An Bord Pleanála

Inspector's Report ABP-301798-18

Development	10-year permission for development of the Ringsend wastewater treatment plant upgrade project including a regional biosolids storage facility
Location	Ringsend Wastewater Treatment Plant, Pigeon House Road, Dublin 4 and Newtown, North Road (R135), Dublin 11
Planning Authority	Dublin City Council South and Fingal County Council
Planning Authority Reg. Ref.	n/a
Applicant(s)	Irish Water
Type of Application	Application under the Provisions of S37E of the Planning and Development Act 2000, as amended.
Planning Authority Decision	n/a
Date of Site Inspection	9th October 2018 & 10th October 2018
Inspector	Patricia Calleary

Contents

1.0 Introduction

1.1. This report relates to the assessment of a planning application made direct to An Bord Pleanála by Irish water under the Provisions of S37E of the Planning and Development Act 2000, as amended (hereinafter referred to as the 'Act'). Permission is sought for revisions and alterations to the existing and permitted development of the Ringsend Wastewater Treatment Plant (WwTP) at Pigeon House Road in Dublin 4, referred to as **component number one** and for a new Regional Biosolids Storage facility (RBSF) at Newtown, Dublin 11 referred to as **component number two**.

1.2. The revisions and alterations proposed to the Ringsend WwTP would broadly comprise the omission of the previously approved 9km-long sea outfall tunnel (LSOT) and the associated relocation of the existing effluent discharge point. Instead, it is now proposed to incorporate Aerobic Granular Sludge (AGS) technology into the secondary treatment process together with associated nitrogen (N) and phosphorous (P) removal which it is stated would significantly improve the standard of effluent treatment at the existing wastewater treatment plant. Consequently, it is also proposed to continue to discharge treated effluent through the existing outfall at the Liffey Estuary.

1.3. The proposed RBSF would be developed and used to store biosolids arising out of the treatment of sludge generated at the Ringsend WwTP prior to their re-use on agricultural lands.

2.0 Project Background

2.1. On the 16th November 2012, An Bord Pleanála granted approval to Dublin City Council (ABP Reference Number: 29N.YA0010) for development at the Ringsend Wastewater Treatment known as the 2012 Approval. The 2012 Approval permitted an expansion of the existing Ringsend WwTP to an average daily capacity of 2.4 million population equivalent (PE) in terms of reduction of Biochemical Oxygen Demand (BOD) and Suspended Solids (SS) and it included the following elements:

- Additional secondary wastewater treatment capacity at the wastewater treatment works site including associated solids handling and ancillary works;
- A 9-km-long sea outfall in tunnel (LSOT), commencing at an onshore inlet shaft approximately 350m east of the wastewater treatment works and terminating in an underwater outlet riser/diffuser in Dublin Bay;
- Various process improvement works known as surgical works;
- Road network improvements during the construction phase.

2.2. Two applications were subsequently made to alter the terms of the 2012 Approval (29N.YM0002 & 29N.YM0004) and An Bord Pleanála approved the alterations sought. An application for further alterations to the 2010 Approval is currently with the Board (29N.YA0010). Details of these are set out under the heading 'Planning History'.

2.3. Certain elements of the 2012 Approval works are stated to have been advanced, primarily comprising preparatory works, mechanical plant installation and construction of access roads.

3.0 Site Location and Description

3.1. Ringsend WwTP site

3.1.1. Ringsend WwTP is located on the Poolbeg peninsula, at the mouth and south of the River Liffey in Dublin city. Treated effluent from the plant discharges to the Lower Liffey Estuary, c.1km to the east. The site with a stated 17.9 ha is located adjacent to and immediately west of ESB Poolbeg Power Station and immediately east of the Dublin Waste to Energy (WtE) facility. Irishtown Nature Reserve comprising an amenity grassland area is located immediately south. In the wider environment, Dublin city is located to the west and Dublin Bay is located to the east.

3.1.2. The Poolbeg peninsula is characterised by industrial, utility and amenity uses with dock facilities to its north. Poolbeg West is designated under Section 166 of Part IX of the Planning and Development Act 2000, as amended, as a Strategic Development Zone (SDZ) with provision for between 3000 and 3500 units as well as

commercial and other uses. In October 2017, under the provisions of the Planning and Development Act 2000, as amended, Dublin City Council decided by resolution to make the Poolbeg West Planning Scheme, which covers an area of 34ha immediately adjoining the south and west of the Ringsend WwTP site. At the date of this assessment and subsequent an appeal to the Board, the Poolbeg West Planning Scheme (ABP Ref. PL29S.ZD2013) remains under consideration by the Board. Part of the Ringsend WwTP application site incorporating a proposed temporary construction compound, C1, is located within the lands associated with the planning scheme.

3.1.3. Access to the site is along Pigeon House Road and through walkways associated with Irishtown Nature Reserve to the south. There are no residential properties in the immediate vicinity of the site. The existing outfall from the WwTP is positioned c.1km to the east of the plant, just east of the ESB Poolbeg Power Station. The wastewater discharge is mixed with water from the ESB power station which is used to cool the gas turbines at the power station before being discharged to the river.

3.1.4. The following provides a summary of the current treatment process which occurs at the Ringsend WwTP.

- **Preliminary Treatment:** includes flow management, stormwater handling and storage, screening and grit removal;
- **Primary Treatment:** comprises sedimentation and creating a primary sludge for treatment;
- **Secondary Treatment:** comprises a biological process which creates an activated sludge stream;
- **Disinfection:** comprises ultra-violet radiation to reduce the pathogenic and other organisms in the final effluent discharge;
- **Sludge Thickening:** comprises thickening, to reduce the volume, and storage of the primary and activated sludges;
- **Sludge Treatment:** comprises hydrolysis and anaerobic digestion which breakdown and stabilise the biological component in the sludge, producing energy as a by-product; and

- **Sludge Drying and Dewatering:** comprises drying or dewatering of the treated sludge, producing biosolids in the form of biofert and biocake.

3.2. Regional Biosolids Storage Facility (RBSF) site

3.2.1. The site of the Regional Biosolids Storage Facility (RBSF) occupies a stated 11 ha, located in Fingal at Newtown in Dublin 11, c.19km from the Ringsend WwTP site. It is bounded to the east by the R135 regional road and the N2 national primary road lies further east and curves around to the north. There is an established detached house and a scheme of eight residential units[1] and a community building under construction, located c. 25 metres from the site boundary, to the south east. The Dog's Trust is also located c. 250m to the south of the site.

3.2.2. To the immediate north there is an area of semi-natural dry meadow grassland. The site is bounded to the west and south by a stream which is a tributary of the Hunstown stream. The Hunstown stream connects with the River Ward approximately 4 km north of the proposed RBSF site. Hunstown quarry lies to the south and west and Hunstown power station lies to the south. 38 kV and a 110 kV electricity supply lines traverse the site. The surrounding area is primarily occupied by industrial, commercial and warehousing premises and Dublin Airport logistics park lies to the east of the site.

3.2.3. Fingal County Council (FCC) was granted approval by An Bord Pleanála under Ref. 06F.EL2045 (21st April 2006) for a waste recovery facility at the proposed RBSF site. Certain enabling works have since been carried out on site including the removal of vegetation and the construction of roads and other hard-standing areas. The development did not proceed further.

4.0 Proposed Development

4.1. Permission is sought for a ten-year period to carry out revisions to the development

[1] A scheme of six residential units was originally permitted on the adjoining site in 2015 and following an application for alterations, two additional units were permitted in 2018. The details are set out under the heading of 'Planning History'. It is assumed throughout this report that the construction underway includes eight houses.

which was approved in 2012 at the Ringsend WwTP. The primary difference in the revisions now before the Board and that previously approved is the proposal for the inclusion of AGS technology at the secondary treatment stage and the elimination of the 9-km undersea tunnel/LSOT while continuing to discharge at the existing outfall instead. The development would also comprise the construction of a RBSF at Newtown in Dublin 11. The purpose of the development of the RBSF is to store treated wastewater sludge in the form of biosolids prior to its re-use as a fertiliser / soil conditioner on agricultural lands. The biosolids would be primarily generated from treated sludge at the Ringsend WwTP and the proposed Greater Dublin Drainage (GDD) WwTP[2] as well as other Fingal municipal wastewater treatment plants. The facility would be used for storage of biosolids only and no treatment of sludge would take place.

4.2. The Ringsend WwTP has an existing discharge authorisation licence (D0034-01) in accordance with the requirements of the Waste Water Discharge (Authorisation) Regulations 2007, as amended. The licence was granted by the EPA in 2010 and has been amended in 2016 and 2018. It is proposed to continue to operate the plant as a live plant during construction.

4.3. Specific elements of the proposed development at each of the two sites are listed below.

4.3.1. **Ringsend WwTP**

- Proposals to reconfigure and retrofit up to 24 of the existing Sequencing Batch Reactor (SBR) tanks to facilitate the use of new Aerobic Granular Sludge (AGS) technology;
- Associated works including a sludge pasteurisation building and a phosphorous recovery building;
- Use on a permanent basis of a vehicular entrance granted a temporary permission under ABP Ref. 29N.YM0002 off Pigeon House Road;

[2] The GDD WwTP proposal is being progressed as a separate strategic infrastructure development planning application and is currently with the Board for its consideration.

- Underground electrical connection to an existing underground ESB cable along the south west corner of the southern boundary;
- Bypass culvert, ultraviolet lamps, internal road configurations and additional car parking;
- Continued use of two temporary construction compounds (C1 and C2), previously permitted for three years under ABP Ref. 29N.YM0004, for 10 years;
- Omission of the previously approved 9-km undersea tunnel / LSOT and the continued use of the existing outfall to the River Liffey serving the Ringsend WwTP;
- Omission of three temporary construction compounds previously permitted.

4.3.2. **RBSF**

- Demolition of a number of small structures, removal of internal roads and partial removal/diversion of existing drainage infrastructure;
- Provision of two biosolids storage buildings with a combined capacity to store up to 48,000 cubic metres of biosolids at any one time;
- Installation of odour control flues;
- Provision of mechanical and electrical control building and an administration building;
- Use of existing vehicular access off the R135.

4.4. Throughout the planning application documentation, reference is made to the '**Proposed Upgrade Project'** which is intended to mean the proposed development which is the subject matter of the current strategic infrastructure development (SID) application in combination with the elements of the 2012 Approval which are also being progressed. The relationship between the proposed development which is the subject matter of the current application and the 2012 Approval are set out in diagrammatic format in Figure 10 of the applicants planning report and Table 8 of the

report presents a list of the specific work elements proposed. The Environmental Impact Assessment Report (EIAR) accompanying the current application addresses the overall 'proposed upgrade project'. The proposed development is identified in the documentation as comprising two principal components as follows:

- **Component 1** - Ringsend WwTP: Upgrade works at the Ringsend WwTP;
- **Component 2** - RBSF: A Regional Biosolids Storage Facility at Newtown.

4.5. The planning application is accompanied by the statutory documents and drawings required for a SID application. It is also accompanied by a Planning Report, Technical Reports including Greater Dublin Drainage Study: Overview & Future Strategic Needs, Flood Risk Assessments for both sites, Engineering Design Report – RBSF and Architectural Design Statement – RBSF, an EIAR for both the Ringsend Wastewater Treatment Plant Upgrade Project and the Regional Biosolids Facility (Volumes 1 to 4 inclusive along with several supporting documents as appendices) and an Appropriate Assessment Screening Report and Natura Impact Statement. Following receipt of all reports and submissions by various consultees and observers, the applicant furnished a written response to the reports and submissions.

5.0 Planning History

5.1. The Ringsend WwTP has operated on its current site within the Poolbeg Peninsula since the early 20th century. An activated sludge system was introduced at the plant in the 1960s. Further improvement works were undertaken incrementally including the construction of a new inlet works, SBRs and new sludge handling facilities.

5.1.1. Approvals at the Ringsend WwTP site

An Bord Pleanála Ref. **29N.YA0010** – The Board granted approval (16th November 2012) for the following: Ringsend Wastewater Treatment Works Extension Project which would expand the existing wastewater treatment to its ultimate capacity of 2.4 million PE within the confines of its current site and achieve the required discharge standards. The proposed extension includes the following elements:

- Additional secondary wastewater treatment capacity at the wastewater treatment works site (c.400,000 PE) including associated solids handling and ancillary works;
- A 9-km LSOT commencing at an onshore inlet shaft approximately 350m east of the wastewater treatment works and terminating in an underwater outlet riser/diffuser in Dublin Bay;
- Road network improvements in the vicinity of the site (during the construction phase);

5.1.2. Alteration Decisions on the Ringsend WwTP site

- **PL29N.YM0002** – In June 2016, the Board altered the Approval in respect of certain temporary works and removal of temporary landscaping bunds at the Ringsend WwTP site;
- **PL29N.YM0004** – In January 2018, The Board altered the Approval to allow for the omission of three construction site compounds previously permitted and the provision of three new temporary construction site compounds at the Ringsend WwTP site;
- **ABP-301773-18** (current application) - This is a concurrent application whereby a request is sought by Irish Water to alter the terms of the 2012 Approval (29.YA0010). The nature of the request relates solely to condition no.1 attached to the Approval;

5.1.3. Planning Applications in the vicinity of the Ringsend WwTP site

- **An Bord Pleanála Reg. Ref. No. PL29S.ZD2013** – Poolbeg SDZ Planning Scheme appeal is currently under consideration by An Bord Pleanála;
- **An Bord Pleanála Reg. Ref. No. PL29S.EF2022** – Dublin Waste to Energy / Covanta granted permission on 19th Nov 2007;
- **An Bord Pleanála Reg. Ref. No. PL29N.PA0034** – Alexandra Basin Redevelopment (Dublin Port) granted permission on 8th July 2015;

- **Dublin City Council Reg. Ref. 2656/16** – National Oil Reserves Agency granted permission on 13th April 2016 for redevelopment/extensions;

5.1.4. Planning Applications on the RBSF site

- **PL06F.EL2045** – In April 2006, An Bord Pleanála granted approval to FCC for development of a construction and demolition waste recovery facility processing 75,000 tonnes per annum (tpa), a biological waste treatment facility treating 45,000 tpa of segregated domestic and commercial organic waste; a waste transfer facility processing 65,000 tpa of municipal solid waste and a sludge hub centre treating 26,511 tpa of municipal sludge;
- **FCC Reg. Ref. F08A/0624** – In August 2008, permission was granted to ESB to divert a section of the existing Finglas-Ashbourne 38kv line;

5.1.5. Planning Applications in the vicinity of the RBSF site

- **FW13A/0089/E1** – On 19th January 2018, FCC granted an extension of permission for the construction of a 3.6 MW renewable bioenergy plant;
- **F18/0146** – On 16th May 2018, FCC granted permission for a storage and distribution centre for new and imported vehicles;
- **F16A/0128** – On 30th March 2016, FCC granted permission for industrial and warehouse development;
- **FW14A/0162** On 2nd June 2015, FCC granted permission for the demolition of two houses and the construction of six new houses. Permission was subsequently granted on 11th June 2018 under **FW18A/0038** for amendments to develop an additional building to accommodate two additional residential units.

5.1.6. EPA Licence

- **Reg Ref. D0034-01** - Under the provisions of the Wastewater Discharge (Authorisation) Regulations 2007, as amended, the EPA granted a licence (July 2010) to discharge treated effluent into the Lower River Liffey. The licence was subsequently amended under Technical Amendments A and B.

5.1.7. Compulsory Purchase Order

- The lands at Newtown, North Road (R135) Dublin 11 were the subject of a separate application made under Section 37A of the Planning and Development Act, 2000, as amended, providing for the compulsory purchase of those lands. No objections were received in relation to the CPO.

6.0 Legislative and Policy Context

6.1. The following sets out the European, national, regional and local legislative and planning policy framework relevant to the assessment of the application.

6.1.1. **European Directives**

6.1.2. European Union Water Framework Directive 2000/60/EC (WFD) was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters and includes heavily modified and artificial waterbodies. The overarching aim of the WFD is to prevent further deterioration of and to protect, enhance and restore the status of all bodies of water with the aim of achieving at least ‘good’ ecological status by 2015 (or where certain derogations have been justified to 2021 or 2027).

6.1.3. The European Union Urban Waste Water Treatment Directive 91/271/EEC amended by Directive 98/15/EC (UWWTD) sets out the legal requirements for the collection, treatment and discharge of urban wastewater and specifies the quality standards which must be met before treated wastewater is released into the environment.

6.1.4. The European Union Bathing Water Directive 2006/7/EC (BWD) establishes

procedures and standards for bathing waters. Under the Directive, all waterbodies are required to achieve a minimum of ‘sufficient’ quality which as a category lies above ‘poor’ and below ‘good’ based on main parameters for analysis Intestinal Enterococci and Escherichia coli (E. Coli).

6.1.5. Other EU Directives of relevance

- EIA Directive 2011/92/EU amended by Directive 2014/52/EU (EIA Directive);
- Birds Directive (79/409/EEC) amended by Directive (2009/147/EC);
- Habitats Directive (92/43/EEC);
- Groundwater Directive (2006/118/EC);
- Waste Framework Directive (2008/98/EC);
- Seveso III Directive (2012/18 EU);
- Sewage Sludge Directive (86/278/EEC);
- Nitrates Directive (91/676/EEC);

6.1.6. National Legislation of relevance

- The Waste Water Discharge (Authorisation) Regulations 2007, as amended;
- The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended;
- European Communities (Water Policy) Regulations 2003, as amended;
- European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended;
- Urban Waste Water Treatment Regulations 2001, as amended;
- Bathing Water Quality Regulations 2008, as amended;
- European Communities (Birds and Natural Habitats) Regulations 2011, as amended;
- European Communities (Waste Water Treatment) (Prevention of Odours and Noise) Regulations 2005;
- Waste Management (Registration of Sewage Sludge Facility) Regulations 2010;

- European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017, as amended;

6.1.7. **National Planning and Related Policy**

6.1.8. 'National Planning Framework – Ireland 2040' (NPF) sets out 10 National Strategic Outcomes including Strategic Outcome 9:

- Water - Implement the Greater Dublin Strategic Drainage Study (GDSDS), through enlarging capacity in existing wastewater treatment plants (Ringsend) and providing a new treatment plant in North County Dublin - known as the Greater Dublin Drainage (GDD) Project;
- Effective Waste Management - Waste planning in Ireland is primarily informed by national waste management policies and regional waste management plans. Planning for waste treatment requirements to 2040 would require:
    - Additional sewage sludge treatment capacity and a standardised approach to managing wastewater sludge and including options for the extraction of energy and other resources;
    - Biological treatment and increased uptake in anaerobic digestion with safe outlets for bio-stabilised residual waste;

6.1.9. Within the related National Development Plan, 2018-2027, National Strategic Objective 9 (Investment Actions) identifies that €8.5 billion would be invested by Irish Water over the period of the National Development Plan. A number of projects are listed under Investment Actions including:

- Ringsend Wastewater Treatment Plant (WwTP) project: This €190 million project would provide further capacity to support development in the Greater Dublin Region;
- Investment in waste management infrastructure is critical to our environmental and economic wellbeing for a growing population and to achieving circular economy and climate objectives;

6.1.10. Irish Water's Water Services Strategic Plan – A Plan for the Future of Water Services 2015 – 2040 (WSSP) outlines strategic objectives and aims including in particular:

- Objective WW - Provide Effective Management of Wastewater; Aims: WW1- manage the operation of wastewater facilities in a manner that protects environmental quality, WW2- manage the availability and resilience of wastewater services now and into the future and WW3- manage the affordability and reliability of wastewater services;

- Objective EN - Protect and Enhance the Environment; Aims: EN1- ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment, EN2- operate water services infrastructure to support the achievement of waterbody objectives under the Water Framework Directive and obligations under the Birds and Habitats Directives and EN3- manage all residual waste in a sustainable manner;

- Objective SG - Support Social and Economic Growth; Aims: SG1- support national, regional and local economic and spatial planning policy, SG2- facilitate growth in line with national and regional economic and spatial planning policy and SG3- ensure that water services are provided in a timely and cost-effective manner;

- Objective IF - Invest in our Future; Aims: IF1 - manage assets and investments in accordance with best practice asset management principles to deliver a high quality, secure and sustainable service at lowest cost; IF2 - invest in assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country; IF3 - establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes; IF4 - promote research and proven innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency;

- Compliance with the UWWTD is considered a priority for Irish Water as is the

expansion and upgrading of the Ringsend WwTP.

6.1.11. National Wastewater Sludge Management Plan 2016 – 2041 (NWSMP)

- The NWSMP aims to ensure that the management of wastewater sludge over the next 25 years is standardised nationwide. The Plan recommends the development of regional facilities for the storage of biosolids;

6.1.12. River Basin Management Plan for Ireland 2018 – 2021 (RBMPI)

- The RBMPI sets out a range of actions aimed at achieving the objectives of the EU Water Framework Directive (WFD) and leading to a standardised approach to assessments;
- Regarding the Ringsend WwTP, it is located in Dublin City area of the Liffey catchment. In terms of transitional waters, the current ecological status (2010-2015) of the lower Liffey Estuary remains 'moderate' and the coastal water of Dublin Bay has a 'good' status. The intention of the RBMPI is to achieve or maintain a 'good' status for both by 2027;
- The proposed upgrade to the Ringsend WwTP is identified as an upgrade to be undertaken in support of compliance with the requirements of the UWWTD;

6.1.13. **Regional Planning and Development Framework**

6.1.14. Regional Planning Guidelines (RGPs) for the Greater Dublin Area (GDA) 2010 – 2022. While under review, the RPGs remain the appropriate regional planning policy framework document pending the preparation and adoption of the Regional Spatial and Economic Strategies (RSES) for the more recently formed Eastern and Midland Regional Assembly (EMRA).

- Under 'Strategic Policy – Physical Infrastructure', Policy 3 (PIP 3) seeks to: 'Protect and work to improve water quality in, and impacted by, GDA and seek that investment in water and surface water treatment and management projects is prioritised to support the delivery of the economic and settlement

strategy for the GDA through the coordinated and integrated delivery of all essential services supporting national investment'.

- In achieving this policy, Table 11 (Critical Strategic Projects – Wastewater & Surface Water) sets out 10 critical projects needed to address PIP3 including 'expansion of the Ringsend Wastewater treatment plant to ultimate capacity';

6.1.15. Draft Regional Spatial & Economic Strategy (RSES)

- Regional policy objectives include RPO 10.5 (Support Irish Water and authorities in planning growth and increasing compliance with the UWWTD);
- RPO 10.6 (Delivery of infrastructure, including Ringsend WWTP project);

6.1.16. Eastern-Midlands Region Waste Management Plan 2015 – 2021 (EMRWMP)

- Policy H1: Work with the relevant stakeholders and take measures to ensure systems and facilities are in place for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) generated in the region having due regard to environmental legislation and prevailing national guidance documents, particularly in relation to the EU Habitats and Birds Directive;

6.1.17. Greater Dublin Strategic Drainage Study - 2005 (GDSDS)

- Section 10.8 – The wastewater treatment strategy for the Dublin Region is in the first instance to maximise the capacity of existing facilities. This requires immediate expansion of Ringsend WwTP to its maximum capacity while engaging in an active programme of load management of existing and new non-domestic effluent loads to buy time to allow for the planning and construction of both the expansion of Ringsend and new regional drainage and wastewater infrastructure;

6.1.18. Greater Dublin Drainage Strategy: Overview & Future Strategy - May 2018 (GDDS)

- The review concludes that the projected loading on the Ringsend WwTP would reach the site capacity of 2.4 million PE between 2024 and 2027 depending on the actual growth realised in the catchment;

6.1.19. **Local Planning Context – Ringsend WwTP component**

6.1.20. Dublin City Development Plan 2016-2022 includes a host of policies and objectives relevant for the assessment of the Ringsend WwTP component including those which are set out under:

Policies

- SI1: Support Irish Water in the development of water and wastewater systems;
- SI2: Support and facilitate Irish Water to ensure the upgrading of wastewater infrastructure, in particular the upgrading of the Ringsend WwTP;
- GI17: Develop and protect coastal, estuarine, canal and riverine recreational amenities, GI20: seek continued improvement in water quality, GI22: Promote nature conservation of Dublin Bay, GI24: Conserve NHAs, SACs and SPAS;

Objectives

- SIO1: Support Irish Water in the implementation of the 'Water Services Strategic Plan – A Plan for the Future of Water Services';
- SIO2: Work closely with Irish Water to identify and facilitate the timely delivery of the water services required to realise the development objectives of this plan;
- GIO17: seek improvement of water quality and GIO19: maintain beaches to a high standard;

Land Use Zoning

- For the most part, the Ringsend WwTP site is zoned as 'Z7' with a stated objective 'To provide for the protection and creation of industrial uses and to facilitate opportunities for employment creation including port related activities';
- The proposed temporary compounds span across lands which are zoned Z7, Z9 and Z 14;

Other Local Policy Documents relevant to Ringsend WwTP

- Other local policy documents of relevance include the Dublin Port Masterplan 2040, Sandymount Village and Environs Architectural Conservation Area Report 2013, Village Design Statement - Sandymount, 2011;

6.1.21. **Local Planning Context – Regional Biosolids Storage Facility component**

6.1.22. Fingal Development Plan 2017-2023 includes numerous policies and objectives relevant to the assessment of the RBSF component including those which are set out under:

Strategic Policy

- Work with Irish Water to secure the timely provision of water supply and drainage infrastructure necessary to end polluting discharges to waterbodies, comply with existing licences and Irish and EU law and facilitate the sustainable development of the county and the region;

Objectives

- Objective WT03: Facilitate the provision of appropriately sized and located wastewater treatment plants and networks including a new regional wastewater treatment plant and the implementation of other recommendations of the GDSDS, in conjunction with relevant stakeholders and services providers, to facilitate development in the county and region and to protect the water quality of Fingal's coastal and inland waters through the provision of adequate treatment of wastewater;
- Objective WM15: Work with Irish Water and other relevant stakeholders to ensure the provision of facilities for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank);

Land Use Zoning

- 'HI' – Heavy Industry, the objective of which is: - 'Provide for heavy industry'. 'A waste disposal and recovery facility (High Impact)' is a permissible use within this zoning designation;

Local Objective

- Local Objective 78: Facilitate the development of infrastructure for waste management, including construction and demolition waste processing, biological treatment of organic waste, a sludge treatment facility and a waste transfer station;

Aviation Policies and Objectives

- The RBSF site falls within the Outer Airport Noise Zone and outside the Inner Airport Noise Zone. Aviation objectives of relevance include DA10 and DA16.

7.0 Reports and Submissions

7.1. Planning Authorities within whose functional areas the development is proposed.

Dublin City Council

7.1.1. Dublin City Council's Chief Executive's report focuses on the Ringsend WwTP upgrade works (component one). It is submitted that the proposal is supported by applicable European, national, regional and local planning policy. The applicant's submitted NIS is considered to be generally satisfactory. It is stated that disturbance impacts including noise on birds using Sandymount strand during summer should be given further consideration, as should the matter of potential impacts on prey species. Dublin City Council state that they recognise the need for the project to meet wastewater provisions of the region and consider the new AGS technology would ensure both capacity and compliance in the shortest timeframe, with less risk than the original LSOT option. It is considered that the proposed use of the C1 and C2 construction compounds for up to 10 years is not ideal. In conclusion, DCC state

that they do not object to the development and a number of conditions are recommended.

7.1.2. Reports from internal departments are included or referred to in the Planning report summarised as follows:

- Environment and Transportation Department – no objection;
- Roads and Streets Department, Road Planning Division – no objection subject to conditions;
- Parks & Landscape Services Division – no objection subject to conditions;
- SDZ team – no objection subject to conditions;
- Environmental Health – no objection.

7.1.3. It is set out in internal correspondence to the assistant Chief Executive that a resolution was adopted by the elected members, the details which are summarised as follows:

- Use of lands referenced C1, within the Poolbeg West SDZ boundary (currently under consideration by An Bord Pleanála) need to be reconsidered. DCC notes the temporary use of this land to service the construction phase but also notes that this should not prejudice the future development potential of these lands;
- Requests that the zoning agreed by Dublin City councillors during its consideration of the Poolbeg Planning Scheme SDZ should be maintained and no decision should be made pending the outcome of the Poolbeg West SDZ appeal.

7.1.4. In addition, elected members of the City Council made the following comments:

- The proposed WwTP is large and detrimental to the amenity of residents of large suburbs within Dublin City and should be relocated to a site in north Fingal;
- Development would result in serious construction impacts on local communities;
- Residents are concerned about odour impacts;
- Traffic impacts would arise on the local road network;

- Employment opportunities would be welcome;
- An Bord Pleanála should employ experts to analyse the environmental impacts, rather than accept environmental reports as given;
- Wastewater infrastructure should be provided in a number of locations apart from Ringsend.

Fingal County Council

7.1.5. The Chief Executive's report focuses on the proposed RBSF facility (component two). It is considered that the proposal is of strategic importance and is generally in accordance with the provisions of the Fingal Development Plan 2017-2023. The RBSF would be an integral part of Irish Water's infrastructure, used to store biosolid waste arising from the upgrade of the Ringsend WwTP. The Planning Authority states that they have no objection to the granting of permission for the RBS facility subject to conditions and their report includes recommended conditions.

