



Application for Development Consent

Application Reference Number: WWO10001

Proposed Minor Changes to the Application for Development Consent: Blackfriars Bridge Foreshore Supporting Statement

September 2013

Thames Tideway Tunnel

Proposed Minor Changes to the Application for Development Consent: Blackfriars Bridge Foreshore

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1 Introduction

- 1.1.1 On 28 February 2013 Thames Water Utilities Limited (Thames Water) submitted an application for development consent (the ‘application’) to the Planning Inspectorate for the Thames Tideway Tunnel project (the ‘project’). The application was accepted by the Planning Inspectorate on the 27 March 2013.
- 1.1.2 As a result of on-going stakeholder engagement and recent technical development work, Thames Water has identified a need to make minor changes to the application to the associated development works at Blackfriars Bridge Foreshore. The proposed changes do not affect the works which comprise the Nationally Significant Infrastructure Project (NSIP) or the works to provide the infrastructure to connect the combined sewer overflow drop shaft to the main tunnel. This document sets out information in support of the application in relation to the changes.
- 1.1.3 The proposed changes involve minor amendments to the works necessary for the temporary and permanent relocation of the vessel, The President, which is displaced by the proposed new foreshore structure, and works to relocate Blackfriars Millennium Pier including diverting a British Telecom (BT) cooling water discharge pipe, and lengthening the new pier.
- 1.1.4 The Department for Communities and Local Government document *Planning Act 2008: Guidance for the examination of applications for development consent* (paras. 105 to 107, p. 21) recognises that applicants may need to change a proposal after an application has been accepted for examination. Legitimate reasons for such changes include the type of factors that have arisen in this case, namely regulatory changes, technical developments or the discovery of unknown factors that need to be addressed to preserve the benefit of the proposed development.
- 1.1.5 This document seeks to demonstrate that the proposed changes to the application are minor and not material. Thames Water has undertaken targeted engagement with the principal parties potentially affected by the changes and has taken their representations into account.
- 1.1.6 This document is structured as follows:
- a. Section 2 introduces the proposed changes.
 - b. Section 3 summarises the need for the changes.
 - c. Section 4 explains the process of stakeholder engagement undertaken.
 - d. Section 5 assesses the environmental effects of the proposed changes.
 - e. Section 6 reviews the proposed changes with regard to relevant policy considerations.
 - f. Section 7 addresses land acquisition matters.
 - g. Section 8 addresses changes to and further material forming the Statement of Reasons

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2 Proposed changes

2.1 Description of proposed changes

The President

- 2.1.1 As proposed in the application, the President would be moved to a temporary mooring (Chrysanthemum Pier) for the duration of the construction period before being returned to its original mooring, which would be reinstated. The proposed changes comprise:
- a. Alterations to existing Chrysanthemum Pier: Removing or altering the existing Chrysanthemum Pier structure, replacing it with a new temporary structure, and reinstating the pier to its existing condition at the end of the construction period.
 - b. Dredging and associated sheet piling: Dredging with associated sheet piling (to protect the river wall) for the temporary and permanent relocation of the President. This requires an extension of the zone within which all permanent structures would be located (green line on the Site works parameter plan) by 4,760m². The quantity of additional dredging and associated sheet piling is as follows:
 - i approximately 750m³ of dredging at the temporary location and 2,600m³ of dredging at the permanent mooring location of the President
 - ii approximately 35m of sheet piling at the temporary location and 136m of sheet piling at the permanent mooring location
 - c. Works to the President for mooring: Strengthening works to the President to enable brackets to be attached to the ship and reinstating existing anchors and chains.
 - d. Permanent access structure to the President: Redesigning the permanent access structure to the President to increase the width of the access. The revised access requires an extension to the zone within which permanent above-ground structures would be located of 69m² (purple line on the Site works parameter plan) to accommodate the modified access over the river wall

Blackfriars Millennium Pier

- 2.1.2 As proposed in the application, Blackfriars Millennium Pier would be relocated to the east of Blackfriars Bridge. The proposed changes to Blackfriars Millennium Pier comprise:
- a. Increased dredging and associated sheet piling: Dredging with associated sheet piling (to protect the river wall) for the permanent relocation of Blackfriars Millennium Pier. This requires an extension of the zone within which all permanent structures would be located (green line on the Site works parameter plan) by 3,578m². The quantity of dredging and associated sheet piling is as follows:

2 Proposed changes

- i The quantity of dredging would increase from 2,500m³ to approximately 3,000m³.
 - ii The length of sheet piling would increase from 69m to approximately 135m.
 - iii A gabion mattress of approximately 265m² would be placed at the eastern end of the dredged area.
- b. Increased length of Blackfriars Millennium Pier: Lengthening (from approximately 57m to approximately 81m) and slightly repositioning the pier within the limit of permanent works.
- c. Diversion of cooling water discharge pipe: An existing third-party cooling water discharge pipe buried beneath the river bed would be diverted within the limit of permanent works

Figure 2.1 Application proposals for the President (extract) DCO-PP-17X-BLABF-190017)

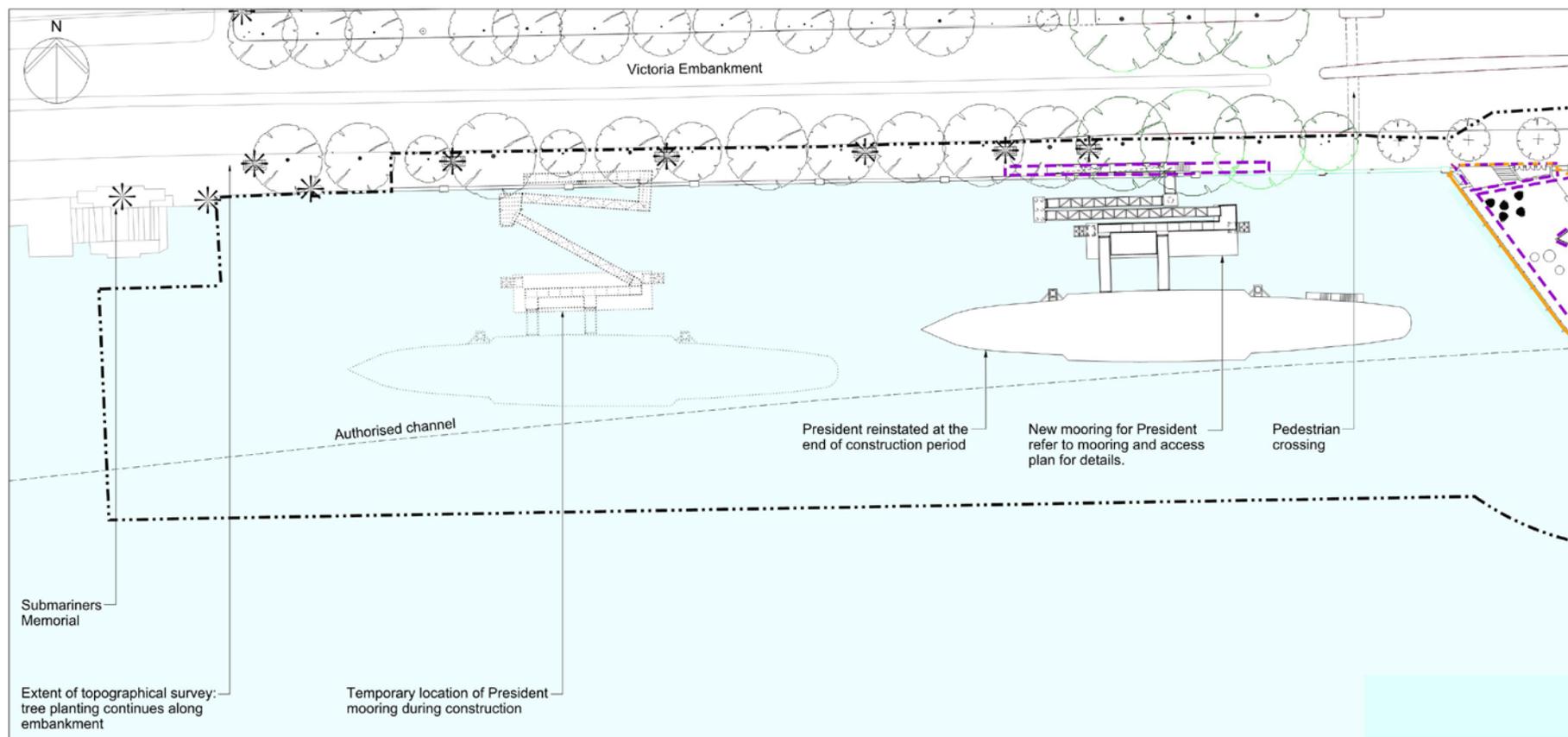


Figure 2.2 Minor amendments to the President (extract) : DCO-PP-17X-BLABF-190017rev 1)

