

“The Right Measure in the Right Place”

Using Scientific Data to Inform Engineering Decisions for Achieving Water Framework Directive Objectives

Case Study: The River Santry

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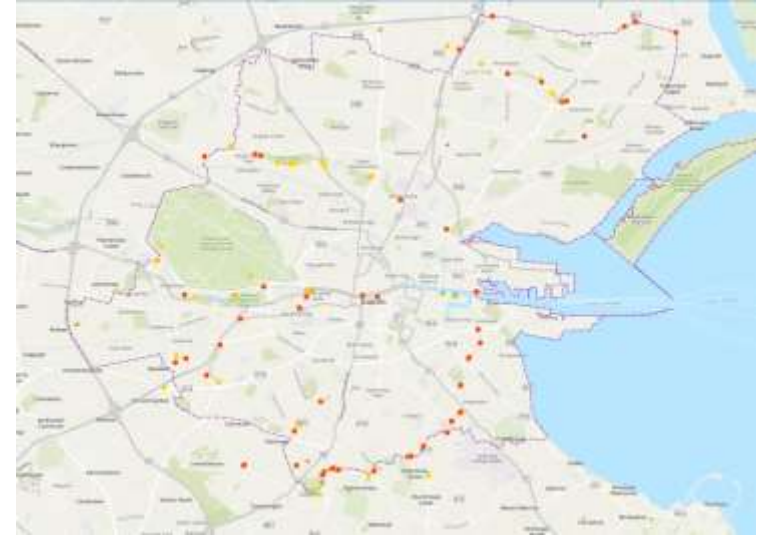
Historical context

- 1977 – Local Government (Water Pollution) Act
 - DCC started a city-wide monitoring programme
 - Trade effluent discharge licencing
 - Regulating sources of gross pollution
 - Eventually established our own Laboratory
- 1998 – Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations
 - Increased/Expanded monitoring programme
 - Commenced misconnections programme

The screenshot shows the eISB (e-Ireland Statute Book) website. The header includes the eISB logo, navigation links (Skip to content, Disclaimer, Feedback, Helpdesk, Gaelige), and a search bar. The main navigation menu includes Home, Legislation, Constitution, External Resources, and FAQ. The search bar shows the results for 'Title: Title of Act or Statute', 'Year(s) or range: 1800-1999', and 'Type: All Legislation'. The search results show 'Local Government (Water Pollution) Act, 1977'. Below the search results, there is a section for 'Local Government (Water Pollution) Act, 1977' with options to 'View by Section', 'View Full Act', 'Bill History', 'Commencement, Amendments, etc. made under the Act', and 'Revised Act'. The 'View by Section' option is selected, showing a list of sections from 1 to 20, including 'Interpretation', 'Water Pollution Advisory Council', 'General prohibition on entry of polluting matter to waters', 'Licencing of trade and sewage effluents', 'Provisions consequential on section 4', 'Revisions for the purpose of section 4 and 8', 'Review of licence under section 4', 'Appeals in relation to sections 4 and 7', 'Reviews of licences under sections 4 and 16 and of water abstractions', 'Provisions relating to certain contraventions under Act', 'High Court's power to prohibit continuance of contravention of section 3(1) or 4(1)', 'Local authority's power to require measures to be taken to prevent water pollution', 'Local authority's power to prevent and abate pollution in certain circumstances', 'Notification of accidental discharges', 'Water quality management plans', 'Licencing of discharges to sewers', 'Review of licence under section 16', 'Provisions consequential on section 16', 'Revisions for the purpose of sections 16 and 20', and 'Appeals in relation to sections 16 and 17'.

“Outcome”/“Effect”

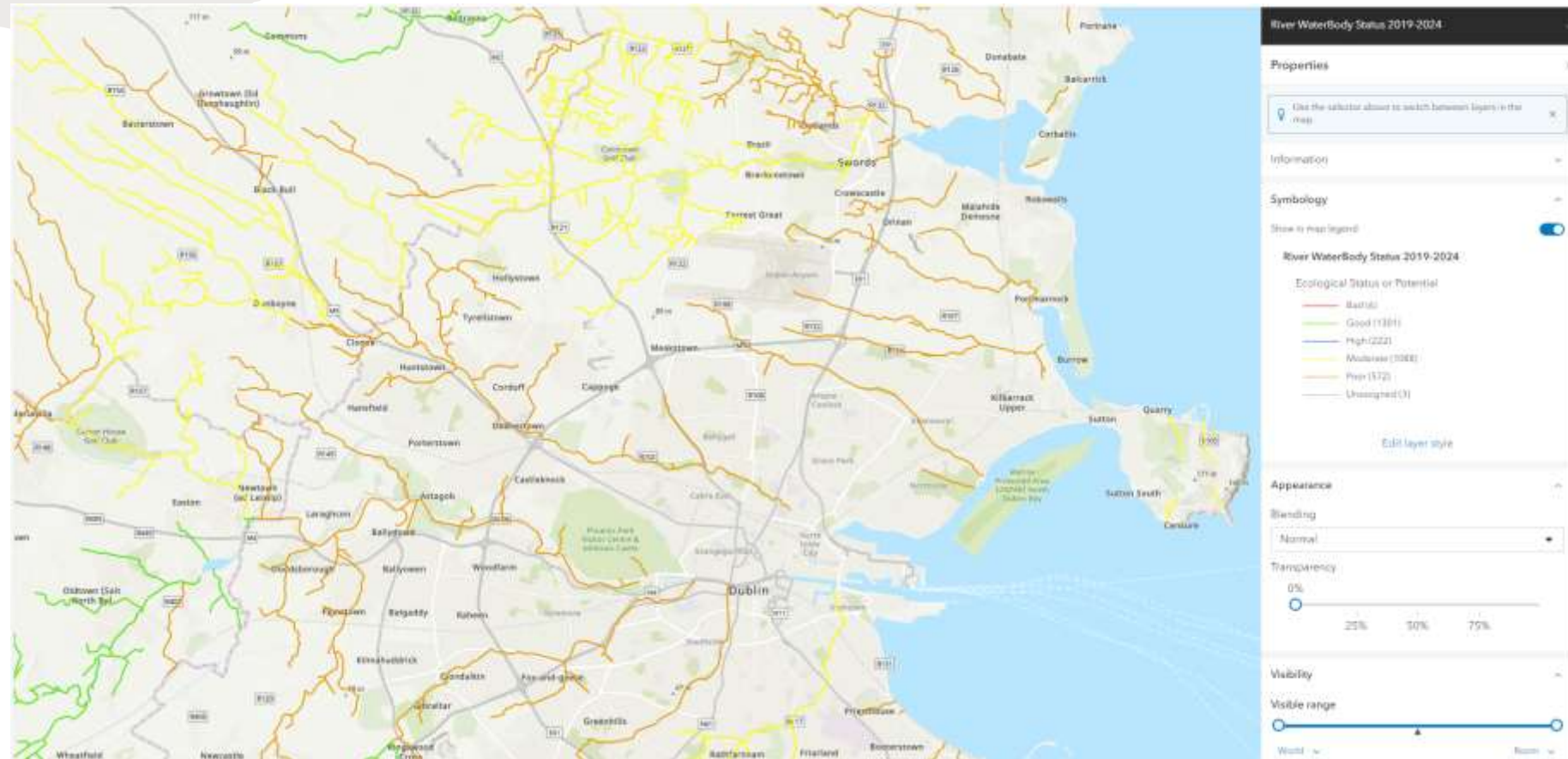
- ~75 monitoring points across 7 rivers
- Monthly monitoring
- Lots of work being done
 - Regulation of discharges
 - Removal of misconnections
 - Investigations
-but no real improvement in water quality



Ammonia mg/l as N	C.O.D. mg/l
Conductivity µS/cm	Dissolved Oxygen %Sat & mg/l
E. coli MPN/100 ml	Total Coliforms MPN/100 ml
Nitrate mg/l as N	Nitrite mg/l as N
pH	Phosphorus mg/l as P
Suspended Solids mg/l	Temperature °C
T.O.N mg/l as N	Total B.O.D mg/l

Water Framework Directive

- Cycle 1 (2010 – 2015)
really about
characterisation and
pressure identification
- Increased requirement
for monitoring
 - Surveillance
 - Operational
 - Investigative





Investigative Monitoring

- 30 years of data (10 digitised)
- Improved technology allowed for basic trend analysis
 - Greater computing power
 - Greater software functionality
 - Useful GIS
 - We developed our own systems
- Desktop studies – the ‘what’
- Field studies – the ‘why’

Investigative Monitoring – identification of pressures

- Upstream Pressures – what's flowing into our functional area
- Local Pressures – pressures within our functional area
- Source-Pathway-Receptor
 - Source – wastewater management infrastructure, misconnections, urban runoff
 - Note: most industry regulated and licensed discharges directed to foul network
 - Pathway mostly through drainage infrastructure, i.e. point source via pipe



Urban Runoff & Water Quality

- Le Fevre et al, 2015
 - “wide variety of pollutants”
 -at levels high enough to have a deleterious effect....”
 - Toxic metals, suspended solids, pathogens, nutrients, hydrocarbons frequently found at elevated levels
- McGrane, 2014
 - Emerging priority pollutants
- Flint and Davis, 2007
 - Most of the load is delivered in the 1st flush
- McGrane, 2016
 - Mobilisation of contaminants expedited through increased surface runoff and hydraulic efficiency



Urban Runoff: What's on our roads?

Test List	Sampling Point	Sampling Point	Sampled Date	Sample Number	Location	Ammonia mg/l as N	B.O.D. mg/l	C.O.D. mg/l	Conductivity (20°C) µS/cm	E. coli MPN/100ml	Nitrate mg/l as N	Nitrite mg/l as N	pH	Phosphorus (React) mg/l as P	Suspended Solids mg/l	TON mg/l as N	Total Coliforms MPN/100ml
115_SURF_W	00001	(00001) Pollution Investigation Sample	18/10/2017 12:00	1353557	Cleansing Yard run off from leaf tank in yard, Collins Ave	4.58	3612	5390	2952	>24196	0.59	0.848	6.6	18.18	1458	1.44	>24196
Test List	Sampling	Sampling	Sampled	Sample	Location	Ammonia mg/l as N	B.O.D. mg/l	C.O.D. mg/l	Conductivity µS/cm	E. coli MPN/100ml	Nitrate mg/l as N	Nitrite mg/l as N	pH	Phosphorus mg/l as P	Suspended mg/l	TON mg/l as N	Total MPN/100ml
115 SURF W	00001	(00001)	14/11/2017	1363597	Leaf	0.05		2150	7041	>24196	<0.09	0.011	6.6	6.34	904	<0.09	>24196
Test List	Sampling Point	Sampling Point Description	Sampled Date	Sample Number	Location	Ammonia mg/l as N	B.O.D. mg/l	C.O.D. mg/l	Conductivity (20°C) µS/cm	E. coli MPN/100ml	Nitrate mg/l as N	Nitrite mg/l as N	pH	Phosphorus (React) mg/l as P	Suspended Solids mg/l	TON mg/l as N	Total Coliforms MPN/100ml
115_SURF_W	00001	(00001) Pollution Investigation Sample	21/11/2017 12:00	1366523	Leaf Container in Collins Ave, Waste Management	<0.03		1992	1849	238200	<0.09	<0.005	6.5	6.94	598	<0.09	1986300
Test List	Sampling	Sampling	Sampled	Sample	Location	Ammonia mg/l as N	B.O.D. mg/l	C.O.D. mg/l	Conductivity µS/cm	E. coli MPN/100ml	Nitrate mg/l as N	Nitrite mg/l as N	pH	Phosphorus mg/l as P	Suspended mg/l	TON mg/l as N	Total MPN/100ml
115 SURF C	00001	(00001)	01/12/2017	1370885	Leaf Tank	12.76	956	6360	121929		0.37	0.643	6.7	4.90	996	1.02	

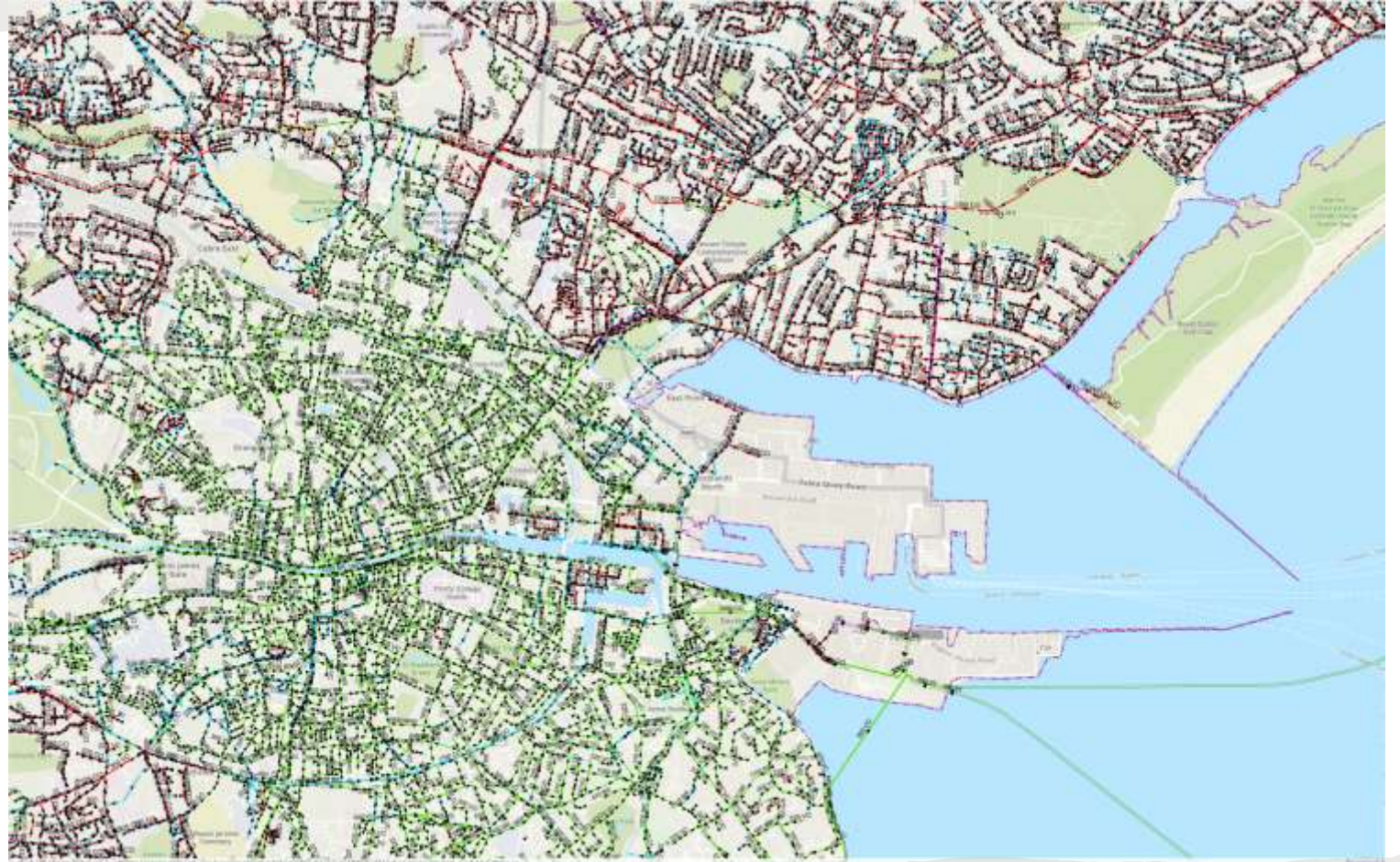
Conclusions from Investigative Monitoring

