UISCE ÉIREANN : IRISH WATER

Greater Dublin
Drainage Project

Environmental Impact Assessment Report

Volume 5 Part A
Proposed Project Figures

JACOBS TOBIN Consulting Engineers

Figure List

Chapter	Figure Number	Figure Title
Chapter 3 The Need for the Proposed Project	32102902-EIAR-301	Figure 3.1 Contributing Catchments of Existing Wastewater Treatment Plants
	32102902-EIAR-302	Figure 3.2 Critical Catchments
	32102902–EIAR-303	Figure 3.3 Potential Secondary Catchments
Chapter 4 Description of the Proposed Project	32102902–EIAR–401	Figure 4.1 Proposed Project Overview
	32102902-EIAR-402	Figure 4.2 Designated Areas in the Vicinity of the Proposed Project
	32102902-EIAR-403	Figure 4.3 Proposed Wastewater Treatment Plant Site
	32102902-EIAR-404	Figure 4.4 Land Use Zoning Objectives at the Proposed Wastewater Treatment Plant Site
	32102902-EIAR-405	Figure 4.5 Zonal Arrangement of the Proposed Wastewater Treatment Plant Site
	32102902-EIAR-406	Figure 4.6 Typical Detail of the Proposed Pipeline Route Construction Corridor
	32102902-EIAR-407	Figure 4.7 Typical Arrangement for Proposed Microtunnelling Compound
	32102902-EIAR-408	Figure 4.8 Typical Cross Section of the Proposed Pipeline Route Trench Dredged in the Seabed
Chapter 6 Population and Human Health: Population	32102902-EIAR-601	Figure 6.1 Study Area for the Proposed Wastewater Treatment Plant
	32102902-EIAR-602	Figure 6.2 Study Area for Proposed Orbital Sewer Route, Outfall Pipeline Route and Abbotstown Pumping Station
	32102902-EIAR-603	Figure 6.3 Residential Buildings within the Proposed Project Study Area
	32102902-EIAR-604	Figure 6.4 Land Use Zonings within the Proposed Project Study Area
	32102902-EIAR-605	Figure 6.5 Residential Zoned Lands within the Proposed Project Study Area
	32102902-EIAR-606	Figure 6.6 Economic Activity within the Proposed Project Study Area
	32102902-EIAR-607	Figure 6.7 Commercial Clusters within the Proposed Project Study Area
	32102902-EIAR-608	Figure 6.8 Healthcare Facilities within the Proposed Project Study Area
	32102902-EIAR-609	Figure 6.9 Primary and Secondary Level Schools within the Proposed Project Study Area
	32102902-EIAR-610	Figure 6.10 Tourism, Public Amenities, Sporting and Community Infrastructure
Chapter 8 Marine Water Quality	32102902-EIAR-801	Figure 8.1 Coastal and Transitional Waterbodies
	32102902-EIAR-802	Figure 8.2 Designated Areas
	32102902-EIAR-803	Figure 8.3 Model mesh and Bathymetry
	32102902-EIAR-804	Figure 8.4 High Resolution Mesh
	32102902-EIAR-805	Figure 8.5 Calibration Locations
	32102902-EIAR-806	Figure 8.6 Vibrocore and Borehole Locations
	32102902-EIAR-807	Figure 8.7 Modelled Rivers and Hydrometric Stations
	32102902-EIAR-808	Figure 8.8 Wastewater Treatment Plant Outfall Locations
	32102902-EIAR-809	Figure 8.9 Modelled Rivers and Quality Stations
	32102902-EIAR-810	Figure 8.10 Marine Sampling Stations
	32102902-EIAR-811	Figure 8.11 Ecological Status
	32102902-EIAR-812	Figure 8.12 Quality of Bathing Waters
	32102902-EIAR-813	Figure 8.13 Trophic Status
Chapter 9 Biodiversity (Marine)	32102902-EIAR-901	Figure 9.1 Summary of Field Survey Operations for the Proposed Outfall Pipeline Route
	32102902-EIAR-902	Figure 9.2 Summary of Bathymetry Data for the Proposed Outfall Pipeline Route
	32102902-EIAR-903	Figure 9.3 Sediment Changes near the Proposed Outfall Pipeline Route and Diffuser Location
	32102902-EIAR-904	Figure 9.4 Casual Sightings and Dedicated Surveys of the Harbour Porpoise