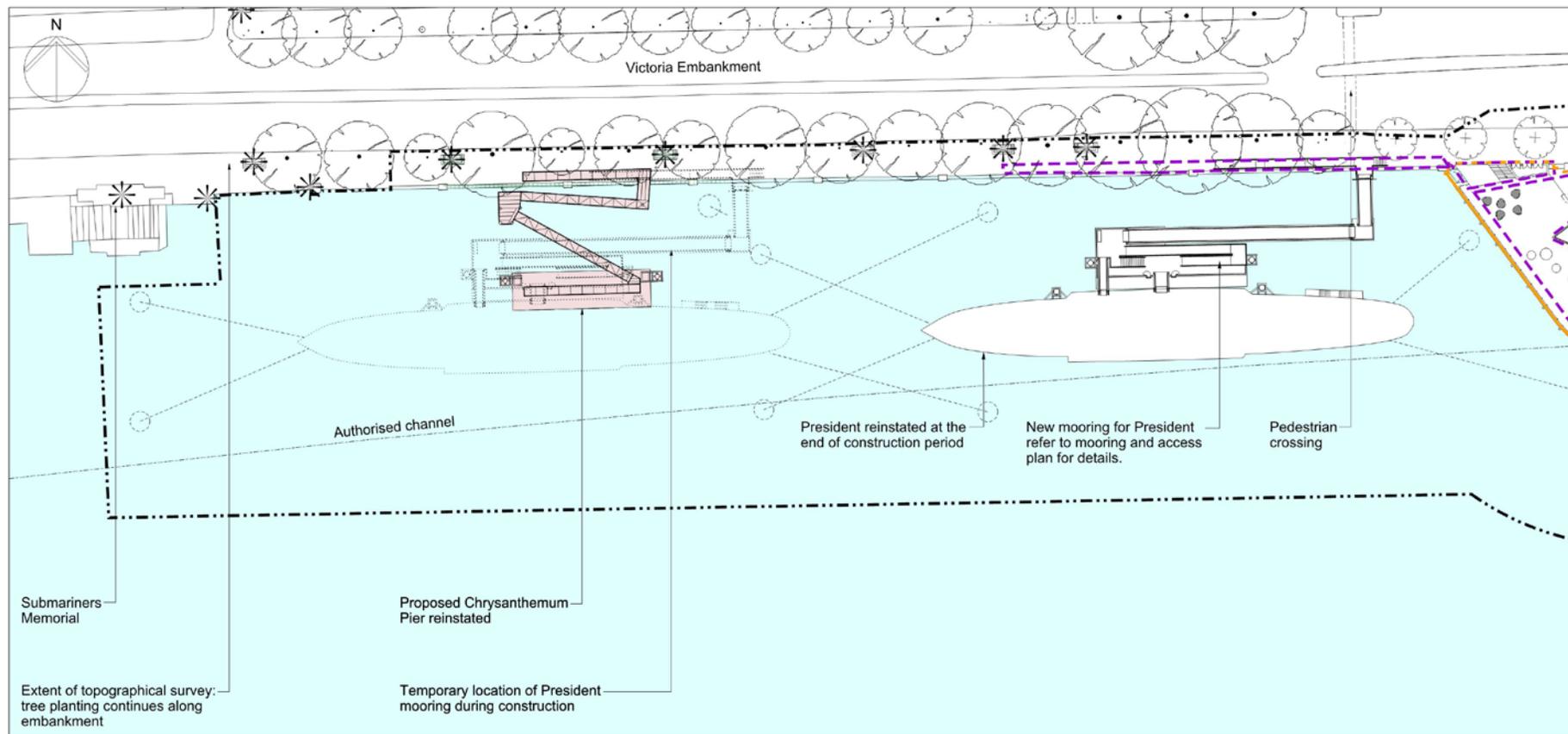


Figure 2.3 Proposed changes to parameters at the President and Blackfriars Millennium Pier (illustrative/not to scale)

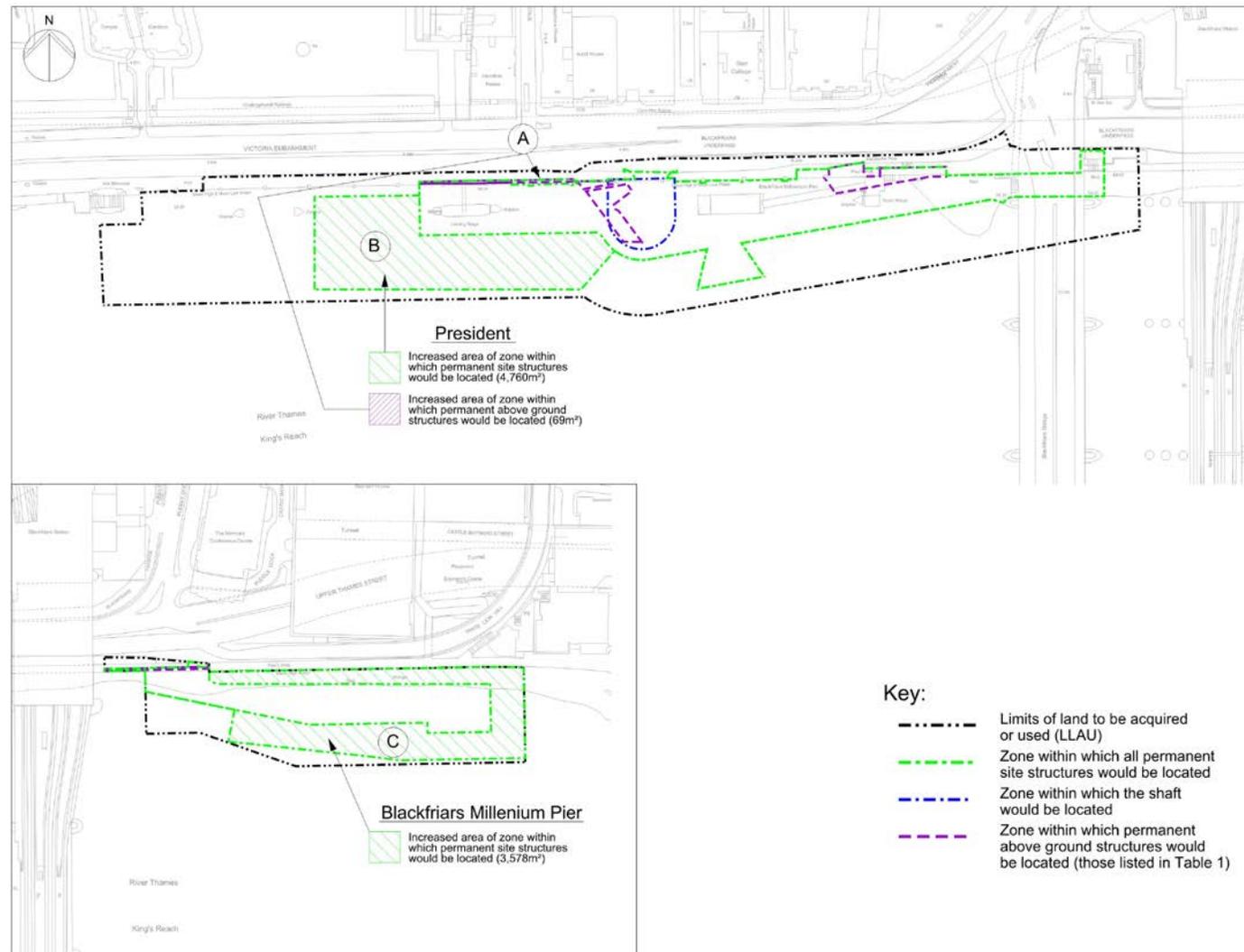


Figure 2.4 Application proposals at Blackfriars Millennium Pier (extract) : DCO-PP-17X-BLABF-190016)

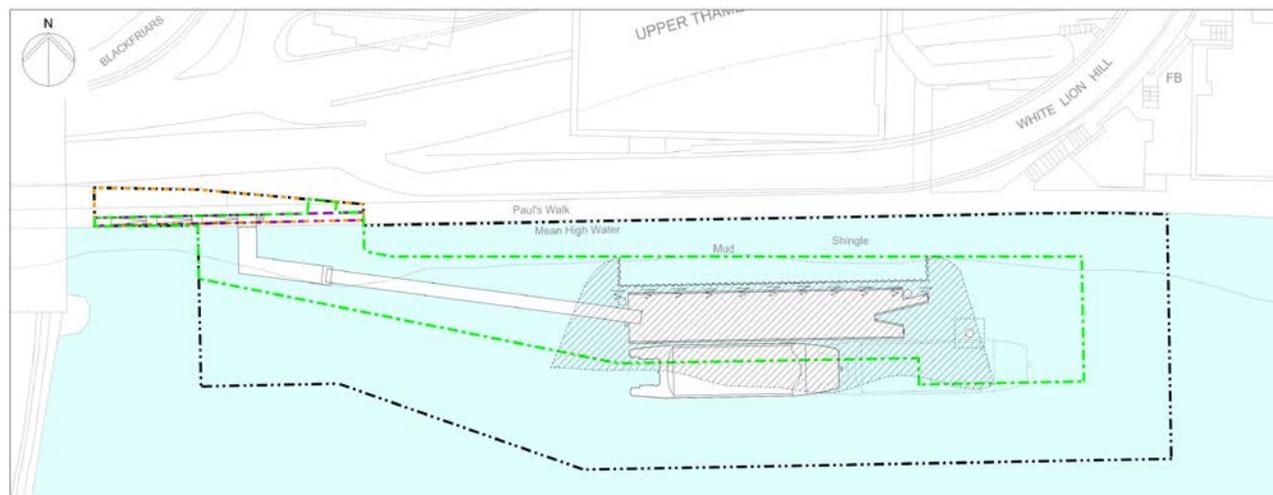
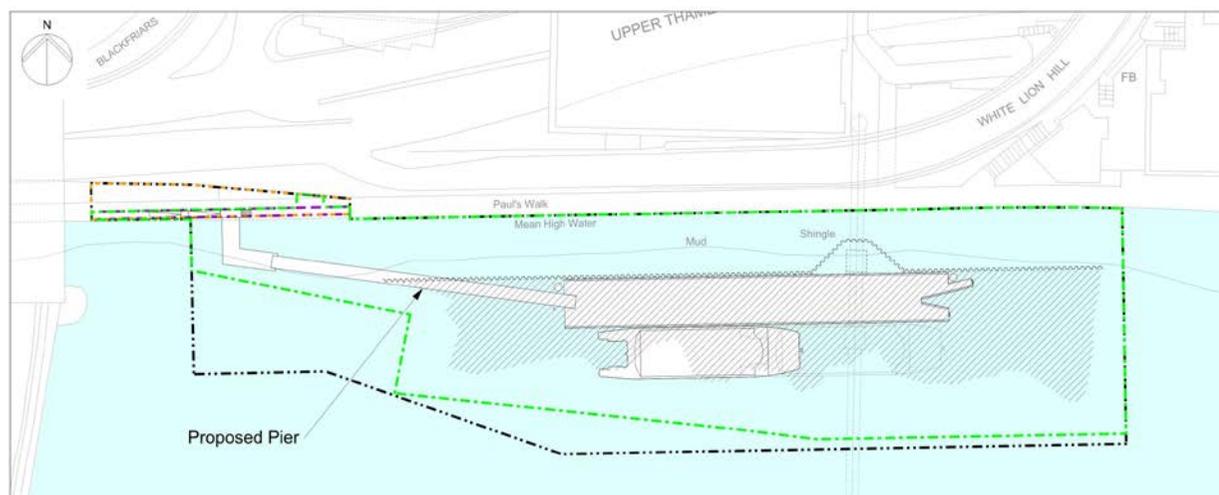


Figure 2.5 Minor amendments at Blackfriars Millennium Pier (extract) : DCO-PP-17X-BLABF-190016rev 1)



2.2 Proposed changes to land acquisition

2.2.1 The following tables provide details of the changes to land acquisition as a result of the minor changes.

**Table 2.1 Zone within which permanent site structures would be located:
Victoria Embankment**

Description of change and location	Increased area of zone within which permanent site structures would be located. Victoria Embankment north of Chrysanthemum Pier, plot 5 on the Land plan submitted with the application. Plot 10 on the Land plan in Appendix F
How much land?	69m ²
What is the extra land required for?	Following comments received from the owner of the President, the access prow was shortened to improve access to the vessel. This resulted in a need to relocate the access ramp and steps to a more easterly position, which is outside the original parameter for this work.
Land owner? Engaged with land owner? Land owner's response?	City of London Corporation (CoL) CoL was contacted at targeted engagement and the proposed changes were indicated on the plans provided. CoL made no comment with respect to the change. Transport for London (TfL) TfL were contacted at targeted engagement and the proposed changes were indicated on the plans provided. TfL made no comment with respect to the change. Crown Estate Crown Estate was contacted at targeted engagement and confirmed in writing that it has no comments in relation to the proposed minor changes as far as land ownership of these foreshore areas is concerned.
Why the Infrastructure Planning (Compulsory Acquisition Regulations) 2010 do not apply	Increased areas for permanent works/acquisition were already identified as land in the <i>Book of Reference</i> as submitted. See Section 8.

