



A244 WALTON BRIDGE



WELCOME

CIHT Presentation

“A View, A Brew and a Loo”

- 24th April 2012
- Andy Bannister – Costain Project Manager
- Robert Wheatley – Atkins Design Project Manager



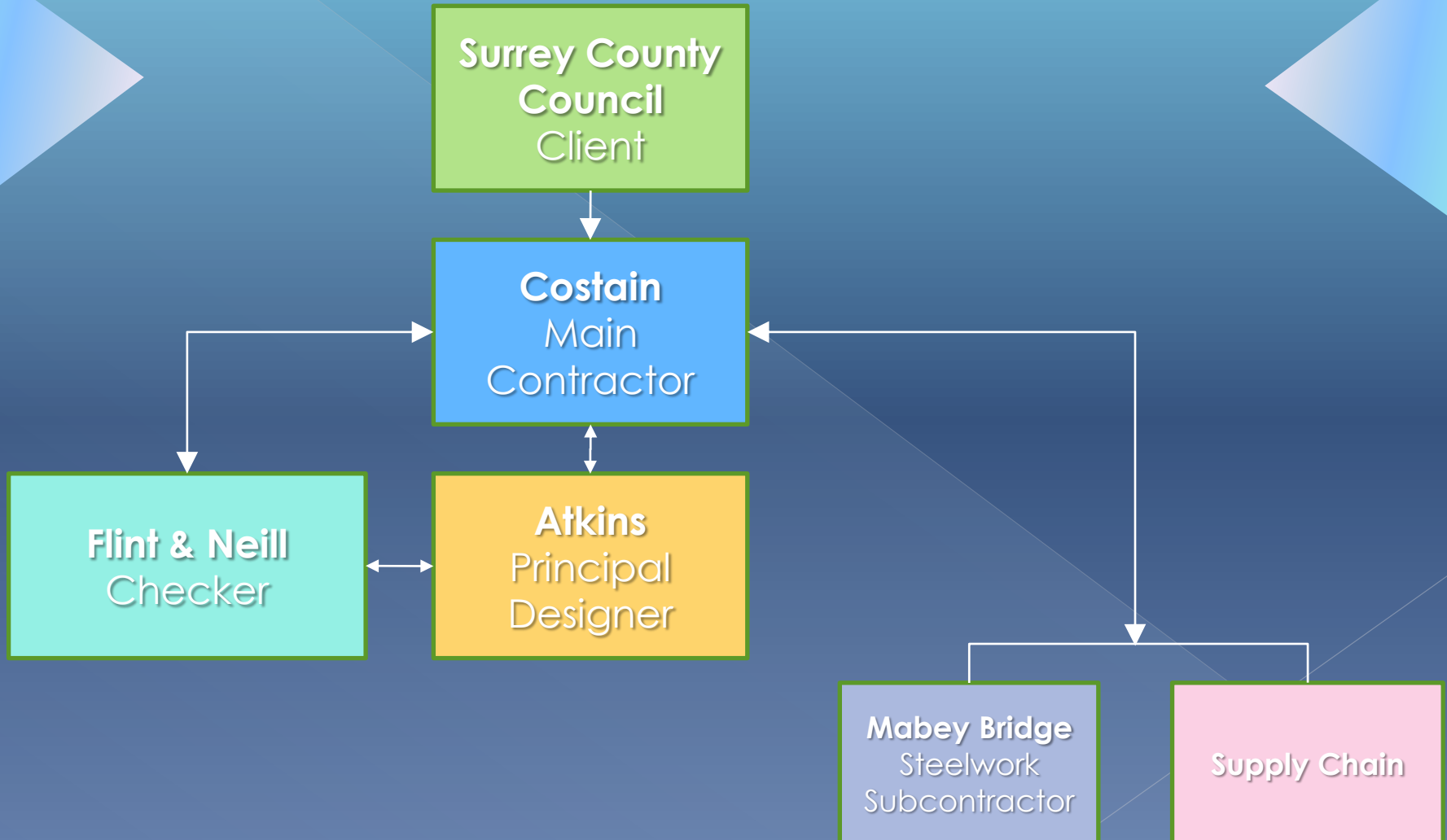


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Introductions

Organogramme



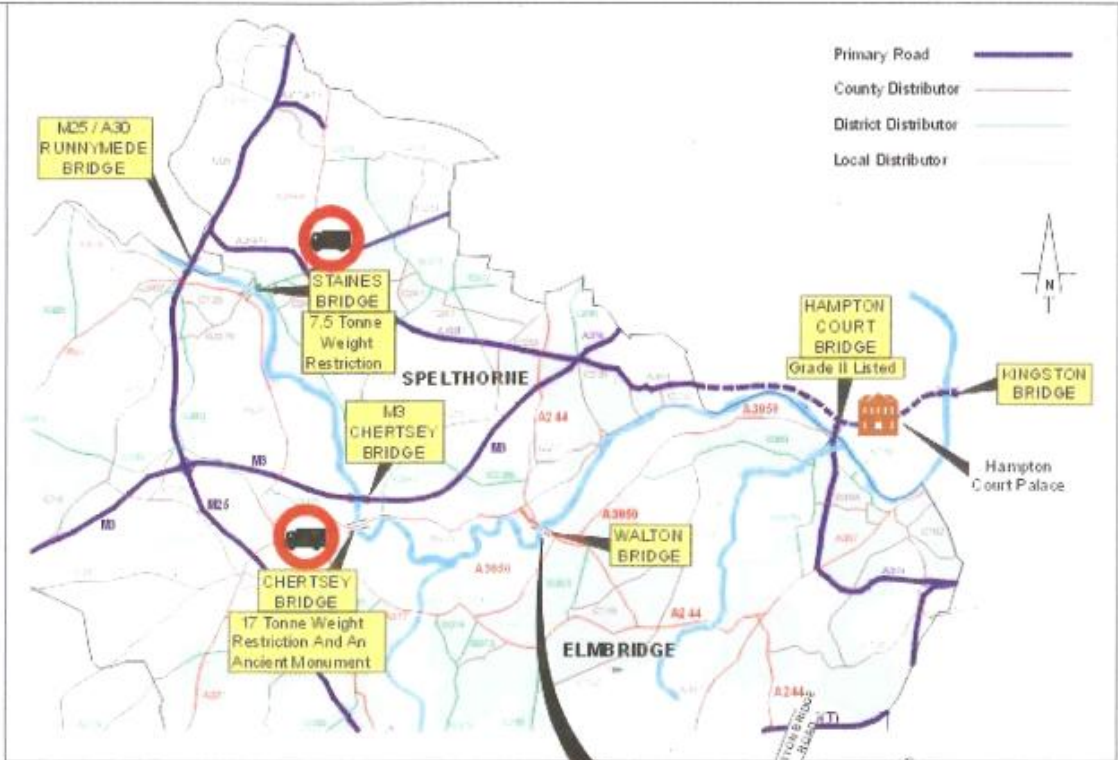


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○ Scheme Objectives

A244 WALTON BRIDGE



River Thames road crossings in Surrey



- 1750-1783 Old Walton Bridge Over the Thames by Canaletto (1754)
- The original painting can be seen at the Dulwich Picture Gallery



1788-1859
Second Walton Bridge

(The original painting by M Rouviere
can be seen at the Elmbridge
Museum)



(The original painting by J M W Turner
can be seen at Tate Britain)



August 1859 Collapse of Second Walton Bridge



1864- 1985 Third Walton Bridge

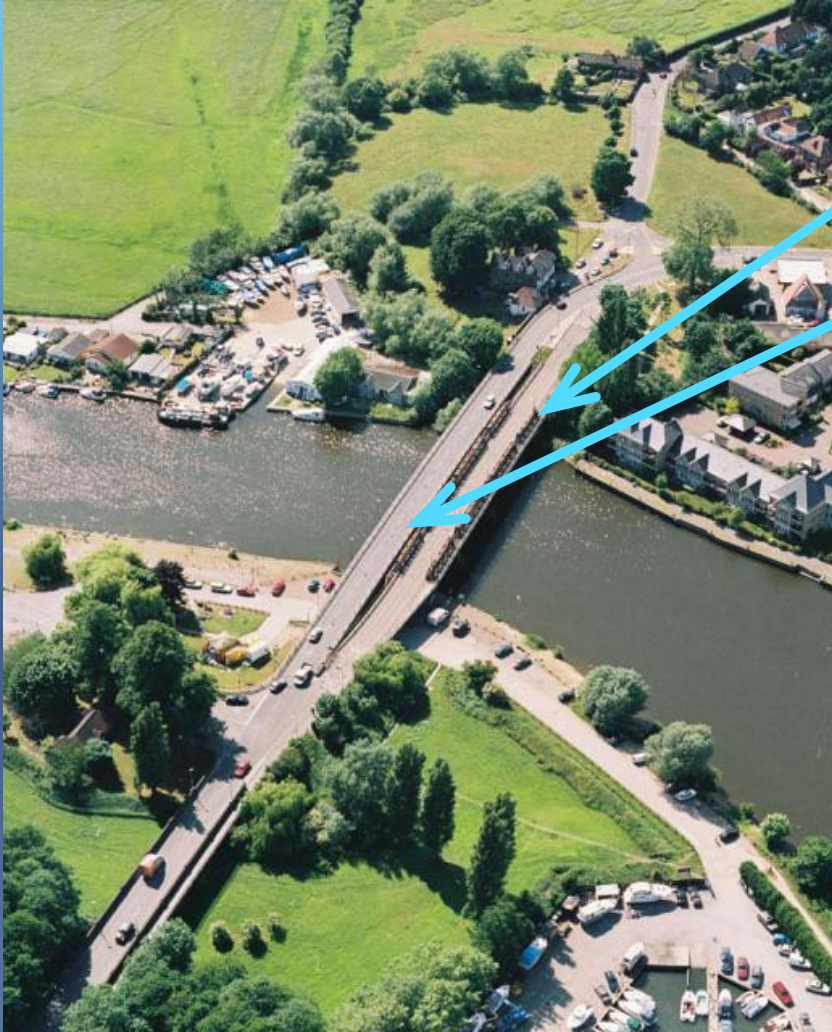


Cowey Sale Viaduct





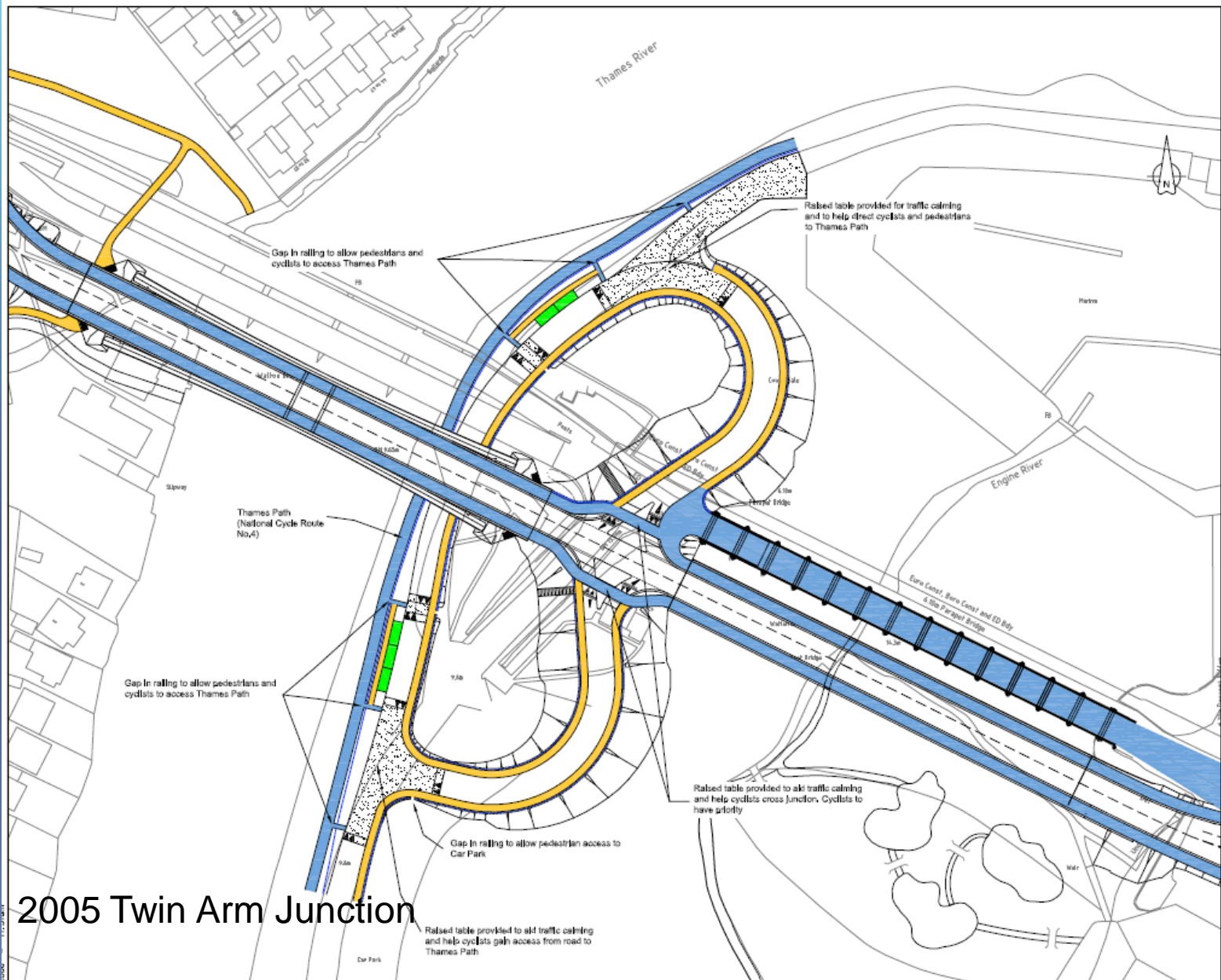
1953+ Fourth Walton Bridge: Callender Hamilton