	32102902-EIAR-905	Figure 9.5 Inshore Shelfish Grounds along the Fingal Coast
	32102902-EIAR-906	Figure 9.6 Maximum Suspended Sediment Plume Concentrations arising from dredging over the duration of the dreding works for the proposed outfall pipeline route (Marine Section)
Chapter 10 Biodiversity (Marine Ornithology)	32102902-EIAR-1001	Figure 10.1 Location and Extent of Marine, Coastal and Estuarine Ornithological Surveys
	32102902-EIAR-1002	Figure 10.2 Bird Distribution within 90 m of Construction Compound No. 9 (December 2014 to March 2018)
	32102902-EIAR-1003	Figure 10.3 Bird Distribution within 90 m of Construction Compound No.10 (December 2014 to March 2018)
	32102902-EIAR-1004	Figure 10.4 Distribution of Feeding Guillemot Recordsfrom Ireland's Eye Vantage Point during Breeding Season (March to October)
	32102902-EIAR-1005	Figure 10.5 Distribution of Non-feeding Guillemot Records from Ireland's Eye Vantage Point during Breeding Season (March to October)
	32102902-EIAR-1006	Figure 10.6 Distribution of Feeding Razorbill Records from Ireland's Eye Vantage Point during Breeding Season (March to October)
	32102902-EIAR-1007	Figure 10.7 Distribution of Non-Feeding Razorbill Records
Chapter 11 Biodiversity (Terrestrial and Freshwater Aquatic)	32102902-EIAR-1101	Figure 11.1Special Areas of Conservation
	32102902-EIAR-1102	Figure 11.2 Special Protection Areas & RAMSAR Sites
	32102902-EIAR-1103	Figure 11.3 Natural Heritage Areas
	32102902-EIAR-1104	Figure 11.4 Dublin Bay UNESCO Biosphere Reserve
	32102902-EIAR-1105	Figure 11.5 Habitat Survey Results (1 of 6)
	32102902-EIAR-1105	Figure 11.5 Habitat Survey Results (2 of 6)
	32102902-EIAR-1105	Figure 11.5 Habitat Survey Results (3 of 6)
	32102902-EIAR-1105	Figure 11.5 Habitat Survey Results (4 of 6)
	32102902-EIAR-1105	Figure 11.5 Habitat Survey Results (5 of 6)
	32102902-EIAR-1105	Figure 11.5 Habitat Survey Results (6 of 6)
	32102902-EIAR-1106 (1/6)	Figure 11.6 Mammal Survey Results (1 of 6) – CONFIDENTIAL FIGURE
	32102902-EIAR-1106 (2/6)	Figure 11.6 Mammal Survey Results (2 of 6) – CONFIDENTIAL FIGURE

Chapter	Figure Number	Figure Title
	32102902-EIAR-1106 (3/6)	Figure 11.6 Mammal Survey Results (3 of 6) - CONFIDENTIAL FIGURE
	32102902-EIAR-1106 (4/6)	Figure 11.6 Mammal Survey Results (4 of 6) - CONFIDENTIAL FIGURE
	32102902-EIAR-1106 (5/6)	Figure 11.6 Mammal Survey Results (5 of 6) - CONFIDENTIAL FIGURE
	32102902-EIAR-1106 (6/6)	Figure 11.6 Mammal Survey Results (6 of 6) - CONFIDENTIAL FIGURE
	32102902-EIAR-1107	Figure 11.7 Freshwater Sampling Locations
Chapter 12 Landscape and Visual	32102902-EIAR-1201	Figure 12.1 Landscape and Visaul Impact Assessment Study Area
	32102902-EIAR-1202	Figure 12.2 Zone of Theoretical Visibility for the Proposed Wastewater Treatment Plant
	32102902-EIAR-1203	Figure 12.3 Viewpoint Locations Map
	32102902-EIAR-1204	Figure 12.4 Landscape and Visual Mitigation Concept
	32102902-EIAR-1205	Figure 12.5 Proposed Wastewater Treatment Plant Landscape Mitigation Plan
	32102902-EIAR-1206	Figure 12.6 Proposed Abbotstown Pumping Station
Chapter 13 Traffic and Transport	32102902-EIAR-1301	Figure 13.1 Traffic Assessment Locations
	32102902-EIAR-1302(1/3)	Figure 13.2 Proposed Construction Corridor, Access Routes, Compounds & Crossings (1 of 3)
	32102902-EIAR-1302(2/3)	Figure 13.2 Proposed Construction Corridor, Access Routes, Compounds & Crossings (2 of 3)
	32102902-EIAR-1302(3/3)	Figure 13.2 Proposed Construction Corridor, Access Routes, Compounds & Crossings (3 of 3)
