PREFACE

This Environmental Impact Statement (EIS) for the proposed Ringaskiddy Resource Recovery Centre consists of four volumes, of which this is the third:

- Volume 1 Non Technical Summary
- Volume 2 EIS (Main Text)
- Volume 3 Figures
- Volume 4 Appendices

List of Figures

1. Introduction

- 1.1 Site Location
- 1.2 Existing Site Layout
- 1.3 Proposed Site Layout Plan
- 1.4 Process Building, Aero-Condenser and Turbine Footprint Comparison

2. Planning

- 2.1 Waste Hierarchy Waste Framework Directive
- 2.2 Hazardous Waste Treatment in Ireland 2009-2011
- 2.3 Regional Waste Management Regions
- 2.4 Carrigaline Electoral Area: Local Area Plan 2015 Zoning Map

3. Alternatives

4. Description of the Proposed Development

- 4.1 Existing Site Layout
- 4.2 Existing Site Layout (Aerial)
- 4.3 Existing Site in Context (Aerial)
- 4.4 Existing Site in Context (Aerial) Looking West
- 4.5 Existing Site in Context (Aerial) Looking South
- 4.6 Existing Site in Context (Aerial) Looking East
- 4.7 Proposed Site Layout Plan
- 4.8 Main Site Proposed Layout Plan
- 4.9 Floor Plan Level 0 of Process Building
- 4.10 Cross-section of Process Building (Section C-C)
- 4.11 Overall Process Flow Diagram of Waste-to-Energy Process
- 4.12 Schematic of Moving Grate Furnace
- 4.13 Schematic of Boiler

4.14	Schematic of Steam Turbine
4.15	Schematic of Handling Residues
4.16	Schematic of Heat Balance
4.17	Schematic of Cooling Section/Flue Gas Cleaning
4.18	Schematic of Stormwater Management System
4.19	Schematic of Fire Water Management System

5. Construction Activities

6. Population and Human Health

7. Roads and Traffic

- 7.1 Local Road Network
- 7.2 Location of the Junctions Counted
- 7.3 18-Hour Traffic Flow Profile on Local Road Network including Assessment Peak Periods
- 7.4 18-Hour Traffic Flow Profile including Proposed Traffic Restriction Periods
- 7.5 Traffic Planning Tool Indaver, Co. Meath

8. Air Quality

- 8.1a Diffusion Tube and PM₁₀/PM_{2.5} Monitoring Locations (Ringaskiddy)
- 8.1b Diffusion Tube Monitoring Locations (Monkstown and Cobh)
- 8.2 SRTM Terrain for AERMAP Model
- 8.3 Cork Airport Windrose 2008-2012
- 8.4 AERMOD Modelling Results (as a % of Ambient Limit Values)
- 8.5 CALPUFF Modelling Grid
- 8.6 Comparison between AERMOD & CALPUFF Modelling Results
- 8.7 Comparison between AERMOD & CALPUFF Modelling Results
- 8.8 Example of Building Downwash
- 8.9 Average Hourly NO₂ Concentration (mg/m³) March June 2008
- 8.10 Average 24-Hourly PM₁₀ Concentration (mg/m³) August 2014 May 2015
- 8.11 Baseline Ambient Heavy Metal Results (as a % of Ambient Limit Values) August 2014 May 2015
- 8.12 99.8th%ile of 1-Hour NO_X Concentrations (μg/m³) (Year 2010)
- 8.13 99.8th%ile of 1-Hour NO_X Concentrations (µg/m³) (Year 2010)
- 8.14 99.7th%ile of 1-Hour SO₂ Concentrations (μg/m³) (Year 2010)
- 8.15 99.2th%ile of 24-Hour SO₂ Concentrations (µg/m³) (Year 2013)
- 8.16 90th%ile of 24-Hour PM₁₀ Concentrations (µg/m³) (Year 2010)
- 8.17 Annual Mean PM₁₀ Concentrations (μg/m³) (Year 2010)

