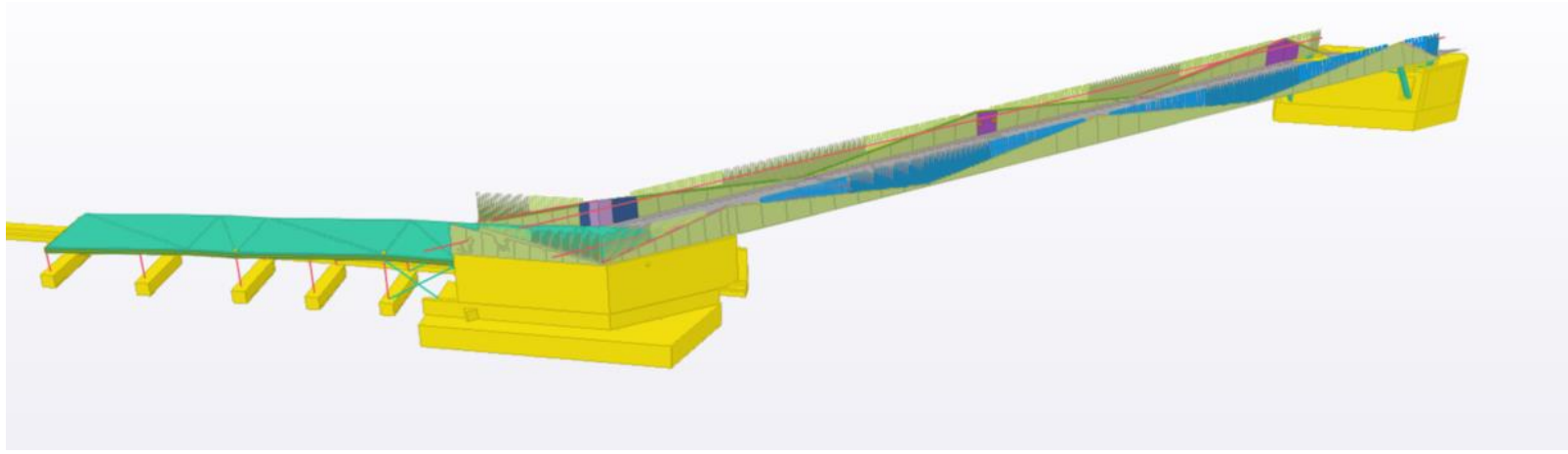
BB1695
TRIBECA CONSULTANCY
BUILD METHODOLOGY

06/09/2024

BEAVER BRIDGES



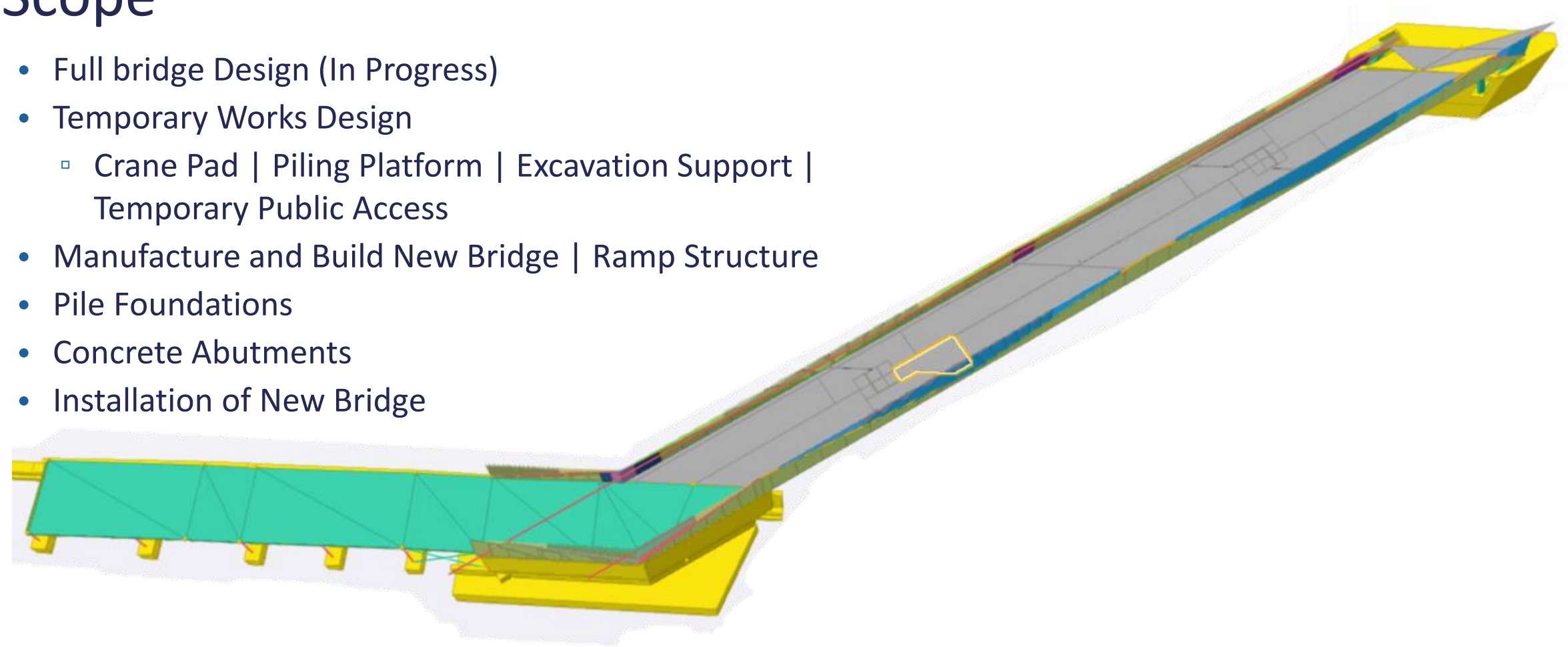
Introduction

This document has been produced to satisfy Condition 4

Prior to the commencement of the development hereby permitted, a Risk Assessment and Method Statement outlining all works to be carried out adjacent to the water and moorings must be submitted to and approved in writing by the Local Planning Authority, in consultation with the Canals and Rivers Trust and implemented as agreed.

Scope

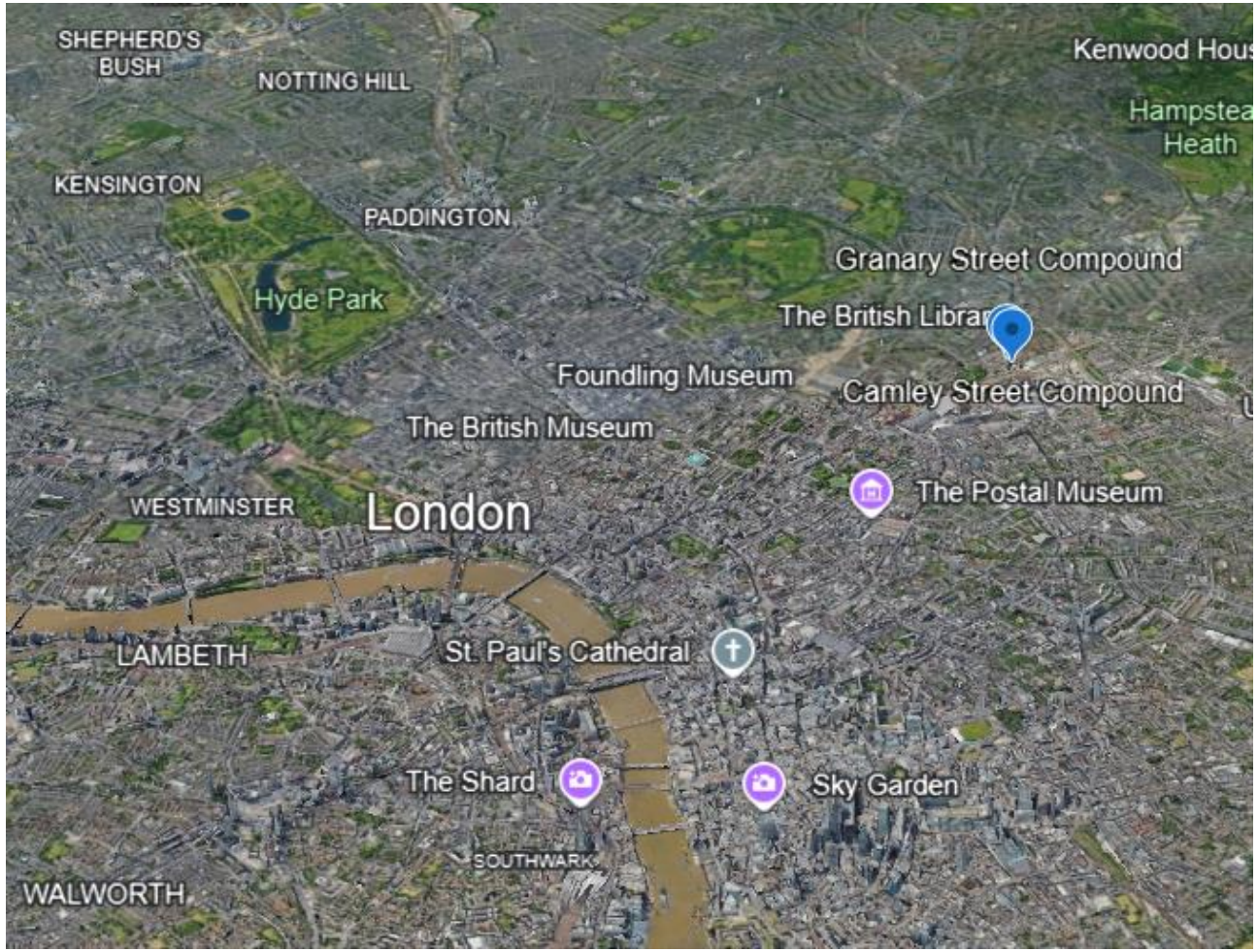
- Full bridge Design (In Progress)
- Temporary Works Design
  - Crane Pad | Piling Platform | Excavation Support | Temporary Public Access
- Manufacture and Build New Bridge | Ramp Structure
- Pile Foundations
- Concrete Abutments
- Installation of New Bridge



Site Locations

Camley Street Compound -
///inches.backs.reap

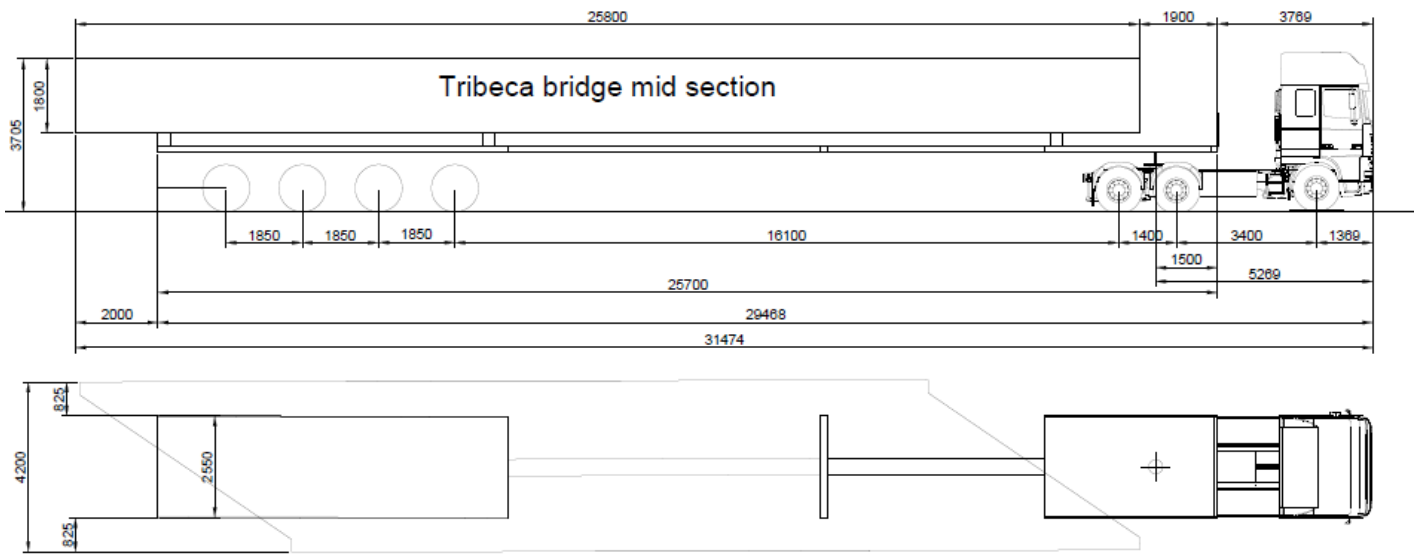
Granary Street Compound –
///dozen.stews.baking

