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An Bord Pleanála Oral Hearing

Irish Water

Greater Dublin Drainage

Brief of Evidence

Human Health

Dr. Martin Hogan

**GDD Oral Hearing
Brief of Evidence of Dr. Martin Hogan
Human Health**

Qualifications and Role on the Project

- 1 I, Dr MARTIN GERARD HOGAN, hold a primary medical degree from University College Cork (1987).
- 2 Among other qualifications, I am a Fellow of the Faculty of Occupational Medicine of the Royal College of Physicians of Ireland and I am also a Fellow of the Royal College of Physicians of Ireland since 2009.
- 3 I am a registered specialist in occupational medicine with the Irish Medical Council. I am currently a full time Consultant Occupational & Environmental Physician and Managing Director of Corporate Health Ireland Cork.
- 4 I am a past Dean of the Faculty of Occupational Medicine of the Royal College of Physicians of Ireland. I am a Lecturer in Toxicology, University College Cork. I am a specialist trainer in occupational medicine since 1997. I am an examiner with the Faculty. I am a Member of the Board of the International Commission of Occupational Health.
- 5 My areas of special interest are, Toxicology, Environmental Health effects of Industry, Occupational Asthma, Health effects of Noise and Occupational Hygiene.
- 6 I have prepared human health impact assessments for many projects such as Dart Underground, Metro North, Carrenstown incinerator, Dublin Airport runway and many others.
- 7 My role in the Proposed Project involved undertaking the Human Health Assessment for the proposal and wrote the Human Health section in Chapter 7 of the Environmental Impact Assessment Report.
- 8 I have been working on the project since May 2018. The work that I have undertaken in relation to the Proposed Project includes:
 - Developing the Human Health Assessment;
 - Review of Community Health Profile;
 - Literature review in relation to experience from similar projects;
 - Review of relevant health effectors such as Air Quality, Noise etc. with particular emphasis on potential human health effects possible as a result;
 - Review of submissions made after publication of the Environmental Impact Assessment Report; and
 - Preparation of a report in response to submissions received.

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Summary of Likely Significant Effects and Mitigation Measures

- 9 An extensive assessment of the potential impacts on Human Health has been outlined in Chapter 7 Population & Human Health. It is identified that human waste is inevitable from any human activity. The proposed scheme does not produce any waste but rather provides the necessary infrastructure to treat and dispose of wastewater and the overall scheme is necessary for a growing population. From a Human Health perspective, not efficiently handling and treating sewage is intolerable.
- 10 The Proposed Project will 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 and will be carried out in compliance with the relevant EU Directives and Irish regulations on water quality.
- 11 As outlined in Chapter 7 Population & Human Health of the Environmental Impact Assessment Report there is potential for socio-economic gain including economic growth and residential development. Improved socio-economic status is well recognised as resulting in a positive impact on health outcomes. As outlined in the EIAR there is potential for increased employment and reduced unemployment particularly long-term unemployment. If this is achieved, there will also be benefits in terms of social health including decreased social inequality.
- 12 From a community perspective, there are clear benefits in terms of health protection, opportunities for health improvements and access to services. There are however a limited number of individuals, primarily those living close to the construction of the Proposed Project for whom there may be slight adverse outcomes in terms of noise and air quality during the Construction Phase. These impacts will be minimised by use of mitigation measures.
- 13 As set out in Chapter 7 of the Environmental Impact Assessment Report, in the event that the Proposed Project does not proceed, the absence of wastewater treatment as an indirect effect is likely to continue to be a constraint on the economic and physical growth of the Greater Dublin Area.
- 14 Inappropriate or improper treatment of human waste is simply intolerable in human health terms. This would give the potential for the transmission of disease as a direct result from contact with human excrement and indirectly from associated aspects such as increase in vermin.

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Submissions/Objections Received and Responses

Odour

- 15 The issue of odour very extensively covered in Chapter 14 Air Quality, Odour and Climate, in the EIAR and Section 8.2.3 of the Response Document. An extensive mitigation plan is outlined in this Chapter. While odour is not in itself a health effect, this topic is also extensively covered in Chapter 7, Population and Human Health. It is clear from the assessment that with the odour control plans in place no adverse effects on human health are anticipated.