- Main Pressures on Dublin's river are:
 - Upstream pressures
 - Wastewater infrastructure (sewer network, pumping stations, overflows, treatment plant)
 - Urban runoff
 - Misconnections
 - Hydromorphology



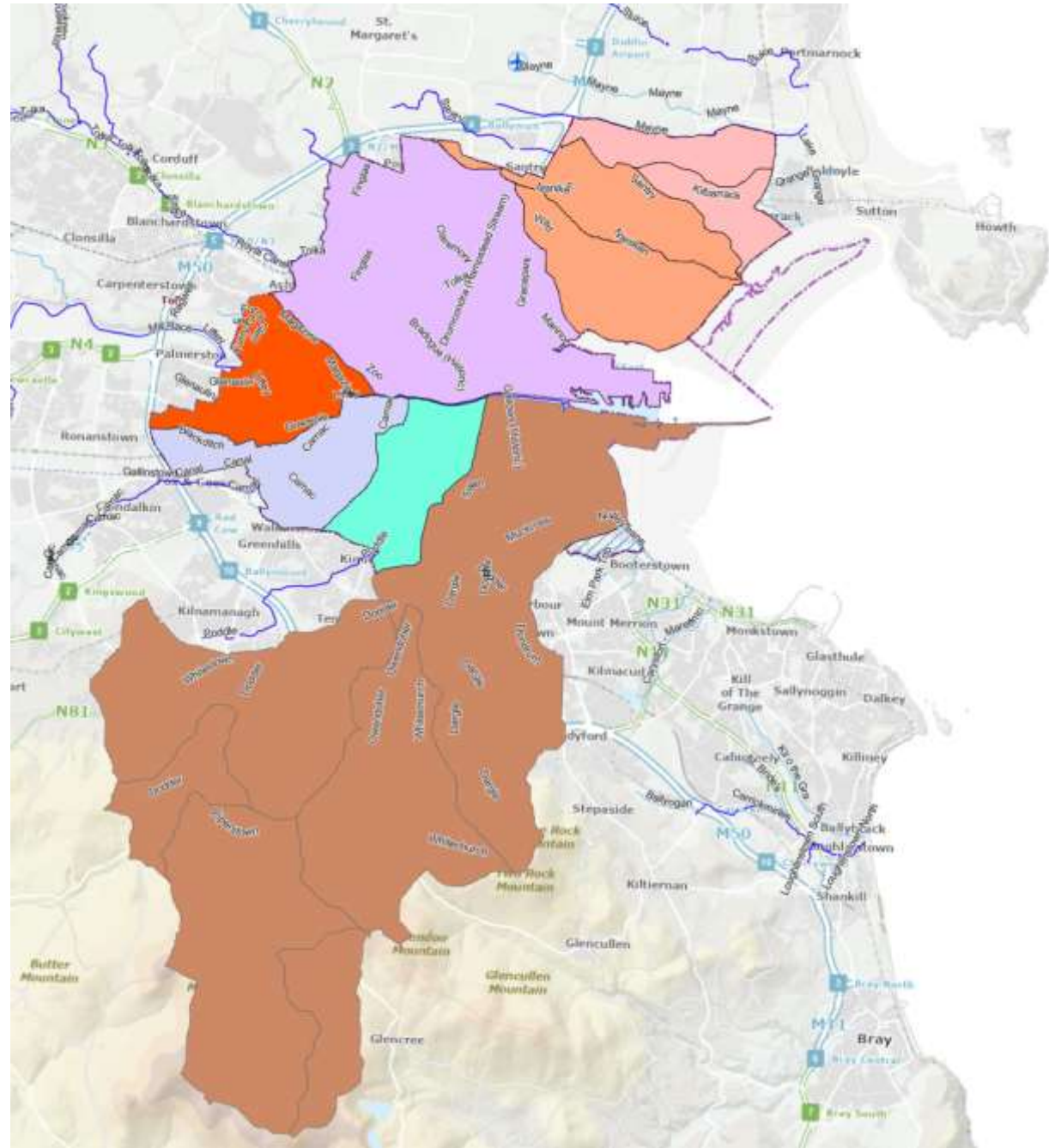
So, where do we start?

- Greater Dublin area – 345 km²
- Includes
 - 2,000+ km of sewer
 - ~300 sewer overflows
 - 55,000+ gullies
 - Hundreds of piped discharges to rivers
 - 39 pumping stations
- Ringsend Agglomeration extends to Ashbourne, Rathcoole, Wicklow Mountains



WFD Sub-Catchments

- We know what areas, approximately, drain to what water body
- Allows us to designate catchment/sub-catchment sized areas for study





The Santry River Catchment

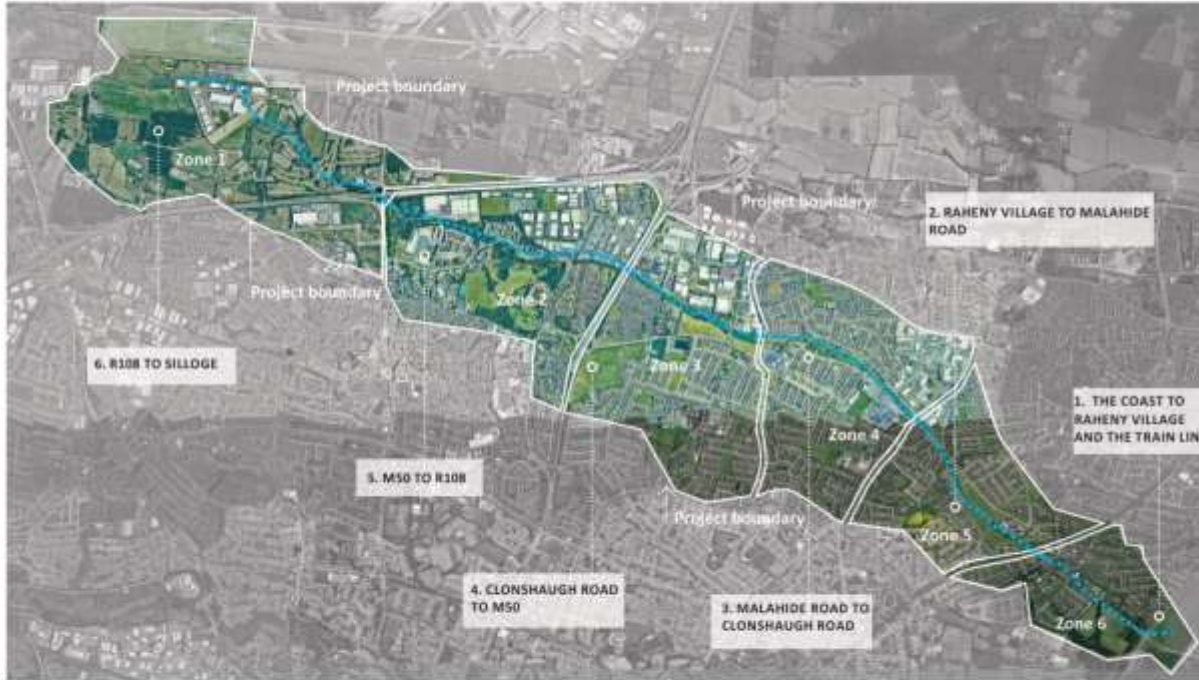
Use of the Local Catchment Assessment

Objectives for the Santry catchment

- Water Framework Directive compliance
- Flood mitigation
- Climate Adaptation
- Ecological improvement/enhancement
- Active Travel, Social and Recreational amenities



EXISTING SITUATION



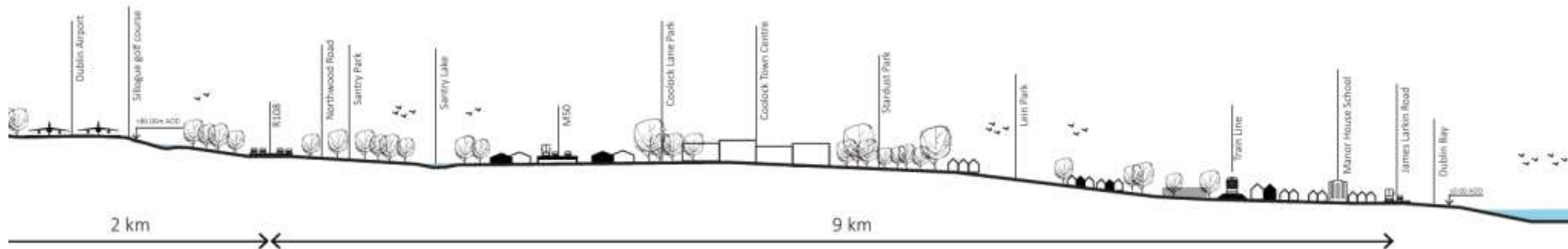
Map showing site boundaries and different zones within the project area



Image of the Santry River at Silloge Golf Course (above) at source.



Image of the Santry River as it flows to the sea at Dublin Bay.



Schematic longitudinal section of the River Santry from Silloge to Dublin Bay (approx 11km), 9km of which is to have a greenway.

Source, REDscape Landscape & Urbanism.

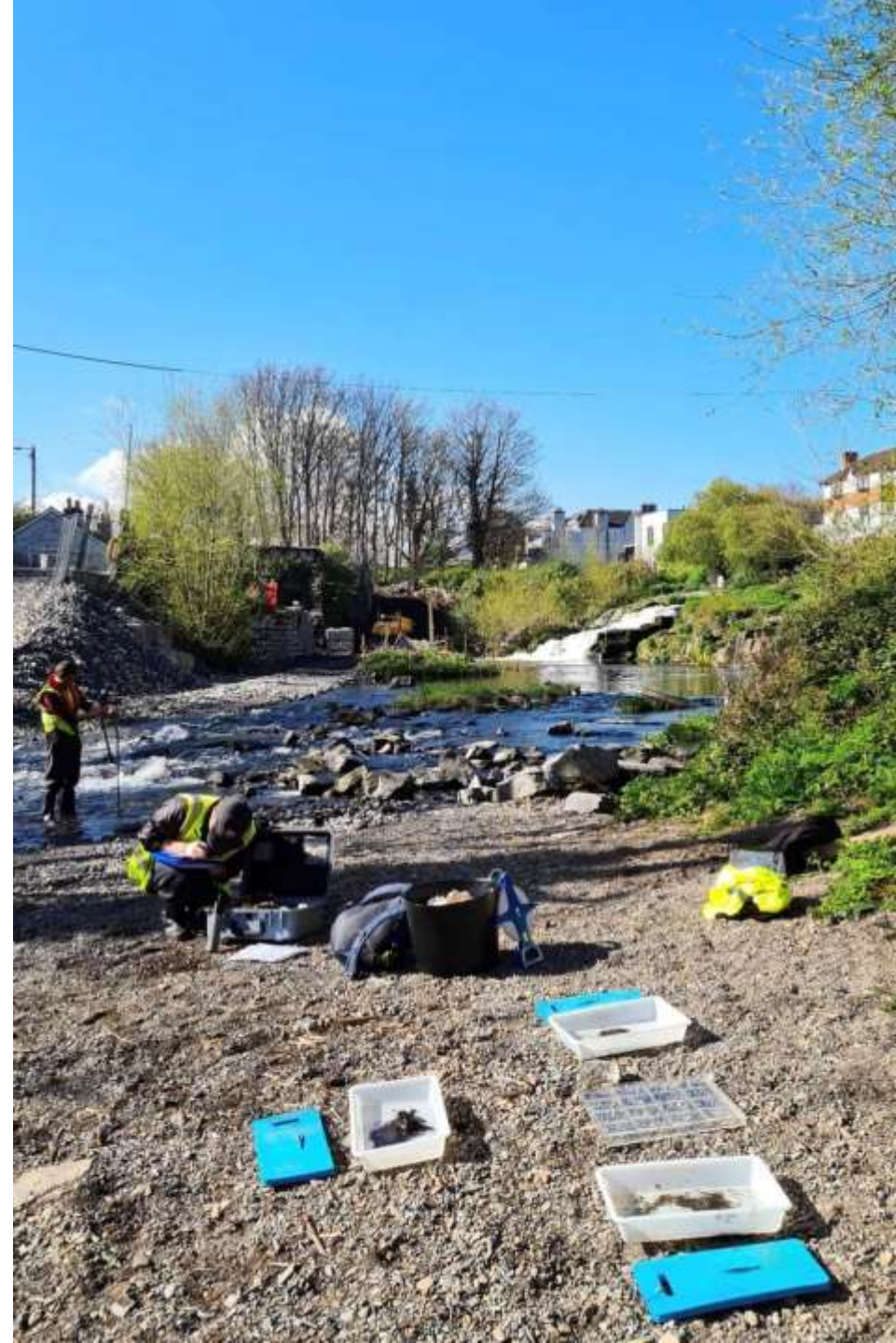
Catchment Pressures

- Poor Status under WFD
- Flooding (pluvial and fluvial)
- Heavily modified water body
- Significant habitat loss through urbanisation
- Invasive Species
- Low quality urban green space and other open spaces
- Minimal active travel facilities
- Future development
- Significant archaeology and heritage
- Protected sites (SAC, SPA, pNHA, Ramsar Site)



Where to start

- Collect all relevant background data - desktop
- Carry out formal Local Catchment Assessment – desktop and fieldwork
- Prioritise Pressures
- Develop solutions



Pressures

- Point Source
- Diffuse
- Spatial distribution



What we know

- Ammonia – systemic
- Dissolved Oxygen – local ELV exceedances
- Phosphorus – systemic
- BOD – systemic
- (e-coli – systemic)

