1 OBG5 Broome bridge

OBG5 is an arch limestone railway bridge of c.1845 is located in Dublin City. The works consist of increasing the vertical clearance by demolishing the existing arch and placing a new one to achieve the required OHLE clearance. Utilities within the working area and immediate vicinity are listed in Table 18-15 below and interventions (specified below) are foreseen in those highlighted. The impacted utilities are expected to be those located within the bridge deck.

Table 18-15 Utilities at OBG5

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-001	51+475	Electric Medium Voltage underground cable	ESB	Bridge Deck	3X185C	Yes
UE-MV/LV-002	51+476	Electric Medium Voltage underground cable	ESB	Bridge Deck	3X185C	Yes
UE-HV-001	51+477	Electric High Voltage underground cable	ESB	Underneath Tracks	3x1x630	None
UW-WM-001	51+479	Watermain pipe	Irish Water	Bridge Deck	152.4 mm at 19MWG– Cast Iron	Yes
¹ UW-WM-002	51+480	Watermain pipe	Irish Water	Underneath Tracks (Underneath temporary construction compound)	609.6 mm – Cast Iron	Protection

¹ The watermain pipe is commonly referred to as the 'clash pipe' as it frequently requires maintenance. Protection of the pipe prior to installing the construction compound. Access to the pipe for maintenance reasons to be ensured.

In addition to the foreseen permanent diversions, temporary diversions are also expected for those same utilities during the bridge reconstruction works. The strategy to be followed to carry out this temporary diversion shall be in accordance with Chapter 5 Section 5.3.5.9 of the EIAR.

Once the bridge is reconstructed, the diverted utilities will be reinstated in the footpath.

18.6.4.2 Ashtown Substation

The substation will be located at the south of the railway, adjacent to Ashtown Station from the east. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in Table 18-16 below and interventions (specified below) are foreseen in those highlighted.

Table 18-16 Utilities at Ashtown Substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
¹ Electric - Medium Voltage, underground duct	ESB	Within the working area	6x3x400 XLPE	Yes
¹ Gas – Medium pressure, underground duct	GNI	Near the proposed location	250 PE 4bar	Yes
² Gravity foul – foul pipe	Irish Water	Within the working area	450 mm	None
Stormwater – drainage pipe	Irish Water	Within the working area	375 mm Concrete	Yes
Stormwater – drainage pipe	Irish Water	Within the working area	600 mm Concrete	Yes

¹ To be diverted permanently away from the footprint of the substation's building.

² Records show abandoned gravity foul pipe, to be decommissioned.

18.6.4.3 Ashtown Level Crossing

The design requires the re-routing of Ashtown Road to the west of its existing alignment along sections of its old alignment (pre- Royal Canal) on Mill Lane and passing under both the railway and the Royal Canal. The

road design will accommodate a cross section of a 6.5m carriageway with a 1.5m rubbing strip on the western side of the road and a 3.65m wide pedestrian/ cycle way along the eastern side of the road. A pedestrian and cyclist bridge is provided at Ashtown Station. The existing Ashtown Road, south of the railway, will be upgraded and a roundabout provided to facilitate vehicle turnaround. Level crossing replacement works at Ashtown will require property acquisition and modifications to existing accesses. A full description of the proposed works is provided in Chapter 4 of this EIAR. (See Table 18-17 below)

Table 18-17 Utilities at Ashtown Level Crossing

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV / LV-019	Electric – Medium / Low Voltage	ESB	Overhead line along Mill Ln (south of railway)	LV	Yes
UE-MV / LV-020	Electric – Medium / Low Voltage	ESB	Overhead line along existing Ashtown Road (south of railway)	LV	Yes
UE-MV / LV-021	Electric – Medium / Low Voltage	ESB	Underground duct along Mill Lane Road (north of railway)	MV	Yes
UW-WM-042	Watermain	IW	Underground watermain along Mill Ln	100 mm uPVC	Yes
UW-WM-043	Watermain	IW	Underground watermain from Martin Savage Park to Ashtown Road (south of railway)	100 mm uPVC	Yes
UW-WM-044	Watermain	IW	Underground watermain duct along Mill Ln (north of railway)	100 mm uPVC	Yes
-	Eir Telecom	EIR	Overhead line along Mill Lane (north of railway)	-	Yes
-	Virgin Telecom	Virgin	Underground duct along Ashtown Road (south of railway)	-	Yes
-	Combined Sewer	IW	Combined Sewer along Mill Ln (South of railway)	1350 mm	Yes

18.6.4.4 Navan Road compound

No utilities have been located within the working area and the immediate vicinity of the of the compound, therefore no utility diversions are foreseen as a result of establishing the compound.

18.6.4.5 OBG7A

Since there is not enough OHLE clearance beneath OBG7A, track lowering has been proposed below this bridge, which is located on the Maynooth line at the roundabout connecting Navan Road to the M50. Utilities within the working area and immediate vicinity are listed in Table 18-18 below and interventions (specified below) are foreseen in those highlighted.

Table 18-18 Utilities at OBG7A

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Unknown	55+925	Electric Medium / Low Voltage underground cable	ESB	Underneath Tracks	Unknown	None

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Unknown	55+925	Electric High Voltage underground cable	ESB	Underneath Tracks	Unknown	None
¹ UG-HP-001	55+655	High Pressure gas ducts	GNI	Underneath Tracks	450 mm and 250 mm - ST	None
US-GS-003	55+295	Gravity pipe	Irish Water	Underneath Tracks	Unknown	None
UD-SW-003	55+125	Stormwater pipe	LA – Surface Water	Underneath Tracks	Unknown	None

¹ Only track realignment at this location. As per GNI, both pipes are slabbed and do not pose a risk. GNI to be on site during works to supervise due to HP nature of pipes.

No utility diversions are foreseen as a result of the track lowering.

18.6.4.6 OBG9 Old Navan Road

The OBG9 is a flat deck bridge with 13.76m wide, and is located along Old Navan Road in Blanchardstown area, County Fingal. Modification to the Old Navan Road Rail bridge, based on its deck lifting, is required to facilitate railway electrification. Utilities within the working area and immediate vicinity are listed in the Table 18-19 and interventions (specified below) are foreseen in those highlighted. The impacted utilities are expected to be those located within the bridge deck.

Table 18-19 Utilities at OBG9

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UW-WM-006	56+100	Watermain pipe	Irish Water	Bridge Parapet (East Side)	304.8 mm at 2.5bar–Asbestos cement	Yes
UT-ER-003	56+100	Telecoms ducts	Eircom	Bridge Deck	2 ducts	Yes

¹ Existing electricity overhead cable may be impacted during deck jacking.

In addition to the foreseen permanent diversions, temporary diversions are also expected for those same utilities during the bridge deck jacking works. The strategy to be followed to carry out this temporary diversion shall be in accordance with Chapter 5 Section 5.3.5.9 of the EIAR.

Once the bridge deck is jacked, the permanent diversion will be provided through the walkway of the new reconstructed deck.

18.6.4.7 OBG11 Castleknock Road

OBG 11 is a 19th-century arch bridge (formally known as Granard Bridge) which carries the Castleknock Road over the railway. The works consist of increasing the vertical clearance by demolishing the existing arch and placing a new one to achieve the required OHLE clearance. Utilities within the working area and immediate vicinity are listed in Table 18-20 below and interventions (specified below) are foreseen in those highlighted. The impacted utilities are expected to be those located within the bridge deck.

