

**Why land use matters to Northern Ireland Water.
A simple approach.**

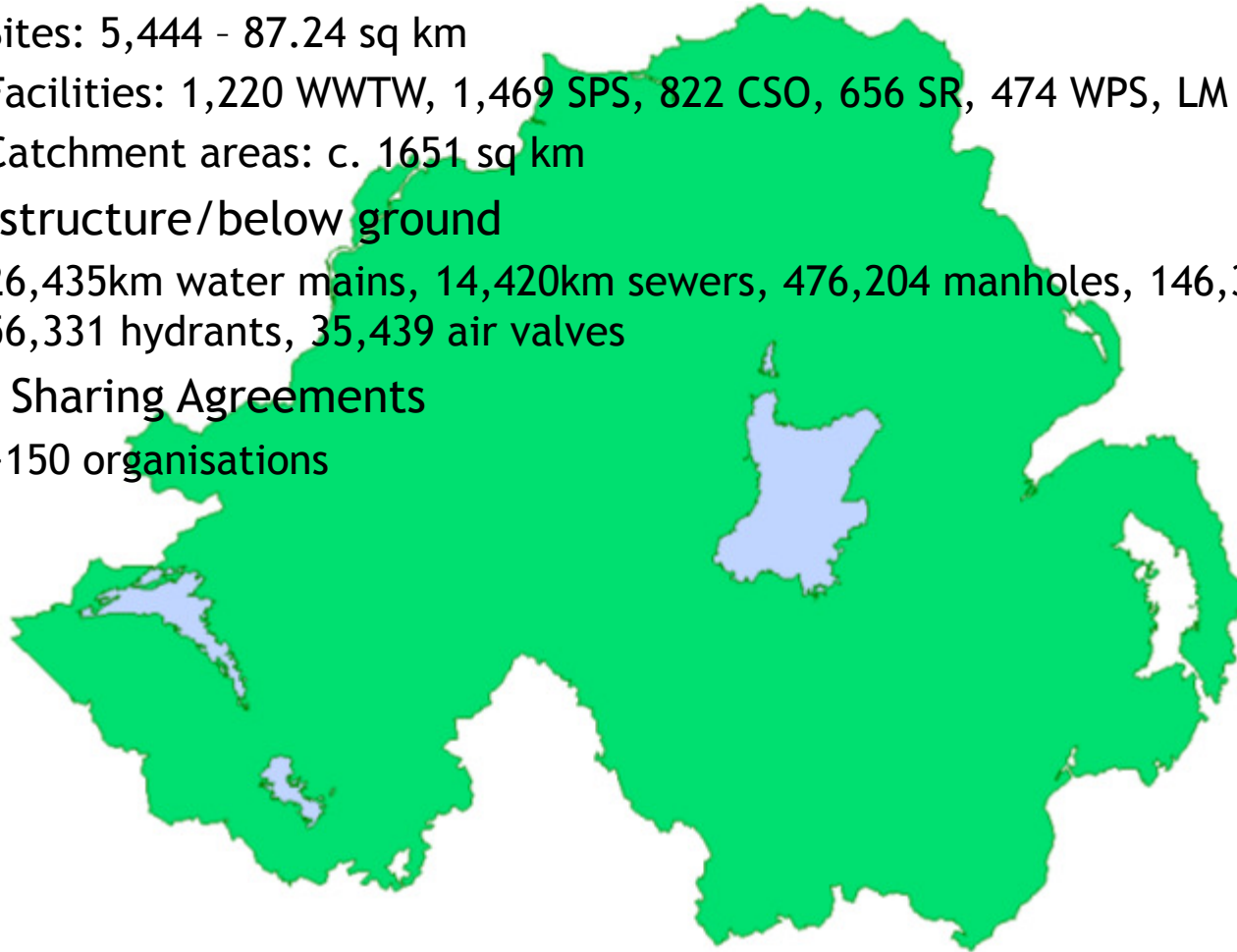
(Sean O'Boyle / Aidan McCann)

A water utility? Land use?
Sure its all underground pipes ... or is it?