Sampling	Sampling Point Description	Sampled Date	Sample Number	Ammonia mg/l as N	C.O.D. mg/l	Conducti µS/cm	Dissolved % Sat.	Dissolved mg/l	E. coli MPN/100	Nitrate mg/l as N	Nitrite mg/l as N	pH	Phosphor mg/l as P	Suspende mg/l	Temperat °C	TON mg/l as N	Total B.O. mg/l	Total Coli MPN/100
45330	(45330) Santry River Sports Grounds	11/09/2025 09:30	2382627	<0.01	<10	577	88	9.1	1570	0.58	<0.005	7.9	0.02	<5	12.7	0.59	<1	20924
45330	(45330) Santry River Sports Grounds	08/10/2025 09:20	2393347	0.01	11	886	84	9	320	1.91	0.007	8	0.02	5	12.1	1.92	5	6510
45330	(45330) Santry River Sports Grounds	29/10/2025 09:30	2400852	0.02	15	778	88	9.6	524	2.75	0.007	7.9	0.04	10	9.7	2.75	<1	5206
45330	(45330) Santry River Sports Grounds	27/11/2025 09:15	2413029	0.03	22	1141	90	9.6	172	3.65	0.019	8	0.04	12	11.9	3.67	6	5510
45340	(45340) Santry River Ballymun Rd Bridge	11/09/2025 09:50	2382628	0.02	15	537	88	9.1	6510	0.72	0.007	7.9	0.04	7	12.8	0.72	<1	18416
45340	(45340) Santry River Ballymun Rd Bridge	08/10/2025 09:40	2393348	0.02	27	698	75	8	124	0.57	<0.005	8	0.05	23	12	0.57	2	48392
45340	(45340) Santry River Ballymun Rd Bridge	29/10/2025 09:45	2400853	0.03	16	707	85	9.3	242	0.61	<0.005	8	0.05	34	9.3	0.62	5	5206
45340	(45340) Santry River Ballymun Rd Bridge	27/11/2025 09:35	2413030	0.06	21	1319	88	9.3	834	0.68	0.021	7.9	0.02	14	12.3	0.7	1	11588
45353	(45353) Santry River U/S Swords Road	11/09/2025 10:30	2382629	0.17	11	525	75	7.7	12262	0.6	0.046	7.9	0.09	<5	13.8	0.65	1	48392
45353	(45353) Santry River U/S Swords Road	08/10/2025 10:10	2393349	0.06	<10	644	77	8.2	2038	1.29	0.038	8	0.07	7	12.5	1.33	4	20924
45353	(45353) Santry River U/S Swords Road	29/10/2025 10:00	2400854	0.08	14	706	92	10.2	1518	1.82	0.038	8	0.04	5	9.6	1.86	<1	16328
45353	(45353) Santry River U/S Swords Road	27/11/2025 10:00	2413032	0.08	20	828	95	10.2	2324	2.8	0.029	8.1	0.09	10	11.7	2.82	<1	16328
45354	(45354) Santry River D/S Airways I.E.	11/09/2025 10:45	2382630	0.17	14	530	81	8.7	12262	0.86	0.046	7.8	0.09	<5	13.7	0.91	2	>48392
45354	(45354) Santry River D/S Airways I.E.	08/10/2025 09:55	2393350	0.06	15	667	82	8.8	268	1.19	0.046	8	0.07	<5	12.5	1.24	<1	3130
45354	(45354) Santry River D/S Airways I.E.	29/10/2025 10:15	2400855	0.06	12	709	91	10.1	1560	1.85	0.042	7.9	0.04	<5	9.5	1.89	1	8212
45354	(45354) Santry River D/S Airways I.E.	27/11/2025 10:15	2413033	0.09	21	848	95	10.3	2568	2.73	0.029	8.1	0.06	9	11.2	2.75	<1	15402
45359	(45359) Santry River D/S Clonshaugh	11/09/2025 11:30	2382631	0.43	610	709	7.7	31062	1.07	0.049	7.8	0.14	<5	14.2	1.12	3	>48392	
45359	(45359) Santry River D/S Clonshaugh	08/10/2025 10:35	2393351	0.56	11	622	58	6	>48392	1.33	0.09	7.8	0.12	<5	13	1.42	6	>48392
45359	(45359) Santry River D/S Clonshaugh	29/10/2025 11:30	2400856	0.08	12	687	83	9	1660	1.75	0.035	7.9	0.05	10	10.2	1.79	3	17328
45359	(45359) Santry River D/S Clonshaugh	27/11/2025 11:00	2413034	0.1	19	793	94	10.2	2306	2.56	0.034	8	0.09	6	11.6	2.59	1	10950
45362	(45362) Santry River U/S Coolock Drive	11/09/2025 11:45	2382632	0.15	14	570	91	9.3	6896	0.79	0.05	7.9	0.08	<5	14.2	0.84	2	48392
45362	(45362) Santry River U/S Coolock Drive	08/10/2025 10:55	2393352	0.25	12	653	84	8.9	3446	1.39	0.117	7.9	0.11	<5	13	1.51	2	14540
45362	(45362) Santry River U/S Coolock Drive	29/10/2025 11:45	2400857	0.06	12	672	93	10.1	1640	1.71	0.029	7.9	0.04	20	10.4	1.74	5	34658
45362	(45362) Santry River U/S Coolock Drive	27/11/2025 11:10	2413035	0.09	21	802	93	9.9	3328	2.49	0.036	8	0.05	8	11.7	2.52	4	17328
45365	(45365) Santry River Tonleegoe Road	11/09/2025 12:50	2382633	0.09	10	540	95	9.7	6152	1.06	0.051	8	0.09	<5	14.4	1.12	1	31062
45365	(45365) Santry River Tonleegoe Road	08/10/2025 12:20	2393353	0.11	17	651	94	9.8	1724	1.57	0.104	8.1	0.09	8	13.3	1.67	5	24066
45365	(45365) Santry River Tonleegoe Road	29/10/2025 12:00	2400858	0.07	13	664	97	10.5	2028	1.8	0.038	8	0.05	42	10.6	1.84	6	24066
45365	(45365) Santry River Tonleegoe Road	27/11/2025 12:10	2413036	0.11	20	766	99	10.5	2374	2.46	0.042	8.1	0.05	7	11.8	2.5	1	15402
45368	(45368) Santry River Lough Derg Park	11/09/2025 13:00	2382634	0.08	13	514	103	10.3	5226	1.53	0.049	8.1	0.09	<5	14.2	1.58	1	34658
45368	(45368) Santry River Lough Derg Park	08/10/2025 12:40	2393354	0.03	15	664	112	11.8	2792	1.82	0.067	8.4	0.09	7	13.4	1.89	4	>48392
45368	(45368) Santry River Lough Derg Park	29/10/2025 12:15	2400859	0.06	12	659	103	11.1	2142	1.95	0.029	8.1	0.06	<5	10.8	1.98	1	22398
45368	(45368) Santry River Lough Derg Park	27/11/2025 12:20	2413037	0.1	20	767	101	10.8	4284	2.54	0.042	8.2	0.06	10	12	2.58	<1	>48392
45375	(45375) Santry River O/F Bettyglen	11/09/2025 13:15	2382635	0.05	13	552	104	10.7	4764	1.34	0.033	8.2	0.09	<5	14.1	1.37	<1	34658
45375	(45375) Santry River O/F Bettyglen	08/10/2025 13:05	2393355	0.08	881	26693	105	9.8	584	< 0.10	0.017	8.1	0.06	64	13.2	<0.10	4	6260
45375	(45375) Santry River O/F Bettyglen	29/10/2025 12:30	2400860	0.07	14	654	105	11.5	1262	2.04	0.018	8.2	0.06	<5	10.5	2.06	1	14540
45375	(45375) Santry River O/F Bettyglen	27/11/2025 12:05	2413038	0.08	16	797	105	11.2	1040	2.65	0.034	8.3	0.1	12	12.1	2.69	<1	10344
45456	(45456) Santry Inflows Nanniken Divers	11/09/2025 11:00	2382637	0.18	20	491	74	7.6	>48392	0.99	0.051	7.8	0.14	<5	13.9	1.04	5	>48392
45456	(45456) Santry Inflows Nanniken Divers	08/10/2025 10:15	2393357	<0.01	22	672	53	5.6	>48392	1.12	0.047	7.8	0.14	<5	12.5	1.17	7	>48392
45456	(45456) Santry Inflows Nanniken Divers	29/10/2025 12:50	2400862	0.34	12	603	88	9.6	4962	2.18	0.098	7.9	0.08	<5	10.5	2.28	6	25994
45456	(45456) Santry Inflows Nanniken Divers	27/11/2025 10:35	2413040	0.6	17	765	92	9.8	>48392	2.64	0.086	8	0.06	6	11.6	2.73	6	>48392
45459	(45459) Santry Inflows S/W[1] Clons.Ind Est	11/09/2025 11:15	2382636	0.79	15	530	66	6.7	>48392	0.71	0.045	7.8	0.19	<5	14	0.75	6	>48392
45459	(45459) Santry Inflows S/W[1] Clons.Ind Est	08/10/2025 10:30	2393356	3.04	17	664	52	5.5	>48392	1.15	0.047	7.8	0.2	<5	12.5	1.2	7	>48392
45459	(45459) Santry Inflows S/W[1] Clons.Ind Est	29/10/2025 12:45	2400861	0.07	12	702	87	9.6	1112	1.79	0.035	8	0.05	<5	10.5	1.82	9	19608
45459	(45459) Santry Inflows S/W[1] Clons.Ind Est	27/11/2025 10:50	2413039	0.07	16	807	94	10.2	1498	2.66	0.033	8.1	0.04	8	11.4	2.69	1	13734
45462	(45462) Santry Inflows S/W Greencastle Rd	11/09/2025 12:00	2382638	0.09	20	621	94	9.7	5510	1.1	0.053	7.9	0.09	<5	14.2	1.15	2	31062
45462	(45462) Santry Inflows S/W Greencastle Rd	08/10/2025 11:45	2393358	0.15	<10	701	86	9	2224	1.57	0.11	8	0.1	<5	12.9	1.68	2	17328
45462	(45462) Santry Inflows S/W Greencastle Rd	29/10/2025 13:00	2400863	0.09	12	664	93	10.2	1810	2.05	0.035	8	0.05	8	10.5	2.08	1	25994
45462	(45462) Santry Inflows S/W Greencastle Rd	27/11/2025 11:25	2413041	0.13	18	770	98	10.5	2172	2.35	0.043	8.1	0.05	5	12.1	2.39	2	17328
45463	(45463) Santry Inflows S/W Cadburys (A) U/S	11/09/2025 12:10	2382639	0.09	14	620	94	9.7	7746	1.01	0.053	8	0.09	<5	14.1	1.06	2	48392
45463	(45463) Santry Inflows S/W Cadburys (A) U/S	08/10/2025 11:10	2393359	0.15	13	658	86	9	2038	1.51	0.11	8	0.1	<5	13.3	1.62	4	12976
45463	(45463) Santry Inflows S/W Cadburys (A) U/S	29/10/2025 13:10	2400864	0.08	13	664	92	10	1672	2.2	0.033	8	0.05	<5	10.8	2.23	1	34658
45463	(45463) Santry Inflows S/W Cadburys (A) U/S	27/11/2025 11:50	2413042	0.12	16	772	97	10.3	2306	2.38	0.043	8.1	0.05	9	11.8	2.42	1	20924
45464	(45464) Santry Inflows S/W Cadburys (B) D/S	11/09/2025 12:20	2382640	0.1	18	545	91	9.3	6260	1.02	0.053	8	0.09	<5	14.1	1.07	2	39726
45464	(45464) Santry Inflows S/W Cadburys (B) D/S	08/10/2025 11:15	2393360	0.16	<10	657	87	9.1	2934	1.59	0.113	8	0.1	<5	13.1	1.7	2	28272
45464	(45464) Santry Inflows S/W Cadburys (B) D/S	29/10/2025 13:15	2400865	0.08	16	663	93	10.1	1760	1.81	0.034	8	0.05	9	10.7			

Interpret the data

- Channel v inflows
- Inflows are the pathways – follow those
- All inflows are stormwater inflows

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
Sampling Point Description	Sampled Date	Sample Number		Ammonia mg/L as N	C.O.D. mg/L	Conductiv µS/cm	Dissolved % Sat.	Dissolved mg/L	E. coli MPN/100m	Nitrate mg/L as N	Nitrite mg/L as N	pH	Phosphor mg/L as P	Suspende mg/L	Temperatu °C	TON mg/L as N	Total B.O. mg/L	Total Colif MPN/100m
(45375) Santry River O/F Bettyglen	27/11/2025 12:05	2413038		0.08	16	797	105	11.2	1040	2.65	0.034	8.3	0.1	12	12.1	2.69	<1	10344
(45456) Santry Inflows Nanniken Divers	11/09/2025 11:00	2382637		0.18	20	491	74	7.6	>48392	0.99	0.051	7.8	0.14	<5	13.9	1.04	5	>48392
(45456) Santry Inflows Nanniken Divers	08/10/2025 10:15	2393357		<0.01	22	672	53	5.6	>48392	1.12	0.047	7.8	0.14	<5	12.5	1.17	7	>48392
(45456) Santry Inflows Nanniken Divers	29/10/2025 12:50	2400862		0.34	12	603	88	9.6	4962	2.18	0.098	7.9	0.08	<5	10.5	2.28	6	25994
(45456) Santry Inflows Nanniken Divers	27/11/2025 10:35	2413040		0.6	17	765	92	9.8	>48392	2.64	0.086	8	0.06	6	11.6	2.73	6	>48392
(45459) Santry Inflows S/W[1] Clons.Ind Est	11/09/2025 11:15	2382636		0.79	15	530	66	6.7	>48392	0.71	0.045	7.8	0.19	<5	14	0.75	6	>48392
(45459) Santry Inflows S/W[1] Clons.Ind Est	08/10/2025 10:30	2393356		3.04	17	664	52	5.5	>48392	1.15	0.047	7.8	0.2	<5	12.5	1.2	7	>48392
(45459) Santry Inflows S/W[1] Clons.Ind Est	29/10/2025 12:45	2400861		0.07	12	702	87	9.6	1112	1.79	0.035	8	0.05	<5	10.5	1.82	9	19608
(45459) Santry Inflows S/W[1] Clons.Ind Est	27/11/2025 10:50	2413039		0.07	16	807	94	10.2	1498	2.66	0.033	8.1	0.04	8	11.4	2.69	1	13734
(45462) Santry Inflows S/W Greencastle Rd	11/09/2025 12:00	2382638		0.09	20	621	94	9.7	5510	1.1	0.053	7.9	0.09	<5	14.2	1.15	2	31062
(45462) Santry Inflows S/W Greencastle Rd	08/10/2025 11:45	2393358		0.15	<10	701	86	9	2224	1.57	0.11	8	0.1	<5	12.9	1.68	2	17328
(45462) Santry Inflows S/W Greencastle Rd	29/10/2025 13:00	2400863		0.09	12	664	93	10.2	1810	2.05	0.035	8	0.05	8	10.5	2.08	1	25994
(45462) Santry Inflows S/W Greencastle Rd	27/11/2025 11:25	2413041		0.13	18	770	98	10.5	2172	2.35	0.043	8.1	0.05	5	12.1	2.39	2	17328
(45463) Santry Inflows S/W Cadburys (A) U/S	11/09/2025 12:10	2382639		0.09	14	620	94	9.7	7746	1.01	0.053	8	0.08	<5	14.1	1.06	2	48392
(45463) Santry Inflows S/W Cadburys (A) U/S	08/10/2025 11:10	2393359		0.15	13	658	86	9	2038	1.51	0.11	8	0.1	<5	13.3	1.62	4	12976
(45463) Santry Inflows S/W Cadburys (A) U/S	29/10/2025 13:10	2400864		0.08	13	664	92	10	1672	2.2	0.033	8	0.05	<5	10.8	2.23	1	34658
(45463) Santry Inflows S/W Cadburys (A) U/S	27/11/2025 11:50	2413042		0.12	16	772	97	10.3	2306	2.38	0.043	8.1	0.05	9	11.8	2.42	1	20924
(45464) Santry Inflows S/W Cadburys (B) D/S	11/09/2025 12:20	2382640		0.1	18	545	91	9.3	6260	1.02	0.053	8	0.09	<5	14.1	1.07	2	39726
(45464) Santry Inflows S/W Cadburys (B) D/S	08/10/2025 11:15	2393360		0.16	<10	657	87	9.1	2934	1.59	0.113	8	0.1	<5	13.1	1.7	2	28272
(45464) Santry Inflows S/W Cadburys (B) D/S	29/10/2025 13:15	2400865		0.08	16	663	93	10.1	1760	1.81	0.034	8	0.05	9	10.7	1.84	2	19608
(45464) Santry Inflows S/W Cadburys (B) D/S	27/11/2025 11:40	2413043		0.09	16	722	94	9.9	2290	2.06	0.042	8	0.06	11	12	2.1	5	25994
(45465) Santry Inflows S/W Berger	11/09/2025 12:35	2382641		0.1	<10	546	90	9.2	5206	1.03	0.054	8	0.08	<5	14.2	1.08	2	48392
(45465) Santry Inflows S/W Berger	08/10/2025 12:00	2393361		0.16	<10	647	87	9.1	2306	1.59	0.115	8	0.1	<5	13.2	1.7	2	20924
(45465) Santry Inflows S/W Berger	29/10/2025 13:20	2400866		0.08	10	981	94	10.2	1640	1.86	0.034	8	0.05	8	10.6	1.9	2	19608
(45465) Santry Inflows S/W Berger	27/11/2025 12:00	2413044		0.12	17	770	97	10.4	3912	2.44	0.043	8.1	0.05	7	11.7	2.48	1	31062

