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Non-Technical Summary - Volume 1

WuXi Biologics Ireland Limited

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EFFLUENT BALANCING AND RESCOURCE RECOVERY SYSTEM

Notice

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Contents

Figures

1. Introduction & Methodology

WuXi Biologics Ireland Limited (hereafter referred to as 'WuXi Biologics' are applying to Louth County Council (LCC) for planning permission for a Proposed Development at the existing WuXi Biologics Facility, Dundalk Science and Technology Park in Haynestown in Dundalk in County Louth.

This non-technical summary presents a general overview of the Proposed Development and an assessment of all associated potential environmental impacts. Refer also to the Environmental Impact Assessment Report (EIAR) submitted as part of this planning application. The EIAR is presented in three volumes as follows;

- **Volume 1** - Non-Technical Summary (this document);
- **Volume 2**- EIAR; and,
- **Volume 3**- EIAR Appendices.

A copy of all planning and engineering drawings have been submitted as part of of this planning application.

Background Information

The site is located within Louth County Council (LCC) on land owned by WuXi Biologics. The proposed site is located within a greenfield site adjacent to the existing WuXi Biologics Facility. This company is licenced by the Environmental Protection Agency (IE Licence Ref. No. P1122-01). The Proposed Development consists of the construction of an Effluent Balancing and Resource Recovery Plant, that will tie into the existing WuXi Biologics Facility to pre-treat the increased effluent loading resulting from increased production at the Plant.

WuXi Biologics is a global Contract Research, Development and Manufacturing Organization (CRDMO). Currently, WuXi Biologics are in the process of increasing production and expanding its workforce to meet an increase in activity following its successful transition from construction project to operational facility. WuXi Biologics is subject to an Environmental Protection Agency (EPA) Industrial Emissions (IE) Licence (Ref. No. P1122-01[1]). This licence is for the operation of a multiproduct biopharmaceutical, contract manufacturing facility. The WuXi Biologics facility imports mammal cells which are multiplied and then biopharmaceutical intermediates (proteins / enzymes) are extracted. The intermediates are shipped to another facility for formulation into administrable drugs. This activity falls under the following category of Annex I of the Industrial Emissions Directive:

> *4.5: Production of pharmaceutical products including intermediates.*

The Licence requires that WuXi Biologics concludes an end user agreement with Uisce Éireann (UÉ). During the development of the end user agreement with UE, it became apparent that the effluent emission limits proposed by UÉ would be more onerous than those initially provided in the IED Licence. Furthermore, UÉ indicated that it did not have sufficient headroom in the Dundalk Wastewater Treatment Plant (WwTP) (in accordance with the wastewater discharge licence D0053-01 for the WwTP) to treat the expected loads arising from the facility due to both capacity issues and an inability to accommodate fluctuations in loading. In order to maintain production capacity at the WuXi plant, the current pre-treatment capacity will need to be increased, and effluent balancing/storage capacity increased to ensure that the site maintains compliance with proposed end user agreement effluent limits. The Proposed Development will, therefore, provide pre-treatment to manage the biologics waste stream from the site prior to discharging to the Dundalk WwTP. This will improve overall wastewater handling capacity at the site while providing a better-quality wastewater discharge. As the production activity in the site has increased, the water usage has also increased and to mitigate any adverse

[1] https://epawebapp.epa.ie/terminalfour/ippc/ippc-view.jsp?regno=P1122-01

effects caused by this increase on the Dundalk WwTP, an upgrade to the on-site treatment system is necessary. In order to achieve this a planning application for the construction of an effluent balancing and water recovery system is being prepared. The system is designed to balance the flow of effluent from the site and to recover water for reuse within the site. The Effluent Balancing and Resource Recovery System Project is subject of this Environmental Impact Assessment Report (EIAR) application to Louth County Council (LCC) and are hereafter also referred to as the 'Proposed Development'.

Proposed Development

The Proposed Development is located at the existing WuXi Biologics facility at Dundalk Science and Technology Park in Haynestown in Dundalk in County Louth. The site is bounded to the north and east by the existing WuXi Biologics IED Facility, to the west by Bóthar Mhullaigh Chairlinn, residential dwellings and agricultural land and to the south by Marlbog Road, residential dwellings and agricultural land. The site lies ca. 480m east of the M1 and the land in the vicinity of the site is for residential, commercial and agricultural purposes.

The lands on which the development is proposed is entirely within WuXi Biologics land ownership and is zoned by Louth County Council (LCC, 2021) as 'F1 Research, Education and Innovation', with the zoning objective being to '*provide for education, recreation, enterprise and innovation'.*

The development will consist of the following:

The construction and operation of a new Effluent Balancing and Resource Recovery Plant (EBRRP) on a site of 7.888hectares, which will consist of:

(1) Excavation of the site to facilitate the Proposed Development, and reuse of excavated material for landscaping within the site.

(2) Construction of 3no. covered structures containing 12no. process tanks, located within concrete bunds with metal stairwells and platforms for access, and connected to an odour treatment facility.

(3) Installation of 5no. covered storage tanks located within concrete bunds with metal stairwells and platforms for access.

(4) Installation of a sludge dewatering facility.

(5) Construction of a single-storey administration and process building with roof-mounted solar panels and rainwater harvesting tank.

(6) Widening of an existing access on the Mullagharlin Road, and associated setback of the existing hedgerow, to facilitate a temporary construction access and a permanent operational access for small vehicles.

(7) Construction of a fabricated metal access bridge and pipe and cable support structures to link the Proposed Development with the existing biopharmaceuticals plant.

(8) A temporary construction compound, to include double-stacked metal containers/cabins with access stairs, laydown areas, and 50no. parking spaces; temporary internal road; and temporary internal construction haul road (including footpath).

(9) All site development works, drainage, ancillary equipment, lighting, retaining walls, fencing, and landscaping works.

The application relates to a development which comprises of an activity which holds an Industrial Emissions Discharge (IED) Licence (Licence No. P1122-01).

The layout of the proposed development is presented in Figures 1.1 to 1.6.

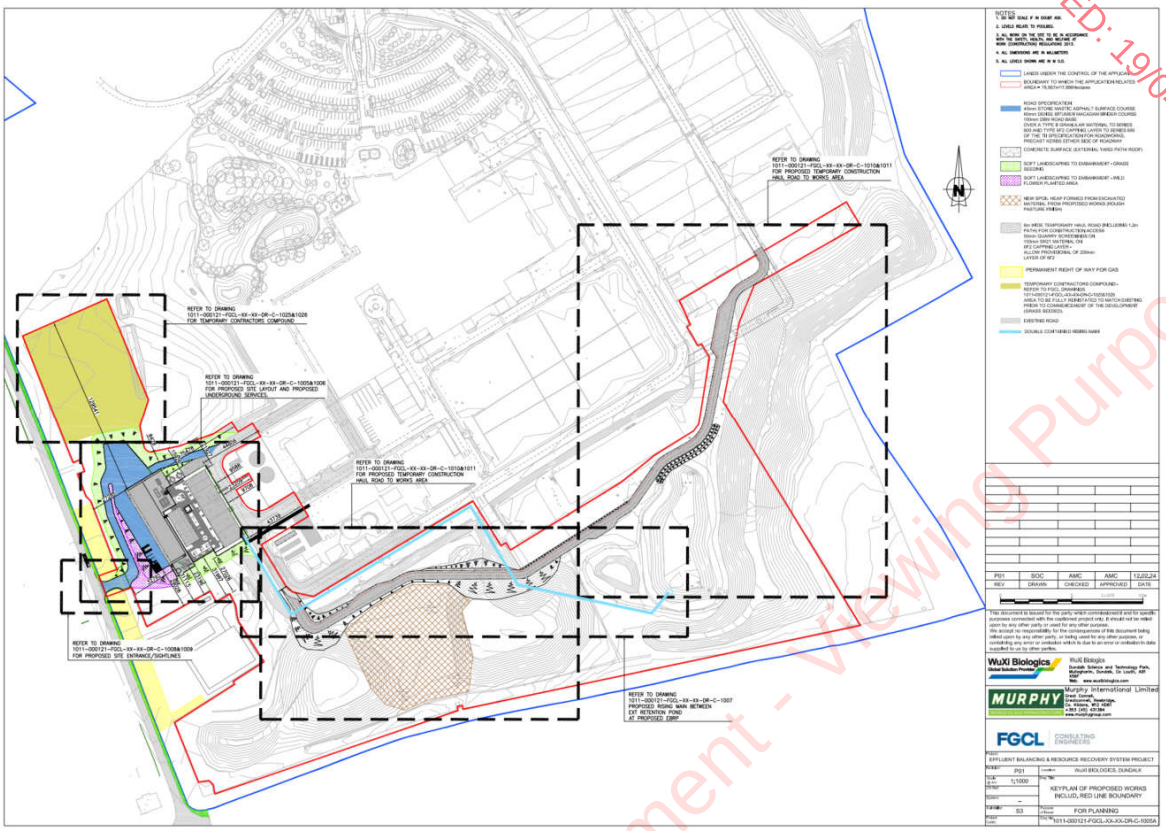

Figure 1.1 - Layout of the proposed development (1 of 6)

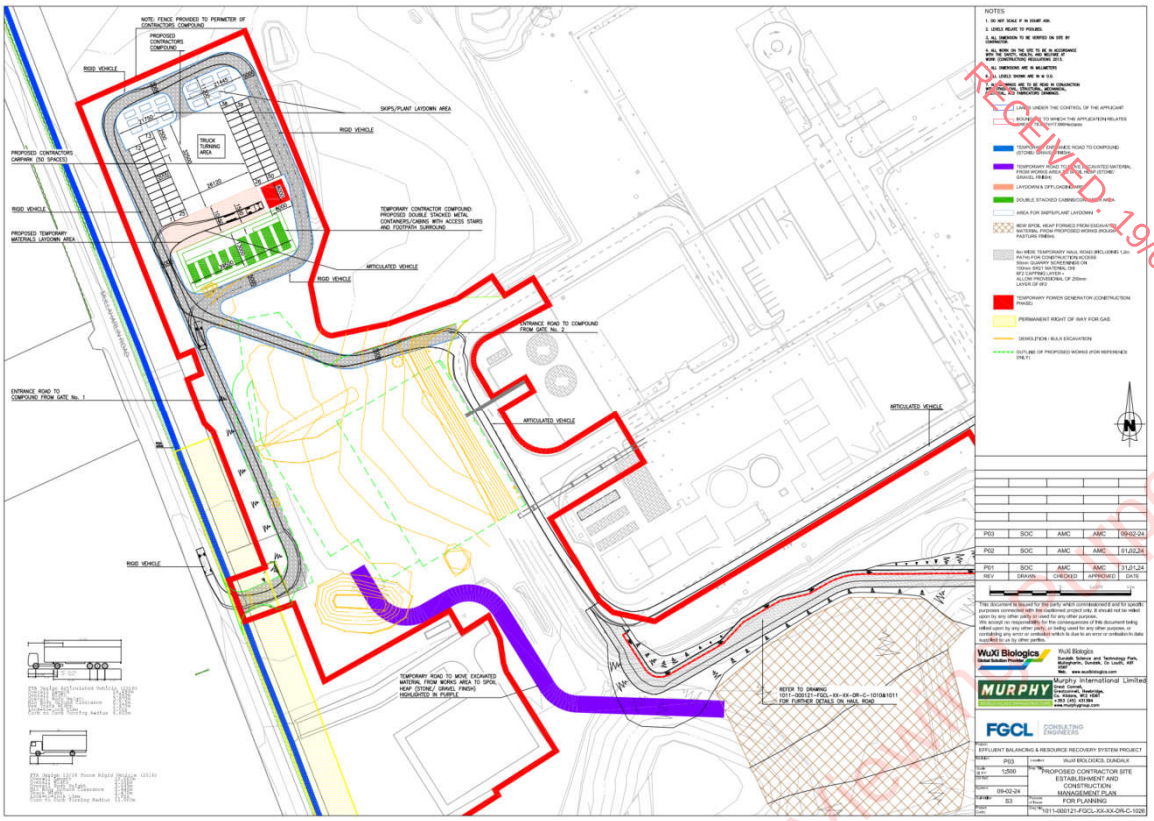

Figure 1.2 - Layout of the proposed development (2 of 6)

