9.0 MATERIAL ASSETS

9.1 INTRODUCTION

Material Assets can relate to both finite and renewable resources, which can be of a natural or anthropogenic origin and may arise for either economic or cultural reason. Some of these resources, such as minerals, stone, soil, water, air, traffic & transportation, human health and amenity resources are discussed in other chapters of the EIAR (Chapter 5: Population & Human Health; Chapter 7: Soils,Geology and Hydrogeology; Chapter 8: WaterChapter 12: Air Quality & Climate; and Chapter 14: Traffic & Transportation). This chapter of the EIAR deals primarily with land use, waste, and utilities. Some types of waste (such as water, air, soil and subsoil pollution, noise, vibration and light) are addressed in Chapter 7: Soils, Geology and Hydrogeology; Chapter 8:Water; Chapter 12: Air Quality & Climate; Chapter 6: Biodiversity; and Chapter 10: Noise & Vibration.

9.1.1 Proposed Development

The proposed development is described in Chapter 2 of this EIAR (Description of the Proposed Development).

9.1.2 Statement of Authority

This Chapter has been drafted by Dr John Staunton, Senior Project Manager and Environmental Scientist in TOBIN. John has more than eleven years' postgraduate experience in both environmental research and consultancy. John holds a BSc and PhD in Environmental Science and has considerable experience in project managing and carrying out large scale development assessments including the preparation of material asset impact assessment EIAR sections. See Section 1.6 of Chapter 1 (Introduction) in this EIAR for further information.

9.2 METHODOLOGY

This EIAR chapter and the assessment contained within has been carried out in accordance with the appropriate guidance documentation as outlined in Chapter 1 (Introduction), including the Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022). The methodology is described in the following sections.

9.2.1 Land Use

The development of additional large waste infrastructure is likely to have some level of impact on land use in the area as it will itself cover a substantial area of ground. In order to determine any potential impacts that the proposed development might have on land use, the existing land use is described (Section 9.3.1 below), and a consultation exercise was carried out with key stakeholders. These included (among others):

- An Taisce
- Department of Agriculture, Food & Marine
- Department of the Environment, Climate and Communications
- Development Applications Unit
- Environmental Protection Agency
- Inland Fisheries Ireland
- Irish Wildlife Trust
- Kildare County Council

- Irish Peatland Conservation Council
- Teagasc
- Irish Native Woodland Trust
- Office of Public Works
- Eastern Midlands Waste Region office
- Connaught Ulster Waste Region office
- Southern Waste Region office

In addition to the above, a public information event was held in the local community on the 14th July 2022 which provided information on the proposed development, while also inviting feedback on the project. There is also an ongoing open channel for feedback and communication from the public via the Bord na Móna comment email address for the facility. See Section 1.7.3 of Chapter 1 (Introduction) of this EIAR for further information on public engagement for the project. Some large nearby businesses were also directly consulted (Irish Explosives and Carbury Substrate (Monaghan Mushrooms).

Full details of the scoping exercise that was carried out is provided in Chapter 1 of this EIAR (Introduction).

The Kildare County Development Plan 2023-2029, Aerial imagery (Google/Bing) and Ordnance Survey Ireland, EPA online map viewer, 1:50,000 Discovery Mapping, Google search and previous planning applications were among the sources of reference material used for this desk study. These data sources were used to determine land use on and around the Proposed Development site and allowed the assessment to appropriately consider potential impacts to these land uses.

9.2.2 Other Material Assets

In order to assess the potential for impacts to utilities such as water infrastructure and waste services, a scoping exercise was carried out to a number of key consultees, including the Commission for Regulation of Utilities, Irish Water and Kildare County Council. Full details of the scoping exercise that was carried out is provided in Chapter 1 of this EIAR (Introduction). The Kildare County Development Plan 2023-2029, Aerial imagery (Google/Bing), EPA online GIS data viewer, previous planning applications and Ordnance Survey Ireland, 1:50,000 Discovery Mapping and Bord na Móna databases were among the sources of reference material used for this desk study. The information available from these sources provided information on the existing environment at Drehid and allowed a robust consideration of the potential effects on waste and utilities.