8.18	Annual Mean TOC (as benzene) Concentrations (µg/m³) (Year 2010)
8.19	Maximum 1-Hour HCl Concentrations (μg/m³) (Year 2014)
8.20	Maximum 1-Hour HF Concentrations (µg/m³) (Year 2014)
8.21	Default Municipal Waste Incinerator Congener Profile
8.22	Default Municipal Waste Incinerator Congener Profile Corrected To 0.1 ng/m³ TEQ
8.23	Vapour & Particulate Dioxin Congener Concentration (fg/m 3) – Max. Operations
8.24	Vapour & Particulate Dioxin Congener Deposition Rate (ng/m²/year) – Max. Operations
8.25	Annual Mean Particulate Dioxin Concentrations (fg/m³) (Year 2010)
8.26	Annual Mean Particulate Dioxin Deposition (ng/m²/yr) (Year 2013)
8.27	Annual Mean Hg ²⁺ (Mercury) Concentrations (ng/m ³) (Year 2010)
8.28	Annual Mean Cadmium Concentrations (ng/m³) (Year 2010)
8.29	Annual Mean Nickel Concentrations (ng/m³) (Year 2010)
8.30	SRTM Terrain Data In Region of Ringaskiddy
8.31	1km GLCC Land-Use Data In Region of Ringaskiddy Used In CALPUFF Model

9. Climate

10. Noise and Vibration

10.1	Baseline Noise Monitoring Locations
10.2	Noise Assessment Locations
10.3	Construction Phase 1a Calculated Noise Contours
10.4	Construction Phase 1b Calculated Noise Contours
10.5	Construction Phase 2, 3 & 4 Calculated Noise Contours
10.6	Construction Activity 5 Calculated Noise Contours
10.7	Construction Phase 6 Calculated Noise Contours
10.8	Construction Phase 7 Calculated Noise Contours
10.9	Operational Modelled Scenario 1 Calculated Noise Contours
10.10	Operational Modelled Scenario 2 Calculated Noise Contours
10.11	Operational Modelled Scenario 3 Calculated Noise Contours
10.12	Operational Modelled Scenario 4 Calculated Noise Contours

11. Landscape and Visual

11.0	View Location Map
11.0a	Zone of Theoretical Visual Influences (ZTVI) to top of building
11.0b	Zone of Theoretical Visual Influences (ZTVI) to top of stack
11.0c	Viewpoint Reference/Photomontage Locations & Designated Scenic Routes
11.1.1	View from Ringaskiddy Village (also Scenic Route S54) - As Existing
11.1.2	View from Ringaskiddy Village (also Scenic Route S54) - As Proposed
11.1.3	View from Ringaskiddy Village (also Scenic Route S54) - As Proposed including representation of occasional steam plume
11.2.1	View from N28 approaching Ringaskiddy Village (also Scenic Route S54) - As Existing
11.2.2	View from N28 approaching Ringaskiddy Village (also Scenic Route S54) - As Proposed
11.2.3	View from N28 approaching Ringaskiddy Village (also Scenic Route S54) - Cumulative Impact
11.3.1	View from North of Ringaskiddy Martello Tower - As Existing
11.3.2	View from North of Ringaskiddy Martello Tower - As Proposed
11.4.1	View from View from Ringaskiddy Martello Tower (at entrance door) - As Existing
11.4.2	View from View from Ringaskiddy Martello Tower (at entrance door) - As Proposed
11.5.1	View from Local access road close to NMCI entrance - As Existing
11.5.2	View from Local access road close to NMCI entrance - As Proposed
11.6.1	View from Gobby Strand towards Golden Rock - As Existing
11.6.2	View from Gobby Strand towards Golden Rock - As Proposed
11.7.1	View from Gobby Strand towards site - As Existing
11.7.2	View from Gobby Strand towards site - As Proposed
11.8.1	View from Haulbowline local access road - As Existing
11.8.2	View from Haulbowline local access road - As Proposed
11.9.1	View from Haulbowline Bridge close to Rocky Island - As Existing
11.9.2	View from Haulbowline Bridge close to Rocky Island - As Proposed
11.9.3	View from Haulbowline Bridge close to Rocky Island - Cumulative Impact
11.10.1	View from Haulbowline Island west pier - As Existing
11.10.2	View from Haulbowline Island west pier - As Proposed
11.11.1	View from Haulbowline Island east tip shoreline - As Existing
11.11.2	View from Haulbowline Island east tip shoreline - As Proposed