Table 18-20 Utilities at OBG11

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV/LV-003	32+980	Electric Medium Voltage underground cable	ESB	Bridge Deck or Bridge Parapet	2NO X 3x185 XLP	Yes
UW-WM-007	32+980	Watermain pipe	Irish Water	Bridge Parapet (East or West Side)	228.6 mm at 1 bar – Cast Iron	Yes
UT-ER-004	32+980	Telecoms ducts	Eircom	Bridge Deck	3 ducts	Yes
UT-VM-002	32+980	Telecoms duct	Virgin	Bridge Deck	1x48F and 1x144F	Yes
¹ US-GS-004	32+995	Gravity pipe	Irish Water	Underneath Rail tracks	Vitrified Clay	None

¹ No gravity foul network on the bridge. However, on the East parapet there is a pipe hanging which might be watermain. To be confirmed. Pipe does not appear on surveys.

In addition to the foreseen permanent diversions, temporary diversions are also expected for those same utilities during the bridge reconstruction works. The strategy to be followed to carry out this temporary diversion shall be in accordance with Chapter 5 Section 5.3.5.9 of the EIAR.

Once the bridge is reconstructed, the diverted utilities will be reinstated in the footpath.

18.6.4.8 Castleknock Substation

Castleknock substation will be located south of the railway on the north border of Laurel Lodge Park, west of the existing R806 Castleknock Road. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in Table 18-21 below and interventions (specified below) are foreseen in those highlighted.

Table 18-21 Utilities at Castleknock substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Electric - Medium Voltage, underground duct	ESB	Within the working area	3x1x185 XLP	Yes

The utility outlined above shall be permanently diverted following a strategy outlined in Chapter 5 Section 5.3.5.1 of the EIAR

18.6.4.9 Coolmine Substation

Coolmine substation will be located in Sycamore Green, a green area next to a residential area, located 400 m east of Coolmine Station. The works proposed in this case are those planned for the construction of a new substation.

No utilities have been located within the working area and the immediate vicinity of the of the substation, therefore no utility diversions are foreseen as a result of constructing the substation.

18.6.4.10 Coolmine Level Crossing

The proposed design entails the construction of a new shared pedestrian and cyclist bridge over the railway to provide a connection between Carpenterstown Road and Coolmine Road for cyclist and walkers. The provision of the new bridge will facilitate the closure of the level crossing and include the diversion of traffic to surrounding crossings of the railway at Dr. Troy Bridge and Castleknock Bridge. Junction improvements are proposed on the surrounding highway network. Traffic analysis have been undertaken to identify the junctions

that will require upgrading to cater for increased traffic into the future. A full description of the proposed works is provided in Chapter 4 of this EIAR.

18.6.4.10.1 Diswellstown Road Junction

Table 18-22 Utilities at Diswellstown Road Junction

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
-	Electric – Medium / Low Voltage	ESB	Underground duct along Annfield Drive	MV	Yes
-	Watermain	IW	Underground watermain along Diswellstown Road (southside of road)	100 mm	Yes
-	Watermain	IW	Underground watermain along Diswellstown Road (northside of road)	100 mm	Yes
-	Watermain	IW	Underground watermain along Porterstown Link Road	150 mm Ductile Iron	Yes
-	Gas Main	GNI	Underground gas main along Diswellstown Road (north side of road)	MV 4 bar	Yes
-	Eir Telecoms	EIR	Underground ducts along Diswellstown Road (north side of road)	-	Yes
-	Eir Telecoms	EIR	Underground ducts along Porterstown Link Road (East side of Road)	-	Yes
-	Eir Telecoms	EIR	Underground ducts along Porterstown Link Road (West side of Road)	-	Yes
-	Virgin Telecoms	Virgin	Underground ducts along Porterstown Link Road (East side of Road)	-	Yes
-	Virgin Telecoms	Virgin	Underground ducts along Porterstown Link Road (West side of Road)	-	Yes

Note: High pressure gas main present with site extents. No diversion required. Minor alterations to existing carriageway drainage will be required. Alterations to existing public lighting will be required.

18.6.4.10.2 Castleknock Road Junction

Table 18-23 Utilities at Castleknock Road Junction

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
-	Electric – Medium / Low Voltage	ESB	Underground duct along Castleknock Road	MV	Yes
-	Electric Medium / Low Voltage	ESB	Overhead line to be taken down Castleknock Road	LV	Yes
-	Gas main	GNI	Underground gas main on Castleknock Road	MP 4 bar	Yes
-	Virgin Telecoms	Virgin	Underground duct along Castleknock Road	-	Yes
-	EIR Telecoms	EIR	Underground duct along Castleknock Road	-	Yes

Note: Minor alterations to existing carriageway drainage will be required. Minor Alterations to existing public lighting will be required.

18.6.4.10.3 Clonsilla Road Junction

Table 18-24 Utilities at Clonsilla Road Junction

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
-	Gas Main	GNI	Underground gas main Blanchardstown Road	MV 4 bar	Yes
-	Watermain	IW	Underground watermain along Diswellstown Road	200mm Cast Iron	Yes

Note: High pressure gas main present with site extents. No diversion required. Minor alterations to existing carriageway drainage will be required. Minor Alterations to existing public lighting will be required.

18.6.4.10.4 Porterstown Road Junction

Table 18-25 Utilities at Porterstown Road Junction

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
TBC	Watermain	IW	Porterstown Level Crossing (south of railway)	100 mm uPVC	Yes

18.6.4.11 Porterstown Level Crossing

The proposed works involves the construction of a new cycle/foot bridge over the railway and canal. The provision of the new bridge will facilitate the closure of the level crossing but would require diversion of traffic to surrounding crossings of the railway. No improvements to the surrounding road network are proposed. Localised reconfiguration of the road network at the level crossing is proposed to provide vehicle turning facilities and passenger drop off. A full description of the proposed works is provided in Chapter 4 of this EIAR.

Table 18-26 Utilities at Porterstown Level Crossing

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
TBC	Watermain	IW	Porterstown Level Crossing (south of railway)	100mm uPVC	Yes

18.6.4.12 Clonsilla Level Crossing

The proposed works at Clonsilla involve the construction of a new cycle/foot bridge over Clonsilla level crossing to facilitate access over the railway and canal. The provision of the new bridge will facilitate the closure of the level crossing but would require diversion of traffic to surrounding crossings of the railway. No improvements to the surrounding road network are proposed (Table 18-27 below). Localised reconfiguration of the carriageway in the vicinity of the level crossing will be required to facilitate the proposed overbridge and provide adequate turning facilities for vehicles. A full description of the proposed works is provided in Chapter 4 of this EIAR.

Table 18-27 Utilities at Clonsilla Level Crossing

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV / LV-030	Electric – Medium / Low Voltage	ESB	Underground duct at Clonsilla Rd	LV	Yes
-	Eir Telecoms	EIR	Overhead line to be transferred to underground duct along Clonsilla Road	-	Yes

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
-	Gravity Foul	IW	Underground		

18.6.4.13 Overhead Lines Track Crossings

Overhead (OH) ESB MV/LV lines crossing the tracks are required to meet a vertical clearance of at least 3.2m with respect to the Overhead Electrification System (OHLE) structure. Table 18-28 below locates ESB OHL that do not achieve the required clearance. Interventions to ensure the clearance includes, ESB pole heightening or dropping of the ESB lines crossing the tracks.