9.3 EXISTING ENVIRONMENT

9.3.1 Land Use

The proposed development site is located within a segment of land within the Bord na Móna landholding (known as the Timahoe South site). While the site of the proposed development includes the existing access road and the existing Waste Management Facility (WMF) infrastructure, the works footprint of the proposed development is located to the east of the existing access road and directly south of the existing Drehid Waste Management Facility. The land within and around the proposed development site boundary consists of the flat lying and gently undulating topography typical of cutaway / cutover peatland (see Plate 9.1) with the exception of the existing landfill.

Land use on and adjacent to the proposed development site is primarily disused cutaway bogland which was used for production of sod peat for energy generation up to the late 1980's. Sod turf production / peat extraction ceased within the proposed development site in 1987. 1989 was the last year of sod turf production (known as bagger turf) for the rest of Timahoe South site. There are no public amenities on the proposed development site such as walking routes. There are no agricultural, horticultural, or commercial forestry activities taking place on the site of the proposed development.

Immediately adjacent to the proposed development site are peatlands which are being managed by Bórd na Mona to promote regeneration. Outside the larger Bord na Móna landholding there are areas of land where turbary peat extraction is evident (this is also found occasionally within the landholding), while commercial forestry and agricultural usage are also present.

Plate 9.1: View of proposed landfill location from existing landfill infrastructure

9.3.2 Topography

A detailed topographical survey was carried out at the site in February 2016 by TOBIN Consulting Engineers and repeated in June 2022 by Landmark Engineering & Land Surveying Consultants. The output of this survey of the proposed site is presented as a topographic contour map on Drawing No. 11290-2004 (in Appendix 2-1 of this EIAR). An aerial photo of the site is shown in Figure 9-1.

