

Trees and Utilities can Co-exist

An introduction to “Dig Once, Green Twice”, and an overview of how the guidance supports coordinated delivery of utilities, trees and SuDS across London.



*Argyle Street West – Glasgow City Council, Civic
Image courtesy of Civic*



Dig Once, Green Twice

- London-focused guidance to retrofit green infrastructure into streets where buried utilities limit space.
- Focus on how to integrate trees, and SuDS alongside planned streetworks, to dig once.
- Designed to turn planned excavations into green infrastructure opportunities.

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Bradley-Hole Schoenaich Landscape



*Dig Once, Green Twice – Authoring Team
Image courtesy of New Practice, part of Civic*

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Outline of Presentation

1. What is the issue with trees and utilities?
2. How trees and utilities can coexist
3. Solutions, systems and how to deliver



*Juniper Square – Root & Erect, Civic, Riney, Waltham Forest & Meristem Design
Image courtesy of Meristem Design*



*St John Street – London Borough of Islington, during SuDS retrofit works
Image courtesy of Meristem Design*

Street space pressure points

- Public realm, particularly city streets are being asked to do everything in the same shallow space
- Finite corridors of underground space are already allocated, congested and often inflexible

Why utilities are the main constraint

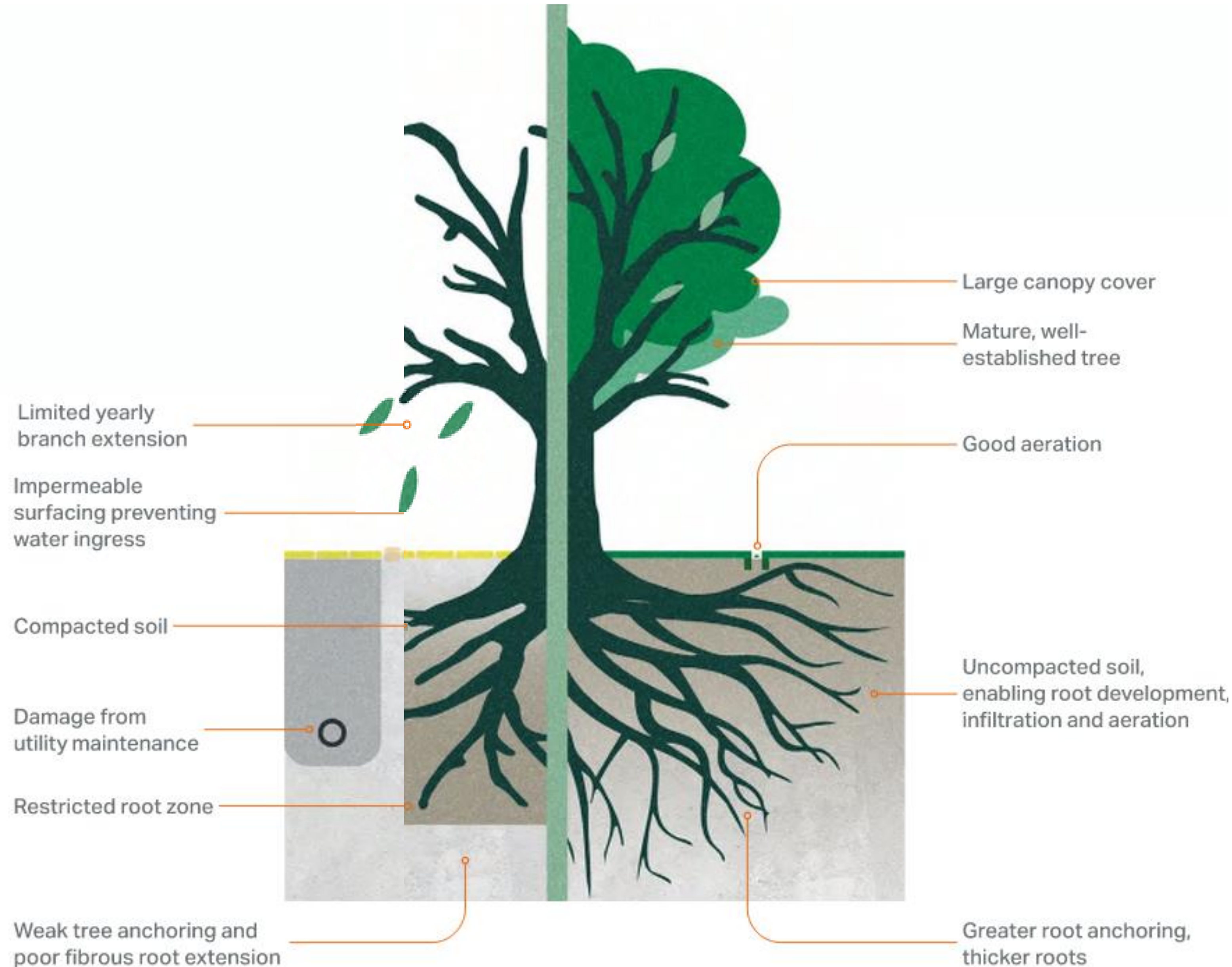
- Perception that trees and utilities are incompatible
- Damage can occur from utilities and trees, and vice versa
- High consequence of failure, and high access frequency requirements