NI Water Corporate Asset Register (CAR) Metrics

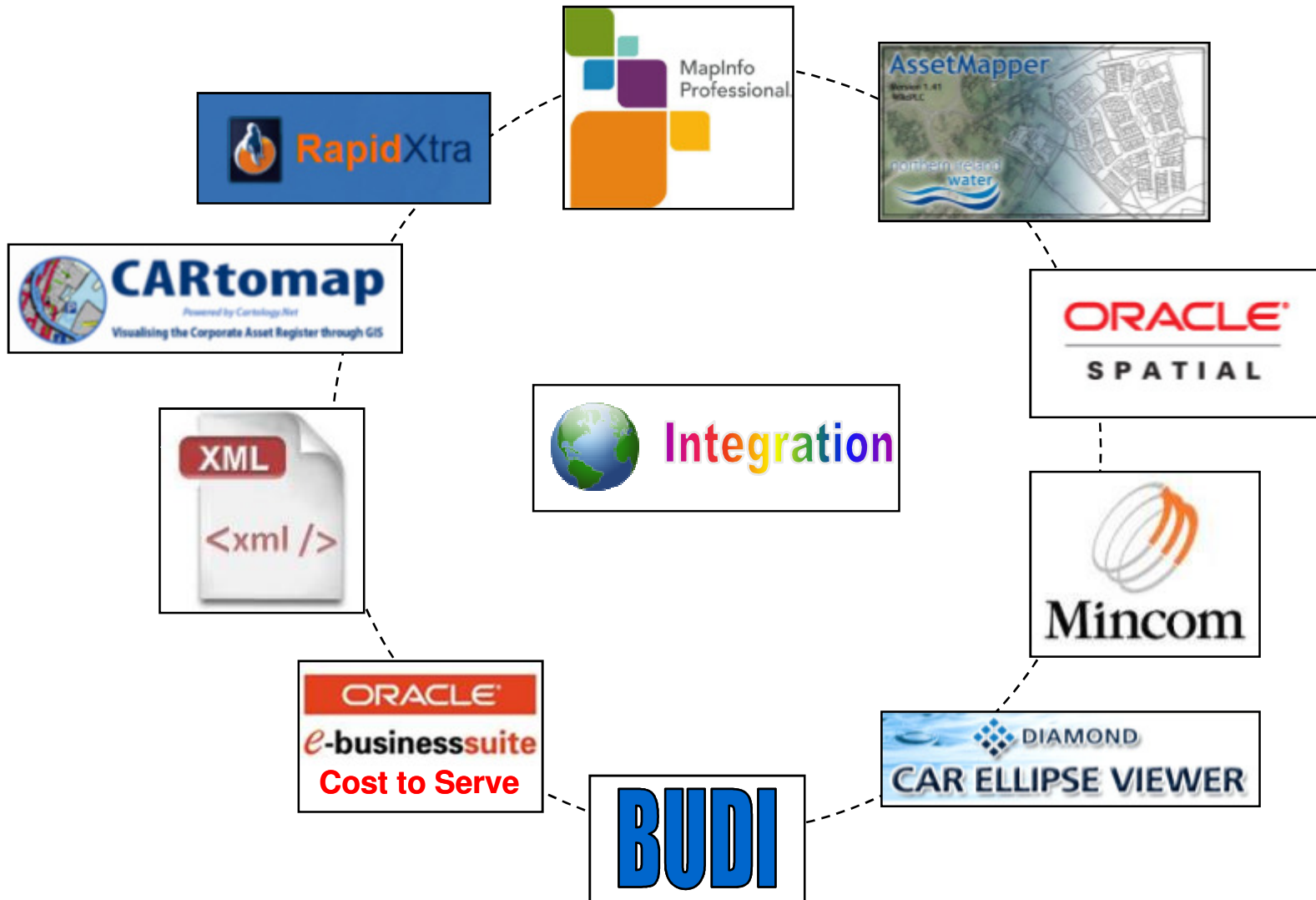
- Significant landowner in NI
- Non-Infrastructure/above ground
 - Sites: 5,444 - 87.24 sq km
 - Facilities: 1,220 WWTW, 1,469 SPS, 822 CSO, 656 SR, 474 WPS, LM 593
 - Catchment areas: c. 1651 sq km
- Infrastructure/below ground
 - 26,435km water mains, 14,420km sewers, 476,204 manholes, 146,368 valves, 56,331 hydrants, 35,439 air valves
- Data Sharing Agreements
 - >150 organisations



Sites and Facilities

- Site is defined as any boundary of land that is either owned or occupied by NI Water
- 5444 sites (holds CARID, name, main purpose, address, etc.)
- 5791 facilities (13 types)
 - Service Reservoir
 - Intakes
 - Boreholes
 - Impounding Reservoir
 - Water Treatment Works
 - Chemical Boosting
 - Leakage Monitoring
 - Raw Water Pumping Station
 - Treated Water Pumping Station
 - Sludge Treatment
 - Wastewater Treatment Works
 - Combined Storm Overflow
 - Sewerage Pumping Station