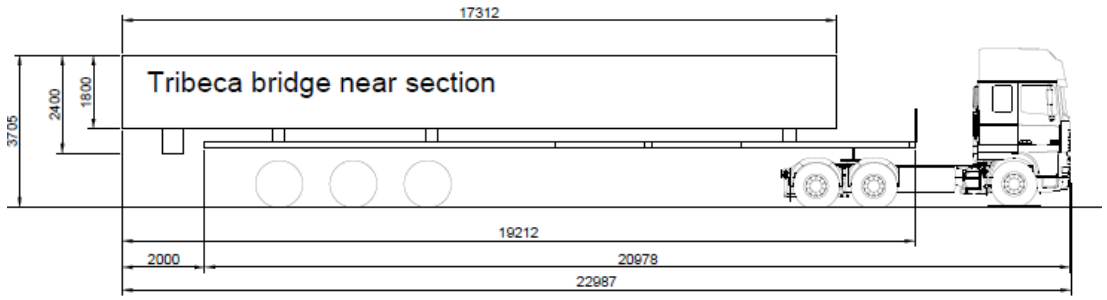


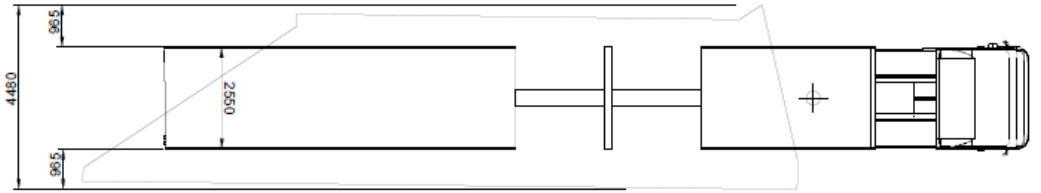
Transport Plan

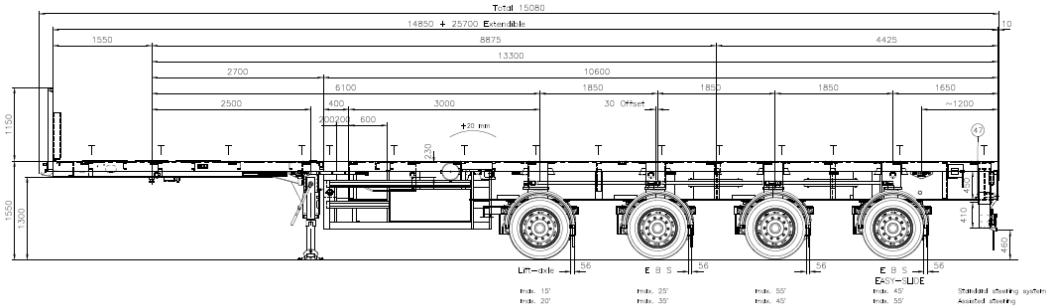
Bridge to arrive in 3 No. sections (Near – Mid – Far)

- Widest Load 4.4m wide
- Longest section is 25.8m









4 axle - Extendable Trailer to be utilised for largest mid-section.

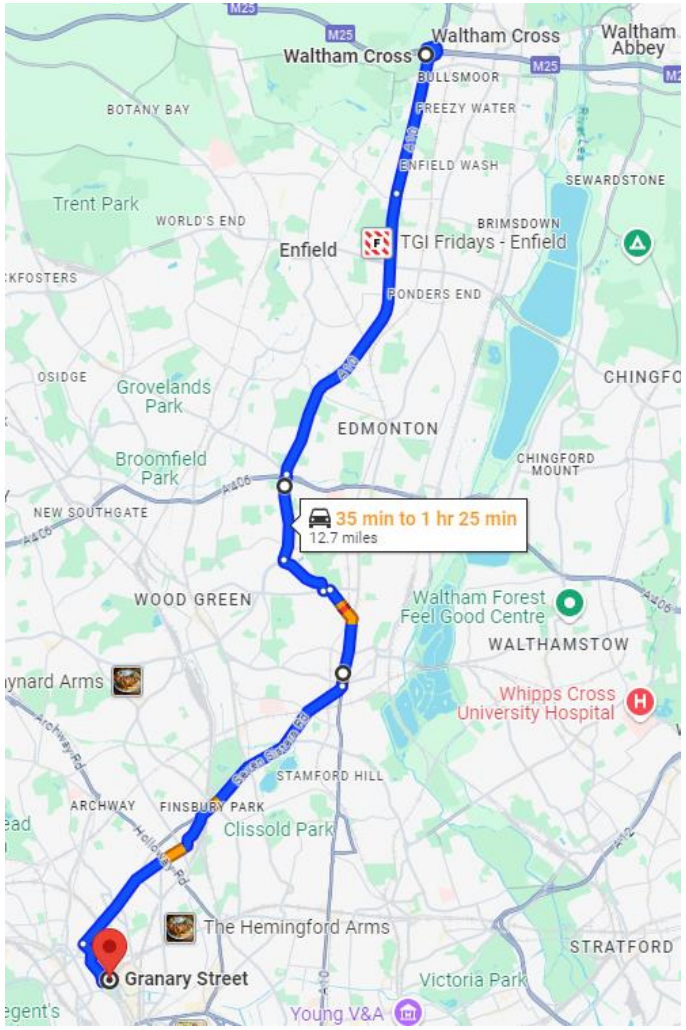
Transport Plan - Route

Route to the site from M25

- M25 to Junction 25
- A10 South
- Turn Right to A503 (Seven Sisters Road)
- Turn Left to A5202
- Turn Left Granary Street
- Continue to site.

- Street furniture removal is required
  - At the entrance to Granary Street.
  - A10 intersection with Roundway

Further sweep path analysis is required in some areas before confirming the route.

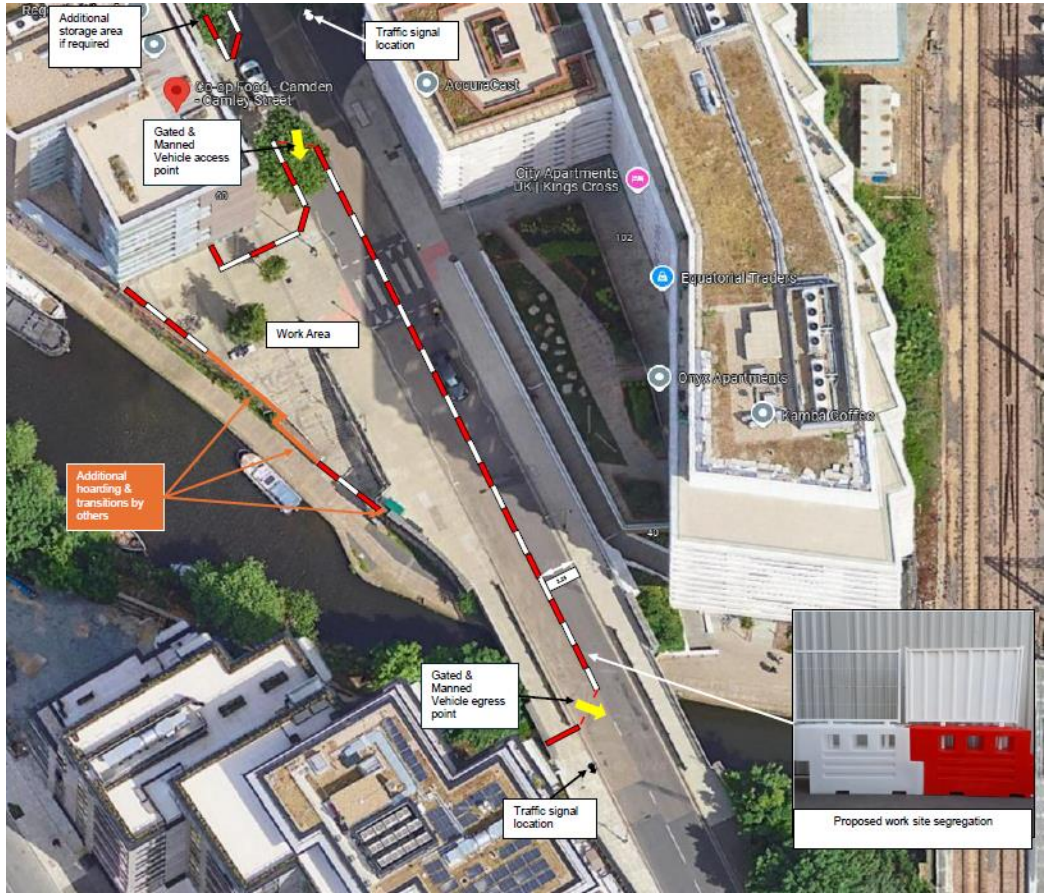


Pre-Construction

- Obtain TTRO
  - Camley Street Lane Closure
  - Granary Street Road Closures
- Obtain Canal Closure (CTR)
  - Canal
  - Towpath
- Temporary works Designs
  - Excavation Support
  - Crane Pad
  - Piling Platform
  - Formwork

Road Closures – Camley Street

- Lane Closure – Camley Street
  - Lane closure for the duration of the works on Camley Street – Approx 15 Weeks.
  - Entrance and exit to reduce site manoeuvres.
  - Required for an increased work area.



Road Closures – Granary Street

Night Closures on Granary Street

- The dates for Granary Street road closures are:
  - From: 16:00 on Friday, 21st March
  - To: 06:00 on Monday, 24th March

- Contingency 1:
  - From: 16:00 on Friday, 28th March
  - To: 06:00 on Monday, 31st March

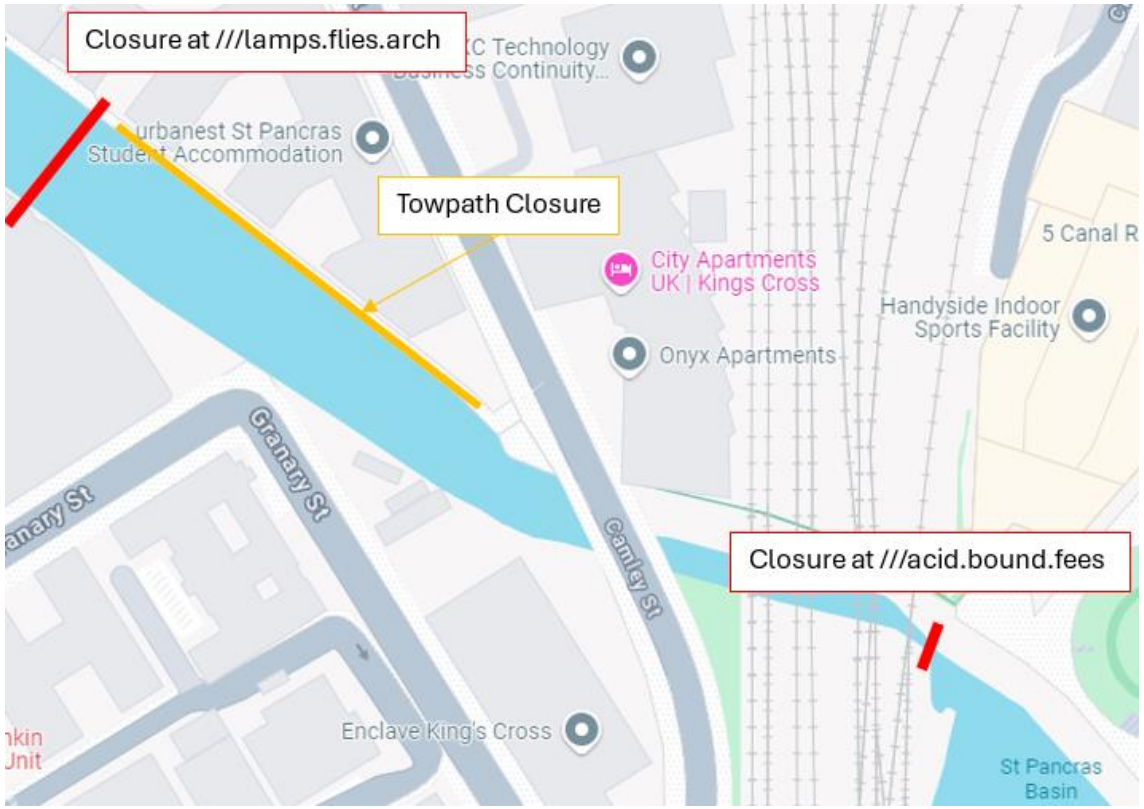
Continuous access to hospital gate required

