Geosyntec consultants

BEST PRACTICE IN THE MANAGEMENT OF THE RECLAMATION OF A COMPLEX FORMER INDUSTRIAL SITE

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Presentation Outline

Project Overview

Stakeholder Management & Collaboration

Initial Challenges

Risk Assessment & CSM

Remediation Approach

Achievements and Results

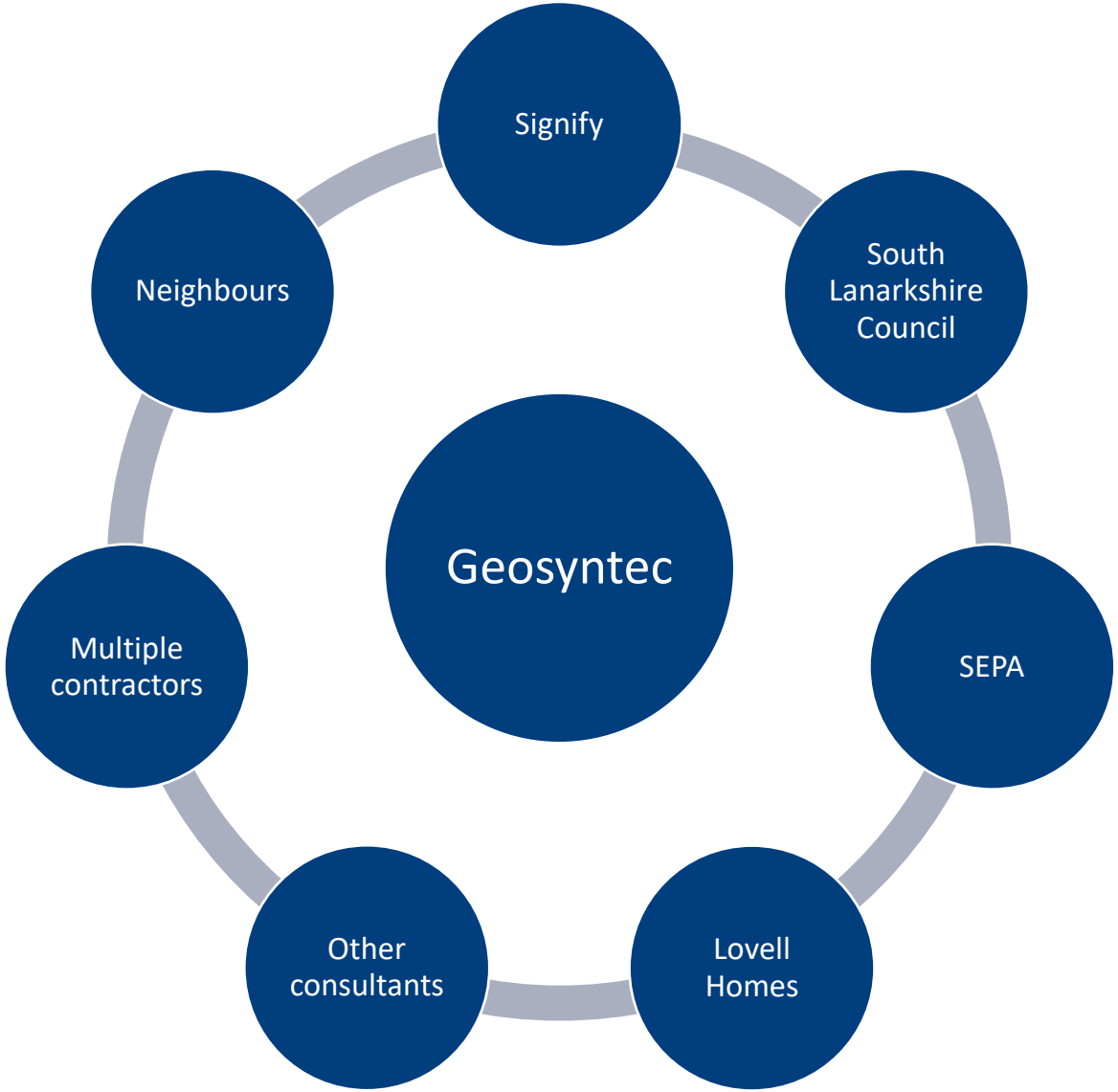
Key Takeaways

Structures fronting Wellhall Road

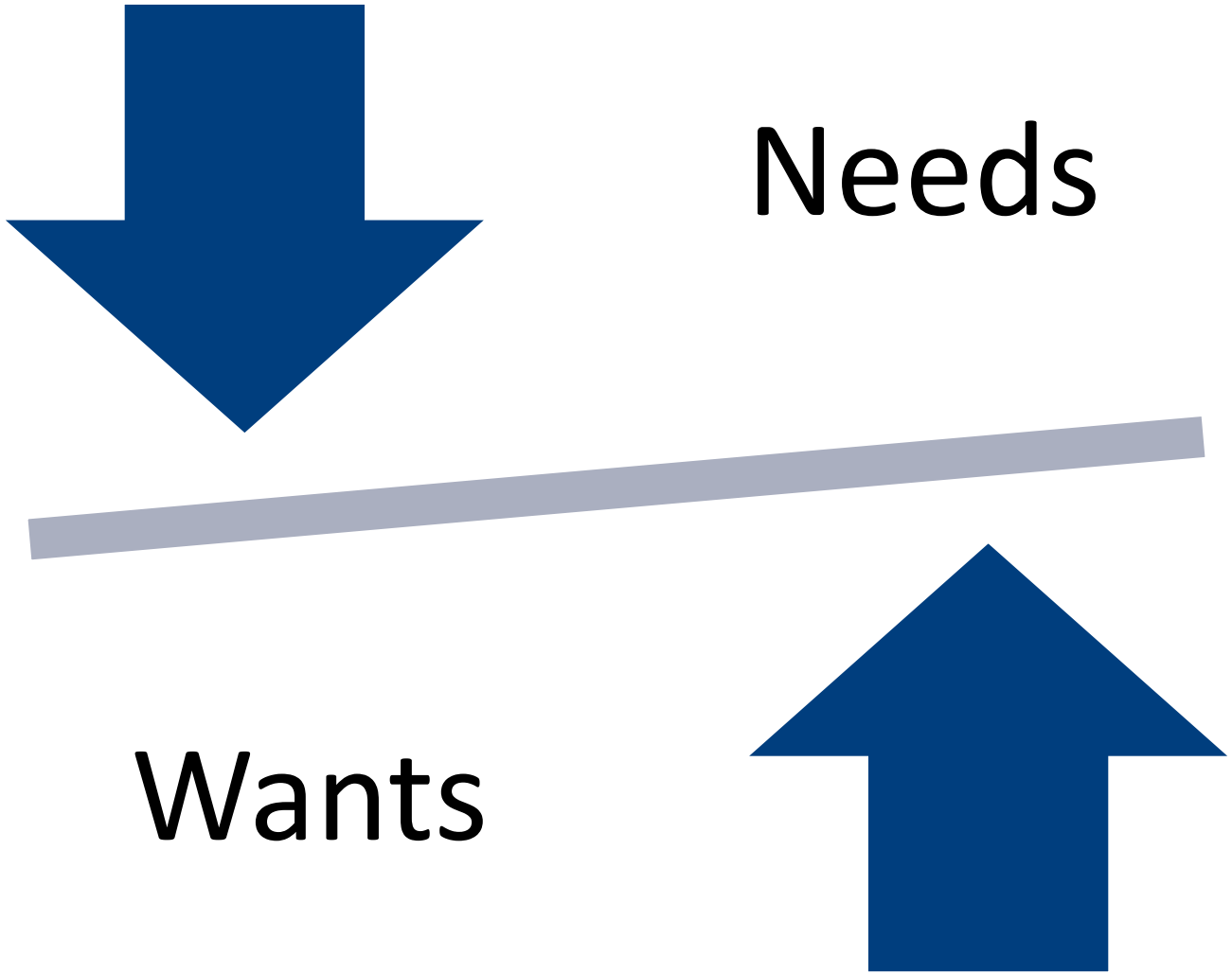
Project Overview

- 6 ha former lighting factory destined for residential redevelopment under planning
- Environmental Permit to surrender
- We advised on land contamination issues to the site owner
- Key goals:
  - Complex groundwater remediation
  - Platform preparation
  - Land asset disposal
  - Manage abnormal development costs
  - Redevelopment into housing
- Focus on sustainable redevelopment and circular economy principles