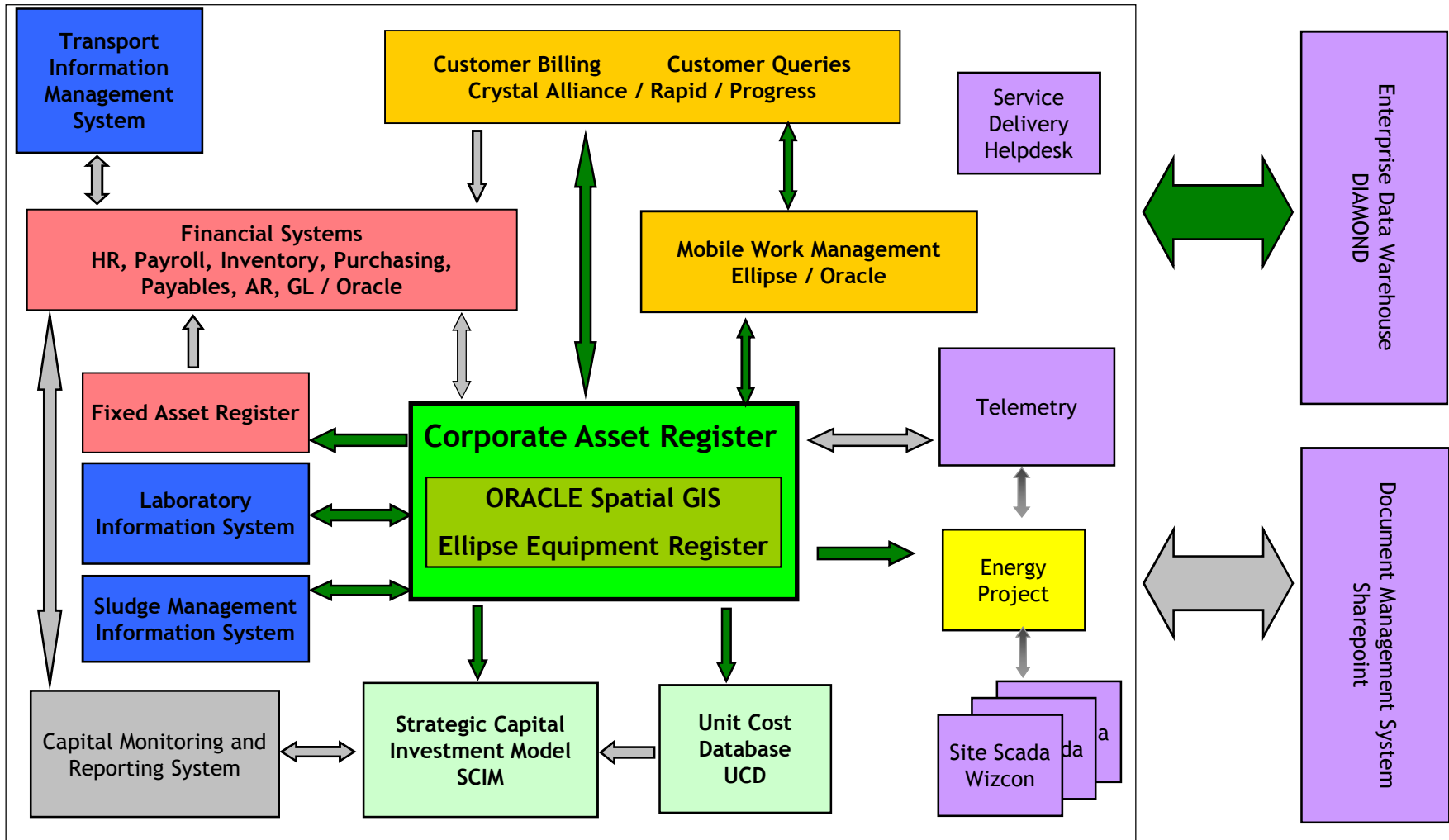
Systems, Databases, Components



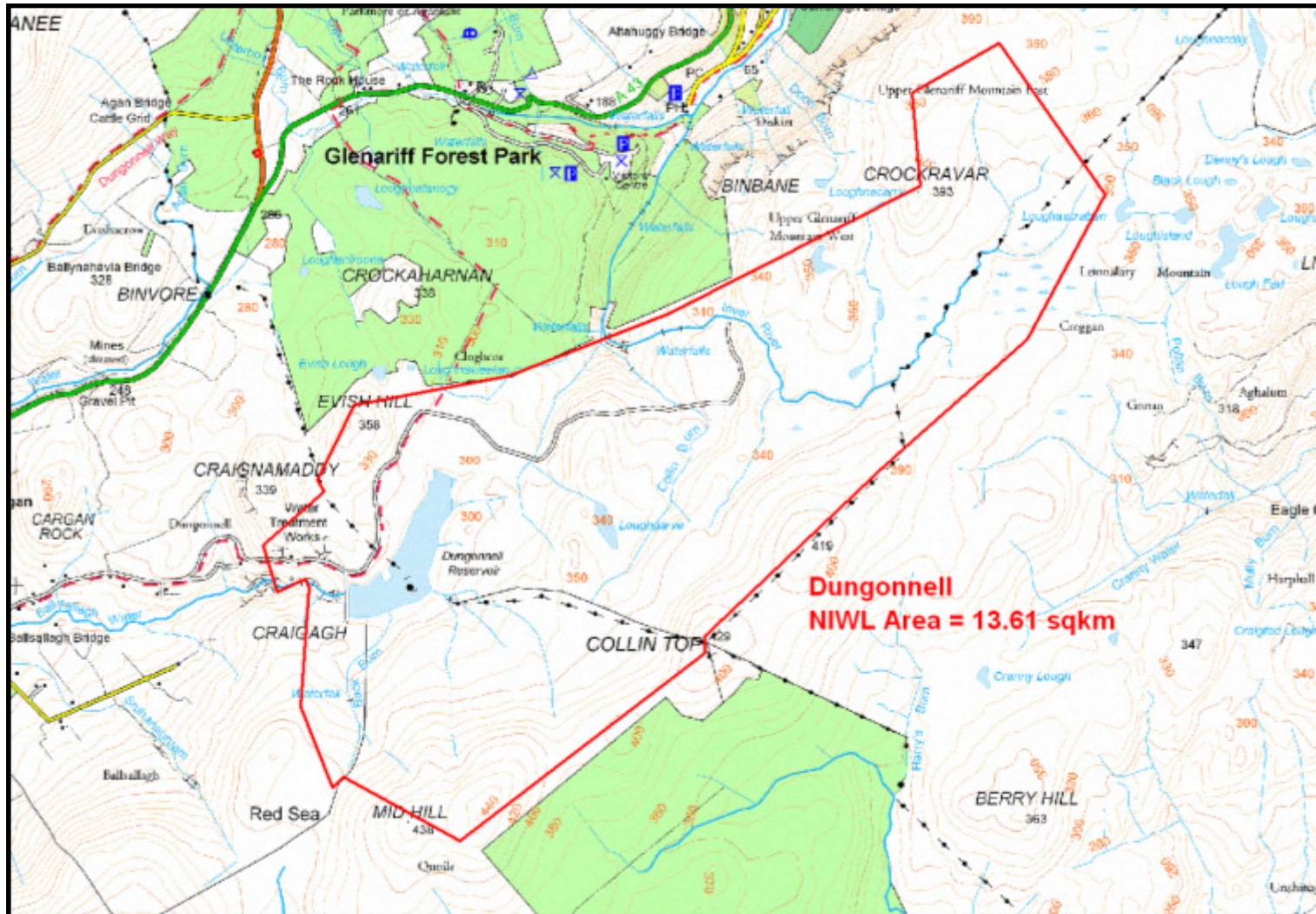
Terminology

- **Corporate Asset Register (CAR):** Logical dBase of all operational assets
- **Geographic Information System (GIS):** integrated software/systems/data used to view and manage information about geographic entities, analyse spatial relationships and model spatial processes. Provides a framework for collecting and organising spatial data and related information so that it can be displayed, analysed and distributed
- **ORACLE Spatial (10g):** enterprise database for managing geographic/location based data including the CAR, Street to Sea, Source to Street, etc.
- **CARtomap:** web based portal into the corporate GIS
- **AssetMapper:** integrated desktop mapping system which manages below-ground data input to ORACLE Spatial
- **MapInfo Professional:** desktop mapping software used to analyse, digitise, process, plot, geo-code, etc.