7.1.6. Reports from internal departments are included. Of note are comments from:

- Archaeology – no archaeological features were identified within the site and therefore no archaeological mitigation recommended;
- Environment – no objection subject to conditions;
- Parks Division – conditions recommended;
- Transportation Planning – no objection subject to conditions;
- Water Services (foul sewer, surface water and water) – no objection subject to conditions;
- EHO – no objection subject to conditions;

7.1.7. In addition, elected members of the council expressed their welcome for the proposed development and made the following comments:

- Concerns expressed regarding the traffic route and submitted that the local road network would require alterations;
- Requested attachment of a condition requiring that no discharge of untreated effluent into Doldrum Bay would occur;
- Archaeological report noted;

7.2. Prescribed Bodies

DCHG

- Notes the findings of the archaeological assessment and recommends that the mitigation measures detailed are carried out in full;

HSE

- Refers to initial submission which it received during the non-statutory consultation period in 2016 and states that it has no further comments to add;

Inland Fisheries Ireland (IFI)

- Ringsend WwTP represents a significant ecological pressure on the regional fisheries resource. Estuaries serve as the natural linkage for migratory species such as salmon, sea trout, lamprey and eels migrating between freshwater and ocean environments;
- It is imperative that options of enhancing the treatment capability of the existing and proposed solutions are achieved so that the 2.4 million PE capacity for Nitrogen (N) and Phosphorous (P) emission limit values would be realised by 2022 (i.e. ahead of the planned 2028 year);
- Construction works for both projects should be in line with a Construction Environmental Management Plan (CEMP) and spoil material should be handled in accordance with the waste management legislation. Drainage within the RBSF buildings should be discharged directly to the foul sewer;

Transport Infrastructure Ireland (TII)

- Refers to plans for the Eastern Bypass of Dublin City and TII Corridor protection studies prepared and issued to the relevant planning and roads authorities in 2009 with revisions in 2014;
- Notes that the proposed 10-year temporary construction compound south west of the Ringsend WWTP (C1) would lie within the Eastern bypass protection corridor and submits that no permanent new development within the protection corridor would be appropriate;

Dun Laoghaire-Rathdown County Council

- Expresses support for the proposed development;

Meath County Council

- Section 7.12 of the Meath County Development Plan 2013-2019 sets out policies which support the upgrade proposal;
- Provision of a well-maintained quality wastewater treatment infrastructure with adequate available capacity is essential to facilitate sustainable development in Meath;

7.3. Public/Semi-State Bodies

ESB

- States that ESB is the owner and operator of significant energy generating assets in the Ringsend/Poolbeg area;
- Expressed support for the proposal;
- Capacity of the outfall channel needs to be assessed and any limitations identified;
- Requests a number of technical clarifications;

Dublin Airport Authority (DAA)

- The observation relates solely to the Biosolids facility;
- Essential that the construction and operation of the facility would not give rise to any increase in bird activity;
- Requests that mitigation measures outlined in the EIAR are implemented;
- Requests noise control requirements are implemented;
- Requires condition to any grant of permission requiring developer to agree crane operations;
- Requires that future growth demand of Dublin Airport would be catered for;

7.4. Observers

Chambers Ireland

- As the Ringsend WwTP is experiencing significant overload it should be upgraded to full capacity as an immediate priority to facilitate the current and future growth and needs of the region;

Dublin Chamber

- Welcomes and supports the proposal and considers it a much-improved proposal than that previously approved in 2012;

Sandymount & Merrion Residents Association

- No objection to the proposed RBSF. However, if this should fail to be installed, any increase in sludge volumes would give rise to serious problems;
- Pleased to note omission of the LSOT element previously proposed;
- Expresses serious concern with the use of lands marked C1 as a construction compound for a 10-year period. Requires that area which would be occupied by construction compound C1 would be reinstated to the condition which prevailed prior to its use by the Dublin Waste to Energy plant;
- Local Authority may have a conflict of interest if they are part of the PPP for the Waste to Energy Plant;

Meakstown Community Council

- Concerns made relate to the Regional Biosolids facility;
- Traffic concerns raised and seeks commitment that truck movements are surveyed / monitored;
- Seeks commitments regarding odour and noise control;
- Health impacts and monitoring of compliance required;
- Suggests that a community fund should be put in place;
- Seeks that community would be consulted by Irish Water regarding job creation linked to the proposal;

7.5. Applicant's response to submissions received from Planning Authorities within

whose functional areas the development is proposed.

Dublin City Council

- The construction works would not be visible to waterbirds on Sandymount Strand;
- Similar to wintering waterbirds, summering waterbird populations (which are a subset of the wintering waterbird species and which mainly present in smaller numbers) are also considered to be habituated to construction noise and no impacts on the waterbirds would result during the construction phase;
- Impacts to roosting terns would not arise as they would be well separated from the construction site and they would occupy roosts at Sandymount strand at night time;
- The WwTP upgrade works would not affect the conservation objectives for the South Dublin Bay and River Tolka Estuary SPA as no significant changes in fish populations are predicted and any changes in macroinvertebrate populations are likely to be minor and may improve tern prey resources;
- Use of construction compounds C1 and C2 would be limited to the construction phase for up to a period of 10 years. The use of C1 would not prejudice the implementation of the proposed Poolbeg West SDZ Planning Scheme and recognises future plans for the Eastern Bypass and Dublin District Heating system;
- Other matters around clarity about no use of local roads, removal of invasive species and landscape proposals are included;

Fingal County Council

- Puts forward suggestions for the achievement of FCC's suggested planning conditions concerning footpath and the payment of a special development contribution;
- Appropriate threshold for construction noise limits at nearby residential

receptors are consistent with BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites which sets out the rationale for the suggested noise limits at the nearest sensitive receptors;

- Proposals for monitoring dust as set out in the EIAR are sufficient to protect air quality for nearby sensitive receptors and states that it would be disproportionate to impose a requirement for continuous monitoring;

7.6. Applicant's response to submissions received from Prescribed Bodies

DCHG (DAU)

- Notes recommended mitigation proposals;

HSE

- Refers to submission made by HSE in April 2016 at the time of non-statutory consultation and states that topics raised at that point have been addressed in the EIAR. A copy of the HSE submission made at that point is enclosed;

Inland Fisheries Ireland

- The upgrade of the WwTP would result in greater capacity in terms of BOD and SS by 2021 and there is a proposed follow-on programme of retrofitting new technology until 2028 to meet nitrogen (N) and phosphorous (P) emission limit values, reaching a capacity of 2.4m PE by 2028;
- Applicant is exploring options centred around enhancing treatment capability of the existing SBRs and use of AGS solution in order to reach 2.4m PE capacity sooner;

Transport Infrastructure Ireland (TII)

- No permanent new development is proposed within the Eastern Bypass protection corridor. The use of C1 lands is required for a 10-year construction period;

Meath County Council

- Supportive statement noted;

EPA

- Waste Water Discharge Licence Register No. D0034-01 was issued in respect of the development and was since amended (December 2016 and February 2018);
- As part of its consideration of any licence review application that may be received which addresses the changes proposed, the Agency shall ensure that before the revised licence is granted, the licence application will be made subject to an Environmental Impact Assessment regarding the matters that come within the functions of the Agency;
- In the event of an application for a review of the licence, all matters relating to emissions to the environment from the activities proposed and the licence application documentation and EIAR will be considered and assessed by the Agency;

7.7. Applicant's response to Public/Semi-State Bodies Submissions

ESB

- Impact assessment of proposed discharge flow and dispersion of treated effluent from Ringsend WwTP is not dependant on the variable operation of the ESB generating station. Water quality would improve as a result of the development;

Dublin Airport Authority (DAA)

- Conditions relating to the RBSF noted and no objection raised;
- Within Irish Water's GDDS, headroom capacity of 20% provided for domestic/commercial growth and this can be utilised to meet industrial growth;

7.8. Applicant's response to observer's submissions

Chambers Ireland and Dublin Chamber

- Notes the submissions from Chambers Ireland and Dublin Chamber are supportive of the proposed development;

Sandymount and Merrion Residents Association

- Construction compounds C1 and C2 are required to facilitate the development for a construction period of up to 10 years. Compound C3 does not form part of this application *per se* as it would not be required beyond its permitted 3-year planning lifetime;
- The GDD project is a separate project being progressed by Irish Water and is currently before ABP for its consideration;

Meakstown Community Council

- Facility would require a certificate of registration from the Local Authority;
- HGVs should be required to adhere to a route via the M50 and the roads in Meakstown area would not be used in the deliveries to and from the RBSF;
- Vehicular traffic would give rise to noise increase of less than 1 dB, which can be regarded as imperceptible;
- The RBSF would be operated and managed in accordance with an Odour Management Plan (OMP) and details of same are summarised. States that noise impact would not be insignificant;
- There are currently no proposals to change the agricultural lands on which the biosolids would be landspread;
- c.98% of biosolids are currently re-used on agricultural lands as a soil conditioner and fertiliser;
- Land spreading is subject to a number of environmental controls (details provided);
- Commitments to support the community are outlined and include clauses to leverage employment opportunities for local communities and associated contract conditions;
- Improvement works are proposed (footpath and landscaped verge) to the R135 along the front (east) of the RBSF site.

8.0 Pre-Planning and Consultation

8.1. Summary of consultations

- Pre-planning consultation held with An Bord Pleanála under Section 37B(1) of the Act under File Reference No. **PL29S.PC0203**;
- Meetings with DCC (planning and internal departments);
- Meetings with FCC (planning and internal departments);
- EIAR Scoping consultation (consultation with prescribed bodies and key stakeholders);
- Public Consultation (public open days, additional meetings, online information and a direct phone-line, media campaign, E-Zine Newsletter, website);
- Seven weeks of statutory public consultation.

9.0 Assessment overview

9.1. Having regard to the requirements of the Planning and Development Act 2000, as amended, my overall assessment is considered under the headings of Planning Assessment, Environmental Impact Assessment (EIA) and Appropriate Assessment (AA). There is inevitable overlap between certain aspects of the three sections, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In this regard and to avoid repetition, assessment of matters covered in any of the three sections are not repeated. My assessment is informed by all of the documentation received with the planning application for the proposed development and all of the subsequent reports, submissions and observations and the applicant's response received as well as information gathered during my site visits of both the Ringsend WwTP and RBSF sites and their surrounding areas.

10.0 Planning & Sustainable Development Assessment

10.1. **Introduction**

10.1.1. I consider that the key issues arising in respect of the planning assessment comprise

the following:

- Principle and Water Quality
- Legislative and Policy Considerations
- Seveso Considerations
- Flood Risk
- Traffic
- Design and Amenity
- Community Gain
- Other Consents

10.2. Principle and Water Quality

10.2.1. Ringsend WwTP component

10.2.2. The current WFD status of the Liffey Estuary Upper, Liffey Estuary Lower and Tolka Estuary are 'moderate' and Dublin Bay has an overall status of 'good' in accordance with the criteria set out in schedule 4 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

10.2.3. The Tolka and Lower Liffey Estuaries are classified under the UWWTD and corresponding Urban Wastewater Treatment Regulations 2001, as amended, as 'sensitive' waterbodies because they are subject to eutrophication. Consequently, if effluent is to continue to be discharged to the Liffey Estuary at the existing outfall, it is required to achieve 10 mg/l Total Nitrogen (N)[3] and 1 mg/l Total Phosphorus (P).

10.2.4. Under the BWD and Bathing Water Regulations 2008, as amended, the status for designated bathing waters in 2017 are Dollymount Strand: 'Good Quality', Sandymount Strand: 'Poor Quality', Merrion Strand: 'Poor Quality' and Seapoint: 'Excellent Quality'. Under the Directive, all waterbodies are required to achieve a minimum of 'sufficient' status.

[3] Total nitrogen = the sum of the inorganic **nitrogen**, organic **nitrogen**, and ammonia

10.2.5. It is well reported that the Ringsend WwTP is currently overloaded, whereby it is experiencing average daily loads of 1.8-1.9m PE. With the completion of the planned and previously permitted capacity upgrade under the 2012 Approval, it is expected that in terms of reduction of BOD and SS, capacity at the plant will increase to 2.4m PE by 2021. Nonetheless the treated effluent would continue to remain above the limits set in its discharge licence (mirroring those of the UWWTD) in terms of Total N and Total P. Table 1 below sets out the emission limit values (ELVs) required to be met under the current Discharge licence.

Table 1: Standards of Treatment (ELVs) for Upgraded Ringsend WwTP

Parameter	Emission Limit Values	Commentary
pH	6-9	-
Toxicity	5 TU	-
Faecal Coliforms	100,000 MPN/100ml	Bathing Season
BOD5	25 mg/l	Annual 95th Percentile. Peak Limit: 50mg/l
COD	125 mg/l	Annual 95th Percentile. Peak Limit: 250mg/l
Suspended Solids	35 mg/l	Annual 95th Percentile. Peak Limit: 87.5mg/l
Total Nitrogen (N)	10 mg/l	Annual Average
Total Phosphorus (as P)	1 mg/l	Annual Average

10.2.6. The proposal under the 2012 Approval involved relocating the treated effluent outfall to a point beyond the area subject to designation as ‘sensitive’ waterbody. As the current proposal intend to eliminate the undersea/LSOT tunnel, the key issue which arises in the assessment is whether or not that the treated effluent would reach the required standards under the Discharge Licence and UWWTD such as to be capable of continuing to discharge at its current outfall location.

10.2.7. The proposals which are the subject matter of the current SID application involve the retrofitting of new AGS technology across 24 existing Sequencing Batch Reactor (SBR) tanks over a phased basis with the intention of meeting the required nitrogen (N) and phosphorous (P) emission limit values detailed above. AGS technology involves a biological nutrient removal process as part of the wastewater treatment

cycle resulting in a higher standard of treated effluent. The overall intention is that with the application of AGS, the treatment capacity of 2.4m PE in terms of Total P and Total N would be reached by 2028. The applicant has stated that they are investigating options of providing increased capacity earlier though these options although these do not form part of the current SID application.

10.2.8. The principal anticipated changes in effluent discharge load from the WwTP are summarised in Table 2 below.

Table 2 - Final Effluent Discharge – Load Reduction Summary

Final Effluent Discharge – Load Reduction Summary Parameter	**Current Average Load**	**Future Average Load**	**% Reduction**
BOD	8,739 kg/day	7,206 kg/day	17.5%
Suspended Solids	16,205 kg/day	10,508 kg/day	35.2%
Ammonia	4,370 kg/day	600 kg/day	86.3%
(Dissolved Inorganic Nitrogen (DIN)	5,939 kg/day	4,804 kg/day	19.1%
Molybdate Reactive Phosphate (MRP)	1,056 kg/day	420 kg/day	60.2%

10.2.9. In addition, the incorporation of AGS would lead to a reduction in bacteriological (E.Coli) content in the final effluent.

10.2.10. It is set out in the EIAR (Volume 2) that the proposed development together with the permitted capacity upgrade would enable the upgraded WwTP to meet the level of treatment required to achieve ELVs set out in the EPA Discharge licence and the current national and European legislative requirements. In Volume 3 of the EIAR, under the heading of Biodiversity, it is stated that the current emission values are approximately 13.6 mg/l N and 3.9 mg/l P and when the overall project is implemented, the licence ELVs of 10 mg/l N and 1 mg/l P would be achieved. Water quality modelling was carried out to assess the dispersal, dilution, and decay of the final effluent parameters on the receiving waters. The details and output are presented in Volume 3 of the EIAR, under the heading of Water. I have discussed

the modelling and associated outputs in my assessment of water under the EIA section of this report.

10.2.11. Outside of this application, the current discharge licence (D0034-01) would be subject to a review process by the EPA in which, in relation to effluent discharge, environmental impact assessment and appropriate assessment would be taken into account. By reference to the 'sensitive' status attributed to the Lower Liffey under the UWWTD, it can be assumed that the ELVs of 10 mg/l N and 1 mg/l P respectively would not be changed in any licence review.

10.2.12. Separately, outside the scope of this application, Irish Water is progressing the Greater Dublin Drainage (GDD) wastewater treatment facility in North County Dublin together with alterations to the drainage network including diversion of flows from the Ringsend catchment. A map showing the two intended catchments (Ringsend WwTP and GDD WwTP) in context and the proposed diversion of drainage flows is presented as Fig 4 (Future Ringsend WwTP and GDD catchments) in the applicant's planning application report accompanying this application.

10.2.13. **AGS Technology / Omission of LSOT**

10.2.14. As stated above, the intention behind the proposed development at Ringsend WwTP is that by incorporating AGS technology leading to Total N and Total P reduction, a higher treatment standard of effluent would be achieved. Consequently, it is submitted that the effluent could continue to discharge at its current outfall and the proposal for the discharge to Dublin Bay through a 9-km piped outfall in an undersea tunnel or LSOT could accordingly be eliminated. AGS was not a proven technology at the time of the application for 2012 approval. It has since been scientifically proven as a means to produce higher treatment of effluent at the secondary treatment stage. As a process, the AGS also allows for recovery of phosphorous.

10.2.15. Reference plants which employ AGS technology have been detailed in Volume 2 of the EIAR. These include two such plants located in the Netherlands and more recently (2015-2016) three smaller scale plants in Ireland.

10.2.16. **AGS Technology Trials**

10.2.17. To assess the suitability of the AGS technology at the Ringsend WwTP, a programme of trials referred to as 'process proving' was undertaken on existing tanks using 'Nereda' AGS technology, developed in the Netherlands. Details of the trial at the Ringsend plant and resultant outcomes are presented in the applicant's submitted AGS Process Proving summary report which is contained as an appendix within Part B of Volume 2 of the EIAR. Essentially the trial involved a small-scale Process Proving Unit (PPU), known as Process Proving Step 1 (PPS1) which ran for a year followed by a full-scale trial / Process Proving Step 2 (PPS2) which ran for a three-month period. The key elements of the trail are outlined and considered below.

PPS1

10.2.18. PPS1 included loadings comparable to the WwTP's raw influent once the future Upgrade project would be complete including a phosphorous fixing process stage.

10.2.19. Results of effluent quality in this trial demonstrated that the AGS technology process met the performance standards required under the UWWTD and the UWWT Regulations, 2001 as amended. I have provided a summary of the results below in Table 3.

Table 3: PSS1 Trial – Effluent Parameters

Effluent Parameter	**Effluent Standard required (Annual)**	**Effluent Standards Achieved in PPS1 Period (June 2015-June 2016)**
Total Nitrogen (N) - Average	<=10	6.9
Total Phosphorous (P) - Average	<=1	1.0
BOD – 95th percentile	<25	10.9
COD – 95th percentile	<125	61.0
TSS – 95th percentile	<35	22.0

10.2.20. In relation to Total Phosphorous (P), the required performance standard was met and it is stated that there were a number of factors specific to the trial of the PPU

installation that could readily be addressed with a full-scale operation. This coupled with the intention to include phosphorous fixing and the ability for occasional chemical dosing with metal salts to precipitate phosphorus in the process units is stated would further reduce P levels in the full-scale operation.

PPS2

10.2.21. PPS2 involved a full-scale trial of the technology in a retrofit of one of the existing 24 SBR cells at the Ringsend WwTP and it was operated using design flows and design loads which were representative of the full-scale operation. Recording of results excluded an 8-day period after a pump was taken out of service following failure. Results of effluent quality demonstrated that use of AGS technology met the performance standards required under the UWWTD in all but P. I have summarised these in Table 4.

Table 4: PSS2 Trial – Effluent Parameters

Effluent Parameter	**Effluent Standard (Annual) required**	**PPS2 Period (June 2015-June 2016)**
Total N – Average	<=10	6.1
Total P - Average	<=1	1.1
BOD – 95th percentile	<25	9
COD – 95th percentile	<125	56
TSS – 95th percentile	<35	26

10.2.22. The Total P value achieved during the PPS2 trial is slightly above the required standard. This is stated to have been linked to a period where a feed pump failed during the trial. No correction was applied and it is stated that the introduction of a limited use of backup chemical dosing would have been sufficient to bring Total P back to compliant levels. The chemical dosing was not applied and the reason put forward by the applicant is that the trial had not yet been completed. It is submitted that with the planned backup chemical dosing, this standard would have been achieved in the trial.

10.2.23. **Discussion**

10.2.24. It can readily be concluded that the need for the project to bring the plant back in compliance with both the UWWTD and the corresponding ELVs attached to the EPA licence is necessary. I am satisfied that it has been demonstrated that this is technically achievable using the proposed AGS technology with associated phosphorous and nitrogen reduction as has been demonstrated through trials, the details of which I have outlined above. While the Total P performance standard was not achieved in the PPS2 trial period, I am satisfied with the rationale put forward as to how this could be addressed in the full-scale operation such that its adoption would produce higher quality of final effluent which could continue to be discharged to the lower Liffey Estuary.

10.2.25. In their report, DCC have expressed their support for the development proposal which it is stated would ensure both capacity and compliance in the shortest timeframe and with less cost and less risk than the previously proposed undersea tunnel (LSOT).

10.2.26. If the current development is not progressed, the non-compliance with the required effluent standards would continue and the quality could potentially further deteriorate as the wastewater influent volumes increase in line with increases in economic activity and population growth in the Greater Dublin Area as proposed in the national and regional planning policy documents. This scenario would also mean continuing non-compliance with the UWWTD and the ELVs attached to the plant's licence which would not be acceptable or sustainable and failure to provide the needed infrastructure would risk substantial fines for Ireland from the Court of Justice of the European for reasons of non-compliance with the nutrient standards in the Directive. It must be acknowledged however that the option to pump the treated effluent via the 9 km LSOT beyond the 'sensitive' waters in Dublin Bay would continue to be available. However, it is clearly evident that the LSOT option is currently less preferred and would result in higher levels of environmental risk and cost.

10.2.27. The achievement of improved standards and bringing the plant into compliance with the requirements of the UWWTD would clearly result in a significant positive benefit on the receiving water environment such that the LSOT is no longer required. The

revision to use of AGS technology and omit the LSOT would clearly result in environmental benefits which are further detailed in the EIA section of this report.

10.2.28. Overall, the development to treat the effluent to a higher standard and to omit the LSOT is clearly a more sustainable wastewater solution. There is no doubt that the overall project delivery is crucial in serving the planned economic and population growth targets set for the Dublin region. I have considered the project in terms of the legislative and policy framework further below.

10.2.29. **RBSF Component**

10.2.30. Treatment of wastewater results in the production of two types of raw sludges which in turn require treatment and processing. These include primary sludge (PS) in the form of solids removed in the primary settlement tank and surplus activated sludge (SAS) or surplus activated granular sludge (SAGS) which is a sludge biomass arising from the sludge treatment process. Subsequent to treatment of sludge, which occurs and would continue to occur at the Ringsend WwTP site, biosolids consisting of biocake and biofert would continue to be produced. Biosolids are biologically stable and generally have a low odour and are free of harmful pathogens. Biocake is a wet cake with c.26% dry solids and biofert is drier with c.92% dry solid matter.

10.2.31. The intended purpose of the RBSF is to store the biosolids from the Ringsend WwTP and the WwTP under the GDD project (if permitted). The RBSF is included as part of the overall planning application incorporating Ringsend WwTP Upgrade Project. Separately, the Board will be aware that the RBSF is also included as part of the overall planning application for the GDD project.

10.2.32. Biosolids currently produced at the Ringsend WwTP are stored at a facility in Thornhill in County Carlow which it is stated by the applicant to have a certificate of registration from Carlow County Council for a maximum annual throughput of 25,000 tonnes. Following the upgrade at the Ringsend WwTP, it is anticipated that the volumes of sludge and biosolids would increase because of improvement in wastewater quality and there would be insufficient storage capacity in Thornhill to cater for the current Ringsend WwTP and the new GDD WwTP. Annual production and storage volume anticipated are set out in Table 2-1 ‘Storage volume requirement for all scenarios’ of the applicants engineering design report for the RBSF. In 2040,

in ‘the most likely scenario’, 90,311 tonnes of biosolids would be generated in the catchment including 16,630 tonnes of biofert and 41,968 of biocake from the Ringsend WwTP, 21,115 tonnes of biocake from the GDD WwTP and 10,578 tonnes of imported sludges in the form of biocake from smaller municipal treatment plants and septic tanks. Collectively, this is shown as requiring 34,615 cubic metres of storage. In a ‘high volume scenario’, 90,331 tonnes would be generated in the catchment, requiring 40,464 cubic metres of storage. A breakdown and further details of biosolids volumes are presented in Table 2-1.

10.2.33. A third biosolid material, ‘struvite’, which is ‘recovered phosphorous’, would also be produced at Ringsend WwTP following the commissioning of the phosphorous recovery system planned to occur in 2021. Struvite has a moisture content of c.92%. Irish Water have set out their future intention to apply for an ‘end-of-waste’ approval and/or approval under regulations for Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) for the ‘struvite’, however, pending such approvals, it is intended to be stored in segregated bays at the RBSF. An estimated quantity of 6,000 tonnes per year of struvite is anticipated to be stored at the facility and would be handled similar to other biosolids generated at the Ringsend WwTP whereby it would be stored for certain months of the year prior to its use in agriculture. This is stated to be an interim storage solution as it is anticipated that post 2025, the product would be bagged at the Ringsend WwTP and made directly available to market as a fertiliser.

10.2.34. The rationale for the development of the RBSF to store biosolids produced at the Ringsend WwTP and the proposed WwTP under the GDD project has been clearly set out and it can be concluded that there is a requirement for such a facility to allow for storage of increased volumes of biosolids at a central location prior to land spreading during periods in Spring and Autumn. Land spreading would occur under nutrient managements plans and these would require approval by the respective local authorities as regulated under European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017, and subsequently amended by SI 65 of 2018, European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2018. I am satisfied that this is a preferred method for sludge/biosolids management and in line with the policy direction outlined below.

10.3. **Legislative and Policy Considerations**

10.3.1. **European Legislation and Policy**

10.3.2. In terms of improving water quality, the outcome would be a higher standard of final effluent discharge and an overall improvement in the quality of the receiving waters. This would be consistent with the aims of the WFD which seek to protect, enhance and restore the status of all bodies of water with the aim of achieving at least 'good status'. In the case of the receiving waters in Dublin Bay, the target date was extended from 2015 originally to 2027 due to Dublin Bay's location at the bottom of the catchments for the Rivers Liffey, Dodder and Tolka. The development proposed would assist in ensuring that Ireland improves it's compliance with the WFD.

10.3.3. This positive outcome would also be consistent with the Bathing Water Directive which requires a minimum target of 'sufficient' required to be achieved for all bathing waters. The ratings are based on the amount of colony forming units of microbiological parameters E.coli and Intestinal Enterococci within a sample.

10.3.4. As is evident in consideration of the principle of the development outlined above, improvement would significantly assist Ireland in complying with its obligations under the UWWTD through the higher standard of effluent treatment proposed and subsequent improved quality of water to be discharged to the receiving water environment.

10.3.5. The provision of the RBSF would assist in delivering the aims of the Sewage Sludge Directive which seeks to encourage the use of sewage sludge in agriculture while regulating its use to prevent harmful effects on soil, vegetation and man. It would also assist in achieving compliance with the EU Nitrates Directive by allowing biosolids to be stored when application of fertilisers of land is prohibited and hence preventing nitrates from agricultural sources polluting ground and surface waters.

10.3.6. **National Policy Framework**

10.3.7. Strategic Outcome 9 of the NPF (Water) envisages the implementation of the GDSDS, through enlarging capacity in existing wastewater treatment plants including Ringsend and providing a new treatment plant in North County Dublin (GDD Project).

In terms of effective waste management, this Strategic Outcome also requires a standardised approach to managing wastewater sludge. The proposed development is clearly consistent with this strategic outcome.

10.3.8. Under Strategic Investment Priorities, The National Development Plan 2018-2027 makes specific reference to the Ringsend WwTP as a project proposed to provide further capacity to support development in the Greater Dublin region. It also includes provision for waste management and resource efficiency to achieve a circular economy and meet climate change objectives. The implementation of the proposed development is clearly in line with the strategic outcome and if permitted would support the growth of Dublin as the capital city of Ireland and its surrounding region.

10.3.9. Under the River Basin Management Plan for Ireland 2018-2021 (RBMPI), Ringsend WwTP is identified as the single largest wastewater treatment plant in the country, accounting for some 41% of the total wastewater load. The proposed upgrade to the Ringsend WwTP is identified in this plan.

10.3.10. In 2017, Irish Water carried out an internal review of the GDSDS and the findings are set out in a document – Greater Dublin Drainage Strategy Overview & Future Strategic Needs Asset Planning (May 2018). This review sets out the need for the Ringsend WwTP project. The plant capacity is designed to cater for 1.65m PE and is currently experiencing 1.9m PE, resulting in breaches of both the EPA discharge licence and the UWWTD.

10.3.11. Irish Water's WSSP sets out its priority for compliance with the UWWTD and highlights the need for upgrading of wastewater infrastructure. It is noted that the Ringsend WwTP upgrade forms a crucial part of this compliance and would facilitate the delivery of objectives set out in the WSSP.

10.3.12. The NWSMP, published by Irish Water in 2016, identifies the reuse of treated wastewater sludges (biosolids) on agricultural land under nutrient management plans as the current preferred option in the short to medium term. The NMSMP contains a recommendation for the development of regional facilities for the storage of biosolids. The RBSF would be strategically located to serve the Ringsend WwTP and also the GDD project (if permitted).

10.3.13. Overall, having regard to the above, I am satisfied that the proposed development including the Ringsend WwTP and the RBSF components align with applicable national policy. The development would assist Ireland in meeting its obligations under the aforementioned EU Directives and related national legislation. It would undoubtedly be pivotal in enabling sustainable urban growth by providing such crucial wastewater treatment and would address the current environmental risk posed by non-compliances at the existing WwTP. The proposed RBSF would support the overall development for the reasons outlined above.

10.3.14. **Regional Planning Policy**

10.3.15. While under review, the RPGs for the GDA 2010-2020 remain the appropriate regional policy framework document until such time the RSES for the EMRA are finalised and adopted. In terms of the RPGs, strategic investment priorities in relation to wastewater infrastructure are identified in Table 11 of the Guidelines. The expansion of the Ringsend WwTP to its ultimate capacity is listed as a critical strategic project.

10.3.16. The Draft RSES for the EMRA identifies both the Ringsend WwTP and the GDD projects as wastewater infrastructure projects which are ongoing to deliver capacity at a large scale to the metropolitan area. Regional Policy Objectives include RPO 10.5 (Support Irish Water and Authorities in planning growth and increasing compliance with the UWWTD) and RPO 10.6 (Delivery of infrastructure including Ringsend WwTP project).

10.3.17. The Eastern-Midlands Region Waste Management Plan 2015 – 2021 sets out policies for the management and re-use of what would otherwise be waste. Of relevance to the proposed RBSF development, Section 7.4.7 sets out that the management of sludge would be co-ordinated between Local Authorities and Irish Water. Policy H1 seeks to ‘work with relevant stakeholders and take measures to ensure systems and facilities are in place for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) generated in the region having due regard to environmental legislation and prevailing national guidance documents, particularly in relation to the EU Habitats and Birds Directive’.

10.3.18. It is evident that the proposed development is supported by and would comply with

applicable regional policies and would provide improved infrastructural benefits for the existing and future GDA growth while improving the receiving water environment.

10.3.19. **Local Planning Policy - Ringsend WWTP**

10.3.20. At a local level, the development is supported by a host of policies and objectives set out in the Dublin City Development Plan 2016-2022. The Development Plan identifies the efficient and timely delivery of necessary infrastructure capacity as necessary for successful urban development. Ensuring the delivery of infrastructure in a sustainable manner is recognised as being crucial to support the sustainable growth of the city. The Development plan references the expansion and upgrading of the Ringsend WwTP as an urgent priority for Irish Water.

10.3.21. Policies of specific relevance include: SI1 (support provision of water, conservation and wastewater systems), SI2 (support and facilitate Irish Water to ensure upgrading of wastewater infrastructure, including Ringsend WwTP) and GI17 (develop and protect coastal, estuarine, canal and riverine recreational amenities).

10.3.22. Objectives include: SIO1 (support Irish Water in the implementation of the 'Water Services Strategic Plan'), SIO2 (work closely with Irish Water for delivery of water services), GIO17 (seek improvement of water quality, bathing facilities and recreational opportunities) and GIO19 (maintain beaches to a high standard).