Canal & Towpath Closures

- The canal must be closed during the Installation of the Permanent Steelwork. Closure points will be confirmed following discussions with the Canal and River Trust.
- In addition to the canal closure, there is a requirement to close the towpath and stairs.
- The dates for Canal & Towpath Closure is:
  - From: 16:00 on Friday, 21st March
  - To: 06:00 on Monday, 24th March

Contingency 1:

  - From: 16:00 on Friday, 28th March
  - To: 06:00 on Monday, 31st March



Structure Monitoring - Introduction

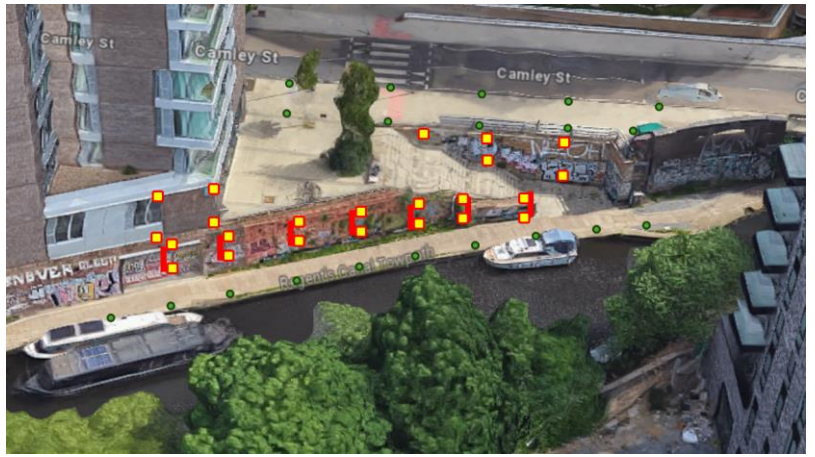
This proposal outlines a monitoring regime for structural monitoring of the canal retaining wall, Camley St. footpath, canal towpath, and the adjacent building. The objective is to ensure structural integrity and safety during and after construction activities. The monitoring strategy employs a combination of manual and automated instrumentation to detect and measure any movement or deformation of these structures. The monitoring data will enable timely interventions, if necessary, to prevent any potential structural failures.

The scope of work includes the installation, maintenance, and monitoring of various types of sensors and instruments on the canal retaining wall, footpath, canal towpath, and the adjacent building. The following sections detail the instrumentation to be used and the methodology for monitoring.

Structural Monitoring Instrumentation

The proposed monitoring system includes the following components:

- **Reference Targets for Control**: A standard number of reference targets will be installed to establish a control network for the monitoring activities. These targets will serve as stable reference points for assessing any movements or deformations detected by other sensors.
- **Monitoring Reflectors**: Up to 30 monitoring reflectors will be installed on critical points of the canal retaining wall, footpath, canal towpath, and the adjacent building for manual monitoring. These reflectors will allow for precise measurements of displacement and deformation using a total station.
- **Precise Levelling Points**: Up to 20 precise levelling points will be installed on the footpath along Camley Street and other critical areas. These levelling points will enable manual monitoring of vertical displacements, ensuring the detection of any settlement or heave that could compromise structural stability.
- **Tri-Axial Tilt Sensors**: Seven tri-axial tilt sensors will be mounted on 1m beams and installed on the retaining wall for automated monitoring. These sensors will continuously measure any tilt or angular displacement of the wall, providing real-time data on the wall's stability.
- **4G Gateway and Solar Panel**: A 4G gateway will be installed to facilitate communication between the sensors and the monitoring system's central server. The gateway will be powered by a solar panel to ensure uninterrupted operation even in the event of power outages.



Monitoring Methodology

Manual Monitoring

- **Frequency**: Manual monitoring of the reflectors and levelling points will be conducted on a weekly basis or more frequently if significant movements are detected.
- **Data Collection**: A total station will be used to measure the position of reflectors, and a precise level will be used to measure changes in levelling points.

Automated Monitoring

- **Frequency**: Tilt sensors will provide continuous real-time monitoring data, which will be transmitted via the 4G gateway to a central server.
- **Early Warning System**: The automated sensors are equipped with an early warning system that triggers alerts if the retaining wall experiences any movement beyond pre-defined thresholds. This system will enable rapid response to potential structural issues, helping to mitigate risks before they escalate.
- **Data Processing**: The data will be analysed using specialised software to detect any patterns of movement or deformation.

Monitoring – Data Management and Reporting

Data Management and Reporting

- **Data Storage**: All data collected will be stored on a secure server with backup facilities to ensure data integrity and availability.
- **Reporting**: Weekly and monthly reports will be generated, summarising the monitoring results and highlighting any areas of concern. In the event of significant movement or deformation, an immediate report will be issued with recommended actions.

Mobilisation

- Camley Street

Expected Start Date - 11/11/2024 for 15 Weeks

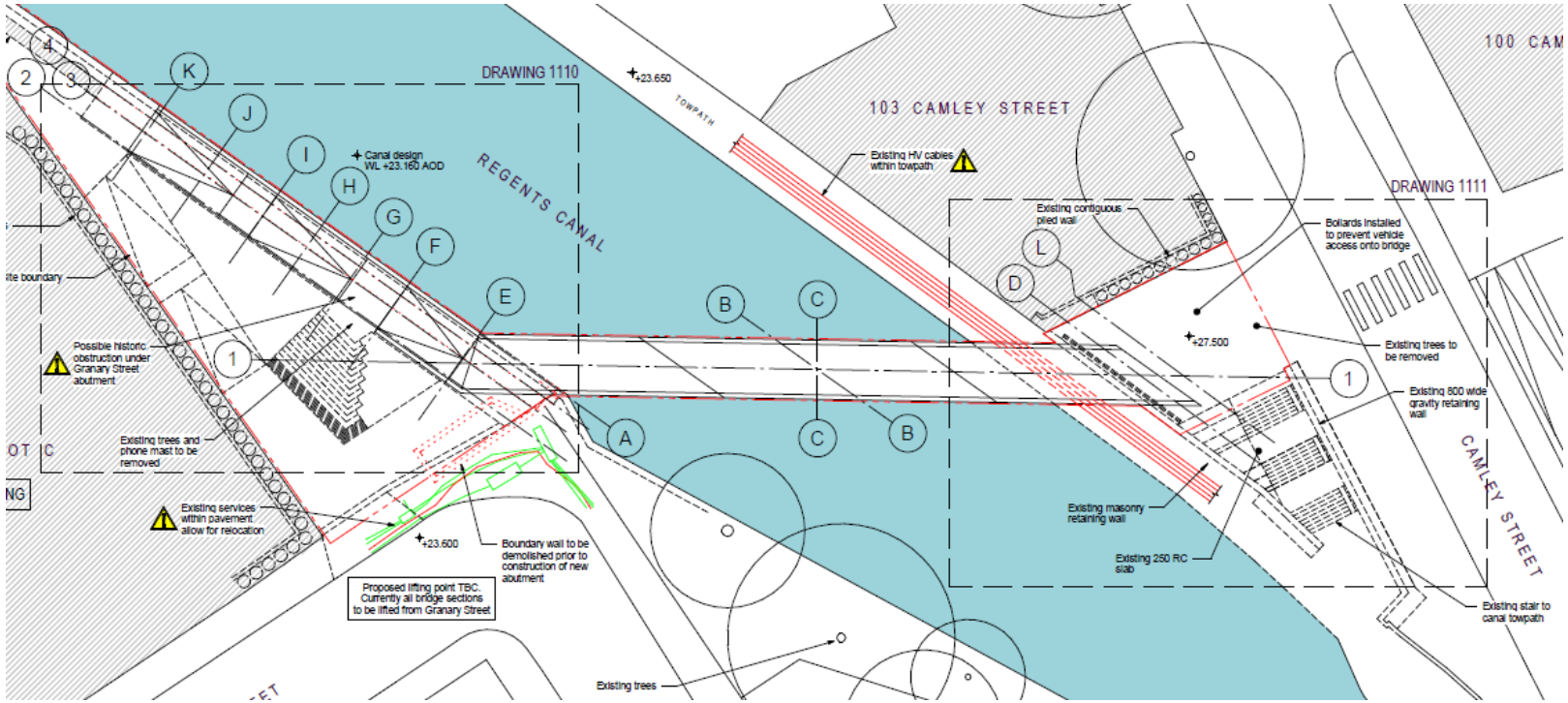
  - Erect Traffic Management
  - Erect Site Hoarding
  - Site Clearance
  - Set up Welfare

- Granary Street

Phase 1 expected start date 11/11/2024 for 7 Weeks

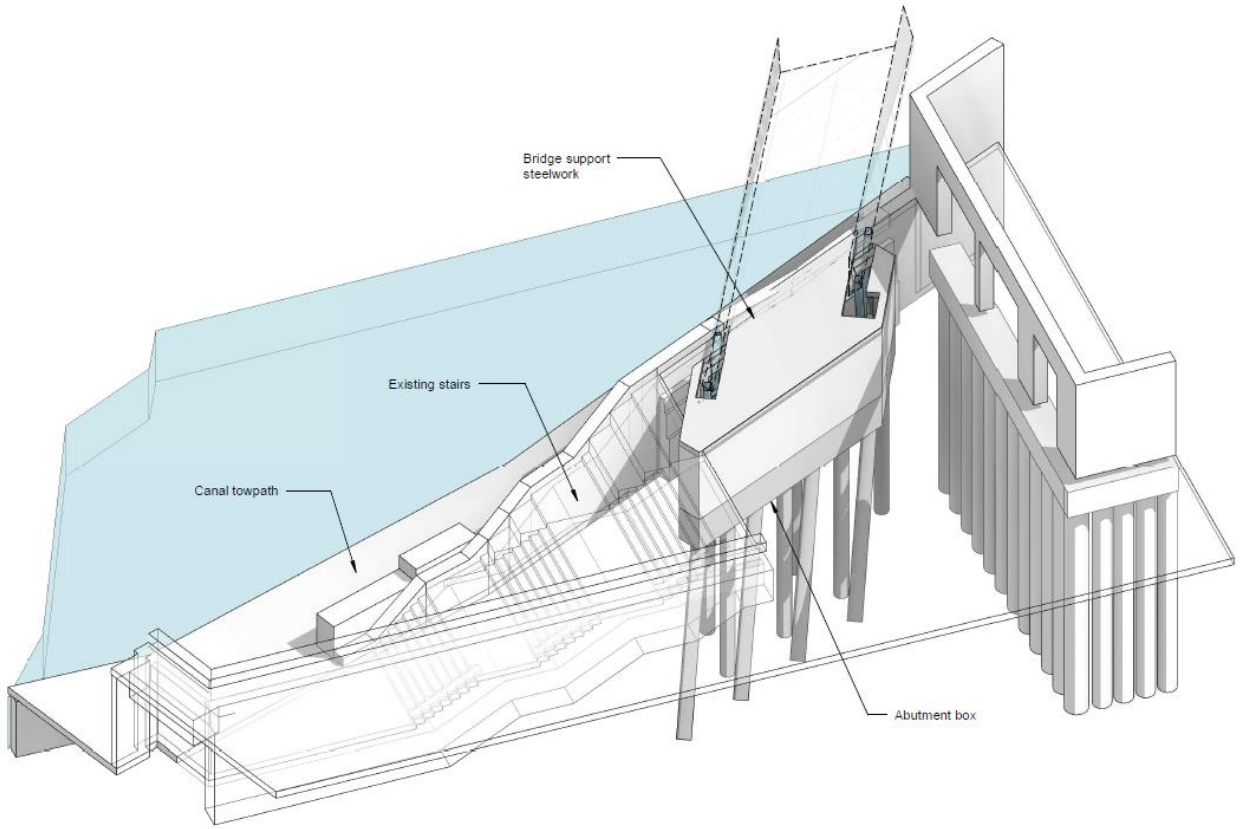
Phase 2 expected start date 15/06/2024 for 6 Weeks

