16 MATERIAL ASSETS (UTILITIES)

16.1 Introduction

Waterman Moylan examined the material assets serving the subject lands relating to foul sewerage, surface water drainage, water supply, gas, electricity, and broadband.

16.2 Assessment Methodology

The methodology followed for this section is in accordance with the EPA *"Revised Guidelines on the Information to be contained in Environmental Impact Statements, Draft September 2015"* and *"Advice Notes for Preparing Environmental Impact Statements Draft September 2015".* Information on built assets in the vicinity of the development lands was assembled from the following sources: -

- A desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps.
- Consultation with Irish Water and Meath County Council.
- Submission of a Pre-Connection Enquiry Application to Irish Water.
- Review of ESB Network Utility Plans & Site meetings with ESB Network.
- Review of Gas Networks Ireland exiting network maps.
- Review of EIR Telecommunications exiting network maps.
- Review of Virgin Media Telecommunications exiting network maps.
- Site Inspection / Walkover.

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines: -

- Greater Dublin Strategic Drainage Study (GDSDS).
- SUDS Manual CIRIA C753.
- Irish Waters Code of Practice for Wastewater Infrastructure.
- Building Regulations, Technical Guidance Documents, Section H.
- IS EN752, "Drain and Sewer Systems Outside Buildings".
- Irish Water's Pre-Connection Enquiry Application (water demand and foul water loading).
- Irish Water Code of Practice for Water Infrastructure.

16.3 Receiving Environment

16.3.1 Surface Water

Meath County Council were engaged and drawings of the existing surface drainage infrastructure within the vicinity of the site were obtained, refer to Appendix 16.1 which shows the location and expanse of the existing infrastructure.

The River Skane exists on the south site of Phase 2, all surface water from both the north and south sites of Phase 2 will ultimately drain to this river. As part of the SUDS design implemented for the Phase 1 development an attenuation pond was constructed adjacent (north side) to the River Skane to attenuate the runoff collected from the Phase 1 development and the majority of the proposed Phase 2 development that is subject to this report.

An existing 450mm diameter surface water pipeline is located within the Drumree Road, east of the roundabout, and for which carries surface water along the R125, ultimately terminating at the River Skane.

Surface water drainage networks were constructed under Phase 1 for sites located on the north and south of Drumree Road, and which are positioned adjacent (to the east) the proposed Phase 2 development. This network flows via gravity pipes into the attenuation pond for ultimate discharge into the River Skane.

16.3.2 Foul Water Drainage

Meath County Council were engaged and drawings of the existing foul water drainage infrastructure within the vicinity of the site were obtained, refer to Appendix 16.2 which shows the location and expanse of the infrastructure.

Phase 1 of the Dunshaughlin development (Reg. Ref. DA/120987), which is currently under construction and nearing completion (thus considered as existing for the purposes of this assessment), discharges via a network of 150mm and 225mm wastewater sewers to an existing 525mm diameter trunk sewer. The existing 525mm diameter trunk sewer runs alongside the River Skane in a south-westerly direction and ultimately discharges to the Wastewater Treatment Works at Castlethorn, Tara.

The WwTW has a design capacity of 12,000 PE, is licensed by the EPA to cater for a population equivalent up to 10,000 PE, and currently has an approximate 6,000 PE entering the plant. For the development addressed in this report it is proposed to drain the foul water by gravity to the existing 525mm foul sewer.

16.3.3 Water Supply

Meath County Council were engaged and drawings of the existing water supply network within the vicinity of the site were obtained, refer to Appendix 16.3 which shows the location and expanse of the infrastructure.

The proposed development is served by an existing 225mm (OD) diameter water main within Drumree Road and existing watermain spurs constructed under the permitted phase 1 development, these spurs are 160mm (OD) and 225mm (OD) in size and are located between Phase 1 and the southern site of Phase 2.

16.3.4 ESB Supply

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained, refer to Appendix 16.4. There is considerable existing ESB Networks (ESBN) infrastructure in the vicinity of the site in the form of Medium Voltage and Low Voltage (MV/LV) below ground ducted services. These services are primarily located in the Drumree Road and in within the surrounding residential developments.