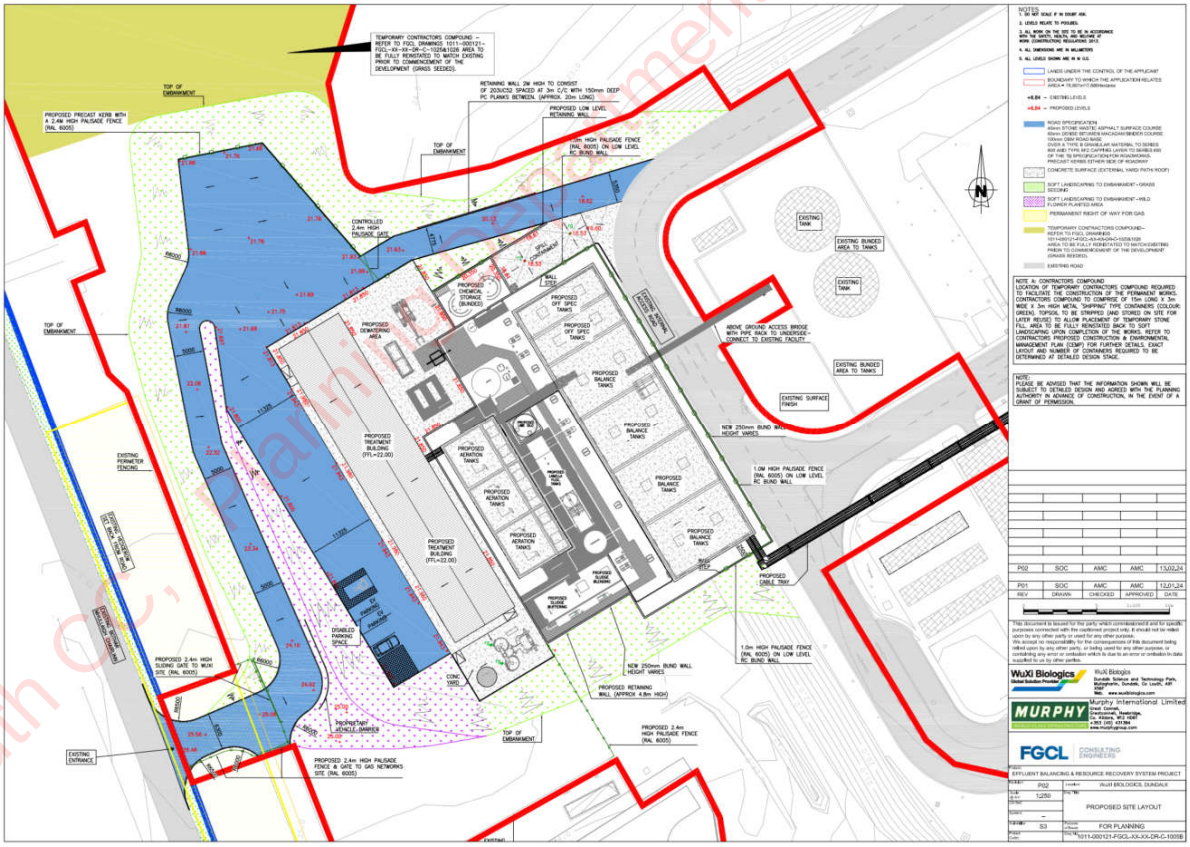

Figure 1.3 - Layout of the proposed development (3 of 6)

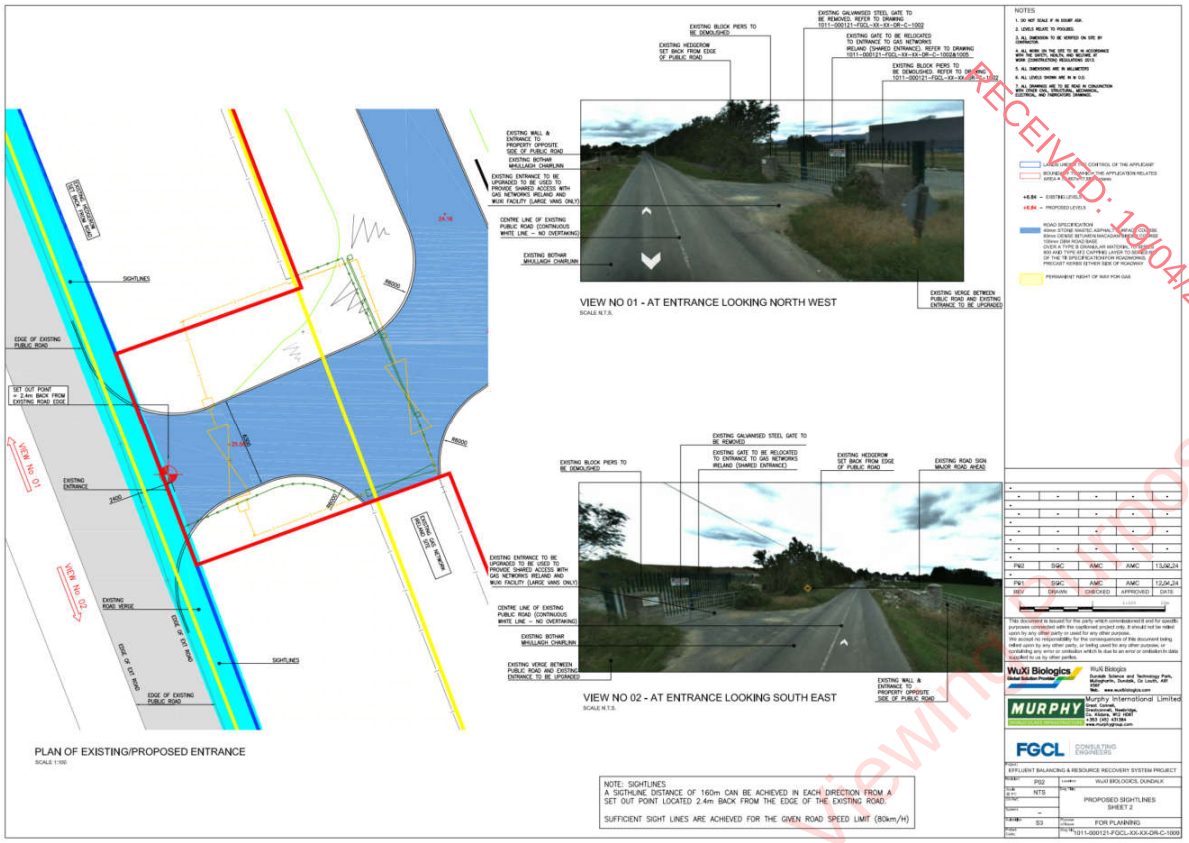

Figure 1.4 - Layout of the proposed development (4 of 6)

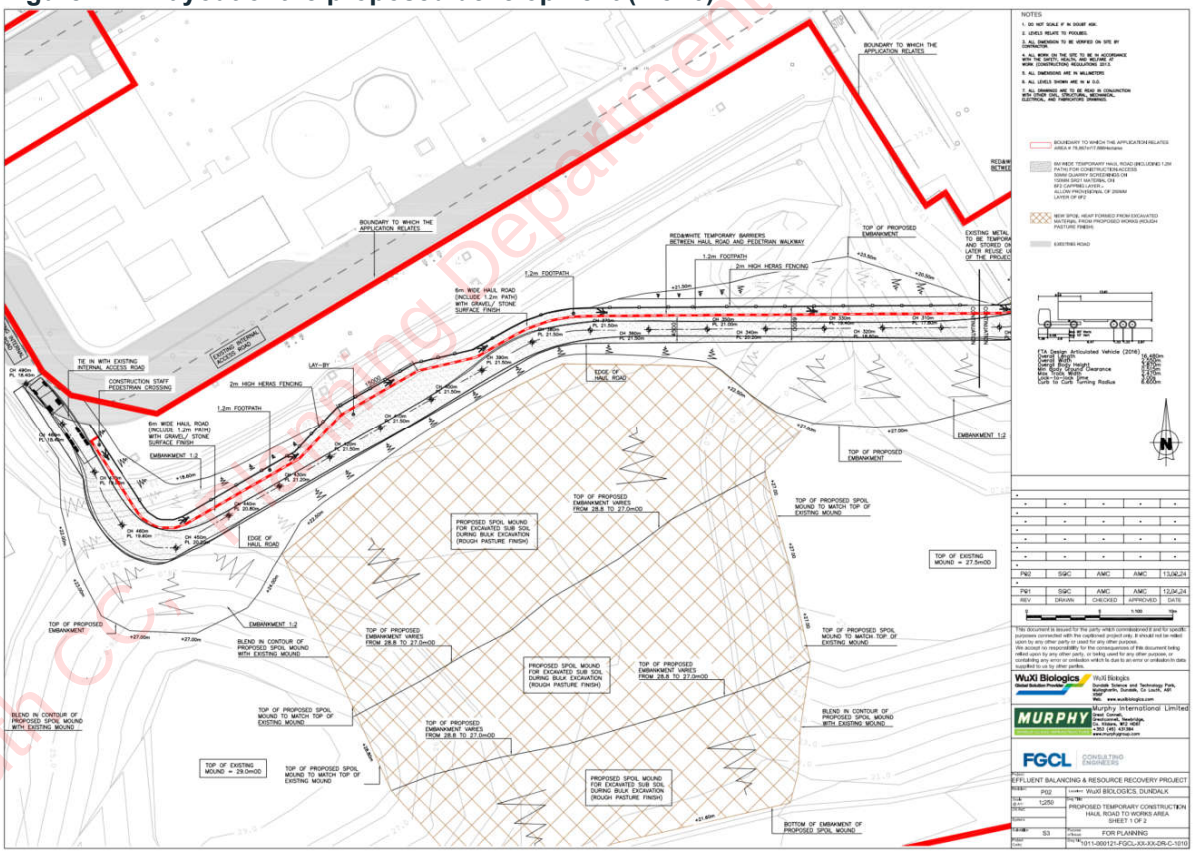

Figure 1.5 - Layout of the proposed development (5 of 6)

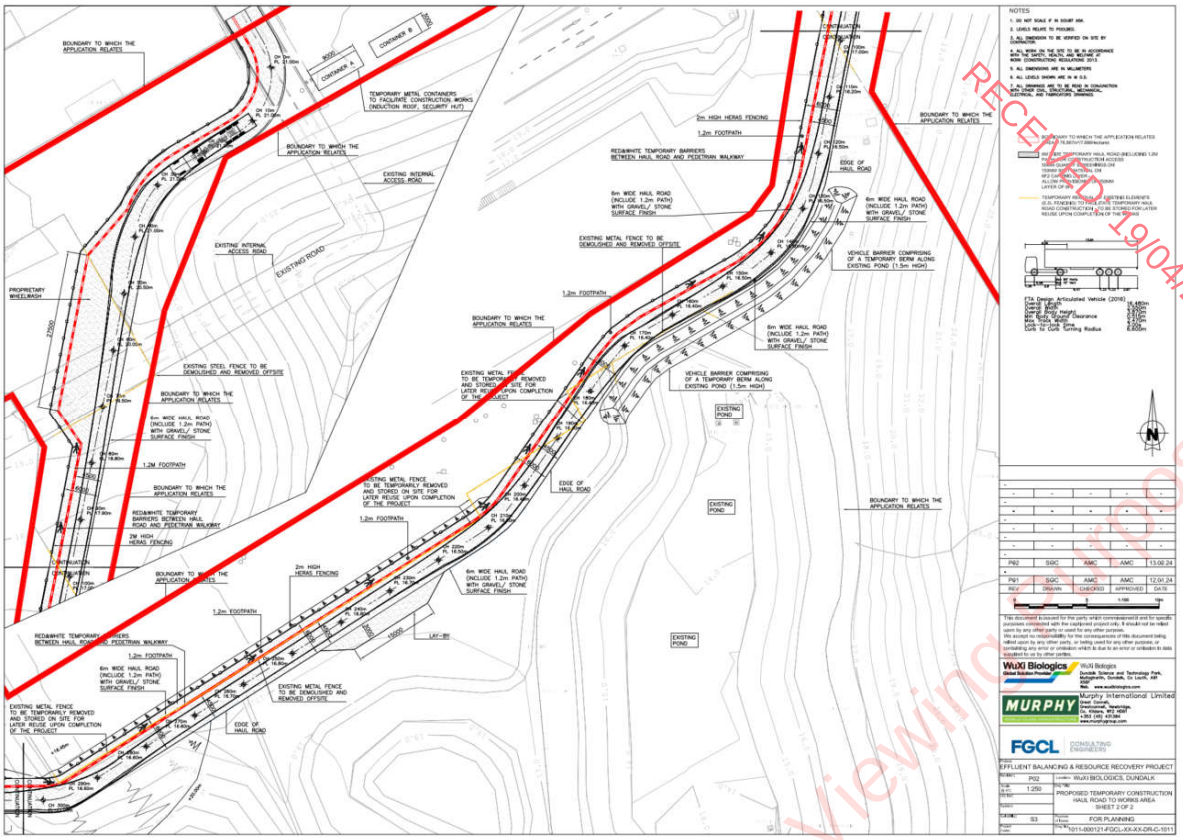

Figure 1.6 - Layout of the proposed development (6 of 6)

Environmental Impact Assessment Report (EIAR)

This EIAR has been prepared in accordance with Planning and Development Regulations as amended 2001-2024, and with due regard to the following EIAR guidance;

- *'Guidelines on the information to be contained in Environmental Impact Assessment Reports' published in 2022 (EPA, 2022);*
- *Environmental Impact Assessment of Projects Guidance on Scoping* (Directive 2011/92/EU as amended by 2014/52/EU);
- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU),* published by the European Commission.';
- *Department of Housing, Planning and Local Government 'Guidelines for Planning Authorities and An Bord Pleanala on Carrying out Environmental Impact Assessment', 2018; and,*
- *Eiropean Commission, 'Guidelines for the Assessment of Indirect and Cumulative Imoacts as well as Impact Interactions', 1999.*

Additionally, discipline specific best practice guidance has been consulted by each specialist for each of the relevant topics (Population & Human Health; Biodiversity; Landscape and Visual; Air Quality, Odour and Climate; Noise & Vibration; Traffic; Land, Soils & Geology; Water; Cultural Heritage; and Material Assets) during the preparation of the EIAR.