Callender-Hamilton bridge 1953

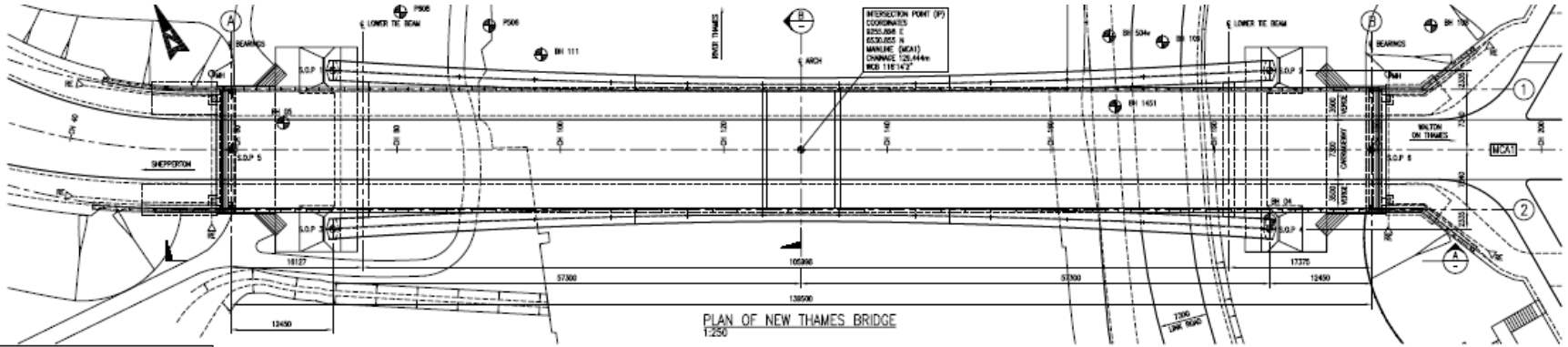
Temporary road bridge 1999





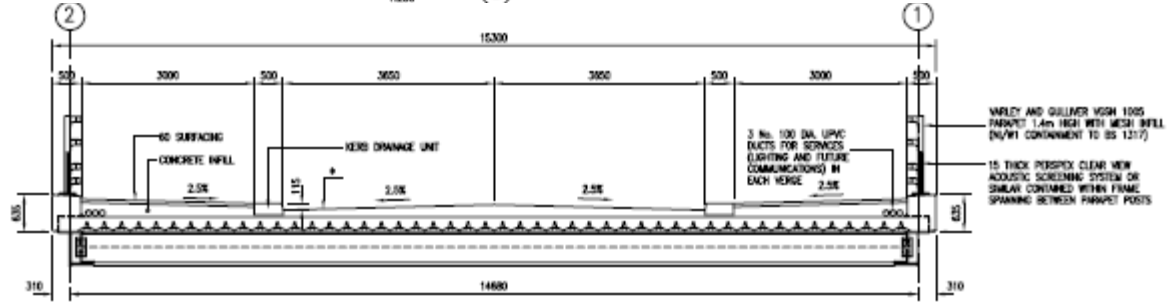
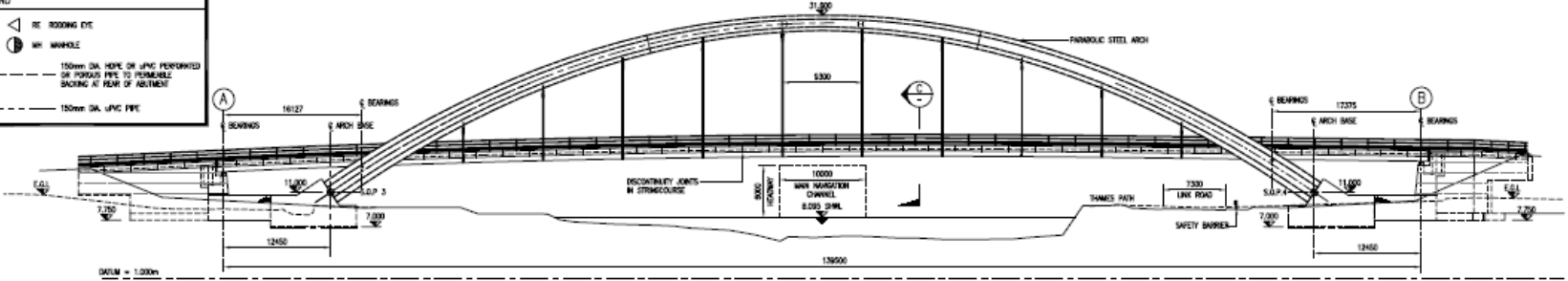
2005 Twin Arm Junction

Raised table provided to aid traffic calming and help cyclists gain access from road to Thames Path



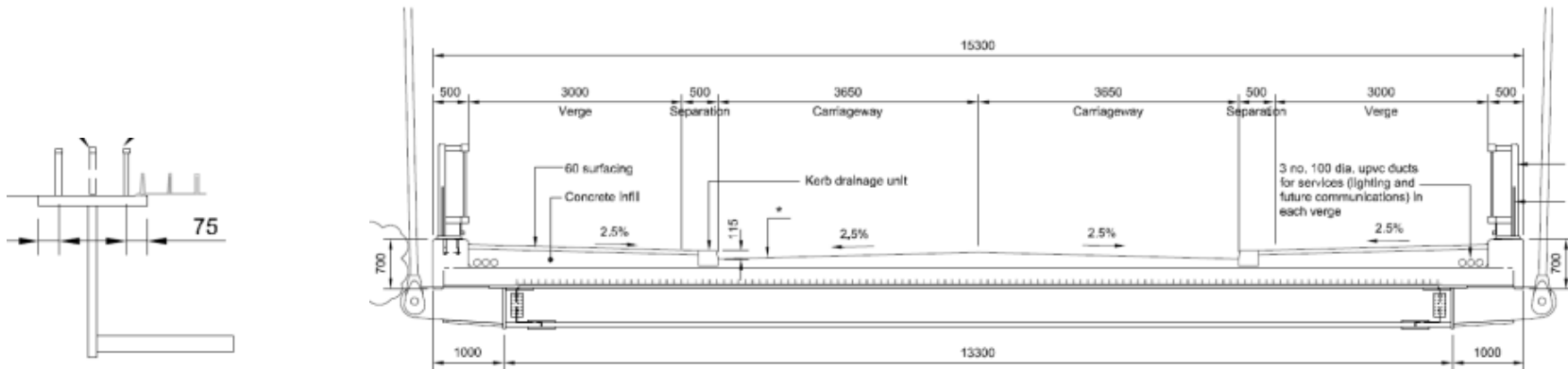
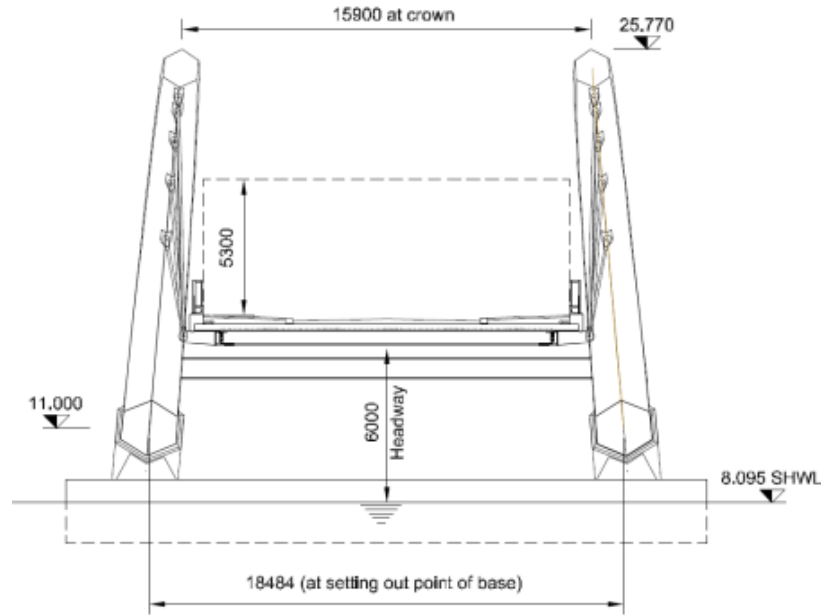
LEGEND

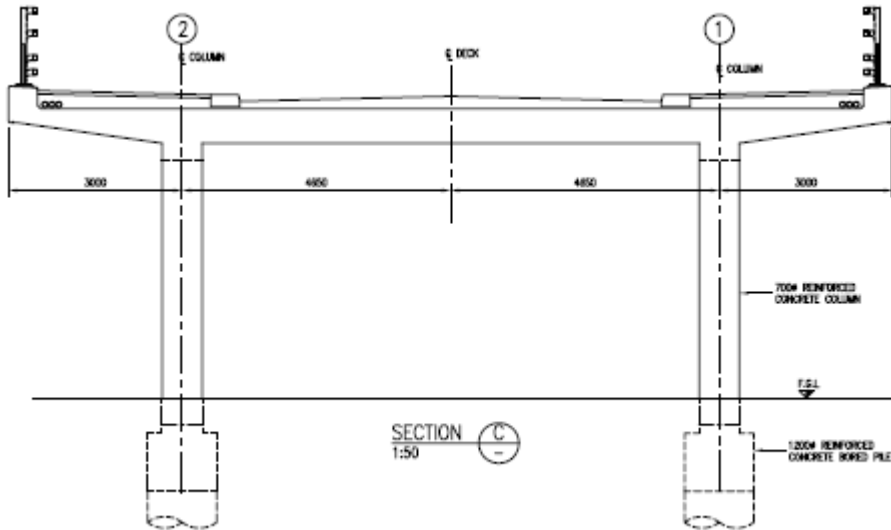
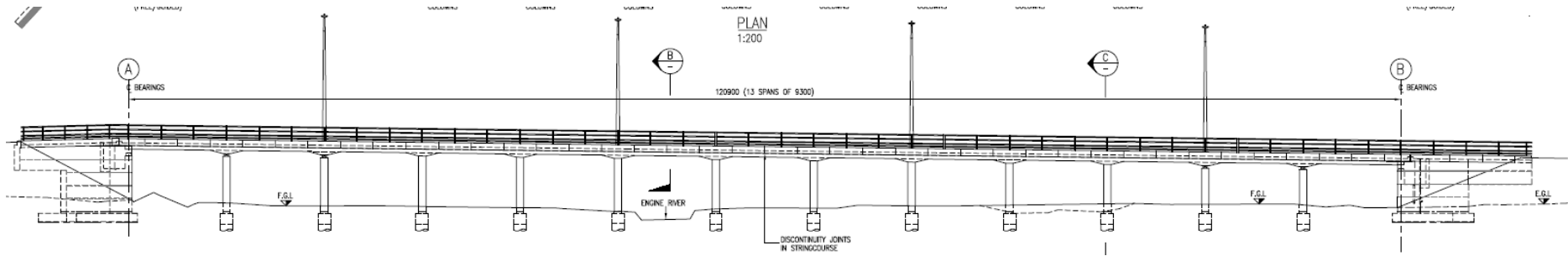
- △ RE BIDDING C/T
- W/ MANHOLE
- 150mm DIA HDPE OR UPVC PERFORATED OR 100mm DIA PERFORABLE SANDING AT REAR OF ABUTMENT
- 150mm DIA UPVC PIPE



* DECK SURFACING:
40 WEARING COURSE
80 (MIN.) BASE COURSE - VARIED TO ONE CROSSFALL
20 REDSAND ASPHALT ON WATERPROOFING

Thames Bridge - Overview





2004 to 2006 Tender Process

- Tender Documents Issued November 2004
- Competitive Tender
- Quality – Price 70:30
- NEC2 Option C Target Cost
- Pain Gain with sectional completion
- Mid Tender Workshops
- Rigid Planning Conditions
 - Fixed arch profile hexagonal
 - Defined bridge and carriageway alignment
 - Centres of parapet posts, hangers and pier columns fixed to match the existing viaduct
- Tender Return February 2005
- Tender Interviews held on Ravens Ait Island mid Thames
- Contract awarded to Costain and their design consultant Atkins June 2005

2004 to 2006 Programme

- June 2005 to Nov 2006 - Design
- Jan 2007 to June 2008 - Construct and open new bridges
- July 2008 to Dec 2009 - Demolish existing bridges
- March 2010 - Complete landscaping and demobilise