Table 18-28 OHL in Zone C

Reference	Chainage	Utility	Owner	Location	Pole Heightening required
UE-MV/LV-036	56+100	LV	ESB	OBG9 – Talbot Bridge – Old Navan Road	No. Line to be dropped.
UE-MV/LV-037	56+420	LV	ESB	OBG11 – Granard Bridge – Castleknock Road	No. Line to be dropped.
UE-MV/LV-038	57+960	LV	ESB	Coolmine Existing LC	No. Line to be dropped.
UE-MV/LV-039	58+300	MV	ESB	Between Coolmine LC and Diswellstown Road	Yes
UE-MV/LV-040	60+100	LV	ESB	Clonsilla Existing LC	No. Line to be dropped.

Pole heightening works shall follow a strategy outlined in Chapter 5 Section 5.3.5.6 of the EIAR.

18.6.5 Zone D

18.6.5.1 Hansfield Substation

Hansfield substation will be located at the south of the railway, near Hansfield Station, on its eastern side. The works proposed in this case are those planned for the construction of a new substation. No utilities have been located within the working area and the immediate vicinity of the of the substation, therefore no utility diversions are foreseen as a result of constructing the substation.

18.6.5.2 OBCN286

Since there is not enough OHLE clearance beneath OBCN286, track lowering has been proposed below this bridge, which is located on the Clonsilla – M3 Parkway line at 1.85 km from Clonsilla station towards M3 Parkway. Utilities within the working area and immediate vicinity are listed in Table 18-29 below and interventions (specified below) are foreseen in those highlighted.

Table 18-29 Utilities at OBCN286

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UW-WM-023	101+700	Watermain pipe	Irish Water	Bridge Deck	200 mm – U-PVC	None
UW-WM-024	101+700	Watermain pipe	Irish Water	Bridge Deck	101.6 mm – U-PVC	None
Unknown	101+700	Telecoms ducts	EUNetwork	Bridge Deck	Unknown	None
US-AUR-001	101+700	Telecoms duct	Aurora	Bridge Deck	Unknown	None
UT-VF-001	101+700	Telecoms duct	Vodafone	Bridge Deck	Unknown	None
UT-VM-007	101+700	Telecoms duct	Virgin	Bridge Deck	Unknown	None

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
¹ UE-MV/LV-009	101+720	Electric Low Voltage underground cable	ESB	Underneath Rail tracks	120/70 AYC	None

¹ Track lowering will be 35cm. No diversion required but proceed with caution.

18.6.5.3 OBCN290

Since there is not enough OHLE clearance beneath OBCN290, track lowering has been proposed below this bridge, which is located on the Clonsilla – M3 Parkway line at Dunboyne station exit towards Clonsilla. Utilities within the working area and immediate vicinity are listed in Table 18-30 below and interventions (specified below) are foreseen in those highlighted.

Table 18-30 Utilities at OBCN290

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
¹ UW-WM-025	104+900	Watermain pipe	Irish Water	Underneath Rail tracks	100 mm – U-PVC	None
¹ UW-WM-026	104+900	Watermain pipe	Irish Water	Underneath Rail tracks	200 mm – U-PVC	None
UT-VM-008	104+900	Telecoms duct	Virgin	Bridge Deck	Unknown	None
² US-GS-025	104+840	Gravity foul pipe	Irish Water	Underneath Rail tracks	450 mm Concrete	None
³ UG-MP-019	104+840	Medium Pressure gas duct	GNI	Underneath Rail tracks	180 mm - PE	None

¹ Pipes are located underneath the rail tracks at a depth of ~3m. Track lowering will be 20 cm.

² Pipe is >2 m under new top-of-rail levels, based on nearby manhole staff measurement. Track lowering will be 40 cm.

³ Track lowering will be 35 cm. Slit trench detected no utilities up to 1.2m. GNI confirmed no diversion required but for contractor to proceed with caution.

No utility diversions are foreseen due to the track lowering works.

18.6.5.4 Dunboyne Substation

Dunboyne substation will be located north of the railway, near Dunboyne Station, to its western side. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in Table 18-31 below. No utility diversions are foreseen as a result of the substation construction.

Table 18-31 Utilities at Dunboyne substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
IW – Gravity underground pipes	Irish Water	Underneath proposed substation	Unknown	Yes
IW – Gravity underground pipes	Irish Water	Underneath proposed substation	Unknown	Yes

The utility outlined above shall be permanently diverted following a strategy outlined in Chapter 5 Section 5.3.5.1 of the EIAR.

18.6.5.5 M3 Parkway Substation

M3 Parkway substation will be located at the south of the railway, near the M3 Parkway Station, on its western side. The works proposed in this case are those planned for the construction of a new substation. No utilities have been located within the working area and the immediate vicinity of the of the substation, therefore no utility diversions are foreseen as a result of constructing the substation.

18.6.6 Zone E

18.6.6.1 Barberstown Level Crossing

The proposed works at Barberstown level crossing include the construction of a new road bridge with pedestrian and cycle facilities which crosses the Dublin to Sligo railway and the Royal canal approximately 200m west of the existing level crossing. The proposals include for the construction of approach roads on raised embankment which tie into the proposed Barnhill to Ongar Road scheme to the north and to the existing road network south of the railway. A full description of the proposed works is provided in Chapter 4 of this EIAR.

Table 18-32 Utilities at Barberstown Level Crossing

Reference	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV / LV-041	Electric - Medium Voltage	ESB	Overhead medium voltage line (west of railway)	MV	Yes
UW-WM-056	Watermain	IW	Underground watermain duct along R121 Rd (east of railway)	-	Yes
US-AUR-004	Telecoms	Aurora	Underground duct (west of railway)	-	Yes
US-AUR-005	Telecoms	Aurora	Underground duct along R121 extension road (east of railway)	-	Yes
UT-VM-018	Telecoms	Virgin	Underground duct (west of railway)	-	Yes
UT-VM-019	Telecoms	Virgin	Underground duct along R121 extension road (east of railway)	-	Yes
-	Telecoms	Virgin	Underground duct along canal towpath (west of railway)	-	Yes

18.6.6.2 OBG13 Collins Rail Bridge

Since there is not enough OHLE clearance beneath OBG13, track lowering has been proposed below this bridge, which is located on the Maynooth line between Leixlip Confey and Clonsilla stations. Utilities within the working area and immediate vicinity are listed in Table 18-33 below. No utility diversions have been detected.

Table 18-33 Utilities at OBG13

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
¹ UW-WM-010	72+760	Watermain pipe	Irish Water	Bridge Deck	101.6 mm – U-PVC	None
¹ UT-ER-006	72+760	Telecoms duct	Eircom	Bridge Deck	Unknown	None
UW-WM-011	73+050	Watermain ducts	Irish Water	Underneath Tracks	1000 mm – Ductile Iron	None

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UW-WM-012	73+050	Watermain ducts	Irish Water	Underneath Tracks	355 mm - HPPE	None

¹ Existing watermains underneath rail tracks are located far away from proposed track lowering and therefore not impacted.

No utility diversions nor protection is foreseen as a result of the track lowering.

18.6.6.3 OBG14 Leixlip Confey Station (Cope)

OBG14 is located east of Leixlip Confey Station and consists of a two-lane bridge with 7.6 m wide span. The works consist of increasing the vertical by demolishing the existing arch and placing a new one to achieve the required OHLE clearance. Utilities within the working area and immediate vicinity are listed in Table 18-34 below and interventions (specified below) are foreseen in those highlighted. The impacted utilities are expected to be those located within the bridge deck.