	32102902-EIAR-1303	Figure 13.3 Proposed Left-Turn Site Access Junction on R139 Road
	32102902-EIAR-1304	Figure 13.4 Proposed Left-Turn Site Exit on Clonshaugh Road
	32102902-EIAR-1305	Figure 13.5 Autotrack Analysis – Max Regualted Articulated Vehicle
Chapter 14 Air Quality, Odour and Climate	32102902-EIAR-1401 (1/2)	Figure 14.1 Study Area for the Construction Phase Air Quality Impact Assessment (1 of 2)
	32102902-EIAR-1401 (2/2)	Figure 14.1 Study Area for the Construction Phase Air Quality Impact Assessment (2 of 2)
	32102902-EIAR-1402	Figure 14.2 Study Area for the Operational Phase of the Air Quality Impact Assessment
	32102902-EIAR-1403(1/3)	Figure 14.3 Air Quality Monitoring Locations (Sheet 1 of 3)
	32102902-EIAR-1403(2/3)	Figure 14.3 Air Quality Monitoring Locations (Sheet 2 of 3)
	32102902-EIAR-1403(3/3)	Figure 14.3 Air Quality Monitoring Locations (Sheet 3 of 3)
	32102902-EIAR-1404 (1/9)	Figure 14.4 Receptor Locations (1 of 9)
	32102902-EIAR-1404 (2/9)	Figure 14.4 Receptor Locations (2 of 9)
	32102902-EIAR-1404 (3/9)	Figure 14.4 Receptor Locations (3 of 9)
	32102902-EIAR-1404 (4/9)	Figure 14.4 Receptor Locations (4 of 9)
	32102902-EIAR-1404 (5/9)	Figure 14.4 Receptor Locations (5 of 9)
	32102902-EIAR-1404 (6/9)	Figure 14.4 Receptor Locations (6 of 9)
	32102902-EIAR-1404 (7/9)	Figure 14.4 Receptor Locations (7 of 9)
	32102902-EIAR-1404 (8/9)	Figure 14.4 Receptor Locations (8 of 9)
	32102902-EIAR-1404 (9/9)	Figure 14.4 Receptor Locations (9 of 9)
	32102902-EIAR-1405	Figure 14.5 Isopleth Showing Odour Predictions for 98-percentile of 1-hour Ground Level Odour Concentration for the Proposed Abbotstown Pumping Station for Normal Operating Conditions
	32102902-EIAR-1406	Figure 14.6 Isopleth Showing Odour Predictions for 98-percentile of 1-hour Ground Level Odour Concentration for the Proposed Abbotstown Pumping Station for Peak Operating Conditions
	32102902-EIAR-1407	Figure 14.7 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for 90.4-percentile of 24-hour Ground Level Concentration of PM10
	32102902-EIAR-1408	Figure 14.8 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of PM10
	32102902-EIAR-1409	Figure 14.9 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of PM2.5
	32102902-EIAR-1410	Figure 14.10 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for 8-hour Rolling Mean of Ground Level Concentration of CO
	32102902-EIAR-1411	Figure 14.11 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for 99.7-percentile of 1-hour Ground Level Concentration of SO2
	32102902-EIAR-1412	Figure 14.12 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for 99.2-percentile of 24-hour Ground Level Concentration of SO2
	32102902-EIAR-1413	Figure 14.13 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of SO2
	32102902-EIAR-1414	Figure 14.14 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for 99.8-percentile of 1-hour Ground Level Concentration of NO2
	32102902-EIAR-1415	Figure 14.15 Abbotstown Pumping Station: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of NO2
	32102902-EIAR-1416	Figure 14.16 Proposed Abbotstown Pumping Station: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of NOx
	32102902-EIAR-1417	Figure 14.17 Isopleth Showing Odour Predictions for 98-percentile of 1-hour Ground Level Odour Concentration Dubber Odour Control Unit for Normal Operating Conditions