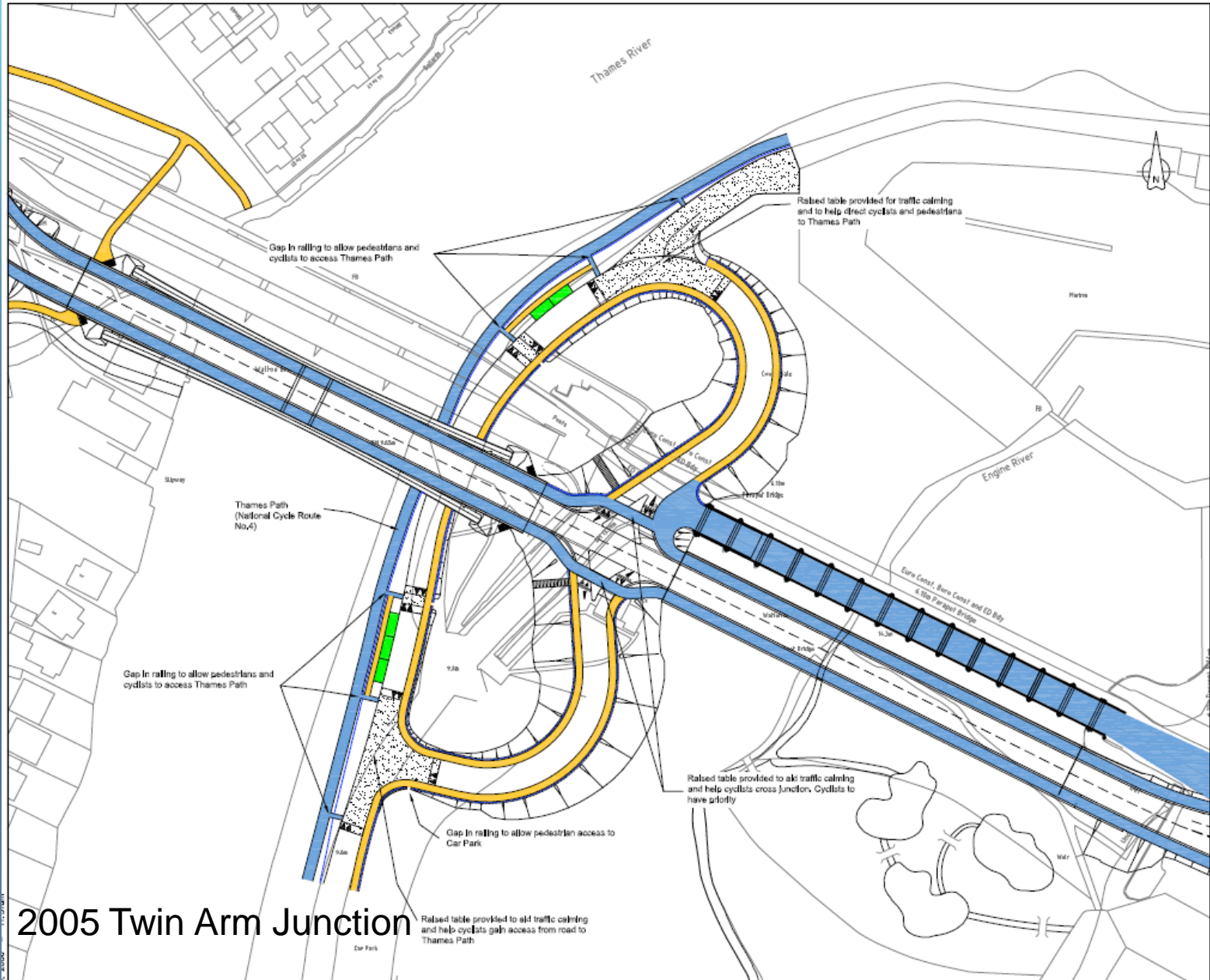
2004 to 2006 Public Inquiry No. 1

- Design works commenced in parallel with preparation for Public Inquiry
- Public Inquiry held at Shepperton - first session November 2005 for 2 weeks followed by 2 further sessions January and February 2006
- Public Inquiry attracted 315 objections and 4 letters of support

2004 to 2006 Public Inquiry No. 1

❖ Key Objections

- Unnecessary loss of common land, village green and public open space
- Likelihood of an increase in traffic especially HGVs, lack of weight restriction
- Excessive scale of proposed Walton Lane junction (half cloverleaf)
- Increased dangers to pedestrians and cyclists
- Inadequate mitigation measures
- Design and scale of the proposed bridge
- Inappropriate process –(Surrey CC granting its own planning permission)



2005 Twin Arm Junction

2004 to 2006

- **Inspectors report was issued in May 2006 and sent to the Secretaries of State for their consideration**
- **Inspector agreed that there was a need to replace the existing bridges**
“which currently comprise a collection of uncoordinated and unsightly structures and abandoned services”
- **Inspector believed that users of the Cowey Sale came for a “view, brew and a loo”**
- **Inspector recommended that the Secretaries of State did not approve the Orders and that Surrey County Council should**
 - Provide a signalised junction instead of the two link design for Walton Lane junction
 - Provide better provision for Non Motorised Users
 - Improve their offer of exchange land that would be equally advantageous
 - Reconsider the height of the bridge arch especially in relation to the surrounding buildings

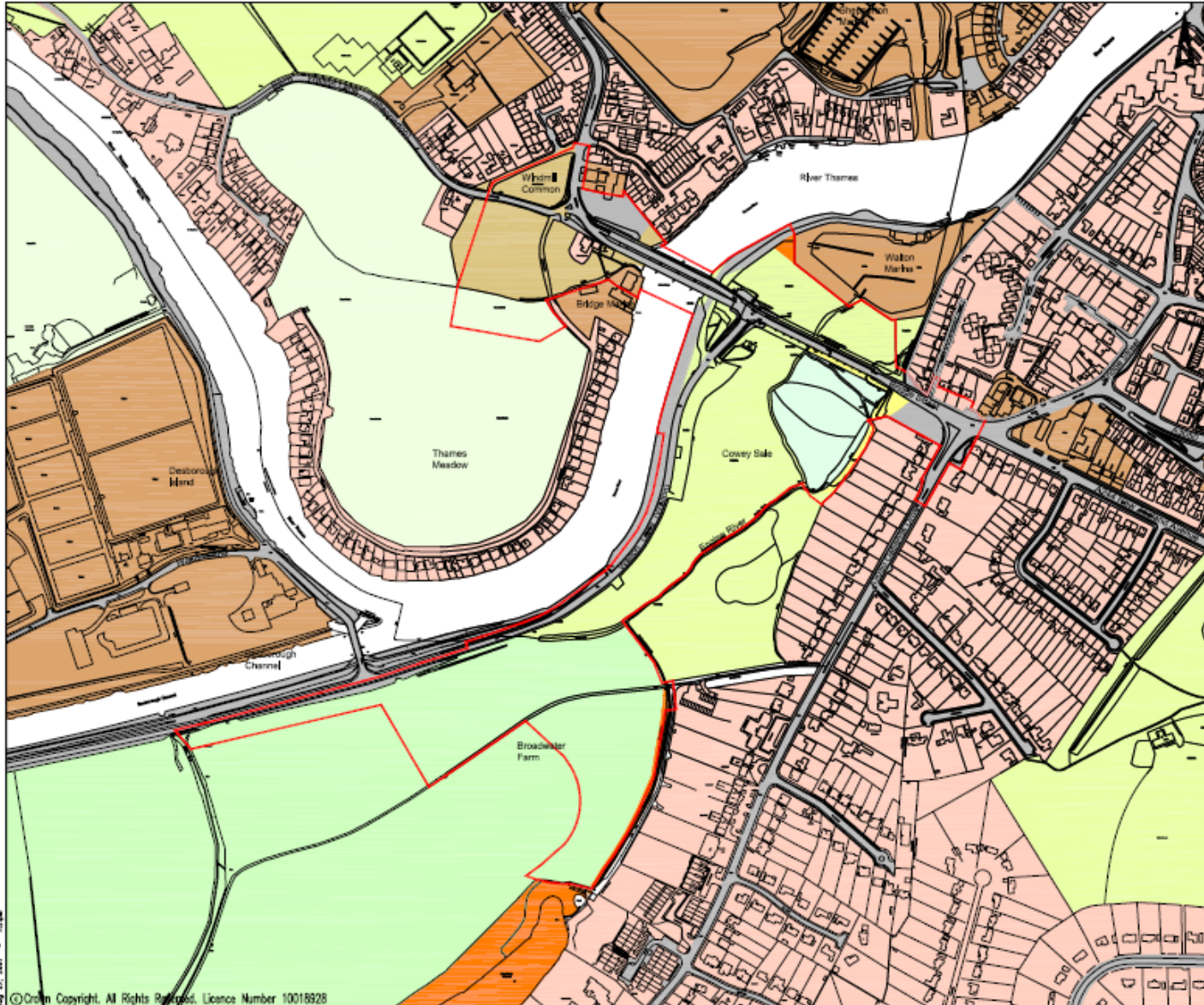


2004 to 2006

- In November 2006 the Secretaries of State agreed with the Inspectors findings not to confirm the orders
- December 2006 all works were suspended on the design

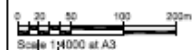
○ Redesign Phase Programme

- **Nov 2006 to Sep 2007** - Redesign, EIA and Public Exhibition
- **Sep 2007 to Feb 2008** - Planning Application
- **Jul 2009** - Public Inquiry
- **Dec 2009** - Conditional Approval
- **Dec 2010** - Full Approval



KEY

- Planning Application Boundary (approximate)
- Registered Common Land
- Registered Village Green
- Recreation Allotment
- Public Open Space
- Highways (inc. Public Rights of way and Thames towpath)
- Residential
- Commercial and Industrial
- Private open space with public access
- Equestrian centre
- Agriculture



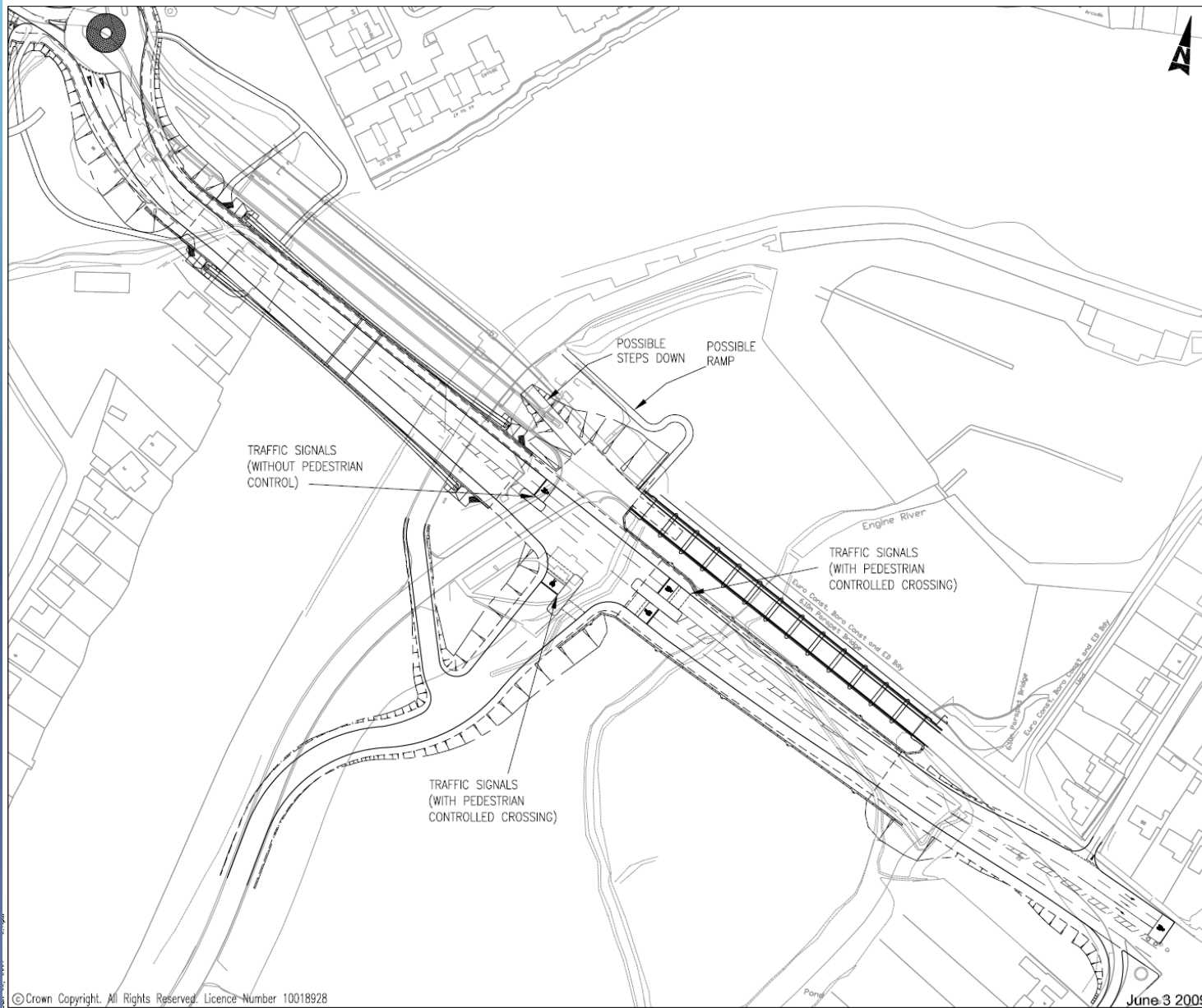
A244 Walton Bridge
Environmental Statement
2007

