



Safe Digging: Let's Make a Difference



Safe Digging: Let's Make a Difference



David Allen
CECA Southern Executive Director

Safe Digging: Let's Make a Difference

CECA CORE PILLARS

- Clients, Policy & Workload - “Creating Work Opportunities”
- Health, Safety & Wellbeing - “Creating a Safer Workplace”
- Skills & Training - “Creating a Skilled Workforce”
- Sustainability & Social Value – “Creating a Better Environment for All”
- Careers & Recruitment – “Creating a Talent Pipeline”

Safe Digging: Let's Make a Difference



- Westminster debates
- Support need for resilient & sustainable infrastructure
- Aligned to Aged Asset Conference



- Buried Service Mock Trial - December 24



- Seaworks Expo - June 2024 & 2025
CECA focus Energy & outreach

Safe Digging: Let's Make a Difference



Safe Digging: Let's Make a Difference



Peter Crosland
CECA National Civil Engineering Director

Safe Digging: Let's Make a Difference

Safia Roshan
Service Clearance Manager

Heathrow



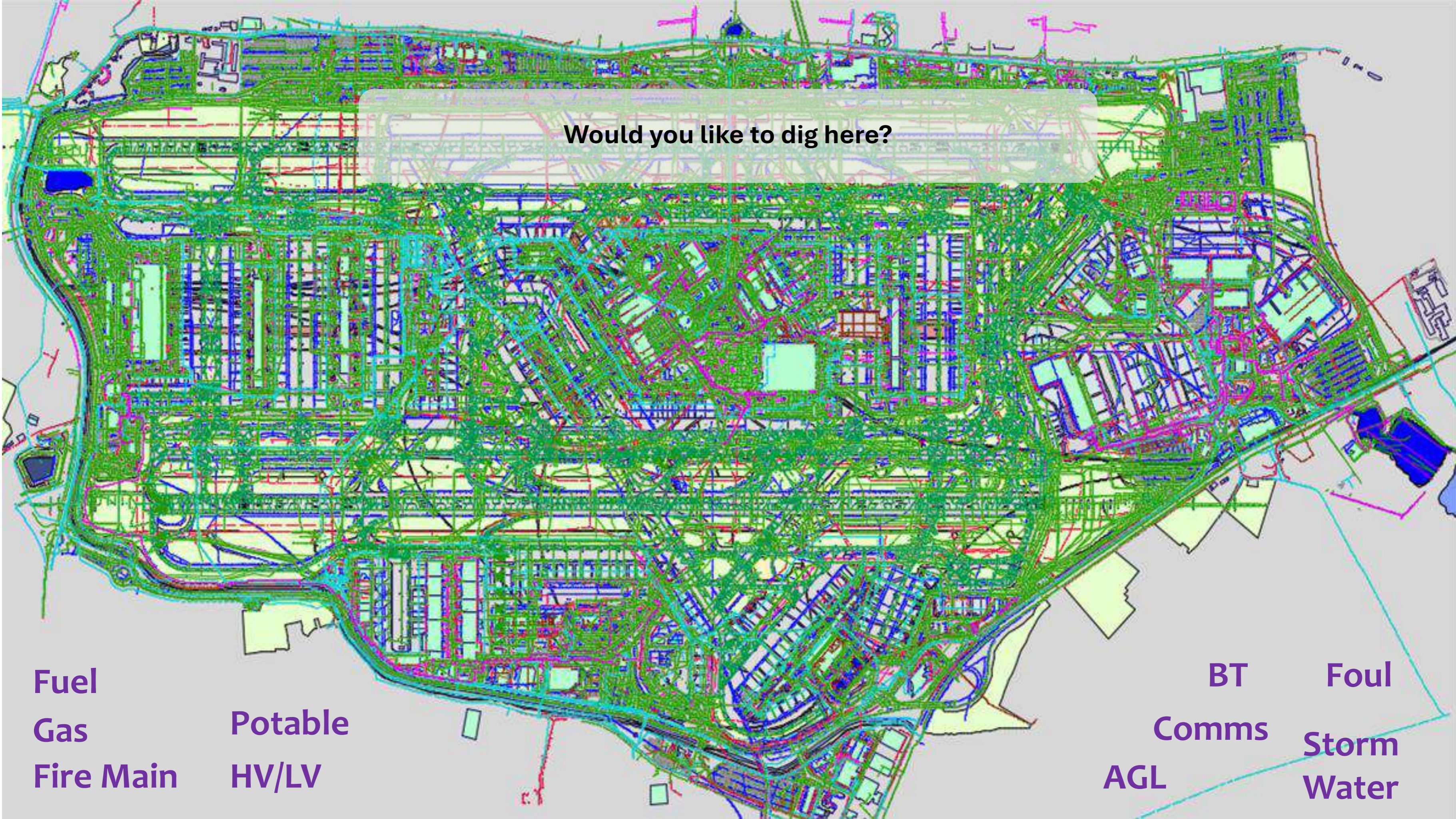
Heathrow Service Protection

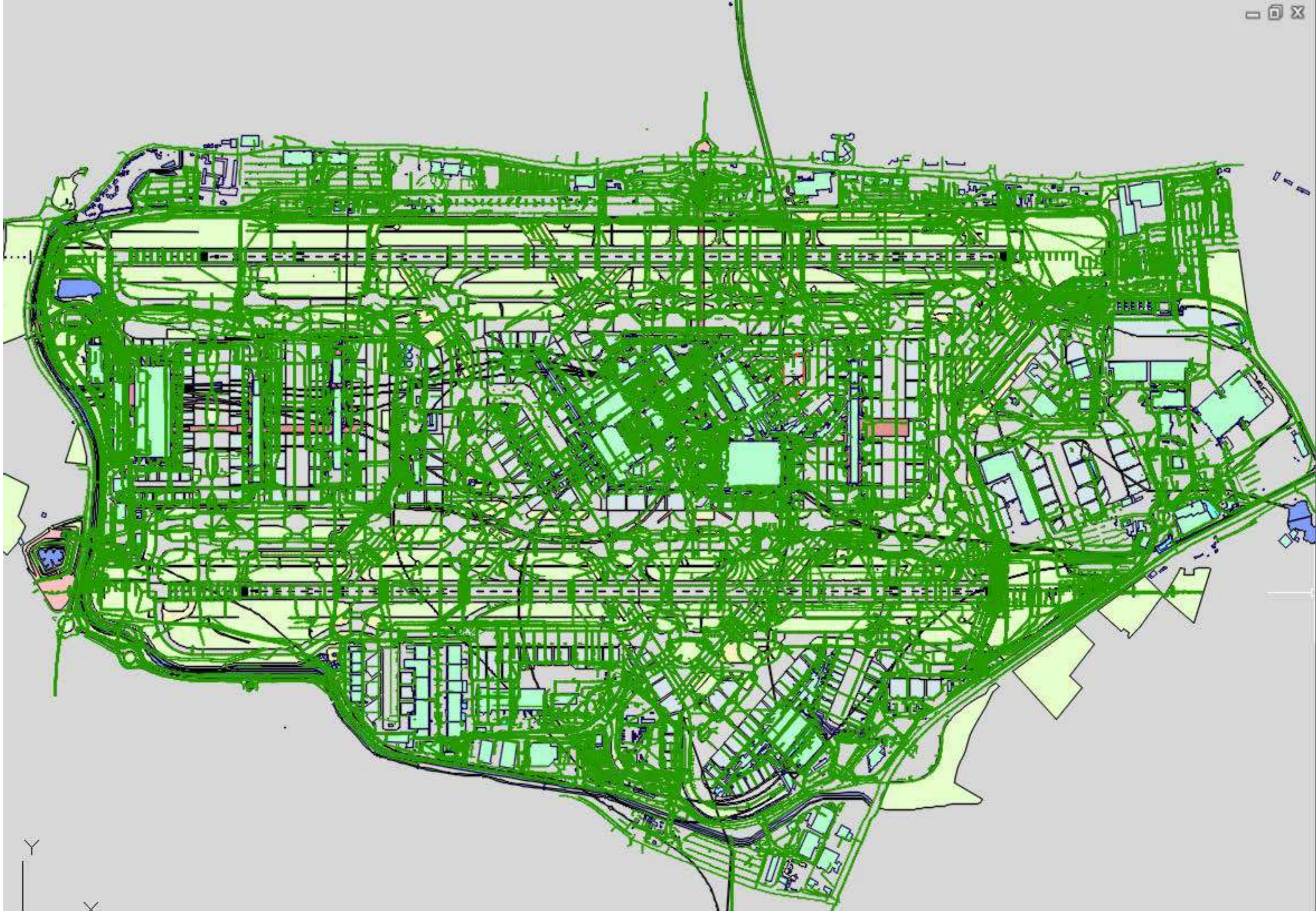
Would you like to dig here?

