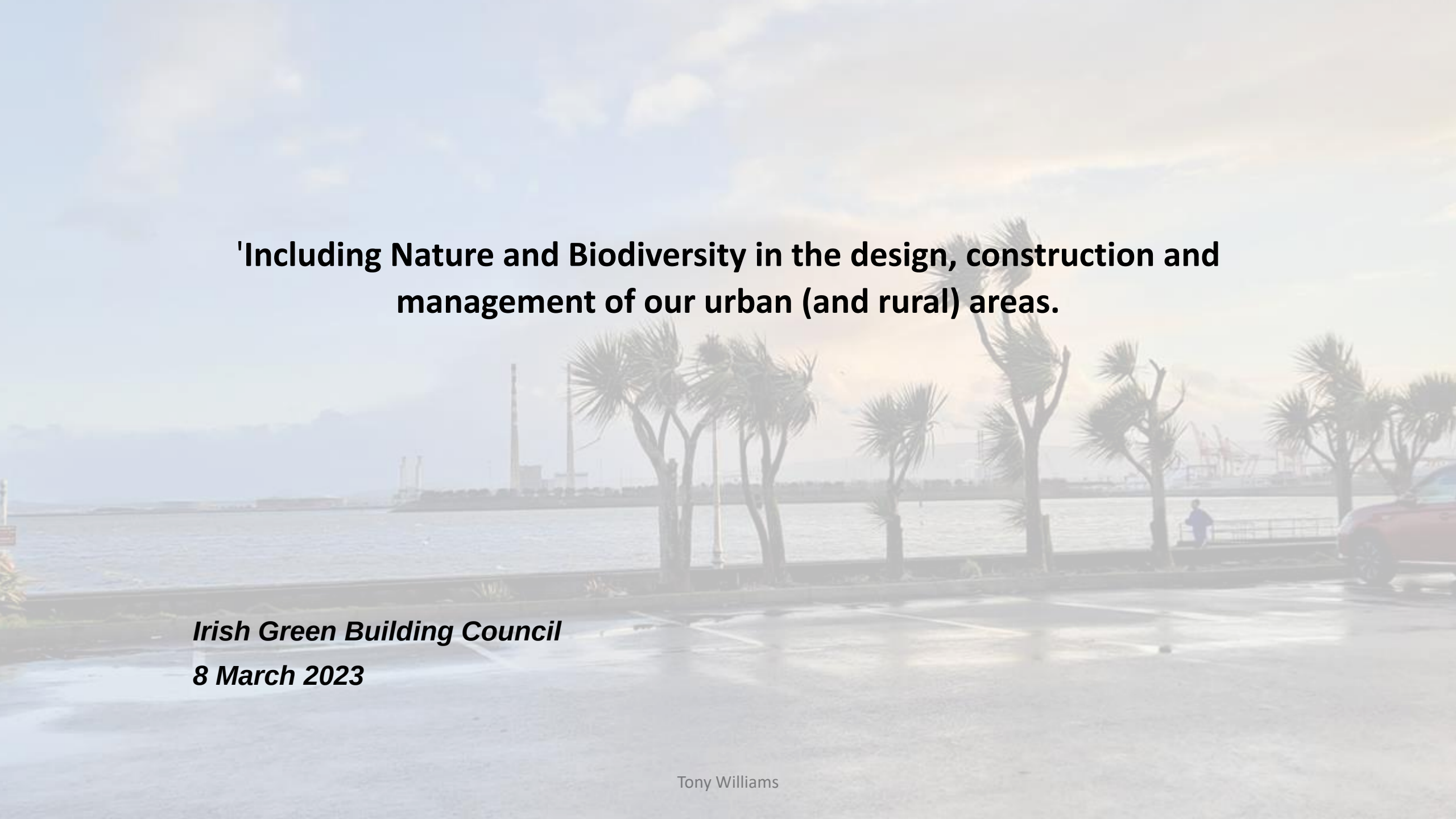


'Including Nature and Biodiversity in the design, construction and management of our urban (and rural) areas.

Irish Green Building Council

8 March 2023

Landscape architecture – practical use of science

Design and Implementation of Nature-based Solutions and their role in adaptation and mitigation of the effects of Climate Change – Perspectives of a landscape architect and natural scientist

Tony Williams

Principal Landscape Architect

Transport Infrastructure Ireland

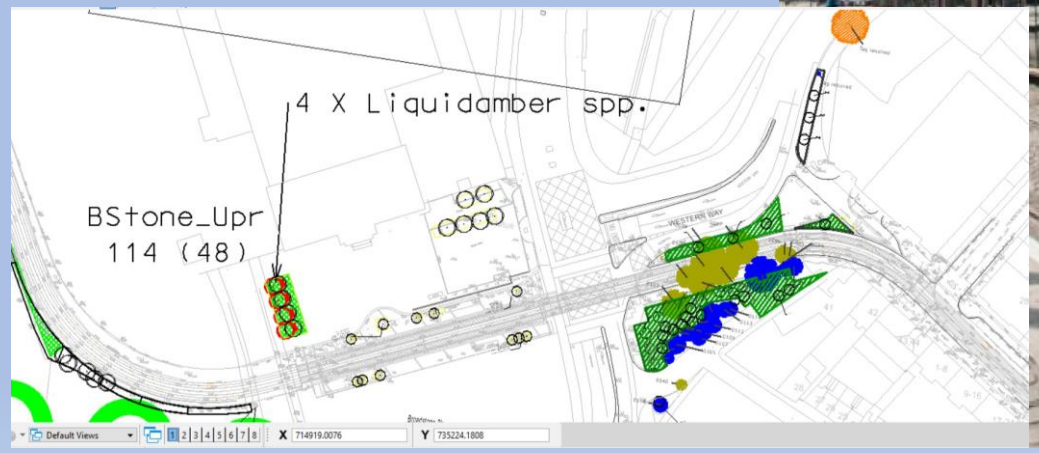
PhD Candidate.

School of Natural Science, Trinity College Dublin.