Existing Land Use

Figure 9.2

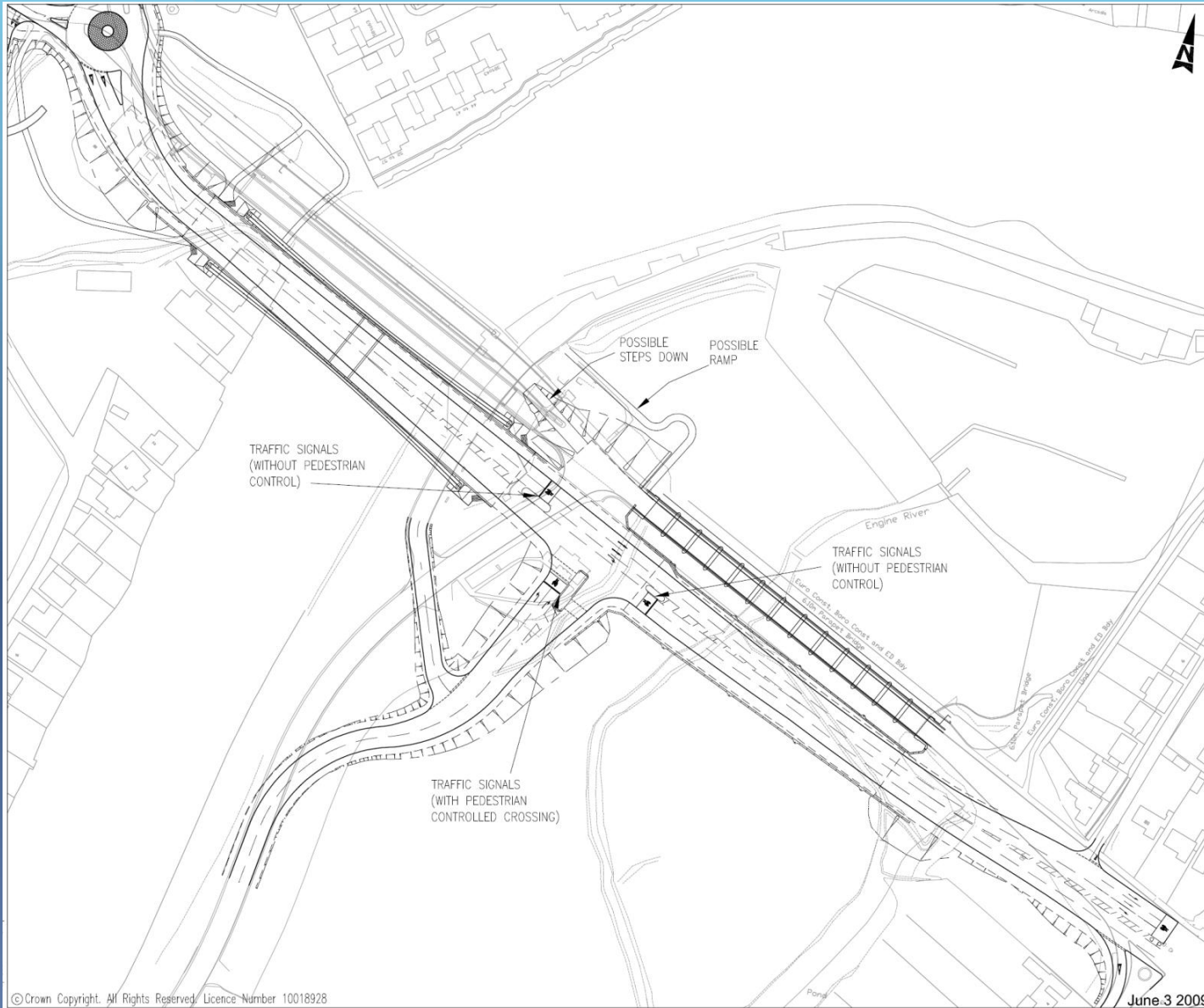
I:\Projects\A244 Walton Bridge\GIS\MapDocs\MapDocs\MapDocs\Figure 9.2 Existing Land Use.dwg
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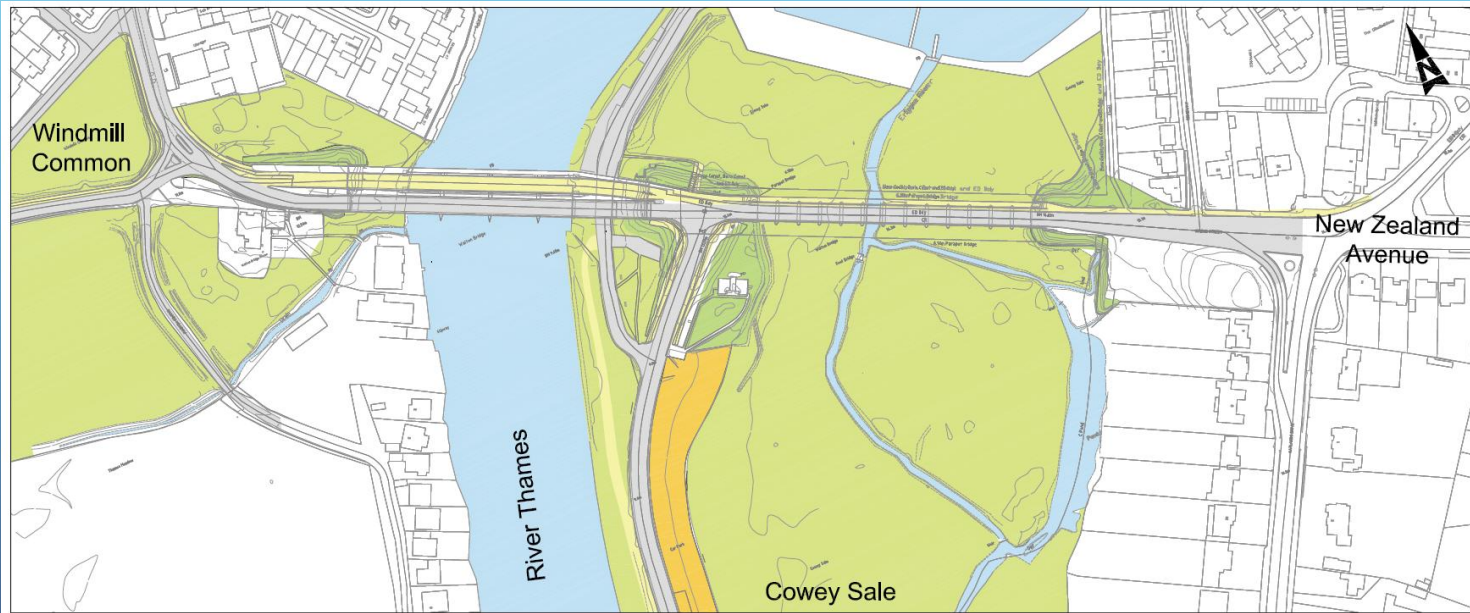
Signalised
Junction with
Pedestrian
Control on A244
& Walton Lane

A244 WALTON BRIDGE

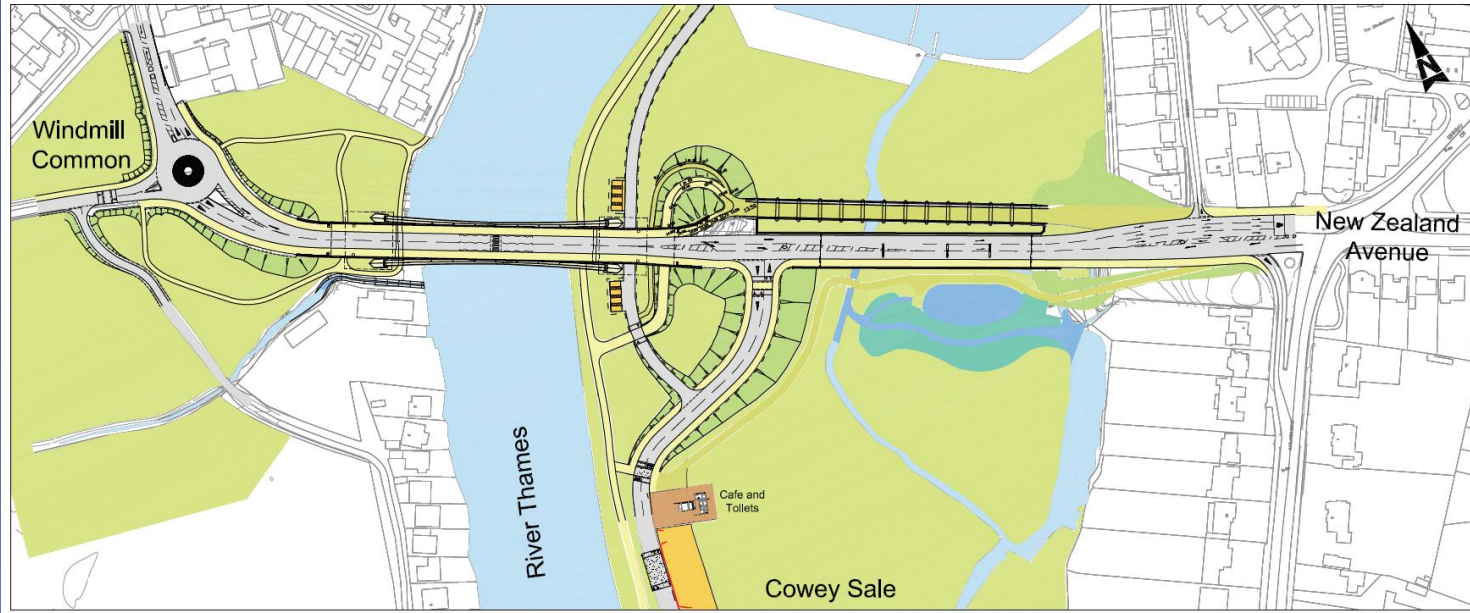


Signalised Junction
with Pedestrian
Control on Walton
Lane only.

A244 WALTON BRIDGE

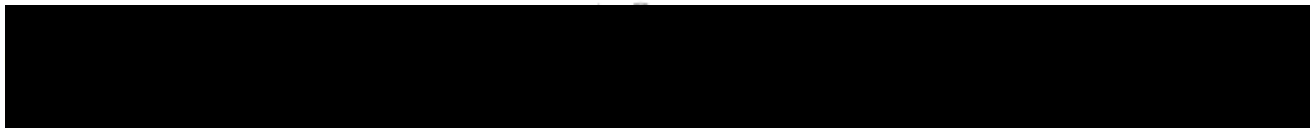
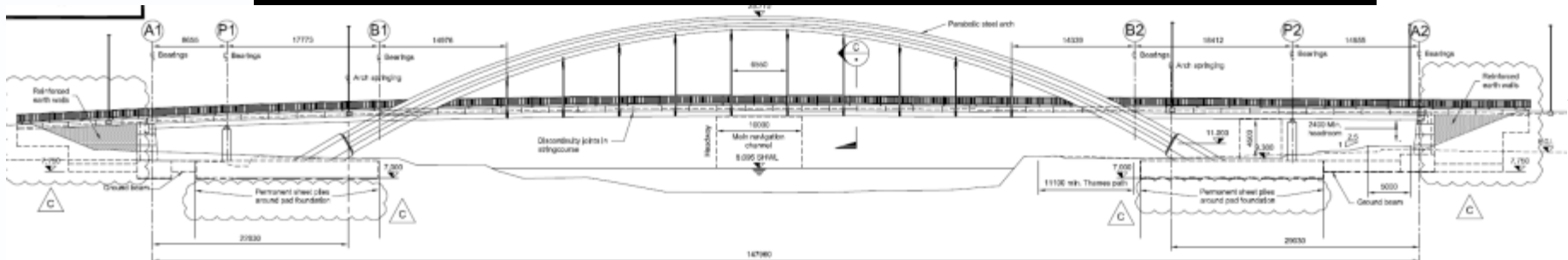
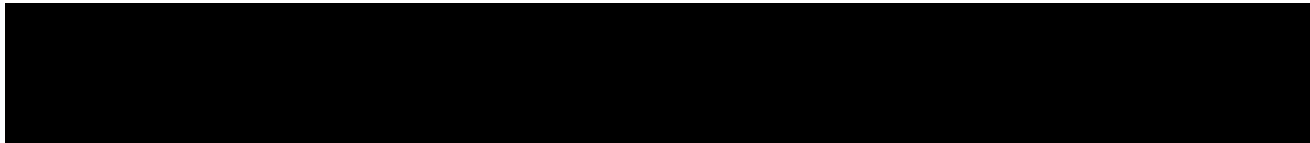