Fuel
Gas
Fire Main

Potable
HV/LV

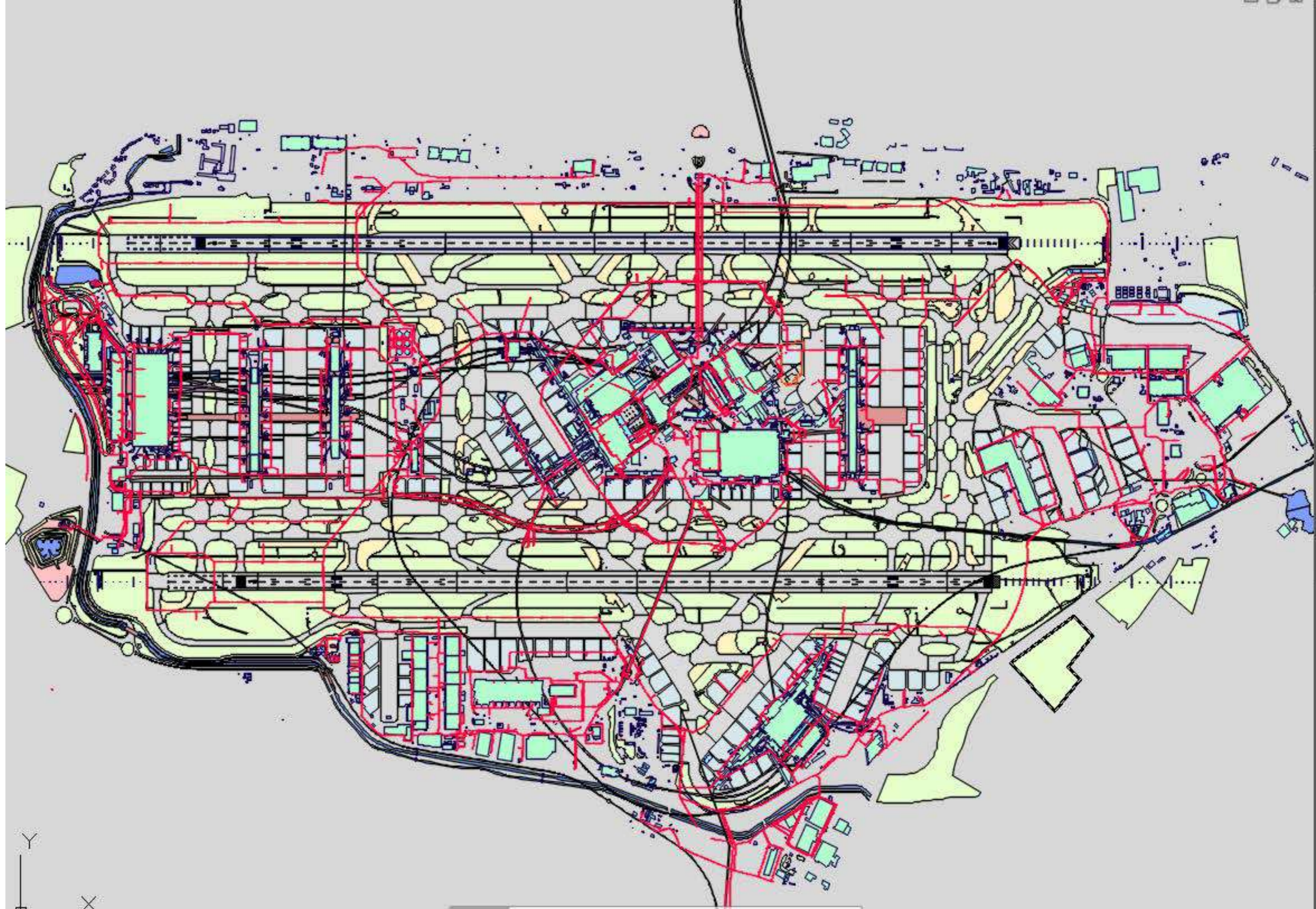
BT
Comms
AGL
Foul
Storm
Water



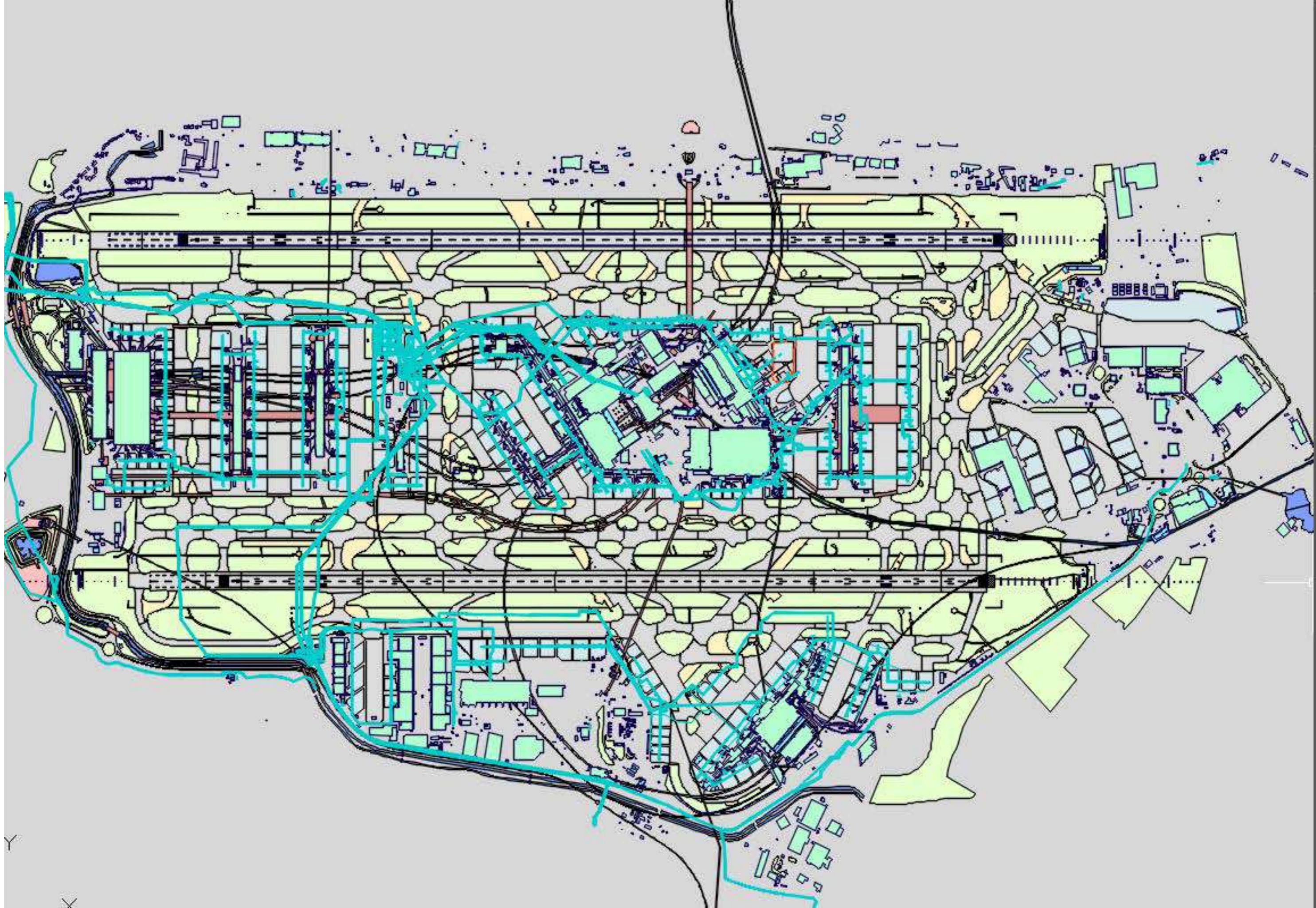


Electrical

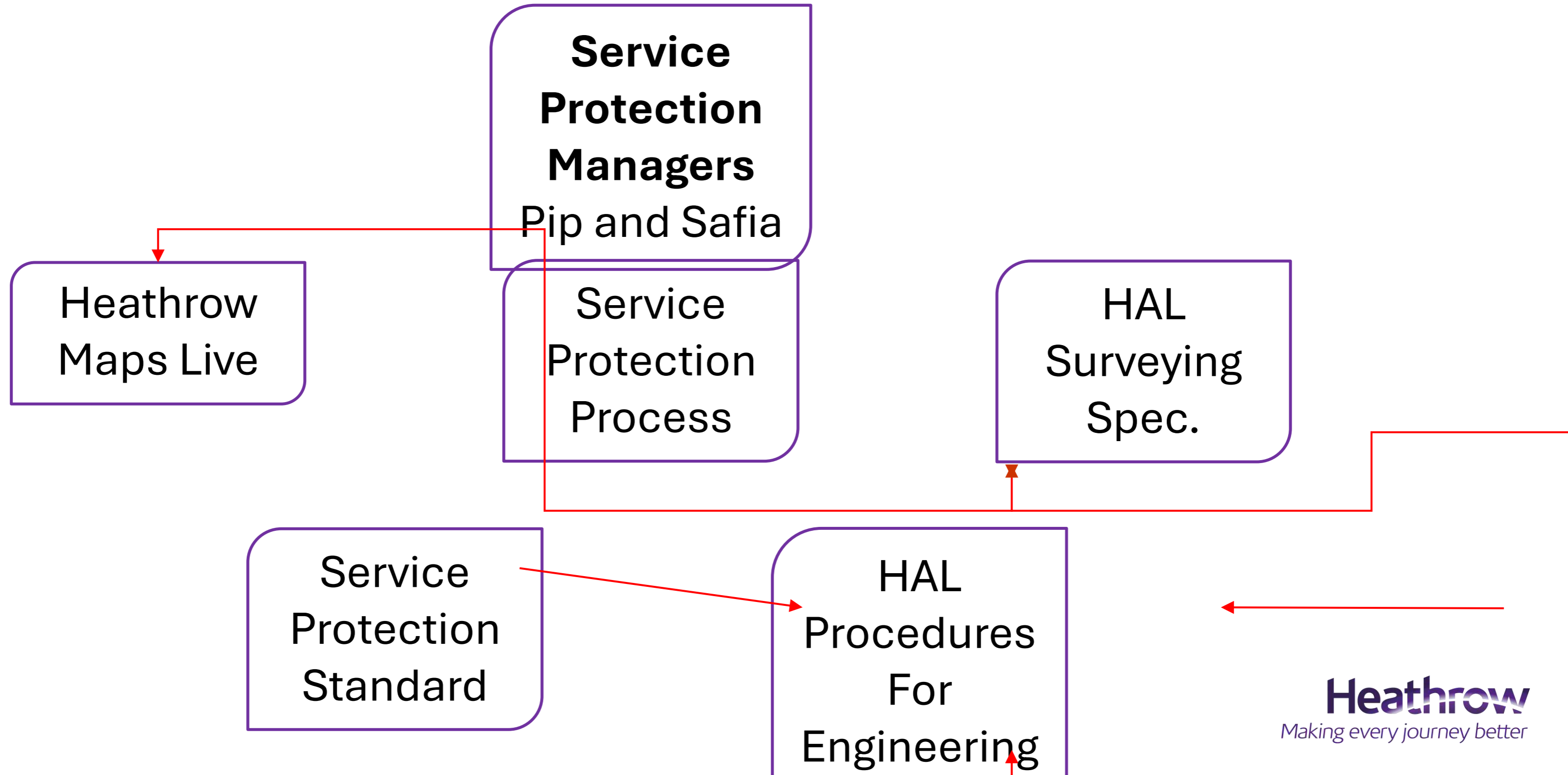
Fire Main



Fuel main



Service Protection Process



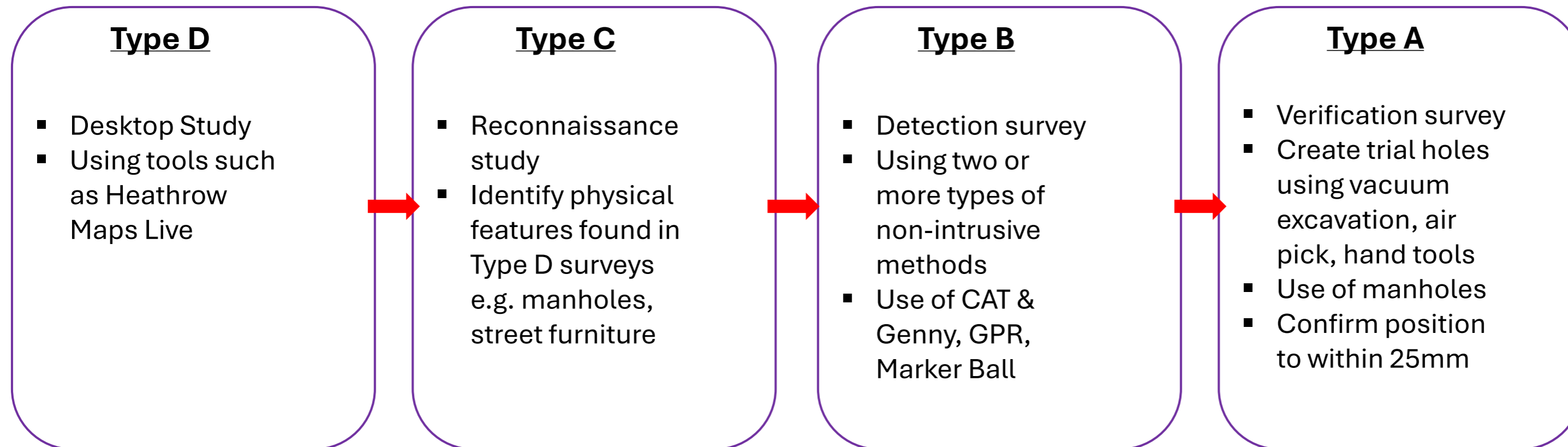


Fire, Health & Safety Standard Service Protection Standard

Document Reference: 00000-XX-PR-XXX-000642				
Date	Version	Reason for change	Changes made by	Authorised by
26/09/22	5.0	Updated Standard and Published in new format	M.Boakes	I.Smith
Review frequency	3years		Next review date	26/09/25

Service Protection at Heathrow

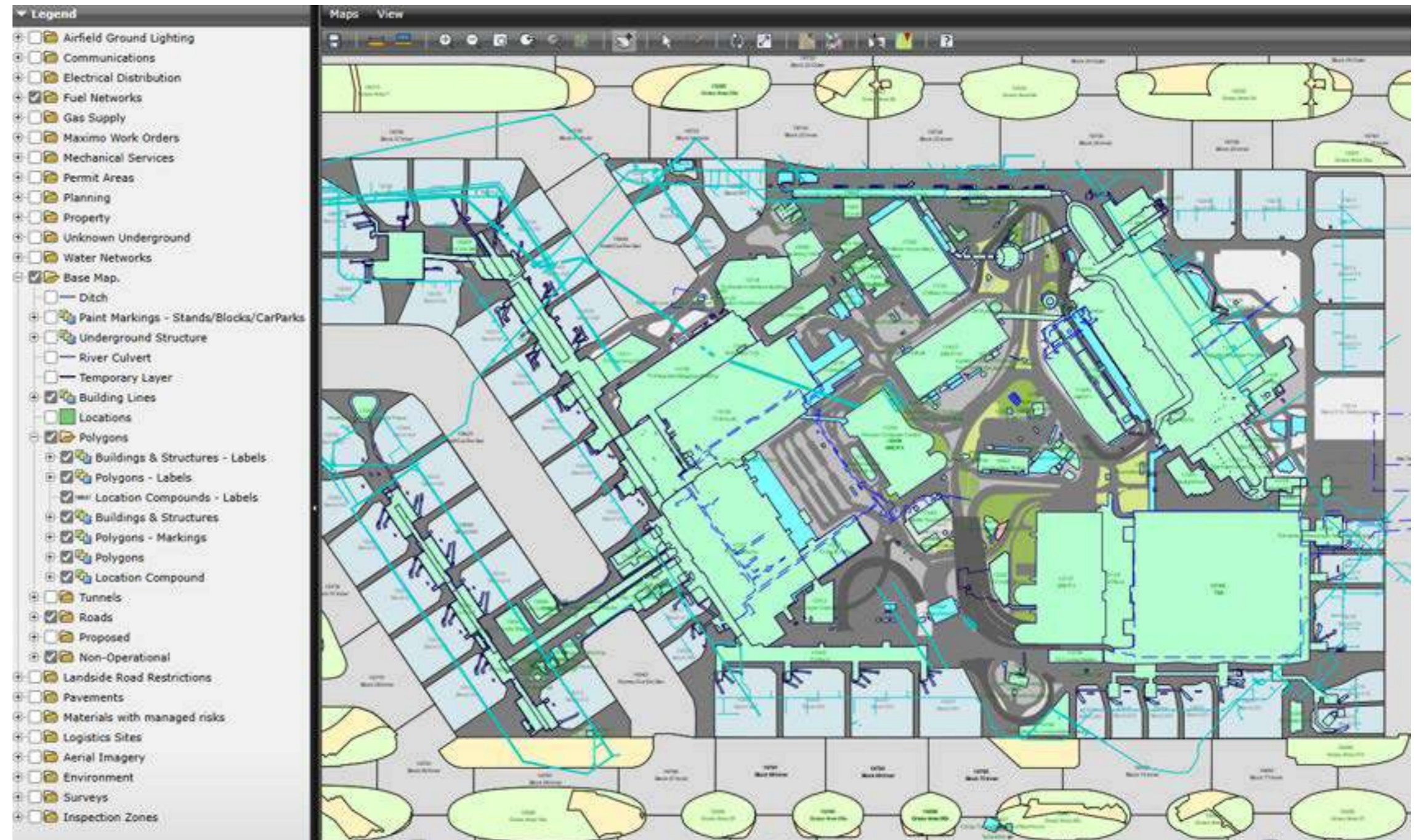
• Survey Types: In Accordance with PAS128



Service Protection Process

• Heathrow Maps Live

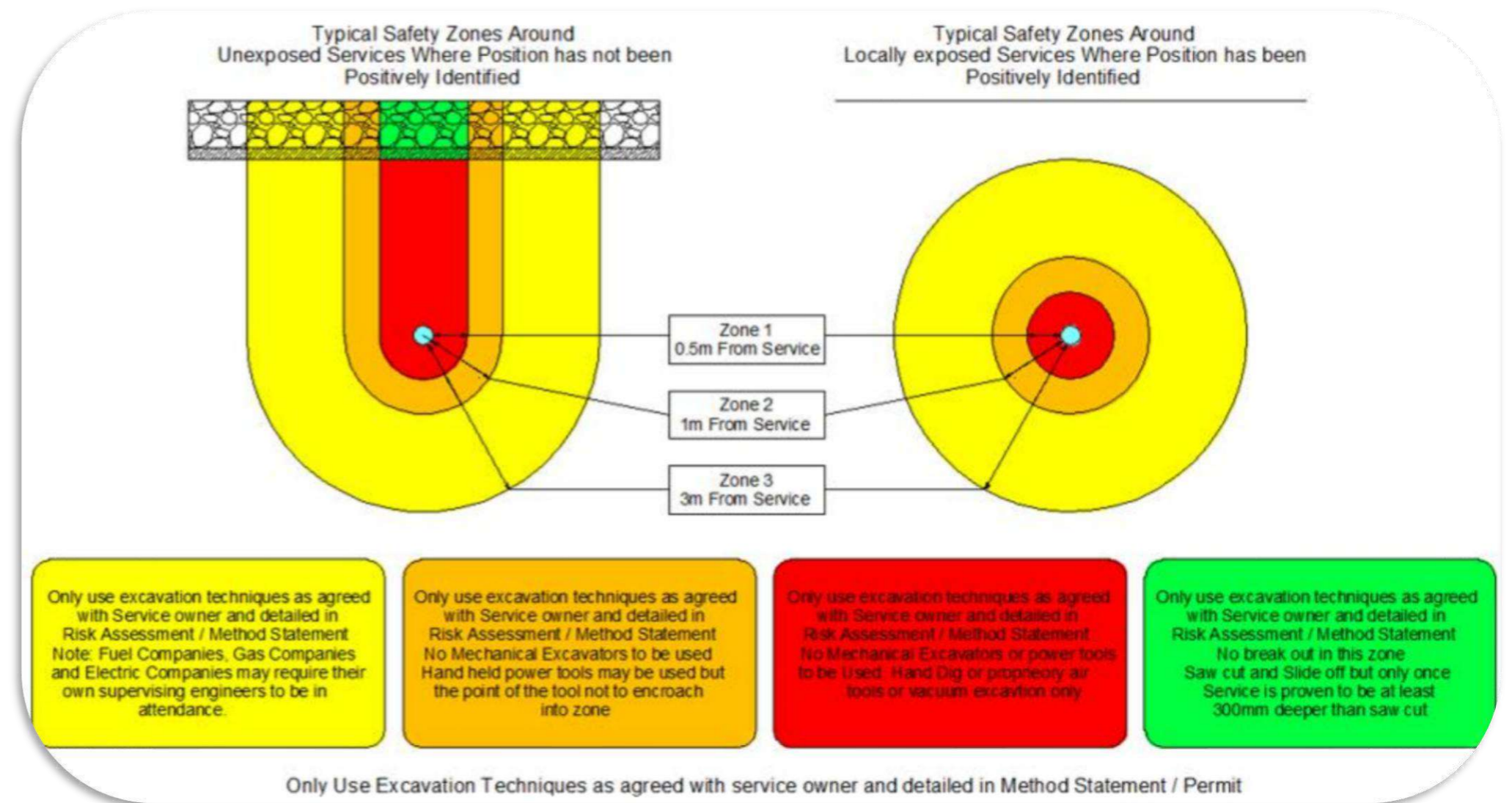
- Online tool managed by Engineering & Asset Management.
- It is the single source of attributed geometry information for all our assets at Heathrow.
- The map is updated daily with the data received from projects, engineering, property & surveys along with periodic updates from the Ordnance Survey.



Service Protection Process

- HAL Procedures For Engineering Dispensations

- Service owners must be notified if working within 3m of their service
- Depending on distance, methods must be agreed with the service owner before work can commence
- Diagram provided in the guidance gives a good guideline as to



THANK YOU!

Safe Digging: Let's Make a Difference

SCOTTISH WATER VIDEO

BOB'S STORY





united
living

**Andrew Pinkham – Director of SHEQ
United Living Infrastructure Services**

Our mission & strategic priorities



At United Living, our mission is to be the partner and employer of choice for designing, building, maintaining, and connecting communities and critical infrastructure to create a more sustainable and inclusive society.



Invest in our people



Safety and sustainability



Clients and markets



Operational excellence

What we do



- United Living Group is comprised of four complementary businesses. All dedicated to realising our vision of creating a connected, sustainable future.



Revitalising homes and communities through the regeneration of living spaces, breathing new life into neighbourhoods.



Delivering resilient infrastructure that improves daily life by partnering with our clients to achieve sustainable outcomes for their customers and communities.



Providing much-needed build-to-rent and affordable housing solutions, addressing the housing challenges facing our communities.



Connecting people through fixed-line and mobile telecoms infrastructure, ensuring seamless communication and access to information.

Don't Walk By

Zer⊕Harm
United in safety - Safer together



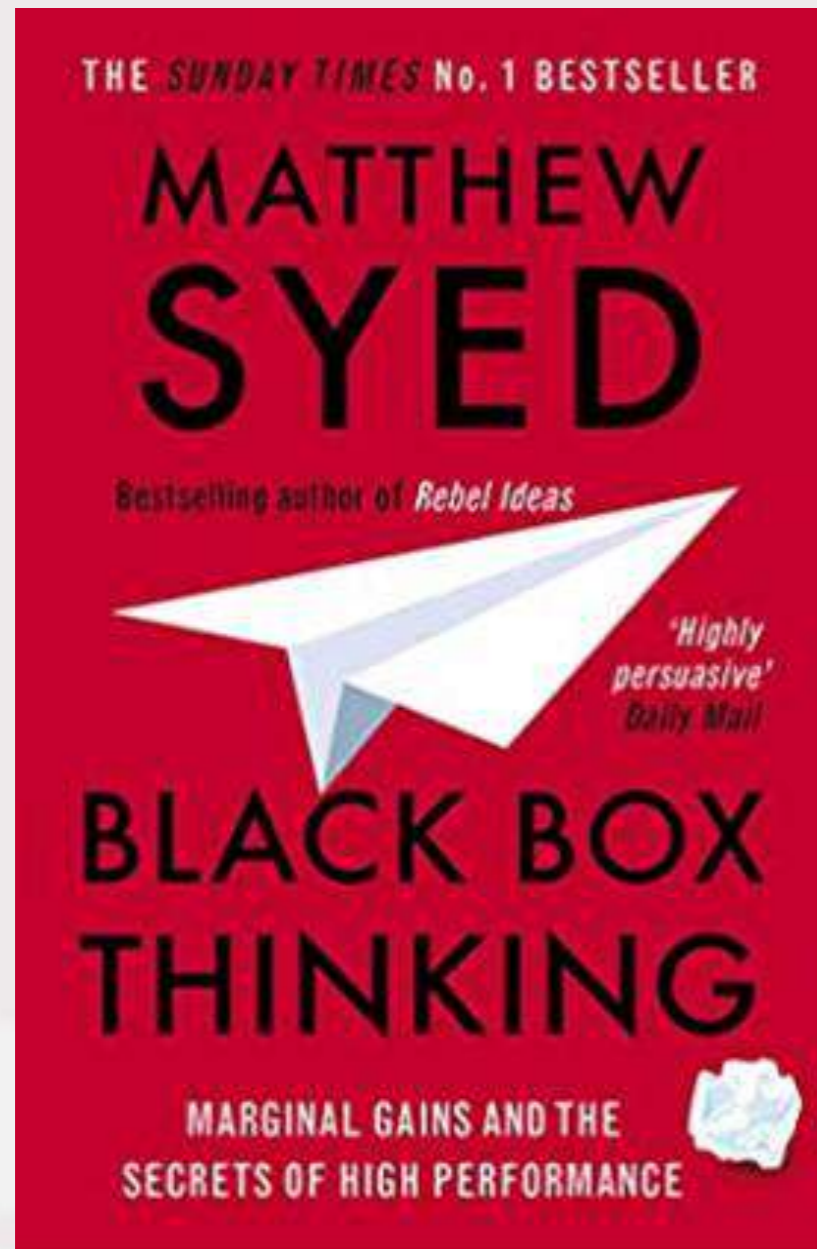
Cable strike investigations in multiple organisations and sectors

When it goes wrong:

1. Operative hit a Low Voltage main cable and was on fire in 2011 – tier one contractor.
2. Operative hit a High Voltage cable encased in concrete and received 60% burns in 2012
3. Operative damaged the duct of a 275kv cable encased in concrete.
4. Principal contractor and subcontractor have been fined over £1 million after a cable strike.



Learning from incidents



1. Blame is entirely counterproductive.
2. Failure, and our attitude to failure, is critical to learning and improvement.
3. Feedback is at the very heart of improvement and growth.
4. Cognitive dissonance becomes more problematic the more experienced and influential you are.