The following environmental topics have been fully assessed within the EIAR document;

- Chapter 4 Population and Human Health;

- Chapter 5 Biodiversity;
- Chapter 6 Landscape and Visual;
- Chapter 7 Air Quality, Odour and Climate;
- Chapter 8 Noise and Vibration;
- Chapter 9 Traffic;
- Chapter 10 Land, Soils and Geology;
- Chapter 11 Water;
- Chapter 12 Archaeology; and,
- Chapter 13 Material Assets.

The EIAR has been prepared by competent experts. Consultation was undertaken with statutory organisations at various stages of the pre-planning process and subsequently informed the preparation of this EIAR document. All relevant comments and feedback received from the environmental consultees are addressed in full within the EIAR.

Culmulative Impacts for all relevant disciplines are addressed in Chapter 14 - Cumulative Effects (Volume 2 – EIAR). Interactions between disciplines are addressed in Chapter 15 (Volume 2 – EIAR). All mitigation and monitoring commitments detailed within the EIAR have been included in a separate compendium 'a schedule of environmental commitments' presented within the EIAR (refer to Chapter 16, Volume 2 – EIAR).

2. Project Description

Details of Proposed Development

The development will consist of the following:

The construction and operation of a new Effluent Balancing and Resource Recovery Plant (EBRRP) on a site of 7.888hectares, which will consist of:

(1) Excavation of the site to facilitate the proposed development, and reuse of excavated material as a landscaped spoil heap within the site;

(2) Construction of 3no. covered structures containing 12no. process tanks, located within concrete bunds with metal stairwells and platforms for access, and connected to an odour treatment facility.

(3) Installation of 5no. covered storage tanks located within concrete bunds with metal stairwells and platforms for access.

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(8) A temporary construction compound, to include double-stacked metal containers/cabins with access stairs, laydown areas, and 50no. parking spaces; temporary internal road; and temporary internal construction haul road (including footpath).

(9) All site development works, drainage, ancillary equipment, lighting, retaining walls, fencing, and landscaping works.

The application relates to a development which comprises of an activity which holds an Industrial Emissions Discharge (IED) Licence (Licence No. P1122-01).

The site is located within Louth County Council (LCC) and entirely on land owned by WuXi Biologics at their existing facility in Dundalk.

Description of Baseline Scenario

The baseline scenario including a description of the relevant aspects of the current receiving environment has been considered as part of this planning application and included in the EIAR through the collection and collation of baseline data including analytical data where relevant (air quality, noise levels). A detailed description of the current receiving environment is presented in relevant sections for each environmental topic. The predicted changing baseline (i.e., the likely future receiving environment) that could arise as a result of

the development within the vicinity has also been addressed, where relevant, and is presented under the cumulative impacts section of the accompanying EIAR.

Consideration of Alternatives

Potential alternatives to the proposed development have been considered at length within this submission and are summarised in Volume 2 – EIAR Chapter 3 of the submission.

Consideration of Cumulative Effects with other Projects

Consideration of cumulative effects with other projects was undertaken. All relevant developments in the immediate environs of the Proposed Development, which have been approved or operational, have been reviewed in terms of potential cumulative environmental impacts that may arise with the proposed development.

Cumulative impacts were identified by each specialist as part of their respective assessments (refer to Chapter 14 of Volume 2 - EIAR) and considered further as part of the EIAR. No significant cumulative effects arising from the proposed development are anticipated.

Risk of Major Accidents and/or Disasters

The potential risk posed by a major accident and/or disaster has been considered. Based on the unlikely potential occurrence of such an incident, and the mitigation measures already in place and mitigation measures to be in place, the overall risk is considered to be low.

3. Alternatives

Need for the Proposed Development

WuXi Biologics Facility (P1122-01) currently discharges effluent to the public sewer system through an existing balance system and pH correction system. However, the flow of and concentration of the waters arising from the production processes on the site is variable and could possibly limit the potential treatment capacity of the sewer system due to this variability. Reserving the potential capacity of the treatment system and reducing water demand for use by others, will ensure continued growth of Dundalk and meeting the commitments of the Irish government Housing for all Plan.

The effluent balancing and water recovery system will help to address this problem by storing effluent during periods of high flow and concentration and releasing it to the sewer system during periods of low flow and concentrations. This will help to ensure that the capacity of the sewer system is not overloaded, and that the environment is protected.

The system will also recover water and potentially nutrients from the effluent for reuse. This will help to reduce the site's reliance on public water supplies and reduce pressure on the public water system. The facility is intended to a be a New Milestone in WuXi Biologics Net-Zero Journey.

Consideration of Reasonable Alternatives

The design iterations were presented during the design stage, as summarised below.

- Alternative Location:

  Potential locations for the Effluent Balancing and Resource Recovery project were examined, and 2no. options were presented during the optioneering stage.

  - Alternative Location Option 1: Land adjacent to the WuXi Biologics facility (P1122-01). This land is not owned by WuXi Biologics.
  - Alternative Location Option 2: The proposed development to be located to the west of the existing WuXi Biologics facility (P1122-01) within WuXi Biologics land ownership.
- The first design iteration was a concept design located to the west of the existing WuXi Biologics facility. This concept design solution was informed by the User Requirements Specification (URS) and direct communication with plant personnel. From the initial concept design further iterations of the design was undertaken each incrementally improving on the initial concept to achieve the core design principles.
- The second design iteration: Provision of 4,000m³ of flow balancing capacity upstream of primary and secondary treatment to allow the operator to control the waste transferred to treatment.
- The third design iteration: The current proposed development.

The preferred solution is the third design iteration. Chapter 3 within the EIAR - Volume 2 details the assessment.

Do Nothing Scenario

The supporting rationale for the proposed development is provided in Chapter 3.

Doing nothing has been rejected as an alternative.

4. Population and Human Health

Introduction

This chapter assesses the likely significant effect of the Proposed Development on Population and Human Health in the general area of the proposed development. A more complete description of the Proposed Development is presented in Chapter 2 – Project Description.

This chapter considers demographics, economic activity, tourism and recreation, community and amenities and human health. In addition to population and human health, as discussed in this chapter, potential impacts on air, climate, noise emissions, soil, water, visual and traffic are addressed in relevant chapters of the EIAR.

Receiving Environment

The Proposed Development is located at the existing Wuxi Biologics facility in the Dundalk Science and Technology Park in Haynestown in Dundalk within the boundary of Louth County Council (LCC). For the purpose of the population and human health chapter, the assessment of the receiving environment has been conducted with regard to the location of the site and has been assessed on a national, regional and local level.

The current receiving environment in terms of demographics, economic activity, tourism and recreation, community and amenities and human health have been considered within Chapter 4 of the EIAR (Volume 2), while the future receiving environment is determined as being is unlikely to change significantly from that outlined in the Receiving Environment section of the EIAR in the assessment period, most notably during the construction period considering the short length of time between the preparation of this EIAR and the proposed construction stage.

Potential Effects of the Proposed Development

Construction Phase

The potential construction effects on human health are described further in Chapter 4 which identifies the potential source of the impact; potential impact pathways (route by which receptors can become impacted) and likely significant effects arising from the potential impact.

The minor demolition phase and construction phase of the Proposed Development will lead to temporary increases in traffic, noise and vibration, dust generation and visual impact within the site and the general vicinity. There will be no effects to existing connections or amenities because of the construction works associated with the Proposed Development, provided the proposed mitigation measures are implemented. No significant effects on populations are predicted, and any likely effects will be short term in nature, as determined by the assessments included in the aforementioned chapters. Further details of the construction phase are discussed in Chapter 6 – Landscape and Visual, Chapter 7: Air Quality, Chapter 8: Noise and Vibration, Chapter 9: Traffic, Chapter 10: Land, Soils and Geology and Chapter 11 - Water. As a result, the proposed development will result in temporary construction related Population and Human Health effects (minor adverse), but mitigation measures will be applied.

Operational Phase

The potential operational impacts on human health are detailed in Chapter 4 which identifies the potential source of the impact; potential impact pathways (route by which receptors can become impacted) and potential effects arising from the potential impact.

The Proposed Development will modify the current local services and land use, but, there will be no significant negative direct or indirect impacts on sensitive receptors. Taking into account the baseline environment and proposed mitigation during construction, no human health risks from contaminated soils or noise and vibration are expected during the operational phase. There will be no likely significant effects on population and human health during operation.

Mitigation Measures

The Proposed Development will have minor adverse effects during the construction and operation phases on population and human health. However, mitigation measures as presented within the relevant technical chapters (Chapter 7 - Air Quality; Chapter 8 – Noise and Vibration; Chapter 10 – Land, Soils and Geology; and Chapter 11 – Water) and Chapter 16 - Schedule of Commitments, will be implemented as part of the proposed development.

Residual Effects

All construction phase activities are temporary in nature. No significant adverse residual effects are likely during the construction and demolition phases, and the operational phase of the proposed development.

5. Biodiversity

Introduction

This biodiversity chapter identifies, quantifies and evaluates potential effects of the proposed Wuxi Biologics facility development project on protected sites, habitats, species and ecosystems. It considers impacts to ecological receptors and proposes mitigation and enhancement measures to offset or reduce the identified impacts. An Appropriate Assessment Screening Report has also been prepared for the proposed project and accompanies this application.

Methodology

A desk study was carried out to collate the available existing ecological information on the development site. Lands located within the proposed site boundary and immediately adjacent to the proposed site were surveyed. Field surveys included consideration of semi-natural habitats, terrestrial mammals, birds and bats and invasive species.

Survey Results

There are no habitats within the development site of greater than local value. No ecological features of regional, national or European importance will be impacted by the proposed development. The proposed development site comprises semi-natural habitats including; Dry meadows and grassy verges (GS2), Treelines (WL2), Bare ground (ED2), Buildings and Artificial surfaces (BL3), Amenity Grassland and an artificial attenuation Pond (FL8).

Trees within the proposed development site were inspected and assessed for potential bat roost features (holes, cracks, crevices etc.). No trees with bat roost potential were noted. The treelines bordering the western and southern boundaries of the proposed development site have potential to act as a linear feature for commuting bats and the grassland area provided potential foraging habitat. These trees are being retained.

The proposed development site and bordering lands were surveyed for evidence of terrestrial mammal activity and mammal refugia (badger setts, fox dens etc.) The proposed development site does not contain any mammal refugia (e.g. badger sett, fox den) and no evidence of badger activity was recorded.

A hedgehog skin was found on the southern boundary of the site demonstrating use of the proposed development site by the species. This skin suggests predation of the animal in the area which may indicate foxes occur in the region.

Two hares were seen within the proposed development site during the 2023 survey near the eastern boundary beside the attenuation pond. This indicated that this species is using this proposed development site to forage but no evidence of resting areas for this species were found within proposed development site.

Overall Evaluation of the Site

In summary, the proposed development site does not lie within any area that has been designated for nature conservation at an international or national level. There are no habitats listed on Annex I of the Habitats Directive or records of rare or protected plants within the proposed development site. There are no plants

which are listed as alien invasive species. Boundary features in the form of treelines are of local significance for a range of fauna, including protected species; passerine birds and potentially bats.

The treelines bordering the proposed development site are considered to be the main feature of ecological value and these treelines are of Local Importance (Higher Value) for their importance for breeding birds and as a valuable ecological corridor. The trees within the treeline have no bat roost potential however they can provide for a commuting feature for bats.

The grasslands within the proposed development site are considered to be local importance (lower value) and have the capability to provide foraging habitat for hares, hedgehog, birds and bats.

Potential impacts

Potential impacts on the ecological receptors within the zone of influence of the proposed WuXi Biologics facility development during the construction and operation phases have been assessed. Potential impact through the construction and operation of the development include; physical damage / habitat loss; disturbance to fauna and changes in water quality.

Due to the location, nature, extent and duration of the proposed works at the development site and in the absence of mitigation measures, the project will not have an impact on any European site / Natura 2000 site. Similarly, the proposed project will not have an affect any nationally designated conservation areas such as National Heritage Areas / proposed National Heritage Areas.

The development will result in a permanent loss in habitats ranging in value from negligible ecological value (e.g. bare ground) to local importance (lower value) (e.g. dry meadow grasslands). There are no habitats on site of greater than local value. No ecological features of regional, national or European importance will be directly impacted by the proposed development. Some semi natural habitat of similar ecological value will be replaced as part of the landscape strategy and thus the habitat loss impact will be reduced.

Indirect habitat loss/damage via. proximity of construction works will be mitigated to an imperceptible level. Habitat/species loss/damage via spread of invasive species can be avoided with the inclusion of biosecurity measures and the impact of invasive species of local biodiversity will be imperceptible.

During the construction phase there will be a loss of grasslands which will result in a loss of foraging areas for mammal species such as badger, fox, hare and hedgehog, however, as detailed above for bats, given relatively small area of grassland loss within the proposed development site and the wide availability grasslands within the local environs, the loss of the relatively small areas of grasslands will not have a significant effect on terrestrial mammals. Effects to terrestrial mammals from the loss of grassland foraging areas during the construction phase are considered to be permanent slight adverse at a local geographical level.