Existing layout

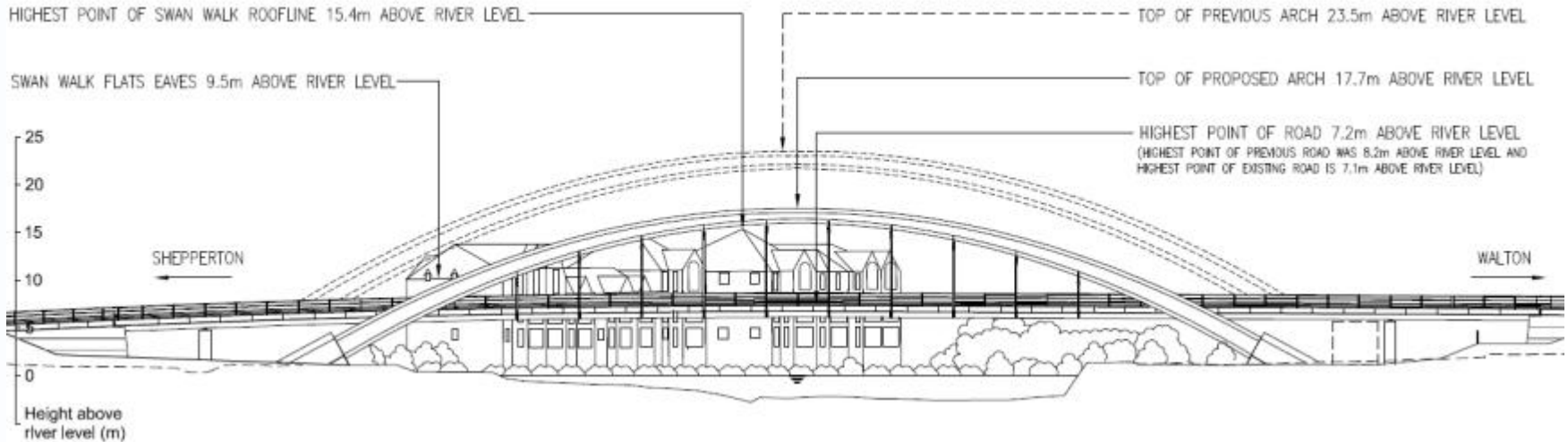


Proposed layout

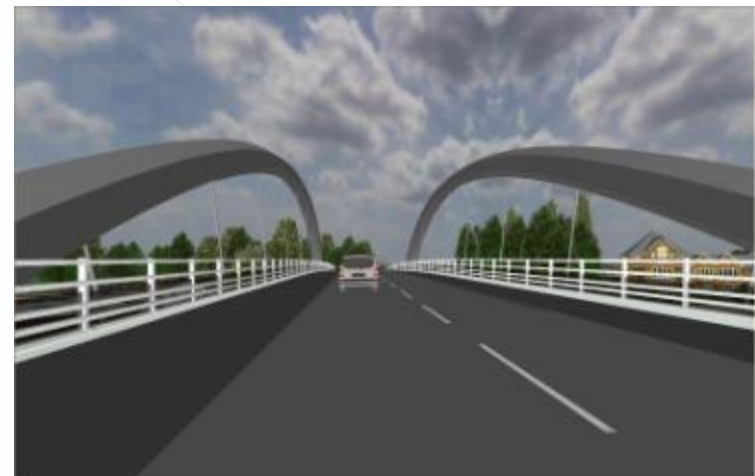
A244 WALTON BRIDGE



Thames Bridge: Comparison with Earlier Proposal

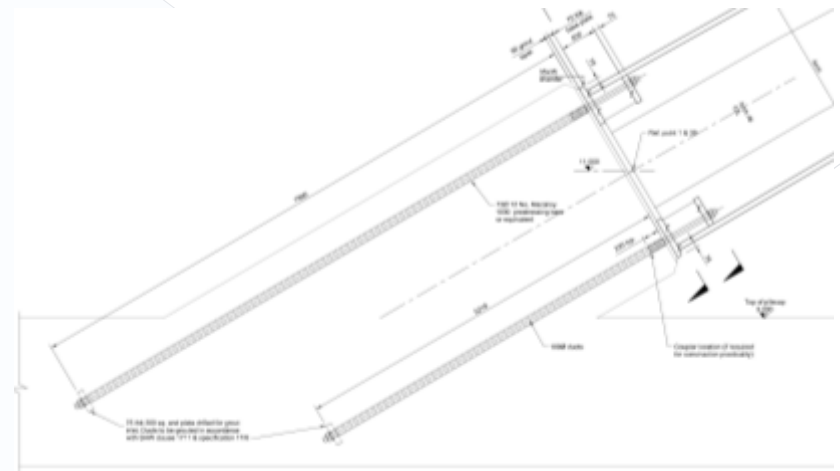
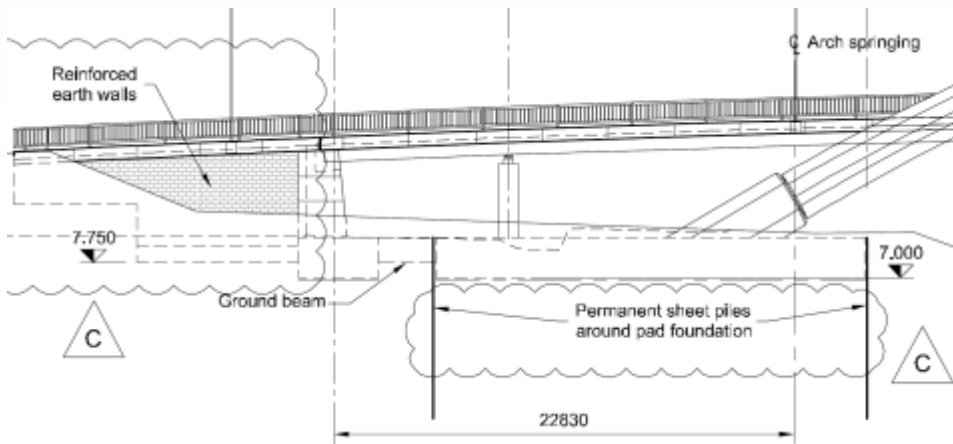
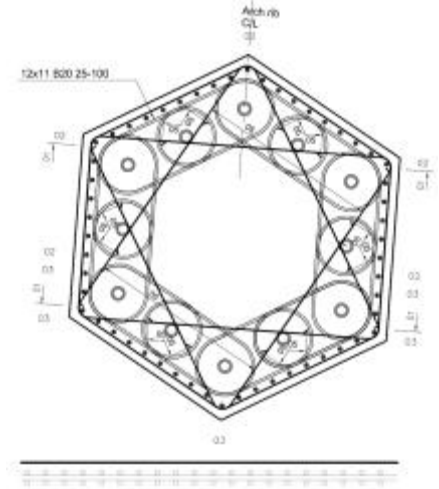


Previous scheme

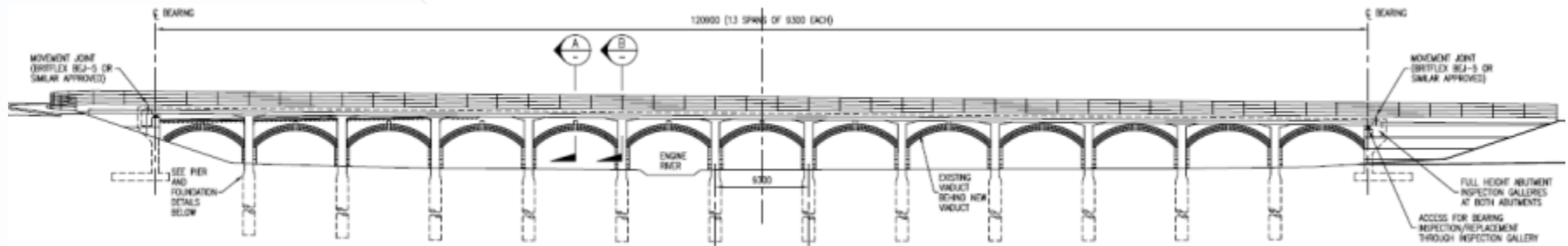


Current scheme

Thames Bridge: Substructure

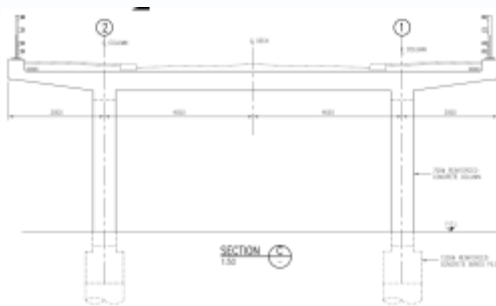
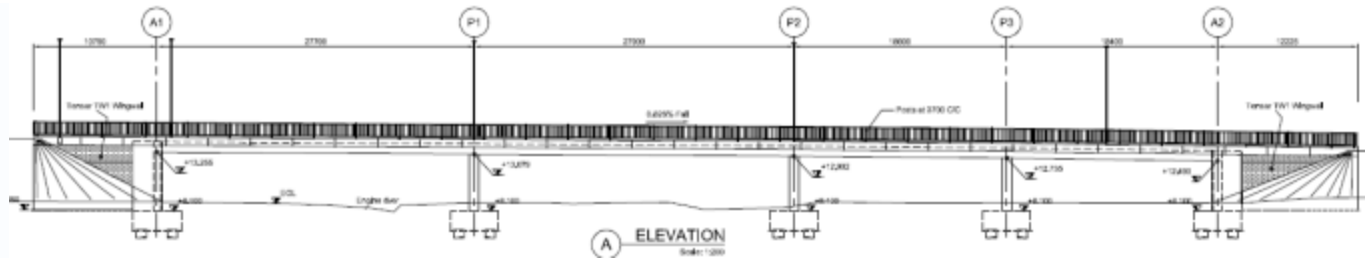


Cowey Sale Viaduct Comparison with Earlier Proposals

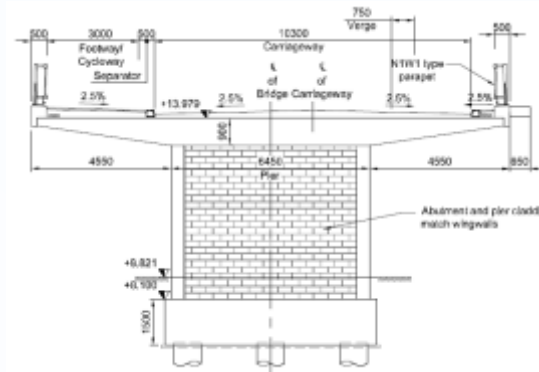


2005

Proposed

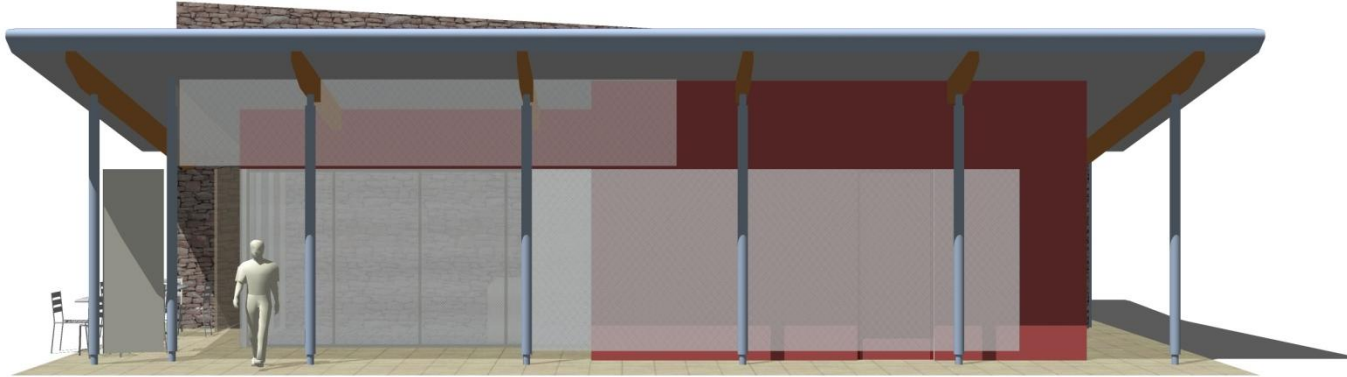


2005



Proposed

Cafe and Toilet Facility

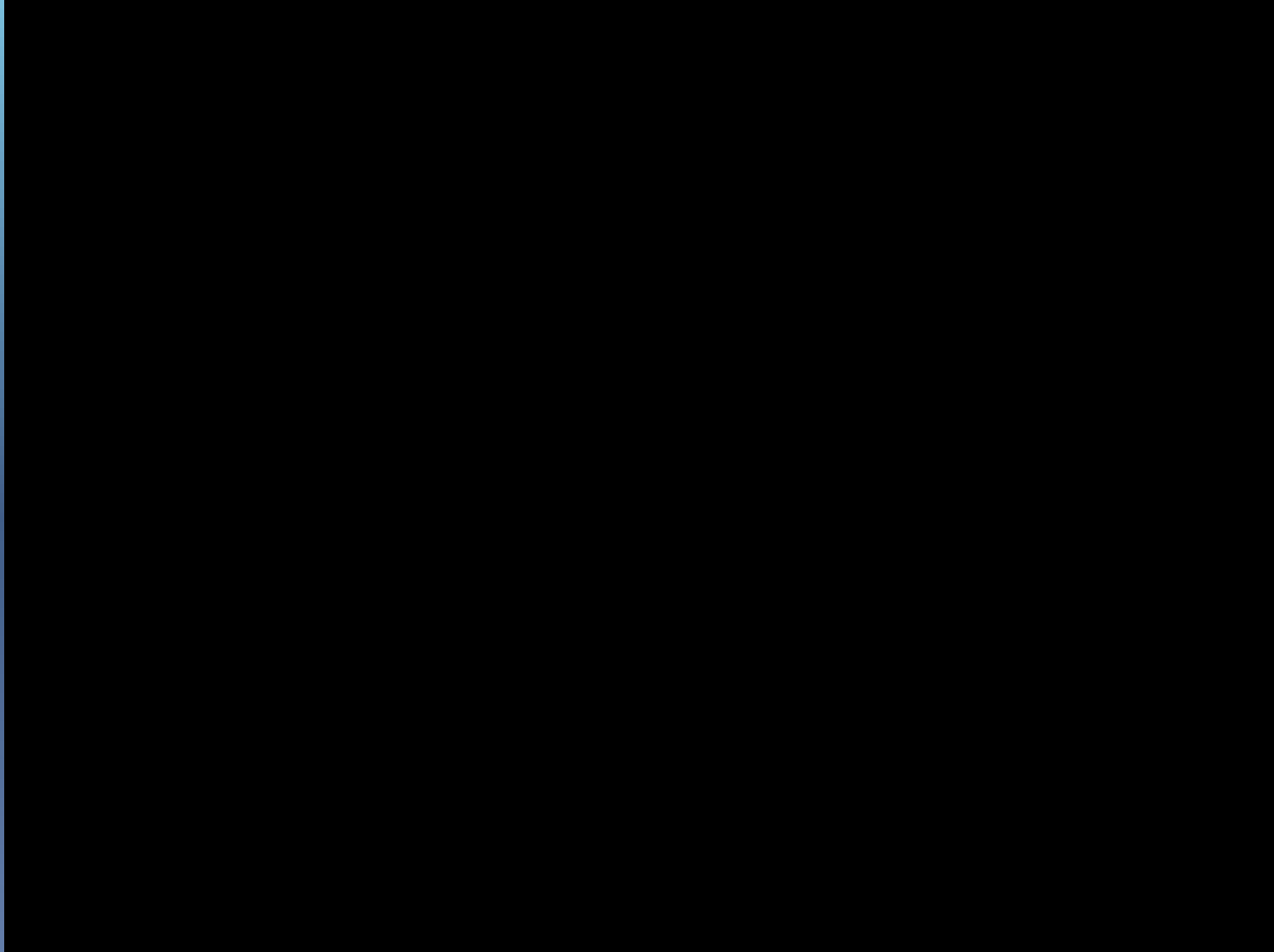


Public Exhibition and Public Inquiry





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2010 to present

- **December 2009** - Orders approved and exchange land certificates granted
- **March 2010** - Funding put on hold –General Election and Spending Review
- **September 2010** - Review of updated design post Public Inquiry 2 and Planning
- **December 2010** - Agreed Compensation Event and funding agreed to recommence design

2010 to present

- **Revised Programme**
 - February 2011 - Start design and advance works
 - January 2012 - Commence main works
 - June 2013 - Open new bridges to traffic
 - July to Dec 2013 - Demolish existing bridges
 - March 2014 - Complete landscaping and demobilise
 - March 2019 – Complete 5 year landscape maintenance

2010 to present

- **February 2011**
 - Design commenced
 - Site Clearance for Advance Works and Listed Wall
 - Boundary Fencing
 - Service Location

Site Clearance – First Cut



2010 to present

- **July to August 2011 Archaeological Investigation**
 - 53 Evaluation Trenches (5% of the scheme footprint)
 - Small fragments of prehistoric, Roman and post-Medieval pottery, struck/burnt flints
 - Part of “toothed” wooden artefact

Site Clearance & Archaeology - Finds



Photo 1: Small Find 1 from context (1105), Walton Bridge evaluation.