1. 1960 accident rate 30 incidents per 1 million departures
2. 1996 accident rate 1.2 incidents per 1 million departures
3. From 1996-2015 the number of hours flown doubled
4. 2015 accident rate 0.3 incidents per 1 million departures

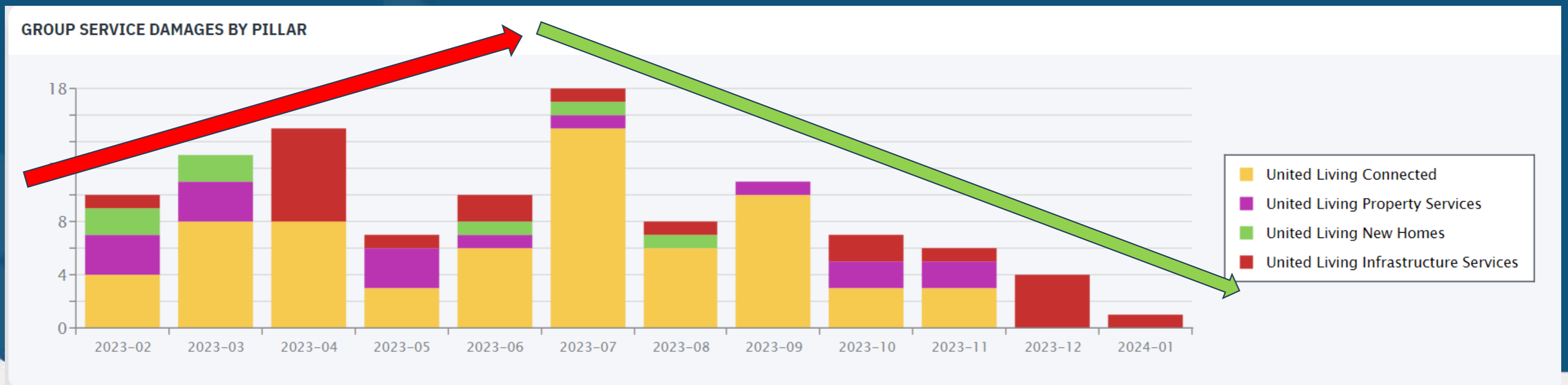
Data from boeing for air travel by western built jets and quoted from Giovanni Bisignoni CEO IATA

United Living Utility Service Avoidance Group

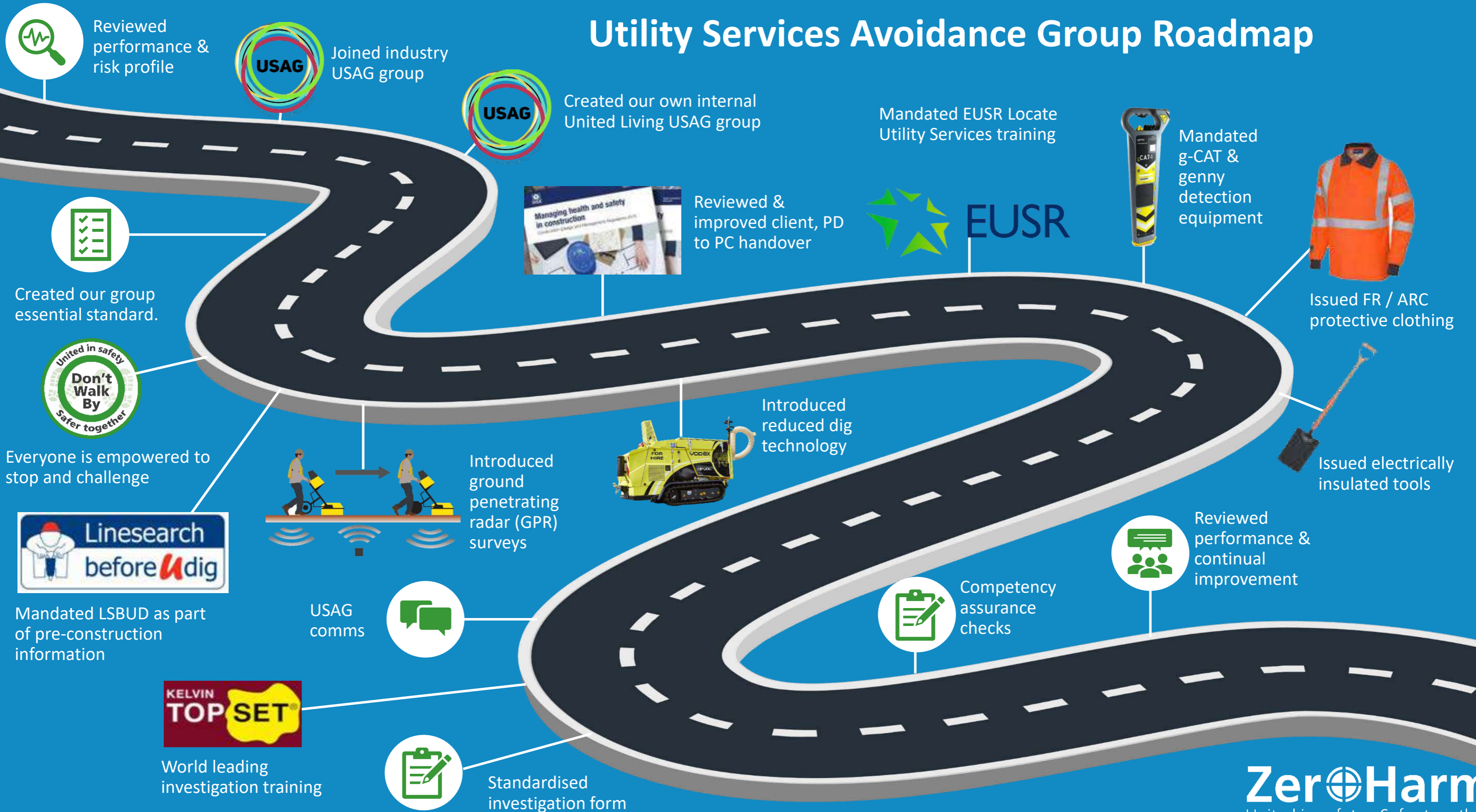


Performance Statistics – Last 12 months:

- Spotted adverse trends in our service damage data.
- Established our United Living Utility Service Avoidance Group (USAG).
- Implemented our USAG road map, essential standards and risk reduction plans.
- Achieved significant reductions in our risk profile, prevention of incidents and potential for harm from July 2023 onwards due to the improvements we made.



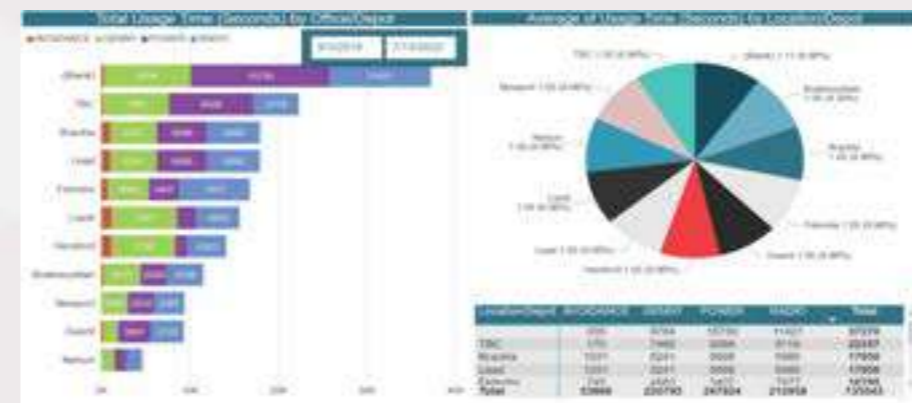
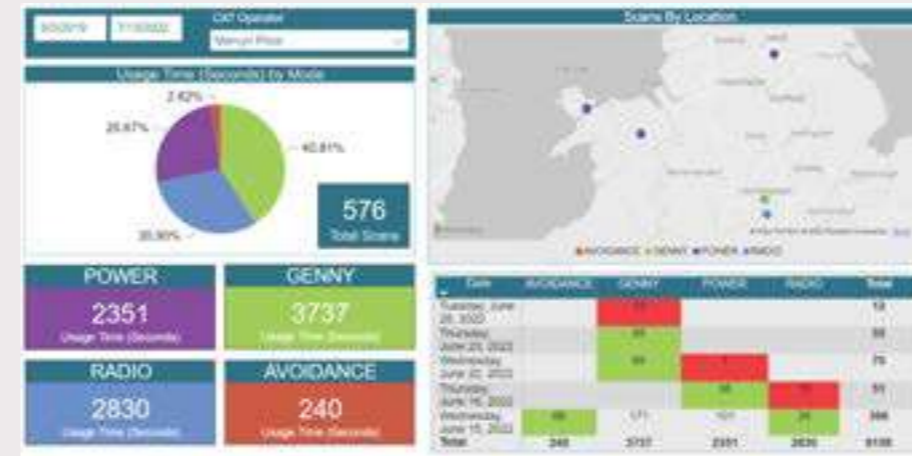
Utility Services Avoidance Group Roadmap



Quick wins



	Operatives Name	Operatives ID no.															
	Contract																
No.	Check	Passed	Passed with Coaching	Failed	Score												
Completing pre-use checks																	
Conducting the survey																	
2.1	SURVEY AREA IN POWER MODE - P mode selected Sensitivity switched to maximum. Correct search pattern used. C.A.T is kept vertical sensitivity is reduced to narrow search response. Plant clearly traced and marked.	2	1	0													
2.2	SURVEY AREA IN RADIO MODE - R mode selected Sensitivity switched to maximum. Correct search pattern used. C.A.T is kept vertical sensitivity is reduced to narrow search response. Plant clearly traced and marked.	2	1	0													
2.3	SURVEY THE AREA IN GENNY MODE - G mode selected. Ground is scanned and earth peg used at 45 degree angle. Black lead connected to earth, red lead connected to plant. Plug in to Genny and listen for tone change.	2	1	0													
Excavation																	
3.1	Is the plan for the required work the safest way of completing the job	2	1	0													
3.2	Can identify the difference between HV and LV cables	2	1	0													
3.3	Is aware of the separation distance when using mechanical equipment in relation to underground plant	2	1	0													
3.4	Do the team know that they must ask for the service to be isolated if they are cased in concrete.	2	1	0													
3.5	Are safe digging practices evident and resurveying with the CAT	2	1	0													
<table border="1"> <thead> <tr> <th colspan="3">No. Core knowledge failures</th> </tr> <tr> <th>Pass</th> <th>Pass with requirements</th> <th>Failed</th> </tr> </thead> <tbody> <tr> <td>53+</td> <td>46-52</td> <td>0-45</td> </tr> <tr> <td>No further action required</td> <td>Further coaching and assessment required within 10 to 30 working days</td> <td>1 or more core knowledge failures Operative must only work under direct supervision. Refer for training and assessment</td> </tr> </tbody> </table>						No. Core knowledge failures			Pass	Pass with requirements	Failed	53+	46-52	0-45	No further action required	Further coaching and assessment required within 10 to 30 working days	1 or more core knowledge failures Operative must only work under direct supervision. Refer for training and assessment
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Sign-off																	
Assurance Checker Name		Signature	Date														
Operators Name		Signature	Date														



EUSR locate Utility Services accredited training.



united
living

THANK YOU

 united living
property services

 united living
infrastructure services

 united living
new homes

 united living
connected

unitedliving.co.uk



How Kier use data to reduce service strikes



Presenting today will be



RICHARD BURDETT

Applied Digital Services Director - Kier

Our problems – Your problems



It takes a long time to get **comprehensive** C2 data



We keep making the same mistakes repeatedly



There are additional risks present on-site that are not displayed in C2 plans or part of the C2 process




Many assets are often uncharted, decommissioned, shallow or in the wrong location!

It is very hard to create and manage a circular, data rich process that puts intelligence in the hands of those who need it, when they need it!



The Challenge: Frequent Utility Strikes



South West Water was responsible for excessive utility strikes, causing project delays, safety risks and escalating cost.



Existing processes were ineffective in preventing strikes.



Using legacy processes, times afforded to attend site under OFWAT regulations didn't give workers time to collate comprehensive STATS plans



A smarter, data-driven approach was needed.



What is a C2 to PAS128-D?



A C2 is an up-to-date pack of 3rd party asset drawings in the vicinity of your design or excavation works.



The drawings produced are specifically for the works location



The plans will include Keys and all known statutory assets



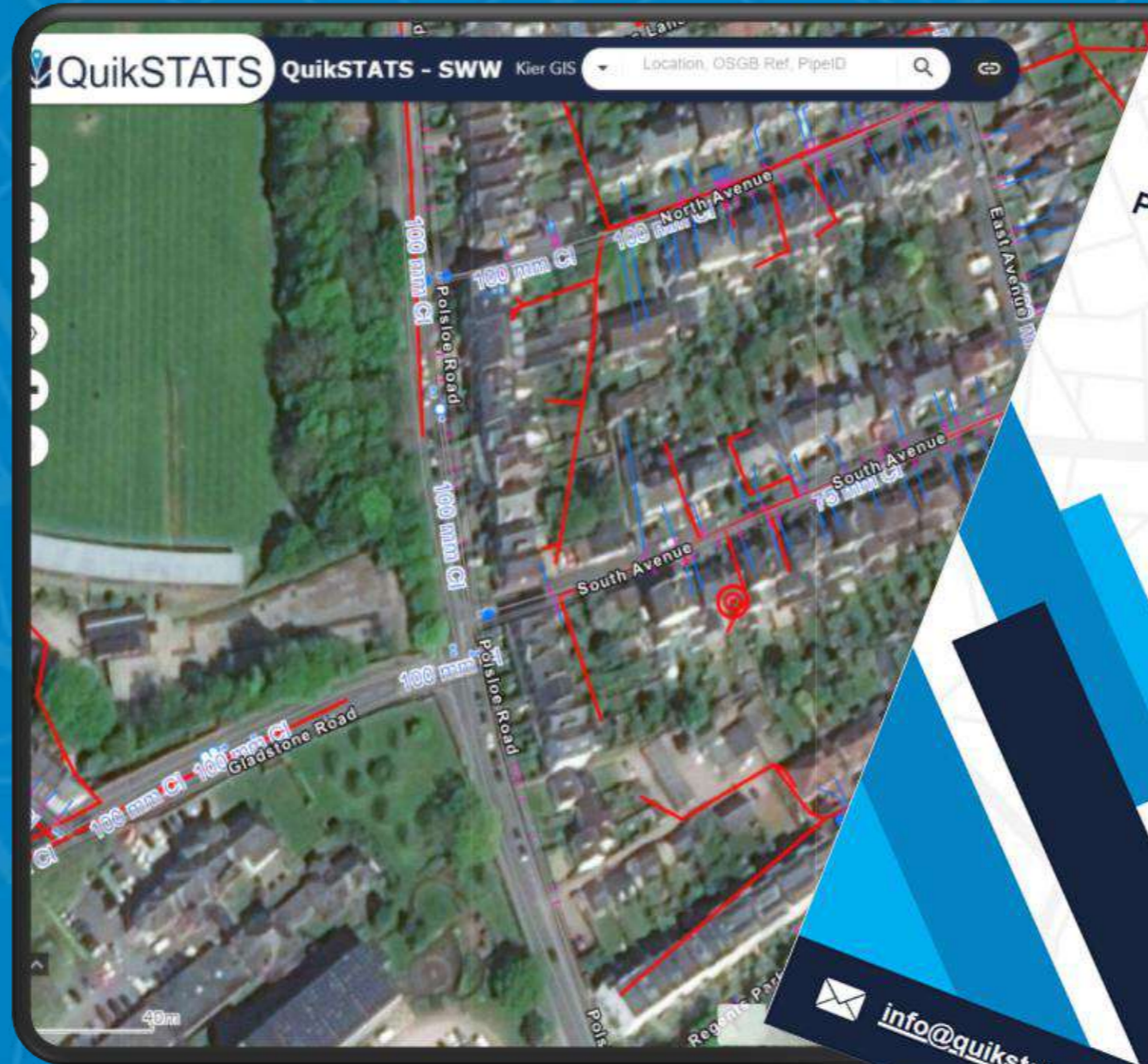
Used at early-stage project planning and for risk assessments



It's a legal requirement and must be done



What is QuickSTATS and how did it help Kier?



info@quikstats.co.uk

www.quikstats.co.uk

What is QuikSTATS?



Quick and User-Friendly Service: Provides accurate, consolidated underground utility packs to identify buried pipes, cables, and other infrastructure.



Accurate Data for Planning: Delivers essential data to local/national highway authorities, utility suppliers, and contractors before excavation or design works.



Risk Reduction: Minimises utility strikes, avoiding costly delays and improving design processes while ensuring on-site safety.



Comprehensive Search: Supplies the most detailed C2 utility search via an interactive digital map, accessible 24/7 for urgent projects.



Data-Rich Mapping: Offers detailed underground utility insights, essential for planning, managing, and executing infrastructure projects – More than just C2, more than PAS128-D!



The Solution: Implementing QuikSTATS



South West Water integrated QuikSTATS into their daily workflow




It gave them real-time access to accurate utility data that enabled proactive decision-making.



98% fully automated C2 provision removed dependency on slow, manual processes



Utility strikes reduced by 50% after QuikSTATS adoption.



South West Water now operates with greater confidence and efficiency 24/7 – They excavate over 100 times a day across the region.





 **QuikSTATS[®]**

2024 STATS

130,000

c2 searches

(Over ¼ of all Highways searches in the UK)

27 minutes

Avg. return

Live Demo



Some of the companies we've partnered with

National Highways
Birmingham City Council
Southwest Water
Somerset Council
HS2
Transport for London
West Northamptonshire
Council
North Northamptonshire
Council

Shropshire Highways
Virgin Media
Open Reach
Thames Water
City Fibre
Severn Trent Water
Anglian Water
Amey

THANK YOU

**For further Q & A'S or a more in-depth demo please visit us at
our stand**



**Visit our website or view
our digital interactive
brochure**





COSTAIN

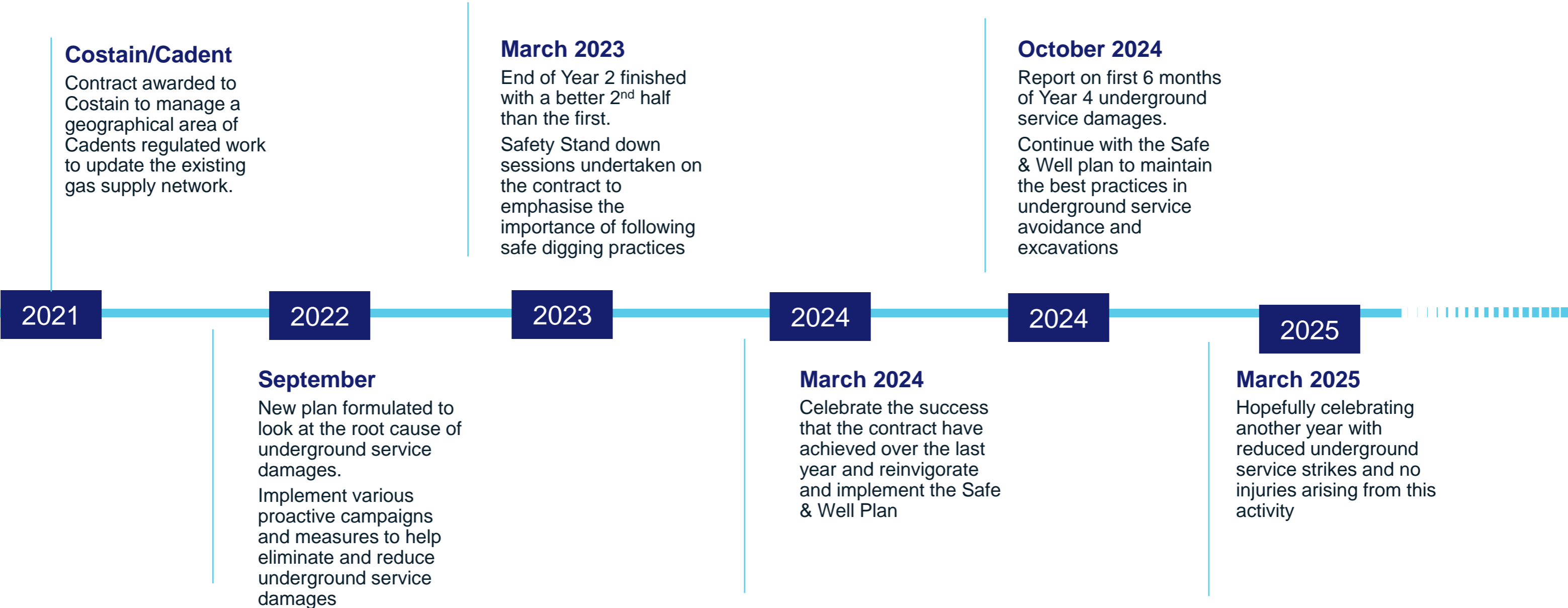
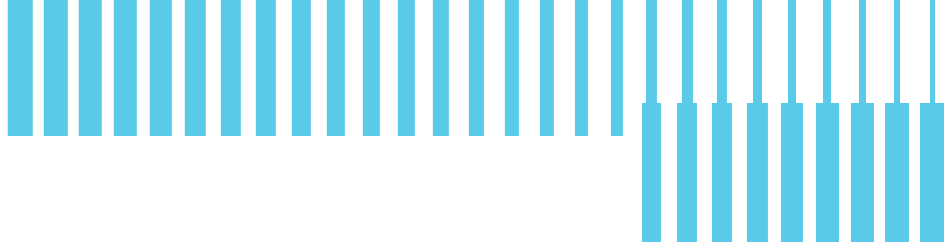
Underground Services

Lee Cartwright

Head of HSEQ

Together we
shape, create, deliver

Timeline



Locate It, Prove It, Protect It

Locate it Toolbox talk

When checking plans ...
Have you got the appropriate service drawings? Are they up-to-date?

