

Greater Dublin Drainage Project Addendum

**Environmental Impact Assessment Report Addendum:
Volume 3A Part A of 6**

Chapter 7A Population and Human Health: Human Health

Uisce Éireann

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7. Population and Human Health: Human Health

7.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Chapter 7 (Population and Human Health: Human Health) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

Table 7.1 includes a summary of the project elements which were incorporated into the planning design for the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) following direction at the Oral Hearing in 2019 and the subsequent planning conditions applied to the 2018 planning application submission. A full description is included in Chapter 4A (Description of the Proposed Project) in Volume 2A Part A of the EIAR Addendum. The remaining elements of the Proposed Project included in the 2018 planning application remain unchanged.

Table 7.1: Updated Proposed Project Elements

Updated Element	Outline Description of Updated Element
Ultraviolet (UV) Treatment	<ul style="list-style-type: none"> • UV Treatment is to be included in the treatment process at the proposed wastewater treatment plant (WwTP) in the northern section of the WwTP site. • The UV treatment system will be designed for the expected flows at the plant and will be installed on the final effluent line. UV treatment will be in operation 24 hours a day, 365 days a year. • The UV system will consist of a minimum of three and a maximum of four treatment units located below or partially below ground level with an above-ground Motor Control Centre (MCC) (in a kiosk) along with minor maintenance and control equipment (e.g. shut-off button, frame for supporting, retracting and cleaning of UV lamps etc.).
River Mayne Culvert Extension	<ul style="list-style-type: none"> • Extension of the River Mayne Culvert on the proposed access road to the WwTP by 4m (from 21m to 25m) to cater for the full width of the future north south link road.

It is noted that Chapter 6A (Population and Human Health: Population) in Volume 3A Part A of this EIAR Addendum has considered the potential impacts on the surrounding population relating to factors such as economic activities, tourism, amenity and land use, as a result of the updates to the Proposed Project, as outlined in Table 7.1.

This Addendum Chapter focuses on identifying the areas within the EIAR Addendum where human health impacts have been assessed, drawing on their updated assessments to ensure that all relevant human health impacts have been appropriately considered to reduce / avoid adverse impacts. This Addendum Chapter should be read in conjunction with Chapter 7 (Population and Human Health: Human Health) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application.

This Addendum assessment has been prepared in accordance with the updated Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) which were published in 2022 (EPA 2022). Data has been collected primarily through a review of relevant documents listed in Section 7.1.1. An updated literature review on the potential impacts of sewerage and drainage schemes on human health has also been carried out and is detailed in Section 7.5.

Aspects examined in this Addendum Chapter primarily relate to the potential impacts from the updated elements of the Proposed Project on socio-economic activities and on local community health, in line with the approach adopted in Chapter 7 (Population and Human Health: Human Health) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application.

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Please note that the updated human health impact assessment of the proposed Regional Biosolids Storage Facility is addressed in Section 3A (Population and Human Health) in Volume 4A Part A of this EIAR Addendum.

7.1.1 Relevant Guidelines

The following updated guidelines and reference materials have been considered as part of this Addendum Chapter:

- International Association for Impact Assessment (IAIA) Addressing Human Health in Environmental Impact Assessment - As per EU Directive 2011/92/EU amended by 2014/52/EU. Consultation Draft. (hereafter referred to as Addressing Human Health in EIA) (IAIA 2019);
- Updated EPA Guidelines (EPA 2022);
- Institute of Environmental Management and Assessment (IEMA) Guide to: Effective Scoping of Human Health in Environmental Impact Assessment (IEMA 2022a);
- IEMA Guide to: Determining Significance For Human Health In Environmental Impact Assessment (IEMA 2022b);
- Former Department of Housing, Planning and Local Government (DHPLG) Guidelines for Planning Authorities and an Bord Pleanála on carrying out Environmental Impact Assessment, (DHPLG 2018);
- European Public Health Association (EUPHA) Addressing Human Health in Environmental Impact Assessment (EUPHA 2019);
- Impact Assessment Outlook Journal (Volume 8: October 2020) - Health Impact Assessment in Planning (IEMA 2020);
- Institute of Public Health (IPH) Health Impact Assessment Guidance (IPH 2021);
- Human Health Ensuring a High Level of Protection (IAIA 2020);
- World Health Organization (WHO) Environmental Noise Guidelines for the European Region (WHO 2018); and
- Air Quality Guidelines (WHO 2021).