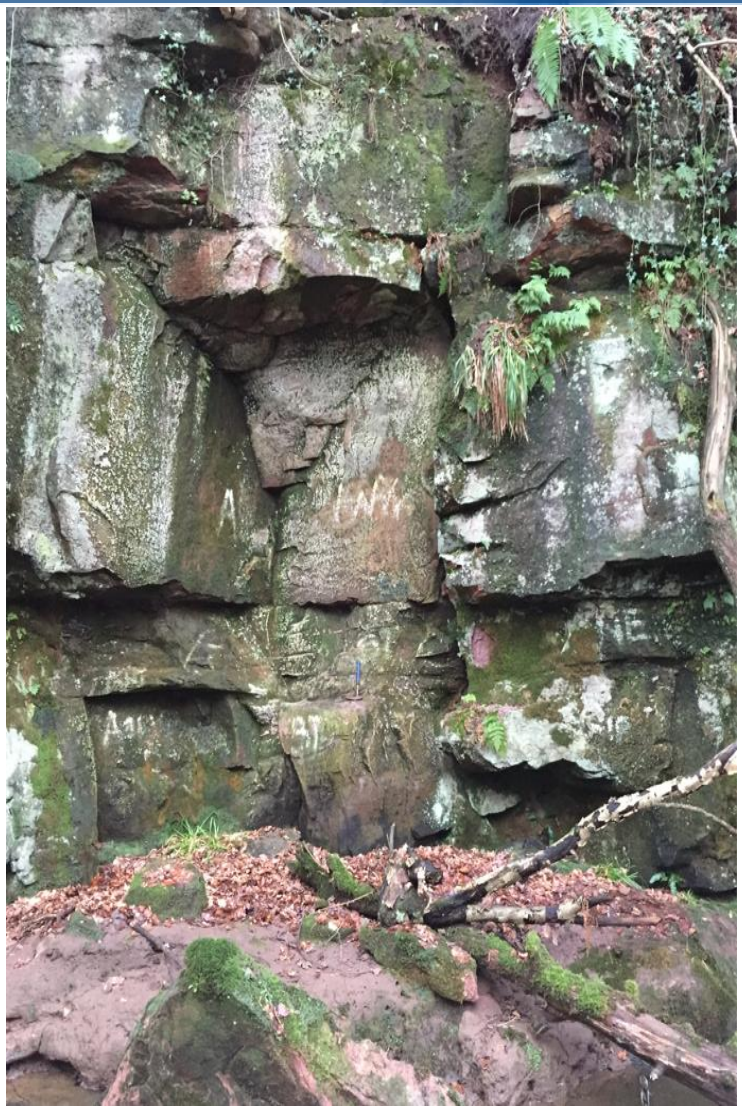
Complex Stakeholder Management



Complex Stakeholder Management



Initial Challenges



Fractured sandstone outcrop in Burn

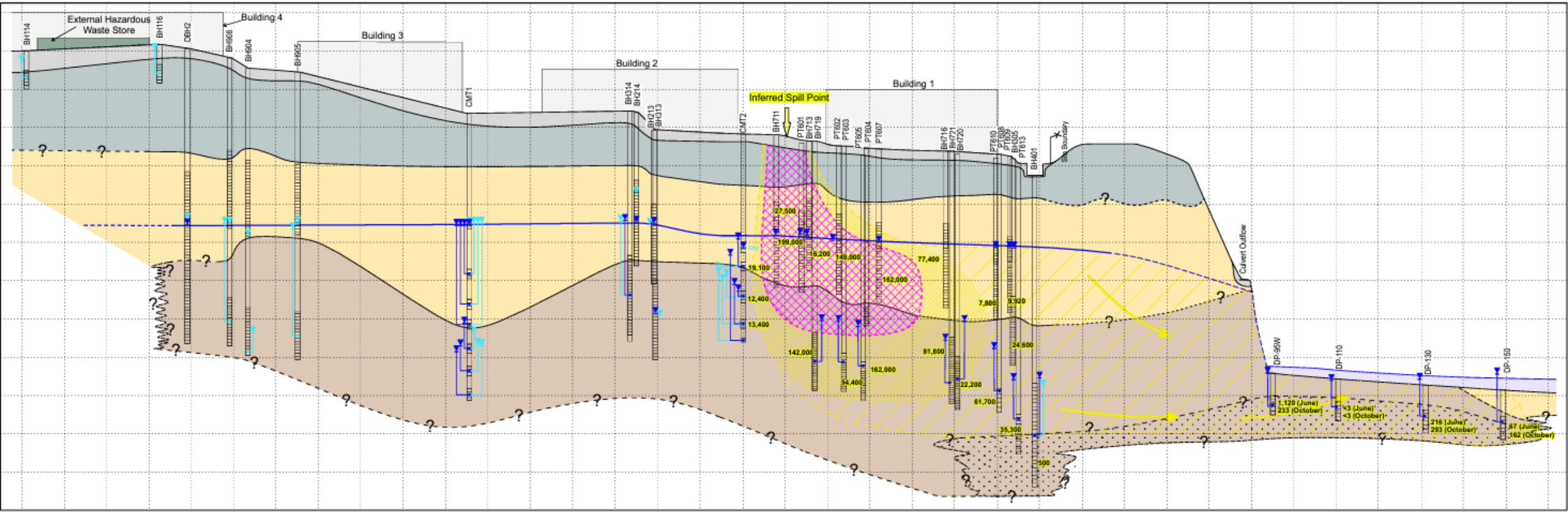
- Chemicals in soils and groundwater related to the Environmental Permit
- **Hardest challenge**: TCE in fractured sandstone/ mudstone ➔ Burn
- Conceptual site model (CSM) development for source term characterisation and mass estimation
- Developing remedial strategy
- Interweaving remedial objectives to meet regulatory requirements