2010 to present

- Sept to Dec 2011
 - Flood Mitigation and Exchange Land

Flood Mitigation



2010 to present

- **Sept 2011 to Jan 2012**
 - **Public Car Park Extension**
 - **First Phase of Landscaping**
 - **Demolition**
 - **Ditch diversion**
 - **OPA diversion**

Car Park Extension



Demolition of Toilet Block



2010 to present

- **Main Construction Commences**
 - **Jan to March 2012**
 - **Hard standing Construction**
 - 10,000m² of platform for piling, craneage, falsework and general access
 - Up to 3.0m of very weak alluvium overlaying river gravels and London clays
 - High water table - 0.8m below existing ground
 - High crane loads up to 80 tonnes/m²
 - Traditional platform design up to 1400mm thick
 - Using cement stabilisation plus “RoadCem” additive to provide tensile as well as compressive strength – platforms reduced to a maximum 600mm thick using existing as found soils

2010 to present

- **Jan to March 2012**
 - **Hard standing Construction**
 - **Standard stabilising techniques**
 - **Saving up to 14,000m³ of dig, dispose and import**

Stabilisation



2010 to present

- **Jan to March 2012**
 - **Hard standing Construction**
 - **Stabilised Platforms**
 - Trial strengths using as found materials
 - Testing of existing ground plate bearing and dynamic probe
 - Design check for punching shear
 - Testing of stabilised platform included compressive strength of cores and cubes - from 1.5N/mm² up to 10N/mm²

Before & After



Before & After



2010 to present

- **March 2012 to present**
 - **Sheet Piling**
 - 4700m² of sheet piling
 - Permanent anchor and temporary cofferdams
 - Silent and vibratory

Sheet Piling



Sheet Piling



2010 to present

- **March 2012 to present**
 - **Earthworks**
 - Two temporary access ramps
 - All imported fill - local recycled 1A, 6A and 6C

Earthworks



A24 WALTON BRIDGE Earthworks



2010 to present

- **March to April 2012**
 - **Bored Piles**
 - 40 No - 900 dia up to 28m long CFA
 - 16m long cage, 40mm dia reinforcement
 - Problem of “flighting”

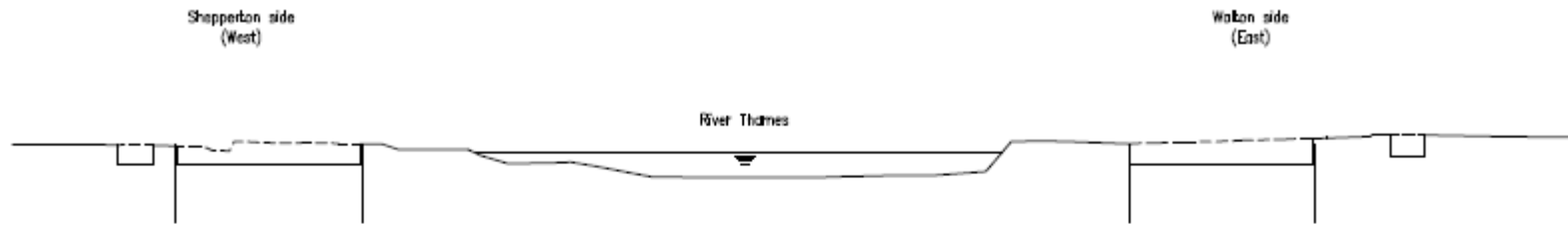
Bored Piling



2010 to present

- **March 2012 to present**
 - **Foundation Construction**
 - **Excavation**
 - **Shear stud/reinforcement welding**
 - **Reinforcement and holding down bolts**

Foundation Construction



STAGE 1 1:500

1. Excavate for abutment & arch pad foundations and install sheet piles.



STAGE 2 1:500

1. Construct abutment bases & arch pad foundations & ground beams.
2. Construct east abutment and east pier.

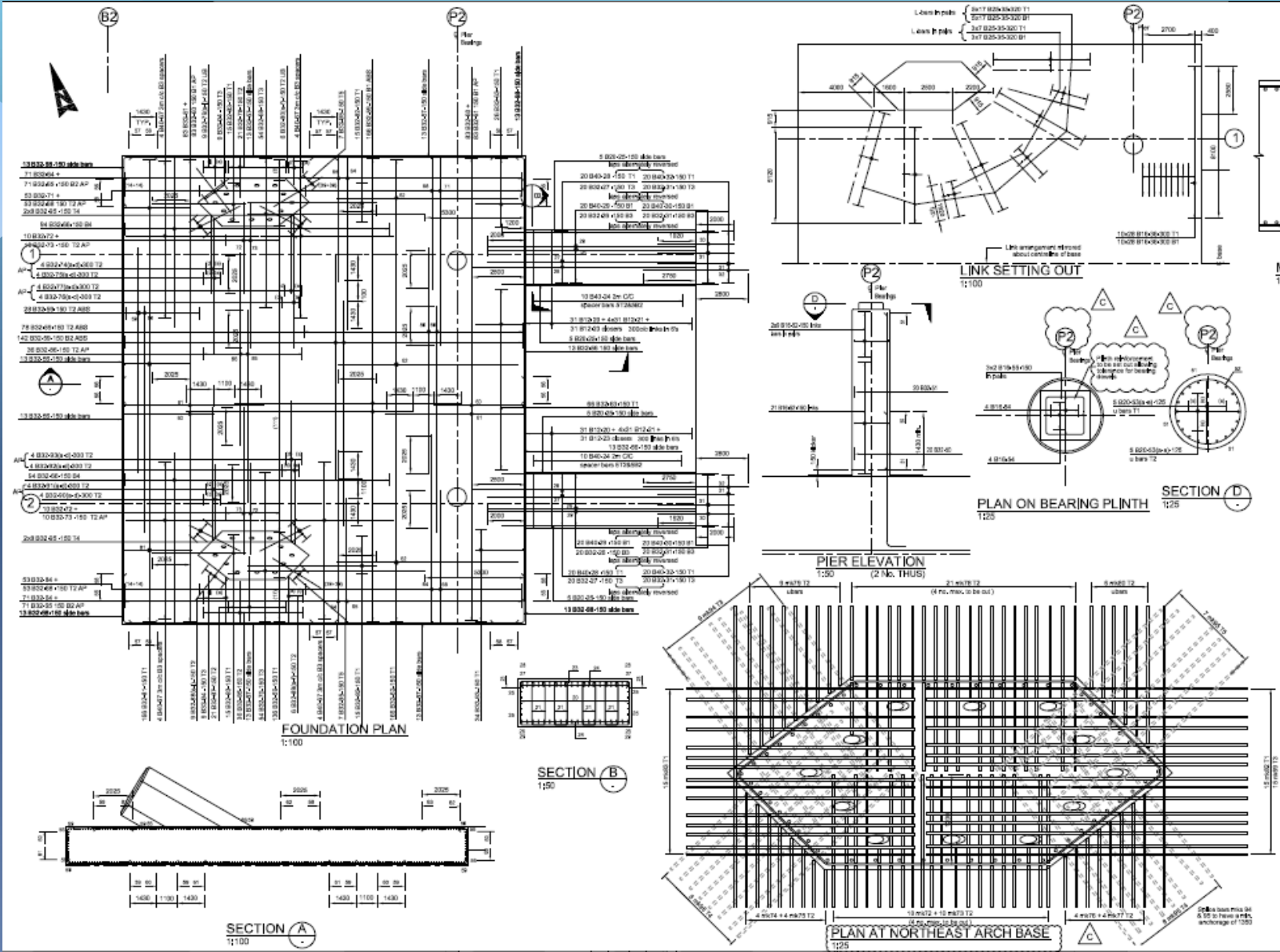
Foundation Construction: Excavation



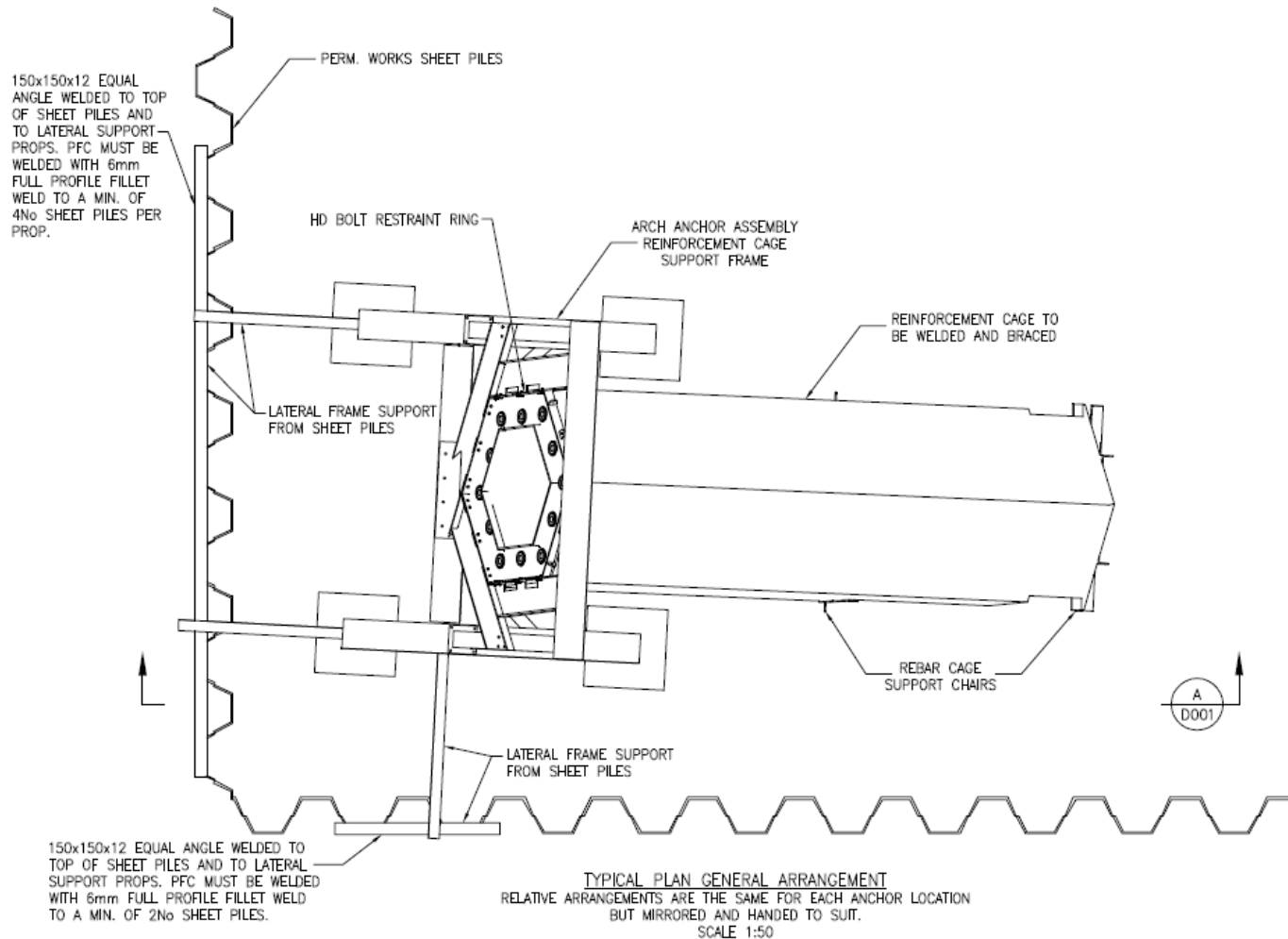
Foundation Construction: Shear Studs & Blinding