- **Mincom Ellipse:** enterprise asset management system which includes Asset and Work Management modules such as:
 - MSQ600: Equipment Register
 - MSQ011: Locations
 - MSQ620: Work Orders
- **Bulk Upload and Data Integrity (BUDI) tool:** will manage above-ground data input to the Ellipse Equipment Register
- **RapidXtra:** billing and customer management system
- **Extensible Mark-up Language (XML):** a simple, flexible data exchange format

Corporate Systems Architecture



NI Water Land Use



Land Use - Sites and Facilities

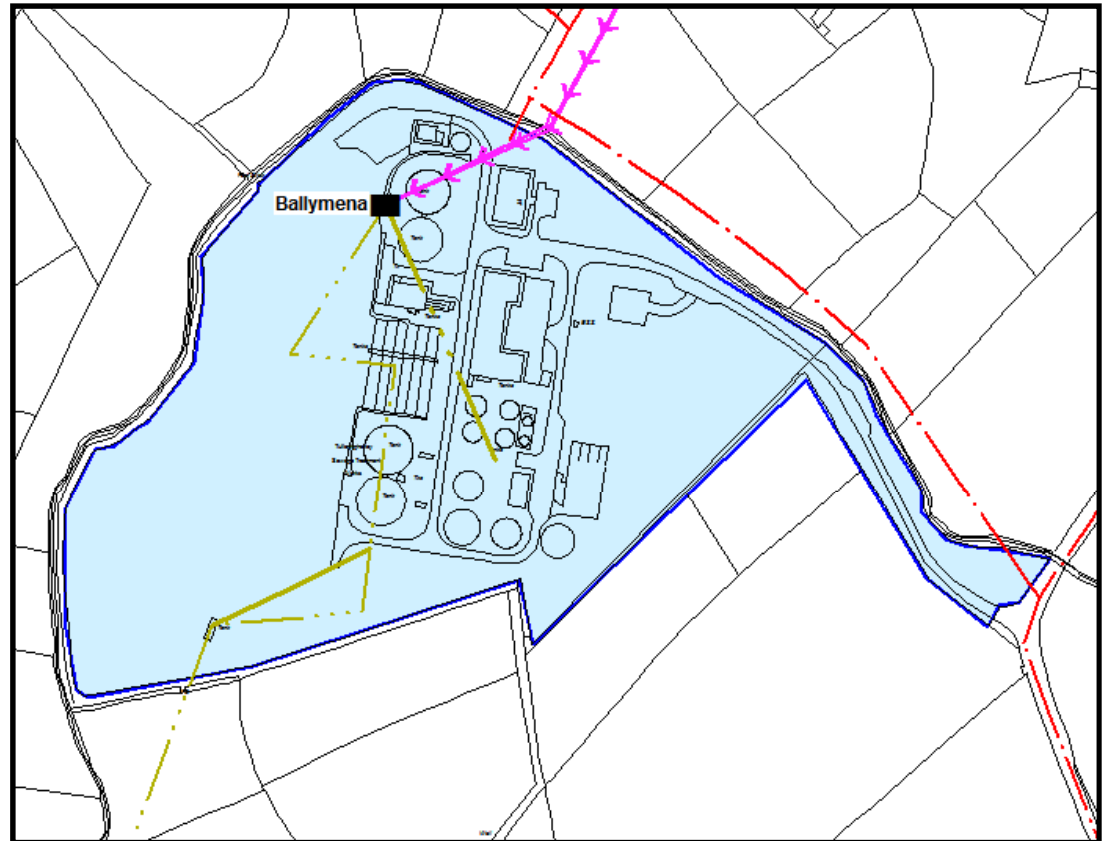
- Recorded on the CAR for:
 - Capital maintenance planning
 - Operational and maintenance purposes
 - Energy billing/management
 - Regulatory reporting
 - Renewable energy
 - Corporate social responsibility, e.g. Moyola WTW
- Operational Status
 - Planned/reactive maintenance
 - Route optimisation
 - LPS rateable valuations
 - Data quality initiatives