- Within the last 3 months
- Scale no smaller than 1:500
- Must be in colour
- Must have a reference table or key
- If your service drawings are not to this standard, speak to your Line Manager.

When marking up...
Look beyond the immediate location to ensure you are aware of the direction and route of services.
Do not rely on mark-ups done by others
Trace and fully mark out ALL services in and beyond the excavation with the appropriate colour.

Locate it Pledge

- I will check that my utility drawings are up-to-date and cover the whole of my work area
- I will make sure that I have relevant trial hole information to locate applicable services
- I will look around the worksite for any evidence of underground or overhead services
- I will always scan using all modes of the CAT and Genny
- I will clearly mark out the location of services using the correct colour and notations

Mark Up Colours

- Data/Comms/CATV/Fibre
- Electric HV/LV/Lighting Traffic
- Gas
- Water Main/Drainage
- Fuel/Oil Pipeline

Look for the signs
Conduct visual surveys to record locations and types of surface features, such as manholes, pylons, poles, marker post, street furniture, historic scars, etc.

Locate it



safe + well

COSTAIN Codent

Prove it Toolbox talk

Use of Detection Equipment

Users of detection equipment (GPR, CAT & Genny) must be specifically trained in the make/model of equipment being used

Cable avoidance or detection tools (CAT) to be used with their signal generators (Genny) and accessories, such as ring clamps and plug adaptors

CAT must be capable of GPS and data download, (gCAT4). This includes survey teams, Authorised Persons and working gangs.

Permits to break ground

A permit MUST be issued for all breaking ground activities.

Permits must be produced by competent persons (Authorised Person) and approved by an independent person (Authoriser).

Permits will be fully briefed to the site teams by the Authorised Person prior to work commencing and at the point of work on a daily basis/ at any changes.


A Responsible Person will be located at the point of work at all times while excavations are in progress. Work will stop if the Responsible Person leaves the point of work.

Permits must be completed and authorised (7days maximum) and will identify a clear process for managing change.

Prove it Pledge

- I will not break ground without a valid permit and I will make sure that I understand the area that it covers and controls required
- I can confirm that ALL known services will be exposed by hand digging and I will not use mechanical excavation methods within 500mm (or greater if specified on the permit) of any known service
- I will hand excavate 300mm to the side of known services and NOT directly above them
- I will use my CAT and GENNY every 300mm unless otherwise specified in the permit
- I will use insulated tools and wear flame retardant PPE and correct eye protection while breaking ground
- I will treat all unidentified cables as being live until proven dead
- I will treat black coloured services as electric until proven otherwise

Prove it



safe + well

COSTAIN Codent

Protect it Toolbox talk

Remember...

- Exposed services should be supported from above with timber, split ducts and non-conductive straps.
- An exposed service should be supported every metre and either side of a collar or joint.
- Service protection boards should be made available for use to protect the service from damage once exposed.
- When exposing services by safe hand digging, always use insulated tools.

Protect it Pledge

- I will clearly identify, maintain and follow agreed underground and overhead service crossings
- I will maintain mark ups on the ground throughout the excavation work. Making sure these go beyond the digging zone
- I will use insulated tools with curved edges
- I will stop if a concrete obstruction or casing is found and seek advice from my supervisor
- I will correctly support services once they are exposed
- I will not use mechanical tools or plant within 500mm of known service.

Treat all services as live

All underground services should be treated as being live unless proven otherwise

Wear the correct PPE and maintain the correct safe working distances when using mechanical plant (these can vary from 500mm to 20M depending on the type of service)

Protect it



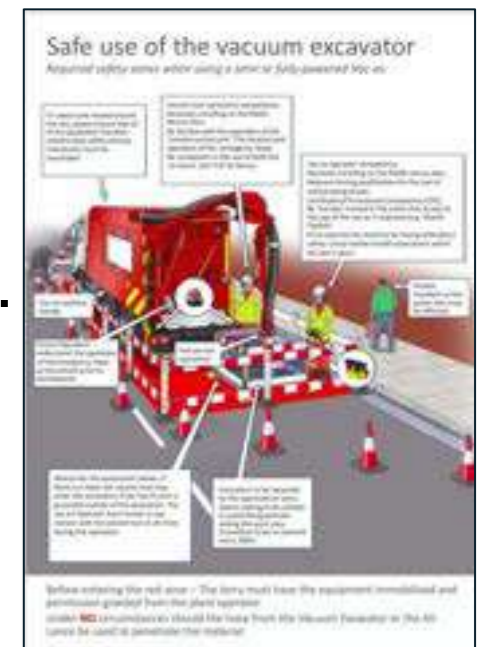
safe + well

COSTAIN Codent

Continual Improvement

To achieve a positive reduction in service strikes we implemented a plan that involved the involvement of everyone involved within the contract including the client.

- The use of the Antecedent, Behavioural, Consequences (ABC) model for all electric strikes to enhance the report by looking at the behaviours leading up to , during and after the incident occurred.
- The continual development of an interactive, up-to-date database of all underground service strikes. This then enabled us to look at any trends and put measures into place to eliminate the issue. An example of this was the depth of when the damages occur, we noticed there were a lot around the depth where the secondary scan should have been undertaken and reiterated the need for this to be undertaken.
- The implementation of Underground Services Avoidance Group within the contract
- Formulate a Safe & Well plan, incorporating the safe working practices of avoiding underground services during excavation activities. Involvement from all parties, Costain, contractors and the client.
- USAG standard and Charter created signed by all contractors.
- A training course to be created and delivered to the LDP's nominated Trainers.
- Utilise the Costain process of their recent "Hands Off, Step Away, Safe Space" process to look at how we can apply the same principles to the avoidance of underground services, especially Electric cables.
- Formulate and chair a working group with all the Vacuum Excavator companies involved with the work to create a minimum standard of working.



Continual Improvement - CBM

To achieve a positive reduction in service strikes we implemented a plan that involved the involvement of everyone involved within the contract including the client.

- The use of the Costain Behavioural Management (CBM) program is aimed at all levels within the organisation.
- The principle of CBM is to get people to do the right things, because they want to, not because they have to.
- This is achieved by shaping the way in which people work by helping them to change the environment around them through leadership, engagement, feedback and most importantly, the provision of timely and appropriate consequences, for both success and failure. The implementation of Underground Services Avoidance Group within the contract
- CBM is NOT a quick fix; it cannot be implemented overnight, nor is it another off the shelf system or procedure. It is about culture change and taking responsibility for the environment you create and the resulting behaviour and performance that it brings.
- For safety the metrics will include DFR but will focus on leading metrics which will include levels of training, implementation and holistic project SHE performance.
- This can include CBM Culture Surveys which will be carried out on a quarterly basis designed to measure engagement, behavioural and culture change within the business.





Thank you

costain.com

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REFRESHMENT BREAK

Safe Digging: Let's Make a Difference;

CDM DIFFERENTLY

Peter Crosland
CECA National Civil Engineering Director



Safe Digging: Let's Make a Difference



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CDM DIFFERENTLY

'The purposes of CDM 2015 is to maintain or enhance worker protection'

HSE June 2014

- Has this happened?
- If it's happened – how?
 - If not, why not?



Safe Digging: Let's Make a Difference

CDM DIFFERENTLY

What do we mean by 'CDM Differently?'

Construction risk, including H&S aspects, must;-

- be managed primarily by construction professionals
- utilise a **collaborative and integrated** approach
- encourage project teams to focus on **specific challenges** rather than generic concepts of 'risk'.

Safe Digging: Let's Make a Difference

CDM DIFFERENTLY

'Successful risk management is not about ticking boxes or calculating numbers . And it is not about doing things to avoid sanctions. The primary goal is not to avoid a fine or criminal record , but to stop people being made unwell or being hurt or killed by their work.'

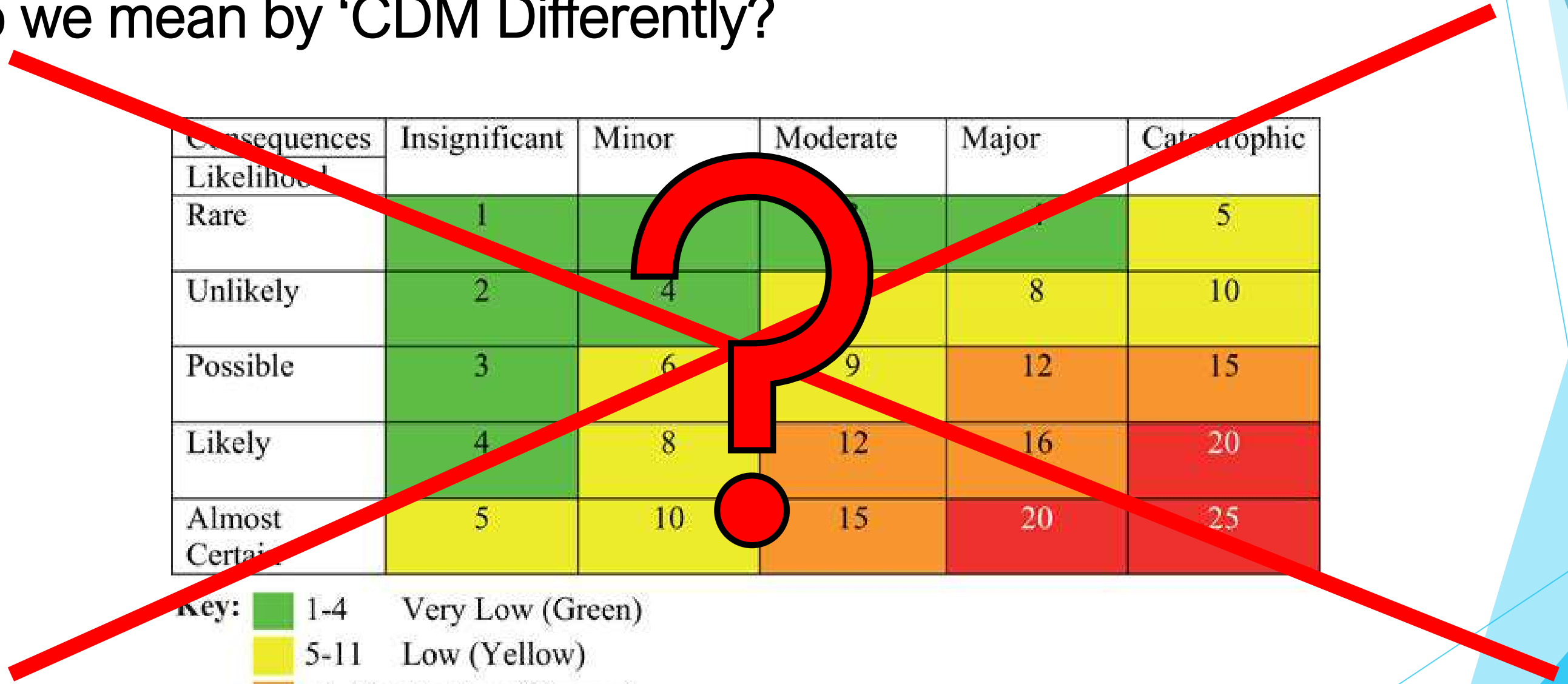
*Managing risk means managing people **and every one of them is different.** That's not easy to factor in to the numerical system driven approach to risk management.'*

Judith Hackitt HSE Chair –responding to a question about how unlikely an accident had to be before the questioner could stop worrying about ending up in court. (August 2012)

Safe Digging: Let's Make a Difference

CDM DIFFERENTLY

What do we mean by 'CDM Differently?'



Consequences	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood					
Rare	1	2	3	4	5
Unlikely	2	4	6	8	10
Possible	3	6	9	12	15
Likely	4	8	12	16	20
Almost Certain	5	10	15	20	25

- Key:
- 1-4 Very Low (Green)
 - 5-11 Low (Yellow)
 - 12-16 Medium (Orange)
 - 17-25 High (Red)

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CDM DIFFERENTLY – Design Risk Management - DRM

<https://www.ice.org.uk/media/usuhymf3/drm-guidance-version-2-march-2020.pdf>



ice
Institution of Civil Engineers

Guidance for design risk management
Improving design risk management (DRM) in the construction industry.

Version 2 – March 2020 E: knowledge@ice.org.uk W: ice.org.uk

Institution of Civil Engineers is a Registered Charity in England & Wales (no 210252) and Scotland (SC038629) ice.org.uk

Safe Digging: Let's Make a Difference

CDM DIFFERENTLY – Design Risk Management (DRM)

The ICE Design Risk Management (DRM) toolkit was developed to help designers, particularly those taking on the principal designer (PD) function, to:

- Help their clients develop their management arrangements for addressing the significant risks associated with their projects
- Ensure that sufficient pre-construction information is provided to designers to enable them to mitigate risks in the pre-construction phase
- Systematically identify the project-specific aspects of the development requiring risk management at the strategic planning stage
- Communicate clearly and effectively the measures taken during design to reduce risk to a tolerable level
- Promote a collaborative approach to risk mitigation

CDM 20 – 20 vision Changing the culture

<https://www.cdmdifferently.com/>



CDM strategy brief (DRM1)



Why a 'CDM' Strategy brief?

To enable the Principal Designer function to be discharged effectively :-

- Involve the client at the earliest stage in understanding their duty to make suitable arrangements for managing the project so health, safety and welfare is secured
- Pull together key information in a **simple, easy to read format** that can be developed collaboratively by the project team.
- Enables new team members to 'get up to speed' on project risk quickly and consistently
- Identify **significant risk issues** where design coordination is required

Why a 'CDM' Strategy brief?

Client function :-

- To demonstrate management arrangements in place
- To set out the Client's expectations for health, safety
- To decide procurement route to ensure collaboration
- To establish Health & Safety File requirements at start