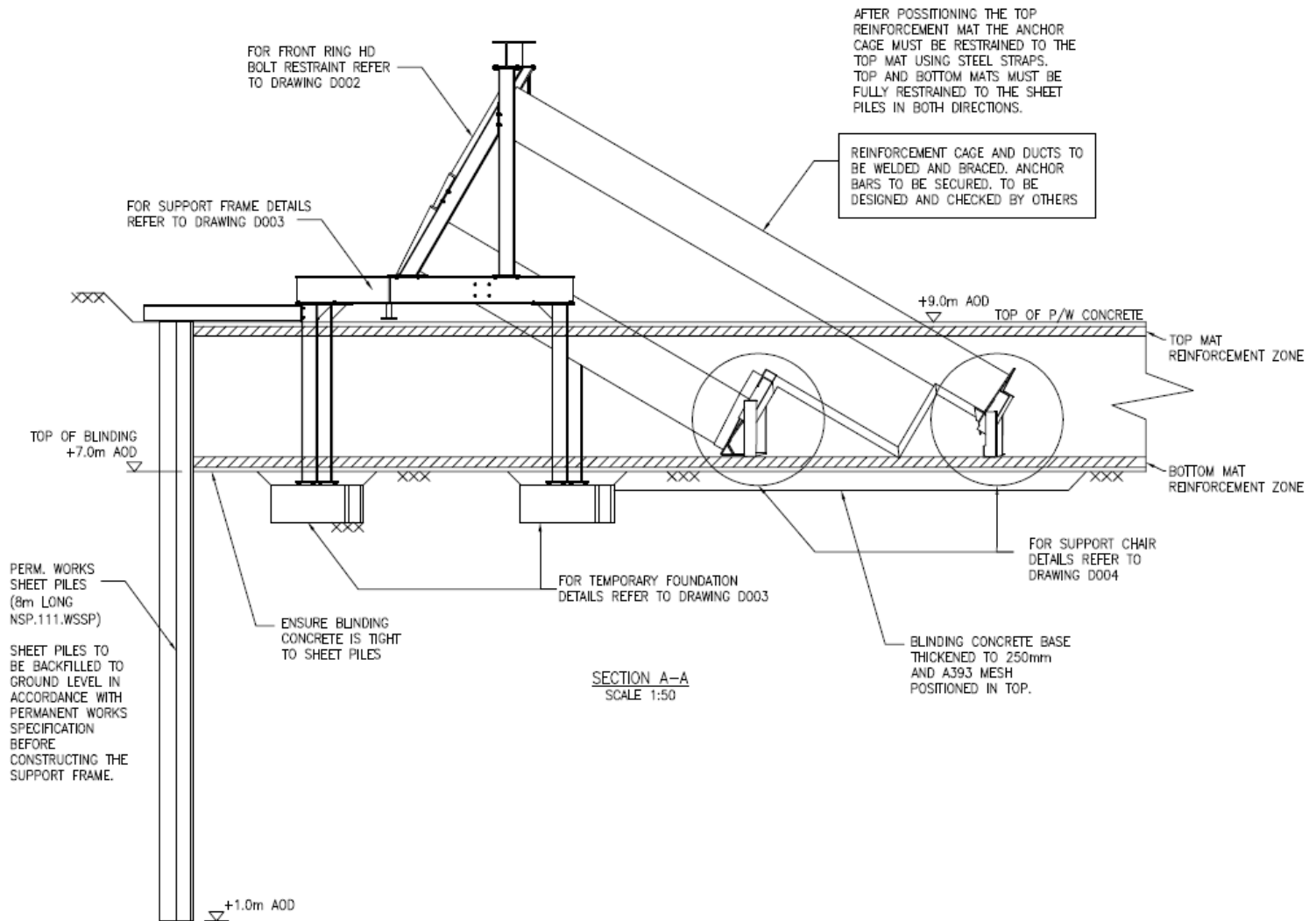
Foundation Construction: Base Reinforcement



Foundation Construction: Holding Down Bolts

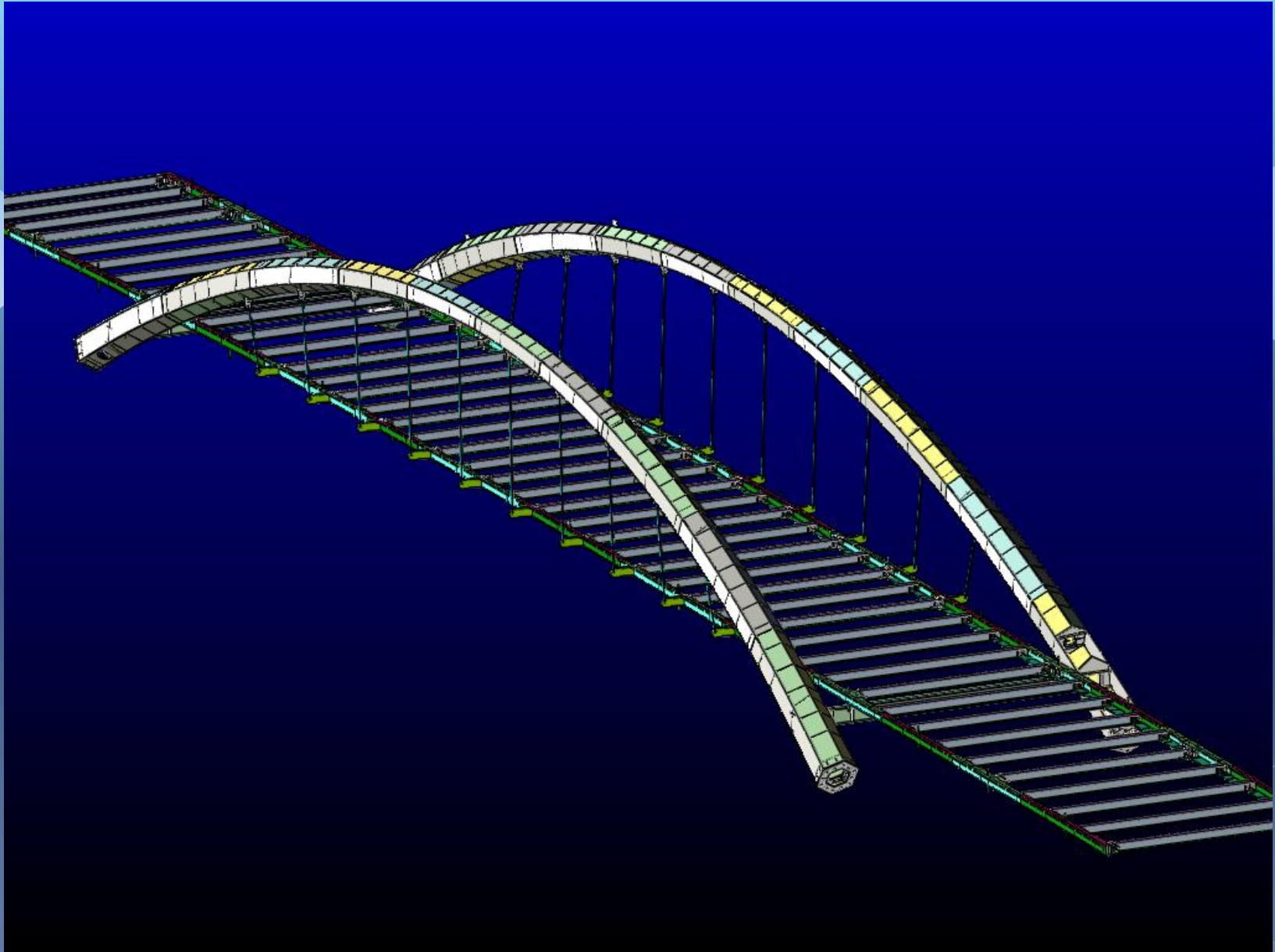


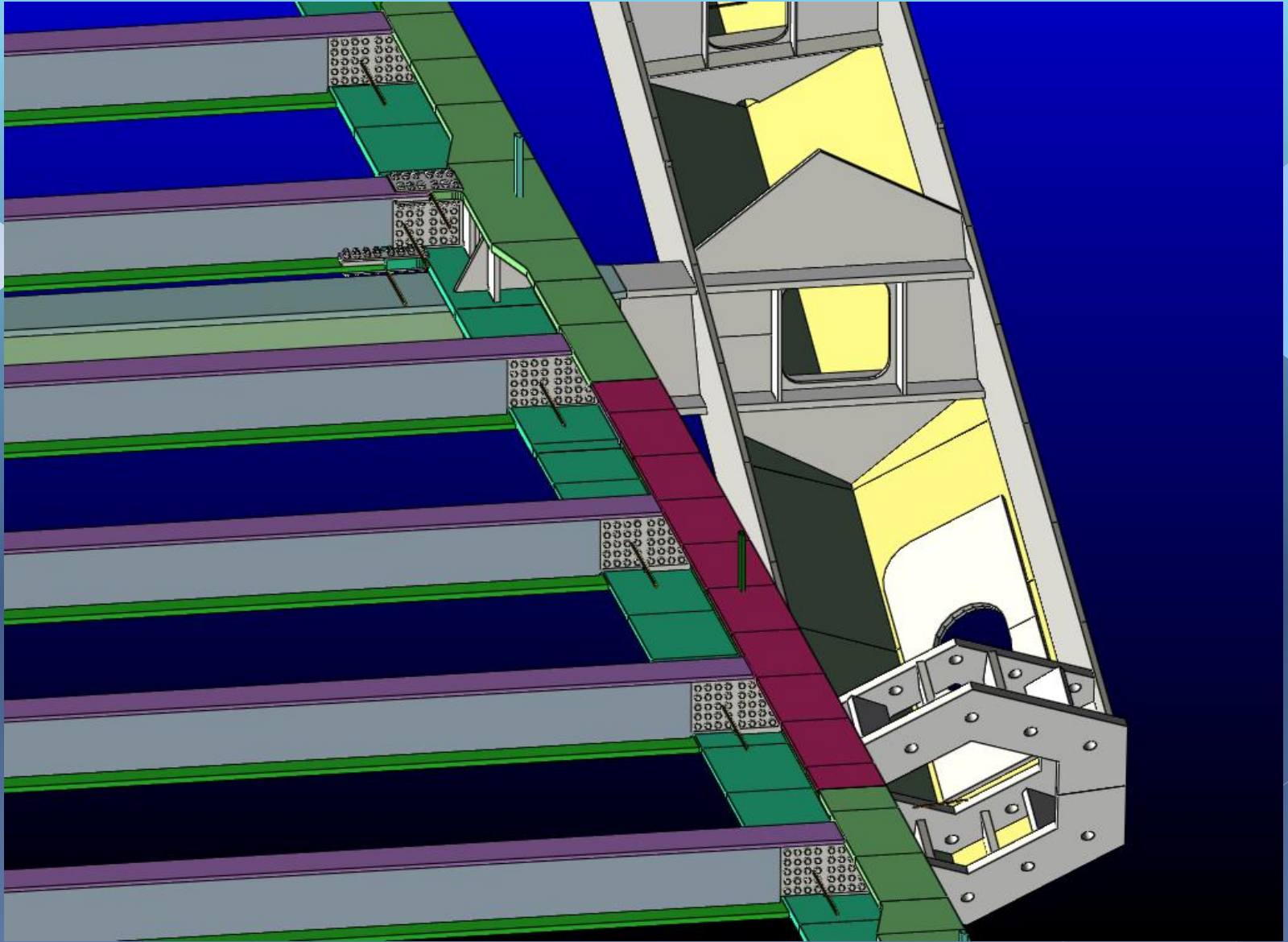
Holding Down Bolts



2010 to present

- **March 2012 to present**
 - Steelwork Fabrication
 - Arch sections
 - Edge “J” beams
 - Hanger procurement





Steelwork Fabrication



Steelwork Fabrication



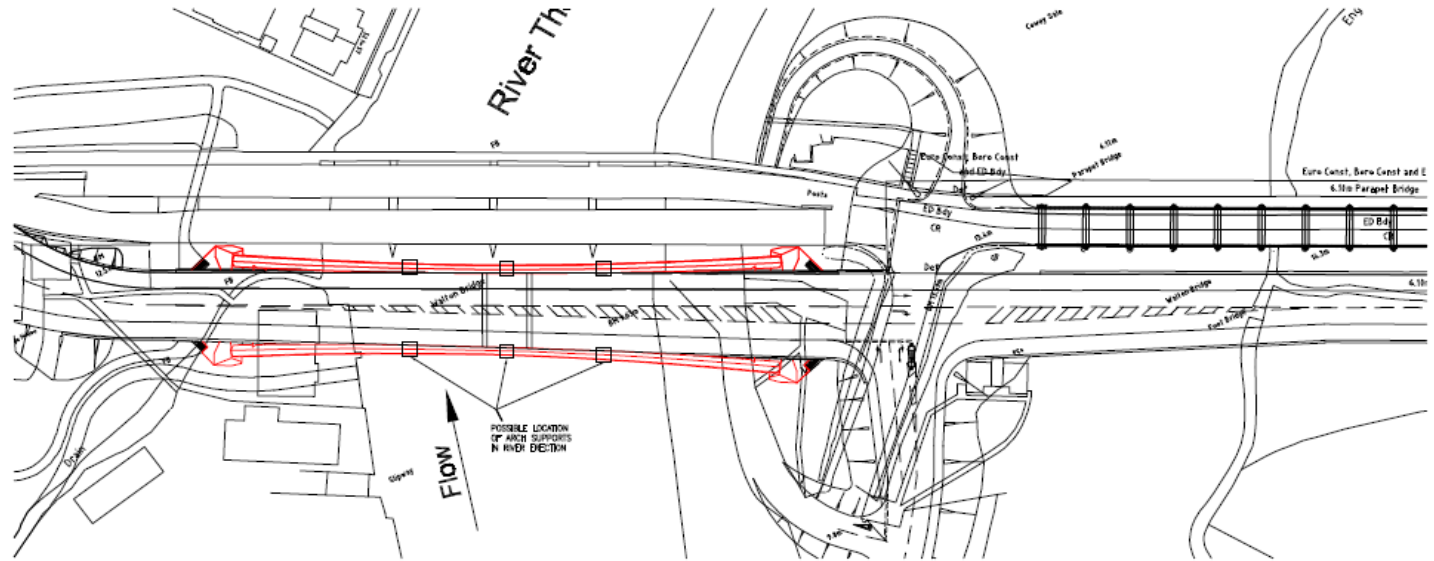
Steelwork Fabrication



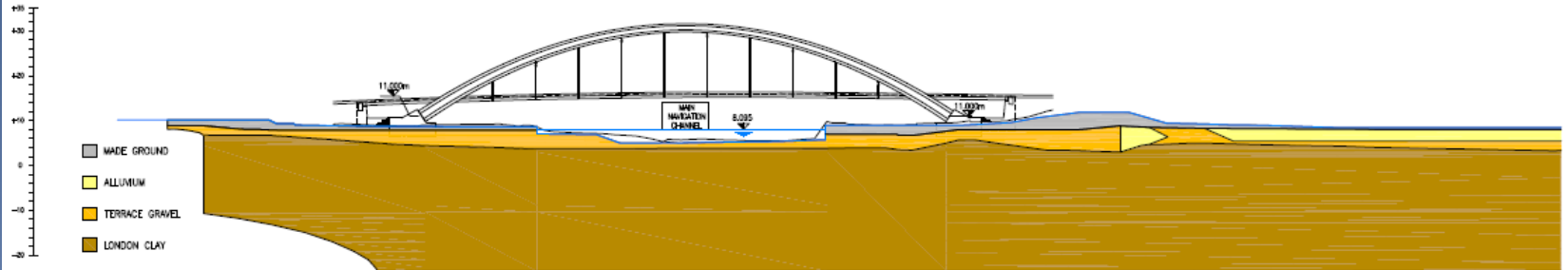
2010 to present

- **Next challenge**
 - **Bridge erection across the Thames**
 - Temporary supports
 - Lifting in the arch
 - Lifting in the hangers and deck