Environmental Regulation

- Details on amount of ASSI, AONB, SPA, etc. lands within NIWL sites required annually for UK Sustainability Reports
- 42 Designated Areas encroaching on 5046 Hectares of NIW land
- Working collaboratively with RSPB/Mourne Heritage Trust/Woodland Trust for increased Biodiversity
- Internally with Scientific Services in the provisions of maps and analysis for reports
- Cryptosporidium results collected and monitored via CARTomap GIS

ANSWER (Agricultural Need for Sustainable Willow Effluent Recycling)

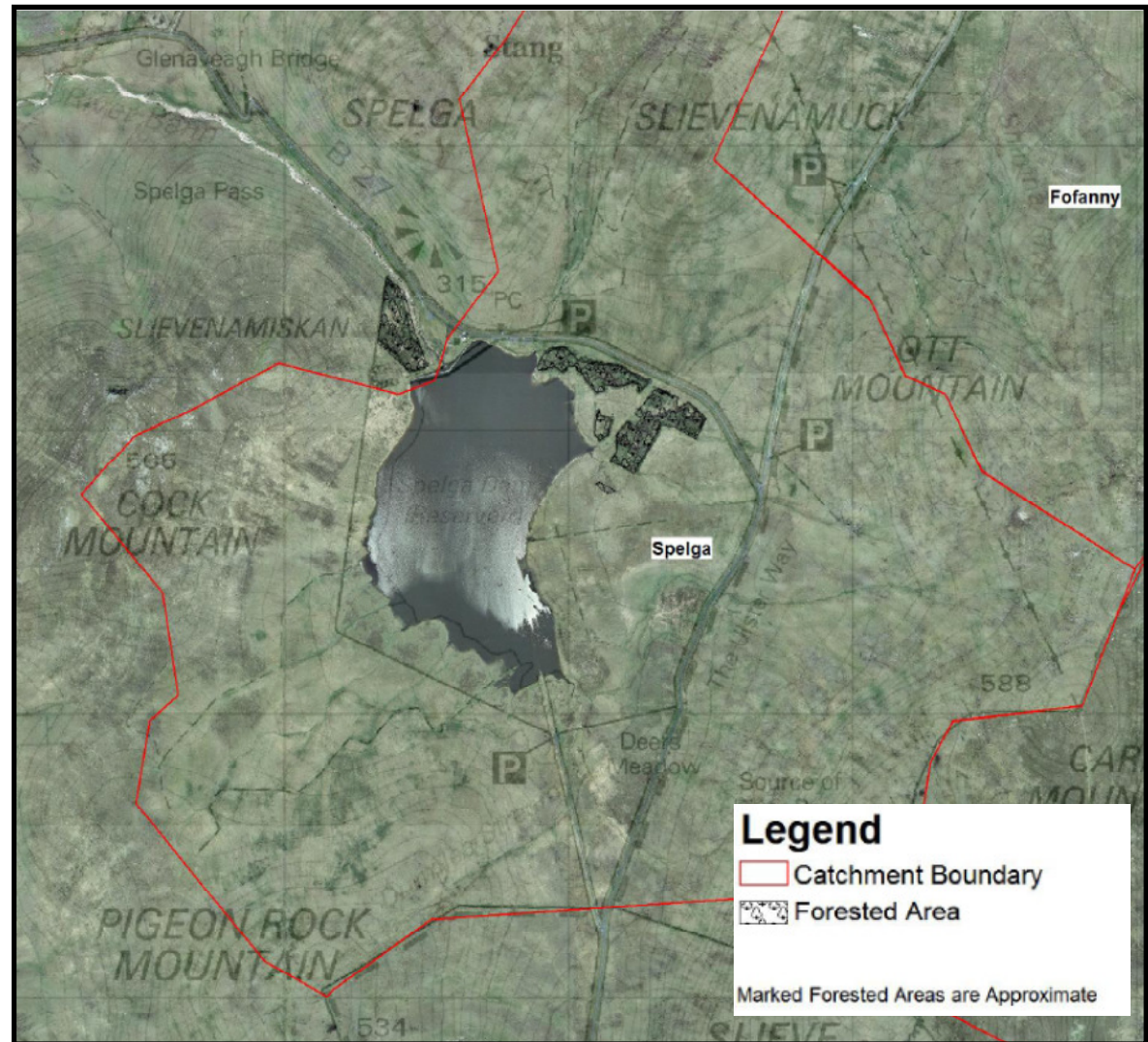
- Subject matter experts looking at using new tools to help reduce impact of climate change and to move towards a sustainable future
- Working with NIW to use GIS to identify suitable areas for willow to reduce chemical levels in final effluent
- NI Water site polygons provided and will be combined with other environmental and land use datasets to identify best locations