7.2 Methodology

7.2.1 Introduction

This Section outlines any updates to the methodology that was used to assess the impact of the Proposed Project on human health since the submission of the EIAR in the 2018 planning application.

7.2.2 Health Impact Assessment and Environmental Impact Assessment

There are no updates to the information provided in this Section of the EIAR in the 2018 planning application, as all definitions and reference material provided remain unchanged.

7.2.3 Guidance on the Methodology for Assessing Human Health in Environmental Impact Assessment

This Section of the EIAR in the 2018 planning application considered the previous Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Draft EPA Guidelines) (EPA 2017). In May 2022, the EPA published the updated EPA Guidelines (EPA 2022) and these updates have been considered as part of this Addendum Chapter. The updated EPA Guidelines continue to note that:

'while no specific guidance on the meaning of the term Human Health has been issued in the context of Directive 2014/52/EU, the same term was used in the SEA Directive (2001/42/EC). The Commission's SEA Implementation Guidance states 'The notion of human health should be

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considered in the context of the other issues mentioned in paragraph (f)'. (Paragraph (f)47 lists the environmental factors including soils, water, air etc).'

The updated EPA Guidelines also continue to note that this health assessment approach is:

'consistent with the approach set out in the 2002 EPA EIS Guidelines where health was considered through assessment of the environmental pathways through which it could be affected, such as air, water or soil, namely:

'The evaluation of effects on these pathways is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors [protection criteria] for analysis relating to the environment'.

The updated EPA Guidelines continue to note that:

'In an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc.'

And that the:

'Assessment of other health & safety issues are carried out under other EU Directives, as relevant. These may include reports prepared under the Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment, Seveso III, Water Framework Directive, Floods or Nuclear Safety Directives. In keeping with the requirement of the amended Directive, an EIAR should take account of the results of such assessments without duplicating them.'

In 2022, IEMA published a Guide to: Effective Scoping of Human Health in Environmental Impact Assessment (IEMA 2022a) and a Guide to: Determining Significance For Human Health In Environmental Impact Assessment (IEMA 2022b) (collectively referred to as the 2022 IEMA Guides). The 2022 IEMA Guides place a further emphasis on the outcomes of the Health in Environmental Impact Assessment – A Primer for a Proportionate Approach (hereafter referred to as the 2017 Primer) (IEMA 2017). The 2017 Primer, which was considered in the EIAR in the 2018 planning application, was a primer for what a proportionate assessment of the impacts on health should be in Environmental Impact Assessment (EIA) and is a useful document when considering what can and should be assessed. The 2017 Primer outlined that there should be a greater emphasis on health outcomes, as opposed simply to the health determinants or the agents or emissions (e.g. dust) which could have the potential to have health effects, which had previously been the focus of EIA.

The 2017 Primer recommendations, as further supported by the 2022 IEMA Guides, remain entirely consistent with the updated EPA Guidelines and the information that should be contained in an EIAR when considering human health.

The 2017 Primer and 2022 IEMA Guides note that public health has three domains of practice that should be considered in the assessment of health in EIA:

- Health protection (including chemical and radiation exposure, health hazards, emergency response and infectious diseases);
- Health improvement (including lifestyle, inequalities, housing, community and employment); and
- Improving services (including service planning, equity and efficiencies).

It should be noted that the WHO defined health in its broader sense in the Constitution of the World Health Organization, which came into force in April 1948 (WHO 1948), as:

'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.'