10.3.23. In terms of zoning, the Ringsend WwTP facility spans across the two areas divided by Pigeon House Road. The majority of the site is zoned 'Z7' with a corresponding objective 'To provide for the protection and creation of industrial uses and facilitate opportunities for employment creation'. Public service installations are permissible uses in this zoning category (Appendix 21 of Volume 2 of the Dublin City Development Plan). I am satisfied that the upgrade of the wastewater treatment plant at Ringsend readily fits this category of development.

10.3.24. The area proposed to be used as construction compound C1 is primarily zoned 'Z14' with an objective 'To seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and 'Z6' would be the predominant use'. Public service installations are a permissible use within this zoning category. The remainder of C1 is zoned 'Z9' with an objective 'to preserve, provide

and improve recreational amenity and open space and green networks'. Permissible uses include 'public service installations which would not be detrimental to the amenity of Z9 zoned lands'. It is acknowledged that a note accompanying the Z9 zoning states: - 'Generally, the only new development allowed in these areas, other than the amenity/recreational uses, are those associated with the open space use'. C1 lands recently received permission for use as a temporary compound (ABP Ref: 29N.YM0004, January 2018). In the current development proposal, it is stated that the compound would be maintained in its existing use as a car park facility, storage area and site offices. For clarity, based on an examination of the drawings and aerial photography and site visit, it is evident that the lands which form part of the C1 compound and which are governed by the 'Z9' zoning do not extend into the Irishtown Nature Reserve.

10.3.25. The site area proposed to be occupied by construction compound C2 is primarily zoned 'Z7' with a small portion to the east zoned 'Z9'. The temporary use of the portion of the construction compound sites C1 and C2 in this instance would in my view not be detrimental to the planned use of the lands in the longer term.

10.3.26. Compound C3 is zoned 'Z14' where public service installations are permissible uses. A small set down area associated with the storm tanks to the north is also zoned 'Z9'. No development is proposed at this location and as stated above, the use of C3 does not form part of the current application.

10.3.27. In October 2017, Dublin City Council adopted the Poolbeg West SDZ planning scheme over an area of 34ha immediately adjoining the Ringsend WwTP site to the south and west. At the date of my assessment, following an appeal to the Board, the Planning Scheme (PL29S.ZD2013) is under consideration. The location of the Ringsend WwTP site lies largely outside of this SDZ area. However, the greater part of the C1 construction compound is located within the area of the SDZ on lands which are denoted 'Mixed Use' which includes uses such as commercial, creative industries, industrial (including port related activities). Concerns were raised by elected members of the city council that the use of this section of land as a temporary construction compound for 10 years may effectively sterilise the lands and request that no decision would be taken on the current application until such time as the outcome of the Poolbeg West SDZ application is decided on. Through written

correspondence set out in the Chief Executive's report, Dublin City Council have stated their view that the use of this land as a temporary construction compound would be compatible with the zoning.

10.3.28. While I note that 10 years is not a short timeframe, nonetheless, I am satisfied that the use of C1 lands as a construction compound would not conflict with or prevent the eventual delivery of the Poolbeg West SDZ. The DCC SDZ team noted this area shown to be occupied by construction compound C1 is likely to be used for cargo storage in the long term and the use of the lands as temporary storage would be consistent with the zoning. I revisit this point below under consideration of the Dublin Port Masterplan. The Dublin City Council SDZ team also stated that the overall SDZ lands would, to some extent, be dependent on the WWTP upgrade. In addition, they stated their requirement that Irish Water would liaise with Dublin City Council with regard to the delivery of Dublin District Heating requirements, where a backup boiler may be required in the vicinity of C1, to ensure minimal impacts on this project.

10.3.29. The planned Eastern Bypass protected corridor runs through the C1 lands. DCC require that the proposals for the use of this land would not interfere with the timely delivery of the Bypass. TII require that no permanent development would occur within the corridor. In response, the applicant stated that no permanent development is in fact proposed in the reserved corridor and that it is the intention to liaise with DCC and the landowner, Dublin Port company, regarding the use of the lands. I have had regard to the study entitled Dublin Eastern Bypass Corridor Protection Study prepared on behalf of NRA/TII in 2014. C1 area is shown within a protected corridor in this study and the delivery of the Eastern Bypass is stated to be a medium to long term objective of the NRA/TII.

10.3.30. The duration for the use of the construction compound C1 would be for a temporary period, albeit for up to 10 years and I am satisfied that its location for the construction stage would not jeopardise the eventual delivery of the future Eastern Bypass or form a reason to withhold permission. For similar reasons, I am satisfied that the Dublin District heating system can also be delivered.

10.3.31. The Ringsend WwTP site is located c.1km north-east of the Sandymount Village and Environs Architectural Conservation Area (ACA) and given the existing brownfield

nature of the site and the separation distance of the site from the ACA, it would not negatively impact on the architectural conservation status or characteristics of the ACA or of associated policies and objectives. Neither would it be prejudicial to the delivery of the aims set out in the Sandymount Village Architectural Conservation Area report, 2013 or the principles set out in the Village Design Statement, Sandymount, 2011.

10.3.32. Outside of the current Dublin City Development Plan, I have examined the Dublin Port Masterplan 2040 (as reviewed in 2018) prepared by Dublin Port. This is a non-statutory framework document which sets out the intended activities and development options for the Dublin Port area up to 2040. C1 lands lie within the ownership of Dublin Port and are shown planned to provide land capacity for the throughput of a new 600m long container terminal quay further east along the River Liffey in front of the ESB's Poolbeg Power Station. As no permanent development is planned in this area, the expansion of Dublin Port or related port activity development would not be prejudiced.

10.3.33. The proposed development is strongly supported in local planning policy terms and would be generally compatible with the land use zoning objectives assigned to the site. As stated above, the development is pivotal to the realisation of multiple policies and objectives relating to the development and sustainable growth of the city and surrounding region in addition to the protection of the environment.

10.3.34. **Local Planning Policy - RBSF**

10.3.35. At a local level, FCC, through its development plan sets out its strategic policy to 'work with Irish Water to secure timely provision of water supply and drainage infrastructure necessary to end polluting discharges to waterbodies, comply with existing licences and Irish and EU law, and facilitate the sustainable development of the County and the Region'. Objective WT03 of the Plan seeks to facilitate the provision of appropriately sized and located wastewater treatment plants and networks including a new regional wastewater treatment plant and the implementation of other recommendations of the GDSDS.

10.3.36. The proposed RBSF would lie on lands zoned 'HI' – Heavy Industry, the objective of which is: - 'Provide for heavy industry'. 'A Waste Disposal and Recovery facility (High

Impact)' is a permissible use within this zoning designation. The RBSF can readily be considered as aligning with the land use zoning objective. Objective WM15 supports the provision of facilities for the safe and sustainable management of sludges. Local Objective 78 (development of infrastructure for waste management), attributed to the site, also supports the development proposal.

10.3.37. The RBSF site falls within the Outer Airport Noise Zone and outside the Inner Airport Noise Zone. It falls outside the Outer Public Safety Zone and is therefore also outside the Inner Public Safety Zone. It also falls outside the flight path to the existing east-west runway. Given the modest nature of the development, I am satisfied that it can proceed without conflicting with aviation objectives including Objective DA10 (restrict inappropriate development which would give rise to conflicts with aircraft movements).

10.3.38. Overall, I am satisfied that the RBSF would form a key element of the overall proposal for which development is sought and is strongly supported by local planning policy.

10.4. Seveso Considerations

10.4.1. Ringsend WwTP

10.4.2. The existing Ringsend WwTP is not an establishment within the meaning of the Directive 2012/18 EU ("Seveso III") which was transposed into Irish law under the European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (COMAH Regulations). However, there are seven 'Upper Tier' Seveso establishments within the general vicinity of the plant, including Dublin Waste to Energy Ltd. facility and the National Oil Reserves Agency facilities. There are also eight 'Lower Tier' Seveso Establishments within the vicinity including two proximate to Ringsend WwTP including Synergen Power Plant and ESB Poolbeg Power Station both which are sited along Pigeon House Road. The existing relationships between the Ringsend WwTP and the Seveso establishments would not change as a result of the development.

10.4.3. As the competent Authority, the HSA were consulted in relation to the Seveso establishments within the consultation distance which is set at 300m from Seveso

sites most proximate to the Ringsend WwTP. Specifically, the HSA was a consultee during the EIA scoping stage and as part of the statutory public consultation in which they were provided a copy of the planning application documentation. No response was received from the HSA and accordingly it can be concluded that the authority does not object to the Ringsend WwTP component in the context of the Seveso Directive. I am satisfied that the Seveso / COMAH context is well understood and would not constitute a reason to withhold permission.

10.4.4. **RBSF**

10.4.5. There are four 'Upper Tier' establishments and four 'Lower Tier' establishments in Fingal. The proposed site for the RBSF is within the Seveso consultation distance (300m) for the Huntstown Power Station, a 'Lower Tier' establishment for the purposes of the Seveso Directive. Specifically, the northern perimeter of the Huntstown Power Station is located approximately 100m from the southern boundary of the proposed RBSF site. The structures themselves would lie just outside of the 300m consultation distance.

10.4.6. As stated above, the HSA were consulted during the scoping stage of the EIA process and during the SID planning application process and as no response was received, it can be concluded that the HSA do not object to the RBSF component of the proposed development.

10.4.7. For similar reasons outlined under my consideration of the Ringsend WwTP, I am satisfied that the Seveso context is well understood and should not form a reason to withhold permission for the RBSF component.

10.5. **Flood Risk**

10.5.1. **Ringsend WwTP**

10.5.2. The application was accompanied by a Flood Risk Assessment (FRA) which followed the methodology laid down in 'The Planning System and Flood Risk Management' (FRA) Guidelines for Planning Authorities 2009 (DoEHLG and OPW). The FRA Guidelines refers to Draft Flood Risk Management Plans (FRMPs). More recently, the OPW has developed a new website (www.floodinfo.ie) which provides

access to plans and maps focussing on areas of significant risk throughout the county.

10.5.3. Based on the mapping information on the above website, the proposed development site including the site compounds lie outside of the 0.1% fluvial Annual Exceedance Probability (AEP)[4] event and is therefore located within Fluvial Flood Zone C where risk of flooding is considered to be low.

10.5.4. The portion of the site where the primary development is proposed lies outside of the 0.1% Tidal AEP event and is therefore located within Coastal Flood Zone C, with a corresponding low risk of flooding. By reference to the matrix of vulnerability versus Flood Zone (Table 3.2 of the FRA Guidelines), the proposed WwTP development, considered to be a highly vulnerable development, is deemed appropriate in an area categorised as 'Flood Zone C'. The northern portion of the site which contains the storm water tanks lies partially within the 0.1% and 0.5% Tidal AEP flood event, however, I note that there is no development proposed as part of this current application at this location. Site Compound C2 lies within the 0.1% AEP tidal event and is therefore within Coastal Flood Zone B. Referring to the vulnerability matrix, and noting that the construction compound development is classified as less vulnerable, this type of development is appropriate in Flood Zone B.

10.5.5. As shown on a map entitled Dublin City – Pluvial Flood Extent Map, dated August 2016, (www.floodinfo.ie), Pluvial Flooding is associated with the site. The Dublin City Strategic Flood Risk Assessment (SFRA) Pluvial Flood Hazard Map indicates the site has for the most part a low flood hazard. Pluvial flood risk is therefore not considered to be significant. I note that the site is by its nature, a brownfield site and it is not intended to have add any significant additional impermeable area and surface water is proposed to be managed by appropriate SuDS measures. Therefore, no significant additional surface water runoff is likely. Any build-up of groundwater would discharge to the drainage system or to Dublin Bay, therefore

[4] The term 'Annual Exceedance Probability' or 'AEP' is used to describe the probability of a flood event of this severity, or greater, occurring in any given year. A 0.1% AEP flood event has a 0.1% or 1 in a 1000 chance of occurring in any given year. A 0.5% AEP flood event has a 0.5% or (1 in 200) chance of occurring in any given year.

groundwater risk is not considered to be significant.

10.5.6. The design finished floor levels (FFLs) of +4.46m OD would cater for future flood risk including an allowance for climate change and freeboard. Some existing buildings would have FFLs below the +4.46 OD design level, however, I am satisfied that it is not a requirement to retrospectively apply this level to existing buildings, particularly as the site is in Flood Zone C where a low risk of flood occurrence is expected.

10.5.7. I note the applicant's point that development proposed for the construction stage (i.e. compound areas) should be set above the 0.5% AEP current scenario of +3.11m OD given the duration of the construction stage would be deemed short term in the context of climate change. This is reasonable.

10.5.8. Overall, I am satisfied that following assessment, it has been demonstrated that subject to commitments around FFLs and SuDS measures, the Ringsend WwTP component would not have any noticeable impact on the existing flood regime.

10.5.9. **RBSF**

10.5.10. The RBSF site is not covered in the flood maps produced under the CFRAM study to date. The PFRA flood extent map and Fingal County Council Strategic Flood Risk Assessment flood zone map both indicate that the existing site lies outside of the 1% and 0.1% AEP fluvial flood extents and as such it can be considered as within Flood Zone C where the probability of flooding is lowest. Based on the Matrix of Vulnerability versus Flood Zone set out in the aforementioned guidelines, 'highly vulnerable development including essential infrastructure' is considered appropriate in a site categorised as 'Flood Zone C' and while the RBSF is categorised as a highly vulnerable development, no justification test is required to be applied.

10.5.11. Groundwater risk is not considered to be significant as there is no historical evidence of groundwater flooding at the site and the available PFRA map indicates that no groundwater flood risk exists near the proposed development site.

10.5.12. OPW do not have historical records of any previous flood related occurrences at the site (www.floodmaps.ie). One such occurrence has been recorded just north of the site at Kilshane cross in November 2002 stated to be as a result of surface water

runoff. A report from FCC in 2005 identified that drainage works were undertaken to alleviate any flooding issues.

10.5.13. The available Preliminary Flood Risk Assessment (PFRA) maps indicate pluvial flood risk associated with an area of the site, predominately along the south east /east boundary. The drainage design is stated to include attenuation and SuDS measures sufficient to ensure there would be no increase in the risk of pluvial flooding as a result of the development at this site.

10.5.14. Overall, I am satisfied that the risk of flooding has been adequately addressed in respect of the RBSF site and it can be concluded that no increased risk of flooding is likely to result because of the development.

10.6. Traffic

10.6.1. Ringsend WwTP

10.6.2. The applicant's EIAR (Volume 3) sets out it's consideration of traffic under Section 13. I deal with this issue of traffic below as part of my planning assessment. Separately I have considered the road network as a material asset within the EIA section of this report. In terms of assessing traffic, the methodology used by the applicant is based on published guidance as referenced in Section 13.10 of the EIAR, primarily TII 'Traffic and Transport Assessment Guidelines' May 2014. Criteria used in the assessment of traffic include Ratio of Flow to Capacity (RFC), queue delay and maximum queue length.

10.6.3. The extent of the study area determined by the applicant was agreed in consultation with Dublin City Council's Road and Traffic Department and includes nine sections of roads which are illustrated in Figure 13-1 of Section 13 of the EIAR – Volume 3.

10.6.4. Overall the site is well served in terms of road infrastructure and the surrounding road network currently accommodates large volumes of traffic. It is served by local roads including Pigeon House road, Whitebank road and South Bank road. South Bank road connects with the R131 regional road at a roundabout intersection with the Seán Moore road. The R131 then continues northwards across the East Link toll bridge and connects with the North Quays port tunnel and M50.

10.6.5. There are five existing access points serving the WwTP site, including three located off Pigeon House road. These are intended to continue in use as part of the current proposals. An entrance c.250m east of the main site entrance which it is stated was used in 2005 during construction at the site is proposed to be re-opened and used as an entrance for both construction and operational phases. A new temporary pedestrian access is also proposed from construction compound C1.

10.6.6. It is anticipated that there would be 240 HGV trips daily and 396 cars/light vehicles during 2020 peak construction year with approximately one third of the HGV trips occurring during night-time. During the operation of the proposed WwTP component, an increase in HGV trips from the current average of 22 to 100 trips per day, comprising 50 deliveries and 50 departures are anticipated to result.

10.6.7. Traffic count surveys were carried out at seven locations along the surrounding road network and information gathered from these surveys was used to ascertain the 2017 AM and PM peak baseline situation which in turn fed into traffic modelling. Baseline Annual Average Daily Traffic (AADT) flows for the surrounding roads are presented in Table 13-9 within Section 13 (Traffic) of the EIAR (Volume 3).

10.6.8. The Point Depot junction, Seán Moore junction and Whitebank junctions were examined for 2020 (peak construction) and 2027 (final year of construction) in both the ‘with’ and ‘without’ development scenarios. Dublin City Council intend to upgrade The Point Depot junction to a signalised junction by 2020, however it was examined in its current configuration in the 2020 scenario which it is suggested gives a more conservative assessment. In the analysis, it was assumed that the planned Point Depot Improvement scheme would be complete by 2028. It was also assumed that the Poolbeg SDZ would be in place in 2028. Traffic analysis also considered the impacts on the road network in the 2028 (Year of opening) and 2035 (Design year).

10.6.9. Overall it is submitted that the proposed WwTP component would result in a slight negative short-term impact during 2020 peak construction year and 2028 final year of construction. It is also predicted that the slight negative long-term impacts would arise during the 2028 year of opening and 2025 design years.

10.6.10. It is submitted that as the Ringsend WwTP itself is located off the public road network, it would have an imperceptible impact on road safety during the

construction or operational phases. Noting the increase in traffic which would result, in particular the increase in number of HGV trips to and from the site, in the absence of mitigation, I consider the impact on road safety would result in a 'slight' impact.

10.6.11. Mitigation measures proposed include the preparation of a traffic management plan, adherence to good traffic management and adopting best practice during the construction phase. The HGV cordon which operates in the city centre would prohibit HGV traffic associated with the development entering the city centre and therefore all traffic from the site would be required to access the M50 via the Port Tunnel. An application for an Abnormal Load permit would be a requirement and abnormal load movements are stated to be limited to evening and night periods in order to minimise traffic disruption and delays during business hours. No mitigation is considered necessary or proposed during the operational phase.

10.6.12. Notwithstanding the mitigation measures proposed, residual impacts are anticipated to the traffic flows on the adjoining road network resulting in a slight negative long-term residual impact during the 2020 peak construction year and 2028 final year of construction in AM and PM periods. Residual traffic impacts have also been assessed as resulting in a slight negative long-term impact in the AM and PM periods during operation including 2028 year of opening and 2035 design year.

10.6.13. Post mitigation, no negative residual impacts are predicted on the safety of the road network as a result of construction or operation of the WwTP component.

10.6.14. The Roads and Transport Division of DCC have examined the proposals and stated their satisfaction with the substance and level of detail submitted as part of the EIAR. No objection was raised regarding the access arrangements including proposals to use a previously permitted temporary access off Pigeon House road on a permanent basis. DCC require that no local roads would be used as part of the haul route. Overall, the Roads and Traffic Division have expressed their support for the proposal.

10.6.15. Traffic flow and vehicle queue lengths at the Seán Moore Junction and the Point Depot junction are proposed to be monitored as part of the Traffic Management Plan and restrictions are proposed to be put in place on the movement of construction related traffic if deemed necessary by DCC and/or An Garda Síochána.

10.6.16. Based on the information contained in the EIAR, which I consider represents a realistic analysis of the traffic likely to be generated, I am satisfied that the proposed development would give rise to slight negative short term (construction) impacts and long term (operation) traffic impacts. These relate to traffic flow, capacity and vehicle queues. Given the benefits for the delivery of improved wastewater treatment, slight negative impacts are not unacceptable and would not constitute reasonable grounds for refusal. While road safety is always a priority, it is reasonable to conclude that once the traffic management plan is implemented and noting that all road users including those travelling to and from the site would be required to adhere to road safety legislation, no unacceptable impact on road safety is likely to arise during construction or operation as a result of the proposed development. It is important to note that because the proposal no longer requires the construction of the tunnel element, the volume of HGVs would significantly reduce during construction. An estimated 70,000 HGV movements carrying spoil and rock from the tunnel site over an 18-month period are no longer required. The elimination of these tunnel related trips would be significantly positive on traffic and the surrounding road network.

10.6.17. **RBSF**

10.6.18. The R135 regional road lies to the east of the RBSF site and provides access to the site. The regional road connects with Kilshane cross north of the site and the N2 is located to the east of the R135. The site is located c. 1.6km north of the M50 Junction 5 and lies c.1.5 km west of Dublin airport.

10.6.19. Access to the site is currently provided via an existing entrance off the R135. Visibility available is above 90m in each direction which is the desirable minimum sight distance for a road with a 60 kph speed limit. The access would be upgraded and the details would be agreed with the Transportation Department of FCC.

10.6.20. It is anticipated that the proposed RBSF component would be constructed over two phases in 2020-2021 and 2024-2025. The assessment assumes that all the surrounding lands comprising 182 ha zoned for warehousing and distribution and general employment would be developed by 2040 with associated increase in traffic volumes. Results of traffic surveys undertaken at five locations are presented in Section 13 (Traffic) of the EIAR – Volume 4. AADT flows were derived based on

traffic count data obtained from these surveys.

10.6.21. Traffic analysis focused on 2020 (Phase 1 construction year) and 2024 (Phase 2 construction year). Kilshane Cross, R135 Signalised junction, Elm Road Roundabout junction and N2 Northbound Slip Road were examined in 2020 and 2024 in both the 'with' and 'without' project scenarios.

10.6.22. It is anticipated that there would be 25 HGVs arrivals and departures and 70 cars/light vehicles arrival and departures daily during each of 2020 and 2024 construction years. In 2024 there are also 30 HGVs and 10 cars/light vehicles predicted to arrive and depart the site associated with the operation of the facility. In 2040, 70 HGV arrivals and departures and 10 car/light vehicle arrivals and departures daily are predicted to arise during operation.

10.6.23. Based on the assessment of RFC and associated queue delay and queuing length, it has been assessed that the proposed RBSF component would likely result in a slight-negative short-term impact during the 2020 and 2024 construction years at AM and PM peak periods. Post construction, the proposed RBSF would result in an imperceptible negative long-term impact in both the AM and PM peak hours.

10.6.24. In the 2020 and 2024 construction years and in the 2025 (year of opening) and 2040 (design year) scenarios, Kilshane Cross is anticipated to operate above the design threshold and theoretical capacity in both the AM and PM scenarios. The N2 northbound slip road junction would be approaching usual design thresholds in AM and PM scenario 'without' project and marginally above the usual design threshold 'with' project scenario. However, in comparing the 'with' and 'without' project scenario, only marginal reductions in capacity and increase in queue lengths at these junctions are anticipated as a result of the project.

10.6.25. It is assessed that the proposed development would cause an imperceptible impact on road safety during the construction or operational phases. Noting the increase in traffic which would result in increased vehicular and HGV movements in and out of the site, I am of the opinion that, in the absence of mitigation, the impact on road safety during construction would be rated as 'slight' reducing to 'imperceptible' during operation.

10.6.26. Mitigation measures proposed include the preparation of a traffic management plan and adherence to good traffic management and best practice during the construction phase. An application is proposed to be made for Abnormal Load permit and abnormal load movements would be restricted to evening and night to minimise disruption to traffic during business hours. No mitigation is considered necessary or proposed during the operational phase.

10.6.27. Post mitigation and based on the assessment of RFC, queue delay and queue length it has been determined that the proposed RBSF component would likely result in a slight negative long-term residual impact during the construction phase and an imperceptible negative long-term residual impact during the operational phase.

10.6.28. No residual impacts to the safety of the road network are anticipated as a result of the construction or operational phases of the Proposed RBSF Component. Similar to my considerations of the Ringsend WwTP, while road safety is always a priority, it is reasonable to conclude that once the traffic management plan is in place and noting that all road users including those travelling to and from the site would be required to adhere to workplace safety and road safety legislation, no residual impact on road safety is likely to arise during construction or operation phases as a result of the proposed development.

10.6.29. Traffic flow and vehicle queue lengths at the N2 Northbound slip road Junction are proposed to be monitored as part of the detailed traffic management process and restrictions would be placed on the movement of construction related traffic if deemed necessary by FCC and/or An Garda Síochána.

10.6.30. FCC's Transport Department was generally satisfied with the proposal subject to conditions including the attachment of a special contribution to improve the upgrade of the R135 and N2 north bound slip priority junction to a signalised junction.

10.6.31. **Concluding Comments on Traffic**

10.6.32. Having regard to the information contained in the EIAR and the wider application documents, in respect of the Ringsend WwTP or RBSF components, I am satisfied that the proposed development would not give rise to levels of traffic which would result in unacceptable congestion on the strategic road network or compromise road

safety for road users.

10.7. **Design and Amenity**

10.7.1. **Ringsend WwTP**

10.7.2. In relation to the Ringsend WwTP component, it is stated to have been designed to reflect the function of the WwTP within an established industrial / utility area. Some elements would undoubtable be prominent when viewed outside of the site, however, given their location in an established industrial site and the adjoining area which is characterised by industrial development, views of additional structures can be readily assimilated into an industrial/utility context. Landscape and visual impacts are considered in further detail in assessing significant effects on the environment in which it is concluded that post mitigation, the landscape and visual impact resulting from the proposed development would be imperceptible and acceptable.

10.7.3. DCC have expressed some concern with the proposal to use C1 and C2 construction compounds for up to 10 years and considers that this might give rise to impacts to heritage and visual amenity. To that end, DCC considers their use should directly relate to the construction phase and decommissioning should follow in a short timeframe thereafter. In response, the applicant states that the duration of the use of the compounds would be limited to the construction phase and the decommissioning would occur at that point. DCC Parks and Landscape Services Division were generally satisfied with landscape proposals including site perimeter planting to assist in screening the development and recommends further planting along the southern boundary. The Division also seek the removal of temporary works and full restoration of these areas. I am satisfied that this matter can be dealt with by attachment of an appropriate planning condition.

10.7.4. Given that the closest residential dwelling is c.950m away from the Ringsend WwTP and houses proposed on the Poolbeg West SDZ would be separated c.975m, no direct impacts on residential amenity arise. In the longer term, the proposed development would result in enhanced water quality which would be of significant benefit to the amenities of the area including bathers and those who are actively involved in water sports in the Bay.

10.7.5. Overall, having regard to the above and subject to appropriate conditions around noise, odour and landscaping, it is clear that the benefits associated with the development over the long-term would far outweigh any temporary adverse impact on the amenities of the area and as such any impact on the amenities would not constitute reasonable grounds for refusal in my opinion. Impacts on other related environmental factors are dealt with in the EIA section of this report and traffic impacts are dealt with above under the heading of traffic.

10.7.6. **RBSF**

10.7.7. The rationale for the architectural design of the RBSF is set out in an 'Architectural Concept Statement' which was included with the application. Each of the two storage buildings are proposed to be 105m long and 50m wide internally and would be laid out in bays to facilitate segregation of material. As presented, the buildings would read as typical industrial steel framed structures finished with insulated metal cladding panels, grey and silver in colour. The design incorporates a curved roof which gives a lighter ridge line and a more sympathetic visual presence. The RBSF building design is stated to also have been informed by fire safety requirements. A PV solar array of 1,545 square metres is proposed to be placed on one of the buildings which is stated would contribute upwards of 40% of the sites annual energy load by means of renewable solar energy.

10.7.8. The administration and welfare building is presented as a single storey building 10m wide and 13m long with a 4.1m ridge height. Similar to the main buildings proposed, it would also incorporate a curved roof. Its design is complimentary to the main storage buildings. A new substation would be constructed to ESB Networks requirements. A number of smaller structures on site are proposed to be demolished.

10.7.9. An odour control system has been incorporated to ensure that odour would not give rise to any nuisance beyond the boundary of the RBSF site. The system would involve extracting air from within the storage buildings on a continuous basis as well as sub-dividing each building into two zones so that they could be independently operated fast-action doors would be fitted to control and minimise the time that these doors would be open. Assessment of odour is given further consideration under the assessment of likely significant effects of the environment below. The preparation of

an Operation Environmental Management Plan (OEMP) is proposed and operations staff would be required to ensure that the conditions attached to the required certificate of registration including those which may relate to odour would be adhered to. DAA require that no organic matter such that would attract bird activity on site would be allowed to be present in the open on the site. It is planned that the biosolids would be stored indoors only and therefore no bird hazard on air safety should arise.

10.7.10. A 'Glint and Glare' assessment concludes that the photovoltaic solar array proposed would not result in any nuisance or hazard effect upon local residences or on routes running through the study area including the N2 and airport approach routes. In this regard, I note that the solar arrays which are proposed to be mounted on the roof of the northern building would be partially screened by the adjacent second storage building. Any glare experienced by road users along the northbound carriageway would be limited, occurring through a gap in the vegetation and which I am satisfied would not result in any safety hazard or similar nuisance to motorists. It is also concluded that any glare predicted for the southbound carriageway of the N2 would fall outside of the field of view of motorists and would not present any nuisance effect. Any glare likely to be experienced on approach paths into Dublin Airport is predicted to be of an intensity within acceptable Federal Aviation Administration (FAA) Irish Aviation Authorities (IAA) standards. Having examined the Glint and Glare assessment, the conclusions which I have highlighted above, I am satisfied that Glint and Glare would not present any adverse impacts overall.

10.7.11. Having regard to the above and subject to appropriate conditions, the development of the RBSF should not be withheld on the grounds of design and amenity.

10.8. Community Gain

10.8.1. The issue of community gain has arisen in the consideration of the RBSF component. Meakstown Community Council requested that the applicant would be required to consult with the community council regarding job vacancies and seeks that a community fund would be set up to support facilities or services in the area that would benefit the community.

10.8.2. Under section 37G(7)(d) of the Act, the Board can attach a condition requiring the construction or financing (in whole or part) of the construction of a facility or the financing or provision of a service in the area of the development, if they were of the view that it would constitute a substantial gain to the community. In this instance, the overall development comprises alterations and improvements to the existing Ringsend WwTP component and the development of a new RBSF at Newtown. It is the latter component that is of interest to the Meakstown Community Council.

10.8.3. Key issues of public concern raised through the applicant's public consultation and open days have been considered in the EIAR and I have considered these environmental topics in my assessment. Post adoption of appropriate mitigation measures, no adverse significant effects are likely to arise on the communities surrounding the RBSF.

10.8.4. The applicant has stated their intention to include social clauses as a performance condition of contracts to leverage employment opportunities for the local communities and to work closely with local employment services to fill employment positions. They also set out their intention to provide improvements to the R135 along the road frontage to the RBSF site. Beyond this, no community fund is proposed.

10.8.5. Given the nature of the development and measures proposed by the applicant and that no adverse impacts are likely to result on the local communities, I do not recommend the attachment of a community gain condition.

10.9. Other consents

10.9.1. It is of relevance to note that outside of the assessment of the planning application, both components would require separate consents as appropriate, including but not limited to those listed under.