Table 18-34 Utilities at OBG14

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UT-ER-007	74+690	Telecoms duct	Eircom	Bridge Deck	1 duct	Yes

In addition to the foreseen permanent diversions, temporary diversions are also expected for those same utilities during the bridge reconstruction works. The strategy to be followed to carry out this temporary diversion shall be in accordance with Chapter 5 Section 5.3.5 of the EIAR.

Eircom duct will be temporarily diverted using a provisional beam for the duration of the bridge works, after which it will be reinstated in the bridge deck.

18.6.6.4 Leixlip Confey Substation

Leixlip Confey substation will be located to the south of the railway, near the existing Leixlip Confey Station, on its western side. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in the table below. No utility diversions are foreseen as a result of the substation construction.

Table 18-35 Utilities at Leixlip Confey substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Telecoms underground duct	Virgin	North side of Glendale St.	Unknown	None

18.6.6.5 OBG16

The OBG16 is a flat deck bridge, west of Louisa Bridge Station. Its modification, based on the deck lifting, is required to facilitate railway electrification. Utilities within the working area and immediate vicinity are listed in Table 18-36 below and interventions (specified below) are foreseen in those highlighted. The impacted utilities are expected to be those located within the bridge deck.

Table 18-36 Utilities at OBG16

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UE-MV / LV-004	76+520	Electric Medium Voltage underground cable	ESB	Bridge Deck	3x1x185XLP	Yes

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
¹ UG-MP-020	76+520	Medium Pressure gas duct	GNI	Bridge Deck	250 mm – PE	Yes
UW-WM-013	76+520	Watermain pipe	Irish Water	Strapped to east bridge parapet	450 mm – Asbestos cement	Yes
UW-WM-014	76+520	Watermain pipe	Irish Water	Strapped to west bridge parapet	350 mm – Ductile Iron	Yes
UT-ER-008	76+520	Telecoms ducts	Eircom	Bridge Deck	3 ducts	Yes

¹ As per GNI, service cut-off at this location is possible but dependent on time of year. At the time of this report, it is possible to avoid diversions and to resort to temporarily cutting off service for the duration of the works. Listed in table as diversion as a safety measure.

In addition to the foreseen permanent diversions, temporary diversions are also expected for those same utilities during the bridge deck jacking works. The strategy to be followed to carry out this temporary diversion shall be in accordance with Chapter 5 Section 5.3.5.9 of the EIAR.

Once the bridge deck is jacked, the permanent diversion will be done through the walkway of the new reconstructed deck.

18.6.6.6 Blakestown Substation

Blakestown substation will be located at the south of the railway, near the existing level crossing. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in Table 18-37 below. No utility diversions are foreseen as a result of the substation construction.

Table 18-37 Utilities at Blakestown substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Gas – Medium Pressure underground duct	GNI	Blakestown LC	Unknown	None
IW – Watermain underground duct	Irish Water	Blakestown LC	101.6 mm - none	None

18.6.6.7 OBG18 Pike Bridge

Since there is not enough OHLE clearance beneath OBG18, track lowering has been proposed below this bridge, which is located east the Maynooth station. Utilities within the working area and immediate vicinity are listed in the Table 18-38 and interventions (specified below) are foreseen in those highlighted.

Table 18-38 Utilities at OBG18

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
UW-WM-016	80+000	Watermain pipe	Irish Water	Bridge Deck	450 mm – Asbestos cement	None
UT-ER-009	80+000	Telecoms ducts	Eircom	Bridge Deck	Unknown	None
¹ UW-WM-062	79+900	Watermain pipe	Irish Water	Underneath Tracks	600 mm – Ductile Iron	None
¹ UW-WM-063	79+900	Watermain pipe	Irish Water	Underneath Tracks	600 mm – Ductile Iron	None

¹ Track lowering will be 25 cm. Pipe 10.4m below TOR level.

No utility diversions are foreseen as a result of the track lowering.

18.6.6.8 Overhead Lines Track Crossings

Overhead (OH) ESB MV/LV lines crossing the tracks are required to meet a vertical clearance of at least 3.2m with respect to the Overhead Electrification System (OHLE) structure. The following table locates ESB OHL that do not achieve the required clearance. Interventions to ensure the clearance include ESB pole heightening or dropping of the ESB lines crossing the tracks.

Table 18-39 OHL in Zone E

Reference	Chainage	Utility	Owner	Location	Pole Heightening required
UE-MV / LV-042	70+960	LV	ESB	Barberstown Existing LC	Yes
UE-MV / LV-044	74+600	MV	ESB	Leixlip Confey Station	Yes
UE-MV / LV-045	74+700	LV	ESB	Leixlip Confey Station – Cope Bridge	No. Line dropping followed by northern pole relocation
UE-MV / LV-048	78+240	MV	ESB	Deey Bridge and Lock 13	Yes, and southern pole relocation
UE-MV / LV-049	79+040	MV	ESB	900m west of Deey Bridge and Lock 13	Yes
UE-MV / LV-050	79+840	MV	ESB	Pike Bridge (Wharton Bridge) – OBG18	Yes
N/A	81+000	MV	ESB	1.14km west of Pike Bridge	Yes

Pole heightening works shall follow a strategy outlined in Chapter 5 Section 5.3.5.6 of the EIAR.

18.6.7 Zone F

18.6.7.1 Maynooth station

Maynooth station will require some interventions on the track to make adequate use of the existing siding west of the station. The crossover placed to the Down siding operation requires modification to the alignment of the tracks at the entrance to the station platforms to remodel the platforms, cutting them on the western side and extending them on the eastern side. No utility diversions are foreseen as a result of the works within Maynooth station.

18.6.7.2 Maynooth Substation

Maynooth substation is proposed within the car parking area of Maynooth station at the south of the railway, opposite the canal and near R406. The works proposed in this case are those planned for the construction of a new substation. Utilities within the working area and immediate vicinity are listed in Table 18-40 below. No utility diversions are foreseen as a result of the substation construction.

Table 18-40 Utilities at Maynooth substation

Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
Electric – Medium/Low Voltage underground duct	ESB	South Maynooth station	Unknown	None
Watermain underground duct	Irish Water	Along R406 road	Unknown	None

18.6.7.3 OBG21 – Maynooth – Depot double track

A new off-line alignment, south of the existing track, begins at Ch. 91+000, just outside the Maynooth urban area. This new alignment ends at Ch. 92+500, after the east entrance to the depot, with a total length of 1.5 km. Utilities within the working area and immediate vicinity are listed in Table 18-41 below and interventions (specified below) are foreseen in those highlighted.

Table 18-41 Utilities at Maynooth Depot Double Track

Reference	Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
¹ US-GS-023	90+190	Gravity foul pipe	Irish Water	West of OBG21 at Maynooth	450 mm CO	None
² UD-SW-010	90+190	Stormwater pipe	Irish Water	West of OBG21 at Maynooth	200 CO	None
³ US-GS-024	90+220	Gravity foul pipe	Irish Water	West of OBG21 at Maynooth	225 CO	None

¹ Pipe is 3.5m below new TOR level. Track lowering will be 10 cm.

² Pipe is crossing under the canal. Track lowering will be 15cm.