Bird species recorded during site surveys (2023) are common and no rare or uncommon species or species of high conservation value were recorded. Historic records of protected bird species within the area are mainly associated with the coastal waters around Dundalk Bay. Site surveys undertaken in winter 2023 did not record any waterbirds or wildfowl within the proposed development site. Given the distance of the proposed development site from areas of high avian usage, the construction of the treatment plant will not impact upon the migratory flight paths of waterbirds or wildfowl nor restrict their mobility between wetland sites. The building of the treatment plant will not present a collision risk to birds. The treelines bordering the proposed development site provide for valuable nesting habitat for local bird populations and these habitats will be retained, as such there will be no significant effects to high value nesting habitat. There will be a net loss of semi-natural habitats; grasslands within the proposed development site and the loss will have a localised adverse effect on feeding resources for local passerine species. The loss of foraging habitat for local breeding birds within the proposed development site is considered a permanent slight adverse effect on passerine bird

species at a local geographic scale. No effects on wintering and native waterbirds and wildfowl are anticipated.

During the operational phase, effluent arising from the WuXi Biologics facility will be treated by the new effluent balancing and resource recovery system which will generate solids (sludge) and treated water. Any solids associated with the treatment process will removed from site to a licenced waste facility. Treated waters will be discharged to the local sewer which connects to Dundalk WwTP. Following treatment, discharge from the WwTP is to the Irish Sea (Dundalk Bay SAC/SPA/pNHA). Discharge from the WwTP is not anticipated to have any impact on any habitats or species associated with any designated conservation site given that it will be treated and given the dilution and dispersal that will occur within the Irish Sea.

During the operational phase, surface water run-off (rainfall) from the proposed development site will either be treated and attenuated via the exiting WuXi Biologics facility drainage infrastructure (silt traps, interceptors) before discharge to a public sewer or will be redirected to the new effluent balancing and resource recovery system before discharge to a public sewer.

Given the levels of treatment occurring to water emissions from the proposed development and that all discharged waters are to the public sewer (and ultimately Dundalk WwTP) no direct or indirect adverse effects are anticipated on internationally or nationally designated conservation areas during the operational phase of the proposed development. Once the treatment process is operational reducing the risk of overloading the WwTP is considered a positive effect of the development over the long term.

Mitigation and enhancement measures

As noted above, there will be a permanent loss of ca. 0.8 hectares of grassland habitat. The design of the proposed development includes for areas of wildflower planting around the internal roadway leading to the treatment plant. The wildflower planting includes species attractive to pollinators and as such the planting will attract feeding invertebrates, including moths, butterflies and bees. The mixtures of flowering plants will encourage a diversity of insects which in turn could help to sustain birds, bats and other wildlife. Following the establishment of the wildflower planting the loss of 0.8heactares of grassland is mitigated to a slight adverse effect over the long term at a local site level.

Additional mitigation measures include for invasive species prevention in the form of onsite biosecurity measures and as such no adverse impacts from invasive species are anticipated.

Residual Effects

The residual ecological effects of the proposed development are not expected to be significant and are expected to be localised to the development site. Local populations of mammals and birds may suffer some very minor disruption in the short term and there will be a permanent loss of grassland foraging habitat but, as the greater part of the development site is of low ecological value, habitat losses to the proposed development are not significant.

6. Landscape and Visual

Introduction

A Landscape and Visual Impact Assessment was carried out for the proposed WuXi Biologics Wastewater Pre-Treatment Plant, Dundalk Science and Technology Park, Haynestown Dundalk, Co. Louth. The assessment was compiled by CSR chartered landscape architects in accordance with the with the methodology prescribed in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA) published by the UK Landscape Institute and the Institute for Environmental Management and Assessment and the relevant updates and Clarifications as issued by the Landscape Institute.

The Landscape and Visual Assessment was informed by a desktop study and a survey of the Proposed Development site and receiving environment in September 2023. The assessment identifies and discusses the landscape and visual constraints as well as landscape and visual effects and their level of significance in relation to the Proposed Development. The LVIA is supported by a set of Photomontages which can be found within Appendix 6 (Volume 3).

The potential landscape and visual effects of the Proposed Development and mitigation measures are briefly summarised below.

Landscape and Visual Impacts and Effects

Landscape:

The Proposed Development falls within an area of lands that has been designated as a zone of Business and Technology under planning policy where changes to these lands are excepted under the Mullagharlin Framework Plan. The scale and characteristics of Proposed Development's elements are similar to that of the existing WuXi treatment plant. The design layout seeks to minimise disturbance to the existing landscape elements by it being contained within a large under used grassland area part of the site. The built elements will be further contained within the immediate landscape by siting them lower than the existing topography through excavation of the land. The resulting excavated spoil will be retained on site and used to create new berms which are to be located alongside existing berms found near the southern boundary. These earthworks will be sown with a mix of grasses along with some wildflower meadow areas with additional biodiversity benefits. The works will not affect the high boundary hedgerow of the Mullagharlin Framework lands falling just outside of the Site which helps contain the Proposed Development.

Overall, the Proposed Development once operational will have a **Slight significance, neutral quality, long term** upon the landscape characteristics of the local area and is less apparent within the wider area having a **Not Significant to imperceptible significance, neutral quality, long term.**

Visual:

The predicted visual effects of the Proposed Development from the 8 assessed viewpoints range from **No Change, Slight-Not Significant, Slight to Moderate significance and of neutral quality** depending on location.

Once operational the majority of receptors will experience **No Change** to their existing view. As the Proposed Development visibility is highly contained within the immediate area due to the design siting the various proposed elements below the existing ground level. Meaning the new structures don't extend more than approx. 2.5m above the existing Mullagharlin road level of 25.5m AOD. Further screening is provided by the

existing and new berms along the southern and eastern ends of the Site together with the high dense tree lined hedgerow which runs next to the Site and frames the wider Mullagharlin Framework development lands boundaries.

Where visible, in the case of Viewpoint 1 only, the built out Proposed Development's elements will be clearly read as an extension of the existing WuXi Biologics wastewater treatment plant. Here this view is only experienced briefly while passing by the revised entrance point onto the Mullagharlin road.

Cumulative Effects

A planning application review of other proposed and recently approved not constructed developments within the study area was undertaken to determine if the Proposed Development could have any potential cumulative landscape and visual effects with any of these developments. All applications of interest fell within the limits of the existing industrial and business technology and include applications for an approved wastewater treatment plant and pending energy storage and a wind turbine. All of which are types of development expected to occur within an industrial area.

Cumulative Landscape:

The Proposed Development is sited away from these other approved/pending developments and will not have any notable cumulative loss of important landscape elements or features. The limited cumulative landscape impacts of the Proposed Development with these other above applications within the Mullagharlin framework lands will result in some **negligible, neutral and long-term cumulative landscape effects.**

Cumulative Visual

The Proposed Development's lack of visibility across the local area also means its potential for cumulative views with the above considered developments is likewise limited. Where the only combined views will be from around the Site's western entrance (Visual Assessment's Viewpoint 1). This potential cumulative view will consist of the Proposed Development built structure and proposed turbine peering above the existing potentially be of the WuXi biologic building. There will be some limited sequential views from the local road network of the Proposed Development with the facility and proposed wind turbine, but again the Proposed Development's structure will only be visible as one directly passes by the gap at its western end roadside entrance. The limited cumulative visual impacts of the Proposed Development with these other above applications within the Mullagharlin framework lands will result in some **negligible, neutral and long-term cumulative visual effects.**

Mitigation Measures

The Proposed Development looks to minimise its direct and indirect impacts on the various landscape elements and features within the Site and neighbouring lands through the implementation of suitable mitigation through all phases of the development.

During the Construction Phase a range of measures will be put in place as part of the site management procedures to help reduce the negative impacts of the works, including the control of site lighting, compound location, delivery of materials, site traffic and use of hoarding to contain the works. These impacts will be adverse and of a temporary nature.

Any clearance of any vegetation will be carried out in accordance with the CEMP and under supervision of the clerk of works ecologist. The existing hedgerows and trees adjoining the Site boundaries and the extent of their root protection areas (RPAs) within the site boundary will be protected by installation of temporary herras type fencing in accordance with BS5837:2012: Trees in Relation to Construction. Any necessary trimming back

of trees or excavating/other site works close to these trees and their RPAs during the proposed site works will be supervised by an appointed arborist.

The proposed site works will include excavating large areas of ground with the resulting disturbed soil and rock being retained on site and reused elsewhere for the Site's screening berms and soft landscape areas. Where required any temporary storage of soil on site will be carried out in accordance with the CEMP. At the end of construction the temporary site compound lands will be reinstated back to grassland cover.

During the Operational Phase, the planted-up areas of grassland and wildflower mixes around the Site's embankments berms and any other previously disturbed lands will be maintained to ensure the vegetation becomes establish to help prevent any potential soil erosion or dust and to improve their visual appearance and their integration into the immediate landscape. All access to the Site and activity will be undertaken within agreed working hours agreed with Louth County Council and the Site's lighting scheme along with noise and vibration levels from the plant machinery have been designed to ensure the operating plant doesn't cause any potential nuisance for local receptors and within the receiving landscape.

Monitoring Requirements

The monitoring during the construction and operational phase will include review and management of the areas of grassland and wildflower planting throughout the Site so that the planting becomes fully established, while ensuring the berm's screening effectiveness, stability and helping prevent runoff or patches of exposed bare soil. All planting across the proposed site will be monitored and managed by the appointed landscape contractor for an establishment period of 3 years or otherwise as agreed with Louth County Council. The works will include mowing, pruning, watering and weeding. Any loss of planting to occur during this establishment period will be replaced with similar or approved alternative. Once established the planting will be maintained as part of the wider landscaping of the WuXi Biologics grounds.

Residual Effects

The landscape impact during the construction phase will result in a disruption from construction activity e.g., machinery, site compounds across the Proposed Development site bringing about a disruption to the existing Site lands. The mitigation measures will seek to minimise the impacts e.g. through implementing the CEMP and protecting retained vegetation, reusing excavated soil and reinstating any disturbed lands, but the resulting residual effects as assessed above will have a significance of effect of **Slight to Moderate** and remain so **Temporary**, qualitatively the impact would be **Adverse.**

At the operational phase there will be a permanent change in character from the existing underused area of rough grassland to a small extension of the existing wastewater treatment plant. With the various proposed elements and roadway having the same characteristics of elements found throughout the existing plant grounds. The proposed changes are in keeping with local planning policy for development within the Mullagharlin Framework lands. As assessed above this will result in a significance of the effect of **Slight** and remain so in the **Short, Medium and Long Term**, qualitatively the impact would be **Neutral**.

The visual impact during the construction phase will occur due to the visibility of certain construction activity across the Proposed Development e.g., workers, machinery and lighting or from the surrounding road network. Although these impacts can be reduced by implementing the CEMP they can't be fully mitigated out. Much of the potential inwards views of the siteworks will be greatly restricted by the high treelined hedgerow which borders roadside ends of the Site and the wider Mullagharlin Framework lands.

As outlined above this activity will have a significance of effect as **Slight-Not Significant to Slight** and remain so **Temporary**, qualitatively the impact would be **Adverse.** While two receptors have **No Change**

Once complete the Proposed Development will at the operational phase result in a permanent change to views and visual amenity, with the addition of the proposed built structures resulting in a slightly further expansion of the existing wastewater treatment plant to the west. Although it was found that the actual potential visibility of the Proposed Development was found to be very limited due to mitigation measures and avoidance measures through the design process seek to reduce the potential visual impacts along with the neighbouring high tree lined field hedgerows. As assessed above the visual effects on these receptors range will have a significance of effect ranging from **No Change** from 7 of 8 viewpoints with the other viewpoint located opposite the Site entrance as having a **Moderate-Slight** Neutral quality and all Long Term

Conclusion

Overall, the Proposed Development is sensitively designed to fit within the confines of the Site within an area of under used rough grassland. It will consist of similar elements as the existing wastewater treatment plant of which it will form an extension and once built will be indistinguishable within the landscape from the existing WuXi Biologics treatment plant. The designed siting of the Proposed Development lower down than the existing topography levels and the existing nearby high treelined hedgerows all help to ensures its structures are barely visible from receptors across the receiving local area. The only notable view (viewpoint 1) possible is experienced briefly by road users passing by the Site's western entrance along Mullagharlin Road.

The proposed changes to the existing landscape are reflective of the undergoing changes of this area as reflected in the local planning policy supporting development across the Mullagharlin Framework lands.

7. Air Quality, Odour and Climate

This section specifically considered the potential emissions to air including odours that may arise as a result of the Proposed Development, and the potential impact of these emissions on receptors in the area.

Receiving Environment

The receiving environment has been considered in terms of the existing meteorological conditions at the site, which have the potential to affect the dispersion of any emissions, as well as existing air quality in the area. A review of published air quality data determined that air quality in the immediate vicinity of the site is good for all pollutants of interest for the study.

Potential Effects of the Proposed Development

Construction Phase

There is predicted to be a short-term Slight adverse effect on the closest receptors during the Construction Phase. There will be no lasting impacts and the short-term effects will be managed by means of an effective Construction Environmental Management Plan (CEMP) incorporating the mitigation measures outlined in the Plan.