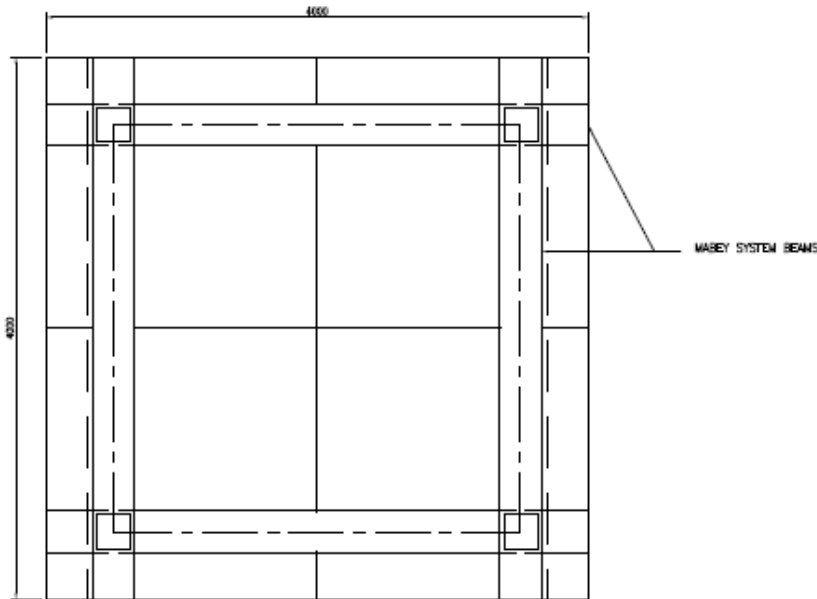
Temporary Supports



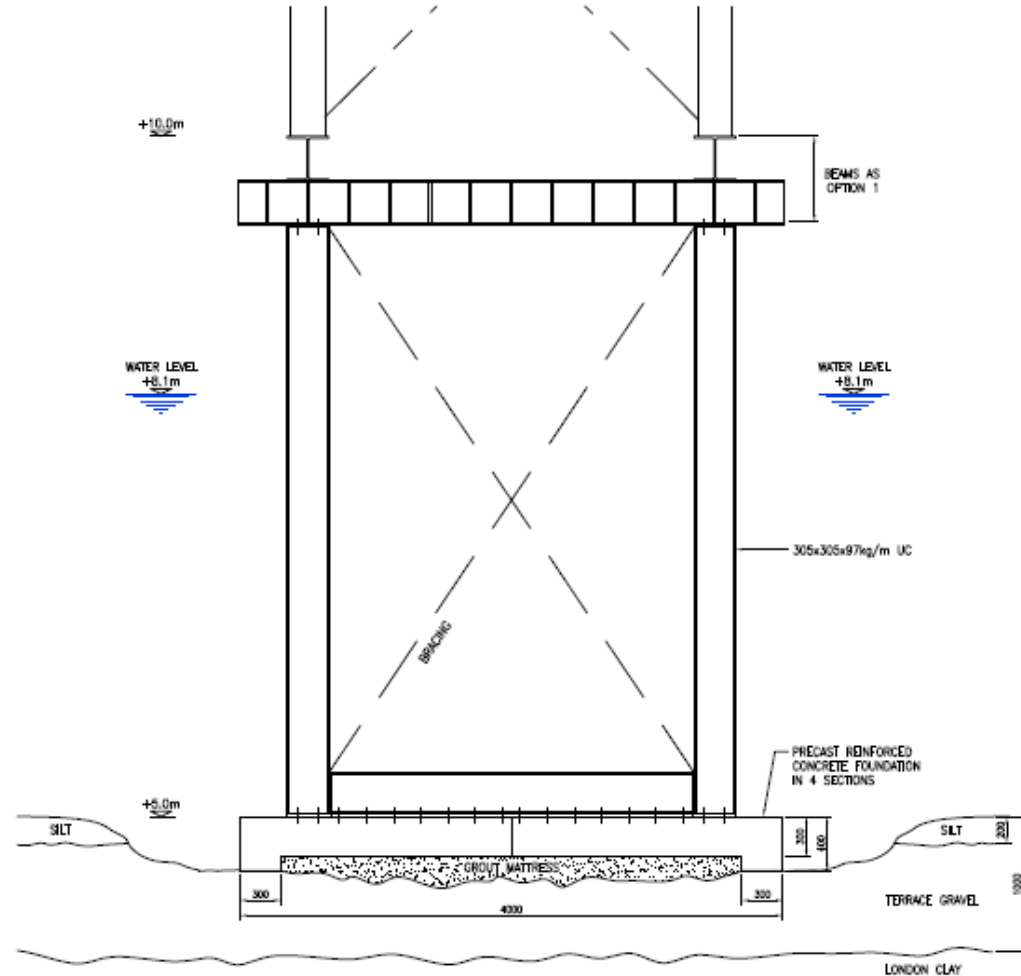
PLAN
SCALE 1:500



Temporary Supports: Concept

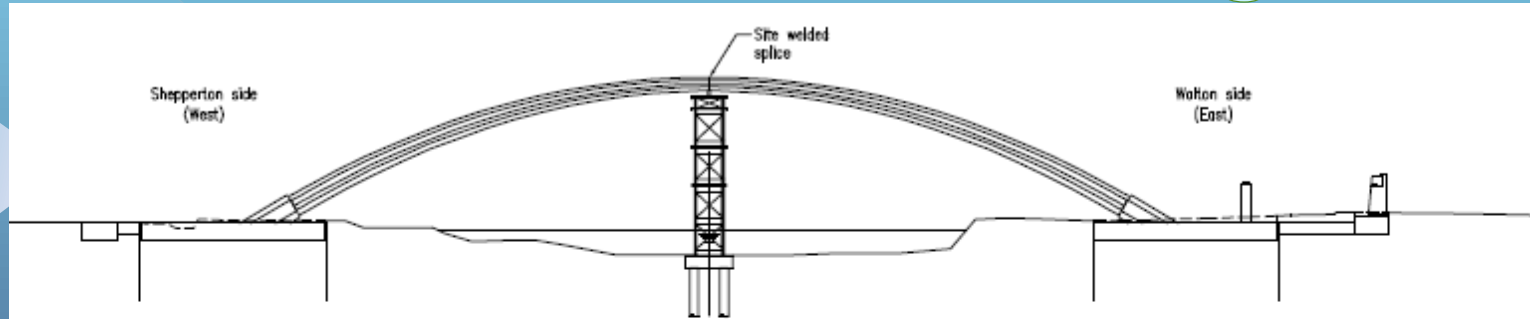


PLAN
SCALE 1:20



ELEVATION
SCALE 1:20

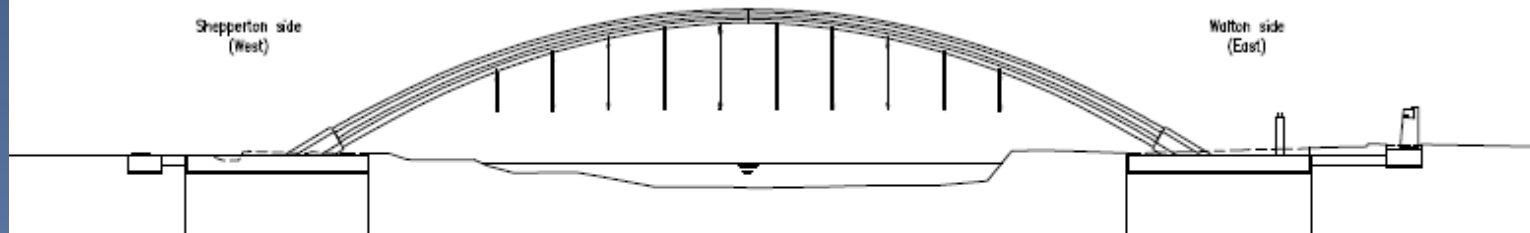
Lift in the Arch & Hangers



STAGE 3

1:500

1. Erect half arch first on to a single pair of extended trestles. Support each half arch on saddles to provide vertical, torsional and transverse lateral restraint. Longitudinal displacement free at the crown support only.
2. Install lower tie beam.
3. Weld lower tie beams.
4. Weld arch crown section.
5. Grout arch base and stress arch support tendons.
6. Remove trestle.

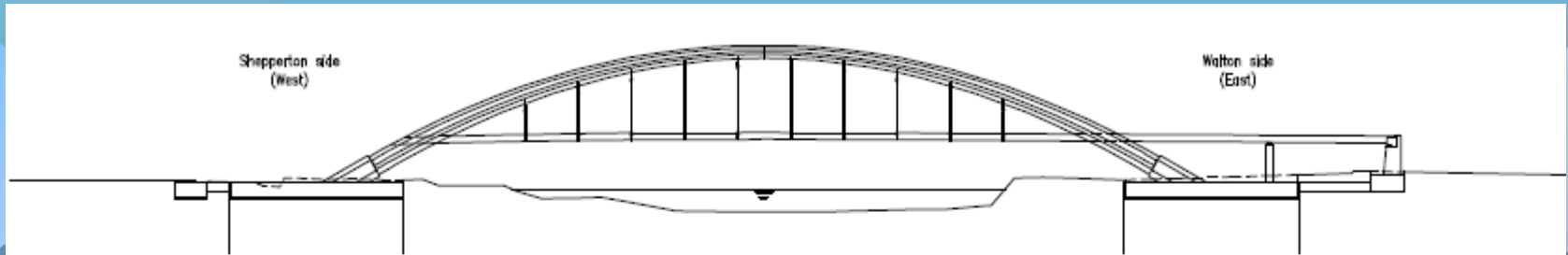


STAGE 4

1:500

1. Fit hangers.

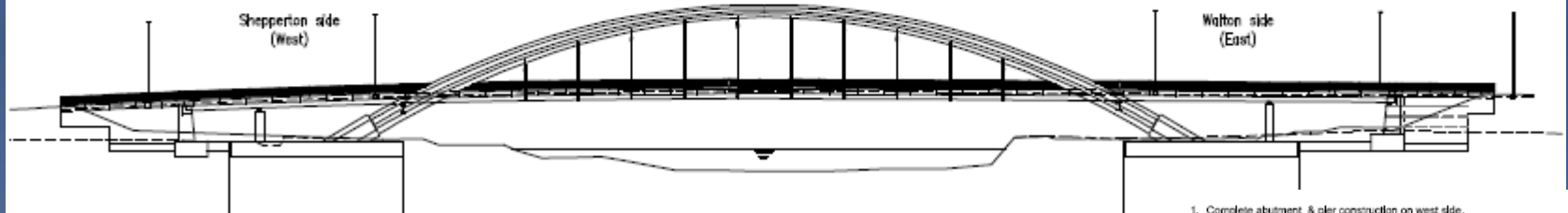
Lift in the Deck



STAGE 5

1:500

1. Erect steel deck in approx. 12m. sections working from east abutment to west lower deck beam.
2. Permanent formwork may be lifted in with deck sections at this stage or it may be placed separately in stage 6.
3. Weld longitudinal girder splices.



STAGE 6

1:500

1. Complete abutment & pier construction on west side.
2. Erect remaining steelwork deck on west side.
3. Adjust deck geometry.
4. Weld remaining longitudinal girder splices.
5. Adjust longitudinal position of deck steelwork (see drawing 5080621/DIRS1/23 for details).
6. Place formwork and fix reinforcement along whole deck. Backfill abutments.
7. Cast main concrete deck slab in two pours. (See drawing 5080621/DIRS1/088 for further details).
8. Cast concrete parapet edge beams.
9. Install parapets.
10. Install in-fill kerbs and surfacing.
11. Install lighting.

C



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Thank You

Any Questions?