**Table 2.2 Zone within which permanent site structures would be located:
Foreshore south and west of Chrysanthemum Pier**

Description of change and location	Increased area of zone within which permanent site structures would be located.– Foreshore south and west of Chrysanthemum Pier, plots 2,3, 4 and 6 on the Land plan submitted with the application. Plots 3a, 4a, 7 and 15 on the Land plan in Appendix F
How much land?	4760m ²
What is the extra land required for?	To allow for dredging and associated sheet piling for the permanent mooring of the President
Land owner? Engaged with land owner? Land owner's response?	Port of London Authority (PLA) PLA was contacted at targeted engagement and the proposed changes were indicated on the plans provided. PLA made no comment with respect to the changes.
Why the Infrastructure	Increased areas for permanent works/acquisition were

Description of change and location	Increased area of zone within which permanent site structures would be located.– Foreshore south and west of Chrysanthemum Pier, plots 2,3, 4 and 6 on the Land plan submitted with the application. Plots 3a, 4a, 7 and 15 on the Land plan in Appendix F
Planning (Compulsory Acquisition Regulations) 2010 do not apply	already identified as land in the <i>Book of Reference</i> as submitted. See Section 8.

**Table 2.3 Zone within which permanent site structures would be located:
Foreshore**

Description of change and location	Increased area of zone within which permanent site structures would be located. Foreshore north, south and east of the proposed site for the relocation of Blackfriars Millennium Pier plot 46 on the Land plan submitted with the application. Plot 47 on the Land plan in Appendix F
How much land?	3,578m ²
What is the extra land required for?	To allow for dredging and associated sheet piling of the proposed Pier relocation, to allow for the diversion of the BT cooling water discharge pipe behind the proposed pontoon (in response to objections from the PLA and TfL to its existing position in front of the proposed pontoon) and to allow for the possible relocation of the pier further back towards the river wall (in response to objections received from Cory, Western Area Waste Authority).
Land owner? Engaged with land owner? Land owner's response?	City of London Corporation CoL was contacted at targeted engagement and the proposed changes were indicated on the plans provided. CoL made no comment with respect to the change. Port of London Authority (PLA) PLA was contacted at targeted engagement and the proposed changes were indicated on the plans provided. PLA made no comment with respect to the change. BT Openreach (BT) BT was contacted at targeted engagement and the proposed changes were indicated on the plans provided. BT made no comment with respect to the change.
Why the Infrastructure Planning (Compulsory Acquisition Regulations) 2010 do not apply	Increased areas for permanent works/acquisition were already identified as land in the <i>Book of Reference</i> as submitted. See Section 8.

2.3 Proposed changes to application documents

2.3.1 The proposed changes would amend the following application documents:

Works descriptions

2.3.2 The proposed changes would involve minor amendments to the descriptions of the development in Schedule 1 to the *Draft DCO*, as follows.

Table 2.4 Proposed changes to works descriptions

Existing works description	Works description: Proposed change
<i>Work No. 17 (b) (vii)a removal of existing mooring for the President and subsequent reinstatement after construction of Work Nos. 17a and 17b including pontoon, means of access over listed river wall including access brows, bank seats and gangways, mooring chains and anchors fixed to the river bed and construction of a river piled wall and dredging to accommodate the relocated vessel</i>	Work No. 17 (b) (vii) removal of existing mooring for the President and subsequent reinstatement after construction of Work Nos. 17a and 17b (save for this reinstatement) including pontoon, means of access over listed river wall including access brows, bank seats and gangways, guide piles, mooring chains and anchors fixed to the river bed and dredging and associated sheet piling to accommodate the vessel. Construction of a temporary mooring at Chrysanthemum Pier to accommodate the President, including modification to the existing mooring or its demolition and construction of a new mooring; including means of access over listed river wall, including access brows, bank seats and gangways to accommodate temporary mooring of the President; mooring chains and anchors fixed to the river bed, and dredging and associated sheet piling to accommodate the relocated vessel; and reinstatement of existing mooring at Chrysanthemum Pier after construction of Work Nos. 17a and 17b (save for this reinstatement).
<i>Work no. 17 (b) (vii)b Construction of a temporary mooring at Chrysanthemum Pier which may include modification to the existing mooring and/or its demolition and construction of a new means of access over listed river wall, including access brows, bank seats and gangways to accommodate temporary mooring of the President; mooring chains and anchors fixed to the river bed, construction of a river piled wall and dredging to accommodate the relocated vessel</i>	
<i>Ancillary works (general)</i>	Ancillary works (general)
<i>(h) the relocation of boats/vessels including works to attach mooring structures and</i>	(h) suspension of existing moorings and the relocation of boats/vessels including

2 Proposed changes

Existing works description	Works description: Proposed change
<i>equipment to the boats/vessels</i>	works to attach mooring structures and equipment to the boats/vessels.

Book of Plans

2.3.3 The plans listed in Table 2.5 and contained in Appendix E would need to be substituted for those included within the application.

Table 2.5 Book of Plans drawings appended

Title	Sheet	Drawing number	Status
Book of Plans doc ref. 2.01 Works plans and sections			
Land acquisition plan - main tunnel	Sheet 36	DCO-LA-000-ZZZZZ-020027 – Rev 2	For information
Land acquisition plan - main tunnel	Sheet 37	DCO-LA-000-ZZZZZ-020028 – Rev 2	For information
Book of Plans doc ref. 2.02 Land acquisition plans			
Land plan - main tunnel	Sheet 36	DCO-LP-000-ZZZZZ-030027 – Rev 2	For approval
Land plan - main tunnel	Sheet 37	DCO-LP-000-ZZZZZ-030028 – Rev 2	For approval
Book of Plans doc ref. 2.19 Blackfriars Bridge Foreshore			
Location plan		DCO-PP-17X-BLABF-190001 – Rev 1	For information
As existing site features plan	1 of 3	DCO-PP-17X-BLABF-190002 – Rev 1	For information
Demolition and site clearance	2 of 5	DCO-PP-17X-BLABF-190006 – Rev 1	For approval
Demolition and site clearance	3 of 5	DCO-PP-17X-BLABF-190007 – Rev 1	For approval
Demolition and site clearance	4 of 5	DCO-PP-17X-BLABF-190008 – Rev 1	For approval
Demolition and site clearance	5 of 5	DCO-PP-17X-BLABF-190009 – Rev 1	For approval
Site works parameter plan		DCO-PP-17X-BLABF-190010 – Rev 1	For approval
Site works parameter key plan		DCO-PP-17X-BLABF-190011 – Rev 1	For information
Permanent works layout	1 of 6	DCO-PP-17X-BLABF-190012 – Rev 1	Illustrative
Permanent works layout	2 of 6	DCO-PP-17X-BLABF-190013 – Rev 1	Illustrative
Permanent works layout	3 of 6	DCO-PP-17X-BLABF-190014 – Rev 1	Illustrative
Permanent works layout	4 of 6	DCO-PP-17X-BLABF-190015 – Rev 1	Illustrative
Permanent works layout	5 of 6	DCO-PP-17X-BLABF-190016 – Rev 1	Illustrative

2 Proposed changes

Title	Sheet	Drawing number	Status
Proposed site features plan	1 of 3	DCO-PP-17X-BLABF-190017 – Rev 1	Illustrative
Proposed site features plan	2 of 3	DCO-PP-17X-BLABF-190018 – Rev 1	Indicative
Proposed site features plan	3 of 3	DCO-PP-17X-BLABF-190019 – Rev 1	Illustrative
Proposed landscape plan	1 of 2	DCO-PP-17X-BLABF-190020 – Rev 1	Indicative
Permanent President mooring access and plan elevation		DCO-PP-17X-BLABF-190045 – Rev 1	Illustrative
Proposed relocated Blackfriars Pier		DCO-PP-17X-BLABF-190046 – Rev 1	Illustrative
Construction phases - phase 1 Site setup - main works	1 of 2	DCO-PP-17X-BLABF-190047 – Rev 1	Illustrative
Construction phases - phase 1 Site setup - pier relocation	2 of 2	DCO-PP-17X-BLABF-190048 – Rev 1	Illustrative
Construction phases - phase 2 Shaft construction		DCO-PP-17X-BLABF-190049 – Rev 1	Illustrative
Construction phases - phase 3 Construction of other structures		DCO-PP-17X-BLABF-190050 – Rev 1	Illustrative
Construction phases - phase 4 Site demobilisation		DCO-PP-17X-BLABF-190051 – Rev 1	Illustrative
Demolition and site clearance	1 of 5	DCO-PP-17X-BLABF-190067	For approval
Permanent works layout	6 of 6	DCO-PP-17X-BLABF-190068	Illustrative

Schedule 13 and 14 Land Acquisition Powers

2.3.4 The proposal would require minor changes to the powers to use and acquire land as proposed in the application. The changes would affect plots 2, 3, 4, 5, 6, 7, 8, 10, 15, 16, 18, 46 and 47 as shown on the Land plan (drawing refs. DCO-LP-000-ZZZZZ-030027 and 28) in the *Book of Plans* (doc ref: 2.03), and commensurate changes in Schedules 13 and 14 to the *Draft DCO* and the *Book of Reference* as follows.

- a. an increase in the area of "*Unrestricted powers to acquire land*" has led to an increase in area of plots 7, 8, 10, 15, and 47, with a related decrease in areas of plots 2, 3, 4, 5 and 46.
- b. new plots 3a, 4a and 15a have been created due to the increase in "*Unrestricted powers to acquire land*" while plots 6 and 18 have consequently been removed.
- c. Plot 8 has been moved so that powers sought are no longer "*Unrestricted powers to acquire land*", and instead powers are limited to acquisition of subsoil and temporary use (at the surface).
- d. The powers sought over plot 16 have also changed from powers limited to acquisition of subsoil and temporary use (surface), and are now "*Unrestricted powers to acquire land*".