The expected construction traffic will not exert a measurable effect on air quality due to the relatively low vehicle movements and associated low emissions and it is concluded that an imperceptible impact would occur. There is no potential for odour impact during the construction phase of the Proposed Development.

Emissions of Greenhouse Gases during construction are assessed as imperceptible over the lifetime of the project.

Operational Phase

An dispersion model was constructed to evaluate the potential effect of odour emissions from the facility. The Model findings clearly demonstrate that emissions associated with the proposed facility will not cause a breach in any Air Quality Standard or guideline and will not result in odour nuisance at any sensitive receptor in the area. Using the EPA assessment criteria, the Model determined that there is predicted to be a short term not significant impact.

There are negligible levels of emissions of greenhouse gases such as carbon dioxide, nitrous oxide and methane associated with the Proposed Effluent Balancing and Resource Recovery System. Therefore, the project's emissions will not contribute measurably or significantly to climate change or have any discernible influence on the overall climate conditions. Since the emissions associated with the project are considered imperceptible, their effect on climate can also be regarded as imperceptible. A separate element of the project is to install a solar PV system which will result in a net reduction in CO2 emissions for the overall site.

Mitigation Measures

A Dust Management Plan will be formulated for the construction phase as construction activities are likely to generate some dust emissions. The principal objective of the Plan is to ensure that dust emissions do not cause significant nuisance at receptors in the vicinity of the site.

An odour control system will treat odours from the Proposed Development so that emissions are treated to ensure that no adverse impact occurs due to any releases.

Residual Effects

During the construction phase of the proposed development there will be some dust impacts experienced at the subject site. It is predicted that the mitigation measures proposed will ensure that the air quality impacts at the closest receptors are imperceptible. The predicted air quality impacts on the receiving environment during the construction phase are considered to be slight and short term imperceptible at local receptors.

Conclusion

The assessment concluded that there will be no significant adverse impacts as a result of the Proposed Development.

8. Noise & Vibration

Introduction

This section of the EIAR has been prepared by RSK Ireland to identify and assess the potential noise and vibration impacts associated with the proposed Effluent Balancing and Resource Recovery at WuXi Biologics. Wuxi Biologics Ireland Ltd is licensed by the Environmental Protection Agency (EPA) under Industrial Emissions Licence P1122-01 and is currently operating within the limits set on in this licence.

Receiving Environment

Environmental noise surveys have been conducted in accordance with ISO 1996-2:2017 "*Acoustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of sound pressure levels*" and the EPA NG4 Guidelines. Four locations were chosen to represent noise levels at nearby Noise Sensitive Locations (NSL's) that are closest to the Proposed Development area of the site. The locations were chosen because of their proximity to proposed new plant items and nearby NSL's (i.e. nearby dwellings).

During the day-time noise survey, the dominant noise sources were noted to be from road traffic and distant construction noise. During the night-time, the dominant noise sources were noted to be from distant road traffic, distant plant/machinery and distant construction noise. Daytime and night-time baseline noise measurements confirm that the site is currently operating in compliance with noise limits outlined in it's EPA Industrial Emissions Licence.

Potential Effects of the Proposed Development

Construction Phase

Noise

Due to the location of the site, the likely construction phase activities, the distances from these works to nearby dwellings and the proposed construction noise criteria (i.e. 65 dB $L_{Aeq,T}$), it is predicted that there will not be any significant adverse noise impacts encountered. This assumes that works will take place during the daytime (i.e. 07:00 to 19:00 on Monday to Friday and 07:00 and 13:00 on Saturdays).

Vibration

With consideration of the distance from site boundaries to nearby sensitive receptors, and proposed general methods of construction, it is projected that vibration emissions to nearby receptors will be not significant.

Operational Phase

Noise

In order to assess the potential operational phase sounds levels, a noise model of the proposed site has been developed. These predicted values have been compared to the limits set out in Section 4 of the WuXi

Biologics Industrial Emissions Licence. It is predicted that the proposed new plant items will comply with the daytime, evening-time and night-time limits.

The predicted noise levels from the proposed new plant items have been added to the current noise levels from the facility, which has been calculated using baseline noise surveys carried out by RSK. The cumulative calculated noise levels are predicted to comply with the WuXi Biologics Industrial Emissions Licence noise emission limits.

Vibration

No significant sources of vibration are expected to arise during the operational phase of the development.

Mitigation Measures

Construction Phase

With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228:2009+A1:2014 '*Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*'. Whist construction noise and vibration impacts are calculated to be within the criteria, the contractor will ensure that all necessary noise and vibration control measures will be used, in order to ensure impacts to nearby residential noise sensitive locations are not significant. Key mitigation includes: limiting the hours of construction, continual monitoring of noise and vibration through construction and erection of a 2.4m high site hoarding at the locations indicated in the Noise & Vibration EIAR Chapter.

Operational Phase

The cumulative predicted noise levels during the operational phase of the development are compliant with the limits set out in the licensed issued by the EPA under Industrial Emissions Licence P1122-01. However, the licence also states that during night-time hours there should be no tonal component or impulsive component in the noise emission from the activity clearly audible at any noise sensitive location. Analysis of the 1/3 octave predicted noise levels based on selections provided from plant suppliers indicate that no audible tones are anticipated at noise sensitive receptors. Annual noise monitoring in accordance with the requirements of the sites Industrial Emissions Licence will be continued once the development is operational in order to verify that the relevant noise limits are complied with.

Residual Effects

The residual effect from construction and operation phases is as follows.

Phase	Quality	Significant	Duration
Construction	Negative	Minor	Short-term
Operation	Neutral	Not significant	Permanent

Conclusion

Overall, the Proposed Development is predicted to comply with the limits from BS 5228 during the construction phase and the EPA Industrial Emissions Licence P1122-01 during the operational phase. Mitigation has been recommended, where required, to ensure that no significant effects are experienced by nearby noise sensitive receptors.

9. Traffic

Introduction

Traffic chapter seeks to provide a description about the anticipated traffic impact of development of the Effluent Balancing and Resource Recovery System at the Dundalk Science and Technology Park in Haynestown.

Receiving Environment

The detailed description of the site location can be found in Chapter 2 of the report. In terms of the strategic links, the site is situated approximately 480 meters east of the M1 and south of National Road N52.

Site Access

At construction stage

Large construction vehicles, such as articulated lorries, will enter the proposed development through the existing WuXi Biologics Facility entrance and via the temporary haul road.

Smaller vehicles, including cars and vans carrying clean equipment and staff, will access the site via the existing agricultural gate on the Mullagharlin road, which will be repurposed to facilitate access for small vehicles as part of the proposed development.

The parking arrangements for the staff will be provided within the proposed construction compound. Parking alongside roads will strictly be prohibited.

During operational phase

As part of the proposed development the existing agricultural gate on the Mullagharlin road will be repurposing to facilitate the access to the plant for small vehicles during operation phase

Potential Effects of the Proposed Development

Construction Phase

In terms of location, the proposed development enjoys a strategic advantage being situated close to the M1 motorway and N52 national road. Consequently, all vehicles involved in construction activities can bypass local and regional roads, choosing instead to utilise these two strategic links.

The baseline traffic for the analysis was obtained from the TII Traffic Monitoring Unit (TMU) counters, which are accessible on https://trafficdata.tii.ie/publicmultinodemap.asp. Data for the year 2023 was utilised for the analysis. Figure 9.1 illustrates the locations of the Traffic Monitoring Units (TMU) from which data was extracted for analysis.

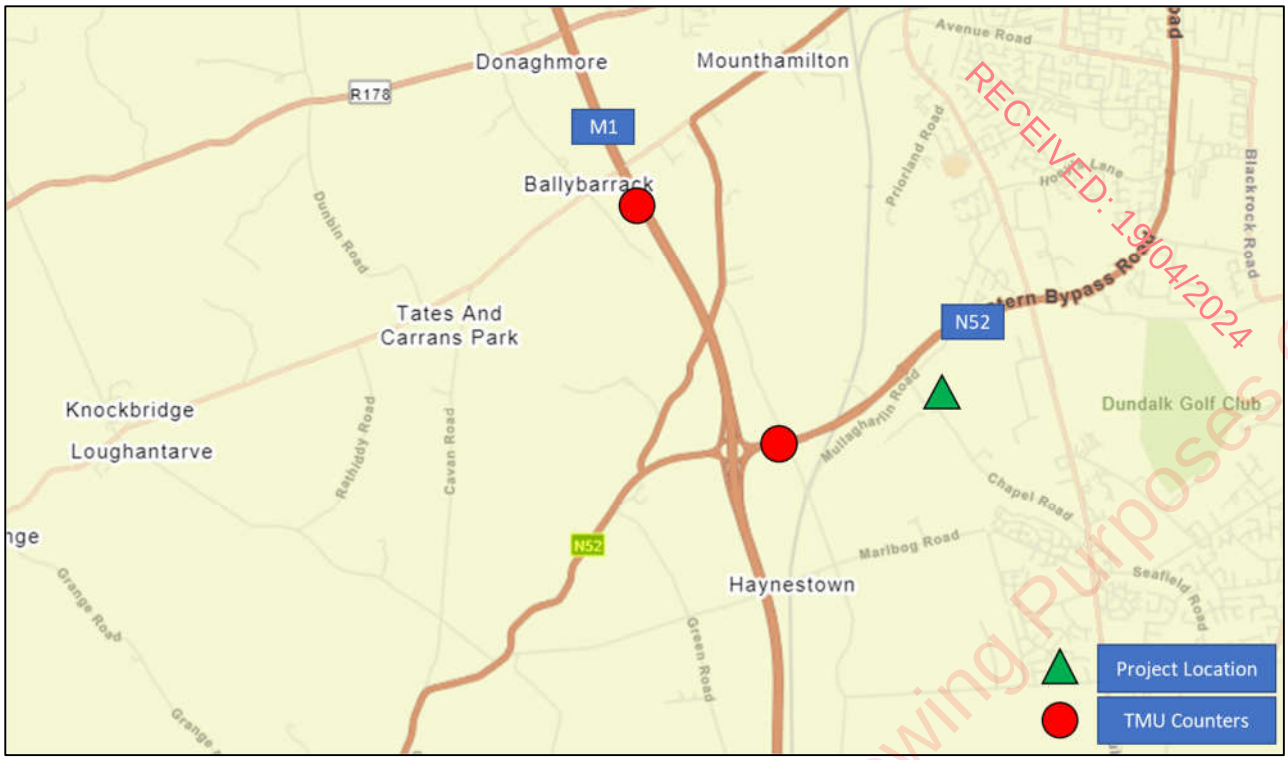

Figure 9.1 - Location of TMU Counters for the analysis

Existing Capacity Analysis

The existing capacity analysis of these links were analysed in accordance with the guidelines provided in the Design Manual for Roads and Bridges, specifically Volume 5, Section 1, Part 3, titled 'Traffic Capacity of Urban Roads' (published in May 1999).

According to this document, the category of these links and their corresponding 2-way capacity are summarised below:

- M1 (Urban Motorway (UM)) - 8,000 vehicles per hour; and,
- N52 (Urban All Purpose 2 (UAP2)) - 6400 vehicles per hour.

Working Hours

The following working hours are proposed for the construction:

- Monday to Friday – 7 am to 7 pm;
- Saturday – 8 am to 2 pm;
- No work on Sunday and Public Holidays; and,
- For the Material Delivery, peak hours will be avoided during weekdays. Therefore, it will be restricted only between 10 am to 4 pm.

Based on the above assumptions, the potential arrival and departure time for the staff are summarised below:

- During weekdays, all the staff will be arriving between 6 to 7am, and depart between 7 to 8 pm; and,
- During Saturdays, all the staff will be arriving between 7 to 8 pm, and depart between 2 to 3 pm.

Impact of Staff trips

- At the peak of construction, it is anticipated that 50 construction workers will be required at the proposed development.
- It is assumed all the workers will use private vehicles.
- Therefore, based on above, 50 number of arrival trips and 50 number of departure trips were considered
- In terms of impact, the analysis was undertaken for the M1 and N52 strategic links.
- A worst-case scenario was assumed in which all staff would use only these two links to commute to the site. The analysis is summarised below.

Table 9.1 - Construction Traffic Impact

Links	Capacity of the link (veh/hr)	Hour of the day	Existing Flow	Construction Trips	Cumulative Flow	Cumulative Flow / Capacity
M1	8000	6 to 7am	1145	50	1195	15%
		7 to 8 pm	1136	50	1186	15%
N52	6400	6 to 7am	465	50	515	8%
		7 to 8 pm	660	50	710	9%

- Based on the table above, it can be observed that the cumulative flow will account for 8 to 15% of the maximum capacity of the major links.
- Some staff trips may opt for the regional road R132 or Mullagharlin road. However, it is anticipated that all staff will reach the site before morning peak hours and depart from site after evening rush hour. Therefore, these trips are not expected to have an adverse impact on the operation of these links.
- Hence, based on the above analysis, the impact of the staff trips can be considered as "not significant".

Impact of Material Delivery Trips

- The construction activities (i.e., excavation and construction) will take place over ca. 15 months, during which the majority of HGV movements will occur.
- The overall construction process is divided into following phases.
  - Enabling and excavation – 3 to 4 months;
  - Construction – 8 to 9 months (mainly concreting); and
  - Finishing and handover - 2 to 3 months.
- Since excavation and actual construction work will not happen simultaneously, trips associated with both were calculated separately, and the maximum of both were considered for assessment.
- For finishing and handover work, the anticipated number of trips are generally fewer than for concrete and excavation work. Therefore, no finishing/handover trips were considered for the analysis.