The Landscape and Infrastructure

williaa4@tcd.ie
www.connectingnature.eu

Light Rail
Landscape Strategy
Both hard and soft landscape



Tony Williams TCD
williaa4@tcd.ie
www.connectingnature.eu

Promoting Biodiversity (as part of our normal activities) Promoting nature

- Luas Cross City project as an example of integrating the natural world , and making a more Biodiverse ecosystem (more of everything in the urban / peri-urban and rural settings)
- Engineering and planning the interventions is crucial to ensuring successful outcomes
- Work on the details. How will it be done ? and who will do it ? Include this in contracts (but carefully)
- The following is an example from Luas Cross City (Tramway Construction in Dublin)

An example of multidisciplinary elements
Tree Pit design and Construction
Luas Cross City

Existing and Proposed Trees – Strategy developed

Landscape Architects:
Tony Williams (TII) Laura Flynn and Eimear Fox.
Fergal Parlon – (Brady,Shipman,Martin)

Utility Engineer:
Michelle Merne (TII)

Arborists:
Planning Stage-Ciarán Keating (for TII)
Enabling Works (for GMC) -Felim Sheridan
Infrastructure Works (for TII) –Felim Sheridan
Infrastructure Works (for SSJV) –John Morgan
Environmental Co-ordinator – Colin Wilson

<u>And the design and site team (mostly engineers)</u>

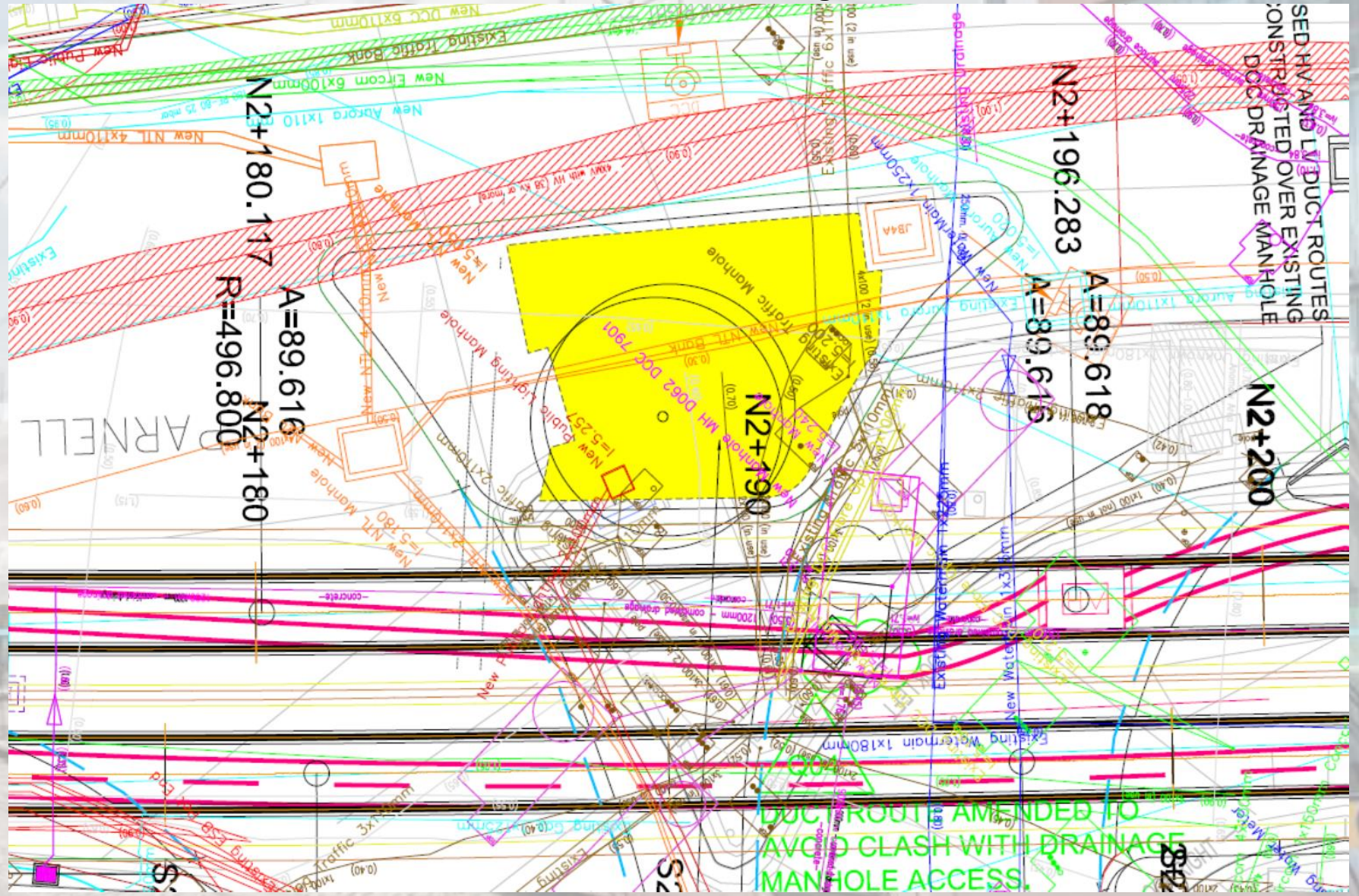
LUAS Cross City (LCC)
DAWSON STREET, Dublin, Ireland (Éire)