There are no existing services with the footprint of the proposed site.

16.3.5 Gas

Gas Networks Ireland have been contacted and an existing gas network map for the area surrounding the proposed development has been obtained, refer to Appendix 16.5. There is an existing gas pipe network in the vicinity of the site in the form of Medium Pressure (4bar) mains pipework. The most significant service is a 180mm 4 bar main within the Drumree Road.

There are no existing services with the footprint of the proposed site.

16.3.6 Telecommunications – Eir

Eir have been contacted and an existing Eir network map for the area surrounding the proposed development has been obtained, refer to Appendix 16.6.

The Eir network within the vicinity of the site is relatively limited with existing Eir duct network within the Drumree Road. There are no existing services with the footprint of the proposed site.

16.4 Characteristics of the Proposed Development

Refer to Chapter 3: Description of Proposed Development for a detailed site and development description.

An alternative layout has been provided by the design team, which includes the omission of a vehicular link between Character Area 3 and Character Area 4. It is a minor and localised amendment to the proposed development which does not have a bearing on utilities.

16.4.1 Surface Water Drainage

Waterman Moylan have reviewed the existing surface water infrastructure and have adopted a strategy for the integration of the proposed surface water network into the surrounding environ.

In areas not for taking in charge, will be laid to comply with the requirements of the Building Regulations, Technical Guidance Documents, Section H. Surface water sewers which will be taken in charge will be laid strictly in accordance with 'Greater Dublin Regional Code of Practice for Drainage Works' and to Meath County Council's requirements for taking into charge.

It is proposed that the development will discharge surface water runoff at a rate (equivalent of the existing agricultural runoff) for both the north and south Sites. Surface water from the development will be drained by gravity pipes connecting into the existing drainage via an approved surface water pipe system. The total surface water run-off rate for the global Phase 2 site is estimated at 34.9 l/s.

As required by Meath County Council policy, GDSDS and Dunshaughlin LAP 2009-2015, the subject site will be attenuated within its own boundaries and discharged to the existing surface water network, and ultimately to the River Skane at a controlled rate of 2 l/s/ha.

The existing attenuation pond constructed on the south site, adjacent to the River Skane, will collect this stormwater runoff from both the Phase 1 development and the upper portion of the proposed Phase 2 south site development. Stormwater runoff from the north site of the proposed Phase 2 development will drain by gravity pipes into the existing 450mm diam pipeline location on the Drumree Road. This pipeline carries surface water along the R125 and discharges into the River Skane.

16.4.2 Foul Drainage

The existing foul water infrastructure has been reviewed by Waterman Moylan and a strategy for the design of the proposed foul drainage network has been adopted.

In areas not to be vested to Irish Water, will be laid to comply with the requirements of the Building Regulations, Technical Guidance Documents, Section H. Foul water sewers which will be vested to Irish Water will be laid strictly in accordance with Irish Water requirements for vesting and primarily are to be installed as per the Planning permission and the Connection Agreement for the lands.

The proposed Phase 2 north site foul water network will connect into the existing foul water network constructed under Phase 1. The connection is located south of Drumree road and east of the R125.

The Phase 2 is separated into two parcels, by the River Skane, one north portion and one south.

For the site north of the River Skane it is also proposed to discharge the foul water into the Phase 1 foul sewer system at multiple connections along the existing foul network within the internal road, Road A, which traverses the northern portion of the south site.

The southern parcel of the site will drain via gravity in a northernly direction to the 525mm trunk sewer which runs parallel to the River Skane and will discharge into an existing connection manhole constructed under Phase 1 on the 525mm trunk foul sewer.

16.4.3 Water Supply

The existing watermain infrastructure has been reviewed by Waterman Moylan, and likewise, a design strategy has been adopted for the integration of a proposed water network into the surrounding environ.

The foul water drains which will be vested in Irish Water will be laid strictly in accordance with Irish Water requirements for vesting and primarily are to be installed as per the future Planning permission and the Connection Agreement.