2 Proposed changes

2.3.5 The plot changes are detailed on the amended Land plan and the status of powers of acquisition are shown on the revised Land acquisition plans listed in Table 2.5 above.

2.3.6 Table 2.6 and Table 2.7 provide the amended sections of Schedules 13 (powers to acquire restricted to subsoil more than 9m beneath the surface) and 14 (powers for temporary use of the land) to the *Draft DCO* which would be needed to replace the equivalent entries in those Schedules as submitted with the application. In the revised Schedule 14 entry shown in Table 2.7, column (3) (“Purpose for which temporary possession may be taken”) would not change as a result of the proposed amendments, confirming the very minor nature of these changes. In addition, the revised sections to the *Book of Reference* are provided in Appendix C.

Table 2.6 Proposed changes to Schedule 13 to the Draft DCO

(1) Borough	(2) Land
City of London	1, 2, 6, 8, 16, 15a, 23, 31, 35, 36, 40, 41, 42, 43, 44, 45, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59

Table 2.7 Proposed changes to Schedule 14 to the Draft DCO

(1) Borough	(2) Number of land shown on Land plan	(3) Purpose for which temporary possession may be taken	(4) Relevant site or part of the authorised project
City of London	2, 3, 4, 5, 6, 8, 16, 15a, 19, 19a, 23, 32, 34, 35, 39, 40, 45, 46	Areas required for CSO drop shaft construction; CSO interception works construction; Low Level Sewer connection works construction; working area in the foreshore; provision of temporary campshed, craneage; workshop and stores; office, parking and welfare facilities; and vehicle and pedestrian circulation areas. Areas for construction works associated with the relocation of Blackfriars Millennium Pier. Areas for construction works associated with the relocation of the President. Highway and utility works to Victoria Embankment (part of Work No. 17b).	Blackfriars Bridge Foreshore

Book of Reference

2.3.7 The proposed changes would involve minor amendments to the *Book of Reference* (see Appendix C). In all cases where a Part of the Book of Reference has changed, the whole of that part (to allow context with other plots) has been provided. For the City of London, therefore, revised Parts 1 and 4 in their entirety have been provided. This means that if the

changes at Blackfriars Bridge Foreshore are accepted, each of the Book of Reference parts provided can replace the corresponding part in the original Book of Reference.

- 2.3.8 In the Examining Authorities' letter of 25 July, the applicant was requested to provide schedules showing Crown Land, Statutory Undertakers' land and land subject to their rights or apparatus, and a general schedule showing all plots within the Order Land. Updates to all those schedules have been prepared indicating changes driven by the proposed minor amendments and would be available if requested.

Statement of Reasons

- 2.3.9 The proposed changes would involve minor amendments to the *Statement of Reasons* (see Section 8).

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3 Need for the proposed changes

3.1 Introduction

- 3.1.1 The proposed changes relate to the detail of proposals for the temporary relocation of the President to Chrysanthemum Pier and the permanent relocation of Blackfriars Millennium Pier. These changes are required to facilitate the NSIP works.

3.2 The President

- 3.2.1 As a result of further technical development, comments received from the owner of the President and new information about the progress of construction of Chrysanthemum Pier (for which Crown River Cruises has obtained planning permission), Thames Water re-examined in greater detail:

- a. the alterations required to Chrysanthemum Pier to accommodate the President during the construction period
- b. details of how the President would be moored at both the proposed permanent and temporary locations and the necessary in-river works
- c. the permanent access structure to the President

Alterations to existing Chrysanthemum Pier

- 3.2.2 Thames Water identified that the gangways for the proposed Chrysanthemum Pier as currently consented and designed for use by Crown River Cruises vessels are not sufficient to cope, as a means of escape, with the President's much larger licensed capacity. Therefore more substantial changes are necessary to the proposed pier to accommodate wider and less steep gangways.
- 3.2.3 In addition, the work that was underway to complete the consented changes to Chrysanthemum Pier at the time of the application has halted and Thames Water can no longer assume confidently that it will be completed by Crown River Cruises. In the event that Crown River Cruises is not able to complete the construction of the proposed Chrysanthemum Pier, or if it is deemed not cost-effective or appropriate to modify the completed pier, Thames Water proposes to modify the application to enable either the modification or demolition of the existing pier structures and (in the case of demolition) build a new temporary pier similar to the proposed permanent pier for the President. The temporary structure would need to be removed at the end of the construction period and Chrysanthemum Pier reinstated to its pre-construction state.

Works to the President for mooring

- 3.2.4 At the temporary and the permanent locations of the President, Thames Water also need to provide mooring chains and anchors to replicate existing arrangements for the vessel and undertake dredging, with associated sheet piling to ensure there is sufficient draft beneath its hull at

low tide. Detailed surveys have also shown that it is necessary to undertake some structural strengthening of the vessel to accommodate the yokes needed to moor it. These matters were identified through design development and engagement with the vessel's owner. The proposed changes to the application enable these matters to be captured and consented.

Dredging and associated sheet piling

- 3.2.5 The incoming and outgoing action of the tide has a scouring effect beneath existing vessels that usually creates and maintains a depression in the river bed. When vessels are moved to a new location, it is necessary to consider whether the river bed needs to be lowered to ensure adequate clearance to the underside of the vessel at all states of the tide to prevent grounding. Design work indicated that the slope angle of the dredged pocket may create a risk of 'slump' in the river bed close to river wall. As a precautionary approach, Thames Water therefore proposes to provide a sheet piled support to contain and support the dredged pocket, thereby reducing the risk of creating any instability for the river wall.
- 3.2.6 While these works would be essentially temporary, they would extend beyond the boundary originally identified for the extent of permanent site structures, although they fall within the limits of land to be acquired or used (LLAU) and involve no 'additional land' beyond that already identified in the *Book of Reference*.

Permanent access structure to the President

- 3.2.7 In response to feedback from the owner of the President, the access brow to vessel has been shortened, in order not to deter potential customers, particularly the elderly and others with mobility difficulties. The revised access requires an extension to the zone within which permanent above-ground structures would be located to accommodate the modified access over the river wall.

3.3 Blackfriars Millennium Pier

Increased dredging and associated sheet piling

- 3.3.1 Further technical development and working with stakeholders identified that, in order to allow the pier pontoon and vessels using the pier to have sufficient draft beneath them at low tide, it is necessary to incorporate more extensive sheet piling and dredging at this site than shown in the application. The works extend the boundary originally identified for the extent of permanent site structures, however all works again remain within the extent of the LLAU identified in the application.

Increased length of Blackfriars Millennium Pier

- 3.3.2 Following feedback received from TfL, the PLA and operators of the existing Blackfriars Millennium Pier relating to the requirement to berth vessels against a monopile at the downstream end of the structure,

Thames Water proposes to increase the length of pier to enable vessels to moor fully against the structure in both mooring locations.

Diversion of cooling water discharge pipe

- 3.3.3 The outfall is located under the river bed below the proposed Blackfriars Millennium Pier location. The detail of measures necessary to protect the important cooling water outlet pipe, which serves the BT premises at Baynard House, are being developed in conjunction with BT. The works require some structural modifications to the discharge pipe and a cofferdam is likely to be required to facilitate the diversion of the pipe within the LLAU.

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4 Stakeholder engagement

4.1 Introduction

4.1.1 Although Thames Water undertook extensive pre-application consultation, it is considered that the proposed changes at these sites could potentially affect the representations made by some consultees on the application for development consent. Therefore, Thames Water decided to engage with interested parties potentially affected by the changes to give them an opportunity to express their views on the effect of the proposed changes. It was also necessary to allow time for Thames Water to consider and respond to any issues raised during further engagement without delaying the overall programme. Therefore this further engagement was undertaken on a targeted basis, focusing on those stakeholders likely to be interested in or affected by the proposed minor changes.

4.2 Whom Thames Water engaged with

4.2.1 Thames Water identified the potentially affected stakeholders by having regard to the requirements of Section 42 of the Planning Act 2008 (Duty to Consult) which comprises:

- a. such persons as may be prescribed, (the prescribes persons are set out in Schedule 1 of the Infrastructure Planning (Applications: Prescribed Forms And Procedures) (APFP) Regulations 2009 as amended by the Infrastructure Planning (Prescribed Consultees and Interested Parties etc.) (Change) Regulations 2013
- b. each local authority that is within Section 43 of the Planning Act 2008
- c. the Greater London Authority if the land is in Greater London, and
- d. each person who is within one or more of the categories set out in Section 44 of the Planning Act 2008, which covers land owners and persons who may be able to make a claim under the Compulsory Purchase Act 1965.

4.2.2 Thames Water also had regard to the minor nature of the changes proposed (described in sections 4 and 5), which it considered only affected the specific interests of a relatively narrow range of stakeholders. Thames Water took the view that the proposed changes did not constitute a material change to the submitted application such that it would constitute a new project, since these were minor changes relating to mooring of vessels and associated marine works at two of the construction sites, rather than changes to the NSIP works themselves.

4.2.3 Thames Water did not believe the changes were significant to warrant a further round of publicity and formal consultation. It adopted instead a proportionate approach, focussing instead on those stakeholders who could be directly affected, rather than on all those consulted during pre-application stages. Thames Water used knowledge of those who had responded at these sites during the pre-application phases of consultation,

including Section 48 publicity, and Section 56 representations to identify those stakeholders for further engagement.

- 4.2.4 In addition, Thames Water had regard to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended 2012) (EIA Regs) on consultation requirements for Environmental Impact Assessment (EIA). Thames Water noted that to comply with the EIA Regs, there should be consultation compliant with Section 42 of the Planning Act 2008 on preliminary environmental information prior to submission. There is no provision in the EIA Regulations for post-submission consultation. Thames Water undertook consultation on preliminary environmental information during its phase two consultation in autumn 2011. Thames Water has therefore also had regard to the EIA Regulations in undertaking targeted engagement on the proposed changes through the process of identifying interested parties under Section 42, described above.
- 4.2.5 In addition to the prescribed consultees under Schedule 1 of the APFP regs, Thames Water contacted landowners and potentially affected river users in compliance with Section 44 of the 2008 Act. A full list of those who were consulted is contained in Appendix B.
- 4.2.6 Table 4.2 provides an analysis of those stakeholders in Schedule 1 and Section 43 who were notified of the changes, those who were not notified and the reasons why this was considered appropriate.