- Even in channel information is useful
- Airways IE is d/s of a foul pumping station
- Both locations here are downstream of industrial estates

45354	(45354) Santry River D/S Airways I.E.	11/09/2025 10:45	2382630	0.17	14	530	81	8.7	12262	0.86	0.046	7.8	0.09	<5	13.7	0.91	>48392
45354	(45354) Santry River D/S Airways I.E.	08/10/2025 09:55	2393350	0.06	15	667	82	8.8	268	1.19	0.046	8	0.07	<5	12.5	1.24	<1
45354	(45354) Santry River D/S Airways I.E.	29/10/2025 10:15	2400855	0.06	12	709	91	10.1	1560	1.85	0.042	7.9	0.04	<5	9.5	1.89	1
45354	(45354) Santry River D/S Airways I.E.	27/11/2025 10:15	2413033	0.09	21	848	95	10.3	2568	2.73	0.029	8.1	0.06	9	11.2	2.75	<1
45359	(45359) Santry River D/S Clonshaugh	11/09/2025 11:30	2382631	0.43		610	70	7.7	31062	1.07	0.049	7.8	0.14	<5	14.2	1.12	>48392
45359	(45359) Santry River D/S Clonshaugh	08/10/2025 10:35	2393351	0.58	11	622	58	6	>48392	1.33	0.09	7.8	0.12	<5	13	1.42	>48392
45359	(45359) Santry River D/S Clonshaugh	29/10/2025 11:30	2400856	0.08	12	687	83	9	1660	1.75	0.035	7.9	0.05	10	10.2	1.79	3
45359	(45359) Santry River D/S Clonshaugh	27/11/2025 11:00	2413034	0.1	19	793	94	10.2	2306	2.56	0.034	8	0.09	6	11.6	2.59	1
45359	(45359) Santry River D/S Clonshaugh	11/09/2025 11:45	2382632	0.14	14	570	81	8.9	2806	0.70	0.045	7.8	0.08	<5	14.2	0.94	>48392

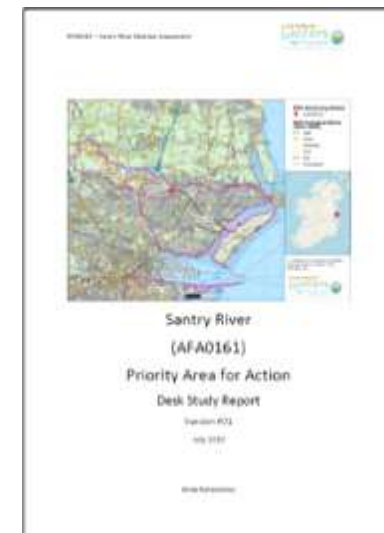
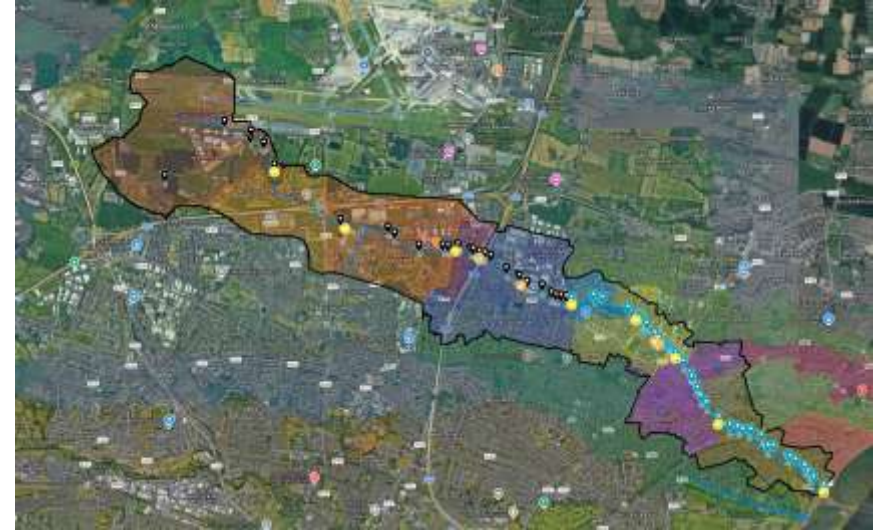


This data, however, is incomplete

- Concentration (mg/l) doesn't tell enough of a story
- Load (kg/d) is more relevant
- So, we started flow monitoring
- Kg/d allows us to prioritise inflows

Integrated Catchment Management - Local Catchment Assessment

- LA Studies – baseline data
- Desktop study by LAWPRO, 2021/2
 - River divided into sub-catchments
 - Pollutant load from each sub-catchment quantified
- Field Study, April 2023 – inflow assessment
- Later on
 - Fish Habitat Assessment - IFI
 - Fluvial Assessment – 2022 (cbec)
 - Multiple other necessary studies (consultant)



Desktop Study and LCA Conclusions

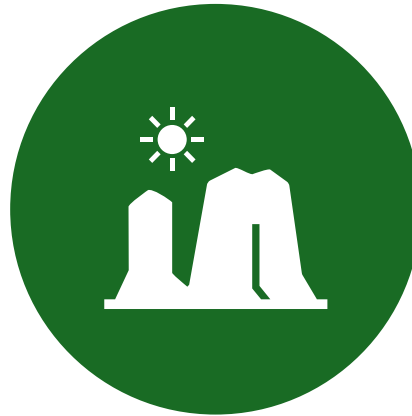
- Main Pressures:
 - Pumping Station on Old Swords Road
 - Combined Sewer Overflow operations or 'other' (because of elevated P)
 - Urban Runoff
 - Misconnections
 - Hydromorphology



3 Objectives to Improve Status



UPGRADE PUMPING STATION (UÉ)



RIVER RESTORATION TO IMPROVE
HYDROMORPHOLOGY AND
AQUATIC ENVIRONMENT (LA)



EXTENSIVE USE OF NATURE-
BASED SOLUTIONS TO
INTERCEPT URBAN RUNOFF (LA)

SANTRY RIVER RESTORATION & GREENWAY MASTERPLAN



SANTRY RIVER RESTORATION AND GREENWAY MASTERPLAN



Theme 1: A robust and healthy water system



Theme 2: green quality from source to sea



Theme 3: unique identify and information system



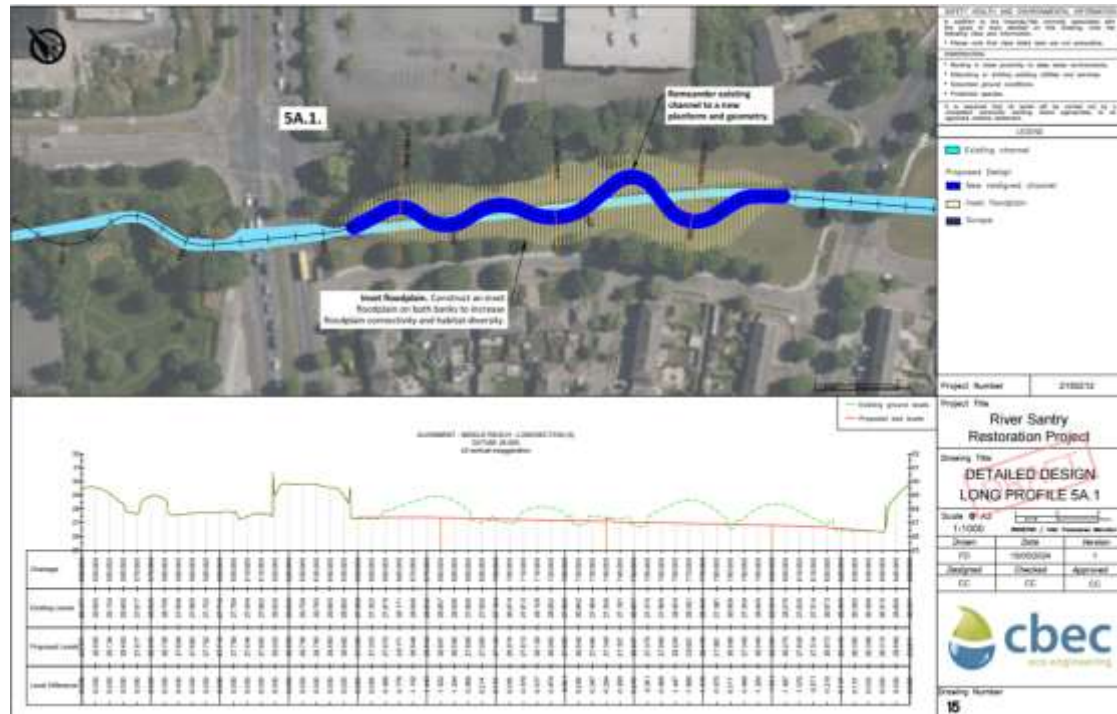
Theme 4: Place-making and activation



River Restoration

- Daylighting and artificial channel removal
- Barrier removal
- Floodplain development
- Offline wetlands
- Reintroduction of meanders



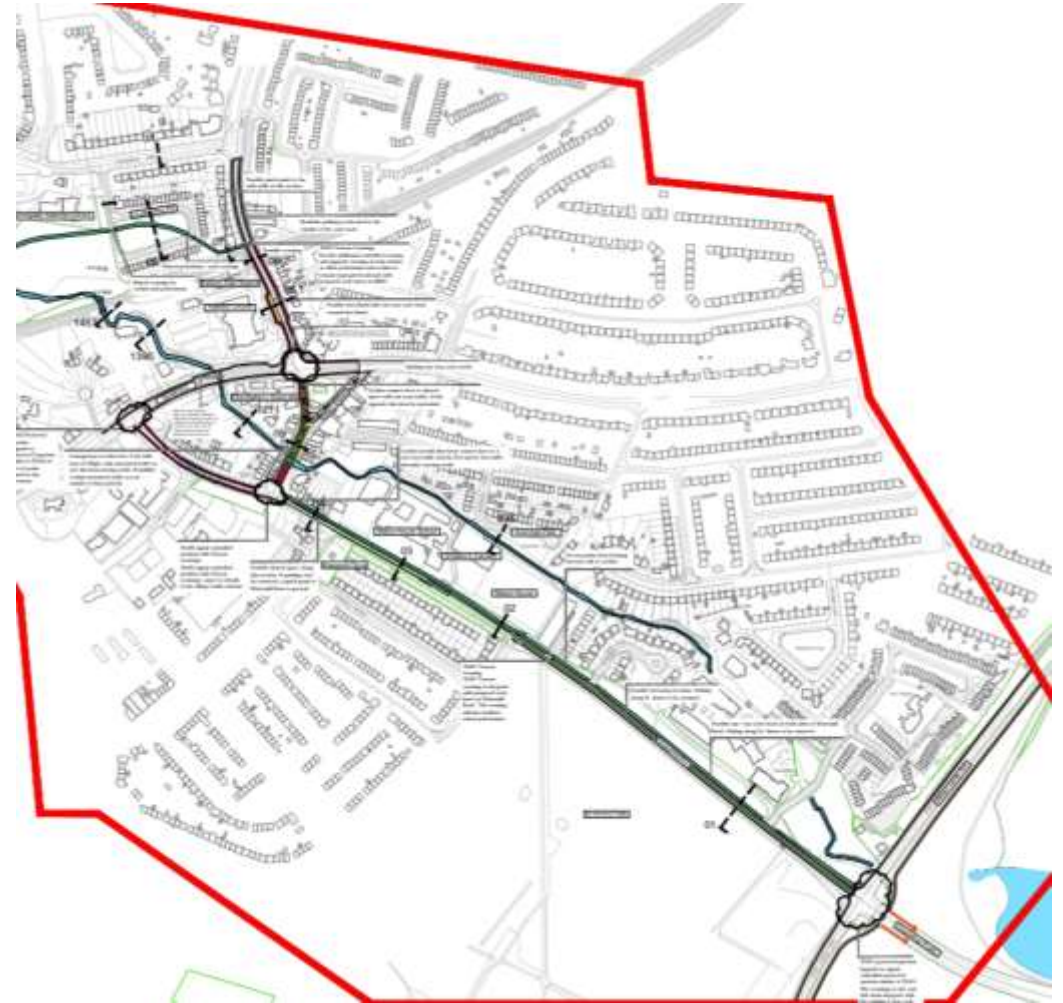


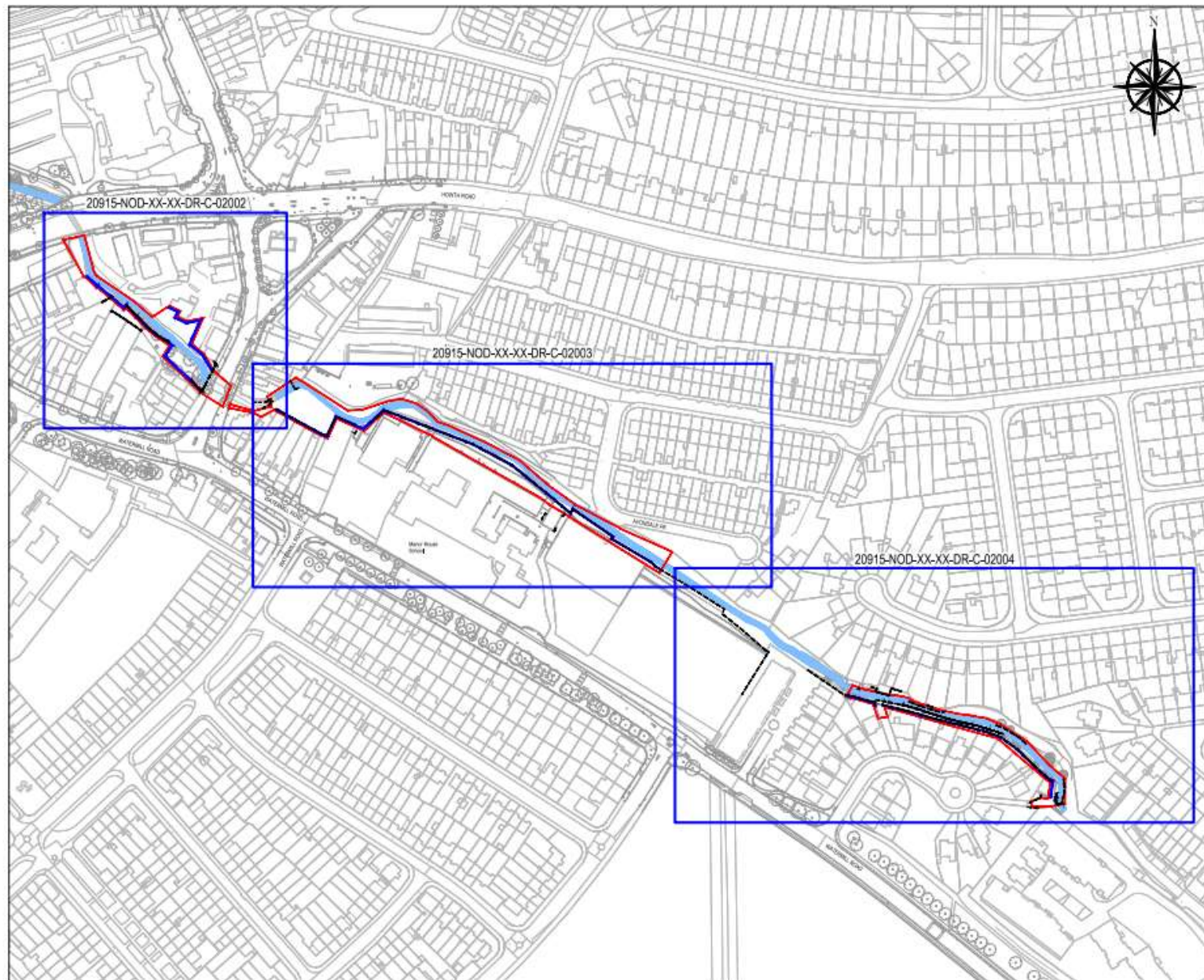




Phase 1: Raheny to North Bull Island

- Flood Defences
- Main Street Public Realm, incorporating NBS
- Greenway/Active Travel





PROPOSED OVERALL PLAN LAYOUT
SCALE 1:1250



NOTES

1. ALL DIMENSIONS ARE IN METRES (M) UNLESS NOTED OTHERWISE.
2. ALL LEVELS IN METRES AND RELATED TO THE SURVEY.
3. DO NOT SCALE FROM DRAWINGS.