  - Erect Site Hoarding
  - Site Clearance
  - Set up Welfare



Camley Street Civils

1. Excavation Support
   a) Piling Platform
2. Install Piles
3. Construct Pile Cap
4. Construct Wall



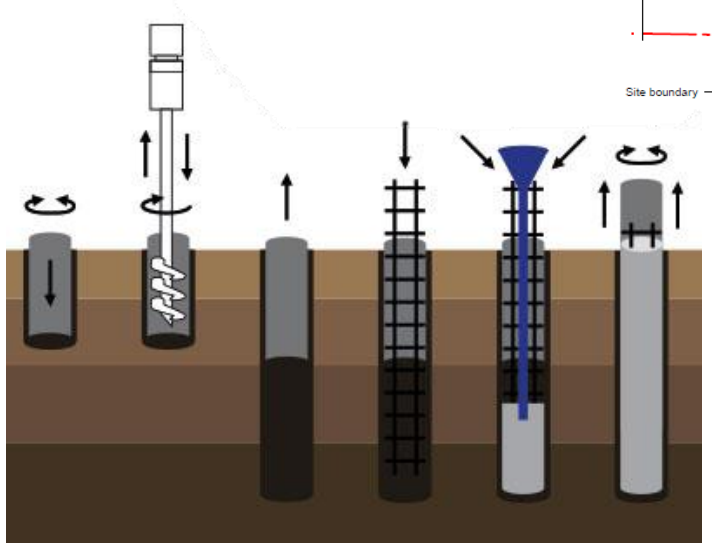
CAMLEY STREET 3D VIEW

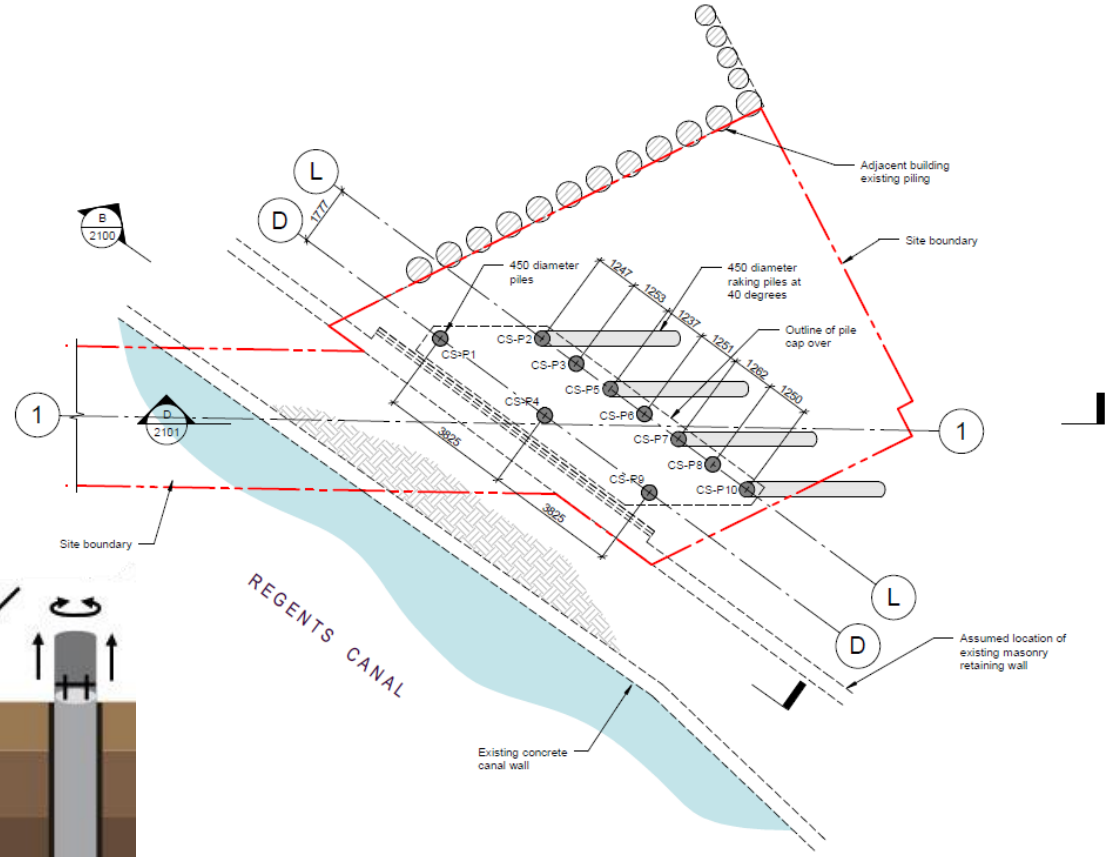
Camley Street Excavation Support

- Excavate to reduce the level behind the retaining wall and Install Temporary Earthwork support.
- Construct piling platform
- Lift Piling Rig into excavation to enable piling
  - Expected 29/11/2024
  - Lift Out 22/12/2024

Camley Street Piling

- Set out Pile Positions
- Install Piles Bored Method

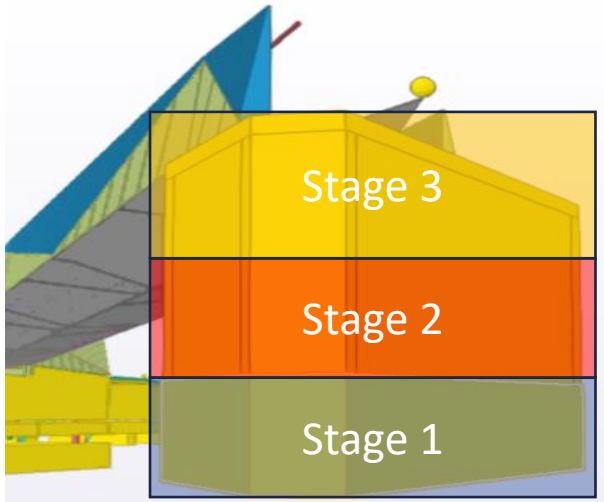


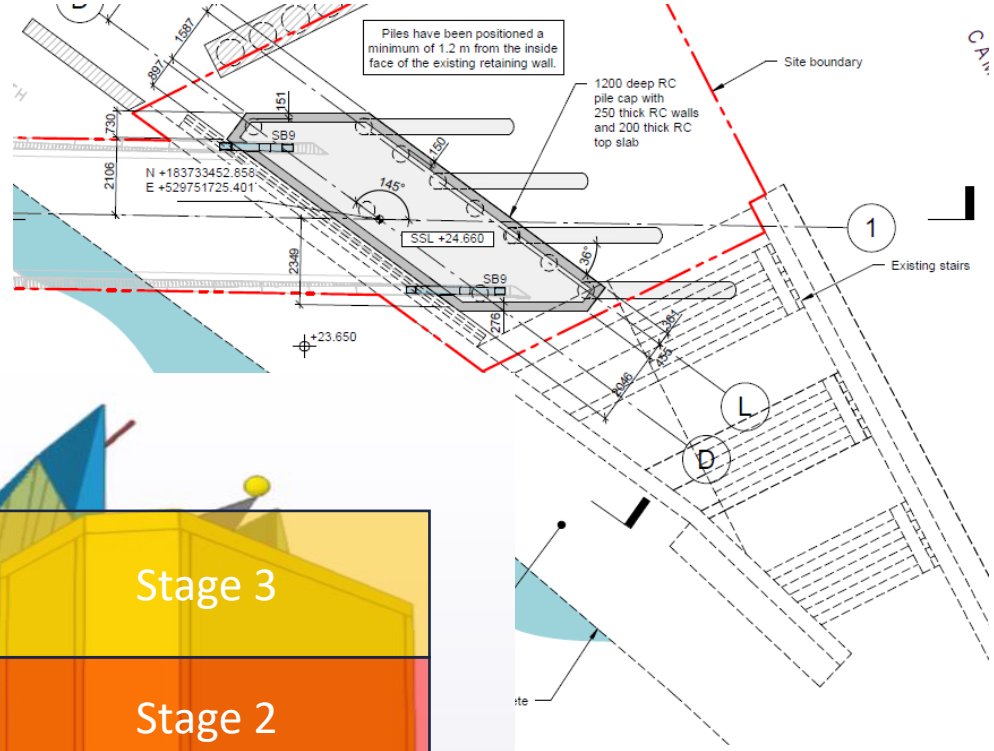


CAMLEY STREET PILING

Camley Street Cap & Abutment

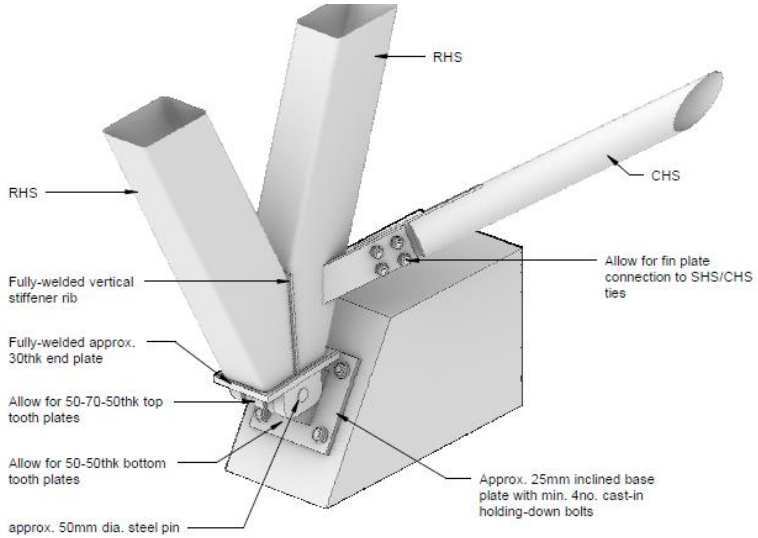
- Stage 1 - Construct 1200mm Deep Pile Cap
- Stage 2 - Construct Abutment Wall to Half Height
- Backfill & Compact
- Stage 3 - Construct a Remaining Abutment Wall and box Lid.
- Backfill and Compact.
- Remove Excavation Support