³ Pipe is 3.1m below new TOR level. Track lowering will be 25 cm.

18.6.7.4 Depot

The proposed depot is located on agricultural lands between Maynooth and Kilcock, parallel to the mainline with two railway connections to the mainline and road access from R148 Regional Road. The works proposed in this case are those planned for the construction of a new depot. Utilities within the working area and immediate vicinity are listed in Table 18-42 below and interventions (specified below) are foreseen in those highlighted.

Table 18-42 Utilities at the Depot

Reference	Chainage	Utility	Owner	Location	Diversion required
N/A	N/A	LV Pole with 3 lines	ESB	Depot – west entrance	Yes
UE-HV-015	95+000	38kV High Voltage Overhead line / Griffinrath-Kilcock	ESB	Depot	Yes
UE-HV-016	95+300	38kV High Voltage Overhead line / Kilcock-Moneycoolet	ESB	Depot	Yes, heightening
UE-HV-013	92+400	220kV High Voltage Overhead line	ESB	Depot / East of OBG23	Yes, heightening
UE-HV-014	93+040	220kV High Voltage Overhead line	ESB	Depot	None

The LV pole located at the west entrance of the depot is to be relocated so as not to obstruct the access.

The Griffinrath-Kilcock 38kV OH HV line will need to be diverted underground through the depot layout. Meanwhile, the Kilcock-Moneycoolet 38kV OH HV line will require an overhead line alteration with the addition of two new poles in order to maintain safe electrical clearance between the existing 38kV line and the proposed tractions wires crossing the point.

The 220kV OH HV line located east of OBG23 will need to be heightened to maintain safe electrical clearance. Meanwhile the 220kV OH HV line located within the depot grounds will require no diversion.

Strategies relating to diversions listed above will be outlined in Chapter 5 Section 5.3.5 of the EIAR.

18.6.7.4.1 38 kV underground line

ESB requirements for the buried cables route are summarised below and have been taken into account for the diversion proposal.

- 2 Interface towers have been installed inside the depot area.
- Road access to interface towers inside the depot is provided, as requested by ESB for maintenance issues.
- As agreed with ESB, a 3.5 m radial space around the towers is provided. The tower with the buffer zone is shown in Figure 18.1 below.

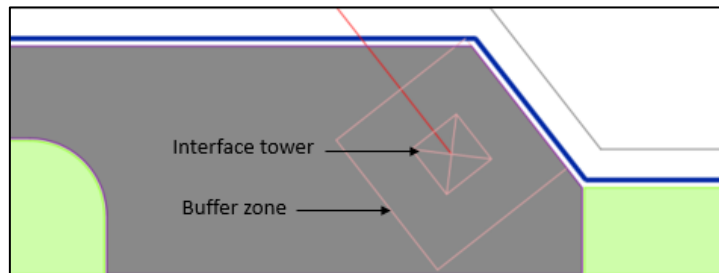


Figure 18-1 Interface tower with buffer zone for maintenance tasks

The underground proposed diversion avoids passing under depot buildings and any of the other ancillary buildings.

- A minimum radius of 6 m is considered for underground cables route.
- The minimum separation between the underground cables and the building foundations shall be 1 m.
- Rail tracks crossings with the buried cables has been minimised.
- The new interface poles are in line with the existing ones.

More detail is provided in drawing Depot Utilities Diversion High Voltage Layout Plan MAY-MDC-UTL-DEPM-DR-Y-0100-D in Volume 3A of this EIAR

18.6.7.5 L5041

The L5041 local road extends from the L5042 local road at its southern end to the R148 Maynooth-Kilcock road at the north, crossing the existing M4 motorway and bridging over the Royal Canal and rail line at Jackson Bridge (OBG23) at its northern end. The works proposed are based on the diversion of L5041 approximately 850 meters to the west, constructing a new OBG23A bridge to cross over the tracks and canal and connect to the R148 road. Utilities within the working area and immediate vicinity are listed in Table 18-43 below and interventions (specified below) are foreseen in those highlighted.

Table 18-43 Utilities at L5041

Chainage	Utility	Owner	Location	Type/Size (nominal internal diameter)	Diversion required
92+850	Watermain	Irish Water	South side of R148	152.4 Asbestos Cement	Yes
92+850	Medium Pressure gas duct	GNI	South side of R148	180 PE 80-4bar	Yes

18.6.7.6 Overhead Lines track crossings

Overhead (OH) ESB MV/LV lines crossing the tracks are required to meet a vertical clearance of at least 3.2m with respect to the Overhead Electrification System (OHLE) structure. Table 18-44 locates ESB OHL that do not achieve the required clearance. Interventions to ensure the clearance include ESB pole heightening or dropping of the ESB lines crossing the tracks.

Table 18-44 OHL in Zone F

Reference	Chainage	Utility	Owner	Location	Pole Heightening Required
UE-MV / LV-052	82+020	MV	ESB	East of Maynooth station and Straffan Road	Yes, and southern pole relocation
UE-MV / LV-054	91+000	MV	ESB	Just north of The Garden / Maynooth South	Yes

Pole heightening works shall follow a strategy outlined in Chapter 5 Section 5.3.5.6 of the EIAR.

18.6.8 Baseline categorisation criteria

The baseline environment is assigned a baseline rating based on importance and sensitivity of the receiving environment. For the purposes of this chapter, the importance of infrastructure and utilities has been based on their functionality. The baseline rating is subsequently used in the impact assessment to determine the likely significance of impacts which is discussed in Section 18.7.

Importance of the baseline environment:

Infrastructure and utilities ensure that transportation, power (electricity/gas), water and other services are provided in a reliable, consistent manner. The day-to-day lives of individuals and the commercial health of the country are dependent on this provision.

The importance of a utility is determined, considering the function, strategic nature and capacity of the utility. These are categorised as:

- Transmission networks: these are of national or regional importance and there can be a contingency to continue supply from other sources.
- Distribution networks: these are of local importance and usually there is no contingency available to maintain continuity of supply from other sources (e.g., DCC water mains supply).
- Local connection: these are of local importance and usually there is no contingency available to maintain continuity of supply from other sources (i.e., connection from distribution networks to private properties).

The proposed development will interact with Royal Canal at several locations. The Royal Canal is a navigable waterway that connects the River Liffey in Dublin to the River Shannon 146 km to the west near Longford. The Royal Canal is mainly used for leisure activities, namely boating and angling within the waterway, and walking and cycling along the towpath and pathways running alongside it. In this chapter the importance of the canal has been considered in context of its use as a navigation corridor for boats and walkers and cyclists.

Sensitivity of the baseline environment:

Disruption of utilities at single point locations can often affect the functionality of the infrastructure over a large area. Therefore, all utilities are considered sensitive to change.

The disruption of rail lines at a single location can affect the functionality of the infrastructure over a large area. Therefore, all rail lines are also considered sensitive to change. Effects of the proposed project on rail operations are assessed in Chapter 6 Traffic and Transportation Chapter.

Similarly, the capacity of a canal waterway to accommodate change is limited and therefore considered sensitive.

For the purposes of this assessment existing adverse effects are not considered.

Baseline rating:

The baseline rating of the existing infrastructure and utilities environment is determined by having regard to the range of criteria which reflect the importance and sensitivity of the service/supply. These criteria have been defined and are shown in Table 18-45.