- Close collaboration with Regulator became key

Conceptual Site Model & Risk Assessment

- Developing a detailed CSM
- Characterizing risks to groundwater, surface water, and human health (residential)
- High resolution site characterisation and river investigation (thermal surveys and drilling)
- Detailed quantitative risk assessment (DQRA) to establish risk-based screening levels and remedial targets
- Regulatory liaison at each step

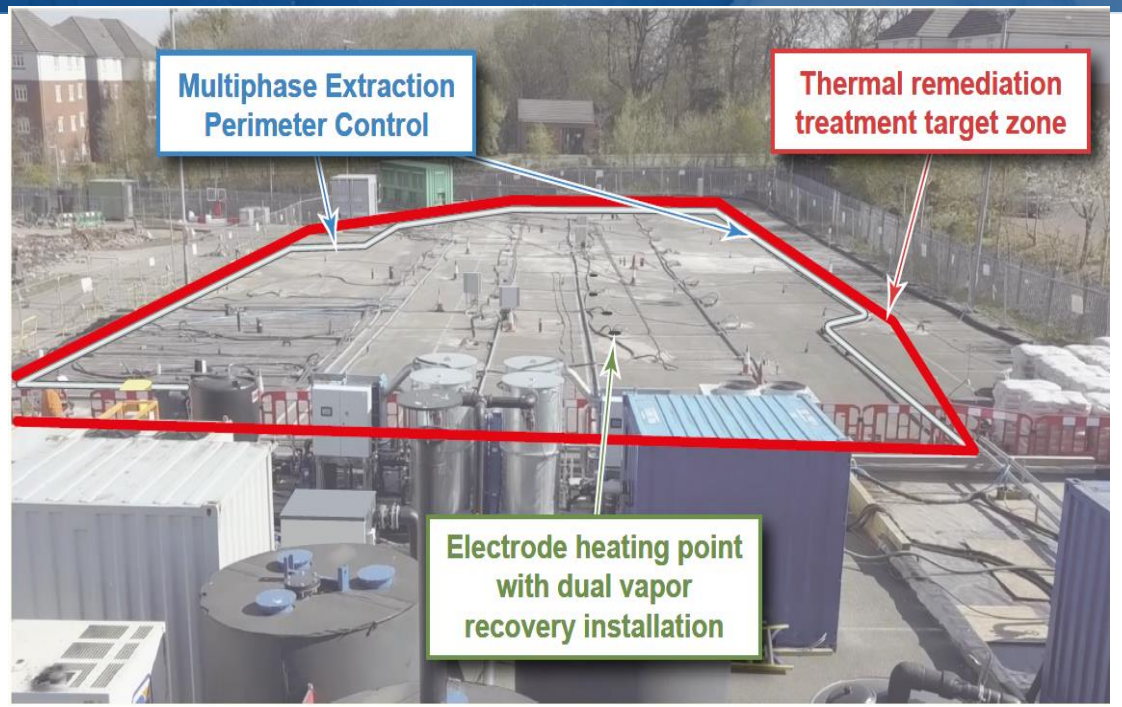
Investigation to install drive points in Burn