- The number of material deliveries trips are summarised in the table below.

Table 9-2 - Material Delivery Trips

Material	Volume (m3)	Density	Weight (t)	Month	Days	Hrs (10am to 4 pm)	Net hrs	Delivery per hr	Delivery per load	Trips /hour
Excavated material (Excluding Rocks)	34,407	1.3	44,729	4	20	6	480	93 t/hr	20 tonnes	5
Excavated Materials (Rocks)	5,545	2.0	11,090	4	20	6	480	23 t/hr	20 tonnes	2
Fill Materials	3,750	1.3	4,875	4	20	6	480	10 t/hr	20 tonnes	1
									Total	**8**
Concrete	34,407	N/A	N/A	9	20	6	1080	32 m3/hr	6 m3	6

- Based on the table above, a maximum of 8 vehicles per hour were determined for material delivery trips. It was further assumed that all these trips will return in the same hour, resulting in a maximum of 16 two-way trips per hour.
- The impact of the material delivery trips is summarised below. For the analysis a single hour with peak background traffic between 10 am to 4pm was considered for the assessment.

Table 9.3 - Construction Traffic Impact

Links	Capacity of the link (veh/hr)	Hour of the day	Existing Flow	Additional trips	Cumulative Flow	Cumulative Flow / Capacity
M1	8000	3 to 4 pm	1969	14	1983	25%
N52	6400	3 to 4 pm	1233	14	1247	20%

- Based on the table above, it can be observed that the cumulative flow will account for 20% to 25% of the maximum capacity of the major links. Hence, based on the above analysis, the impact of the material delivery trips can be considered **"not significant".**

Operational Phase

A maximum of 5 new staff can be anticipated during the operational phase of the proposed development. Assuming an additional 3-5 deliveries, a maximum of 10 trips per day can be anticipated. Even if all these trips occur within a single hour, it would still be fewer than the estimated construction trips.

Therefore, impact of proposed development during operational phase can be considered as “not significant”.

Cumulative Effects

No significant trip-generating developments were found near the proposed development. Therefore, in terms of traffic and transport, no cumulative effects are anticipated.

Mitigation Measures

The following measures will be adopted around the perimeter of the project for security and protection purposes:

- All site access will be well lit, clean, robust level hard-standings, well signed and controlled by experienced gatemen. Doors and gates will be closed at all times when not providing access.
- The traffic management team will be clean and well presented at all times.

The contractor’s detailed Construction Traffic Management Plan will address the following key issues:

- Maintaining free traffic flow along the local road networks.
- Ensuring all footpaths and road surfaces are always free from debris.
- Ensuring the efficient free flow of operatives entering and exiting the proposed development site.
- Managing the distribution flow of materials within the site and debris removal to maintain the required levels of productivity whilst achieving the high-quality standards expected.
- Plant and operative segregation during all stages of the proposed development.
- Robust traffic management principles and practices will need to be enforced to ensure construction traffic does not create congestion and cause inconvenience to the adjacent tenants and the public.
- Protection to the public for the duration of the project construction phase on all elevations.

All deliveries will be through regional road M1 and N52. The contractor will develop a detailed Logistics Plan to identify the delivery schedule requirements for every delivery. It is anticipated that the contractor will operate a “Just in Time” delivery philosophy to minimise materials stored on site and reduce congestion in and around the works compound.

Residual Effects

No residual effects are anticipated for the proposed development

Conclusion

The anticipated traffic impact of the proposed developments on the surrounding road networks was determined for both the construction and operational phases, focusing on the M1 motorway and N52 national road. For the construction-related impact, the analysis was conducted separately for staff trips and material delivery trips, as material delivery trips are proposed to occur outside peak periods. The combined existing flow and additional trips resulted in only 15% of the capacity of the M1 and 9% of the N52 being affected.

Regarding material delivery trips, the combined baseline traffic and material delivery trips account for 20-25% of the capacity of both links. Trips during the operational phase are anticipated to be lower than during the construction stage, and hence no separate analysis was undertaken. No other significant trip-generating developments were found near the proposed development, and therefore no cumulative impacts in terms of traffic and transport are anticipated.

10. Land, Soils and Geology

Introduction

This chapter describes the type of land, soils and geology likely to be encountered beneath the Proposed Development. It also addresses the potential effects of the Proposed Development on land, soils, and geology together with the mitigation measures that will be employed to eliminate or reduce any potential effects. Mitigation measures that will be employed to eliminate or reduce any potential effects are set out in Chapter 10 – Volume 2, EIAR.

Receiving Environment

The site was historically greenfield in nature, with no significant changes to this until 2021 when the Wuxi Biologics site was constructed.

The Site is currently a greenfield site and is underlain by till derived from Lower Palaeozoic sandstones and shales. The lands on which the development is proposed is zoned by Louth County Council development plan 2021-2027 (LCC 2021) as 'E2' Business and Technology with the zoning objective being *'to provide for office, research and development and high technology / high technology manufacturing type employment*.' According to ground investigation records, the general topography of the Site is ca. 24m above ordnance datum (mOD), and is ca. 6-7m higher than the rest of the current Wuxi operational facility / campus.

The dominant soil type underlying the Site and surrounding area is till derived chiefly from Lower Palaeozoic Rock with the primary superficial / quaternary sediments underlying the Site comprising till derived from Lower Palaeozoic sandstones and shales with a small area of bedrock outcrop or subcrop present at the western most edge of the site.

Potential Effects of the Proposed Development

Construction Phase

As part of the development a significant volume of excavated material (ca. 34,407 m^3) will be stripped and stockpiled in designated stockpiles located within the red line boundary. Bulk excavation will have a haul length of 200m from the excavation pit to the south of the site – all within the red line boundary. Maximum excavation depth is ca. 5m bgl. All excavations are anticipated to encounter made ground / sandy silt / clay and/or gravel / weathered rock / bedrock. All excavated soil will be kept within the red line boundary and used for landscaping purposes.

Excavated bedrock (ca. 5,545 m^3) will be stockpiled within the red line boundary and removed for offsite disposal to a suitably licenced / permitted waste facility, with the appropriate soil testing carried out (total excavated rock volume 5,545 m^3). A total of ca. 3,750m^3 stone material will be imported.

Soil compaction and dust generation may occur during the construction phase, along with subsoil erosion and the generation of sediment laden runoff. There could be a potential impact on soils and geology and associated human health (i.e. construction workers) from potential fuel leaks during site construction activity.

However, the employment of good construction management practices, and mitigation and monitoring measures (as set out in Chapter 10, Volume 2 – EIAR) will serve to minimise any risk of pollution to soil and geology, and associated human health, from construction activities.

No significant long-term effects are likely to occur with respect to Land, Soils and Geology as a result of the proposed development.

Operational Phase

The WuXi Biologics Facility (P1122-01) currently discharges treated wastewater to the public sewer system through an existing balance system and pH correction system. However, the flow of and concentration of the waters arising from the production processes on the site is variable and could possibly limit the potential treatment capacity of the sewer system due to this variability. Therefore during the operational phase, the proposed effluent balancing and water recovery system will help to address this problem by storing effluent during periods of high flow and concentration and releasing it to the sewer system during periods of low flow and concentrations. This will help to ensure that the sewer system is not overloaded, and that the environment is protected. The system will also recover water and potentially nutrients from the effluent for reuse. This will help to reduce the site's reliance on public water supplies and reduce pressure on the public water system.

WuXi Biologics is subject to an Environmental Protection Agency (EPA) Industrial Emissions (IE) Licence (Ref. No. P1122-01) and therefore will be obliged to meet current (and any future) licence requirements with regards to monitoring, reporting, auditing and site inspections. It is also noted that the proposed development is located in a newly established modern industrial campus. Therefore based on the design of the proposed development, and the regulatory requirements associated with the operational phase, any potential risk to receiving soils and bedrock, during the operational stage, has been appropriately addressed. Potential effects to soils and geology during the operational stage will be likely temporary, not significant.

No significant long-term effects are likely to occur with respect to Land, Soils and Geology, as a result of the proposed development.

Mitigation Measures

The excavation of material will be minimised as much as possible to reduce the impact on soils and geology with the total volume of soil requiring excavation expected to be ca. 34,407m^3. All excavated soil will be retained on site with a haul length of ca. 200m from the excavation pit to the south of the site and will be used for landscaping purposes. It is therefore anticipated that there will be no waste soils generated which will require offsite removal.

In the unlikely event that soil material is unsuitable for use/ excess soil is generated, all waste soils (including made ground) will be appropriately sampled and tested prior to offsite removal, and classified in accordance with the EPA Guidance Document *'Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* (2015). It will be the Contractors responsibility to ensure that all waste soils are classified correctly and managed, transported and disposed of offsite in accordance with the requirements of the Waste Management Act 1996, as amended, the Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste and any relevant subsequent waste management legislation.

Excavated bedrock / waste rock (ca. 5,545 m^3) will be stockpiled within the red line boundary and removed for offsite disposal to a suitably licenced / permitted waste facility, and will be appropriately sampled and tested prior to offsite removal. This material will be classified in accordance with the EPA Guidance Document *'Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* (2015). It will be the Contractors responsibility to ensure that all waste soils are classified correctly and managed, transported and

disposed of offsite in accordance with the requirements of the Waste Management Act 1996, as amended, the Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste and any relevant subsequent waste management legislation.

It will be the Contractors responsibility to ensure that a project specific Detailed Resource and Waste Management Plan (developed in accordance with relevant 2021 EPA Guidance) is fully implemented onsite for the duration of the project.

Further mitigation measures for the prevention of soil / bedrock contamination during construction are outlined in Chapter 10, Volume 2 – EIAR.

Residual Effects

No significant effects are likely to occur with respect to Land, Soils and Geology, as a result of the proposed development.

Conclusion

The proposed development will not have a likely significant residual effect on land, soils and geology (and associated human health) given the mitigation measures proposed during the detailed design and construction phase of the development.

11. Water

Introduction

This chapter describes the existing surface water and groundwater regime likely to be encountered beneath and in the general vicinity of the Proposed Development. It also addresses the potential impact of the proposed development on hydrology (i.e. surface water) and hydrogeology (i.e. groundwater). Mitigation measures that will be employed to eliminate or reduce any potential effects are set out in Chapter 11 – Volume 2, EIAR.

Receiving Environment

The site was historically greenfield in nature and has generally been transformed over the years from greenfield use to industrial use.

There are no reported natural surface water features within the proposed development with an attenuation pond located to the south eastern side of the proposed development site which was constructed as part of the WuXi Biologic facility to hold water. The closest hydrological feature to the site is the Carnabreagh Stream located ca. 700m west, which is separated from the site by the M1 motorway. This watercourse flows into Tates and Carrans Park Stream which outfalls into the Fane River before subsequently outfalling to Dundalk Bay. Dundalk Bay has been designated as a Geological Heritage Area and is located ca. 2km east of the proposed development.

A Flood Risk Assessment prepared by AtknsRéalis (2024) found that there the proposed development site is located within Flood Zone C, indicating that there is low probability of flooding.

Groundwater vulnerability is predominantly High (H) in the vicinity of the site, with minor portions of the northern portion being classified as Extreme and Rock at or near Surface or Karst indicating that groundwater is shallow and vulnerable to contamination due to human activity

Potential Effects of the Proposed Development

Construction Phase

There is potential for degradation in groundwater quality resulting from potential pollution caused by construction activities e.g., plant, fuel/ chemical spillage etc., particularly during excavations. The maximum anticipated depth of onsite excavation will be approximately 5mbgl. During the construction phase of the proposed development, the following potential effects on groundwater quality could occur:

- Accidental spillages or leaks onsite in the vicinity of exposed groundwater could result in likely moderate adverse temporary effects directly to the quality of groundwater receptors (i.e., bedrock aquifer).
- General site activities during the construction phase associated with cement handling and pouring could result in likely moderate adverse temporary effects (via. groundwater pathways) directly to groundwater quality beneath the site (i.e. bedrock aquifer).

Operational Phase

There is a potential risk of impact to the underlying sandstone bedrock aquifer, in the event of a leak or spillage at the proposed new facility during the operational stage. However, based on the design of the proposed development, potential effects to the receiving groundwater environment during the operational stage will be likely temporary, not significant.

During the operational phase of the development, the following potential effects on groundwater quality could occur;

- Groundwater could be at risk of quality impacts in the unlikely scenario of an unplanned event (traffic collision, emergency onsite fuel / oil spill, fire water arising from a fire). Taking account of the proposed surface water drainage design, potential adverse effects to groundwater (i.e. bedrock aquifer) are negligible, and unlikely to occur, and do not warrant further consideration.

- Groundwater is at risk of becoming contaminated through routine site maintenance activity during the operational phase. In the highly unlikely event of a spill this could result in a not significant adverse temporary effect to groundwater quality.

Mitigation Measures

The Contractor will be responsible for preparing a site specific Construction Environmental Management Plan which will be implemented to minimise / avoid impacts on the surface and ground water quality and flow. Mitigation measures that will be included in this Construction Environmental Management Plan at a minimum are detailed in Chapter 11, Volume 2 – EIAR.