PARTNERS: Agri-Food and Biosciences Institute - Donegal County Council
Monaghan County Council - IT Sligo - Teagasc- Queens University
Northern Ireland Water - Cookstown Council - South West College

Forestry Land Use

- Forestation within water catchments in the Mourne mountains identified for maintenance
- Approximate forested areas identified
- Approximate areas of forestation generated
- Information relayed back to NIFS

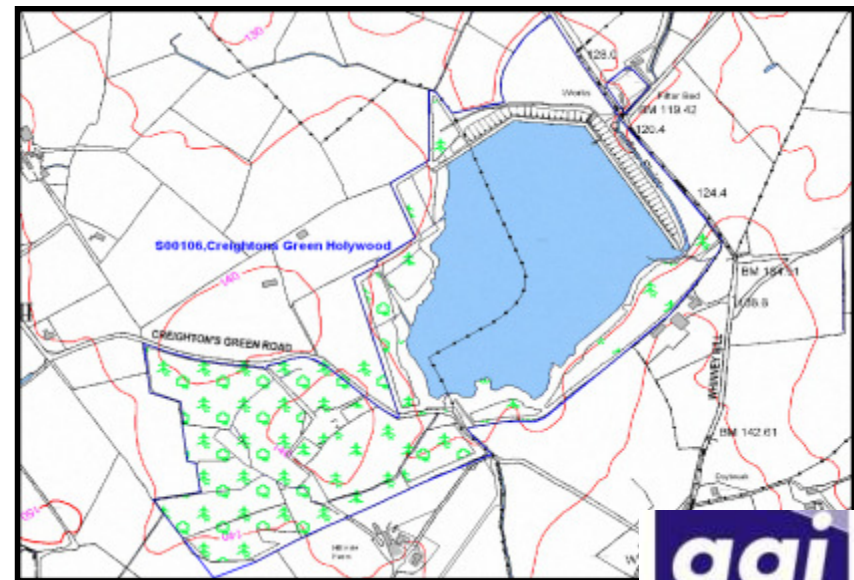
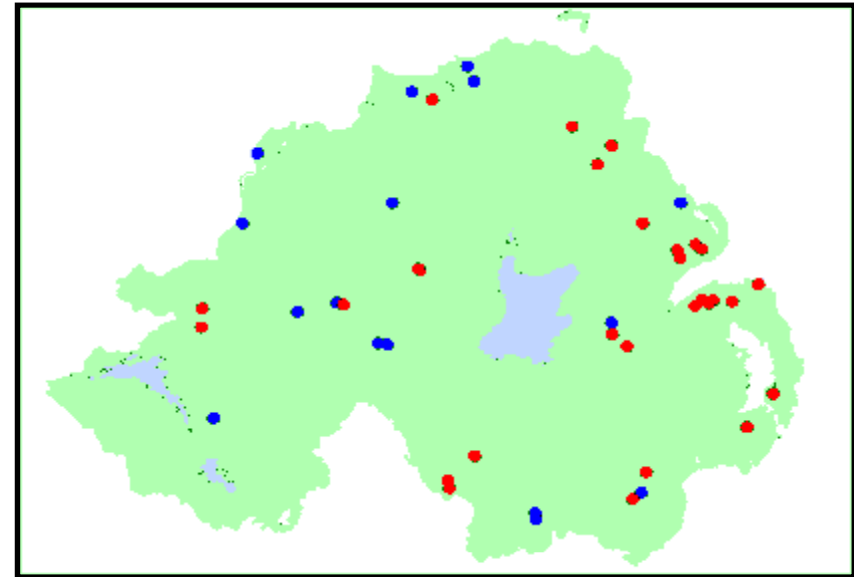