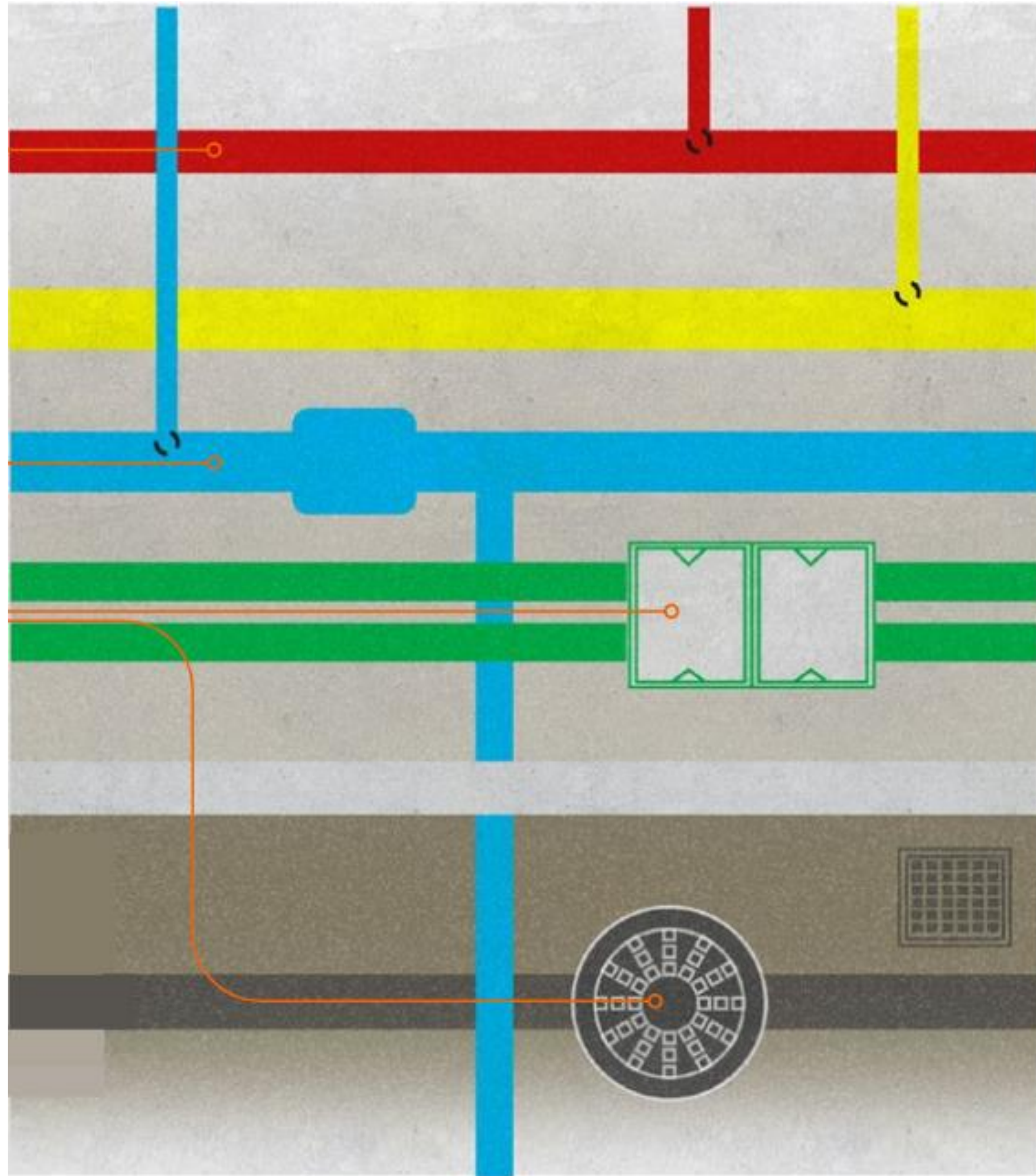
*Vacuum Excavation Around Felled Tree Stump & Live Utilities
Image courtesy of Civic*