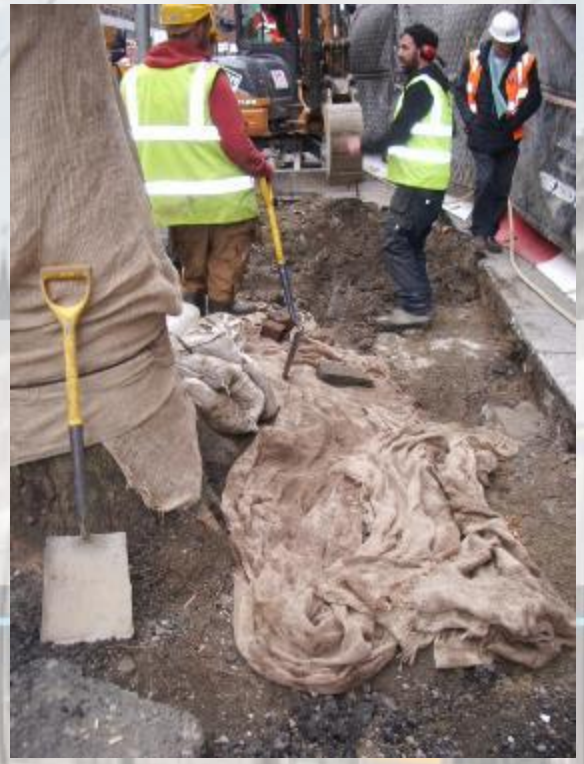
STREETSCAPE ELEMENTS

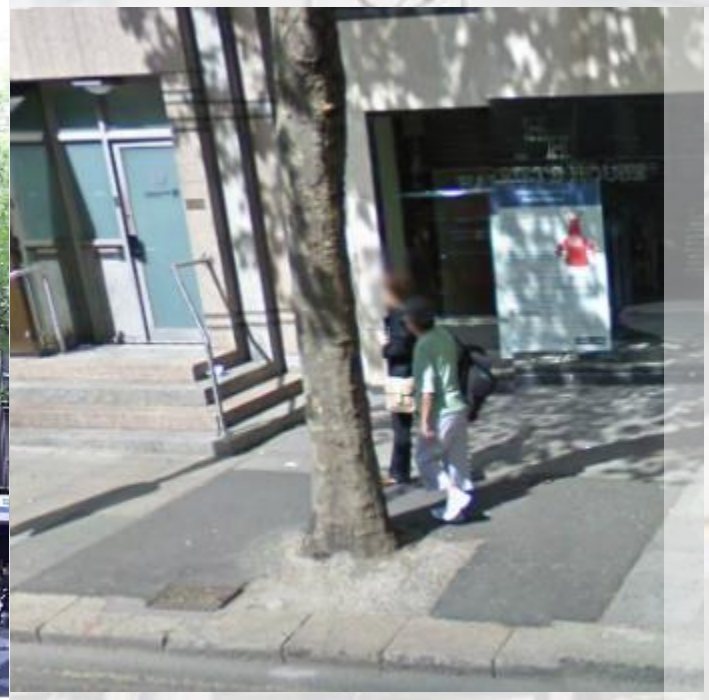
Example of complexity /simplicity

Tony Williams

Utilities and Tree Pits – Design in Unison







Dawson Street – Existing London Planes to be retained

Existing Trees – Strategy

Not without its difficulties

- Challenge to adjust utility layouts in order to avoid impacting existing street trees
- Each trees footprint varies and needs to be designed for its unique position within the new streetscape and kerb lines
- Full aboricultural advice obtained to allow individual street tree details be developed.
- Trees removed only when necessary
- Requirement for aftercare and monitoiring
- Hand over to city and operator

LCC (BXD)

Trees - existing

LCC (BXD)
DAWSON STREET

Tree Planting - proposed

New Trees

•Challenge to adjust utility layouts in order to fit new street trees

•Tree grille proposed with infill to match surrounding paving

•Structural soils used as part of build up

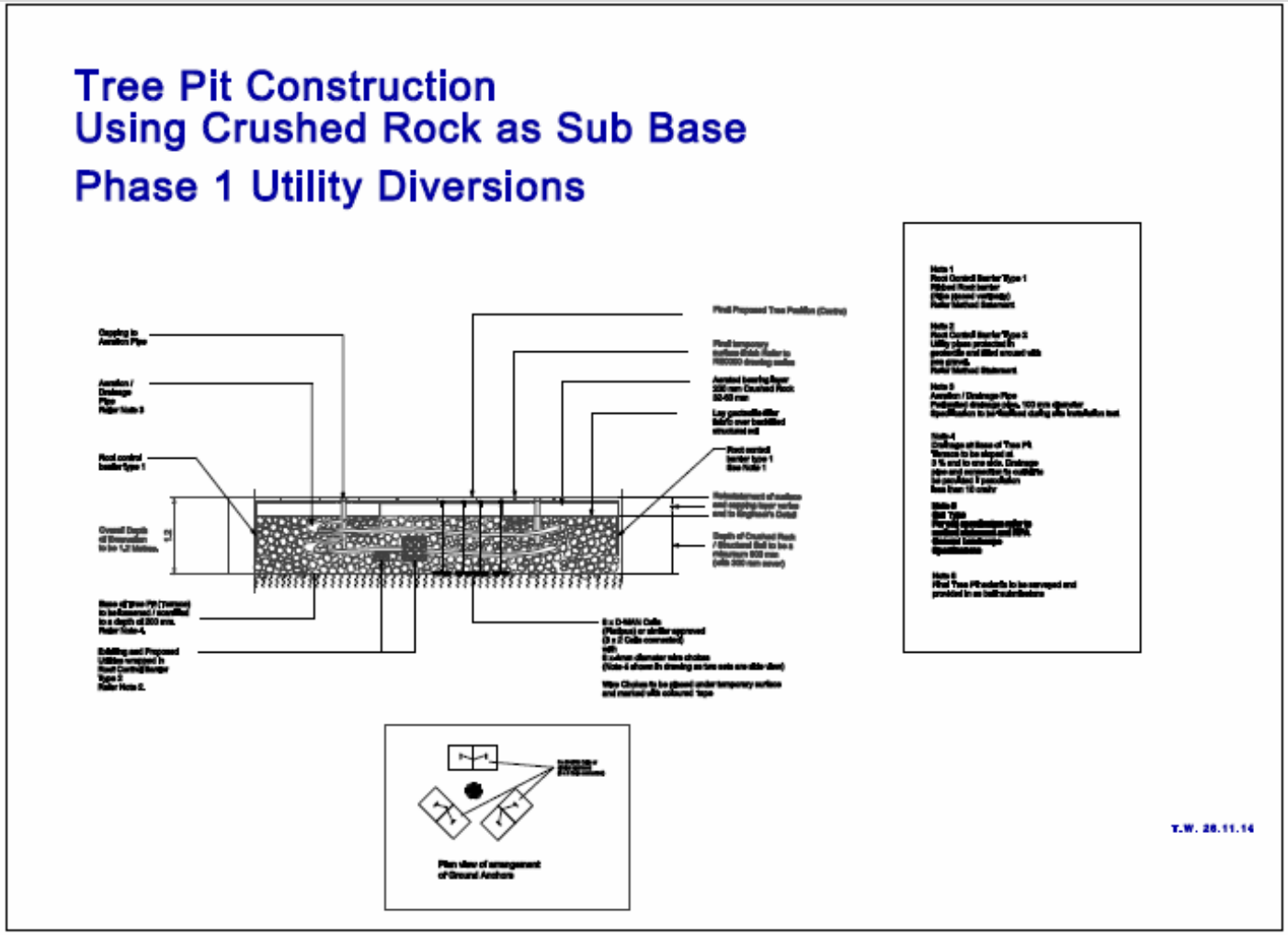
•London Plane tree type used to match existing

•But not always.
•We are aiming to increase the range of species used

Luas Cross City

Urban Design Strategy

Tree Pit Construction



Contractor: GMC Utilities

Arborist : Felim Sheridan

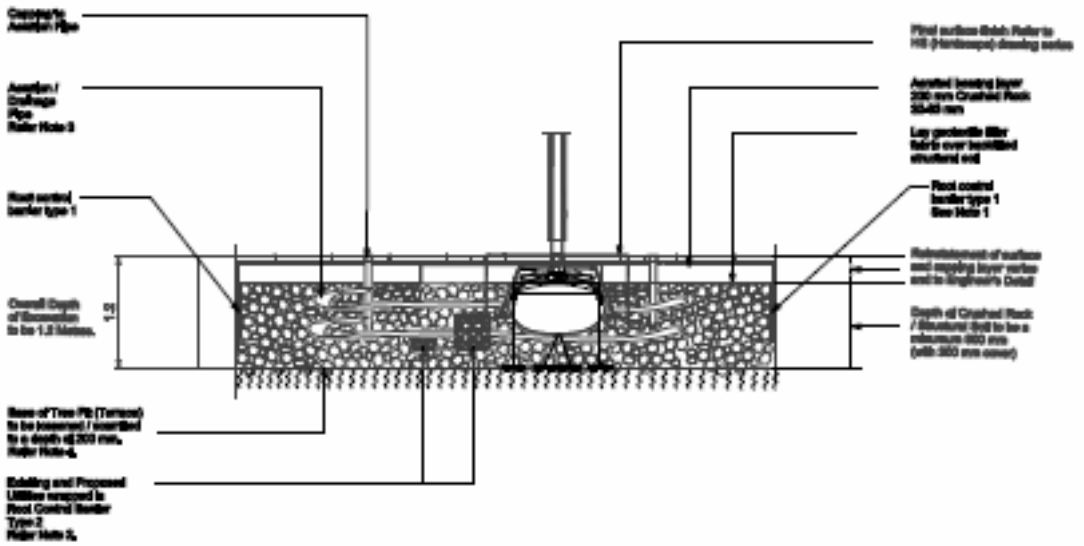
Based on Stockholm Tree Pit Design – Orjan Stahl et al.