- In accordance with the requirements of the Waste Water Discharge (Authorisation) Regulations 2007, as amended, (S.I. No 684 of 2007) Ringsend WwTP would be subject to a review of the existing Wastewater Discharge Licence from the EPA. Under this authorisation process the EPA can regulate wastewater discharge to ensure the potential effects on the

receiving water are controlled. In deciding on an application and in the event of a grant of permission, the Board can attach conditions relating to emissions other than those associated with the actual wastewater discharge as beyond controlling wastewater discharge, other emissions do not come within the scope of the Wastewater Discharge Authorisation regulations or the associated licencing regime.

- The RBSF would be subject to regulation by the local authority under the Waste Management (Registration of Sewage Sludge Facility) Regulations 2010. The local authority can issue a certificate of registration (COR) and in doing so can attach conditions on matters concerning types and quantities of sludge to be stored, reception and entry/exist areas, control of odours, integrity of all storage tanks and bays, maintenance and records and requirements concerning environmental pollution. The Waste Permit and the Certificate of Registration database register for waste facility permits and certificates of registration issued by local authorities are held by the National Waste Collection Permit Office (NWCPO).

- Both the Ringsend WwTP and the RBSF components would be required to comply with the requirements set out under the Building Control Acts 1990 - 2007 and the associated Building Control Regulations 1997-2018, including seeking such consents (e.g. Fire Safety certificate and Disability Access certificate) for buildings as may be appropriate.

10.9.2. The information presented with the application states that all of the biosolids generated and stored would be used in agriculture and it is also stated that a certificate of registration is required for the facility. To this end, I note that under Section 51(2) of the Waste Management Act 1996, as amended, a waste licence is not required for the recovery of sludge for use in agriculture. Notwithstanding this, in the event that the facility would require any other consent or waste licence, either now or in the future, this would be a matter for the applicant to ensure such consent is obtained.

10.10. Conclusion on Planning Assessment

10.10.1. The benefits of the proposed development are considered to be overwhelmingly positive. It's delivery would assist Ireland in meeting obligations set down under EU Directives, national legislation and planning policy expressed through the hierarchy plans which regulate development at a national, regional and local level. The development would enable sustainable residential and economic growth through the delivery of increased wastewater treatment capacity while protecting the environment through improving the quality of effluent discharged to the receiving water environment. It has been demonstrated in the application that the improvement envisaged in final effluent quality can be achieved at the existing Ringsend Wastewater treatment plant by the incorporation of scientifically proven aerobic granular sludge technology into the treatment process together with associated nitrogen and phosphorous removal. When compared to the previously permitted and proposed long sea outfall (in tunnel) option, the current proposal has significant advantages and would be less intrusive on the receiving environment. The regional biosolids storage facility would assist in meeting the aims of the Sewage Sludge Directive, regulating the use of sewage sludge in agriculture to prevent harmful effects. Outside of matters considered above, environmental impact assessment and appropriate assessment are considered in the following sections of my assessment set out below. Subject to consideration of these matters, it can be concluded that the proposed development is in accordance with the proper planning and sustainable development of the area.

11.0 Environmental Impact Assessment

11.1. Introduction

11.1.1. This section of the report comprises an assessment of the likely significant effects of the overall project, referred to by the applicant as the 'proposed upgrade project' which includes the proposed development which is the subject matter of the current SID application in combination with the elements of the 2012 Approval which are also being progressed. A number of the matters to be considered have already been addressed in the Planning Assessment above. This section of the report should therefore be read, where necessary, in conjunction with the relevant sections of the

Planning Assessment. As the application is being made under Section 37E of the Act, it is required to be accompanied by an environmental impact assessment report. With a design capacity for 2.4 million PE, it also falls within and exceeds the thresholds (150,000 PE) of Class 13 of Part 1 of the fifth schedule of the regulations.

11.1.2. The application was submitted after 16th May 2017, the date for transposition of Directive 2014/52/EU amending the 2011 EIA Directive. The application is therefore supported by an EIAR. The Directive was transposed into Irish legislation on September 1st of 2018 under the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018, after the application was received.

11.1.3. The Department of Housing, Planning and Local Government (DHPLG) issued Guidelines entitled – Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018). These provide guidance in relation to various sections of the Act arising from the transposition of the Directive. I have noted the above and I have also had regard to other guidance documents including: Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA and European Commission guidance documents on the implementation of the EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU) and also the Board's internal guidance on EIA.

11.2. Compliance with Legislation

11.2.1. The EIAR addresses the overall 'proposed upgrade project', which as I have outlined above is meant to include elements of the previous 2012 Approval being progressed together with the development for which permission is currently sought and which includes both the WwTP component at Ringsend and the RBSF at Newtown.

11.2.2. It comprises five volumes, grouped as follows:

- Volume I: EIAR Non-Technical Summary,
- Volume 2: Introduction (Part A – Report and Part B – Appendices),

- Volume 3: Ringsend Wastewater Treatment Plant (Part A: Report and Part B: Appendices),
- Volume 4: Regional Biosolids Storage Facility (Part A: Report and Part B: Appendices),
- Drawings (Part A: Ringsend Wastewater Treatment Plant Upgrade and Part B: Regional Biosolids Storage Facility).

11.2.3. In total, each of Volumes 3 and 4 of the EIAR contains 19 chapters which are entitled 'Sections'.

11.2.4. As is required under Article 3(1) of the EIA Directive, the EIAR identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of the project on the following environmental factors: (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape and it equally considers the interaction between the factors referred to in points (a) to (d).

11.2.5. In accordance with Article 5 and Annex IV, the EIAR provides a description of the project comprising information on the site, design, size, characteristics and other relevant features of the project. It also provides a description of the likely significant effects of the project on the environment and a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.

11.2.6. The EIAR includes a non-technical summary of the information referred to in Article 5 (a) to (d) and additional information specified in Annex IV relevant to the specific characteristics of the overall project and project type and to the environmental features likely to be affected. In this regard, the EIAR provides a description of the evidence used to identify and assess the significant effects on the environment. The EIAR provides an adequate description of forecasting methods/ evidence used to identify and assess the significant effects on the environment. Any difficulties which were encountered in compiling the required information are set out under the respective environmental topics which were individually assessed.

11.2.7. The features of the project and/or mitigation measures envisaged to avoid or prevent what might otherwise be significant adverse effects on the environment are set out under each environmental topic considered. The potential impacts and mitigation measures are summarised under Section 17 and a summary of residual impacts is set out within Section 18 of Volumes 3 (Ringsend WwTP) and 4 (RBSF) of the EIAR. Where proposed, monitoring arrangements are also outlined. Environmental interactions and cumulative impacts are also addressed. Consultation undertaken by the applicant meets with the statutory requirements listed under Article 6 of the EIA Directive.

11.2.8. I am satisfied that the information provided in the EIAR is sufficiently complete and up to date. It is of a high level of quality, containing comprehensive studies and scientific analyses which are evidently prepared by qualified and competent experts. In this regard, I note that the qualifications and expertise listed and demonstrated by the experts involved in the preparation of the EIAR. I am also satisfied that the participation of the public has been effective and the application has been made accessible to the public by electronic and hard copy means with adequate timelines afforded for submissions.

11.2.9. My assessment is based on the information provided by the applicant, including the EIAR, the reports and submissions made in the course of the application by Planning Authorities, prescribed bodies and observers and the applicant's response to reports and submissions.

11.3. Alternatives

11.3.1. Alternatives which were studied are addressed within Volume 2 of the EIAR in respect to both project components. In respect of the Ringsend WwTP proposals, it is outlined that the GDSDS recommended the Ringsend WwTP should be maximised within the confines of its current location and that a new wastewater treatment facility would be sited in north County Dublin (the Greater Dublin Drainage Project). It also references that the GDSDS was the subject of a Strategic Environmental Assessment (SEA) and that the process considered a comprehensive assessment of alternative locations for the additional wastewater treatment required for the region and concluded that the Ringsend WwTP was the optimum location. In

addition, the current EIA considered alternative technologies which could potentially be employed. These include the following:

1. Sequencing Batch Reactors (SBR) and Capacity Upgrade (SBR + CU) continuing to use the Long Sea Outfall Tunnel (LSOT);
2. Deep Shaft Aeration (DSA) with SBR discharging to the Lower Liffey Estuary;
3. Integrated Fixed-Film Activated Sludge (IFAS) discharging to the Lower Liffey Estuary;
4. Membrane Bioreactor (MBR) discharging to the Lower Liffey Estuary and;
5. Aerated Granular Sludge (AGS) discharging to the Lower Liffey Estuary.

11.3.2. The options were scored against 15 parameters following which a conclusion was reached that the preferred option based on technical, environmental and cost grounds would be the use of AGS treatment on site to improve effluent quality discharging into the Lower Liffey Estuary at its existing outfall. A comparison was then presented between the AGS and LSOT (permitted under the 2012 Approval) options and the AGS option was considered as being more favourable at the end of the process.

11.3.3. In relation to the RBSF, five alternative locations were shortlisted and assessed against four criteria (Environmental, Economic & Engineering, Planning and Social & Community). At the end of this process, the current site at Newtown emerged as the preferred site.

11.3.4. For both the Ringsend WwTP and the RBSF components, the ‘do-nothing’ option was also considered and ruled out as not being a suitable option in each case.

11.3.5. Overall, a description of the reasonable alternatives studied by the developer, which are relevant to the proposed project and its specific characteristics have been clearly presented, together with an indication of the main reasons for selecting the chosen option for each of the Ringsend WwTP and RBSF components, taking into account the effects on the environment.

11.4. Conclusion on EIAR Compliance with Legislation

11.4.1. I am satisfied that the information provided in the EIAR is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment to be incorporated into its decision on the planning application. I am also satisfied that the information contained in the EIAR complies with the provisions of Article 3, 5 and Annex (IV) of EU Directive 2014/52/EU amending Directive 2011/92/EU.

12.0 Likely Significant Effects on the Environment

12.1. Introduction

12.1.1. In this section of my assessment, I consider the direct and indirect significant effects of the development against the factors set out under Article 3(1) of the EIA Directive 2014/52/EU, which include:

a) population and human health;
b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
c) land, soil, water, air and climate;
d) material assets, cultural heritage and the landscape;
e) the interaction between the factors referred to in points (a) to (d).

12.1.2. My assessment is structured to follow items (a) to (e) directly above in respect of each of the two project components. I have dealt with noise and odour under the heading of c) land, soil, water, air and climate. I have considered all of the documentation lodged with the EIAR and all of the documents and drawings on the planning application file, including written submissions.

12.2. Population and Human Health

12.2.1. Population and Human Health – Ringsend WwTP component

Introduction and Existing Environment

12.2.2. In terms of population, the EIAR provides details of the resident population, working

population and the visiting community, including recreational amenities. The local area comprising electoral divisions Pembroke East A, Pembroke East B and Pembroke East C is identified as the area which would be most likely to experience local impacts arising from the Proposed WwTP component.

12.2.3. The closest residential dwellings are located c. 950m to the south-west of the proposed WwTP, along Beach road/Strand road. Dwellings are also located c.975m west of this site along Pigeon House road. Poolbeg West, located to the south west of the Ringsend WwTP site, has been designated as a Strategic Development Zone (SDZ), which is earmarked to deliver approximately 3,500 homes and other commercial and mixed uses.

12.2.4. In terms of the working population, employment is concentrated in Dublin city centre, which forms a large proportion of the c.750,000 working population in the GDA as a whole. According to the 16th Issue of Dublin Economic Monitor published in February 2019, the latest unemployment figures for Dublin is 5.3% (Q4 2018). The unemployment rate for the State is 5.3% (CSO Jan 2019). The Ringsend WwTP facility currently provides employment for c. 40 full time employees.

12.2.5. Regarding the visiting population, there are multiple visitor attractions and leisure and recreational amenities, sporting facilities and clubs, recreational walks, parks and hotels, bars and restaurants in the local and regional area. The local coastal walkway extends from the Merrion Gates to the Great South Wall. The Aviva stadium, hosting sporting and other events is located c. 2km to the south west of the site. Under the Quality of Bathing Waters Regulations 2008, as amended, four stretches of Beach (Dollymount Strand, Sandymount Strand, Merrion Strand and Seapoint) have been designated as bathing waters and are used as a recreational amenity by the local and visiting population.

12.2.6. The EIAR provides information on the general Health Status of persons from the CSO 2016 census across local EDs (Pembroke East A, Pembroke East B and Pembroke C). Sensitive receptors within the local area are identified as including: Irishtown Health Centre, St. Patrick's Boys National School, Cambridge Road, St. Patrick's Girls National School, Ringsend College / Coláiste na Rinne and Ringsend Community Centre, all of which are located in the Dublin 4 area.

Potential Impacts

12.2.7. The assessment concludes that the proposed Ringsend WwTP component would not give rise to significant adverse effects on the local or wider population. If permitted and implemented, the development would give rise to employment for c.150 construction workers (at peak) and 15 new employment positions during operation, resulting in positive impacts through economic benefits. Once complete and operational, the Ringsend WwTP would have increased capacity for wastewater treatment and would be pivotal in supporting planned residential growth aligned with the growth of the economy in Dublin city and region which it serves.

12.2.8. In considering human health impacts, the DPHLG guidance states that the 'notion of human health should be considered in the context of other factors in Article 3(1) of the EIA Directive'. The delivery of the Ringsend WwTP upgrade would result in a higher standard of wastewater treatment. Effluent discharged to Dublin bay would comply with the Water Framework Directive (WFD), the Urban Waste Water Treatment Directive (UWWTD) and the Bathing Water Directive (BWD).

12.2.9. Slight adverse impacts are predicted to arise because of an increase in traffic on the road network during the construction and operation phases. Further details on traffic impacts including road safety are considered under the heading of Traffic, as set out under the Planning Assessment section of this report.

12.2.10. Concerns were raised regarding human health during the applicant's initial consultation with the public prior to lodging the application. Potential impacts identified include concerns that pollution might cause a deterioration in water quality. It is of relevance to note that Dublin Bay waters are not used as a resource for drinking water, but parts of the bay are used as a recreation area for swimming and other activities and it is stated that the bay is a resource for fish and shellfish intended for human consumption. It is stated under Section 5.5.3.1 of Volume 3 of the EIAR that no shellfish are collected within the inner part of Dublin Bay. It has been determined in the assessment of the water environment that, for the most part, the construction phase would not result in impacts on designated bathing waters and as such would not give rise to effects on human health. It is acknowledged however that there would be a deterioration of bathing water quality in 2019/2020, due to

decommissioning of aspects of the WwTP in advance of new phases being added. As is stated in the EIAR, this would lead to a 'slight' negative indirect impact for the bathing population and others undertaking water-based activities, removing their enjoyment and use of this amenity for the stated period. While accepting this impact would be short term in duration, I would be more inclined to conclude that this impact would be 'moderate' rather than 'slight' in terms of significance for the community that use the bay for recreation. This is particularly so as it is stated in the EIAR under the heading of Population and Human Health that the impact would be largely dependent on overall water quality in the area at the time and whether the current bathing restrictions in place would continue to remain in place over that time.

12.2.11. Concerns have also been raised during the course of the application concerning impacts on air quality and dust, noise, odour, traffic and impacts as a result of rodents (as potential vectors of disease), management of sludge and safe disposal of hazardous material. These impacts have been considered in detail in the EIAR by the appropriate specialists, which I deal with under the assessment of the respective environmental factors. However, insofar as they relate to human health, I have considered the mitigation measures proposed and residual impacts likely to arise post implementation of mitigation, as set out below.

Mitigation Measures

12.2.12. There are no specific mitigation measures proposed in relation to population or human health during construction or operational phases beyond those proposed to address other environmental impacts. The overarching design measures proposed for the construction stage centre around the preparation and adherence to the CEMP and a traffic management plan.

12.2.13. Regarding deterioration in water quality during the period of decommissioning of aspects of the WwTP, these works are proposed to be carried out during the winter of 2019/2020 when recreational swimmers and water based sports activities are at seasonally low levels and as set out in Section 4 of the EIAR, this impact is not anticipated to result in an overall deterioration in bathing water quality at the designated bathing areas.

12.2.14. Dust would be controlled by applying the German air pollution control limit, known as

the TA Luft limit of 350 mg/m^2/day (averaged over a one-year period) for receptors outside the site boundary. At this level, no unacceptable dust that would give rise to adverse impact on population or human health or on the enjoyment of amenities in the vicinity of the proposed WwTP component are anticipated.

12.2.15. Air quality dispersion modelling found that during the construction phase, there would be no impact greater than imperceptible for receptors as a result of traffic emissions and, as such, there is no likelihood of adverse effects on human health in this regard.

12.2.16. The noise and vibration assessment concludes that once best practice measures are employed during construction and operation, noise and vibration generated would fall within acceptable limits.

12.2.17. Regarding odour, it is intended that the predicted odour concentrations at all areas of long-term public exposure and potential areas of future residential use, including the Poolbeg West SDZ, would be below the adopted odour criterion of 3 ou_E/m^3 as the 98^{th} percentile (hourly average) limit and hence no negative impacts are predicted on population or human health from odour as a result of the proposed development at Ringsend WwTP component. During construction, this criteria of 3 ou_E/m^3 would be met apart from where there is the temporary shut-down of existing odour control units to facilitate new connections, though during this time, no perceptible change in odour concentrations outside of the site is predicted.

12.2.18. With the implementation of good traffic management, apart from slight impacts due to traffic delays, no adverse effects on population or human health are likely to arise as a result of traffic during the construction or operational phases. It is proposed that the local community would be kept informed of developments, including any traffic diversions, through a dedicated point of contact.

12.2.19. A rodent and pest control plan is proposed to be prepared and implemented to prevent impacts that could occur from the spread of pathogens from rodents that might be disturbed during construction.

12.2.20. Hazardous materials that may be encountered would be required to be handled and appropriately governed by comprehensive waste management legislation. This is

dealt with in greater detail under the heading of Land and Soils in this assessment.

12.2.21. Sludge generated would be treated at the existing facility to form biosolids and the biosolids would be transported to the RBSF for storage prior to it's use as a fertiliser on land. I revisit this matter in greater detail as part of my assessment of the RBSF component.

Residual Impacts

12.2.22. It is clear that residual impacts on population and human health would be broadly positive as a result of providing improved wastewater treatment quality and an increase in capacity to cater for sustainable residential and economic growth, as well as safeguarding health and the environment.

12.2.23. During construction, there would inevitably be some nuisance associated with construction activity, detracting from the amenity value of public walkways close to the Ringsend WwTP site and resulting in a slight negative impact for the visiting population. Alterations to the boundary treatment along the southern and eastern boundaries of the WwTP are predicted to also result in impacts, which are slight/neutral significant in the longer-term operational phase along this section.

12.2.24. There is potential for short-term residual moderate impact on bathers and participants in other water sporting or recreational activities during the expected deterioration of water quality during 2019/2020, as tanks are taken off-line on a phased basis while being upgraded, as dealt with above. I am satisfied that the duration of this impact would be short-term in duration and given the overall long-term benefits that would result, this is acceptable.

12.2.25. Overall, I am satisfied that mitigation measures identified throughout the EIAR are sufficient to ensure that no unacceptable residual impacts or effects on population or human health are likely to arise during construction or operation.

Monitoring

12.2.26. No monitoring specific to population or human health is proposed. Monitoring is proposed in relation to other environmental factors which I have considered and referenced as relevant under specific sections of my assessment.

12.2.27. **Population and Human Health - RBSF Component**

Introduction and Existing Environment

12.2.28. The population of the EDs Ward and Dubber are identified as those which would be most likely to be aware of or be impacted by the development of the proposed RBSF component. The larger residential areas are concentrated within two and three kilometres from the RBSF site, separated by employment and industrial uses. There is a detached house at the eastern boundary of the site. A development of up to eight residential units is under construction on a site of two former houses, located c.25m from the eastern site boundary. In line with Dublin and the State there is a downward trend in unemployment.

12.2.29. In terms of the visiting population, recreational facilities and amenities within the immediate area include the Ward River, golf clubs and St. Margaret's GAA club. The Tolka Valley Regional Park is located 4.1 km to the south and west.

12.2.30. The EIAR provides information on the health status of the population from CSO 2016 census across local EDs (Dubber and The Ward). Sensitive receptors are identified as including: Charlestown medical and dental centre, St. Margaret's Primary and St. Luke's Primary school, Le Chéile secondary school and Tyrellstown community centre.

Potential Impacts

12.2.31. The construction and/or operation phases could potentially give rise to impacts on population / human health, including air quality and dust, noise, sludge storage and management, odour, traffic and pest control.

12.2.32. These impacts have been considered in detail in the EIAR by the appropriate specialists and I have dealt with these also under the assessment of the respective environmental factors. However, insofar as they overlap with human health, I have considered the mitigation measures proposed, as set out below, together with the residual impacts likely to arise post implementation of mitigation.

12.2.33. If permitted and implemented, the development would give rise to employment for c.70 construction workers and 10 new employment positions during operation,

resulting in positive impacts through economic benefits.

12.2.34. At a wider scale, positive indirect benefits would result for population and human health in supporting improved water treatment and providing a regional facility for the sustainable management of biosolids generated at the Ringsend WwTP and GDD Plant (if permitted).

Mitigation Measures

12.2.35. There are no specific mitigation measures proposed in relation to the resident, working or visiting population during construction or operational phases beyond those proposed under other specific environmental headings. The overarching design measure proposed for the construction stage centres around the preparation and adherence to the CEMP and a traffic management plan.

12.2.36. Air quality dispersion modelling found that in relation to traffic emissions during the construction phase, there would be no impact greater than imperceptible for receptors as a result of traffic emissions and, as such, there is no likelihood of adverse effects on human health arising out of air quality.

12.2.37. With employment of best practice, construction and operation noise is expected to fall within acceptable noise limits and, as such, would not give rise to negative impacts on human health.

12.2.38. With the implementation of good traffic management, no adverse effects on population or human health are likely to arise as a result of traffic during either the operational or construction phases. It is proposed that the local community would be kept informed of developments through a dedicated point of contact, including any traffic diversions.

12.2.39. In relation to odour, given that the treated biosolids would generate low odours and they are proposed to be stored indoors in a specially-designed building where odour control features are proposed to be employed, I am satisfied that significant effects on human health as a result of odour would not likely arise.

12.2.40. A rodent and pest control plan is proposed to be prepared and if implemented, this would prevent impacts to human health which could arise from the spread of

pathogens from rodents potentially disturbed during construction.

Residual Impacts

12.2.41. I would agree with the conclusion that the proposed RBSF component would result in slight negative short-term impacts on the local population during construction and no impacts would remain during the operation phase. Positive short-term impacts would also occur as a result of employment for 70 construction workers during this construction phase and opportunities for an additional 10 employees would arise in the operational phase.

Monitoring

12.2.42. No specific monitoring in relation to Population or Human Health is proposed. Specific monitoring relating to other environmental factors, as relevant are outlined under each specific Section of the EIAR.

12.2.43. **Conclusion on Population and Human Health**

12.2.43.1. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Population and Human Health**.

12.3. **Biodiversity**

12.3.1. **Marine Biodiversity - Ringsend WwTP component**

Introduction and Existing Environment

12.3.2. The site associated with the Ringsend WwTP, including the existing outfall is located outside but adjacent to the boundaries of eight European sites. These are listed under the heading of Terrestrial Biodiversity – Ringsend WwTP and are considered also under the heading of Appropriate Assessment.

12.3.3. The current status of the Liffey Estuary Lower (2015) remains ‘moderate’ and the coastal waters of Dublin Bay have a ‘good’ ecological status (Ref: Coastal Water

Quality Status 2010-2015 available on www.catchments.ie). The most recent Trophic Status Assessment (EPA, 2015) indicated that waters in the Lower Liffey Estuary and Dublin Bay can be regarded as 'Unpolluted', while the Upper Liffey Estuary is regarded as 'Eutrophic' and Tolka Estuary as 'Potentially Eutrophic'.

12.3.4. It is submitted in Section 5 of Volume 3 (Biodiversity - Marine) of the applicant's EIAR, that in the existing baseline scenario, the River Liffey and, to a lesser extent, the Tolka River, account for most of the total oxidised nitrogen (TON) input to Dublin Bay, while the WwTP is responsible for most of the phosphates and ammonia that are released into the bay. In this section, information is also provided about details of the intertidal marine benthic collection, marine mammals and fisheries together with results obtained from intertidal benthic surveys carried out in September 2015 and analyses of those results. Waterbirds are dealt with in my assessment under the heading of Biodiversity – Terrestrial.

12.3.5. In considering the marine environment, the area of the zone of influence of the effluent from the Proposed Ringsend WwTP component is presented in Figure 5-16 of Volume 3 of the EIAR and is stated to be based on the predicted modelled output for the winter depth averaged 50 percentile for Dissolved Inorganic Nitrogen (DIN). The zone broadly comprises the sea water inside the retaining walls, an area of the bay west of Bull Island and a small section to the south east of Bull Island.

12.3.6. Intertidal habitats of Dublin Bay include sandflats of fine to very fine sand and areas of soft muddy sand. The marine species recorded in Dublin Bay included anemone, worm types, crabs, shrimps, prawns, mussels, cockles, snails and fish. Marine mammals recorded in proximity to Dublin Bay included Minke Whale, Humpback Whale, Killer Whales, Harbour Porpoise, Bottlenose Dolphin, Common Seal and Grey Seal. Fish species recorded in the mouth of the River Liffey included: Trout, Bass, Sand Smelt, Common Goby, Mullet, Plaice, Nilsson's Pipefish, Sea Scorpion, Lemon Sole, Pollock, Spratt, Lesser Sand Eel, Eel, Flounder and Shore Rockling. Other species stated to be known to occur in the area include Salmon, Lamprey and Mackerel.

Potential Impacts

12.3.7. The Ringsend WwTP is currently not capable of achieving the necessary nutrient

reduction to meet the standards set out under the EPA Wastewater Discharge Licence and the UWWTD. It is expected that, in the absence of the proposed WwTP component, i.e. in the 'do-nothing/baseline' scenario, water quality in the receiving environment in the inner bay would likely deteriorate even further as wastewater volume / loading increase, leading to an increase in organic enrichment, oversupply of DIN to the area impacted by the existing outfall and a consequential decline in biodiversity in the Tolka Estuary and North Bull Island in particular. In this 'do nothing/baseline' scenario, the outer and south bays have been assessed as being unaffected by nutrient inputs from the WwTP at Ringsend. Notwithstanding this finding, it has been assessed that while localised impacts could occur, these would not be to a scale that could pose a threat to shellfish, fish or marine mammal populations in the Dublin Bay area.

12.3.8. During construction, the undersea tunnel / LSOT would not form part of the development and, as such, no direct physical disturbance of the seabed would occur. Therefore, Dublin Bay would not experience any negative impact including habitat destruction and/or changes in the nature or quantity of species. During the construction phase, there would be some reduction in effluent quality for a nine-month period in the winter of 2019/2020 during construction of the AGS structures and the SBR retrofit. There would also be an increase in the number of stormwater overflows from c.1.2% to between 2.5% and 3.3% of influent. It is submitted that the impact on marine aquatic and benthic ecology would not be discernible for this temporary period.

12.3.9. During the operation phase, the main impact on the marine biodiversity environment is predicted to be positive, due to improved water quality and decrease in nutrient loading in the treated effluent, leading to an increase in oxygen availability in Dublin Bay and, consequently, a substitution of algae and other microorganisms for a more biologically-diverse species. Such positive impacts are assessed as being limited to the species in the Tolka Estuary and the lagoons in the intertidal mudflats of North Bull Island. The changes/improvements are predicted as slow, as the areas of the bay would continue to be influenced by nutrient loads from the Liffey and Tolka rivers.

12.3.10. No significant adverse impacts on marine mammals or fisheries are predicted and

any changes to a richer fauna community is expected to be slow for the same reasons outlined. It has been assessed that seals may benefit from an increase in fish life in the inner part of Dublin Bay, as a result of improved water quality.

Mitigation Measures

12.3.11. Given that the proposed Ringsend WwTP component would lead to an improvement of water quality in Dublin Bay and a predicted corresponding improvement to the marine biodiversity environment, no mitigation measures are deemed to be required. Works throughout the construction phase would be required to comply with statutory requirements and adhere to the CEMP and best practice measures embedded into the design.

Residual Impacts

12.3.12. The assessment concludes that the proposed Ringsend WwTP component would give rise to an improvement in water quality status and positive impacts in the parts of inner Dublin Bay (the mouth of the Liffey, the Tolka estuary and the lagoons off North Bull island) resulting in increased diversity of benthic macroinvertebrates. Areas and habitats beyond these areas are considered to experience negligible changes as a result of the proposed WwTP component. It is also assessed that birds and marine mammals that forage within Dublin Bay would likely experience positive impacts because of the substitution of algae and other microorganisms for a more biologically-diverse species, though this impact is anticipated to be slow to occur. Residual impacts for the outer bay, sandflats off Bull Island and areas south of the South Great Wall have been assessed as negligible with habitats remaining unaffected by the proposed WwTP. I am satisfied with the conclusion that construction impacts would be no greater than indiscernible.

Monitoring

12.3.13. Monitoring of macroinvertebrate communities is proposed to detect any changes in the nature and abundance of the constituent taxa and post-construction water quality surveys are proposed to validate the mathematical results from modelling.

12.3.14. **Marine Biodiversity - RBSF component**

Residual Impacts

12.3.15. The assessment concludes that the proposed RBSF Component would not have any negative impacts on **Marine Biodiversity**, due to its large separation distance from the sea. I am satisfied that this is the case and that no further assessment is required.

12.3.16. **Terrestrial Biodiversity - Ringsend WwTP component**

Introduction and Existing Environment

12.3.17. It is submitted that the effluent from Ringsend WwTP cannot be detected outside of Dublin Bay, and therefore the assessment is confined to those European sites within the area of the bay along the seaward limit, which extends from Baily Lighthouse to Dalkey Island, as presented on Figures 6-1 (SAC European sites in Dublin Bay) and 6-2 (SPA European sites in Dublin Bay) of Section 6 in Volume 3 to the EIAR.

12.3.18. Accordingly, there are eight European sites identified as having potential to be adversely affected by the proposed Ringsend WwTP component. These are presented in Figures 6.1 and 6.2 of Section 6 of the EIAR (Volume 3) and are listed under as follows:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024);
- South Dublin Bay cSAC (site code 000210);
- North Bull Island SPA (site code 004006);
- North Dublin Bay cSAC (site code 000206);
- Howth Head Coast SPA (site code 004113);
- Howth Head cSAC (site code 000202);
- Dalkey Islands SPA (site code 004172) and
- Rockabill to Dalkey Island cSAC (site code 003000).