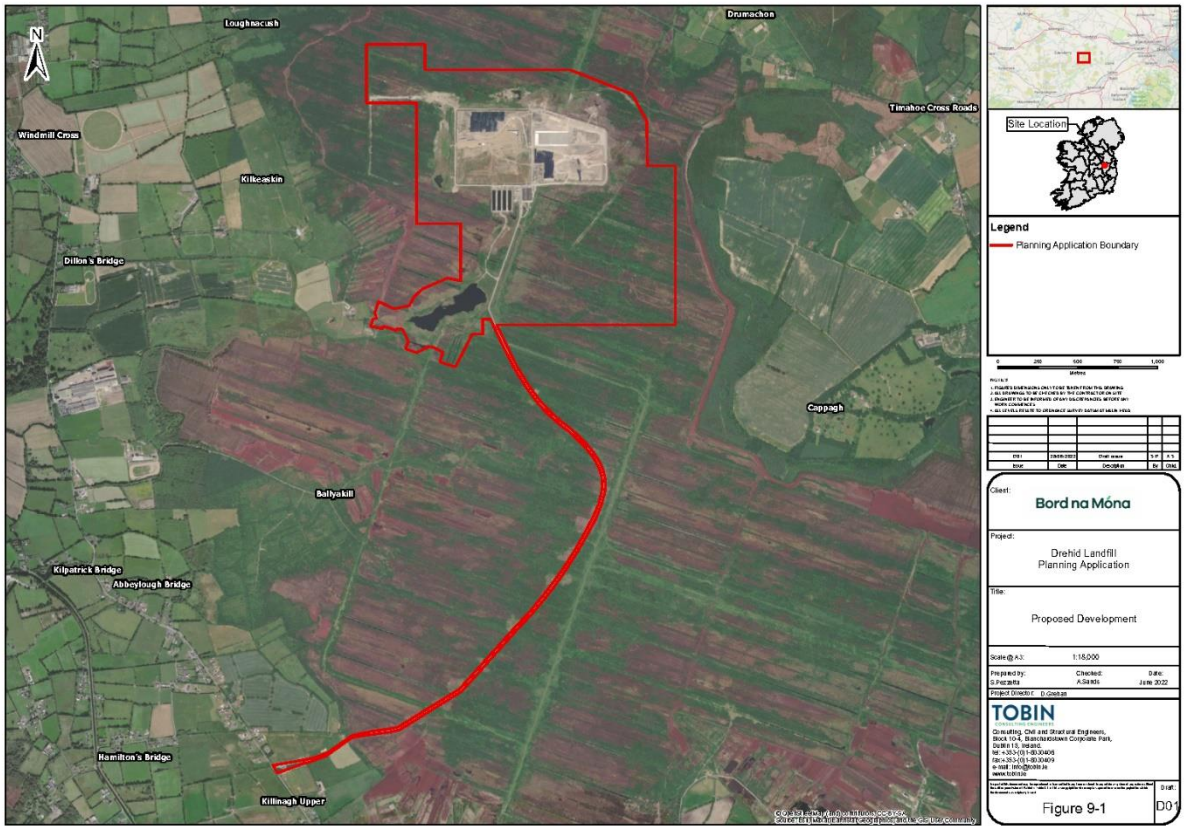

Figure 9-1 Aerial imagery of the Proposed Development site and surrounding area

The proposed site is situated in relatively flat low-lying cutaway bogland with levels ranging from 82 m to 86.5 mAOD. Whilst the topography throughout the overall landholding is also relatively flat at 80 to 90 mAOD, screening of the site operations from the adjoining roads will be provided by existing hedgerows and tree lines, which will be augmented by additional planting surrounding the proposed development. The remote nature of the location of the facility footprint, lying approximately 750 m km south of county road L5025, 2.1 km (Waste control area) from county road L1910 and 2.4 km from regional road R403, provides considerable separation distances between the proposed development and adjacent roads.

These separation distances are enhanced by the growth of bog willow tree stands over several parts of the cutaway bogland and by dense hedge lines and commercial forestry to the east, south and west of the site.

9.3.3 Other Material Assets

No response was received from Commission for Regulation of Utilities or Irish Water. Kildare County Council responded via the EPA in addition to having a meeting on the 15th June 2022, but did not specify any concerns relating to existing utility supply networks or services (i.e. water, electricity, phone/broadband), or sewage networks. Further details of the scoping responses that were received are provided in Chapter 1 of this EIAR (Introduction). The proposed Irish Water Supply Pipeline corridor runs approximately 750 m to the north of the proposed development site and is a greater distance to the proposed development works footprint (>1 km).

While there are some overhead electricity lines within the EIAR study area (Figure 1-1 of this EIAR), it is also possible that there might be some underground electricity cables discovered

during the proposed works, particularly near existing buildings and infrastructure. Damaging an underground electricity cable may have the potential to cause serious harm or death. An existing overhead local electricity supply line may pose a hazard to tall vehicles, excavators, etc. travelling underneath. All proposed works being carried out on overhead or underground electricity cables will be done in consultation with ESBN. It is assumed as a worst-case scenario (as this would create the greatest chance of interactions with water infrastructure) that there are likely to be underground water pipes along the main site access roads as well as occasionally between onsite infrastructure. Severing a water pipe has the potential to interrupt local water supply within the existing facility. This might result in a brief period where kitchen/toilet facilities are not usable, however this would not be expected to last for more than a couple of hours in the unlikely event that it did happen. If a water pipe was damaged, the water supply would be turned off where it enters the site, and it will be repaired as a priority. There would be no potential for effects on any properties outside the Drehid WMF.