Trees: what they need to succeed

- Adequate rooting volume, good soil aeration and access to water.
- Enough canopy space above ground to reduce future conflict and pruning.
- Protection from compaction, sealing and damage during later works.



Common issues and success factors of trees
Graphic courtesy of New Practice, part of Civic



Utilities: working with assets

- Utilities are frequently inspected, serviced, upgraded, replaced and maintained
- Legacy conditions mean infrastructure in London is ageing, and opportunities for planting don't want to exacerbate this
- Asset type and risk profile should shape both planting locations and protection measures

*Utility positioning within a pavement, birds eye view – recreated from Streetworks
Graphic courtesy of New Practice, part of Civic*

Legal and regulatory context

- Streetworks sit within the New Roads and Streetworks Act framework and related utility legislation.
- Statutory right to access assets
- Adoption, maintenance and future access must be considered before construction.

Scenario	Need	Relevant Legislation / Policy	Key Requirements / Constraints
Streetworks / Highway Occupation	To be authorised, as a utility provider, to construct SuDS or retrofit trees in line with streetworks legal requirements	Traffic Management Act 2004 (Part 3) NRSWA 1991 (s50) TfL Lane Rental Scheme (TMA 2004)	Street works permit (London Permit Scheme - LoPS) required under TMA. S50 Streetworks licence required if not a statutory undertaker. Lane rental charges*
Construction	To ensure SuDS / tree installation complies with health, safety, and legal streetworks requirements.	CDM Regulations 2015 LoPS permit conditions	Requirement for appointment of Principal Designer /Principal Contractor roles Prepare Construction Phase Plan (CPP) Notify HSE (F10) Maintain permit records and inspection logs
Adoption & Maintenance	To confirm which authority will adopt and maintain SuDS and trees post-construction.	Highways Act 1980 (s41) Water Industry Act 1991 (s115, ss102-104) London Plan 2021*	Responsibility of adopting body to maintain assets Highways Authority or Local Authority duty to maintain adopted SuDS and street trees
Utility Constraints	To allow SuDS and trees to be reinstated after utility works.	Gas Act 1986 (Schedule 4) Electricity Act 1989 (Schedule 4) Communications Act 2003 (Schedule 3A Part 8) Water Industry Act 1991 (s158)	Utility companies retain rights to access and maintain their assets within the adopted highway, even if located within SuDS or tree pits
Tree Retrofitting Adjacent to Utilities	To ensure tree planting does not compromise utility access or safety.	NRSWA 1991 Highways Act 1980 (s96, s141-142)	Protection of utility apparatus General provisions for installation and maintenance of trees within the highway

*Relevant legislation and policy for underground utilities and green infrastructure – recreated from SuDS and Streetworks Market Guidance (GLA, Arup)
Image courtesy of New Practice, part of Civic*



Site selection, and green infrastructure selection

- Not every site should force the same solution.
- Some locations are best for trees, some for SuDS, and some for a combined tree-in-SuDS solution.
- The choice should be driven by outcomes, space, utilities and deliverability.

*St John Street – London Borough of Islington
Image courtesy of Meristem Design*

Designing for trees near utilities

- Pick species suited to the site, moisture variation and future climate.
- Coordinate early with utility owners on offsets and acceptable protective measures
- If aligning with streetworks, consider seasonal commercial availability



*Crouch End Broadway – London Borough of Haringey, Trees for Streets
Image courtesy of Civic*



*George Crescent, Barnet – Civic, FM Conway, Barnet & Meristem Design
Image courtesy of Meristem Design*

Designing for SuDS near utilities

- If trees aren't the solution for the site, SuDS with shrub planting could be considered as an alternative greening opportunity
- Size the feature to suit hydraulics, structural loading and utility depth.
- Keep inlets, outlets, kerbs, joints and chambers from conflicting with each other.
- Use liners, geotextiles and warning markers so assets remain protected and visible.