Table 4.1 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/workshop
Planning Act 2008: Section 42(1)(a)					
Statutory consultees					
The Welsh Ministers	N/A	N/A			
The Scottish Executive	N/A	N/A			
The relevant Northern Ireland Department	N/A	N/A			
The relevant Responsible Regional Authority	GLA	Yes		No	No
The Health and Safety Executive	The Health and Safety Executive	No	The changes were not considered to raise health and safety issues and the Health and Safety Executive had not previously commented on detailed matters at this site.		
The relevant Strategic Health Authority	London Strategic Health Authority (NHS London)	No	The changes proposed were not considered to raise health issues and NHS London had not previously commented on detailed matters at this site.		
The relevant Health Board	N/A	N/A			
Natural England	Natural England	Yes		Yes	Yes
The Historic Buildings and Monuments Commission for England	English Heritage	Yes		Yes	Yes
The relevant fire and rescue Authority	London Fire Brigade / London Fire and Emergency Planning	Yes		No	Yes

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/ workshop
	Authority				
The relevant police authority	Metropolitan Police Authority	No	The changes were not considered to effect matters of law and order or security and the authority had not previously commented on the detailed design of the proposed moorings and relocated pier.		
The relevant parish council, or, where the application relates to land Wales or Scotland the relevant community council	N/A	N/A			
The Environment Agency	The Environment Agency	Yes		Yes	Yes
The Scottish Environment Protection Agency	N/A	N/A			
Commission for Architecture and the Built Environment	Design Council CABE	Yes		Yes	Yes
The relevant Regional Development Agency	London Development Agency	No	The agency was closed on 31 March 2012.		
The Equality and Human Rights Commission	The Equality and Human Rights Commission	No	The changes were not considered to effect matters of equality or human rights and the Commission had not previously commented on detailed matters at this site.		
The Scottish Human Rights Commission	The Scottish Human Rights Commission	N/A			
The Commission for	The Commission for	No	The changes were not considered		

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/workshop
Sustainable Development	Sustainable Development		significant and Commission had not previously commented on detailed matters at this site.		
AONB Conservation Boards	N/A	N/A			
Royal Commission on Ancient and Historical Monuments of Wales	N/A	N/A			
The Countryside Council for Wales	N/A	N/A			
The Homes and Communities Agency	The Homes and Communities Agency	NO	The changes were not considered to effect any regeneration or housing areas and the Agency had not previously commented on detailed matters at this site.		
The Joint Nature Conservation Committee	The Joint Nature Conservation Committee	No	The changes were not considered significant and Thames Water considers that involving Natural England was sufficient to understand any effects on nature conservation.		
The Commission for Rural Communities	N/A	N/A			
Scottish Natural Heritage	N/A	N/A			
Maritime and Coastguard Agency	Maritime and Coastguard Agency	No	The agency had not previously commented on detailed matters at this site and Thames Water considered the PLA to be the technical authority to consult on navigational issues in London.		
The Marine and Fisheries	The Marine and	No	Substituted by the Marine Management		

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/ workshop
Agency	Fisheries Agency		Organisation under the Infrastructure Planning (Prescribed Consultees and Interested Parties etc.) (Change) Regulations 2013.		
The Scottish Fisheries Protection Agency	N/A	N/A			
The Civil Aviation Authority	The Civil Aviation Authority	No	The changes were not considered to affect air space over the site and the authority had not previously commented on detailed matters at this site.		
The Highways Agency	The Highways Agency	No	The changes do not affect any Highways Agency Roads and it had not previously commented on detailed matters at this site.		
Integrated Transport Authorities and Passenger Transport Executives –	Integrated Transport Authorities and Passenger Transport Executives –	N/A			
The relevant Highways Authority	City of London Corporation (as relevant highways authority)	Yes		Yes	Yes
The relevant Highways Authority	City of Westminster (as relevant highways authority)	Yes		Yes	Yes
Transport for London	Transport for London	Yes		Yes	Yes
The Passengers Council	The Passengers Council	No	The changes were not considered to affect rail passengers and the council had not previously commented on detailed		

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/workshop
			matters at this site.		
The Disabled Persons Transport Advisory Committee	The Disabled Persons Transport Advisory Committee	No	The changes were not considered significant and the committee had not previously commented on detailed matters at this site.		
The Coal Authority	The Coal Authority	No	The changes were not considered to affect coal resources or production and the authority had not previously commented on detailed matters at this site.		
The Office of Rail Regulation and approved operators	The Office of Rail Regulation and approved operators	No	The changes were not considered to affect rail passengers or routes and the Office of Rail Regulation and approved operators had not previously commented on detailed matters at this site.		
The Gas and Electricity Markets Authority	The Gas and Electricity Markets Authority	No	The changes were not considered to affect Gas Supply or production and the authority had not previously commented on detailed matters at this site.		
The Water Services Regulation Authority	The Water Services Regulation Authority (OFWAT)	No	OFWAT had not previously commented on the details of the proposals at the site.		
The Water Industry	N/A	N/A			

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/workshop
Commission of Scotland					
The relevant waste regulation authority ⁱ	East London Waste Authority	No	The authority had not previously commented on the details of the proposals at this site and the changes were not considered to raise significant issues relating the disposal of waste.		
	North London Waste Authority	No	The authority had not previously commented on the details of the proposals at this site and the changes were not considered to raise significant issues relating the disposal of waste.		
	West London Waste Authority	No	The authority had not previously commented on teh details of the proposals at this site and the changes were not considered to raise significant issues relating to the disposal of waste.		
	Western Riverside Waste Authority	Yes	The authority had specifically commented on proposals at Blackfriars Bridge Foreshore at Section 56.	No	No
The relevant internal	N/A	N/A			

ⁱ Each of the four sub-regional waste regulation authorities was consulted, ie. the East London Waste Regulation Authority, North London Waste Regulation Authority, West London Waste Regulation Authority and Western Riverside Waste Regulation Authority. The membership of these authorities is understood to comprise the following London Boroughs: LB Newham, LB Redbridge, LB Barking & Dagenham, LB Havering, LBH&F, LB Lambeth, LB Wandsworth, RBKC, LB Brent, LB Ealing, LB Harrow, LB Hillingdon, LB Hounslow, LB Richmond upon Thames, LB Barnet, LB Camden, LB Enfield, LB Hackney, LB Haringey, LB Islington and LB Waltham Forest. The remaining London local authorities (not members of the four sub-regional groups) who operate as the waste regulation authority in their areas were consulted individually (as local authorities).

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/ workshop
drainage board					
The British Waterways Board	The British Waterways Board (Canals and Rivers Trust)	No	The proposals do not affect any waterways or canals under the remit of the British Waterways Board (Canals and Rivers Trust) and it had not previously commented on the details of the proposals at either site.		
Trinity House	Trinity House	No	Trinity House had not previously commented on detailed matters at this site and Thames Water considered the PLA to be the technical authority to consult on navigational issues in London.		
The Health Protection Agency	The Health Protection Agency	No	The agency had not previously commented on the details of the proposals at this site.		
The relevant local resilience forum	London Regional Resilience Forum / London Resilience Team ⁱⁱ	No	The forum had not previously commented on the details of the proposals at this site.		
Relevant statutory undertakers	BT	Yes			Yes

ⁱⁱ In London the Local Resilience Forums (LRFs) are area based, with six LRFs representing a group of local authority areas. However, GLA advised the project that with effect from 1/4/2011 the statutory function would be transferred from each area team to the London Resilience Team (LRT) at the GLA. The LRT at the GLA has therefore been consulted from Phase 1 onwards in preference to the London Regional Resilience Forum.

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/workshop
The Crown Estate Commissioners	The Crown Estate Commissioners	Yes		Yes	
Planning Act 2008: Section 42(1)(b)					
Potentially directly affected local authorities ('B' authorities)					
	The City of London Corporation	Yes		Yes	Yes
Neighbouring local authorities ('A' authorities)					
	London Borough of Southwark	Yes	London Borough of Southwark had requested to be consulted on matters at Blackfriars Bridge Foreshore in its Section 56 response.	Yes	Yes
	Other neighbouring authorities	N/A	The changes were not considered significant enough to affect the submissions received from the neighbouring authorities who had also not previously commented on detailed matters relating to this site.		
Planning Act 2008: Section 42(1)(c)					
The relevant Regional Planning Body	Greater London Authority	Yes	<input type="checkbox"/>	No	No
Planning Act 2008: Section 42(1)(aa)					
	Marine Management Organisation	Yes	<input type="checkbox"/>	No	No
Planning Act 2008: Section 42(1)(d)					
Landowners / potentially affected 3 rd parties		Yes			

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/ workshop
	City of London Corporation	Yes	Owner/interest in river wall, City of London School, Blackfriars Bridge, Embankment including toilets and specialist sports club.	Yes	Yes
	Port of London Authority	Yes	Owner/interest in river bed.	Yes	Yes
	Transport for London (TfL)	Yes	Owner/interest in Blackfriars Millennium Pier, river wall, highway.	Yes	Yes
	HMS President (1918) Ltd	Yes	The vessel and a river works licence from the PLA to maintain it in position and access from the bank.	Yes	
	BT Openreach	Yes	Water cooling pipe under the tidal Thames.		Yes
	Crown River Cruises	Yes	Chrysanthemum Pier and a river works licence to maintain it in position and access from the bank. A lease of the office accommodation in the pump house on the bankseat.	No	No
	Michael Woolf & Company	Yes	Agent to Crown river Cruises, no land interest.	No	No
	Thames Clippers	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No
	Thames Rib Experience	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No
	London Rib Voyages	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No

4 Stakeholder engagement

Consultee prescribed by APFP Regulations 2009 (as amended): Regulation 3	Consultee	Targeted engagement	Comment	Responded in writing	Attended meeting/workshop
	RIB Tours London	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No
	Thames Luxury Charters	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No
	Wood's Silver Fleet	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No
	Thames Cruises	Yes	Operator using Blackfriars Millennium Pier under licence from London River Services.	No	No
	Cory Environmental Ltd	Yes	Potentially affected third-party	Yes	No
	City of London School	Yes	Potentially affected third-party	Yes	No
Planning Act 2008: Section 47					
	Community consultees	N	The changes were not considered significant enough to affect or change the response provided by community consultees who had responded on the proposals at this site.		

4.3 How targeted engagement was undertaken

- 4.3.1 A letter and the material listed in Section 4.4 below was sent to the identified stakeholders on 12 July 2013 explaining the changes to the *Draft DCO* scheme and inviting attendance at a meeting to explain the proposed changes. Stakeholders were offered the choice of attending meetings, which were held on 17 and 18 July 2013; three alternative times were offered for each of the two sites. In the event that stakeholders could not make these dates, individual meetings were offered. An example of the letters is provided in Appendix A.
- 4.3.2 In addition to direct verbal engagement at the meetings, Thames Water also allowed a 28-day period from the date of the notification letter for stakeholders to comment on the amended proposals. The period was applied flexibly and minor extensions were permitted to allow for the summer holiday period.
- 4.3.3 When the engagement period closed, Thames Water collated the comments received and amended the proposals where possible.