There are a number of waste facilities within the landholding. The existing landfill and composting facility are located to the north of the proposed infrastructure. Monaghan Mushrooms Ltd. have a facility to the west of the site on the R403 Regional Road. A desk study of available information from the EPA did not identify any illegal waste activities, chemical monitoring points within a 2 km radius of the proposed development site (i.e. within a distance where interactions could reasonably occur).

Due to the nature of the development (i.e. ground based with no potential to interrupt airborne data signals, and no presence of any public gas or sewage lines within the site) and the location, which is removed from the public roads (where local services are likely to be found), it was considered (on the basis that the heights of proposed buildings and the landfill will be similar to existing infrastructure and tall trees) there would be no potential for impacts to telecommunication links and public gas/sewage networks. The scoping exercise (described in Chapter 1 (Introduction) included consultation with a range of consultees relating to Material Assets, such as the Commission for Regulation of Utilities, none of whom raised potential issues with the above-mentioned infrastructures. There is no proposal to use heat to treat incoming waste (i.e. incineration) on site, and therefore heat radiation is not considered to be of concern. There are flares on site as part of the existing infrastructure, however the proposed development will utilise these and no additional flares are proposed.

9.4 POTENTIAL EFFECTS, MITIGATION AND RESIDUAL EFFECTS OF THE PROPOSED PROJECT

9.4.1 Do-Nothing Scenario

All components of the baseline are constantly changing due to a combination of natural and human processes. When predicting likely direct and indirect effects it is important to remember that there are two available for comparison: the existing baseline environment and the future baseline environment without the implementation of the proposed development but considering natural changes only.

In land use terms, if the development did not go ahead, the location of the proposed infrastructure will remain as an area of regenerating cutaway bog. The existing Drehid WMF infrastructure would remain as it currently is and would operate until the landfill reaches capacity (anticipated in 2026). The succession and maturing of existing vegetation will continue depending on a number of factors for example existing soil / peat conditions, the likelihood of erosion, water levels and the re-establishment of a balanced ecosystem. However, the location of the proposed development site adjacent to an existing waste management site to the north /

northwest means that the site is likely to remain as being subject to development consideration, and the resultant potential for land take and change of land use.

Should the proposed development not be constructed, there will be no potential for effects on utilities and other services. The potential to deal with a significant proportion of our national waste within the country would be lost (it was noted by the Regional Waste Management Authorities of Ireland in a consultation meeting for this project that the proposed landfill, if granted, may be one of, if not the, only operating landfills in Ireland in the future) and the waste would need to be either exported or another suitable site found.

9.4.2 Construction/Operational Phase

9.4.2.1 Land Use

Pre-mitigation impact

This section outlines the potential direct or indirect effects on the land (land use) at the proposed development site which are closely related to the scale and nature of the proposed development in the construction phase.

As described in detail in Chapter 2 of the EIAR (Description of the Proposed Development), the proposed further development at the Drehid Waste Management Facility will include additional Landfill capacity, waste processing facilities and associated works. The planning application area of 262 ha includes an area of approximately 88.9 ha where development will take place for the first time. The proposed development, described in detail in Chapter 2, will include additional landfill footprints, which will be gradually developed, utilised for waste deposition and then progressively capped and grassed, creating a new rising landform within the bog. The change of land use at the proposed development site will also include the construction of access roads, car parks, buildings, surface water attenuation lagoons and integrated constructed wetlands within the cutaway bog.

Construction of the proposed development will see a continuation of recent activity within the Bord na Móna land holding where land use is changing from regenerating cutaway bog to built ground with large scale waste management infrastructure and light industrial buildings. These land uses are already established in the wider site.

While the land holding has a history of large-scale peat extraction, the proposed development site currently consists of re-vegetating cutover bog with a mosaic of bare peat and revegetated areas with scrub, woodland, heath, and grassland communities present. There are no agricultural, horticultural, or commercial forestry activities taking place on the subject lands. The proposed development does not therefore result in for example the removal of productive land from potential agricultural or other beneficial uses:

The existing Drehid Waste Management Facility is located immediately adjacent to the north of the proposed development. The proposed development will therefore appear as a contiguous development of adjacent lands.