12.3.19. As the Proposed WwTP Component could potentially result in significant effects on the designated European Sites within Dublin Bay and the immediate vicinity, having regard to the sites conservation objectives, a Natura Impact Statement is included

with the application and I consider this aspect under the heading of Appropriate Assessment below. These European sites are described in the Natura Impact Statement that accompanies this Planning Application.

12.3.20. The following proposed NHAs lie within Dublin Bay and the surrounding environment:

- South Dublin Bay pNHA (site code 000201);
- North Bull Island pNHA (site code 000206);
- Howth Head pNHA (site code 000202);
- Grand Canal pNHA (site code 002104);
- Royal Canal pNHA (site code 002103) and
- Dalkey Coastal Zone & Killiney Hill pNHA (site code 002106).

12.3.21. Intertidal areas support large waterbird populations. Terrestrial habitats include coarse grassland outside of the WwTP and a bund to the east which contains an area of immature woodland and ornamental shrub which I am satisfied is of low conservation value. The eastern bund also contains invasive plant species (Japanese Knotweed). Irishtown Nature reserve to the south and this is used by wintering waterbirds. It is stated in the EIAR that it was originally provided as a winter feeding area for light-bellied Brent Geese. Waterbird numbers were drawn from monitoring surveys carried out as a condition attached to the adjoining Waste to Energy plant and surveys carried out by Birdwatch Ireland. Brent Geese were evidently recorded on this grassland from November to April each year varying between 34 and 411 over the eight winters 2007/08 to 2014/15. The grassland is stated to be also used by waders, with peak counts in winter 2014/2015 of 44 Oystercatcher, 3 Black-tailed Godwit, 1 Curlew, 2 Redshank and 3 Black-headed Gull (Mayes, 2015). Occasionally large flocks of Black-headed Gulls and Herring Gulls are stated to have also been recorded on the grassland.

12.3.22. At a wider level, Dublin Bay hosts internationally important bird species including: Light-bellied Brent Goose, Knot, Black-tailed Godwit and Bar-tailed Godwit, as well as 19 other species in nationally important numbers. Both Common Tern and Arctic Tern breed in Dublin Port. In late summer and autumn, large numbers of post-

breeding terns congregate in South Dublin Bay, originating from a wide area throughout Ireland. The terns forage in Dublin Bay, including the area potentially affected by the effluent arising from the Ringsend WwTP.

12.3.23. A colony of Black Guillemots is also known to breed in the quayside areas of Dublin Port and in the tidal stretches of the River Liffey. These birds forage in Dublin Bay, including the area potentially affected by the effluent arising from the Ringsend WwTP.

Potential Impacts

12.3.24. In the 'baseline/without project' scenario, invasive species (Japanese Knotweed) would spread further on the eastern boundary of the site. In addition, the nutrient outputs from the WwTP due to operational overload and stormwater discharges could result in a decline in the biodiversity of invertebrate communities in the Tolka Estuary and the North Bull Island channel, though it is stated to be unlikely that this scenario would have any significant impact on the waterbird populations that forage in Dublin Bay.

12.3.25. The removal of the bund at the eastern end of the WwTP site would involve the removal of recently planted trees and shrubs which would lead to a loss of habitats of low biodiversity value. Connection of a high-voltage ESB cable is a requirement and during construction of this element, this could lead to temporary impacts on the terrestrial biodiversity environment, as the work would occur in an area within South Dublin Bay and River Tolka SPA.

12.3.26. It is submitted in the EIAR that there is potential for indirect visual disturbance to Brent Geese and other waterbirds using this amenity grassland immediately south of the WwTP, arising from construction activity and movement of construction workers. I note however that the waterbirds would be accustomed to visual interaction with similar type of activities during the current operation of the plant and adjoining industrial maintenance and operation activities, which leads me to conclude that this impact would not likely be significant.

12.3.27. It is submitted that construction noise would not result in significant impacts on both wintering and summering waterbirds in Dublin Bay, as these waterbirds are

habituated to noise from similar construction and industrial activities in the surrounding environment and, therefore, construction is not considered to be threatening to waterbirds and terns which are qualifying interests of the European sites in Dublin Bay. It is also submitted that the noise levels which the tern colony would generate, stated to be up to 70 to 80 dB(A) would far exceed the level of construction noise. While that may be so, noise associated with construction activities would be of a different type than noise type generated by the waterbirds or tern colonies themselves. However, given the nature of the area which is predominately characterised by heavy industry and similar activity whereby construction and maintenance are not new features, I accept that the waterbird populations would be accustomed to such noise and that there would be no significant impacts likely on waterbirds or terns in the absence of mitigation. By way of comparison, it is stated that during the construction of the sewage treatment plant at Mutton Island in Inner Galway Bay, numbers and diversity of wader species roosting close to the construction site remained stable or slightly increased (Nairn, 2005).

12.3.28. It is stated that effects of dust deposition on flora or fauna would be imperceptible as the levels would not be high enough such as to cause any adverse impacts on flora or fauna. In addition, waterbird species are not sensitive to NOx concentrations contained in air emissions which could occur during construction and operation phases.

12.3.29. During operational phases, the potential indirect impacts on intertidal habitats in Dublin Bay would be neutral or somewhat positive in the vicinity of the existing discharge location or in the wider coastal and marine area.

12.3.30. The EIAR addresses concerns that an improvement in water quality and biological status of estuaries through the project delivery and a reduction in nutrient loads could have a knock-on effect on the trophic food chain and consequently waterbird populations. While some changes are expected to occur, particularly to algal blooms which are a source of organic matter to the benthic ecosystems, it is submitted that this would be limited to the northern sections of Dublin Bay. It is submitted that the proposed WwTP component would not have any detrimental impacts on the aquatic food chain in the bay and that as a result of the proposed WwTP component, benthic

macroinvertebrates are assessed as likely to become more diverse and phytoplankton is unlikely to become less abundant, but rather more diverse and such changes would likely be slow to occur. It is stated that the Tolka Estuary would continue to be affected by some level of organic enrichment from the Liffey and Tolka rivers. The conclusion reached, based on previous scientific studies and results from surveys is that the bird populations, whether dependent on aquatic plants or infaunal macroinvertebrates are not being likely to be impacted by the proposed WwTP component. I am satisfied based on the scientific information submitted that the proposed WwTP component would not lead to any detrimental impacts in the bay and the bird populations would not be negatively impacted on.

Mitigation Measures

12.3.31. Solid screening is proposed to be erected prior to construction to reduce or eliminate any visual disturbance from construction activities to Brent Geese and other waterbirds using the amenity grassland to the south. I note that this is already in place, stated to be part of a works contract and I assume would also serve to secure the construction site.

12.3.32. No mitigation is considered to be required in relation to noise impacts on waterbirds or nesting terns, as these species are accustomed to traffic and machinery noise in the area.

12.3.33. An Invasive Species management plan is proposed to be prepared and implemented as a control measure to prevent the spread of Japanese Knotweed. A dust management plan is proposed to be implemented during construction. No dust mitigation measures are stated to be required or proposed during operation.

12.3.34. The required connection to the ESB high voltage cable would be carried out in the period between 1st May and 31st August (when the Brent Geese are absent from the SPA) and the construction area would be fully reinstated by backfilling with the original soil and laying of grass turves in their original position. The grassland is proposed to be fully reinstated in time for the return of the geese in September/October.

Residual Impacts

12.3.35. The assessment concludes that with mitigation in place, no negative impacts are predicted on terrestrial biodiversity (including flora and fauna) during either the construction or operation phases, as a result of the Ringsend WwTP component. Based on scientific information presented in the EIAR, there is no evidence to suggest that the anticipated reduction in nutrient loading would give rise to adverse impacts on the trophic food chain and consequently waterbird populations.

12.3.36. The Parks and Landscape Services Division of Dublin City Council state their requirement that all invasive species are removed entirely from the Ringsend WwTP site and they request that a condition be attached seeking proposals to be submitted in this regard. No submission was received from the Department of Culture, Heritage and the Gaeltacht / National Parks and Wildlife Service (NPWS) addressing biodiversity.

Monitoring

12.3.37. It is stated that monitoring of waterbirds on the grassland would take place during construction and for a year after to establish the efficacy of the mitigation measures on potential disturbance. A comprehensive monitoring programme currently being undertaken by Birdwatch Ireland for all of Dublin Bay, is also proposed to be used to inform the assessment of the efficacy of potential changes in waterbird populations related to effluent discharge.

12.3.38. Annual monitoring to determine the efficacy of measures used to control the spread of invasive species is also proposed.

12.3.39. **RBSF component**

Introduction and existing environment

12.3.40. The site comprises mainly open areas of grassland, with dry meadow and grassy verges and areas are being grazed by horses. It is not covered by any nature conservation designations.

12.3.41. There are three European designated sites within 10 km radius of the site: Malahide Estuary cSAC (site code 000205), Malahide Estuary SPA (site code 004025) and

South Dublin Bay and River Tolka Estuary SPA (site code 004024).

12.3.42. Two pNHAs are also located within a 5km radius: Royal Canal pNHA (site code 002103) and Santry Demesne pNHA (site code 000178). There are no ecological pathways between these pNHAs and the RBSF component and I am therefore satisfied that no impacts would arise on these pNHAs.

12.3.43. A drainage ditch runs along the western perimeter of the site. It is submitted to be of negligible biological value due to it having a silty substrate and very slow flow. It flows into the Huntstown stream which is a tributary of the Ward River, c.5km from the site. As informed by IFI, the Ward River is an important salmonid system, having resident salmon and sea trout populations. The river enters the Broadmeadow River north of Swords and ultimately discharges into the Malahide Estuary cSAC.

12.3.44. Bird species recorded on the site are common in farmlands with one species, Robin, amber-listed (medium conservation concern) in the 'Birds of Conservation Concern in Ireland' (Colhoun and Cummins, 2013). No larger mammals were observed on site. Badger foraging and commuting signs were found on the site. Five bat species were recorded on the site, largely associated with Leisler's bat, with some activity of Common pipistrelle, and low numbers recorded for other species (Soprano pipistrelle, unidentified Myotis species and unidentified Pipistrellus species). Trees and structures on site are not considered suitable for roosting of bats.

12.3.45. Overall, I would accept the applicant's conclusion that the site is of local importance in terms of terrestrial biodiversity.

Potential Impacts

12.3.46. In terms of terrestrial biodiversity, dry meadow and grass habitats would invariably be lost as a result of the development. No hedgerows or treelines are proposed to be removed as part of the proposed RBSF component and breeding birds would not be adversely impacted during construction.

12.3.47. Bats would be able to continue to feed in remaining grassland areas and along field boundaries. As approximately half of the grassland would remain undeveloped, adequate area would remain for foraging by badgers.

12.3.48. Impacts would be no greater than imperceptible and negative in the long-term / operational phase.

Mitigation Measures

12.3.49. During construction, no vegetation would be cleared from the site during the bird breeding season (between 1st March to 21st August) to avoid disturbance to nests, subject to results of a breeding bird survey, prior to construction. If no breeding birds are observed during the survey, it is stated that this mitigation measure would not be required. I consider this approach to be reasonable. Noting observations of badger usage of the site for foraging, confirmatory surveys for badgers are proposed prior to construction and, if required, appropriate mitigation measures would be put in place. Stormwater would be attenuated and discharged at greenfield runoff rate. Petrol and oil interceptors would be used to remove any potential contaminants from run-off from the site. Any run-off with potential for containing biosolids would be collected and discharged to a public wastewater sewer.

12.3.50. During the operation phase the northern site area would be planted with deciduous trees to mitigate loss of foraging areas for bats. Floodlighting would be directed downwards to avoid light spread to cover this proposed planting. As part of the design, during operation, wastewater and run-off within the buildings and any run-off with potential for containing biosolids would be collected and pumped to a public sewer.

Residual Impacts

12.3.51. I would agree with the conclusion arrived at, that with mitigation in place, no negative impacts are predicted on the terrestrial biodiversity environment beyond neutral and imperceptible, as a result of the RBSF component.

Monitoring

12.3.52. No monitoring is proposed, which is acceptable.

12.3.53. **Conclusion on Biodiversity**

12.3.54. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed

development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Biodiversity.**

12.4. Land, Soil, Water, Air and Climate

12.4.1. Land and Soil - Ringsend WwTP Component

Introduction and Existing Environment

12.4.2. Subsurface information from geotechnical investigation and published data indicates that the site comprises a minimum of 6.3m of made ground on marine sediments to depths of up to 14.5m below ground level (bgl). During investigations, glacio-marine deposits were encountered below this layer to depths of up to 22.8m bgl. Bedrock comprising weathered limestone with interbedded siltstone and mudstone was encountered at levels between 41.3m and 47.1m bgl.

12.4.3. The made ground encountered on site comprises predominately sand, clay and gravel. It is stated that large proportions of manmade waste material were observed in the geotechnical investigations, containing building waste, tyres, metal, cinders and some hazardous material including asbestos.

12.4.4. No geological heritage sites are located within the proposed WwTP site. Two such areas, North Bull Island and Bottle Quay, are located relatively close.

12.4.5. In terms of hydrogeology, the aquifer classification for the Calp Limestone formation by the Geological Survey of Ireland (GSI) is locally important (Li). There is no detailed vulnerability classification on the GSI database from the site, however, by applying GSI guidance, the vulnerability of the shallow groundwater is assessed as 'high' and the deeper aquifer is assessed as 'low'. Groundwater underlying the site is hydraulically connected to Dublin Bay and responds to tidal changes. It is saline in nature and not considered a suitable groundwater resource. Results for permeability coefficient (k) within the made ground were quite variable, ranging from 1.5×10^{-9} m/s to 2.4×10^{-2} m/s (Causeway, 2012 and 2016).

Potential Impacts

12.4.6. Spoil from excavation works within made ground would comprise an estimated 2,030

cubic metres of hazardous waste material, as well as other made ground with marine sediments, which could lead to negative impacts if not appropriately handled.

12.4.7. Piling works proposed have the potential to create vertical pathways in which potentially contaminated soils, sediment and groundwater could migrate downwards. However, as stated above, the underlying aquifer is not a potable groundwater resource.

12.4.8. Dewatering abstractions would require sheet piling to prevent groundwater inflows during excavations. However, no significant volumes of water are intended to be abstracted and the dewatering is not therefore considered to result in significant effects on the hydrogeological environment.

12.4.9. A ‘do-nothing’ approach to the Japanese Knotweed would result in a significant permanent negative impact. It is submitted that the control of the Japanese Knotweed would need to be addressed regardless or not of whether the Proposed WwTP Component proceeds.

12.4.10. Proposals for the removal of Japanese Knotweed is planned and it would be appropriate to condition same.

12.4.11. Potential impacts could occur from accidental spillages of pollutants or hydrocarbons during construction.

12.4.12. During the operation phase no direct discharges to the soil or hydrological environment are proposed and as such no significant impacts are anticipated.

12.4.13. When compared to the LSOT option, the AGS option would result in significantly less excavations. It is stated that the LSOT would have generated 850,000 tonnes of spoil during construction (and associated c. 70,000 truck movements) over an 18-month period. In addition, the current AGS option allows for the recovery of most of the phosphorous from the wastewater as distinct from the LSOT option in which c. four times as much phosphorous would have been discharged 9km out to sea. Therefore, in terms of waste recovery, the AGS option can be deemed to bring significantly greater benefits.

Mitigation Measures

12.4.14. The proposed CEMP is the overarching mitigation embedded in the project design and delivery and, if implemented appropriately, would ensure good construction management and best practice and accordingly minimise the potential for harmful impacts on the land and soils environment.

12.4.15. A site-specific waste management plan is also proposed to be prepared by the contractor and agreed in advance of the works. Disposal of unusable soils and waste materials encountered would be the responsibility of the contractor, who would be required to comply with statutory obligations. Three waste facilities with operational licences for acceptance of non-hazardous waste have been identified. Hazardous waste would be required to be exported overseas. Contaminated soils would be removed from the site for safe treatment and therefore no impact is predicted regarding waste disposal. It is stated that a project waste manager would be appointed by the contractor to oversee the implementation and adherence to the plan during the construction phase of the Proposed WwTP Component.

12.4.16. The appointed contractor would be required to provide a method statement for the dewatering of excavation below the water table.

12.4.17. Management of construction induced settlement would form part of the contract documents and these would include condition surveys and physical monitoring of settlements.

12.4.18. In order to mitigate potential impacts associated with the spread of invasive species, contract documents for the proposed WwTP are proposed to include a requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species management plan and monitor the success of the mitigation measures post-construction.

12.4.19. No specific mitigation is proposed for the operational phase apart from adherence to best practice.

Residual Impacts

12.4.20. I am satisfied that with mitigation in place, no significant negative impacts are likely

to arise on land and soils as a result of the Ringsend WwTP component. As contaminated soils would be removed from site, the predicted impact on the land and soils environment would result in a slight positive permanent impact. The removal of Japanese Knotweed currently on site would also result in a slight positive permanent impact.

Monitoring

12.4.21. No monitoring is proposed for land and soils outside of monitoring for the success of invasive species removal and monitoring for construction induced settlement. I consider this to be acceptable.

12.4.22. **Water - Ringsend WwTP**

Introduction and Existing Environment

12.4.23. This section of my report should be read in conjunction with the section – Principle and water quality set out under the planning assessment above. Section 4 of the EIAR in Volume 3 addresses the water environment at the Ringsend WwTP. The assessment of water focuses on the discharge from the treatment plant and considers the impact that would arise from the increase in flow and the improvement in the effluent quality. Groundwater/hydrogeology is considered separately under Section 7 (Land and Soils) of the EIAR (Volume 3) and I have dealt with this under the heading of Land and Soils above. The principal wastewater discharge point is located in the Poolbeg power station cooling water discharge channel in the Liffey Estuary and a stormwater overflow discharge point is located at Pigeon House harbour.

12.4.24. The required standards for the final effluent discharge are set out in the EIAR and are presented in Table 1 within the planning assessment section above. While the required ELVs relate to total Nitrogen (N) and total Phosphorous (P), water quality legislation and the assessment carried out in the computer modelling considered the parameters DIN and MRP. DIN is related to total Nitrogen as it represents the soluble organic fraction in water, available for biological uptake. Similarly, MRP is related to total Phosphorous representing the soluble organic fraction available for biological uptake. Total N and Total P include insoluble inorganic and soluble organic fractions which are not measured as part of DIN and MRP. The future DIN is

estimated to be between 80% and 90% of Total N and the future MRP is estimated to be between 70% and 80% of Total P.

12.4.25. The computer models used in the assessment included DHI MIKE 3 FM model and CEFAS CDPM model. The DHI MIKE 3 FM model is a hydrodynamic model and was used to analyse how the final effluent discharge disperses within the receiving water, while the CEFAS DCPM model was used to analyse the biological response (chlorophyll and macroalgae) to the final nutrients (nitrogen and phosphorous) inputs in the effluent being discharged into the receiving water. The CEFAS DCPM model focused on the Tolka Estuary, as the DHI MIKE3 model identified the Tolka Estuary as experiencing the highest impact from the Ringsend WwTP final effluent discharge. Both models drew on available scientific data and data collected from marine surveys. Water quality in the receiving water is monitored on an ongoing basis by the EPA and Dublin City Council and is therefore well understood. The MIKE 3 model was constructed from available data and refined and calibrated using additional marine survey results. It was then validated by comparing ongoing field sampling of the receiving waters (BOD, DIN and MRP). The DCPM model was calibrated from the boundary conditions identified in the MIKE 3 model at the entrance to the Tolka estuary.

Potential Impacts

12.4.26. The main changes in water quality arising from the upgraded Ringsend WwTP would be positive in that there would be a higher quality of treated effluent achieved and a reduction in pollutants released to the water environment.

12.4.27. The proposal to omit the LSOT and associated diffuser point 9 km out to sea would mean that there would be no deterioration of water quality at this location.

12.4.28. It was assessed through the modelling that as a result of the Ringsend WwTP upgrade, once complete and operational, there is a predicted positive imperceptible impact on the receiving water environment in respect of BOD and SS. In respect of ammonia, there is a predicted positive moderate impact. A reduction in the total DIN load discharged from the Ringsend WwTP is predicted and would be experienced primarily in the Tolka Estuary. The overall impact from the change in DIN discharge is considered positive and imperceptible. The impact of the Proposed WwTP

component in respect of the MRP parameter is also predicted as being positive and moderate.

12.4.29. It is also predicted that there would be a positive and not significant impact from the Proposed WwTP Component, in respect of the E.Coli parameter, both during normal operation and during storm events. A neutral impact is predicted on designated bathing areas as a result of E.coli.

12.4.30. During the construction phase, in the winter of 2019/2020, as stated above some processes would be removed on a phased basis resulting in reduced treatment capacity and hence a reduction in the final effluent quality is predicted. It is submitted that the nutrient (DIN and MRP) levels are not as critical during the winter months. It is also predicted that there would be a negative imperceptible and temporary impact with regard to the BOD and SS during this period. In terms of BOD, the quality standard is predicted as remaining below the 4 mg/l which is the parameter for 'good status' in transitional waters. This has been rated in the EIAR as having minor or slight significance on water. Similar to my consideration of the impact on recreational water based activities (and as assessed under the heading of population and human health), I would be more inclined to conclude that this impact would be 'moderate' rather than 'slight' in terms of significance on the water environment as it is stated in the EIAR, under the heading of Population and Human Health, that the impact would be largely dependent on overall water quality in the area at the time of the works which is stated to be largely carried out over a winter period but with an overlap of nine months.

Mitigation Measures

12.4.31. As the impacts on water quality of the receiving waters are identified as positive, no mitigation is proposed or necessary which, noting the intention of the development is to approve quality of effluent to the required standards is acceptable. I am mindful that there is an expected temporary moderate negative impact during the construction phase arising from the removal of some processes as outlined above over winter 2019/2020. While this could be mitigated by extending the specific works over a longer timescale, I accept the point made regarding the benefit of completing the construction over the intended shorter timeframe would bring positive benefits

earlier in the timeline that would outweigh any negative impacts were the timeline to be extended.

Residual Impacts

12.4.32. The residual impact of the Proposed WwTP component with respect to water quality would clearly be significantly positive in the long-term, arising from the improved final effluent and the proposed development would ensure the upgraded plant would be consistent with the UWWTD. In addition, the development would serve to protect the status of the receiving waters as required under the WFD and the BWD. As stated above, during the winter of 2019/2020 there would be a moderate impact on water quality for a short period during the period of decommissioning tanks. No long-term impacts beyond positive impacts are anticipated to arise because of these works. Accordingly, a short term moderate impact is acceptable.

Monitoring

12.4.33. The final effluent would be monitored in accordance with the terms of the Wastewater Discharge Authorisation (EPA Licence D0034-01) for the plant and this licence would likely be reviewed. Beyond this, no additional monitoring is proposed, which I consider is acceptable.

12.4.34. **Air and Climate - Ringsend WwTP component**

Introduction and Existing Environment

12.4.35. Baseline data and data available from similar environments indicates background concentrations in the vicinity of the Ringsend WwTP (2017) as follows:

- Nitrogen dioxide (NO_2) = 32 µg/m^3
- Particulates (PM_{10}) = 15 µg/m^3
- Particulates ($PM_{2.5}$) = 10.05 µg/m^3
- Benzene = 1 µg/m^3
- Carbon Monoxide (CO) = 0.44 mg/m^3

12.4.36. These all lie below the National and EU ambient air quality standard limits. Records

on prevailing winds were examined from the nearest representative weather station at Dublin airport, located 10 km north of the site.

Potential Impacts

12.4.37. Dust deposition arising from the construction phase has the potential to cause temporary slight local impacts at nearby residential properties within a separation distance of up to 200m. The closest residence to the main construction works is c.950m and I am satisfied that the residential receptors are unlikely to be affected by dust emissions from the WwTP site.

12.4.38. Vehicles transporting material also have potential to lead to dust generation along haul routes to and from the site. Four residential receptors were identified and modelled to establish the air quality and predicted impacts. Their locations are shown on Figure 8.2 within Section 8 of Volume 3 of the EIAR. I am satisfied that as submitted by the applicant, receptor R03 at Seán Moore Road would be representative of residential development that may be delivered at the Poolbeg SDZ.

12.4.39. The maximum impact identified is a predicted increase of 4.6% of NO_2 at receptor R2, deemed to be a slight adverse impact during construction. The potential impact is considered to be insignificant at all other receptor locations. The predicted impact of the proposed WwTP component during the construction phase with regard to PM_{10} and $PM_{2.5}$, CO and Benzene is predicted to be imperceptible, short-term and reversible at all four of the receptors assessed and the impact would inevitably decrease post completion of construction works.

12.4.40. During the operation phase, there is potential for a number of emissions to be released to the atmosphere. Emissions of NOx ($NO + N_2O$) from the nitrifying and denitrifying cycles within the plant could cause an impact to local air quality. However, it is stated that these emissions currently occur on site without issue and with the improved AGS process and improved process control, this would limit the volume of NOx released.

12.4.41. In the operation phase, impacts on air quality would potentially arise as a result of increased traffic volumes which could lead to increased quantities of air pollutants. This impact has been assessed by modelling emissions from the traffic generated. In

this regard impacts of the proposed WwTP component during operation from release of air pollutants (NO_2, PM_{10} and $PM_{2.5}$, CO and Benzene) are predicted to be imperceptible.

12.4.42. Greenhouse gas emissions produced during construction phase of the proposed WwTP are expected to account for 0.03% of Ireland's EU 2020 target. The AGS option is predicted to give rise to a lower emissions during construction particularly because of lower level of excavations and HGV movements and associated energy consumption.

12.4.43. During operation, an overall comparison of power consumptions for both the LSOT and AGS options found that the energy consumption during operation is expected to be comparable for both options. In terms of energy management, it is stated that the WwTP currently operates Ringsend WwTP to energy management standard ISO 50001 and would continue with improvements to achieve economic and energy efficiency including the recovery of renewable energy.

Mitigation Measures

12.4.44. During construction, no mitigation is proposed apart from adherence to good practice and the overarching CEMP, including dust minimisation measures. No site-specific mitigation measures are required during the operational phase of the proposed Ringsend WwTP component.

Residual Impacts

12.4.45. The assessment concludes that once dust minimisation measures are employed during construction, no negative residual impacts are predicted on the Air and Climate environment as a result of the Ringsend WwTP component. Neither are any residual impacts anticipated during the operational phase of the Proposed WwTP Component. I am satisfied that with the Ringsend WwTP component in place, air pollutants in the local area would be below the National and EU ambient air quality standard maximum limits.

Monitoring

12.4.46. During the construction phase, dust deposition monitoring using the Bergerhoff Gauge is proposed such as to ensure dust mitigation measures are adequately

controlling emissions. The TA Luft limit value of 350 mg/m^2/day would be applied during the monitoring period of between 28 - 32 days. No monitoring of dust is proposed during the operational phase, which, given that all biosolids would be stored indoors, is acceptable.

12.4.47. **Noise and Vibration - Ringsend WwTP component**

Introduction and Existing Environment

12.4.48. Noise and Vibration are considered together under Section 9 of Volume 3 of the EIAR. The residential receptors most sensitive to noise are identified as including houses along Strand Road (R131), which are located approximately 950m to 1,250m from the nearest boundary of the WwTP. The assessment considered the impacts on these receptors and also Poolbeg West SDZ lands, which have been identified for residential development, where the nearest receptor (R03) would be located 600m from the construction compound (C1). BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment and based on this, the proposed threshold for the Ringsend WwTP proposal would be 70 $L_{Aeq(1\ hour)}$ dB (daytime), $65_{Aeq(1\ hour)}$ dB (evening) and 55 $_{Aeq(1\ hour)}$ dB (night-time) at the nearest noise sensitive receptor.

12.4.49. By reference to BS8233:2014, during the operational phase, the following noise limits would apply at the façades of residential properties closest to the Ringsend WwTP project:

- Daytime (07:00 to 23:00 hours) 55 dB $_{LAeq,16hour}$;
- Night-time (23:00 to 07:00 hours) 45 dB $_{LAeq,8hour}$.

12.4.50. Vibration was considered across the category of human comfort and cosmetic damage. The allowable vibration limits were applied to nine residential receptors, marked R01 to R08 and R11 on Figure 9-2 Vibration Sensitive Receptors within Section 9 of Volume 3 of the submitted EIAR. Vibration impacts on Pigeon House Fort (a protected structure immediately partially within the site) and Old Pigeon House Hotel (a protected structure located further north) were also considered.

Potential Impacts

12.4.51. Typical construction noise is predicted to arise during the construction phase, which

due to the size of the site and the scale of the works, could be significant during daytime. Construction hours proposed are 08:00 to 18:00 for week days and from 08:00 to 13:00 on Saturdays. These are standard and acceptable. The predicted external construction noise levels are predicted to fall within the relevant noise criteria over the construction phase during both the capacity upgrade and the proposed retrofit works to incorporate AGS technology.

12.4.52. The level of construction traffic noise would be significantly below the prevailing existing daytime noise levels and just slightly above evening time noise levels. Overall, the impact of construction-related traffic on public roads is regarded as insignificant.

12.4.53. Noting the distance of the piling works from the closest sensitive structure (the wall of Pigeon House Fort), the expected vibration levels are estimated to be significantly below the limits recommended to prevent cosmetic damage to sensitive buildings or structures. Vibration impacts arising out of construction traffic are deemed to be insignificant.

12.4.54. For the operational phase, noise models predict noise levels would be in the region of 15dB to 35dB at nearby residential receptors. Such levels are at or below existing background noise levels and well below the 45dB night time threshold set out in the British Standard BS8223:2014.

12.4.55. During the operation phase, the proposed AGS reactor block is stated would provide additional acoustic screening to the existing plant items on the site. It is envisaged that a reduction in operational noise level of between 3 and 5dB could result once the reactor block is in place and the impact of the proposed WwTP component during operation can therefore be considered slight positive. Noise associated with traffic during operation is assessed as insignificant.

12.4.56. No impacts are expected to occur as a result of vibration during operation.

12.4.57. Discussion on the potential noise impacts of the development on local fauna is dealt with above under the heading Biodiversity – Terrestrial.

Mitigation Measures

12.4.58. During construction, the appointed contractor would be required to prepare and adhere to a Noise and Vibration Management Plan (NVMP) which would include measures to manage and remove or reduce any significant noise and vibration impacts arising at construction stage.

12.4.59. Mitigation for the operation phase would include a number of items, such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant.

Residual Impacts

12.4.60. The assessment concludes that once best practice measures are employed during construction and operation phases, noise and vibration generated would fall within acceptable limits which is acceptable. For further assurances in this regard, these should be regulated by condition.

Monitoring

12.4.61. The assessment concludes with a recommendation that the appointed contractor monitor levels of noise and vibration at nearby sensitive locations and/or development site boundaries.

12.4.62. **Odour - Ringsend WwTP component**

Introduction and Existing Environment

12.4.63. It is well reported that the Ringsend WwTP caused an odour nuisance to the local community in the early years. More recently, a number of measures were put in place to control odour and this coupled with odour management are stated to have been successful in significantly reducing odour nuisance at the plant.