4.4 Engagement material

- 4.4.1 The following material was produced to explain the proposed changes at Blackfriars Bridge Foreshore to stakeholders:
- a. *Proposed minor changes to the application Blackfriars Bridge Foreshore Environmental effects arising from proposed scheme changes* (doc ref: 100-RG-ENV-BLABF-000001)
 - b. *Proposed vessel layout plan* (drawing ref: 110-DA-ENG-BLABF-000945)
 - c. *Proposed vessel layout plan* (drawing ref: 110-DA-ENG-BLABF-000943)
 - d. *Proposed site features plan west* (drawing ref: 110-DA-ARC-BLABF-000942)
 - e. *Proposed site features plan east* (drawing ref: 110-DA-ARC-BLABF-000944).

4.5 Workshops/meetings

- 4.5.1 The letters sent out on 12 July 2013 inviting stakeholders to attend their choice of the information sessions held on 17 July 2013 at 10am or 1:10pm and 18 July 2013 at 11:30am or 2:30pm to explain the changes at this site further.
- 4.5.2 The workshops were hosted by project staff at etc venues on North Wharf Road, Paddington on behalf of Thames Water. At the workshops, attendees were provided with hard copies of the documents listed in para. 4.4.1 above. The project team then gave a presentation to explain the changes, the predicted environmental and navigational effects and the

suggested way forward. Additional meetings were held with individual stakeholders who were unable to attend these workshops.

- 4.5.3 Table 4.1 records who attended the workshops or meetings as part of the engagement.

4.6 Gathering feedback

- 4.6.1 The stakeholders were given a period of 28 days in which to comment from 15 July 2013 to 12 August 2013. Responses were invited in writing to the head of Thames Tideway Tunnel, Phil Stride, or by email to info@tidewaytunnels.co.uk.

- 4.6.2 The stakeholders who responded are recorded in Table 4.1. The feedback received is recorded in Appendix B.

4.7 How feedback from targeted engagement was incorporated into the proposed changes

- 4.7.1 Some stakeholders used the engagement process to reiterate their comments on the scheme as a whole. No further comment is made on these points here.
- 4.7.2 In response to navigational concerns raised by the PLA relating to the splayed ends of the proposed sheet piles behind the dredged pocket for the relocated Blackfriars Millennium Pier, the whole sheet pile wall was straightened.
- 4.7.3 In response to concerns expressed by the PLA and TfL, the outfall point from the BT discharge pipe was moved to a location behind the pier. A BT study looking at the most appropriate final location for the discharge pipe is still on-going; therefore the final position of the discharge pipe may be subject to further change. However, any further detailed changes could still be accommodated within the LLAU and the scope of the Illustrative plans submitted.
- 4.7.4 In response to feedback from the owner of the President, the access brow to the vessel was shortened in order not to deter potential customers, particularly the elderly and others with mobility difficulties. This resulted in a change to the purple line (zone within which permanent above-ground structures would be located).
- 4.7.5 In response to feedback from the Environment Agency, Thames Water will include the additional area of habitat loss arising from the amendments into the wider discussions with the EA on the proposed ecological compensation package. The compensation package to address the adverse effects resulting from habitat loss forms part of the terms of reference for an independently chaired working group that has been set up with stakeholders including representatives from the EA, Natural England, the PLA and the London Wildlife Trust. The EA confirmed in the first inception meeting of this working group held on 23 July 2013 that it would accept the recommendation of the group in addressing the compensation issues.

- 4.7.6 Thames Water plans to continue dialogue with stakeholders to resolve matters relating to detailed design or construction methodology including, for example, navigational risk assessment with the PLA. Thames Water is confident this can be achieved within the parameters of the proposed changes to the application. It is Thames Water's intention to capture these agreements within Statements of Common Ground with the stakeholders.

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5 Description of environmental effects

5.1 Introduction and scope

- 5.1.1 This section describes the potential effects of the proposed minor changes to the scheme at Blackfriars Bridge Foreshore.
- 5.1.2 The approach adopted in this review was to use the assessment methodology and findings used in the Environmental Statement (the 'ES') as submitted with the application as a starting point, the effects of the proposed minor changes have then been considered qualitatively (unless otherwise stated) and compared to the findings reported in the submitted ES. Any effects that are materially different to those in the ES are expected to arise are described in this section.
- 5.1.3 At the outset, it was necessary to determine the scope of the exercise, identifying the environmental topics that required detailed consideration. The results are presented in Table 5.1; where no potential effects were identified, this is explained in the table. For topics where the changes have the potential to give rise to materially different effects compared to those presented in the ES, these are considered further below (N.B. the explanation relates to the President, Chrysanthemum Pier and Blackfriars Millennium Pier unless otherwise stated).

Table 5.1 Scope of environmental review

Environmental topic assessed in the ES Vol 18	Coverage within this environmental review (President, Chrysanthemum Pier and Blackfriars Millennium Pier)
Air quality and odour	No material changes to the assessment findings anticipated due to the minor variations in construction methods associated with the proposed minor changes, and the limited amendments to the operational scheme. The proposed minor changes would not lead to material changes in emissions during construction, nor would they amend the functioning of the operational infrastructure as far as it relates to interception of the combined sewer overflow, therefore this topic is not considered further.
Ecology – aquatic	Covered below
Ecology – terrestrial	Construction and operational effects for terrestrial ecology at the Blackfriars Bridge Foreshore site were scoped out for the EIA, as presented in the ES. This is on the basis that no significant adverse effects on terrestrial ecology are anticipated during either construction or operation, as there are no notable species or habitats known to be present, or the potential for them to be present, on or adjacent to the site. This situation is unchanged therefore this topic is not considered further.
Historic environment	Covered below
Land quality	No material changes to the ES findings are anticipated as the proposed minor changes would not result in the introduction of any new sources, pathways or receptors of pollution. Measures, outlined

5 Description of environmental effects

Environmental topic assessed in the <i>ES</i> Vol 18	Coverage within this environmental review (President, Chrysanthemum Pier and Blackfriars Millennium Pier)
	in the CoCP Part A, would ensure that appropriate procedures and working methods would be followed. For these reasons this topic is not considered further.
Noise and vibration	Covered below
Socio-economics	<p>No material changes to the assessment findings anticipated from proposed minor changes with respect to the President. The closure of the business for relocation was factored into the assessment presented in the <i>ES</i> as a short term effect. The addition of another period of closure for approximately 3 weeks would not change the short term duration of the effect. Thames Water's intention to meet reasonable costs associated with the need to relocate the business would remain and the minor adverse effect conclusion in the <i>ES</i> would remain unchanged.</p> <p>No material changes to the assessment findings are anticipated from the proposed minor changes to Blackfriars Millennium Pier as none of the proposed changes are considered relevant to the socio-economic assessment. The socio-economic assessment reported in the <i>ES</i> assumed the business would be temporarily suspended during relocation but effects would be offset through the Thames Tideway Tunnel compensation programme. This situation has not changed and therefore this topic is not considered further.</p> <p>No material changes to the assessment findings are anticipated from the proposed minor changes to an area of the pathway (Thames Path) required as a result of work to relocate the President. The amendment would result in only a short addition to the proposed diversion route, which would be largely imperceptible to users, and who would already experience diversion. It is therefore considered that the minor adverse effect conclusion in the <i>ES</i> would remain unchanged.</p>
Townscape and visual	<p>No material changes to assessment findings presented in the <i>ES</i> are anticipated as a result of the proposed minor changes. The construction methods at both Chrysanthemum Pier and Blackfriars Millennium Pier, while extended in area, would remain as assessed resulting in no change when considered in the wider context of the works.</p> <p>The addition of mooring chains for the President for the construction and operational phases would not change the appearance to the extent that it would give rise to material changes to the effects as reported in the <i>ES</i> and would be in keeping with the surrounding area.</p> <p>The operational access arrangements would be similar to those originally proposed and the widening of gangways would not materially alter the effects as reported in the <i>ES</i>. Removal of Chrysanthemum Pier at the end of construction would not materially alter the assessment findings given the effect of the presence of the main permanent structures at the site.</p> <p>While the proposed minor changes include the relocation and extension of Blackfriars Millennium Pier, the design principles</p>

5 Description of environmental effects

Environmental topic assessed in the ES Vol 18	Coverage within this environmental review (President, Chrysanthemum Pier and Blackfriars Millennium Pier)
	submitted within the application would ensure that the pier design is in keeping with its surroundings and the slight change in site character reported in the ES would not materially change. Therefore this topic is not considered further.
Transport	<p>No material changes to assessment findings anticipated due to the limited changes in construction methods associated with the proposed minor changes which would lead to minimal changes in traffic and transport, therefore this topic is not considered further.</p> <p>In response to the accessibility audit at President the design has been reconfigured in the following ways:</p> <ol style="list-style-type: none"> a. introduction of a level landing and call point to the access brow to provide a means of attracting attention, where assistance may be required and ensured that the waiting area would be provided with shelter. b. due to space constraints on the Thames Path, the ramp could not be widened to allow two wheelchair users to pass each other along its length. However, there is a clear line of sight between the passing places at level landing to the top of the upstream brow and the base of the ramp on the Thames path. These positions are less than 50m apart. c. optimisation of the height of the landside 'up and over' landing to minimise gradients on the landside ramp. d. reduced length of the access brow and introduction of resting points (including seating) to improve passage for the ambulant disabled whilst keeping gradients reasonable. e. reduced number of structures (bankseats) in the river.
Water resources – groundwater	No material changes to assessment findings anticipated as none of the proposed minor changes would result in impacts on groundwater receptors (upper or lower aquifers); therefore this topic is not considered further.
Water resources – surface water	Covered below
Water resources – flood risk	<p>No material changes are anticipated to the flood risk assessment findings as a result of the proposed minor changes to the scheme relating to the President and Chrysanthemum Pier. The assumption made in the ES that moorings for the President would bridge over river walls would not change; hence the conclusions of the ES would not change and therefore this topic is not considered further.</p> <p>Potential changes to the flood risk assessment related to Blackfriars Millennium Pier are covered in the sections below.</p>

Environmental topic assessed in the <i>ES</i> Vol 18	Coverage within this environmental review (President, Chrysanthemum Pier and Blackfriars Millennium Pier)
Interaction of effects and cumulative effects	Potential additional cumulative effects and interactions arising from the proposed minor changes have been considered as part of this exercise. Due to the relatively minor nature of the proposed minor changes and related effects, no additional cumulative effects or interactions above those reported in the <i>ES</i> are anticipated. Therefore this topic is not considered further.