CDM Differently - Strategy brief

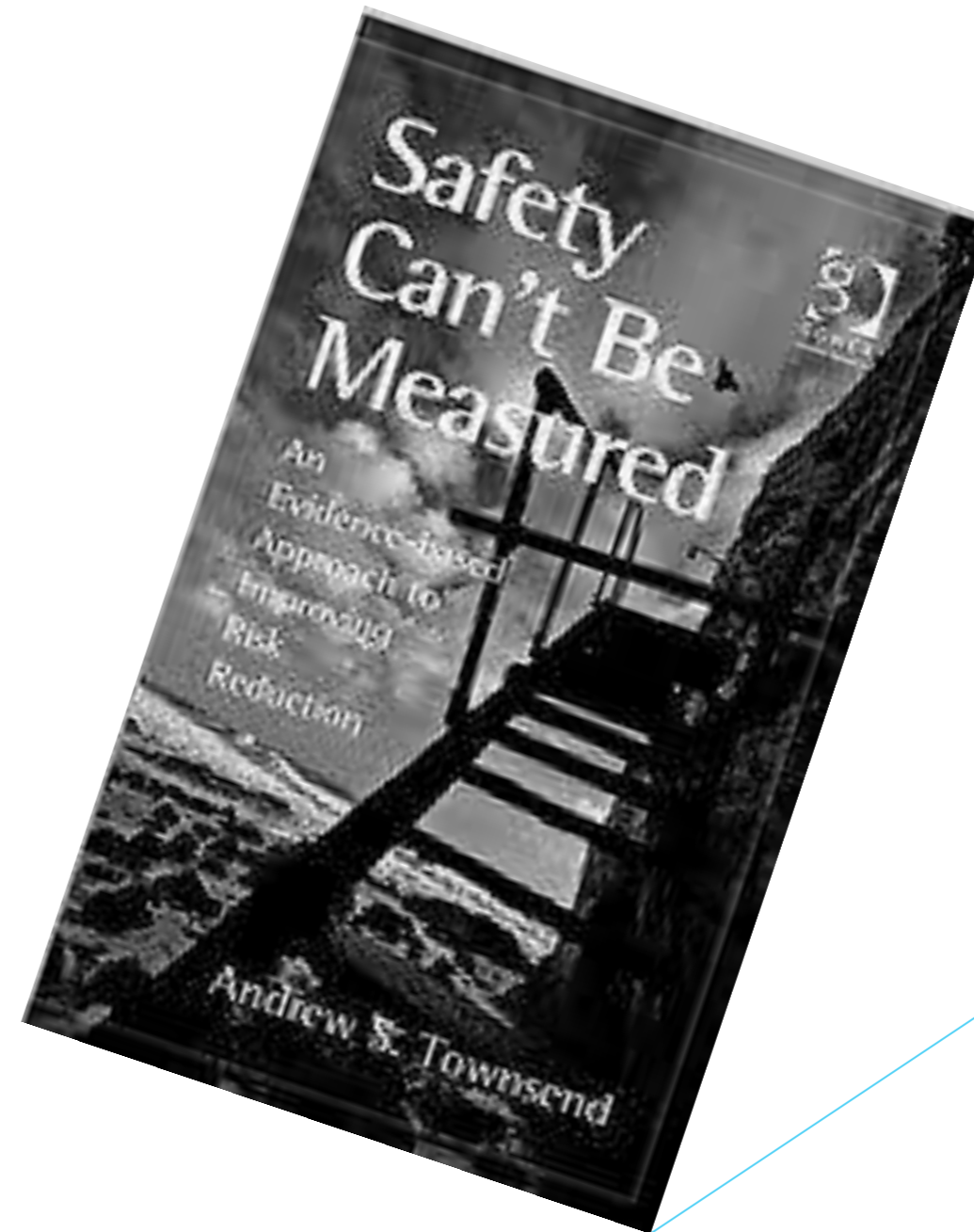
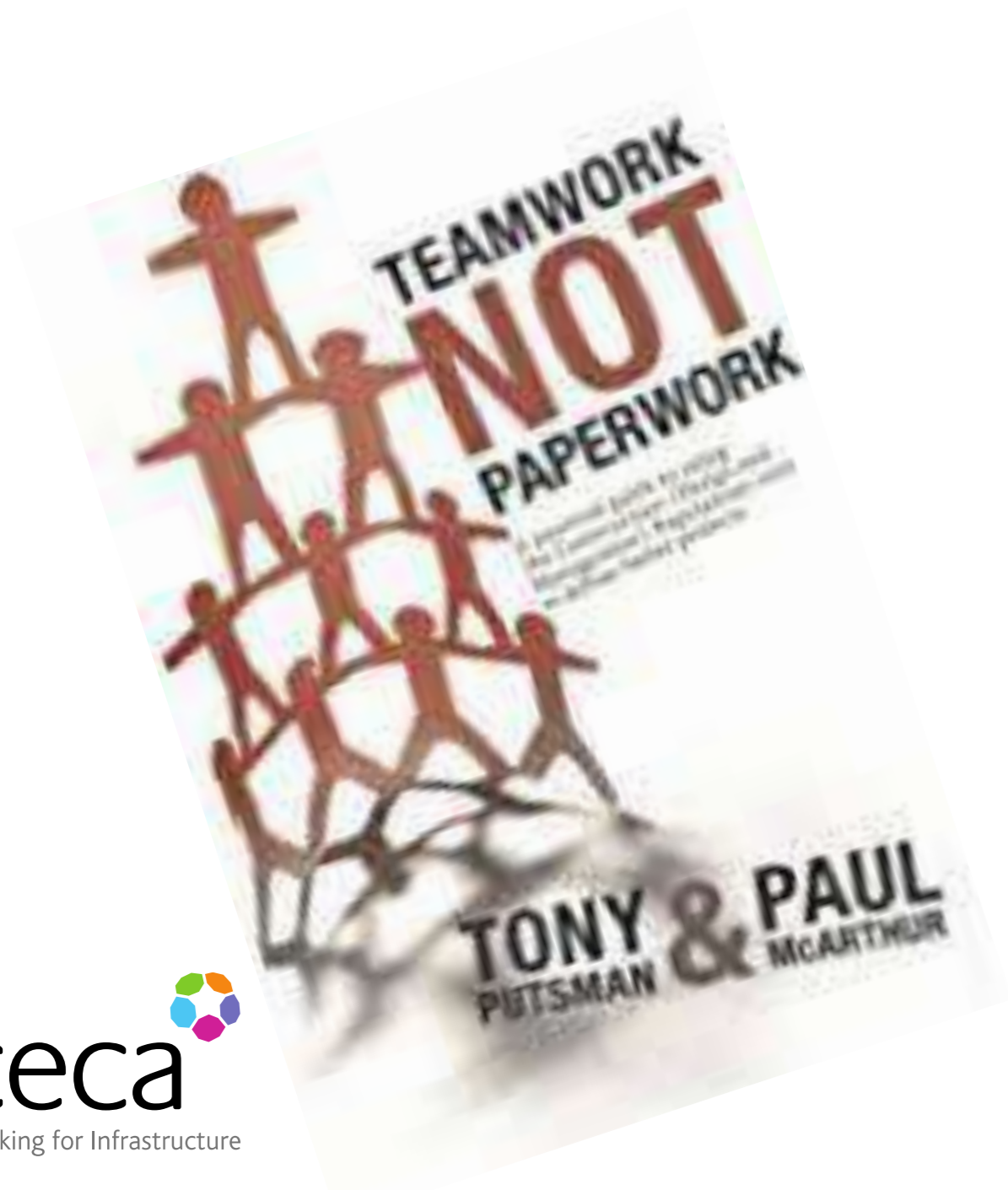
The first stage in developing a clear plan for managing the **significant risk** issues associated with successful project delivery:

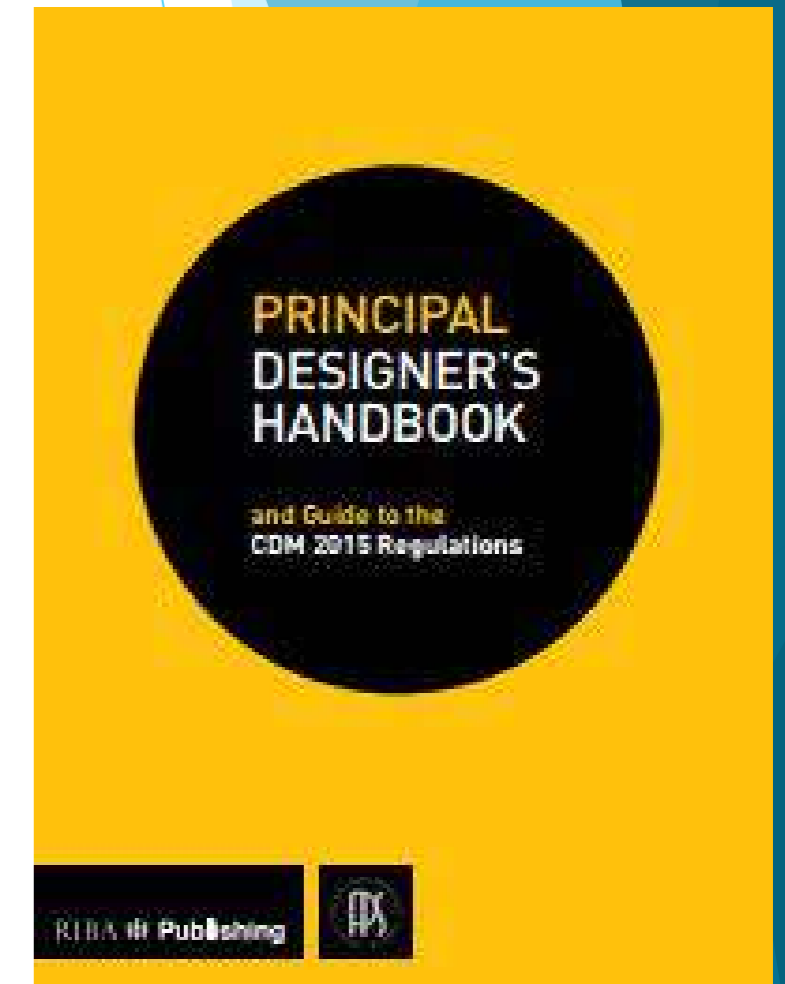
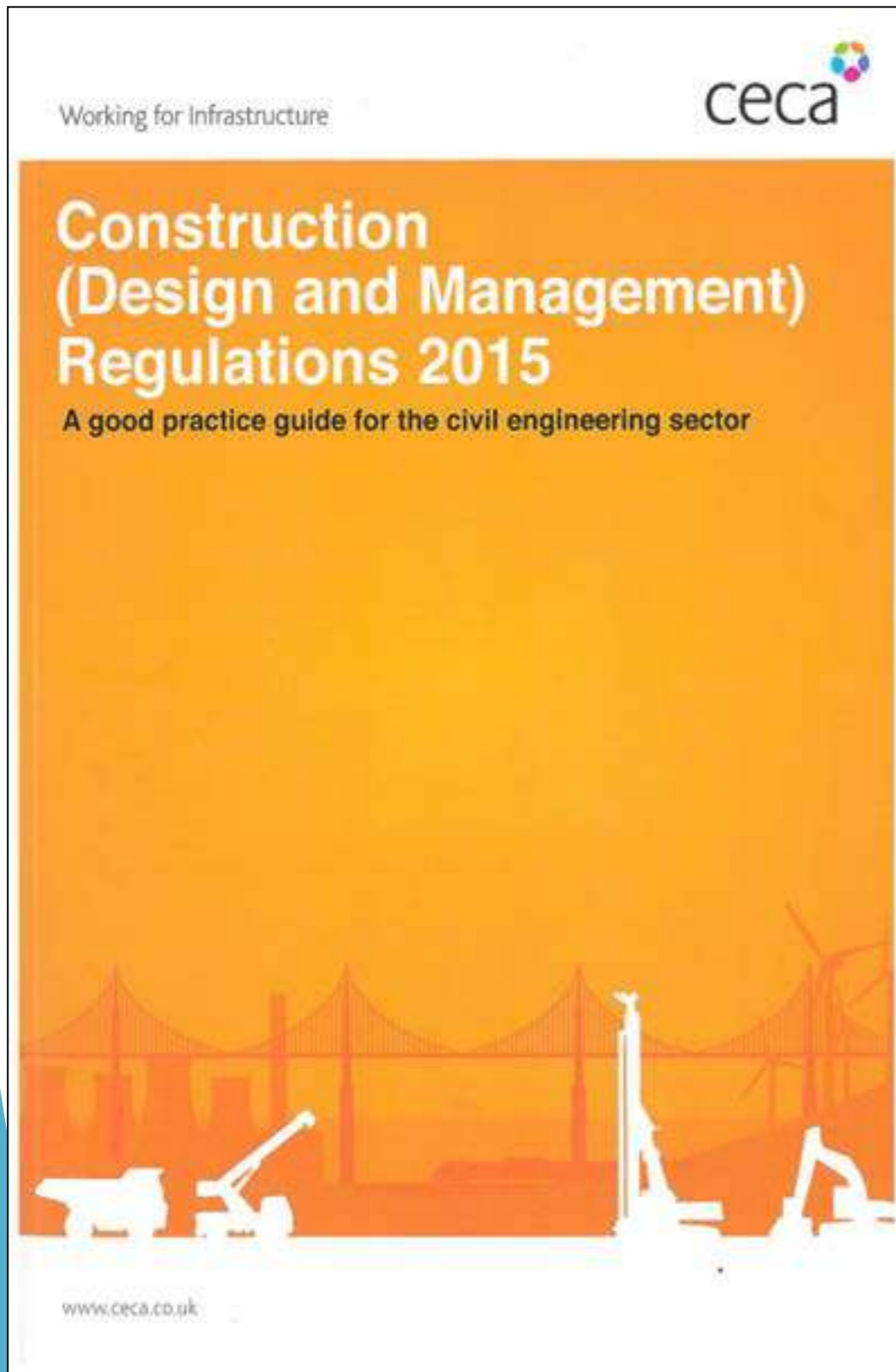
- Project description
- Client H&S brief
- Project timescales
- Significant risks
- Pre-construction information
- Project leadership
- Procurement strategy
- Communication strategy

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CDM DIFFERENTLY

Teamwork not Paperwork





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CDM DIFFERENTLY

Queensland Urban Utilities, Australia

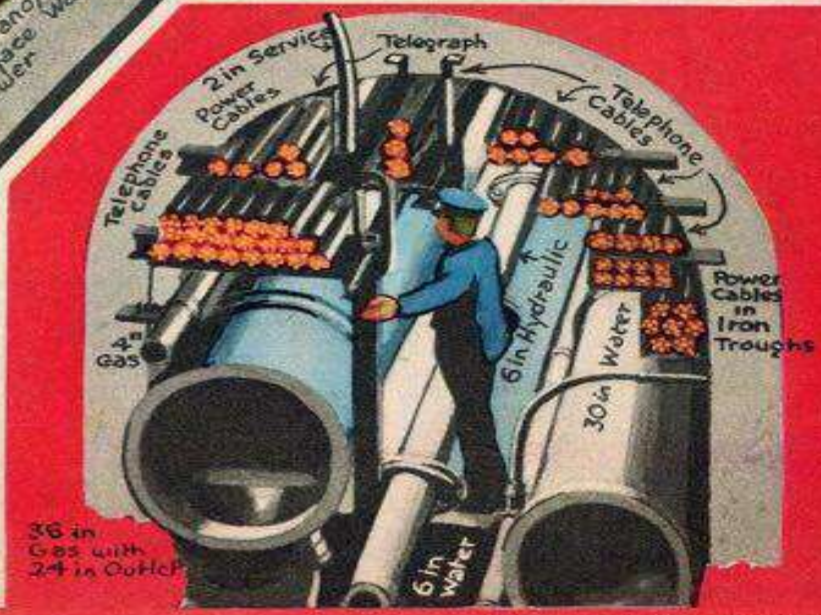
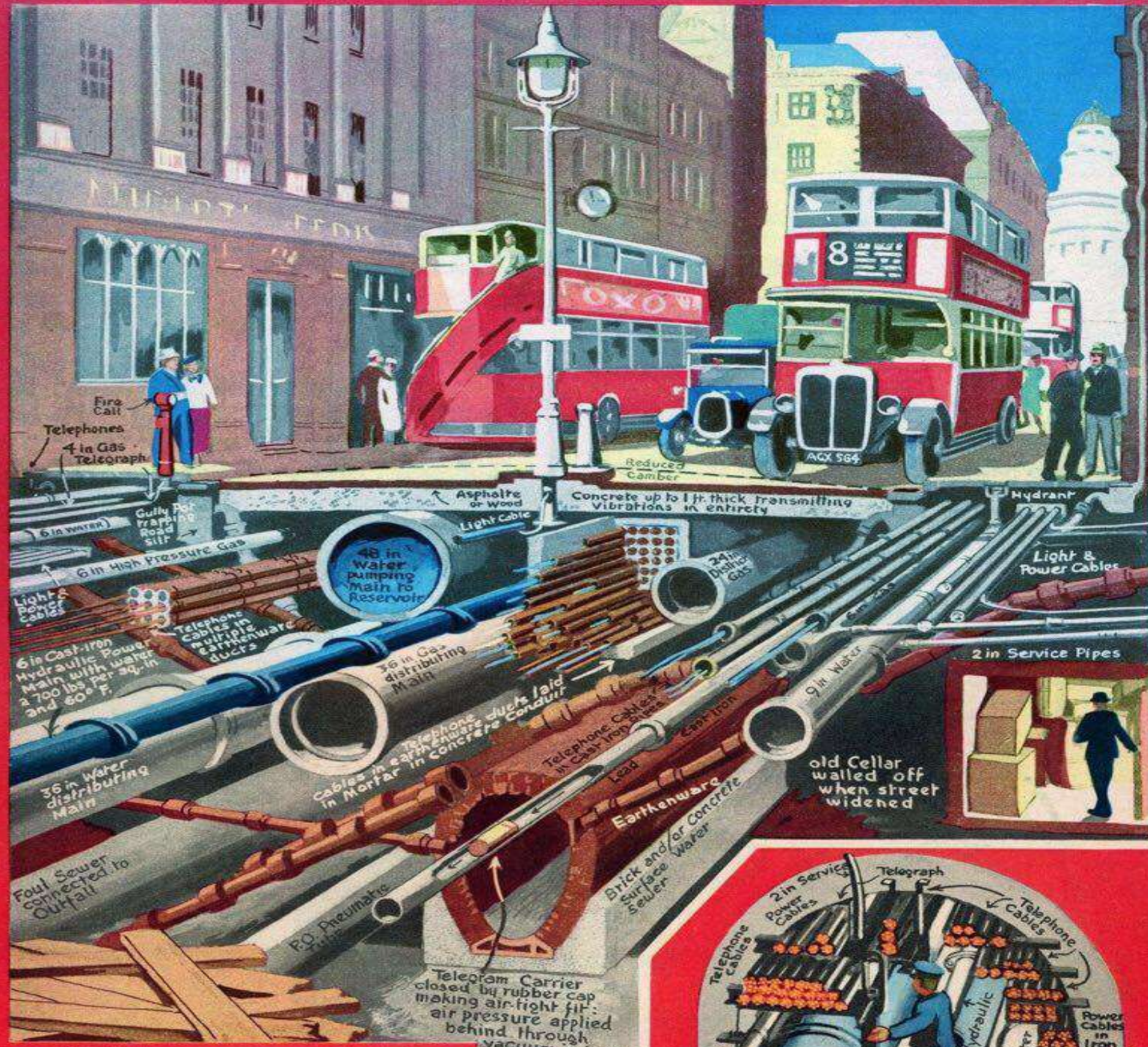
Doing Safety Differently

[VIDEO](https://youtu.be/eqwBA4nj5CY) <https://youtu.be/eqwBA4nj5CY>

Safe Digging: Let's Make a Difference

CDM DIFFERENTLY

THANK YOU



BENEATH the pavements and streets of London runs a veritable network of pipes and cables that play their part in helping to maintain the social services. The sectional view seen above gives a clear idea of the maze of tubes, tunnels and piping with which the capital is honeycombed and which comprises the most extensive service in the world.

Included in this marvellous underground system are 4,500,000 miles of telephone and telegraph lines and more than 45,000 miles of pipes and mains. Gas mains measure 12,000 miles, the water-pipes of the Metropolitan Water Board are 8,000 miles in length and there are 25,000 miles of smaller pipes.

In the bottom right-hand corner is a sectional view of the new conduit method gradually being extended beneath London's streets.