Residual Effects

No significant effects to receiving surface waters or groundwater are likely as a result of the proposed development.

Conclusion

The proposed development will not have a likely significant residual effect on surface water and groundwater quality given the mitigation measures proposed during the detailed design and construction phase of the development.

12. Cultural Heritage

Introduction

This chapter of the EIAR, prepared by Dr. Enda O'Flaherty (BA, H-Dip, PhD) and Ciarraí O'Sullivan (BA, MPhil) of Rubicon Heritage Services Ltd, details the archaeological, architectural and cultural heritage issues that need to be addressed in respect of a proposed Effluent Balancing and Resource Recovery System on Wuxi Biologics lands at Haynestown, Co. Louth (Figure 12.1; see Chapter 2).

This study assesses the baseline archaeological and cultural heritage environment, in order to evaluate the likely effects that the proposed development will have on this environment, and to provide mitigation measures to avoid, reduce or offset these effects in accordance with the policies of the Department of Housing, Local Government and Heritage (DHLGH), Louth County Council Development Plan (2021-2027), the National Monuments Acts 1930-2014, as amended, and best practise guidelines.

Receiving Environment

The abbreviation 'CH' is used in this chapter to identify individual cultural heritage receptors. Figure 12.1 in the main EIAR shows a distribution map of CH sites. Appendix 12.1 of Volume 3 of the EIAR includes a list of all CH sites identified within the study area. Cultural heritage (CH) includes artefacts, monuments, groups of buildings, sites, and museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance. It includes tangible heritage (movable, immobile and underwater), intangible cultural heritage (ICH) embedded into cultural, and natural heritage artefacts, sites or monuments. The definition excludes ICH related to other cultural domains such as festivals, celebration etc. It includes industrial heritage and cave paintings (UNESCO 2009).

In total, 40 CH sites were identified within the study area for this assessment. There are 23 RMPS within the study area. Of the 23, one is also a Protected Structures (CH017), while CH018 is a Protected Structure and also listed in the NIAH. CH023 is a redundant record and has been re-distributed as four separate RMPs (CH009-CH012). The redline boundary of the proposed development crosses the Zone of Notification for three RMPS; a souterrain (CH001), an enclosure (CH003) and habitation site (CH004). In the case of CH001 and CH003, the recorded location for both RMPS place them within the redline boundary of the proposed development. However, archaeological investigations (see Section 12.3.17) indicates that these the sites are located to the east of the proposed development. Nonetheless, given the proximity of the CH001, CH004 and CH004, it is necessary to notify the Minister for Housing, Local Government and Heritage if it is intended to carry out works with their Zone of Notification. If work is intended, notice must be given in writing two months in advance, even if planning permission is not needed for the works. Works undertaken through the planning process is via a formal notification mechanism and acts as notification in accordance with Section 12 of the National Monuments Act

The national museum of Ireland Topographical finds database was consulted to see if there was a record of an archaeological object within the study area The database produced two results for the study area (CH039 and CH040) (Table 12-10). Both finds were located in excess of 700 m outside the proposed development site.

There are four Protected Structures within the study area. Both CH017 and CH018 are also listed as RMPs, while CH018, CH024 and CH025 are also listed in the NIAH. None of the Protected structures are located within the application boundary of the proposed development. The closest Protected Structure to the proposed development site is CH025 located approximately 50 m south of the application boundary. CH024 is located

approximately 150 m NW of the application boundary, while CH017 and CH018 are located approximately 400 m south of the application boundary.

There are three structures listed in the National Inventory of Architectural Heritage (NIAH) within the study area (Table 12-12). These are also Protected Structures and CH018 is also listed as an RMP. None of the NIAH sites are located within the application boundary of the proposed development. The closest NIAH site to the proposed development site is CH025 located approximately 50 m south of the application boundary. CH024 is located approximately 150 m NW of the application boundary, while CH018 is located approximately 400 m south of the application boundary.

Analysis of historic mapping (see Section 12.4.7 of the main EIAR) does not reveal any previously unrecorded areas of archaeological potential within the proposed development area based on topographical or historical indicators. However, two area of archaeological potential have been identified based on excavated evidence.

CH026 represents the entirety of the area within of the application boundary that has not been previously disturbed. Preceding archaeological test-trenching was undertaken by Donald Murphy of Archaeological Consultancy Services Unit Ltd (2023) at the request of the client to assess the archaeological potential of the site, following a preceding geophysical survey carried out in May 2021 under licence number 23R0044. The test trenching was conducted between the 31st July to 8th August 2023 (Licence no. 23E0452). Archaeological test trenching succeeded in identifying the remains of at least 31 individual features. These were dominated by pits and linear ditches.

CH027 represents 'an area of archaeological concern' identified during the preceding geophysical survey (23R0044) which abuts the proposed development site. Part of this area has previously been subject to archaeological investigations in 2004, 2007, 2008, 2014 and 2019-2020. Monuments identified during these investigations included a prehistoric enclosure, burials/cremation pits of the Bronze Age and Iron Age and two early medieval enclosures with associated features, including souterrains, kilns, pits, posts, and field systems, as well as causeway/trackway were exposed and excavated.

Potential Effects of the Proposed Development

Construction Phase

The construction phase of the development consists largely of earthmoving activities. All impacts at this phase are considered to be negative and permanent. The CH sites which may be impacted upon are summarised in Table 12.15, Volume 2 - EIAR.

The development will require ground reduction for the construction of a new Effluent Balancing and Resource Recovery System, with associated pump station and rising main. The ground reduction required to facilitate construction will have a direct impact on the archaeological features revealed during the test trenching (CH029) carried out in July to August 2023. The evidence from the test trenching and previous excavations indicates the archaeological potential of the site, and the further possibility of additional subsurface features (CH026). Without mitigation, the proposed development will have a profound and permanent direct effect on the potential subsurface archaeology CH026.

The proposed development will also include groundworks for the construction of the new permanent access road from Mullagharlin road to the Effluent Balancing and Resource Recovery System, which will used during the construction of the plant. Without mitigation construction work associated with the road will have a profound and permanent direct effect on the archaeological features discovered during testing (CH029), and any unknown potential archaeology (CH026).

The redline boundary of the proposed development crosses the Zone of Notification for three RMPS; a souterrain (CH001), an enclosure (CH003) and habitation site (CH004). In the case of CH001 and CH003, the recorded location for both RMPS place them within the redline boundary of the proposed development. However, archaeological investigations carried out by ACSU in 2019 (Licence No. 19E0060) indicates that these the sites are located to the east of the proposed development (Murphy 2023,7). Nonetheless, given the proximity of the CH001, CH004 and CH004, it is necessary to notify the Minister for Housing, Local Government and Heritage if it is intended to carry out works with their Zone of Notification. If work is intended, notice must be given in writing two months in advance, even if planning permission is not needed for the works. Works undertaken through the planning process is via a formal notification mechanism and acts as notification in accordance with Section 12 of the National Monuments Act.

Operational Phase

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the development, no impacts on archaeological, architectural or cultural heritage are anticipated during the operational phase of this proposed development.

Mitigation Measures

The mitigation strategies outlined in this section detail the techniques to be adopted in order to ameliorate the impacts that the proposed development may have on features of archaeological, architectural and/or cultural heritage within the study area during both the construction and operational phases of the development. The residual impacts that will remain once these mitigation measures have been implemented are identified in Section 12.10.

The following mitigation measures proposed are subject to approval by the Louth County Council, the National Monuments Service of the Department of Housing, Local Government and Heritage.

The current policy of the Minister for Housing, Local Government and Heritage is that preservation *in situ* of archaeological material is the preferred option. Where this cannot be achieved then a programme of full archaeological excavation should be implemented to ensure the preservation by record of all affected archaeological material.

The redline boundary of the proposed development crosses the Zone of Notification for three RMPS; a souterrain (CH001), an enclosure (CH003) and habitation site (CH004). In the case of CH001 and CH003, the recorded location for both RMPS place them within the redline boundary of the proposed development. However, archaeological investigations carried out by ACSU in 2019 (Licence No. 19E0060) indicates that these the sites are located to the east of the proposed development (Murphy 2023,7).

CH026 represents the entirety of the area within of the application boundary that has not been previously disturbed. Preceding archaeological test-trenching was undertaken by Donald Murphy of Archaeological Consultancy Services Unit Ltd (2023) at the request of the client to assess the archaeological potential of the site, following a preceding geophysical survey carried out in May 2021 under licence number 23R0044. The test trenching was conducted between the 31st July to 8th August 2023 (CH029: Licence no. 23E0452). Archaeological test trenching succeeded in identifying the remains of at least 31 individual features. These were dominated by pits and linear ditches.

CH027 represents ‘an area of archaeological concern’ identified during the preceding geophysical survey (23R0044) which abuts the proposed development site. Part of this area has previously been subject to archaeological investigations in 2004, 2007, 2008, 2014 and 2019-2020. Monuments identified during these investigations included a prehistoric enclosure, burials/cremation pits of the Bronze Age and Iron Age and two

early medieval enclosures with associated features, including souterrains, kilns, pits, posts, and field systems, as well as causeway/trackway were exposed and excavated.

The following mitigation measures are recommended:

1. The preceding archaeological assessment identified the presence of archaeological remains within the redline boundary. Thirty-one features identified included 10 linear deposits, 15 pits identified in isolated locations, 2 possible postholes, a hearth, and a metalled surface. As preservation *in-situ* is not possible, it is recommended that all archaeological features impacted by the proposed development are stripped of topsoil under archaeological supervision and preserved by record (archaeological excavation) in advance of construction.
2. A programme of archaeological monitoring should be undertaken in all areas where groundworks and ground reduction (including enabling works and landscaping) are to be carried out. This should be undertaken by a suitably qualified archaeologist under licence, as issued by the minister (DoHLGH under Section 26 of the National Monuments Acts (1994-2014). Should any additional archaeological material be encountered mechanical excavation will cease and a strategy will be proposed to the County Archaeologist and National Monuments Service to preserve the site *in situ*, where possible. Where preservation *in situ* cannot be achieved, either in whole or in part, then a programme of full archaeological excavation will be proposed, to ensure the preservation by record of the portion of the site that will be directly impacted upon. This work should be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2014.
3. The 'Area of Archaeological Concern' (CH027) identified in the preceding geophysical survey and located immediately adjacent to the proposed development site application boundary, should entirely excluded, fenced off, and protected from all development traffic or other potential impacts from the development for the duration of the construction phase.
4. The results of any archaeological test testing, surveys and/or excavation will be submitted in a report to the Local Authority, the Heritage and Planning Division, Department of Housing, Local Government and Heritage and the National Museum of Ireland.

Please note all recommendations are subject to the approval of the Louth County Council and the National Monuments Service, Department of Housing, Local Government and Heritage

Residual Effects

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the development, residual effects on archaeological, architectural or cultural heritage are predicted to be Negligible- Moderate (see Section 12.9, Volume 2 - EIAR).

Conclusion

The proposed development site for the Effluent Balancing and Resource Recovery System is located in the southwest portion of an existing biopharmaceutical facility, WuXi Biologics Dundalk. The proposed development will see the proposed development Effluent Balancing and Resource Recovery System located to the west of the existing WuXi Biologics biopharmaceutical facility. The construction phase of the proposed development will have a direct impact on the subsurface archaeological features highlighted by the test trenching carried out in 2023, as well as additional potential subsurface archaeology which was not picked up through testing. The rich archaeological potential of this area was demonstrated through the results of previous excavations, in particular the excavations carried under Licence No. 19E0060 (CH030). Hence, the evidence suggests that there is a strong potential of subsurface archaeology being impacted during the construction phase. However, given the subsurface nature of potential archaeology, the potential to excavate this site through the construction phase will provide data to the archaeological community from the potential subsurface sites. The potential to gain knowledge outweighs the negative impact. Furthermore, the implementation of mitigation measures for the proposed development will ensure that the cumulative effect is neutral and not significant. Subject to the implementation of the appropriate

archaeological mitigation measures during the construction phase of the development, residual effects on archaeological, architectural or cultural heritage are predicted to be Negligible-Moderate (see Section 12.9 12.9, Volume 2 - EIAR).

13. Material Assets

This assessment examines material assets serving the proposed development, in relation to existing and proposed built services (i.e., foul sewerage, surface water drainage, water supply, gas, electricity, and telecommunications utilities), and waste management.

Built Services

The Site of the proposed development is located entirely on land owned by WuXi Biologics. The current status of utilities serving the Site is summarised as follows;

- Existing surface water infrastructure is located within the red line boundary along the existing internal access roads. Surface water run-off from the existing facility is currently attenuated, with existing hydrocarbon interceptors in place along the drainage system to remove potential residual contaminants from storm water run-off across the site.
- The existing foul drainage network discharges to the Dundalk Wastewater Treatment Plant (WwTP). Foul services have been identified to the east of the proposed development, along the internal access road.
- There is a 200mm watermain located within the red line boundary running along the western boundary of the proposed development adjacent the existing internal access road.
- An existing ESB cable is located within the red line boundary to the west of the site. An existing ESB duct has also been identified within the red line boundary along the western boundary of the existing internal access road, i.e. along the eastern boundary of the proposed development. An existing electrical manhole is located within the red line boundary to the east.
- The is a GNI substation; Haynestown AGI, adjacent the proposed development to the south of the proposed EBRRS location. Gas line is located within the red line boundary at the southern and western boundaries of the proposed development.
- A 300mm firemain is located within the red line boundary running along the western boundary of the proposed development adjacent the existing internal access road. Fire hydrants have been identified at 2no. locations along the existing internal access road.
- Existing lighting ducts have been identified along the existing internal access roads and within the vicinity of the existing facility, as well as a number of lighting poles.
- No communications utilities have been identified within the proposed development.