Marine Water Quality

- 16 Chapter 8 Marine Water Quality details extensive mitigation in both the construction and operational stages which will ensure the maintenance of optimum water quality.
- 17 As mentioned in Paragraph 7.7.3 of Chapter 7 Population and Human Health and section 8.2.2 of the Response Document, for the operational phase a modelling study was undertaken to assess the potential impacts of the proposed outfall pipeline route under three water quality modelling scenarios representing average daily flow conditions, flow to full conditions and a process failure scenario. The results of this is the main risk to the health of bathers is the presence of e coli in the water. The bathing water standards in that regard are sufficient to protect human health and the modelling confirms that the Proposed Project will not cause any bathing water standards, neither for e coli or for Intestinal Enterococci, to be exceeded even in a worst case scenario.

Air Quality

- 18 A number of submissions mention air quality and potential effects on air quality during the construction and operational stages. In particular, a number of submissions referred to particulates. Air quality has been extensively assessed in Chapter 14 Air Quality, Odour and Climate. This assessed all the emissions to air including dusts and particulate matter. These concerns were also addressed in section 8.2.2 of the Response Document.
- 19 In general, the assessment is that the construction phase, like virtually all construction activity, can give rise to some dust in the immediate vicinity however the impact of this is assessed as no greater than medium. It is important to realise that the assessment has been extremely conservative, modelling on worst case scenarios. It assumes worst case weather conditions and maximum emissions, It includes for example emissions from construction traffic as well as construction activities themselves,
- 20 However, no dust levels will exceed Air Quality Standards. This means that the potential effect on Human Health is slight or negligible. There will be no lasting impact and the short-term impact can be managed by means of an effective mitigation measures.
- 21 For the Operational Phase I would again refer to chapter 14 Air Quality, Odour and Climate where the air quality predictions are presented in Appendix A14.5 for every modelling scenario and meteorological year assessed for the proposed Abbotstown pumping station site, Dubber and the proposed Wastewater Treatment Plant at Clonshagh.
- 22 Model executions show that for each of the assessed air quality parameters demonstrated that emissions from the facility will not cause air quality standards to be exceeded. Because of this we will can be confident there will be no adverse human health effects from particulate matter or indeed any other aspect of air quality.

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Sensitive Individuals

- 23 The EPA's (2015) Advice Notes for Preparing Environmental Impact Statements Draft indicates that neighbouring occupied premises and land uses that should be considered include the following:
- Homes;
 - Hospitals;
 - Hotels and hotel accommodation;
 - Schools and rehabilitation workshops;
 - Tourism and recreational facilities; and
 - Visitor attractions.
- 24 It is noted that receptors have also been identified within each of the specialist chapters and assessed in line with the study area requirements, guidance and methodologies relevant and specific to those assessments.
- 25 It was established that there are, in total, 3,775 residential dwellings located within the study areas for the proposed WwTP site, orbital sewer route, Abbotstown pumping station site and the outfall pipeline route (land based section and marine section).
- 26 Healthcare and educational facilities were identified within Section 7.3 of Chapter 7 Population and Human Health of the EIAR. Table 7.2 summarises the details of these facilities and for each of these receptors it includes a list of the relevant Proposed Project elements that are closest. A number of submissions mention the presence of vulnerable individuals. These may be in these hospitals or living in the area in nursing homes or but also living elsewhere. The concept of sensitive individuals was extensively dealt with in Chapter 7 (and section 8.2.6 of the Response Document) and many sensitive locations identified. The use of health-based standards such as Air Quality Standards is designed to protect the vulnerable not the robust. As previously mentioned there will be no breaches of Air Quality Standards and therefore we can be confident that there will be no health affects even for sensitive individuals.

Vermin

- 27 As outlined in Section 8.3.2 of the Response Document, during and after construction there will have vermin management in place. This will be in accordance with best industry practice.