Luas Cross City

Urban Design Strategy

Tree Pit Construction

Phase 2 Main Infrastructure Works



Contractor: Sisk Steconfer J.V.

Arborist : Felim Sheridan

Arborist : John Morgan

Ecologist : Colin Wilson

Landscape Architect : Fergal Parlon

Based on Stockholm Tree Pit Design – Orjan Stahl et al.

Luas Cross City

Urban Design Strategy

Tree Pit Construction

Utilities incorporated at Design Stage

Examples of O Connell Street Tree Pit Construction.

Pre Planting

Luas Cross City

Urban Design Strategy

Tree Pit Construction

Utilities incorporated at Design Stage

Examples of O Connell Street Tree Pit Construction.

Pre Planting

Luas Cross City

Urban Design Strategy

Tree Pit Construction

Construction Challenges

Ireland

During and post Construction

Luas Cross City

Urban Design Strategy

Tree Pit Construction

January 2017
Final surfacing complete

O Connell GPO Tramstop

Pre Planting

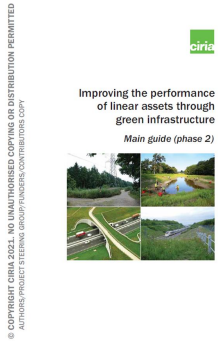
Luas Cross City

Urban Design Strategy

Tree Pit Construction

Continuing Research in TII

Blue Green Infrastructure and Nature-based Solutions



Current Research with CIRIA includes

Green Infrastructure for Linear Assets

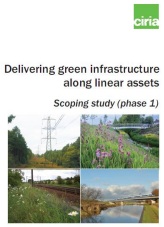
- Phase 1 scoping
- Phase 2 Guidance published in 2022

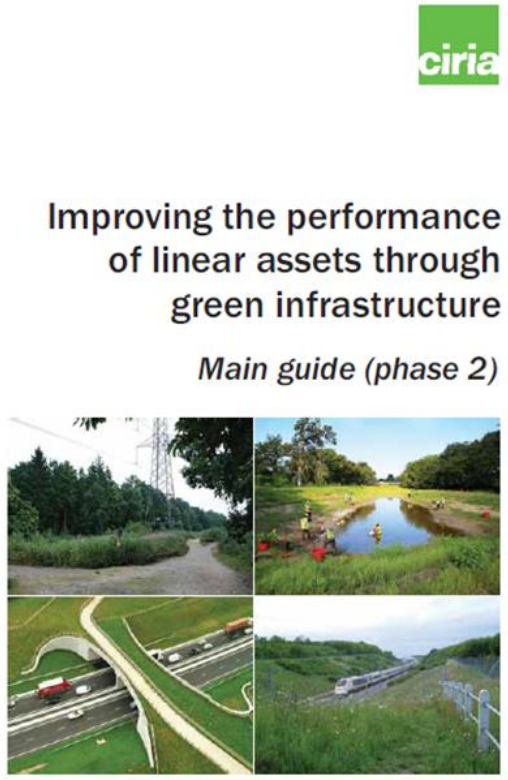
Part 1 Delivering GI Assets along linear Infrastructure

Part 2 Improving the performance of linear assets through green infrastructure

Continuing Research in TII

Blue Green Infrastructure and Nature-based Solutions





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Continuing Research in TII

Blue Green Infrastructure and Nature-based Solutions

Transnational Research Programme

The CEDR Transnational Research Programme (TRP) operates through a series of annual transnational calls on topics that address the needs of European road authorities. The aim is to produce research results that can be implemented by CEDR members and contribute to a safe, sustainable and efficient road network across Europe. It is funded by CEDR members on a voluntary basis. Participation is open to any legal entity, though all consortia must be led by a legal entity from a European country.

Tony Williams

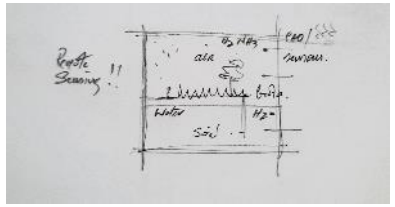
Continuing Research in TII

Blue Green Infrastructure and Nature-based Solutions

- Ongoing Research on construction and mitigation strategies.
- TII as a funding partner and driver of innovation (e.g circular economy)
- https://www.cedr.eu/research-and-innovation
- research with European and partners worldwide

led by a legal entity from a European country.


Projects in a global sense, expressed locally
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image IBCAO
Image Landsat / Copernicus
Image U.S. Geological Survey
46°21'19.13" N



Requirements for life

What to measure ? …..Air, Water and nutrients (soil/plants/biota)

Projects ….in the global landscape
Expressed locally

IFLA (Global) are involved in developing policies at global (and local) level ……

An approach to ecosystem management as part of ensuring a multidisciplinary approach (starting with Landscape Architects and Traditional Architects)

The aim is the delivery of the principles of BGI into the implementation of all projects……and its translation into specifications and standards is needed.

Indigenous Ecosystem Corridors and Nodes
A joint project of the UIA and the IFLA

IEC+N

Linking people and the landscape

https://www.iflaworld.com/indigenous-ecosystem-corridors-and-nodes
Website in development

Australian Institute of Architects

4 JULY 2022

VALE ALLAN RODGER LFRAIA

uia

IFLA INTERNATIONAL FEDERATION OF LANDSCAPE ARCHITECTS

Indigenous Ecosystem Corridors and Nodes
A joint project of the UIA and the IFLA

Born in 1935, Allan Rodger studied at the Universities of Dundee and Durham, practised architecture in London, and taught at the Universities of Edinburgh and St Andrews. He was appointment Chair of Architecture at the University of Melbourne from 1974 until retirement in 1996, including periods when he served as Dean and Head of Department.

Allan was a pioneer in ecological thinking, and an early proponent for fundamental changes in architectural thinking to address the challenges of climate change (when it was still labelled the 'greenhouse effect'). This intellectual passion extended from community-based design and the importance of local knowledge, to the larger scale of what he termed the 'agro-urban system'. He was deeply involved in programs of self-help housing in Victoria and was a Foundation Director of the CERES Project in Brunswick.