Sites for Public Access

- Impounding SR's and SR's greater than 0.1 sqkm that can be used for public access
- 32 sites identified as already licensed to recreational clubs (red)
- GIS used to ensure there is an equal distribution around NI
- NIWL sites table used to identify approx size of each potential site, its operational status and ownership (blue)
- 20 new possible sites identified

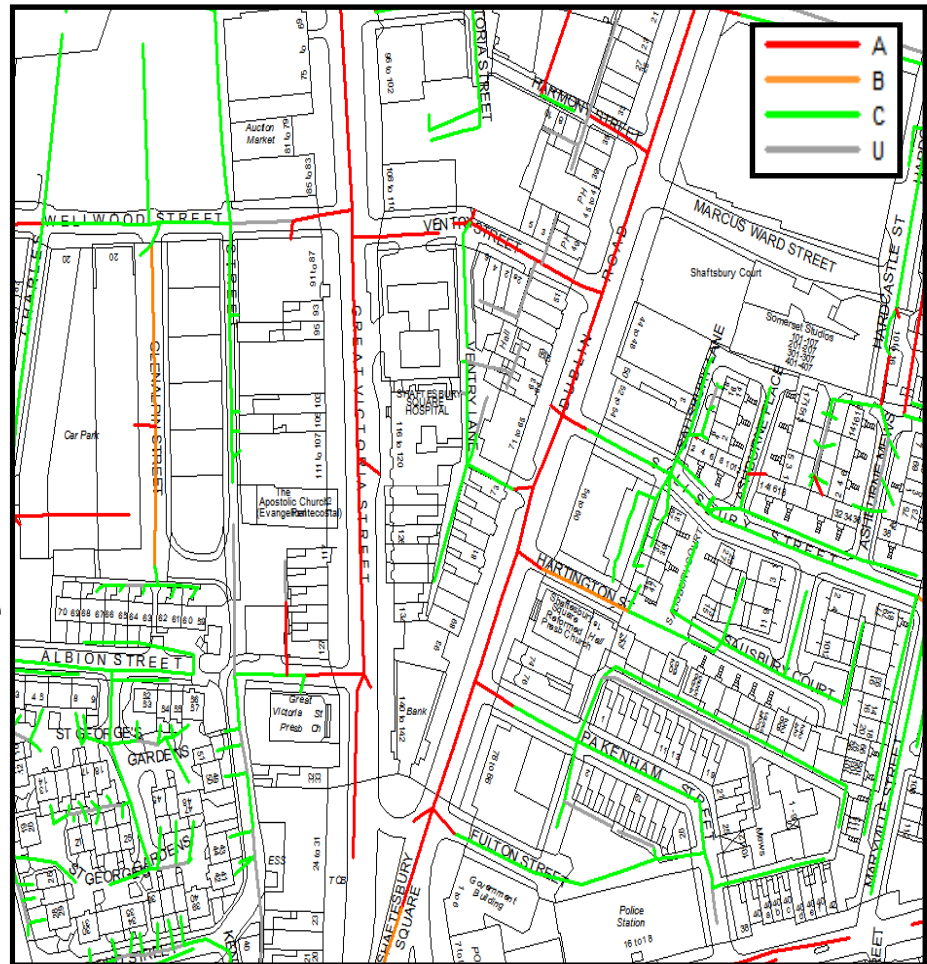
“The additional sites that were identified via GIS have been incorporated into the Northern Ireland Water Recreation and Access Policy document, as sites with potential recreational value and public interest and will form part of the over arching Public Recreation and Access Strategy”

Alan Moore, Asset Strategy Team



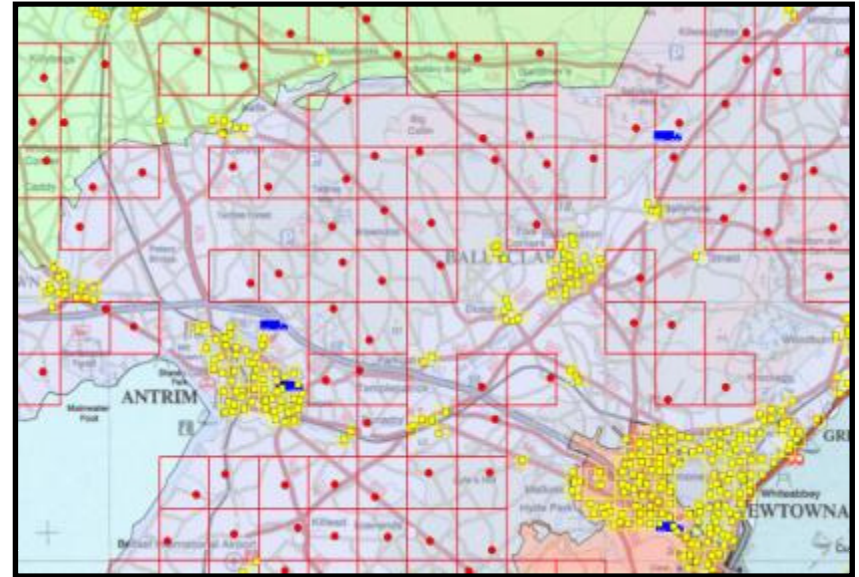
Critical Sewer Analysis

- Classified on cost to repair based on construction type and location
 - A - High cost
 - B - Substantial cost
 - C - Low cost
 - U - Not assessed
- Location of sewers analysed in relation to buildings, traffic sensitive streets, watercourses, railways, etc.
- Lengths of each classification type submitted to NIAUR annually and considered when setting operational expenditure targets
- NI Water aim to reduce lengths of critical sewers through sewerage infrastructure projects