11.11.3	View from Haulbowline Island east tip shoreline - Cumulative
	Impact

- 11.12.1 View from Cork Harbour at Spit Bank Lighthouse As Existing
- 11.12.2 View from Cork Harbour at Spit Bank Lighthouse As Proposed
- 11.12.3 View from Cork Harbour at Spit Bank Lighthouse Cumulative Impact
- 11.13.1 View from Cobh on Whitepoint Drive As Existing
- 11.13.2 View from Cobh on Whitepoint Drive As Proposed
- 11.14.1 View from Cobh at White Point As Existing
- 11.14.2 View from Cobh at White Point As Proposed
- 11.15.1 View from Cobh at Russell Heights As Existing
- 11.15.2 View from Cobh at Russell Heights As Proposed
- 11.15.3 View from Cobh at Russell Heights Cumulative Impact
- 11.16.1 View from Cobh at West Beach Pier As Existing
- 11.16.2 View from Cobh at West Beach Pier As Proposed
- 11.16.3 View from Cobh at West Beach Pier Cumulative Impact
- 11.17A.1 View from Cobh at St Coleman's Cathedral As Existing
- 11.17A.2 View from Cobh at St Coleman's Cathedral As Proposed
- 11.17A.3 View from Cobh at St Coleman's Cathedral Cumulative Impact
- 11.17B.1 View from Cobh at St Coleman's Cathedral at night As Existing
- 11.17B.2 View from Cobh at St Coleman's Cathedral at night As Proposed
- 11.17B.3 View from Cobh at St Coleman's Cathedral at night Cumulative Impact
- 11.18.1 View from Cobh on High Road (also Scenic Route S53) As Existing
- 11.18.2 View from Cobh on High Road (also Scenic Route S53) As Proposed
- 11.18.3 View from Cobh on High Road (also Scenic Route S53) As Proposed including representation of occasional steam plume
- 11.18.4 View from Cobh on High Road (also Scenic Route S53) Cumulative Impact
- 11.19.1 View from East Ferry local access road (also Scenic Route S51) -As Existing
- 11.19.2 View from East Ferry local access road (also Scenic Route S51) As Proposed
- 11.19.3 View from East Ferry local access road (also Scenic Route S51) -Cumulative Impact
- 11.20.1 View from Whitegate village (also Scenic Route S51) As Existing
- 11.20.2 View from Whitegate village (also Scenic Route S51) As Proposed
- 11.20.3 View from Whitegate village (also Scenic Route S51) Cumulative Impact

- 11.21.1 View from Fort Davis (Carlisle Fort) As Existing
- 11.21.2 View from Fort Davis (Carlisle Fort) As Proposed
- 11.21.3 View from Fort Davis (Carlisle Fort) Cumulative Impact
- 11.22.1 View from Cork Harbour between Carlisle and Camden Forts As Existing
- 11.22.2 View from Cork Harbour between Carlisle and Camden Forts As Proposed
- 11.22.3 View from Cork Harbour between Carlisle and Camden Forts Cumulative Impact
- 11.23.1 View from Roche's Point (also Scenic Route S51) As Existing
- 11.23.2 View from Roche's Point (also Scenic Route S51) As Proposed
- 11.24.1 View from R610 Road at Rafeen (also Scenic Route S54) As Existing
- 11.24.2 View from R610 Road at Rafeen (also Scenic Route S54) As Proposed
- 11.24.3 View from R610 Road at Rafeen (also Scenic Route S54) Cumulative Impact
- 11.25A.1 View from R610 Road at Public Car in Monkstown (also Scenic Route S54) As Existing
- 11.25A.2 View from R610 Road at Public Car in Monkstown (also Scenic Route S54) As Proposed
- 11.25A.3 View from R610 Road at Public Car in Monkstown (also Scenic Route S54) As Proposed including representation of occasional steam plume
- 11.25A.4 View from R610 Road at Public Car in Monkstown (also Scenic Route S54) Cumulative Impact
- 11.25B.1 View from R610 Road at Public Car in Monkstown at night (also Scenic Route S54) As Existing
- 11.25B.2 View from R610 Road at Public Car in Monkstown at night (also Scenic Route S54) As Proposed
- 11.25B.3 View from R610 Road at Public Car in Monkstown at night (also Scenic Route S54) Cumulative Impact
- 11.26.1 View from Monkstown on Diamond Road As Existing
- 11.26.2 View from Monkstown on Diamond Road As Proposed
- 11.26.3 View from Monkstown on Diamond Road Cumulative Impact
- 11.27.1 View from Monkstown Golf Course As Existing
- 11.27.2 View from Monkstown Golf Course As Proposed
- 11.27.3 View from Monkstown Golf Course Cumulative Impact
- 11.28.1 View from R613 road at Barnahely Cemetery As Existing
- 11.28.2 View from R613 road at Barnahely Cemetery As Proposed
- 11.28.3 View from R613 road at Barnahely Cemetery Cumulative Impact