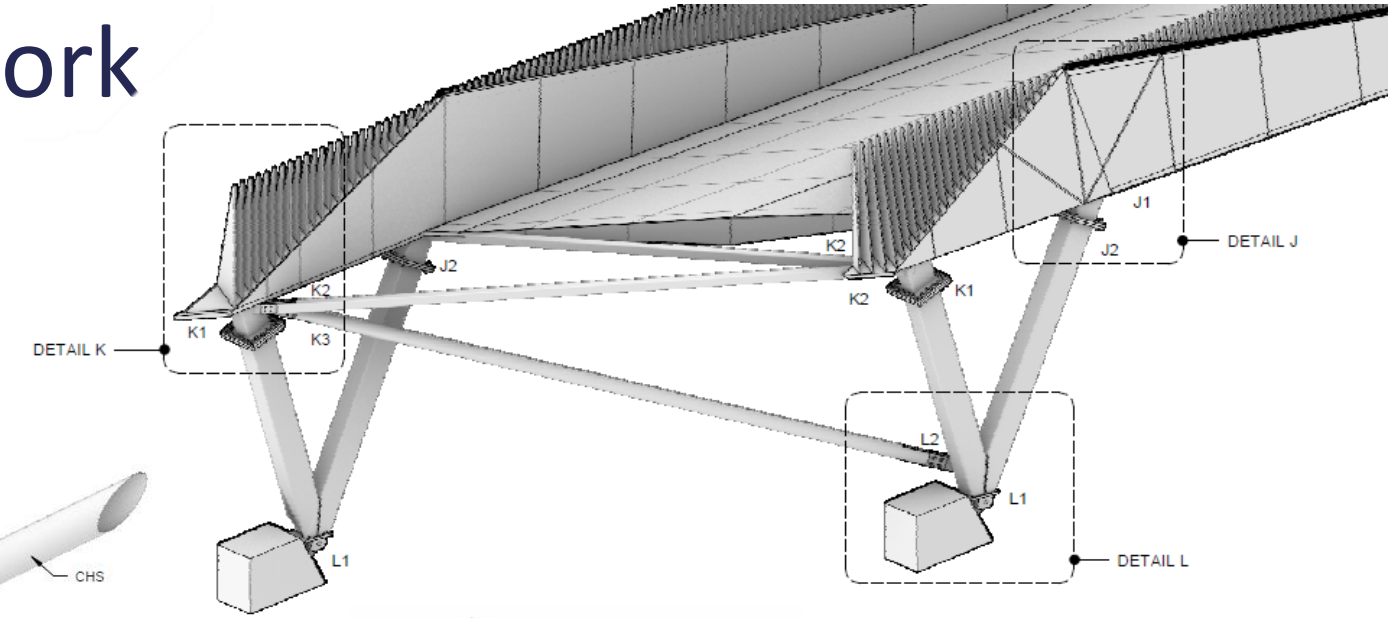


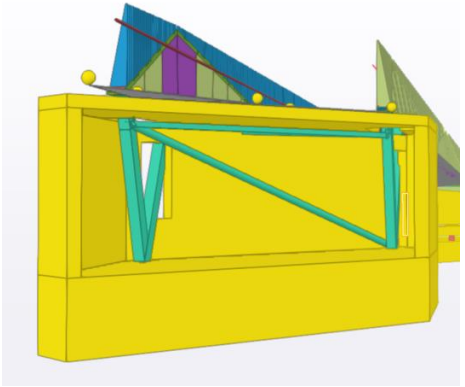


Camley Street - Steelwork

- Install Substructure Steelwork in preparation for the bridge installation.







KEY 3D VIEW

Granary Street Civils

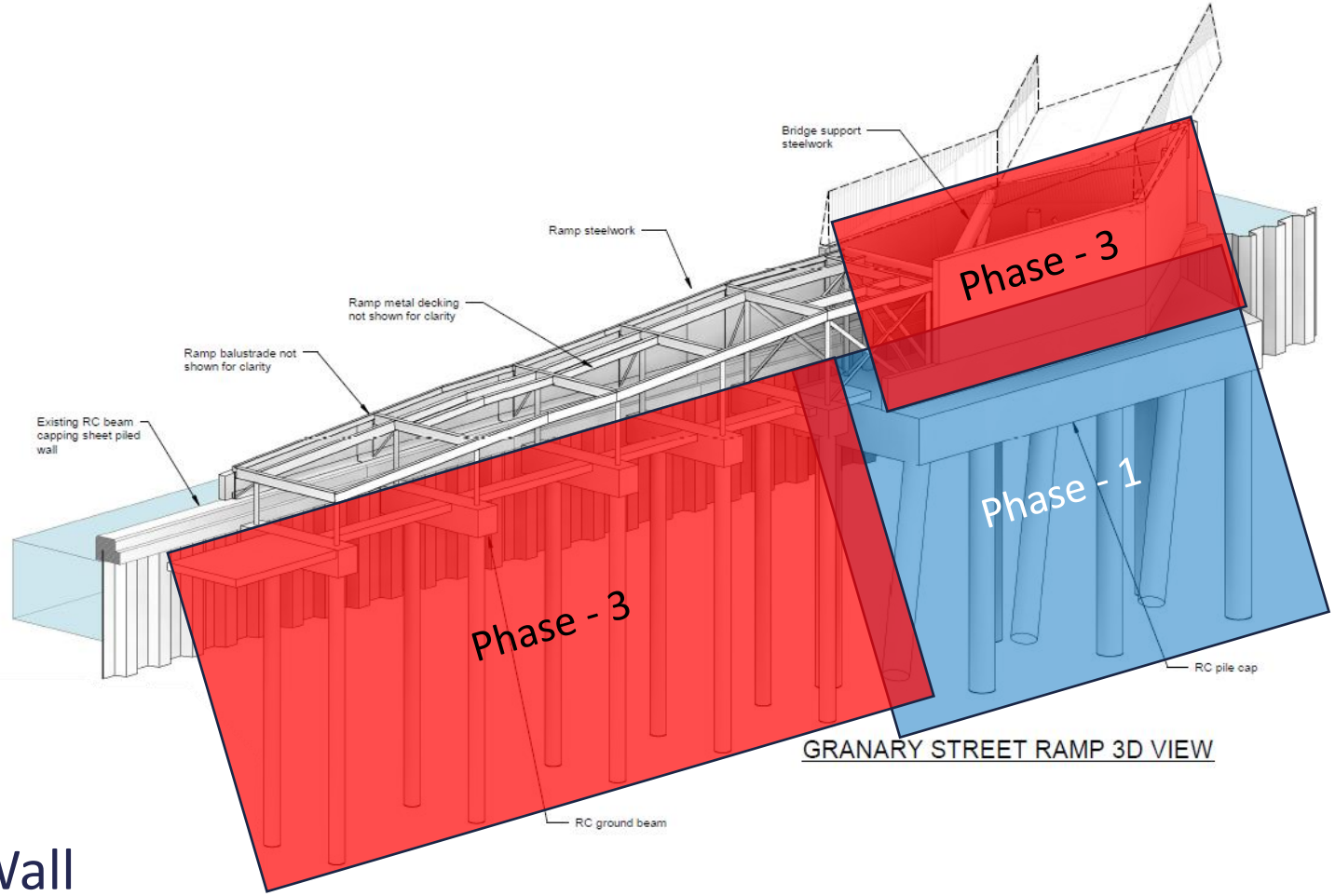
Phase 1

1. Bridge Piling Platform
2. Install Bridge Piles
3. Construct Bridge Pile Cap

Phase 2 – Bridge install

Phase 3

1. Ramps Piling Platform
2. Install Ramp Piles
3. Construct Ramps Pile Cap
4. Construct Bridge Abutment Wall

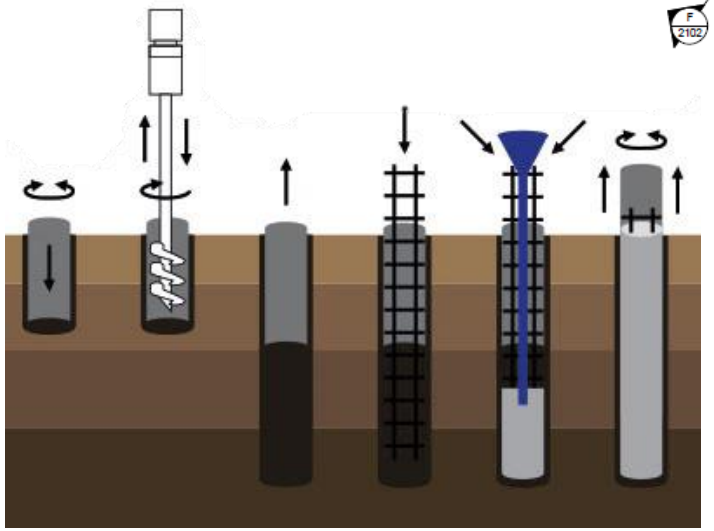


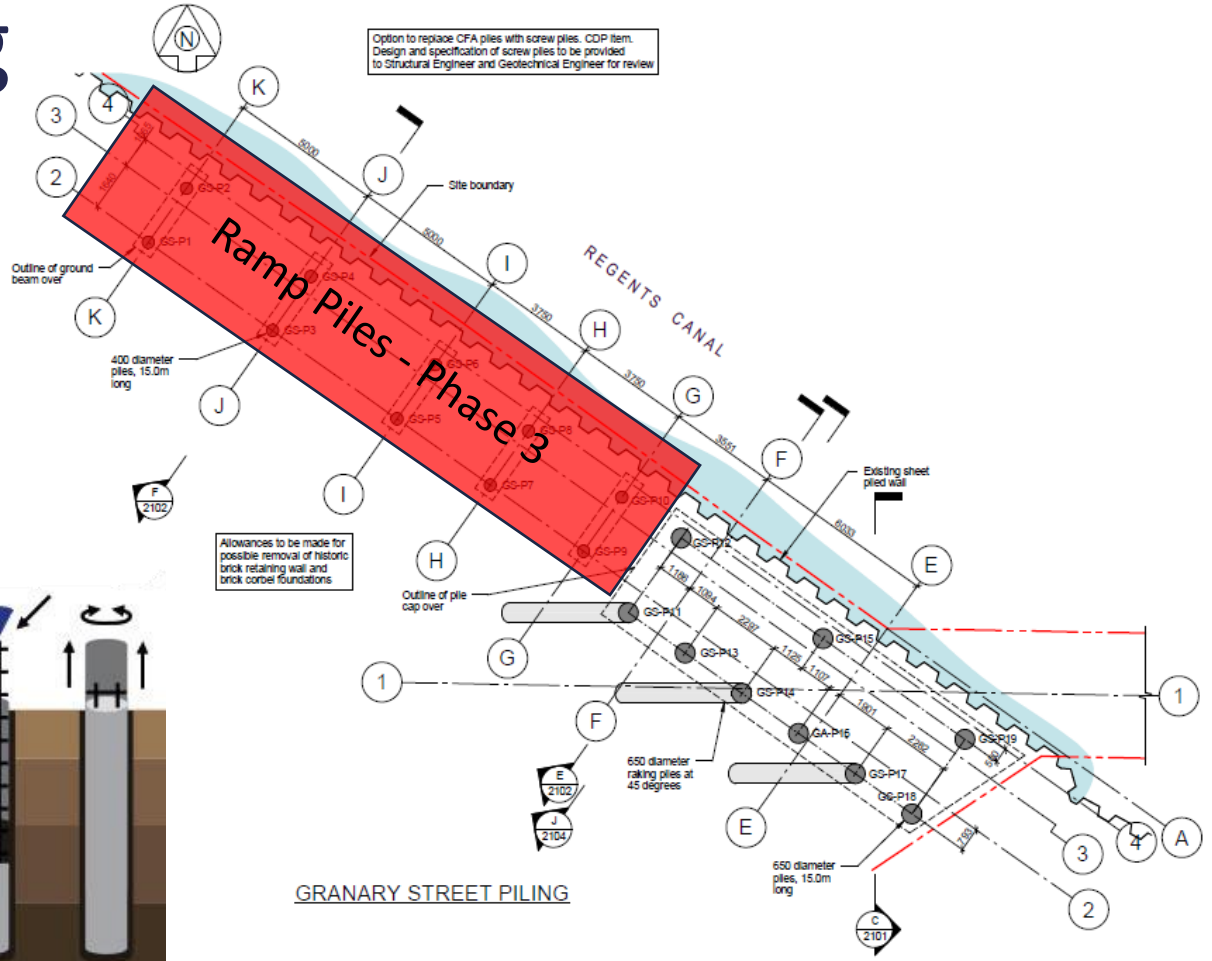
GRANARY STREET RAMP 3D VIEW

Granary Street Bridge Piling

Phase 1

- Construct Piling Platform
- Set out Pile Positions
- Install Piles Bored Method