Connections to the supply network will be carried out to the requirements of, and under the direction of, Irish Water and Meath County Council. A pre-connection enquiry application was sent to Irish Water with a connection response ref no. CDS19008551 received on 20 February 2020. The response stated that the reviewed application was assessed by Irish Water and subject to a valid connection agreement the proposed connection can be facilitated, subject to certain requirements.

The Design layout drawings and long sections were issued to Irish Water for review and Design Acceptance was received from Irish Water on the 4 September 2020.

The proposed site will comprise of a 225mm diameter watermain serving both the north and south sites, linking into the existing watermain on Drumree road and the watermain spurs on the newly constructed road between Phase 1 and the south site proposed Phase 2 development.

In addition to the above, proposed 160mm diameter mains will link into the proposed 225mm diameter mains (within the development) on both the north and south sites with 100mm diameter pipes servicing the bulk of the development.

16.4.4 Power

A new Medium Voltage below ground network will be provided in the proposed development which will connect to the existing ESB Networks infrastructure in the Drumree Road. Up to 6 new “unit sub-stations” will be provided throughout the site to meet the electrical demands associated with the new houses, apartments and supporting facilities.

The exact extent and location of the connections will be agreed with ESB Networks during the design stage of the project.

16.4.5 Gas

If gas is adopted as the fuel source of choice for the heating systems in the scheme, a new gas connections be made to the existing network within the Drumree Rd and will be distributed throughout the site as required. The exact extent and location of these connections will be agreed with Gas Networks Ireland during the design stage of the project.

All works on the gas supply infrastructure will be carried out in accordance with Gas Networks Ireland relevant guidelines. All gas infrastructure will be below ground with the possible exception of a gas pressure reduction station if required by Gas Networks Ireland.

16.4.6 Telecommunications – Eir

A new connection will be made to the existing Eir network at the boundary of the site and distributed throughout the site as required .The exact extent and location of these connections will be agreed with Eir during the design stage of the project.

All works on the Eir supply infrastructure will be carried out in accordance with Eir's relevant guidelines. All Eir infrastructure will be below ground with the possible exception of a Fibre Cabinet if required by Eir.

16.5 Potential Impact of the Proposed Development

16.5.1 Proposed Development

16.5.1.1 Construction Stage

Potential impacts of the proposed development during the construction phase include:-

Surface Water

The development will require the removal of topsoil and the completion of extensive earthworks to facilitate the construction of drainage, roads, creche and residential units. These activities have the potential to give rise to contamination of the surface water with soil particles when discharging to the existing watercourses and ultimately to the River Skane.

The initial runoff from newly laid bitumen surfaces will contain some soluble extracts from the bitumen binder. These extracts will mostly consist of phenolic and hydrocarbon substances in low concentrations (circa 10 to 50 ug/l). The quantities will not adversely affect the water quality due to dilution effects.

Remedial and reductive measures will be implemented to limit negative effects of the proposed development on the environment during the construction phase.

The negative effects as identified above will be temporary in duration.

Foul Water

During the construction of the new foul sewer there is the potential for surface water to be discharged to the existing public foul sewer system due to pipes and manholes being left open.

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connections being made to live sewers. Remedial and reductive measures will be implemented to limit negative effects of the proposed development on the environment during the construction phase.

The negative effects as identified above will be temporary in duration.

Watermain

No significant impact to the existing watermains is anticipated during the construction phase of the development, though there will be some minor water demand for site offices.

There is a risk of contamination to the existing water supply during connection of the watermains to the public water supply.

The negative effects as identified above will be temporary in duration.

Power, Gas & Telecommunications

The installation of the utilities for the development will be conducted in parallel with the other services. This will mainly involve excavation of trenches to lay ducting, construction/installation of access chambers and backfilling of trenching. The trenching and backfilling works will be carried out in conjunction with the construction of the roads and footpaths throughout the scheme.

The relocation or diversions of the existing overhead ESB lines may lead to loss of connectivity to and / or interruption of the supply from the electrical grid to the surrounding areas. Any loss of supply will be managed by ESB Networks to minimise impact on neighbouring properties.

Potential loss of connection to the Gas Networks Ireland infrastructure while carrying out works to provide service connections. This likely adverse impact may be characterised as a temporary, regionally short term, moderate impact.