Table 18-45 Criteria for baseline categorisation of infrastructure and utilities

Criteria	Baseline Rating
Gas transmission/high pressure pipework (≥ 4 bar) Potable (drinking) water trunk mains and trunk foul or combined sewers, greater than or equal to 600mm diameter Surface water sewers of greater than or equal to 300mm diameter Electricity (distribution) high voltage cables including underground cables and overhead lines Fibre telecommunications (including cables such as telephone and internet, cable television networks, signalling and traffic cables and other control cables (e.g., other private services) Railway infrastructure Navigable waterways (canals)	Very High
Gas distribution pipework (≤ 4 bar) Water pipes (arterial) for drinking water, combined surface water sewers, foul sewers Surface water sewers of less than 300mm diameter Electricity (transmission) cables including underground cables and overhead lines	High
Not applicable	Medium
Not applicable	Low
Not applicable	Very Low

For the purposes of the EIAR, the baseline rating for navigable canal waterways has been considered to be Very High, given their sensitivity to disruption and limited capacity to accommodate change by diversion/realignment or closure.

Impacts during the construction phase and operational phase which the proposed project may have on the material assets are examined, and mitigation measures which may be required to minimise any adverse impacts of the proposed project are identified and considered.

18.6.9 Utility impact magnitude

The criteria used to assess the different impacts associated with infrastructure and utilities under the proposed project are shown in Table 18-46. This table is based on the “Guidelines on the Information to be Contained in Environmental Impact Statements” (EPA 2022) and informed by consultation with relevant public and private utility companies.

The impacts will be predominantly during the construction phase. This may involve the realignment or replacement of existing infrastructure and utilities. As well as utility diversions, the proposed project also requires the provision of new connections to services during both the construction and operational phases:

- Applications for water supply and foul discharges have been prepared and submitted to Irish Water.
- An application for the power supply for the proposed project is being brought forward by the ESB but the environmental impacts of such power supply have been evaluated in this EIAR on the basis of the best and most up-to-date information.

Proposed discharge locations of surface water have been identified subject to approval.

For the purposes of this assessment, the magnitude of impact for infrastructure and utilities has been considered in terms of the duration of service interruption (outage). The outage duration will be finalised with the relevant utility provider or consumer (in the case of private utilities), in accordance with their service

level/business interruption requirements. However, this assessment is based upon consultation undertaken for the purpose of Railway Order design with stakeholders and although durations may be subject to some changes, the assumed duration of potential outages/service disruption is considered to be reliable.

Table 18-46 Criteria for assessment of infrastructure and utilities impact magnitude based on EPA guidelines

Criteria	Impact magnitude
Disruption of service for more than one week. Relevant stakeholders are notified at short notice or not at all prior to disruption taking place. The level of service provided by the original utilities or infrastructure is not reinstated.	Very High
Disruption of service for up to one week. Relevant stakeholders are notified at short notice prior to disruption taking place. The level of service provided by the original utilities or infrastructure is reinstated.	High
Disruption of service for up to two days. Relevant stakeholders are notified prior to disruption taking place. The level of service provided by the original utilities or infrastructure is reinstated or improved.	Medium
Disruption of service for several hours. Relevant stakeholders are notified prior to disruption taking place. The level of service provided by the original utilities or infrastructure is reinstated or improved.	Low
Not applicable.	Negligible

18.6.10 Utility impact significance

The significance of all impacts/effects was assessed having consideration of the magnitude of the impact and the baseline rating of the infrastructure and utilities. For the purposes of this assessment, baseline ratings for utilities scored from Very High to High and canal waterways scored Very High.

Table 18-47 shows how the baseline rating and the impact magnitude are combined to give the likely significance of the effect prior to any mitigation measures being implemented. The significance of effects ranges are then defined using the following categories: Imperceptible; Not Significant; Slight; Moderate; Significant; Very Significant; and Profound.

Table 18-47 Significance of Effects

Significance of Effects (+/-)					
Impact Magnitude (+/-)	Baseline Rating				
	Very Low	Low	Medium	High	Very High
Negligible	Imperceptible	Imperceptible	Not Significant	Not Significant	Not Significant
Low	Not Significant	Not Significant	Slight	Slight	Moderate
Medium	Slight	Slight	Moderate	Moderate	Significant
High	Slight	Moderate	Significant	Significant	Very Significant
Very High	Moderate	Significant	Very Significant	Profound	Profound

Following assessment of the potential effects, the proposed project was reviewed so that mitigation methods could be conceived that will avoid, prevent or reduce any negative effects as a result of the proposed project. These are described in further detail in Section 18.8.

Factoring in the mitigation methods outlined in Section 18.8, the residual impacts are summarised in Section 18.9.

The impact evaluation is based on the understanding that existing best practices in design, construction and operation are employed for the proposed project as set out in this EIAR.

18.7 Conflicts and proposed diversions

The data compiled as part of the data collection and collation process detailed in Section 18.4.1 was overlaid against the proposed temporary and permanent works required as part of the project. A “clash analysis” was undertaken to determine potential clashes. Potential diversions or alterations were discussed and agreed in principle with the utility providers during consultations. The impacts in relation to these diversions or alterations were assessed as detailed below.

A summary of proposed diversions is outlined below. The summary outlines the clashes that have been identified across the project. The type, size and material of each clash is identified where possible.

Table 18-48 Summary of Utility Diversions

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
Zone A								
Connolly Station	Gas – Low pressure duct	GNI	125 PE 80-25mba	Protection	Protection with concrete slab.	High	Low	Slight
Glasnevin Substation	Electric – Medium / Low Voltage, Underground cable	ESB	3x185xC	Yes	Diversion away from building footprint.	High	Low	Slight
Zone B								
Spencer Dock Station	IW - Watermain	Irish Water	300 at 24MWG	Yes	Diversion out of the station boundary	High	Low	Slight
	IW – Gravity Foul	Irish Water	450	No	Safe system of works to be in place during the works around utility. To be realigned safely.	Very High	Negligible	Not significant
	IW – Gravity Foul	Irish Water	1000 Brick	Yes	Diversion out of the station boundary	Very High	Low	Moderate
	IW – Gravity Foul	Irish Water	525	Yes	Diversion out of the station boundary	Very High	Low	Moderate
OBD228	Electric - Low Voltage, Underground cables	ESB	3x1x400XLP / 2 x 70 mm	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Electric – Medium Voltage, Underground cables	ESB	2x3x400XLP / 2 x 70 mm	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Electric - High Voltage, Underground cables	ESB	3x1x500 / 3 x 60 mm	Yes	Diversion hanging on new bridge. Temporary diversion through scaffolding during works	Very High	Medium	Significant
	Gas, gas duct 25mbar	GNI	180	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Negligible	Not significant
	IW – Watermain	Irish Water	125 HPPE at 17MWG	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Telecom, virgin duct	Virgin	1x48F and 1x96F	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	Very High	Low	Moderate
Docklands Station	Pumped, foul pipe	IE	50mm	Yes	New connection to be established.	High	Low	Slight
	Drainage surface water	IE	300mm	Yes	To be connected to Spencer Dock attenuation tank	Very High	Negligible	Not Significant