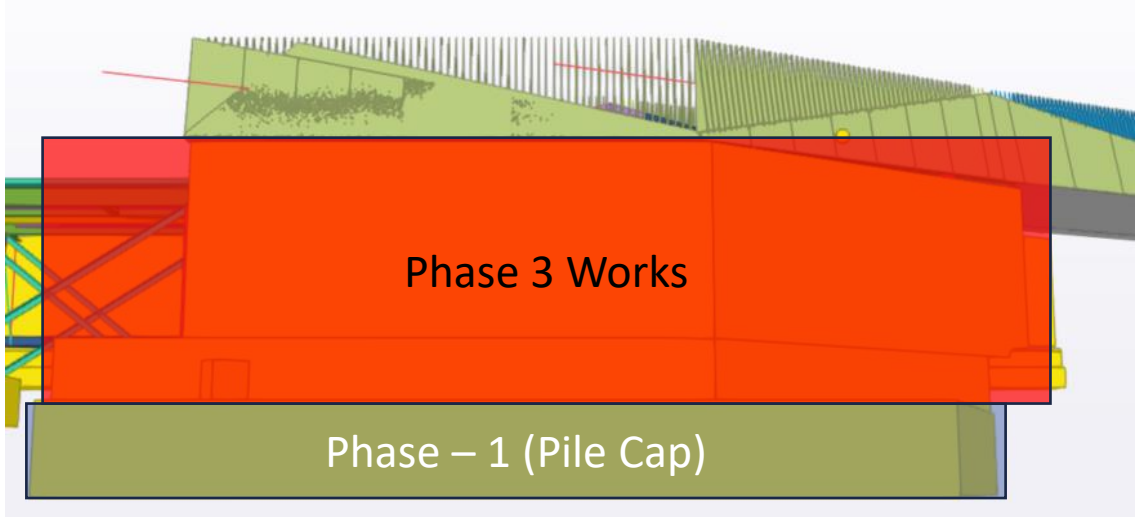


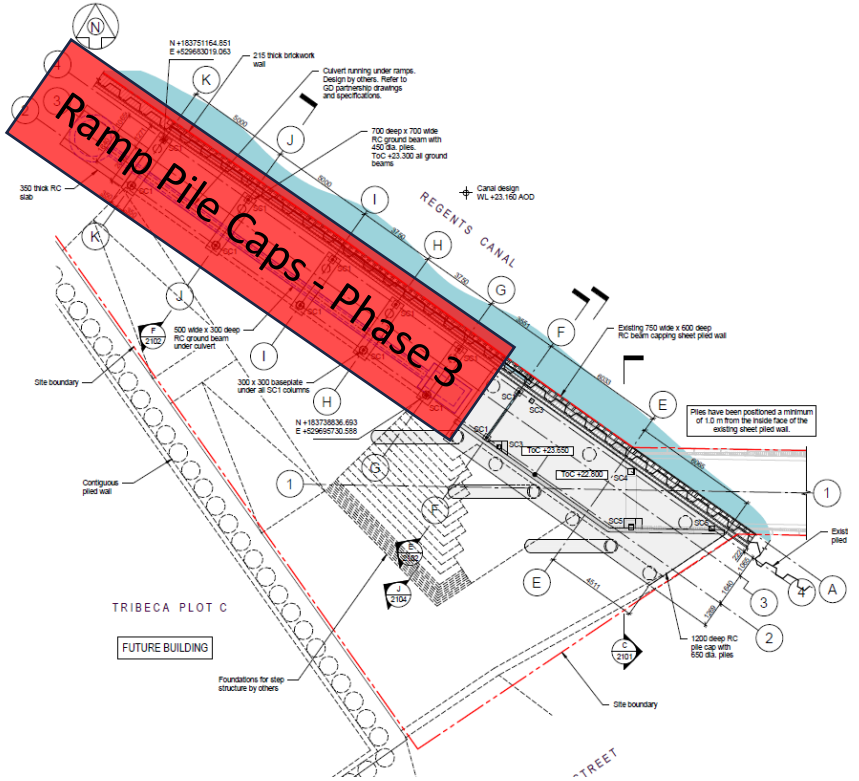


Granary Street Bridge Abutment

Phase 1

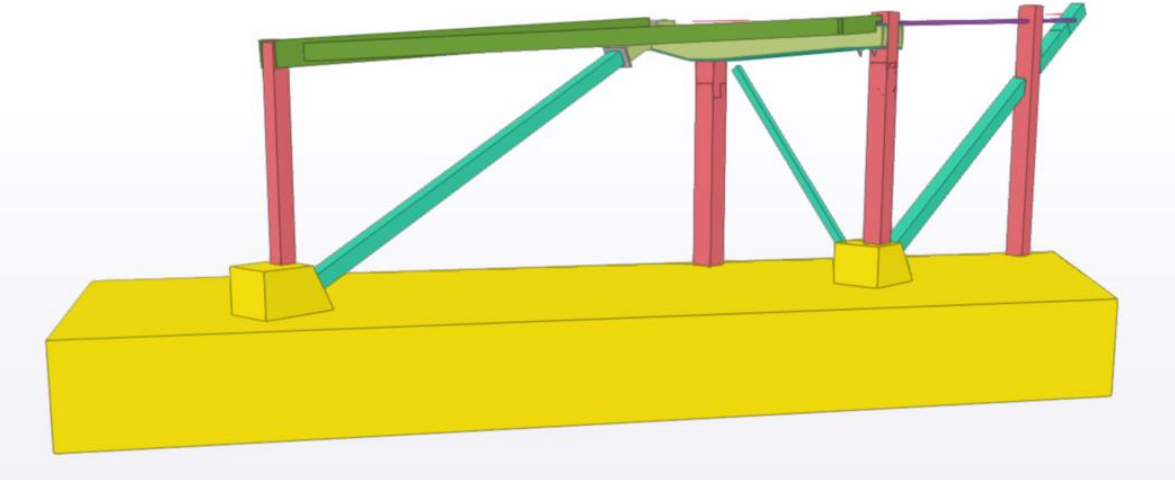
- Construct 1200mm Deep Pile Cap
- Backfill & Compact

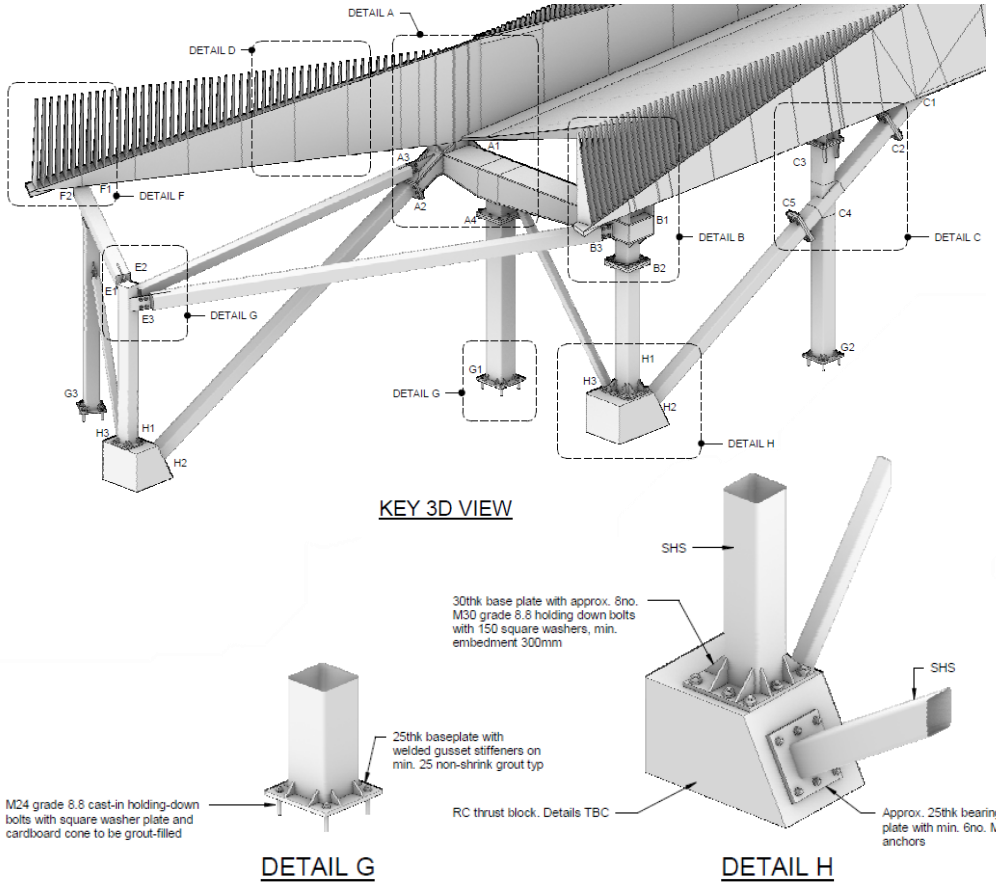




Granary Street - Bridge Steelwork

- Install Substructure Steelwork in preparation for the bridge installation.

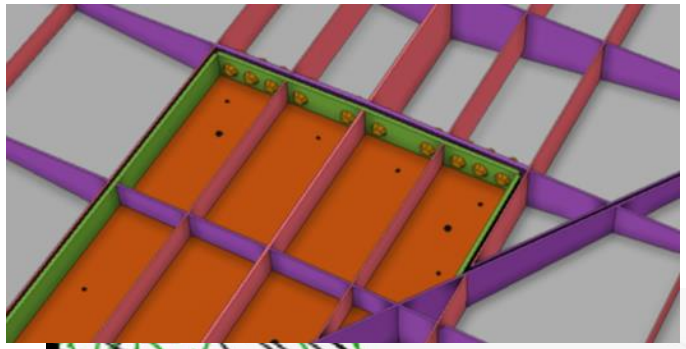


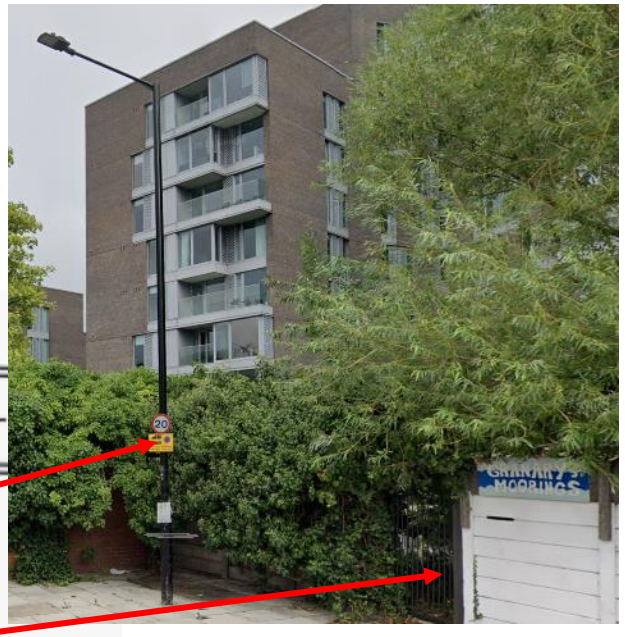


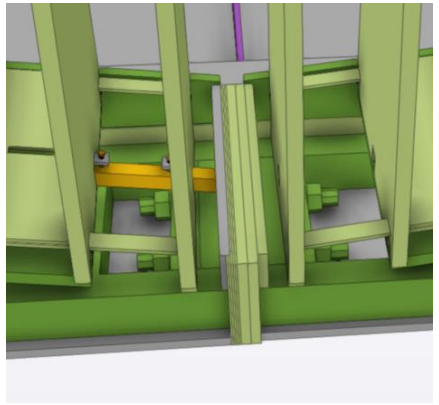
Phase 2 - Bridge Installation

- Road Closure | Canal Closure | Towpath Closure
- Crane to be situated on Granary Street.
- Street furniture to be removed to enable crane access:
  - Streetlight
  - Hoarding
- Lift Sections
  1. End Sections
  2. Centre Section
- Bridge to be Sliced in situ while the centre section is still attached to the crane's hook.