Therefore, whilst the updated EPA Guidelines are useful in terms of health protection, for a more holistic assessment as per the 2017 Primer and 2022 IEMA Guides, it remains worthwhile to look at broader health effects in terms of opportunities for improvement of health and for improvement of access to services. While it is important to do this, it is also important not to attribute every conceivable event as being a health effect. To further rely on the WHO definition, a health effect would be something that would have a material impact on somebody's physical, mental and social well-being, be that positive or negative. As outlined in Addressing Human Health in EIA (IAIA 2019), which was published following the submission of the 2018 planning application, the public health perspective is underpinned by five principles:

- A comprehensive approach to health: Physical, psychological and social wellbeing is determined by a wide range of factors across society and consideration of these wider determinants and their interrelationships will inform the assessment of human health. Inter-sectoral collaboration, between public health and other sectors, should be a feature of coherent coverage of health in EIA;
- Equity: The distribution of health impacts across the population must be considered, paying specific attention to vulnerable groups. Where impacts that are unfair and avoidable are identified, appropriate measures must be included to avoid or reduce adverse health outcomes, or to improve health outcomes for affected groups;
- Transparency: A transparent EIA process facilitates cooperation and communication, external to the organisation conducting the EIA. It enhances the process and improves effectiveness. The reporting of the EIA must demonstrate a clear and consistent method and reasoned conclusions;
- Proportionality: The scoping of human health issues into EIA will focus on whether the potential impacts are likely to be significant. Effort is then focused on identifying and gaining commitment to avoiding or reducing adverse effects and to enhancing beneficial effects. The assessment findings should be presented clearly and aim to be concise and precise and to give appropriate weight to health as a material consideration; and
- Consistency: The assessment should be based on evidence and on sound judgment. The assessment process should follow an acceptable, explicit logic path and retain common sense in applying relevant guidance. Divergence from accepted practice should be explained. The assessment, its process and conclusions, should be in accordance with up-to-date policy, guidance and scientific consensus. This acknowledges the potential for conflict between policy and emerging evidence.

The assessment of potential impacts resulting in health effects on the population is undertaken by way of the following assessments, as detailed further below:

- Risk Assessment: to identify the potential risk to human health in response to identified hazards;
- Socio-economic impacts on human health;
- Impacts on amenity resources and subsequent effects on human health; and
- Potential for psychological effects.

Regard has been given to the general approach advocated in the 2017 Primer and the recently published 2022 IEMA Guides, in addition to the updated EPA Guidelines, when compiling this Addendum Chapter. However, it should be noted that following review, the updated guidelines have no material impact on the previous assessment completed as part of the EIAR in the 2018 planning application. Therefore, health protection, health improvement and improving services all continue to be considered in this Addendum Chapter of the EIAR Addendum, in line with the approach in the EIAR in the 2018 planning application.

7.2.4 Health Protection

The assessment of human health for the Proposed Project, in terms of health protection, follows the approach set out in the updated EPA Guidelines (EPA 2022), which remains consistent with the approach in the previous Draft EPA Guidelines (EPA 2017). Therefore, there is no change to the information presented in this Section of the EIAR in the 2018 planning application.

7.2.5 Health Improvement

The assessment of human health for the Proposed Project in terms of health improvement, continues to include an assessment on how the Proposed Project would impact on the socio-economics of the community, as outlined in this Section of the EIAR in the 2018 planning application.

7.2.6 General Amenity

There are no changes to the key criterion / impact assessment levels, in relation to general amenity, outlined in this Section of the EIAR in the 2018 planning application.

7.3 Baseline Environment

7.3.1 Sensitive Receptors

There is no change to the neighbouring occupied premises and land uses that should be considered in the assessment of human health impacts, and these continue to include the following:

- Homes;
- Hospitals;
- Hotels and hotel accommodation;
- Schools and rehabilitation workshops;
- Tourism and recreational facilities; and
- Visitor attractions.

A high level summary of any updates to the neighbouring premises and land uses from information provided in Section 6.3 of Chapter 6A (Population and Human Health: Population) in Volume 3A Part A of this EIAR Addendum is included below. The study areas remain unchanged (1km (kilometre) for the proposed wastewater treatment plant (WwTP) site and 500m (metres) for the proposed orbital sewer route, Abbotstown pumping station and outfall pipeline route (land based section and marine section), from those applied in the EIAR in the 2018 planning application for these receptors.