Direct and permanent change to the land will occur locally where the proposed development will be physically located resulting in a land take for the proposed development and change in land use at the proposed site. The magnitude of change within the proposed development site is considered high given the stark change in land use and the permanent nature of the proposed works within the site footprint. Bearing in mind the existing Drehid WMF infrastructure including the landfill adjacent to the proposed development site, the proposed development will

continue to alter the land use intensively from a cutaway peatland into a large-scale waste management character with light industrial buildings. However, the subject site is not currently being utilised for any agricultural, horticultural, commercial forestry or amenity use and the proposed development does not therefore result in for example the removal of productive land from potential agricultural or other beneficial uses. The proposed development is therefore considered to have potential for a permanent moderate negative effect without mitigation.

Mitigation

Given the scale and nature of the proposed development and that the most significant effect on the land is due to the actual physical imposition of the development on the land the possibility of mitigation measures is somewhat restricted. However, the following mitigation measures are proposed for the facility (or in some cases are already being implemented into the design stage).

Avoidance Measures

Optimised sizing of footprints of the proposed facility. This was carried out at the initial pre-planning design stage, where 3D modelling of the void space was carried out to determine the required footprint that would be needed for the landfill, thereby minimising the proposed land take and potential effects on Material Assets.

Minimising areas for earthworks thereby reducing land take requirements. A cut/fill analysis was carried out for the landfill to calculate how much soil would be excavated and would require deposition in the surrounding area (as a berm). The suitably sized area was then designed for the berm. Autotrack models were run to ensure that truck movements within the proposed facility would be practical without using inappropriately excessive space. This minimised the areas that required topsoil stripping and surfacing with gravel and/or bitumen.

Restricting areas for construction works and temporary storage to a minimum. The proposed contractor's yard for the construction works was designed to be big enough to fulfil its requirements without being so large that it would cover too much space.

Reduction Measures

Retention of all existing vegetation and regenerating peatland where possible and sufficiently protect the areas close to construction works as described in BS 5837:2005[1]. The areas where existing vegetation is to be protected will be marked off temporarily during the construction and operational phases of the proposed development to ensure that machinery does not accidentally enter the areas.

Proposed planting and/or allowing natural revegetation around the site will help integrate the proposed development into the current land use.

Remediation Measures

The main long-term mitigation measure will be the staged grassing of the mounds as each section is completed. Small shrubs will also be planted on the capped landfill to mitigate long term impacts relating to the proposed development. The vegetation would improve the visual appearance of the site, provide some useful habitat for biodiversity, and would also help to slow the surface runoff.

[1] https://www.thenbs.com/PublicationIndex/documents/details?Pub=BSI&DocID=300496

Residual Effect

Effective implementation and establishment of proposed mitigation measures will have a beneficial effect and help to reduce effects associated with the proposed development on the current land use. The minimisation of the footprint that works will take place in through modelling and calculations has minimised the potential effects on land use. The proposed mitigation such as vegetation retention and planting will minimise the effects where they are unavoidable. Identified adverse effects will reduce, in tandem with the maturing of the existing and retained vegetation as well as the proposed planting within the Bord na Móna land holding. There will be a permanent slight negative effect on land use in the area after mitigation is applied.

9.4.2.2 Other Material Assets

Pre-mitigation impact

It is not anticipated that there would be any significant underground utilities encountered during the construction of the proposed project, with the exception of the onsite underground electricity and water services. The proposed development is located >1 km from the proposed Water Supply Pipeline corridor, and thus will have no impacts on it. In the unlikely event that any unknown services are discovered, there is the potential to briefly impact on supplies to the existing facilities, causing a potential brief slight negative effect. The construction activity will have the potential to produce municipal solid waste (from the site office, canteen), wastewater (from the site welfare facility) and construction waste (wood, packaging, metal, etc.) which will need to be processed at the appropriate proposed processing facility.