Buried Service protection - TBC

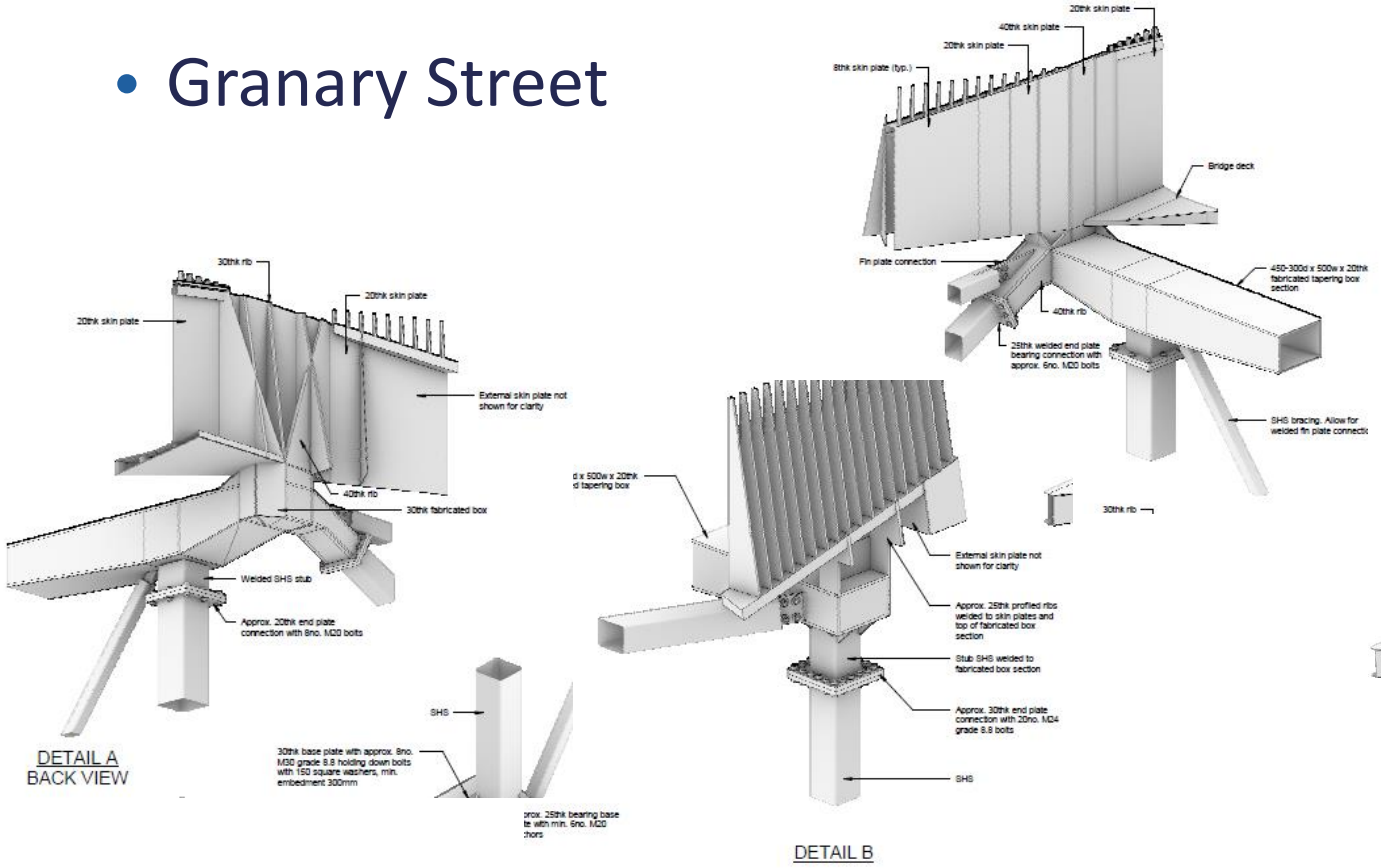




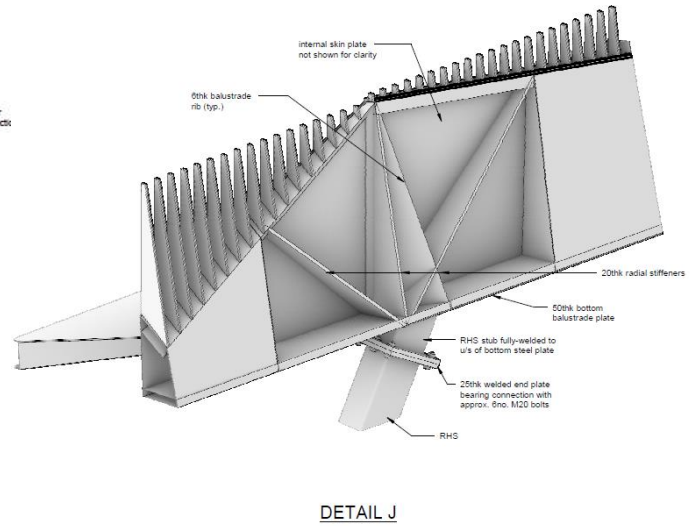


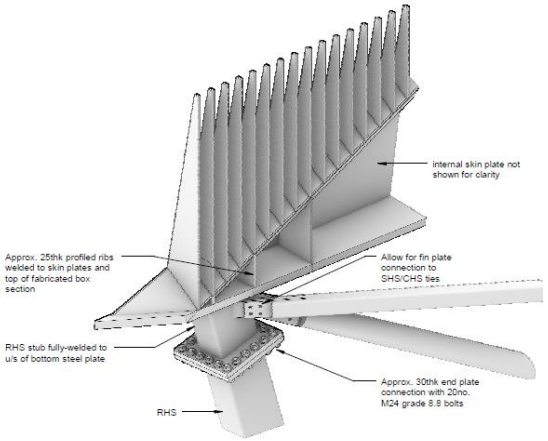
Bridge Install – Connection Details

- Granary Street



- Camley Street





Temporary Access to Bridge Structure

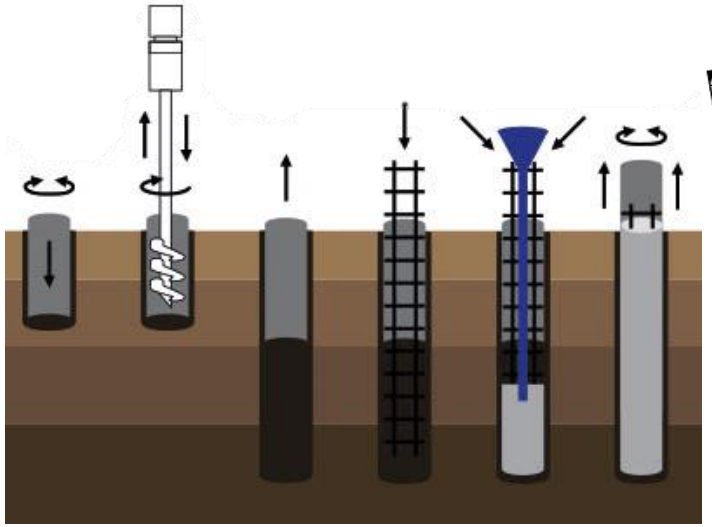
- Install Temporary Bridge Access – Granary Street

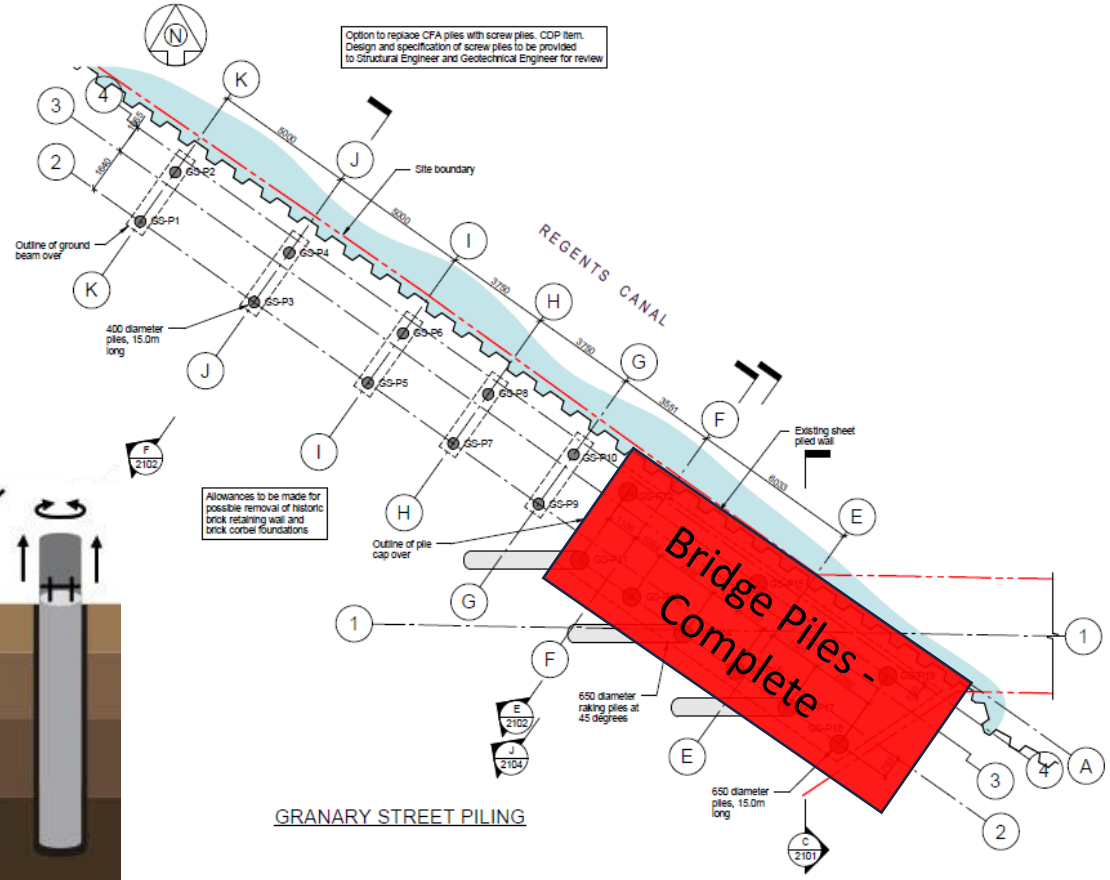
Phase 1/2 - Demob

- Camley Street
  - Remove Traffic Management
    - Re-open Camley Street Lane Closure
  - Remove Site Hoarding
  - Site Clearance
  - Remove Welfare
- **Open Bridge in a temporary state to allow for public access.**

Granary Street Civils – Ramp Piling - Phase 3

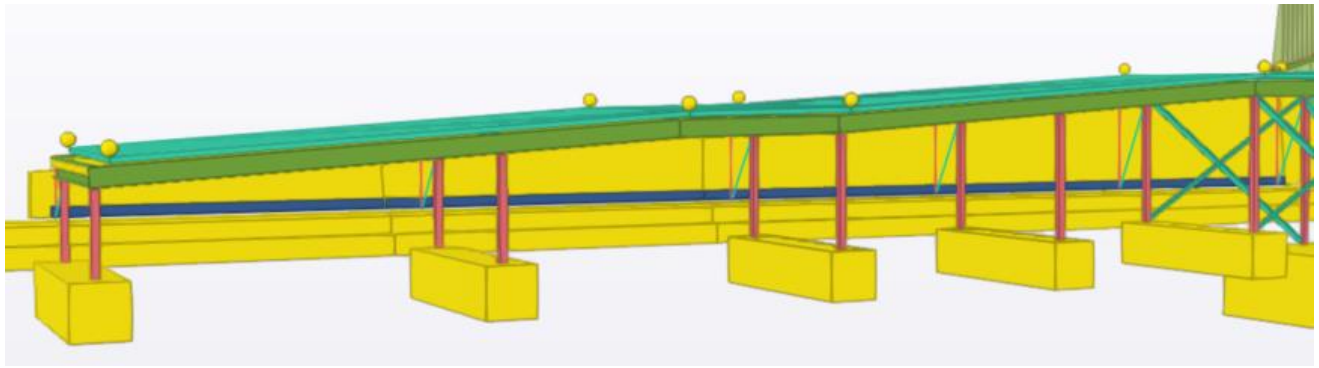
- Construct Piling Platform
- Set out Pile Positions
- Install Piles Bored Method