GENERAL LEGEND:

TOP SURVEY INFORMATION

EXISTING WALL

PROPOSED DEFENCE BOUNDARY

PROPOSED FLOOD DEFENSE WALL

REFERENCES:

- 20915-NOD-XX-XX-DR-C-02002
- 20915-NOD-XX-XX-DR-C-02003
- 20915-NOD-XX-XX-DR-C-02004

- PROPOSED FLOOD DEFENSE WALL PLAN AND SECTIONS (HOWTH ROAD TO HANNU STREET)
- PROPOSED FLOOD DEFENSE WALL PLAN AND SECTIONS (HANNU HOUSE SCHOOL)
- PROPOSED FLOOD DEFENSE WALL PLAN AND SECTIONS (WATERBURY LANE)

REV	DATE	DESCRIPTION	D	C	A
1	10/02/2025	PRELIMINARY			

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REDscape **cbec**

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

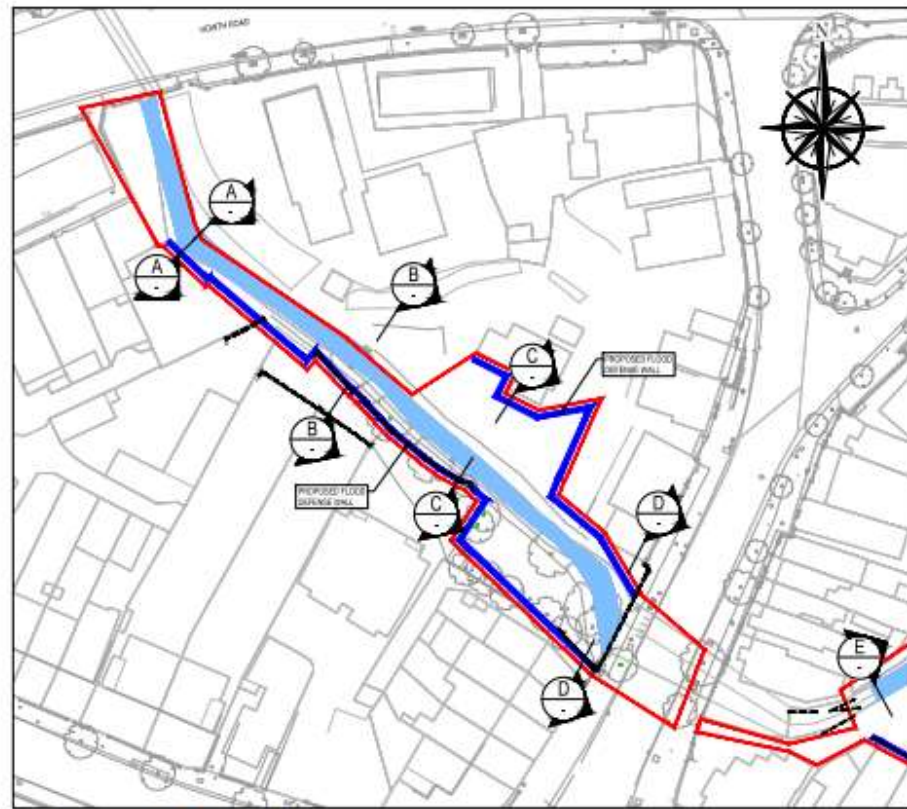
Santry River Restoration & Greenway

PROPOSED OVERALL PLAN LAYOUT

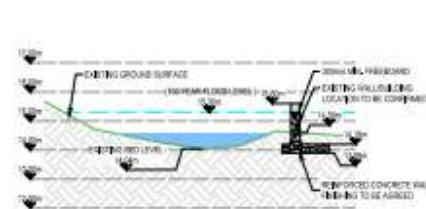
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1:1250	A. Substant	P. Fazio	B. Murphy
DATE	15.08.2025	24.08.2025	24.08.2025

STAGE APPROVAL

20915-NOD-XX-XX-DR-C-02001 P01



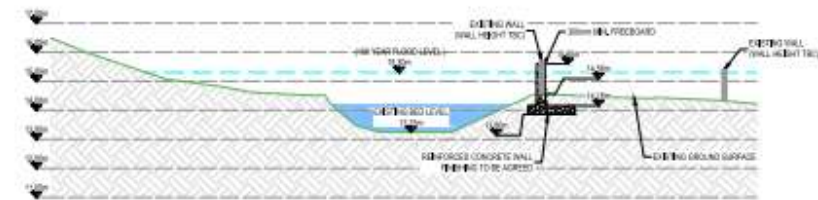
PROPOSED SITE PLAN
SCALE: 1:500



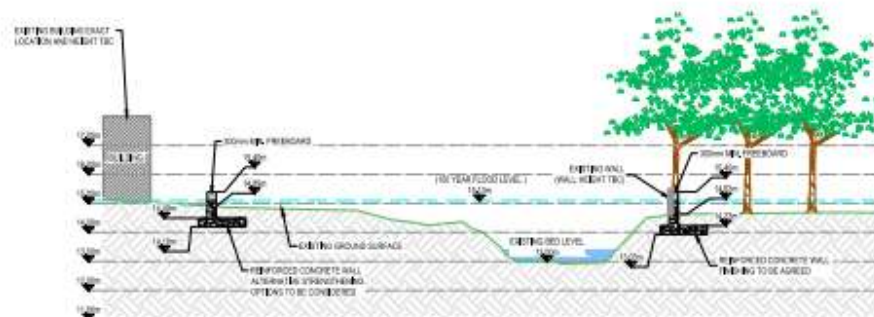
SECTION A-A
SCALE: 1:500



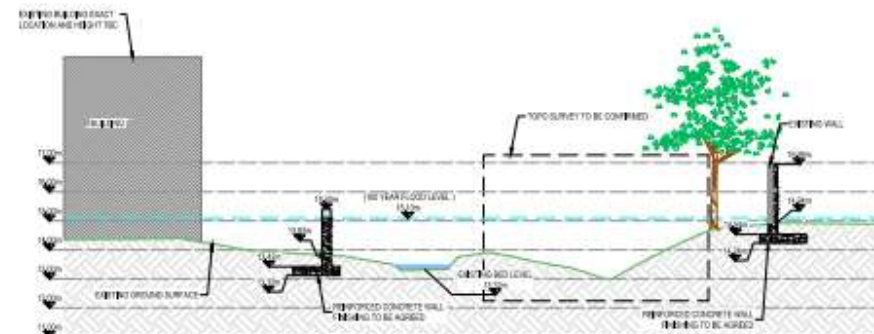
TYPICAL REINFORCED CONCRETE WALL
SCALE: 1:500



SECTION B-B
SCALE: 1:500



SECTION C-C
SCALE: 1:500



SECTION D-D
SCALE: 1:500





Existing situation, Main Street Raheny 2022



Historic situation, Main Street Raheny (date unknown)

Artist impression of a possible future situation demonstrating a re-imagined, possibly partially pedestrianised Main Street with integrated SUDS at Raheny, pending stakeholder consultation and available funding. Source, REDscape Landscape & Urbanism.



Policy Alignment



Development Plan

Green-Blue
Infrastructure
River Protection
Connectivity



Corporate Plan

Environmental
sustainability
Quality of Life
Governance and
Engagement



Climate Action Plan

Flood Resilience
Nature-Bases Solutions
Active Travel



EU Nature Restoration Law

Freshwater Restoration
Urban Ecosystems
Biodiversity and Water
Quality



Biodiversity Action Plan

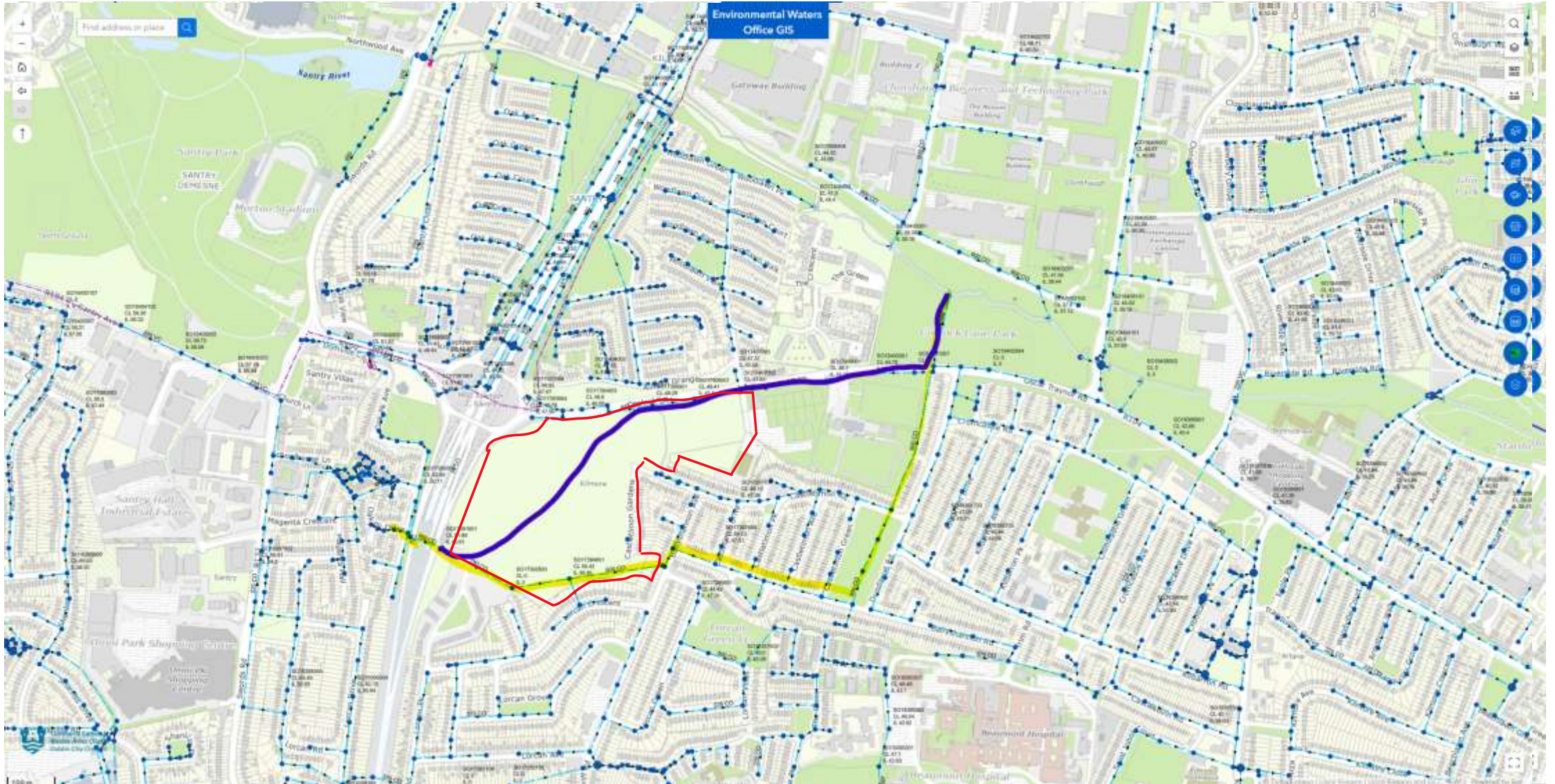
Habitat Restoration and
Creation (Theme 3:
Enhance Opportunities
for Biodiversity)
Enhancing Urban
Connectivity
Improving Water Quality
Species and Ecosystem
Protection



Dublin Climate Neutral 2030

Climate Action and
Resilience
Sustainable Mobility
Biodiversity and
Ecosystem Services
Community and Health
Benefits
Governance and
Collaboration

Influence: Oscar Traynor Woods





SERVICES LEGEND

- Site Boundary
- Foul Sewer & Manhole
- Surface Water Sewer & Manhole
- Block Silt (Excessively Material) Surface Water
- Optical Manhole & 150mm Clay Pipe Connection
- 150mm Surface Water Collector Drain (SW)
- UPVC & Inspection Chamber (Private Area Only)
- Surface Water Filter Drain with 150mm Perforated Trench (Private Area Only)
- Public Surface Water Filter Drain with 150mm Perforated Trench (Public Area Only)
- Surface Water Drainage
- Proposed Foul Inspection Chamber (SD-100-10)
- 150mm Foul Collector Drain SW UPVC & Inspection Chamber (Private Area Only)
- Existing Foul Sewer
- Existing Surface Water
- Existing Sewer to be Decommissioned
- Lateral/Use Silt Area
- Dry Surface Water Drain with Grated Manhole
- Proposed Attraction Underground Storage
- Proposed Portable Pump (Private)
- Proposed Portable Pump (Public)
- Proposed Extensive Green Roof
- Proposed Wetland for Drainage Overrun
- Road Gully & 150mm Clay Pipe Connection
- Existing Gully Pit and Guttering to be Replaced
- Proposed Silt Connection to Tree Pit (Clay Pipe)
- Road Level
- Proposed Finished Floor Level