Incident Planning - Alternative Water Supplies

- Griding system
 - 1685 rural (2000m) grids
 - 3525 urban (400m) Grids
- Tank allocation
 - 1135 L rural
 - 2500 L urban
- Based upon
 - POINTER seed points with grid
 - Population density factor
 - Demand set at 10L/PC
 - Maximum 3 refills/day
- Validation
 - GIS team manually move to suitable location using aerial photography
 - FM check each based upon local knowledge and confirm



A5 Western Transport Corridor (Part)

CARID	Site Name	Main Purpose	Location	CARID	Site Name	Main Purpose	Location
S03001	Artigarvan WWTW	Wastewater Treatment Works	Artigarvan	S03424	New Buildings	Sewage Pumping Station	Londonderry
S03009	Ballee Road 15-25	Wastewater Treatment Works	Strabane	S03425	New Buildings Desmonds	Sewage Pumping Station	New Buildings
S03015	Ballyheather	Wastewater Treatment Works	Strabane	S03453	Roundhill	Sewage Pumping Station	Roundhill
S03018	Ballymagorry WWTW	Wastewater Treatment Works	Ballymagorry	S03492	Woodend (SPS)	Sewage Pumping Station	Ballymagorry
S03088	Drumenny	Wastewater Treatment Works	Strabane	S03522	Ballyfatton	Service Reservoir	Sion Mills
S03089	Drumgauty	Wastewater Treatment Works	Bready	S03559	Curly Hill	Service Reservoir	Strabane
S03122	Gortavea	Wastewater Treatment Works	Strabane	S03584	Glebe (BPT)	Service Reservoir	Strabane
S03125	Gortmessan	Wastewater Treatment Works	Bready	S03590	Gortinagin	Service Reservoir	Omagh
S03176	Magheracoltan	Wastewater Treatment Works	Newtownstewart	S03593	Holymount (BPT 1)	Service Reservoir	Strabane
S03177	Magheramason	Wastewater Treatment Works	Magheramason	S03594	Holymount (BPT 2)	Service Reservoir	Strabane
S03183	Milltown (Artigarvan)	Wastewater Treatment Works	Strabane	S03635	Newtownstewart Springs (SR)	Service Reservoir	Newtownstewart
S03215	Rylands	Wastewater Treatment Works	Omagh	S03670	Ballybeeny	Treated Water Pumping Station	Bready
S03219	Sion Mills	Wastewater Treatment Works	Sion Mills	S03680	Beltany	Treated Water Pumping Station	Omagh
S03223	Strabane	Wastewater Treatment Works	Strabane	S03836	Woodend (Kiosk)	Leakage Monitoring	Strabane
S03225	Tamnabradly	Wastewater Treatment Works	Strabane	S03959	Bready Primary School	Sewage Pumping Station	Strabane
S03238	Willow Road	Wastewater Treatment Works	Strabane	S03960	Bready Church	Sewage Pumping Station	Strabane
S03245	Artigarvan Mount Pleasant	Sewage Pumping Station	Artigarvan	S03962	Burnhill Court	Sewage Pumping Station	Strabane
S03259	Ballymagorry Tyrone	Sewage Pumping Station	Ballymagorry	S03971	Bready WWTW	Wastewater Treatment Works	Bready
S03260	Ballymagorry Park Road	Sewage Pumping Station	Ballymagorry	S04006	Church Street Strabane	Leakage Monitoring	Strabane
S03288	Bog Road	Sewage Pumping Station	Strabane	S04053	Dunhugh Manor	Sewage Pumping Station	Newbuildings
S03320	Coneywarren Beltany Road	Sewage Pumping Station	Omagh	S04111	Victoria Road (277-279)	Wastewater Treatment Works	Bready
S03360	Dunnalong Road	Sewage Pumping Station	Magheramason	S04349	Patrick Street Strabane	Combined Storm Overflow	Strabane
S03410	Lismore Park	Sewage Pumping Station	Sion Mills	S04353	S007216SW0054	Combined Storm Overflow	Strabane
S05133	Curlyhill Road	Leakage Monitoring	Strabane	S04910	Stone Road	Treated Water Pumping Station	Strabane
				S04927	Doogary Road	Leakage Monitoring	Omagh

“Better management of our land use can improve the overall water quality at the tap”

Andrew McConville Scientific Services



Thank You for Listening