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
Spencer Dock to OBO36	IW – Gravity, foul pipe	Irish Water	375, Cast iron	Protection	Protection. IW to confirm.	Very High	Negligible	Not Significant
	IW – Gravity, foul pipe	Irish Water	1200, Brick	Protection	Structural protection. IW to confirm	Very High	Negligible	Not Significant
	IW- Pumped	Irish Water	450 Cast Iron	Protection	Diversion using micro-tunnelling and trenching	Very high	Medium	Significant
OBD227	Electric - Low Voltage, underground cable	ESB	4x120 mm ² 4x185mm ² , C	None	No diversion. To proceed with caution as advised by ESB.	High	Negligible	Not significant
OBD226	Electric - Medium Voltage, underground cable	ESB	4X120C 3X185XLP	None	No diversion. To proceed with caution as advised by ESB.	Very High	Negligible	Not significant
	Electric – Low voltage, underground cable	ESB	4x185AL	None	No diversion. To proceed with caution as advised by ESB.	High	Negligible	Not significant
Zone C								
OBG5	Electric - Medium Voltage underground cable	ESB	3X185C	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Electric - Medium Voltage underground cable	ESB	3X185C	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Watermain pipe	Irish Water	152.4 mm – Cast Iron	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
OBG5 Compound	Watermain pipe	Irish Water	609.6 mm	Protection	Protection with concrete slab	Very High	Negligible	Not significant
Ashtown Level Crossing Replacement	Electric – Medium / Low Voltage	ESB	LV	Yes	Overhead line along Mill Ln (south of railway)	High	Low	Slight
	Electric – Medium / Low Voltage	ESB	LV	Yes	Overhead line along existing Ashtown Road (south of railway)	High	Low	Slight
	Electric – Medium / Low Voltage	ESB	MV	Yes	Underground duct along Mill Lane Road (north of railway)	Very High	Low	Moderate
	Watermain	IW	100mm uPVC	Yes	Underground watermain along Mill Ln	High	Low	Slight
	Watermain	IW	100mm uPVC	Yes	Underground watermain from Martin Savage Park to Ashtown Road (south of railway)	High	Low	Slight

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
	Watermain	IW	100mm uPVC	Yes	Underground watermain duct along Mill Ln (north of railway)	High	Low	Slight
	Eir Telecom	EIR	-	Yes	Overhead line along Mill Lane (north of railway)	High	Low	Slight
	Virgin Telecom	Virgin	-	Yes	Underground duct along Ashtown Road (south of railway)	High	Low	Slight
	Combined Sewer	IW	1350mm	Yes	Combined Sewer along Mill Ln (South of railway)	Very High	Low	Moderate
Ashtown Substation	Electric - Medium Voltage, underground duct	ESB	6X3X400 XLPE	Yes	Diversion away from substation's boundary	Very High	Low	Moderate
	Gas – Medium pressure, underground duct	GNI	250 PE 4-bar	Yes	Diversion away from substation's boundary	High	Low	Slight
	Gravity foul – foul pipe	IW	450mm	No	Affected segment to be decommissioned.	High	Negligible	Not significant
	Stormwater – drainage pipe	IW	N/A	Yes	Diversion away from substation's boundary	High	Low	Slight
	Stormwater – drainage pipe	IW	N/A	Yes	Diversion away from substation's boundary	High	Low	Slight
OBG7A	Gas – High Pressure	GNI	450 mm and 250 mm - ST	None	GNI to be on site during works to supervise due to HP nature of pipes.	Very High	Negligible	Not significant
OBG9	Watermain pipe	Irish Water	304.8 mm – Asbestos cement	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Telecoms ducts	Eircom	TBC	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	Very High	Low	Moderate
OBG11	Electric Medium Voltage underground cable	ESB	2NO X 3x185 XLP	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Watermain pipe	Irish Water	228.6 mm – Cast Iron	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Telecoms ducts	Eircom	TBC	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	Very High	Low	Moderate
	Telecoms ducts	Virgin	1x48F and 1x144F	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	Very High	Low	Moderate
Castleknock Substation	Electric - Medium Voltage, underground duct	ESB	3x1x185 XLP	Yes	Diversion out of the substation boundary	High	Low	Slight

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
Coolmine Level Crossing Replacement – Pedestrian and Cyclist Bridge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coolmine Level Crossing – Diswellstown Junction	Electric – Medium / Low Voltage	ESB	MV	Yes	Underground duct along Annfield Drive	High	Low	Slight
	Watermain	IW	100mm	Yes	Underground watermain along Diswellstown Road (southside of road)	High	Low	Slight
	Watermain	IW	100mm	Yes	Underground watermain along Diswellstown Road (northside of road)	High	Low	Slight
	Watermain	IW	150mm Ductile Iron	Yes	Underground watermain along Porterstown Link Road	High	Low	Slight
	Gas Main	GNI	MV 4 bar	Yes	Underground gas main along Diswellstown Road (north side of road)	High	Low	Slight
	Eir Telecoms	EIR	-	Yes	Underground ducts along Diswellstown Road (north side of road)	Very High	Low	Moderate
	Eir Telecoms	EIR	-	Yes	Underground ducts along Porterstown Link Road (East side of Road)	High	Low	Slight
	Eir Telecoms	EIR	-	Yes	Underground ducts along Porterstown Link Road (West side of Road)	High	Low	Slight
	Virgin Telecoms	Virgin	-	Yes	Underground ducts along Porterstown Link Road (East side of Road)	High	Low	Slight
	Virgin Telecoms	Virgin	-	Yes	Underground ducts along Porterstown Link Road (West side of Road)	High	Low	Slight
Coolmine Level Crossing Replacement – Castleknock Road Junction	Electric – Medium / Low Voltage	ESB	MV	Yes	Underground duct along Castleknock Road	High	Low	Slight
	Electric Medium/Low Voltage	ESB	LV	Yes	Overhead line to be taken down Castleknock Road	High	Low	Slight
	Gas main	GNI	MP 4 bar	Yes	Underground gas main on Castleknock Road	Very High	Low	Moderate
	Virgin Telecoms	Virgin	-		Underground duct along Castleknock Road	High	Low	Slight
	EIR Telecoms	EIR	-		Underground duct along Castleknock Road	High	Low	Slight

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
Coolmine Level Crossing Replacement – Clonsilla Road Junction	Gas Main	GNI	MV 4 bar	Yes	Underground gas main Blanchardstown Road	Very High	Low	Moderate
	Watermain	IW	200mm Cast Iron	Yes	Underground watermain along Diswellstown Road	High	Low	Slight
Coolmine Level Crossing Replacement – Porterstown Road Junction	Electric Low Voltage Overhead Cables	ESB	TBC	Yes	Localised Diversion	High	Low	Slight
Porterstown Level Crossing	Watermain Underground Pipe	Irish Water	TBC	Yes	Localised Diversion	High	Low	Slight
Clonsilla Level Crossing Replacement	Electric Low Voltage Overhead Cables	ESB		Yes	Localised Diversion	High	Low	Slight
	Telecoms Underground cables	EIR		Yes	Localised Diversion	High	Low	Slight
	Gravity Foul	IW	225mm	Yes	Underground gravity foul pipe to be diverted locally	High	Low	Slight
OBG9 Talbot Bridge	Electric – Low Voltage Overhead Line	ESB	LV	Line to be dropped	Line to be dropped	High	Negligible	Not significant
OBG11 Granard Bridge	Electric – Low Voltage Overhead Line	ESB	LV	Line to be dropped	Line to be dropped	High	Negligible	Not significant
Coolmine Existing LC	Electric – Low Voltage Overhead Line	ESB	LV	Line to be dropped	Line to be dropped	High	Negligible	Not significant
Between Coolmine LC and Diswellstown Road	Electric – Medium Voltage Overhead Line	ESB	MV	Pole heightening	Pole heightening	High	Low	Slight
Clonsilla Existing LC	Electric – Low Voltage Overhead Line	ESB	LV	Pole heightening	Line to be dropped	High	Negligible	Not significant