	32102902-EIAR-1418	Figure 14.18 Isopleth Showing Odour Predictions for 98-percentile of 1-hour Ground Level Odour Concentration Dubber Odour Control Unit for Peak Operating Conditions
	32102902-EIAR-1419	Figure 14.19 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for 90.4-percentile of 24-hour Ground Level Concentration of PM10
	32102902-EIAR-1420	Figure 14.20 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of PM10
	32102902-EIAR-1421	Figure 14.21 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of PM2.5
	32102902-EIAR-1422	Figure 14.22 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for 8-hour Rolling Mean of Ground Level Concentration of CO
	32102902-EIAR-1423	Figure 14.23 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for 99.7-percentile of 1-hour Ground Level Concentration of SO2
	32102902-EIAR-1424	Figure 14.24 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for 99.2-percentile of 24-hour Ground Level Concentration of SO2
	32102902-EIAR-1425	Figure 14.25 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of SO2
	32102902-EIAR-1426	Figure 14.26 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for 99.8-percentile of 1-hour Ground Level Concentration of NO2
	32102902-EIAR-1427	Figure 14.27 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of NO2
	32102902-EIAR-1428	Figure 14.28 Proposed Wastewater Treatment Plant Combined Heat and Power: Isopleth Showing Predictions for Annual Mean of Ground Level Concentration of NOx
	32102902-EIAR-1429	Figure 14.29 Isopleth Showing Odour Predictions for 98-percentile of 1-hour Ground Level Odour Concentration: Proposed Wastewater Treatment Plant, Normal Operating

Chapter	Figure Number	Figure Title
		Conditions
	32102902-EIAR-1430	Figure 14.30 Isopleth Showing Odour Predictions for 98-percentile of 1-hour Ground Level Odour Concentration: Proposed Wastewater Treatment Plant, Peak Operating Conditions
Chapter 15 Noise and Vibration	32102902-EIAR-1501 (1/5)	Figure 15.1 Noise Monitoring Locations (Sheet 1 of 5)
	32102902-EIAR-1501 (2/5)	Figure 15.1 Noise Monitoring Locations (Sheet 2 of 5)
	32102902-EIAR-1501 (3/5)	Figure 15.1 Noise Monitoring Locations (Sheet 3 of 5)
	32102902-EIAR-1501 (4/5)	Figure 15.1 Noise Monitoring Locations (Sheet 4 of 5)
	32102902-EIAR-1501 (5/5)	Figure 15.1 Noise Monitoring Locations (Sheet 5 of 5)
	32102902-EIAR-1502	Figure 15.2 Vibration Monitoring Locations at Connolly Hospital
	32102902-EIAR-1503 (1/6)	Figure 15.3 Noise Sensitive Receptor Locations (Sheet 1 of 6)
	32102902-EIAR-1503 (2/6)	Figure 15.3 Noise Sensitive Receptor Locations (Sheet 2 of 6)
	32102902-EIAR-1503 (3/6)	Figure 15.3 Noise Sensitive Receptor Locations (Sheet 3 of 6)
	32102902-EIAR-1503 (4/6)	Figure 15.3 Noise Sensitive Receptor Locations (Sheet 4 of 6)
	32102902-EIAR-1503 (5/6)	Figure 15.3 Noise Sensitive Receptor Locations (Sheet 5 of 6)
	32102902-EIAR-1503 (6/6)	Figure 15.3 Noise Sensitive Receptor Locations (Sheet 6 of 6)
	32102902-EIAR-1504	Figure 15.4 Calculated Noise Contours for the Proposed Wastewater Treatment Plant Operational Phase (Daytime)
	32102902-EIAR-1505	Figure 15.5 Calculated Noise Contours for the Proposed Wastewater Treatment Plant Operational Phase (Evening Time)
	32102902-EIAR-1506	Figure 15.6 Calculated Noise Contours for the Proposed Wastewater Treatment Plant Operational Phase (Night-time)
	32102902-EIAR-1507	Figure 15.7 Calculated Noise Contours for the Proposed Abbotstown Pumping Station Operational Phase