Utility Provider Offsets

- Utility company distances are included, but they are strategic guidance rather than universal absolutes.
- Offsets vary by asset type, depth, condition, access needs and proposed protections.
- Key message is consult early, agree a site-specific response and use engineering judgement

Recommended depth of cover	Utility Provider	Asset Type	Guidance for tree planting	Guidance for SuDS
600mm	SGN Gas	Gas	<p>SGN request written approval should be obtained from them before any tree planting is carried out.</p> <p>SGN have published a guidance document 'Dig safely: Measures to avoid injury and damage to gas pipelines' (March 2017) where tree species and corresponding recommended distances are given</p>	<p>Consultation for SuDS as the distance recommended. SGN have above or in close proximity</p>
	Cadent Gas	Gas	<p>Cadent Gas have published a guidance document titled 'Specification for Safe Working in the Vicinity of Cadent Assets' (2023) with planting guidelines:</p> <ul style="list-style-type: none"> » Recommended above the asset (for screening): Quickthorn, Blackthorn » Over 2m: Raspberries, Gooseberries and Blackcurrants » Over 3m: Dwarf Apple Stocks and Christmas trees (Picea Abies (Christmas trees clear-felled at intervals not exceeding 7 years) » Over 6m: Ash, Beech, Birch, most Conifers, Elm, Maple, Horse Chestnut, Oak, Sycamore, Apple, Lime and Pear » Over 10m: Poplar and Willow 	<p>Cadent Gas prefer 5m metallic. Consultation individually, and trial</p> <p>For plastic pipes refer the minimum depth backfilling should be</p> <p>For plastic pipes refer the minimum depth be in line with their (</p>
750 - 1200mm	Affinity Water	Water	<p>Affinity Water have published a guidance document titled 'Developing And Working Near Our Pipes And Apparatus' (July 2024). With consultation and prior approval, Affinity Water may allow shallow rooted plants in proximity to their assets.</p> <ul style="list-style-type: none"> » Recommended above the asset (for screening): Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quick Thorn, Snowberry and most ornamental flowering shrubs. » Over 6m: Ash, Beech, Birch, Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear » Over 12m: Poplar and Willow 	<p>Preferred widths for Water Main. The minimum for Water Main.</p> <ul style="list-style-type: none"> » 150mm or less » Between 151mm » Greater than 600mm <p>When minimum offsets suggested email: m</p>
	Thames Water	Water / Sewerage	<p>Thames Water have published a guidance document 'Tree Planting Guidelines' (March 2022) which includes a species list and a distance from the centre line of the asset.</p> <p>The document notes if tree planting designs propose a root protection barrier or other root management structures (such as root crates) Thames Water can agree a reduction on the horizontal clearance distance by 50%.</p>	<p>After a survey to confirm accept shallow planting if the following conditions are met:</p> <ul style="list-style-type: none"> » Good access to rain garden » The shallow planting » The sewer is not higher risk of collapse » 500mm clearance planted rain garden » 500mm vertical