ORDNANCE SURVEY IRELAND LICENCE

No CYCLING/DRIVING

© ORDNANCE SURVEY IRELAND

GOVERNMENT OF IRELAND

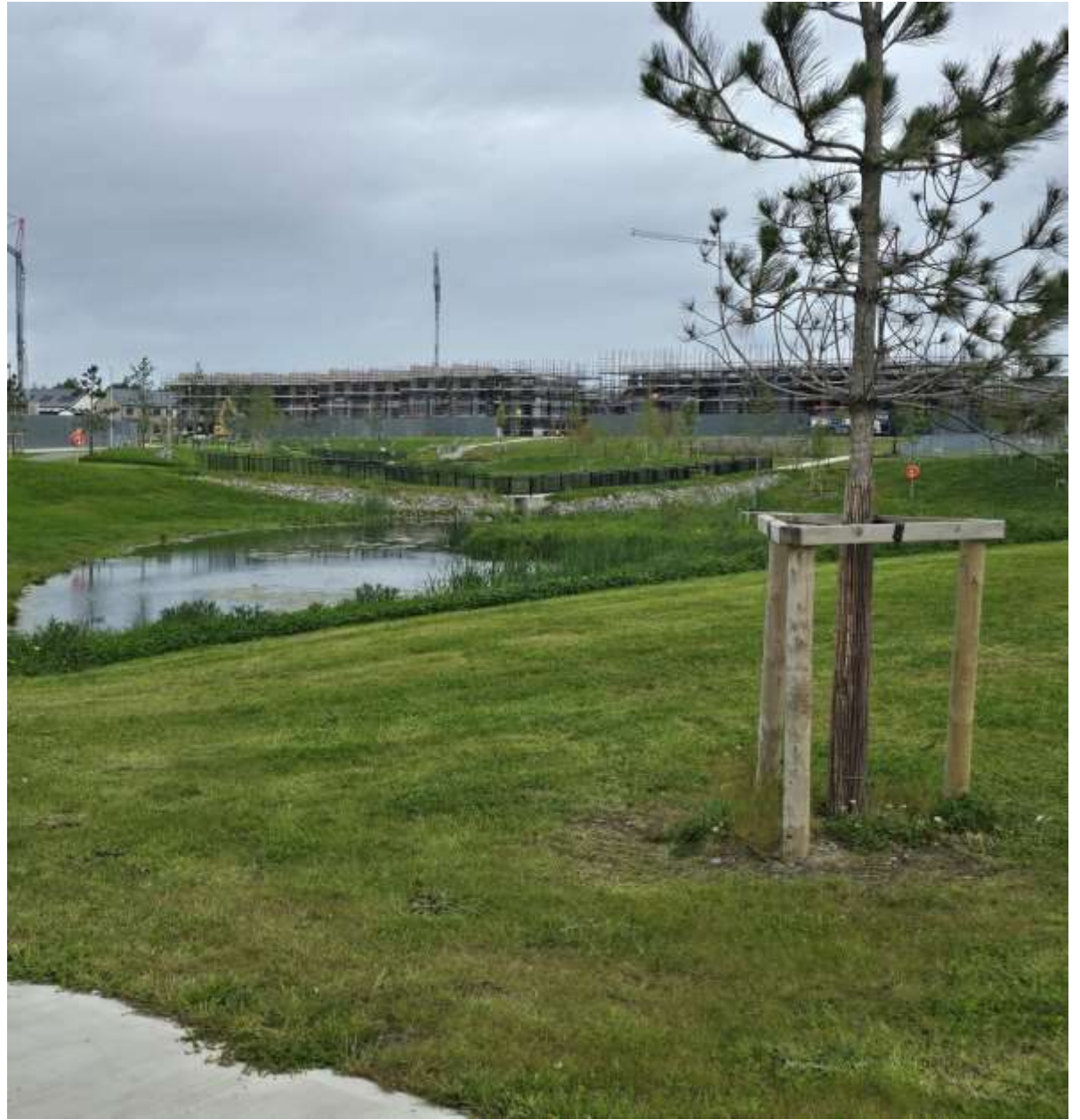
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14/01/24	02	Revised Layout	DBFL	DBFL
14/01/24	03	Final Foul & Surface Connections	DBFL	DBFL
14/01/24	04	Final Foul & Surface Connections	DBFL	DBFL
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OSCAR TRAYNOR ROAD
RESIDENTIAL DEVELOPMENT

Overall Foul and Surface
Water Layout

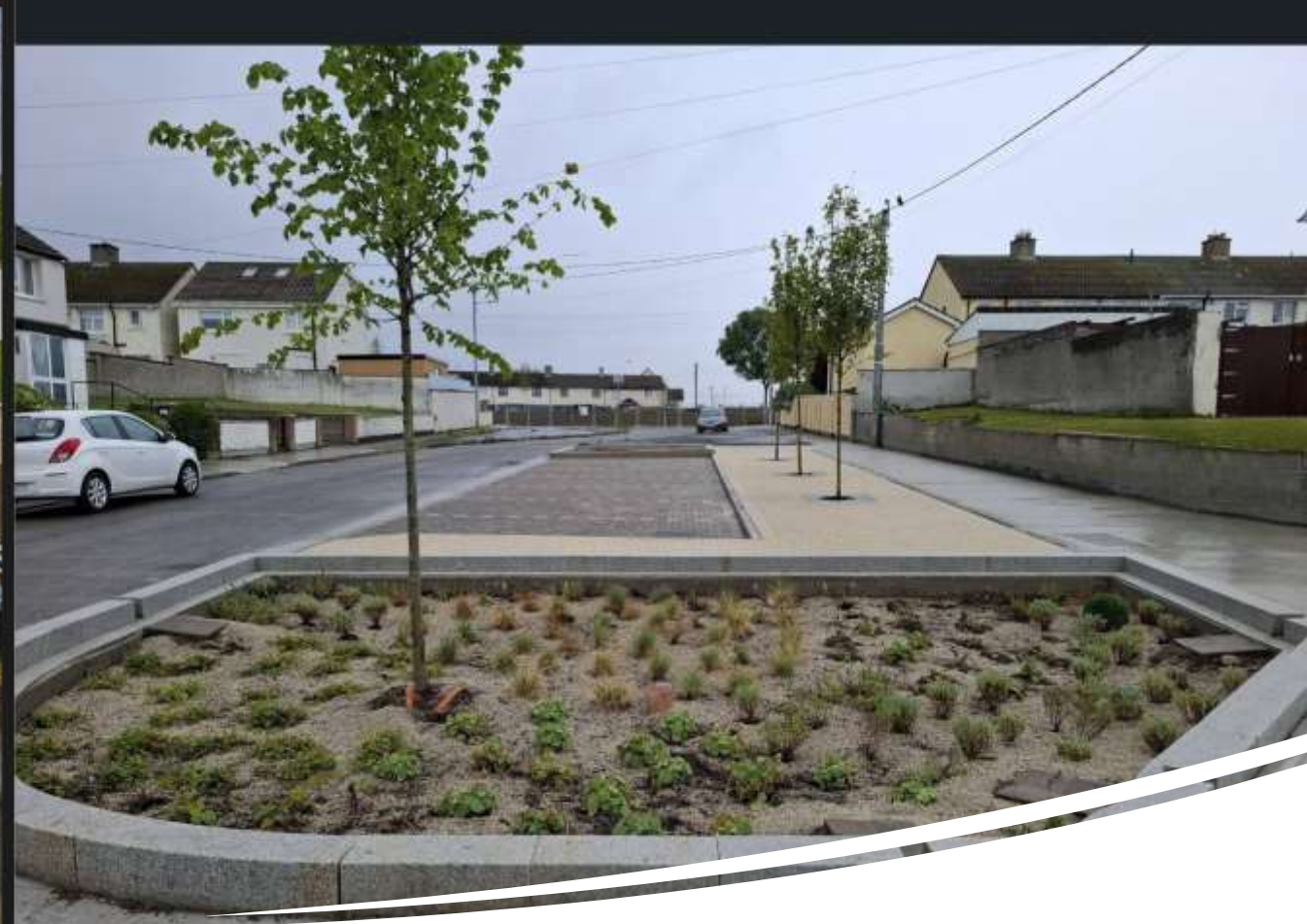
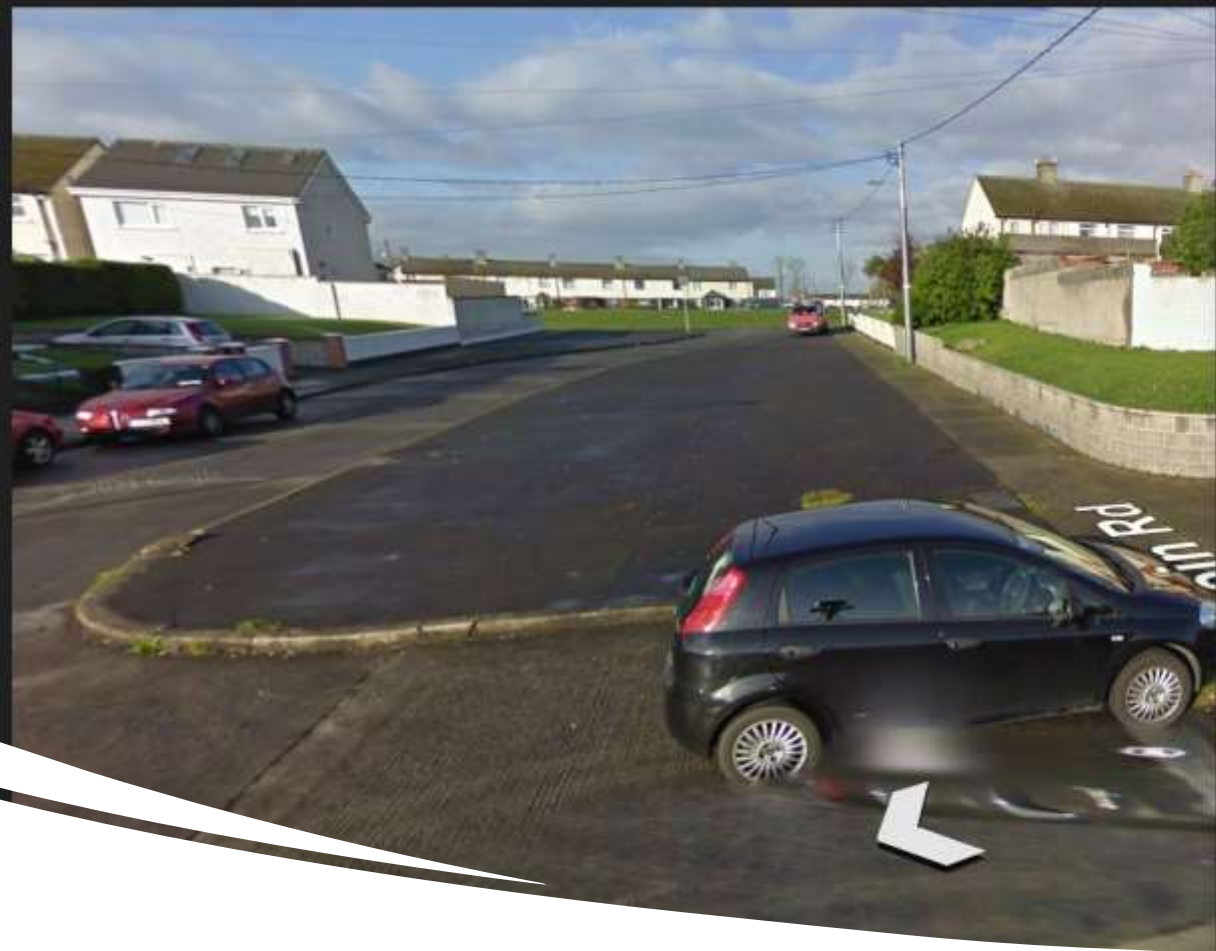
GLENVEAGH LIVING LTD

Designed by: DBFL
Drawing No: 22001-DBFL-XXXX-XX-DR-001-130000
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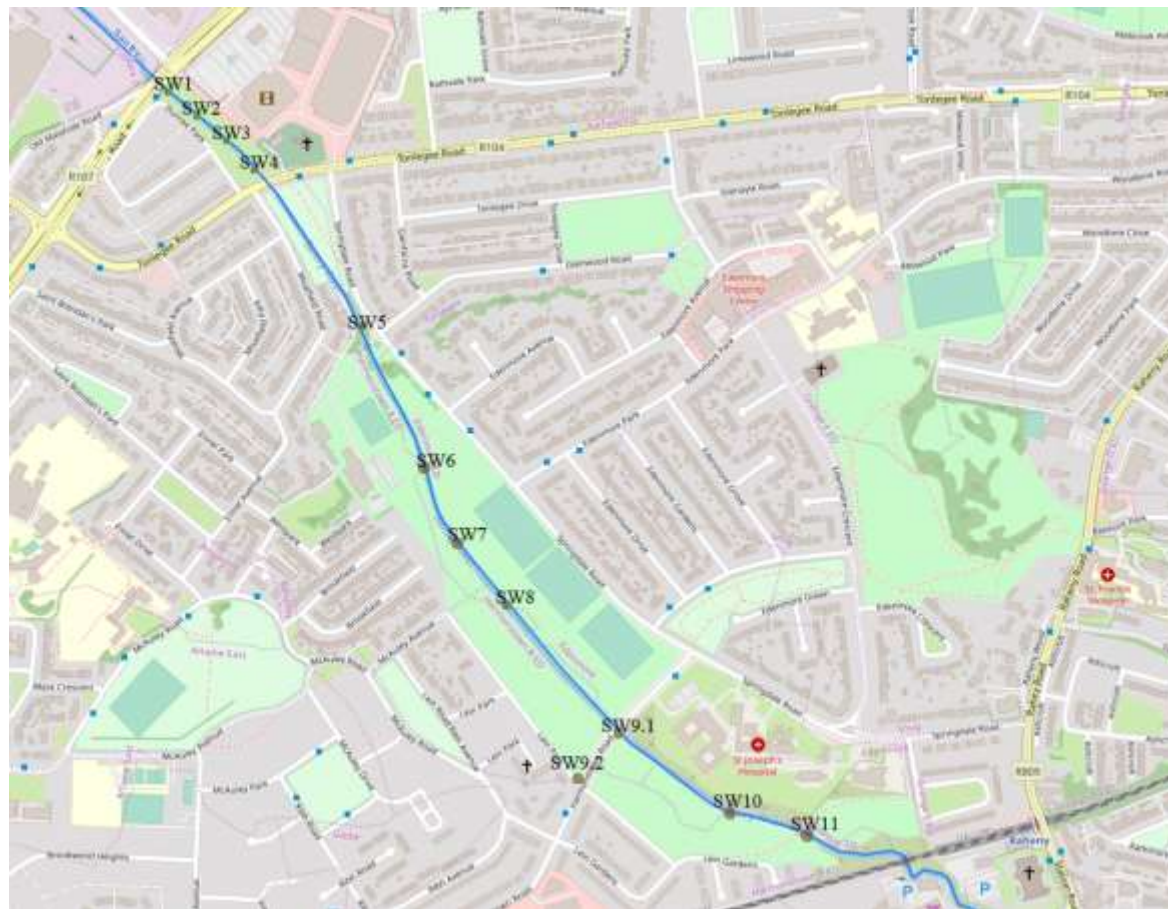
River Restoration alone is not enough!