At the global scale he was active in UN-Habitat, International Union of Architects (UIA) and the Commonwealth Human Ecology Council. Allan remained very active in International conversations on climate change, and was co-convenor in 2020 of a joint, International Union of Architects (UIA) and International Federation of Landscape Architects (IFLA) project on Indigenous Ecosystem Corridors and Nodes within peri-urban rural, regional and transcontinental systems.

Photographer: University of Melbourne Archives

Projects ….in the global landscape
Expressed locally

IEC+N

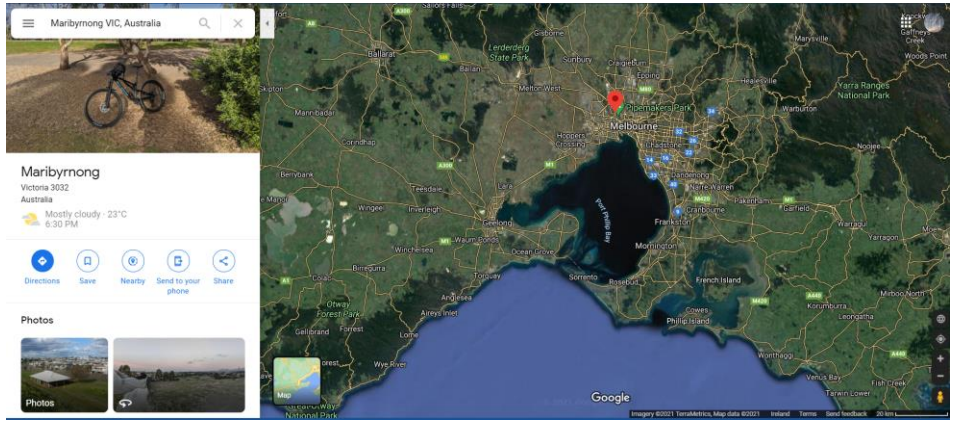
Current Project under IFLA / UIA umbrella and addressing 17 UN SDGs (Start up and Concept)

Phase 1. Setting the structures in place utilising existing GO, NGO and community resources. Planned as community Led under Aarhus structures and assisted by the professional institutes.

- Linking ‘living Melbourne’ with ‘Dublin Bay UNESCO Biosphere’

[Living Melbourne - The Urban Forest]

One million, 1,000,000 plus trees planted and ecosystem restoration as the ‘norm’



Aarhus Convention. https://unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf

Projects ….in the global landscape
Expressed locally

Dublin Bay

BITHSFÉIR
Chuan Bhaile Átha Cliath
Dublin Bay
BIOSPHERE

https://www.dublinbaybiosphere.ie/

Bull Island, Dublin Bay.
An Island that grew due to the port development (since 1821) and a place for nature and walking.
UNESCO biosphere as the basis for a cooperative effort
By local government and citizens Professions,

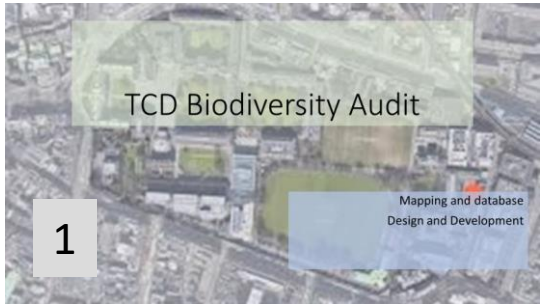


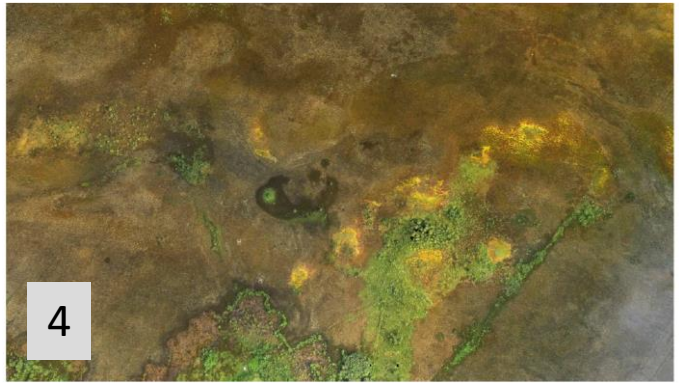

- Sites (Primary, secondary and tertiary data)

Field Sites

The grey is the built environment (buildings, roads, footpaths), the blue are areas of water and the green, the vegetation.

1	TCD Campus (continually occupied since pre 5th century
2	Bull Island (b.1821)(UNESCO Biosphere)
3	Pollardstown Fen (Water table and mosses / Vertigo spp) (Ph >7)
4	Clara Bog (Water table and variable regeneration, Ph < 7)
5	N7 / Citywest Campus / Luas Stop





Field Sites

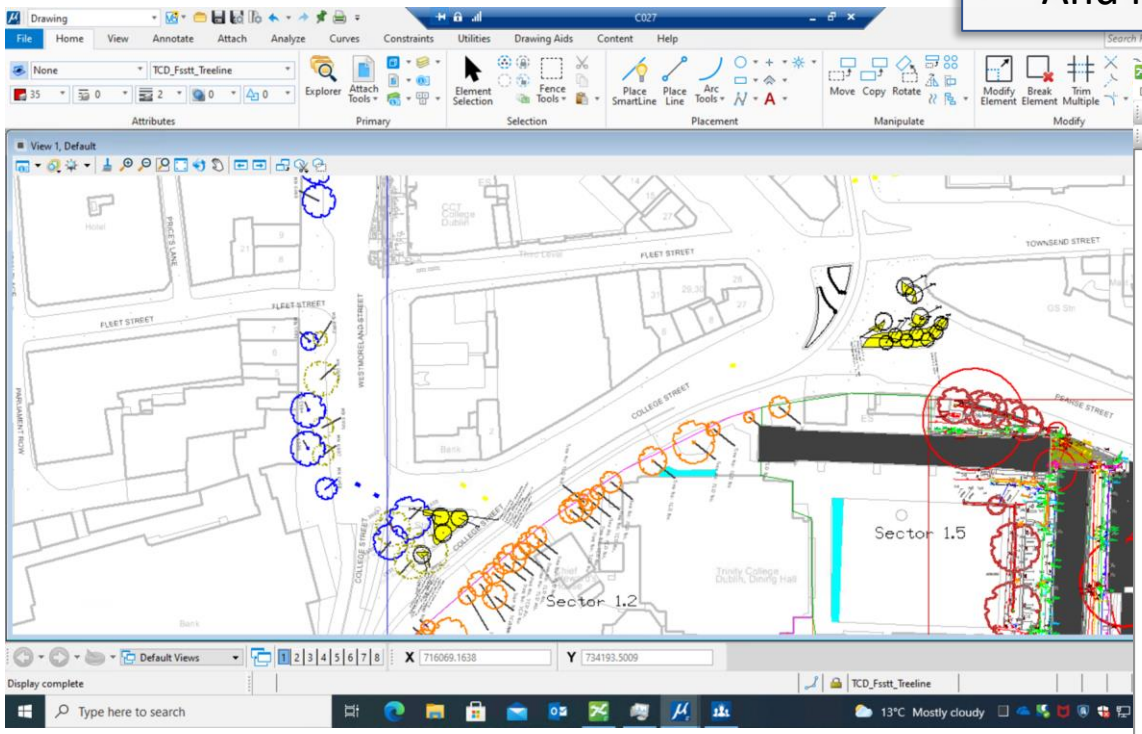
Ecological Fossitt Designations and more…….