CPE (and Other Infections)

- 28 As outlined in Section 8.3.1 of the Response Document, CPE is an antibiotic resistant bacterium which can particularly cause serious issues for hospital patients. The HSE have issued several useful documents on CPE which are easily accessible on the web.
- 29 The biggest danger for spread of CPE right now is in hospitals and nursing homes. This is because people in hospitals and nursing homes are more likely to carry CPE.
- 30 CPE cannot be transported any significant distance by air. Adequate treatment standards will ensure that CPE, or other infections will not be present in treated effluent to an extent posing a risk to human health and there are no other pathways by which CPE can be spread by the Proposed Project.

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Connolly Hospital

- 31 Several submissions referred to the potential effects on Connolly Hospital. The potential effects have been extensively outlined in the EIAR and the Response Document but for clarity I would like to highlight certain aspects. Chapter 15 Noise and Vibration specifically assessed impacts on Connolly Hospital. It identified that while there are no specific noise criteria for hospital wards for construction works, but the UK Department of Health's (2013) Health Technical Memorandum 08-01: Acoustics sets limits that are applicable for operational hospital noises which, for night-time, are 35dB LAeq,1hr for multi-bed wards, single-bed wards and recovery rooms. The nearest part of the hospital is the West Wing. It was noted in Chapter 15 Noise and Vibration that the windows at Connolly Hospital will be required to be closed at all times during construction works as part of the air quality mitigation measures in order to control dust intrusion. With closed windows the noise levels inside the hospital is well within the Health Technical Memorandum criteria, and in addition to the Not Significant impact rating. We can be confident therefore that will be no human health effects from noise in Connolly Hospital
- 32 In Chapter 14 Air Quality Odour and Climate Connolly Hospital was also considered in relations to impacts on Air Quality and also specifically in relation to Aspergillus. As no Air Quality Standard will be exceeded no Human Health Impacts are predicted. In addition, with the implementation of *The National Guidelines for the Prevention of Nosocomial Invasive Aspergillosis During Construction/Renovation Activities*, any risk associated with Aspergillus will be negated

HSE

- 33 As outlined in Section 8.4.1 of the Response Document, this submission asserts that it was "*concerned primarily with highlighting issues of Public Health and Environmental Health*". The submission was based on a review of relevant documentation including the EIAR, including Chapter 7 Human Health, Chapter 14 Air Quality, Odour & Climate and Chapter 15 Noise and Vibration in Volume 3 Part A of the Environmental Impact Assessment Report.
- 34 Apart from suggested monitoring in relation to noise, vibration and air quality amongst others, it does not identify any potential health effects or indeed any deficiency in the Environmental Impact Assessment Report in relation to the methodology and assessment of the potential impact on human health. It should be noted that the suggestions made by the HSE have been agreed for implementation by the Applicant.
- 35 The overall assessment of the impact on human health of the Proposed Project as detailed in Chapter 7 Human Health in Volume 3 Part A of the Environmental Impact Assessment Report was positive in terms of human health.
- 36 This has been reflected in the conclusion of the HSE Report which asserts that the Environmental Impact Assessment Report adequately assessed the above comments.

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Conclusion

- 37 Some, relatively minor, adverse effects, mainly in the form of annoyance are predicted in the Construction Phase mainly due to emissions including Noise and Vibration. These are restricted to those who live, work or occupy the areas in the immediate vicinity of the construction activity. Extensive mitigation is outlined in the Environmental Impact Assessment Report which will minimise this. The effects will be time limited. No significant adverse effects on Human Health are predicted.
- 38 The operational phase of the scheme will bring significant benefits. It will allow for socio economic development. This will include much needed housing but also development in relation to employment and leisure and other activity. Improving socio economic status is one of the most efficient means of improving Public Health. The benefits will be to a large population and ongoing. The alternative of not having such a scheme is intolerable from a human health perspective.
- 39 Overall, the impacts in human health of the Operational Phase Proposed Project were assessed in the Environmental Impact Assessment Report as overwhelmingly positive.