Potential loss of connection to the Telecommunications infrastructure while carrying out works to provide service connections. This likely adverse impact may be characterised as a temporary, regionally short term, moderate impact.

The site compound will require a power and telecommunications connection. This likely adverse impact will be temporary and negligible.

16.5.1.2 Operational Stage

Potential operational phase impacts on the water infrastructure are noted below: -

Surface Water

The impact of the operational phase of the proposed development on the surface water supply network would be the requirement of a stormwater run-off rate for the global Phase 2 site of 34.9 l/s. The potential impact from the operational phase of the development addressed fully in the Chapter 8: Water of the EIAR.

Foul Water

The impact of the operational phase of the proposed development on the foul water supply network would be the requirement of a foul water capacity of 6.75 l/s. The potential impact from the operational phase of the development addressed fully in the Chapter 8: Water of the EIAR.

Watermains

The impact of the operational phase of the proposed development on the watermain supply network would be the requirement of a watermain supply capacity of 1,108.50m3/day, or 12.83 l/s. The potential adverse impact of the proposed development on the public water supply network is likely to be long term, however, negligible in the overall operational stage of the network. Irish Water have confirmed the existing network has sufficient capacity to meet this additional demand as confirmed in the received Irish Water Confirmation of Feasibility and subsequence Design Acceptance.

Power, Gas & Telecommunications

The impact of the operational phase of the proposed development on the power supply network would be the requirement for an Electrical Diversified Load of 2.0 MW which will be split over up to 6no. ESB sub-stations located through-out the scheme.

The impact of the operational phase of the proposed development on the gas supply would be the requirement for a Gas diversified load of 5.0 MW to accommodate the development of the lands.

The impact of the operational phase of the proposed development on the telecommunications network would be to increase the demand on the existing network.

16.5.1.3 Do-Noting Impact

There are no predicted impacts on these material assets should the proposed development not proceed.

16.5.2 Cumulative

No significant cumulative impacts on the water environment are anticipated during the construction or operation phases.

There are no predicted cumulative impacts arising from the construction or operational phase related to the provision of power, gas and telecommunication services.

16.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

16.6.1 Proposed Development

16.6.1.1 Construction Stage

Mitigation measures proposed in relation to the drainage and water infrastructure include the following: -

- A detailed "Construction Management Plan" will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the "Construction Management Plan".
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures would include excluding contaminating materials such as fuels and hydrocarbons from sensitive parts of the site i.e. highly vulnerable groundwater areas.
- In order to reduce the risk of defective or leaking sewers, all new sewers should be laid in accordance with Irish Water standards, pressure tested and CCTV surveyed to ascertain any possible defects.
- The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound will be removed off site to a licensed facility until a connection to the public foul drainage network has been established.
- The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.
- Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.
- Connections to the existing gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

16.6.1.2 Operational Stage

Please refer to Chapter 8: Water of the EIAR for mitigation measures associated with the surface water treatment.

All new drainage lines (foul and surface water) will be pressure tested and will be subject to a CCTV survey to identify any possible defects prior to being made operational.

Water conservation methods such as the use of low flush toilets and low flow taps should be incorporated into dwellings to reduce water volumes and related treatment and abstraction costs of the development.

Similarly, water conservation methods would reduce the loading on the foul sewer network and the treatment works.

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical, gas and telecommunications infrastructure.

16.7 Residual Impact of the Proposed Development

16.7.1 Proposed Development

16.7.1.1 Construction Stage

Implementation of the measures outlined in Section 16.6 will ensure that the potential impacts of the proposed development on the site's material assets do not occur during the construction phase and that any residual impacts will be short term.

16.7.1.2 Operational Stage

The demand on power supply, gas supply and telecommunications supply will all increase due to the development of the lands. The development of the lands will be constructed in phases, with the final phase being completed c. 2024.

Residual impacts will be permanent and imperceptible.

16.8 Monitoring

No utilities monitoring needed.

16.9 Reinstatement

No reinstatement will be required.

16.10 Difficulties Encountered

No difficulties encountered.