There are new utilities services been installed as part of the proposed development, details provided in Chapter 13 of the EIAR (Volume 2). A complete set of all utility / service plans received is presented in the planning application.

Given the nature of the proposed development, along with proposed mitigation measures (set out in Chapter 13, Volume 2 – EIAR) no residual significant effects are anticipated with regards to existing or proposed utilities. There will be no likely significant effects associated with built services.

Waste

Based on a review of available historic mapping and aerial photography, historic land-use at the Site was greenfield before being developed as a pharmaceutical manufacturing site. The GSI bedrock geology 100k map identified the underlying bedrock of the site as the Clontail Formation, comprised of Calcareous red-mica greywacke as detailed in Chapter 10 – Land, Soils and Geology of the main EIAR).

The proposed development will be designed, planned, constructed and operated to minimise waste generation at every stage.

All waste management procedures implemented onsite during the construction phase will be in accordance with the Outline CEMP submitted as part of this planning application, and a project specific RWMP to be prepared by the Contractor. The following waste streams will be generated during the demolition and construction phases: soils, concrete, mechanical, electrical containment, wood, glass, aluminium, iron and steel. However, all waste streams will be managed in accordance with statutory waste management and environmental requirements, regional waste related policy, best practice waste management guidance, and the CEMP. As with any construction project, there is potential for nuisance issues to arise during the construction phase, associated with mud or waste materials impacting roads and footpaths adjacent to the proposed development. Mitigation measures will be implemented to manage these potential impacts.

The WuXi contractor will be responsible for monitoring waste documentation for the full duration of the construction phase. The Contractor will track and monitor all waste volumes to be transported offsite. All waste records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (LCC, EPA) as required.

Given the nature and location of the proposed development, along with proposed mitigation and monitoring measures (set out in Chapter 13, Volume 2 - EIAR) no residual significant effects are anticipated with regards to waste management associated with the proposed development. There will be no likely significant effects associated with waste management and / or generation.

14. Interactions

This section describes interactions between impacts on various environmental factors. A summary matrix showing interdependencies between these environmental attributes is presented below for the proposed development.

All potential interactions have been addressed as required throughout the EIAR. During each stage of the assessment contributors have liaised with each other (where relevant) to ensure that all such potential interactions have been addressed.

The various interactions between environmental topics considered within the EIAR are further discussed in Chapter 15, Volume 2 – EIAR.

	Chapter 4 - Population & Human Health		Chapter 5 - Biodiversity		Chapter 6 - Landscape and Visual		Chapter 7 - Air Quality, Odour and Climate		Chapter 8 - Noise & Vibration		Chapter 9 - Traffic		Chapter 10 - Land, Soils & Geology		Chapter 11 - Water		Chapter 12 - Cultural Heritage		Chapter 13 - Material Assets	
	Con.	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*	*Con.*	*Op.*
Chapter 4 - Population & Human Health			✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗
Chapter 5 - Biodiversity	✗	✗			✓	✓	✗	✗	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗
Chapter 6 - Landscape & Visual	✗	✗	✓	✓			✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗
Chapter 7 - Air Quality	✓	✓	✓	✓	✗	✗			✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓
Chapter 8 - Noise & Vibration	✓	✓	✓	✓	✗	✗	✗	✗			✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
Chapter 9 - Traffic	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓			✗	✗	✗	✗	✗	✗	✗	✗

	Chapter 4 - Population & Human Health		Chapter 5 - Biodiversity		Chapter 6 - Landscape and Visual		Chapter 7 - Air Quality, Odour and Climate		Chapter 8 - Noise & Vibration		Chapter 9 - Traffic		Chapter 10 - Land, Soils & Geology		Chapter 11 - Water		Chapter 12 - Cultural Heritage		Chapter 13 - Material Assets	
Chapter 10 - Land, Soils & Geology	✓	✓	✘	✘	✘	✘	✓	✓	✘	✘	✘	✘			✓	✓	✘	✘	✓	✓
Chapter 11 - Water	✓	✓	✓	✓	✘	✘	✘	✘	✘	✘	✘	✘	✓	✓			✘	✘	✓	✓
Chapter 12 - Cultural Heritage	✘	✘	✘	✘	✓	✓	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘			✘	✘
Chapter 13 - Material Assets	✘	✘	✘	✘	✘	✘	✓	✓	✘	✘	✘	✘	✓	✓	✓	✓	✘	✘		

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15. Cumulative Effects

This section assesses the potential for the proposed development to act in combination with committed developments within the vicinity to result in cumulative impacts on the environment.

A summary of all relevant developments i.e. consented developments which have been approved by Louth County Council and An Bord Pleanála (ABP), planned projects currently pending a planning decision, and any major infrastructure developments and/or strategic plans or projects which are in the pre-planning stages have been reviewed.

The committed projects which have been approved by Louth County Council and An Bord Pleanála (ABP) within the last 5 years, and/ or which are in the planning system but where a planning decision is not expected to have been made by the time the proposed development is operational have been reviewed as part of the preparation of this EIAR. The majority of these developments have already been constructed or are of small scale in nature (i.e. extension works or property retention works) or are considered to be a reasonable distance from the proposed development and do not warrant further consideration as part of this assessment.

Based on a review of planning records a list of committed developments has been compiled (and is presented in Chapter 14, Volume 2 - EIAR) which require further consideration in relation to potential cumulative effects with the Proposed Development, as part of this assessment.

Cumulative effects consider the impacts of other schemes which have potential for cumulative effects with the Proposed Development.

A full table of all projects is presented in Chapter 14 Volume 2 - EIAR.

Population and Human Health

The proposed development will not have any significant negative effects on population and human health and it is considered that the mitigation measures and monitoring requirements outlined in regard to the other environmental topics will ensure that the proposed development is unlikely to result in any significant cumulative effects in relation to population and human health.

Biodiversity

Given the inclusion of design, construction phase and operational phase mitigation measures, no significant effects will occur on sites designated for conservation value, protected habitats, protected species, watercourses or features of high ecological value as a result of the construction and/or operation of the proposed development.

Other plans and projects within development site area and also within the wider environs of the WuXi Biologics facility were reviewed in context with the proposed development and have been assessed for their potential to act in-combination with the proposed development to give rise to cumulative effects on local biodiversity. Refer also to Chapter 5 for further details.

No cumulative or in-combination effects on sites designated for conservation value, protected habitats, protected species, surface water features or features of high ecological value will occur as a result of the proposed development.

Landscape and Visual

The proposed development will not have any notable cumulative landscape effects with planning applications within the Mullagharlin framework lands, resulting in some **negligible, neutral and long-term cumulative landscape effects.**

Thus, there be limited potential cumulative views effects as a result of the proposed development being viewed in combination or sequential with these other approved/pending developments, were they all to be approved, and thus result in **negligible, neural and long term** cumulative visual effects.

Air Quality and Climate

The most relevant nearby sites are the WuXi Vaccines Ireland Ltd. (LCC 19861), Pentagon Technologies (Ireland) Limited (LCC 2360372), Oxigen Environmental ULC (LCC 21486), IDA Ireland (LCC 18187), and Pig Farm (ABP Ref: 305468) facilities.

The Wastewater Treatment Plant associated with Pentagon Technologies (Ireland) Limited (LCC 2360372) has the potential to emit odour into the environment, however as the WwTP is located 1 km northeast of this site, this is at a distance which will not lead to measurable cumulative impacts.

The waste recovery and recycling facility of Oxigen Environmental ULC (LCC 21486) has the potential to emit odour into the environment, however as the recycling facility is located 4 km northeast of this site, this is at a distance which will not lead to measurable cumulative impacts.

The utility yards that process water and wastewater associated with IDA Ireland (LCC 18187) have the potential to emit odour into the environment, however as IDA Ireland is located 2 km northeast of this site, this is at a distance which will not lead to measurable cumulative impacts.

The pig farm (ABP Ref: 305468) has the potential to emit odour into the environment, however as the pig farm is located 2 km southwest of this site, this is at a distance which is will not lead to measurable cumulative impacts.

The construction of dwellings, a wind turbine, and electricity developments do not contribute to odour emissions, so these additional developments will not have any cumulative impact on odour associated with the proposed development.

The remainder of the projects are at a distance which is beyond the distance that could lead to measurable cumulative impacts. There will be no significant adverse air quality, climate, or odour impacts on the receiving environment as a result of the project or in conjunction with other local developments that are planned for the area.

Noise and Vibration

Construction

The phasing/commencement of any other permitted developments in the locality could potentially result in the scenario where a number of other construction sites are in operation at the same time as the proposed development. The location of these proposed development sites in relation to each other and to nearby noise sensitive locations, means that there is minimal risk of cumulative construction noise emissions resulting in an

exceedance of the relevant criteria. The same conclusion is likely to be reached in the event that there are other nearby construction sites active at the same time as the sites discussed above.

A planning application has been submitted by WuXi Biologics Ireland Ltd erect a 3MW wind turbine, located at the East area of the existing biopharmaceuticals plan. The proposed wind turbine is located to the east of the proposed facility away from the location of proposed Effluent Balancing and Resource. Therefore it is unlikely to result in significant cumulative effects. It is recommended that construction is phrased at both sites to reduce the risk of cumulative significant effects.

Operational

In order to assess the potential cumulative impacts of the development, the predicted noise levels from the proposed plant items have been added to the current noise levels from the facility which was estimated using noise surveys carried out by RSK (detailed in Section **Error! Reference source not found.** – Volume 2 EIAR). cumulative calculated noise levels are predicted to comply with the WuXi Biologics IED Licence noise emission limits.

Traffic

No significant trip-generating developments were found near the proposed development. Therefore, in terms of traffic and transport, no cumulative effects are anticipated.

Land, Soils and Geology

Provided the mitigation measures outlined in Chapter 10 – Land, Soils and Geology are in place for the duration of the construction phase, cumulative effects are not likely to be significant. There will be no effects with regards to land (including land take), soils or geology during the operational phase. Therefore, no significant cumulative effects are likely.

Water

Provided the mitigation measures listed in Chapter 11 - Water are in place for the duration of the construction phase, anticipated effects on the receiving surface water / groundwater environment will be temporary and not significant adverse during the Construction Phase. Taking account of proposed mitigation measures, effects on the receiving surface water / groundwater environment will also be temporary and not significant adverse during the Operational Phase of the proposed development. Therefore, no significant cumulative effects are likely.

Cultural Heritage

The proposed development site for the Effluent Balancing and Resource Recovery System is located in the southwest portion of an existing biopharmaceutical facility, WuXi Biologics Dundalk. The proposed development will see the proposed development Effluent Balancing and Resource Recovery System located to the west of the existing WuXi Biologics biopharmaceutical facility. The construction phase of the proposed development will have a direct impact on the subsurface archaeological features highlighted by the test trenching carried out in 2023, as well as additional potential subsurface archaeology which was not picked up through testing. The rich archaeological potential of this area was demonstrated through the results of previous excavations, in particular the excavations carried under Licence No. 19E0060 (CH030). Hence, the evidence suggests that there is a strong potential of subsurface archaeology being impacted during the construction phase. However, given the subsurface nature of potential archaeology, the potential to excavate this site through the construction phase will provide data to the archaeological community from the potential subsurface sites. The potential to gain

knowledge outweighs the negative impact. Furthermore, the implementation of mitigation measures for the proposed development will ensure that the cumulative effect is neutral and not significant.

Subject to the implementation of the appropriate archaeological mitigation measures during the construction phase of the development, no residual cumulative impacts on archaeological, architectural and cultural heritage are predicted.

Material Assets

Due to the nature and scale of the proposed development, no cumulative impacts are anticipated during the construction or operational phases of the proposed development associated with built services. There will be no likely significant effects regarding built services due to cumulative effects

Based on the scale and nature of the proposed development, and given that a RWMP will be prepared and implemented for the construction phase, no cumulative effects are anticipated during the construction or operational phases of the proposed development associated with waste generation. There will be no likely significant effects associated with waste management and / or generation.

Summary

No likely significant effects have been identified as a result of potential cumulative effects between effects identified in the technical chapters of the EIAR and other committed developments.

Furthermore, in most cases such interactions are unlikely to occur.

No significant cumulative effects are likely to arise from the proposed development.

16. Schedule of Environmental Commitments

A schedule of environmental commitments has been prepared, for ease of reference and clarity, and to facilitate enforcement of all environmental mitigation and monitoring measures specified within Chapters 4 to 14 of the EIAR.

All mitigation and monitoring commitments detailed within the EIAR have been included in a separate compendium and are presented in Chapter 16, Volume 2 - EIAR.

These commitments have been incorporated into the Outline Construction Environmental Management Plan (CEMP) submitted as part of this planning application.

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