Table C: Register of suggested offsets by utility companies

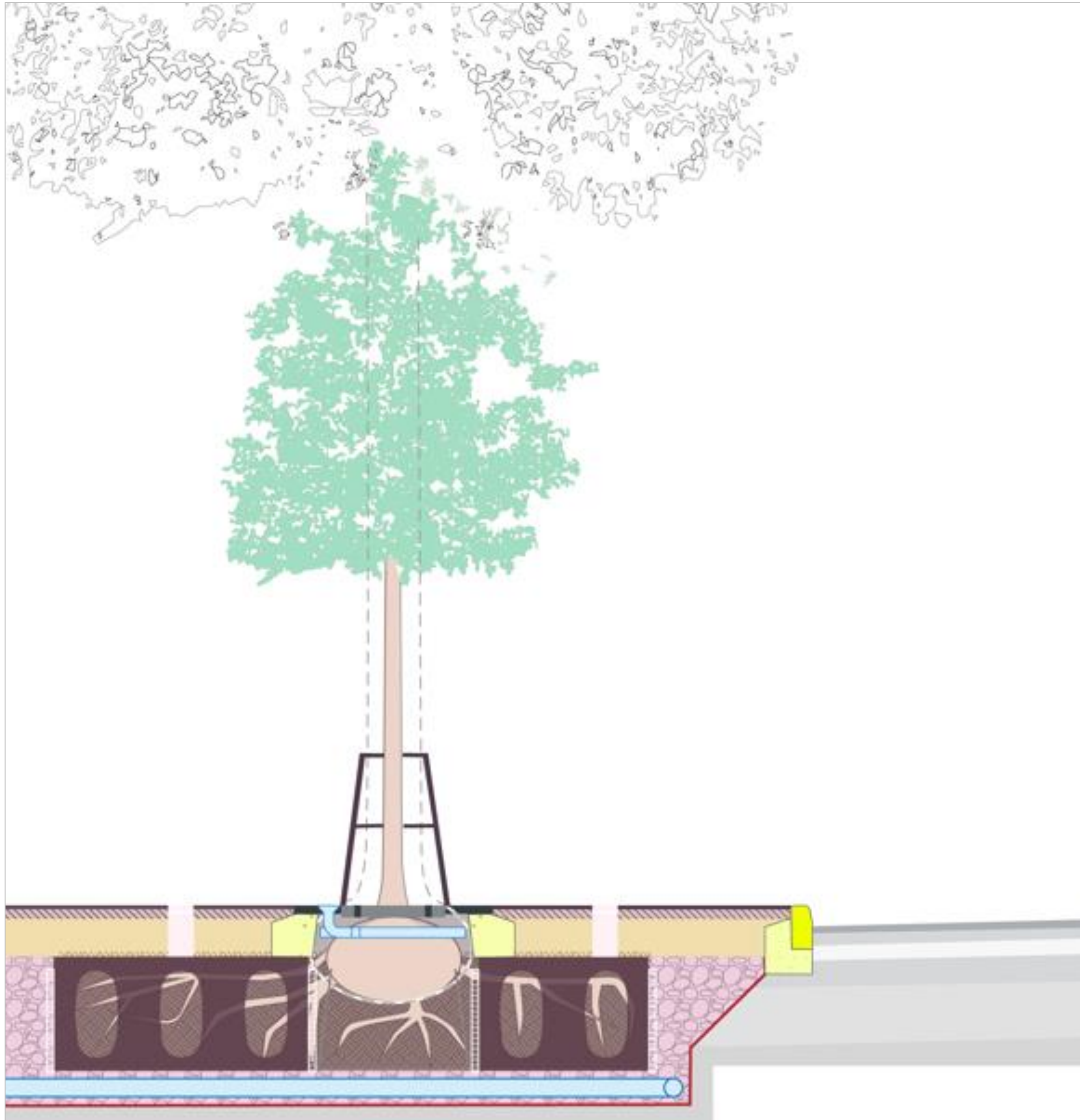
Excerpt of register of suggested offsets by utility companies in London
 Graphic courtesy of New Practice, part of Civic

Standard street scenarios in the guidance

- The guidance includes typologies and solutions for different streetscape scenarios
- The range of these - for example pavement build-outs, wide pavements, central reservations and existing green verges - lend themselves to varying green infrastructure solution



*Adjusted trees in SuDS graphic in build out scenario to facilitate water main
Graphic courtesy of New Practice, part of Civic*



*Soil cell graphic
Graphic courtesy of New Practice, part of Civic*

Alternative systems and measures

- Primary concerns from utility providers alongside root damage is loading on assets and access
- Providers look for standard systems and products like soil cells, root deflection systems, cable protection sleeves.

Construction and reinstatement

- Plan sequencing carefully and communicate clearly with the public and road users.
- Where utility works affect SuDS, reinstatement is expected on a like-for-like basis.
- In practice, authorities may need specialist contractors to reinstate features to the right standard.
- Designate the green infrastructure as a Special Engineering Difficulty (SED) under NRSWA



Markhouse Corner, Walthamstow – London Borough of Waltham Forest and Riney. Image courtesy of London Borough of Waltham Forest