SELECT SURVEYS LTD
WWW.SELECTSURVEYS.COM

Background

- **Utility and topographical surveying specialists**
- **Serving the utility industry since 1996**
- **National Coverage**
- **Over 500 years of experience within the company**

select surveys



Utility Surveys:

Why We Do

What We Do

select surveys 

- Safety
- Asset Protection
- Design

select surveys 

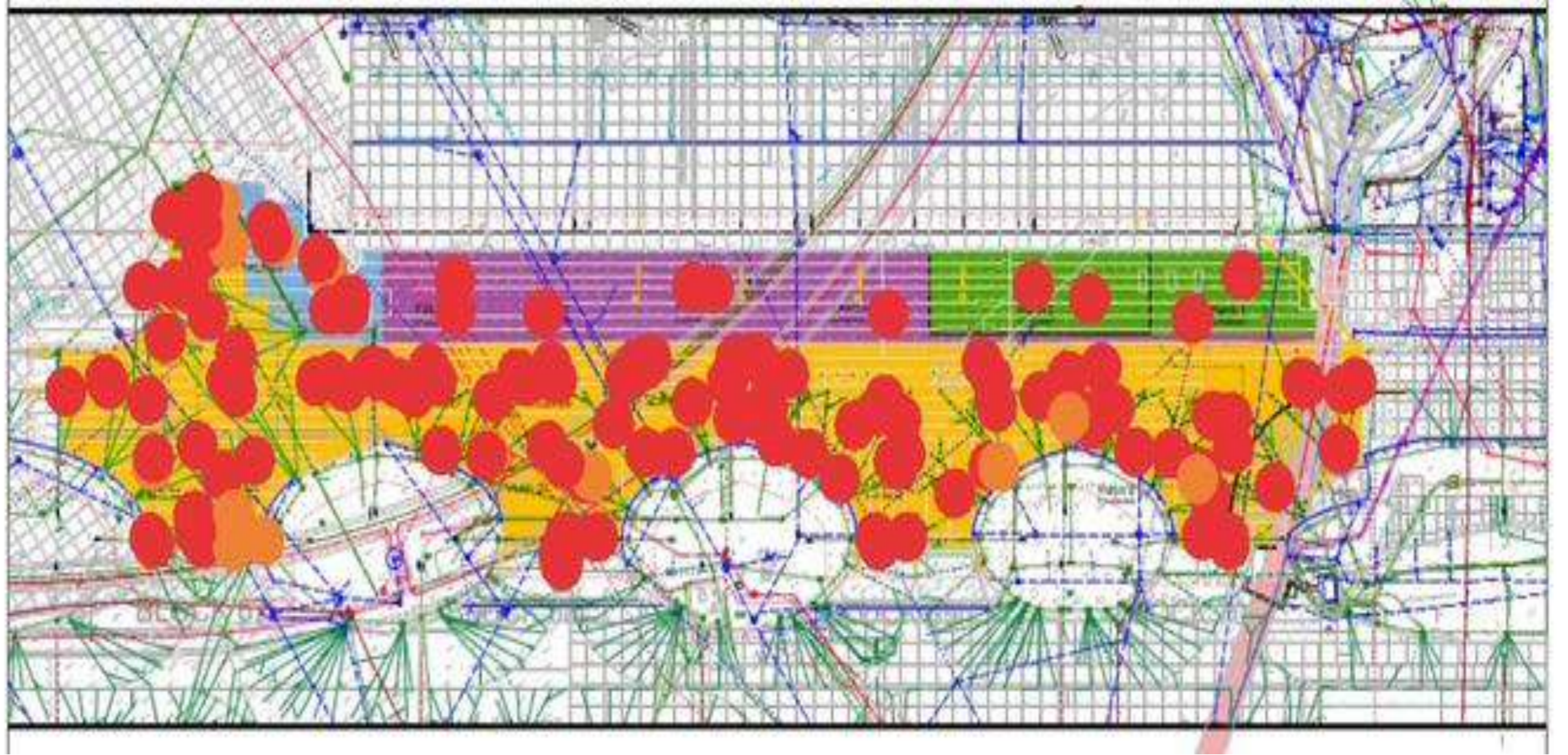
Select Surveys at Heathrow



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Permits



- Over 5000 permits per year
- 100% safety record

Utility Surveys & PAS128

Method ¹⁾ (to be determined in consultation with the client)	Survey grid/search resolution ²⁾			Quality levels achievable	Typical application (informative)	
	EML ³⁾	GPR				Other techniques ⁴⁾
		General	Post-processing			
M1	Orthogonal search transect at ≤ 10 m intervals and when following a utility trace, search transects at ≤ 5 m intervals	Use as applicable	No	≤ 5 m survey grid	B1, B2, B3, B4	
M1P			Yes		B1P, B2P, B3P	
M2	Orthogonal search transect at ≤ 5 m intervals and when following a utility trace, search transects at ≤ 2 m intervals	Either: a) ≤ 2 m orthogonal; or b) high density array ⁵⁾	No	≤ 2 m survey grid	B1, B2, B3, B4	
M2P			Yes		B1P, B2P, B3P	
M3	Orthogonal search transect at ≤ 2 m intervals and when following a utility trace, search transects at ≤ 1 m intervals	Either: a) ≤ 1 m orthogonal; or b) high density array ⁵⁾	No	≤ 1 m survey grid	B1, B2, B3, B4	
M3P			Yes		B1P, B2P, B3P	
M4	Orthogonal search transect at ≤ 2 m intervals and when following a utility trace, search transects at ≤ 0.5 m intervals	Either: a) ≤ 0.5 m orthogonal; or b) high density array ⁵⁾	No	≤ 0.5 m survey grid	B1, B2, B3, B4	
M4P			Yes		B1P, B2P, B3P	

NOTE 1 In general the effort increases from M1 to M4 and the addition of post-processing. For areas with a greater density of utilities or areas considered high risk by the client, a detection method that has a higher level of effort should be selected.

NOTE 2 "P" indicates off-site post-processing has been included.

¹⁾ It is a requirement that a minimum of GPR and EML techniques are used (see 8.2.1.1.2).

²⁾ The tolerance for orthogonal transect centres and survey grids shall be ± 0.1 m.

³⁾ It is a requirement that passive EML is deployed over the whole survey area and that where an active EML method can be used, it is used (see 8.2.1.3.2).

⁴⁾ The transect centre depends on technique used.

⁵⁾ A high density array comprises 100 mm or closer antenna separation.

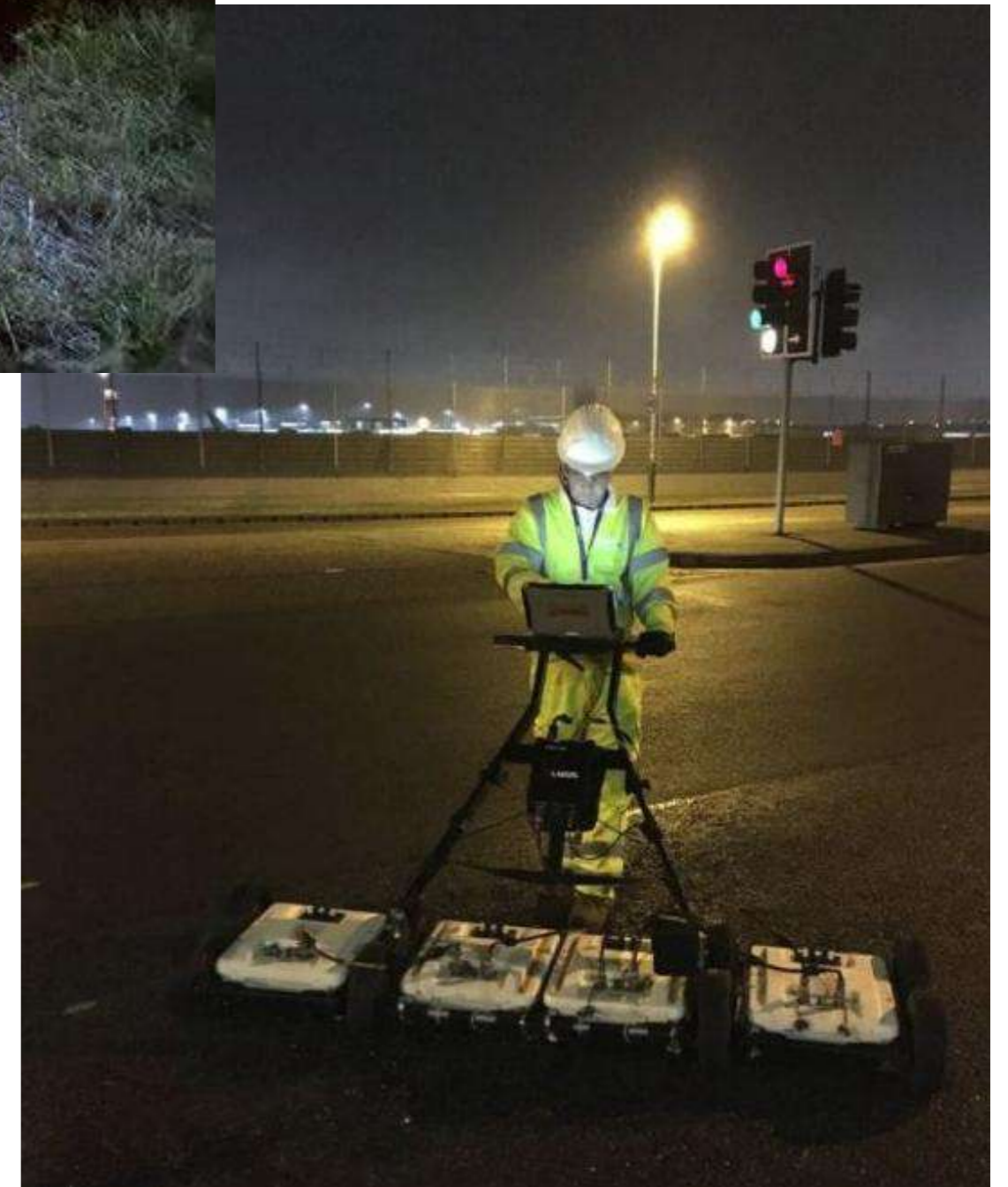
Electromagnetic



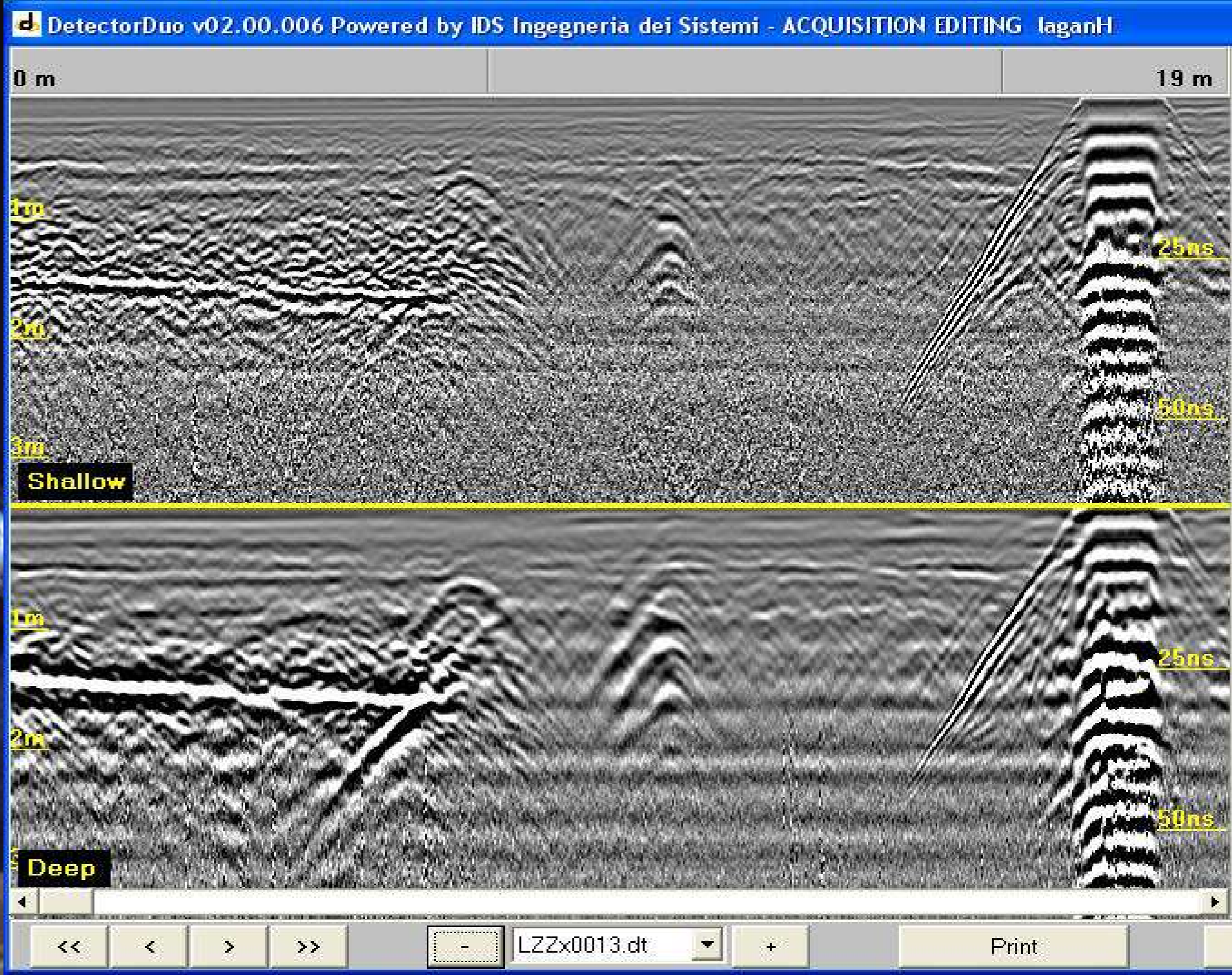
select surveys



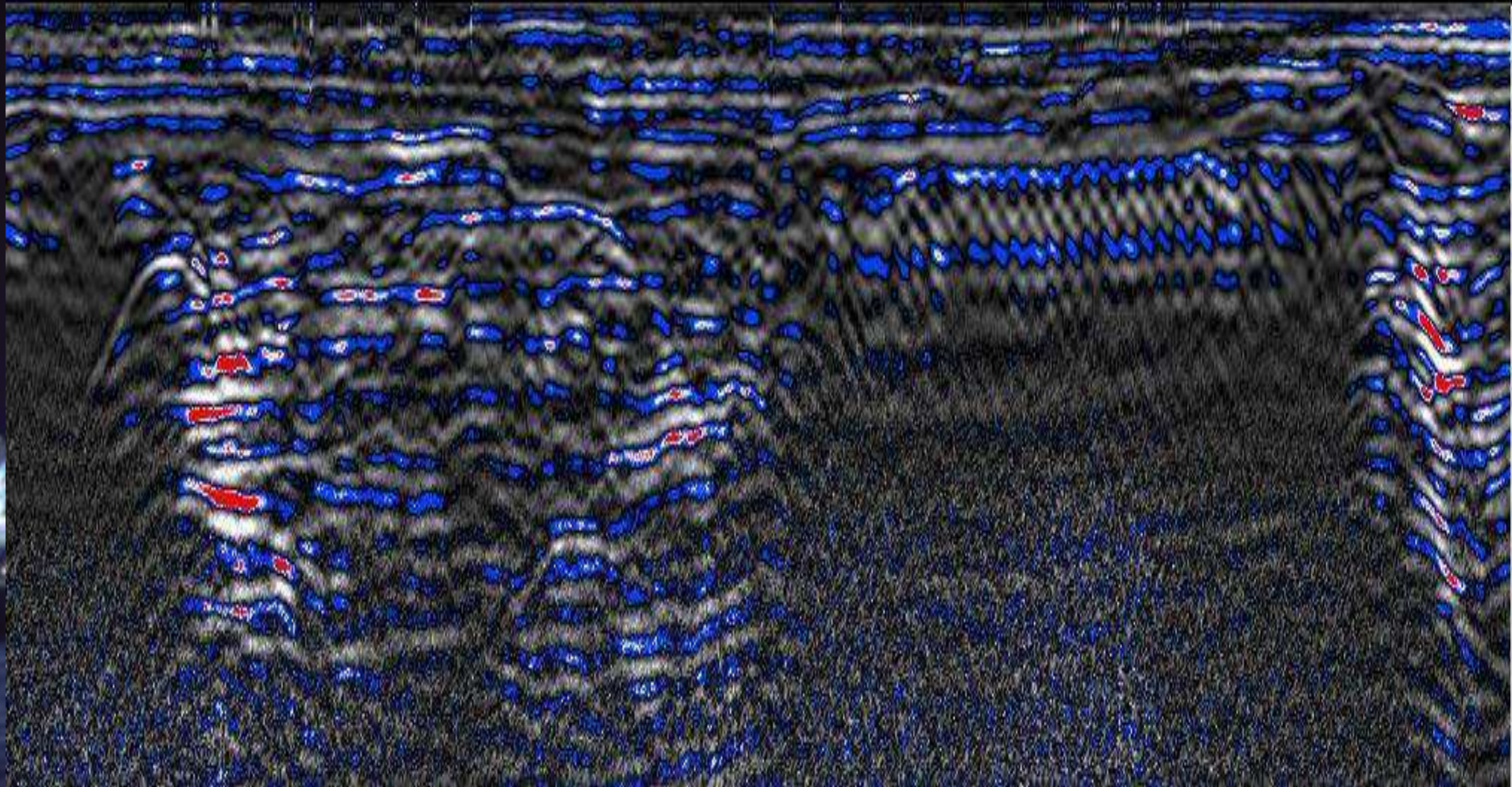
Ground Penetrating Radar



GPR Data – What it Looks Like



Construction Features



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Voids



**SINKHOLE
DETECTION
SERVICES**

Heathrow Utility Projects



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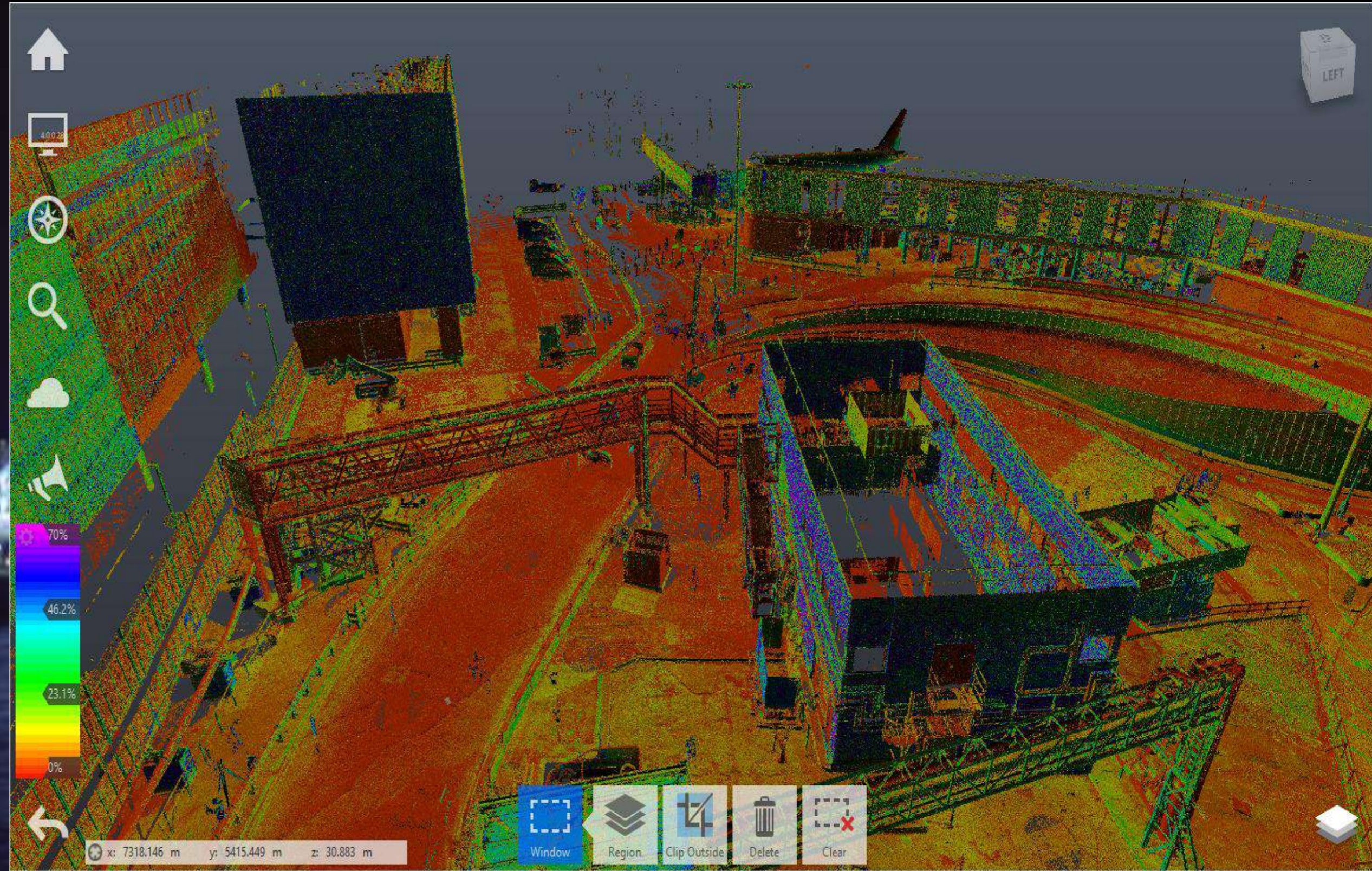
Drainage Surveys