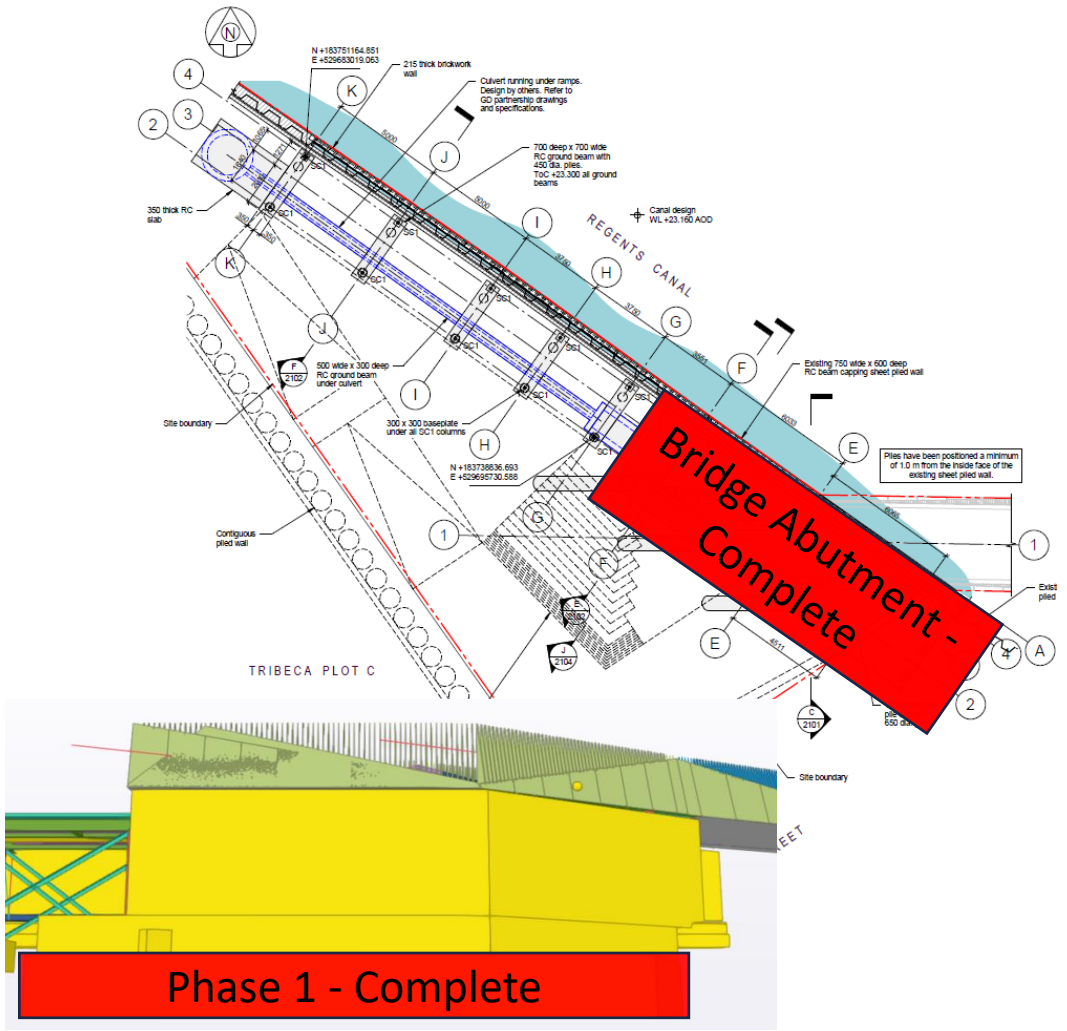




Granary Street Civils – Phase 3

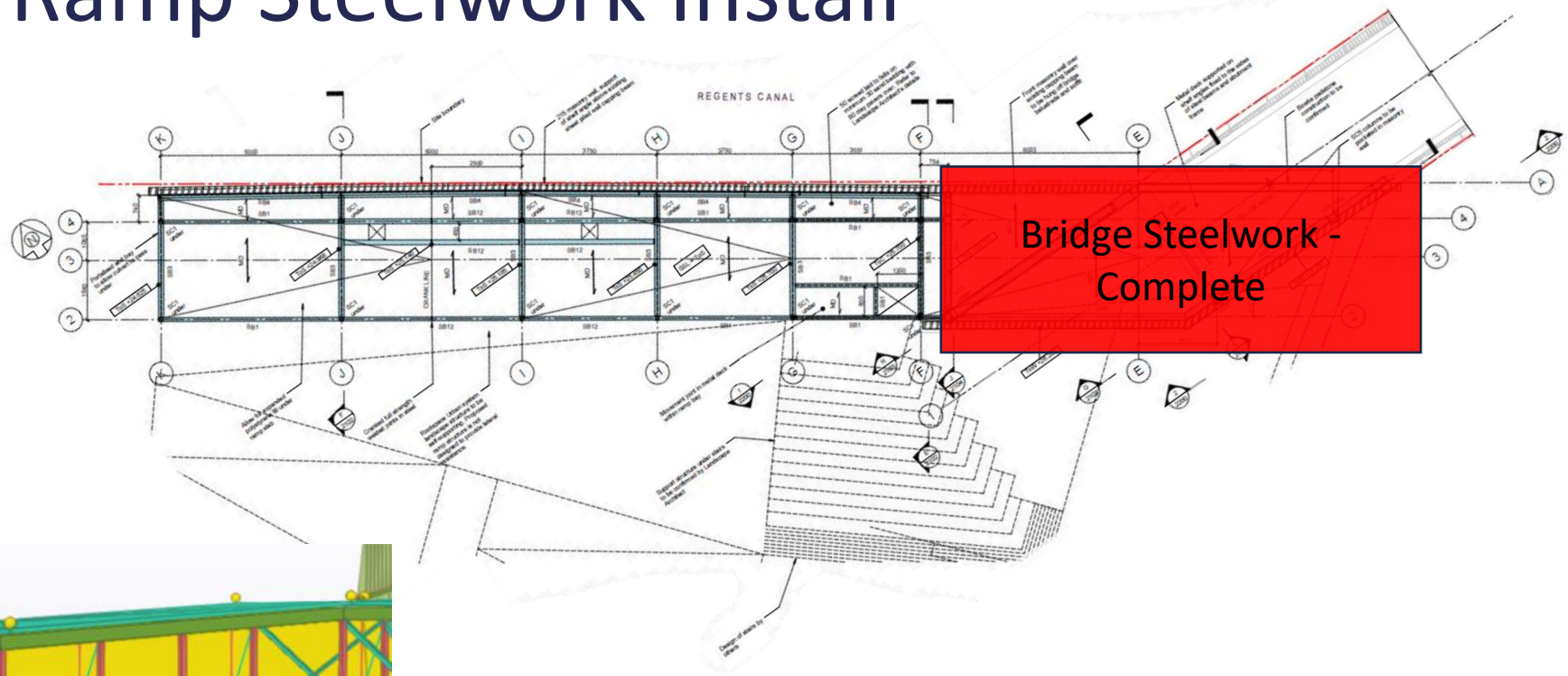
- Construct 5 No. 700 Deep Pile Caps
- Construct Bridge Abutment Wall
- Backfill and Compact

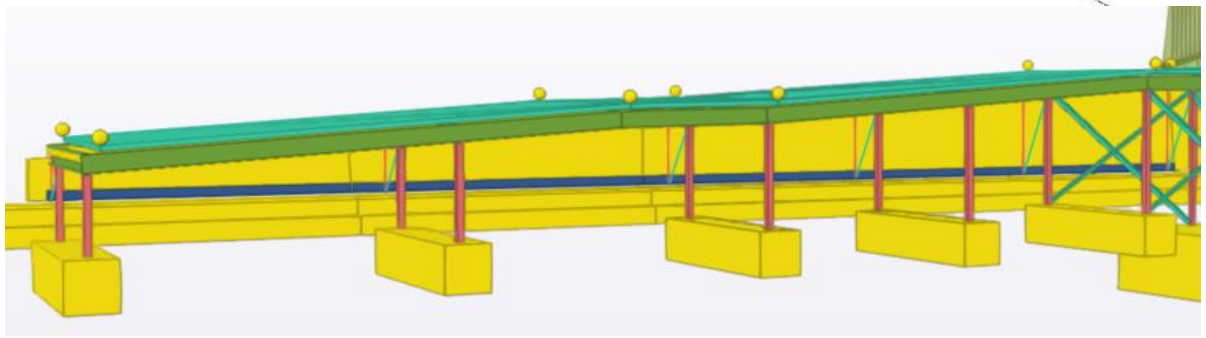




Granary Street Ramp Steelwork Install

- Install Ramp Substructure Steelwork





Phase 3 - Demob

- Granary Street
  - Remove Site Hoarding
  - Site Clearance
  - Remove Welfare
- **Works Complete**

Programme

- Camley Street Phase 1 – 11/11/2024 Mobilisation Date – 15 Weeks
  - Piling Rig Lift – 29/11/2024
  - Piling Rig Removal – 22/12/2024
- Granary Street Phase 1 – 11/11/2024 Mobilisation Date – 7 Weeks
- Bridge Installation Phase 2 – 17/10/2024 Mobilisation Date – 5 Weeks

  Primary Date Closures:
  - From 16:00 on Friday, 21st March
  - To 06:00 on Monday, 24th March

  Contingency 1 Closures:
  - From 16:00 on Friday, 28th March
  - To 06:00 on Monday, 31st March

- Granary Street Phase 2 - 15/06/2024 Mobilisation Date - 6 Weeks

Please refer to the complete programme.

Resources

- Plant & Equipment
  - Piling Rig
  - Crane (size to be confirmed)
  - Telehandler / Merlo
  - Excavator
  - Trackway
  - Formwork
  - Concrete Pump
- Staff
  - Project Manager
  - Site Agent
  - Ground Workers
  - Piling Team
  - Steel fixers
  - Carpenters
  - Excavator driver
  - Lift Operatives

Risks

Risk/opportunity	Element	Description
Approvals & Consents	Road Closures	Roads Closures Required on Granary Street | Lane Closure - Camley Street
Approvals & Consents	Canal & Towpath	Closure required on Canal & Towpath during bridge installation
Traffic Management	Pedestrian Management	Towpath to remain open during works | BB to ensure site secure
Traffic Management	Pedestrian Management	Access to Appartments required during lifting operation
Traffic Management	Granary Street	Access to Hospital Gate Required During Installation
Noise / Dust / Vibration	Public nuisance	Any issue with dust? Noise? Vibration? Entering and exiting site
Security	Site security	Any issues with security on the site? Beaver Bridges to maintain secure site perimeter
Logistics	Bridge Arrival	Route planned | Traffic Management | Parked cars
Site Constraints	Working Area	Do we have suitable area to carry out works requied?
Interfaces	Co-op Building	Maintaing Pile Integrity of Co-op Building during works
Interfaces	Canal Towpath Wall	Maintaing integrity of canal path & wall during works
Interfaces	Granary Street - Hospital	Access
Interfaces	Granary Street - Apparments	Public access | Public nuisance
Site Constraints	Public interface	Any other constraints to be aware of?
Statitory Undertakers	Granary Street - Bridge Install	Are there any services that require protection due to crane position
Statitory Undertakers	Camley Street - Abutments	Are there any services to consider?
Temporary Works	Camley Excavation	Towpath wall and Co-op Piles Protection Required?
Temporary Works	Piling Platform	Piling Required on Camley & Granary Street
Temporary Works	Bridge Access	Bridge Access to be left in Temporary State
Access	Site access - Camley Street	Access & Egress onto Road - Road Protection?
Seasonal Effects	Flooding	Delay to site access date. Risk of flooding to site during the works
Water Bodies	Canal	Risk of Flooding?
Earthworks	Services & Integrity	Buried Services | Pile & Canal Wall Intergrity
Phased Completions	Abutment | Bridge	Potential Delays to Phased Works
Complexity	Abutment | Bridge Connection	Steelwork required to pass through Abutment Box
Neibours	Co-op & Apartment	Nuisance | Complaints
Flooding	Flooding	Delay to site access date. Risk of flooding to site during the works