Using the latest GeoDirectory data (GeoDirectory 2023), it has been established that there are 4,994 residential buildings (including residential buildings with multiple units (e.g., apartments)) located across the study areas. This is an increase from 3,775 residential buildings in the baseline for the 2018 planning application. These locations are presented in Figure 6.1 in Volume 5A of the EIAR Addendum.

In terms of tourism and recreational facility receptors, the Holiday Inn Hotel has been built on Clonsaugh Road alongside the Topaz Service Station since the submission of the 2018 planning application. At the time of writing, the hotel was in use as a centre to accommodate asylum seekers. This is a temporary change of use which is subject to a planning exemption under the European Union (Planning and Development) (Displaced Persons from Ukraine Temporary Protection) Regulations 2022. This exemption is expected to expire on 31 December 2024, after which the original use will be reinstated.

The Baldoyle to Portmarnock Greenway was also constructed in the study area since the submission of the 2018 planning application (refer to Figure 6.6 in Volume 5A of this EIAR Addendum).

All other receptors listed in this Section of the EIAR in the 2018 planning application remain unchanged.

7.3.2 Community Profile

The most recently published Health Profiles for local authorities in Ireland remain as those published in 2015 (Health Service Executive Public Health Profile Working Group 2015a; 2015b), which were considered in this Section of the EIAR in the 2018 planning application.

7.3.3 Tourism

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application. Dublin remains a major tourist destination in Ireland. The provision of adequate sewerage facilities remains an important requirement for the operation of tourist facilities such as hotels, and in turn, the ability of areas to attract tourists and bring with it significant socio-economic benefits. These socio-economic benefits continue to be associated with health benefits.

7.4 Consultation

Following an Oral Hearing process, An Bord Pleanála (ABP) previously made a decision to grant the planning application by Order dated 11 November 2019 under reference number ABP-301908-18 for the Proposed Project. That decision was quashed by Order of the High Court and the case was remitted by that Court to ABP for a fresh determination. Following the remittal Order, ABP decided that given the passage of time since the submission of the original planning application, and in accordance with Section 37F(1)(c) of the Planning and Development Act 2000 (as amended), Uisce Éireann should have the opportunity to update, where appropriate, the EIAR and Natura Impact Statement, and any other information submitted.

In light of this, ABP contacted those who had made a submission as part of the original consultation process in 2018 advising that the case had been reactivated under a new reference number (ABP-312131-21) and invited those interested parties to make any further general submissions / observations on the planning application by 30 September 2022. A total of 16 submissions were received and were reviewed, with seven of these to be of relevance to this Addendum Chapter. In summary, these submissions commented on the following:

- Health effects due to odour;
- Effects on bathing water quality; and
- Psychological effects.

There are no other changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.5 Literature Review

An updated literature review was carried out on 1 August 2023 using the key words 'sewerage', 'drainage scheme' and 'sewerage scheme', in addition to 'wastewater treatment plant'. Results were filtered for the last five years in order to identify any relevant publications since the last review completed for the 2018 planning application which took place on 13 April 2018.

While there were a significant number of articles returned in the general search, relatively few were relevant to the Proposed Project and this assessment. One particular article, entitled, 'Thinking Outside the Treatment Plant: UV for Water Distribution System Disinfection' (Linden *et. al* 2019) strongly supported the effectiveness of ultraviolet (UV) treatment and recommended its use in wastewater treatment. Another article, entitled, 'Disinfection and antimicrobial processes' (Elnakar 2020) also supported the use of UV treatment and included studies of other methods to provide a comparison.

During the COVID-19 pandemic, there were a number of reports of SARS-CoV-2, the virus responsible for COVID-19, being identified in wastewater. However, there is no evidence that this is a potential source of transmission. It is important to note that several articles, such as the previously mentioned article entitled, 'Thinking Outside the Treatment Plant: UV for Water Distribution System Disinfection' (Linden *et. al* 2019) did identify UV treatment as an effective means of eliminating the virus from wastewater.

7.6 Significance of Health Impacts

There is no change to the significance criteria for the assessment of health presented in this Section of the EIAR in the 2018 planning application.