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
Zone D								
OBCN286	Electric Low Voltage underground cable	ESB	120/70 AYC LV	None	Diversion is not required. To proceed with caution and to add to risk.	High	Negligible	Not Significant
OBCN290	Medium Pressure gas duct	GNI	180 mm - PE	None	Diversion is not required. To proceed with caution and to add to risk.	High	Negligible	Not Significant
Zone E								
OBG14	Telecoms duct	Eircom	TBC	Yes	Diversion through new bridge. Temporary diversion using provisional beam during works	Very High	Low	Moderate
OBG16	Electric Medium Voltage underground cable	ESB	3x185 XLP	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Medium Pressure gas duct	GNI	250 mm – PE	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Negligible	Not Significant
	Watermain pipe	Irish Water	450 mm – Asbestos cement	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Watermain pipe	Irish Water	350 mm – Ductile Iron	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	High	Low	Slight
	Telecoms ducts	Eircom	TBC	Yes	Diversion through new bridge. Temporary diversion through scaffolding during works	Very High	Low	Moderate
Barberstown Level Crossing Replacement	Electric - Medium Voltage	ESB	MV	Yes	Overhead medium voltage line (west of railway)	High	Low	Slight
	Watermain	IW		Yes	Underground watermain duct along R121 Rd (east of railway)	High	Low	Slight
	Telecoms	Aurora		Yes	Underground duct (west of railway)	High	Low	Slight
	Telecoms	Aurora		Yes	Underground duct along R121 extension road (east of railway)	High	Low	Slight
	Telecoms	Virgin		Yes	Underground duct (west of railway)	High	Low	Slight
	Telecoms	Virgin		Yes	Underground duct along R121 extension road (east of railway)	High	Low	Slight
	Telecoms	Virgin		Yes	Underground duct along canal towpath (west of railway)	High	Low	Slight

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
Barberstown Existing LC	Electric – Low Voltage Overhead Line	ESB	LV	Pole heightening	Pole heightening	High	Low	Slight
Leixlip Confey Station	Electric – Medium Voltage Overhead Line	ESB	MV	Pole heightening	Pole heightening	High	Low	Slight
OBG14 – Leixlip Confey Station	Electric – Low Voltage Overhead Line	ESB	LV	Line to be dropped. Pole relocation	Line to be dropped. Pole relocation	High	Low	Slight
Deey Bridge and Lock 13	Electric – Medium Voltage Overhead Line	ESB	MV	Pole heightening and relocation	Pole heightening and pole relocation	High	Low	Slight
900m west of Deey Bridge and Lock 13	Electric – Medium Voltage Overhead Line	ESB	MV	Pole heightening	Pole heightening	High	Low	Slight
Pike Bridge – OBG18	Electric – Medium Voltage Overhead Line	ESB	MV	Pole heightening	Pole heightening	High	Low	Slight
1.14km west of Pike Bridge	Electric – Medium Voltage Overhead Line	ESB	MV	Pole heightening	Pole heightening	High	Low	Slight
Zone F								
Maynooth Depot Double Track	Gravity foul pipe	Irish Water	450 mm CO	None	Protection is not required based on our evaluation, but utility provider may decide otherwise.	High	Negligible	Not Significant
	Stormwater pipe	Irish Water	200 CO	None	Protection with concrete slab	High	Negligible	Not Significant
	Gravity foul pipe	Irish Water	225 CO	None	Protection is not required based on our evaluation, but utility provider may decide otherwise.	High	Negligible	Not Significant
Depot	High Voltage Overhead line	ESB	38kV High Voltage Overhead line / Griffinrath-Kilcock	Yes	OH line to be buried, underground diversion through the Depot layout.	Very High	Negligible	Not Significant
	High Voltage Overhead line	ESB	38kV High Voltage Overhead line / Kilcock-Moneycoolet	Yes	Heightening of the pole	Very High	Negligible	Not Significant

Location	Infrastructure/Utility	Owner	Type/Size	Diversion	Mitigation Measures	Baseline Rating	Impact Magnitude	Significance of Effects
	High Voltage Overhead line	ESB	220kV High Voltage Overhead line	Yes	Heightening of the pole east of OBG23	Very High	Medium	Significant
	High Voltage Overhead line	ESB	220kV High Voltage Overhead line	None		Very High	Negligible	Not Significant
	LV Pole at Depot West Entrance	ESB	LV Pole with 3 lines	Yes	Relocation away from depot entrance.	High	Low	Slight
L5041	Gravity foul pipe	Irish Water	152.4 Asbestos Cement	Yes	Diversion through the new road alignment	High	Low	Slight
	Pressure gas duct	GNI	180 PE 80-4bar	Yes	Diversion through the new road alignment	Very High	Low	Moderate
East of Maynooth station and Straffan Road	Electric – Medium Voltage Overhead Line	ESB	MV	Pole Heightening	Pole Heightening and relocation	High	Low	Slight
Just north of The Garden / Maynooth South	Electric – Medium Voltage Overhead Line	ESB	MV	Pole Heightening	Pole Heightening	High	Low	Slight

**The proposals are subject to ongoing consultation with utility providers, and subject to change pending the outcome of these discussions.*

18.8 Mitigation Measures

The potential for the proposed project to impact or interrupt utility supply has been assessed. All potential utility clashes with the temporary or proposed works have been identified.

Consultations have been undertaken with all known service providers and their requirements have been identified and incorporated into the design. All designs have been identified to limit the disruption caused by the works.

Where diversions are required in bridge deck reconstructions, the utilities will undergo decommissioning, temporary commissioning through the scaffolding structure for the duration of the works, and later permanently recommissioned through the reconstructed bridge.

Design refinement, at later design stages, will be subject to further consultation with the utility providers. Construction works required to divert utilities have been detailed in Chapter 5 Section 5.3.5.

To ensure that the operation of the proposed project is not affected by future utility maintenance or diversions activities, utility services will generally be diverted away from the alignment where necessary. All utilities that cross the alignment will have appropriate protection measures installed, if necessary, as agreed with utility owners.

In some cases, planned service disruptions will be required to facilitate the connection of existing services to the newly diverted services and the connection of new services required for the proposed development. In such cases, cognisance of the requirements of those premises served by the utility will be taken in determining the type, duration and phasing of the planned disruption. The duration of service interruption will be agreed with the relevant utility provider, in accordance with their service level/ business interruption requirements, however in most cases the duration of disruption should be no more than two to three hours.

18.9 Residual Effects

If the mitigation measures described in Section 18.8 are put in place, the residual effects of the proposed project on infrastructure and utilities is considered to be neutral.

All impacted utilities will be reinstated in accordance with current standards and specifications for the relevant utility (as specified by the utility owner). In the case of older utilities, this means that the replacement section will be constructed with modern materials and there will be an associated degree of improvement. For example, the replacement of cast iron pipes with ductile iron or High-density polyethylene (HDPE) pipes, which are more durable and less prone to leakage.

18.10 Cumulative effects

The cumulative effects of the proposed development are not considered to be significant as the impacts are localised.