	32102902-EIAR-1508	Figure 15.8 Calculated Noise Contours for the Proposed Dubber Odour Control Unit Operational Phase
Chapter 16 Archaeological, Architectural and Cultural Heritage	32102902-EIAR-1601	Figure 16.1 Proposed Project (Blanchardstown) Showing Surrounding Sites of Cultural Heritage Significance
	32102902-EIAR-1602	Figure 16.2 Proposed Project (M50 Junction 5) Showing Surrounding Sites of Cultural Heritage Significance
	32102902-EIAR-1603	Figure 16.3 Proposed Project (Silloge) Showing Surrounding Sites of Cultural Heritage Significance
	32102902-EIAR-1604	Figure 16.4 Proposed Project (Clonshagh) Showing Surrounding Sites of Cultural Heritage Significance
	32102902-EIAR-1605	Figure 16.5 Proposed Project (St Doolaghs) Showing Surrounding Sites of Cultural Heritage Significance
	32102902-EIAR-1606	Figure 16.6 Proposed Project (Baldoyle Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance
Chapter 17 Hydrology and Hydrogeology	32102902-EIAR-1701	Figure 17.1 Proposed Project Overview
	32102902-EIAR-1702	Figure 17.2 Groundwater Supply Well
	32102902-EIAR-1703	Figure 17.3 Hydrological Study Area
	32102902-EIAR-1704	Figure 17.4 Bedrock Geology
	32102902-EIAR-1705	Figure 17.5 Aquifer Classification
	32102902-EIAR-1706	Figure 17.6 Groundwater Vulnerability
	32102902-EIAR-1707	Figure 17.7 Soils
	32102902-EIAR-1708	Figure 17.8 Groundwater Supply Wells
	32102902-EIAR-1709	Figure 17.9 Portmarnock Golf Club Irrigation Wells
	32102902-EIAR-1710	Figure 17.10 Proposed Watercourse Crossings
	32102902-EIAR-1711	Figure 17.11 Location of Site Investigation Boreholes at Clonshagh
	32102902-EIAR-1712	Figure 17.12 Site Investigation Boreholes
Chapter 18 Soils and Geology	32102902-EIAR-1801 (1/3)	Figure 18.1 Teagasc Subsoils Blanchardstown to Clonshaugh (Sheet 1 of 3)
	32102902-EIAR-1801 (2/3)	Figure 18.1 Teagasc Subsoils Blanchardstown to Clonshaugh (Sheet 2 of 3)
	32102902-EIAR-1801 (3/3)	Figure 18.1 Teagasc Subsoils Blanchardstown to Clonshaugh (Sheet 3 of 3)
	32102902-EIAR-1802 (1/3)	Figure 18.2 Bedrock Geology Blanchardstown to Clonshagh (Sheet 1 of 3)
	32102902-EIAR-1802 (2/3)	Figure 18.2 Bedrock Geology Blanchardstown to Clonshagh (Sheet 2 of 3)
	32102902-EIAR-1802 (3/3)	Figure 18.2 Bedrock Geology Portmarnock to Marine Outfall (Sheet 3 of 3)
	32102902-EIAR-1803 (1/3)	Figure 18.3 Route Constraints Blanchardstown to Clonshagh (Sheet 1 of 3)
	32102902-EIAR-1803 (2/3)	Figure 18.3 Route Constraints Blanchardstown to Clonshagh (Sheet 2 of 3)
	32102902-EIAR-1803 (3/3)	Figure 18.3 Route Constraints Portmarnock to Marine Outfall (Sheet 3 of 3)
	32102902 EIAR 1804 (1/3)	Figure 18.4 Site Investigation Blanchardstown to Clonshagh (Sheet 1 of 3)
	32102902 EIAR 1804 (2/3)	Figure 18.4 Site Investigation Blanchardstown to Clonshagh (Sheet 2 of 3)
	32102902 EIAR 1804 (3/3)	Figure 18.4 Site Investigation Portmarnock to Marine Outfall (Sheet 3 of 3)
Chapter 19: Agronomy	32102902-EIAR-1901	Figure 19.1 Agricultural Land Parcels (Sheet 1 of 6)
	32102902-EIAR-1902	Figure 19.2 Agricultural Land Parcels (Sheet 2 of 6)
	32102902-EIAR-1903	Figure 19.3 Agricultural Land Parcels (Sheet 3 of 6)
	32102902-EIAR-1904	Figure 19.4 Agricultural Land Parcels (Sheet 4 of 6)
	32102902-EIAR-1905	Figure 19.5 Agricultural Land Parcels (Sheet 5 of 6)
	32102902-EIAR-1906	Figure 19.6 Agricultural Land Parcels (Sheet 6 of 6)
Chapter 23 Cumulative Impacts and Environmental Interactions	32102902-EIAR-2301	Figure 23.1 Other Developments Considered during Detailed Cumulative Impacts Assessment