Rainscapes

- A scheme to retrofit NBS/SUDS into existing residential housing estates
- Phase 1 – McAuley Park, Ribh Road, Lein Road in Artane

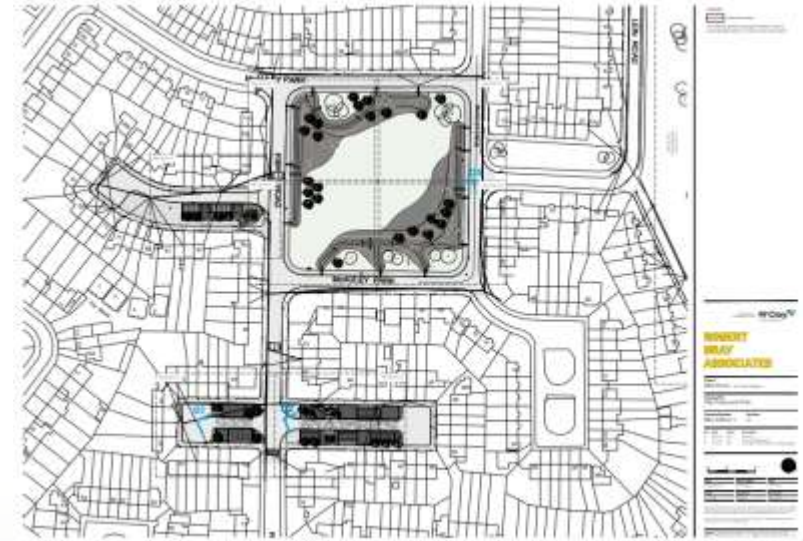


Study Area

Data

Sampling Point	Sampled Date	Received Date	Sample Number	Ammonia mg/L as N mg/L	C.O.D. mg/L	Conductivity (20°C) µS/cm	Dissolved Oxygen % Sat.	Dissolved Oxygen mg/L	T. cell MPN/100mg/L as N	Nitrate mg/L as N mg/L	Nitrite mg/L as N mg/L	pH	Phosphate (React) mg/L as P	Suspended Solids mg/L	Temperature °C	TOR mg/L as N mg/L	Total B.O.D. mg/L	Total Coliforms MPN/100ml
(43471) SW1 - 300mm inflow to Sanitary RA	24/06/2019 11:00	24/06/2019 14:45	1590218	0.01	14	494			145	2.23	0.007	8.3	0.01	5		2.3		15800
(43471) SW1 - 300mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629700	<0.01	28	503	96	8.8	1104	0.2<0.005	7.8	14	14.7	14	14.7	0.23	>24136	>24136
(43471) SW1 - 300mm inflow to Sanitary RA	04/10/2019 10:15	04/10/2019 12:53	1831859	0.02	87	181	97	8.8	2968	0.03	0.009	7.5	0.01	12	14.4	0.05	>40392	>40392
(43471) SW1 - 300mm inflow to Sanitary RA	04/11/2019 11:00	04/11/2019 14:17	1640977	<0.01	636	141	89	8.5	1204	0.22<0.005	7.6	14	14.4	14	14.4	0.22	>40392	38036
(43471) SW1 - 300mm inflow to Sanitary RA	26/11/2019 09:35	26/11/2019 11:04	1851778	<0.01	11	120	200	11	492	0.4<0.005	7.5	0.01	15	9.3	0.4		12978	20726
(43472) SW2 - 225mm inflow to Sanitary RA	24/06/2019 11:00	24/06/2019 14:45	1590219	0.01	11	555			1509	7.79	0.047	7.6	0.01	5		7.79		1804
(43472) SW2 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629701	<0.01	20	497	96	8.8	1408	0.28	0.005	7.8	0.01	11	14.2	0.28	>24136	>24136
(43472) SW2 - 225mm inflow to Sanitary RA	04/10/2019 10:15	04/10/2019 12:53	1831860	0.01	94	191	94	9.4	4897	0.03	0.013	7.4	0.01	8	14.4	7.98	>40392	22398
(43472) SW2 - 225mm inflow to Sanitary RA	04/11/2019 11:00	04/11/2019 14:17	1640978	0.01	12	134	94	10.2	4902	1.81<0.005	7.8	0.01	17	10.1	1.82		48392	20606
(43472) SW2 - 225mm inflow to Sanitary RA	26/11/2019 09:40	26/11/2019 11:04	1851779		36	96	300	11	3498	9.48<0.005	7.6	0.01	11	9.4	0.48		48392	12978
(43473) SW3 - 225mm inflow to Sanitary RA	24/06/2019 11:00	24/06/2019 14:45	1590220	0.02<0.01		586			6408	1.47	0.037	7.6	0.01	5		1.47		>24136
(43473) SW3 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629702	<0.01	<10	71	302	9.5	1551	0.21	0.007	7.6	0.01	10	14.1	0.21	>24136	>24136
(43473) SW3 - 225mm inflow to Sanitary RA	04/10/2019 10:15	04/10/2019 12:53	1831861	0.01	29	284	91	8.4	1812	1.12	0.008	7.5	0.01	17	13.3	1.13	>40392	>40392
(43473) SW3 - 225mm inflow to Sanitary RA	04/11/2019 11:00	04/11/2019 14:17	1640979	0.02	34	84	93	10	708	0.35<0.005	7.5	0.01	14	13.4	0.35		12036	18116
(43473) SW3 - 225mm inflow to Sanitary RA	26/11/2019 09:50	26/11/2019 11:04	1851780	0.02	10	947	97	10.8	4218	0.99	0.008	7.8	0.01	18	9.8	0		20606
(43474) SW4 - 225mm inflow to Sanitary RA	24/06/2019 11:00	24/06/2019 14:45	1590221	<0.01	<10	574			168	11.47<0.005	8.3	0.01	16		11.47		2180	>24136
(43474) SW4 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629703	0.06	94	295	92	9.2	17029	0.78	0.025	7.5	0.01	14	14.3	0.78	>24136	>24136
(43474) SW4 - 225mm inflow to Sanitary RA	04/10/2019 10:15	04/10/2019 12:53	1831862	0.06	10	406	94	8.7	19058	1.88	0.03	7.5	0.01	20	14.2	1.88	>40392	>40392
(43474) SW4 - 225mm inflow to Sanitary RA	04/11/2019 11:00	04/11/2019 14:17	1640980	0.02	21	120	94	10.2	7152	3.31<0.005	7.5	0.01	12	10.1	3.32		>40392	12978
(43474) SW4 - 225mm inflow to Sanitary RA	26/11/2019 10:05	26/11/2019 11:04	1851781	0.04	10	385	97	10.7	4218	0.99	0.009	8	0.01	14	9.7	1.02		20606
(43475) SW5 - 225mm inflow to Sanitary RA	24/06/2019 11:00	24/06/2019 14:45	1590242		80	710			3878	3.46	0.039	8	0.01	7		3.3		12036
(43475) SW5 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629704	<0.01	10	89	94	9.4	18196	0.17<0.005	8.1	0.01	10	14.1	0.18		>24136	>24136
(43475) SW5 - 225mm inflow to Sanitary RA	04/10/2019 10:15	04/10/2019 12:53	1831863	<0.01	14	836	87	8.7	10903	2.36<0.005	7.9	0.01	22	13.1	2.36	1	>40392	>40392
(43475) SW5 - 225mm inflow to Sanitary RA	04/11/2019 11:00	04/11/2019 14:17	1640981	0.01	40	194	96	8.7	1814	0.43	0.009	7.8	0.01	14	10.8	0.44		18116
(43475) SW5 - 225mm inflow to Sanitary RA	26/11/2019 10:20	26/11/2019 11:04	1851782	0.02	21	152	89	9.8	1340	1.75<0.005	7.7	0.01	14	10.1	1.75		10906	
(43476) SW6 - 225mm inflow to Sanitary RA	24/06/2019 11:00	24/06/2019 14:45	1590243		10	171			75	3.09<0.005	7.8	0.01	5	18.9	1.09		2060	>24136
(43476) SW6 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629705	0.03<0.01		88	96	8.7	15531	0.4	0.012	7.8	0.01	5	14.2	0.43	>24136	>24136
(43476) SW6 - 225mm inflow to Sanitary RA	04/10/2019 10:15	04/10/2019 12:53	1831864		242	819	87	8.8	39729	3.75	0.039	8.6	0.01	10	13.1	1.82	>40392	>40392
(43476) SW6 - 225mm inflow to Sanitary RA	04/11/2019 11:00	04/11/2019 14:17	1640982	0.06	10	54	94	10.2	2010	0.05	0.006	7.6	0.01	12	10.1	0.04	>40392	>40392
(43476) SW6 - 225mm inflow to Sanitary RA	26/11/2019 10:30	26/11/2019 11:04	1851783		58	295	93	10.3	862	0.93	0.01	7.7	0.01	7	9.8	0.94		18116

Sampling Point	Sampled Date	Received Date	Sample Number	Ammonia (mg/L as N)	C.O.D. (mg/L)	Conductivity (20°C) (µS/cm)	Dissolved Oxygen (% Sat.)	Dissolved Oxygen (mg/L)	T. cell (MPN/100mg/L as N)	Nitrate (mg/L as N)	Nitrite (mg/L as N)	pH	Phosphate (React) (mg/L as P)	Suspended Solids (mg/L)	Temperature (°C)	TOR (mg/L as N)	Total B.O.D. (mg/L)	Total Coliforms (MPN/100ml)
(43477) SW7 - 300mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629706		19	395	92	9.5	15531	0.21<0.005	8.3	0.01	7.8	14	17.7	0.18		>24136
(43477) SW7 - 300mm inflow to Sanitary RA	30/09/2019 16:48	02/10/2019 08:48	1829706	<0.01	28	68	94	9.5	17129	0.21<0.005	7.8	0.01	21	14	0.18			>24136
(43477) SW7 - 300mm inflow to Sanitary RA	04/10/2019 11:10	04/10/2019 12:53	1831865	0.01	28	218	98	9.5	3615	1.55<0.005	8	0.01	14	14.1	0.18			38036
(43477) SW7 - 300mm inflow to Sanitary RA	04/11/2019 12:10	04/11/2019 14:17	1640983	0.01	21	67	94	10.2	8231	0.31<0.005	7.8	0.01	14	10.1	0.31			20726
(43477) SW7 - 300mm inflow to Sanitary RA	26/11/2019 10:40	26/11/2019 11:04	1851784	0.02	22	214	96	10.5	2784	0.34<0.005	7.7	0.01	20	9.3	0.34			10942
(43478) SW8 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629707	0.08	10	182	102	10	1829	0.44	0.023	8.3	0.01	10	16.3	0.44	>24136	>24136
(43478) SW8 - 225mm inflow to Sanitary RA	30/09/2019 16:48	02/10/2019 08:48	1829707	<0.01	10	62	95	9.5	15531	0.21<0.005	8.3	0.01	14	0.21				>24136
(43478) SW8 - 225mm inflow to Sanitary RA	04/10/2019 11:10	04/10/2019 12:53	1831866	0.02	17	280	93	9.8	5188	1.88	0.009	8	0.01	10	14.3	1.88	>40392	>40392
(43478) SW8 - 225mm inflow to Sanitary RA	04/11/2019 12:10	04/11/2019 14:17	1640984	0.01	22	68	94	10.3	750	0.15<0.005	7.8	0.01	14	9.8	0.15			20606
(43478) SW8 - 225mm inflow to Sanitary RA	26/11/2019 10:40	26/11/2019 11:04	1851785	0.09<0.01		175	98	10.6	1342	0.24<0.005	8	0.01	11	9.8	0.24			12978
(43479) SW9.1 - 600mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629708		55	148	90	9.1	4152	0.31	0.01	8	0.01	10	16.9	0.31	>24136	>24136
(43479) SW9.1 - 600mm inflow to Sanitary RA	30/09/2019 17:10	02/10/2019 08:48	1829708	<0.01	28	61	94	9.4	13462	0.21<0.005	8.5	0.01	14	0.21				>24136
(43479) SW9.1 - 600mm inflow to Sanitary RA	04/10/2019 11:10	04/10/2019 12:53	1831867	0.04	18	218	98	9.8	6154	1.18	0.009	8	0.01	11	14.6	1.18	>40392	>40392
(43479) SW9.1 - 600mm inflow to Sanitary RA	04/11/2019 12:25	04/11/2019 14:17	1640985	0.06	17	76	93	10.2	2782	0.2	0.005	7.5	0.01	10	9.8	0.21		38036
(43479) SW9.1 - 600mm inflow to Sanitary RA	26/11/2019 10:50	26/11/2019 11:04	1851786	0.05	15	155	98	11	1240	0.34<0.005	8	0.01	10	9.5	0.37			20606
(43480) SW9.2 - 375mm pipe @ W4/W5	25/06/2019 13:25	05/10/2019 08:48	1629709		87	612	86	7.9	371	8.46	0.088	7.2		20	18	8.46	>24136	>24136
(43480) SW9.2 - 375mm pipe @ W4/W5	30/09/2019 17:30	02/10/2019 08:48	1829709	0.01	27	42	94	9.5	7230	0.22<0.005	8.6	0.01	14	0.22				>24136
(43480) SW9.2 - 375mm pipe @ W4/W5	04/10/2019 11:10	04/10/2019 12:53	1831868		29	200	94	9.5	48162	0.83	0.017	7.5	0.01	14	14.4	0.86	>40392	>40392
(43480) SW9.2 - 375mm pipe @ W4/W5	04/11/2019 12:35	04/11/2019 14:17	1640986		33	94	94	10.5	2934	0.27	0.008	7.8	0.01	10	9.9	0.28		12978
(43480) SW9.2 - 375mm pipe @ W4/W5	26/11/2019 11:05	26/11/2019 11:04	1851787	0.04	15	183	100	11	3000	0.38<0.005	8	0.01	12	9.5	0.38			20726
(43481) SW10 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629710	<0.01	25	52	90	8.2	17129	0.12<0.005	7.3	0.01	11	14.6	0.12			>24136
(43481) SW10 - 225mm inflow to Sanitary RA	04/10/2019 11:10	04/10/2019 12:53	1831869	0.04	29	398	98	9.7	5788	1.87	0.020	8	0.01	14	14.1	1.87	>40392	>40392
(43481) SW10 - 225mm inflow to Sanitary RA	04/11/2019 12:45	04/11/2019 14:17	1640987	0.04	28	52	93	10.3	179	0.18<0.005	7.4	0.01	22	9.8	0.14			>24136
(43481) SW10 - 225mm inflow to Sanitary RA	26/11/2019 11:15	26/11/2019 11:04	1851788	<0.01	18	139	97	10.7	2182	0.28<0.005	7.8	0.01	7	9.8	0.28			17128
(43482) SW11 - 225mm inflow to Sanitary RA	25/06/2019 13:25	05/10/2019 08:48	1629711	0.02	13	131	89	8.8	2187	0.34<0.005	7.8	0.01	8	18.1	0.34			>24136
(43482) SW11 - 225mm inflow to Sanitary RA	30/09/2019 17:30	02/10/2019 08:48	1829711		17	61	92	9.1	14036	0.20	0.008	8.3	0.01	14	13.8	0.2		>24136
(43482) SW11 - 225mm inflow to Sanitary RA	04/10/2019 12:00	04/10/2019 12:53	1831870	0.04	29	129	94	9.7	4335	0.31	0.020	7.5	0.01	9	14.4	0.31		>40392
(43482) SW11 - 225mm inflow to Sanitary RA	04/11/2019 12:40	04/11/2019 14:17	1640988	0.1	18	187	93	10.3	10420	0.6	0.042	7.0	0.01	12	13.1	0.64		>40392
(43482) SW11 - 225mm inflow to Sanitary RA	26/11/2019 11:25	26/11/2019 11:04	1851789	<0.01	115	115	90	9.7	1839	0.75	0.025	7.7	0.01	11	9.7	0.74		12978

















Rainscapes Project at Lein Road, Artane – showing short-term stormwater retention post storm event.