Based on the EPA Waste National Statistics – Summary Report for 2020, the average annual municipal waste generated per person in Ireland was 645 kg[2]. As the municipal waste average accounts for household waste collections, an assumption of 50% of this average has been taken for an employee onsite. Based on a peak of 30 onsite staff during construction (Chapter 5 (Population and Human Health; Section 5.2.4.2), the maximum annual municipal waste generated for the proposed development is expected to be in region of 19,620 kg. This is a worse-case assessment for the site based on national statistics for the average person. For much of the time when capping/construction work is not ongoing simultaneously, the anticipated number of people working on site will be less than this at approximately 10, meaning 6,450 kg of Municipal Solid Waste (MSW) annually. Given these quantities of waste, there would be a potential short-term imperceptible negative impact on local waste services (as this waste will take the place of other waste that would otherwise be imported to the site). Any soil/stone generated during construction excavations would be used for onsite landscaping and construction of the screening/landscaping berm.

Wastewater from the staff welfare facilities will be collected and routed to a new primary treatment tank located adjacent to the new Soils Processing Building as shown on Drawing No. 11290-2014. The primary treatment tank will separate solids from liquid waste and the liquid effluent will be directed to an existing wastewater storage tank located in the leachate storage compound. This sanitary wastewater will be blended with landfill leachate, as per current sanitary wastewater management, and removed off-site on a regular basis to Irish Water WWTP's or other approved waste facilities. For further information see Section 2.2.6.8 of Chapter 2 (Description of the Proposed Development) of the EIAR. The average flow rate for

[2] National Waste Statistics – Summary report for 2020, EPA. [Accessed December 2022 EPA National Waste Stats Summary Report 2020.pdf]

design (per person/day) is approximately 60 l for an open construction site based on the Irish Water 2020 Code of Practice. The maximum total annual wastewater produced on the site, based on this and on staff being onsite 48 weeks of a year and a maximum of 38 staff, would be 547,200 litres. However, it is proposed to use low volume flush toilets to reduce the volume of wastewater produced. In addition, the number of staff on site will be less than this for much of the time (usually at 8 people per day when capping/construction work is not ongoing simultaneously), thereby significantly reducing the volume of wastewater produced.

The proposed development will be a nationally important piece of waste infrastructure, and as such will have a long term significant positive impact on waste services. The proposed development will divert waste from being exported to other countries for treatment/disposal there.

Mitigation

As with any excavations there is a potential to disrupt local underground services. A confirmatory survey of all existing services will be carried out by a suitably qualified and experienced engineer and surveyor prior to the start of onsite construction works to verify the assumptions in this report and identify the precise locations of any services. The developer will liaise with the service provider where such services are identified. Digging around existing services, if present, will be carried out by hand to minimise the potential for accidental damage. Segregation of waste will be carried out on site to maximise the potential for waste recycling and minimise any potential for effects on waste services.

There are no other impacts likely to arise during the construction phase, and therefore no other mitigation measures are required.

Residual Effect

Should there be any underground services found, the above-mentioned mitigation measures will be used to reduce any potential for effects to being unlikely brief slight negative. Any such effects will be limited to the existing onsite infrastructure within the Drehid Waste Management Facility and would not effect local homes or businesses. The proposed development is not located near any main public services infrastructure (water pipes, fibre cables, etc.), so in the unlikely event that a service was damaged, it would only affect the one servicing the Drehid WMF. There will be an imperceptible negative effect on waste services. The proposed development is categorised as a nationally important waste infrastructure site (as confirmed by the Regional Waste Management Offices during consultation and as per the Draft National Waste Management Plan for a Circular Economy) and as such will have a significantly positive effect on the waste services for the region and the entire country.