5.2 Environmental effects: The President and Chrysanthemum Pier

Aquatic ecology

- 5.2.1 The assessment for aquatic ecology can be found in *ES* Vol 18, Section.
- 5.2.2 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of effects on aquatic ecology presented in the *ES* comprise:
- removing the existing piles associated with Chrysanthemum Pier and the installation of new driven piles
 - dredging approximately 750m³ of material adjacent to Chrysanthemum Pier and a further 2,600m³ of material at the President's permanent mooring location (approximately 1,700m³ was previously assumed in the *ES*)
 - installing approximately 35m of sheet piling at Chrysanthemum Pier and 136m at the President's permanent mooring location in order to maintain the dredged pocket (approximately three weeks of piling was previously assumed in the *ES*)
 - removing sheet piles and filling in the dredged area at Chrysanthemum Pier at the end of the construction period.
- 5.2.3 In relation to dredging, based on the assumptions in the *ES* at sites where dredging is proposed (eg, Blackfriars Bridge Foreshore), it is estimated that the spilled material from the dredging operation at this part of the site would be approximately 37.5m³ (or 75t for a 750m³ dredge) adjacent to Chrysanthemum Pier and 130m³ (or 260t for a 2,600m³ dredge) for the permanent mooring location of the President.
- 5.2.4 The receptors for aquatic ecology are considered to be the same as described in the *ES* because the assessment area has not changed as a result of the proposed minor changes.
- 5.2.5 During construction, there would be temporary landtake from sub-tidal habitats at Chrysanthemum Pier due to dredging and the installation of sheet piling, over and above that assessed in the *ES*. The effect would be temporary loss of foraging and migratory habitat for fish, and foraging habitat for invertebrates. However, the area subject to landtake would be minimal (60m²) and would recover following removal of the sheet piles.

- 5.2.6 Prior to the removal of sheet piles the dredged area would be backfilled. In order to minimise effects on aquatic habitats material similar to the existing bed material would be used. The approach to the use of fill material would follow the methodology presented in *ES* Vol. 3, Appendix C.4.
- 5.2.7 The area does not form spawning habitat for fish or habitat of specific importance for other aquatic ecology receptors. The additional effects associated with the sheet piling would be negligible and therefore represent no material change from the assessment presented in the *ES*. However, the sheet piling for the permanent mooring of the President represents a permanent modification of the river bed that may cause localised changes to the value of the sub-tidal habitat in the vicinity of the sheet piles.
- 5.2.8 Sheet piling to maintain the dredge pocket is expected to cause minimal changes to scour and accretion patterns since the sheet piles would be driven in to bed level.
- 5.2.9 Additional noise and vibration would arise during construction from the removal of existing and installation of new piles. Piling would be undertaken using vibro-piling techniques, as described in the *ES (Volume 18, para. 5.2.5)*, and would be subject to the controls outlined in the *Code of Construction Practice (CoCP) Part A (para. 6.4.2, d)*. Although piling noise under the proposed minor changes would be additional to that assessed in the *ES*, it would not be sufficient to elevate the level of impact from the low negative magnitude attributed in the *ES*. Therefore the effect remains as described in the *ES*.
- 5.2.10 Dredging would result in the release of sediment which has the potential to increase turbidity leading to effects on aquatic ecology receptors. Current sediment levels in the tidal Thames are 4,000kg/second in the lower Thames estuary and at present more than 40,000t (or 20,000m³) of sediment passes the site four times a day during spring tides. A total of approximately 170m³ of material is anticipated to be released into the water column as a result of spillage from dredging (see para. 5.2.3). Compared with the 20,000m³ estimated to be carried on each spring tide, this is considered to be minimal and therefore effects would remain as negligible, as in the *ES*.
- 5.2.11 At the permanent mooring location there would be permanent landtake associated with the installation of sheet piling. The substrate in the existing mooring location may be expected to recover from disturbance impacts. The additional effects associated with the sheet piling would be negligible. However, the sheet piling represents a permanent modification of the river bed that may cause localised changes to the value of the sub-tidal habitat in the vicinity of the sheet piles.
- 5.2.12 Similarly during operation, sheet piling to maintain the dredge pocket is not anticipated to cause any material changes to scour and accretion patterns since the sheet piles would be driven in to bed level.
- 5.2.13 All other effects would be as presented in the *ES*. It is therefore considered that the proposed minor changes to the scheme would not

result in any material changes to the likely significant effects presented in the *ES*.

Historic environment

- 5.2.14 The assessment of historic environment effects can be found in *ES* Vol 18, Section 7.
- 5.2.15 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of physical effects on archaeology and built heritage presented in the *ES* comprise:
- a. removing the existing piles associated with Chrysanthemum Pier and the installation of new driven piles
 - b. dredging approximately 750m³ of material adjacent to Chrysanthemum Pier and a further 2,600m³ of material at the President's permanent mooring location (whereas in the *ES* it was assumed that approximately 1,700m³ of dredging would be required)
 - c. installing approximately 35m of sheet piling at both Chrysanthemum Pier and 136m at the President's permanent mooring location in order to maintain the dredged pocket
 - d. removing piles at Chrysanthemum Pier at the end of the construction period
 - e. making modifications to the President.
- 5.2.16 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of effects on the character, appearance and setting of heritage assets presented in the *ES* comprise:
- a. construction activity associated with Chrysanthemum Pier within the setting of the Temples Conservation Area and Grade II listed Embankment wall
 - b. presence of Chrysanthemum Pier during the construction phase
 - c. presence of the amended permanent mooring during the operational phase.
- 5.2.17 As no changes are proposed to the LLAU, the historic environment receptors would remain as presented in the *ES*.
- 5.2.18 No known buried heritage assets would be impacted by the proposed minor changes. However, dredging during construction could impact on potential previously unrecorded remains within the channel silts and any alluvium, as could additional piling associated with the proposed minor changes. The effects of this would be as presented in the *ES* for all construction on the foreshore side of the river wall at the Blackfriars Bridge Foreshore site (see *ES* Vol 18, paras. 7.5.5 to 7.5.11). The mitigation would remain as set out in *ES* Vol 18, para. 7.8.5.
- 5.2.19 In terms of above-ground heritage assets, modifications to the President would have a minimal impact, and the effect of this would be mitigated through undertaking a photographic record prior to the work commencing.

- 5.2.20 In terms of effects on the character, appearance and setting of heritage assets, there would be no material change in effects on the Temples Conservation Area or Grade II listed Embankment wall during construction. This is due to the fact that the effect reported in the *ES* is primarily due to the more extensive construction activity associated with the permanent foreshore structure, shaft and other operational infrastructure; the construction of Chrysanthemum Pier and replacement permanent mooring form a small part of this.
- 5.2.21 During the operational phase, the small scale changes to the permanent mooring arrangements would lead to no change in effects on either Temples Conservation Area or Grade II listed embankment wall. The removal of Chrysanthemum Pier, if taken forward, could lead to an overall beneficial effect on the conservation area in the operational phase. If it remains *in situ*, there would be no change to the findings reported in the *ES* (a minor adverse effect resulting from the wider operational infrastructure at this site). Effects on the setting of the Grade II listed Embankment wall would remain as presented in the *ES*, due to the effect of the permanent foreshore structure.
- 5.2.22 All other effects would be as detailed in the *ES*. It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*, aside from a minimal impact on the President, which would be addressed through suitable mitigation.

Noise and vibration

- 5.2.23 The assessment for noise and vibration can be found in *ES* Vol 18, Section 9.
- 5.2.24 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of noise and vibration effects presented in the *ES* comprise:
- the need for more piling to facilitate dredging works and construction of the temporary and permanent moorings
 - the removal of Chrysanthemum Pier after use including the removal of piles.
- 5.2.25 Effects resulting from the proposed minor changes to the scheme were considered quantitatively, based on the methodology in the *ES* and professional judgement. As no changes are proposed to the LLAU, the additional sheet piling required for Chrysanthemum Pier would not result in activities being closer to any receptors, and the noise and vibration receptors would remain as presented in the *ES*.
- 5.2.26 During the construction phase, the proposed minor changes to the scheme listed above would result in some changes in the predicted noise levels presented in the *ES*. However, the increases in predicted noise levels are at or below ambient noise level and the effects would remain not significant as presented in the *ES*. There are no changes to the predicted vibration effects presented in the *ES*. The tables in Appendix C present the calculations undertaken for the proposed minor changes and compare

them to those presented in the *ES*. These tables also reflect changes identified since submission of the application and reflected in *ES* errata. These changes do not affect the significance of effects at any receptors. The tables also reflect changes identified since submission of the application and reflected in *ES* errata. The changes do not affect the significance of effects at any receptors.

- 5.2.27 As the proposed changes relevant to the findings of the noise and vibration assessment occur within the construction phase only, there are no changes to the findings of the assessment of operational noise and vibration presented in the *ES*.
- 5.2.28 It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*.

Water resources – surface water

- 5.2.29 The assessment for surface water can be found in *ES* Vol 18, Section 14.
- 5.2.30 Proposed minor changes to the scheme relating to the President and Chrysanthemum Pier, which result in changes to the assumptions underpinning the assessment of effects on Surface Water presented in the *ES* comprise:
- a. the requirement for dredging (and associated piling) for the works proposed at the site – dredging would be required at both the temporary and permanent locations and approximately 3,350m³ would be dredged in total.
 - b. demolition of the pier at the end of the construction phase, including removal of all piles.
- 5.2.31 As no changes are proposed to the LLAU and only limited changes proposed to the limit of permanent works, the requirement for dredging and other scheme amendments would not result in activities being closer to any other receptors (ie, waterbodies). The surface water receptors would remain as presented in the *ES*.
- 5.2.32 Based on the assumptions used for the *ES*, ie, assuming there would be a loss of five per cent of the dredged material to the water column as a result of spillage, the spilled material from the dredging operations for the work associated with the President and Chrysanthemum Pier would be approximately 170m³ (or approximately 350t). This is an increase as a result of dredging associated the relocation of the President.
- 5.2.33 Further amounts of sediment could be released during piling operations and demolition of the pier at the end of the construction phase. Measures would be taken with regard to in-river works to limit the release of suspended sediment and solids into the water column as outlined in Section 8 of the *CoCP*.
- 5.2.34 The volumes of sediment from dredging, piling and other associated works would not be significant when compared to current sediment levels in the tidal Thames: 4,000kg/s in the lower Thames estuary or more than 40,000t

(or 20,000m³) of sediment passing the site four times a day during spring tides.

- 5.2.35 The spilled dredgings and sediment release associated with the works at this site do not change the conclusions of the *ES* that the volumes of sediment produced by the construction works would not be detectable against natural fluctuations in sediments and would not impact on surface water quality.
- 5.2.36 All other effects would be as detailed in the *ES*. It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*.