7.7 Impact of the Proposed Project

Environmental issues which have the potential to impact human health have been considered in detail within the relevant chapters throughout this EIAR Addendum. The updated assessment of human health in this Addendum Chapter has been based on the standards adhered to within the specialist chapters but has also been informed by professional judgement. In summary, the chapters contained in Volume 3A Part A of this EIAR Addendum in which human health issues are considered, are as follows:

- Chapter 8A (Marine Water Quality);
- Chapter 13A (Traffic and Transport);
- Chapter 14A (Air Quality, Odour and Climate);
- Chapter 15A (Noise and Vibration);
- Chapter 17A (Hydrology and Hydrogeology); and
- Chapter 18A (Soils and Geology).

7.7.1 Construction Phase

The key potential human health impacts during the Construction Phase remain the same as those presented in this Section of the EIAR in the 2018 planning application. The following sections include all information relating to human health, following the completion of updated assessments for the Construction Phase, which were carried out to inform this EIAR Addendum.

[Air Quality](#)

Please refer to Chapter 14A (Air Quality, Odour and Climate) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to air quality, odour and climate.

There are no new sources of emissions to atmosphere and no materially significant changes in the potential impacts compared to the assessments undertaken for the EIAR in the 2018 planning application. The extension of the River Mayne Culvert, as outlined in Section 7.1 will not introduce new sources of emissions as the same construction techniques will be used. The introduction of UV treatment, similarly, will not introduce any new sources of Construction Phase emissions at the proposed WwTP site. In addition, there are no materially significant changes in Construction Phase traffic movements predicted. Therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

[Noise](#)

Please refer to Chapter 15A (Noise and Vibration) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to noise and vibration.

There is no change to the criteria or guidance used for the assessment of Construction Phase noise impacts presented in this Section of the EIAR in the 2018 planning application.

There are no new sources of construction noise and vibration and no materially significant change in the magnitude of noise and vibration impacts compared to the assessments undertaken for the EIAR in the 2018 planning application. The proposed extension of the River Mayne Culvert (outlined in Section 7.1) will not introduce new sources of noise and vibration, as the same construction methodologies will be used for the extension, as proposed for the construction of the rest of the culvert. Similarly, the introduction of UV treatment will not introduce any new sources of noise and vibration, as the works proposed will be similar to other construction works at the proposed WwTP site. The assessment of impacts on human health as a result of noise from the Construction Phase of the Proposed Project remain as presented in this Section of the EIAR in the 2018 planning application.

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Traffic and Transport

Please refer to Chapter 13A (Traffic and Transport) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to traffic and transport.

There are no changes to the information presented in relation to road safety, unplanned events, and fear, intimidation and pedestrian amenity in Chapter 13A (Traffic and Transport) in Volume 3A Part A of this EIAR Addendum. Therefore, this Section of the EIAR in the 2018 planning application remains unchanged.

Marine Water Quality

Please refer to Chapter 8A (Marine Water Quality) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to marine water quality.

No changes have been made to the proposed construction methodology for the dredging of the proposed outfall pipeline route (marine section) since the submission of the 2018 planning application, and therefore, there remains no predicted impacts to human health as a result of the Construction Phase of the Proposed Project.

Hydrology and Hydrogeology

Please refer to Chapter 17A (Hydrology and Hydrogeology) in Volume 3A Part A of this EIAR Addendum for a detailed assessment of the updated impact assessment for the Proposed Project in relation to hydrology and hydrogeology. The following is an overview of the results of the updated impact assessment with respect to human health.

The Flood Risk Assessment (FRA) Report submitted as a standalone document in the 2018 planning application was reviewed for any updates to legislation and guidance, source information and to assess whether the updates to the Proposed Project elements would require any changes to the FRA. The Revised FRA is included as a standalone document in this Addendum. However, following review, there are no changes to the outcome of the FRA submitted as part of the 2018 planning application or to the information presented in this Section of the EIAR in the 2018 planning application. Therefore, there continues to be no significant hydrological impacts to human health predicted as a result of the Proposed Project.