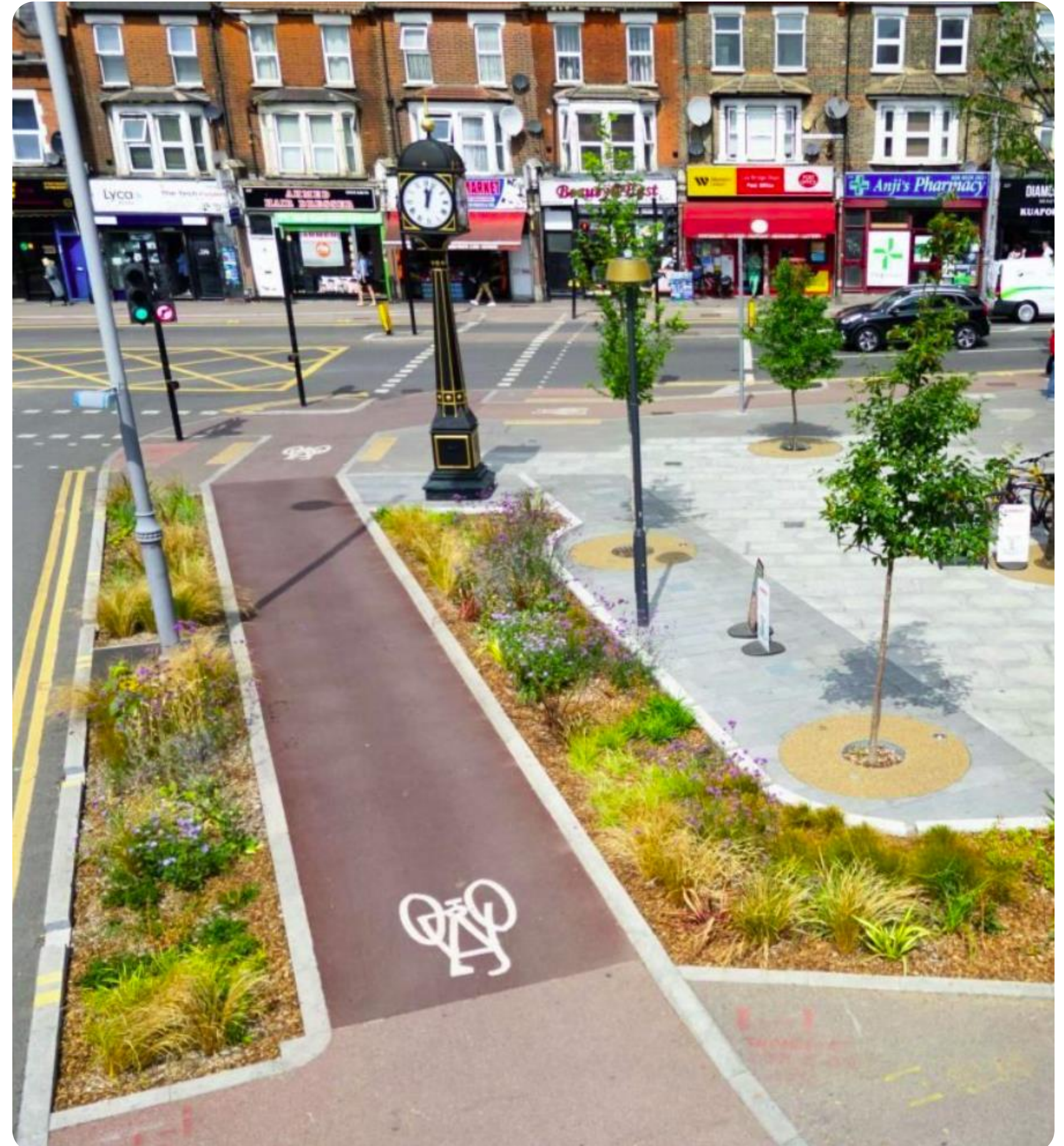


Maintenance

- Key focus for considering trees and utilities together, coexistence must assume future access
- Responsibilities to be clearly allocated and agreed.
- Clear handover of maintenance activities and management of safety risks

Takeaways

- Trees and utilities can coexist!
- Take each site individually - identify opportunities and risks and adapt design for green infrastructure to suit
- Think about the lifespan, longevity and requirements of both assets. Coexistence should consider how both systems can be happy
- If retrofitting with planned streetworks, collaborate on programs before utility and highway decisions are locked in.
- Bring local authorities, utility providers, designers and contractors together from the outset.



Markhouse Corner – London Borough of Walthamstow and Rineys
Image courtesy of Meristem Design

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Thank You

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