12.4.64. It is stated that further works are ongoing including the recent provision of the three new Bord na Móna Odour Control Units (OCUs).

Potential Impacts

12.4.65. The potential odour impact is assessed by reference to two standards which are:

1. **Ringsend Project Odour Goal** – This standard is specific to the Ringsend WwTP and requires that odour emanating from the site shall not exceed 10 ou_E/m^3 as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The plant storm tanks are not included in the assessment of this odour goal.
2. **Ringsend Odour Target** - This is a general standard and relates to EPA Guidance in which an odour limit of 3 ou_E/m^3 is set at sensitive receptor locations on a 98th percentile of hourly averages. Once odour concentrations lie below this level, odour annoyance is unlikely to occur. The plant storm tanks are included in the assessment of this odour goal.

12.4.66. The likely odour to occur was assessed using the United States Environmental Protection Agency (US EPA) approved AERMOD model, which is a dispersion model based on the Gaussian theory of plume dispersion. I am satisfied that this method is widely used in Ireland and internationally for assessment of odour and is appropriate for the current proposals.

12.4.67. It is reasonable to accept the applicant's assertion that there is no likely significant odour impact anticipated as a result of construction activity. Post construction, the assessment concludes that the maximum predicted concentrations at the site boundary would fall between 6.20 and 7.30 ou_E/m^3, as the 99.4th percentile of hourly averages, which is less than 75% of the assessment criterion 'Project Odour Goal' of 10 ou_E/m^3 . The improvements in odour due to the expected reduced odour emission from the open sources is predicted to reduce the odour concentration by between 5% and 13% compared to the future 'baseline/without project' scenario.

12.4.68. The results of the odour assessment found that the predicted odour concentrations at all areas of long-term public exposure and potential areas of future residential use, including the Poolbeg West SDZ, would lie below the adopted limit of 3 ou_E/m^3 as the 98th percentile of hourly averages. The area occupied by the construction compound C1, included in the Poolbeg West SDZ is designated for mixed uses, predicted to have an odour concentration of between 1 and 8.5 ou_E/m^3 as the 98th percentile of hourly averages. These lands are stated to be in the ownership of Dublin Port and based on examination of the Dublin Port Masterplan, the lands shown are currently proposed to be redeveloped to support cargo handling activities.

The primary planned use of these lands is set out in the masterplan as one which would provide sufficient land capacity for the throughput of the new 600-metre-long container terminal quay wall. In its report to the Board on the current application, Dublin City Council SDZ team state that the lands are proposed to be utilised for cargo storage. I am satisfied that such a use would not be sensitive to odour and is well understood in advance of its development.

12.4.69. It is also of particular relevance to note that in comparing the implementation of the proposed WwTP component scenario to the future 'without project' scenario, the proposed WwTP component would result in an imperceptible positive impact as a result of a slight reduction in odour concentration at existing receptor locations.

Mitigation Measures

12.4.70. It is submitted that the principles of the site Odour Management Procedures (OMP) would be followed to include odour management for the construction phase of the new processes.

12.4.71. During operation, the site OMP would be updated to reflect odour management of new processes and identification of new odour emission sources for operational, management and maintenance procedures. Certain new sources associated with the upgrade would be covered and treated.

Residual Impacts

12.4.72. It has been demonstrated through the assessment that once mitigation and best practice measures are employed during construction and operation, negative impacts are not predicted on the environment as a result of odour emanating from the Ringsend WwTP upgrade.

12.4.73. Dublin City Council's Parks and Landscape Service considered the issue of odour impact to the adjacent nature reserve and coastal recreational area and concluded that as the facility is designed to achieve appropriate odour standards and that odour nuisance is not expected to occur. I am satisfied that this has been determined through assessment.

Monitoring

12.4.74. It is proposed to monitor odour sources at the Ringsend WwTP to ensure the effective management of the facility including olfactometry survey of elements, of the converted AGS reactors.

12.4.75. **Land and Soils - RBSF component**

Introduction and Existing Environment

12.4.76. Site investigations carried out in 2001 and 2017 revealed that the RBSF site comprises cohesive glacial tills underlain by sand/gravel on silt (with organics) on a layer of made ground. Bedrock comprising weathered limestone was encountered at depths between 13m and 22.3m bgl. No contaminated soil was encountered at the site. Huntstown Quarry to the south west of the site is a county geological site, designated because the limestone quarry face exposes the base of Tober Colleen, an important geological formation.

12.4.77. According to the GSI mapping, the aquifer classification is Li (locally important). The water quality status in the area is rated as ‘good’ and it is not considered at risk of deterioration. Groundwater varies from 2.6m to 10.1m in depth below ground across the site with groundwater flows towards the south west and stated to be influenced by the dewatering activities in the Huntstown quarry.

12.4.78. The GIS groundwater mapping classifies the groundwater vulnerability as ‘Extreme’ (<3m of overburden), though it is stated that the bedrock aquifer is in fact greater than 10m of low permeability glacial till and, accordingly, can be reclassified as ‘low’, which indicates that infiltration is low and runoff is high. The are no groundwater supply wells within a 10km radius of the site. It is submitted that the site has been determined as not suitable for quarry reserves.

Potential Impacts

12.4.79. There would be no alteration to the existing groundwater flow regime or impact on the available groundwater resource as a result of the development and I am satisfied that no such impacts would therefore arise.

12.4.80. Unsuitable material excavated for foundations and site levelling would be reused on

site for bunding and landscaping. Accordingly, no significant impacts are likely as a result of earthworks.

12.4.81. During construction and as a result of excavations, there is potential for an increase in aquifer vulnerability due to a reduction in depth of overburden in those construction and excavation areas and this may lead to potential for migration of contaminants (from accidental spills) to the underlying bedrock aquifer. However, due to the thickness of overburden, stated to be 19.3 m - 22.3 m, in the vicinity of the areas where excavations would occur and the low groundwater vulnerability classification based on site specific information, I am satisfied with the conclusion put forward by the applicant that the impact arising out of a reduction in overburden depth on the groundwater quality would be imperceptible.

12.4.82. During the operational phase, the development is not predicted to impact on the geological heritage site within Huntstown quarry. The impact on the groundwater resource due to loss in recharge area would be imperceptible. The impact of accidental spillages on soils is also assessed as imperceptible.

12.4.83. The development would also lead to indirect positive effects regarding land spreading by providing storage for periods when land spreading is not permitted (due to seasonal restrictions) and therefore ensuring avoidance of adverse environmental impacts on receiving waters in accordance with Nutrient Management Plans.

Mitigation Measures

12.4.84. For the construction phase, the overarching mitigation measure is the implementation of a CEMP, which would ensure good construction management and protection of the environment. A site-specific waste management plan would be required to be prepared and adhered to by the contractor. Measures set out in the CIRIA guidance document on ‘control and management of water pollution from construction sites’ are stated to be adhered to. Suitable excavated materials would be utilised for landscaping and screening bunds. No operational impacts are anticipated on the land, soils and hydrogeological environments and, as such, no specific mitigation is proposed with regard to the RBSF component.

Residual Impacts

12.4.85. I am satisfied with the conclusion drawn on the applicant's assessment that with mitigation in place, no negative impacts beyond imperceptible are predicted on land and soils for either the construction of operation phases of the RBSF component.

Monitoring

12.4.86. No monitoring is proposed, which I am satisfied is acceptable.

12.4.87. **Water - RBSF component**

Introduction and Existing Environment

12.4.88. A tributary of the Huntstown Stream, which itself is a tributary of the River Ward, borders the site to the west and south. The drainage from the Huntstown Quarry, located to the south west of the site, also feeds into this network. These are shown in Figure 4-1 (Proposed RBSF Site Location) within Section 4 of Volume 4 of the EIAR. There is a surface water pipe traversing the site in an east-west direction which drains an adjoining site. It is planned to relocate this pipe to allow for the development of the RBSF facility.

12.4.89. Water samples were taken from the stream adjoining the western boundary of the site to provide baseline data on the water quality upstream and downstream of the proposed discharge point for the surface water runoff from the proposed RBSF Component. The analysis revealed elevated calcium and sulphate concentrations, which it states is reflective of activities at Huntstown quarry, including cement leaching. It is concluded that the stream is already quite polluted at the upper perimeter of the proposed RBSF component site due to upstream pressures. This is at variance to the 'good' status assigned under the WFD, which it is stated is based on samples collected in the Ward River at Owens Bridge, located c. 1.7km downstream to the north east.

Potential Impacts

12.4.90. In the absence of control measures, potential impacts could arise during construction from an increase in suspended solids and pollutants reaching watercourses. During construction, no hydromorphological impacts are predicted on streams or rivers as

there are no proposals for excavations within or altering the receiving stream. During operation, it is submitted that no impacts would arise from fluvial flooding as the site is located in Flood Zone C (based on the Flood Risk Guidelines) and also no risk would arise from pluvial flooding as the drainage design would include attenuation measures resulting in no increase in the risk of pluvial flooding from the site. I have dealt with the issue of flood risk in greater detail within the Planning Assessment section of this report.

12.4.91. The main impact that could potentially arise on the receiving stream would be as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter. Given the inherent control measures including hydrocarbon interceptors, silt traps/sedimentation and attenuation prior to discharge to the watercourse, impacts would be no greater than imperceptible in significance.

12.4.92. During operation, in the event of a fire, the firefighting water could become contaminated and enter the receiving water through the drainage system. The significance of this potential impact is predicted as slight negative and temporary in duration.

Mitigation

12.4.93. In the construction stage, the overarching measure proposed is the adherence to the site-specific CEMP and standard best practice such that would protect water quality. It is submitted that measures set out in the CIRIA on the ‘control and management of water pollution from construction sites’ would be implemented and that construction works in the vicinity of the stream on the western boundary of the site would be undertaken in accordance with the requirements of the IFI ‘Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters’ (2016).

12.4.94. During operation, the drainage has been designed to follow best practice and includes mitigation measures embedded in the design in the form of attenuation, adoption of SuDS and incorporation of hydrocarbon interceptors to capture hydrocarbons / chemicals that might otherwise enter the adjoining receiving water. A shut-off valve is proposed to be installed on the outlet to the stream, which would be used to contain any contaminated runoff in the event of a major environmental

accident on site. In the event of a fire, water used for fire-fighting would be contained in the attenuation storage system.

Residual Impacts

12.4.95. I am satisfied that the residual impact on the hydrology and the receiving water environment following the implementation of this mitigation measure would be neutral and imperceptible.

Monitoring

12.4.96. No monitoring is proposed, which I am satisfied is acceptable.

12.4.97. **Air and Climate - RBSF component**

Introduction and Existing Environment

12.4.98. Baseline data and data available from similar environments indicates background concentrations in the vicinity of the RBSF as:

- Nitrogen dioxide (NO_2) = 29 µg/m^3
- Particulates (PM_{10}) = 18 µg/m^3
- Particulates ($PM_{2.5}$) = 11.9 µg/m^3
- Benzene = 1 µg/m^3
- Carbon Monoxide (CO) = 0.5 mg/m^3

12.4.99. These all lie below the National and EU ambient air quality standards limits. Records of prevailing winds were examined from the nearest representative weather station at Dublin Airport, located 4.5 km east of the site.

Potential Impacts

12.4.100. Dust deposition arising from the construction phase has the potential to cause temporary slight local impacts at nearby residential properties within a 200m radius from the site. At the time of the applicant's assessment there were three residential properties located less than 50m from the proposed site along with two commercial premises located within 300m of the site. The risk of dust impacts arising from the

proposed RBSF component was assessed as being no greater than low. It is noted in the EIAR that subsequent to the assessment of Air and Climate, two of the three residential receptors (houses) were demolished and a residential development comprising eight houses and community building had since commenced. I accept, that as submitted by the applicant, this change would not alter the outcome of the assessment carried out.

12.4.101. Greenhouse gas emissions produced during the construction phase for the RBSF are expected to account for 0.00075% of Ireland's EU 2020 target and, therefore, impacts are stated would be imperceptible.

12.4.102. In the operational phase, I would agree that the transport of biosolids material would give rise to the greatest source of dust emissions with potential to impact on the nearby sensitive receptors including the existing houses and the residential development that is under construction. As the internal access roads are proposed to be paved, the overall risk of dust soiling is predicted to be low.

12.4.103. It is predicted that any potential impacts to climate as a result of the proposed operation phase of the RBSF component would be imperceptible. I note that solar panels are proposed to be incorporated on the roof of one of the buildings and would generate substantial portion (c.40%) of the energy requirements for the proposed RBSF component.

Mitigation Measures

12.4.104. During construction, a schedule of dust control measures has been incorporated into the CEMP and the adherence to the measures of the CEMP would be a requirement. Vehicles delivering biosolids material would be enclosed and the vehicles would have restricted speeds. Roads outside of the site are stated would be cleaned on an ongoing basis, as necessary.

12.4.105. During the operation phase, there is potential for dust emissions as a result of the storage of biosolids material. Measures taken to reduce the risk of dust impacts off - site would include loading and unloading of biosolids within sealed buildings and, if necessary, the establishment of a wheel-wash facility.

12.4.106. The impact of the proposed RBSF component on climate would be imperceptible,

therefore, no site-specific mitigation is proposed, which based on my assessment, is acceptable.

Residual Impacts

12.4.107. The assessment concludes that once dust minimisation measures are employed during construction and operation, impacts on the Air and Climate environment have been assessed to be insignificant as a result of the RBSF component. In addition, there are no residual impacts to air quality or climate envisaged as a result of the operation of the proposed RBSF Component.

Monitoring

12.4.108. During the construction phase of the Proposed RBSF Component monitoring of construction dust deposition would be put in place to ensure emissions are controlled.

12.4.109. **Noise and Vibration - RBSF component**

Introduction and Existing Environment

12.4.110. Baseline data for noise relating to the RBSF site was found to be typical of a suburban setting and close to a busy regional road network and aircraft flightpaths. The nearest noise sensitive receptors include the house and the residential units under construction to the south east of the site.

Potential Impacts

12.4.111. With employment of best practice, construction noise is expected to fall within acceptable noise limits set out in BS 5228-1:2009+A1:2014. Noise impact is therefore considered to be insignificant to slight negative and short term. It is submitted that construction related traffic noise would lie below the prevailing road traffic noise levels.

12.4.112. Vibration during the construction phase is not expected to result in any perceptible changes at the nearest receptors.

12.4.113. Increase in noise levels during the operation phase is predicted to be less than one dBA, which can be rated as insignificant.

12.4.114. Vibration during the operational phases is not expected to result in any perceptible changes at the nearest receptors and has been assessed as insignificant.

Mitigation Measures

12.4.115. All construction works would be required to be completed in accordance with best practice standards.

12.4.116. The contractor would be required to prepare and adhere to a Noise and Vibration Management Plan (NVMP), which would deal with measures concerning noise and vibration arising from the construction phase.

12.4.117. Noise would be required to meet the following limits at the nearest sensitive receptor during construction:

- 70 $_{LAeq\ (1\ hour)}$ dB – Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)
- 65 $_{LAeq\ (1\ hour)}$ dB – Evening (19:00 – 23:00)
- 55 $_{LAeq\ (1\ hour)}$ dB – Night time (23:00 – 07:00)

12.4.118. Mitigation for the operation phase would include a number of items such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant. During the operational phase, noise arising from the facility would be required to achieve the following limits, when measured at the nearest noise sensitive receptor:

- 55 dB $_{LAr,T}$ Daytime (07:00 to 19:00 hrs);
- 50 dB $_{LAr,T}$ Evening (19:00 to 23:00 hrs);
- 45 dB $_{LAr,T}$ Night-time (23:00 to 07:00 hrs).

Residual Impacts

12.4.119. The assessment concludes that once mitigation and best practice measures are employed during construction and operation, no negative impacts beyond imperceptible are predicted on the environment from noise and vibration emanating from the RBSF component as it is predicted that levels would all fall within appropriate limits.

Monitoring

12.4.120. A recommendation is put forward that the appointed contractor would monitor levels of noise and vibration at nearby sensitive locations and/or the proposed RBSF component site boundaries during the construction phase and at commissioning stage.

12.4.121. **Odour - RBSF component**

Introduction and Existing Environment

12.4.122. The area immediately surrounding the proposed RBSF site including the residential properties would be the most sensitive receptors to odour impacts. The wider area is largely considered to be free from odour-generating sources.

Potential Impacts

12.4.123. I am satisfied that there would not be any noticeable odour emissions during the construction phase of the development. All potential odour impacts are limited to the operational phase.

12.4.124. The material to be stored is that of treated, de-watered and stable biosolids in a manner that is highly regulated. It would be stored indoors under a controlled environment.

12.4.125. The applicant's odour assessment concluded that the odour effects would not be significant as odour concentrations at all receptor locations were identified as falling below 3 ou_E/m^3 as the 98^{th} percentile of hourly averages.

Mitigation Measures

12.4.126. I am satisfied that no mitigation is required for the construction phase. During operation, the facility would employ an odour management regime that would ensure that physical systems and operational practices minimise the potential for odour emissions.

Residual Impacts

12.4.127. No residual impacts are predicted for the construction stage. During operation, the adopted odour annoyance criterion of 3 ou_E/m^3 as the 98^{th} percentile of hourly

averages is not predicted to be exceeded at any receptor location, which is acceptable.

Monitoring

12.4.128. It is proposed to monitor odour sources at the RBSF during the operational phase to ensure that actual emissions do not exceed those predicted within the assessment. The monitoring would include Olfactometry testing.

12.4.129. **Conclusion on Land, Soils, Water, Air and Climate**

12.4.130. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Land, soils, water, air and climate.**

12.5. **Materials Assets, Cultural Heritage and Landscape**

12.5.1. **Material Assets - Ringsend WwTP**

Introduction and Existing Environment

12.5.2. The land around the Ringsend WwTP site comprises industrial and storage facilities. The Dublin Waste to Energy Plant lies immediately west of the site. The ESB power generation plant and Synergen Dublin Bay Power Plant are located proximate to the Ringsend WwTP. Dublin Port is located across the Liffey and existing passenger ship facilities at Alexandra Basin are currently being upgraded as part of a redevelopment programme.

12.5.3. The Poolbeg Peninsula is an important amenity used by members of the public for walking, cycling and water-based leisure activities. The Great South wall is a particular focus of leisure activity in the area. Clanna Gael Fontenoy GAA club, situated at Seán Moore Park lies c.1km from Ringsend WwTP. Irishtown athletics track and stadium are also close by, c.1.4km to the west. North of the bay there are recreational facilities and clubs in the Clontarf/Sutton/Howth area. Dublin Bay has become popular for water-based activities.

12.5.4. As stated earlier, the neighbouring site has been designated as the Poolbeg West 'Strategic Development Zone' (SDZ). Irishtown, Ringsend and Sandymount villages are the main residential and commercial areas within a two kilometre radius of the site. There are no residential areas or retail properties within 500 metres of the site.

12.5.5. The site is serviced by water, electricity, telecoms and gas utilities. The National Oil Reserves Agency manages Ireland's emergency oil stocks, through holding tanks at Pigeon House road, c.300 metres from the perimeter of Ringsend WwTP site.

12.5.6. The existing road network includes: Pigeon House road, Shellybanks Road, Whitebank road, South Bank road, R131 Seán Moore road, York Road, R131 East Link Bridge, North Wall Quay and East Link road. Traffic is described and impacts relating to traffic are assessed under the heading of Traffic, as set out in my Planning Assessment above.

Potential Impacts

12.5.7. During construction, the road network surface is predicted as experiencing a moderate short-term negative impact due to wear of road surfaces and periods of roadworks as a result of additional construction traffic anticipated. Impacts on the road network during operation has been assessed as having no greater than imperceptible impact.

12.5.8. Potential negative impacts on existing public utilities could arise due to the severing of existing utility networks (including electricity or gas) during the construction phase of the Proposed WwTP component, thus disrupting supply to the WwTP and to the surrounding facilities.

12.5.9. During operation, I am satisfied that potential for impacts on material assets would be no greater than imperceptible.

12.5.10. When completed the upgrade of the Ringsend WwTP would result in a significant long term positive impact, because of the provision of increased wastewater treatment capacity and the improved quality of treated effluent, thus facilitating future sustainable growth of the Greater Dublin Region.

Mitigation Measures

12.5.11. Mitigation measures would include the preparation and adherence to a Traffic Management Plan for the construction phase. Any damage arising to the road network is stated would be addressed in conjunction with Dublin City Council roads department. The appointed contractor would be required to engage with public utility providers in advance of any excavation in the vicinity of such services.

12.5.12. Apart from preparation of method statements to ensure public utilities are protected and communication with public utility providers ahead of construction, I would agree that no specific mitigation is required during the operation phase. Method statements would be developed during the construction phase to ensure underground services are well understood in advance of onsite excavations.

Residual Impacts

12.5.13. Following the implementation of mitigation measures, the residual impacts of the material assets arising out of the construction and operation phases of the proposed Ringsend WwTP component are stated to be no greater than imperceptible.

12.5.14. Significant positive remaining impacts on wastewater treatment would result.

Monitoring

12.5.15. No monitoring is proposed and I am satisfied that there is no such monitoring requirement in terms of material assets.

12.5.16. **Cultural Heritage - Ringsend WwTP component**

Introduction and Existing Environment

12.5.17. One protected structure, RPS Ref. 6794 (remnants of Pigeon House Fort) lies partially within the Ringsend WwTP site. There are three others in the vicinity of the site (the former Pigeon House Hotel RPS Ref. 6795, Pigeon House power station RPS Ref. 6796 and Great South Wall RPS Ref. 6798).

12.5.18. The area around Pigeon House Harbour to the east of the site is designated as a Conservation Area under the Dublin City Development Plan. A small area located between the principal WwTP and the storm tanks to the north is a designated Zone

of Archaeological interest.

12.5.19. There are two Recorded Monuments located partly within the Ringsend WwTP site which include DU019-027 (Dublin South City Blockhouse) and DU019-029002 (Dublin South City Sea wall).

Potential Impacts

12.5.20. Construction activities including excavations and vibrations from driving piled foundations could impact on Pigeon House Fort and Pigeon House Harbour. There is also potential to cause accidental vehicular damage to the structure of the Fort Wall. The access works within the interior of the Pigeon House Fort would require topsoil stripping for the access road and have the potential to uncover material associated with the fort. In addition, cranes would be located within the footprint of Pigeon House Fort and would require the placement of hardstanding materials which could impact on subsurface archaeological material. During construction, works in the area of construction compound C3 has the potential to cause accidental vehicular damage to a paved area east of Pigeon House power station.

12.5.21. The development is proposed to omit the construction of the undersea tunnel / LSOT and therefore, I am satisfied that no underwater survey is required for the current proposal. No potential impacts on cultural heritage during the operational phase of the proposed WwTP component have been identified.

Mitigation Measures

12.5.22. During construction, vibration from piling would not exceed allowable vibration limits for sensitive buildings. The walls of Pigeon House Fort would be protected with concrete barriers during construction. The site preparation within the interior of the Pigeon House Fort, including topsoil stripping for the access road and hardstanding areas, would be subject to archaeological monitoring which I propose should be strengthened by way of a planning condition.

12.5.23. As no impacts on cultural heritage are predicted during the operational phase, no mitigation measures are required or proposed, which is acceptable.

Residual Impacts

12.5.24. The assessment concludes that once mitigation measures are employed during the construction phase, no negative impacts are predicted on the cultural heritage as a result of the Ringsend WwTP component.

Monitoring

12.5.25. Certain aspects of construction work that could impact on Pigeon House Fort would be monitored by a suitably qualified archaeologist, as outlined under the mitigation measures above. Beyond this, no further monitoring is proposed.

12.5.26. **Landscape – Ringsend WwTP**

Introduction and Existing Environment

12.5.27. The proposed Ringsend WwTP component is located on the site of the existing Ringsend WwTP, which is on the Poolbeg peninsula. The site is of a low landscape and visual sensitivity and does not have any specific landscape or visual-related designations, however and as set out above, the peninsula is important as an amenity and recreational resource. The proposal would result in an extension to the existing wastewater utility. The existing facility is more readily visible from local views, including those from the nature park south of the plant and those from Shellybanks Road and Shellybanks beach to the east. A planted belt on a mound of c.3m high provides for a landscape and visual buffer along the majority of the eastern and northern boundaries of the Ringsend WwTP site.

12.5.28. Dublin Bay has been awarded Biosphere Designation by UNESCO and the site is located in an area known as a Transition Zone. No national landscape or visual designations pertain to the site. There are multiple policies and objectives contained in the Dublin City Development Plan 2016-2022 concerning landscape and visual amenities, including policies to maintain the character of the coastline and Dublin Bay.

Potential Impacts

12.5.29. Construction activity would be most visible from local areas adjoining the site. There would be views of construction activity and cranes during the construction phase,

which is planned for up to a 10-year period. Construction activities are normal in this area and I am satisfied that in terms of landscape and visual impacts, these can be rated for the most part as slight short-term impacts at a local level along the adjoining public roads. The use of the southern construction compound area, C1, could give rise to temporary slight to moderate landscape and visual impacts to Irishtown Nature park to its south. The formation of a new entrance off Pigeon House Road would require the removal of a small area of semi-mature planting, which I consider would give rise to slight visual impact at a local level. Moving away from the site, the proposed development would result in imperceptible landscape and visual impacts.

12.5.30. During the operation stage, new structures would be consistent with the character of the existing development. Some new structures including the proposed phosphorous facility measuring c. 40m x 20m x 20m in height would be visible from Irishtown Nature Park and from Shellybanks Road/Beach. I have examined the photomontages presented from nine viewpoints. I am satisfied that where views of the development would be discernible, these would continue to be consistent with the current WwTP facility. The site is for the most part characterised by heavy industrial and port uses and the proposed WwTP component would not have any other direct impacts on landscape or visual character of the area.

Mitigation

12.5.31. During construction, screening is proposed to be erected/maintained in place on the southern and eastern site boundaries and around temporary compounds, which I am satisfied would also serve as a security barrier. Existing trees and shrub planting located along Pigeon House Road is proposed to be retained and protected. Additional shrubs and trees would be added in accordance with a landscape plan and I propose that such a requirement would be attached by way of a planning condition in the event of a grant of planning.

12.5.32. Following construction, all construction compound areas are stated would be required to be fully reinstated.

12.5.33. For the operational phases, proposed landscape works would be maintained and replaced as necessary.

Residual Impacts

12.5.34. It is concluded in the assessment that once planting is reinstated and matures, the residual landscape and visual effects would be imperceptible in the wider area post construction. Locally, some degree of visual change would be discernible, however, this would continue to be consistent with the existing visual environment.

12.5.35. I would therefore conclude that the landscape and visual impact resulting from the proposed development would be imperceptible and acceptable.

Monitoring

12.5.36. No monitoring is proposed.

12.5.37. **Material Assets - RBSF**

Introduction and Existing Environment

12.5.38. The area in the vicinity of the proposed RBSF is within a mix of agricultural and industrialised areas, interspersed with commercial and residential properties, including those under construction.

12.5.39. Public utilities such as water, telecoms and partially developed foul and surface water drainage networks exist on the site and both a 38 kV and a 110 kV electricity supply lines traverse the site. A gas transmission line has been completed to serve the adjacent Huntstown Power station, but this line lies outside of the RSBF site. The site is 1.5 km west of Dublin Airport. Recreational facilities and amenities within the immediate area are limited and include the Ward River, three golf clubs and St. Margaret's GAA club. Swords lies c.10 km from the site and Ashbourne is c.12 km from the site.

Potential Impacts

12.5.40. There is a temporary negative impact predicted on the road network surface quality and minor roadworks during construction due to HGV traffic. Traffic is further considered under my planning assessment above. Negative impacts are not predicted on land utilisation, utilities, water and drainage infrastructure during the construction phase.

12.5.41. During operation, potential for impacts on material assets would be no greater than imperceptible.

Mitigation Measures

12.5.42. During the construction phase, mitigation measures proposed include the preparation and adherence to a Traffic Management Plan for the construction phase. Specific wheel-washing facilities are proposed to be installed on site, to allow all HGVs exiting the site to be cleaned prior to leaving site. The appointed contractor would be required to prepare and adhere to a contract-specific Construction Environmental Management Plan (CEMP). Method statements on the detection of underground services and drainage infrastructure and the protection of such services would also be a requirement.

12.5.43. During operation, wheel-wash facilities are proposed to be installed and all HGVs would be cleaned prior to leaving the site.

Residual Impacts

12.5.44. Once mitigation measures have been implemented, no negative residual impacts are predicted on material assets during the construction or operation phases for the RBSF component.

Monitoring

12.5.45. No monitoring is proposed and I am satisfied that none is required.

12.5.46. **Cultural Heritage - RBSF Component**

Introduction and Existing Environment

12.5.47. There are no protected structures within the site. There is one such structure within the study area, the remains of Kilshane Motte (Ref: 0662), which was demolished in 1952. The site has been assessed for archaeology by the carrying out of test excavations and no archaeological material was identified.

12.5.48. The closest recorded monument to the application site is Newtown Castle, a Motte and Bailey (RMP DU014-013), located 30m north of the site. It is stated to have been demolished in 1952 and now survives as a cropmark and central raised oval area.

Other recorded monuments are located beyond 200m of the site and these are considered to be too far from the site to be impacted on.

12.5.49. There are two undesignated monuments, i.e. Sites and Monuments recorded (SMR) sites, outside of the site, but within the study area, the closest of which is a Ring-ditch in Newtown townland (SMR DU014-0100---). This monument is situated 560m north-east of the Site and I am satisfied that it is too far distant to be impacted by the proposed RBSF Component.

Potential Impacts

12.5.50. The construction or operational phases would not have direct impacts on any items of cultural heritage, archaeology or heritage interest on site or in the vicinity of the Proposed RBSF Component. The main storage buildings within the overall development site would be situated greater than 100m south of the neighbouring Motte and Bailey, which would be protected by a landscape buffer zone and no impact is therefore likely.

Mitigation measures

12.5.51. As no impacts (direct or indirect) have been identified following assessment, no mitigation measures during construction or operational phases are proposed, which I am satisfied is acceptable.

Residual Impacts

12.5.52. No negative residual impacts are predicted for the RBSF component.

Monitoring

12.5.53. No monitoring is deemed to be required.

12.5.54. **Landscape and Visual - RBSF Component**

Introduction and Existing Environment

12.5.55. The landscape at the RBSF Component site is relatively flat and open and surrounding land uses include industrial and business developments with houses to the south east adjoining the site. The site is zoned ‘HI’ in the Fingal Development Plan with a corresponding objective to provide for heavy industry uses. The

proposed site has no specific landscape or visual designations in the Fingal Development Plan 2017-2023. The site was previously partly developed and the proposed construction works would not be out of the ordinary in this utility/industrial landscape setting.