11.29.1	View from Curraghbinny - As Existing
11.29.2	View from Curraghbinny - As Proposed

- 11.29.3 View from Curraghbinny Cumulative Impact
- 11.30.1 View from Curraghbinny road at Loughbeg As Existing
- 11.30.2 View from Curraghbinny road at Loughbeg As Proposed
- 11.31.1 View from Curraghbinny Woods shoreline As Existing
- 11.31.2 View from Curraghbinny Woods shoreline As Proposed
- 11.31.3 View from Curraghbinny Woods shoreline As Proposed including representation of occasional steam plume
- 11.31.4 View from Curraghbinny Woods shoreline Cumulative Impact
- 11.32.1 View from Camden Fort Car Park, Crosshaven (also Scenic Route S58) As Existing
- 11.32.2 View from Camden Fort Car Park, Crosshaven (also Scenic Route S58) As Proposed
- 11.32.3 View from Camden Fort Car Park, Crosshaven (also Scenic Route S58) -Cumulative Impact
- 11.33.1 View from Crosshaven (Ardcross Court) As Existing
- 11.33.2 View from Crosshaven (Ardcross Court) As Proposed
- 11.34.1 View from Crosshaven on Point Road As Existing
- 11.34.2 View from Crosshaven on Point Road As Proposed
- 11.34.3 View from Crosshaven on Point Road Cumulative Impact
- 11.35.1 View from Spike Island (Fort Mitchell 2nd Bastion) As Existing
- 11.35.2 View from Spike Island (Fort Mitchell 2nd Bastion) As Proposed
- 11.35.3 View from Spike Island (Fort Mitchell 2nd Bastion) Cumulative Impact
- 11.36A.1 View from Spike Island at landing pier As Existing
- 11.36A.2 View from Spike Island at landing pier As Proposed
- 11.36A.3 View from Spike Island at landing pier As Proposed including representation of occasional steam plume
- 11.36A.4 View from Spike Island at landing pier Cumulative Impact
- 11.36B.1 View from Spike Island at landing pier at night As Existing
- 11.36B.2 View from Spike Island at landing pier at night As Proposed
- 11.36B.3 View from Spike Island at landing pier at night Cumulative Impact
- 11.37.1 View from Spike Island (Fort Mitchell Square at Library) As Existing
- 11.37.2 View from Spike Island (Fort Mitchell Square at Library) As Proposed
- 11.37.3 View from Spike Island (Fort Mitchell Square at Library) Cumulative Impact
- 11.38 Overall Site Landscape Masterplan

	11.39	Landscape Masterplan (Main production site)
	11.40	Landscape Longitudinal Sections
	11.41	Landscape Cross Sections to Boundaries
12.	Biodivers	ity
	12.1	Designated Sites within a 20km radius
	12.2	Habitat Map
	12.3	Japanese Knotweed Extent
13.	Soils, Ge	ology, Hydrogeology, Hydrology & Coastal Recession
	13.1	Geology of Cork Harbour - Geological Society of Ireland
	13.2	Site Investigations
	13.3a & 13	3.3c Cross-section A and C
	13.3b	Cross-section B
	13.4	Aggregate Potential
	13.5	Geological Heritage Sites
	13.6	Soils of Cork Harbour
	13.7	Licensed Waste Facilities
	13.8	Landslide Susceptibility
	13.9	Aquifer Classification
	13.10	Local Wells and Recharge Rates
	13.11	Aquifer Vulnerability
	13.12	Surface Water Features
14.	Archaeol	ogical, Architectural & Cultural Heritage
	14.1	Archaeological Sites within a 2km Radius of Proposed Development
	14.2	OSI 1st Edition 1841
	14.3	OSI 2nd Edition 1902
	14.4	OSI 3rd Edition 1934
	14.5	Candells Map of Cork Harbour 1587
	14.6	Down Survey Map 1654-1659
	14.7	Archaeology Site Survey Plates 1-4
	14.8	Archaeology Site Survey Plates 5-8
	14.9	Archaeology Site Survey Plates 9-12
	14.10	Archaeology Site Survey Plates 13-16
	14.11	Archaeology Site Survey Plates 17-20
	14.12	Archaeology Site Survey Plates 21-23