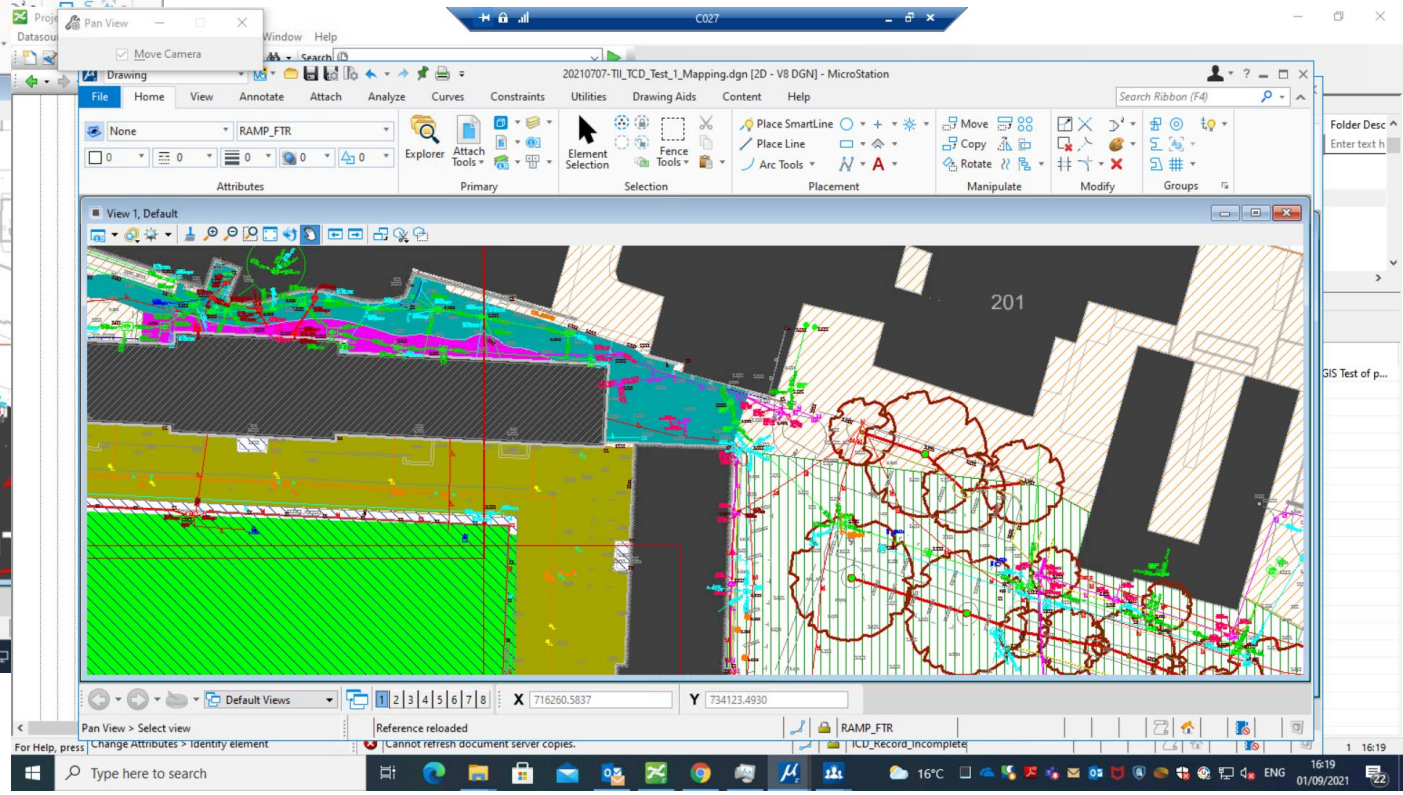
Current research phase

- exploration and sub categorization of the Campus based on Fossitt (a scheme for ecological assemblages)
- analysis of the interaction of areas in 4D (3D plus time)

e.g. Tree line WL2 in combination with Artificial surfaces

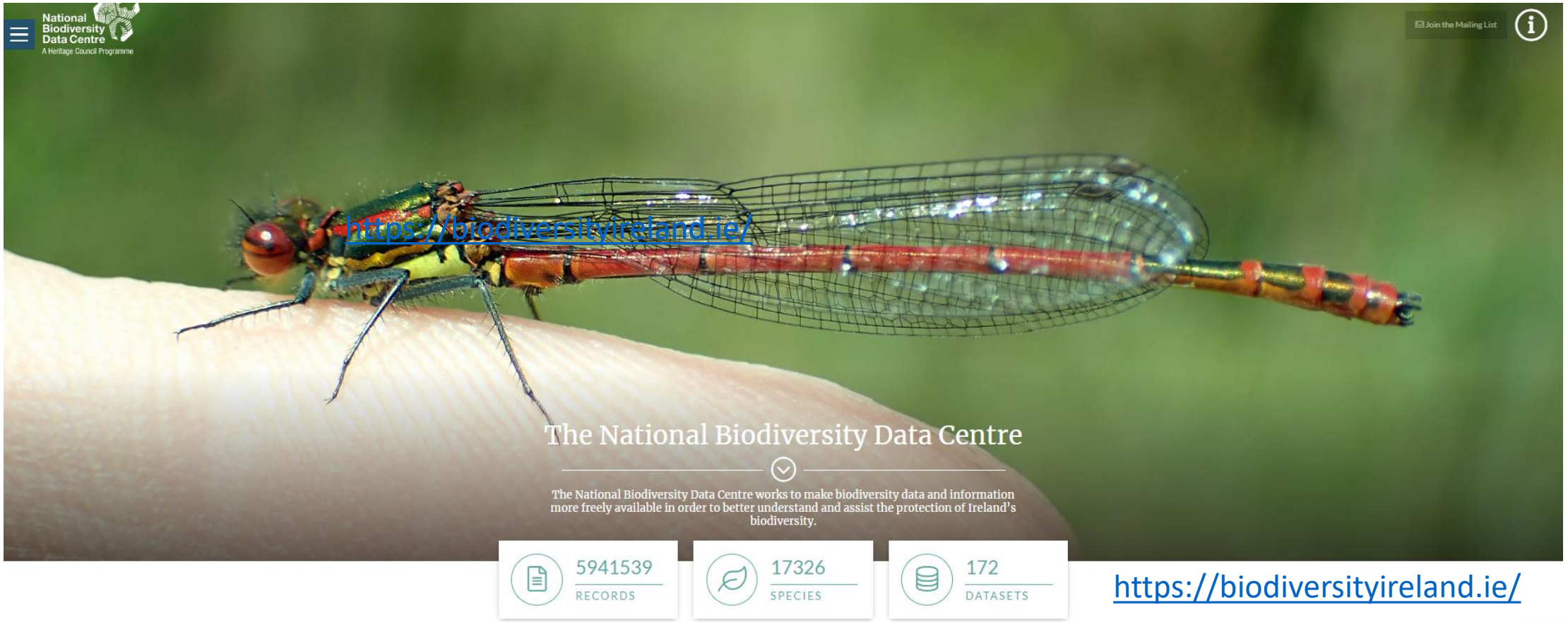
- Further definitions and analysis of zoobotanical assemblages
- And integration with ‘surroundings’