We should be doing this a million times over around the country...



The Rainscapes Project at Lein Road, Artane – showing short-term stormwater retention post storm event.



Fionnuala Quinn • 3rd+

(edited) 6d ***

Creator of a new & growing field that is benefiting children all over t...

I'm often surprised by how little stormwater retention is built into Irish land development. The increases in flooding that is being experienced in many spots isn't only about climate change - it's also about more hard surfaces, faster runoff, and higher cumulative peak flows that come with developments. ...more

Like · 8 | Reply · 1 reply



Aidan Quinn • 3rd+

6d ***

Account Manager & ICT Agent

[Fionnuala Quinn](#) Cork in particular (heck, the name means marsh) has seen far to many floodplains & water-ways built upon.

Like | Reply



Gary Monson • 3rd+

6d ***

Business Development Manager at Huet Distributors Ltd

Why isn't household rain water harvesting talked about? We flush our toilets,

9 comments · 9 re

Performance data

Figure 2
Rainfall Event Pre-Development

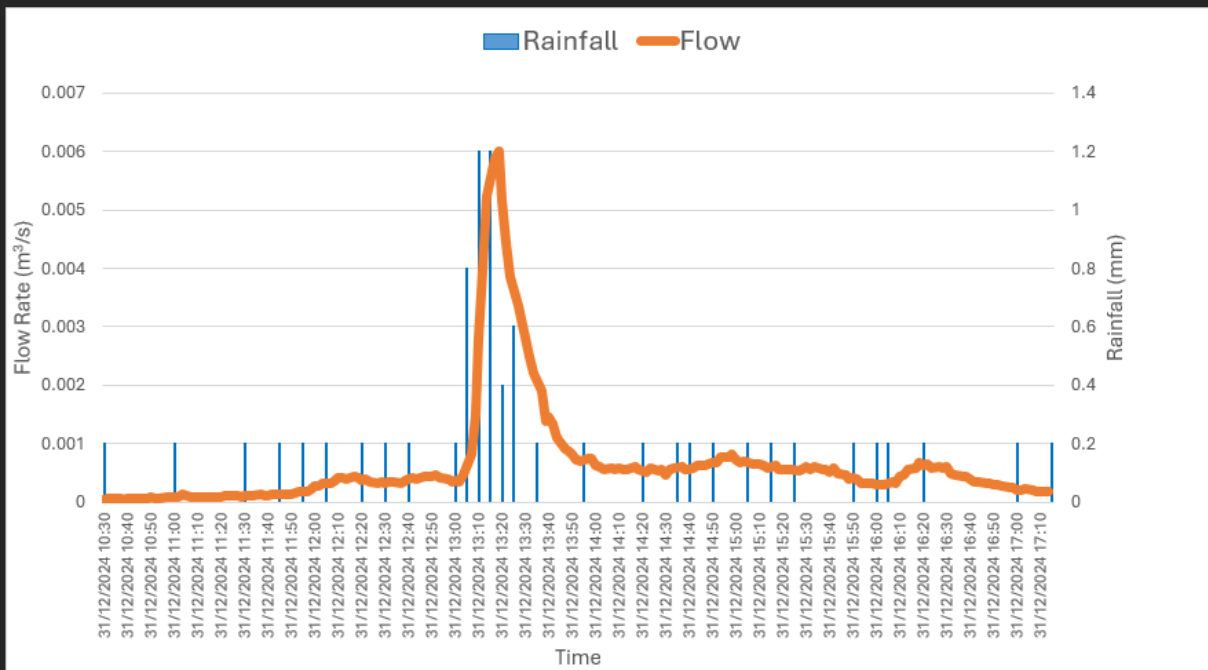
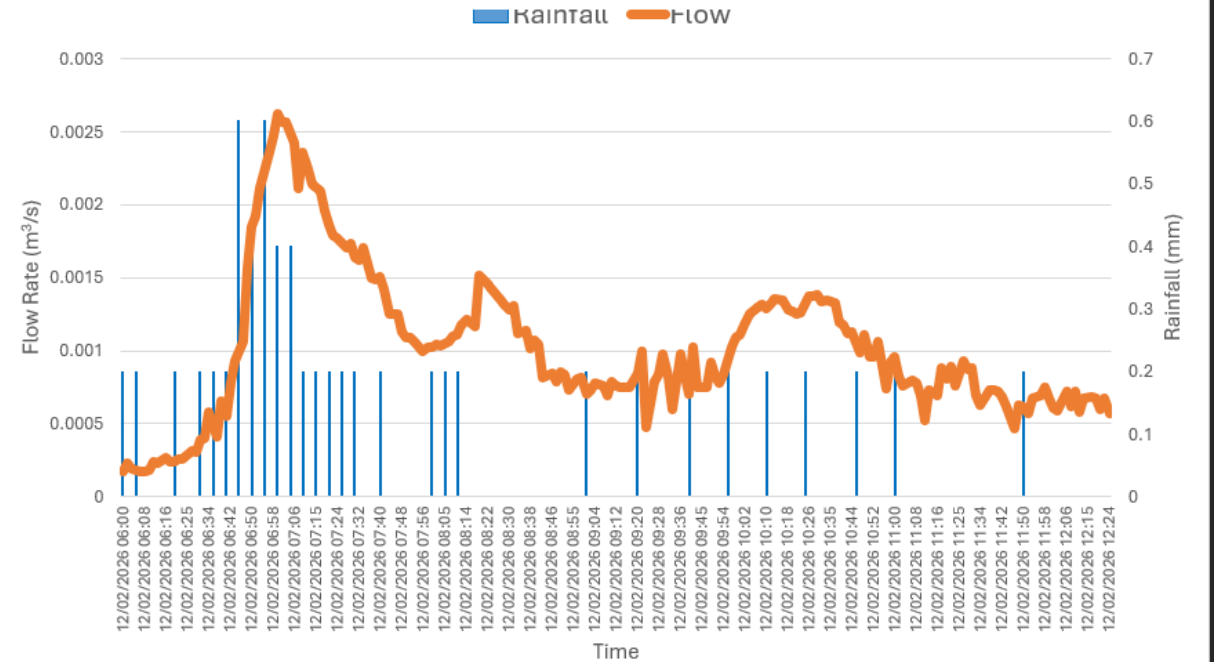


Figure 3
Rainfall Event Post-Development



Rainscapes – promotional video



[Home](#) > [Environment and Climate Action](#) > [Protecting Against Floods](#)

Rainscapes

What is a Rainscape?

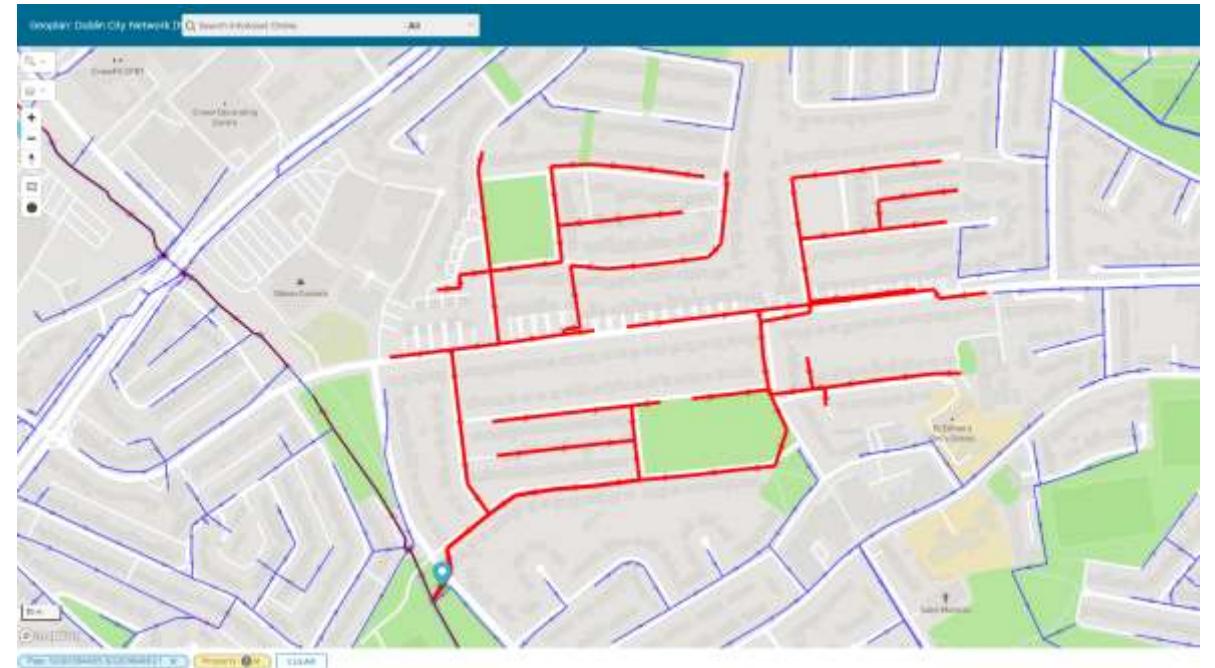
A Rainscape is formed when green spaces are adapted to allow rainwater from the road and other hard surfaces to flow into these spaces when it is raining. Rainscapes can also include special hard surfaces that allow rainwater through them.



<https://www.dublincity.ie/environment-and-climate-action/protecting-against-floods/rainscapes>

Rainscapes as a Programme

- Catchment rollout
 - Dunree Park
 - Brookfield
 - Etc....
- GIS
- 60 inflows
- Other river catchments

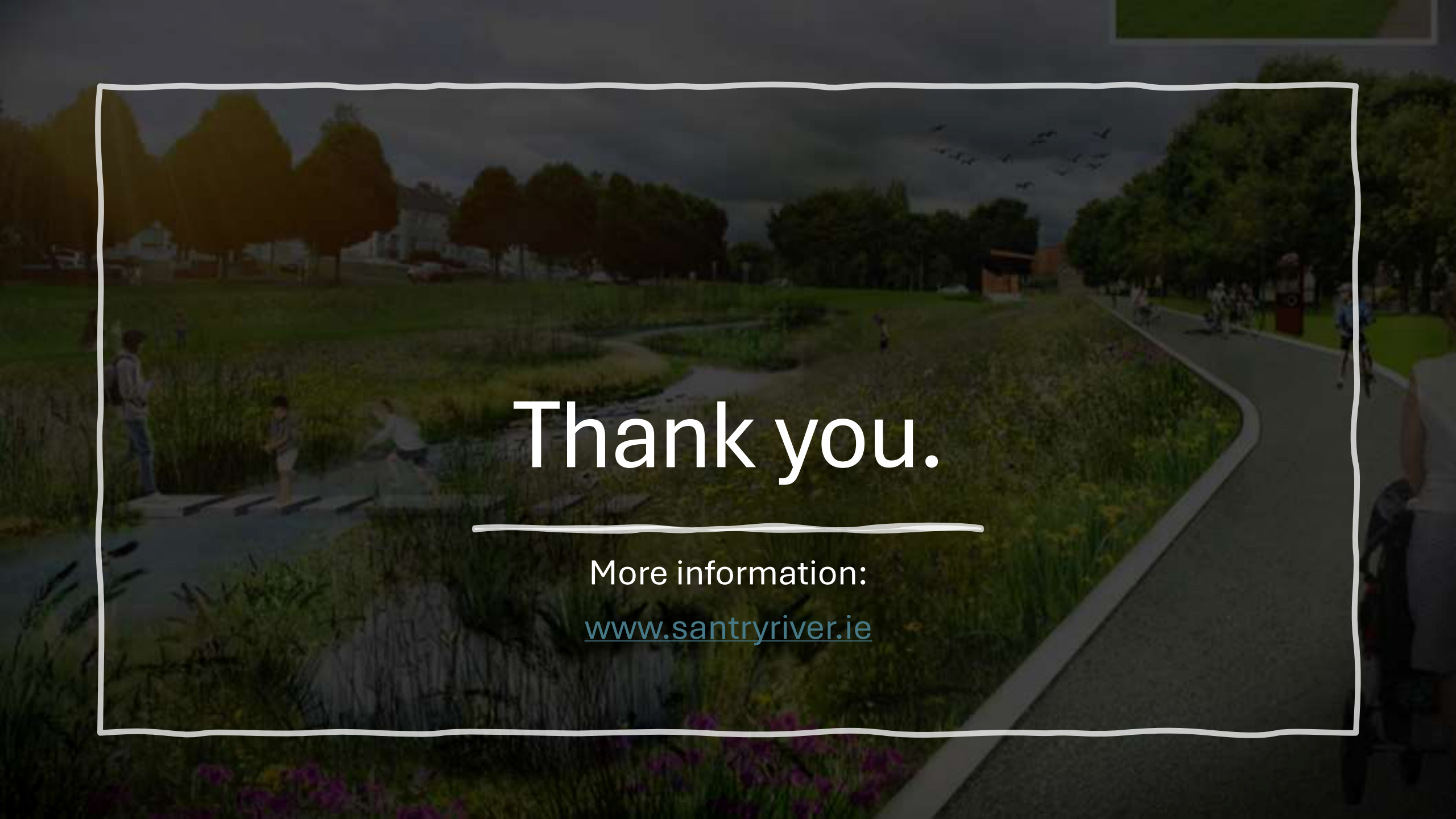


Flood Management using SUDS



Summary

-
- **Data-Driven Approach:** The Local Catchment Assessment identified urban runoff, misconconnections, and a specific pumping station as the primary causes of poor water quality in the River Santry. Hydromorphology also a significant pressure.
 - **Targeted Infrastructure Upgrades:** The solution focuses on three pillars: upgrading the Old Swords Road pumping station, restoring natural river channels, and deploying nature-based solutions to intercept urban runoff at the source.
 - **Multi-Benefit Restoration:** The projects simultaneously addresses Water Framework Directive compliance, flood mitigation, and climate adaptation while creating active travel corridors and enhancing biodiversity.
 - **Holistic Catchment Management:** A "Source-Pathway-Receptor" model guides the strategy, prioritizing specific inflows and ensuring interventions target the actual mechanisms delivering pollutants to the river.
 - **Strategic Policy Alignment:** The initiative integrates diverse goals—from the EU Nature Restoration Law to local climate plans—ensuring engineering decisions deliver maximum value for money across environmental and social outcomes.

A digital rendering of a park landscape. In the foreground, a paved path curves from the bottom right towards the center. To the left of the path is a grassy area with a small stream or water feature. Several people are depicted: a man with a backpack on the left, a child near the water, and a group of people further back. The background features a line of trees and a cloudy sky with birds flying. The entire scene is framed by a white, hand-drawn style border.

Thank you.

More information:
www.santryriver.ie