Risk Assessment & Conceptual Site Model



TCE: Innovative Remediation Approach

- 900m^2 treatment area/ 8,000m^3 superficial deposits and bedrock
- Betterment agreed – ring doughnut approach
- Innovative sustainable remediation techniques – ERH : peripheral multi phase extraction – 1,200kg mass

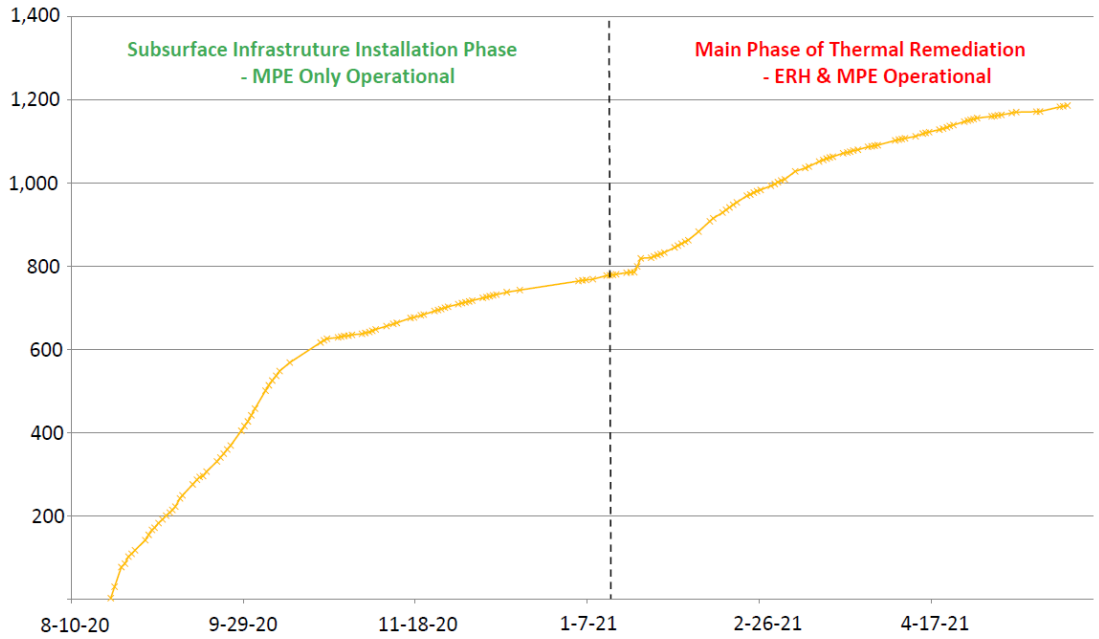


Remediation extent and system layout

- Use 100% energy from renewable sources
- First UK/ European application of thermal desorption and MPE?
- Achieving regulator satisfaction while addressing TCE impacts

TCE: Innovative Remediation Approach - outcomes

- MPE can be effectively and efficiently combined with ERH
- The combination of MPE into a ERH managed the localised mobilisation of mass during works
- And provided added environmental protection to the neighboring residential and surface water receptors.



Cumulative TCE removal over 7 months – 1,200kg

- This provided additional regulatory comfort in implementing such an aggressive remedial technique in this specific setting

Site Platform Reclamation

Asbestos dust suppression measures

- Following demolition of structures ➔ platform creation.
- Embedding sustainability – materials planning - shop local!!
- Demolition material retention.
- Pragmatic reclamation strategy.
- Expect the unexpected
- Integrated thinking: owner to developer
- Balancing regulatory requirements: special mention to highways.