9.4.3 Decommissioning Phase

Pre-mitigation impact

As per the current licensed facility, a Closure, Restoration and Aftercare Management Plan (CRAMP) will be required to be agreed with the EPA setting out the criteria for successful and safe decommissioning of the site including the putting in place of a financial provision to cover the cost of same. The current CRAMP in place for the existing facility will be updated and amended to include the proposed infrastructure. As the proposed landfill will be left in situ after it has reached capacity (i.e. at the end of its life), the lands within the footprint of the landfill development will remain as waste infrastructure, albeit with a grassed over cap. Although the lands within the proposed development footprint will not revert to peatland, the rehabilitation

of the wider landholding/bog outside the waste facility footprint is already underway, and is anticipated to be successful regardless of the presence of the proposed development (see Chapter 8 Waterfor further information). The proposed Soil & Stones and C&D Waste (rubble) processing facility will be removed, with the metal shed and plant being readily recyclable. The proposed composting and MSW processing facility is not proposed to cease operation when the landfill reaches capacity. It is anticipated to continue operating into the future for as long as it is seen as viable or required. The office and infrastructure such as the weighbridge will remain in use for this facility. There will be relatively minor works required upon decommissioning to remove other infrastructure required for operation of the landfill (signage, etc.) if they are not being used for other purposes on the site. Leachate and gas collection infrastructure will remain in place through decommissioning, as will surface water collection/treatment infrastructure. Potential impacts to land use for decommissioning will be imperceptible. There are no anticipated impacts to utilities and services in the area.

Mitigation

Segregation of waste will be carried on site to maximise the potential for waste recycling. Appropriately licensed waste collectors will be used to remove any municipal waste, wastewater or general demolition waste that does occur on site. The majority of wastes from decommissioned infrastructure will be recyclable (e.g. metal signage).

Residual Effect

Residual effects to land use for decommissioning will be imperceptible. There are no anticipated effects to utilities and services in the area.

9.4.4 Cumulative Effects

A cumulative assessment was carried out for the proposed development, to include the consideration of projects as listed in Appendix 4-2 of this EIAR, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected. This included other existing/operational waste infrastructure located within the greater Drehid Waste Management Facility. Large nearby projects such as the Ballydermot Wind Farm, North Timahoe Solar Farm and the Coolcarrigan renewable energy development. Other local industry was considered (e.g. local mushroom/compost facility). Smaller scale development such as one-off dwellings and agricultural developments were also considered.

There is a potential for cumulative effects for land use with the existing landfill. The proposed development is located immediately to the south of the existing landfill and shares a number of infrastructure items, thereby creating one large facility from a land use perspective. The lands surrounding this grouping of facilities will not be affected by the proposed development. This cumulative effect is not anticipated to be significant as it represents a continuation and an expansion of the current Drehid WMF infrastructure/activity within the site, rather than a development on a new site elsewhere. The operation of the proposed infrastructure will also use a lot of the same peripheral infrastructure (weighbridge, access road, gas treatment plant, etc.).

There will be no significant risks to utilities (i.e. underground water/electricity) associated with the proposed development, and due to the remote nature of the proposed works, there will be no potential for cumulative effects to public utilities. Underground works for the existing landfill will not be occurring at the same time as the proposed development, so there will be no cumulative effects for onsite utilities either.

Other projects considered (from Appendix 4-2 of this EIAR and as mentioned above) have the potential to create varying volumes of waste from a number of waste categories, depending on the project. Waste volumes from the proposed development (i.e. maintenance building) are anticipated to be generally very low as discussed in Section 9.4.2 above. Any excavated soil/stone generated during construction will be used on for onsite landscaping and construction of the onsite screening/landscaping berm. Overall, there will be no significant cumulative effects on waste services, land use or other material assets.

9.5 CONCLUSION

As this infrastructure will be located adjacent to the existing waste management activity, it is considered that it will not result in a significant change of use to the overall Bord na Móna landholding at the Drehid Waste Management Facility. In addition to this, there will be no significant effects to exiting utilities and services in the area.