Potential Impacts

12.5.56. During construction, visual impacts have been assessed as significant and temporary from the adjacent houses on the R135. Visual impacts on passing views from elevated sections of the N2 are assessed as slight negative for the construction phase. It is submitted, and I would agree, that the works would be consistent with the nature and scale of works that would be expected to arise in any event as a result of the landuse zoning for the proposed site and its environs.

12.5.57. Construction works would not have any impact on landscape character, landscape setting, or on views away from the immediate site boundaries or from nearby elevated sections of the N2.

12.5.58. In the longer term, while the buildings would be prominent initially, once planting matures and given that buildings of such a nature would not be out of character, I am satisfied that the development would read as part of the emerging and developing landscape.

Mitigation

12.5.59. During construction, hoarding (2.4m in height) is proposed to be erected adjoining the sensitive houses, including housing under construction, and construction compounds would be kept away from the south-eastern corner. Landscape measures including a low-level landscaped berm and extensive planting would be completed as part of the construction works. Landscaping would be augmented and managed during the operation phase. Lighting standards are stated to be fitted with horizontal cut-off fittings to avoid light spill.

Residual Impacts

12.5.60. No negative residual landscape or visual impacts are predicted for the RBSF component either during construction or operation. The RBSF component would be consistent with the existing land use zoning for the site.

Monitoring

12.5.61. During construction, landscape works are proposed to be monitored by a qualified landscape architect.

12.5.62. **Conclusion on Material Assets, Cultural Heritage and Landscape**

12.5.63. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Material Assets, Cultural Heritage and Landscape**.

12.6. **Vulnerability of projects to Major Accidents and/or Natural Disasters**

12.6.1. The EIA Directive requires consideration on the vulnerability of projects to major accidents and/or natural disasters. This is considered in Section 15 of Volumes 3 (Ringsend WwTP component) and 4 (RBSF component) in the EIAR under the heading of Risk Management. Drawing from the information available and the requirements of the EIA Directive, this matter is considered under.

12.6.2. **Ringsend WwTP component**

12.6.3. At the Ringsend WwTP site, risks of major accident and / or natural disasters could include:

- Damage or breakdown leading to a plant shutdown during construction or operation leading to direct untreated effluent discharge to sensitive waters
- Fire or explosion resulting in significant or widespread damage, including environmental damage on site;
- Incident at adjacent Seveso sites or caused by activities in the harbour and port area leading to shutdown of the WwTP during construction stage;
- Highly-concentrated toxic influent discharged into Ringsend WwTP Network resulting in WwTP shutdown due to breakdown of biological treatment process.

12.6.4. While risk of traffic collisions has also been included by the applicant, I am satisfied that such risks are governed by both construction safety and road safety legislation and noting construction safety requirements and traffic management, they would not fall within the specific category envisaged for the consideration on the vulnerability of this element of the project to major accidents and/or natural disasters. I have therefore excluded these from this aspect of this section of my assessment. Traffic impacts including impacts on road safety have been considered in the planning assessment section of this overall report. It is of relevance to also note that when compared to the LSOT option approved and which is now proposed to be omitted.

12.6.5. It is put forward in the Risk Assessment that the vulnerability of the Ringsend WwTP to major accident or natural disasters would be medium due to its location proximate to Seveso establishments. I have excluded risk from coastal flooding having regard to the conclusions reached in my assessment of Flood Risk in the planning assessment above that the Ringsend WwTP component would not have any noticeable impact on the existing flood regime.

12.6.6. Mitigation measures include those inherent in the project design, fire safety and emergency response plans and safety management systems and environmental incident response plan are outlined. Storm tanks would provide short term storage of effluent discharge. Mitigation considered relevant also includes the Dublin City Council Major Emergency Plan 2010 and the Dublin Port Emergency Management Plan 2013.

12.6.7. Post mitigation, the likelihood of risks from each of the above fall into the categories of ‘unlikely’ and ‘very unlikely’. Having reviewed the information on file, I am satisfied that risks from major accident and/or natural disaster and their consequences have been adequately considered. It is the applicant’s conclusion that post mitigation, the vulnerability of the Ringsend WwTP component to major and / or natural disasters accidents would remain as medium due to the site location adjacent to a Seveso establishment. I would be inclined to conclude that the adjoining Seveso establishment and others in the area would be operated in accordance with the Seveso / COMAH regulations and I have dealt with this in more detail under the heading of ‘Seveso Considerations’ in my Planning Assessment above. Given that the proposed site is not itself a Seveso establishment I would therefore rate the

vulnerability as low. I also note and agree with the findings of the assessment that the proposed works would not alter the risk profile of the site or the adjacent Seveso sites, which are regulated under Seveso/COMAH regulations.

12.6.8. It is submitted that activities on site would be monitored to ensure risk does not increase over time at the site. In conclusion, I am satisfied that the risk of a major accident or natural disaster have both been adequately considered and given the nature of the development, the low probability of such an occurrence and the mitigation measures proposed, it is not likely that significant effects on the environment would arise in this regard.

12.6.9. **RBSF component**

12.6.10. Risks of major accident and / or natural disasters identified which would result in a medium risk score (pre-mitigation) have been identified to include:

- Fire resulting in significant or widespread damage on site;
- Damage to high voltage overhead powerlines crossing the site.

12.6.11. Similar to my considerations of the Ringsend WwTP development, I have excluded traffic collisions for the consideration of accidents and/or natural disasters, noting that these risks are governed by separate legislation in terms of construction safety and road safety and are considered in the traffic section of the planning assessment section above.

12.6.12. Mitigation measures include those inherent in the design of the RBSF component design, including fire safety and emergency response plans, safety management systems, adequate water supply for fire-fighting and preparation and adherence to an environmental incident response plan.

12.6.13. Post mitigation, the likelihood of risks of each of the above fall into the categories of ‘unlikely’ and ‘very unlikely’. Having reviewed the information on file, I am satisfied that risks of major accident and their consequences have been adequately considered and post mitigation, the vulnerability of the RBSF Component to major and / or natural disasters would be low.

12.6.14. It is submitted that activities on site would be monitored to ensure risk does not

increase over time at the site.

12.7. Environmental Interactions

12.7.1. Environmental interactions are addressed within each of the individual sections of both EIAR Volumes 3 and 4 and mitigation and environmental standards are recommended.

12.7.2. Table 16-1 (Summary of Interactions) tabulates the interactions, providing a useful tool in understanding the interactions likely to arise with a summary of same provided in Section 16.2 of both Volume 3 (Ringsend WwTP component) and Volume 4 (RBSF component) of the EIAR. For example, water has potential to interact with other environmental factors such as biodiversity, material assets and population and human health. The potential arises for population and human health to interact with all of the other factors (biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape). I have examined the interactions throughout each section of the EIAR for the development proposed at each of the Ringsend WwTP (set out in Volume 3) and RBSF components (set out in Volume 4). I am satisfied that the EIAR documents has satisfactorily addressed interactions. I am also satisfied that the proposed development, including both components, is not, in my view, likely to result in significant adverse impacts in terms of the interaction of individual environmental factors.

12.8. Cumulative Impacts

12.8.1. Cumulative impacts have been undertaken by each specialist and addressed in each section of the EIAR across Volumes 3 and 4. The assessment focussed on where the impacts of the proposed development have been assessed to be of slight significance or worse, but when combined with the impact of other concurrent or future developments the overall impact may worsen. Where such impacts are identified, additional mitigation measures may be required.

12.8.2. Cumulative impacts considered in respect of the Ringsend WwTP in combination with other projects in the area include: discharges to the Liffey Estuary and Dublin Bay, as well as noise, odour, traffic and air quality. Projects that were considered

include: Dublin Waste to Energy, Alexandra Basis Redevelopment, ESB Site Poolbeg Power station, National Oil Reserves Agency, Greater Dublin Drainage and the Poolbeg West SDZ. The EIAR considered cumulative impacts arising from both the construction and operational phases of the Ringsend WwTP component in accordance with the EIA Directive.

12.8.3. When all impacts are examined in combination with other projects in the local area and beyond, it is submitted that the proposed upgrade project is not likely to give rise to any significant environmental effects in combination with existing and/or permitted projects in the area.

12.8.4. The RBSF was considered in combination with other projects in the area and cumulative impacts are stated to include noise, odour, traffic and air quality.

12.8.5. Projects that were considered with respect of the RBSF include: Huntstown Quarry, Huntstown Power Station, Dublin Airport Authority development, Huntstown BioEnergy Limited and the Greater Dublin Drainage project.

12.8.6. The cumulative assessment for the RBSF also considered cumulative elements from the GDD project and the proposed Ringsend WwTP Upgrade projects and the existing and/or approved projects associated with the NWSMP.

12.8.7. It is also of note that the assessment itself considered the entire project referred to as the ‘proposed upgrade project’ meaning the totality of the proposed development and the elements of the 2012 approval being progressed.

12.8.8. When all impacts are examined in combination with other projects in the local area and beyond, it is submitted that the proposed RBSF is not likely to give rise to any significant cumulative effects when taken in combination with existing and/or permitted projects in the area, including those outlined above. It is also submitted that the proposed RBSF component has been designed to accommodate the biosolids volumes from both the GDD WwTP and the proposed Ringsend WwTP upgrade project components, in a manner that would not give rise to significant environmental effects on the environment.

12.8.9. Having reviewed the information on file and considered all of the impacts identified

above, I am satisfied that the proposed upgrade project incorporating the proposed development would not give rise to any unacceptable significant cumulative effects on the environment.

12.9. **Conclusion on EIA**

12.9.1. I have carried out an examination of environmental information contained above in which I have had regard to the EIAR and supplementary information provided by the applicant and the reports and submissions from Planning Authorities, prescribed bodies and observers in the course of the application. Following on from this assessment, it is considered that the main significant direct and indirect effects (positive and negative) of the proposed development on the environment are those arising from the impacts listed below. A Construction Environmental Management Plan (CEMP) is the overarching general mitigation embedded in the project design and delivery for the construction stage. In addition, plans relating to Waste Management, Invasive Species Management, Traffic Management, Monitoring Plans and Emergency Response Plans are also proposed. The remaining impacts, both positive and negative likely to arise on such as would potentially give rise to significant effects on the environment are:

- Benefits/positive impacts to **population and human health** arising as a result of the overall project upgrade due to providing increased treatment infrastructural capacity and improved level of treatment which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planned residential and economic growth in Dublin city and the region.

- Negative temporary impact on **population and human health** (recreational swimmers/water based sporting activities) because of a deterioration in water quality during a nine-month period of decommissioning of aspects of the WwTP (during construction) and a corresponding temporary loss of recreational amenity which would be partially mitigated by carrying out the works in winter period when the recreational water based activities are at seasonally low levels;

- Benefits/positive impacts on the environment **(soils, traffic, water quality, climate)** as a result of reduction in excavation and truck movements (estimated to be 70,000 HGV movements over an 18-month period) which would otherwise have been required to remove and transport rock and spoil during the construction phase of the undersea tunnel. During the operation phase, the proposal to omit the tunnel and associated diffuser point 9 km out to sea would also mean that there would be no deterioration of water quality at this location.

- Impacts arising on **land and soils** as a result of spread of invasive species (Japanese Knotweed) present on the Ringsend wastewater treatment site and which would be mitigated by the preparation and implementation of an Invasive Species Management Plan and method statement for the control of disturbance of soils containing Japanese Knotweed and the requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species Management Plan and monitor the success of the mitigation measures post-construction;

- Risk of pollution of **receiving water environment** as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter during the construction and operational phases. The impacts would be mitigated by measures within a Construction and Environmental Monitoring Plan (CEMP) and adherence to best practice construction measures and incorporation of appropriate drainage facilities. Measures set out in the CIRIA guidance document on ‘control and management of water pollution from construction sites’ would be implemented. The guidelines provided by the Inland Fisheries Ireland (2016) on the protection of fisheries habitats during construction projects would also be adhered to.

- **Noise** impacts for the construction and operation phases which would be mitigated by the requirements to prepare and adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits which are set out in the EIAR in respect of the development at Ringsend wastewater treatment plant and the development of the regional

biosolids facility.

- **Odour impacts** for the operational phase which would be mitigated by the following:
    - o Ringsend WwTP: odour from the wastewater treatment plant (excluding storm tanks) would be required not to exceed 10 ouE/m^3 as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The adopted odour annoyance criterion of 3 ouE/m^3 as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location. The Odour Management Plan would be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.
    - o RBSF: The adopted odour annoyance criterion of 3 ouE/m^3 as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location.

13.0 Appropriate Assessment

13.1. Introduction

13.1.1. Special Areas of Conservation (SACs) / candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs) are part of the Natura 2000 network considered to be of international importance. In the Irish context, they are referred to as European sites. SACs/cSACs are designated under the EU Habitats Directive (92/43/EEC). SPAs are designated under the EU Birds Directive (79/409/EEC) amended by EU Directive 2009/147/EC. Article 6(3) of the Habitats Directive requires that any plan or project not directly connected with or necessary to the management of a European site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site(s) in view of the site(s) conservation objectives. The Habitats Directive has been transposed into Irish law by the European Union (Birds and Natural Habitats) Regulations 2011, as amended, the later which consolidates earlier Regulations.

13.1.2. In accordance with these requirements and noting the Board's role as the competent authority who must be satisfied that the proposal would not adversely affect the integrity of the European sites, this section of my report assesses in view of best scientific knowledge, if the project, individually or in combination with other plans or projects, is likely to have a significant effect on any European Site, in view of the sites' conservation objectives.

13.1.3. The applicant submitted an Appropriate Assessment (AA) Screening Report and a Natura Impact Statement and I refer to both of these documents in my assessment below, as well as drawing from information on relevant European sites available from the NPWS website and other documentation, including the EIAR, submitted with the planning application. I am satisfied that the information submitted is sufficient to allow the Board to carry out an AA. The NPWS were evidently consulted by the applicant at scoping stage in which issues of relevance were discussed. During the course of the application, the wider DCHG were consulted and I note that no response was received in respect of the European sites.

13.1.3.1. Count data from the Irish Wetland Bird Survey (I-WeBS) 2013/14 and information from the Waterbird Survey Programme of 2011/12 (NPWS, 2014) were used by the applicant as was data from the Dublin Bay Birds Project carried out by BirdWatch Ireland with support from Dublin Port Company (2013-2016).

13.1.3.2. Field surveys of the habitats on the construction site and immediate surrounds were undertaken in 2015 and 2016 (Ringsend WwTP) and 2017 (RBSF). A biological survey of the stream that borders the RBSF site was undertaken in December 2017 and a breeding bird survey of the RBSF site was undertaken in May 2018.

13.2. Appropriate Assessment - Stage 1 (Screening)

13.2.1. In relation to Stage 1 screening, the issue to be addressed is whether the project is likely to have a significant effect, either individually or in combination with other plans and projects on European sites in view of the sites' conservation objectives.

13.2.2. A description of the proposed development is set out in Section 4 of this report. In essence, it would comprise revised upgrade works at Ringsend WwTP and the construction of the RBSF at Newtown in North Dublin.

13.2.3. In deciding on the zone of influence of the proposal, guidance contained in 'Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, DoEHLG 2009' recommends that 'the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects'. The applicant refers to its use of the Source-Pathway-Receptor model in order to determine the geographic extent to which the proposed development may result in the rise of significant effects. The 'source' of impact was identified as comprising activities or emissions that may be associated with the construction and operation of the proposed development. Receptors are European sites or their qualifying interests for which conservation objectives have been set and the pathway is that which exists between the source and receptor, for instance waterbodies connecting the proposed development to a European site. I would agree with the applicant's assertion that the likelihood for significant effects depends upon the characteristics and relationship between all three elements (Source, Receptor and Pathway) and that the presence of a pathway does not automatically mean that significant effects would arise.

13.2.4. **European Sites: Component 1 - Ringsend WwTP**

13.2.5. With regard to the Ringsend WwTP component, a zone of influence of 10 km was chosen. It is stated that this has been determined following examination of the EIAR that accompanied the planning application together with the NPWS maps and datasets. It is also stated that the zone of influence was considered appropriate having regard to objective information such as output from water quality models and construction noise estimates. In this regard, I have examined the water quality models presented in the EIAR which are also provided in Appendix 2 of the Appropriate Assessment Screening and NIS Report. Regarding construction noise, it has been estimated that construction may be audible for a distance of 2.5km from the site. A 10km buffer was applied to cater for all other identified potential significant effects. Having regard to the output from the water quality models and to audible noise distances referred to above, I am satisfied that the10km distance around the WwTP and its associated existing effluent outfall which was selected as the zone of interest to be reasonable in this instance. A map showing the zone of influence of the

WwTP component and the European sit boundaries is presented in Fig 1 in the applicant's Appropriate Assessment Screening report and NIS.

13.2.6. The applicant listed eight European sites within this 10-km zone of influence around the Ringsend WwTP and its associated outfall, comprising four cSACs and four SPAs All of the sites are located either wholly or partly within Dublin Bay and include the following:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Howth Head cSAC (site code 000202)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

13.2.7. In addition, and noting that both Baldoyle SPA (site code 004016) and Baldoyle cSAC (site code 000199) are located 7.6km NE from the Ringsend WwTP component and therefore within the selected 10km zone of influence selected, I also propose to include these two sites in my assessment.

13.2.8. Table 5 below sets out details of each of the 10 sites including conservation objectives set out on the NPWS website at the time of carrying out this assessment together with listed qualification interests, the distance and location of the site relative to the Ringsend WwTP and the connectivity using the source-pathway-receptor model. The consequent potential for significant adverse effects on each of the sites having regard to the sites' conservation objectives is also included. Where marked with an astrix (*) this indicates that those qualification interests are a priority habitat under the Habitats Directive.

Table 5 – Relevant European sites for the purposes of Appropriate Assessment Screening (Component 1 – Ringsend WwTP).

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to WwTP	Connectivity (Source-Pathway-Receptor) with potential to result in significant adverse effects.
South Dublin Bay and River Tolka Estuary SPA (004024)	**Conservation Objectives** Version 1.0 (09/03/2015) To maintain the favourable conservation condition of (qualifying interests individually listed) in South Dublin Bay and River Tolka Estuary SPA, which is defined by a list of attributes and targets. **Qualifying Interests:** A046 Light-bellied Brent Goose *Branta bernicla hrota* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A179 Black-headed Gull *Chroicocephalus ridibundus* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* A999 Wetlands	Directly adjacent to the proposed works (south and east)	Potential for Direct Effects – Yes Potential for Indirect Effects – Yes
South Dublin Bay cSAC (000210)	**Conservation Objectives** Version 1.0 (22/08/13) To maintain the favourable conservation condition of mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC which is defined by a list of	Adjacent (south and east)	Potential for Direct Effects – No Potential for Indirect Effects – Yes

	attributes and targets. **Qualifying Interests:** 1140 Mudflats and sandflats not covered by seawater at low tide		
North Bull Island SPA (004006)	**Conservation Objectives** Version 1.0 (09/03/2015) To maintain the favourable conservation condition of (qualifying interests individually listed) in North Bull Island SPA, which is defined by a list of attributes and targets. **Qualifying Interests:** A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A052 Teal *Anas crecca* A054 Pintail *Anas acuta* A056 Shoveler *Anas clypeata* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A160 Curlew *Numenius arquata* A162 Redshank *Tringa totanus* A169 Turnstone *Arenaria interpres* A179 Black-headed Gull *Chroicocephalus ridibundus* A999 Wetlands	1.7 km north west	Potential for Direct Effects – No Potential for Indirect Effects – Yes
North Dublin Bay cSAC (000206)	**Conservation Objectives** Version 1.0 (06/11/13) To maintain the favourable conservation condition of (qualifying interests individually listed) in North Bull Bay cSAC,	1.7km from the WwTP outfall	Potential for Direct Effects – No Potential for Indirect Effects – Yes

	which is defined by a list of attributes and targets. **Qualifying Interests:** 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 *Salicornia* and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1395 Petalwort *Petalophyllum ralfsii* 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with *Ammophila* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks		
Howth Head Coast SPA (004113)	**Conservation Objectives** Generic Version 6.0 (21/02/2018) To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA **Qualifying Interests:** A188 Kittiwake (Rissa tridactyla)	c. 9 km north west	Potential for Direct Effects – No Potential for Indirect Effects – Yes
Howth Head cSAC (000202)	**Conservation Objectives** Version 6.0 (06/12/2016) To maintain the favourable conservation condition of (qualifying interests individually listed) in Howth Head SAC, which is defined by a list of attributes and targets: **Qualifying Interests:** 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths	c.7.0 km north west.	Potential for Direct Effects – No Potential for Indirect Effects – No

Dalkey Islands SPA (004172)	**Conservation Objectives** Generic Version 5.0 (21/02/18) To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. **Qualifying Interests:** A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea*	c. 9.0 km south west	Potential for Direct Effects – None Potential for Indirect Effects – Yes
Rockabill to Dalkey Island SAC (003000)	**Conservation Objectives** Version 1.0 (07/05/13) To maintain the favourable conservation condition of (qualifying interests individually listed) in Rockabill to Dalkey Island SAC, which is defined by a list of attributes and targets: **Qualifying Interests:** **Annex I Habitats** 1170 Reefs **Annex I Species** 1351 Harbour porpoise *Phocoena phocoena*	c. 6.2 km from the outfall	Potential for Direct Effects – None Indirect Effects – Yes
Baldoyle Bay **SPA (004016)**	**Conservation Objectives** Version 1.0 (27/02/13) To maintain the favourable conservation condition of the waterbird population and wetland habitat in Baldoyle Bay SPA, which is defined by a list of attributes and targets: **Qualifying Interests:** A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A137 Ringed Plover *Charadrius hiaticula*	7.0 km NE	Potential for Direct Effects – No Potential for Indirect Effects – No

	A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A157 Bar-tailed Godwit *Limosa lapponica* A999 Wetlands		
Baldoyle Bay **cSAC (000199)**	**Conservation Objectives** Version 1.0 (19/11/12) To maintain the favourable conservation condition of (qualifying interests individually listed) in Baldoyle Bay SAC, which is defined by a list of attributes and targets: **Qualifying Interests:** 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonizing mud and sand 1330 Atlantic salt meadows *Glauco-Puccinellietalia maritimae* 1410 Mediterranean salt meadows *Juncetalia maritimi*	7.0 km NE	Potential for Direct Effects – No Potential for Indirect Effects – No

13.2.9. **European Sites: Component 2 - RBSF**

13.2.10. In respect of the RBSF component, the applicant identified three European sites comprising one cSAC and two SPAs within the 10km zone of influence of the RBSF. The sites are presented in Figure 2 of the Appropriate Assessment Screening and NIS and listed as follows:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- Malahide Estuary cSAC (site code 000205)
- Malahide Estuary SPA (site code 004025)

13.2.11. Table 6 below sets out details of each of the three sites including conservation objectives as contained on the NPWS website at the time of carrying out this assessment, together with listed qualification interests, the distance and location of the site relative to the RBSF site and the connectivity using the source-pathway-receptor model. The consequent potential for significant adverse effects on each of

the sites is also included.

13.2.12. Table 6 – Relevant European sites for the purposes of Appropriate Assessment Screening (Component 2 – RBSF).

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to WwTP	Connectivity (Source-Pathway-Receptor) with potential to result in significant adverse effects.
South Dublin Bay and River Tolka Estuary SPA (004024)	**Conservation Objectives** Version 1.0 (09/03/2015) To maintain the favourable conservation condition of (qualifying interests individually listed) in South Dublin Bay and River Tolka Estuary SPA, which is defined by a list of attributes and targets. **Qualifying Interests:** A046 Light-bellied Brent Goose *Branta bernicla hrota* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A179 Black-headed Gull *Chroicocephalus ridibundus* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* A999 Wetlands	9km directly from RBSF site. No hydrological pathway	Potential for Direct Effects – No Potential for Indirect Effects – No
Malahide Estuary cSAC (000205)	**Conservation Objectives** Version 1.0 (27/05/2013) To maintain the favourable conservation condition of	9.5 km direct, 13.3km via hydrological pathways.	Potential for Direct Effects – No Potential for Indirect Effects – No

	(qualifying interests individually listed) in Malahide Estuary cSAC, which is defined by a list of attributes and targets. **Qualifying Interests** 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1320 Spartina swards *Spartinion maritimae* 1330 Atlantic salt meadows *Glauco-Puccinellietalia maritimae* 1410 Mediterranean salt meadows *Juncetalia maritimi* 2120 Shifting dunes along the shoreline with Ammophila arenaria (white dunes) 2130 Fixed coastal dunes with herbaceous		
Malahide Estuary SPA (004025)	**Conservation Objectives** Version 1.0 (16/08/2013) To maintain the favourable conservation condition of (qualifying interests individually listed) in Malahide Estuary SPA, which is defined by a list of attributes and targets. **Qualifying Interests** A005 Great Crested Grebe *Podiceps cristatus* A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A054 Pintail *Anas acuta* A067 Goldeneye *Bucephala clangula* A069 Red-breasted Merganser *Mergus serrator* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis*	9.5 km direct, 13.3km via hydrological pathways.	Potential for Direct Effects – No Potential for Indirect Effects – No

	squatarola A143 Knot *Calidris canutus* A149 Dunlin *Calidris alpina alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A999 Wetlands		

13.2.13. **Likely Significant Effects**

13.2.14. The possibility of whether or not significant effects are likely to arise is assessed by the applicant using the established source-pathway-receptor model. The project is not necessary for the management of any European site. The likely significant effects (direct and indirect) which could arise as a result of the Ringsend WwTP component are listed under Table 1 of the applicants AA Screening /Statement / NIS. I am satisfied that using the Source-Pathway-Receptor model and having regard to the qualifying interests and conservation objectives that the information contained in this table is representative of the significant effects likely to arise. I have summarised these likely significant effects under.

13.2.15. **Likely significant effects (Direct and Indirect) which could potentially arise are:**

<u>Direct Effects as a result of the Ringsend WwTP component</u>

- Temporary disturbance to habitat and species as a result of laying of a new underground electrical connection to an existing underground ESB cable in an area c.30m x 10m, which is within the South Dublin Bay and River Tolka Estuary SPA (site code 004024).

<u>Indirect /Secondary Effects as a result of the Ringsend WwTP component</u>

- Discharge of treated effluent from the WwTP both during the construction and operational phases of the proposed Ringsend WwTP Component. As the proposed discharge point would remain at the same location in the Liffey Estuary, there is potential that these changes could affect habitats or species that occur in the tidal part of Dublin Bay.

- Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species.
- Construction activities on site at the Ringsend WwTP component have the potential to cause visual disturbance to waterbird populations that use the replacement grassland area that forms part of the South Dublin Bay and River Tolka Estuary SPA, immediately south of the WwTP.
- The construction phase of the Ringsend WwTP component has potential to give rise to temporary disturbance from dust and changes in air quality during construction.
- Construction noise may affect Brent geese and breeding terns within the South Dublin Bay and River Tolka Estuary SPA.
- Potential spread of Invasive species could lead to loss/deterioration of habits on the South Dublin Bay and River Tolka Estuary SPA.
- (Given the change to odour has been assessed as not resulting in any residual impacts as a result of the proposed development, I do not consider that based on odour, impacts would arise on qualifying interests of cSACs / SPAs in view of their conservation objectives).

<u>Direct Effects as a result of the RBSF component</u>

- None

<u>Indirect /Secondary Effects as a result of the RBSF component</u>

- There is a potential pathway between the RBSF component and the Malahide Estuary cSAC (site code 000205) via the surface water network. Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species could potentially occur.

13.2.16. I am satisfied that Howth Head cSAC can be screened out as there are no hydrological pathways from either the Ringsend WwTP or RBSF components to this European site. Both project components are also sufficiently separated to conclude

that there would not be any potential for significant effects in relation to airborne noise or visual disturbance impacts. Equally, I am satisfied that the project as a whole, including both components collectively, is not likely to give rise to significant effects on this site, having regard to its conservations objectives.

13.2.17. In relation to Malahide Estuary cSAC and also Malahide SPA, I note that while there is a potential pathway between the RBSF component and the Malahide Estuary cSAC, no discharge or emissions are proposed to leave the RBSF site, except for rainfall and clean surface water, once best practice is employed in construction and the CEMP is implemented. Both components are also sufficiently remote from these European sites such as to conclude that there would be no potential for significant effects in relation to airborne noise or visual disturbance. Equally, I am satisfied that the project as a whole is not likely to give rise to significant effects on this site, having regard to their conservations objectives.

13.2.18. In relation to Baldoyle Bay SAC and Baldoyle Bay SPA, these European sites are sufficiently remote from the proposed RBSF site to objectively conclude a finding of no significant effect in relation to noise. The water quality modelling output shows that there is no impact from the construction of works on Baldoyle Bay or from the operation of the project. These two European sites can thus objectively be screened out from further assessment.

13.2.19. I am satisfied that the conclusion that no such in-combination effects are likely to arise is correct. By applying the precautionary principle, the requirement to proceed to Stage 2 in relation to the remaining seven sites where the evaluation determined the likelihood of significant effects (including in-combination effects) could not be discounted without further examination is, I consider, reasonable.

13.2.20. **Stage 1 - Screening Conclusion**

13.2.21. It is reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development including the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on the European Sites:

- Howth Head cSAC (site code 000202)
- Malahide Estuary cSAC (site code 000205)
- Malahide Estuary SPA (site code 004025)
- Baldoyle cSAC (site code 004016)
- Baldoyle SPA (site code 000199)

in view of the sites' conservation objectives, a Stage 2 Appropriate Assessment is not therefore required in respect of these sites. Potential for significant indirect effects on the features of interest of the following European sites, having regard to their conservation objectives, cannot be ruled out in respect of the remaining seven European sites:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

13.2.22. Accordingly, a Stage 2 Appropriate Assessment is required to determine the potential of the proposed development to adversely affect the integrity of the said European Sites.

13.3. **Appropriate Assessment – Stage 2**

13.3.1. **Introduction**

13.3.2. The sites brought forward to stage two, seven in total, are listed in the Stage 1 Screening conclusion above. The project description is set out in detail in Section 4 of my overall assessment and summarised above in consideration of Appropriate Assessment – Stage 1 Screening.

13.3.3. **European Sites**

13.3.4. Below I provide a brief description of each of the European sites with specific regard to their qualifying interests and their conservations objectives. I have examined the sites potential for significant effects on the integrity of the European sites arising from the proposed development. I have drawn on information provided by the applicant including information in their submitted Natura Impact Statement and throughout relevant sections of the EIAR, particularly those which deal with Biodiversity and Water. I have also extensively referred to the NPWS website. The qualifying interests for each of the seven sites are identified and are as set out in Tables 5 and 6 above.

South Dublin Bay and River Tolka Estuary SPA (Site Code 004024)

13.3.5. As noted in the NPWS site synopsis, the South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. Four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern.