Collect, Analyse and use the data

for your locality



https://biodiversityireland.ie/

Climate Change

IFLA
CLIMATE ACTION COMMITMENT

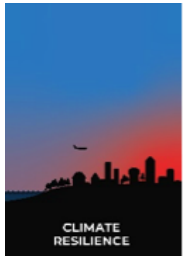
IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS

ADVANCING THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UN SDGS).

ADVOCATING FOR CLIMATE JUSTICE AND SOCIAL WELLBEING

ATTAINING GLOBAL NET ZERO CARBON EMISSIONS BY 2040.

LEARNING FROM CULTURAL KNOWLEDGE SYSTEMS.



ENHANCING CAPACITY AND RESILIENCE OF LIVABLE CITIES AND COMMUNITIES.

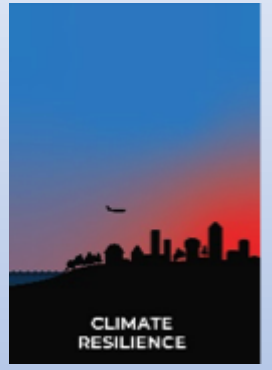
GALVANIZING CLIMATE LEADERSHIP.

• AS A GLOBAL PROFESSION, WE COMMIT TO:

IFLA
CLIMATE ACTION COMMITMENT

ADVANCING THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UN SDGS).
Through each of the 77 nations represented by the International Federation of Landscape Architects (IFLA), landscape architects within our member associations accelerate our work to repair global ecosystems.

ATTAINING GLOBAL NET ZERO CARBON EMISSIONS BY 2040.
We will dramatically reduce operational and embodied carbon emissions produced by our work, harness the unique capacity of landscapes to draw down carbon dioxide, and advocate for clean and multi-modal transport systems.



ENHANCING CAPACITY AND RESILIENCE OF LIVABLE CITIES AND COMMUNITIES.
Implementing green infrastructure approaches, landscape architects will work to mitigate urban heat island effect, and reduce the risks associated with fire, drought, and flood.

ADVOCATING FOR CLIMATE JUSTICE AND SOCIAL WELLBEING.
Landscape architects will increase support for equity and equality, food security and the right to clean water and happiness for all.

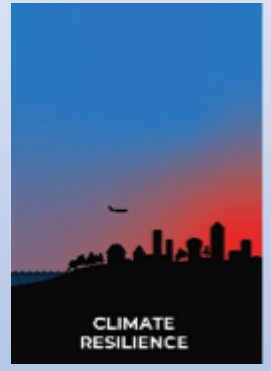
LEARNING FROM CULTURAL KNOWLEDGE SYSTEMS.
We commit to respecting and working with indigenous cultural land management knowledge to mitigate climate change impacts and continue work towards reconciliation.

GALVANIZING CLIMATE LEADERSHIP.
Landscape architects are uniquely placed to galvanize and lead a built environment response to this crisis. We will continue to collaborate with clients, suppliers, and allied professions to champion climate positive design.

Tom Williams TCD
williaa4@tcd.ie
www.connectingnature.eu

IFLA
CLIMATE ACTION COMMITMENT

IFLA
INTERNATIONAL FEDERATION OF LANDSCAPE ARCHITECTS



ENHANCING CAPACITY AND RESILIENCE OF LIVABLE CITIES AND COMMUNITIES.

Implementing green infrastructure approaches, landscape architects will work to mitigate urban heat island effect, and reduce the risks associated with fire, drought, and flood.

4 key topics

1. Inspiring change
2. Celebrating Action
3. Building Partnerships
4. Preparing the next generation(s)

- Regions adopt this global plan and ‘make it their own’
- Make regional changes
- Begin local and regional activities through the members (associations and individuals)
- Integrate between regions and working groups ….. open dialogue.
- Use of on line collaboration (file sharing and meetings)

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www.connectingnature.eu

Link to SDGs

A Landscape Architecture Guide to the 17 Sustainable Development Goals

https://www.iflaworld.com/a-landscape-architecture-guide-to-the-17-sustainable-development-goals

Entrained Carbon

https://climatepositivedesign.com/

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williaa4@tcd.ie
www.connectingnature.eu

Landscape Observatories

,

The Harbour Leenane
James Humbert Craig

Landscape Observatories

Landscape Observatory of Ireland

Date	Version	By
April 25 th 2015	Initial Draft	Tony Williams (TW)
July 2015	Developed Draft	TW
July 2015	Revision	Mansil Miller (MM)/ TW
September 2015	Version F for circulation and comment within ILI and LINI	TW
October 2015	Version G Amended Version for General Circulation and Comment	TW
September 2017	Version H for circulation	TW
October 2017	Version K. Minor Corrections	TW

[1] Image from Google Maps

10th COUNCIL OF EUROPE CONFERENCE ON

THE EUROPEAN LANDSCAPE CONVENTION

Report

"A review of integrated approaches for landscape monitoring"

Council of Europe
Palais de l'Europe, Strasbourg
6-7 May 2019

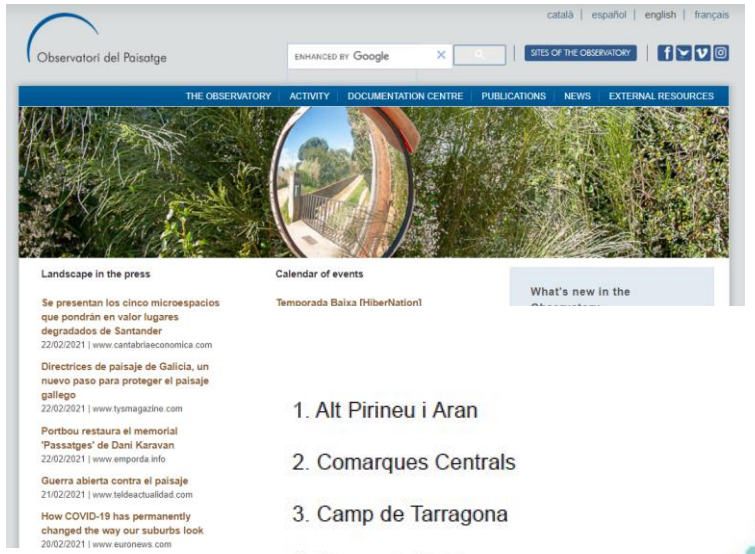
https://rm.coe.int/council-of-europe-european-landscape-convention-10th-council-of-europe/1680968476