20/12/20 21:34:49
36
BIRMINGHAM UNI STAK
EON
RND02 US-MH03
32MM CONCRETE CAST

M=11.47

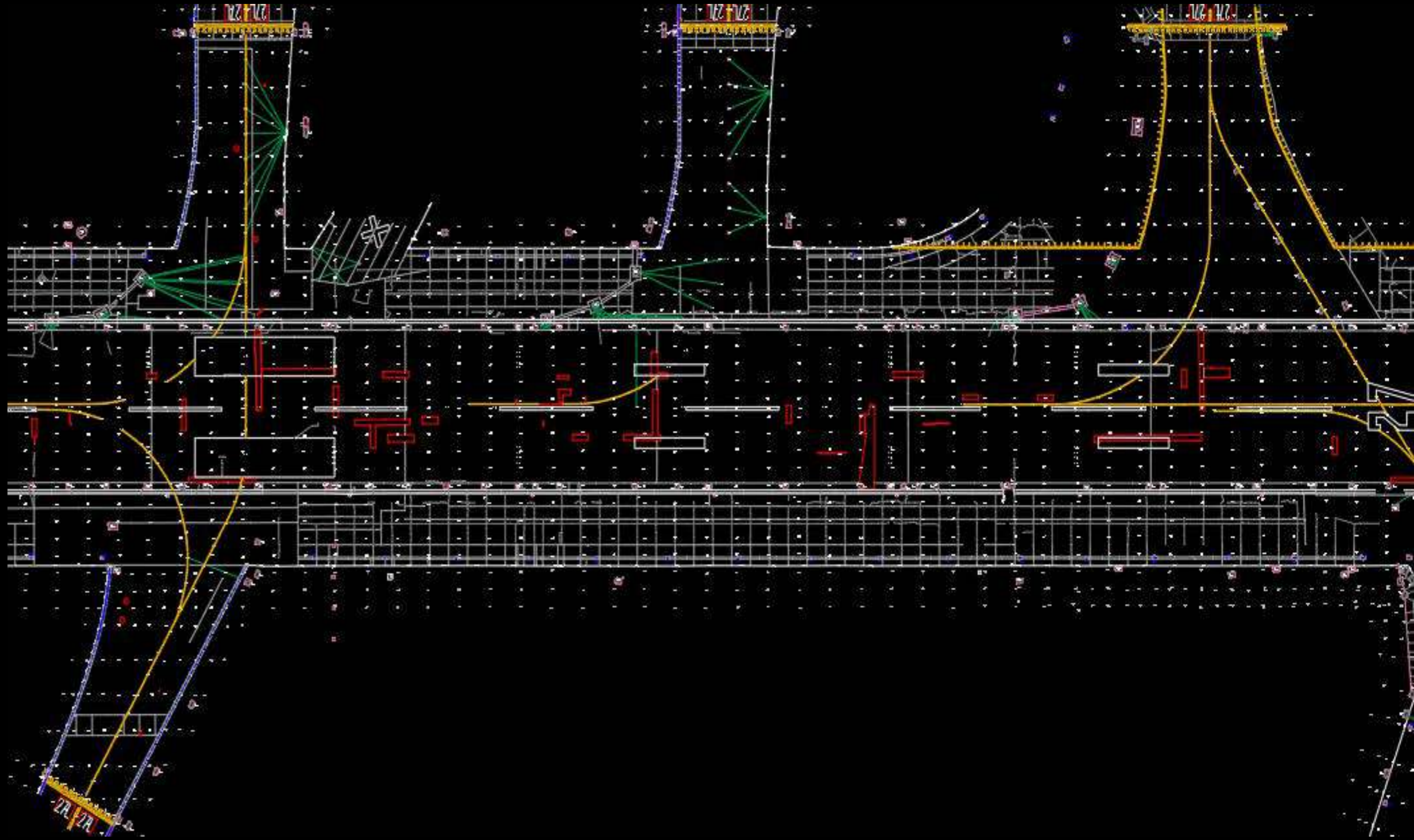
Topographic Surveys and Scanning



select surveys

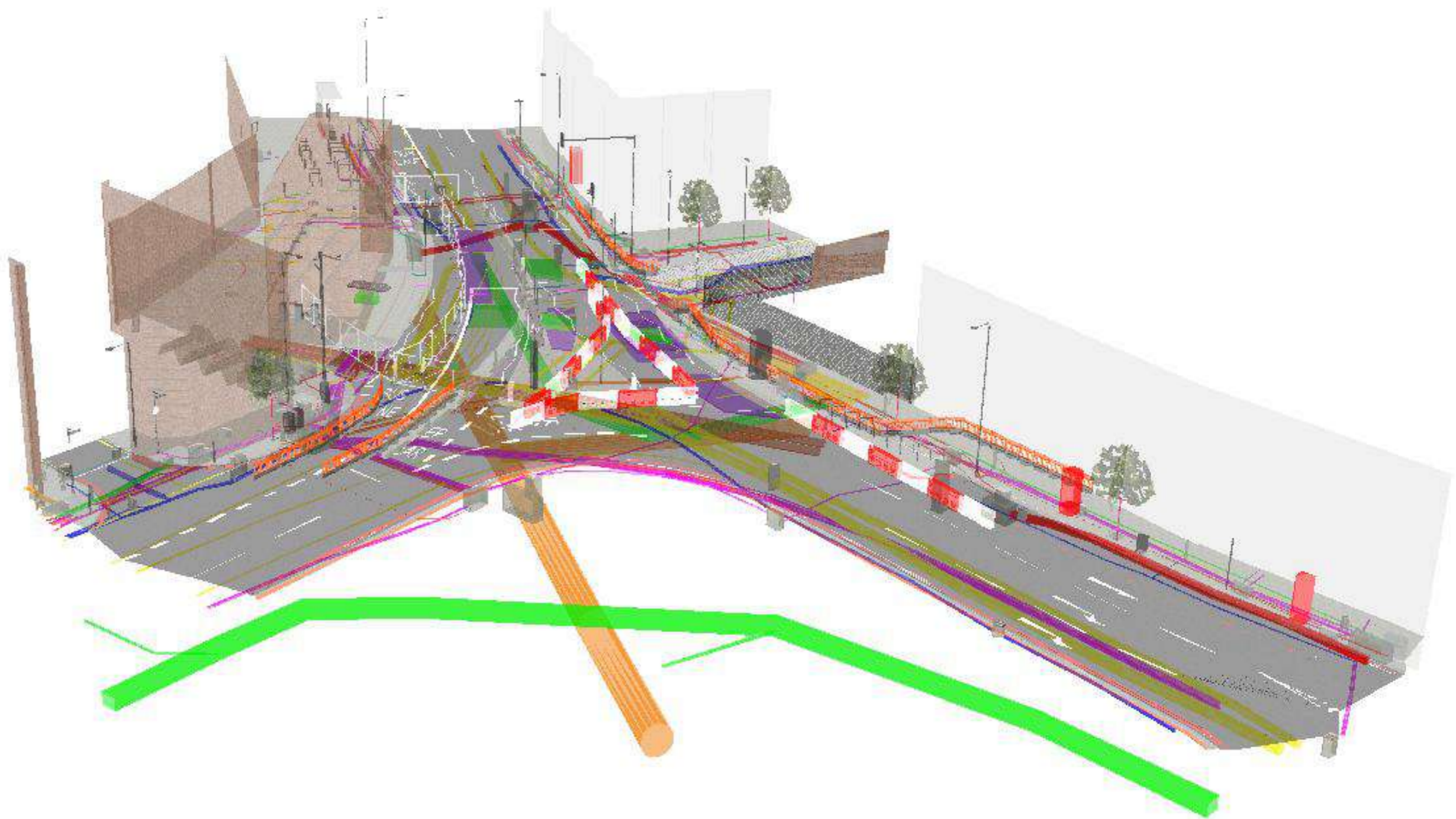


Topographic Surveys and Scanning



select surveys 

BIM

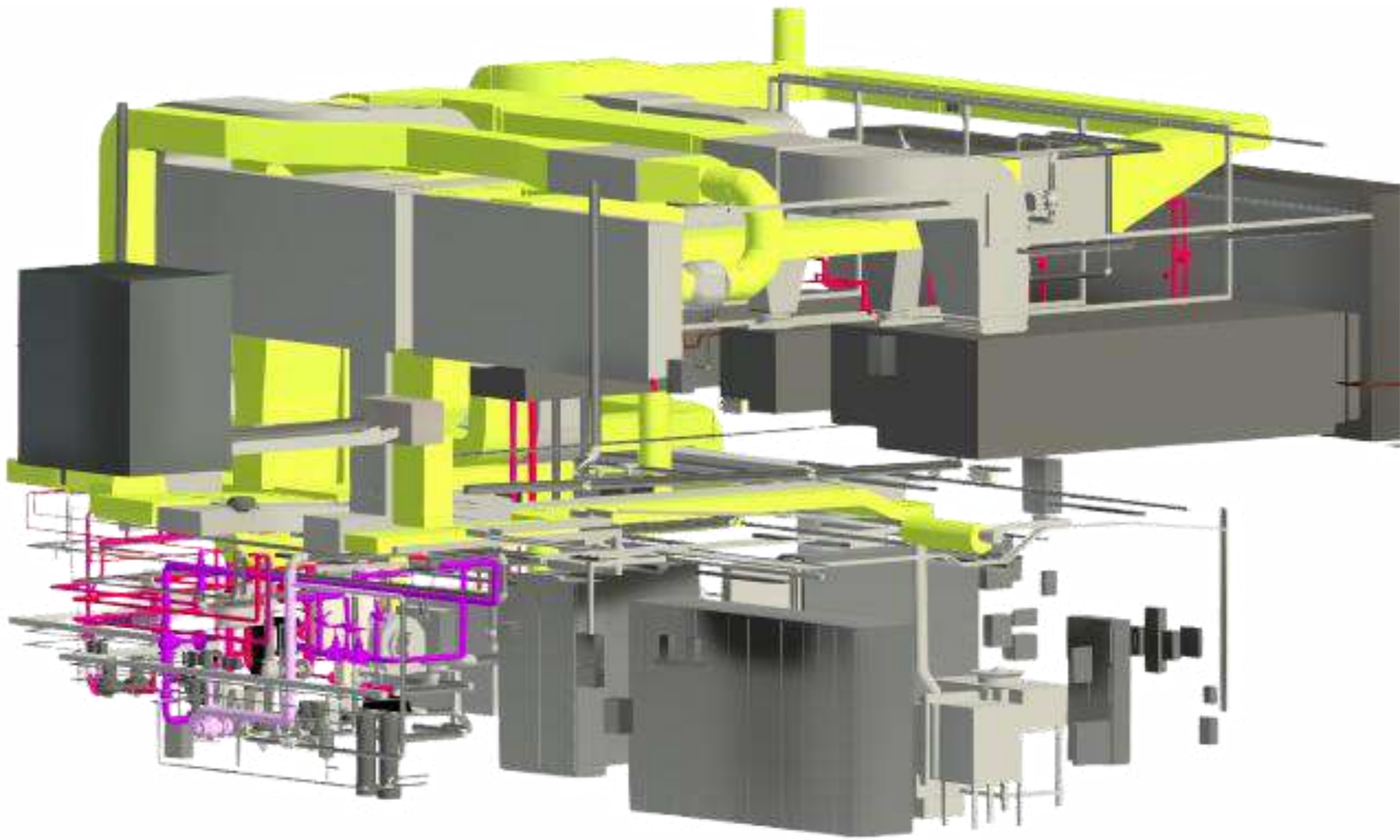


select surveys 

SCAN TO BIM

MEP SYSTEMS

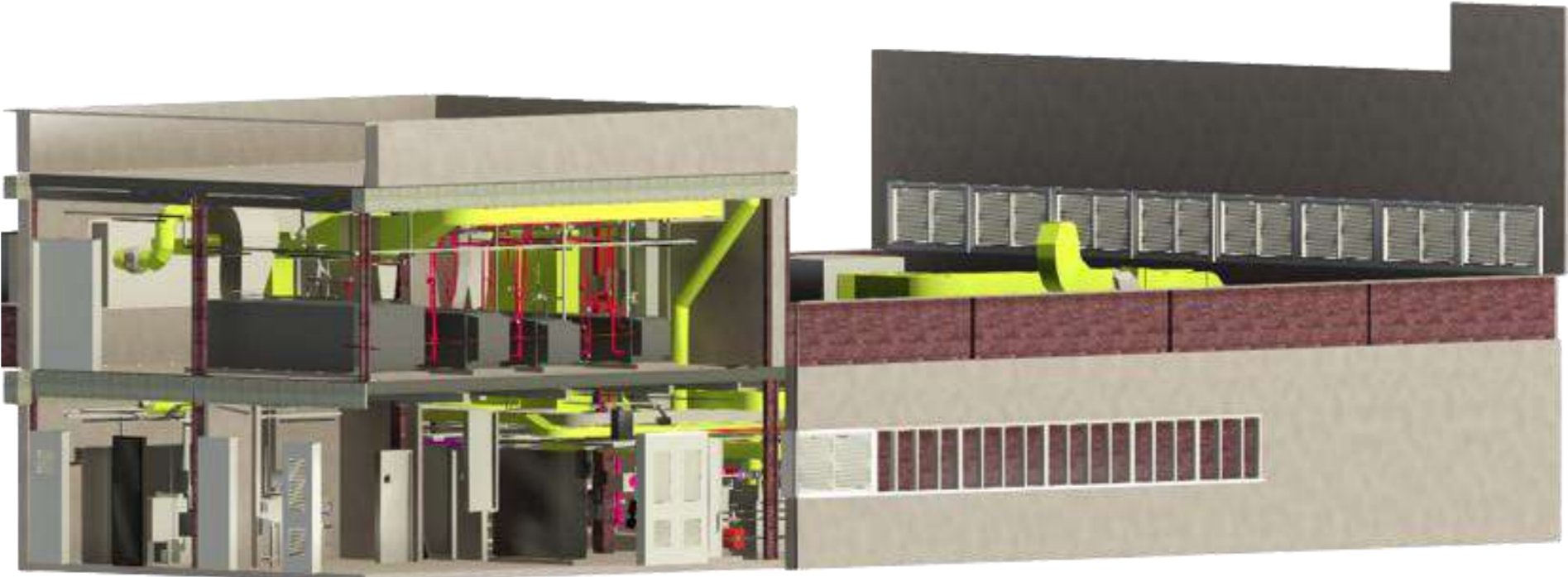
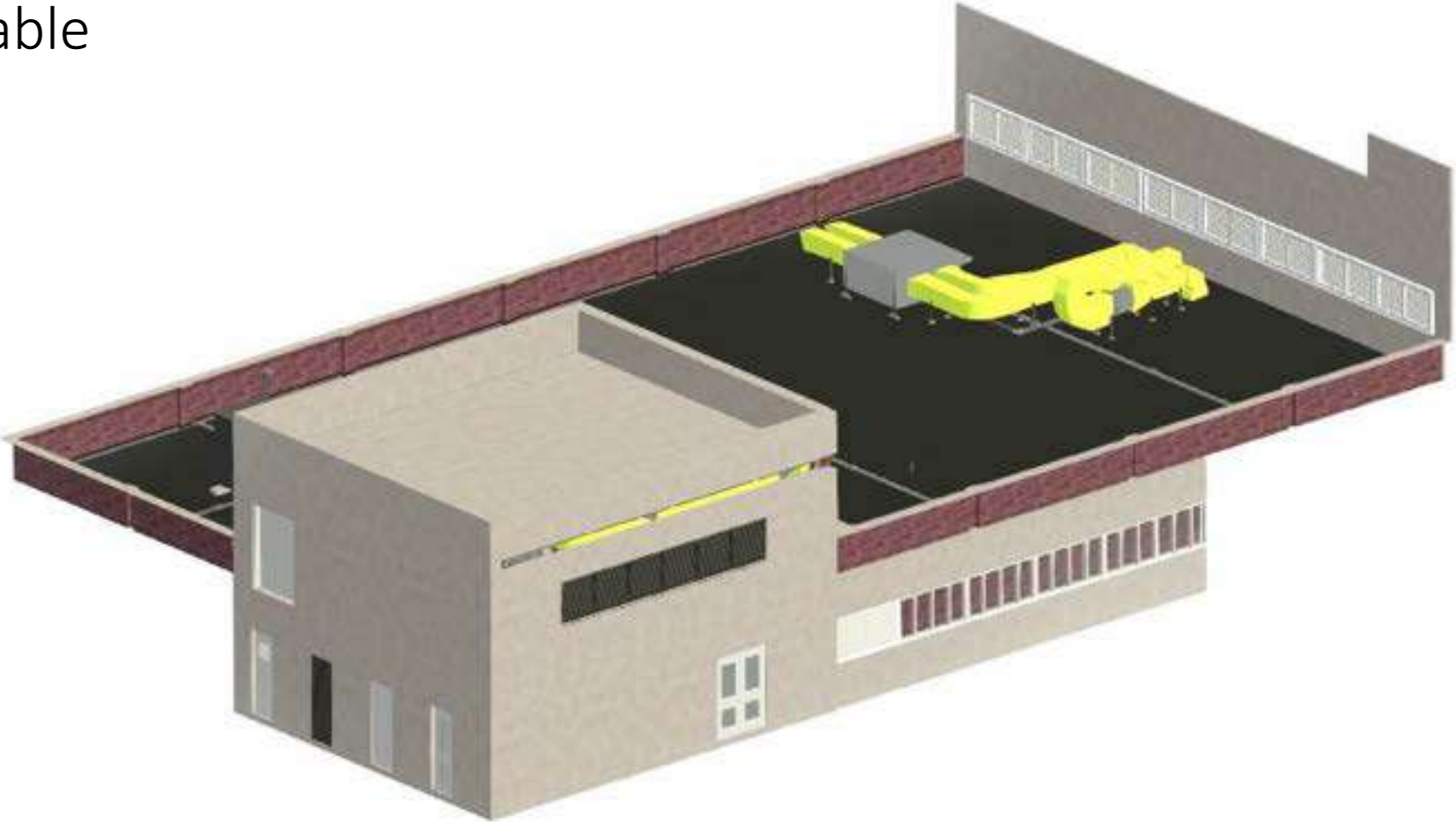
Ducts, pipes, conduits, and equipment were traced and modelled using Revit's MEP tools, ensuring alignment with the scanned data.