13.3.6. **Conservation Objectives** for South Dublin Bay and River Tolka Estuary SPA (March 2015) are to ensure that waterbird populations and their wetland habitats are maintained at, or restored to, favourable conservation condition. Grey Plover is proposed for removal from the list of Special Conservation Interests for the SPA. As a result, a site-specific conservation objective has not been set for this species.

South Dublin Bay cSAC (Site Code 000210)

13.3.7. The NPWS lists the South Dublin Bay cSAC as a fine example of extensive intertidal flats, of predominantly sand with muddy sands in more sheltered areas. It provides a supporting role to important populations of wintering bird populations of Dublin Bay.

13.3.8. **Conservation Objectives** for the South Dublin Bay cSAC (NPWS, 2013) are to maintain the favourable conservation condition of mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC which is defined by a list of

attributes and targets.

North Bull Island SPA (Site Code 004006)

13.3.9. The North Bull Island SPA is considered an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is stated to be of international importance because of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. There is a regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit.

13.3.10. **Conservation Objectives** for the North Bull Island SPA (NPWS 2014) are to ensure that waterbird populations and their wetland habitats are maintained at, or restored to favourable conservation condition.

North Dublin cSAC (Site Code 000206)

13.3.11. The NPWS lists the North Dublin cSAC (Site Code 000206) as a fine example of extensive intertidal flats. This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. This European site is of international importance because of both the total number of waterfowl and the individual populations of light-bellied Brent Goose, black-tailed godwit and bar-tailed godwit that use it. Also of note is the regular presence of several species that are listed on Annex I of the EU Birds Directive.

13.3.12. **Conservation Objectives** for the North Dublin cSAC (NPWS, 2013) are to maintain the favourable conservation condition of qualifying interests, which are defined by a list of attributes and targets.

Howth Head Coast SPA (Site Code 004113)

13.3.13. The NPWS lists the Howth Head Coast SPA as being of high ornithological importance as it supports a nationally-important population of Kittiwake. It is also a traditional nesting site for Peregrine Falcon, a species that is listed in Annex I of the E.U. Birds Directive. The site is easily accessible and has important amenity and

educational value due to its proximity to Dublin City.

13.3.14. **Conservation Objective** for Howth Head Coast SPA (Feb 2018) are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Dalkey Island SPA (Site Code 004172)

13.3.15. The NPWS lists this SPA of particular importance as a post-breeding/pre-migration autumn roost area for Roseate Tern, Common Tern and Arctic Tern. The NPWS also notes that the recent nesting by Roseate Tern is highly significant. All three of the tern species using the site are listed on Annex I of the E.U. Birds Directive.

13.3.16. **Conservation Objective** for Dalkey Island SPA are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Rockabill to Dalkey Island cSAC (Site Code 003000)

13.3.17. This Rockabill to Dalkey Island cSAC site is of conservation importance for reefs, listed on Annex I, and Harbour Porpoise, listed on Annex II of the E.U. Habitats Directive. A number of marine species have also been identified in the cSAC. The NPWS site synopsis notes that a large number of terns (Arctic, Common and Roseate) are known to use Dalkey Island as a staging area (c. 2,000) after breeding. Other seabirds commonly seen include Kittiwake, Razorbill, Guillemot, Puffin, Fulmar, Shag, Cormorant, Manx Shearwater, Gannet and gulls.

13.3.18. **Conservation Objective** for the Rockabill to Dalkey Island cSAC (May 2013) are to maintain or restore the favourable conservation condition of the habitats/ species for which the cSAC has been selected.

13.4. Significant Effects on European Sites

13.4.1. The direct and indirect impacts from the proposed project components that have the potential (in the absence of mitigation) to result in a likelihood of significant adverse effects on qualifying interests having regard to the conservation objectives of the European sites brought forward to Stage 2 Appropriate Assessment are listed and

assessed below.

13.4.2. **Direct Effects as a result of the Ringsend WwTP component**

Impact	Temporary disturbance to habitat and species as a result of laying of a new underground electrical connection to an existing underground ESB cable in an area c.30m x 10m, which is within the South Dublin Bay and River Tolka Estuary SPA (site code 004024).
Assessment of Likely Significant Effects	The grassland area is used by bird species including light-bellied Brent Goose, Oystercatcher, black-tailed Godwit, Redshank and Curlew, all of which are qualifying interests of the SPAs in Dublin Bay. Works are proposed to take place in summer months (May to August) outside of the nesting season and when the Brent Geese are absent from the SPA. The construction area would be fully reinstated by backfilling with the original soil and laying of grass turves in their original position. The grassland is proposed to be fully reinstated in time for the return of the geese in September/October. No remaining significant effects are anticipated. Monitoring of waterbirds on the grassland south of the project is proposed each winter between October and April during construction and for a year after to allow the efficacy of the mitigation measures to be verified.
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

13.4.3. **Indirect /Secondary Effects as a result of the Ringsend WwTP component**

Impact	Discharge of treated effluent from the WwTP both during the construction and operational phases of the proposed Ringsend WwTP Component. As the proposed discharge point would remain at the same location in the Liffey Estuary, there is potential that these changes could affect habitats or species that occur in the tidal part of Dublin Bay.
Assessment of Likely Significant Effects	During construction, there would be some reduction in treatment capacity during a nine-month period between the construction of AGS and SBR retrofit. In addition, there would be an increase in stormwater overflows. Temporary impacts on marine ecology could arise but the duration of the project and the magnitude of impact would not be of a sufficient scale as to result in adverse significant effects on European sites, having regard to the sites' conservation objectives. During the operation phase, water quality in the inner part of Dublin Bay would be improved primarily as a result of reduction of P and N leading towards a more diverse community of species and positive effects are predicted on the significant effects on the favourable conservation status of the qualifying interests or on the conservation objectives of the European sites within Dublin Bay. Given the relatively high background nutrients in Dublin Bay, no significant effects on waterbirds including Brent Geese and Wigeon that forage on macroalgae, Harbour Porpoise (a qualifying interest of the Rockabill to Dalkey cSAC), Kittiwake (a qualifying interest for Howth Head SPA) and Artic Tern, Common Tern and Roseate Tern (a qualifying interest for Dalkey Island SPA) that forages on shoaling fish, are anticipated. Overall it is submitted that the resulting impacts would not give rise to any significant effects on the favourable conservation status of the qualifying interests or on the conservation objectives of the

	European sites within Dublin Bay. It is assessed that it would be unlikely that the food resource of waterbirds in the Tolka Estuary would be negatively affected given the increase in diversity of species that would occur. Such changes are expected to be slow and would result in long-term positive impacts. Apart from the adherence to the project CEMP and related Environmental Incident response procedures as standard best practice, no other specific mitigation measures are required. No significant adverse effects are anticipated. Outside of monitoring of waterbirds on the grassland for construction and a year after construction, no other specific monitoring of waterbirds is proposed. Instead, it is proposed to make use of a monitoring programme by Birdwatch Ireland for all of Dublin Bay which can be conditioned to extend to a three year period post construction.
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated sites and no reasonable scientific doubt remains as to the absence of such effects.

Impact	Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species.
Assessment of Likely Significant Effects	Accidental release of contaminants / pollution in the form of oils, hydrocarbons, concrete/cement could potentially discharge into the Liffey Estuary and thereafter travel to Dublin Bay. If this were to occur at significant magnitude and duration, it could result in significant effects on intertidal and subtidal habitats in South Dublin Bay cSAC and North Dublin Bay cSAC and qualifying

	interests of SPAs within Dublin Bay. Apart from the adherence to the project CEMP and related Environmental Incident response procedures as standard best practice, no other specific mitigation measures are required. Remaining significant effects are unlikely. No specific monitoring is proposed or required.
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated sites and no reasonable scientific doubt remains as to the absence of such effects.

Impact	Construction activities on site at Ringsend WwTP Component have the potential to cause visual disturbance to waterbird populations that use the replacement grassland area that forms part of the South Dublin Bay and River Tolka Estuary SPA, immediately south of the WwTP.
Assessment of Likely Significant Effects	Any visual disturbance has potential to result in significant effects on the qualifying interests of the Tolka Estuary SPA (important population of Light-bellied Brent Goose and nationally-important populations of a further nine wintering species), having regard to the site's conservation objectives. Solid screening would be erected between the construction site and the grassland area prior to construction in order to reduce or eliminate any visual disturbance. No remaining significant effects are likely. Monitoring of waterbirds on the grassland south of the project is proposed each winter between October and April during construction and for a year after to allow the efficacy of the mitigation measures to be verified.
Assessment	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable

Conclusion	scientific doubt remains as to the absence of such effects.

Impact	The construction phase of the Ringsend WwTP components has potential to give rise to temporary disturbance from dust and changes in air quality during construction.
Assessment of Likely Significant Effects	The movement of excavated soils and other material has the potential to generate fugitive dust which could travel through wind exposure to adjacent European sites. As part of the CEMP, a dust management plan would be put in place such that dust emissions on site would remain at or below 350 mg/m^2/day to ensure it does not impact on air quality. No significant effects are therefore anticipated as a result of dust. Dust monitoring would be undertaken in accordance with commitments outlined in the CEMP and the EIAR. Potential arises for NOx emissions to impact on grasslands and intertidal habitats. The maximum increase in the NO_2 dry deposition rate is 0.22 kg(N)/ha/yr is well below the critical load for inland water habitats on the improved grassland or on the bird species that use the South Dublin Bay and River Tolka Estuary SPA. No significant effects are therefore likely to arise as a result of air quality.
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

Impact	Construction noise may affect Brent geese and breeding terns within the South Dublin Bay and River Tolka Estuary SPA.

Assessment of Likely Significant Effects	Construction noise has the potential to cause disturbance to wintering waterbirds and nesting terns within South Dublin Bay and River Tolka Estuary SPA. The common tern (Sterna hirundo) colony at Poolbeg, which forms part of South Dublin Bay and River Tolka Estuary SPA is located c.380m from the nearest part of the proposed development. Construction noise has been assessed as typically ranging between 40 to 45 dB LA_{eq} at the tern colony area. It is submitted that the tern colony itself generates a noise level of up to 70 to 80 dB(A), well in excess of any construction noise, through calling of terns during the breeding season. While the noise made by terns themselves cannot in my view be considered as comparable to construction noise, I note that as stated in the EIAR, the tern colony and other waterbirds in the area are habituated to noise from the plant itself and from the surrounding industrial operations and the city itself. A construction noise and vibration management plan and CEMP are proposed. Therefore, I accept the conclusion overall that noise from the proposed upgrade site would not be threatening to birds and construction noise would have imperceptible impacts on conservation objectives for any of the European sites brought forward to Stage two of the AA. Monitoring of waterbirds on the grassland south of the project is proposed each winter between October and April during construction and for a year after to allow the efficacy of the mitigation measures to be verified. Birdwatch Ireland monitoring programme would also be used.
Assessment	In conclusion, the proposed development would not adversely

Conclusion	affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

Impact	Potential spread of Invasive species could lead to loss/deterioration of habits on the South Dublin Bay and River Tolka Estuary SPA.
Assessment of Likely Significant Effects	Japanese Knotweed (*Fallopia japonica*) is known to exist at four locations along the east boundary. Where it would be disturbed during construction, it has the potential to spread to surrounding sites and/or the receiving water. If left uncontrolled, this could be considered a permanent, significant impact on European sites due to habitat loss. The invasive species management plan, which is prepared to outline stage would be required to be further developed and adhered to and I am satisfied that subject to implementation and adherence to the plan, no significant effects are likely. Annual monitoring of invasive species is proposed and if the results indicate any failures or shortcomings, in consultation with NPWS and other statutory undertakers, the applicant would commit to develop and implement additional control measures.
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

13.4.4. **Direct Effects as a result of the RBSF component**

- None

13.4.5. **Indirect /Secondary Effects as a result of the RBSF component**

13.4.6. The assessment as presented in the NIS has determined that there would be no

potential for adverse effects on habitats or species.

13.4.7. Within the 10km zone of influence of the RBSF, the only European site brought forward to Stage two is the South Dublin Bay and River Tolka Estuary SPA. This site is remote from the proposed RBSF and given that no hydrological or hydrogeological pathways are present, the possibility of significant numbers of birds from this SPA being impacted by the RBSF is unlikely. Consequently, it can be concluded that the proposed development would not adversely affect the integrity of this SPA having regard to the conservation objectives of the site.

13.4.8. Nonetheless, the site is required to be assessed as part of the applicant's overall assessment for in-combination effects and I have dealt with such effects directly below.

13.4.9. **In-combination Effects**

13.4.10. The NIS considers the potential in-combination/cumulative impacts which could possibly arise when other plans and projects are taken into account. The assessment carried out included the wider overall project, referred to as the 'proposed upgrade project'. The assessment and the EIAR (Water and Biodiversity section) concludes that the proposed WwTP would not give rise to impacts on waterbird population and long-term changes to the waterbird population might be difficult to discern in the context of wider cumulative changes arising beyond those caused by the proposed development.

13.4.11. Beyond impacts assessed in relation to water and terrestrial biodiversity, I am satisfied that the construction and operation of the proposed development (taking into account proposed mitigation) is unlikely to result in any other in-combination impacts that would lead to significant effects.

13.4.12. **Monitoring**

13.4.13. Monthly surveys of waterbirds (between October and April) would be undertaken by the applicant on the grassland area to the south for the duration of the project and for one year after. In addition, it is stated that monitoring carried out by BirdWatch Ireland would be utilised. Given that the construction period would extend for a

period of approximately 10 years and that the plant would operate as a live plant during this time, I am satisfied with this proposed monitoring period.

13.4.14. Monitoring of invasive species is proposed to be carried out on an annual basis.

13.4.15. Together the monitoring outcomes would allow an assessment of the efficacy of mitigation measures proposed and where any shortcomings are discovered, the applicant proposed to develop and implement additional control measures.

13.5. Conclusion on Appropriate Assessment

13.5.1. On the basis of the information provided with the application, including the Natura Impact Statement, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, I am satisfied that the proposed development, individually or in combination with other plans or projects, would not adversely affect the integrity of the following European sites:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

or any other European site, in view of the sites' conservation objectives.

14.0 Recommendation

14.1. On the basis of the above assessment, I recommend that the Board grant permission for the proposed development for the reasons and considerations and subject to the conditions set out below.

15.0 Reasons and Considerations

15.1. In coming to its decision, the Board had regard to a range of matters including the following:

European legislation, including of particular relevance:

- EIA Directive 2011/92/EU amended by Directive 2014/52/EU (EIA Directive);
- European Union Water Framework Directive 2000/60/EC;
- The European Union Urban Waste Water Treatment Directive 91/271/EEC;
- The European Union Bathing Water Directive 2006/7/EC;
- Groundwater Directive (2006/118/EC);
- Sewage Sludge Directive (86/278/EEC);
- Nitrates Directive (91/676/EEC);

National legislation including of particular relevance:

- The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended;
- European Communities (Water Policy) Regulations, 2003, as amended;
- European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended;
- Urban Waste Water Treatment Regulations 2001, as amended;
- The Waste Water Discharge (Authorisation) Regulations 2007, as amended;

- Bathing Water Quality Regulations 2008, as amended;

National and regional planning and related policy including:

- 'National Planning Framework – Ireland 2040' including Strategic Outcome 9 and corresponding Investment Action contained in the National Development Plan, 2018-2027;

- Water Services Strategic Plan where the upgrading of Ringsend Treatment Plant is recognised as a significant contribution in meeting its obligation under the Urban Wastewater Treatment Directive;

- National Wastewater Sludge Management Plan (2016 – 2041);

- River Basin Management Plan for Ireland 2018 – 2021;

- Greater Dublin Strategic Drainage Study (2005) and Greater Dublin Drainage Strategy: Overview & Future Strategy (2018);

- Regional Planning Guidelines for the Greater Dublin Area 2010-2022;

- Draft Regional Spatial and Economic Strategy (RSES);

- Eastern-Midlands Region Waste Management Plan 2015 – 2021;

Local planning context – Ringsend WwTP component

- The provisions of the Dublin City Development Plan 2016-2022, including Policies SI1 and SI2 which support development of water and wastewater systems by Irish Water in which the upgrading of the Ringsend Wastewater Treatment Plant is specifically referenced; related Planning Objectives SIO1 and SIO2 together with stated policies and objectives in support of the proposed development in the context of proper planning and sustainable development. Regard was also had to the land use zoning objectives for the area.

Local planning context – RBSF component

- The provisions of the Fingal Development Plan 2017-2023 including stated policies and objectives, particularly Objective WM15 which requires to work with Irish Water and other relevant stakeholders to ensure the provision of facilities for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) and Local Objective 78, in support the proposed development in the context of proper planning and sustainable development. Regard was also had to the land use zoning objectives for the area.

and to the following matters

- the current performance of the existing wastewater treatment plant and the demonstrated need to improve discharge standards in order to increase capacity and meet water quality standards for bathing waters, coastal waters, transitional waters and designated sensitive waters in Dublin Bay in accordance with the requirements set out under the legislation and emissions limit values contained in the licence granted by the EPA under licence number D00-34-01;

- the entirety of the documentation that accompanied the planning application and reports and submissions, which were submitted by all parties, planning authorities, prescribed bodies and observers and the further submission made by the applicant during the course of the application;

- the established site context on the Poolbeg peninsula, spatially separated from residential development and the pattern of development in the area;

- the planning history of the site;

- the nature, scale and design of the proposed development including in particular the proven AGS technology and the associated nitrogen and phosphorous removal in relation to the Ringsend WwTP component and the nature, scale, design and purpose of the RBSF component,

- the range of proposed mitigation measures set out in the submitted Environmental Impact Assessment Report and Natura Impact Statement (incorporating Appropriate Assessment Screening);

- the submissions made in relation to the application and the report and recommendation of the inspector;

15.2. **Proper Planning and Sustainable Development**

15.2.1. The benefits of the proposed development are considered to be overwhelmingly positive. It's delivery would assist Ireland in meeting obligations set down under EU Directives, national legislation and planning policy expressed through the hierarchy plans which regulate development at a national, regional and local level. The development would enable sustainable residential and economic growth through the delivery of increased wastewater treatment capacity while protecting the environment through improving the quality of effluent discharged to the receiving water environment. It has been demonstrated in the application that the improvement envisaged in final effluent quality can be achieved at the existing Ringsend Wastewater treatment plant by the incorporation of scientifically proven aerobic granular sludge technology into the treatment process together with associated nitrogen and phosphorous removal. When compared to the previously permitted and proposed long sea outfall (in tunnel) option, the current proposal has significant advantages and would be less intrusive on the receiving environment. The regional biosolids storage facility would assist in meeting the aims of the Sewage Sludge Directive, regulating the use of sewage sludge in agriculture to prevent harmful effects. Outside of matters considered above, environmental impact assessment and appropriate assessment are considered in the following sections of my assessment set out below. Subject to consideration of these matters, it can be concluded that the proposed development is in accordance with the proper planning and sustainable development of the area.

15.3. **Environmental Impact Assessment**

The Board completed an environmental impact assessment of the proposed development and wider proposed upgrade project, taking into account:

(a) The nature, scale, location and extent of the proposed development across the Ringsend WwTP and RBSF components;

(b) The environmental impact assessment report and associated documentation submitted with the application;

(c) The reports and submissions received from the planning authority, observers and prescribed bodies and the applicant's further submission in the course of the application;

(d) The planning inspector's report;

The Board agreed with the summary and examination set out in the inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the applicant and submissions made in the course of the application. The Board is satisfied that the inspector's report sets out how these were addressed in the examination and recommendation and are incorporated into the Board's decision.

The Board considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the EIAR is up to date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU**.** The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below. A Construction Environmental Management Plan (CEMP) is the overarching general mitigation embedded in the project design and delivery for the construction stage. In addition, plans relating to Waste Management, Invasive Species Management, Traffic Management, Monitoring Plans and Emergency Response Plans are also proposed. The remaining impacts, both positive and negative are:

- Benefits/positive impacts to **population and human health** arising as a result of the overall project upgrade due to providing increased treatment

infrastructural capacity and improved level of treatment which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planned residential and economic growth in Dublin city and the region.

- Negative temporary impact on **population and human health** (recreational swimmers/water based sporting activities) because of a deterioration in water quality during a nine-month period of decommissioning of aspects of the WwTP (during construction) and a corresponding temporary loss of recreational amenity which would be partially mitigated by carrying out the works in winter period when the recreational water based activities are at seasonally low levels;

- Benefits/positive impacts on the environment **(soils, traffic, water quality, climate)** as a result of reduction in excavation and truck movements (estimated to be 70,000 HGV movements over an 18-month period) which would otherwise have been required to remove and transport rock and spoil during the construction phase of the undersea tunnel. During the operation phase, the proposal to omit the tunnel and associated diffuser point 9 km out to sea would also mean that there would be no deterioration of water quality at this location.

- Impacts arising on **land and soils** as a result of spread of invasive species (Japanese Knotweed) present on the Ringsend wastewater treatment site and which would be mitigated by the preparation and implementation of an Invasive Species Management Plan and method statement for the control of disturbance of soils containing Japanese Knotweed and the requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species Management Plan and monitor the success of the mitigation measures post-construction;

- Risk of pollution of **receiving water environment** as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter during the construction and operational phases. The impacts would be mitigated by

measures within a Construction and Environmental Monitoring Plan (CEMP) and adherence to best practice construction measures and incorporation of appropriate drainage facilities. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' would be implemented. The guidelines provided by the Inland Fisheries Ireland (2016) on the protection of fisheries habitats during construction projects would also be adhered to.

- **Noise** impacts for the construction and operation phases which would be mitigated by the requirements to prepare and adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits which are set out in the EIAR in respect of the development at Ringsend wastewater treatment plant and the development of the regional biosolids facility.

- **Odour impacts** for the operational phase which would be mitigated by the following:

    - Ringsend WwTP: odour from the wastewater treatment plant (excluding storm tanks) would be required not to exceed 10 ouE/m^3 as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The adopted odour annoyance criterion of 3 ouE/m^3 as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location. The Odour Management Plan would be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.
    - RBSF: The adopted odour annoyance criterion of 3 ouE/m^3 as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location.

The Board completed an environmental impact assessment in relation to the proposed development forming part of the overall proposed upgrade project and concluded that, subject to the implementation of the mitigation measures referred to above including proposed monitoring as appropriate, subject to compliance with the

conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the inspector's report.

15.4. **Appropriate Assessment**

15.4.1. The Board agreed with and adopted the screening (Appropriate Assessment Stage one) and conclusions carried out in the inspector's report that South Dublin Bay and River Tolka Estuary SPA (site code 004024), South Dublin Bay cSAC (site code 000210), North Bull Island SPA (site code 004006), North Dublin Bay cSAC (site code 000206), Howth Head Coast SPA (site code 004113), Dalkey Islands SPA (site code 004172) and Rockabill to Dalkey Island cSAC (site code 003000) are the only European Sites in respect of which the proposed development has the potential to have a significant effect.

15.4.2. The Board considered the Natura Impact Statement and associated documentation submitted with the application, the mitigation measures contained therein, the submissions and observations on file, and the inspector's assessment. The Board completed an appropriate assessment of the implications of the proposed development as part of the overall proposed upgrade project for the aforementioned European Sites in view of the sites' conservation objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Board considered, in particular, the following:

a. the likely direct and indirect impacts arising from the proposed development at Ringsend WwTP and the RBSF sites both individually, when taken together and in combination with other plans or projects,
b. the mitigation measures, which are included as part of the current proposal, and
c. the conservation objectives for the European Sites.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European

Sites, having regard to the sites' conservation objectives. In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' conservation objectives.

16.0 **Conditions**

16.1. Ringsend WwTP and the RBSF components

1. The proposed development shall be carried out and completed in accordance with the plans and particulars lodged with the planning application and the information contained in the Environmental Impact Assessment Report and Natura Impact Statement, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development, or in default of agreement, shall be referred to An Bord Pleanála for determination, and the proposed development shall be carried out and completed in accordance with the agreed particulars.

   Reason: In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of the environment.

2. With the exception of the development hereby permitted, the proposed development at the Ringsend Wastewater Treatment Plant shall otherwise comply with the terms and conditions of permission granted under ABP Ref: 29N.YA0010, as amended by planning permission granted for alterations under ABP Ref. 29N.YM0002 and 29N.YM0004 and any further applications or alterations where permitted.

   Reason: In the interest of clarity and the proper planning and sustainable

development of the area.

3. The period during which the development hereby permitted may be carried out shall be ten years from the date of this order.

Reason: Having regard to the nature and extent of the proposed development, the Board considered it appropriate to specify a period of validity of this permission in excess of five years.

4. Mitigation

a) All mitigation and environmental commitments identified in the EIAR (Table 17-1 of Volume 3 and 4) shall be implemented in full as part of the proposed development except as may otherwise be required to comply with the following conditions.

Monitoring

b) All monitoring measures identified in the EIAR (Table 17-2-of Volume 3 and 4) shall be carried out and the details of monitoring results shall be submitted to the Planning Authorities (Dublin City Council in respect of the Ringsend wastewater treatment plant and Fingal County Council in respect of the Regional Biosolids facility) except as may otherwise be required to comply with the following conditions.

Reason: In the interest of clarity and to protect the environment.

5. A contract specific Construction and Environmental Management Plan (CEMP) and Waste Management Plan (WMP) shall be submitted to and agreed in writing with both Planning Authorities in respect of the development at the Ringsend WwTP site and the RBSF site. The CEMPs and WMPs shall detail and ensure Best Construction Practice and compliance with statutory obligations.

As part of the CEMP, the submitted invasive species management plan

shall be updated as necessary for the control or disturbance to soils containing Japanese Knotweed in accordance with 'Irish Water Information and Guidance Document on Japanese Knotweed. The plan shall include a method statement for the removal of invasive species identified as being present on site.
The implementation of the invasive species management plan shall be overseen by a suitably qualified ecologist/botanist familiar with Japanese Knotweed.

Reason: To protect the environment during construction.

6. a) Prior to commencement of the development, a Traffic Management Plan for the construction and operational phases shall be submitted to, and agreed in writing with the Planning Authorities in respect of the development at the Ringsend WwTP site and the RBSF site.
   b) The developer shall comply with the requirements of the Planning Authorities in respect of minimising traffic disruption on the local communities, cleaning and repair of any damage to the public road networks during the construction and operation phases.

   Reason: To protect the public road network and in the interest of traffic safety.

7. The development shall adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits set out in the EIAR in respect of the overall development at Ringsend wastewater treatment plant and the development of the regional biosolids facility.

   During the construction and demolition phases, the proposal development shall comply with British Standard 5228 Noise Control on Construction and open sites Part 1. Code of practice for basic information

and procedures for noise control.

Construction Noise at the nearest sensitive receptor shall comply with the following limits:

- 70 $_{LAeq\ (1\ hour)}$ dB – Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)
- 65 $_{LAeq\ (1\ hour)}$ dB – Evening (19:00 – 23:00)
- 55 $_{LAeq\ (1\ hour)}$ dB – Night time (23:00 – 07:00)

Mitigation for the operation phase would include a number of items such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant.

The developer(s) shall require the appointed contractor to employ and implement best practice construction noise and vibration management techniques throughout the construction phase in order to further reduce the noise and vibration impact to nearby noise sensitive receptors.

During the operation phase, noise shall be minimised by the selection of 'low noise' plant and equipment and incorporation of appropriate attenuation.

Noise monitoring during construction and commissioning and/or operation shall be carried out in accordance with the requirements of the Planning Authorities.

Reason: In the interest of the amenities of the surrounding area.

8. **a) Ringsend WwTP**

During operation, odour from the wastewater treatment plant (excluding storm tanks) shall not exceed 10 ou_E/m^3 as the 99.4^{th} percentile of hourly averages at the boundary of the Ringsend WwTP site.
The adopted odour annoyance criterion of 3 ouE/m^3 as the 98^{th} percentile of hourly averages shall not be exceeded at any sensitive

receptor location. The Odour Management Plan shall be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.

b) RBSF

The adopted odour annoyance criterion of 3 ouE/m^3 as the 98^{th} percentile of hourly averages shall not be exceeded at any sensitive receptor location.

Reason: In the interest of the amenities of the surrounding area.

9. The developer shall facilitate the preservation, recording and protection of archaeological materials or features that that may exist within and proximate to the Ringsend wastewater treatment site.

In this regard the developer shall –

a) Notify the Department of the Culture, Heritage and the Gaeltacht in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development.
b) Employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works and,
c) Provide arrangements for the recording and for the removal of any archaeological material which the Department of Culture, Heritage and the Gaeltacht considers appropriate to remove.

In default of an agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.

10. a) Prior to the commencement of the development, the developer shall submit a detailed landscaping plan for each of the development components at Ringsend WwTP and the RBSF sites. Details, including strengthening of boundary treatment, screening of compounds and general landscape details including timescales shall be submitted to and agreed in writing with the planning authorities and the landscaping shall be carried out in accordance with the agreed details thereafter.
    b) Prior to the commencement of the development, a detailed decommissioning and site restoration plan in respect of the construction compounds, together with a timescale for its implementation, shall be submitted to and agreed in writing with the planning authorities.

    Reason: In the interest of the amenities of the surrounding area.

11. a) The development shall comply with the requirements of the Planning Authorities with respect to surface water management.
    b) The existing surface water pipeline traversing the RBSF site shall be realigned and a wayleave provided in accordance with the requirements of the Planning Authority (Fingal County Council).

    Reason: In the interest of providing best practice for surface water management and to provide for future maintenance of the realigned pipe at the RBSF site.

12. Prior to commencement of the development, the design details for the regional biosolids facility shall be submitted to and agreed in writing with the planning authority for the prevention of environmental pollution in the event of a fire occurrence. Such detail shall also include an assessment of the risk of environmental pollution due to fire water and any mitigation measures which may be necessary

    Reason: In the interest of protection of the environment and amenities of

the area.

13. All works to be undertaken within and adjacent to designated European sites within Dublin Bay shall be undertaken in accordance with the requirements of a suitably qualified ecologist appointed following consultation with the National Parks and Wildlife Service.

    Reason: In the interest of protection of designated European sites and qualifying interests, having regard to the sites conservation objectives.

14. The developer shall pay to the planning authority (Fingal County Council) a financial contribution as a special contribution under section 48(2) (c) of the Planning and Development Act 2000, as amended, in respect of the upgrade and signalisation of the R135 and the N2 North Bound Slip priority junction. The amount of the contribution shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála for determination. The contribution shall be paid prior to commencement of development or in such phased payments as the planning authority may facilitate. The application of indexation required by this condition shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála to determine.

    Reason: It is considered reasonable that the developer should contribute towards the specific exceptional costs which are incurred by the planning authority which are not covered in the Development Contribution Scheme and which would benefit the proposed development.

Patricia Calleary

Senior Planning Inspector

12th February 2019