The updated hydrogeology impact assessment completed as part of Chapter 17A (Hydrology and Hydrogeology) in Volume 3A Part A of this EIAR Addendum determined that there have been no changes to the hydrogeology baseline since the 2018 planning application and the construction of the updated Proposed Project elements, as outlined in Section 7.1, will have no impact on public supply wells. There therefore remains no potential for impacts on the yields or quality of public supply wells. In addition, the updated Proposed Project elements will have no impact on the Portmarnock Peninsula Irrigation Wells, as the updated elements are located at the proposed WwTP / access road to the proposed WwTP site, approximately 4.5km from Portmarnock Peninsula. Therefore, there continues to be no significant hydrogeological impacts to human health predicted as a result of the Construction Phase of the Proposed Project.

Soils and Geology

Please refer to Chapter 18A (Soils and Geology) in Volume 3A Part A of this EIAR Addendum for a detailed assessment of the updated impact assessment for the Proposed Project in relation to soils and geology.

The updated impact assessment determined that there were no additional Construction Phase impacts. Therefore, there are no changes to the information presented in relation to contaminated land in this Section of the EIAR in the 2018 planning application.

Psychological Impacts

The updated Proposed Project elements, as outlined in Section 7.1, are contained within the 2018 planning boundary and are not of a scale or nature that will cause an increase in the impacts outlined in this Section of the EIAR in the 2018 planning application. This Section, therefore, remains unchanged.

7.7.2 Operational Phase

The key potential human health impacts during the Operational Phase remain the same as those presented in this Section of the EIAR in the 2018 planning application.

The following sections include all information relating to human health, following the completion of updated assessments for the Operational Phase, which were carried out to inform this EIAR Addendum.

Health Improvement

The information presented in this Section of the EIAR in the 2018 planning application remains valid. An efficient and functioning wastewater system is a necessity for both residential and economic development in a modern economy, in addition to being essential to public health. The Proposed Project continues to have the potential to provide opportunities for health improvements by providing the essentials for residential and economic development.

The inclusion of UV treatment will have a positive impact, as it will further reduce microbial counts. Although modelling completed as part of the assessment for the EIAR in the 2018 planning application confirmed that even in a worst case scenario at the proposed WwTP facility, including a total process failure, there would be no impact on bathing water quality or at Blue Flag beaches, UV disinfection will facilitate reduced microbial count levels (i.e. beyond compliance), and from first principles, its use will only be of benefit.

The Proposed Project remains a key infrastructural element to ensure that wastewater generated from the continued growth and economic development of the Greater Dublin Area (GDA) is appropriately treated in order to safeguard human health and the environment. It is clear from the updated assessments for this EIAR Addendum that there is still a critical need to increase the wastewater treatment capacity currently available to the GDA, particularly as the Central Statics Office (CSO) Census 2022 summary results (CSO 2023) show that the population is increasing, as projected in the GDA.

Air Quality

Please refer to Chapter 14A (Air Quality, Odour and Climate) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to air quality, odour and climate.

The proposed UV system will be located below, or partially below, ground level with an above-ground motor control centre (MCC) (in a kiosk). There are therefore no new emission sources associated with the UV system and the enclosure will ensure that potential emissions are contained. In addition, there are no materially significant changes in Operational Phase traffic movements predicted. Therefore, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

Noise

Please refer to Chapter 15A (Noise and Vibration) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to noise and vibration.

As outlined in Section 7.1, the proposed UV system will be located below-ground, or partially below-ground level, with an above-ground MCC (in a kiosk). There are no materially significant noise sources associated with the UV system and the kiosk housing the control equipment will ensure that noise is not audible outside of the enclosure. There are therefore no new sources of operational noise and vibration and no materially significant change in the magnitude of noise and vibration impacts compared to the assessments undertaken in the EIAR in the 2018 planning application. The assessment of impacts on human health, as a result of noise

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resulting from the Operational Phase of the Proposed Project, remain as presented in this Section of the EIAR in the 2018 planning application.

Traffic and Transport

Please refer to Chapter 13A (Traffic and Transport) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to traffic and transport.

There are no changes to the information presented in relation to road safety, unplanned events, and fear, intimidation and pedestrian amenity in Chapter 13A (Traffic and Transport) in Volume 3A Part A of this EIAR Addendum. Therefore, this Section of the EIAR in the 2018 planning application remains unchanged.