COUNCIL OF EUROPE LANDSCAPE CONVENTION
CONVENTION DU CONSEIL DE L'EUROPE SUR LE PAYSAGE

COUNCIL OF EUROPE
CONSEIL DE L'EUROPE

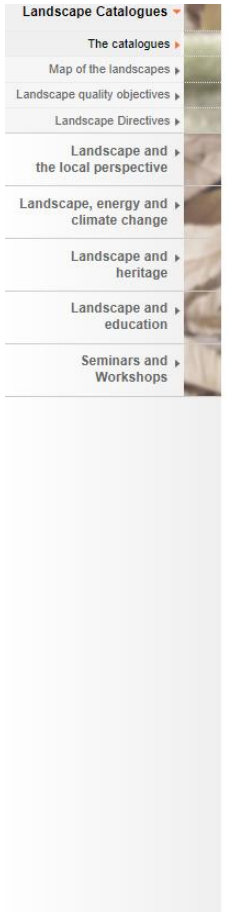
Landscape Observatories

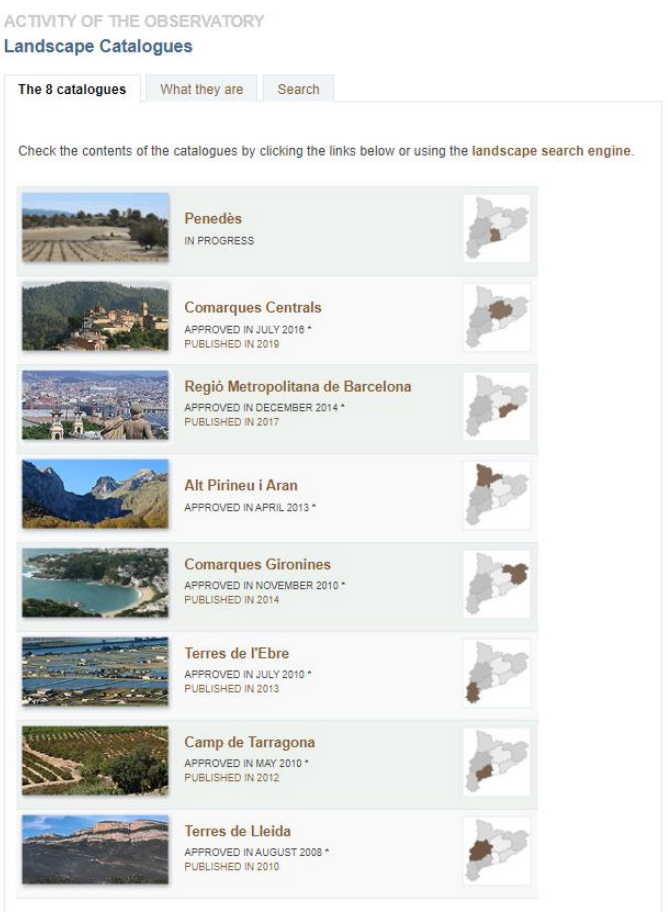
- Catalunia as an example of a functioning landscape observatory > 20 years
- http://www.catpaisatge.net/eng/index.php



1. Alt Pirineu i Aran
2. Comarques Centrals
3. Camp de Tarragona
4. Terres de Lleida
5. Regió Metropolitana de Barcelona
6. Comarques Gironines
7. Terres de l'Ebre

Fig. 1.2: Àmbits territorials d'aplicació dels catàlegs de paisatge.





Ongoing 2023)

- Continued development of standards and specifications
  - ❖ Design
  - ❖ Construction
  - ❖ Maintenance

- Ensuring multidisciplinary design with professional input, local and national governance and citizen science ‘at the heart’.

- Mapping and recording our landscapes (land, sea, town scapes)

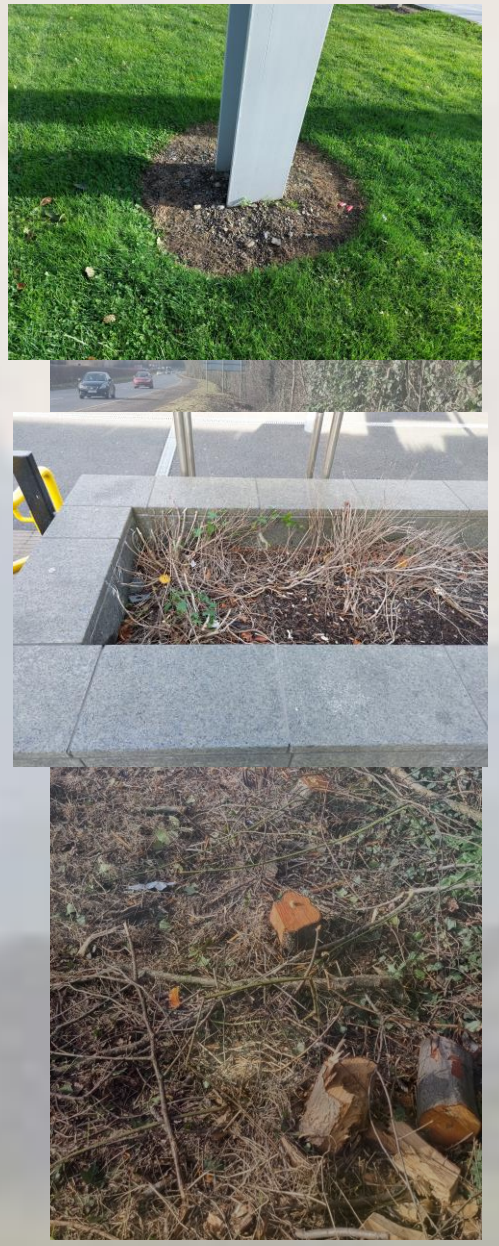
Knowing our landscape

Outputs and implementation

- Informing the design of mitigation strategies for proposed projects / projects under development on the transport systems in general (rural, peri-urban and urban)
- Informing transport projects in planning
- Informing landscape policies in general
- Identification of additional research to inform the design, construction and maintenance of motorway, national routes and interchanges.

Easy steps

- Allow weeds to grow. (Untidy is good for nature)
- Ensure maintenance and establishment of green infrastructure (incl. watering) in contracts
- Ensure standards and specifications reflect the ‘biodiversity and climate emergency)



Go Raibh Maith Agat

Thank You

A Connemara Landscape Paul Henry