Achievements & Results

- HRSC to define the CSM
- Successful remediation of TCE impacts on site – continued monitoring of residual plume
- Material won from building demolition used in platform
- Successfully dealing with the unexpected
- Negotiating the different regulatory needs

Ground investigation for site characterisation

Achievements & Results

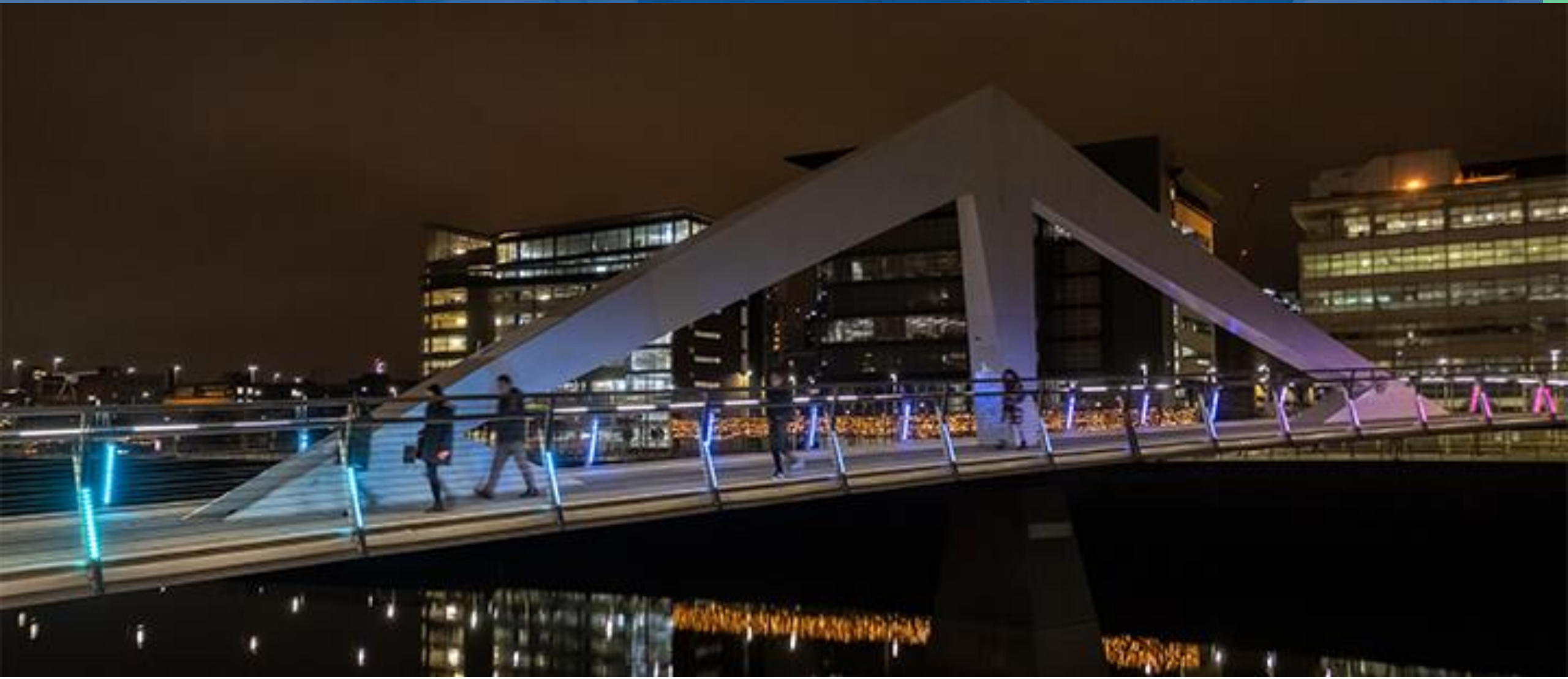
Buildings demolished 2021

- Embedding value and sustainability into the project
- Minimizing impacts on surrounding communities
- Reducing road movements and plant activity
- Environmental Permit Surrender
- Planning Conditions discharged

Key Takeaways

- Value of innovation – being open minded
- Embracing the importance of collaboration
- Be flexible – be pragmatic – work with the other stakeholders
- Expect the unexpected, communicate openly and well – arrive at mutually agreeable solutions
- Significance of holistic and sustainable approaches

Thank You



Glasgow Tradeston Bridge