SCAN TO BIM



Final Deliverable



SCAN TO BIM



select surveys



To Sum Up

- Standards in Safety and Utility Avoidance.
- GPR and EML work together not separately.
- Only continue working if it's safe.

- **THANK YOU!**



Protecting People, Places and Assets with Geo-fencing





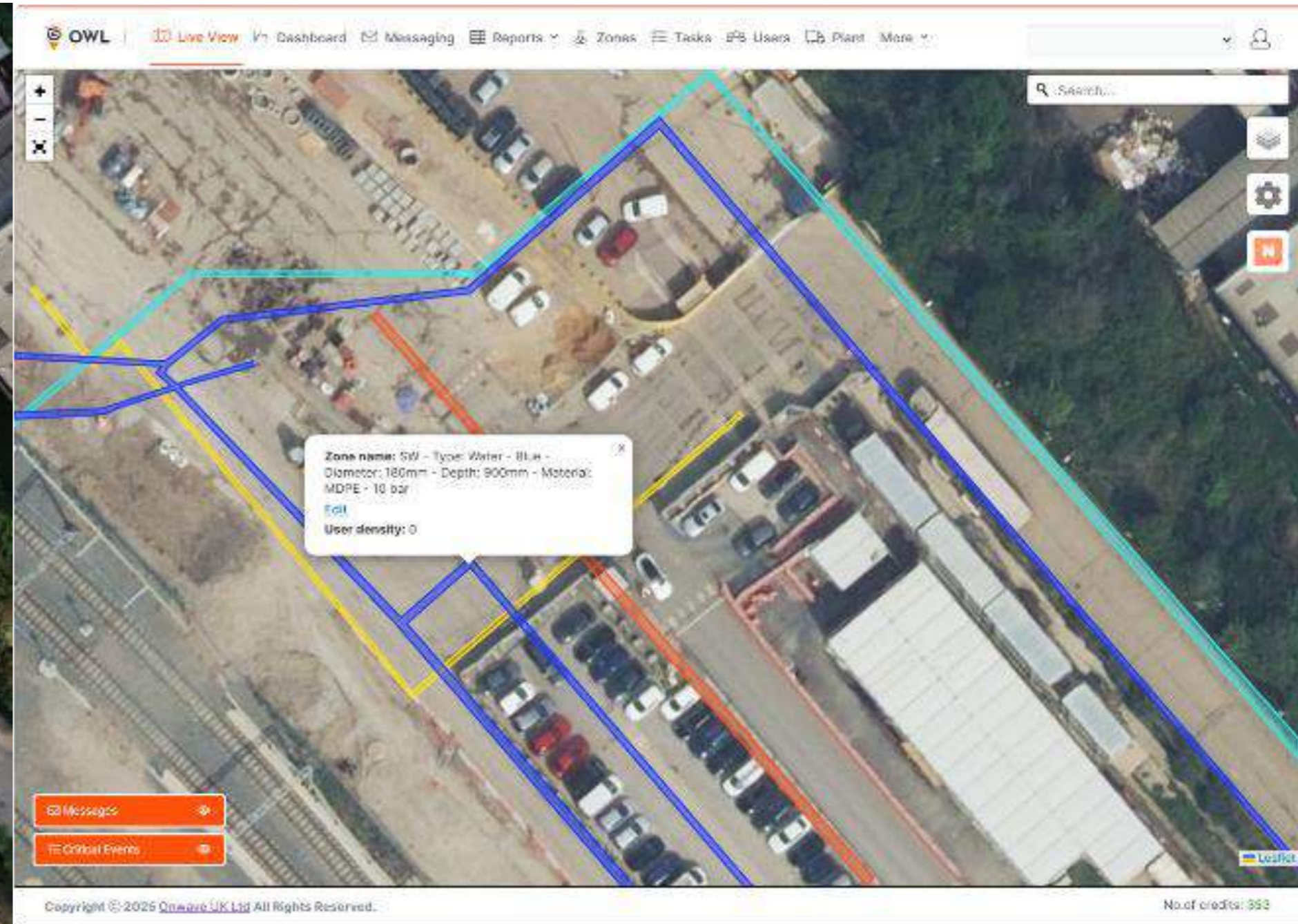
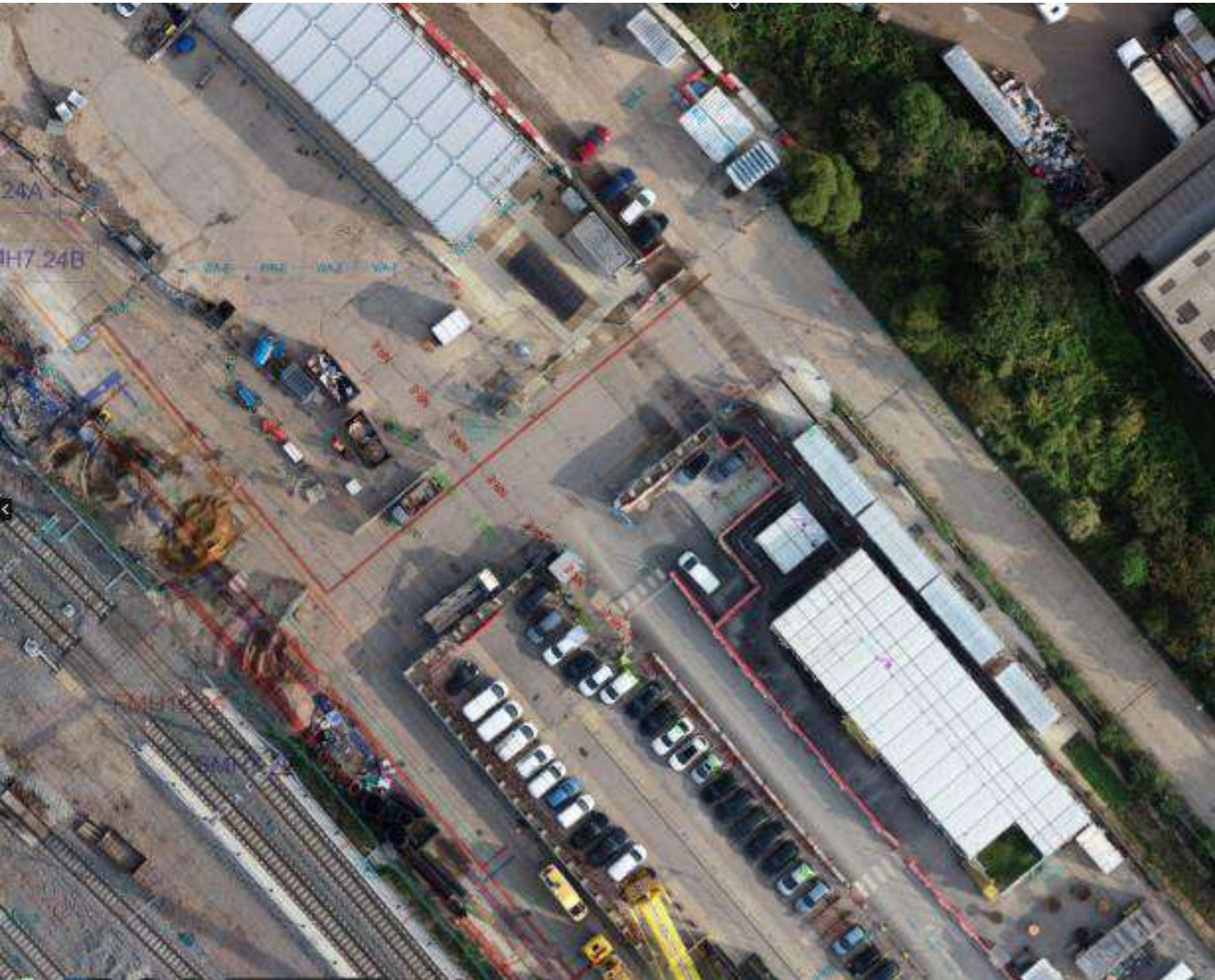
Modern geo-location technology can provide accuracy of 100mm and can be configured to report location 3-4 times per second



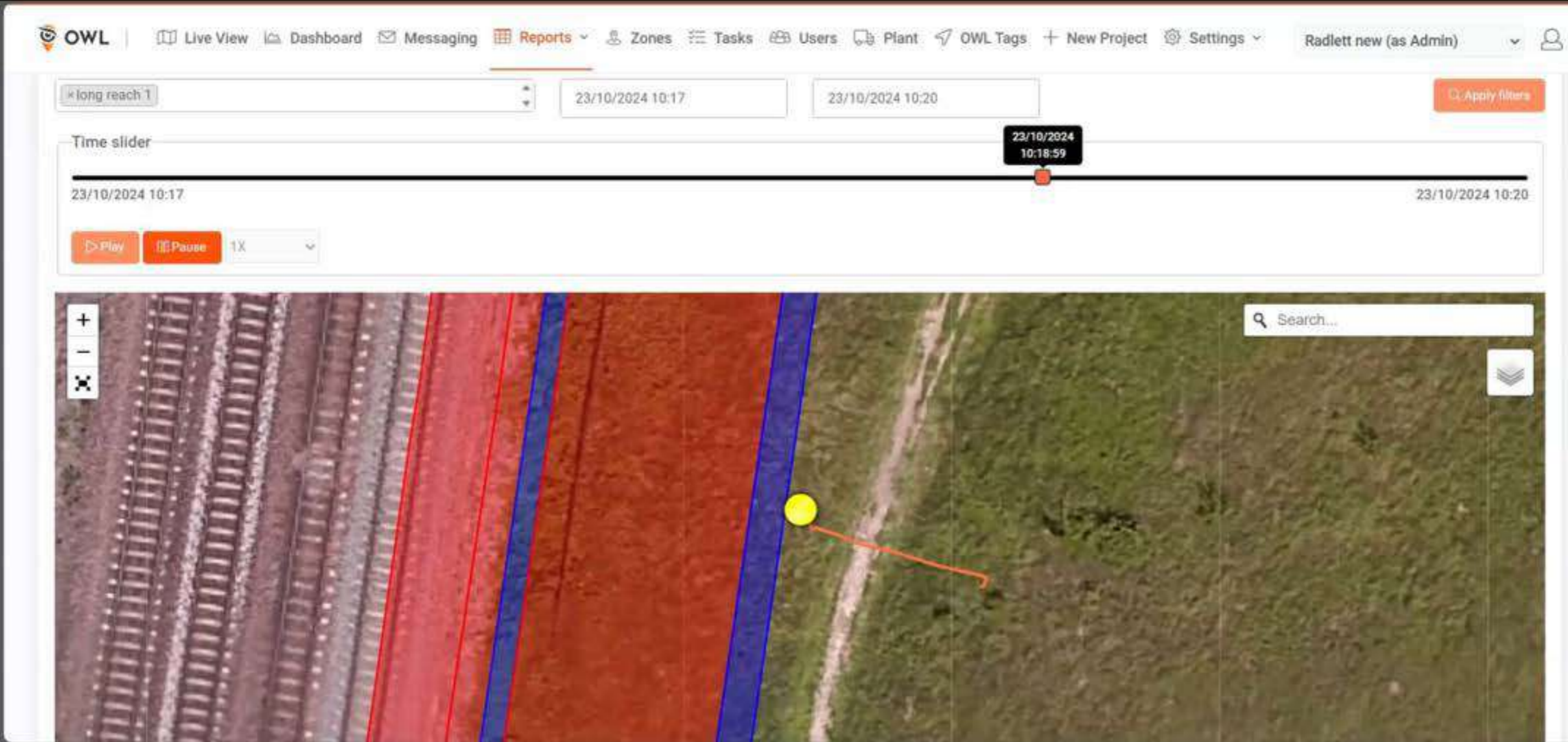
How we help you Be Safe



Geo-fence Creation

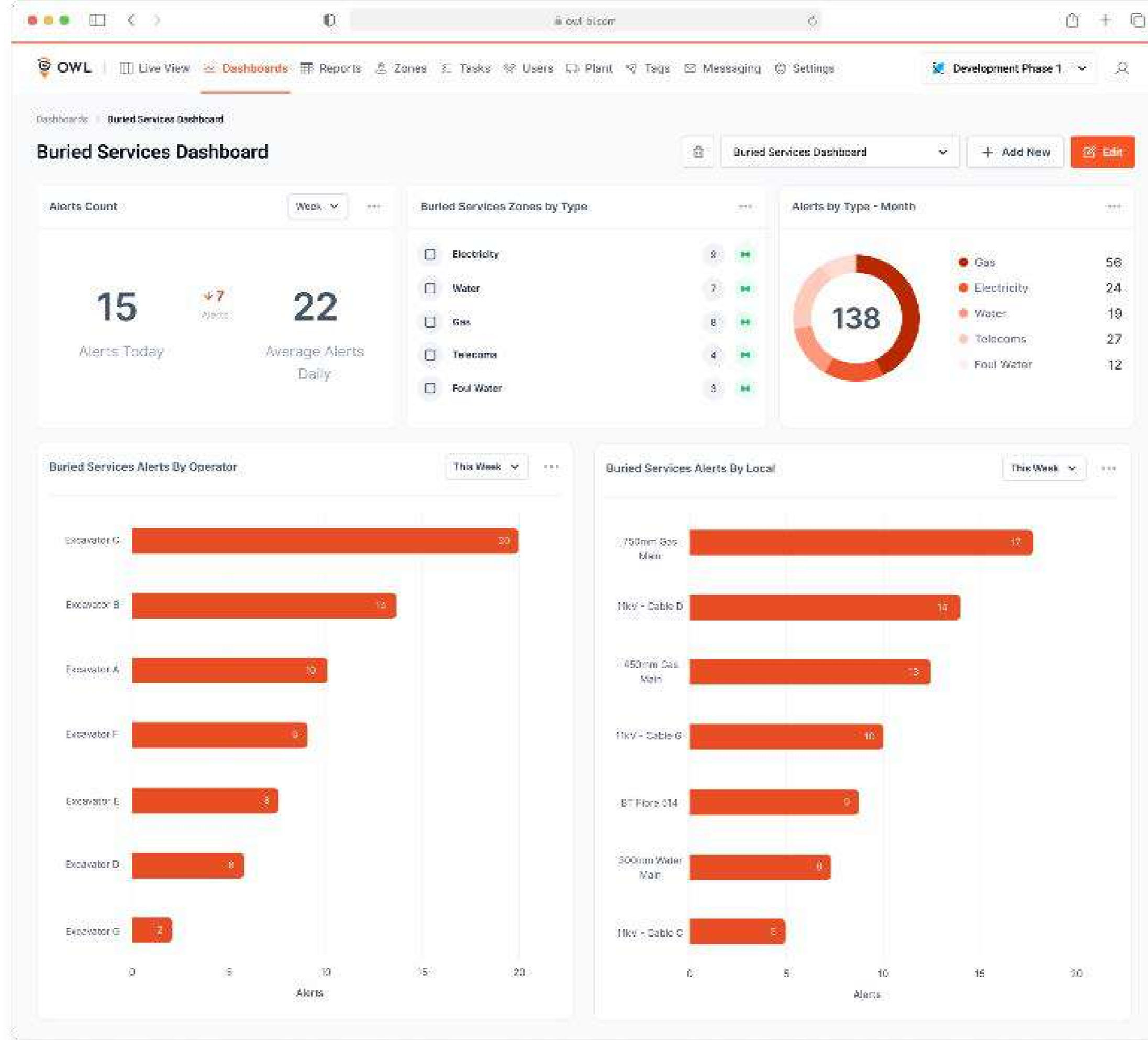


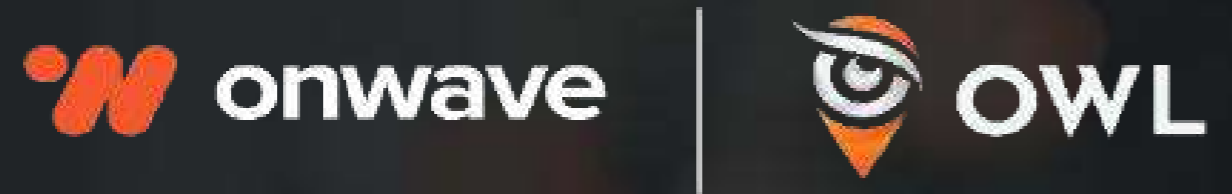




The screenshot displays the OWL software interface. At the top, there is a navigation bar with the following items: OWL, Live View, Dashboard, Messaging, Reports, Zones, Tasks, Users, Plant, OWL Tags, New Project, and Settings. The user is logged in as 'Radlett new (as Admin)'. Below the navigation bar, there is a search bar containing 'long reach 1'. The main interface features a time slider for the date '23/10/2024', with a range from 10:17 to 10:20. A red marker on the slider indicates the current time is 10:18:59. Below the slider are 'Play' and 'Pause' buttons, along with a '1X' speed control. The central part of the interface is a live video feed of a construction site. The video shows a large area of reddish-brown earth with several parallel tracks. A yellow dot is positioned on the right side of the video, with a red line extending from it towards the center. In the top right corner of the video feed, there is a search bar with the text 'Search...'. On the left side of the video feed, there are zoom controls: a plus sign (+), a minus sign (-), and a crosshair (X).







**Thank you
for listening**

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