Marine Water Quality

Please refer to Chapter 8A (Marine Water Quality) in Volume 3A Part A of this EIAR Addendum for the updated impact assessment for the Proposed Project in relation to marine water quality.

In 2023, three beaches in the study area were awarded a Blue Flag Award (previously only one beach was awarded a Blue Flag when submitting the 2018 planning application (i.e. Velvet Strand)):

- Velvet Strand in Portmarnock;
- Balcarrick Beach in Donabate; and
- South Beach in Rush.

As noted in Section 7.1, UV treatment has been included at the proposed WwTP, and as a result, updated marine water quality modelling was undertaken for the Operational Phase to include for this additional level of wastewater treatment. The extensive updated modelling undertaken as part of Chapter 8A (Marine Water Quality) in this EIAR Addendum demonstrates that the Proposed Project will have an Imperceptible impact on the designated bathing waters and the Blue Flag beaches. No impacts to human health continue to be predicted as a result of the Operational Phase of the Proposed Project.

Hydrology and Hydrogeology

Please refer to Chapter 17A (Hydrology and Hydrogeology) in Volume 3A Part A of this EIAR Addendum for a detailed assessment of the updated impact assessment for the Proposed Project in relation to hydrology and hydrogeology.

The updated impact assessment in Chapter 17A (Hydrology and Hydrogeology) continues to predict no hydrology or hydrogeology related human health impacts associated with the Operational Phase of the Proposed Project.

Soils and Geology

Please refer to Chapter 18A (Soils and Geology) in Volume 3A Part A of this EIAR Addendum for a detailed assessment of the updated impact assessment for the Proposed Project in relation to soils and geology.

The updated impact assessment in Chapter 18A (Soils and Geology) continues to predict no soils and geology related human health impacts associated with the Operational Phase of the Proposed Project.

7.8 Mitigation Measures

As outlined in this Section of the EIAR in the 2018 planning application, the Proposed Project, including the new elements outlined in Section 7.1, will be designed and constructed to best industry standards and practices. The Proposed Project continues to aim to reduce health risks to employees, local residents and the community it will serve.

The updates to the Proposed Project elements were assessed and deemed not to result in any additional impacts, above those identified in the original Chapter 7 (Population and Human Health: Human Health) in Volume 3 Part A of the EIAR in the 2018 planning application. There is therefore no requirement for additional mitigation measures, above the measures outlined in this Section of the EIAR in the 2018 planning application. The mitigation measures outlined in this Section of the EIAR in the 2018 planning application will be implemented. As a result, there are no changes to the information presented in this Section of the EIAR in the 2018 planning application.

7.9 Residual Impacts

The updates to the Proposed Project elements were assessed and deemed not to result in any additional impacts, above those identified in the original Chapter 7 (Population and Human Health: Human Health) included in Volume 3 Part A of the EIAR in the 2018 planning application. The residual impacts therefore remain, as presented in this Section of the EIAR in the 2018 planning application.

7.10 Oral Hearing

During the 2019 Oral Hearing, a number of queries were raised in relation to human health impacts, and further clarification was provided in the 'Response to Human Health Questions' brief of evidence delivered to the Inspector and the public on 28 March 2019. This brief of evidence is included in Appendix A7.1 in Volume 3A Part B of this EIAR Addendum. The clarifications provided were checked against the updates provided in this Addendum Chapter and remain valid.

7.11 Conclusion

The overriding purpose of the Proposed Project remains to provide a long-term sustainable drainage solution that will cater for existing and future development in the GDA. The Proposed Project remains a key infrastructural element to ensure that wastewater generated from the continued growth and economic development of the GDA is appropriately treated in order to safeguard human health and the environment. It is clear from the updated assessments for this EIAR Addendum that there is still a critical need to increase the wastewater treatment capacity currently available to the GDA, particularly as the Census 2022 summary results (CSO 2023) show that the population is increasing, as projected, in the GDA.

The overall impact of the Proposed Project remains as overwhelmingly positive, and this is further enhanced by the inclusion of UV treatment.

7.12 References

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