5.3 Blackfriars Millennium Pier

Aquatic ecology

- 5.3.1 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of effects on aquatic ecology presented in the *ES* comprise:
- The length of the pier would increase from approximately 57m to approximately 81m.
 - Sheet piling to retain the dredge pocket would be reconfigured and increase in length from approximately 69m to approximately 135m.
 - The dredged volume during construction would increase to approximately 3,000m³ (from 2,500m³ assumed in the *ES*) and the dredged area to approximately 2,320m², similarly there would be a net increase in the area required for infrequent maintenance dredging.
 - A gabion mattress of approximately 265m² would be placed at the eastern end of the dredged area.
 - An existing third party cooling water tunnel buried beneath the river bed would be lowered within a cofferdam inserted in the river channel.
- 5.3.2 In relation to dredging, based on the assumptions in the *ES* at sites where dredging is proposed (eg, Blackfriars Bridge Foreshore), it is estimated that the spilled material from the dredging operation at this part of the site would be approximately 150m³ (or 300t for a 3,000m³ dredge) for the pier relocation.
- 5.3.3 The receptors for aquatic ecology are considered to be the same as described in the *ES* because the assessment area has changed minimally as a result of the proposed minor changes.
- 5.3.4 During construction, there would be temporary landtake from sub-tidal habitats at the amended pier location due to dredging and installation of sheet piling and a gabion mattress and a cofferdam to facilitate amendments to a cooling water tunnel. The river bed within the cofferdam would also be disturbed in order to relocate the cooling water discharge pipe. The area subject to landtake and disturbance would be minimal and would recover following removal of the cofferdam sheet piles.

- 5.3.5 Prior to the removal of sheet piles, the dredged area would be backfilled. In order to minimise effects on aquatic habitats material similar to the existing bed material would be used. The approach to the use of fill material would follow the methodology presented in *ES* Vol 3, Appendix C.4.
- 5.3.6 The area does not form spawning habitat for fish or habitat of specific importance for other aquatic ecology receptors. The additional effects of the dredging and sheet piling would be negligible, and therefore represent no material change from the assessment presented in the *ES*. However, the sheet piling represents a permanent modification of the river bed that may cause localised changes to the value of the sub-tidal habitat in the vicinity of the sheet piles.
- 5.3.7 Potential changes to the scour and accretion regime as a result of cofferdams for the pier and the surface water cooling pipe relocation are described in para. 5.3.31 below. Since minimal scour is predicted, the effects on sub-tidal habitats are considered to be negligible and represent no material change from the assessment presented in the *ES*.
- 5.3.8 There would be additional noise and vibration during construction arising from the removal of existing and installation of new sheet piles. Piling would be undertaken using vibro-piling techniques, as described in the *ES*, and would be subject to the controls outlined in the *CoCP* Part A. Although piling noise under the amended scheme would be additional to that assessed in the *ES*, it would not be sufficient to elevate the level of impact from the low negative magnitude attributed to it in the *ES*. Therefore the effect remains as described in the *ES*.
- 5.3.9 Dredging would result in the release of sediment that has the potential to increase turbidity leading to effects on aquatic ecology receptors. Based on the assumptions used for the *ES*, the increase in spilled material from the dredging operation for the pier relocation would increase from 125m³ to 150m³. During operation there would be infrequent maintenance dredging. In the *ES*, it was assumed that there would be no net increase compared to existing dredging at the pier. The proposed minor changes would result in an increase.
- 5.3.10 The *ES* concluded that these volumes were not significant when compared to current sediment levels in the tidal Thames 4,000kg/s in the lower Thames estuary or more than 40,000t (or 20,000m³) of sediment passing the site four times a day during spring tides. The slight increase in spilled dredgings associated with the larger dredged area of the amended configuration at this location, or in combination with the material spilled at the President site, does not change the conclusions of the *ES* that these volumes would not lead to a detectable effect.
- 5.3.11 All other effects would be as detailed in the *ES*. It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*.

Historic environment

- 5.3.12 The proposed minor changes to the scheme that result in variations in the assumptions underpinning the assessment of physical effects on archaeology and built heritage presented in the *ES* comprise:
- the need for more extensive sheet piling to facilitate an increased area of dredging works for the relocation of Blackfriars Millennium Pier and installation of a gabion mattress
 - repositioning the pier by approximately 8m west and 1m north of current proposals and extending the pier length to approximately 81m
 - the cooling water discharge pipe buried beneath the river bed would be lowered within a cofferdam inserted in the river channel.
- 5.3.13 Baseline work undertaken for the *ES* identified a possible 19th century boat (historic environment asset 69 within the *ES*, detailed in *ES* Vol 18 Appendix E.1) within the area proposed for dredging and the gabion mattress. However, survival potential is low. Any effects from dredging would be mitigated through scanning and monitoring the dredged material, as per the method proposed in the *ES*. Other historic environment features in the vicinity include remains of a 19th and a 17th century boat (assets 68 and 100, respectively); however these would not be affected by the proposed minor changes.
- 5.3.14 It is assumed that the works associated with the relocation of the cooling water discharge pipe would require the installation of a temporary cofferdam to undertake works around the inlet. There are no known historic environment features within the area of the cofferdam and it is likely that any assets would already have been removed through the construction of the pipe. Therefore these works would not alter the assessment findings in the *ES*.
- 5.3.15 It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*.

Noise and vibration

- 5.3.16 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of noise and vibration effects presented in the *ES* comprise the need for more extensive piling to facilitate dredging works for the relocation of Blackfriars Millennium Pier and for the lowering of the cooling water discharge pipe.
- 5.3.17 Effects resulting from the proposed minor changes to the scheme were considered quantitatively, based on the methodology in the *ES* and professional judgement. No changes are proposed to the LLAU; however, the variation to the sheet piling required for the dredged pocket for the relocated Blackfriars Millennium Pier would result in sheet piling activities being closer to the City of London School. Therefore, this receptor has been added to the assessment. All other receptors would remain as presented in the *ES*.

- 5.3.18 During the construction phase, the proposed minor changes to the scheme listed above would result in some changes in the predicted noise levels presented in the *ES*.
- 5.3.19 For the City of London School, the predicted noise levels would be above the measured ambient noise level and the effects would be significant during the day time for approximately two months. However, the measures proposed in the *CoCP* would effectively remove these effects.
- 5.3.20 The *CoCP* Part A includes provision for selection of piling methods which “*limit noise and vibration to acceptable levels (pressed in piling where possible)*”. Further, the site-specific *CoCP* Part B has been amended to state that the Contractor would “...use ‘*silent piling techniques for the eastern end of Blackfriars Millennium Pier dredged pocket (close to the school premises) and, if necessary, liaise with the school to agree periods when piling can proceed without causing adverse noise impacts*’”.
- 5.3.21 For all other receptors, increases in predicted noise levels would be at or below the ambient noise level and the effects would remain not significant as presented in the *ES*. There are no changes to the predicted vibration effects presented in the *ES*. The tables in Appendix C present the calculations undertaken for the proposed amendments and compare them to those presented in the *ES*. The tables also reflect changes identified since submission of the application and reflected in *ES* errata. These changes do not affect the significance of effects at any receptors.
- 5.3.22 As the proposed minor changes relevant to the noise and vibration assessment only occur within the construction phase, there are no changes to the findings of the operational noise and vibration assessment presented in the *ES*.
- 5.3.23 In response to a request from stakeholders as part of the targeted engagement exercise, potential effects of noise from the operation of the Thames Clippers at the relocated Blackfriars Millennium Pier on the City of London School was assessed. For this assessment, noise measurements were made of arriving and departing vessels and the movement of passengers on the existing pier. The assessed noise level at the City of London School would be below the measured ambient noise level in the area (see Appendix C, Table D.2), and therefore effects from the operation of the pier are considered not significant at this receptor.
- 5.3.24 The introduction of construction activities (piling) closer to the City of London School meant that a new receptor would potentially experience a significant effect. Measures are incorporated in the *CoCP* Parts A and B to mitigate these effects and therefore the proposed minor changes would not result in any material changes to the likely significant effects presented in the *ES*.

Water resources – surface water

- 5.3.25 The proposed minor changes to the scheme relating to Blackfriars Millennium Pier that result in changes to the assumptions underpinning the assessment of effects on surface water presented in the *ES* comprise:

- a. reconfiguring the area to be dredged (approximately 3,000m³ would be dredged)
 - b. lengthening and repositioning the pier
 - c. relocating the cooling water discharge pipe.
- 5.3.26 As no changes are proposed to the LLAU and only limited changes proposed to the limit of permanent works, the requirement for dredging and other scheme amendments would not result in activities being closer to any other receptors (ie, waterbodies). The surface water receptors would remain as presented in the *ES*.
- 5.3.27 Based on the assumptions used for the *ES*, the spilled material from the dredging operations for the work associated with Blackfriars Millennium Pier would be 150m³ (or 250t).
- 5.3.28 The spilled material from the dredging operations across the whole site during the construction phase would increase from approximately 210m³ (or 420t for a 4,200m³ dredge) to approximately 320m³ (or 620t based on the additional dredge volumes proposed from the works at both the President/Chrysanthemum Pier and Blackfriars Millennium Pier).
- 5.3.29 These dredge volumes would not be significant when compared to current sediment levels in the tidal Thames: 4,000kg/s in the lower Thames estuary or more than 40,000t (or 20,000m³) of sediment passing the site four times a day during spring tides.
- 5.3.30 The spilled dredgings associated with the works at this site do not change the conclusions of the *ES* that the volumes produced by the construction works would not be detectable against natural fluctuations in sediments and would not have an impact on surface water resources.
- 5.3.31 Lengthening the pier from approximately 57m to approximately 81m would not change the conclusions of the *ES* that the works proposed in the river (including the relocation of the pier) could impact the flow regime and result in scour arising around the proposed new structures. The construction of a cofferdam for the relocation of the cooling water discharge pipe could also impact on the flow and result in scour. However, scour would be minimal as the cofferdam would be substantially smaller than the temporary works cofferdam. Nonetheless any potential scour development during construction would be monitored and, if relevant trigger levels are reached, appropriate protection measures would be provided. Further details are provided in the *Scour and Accretion Monitoring and Mitigation Plan for Temporary Works in the Foreshore (ES Vol 3 Appendix L.4)*.
- 5.3.32 In addition, the approach to scour in the operational phase would be reactive and mitigation measures would only be provided if required. Further details of the approach are provided in the *Engineering Design Statement* within the application.
- 5.3.33 All other effects would be as detailed in the *ES*. It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*.

Water resources – flood risk

- 5.3.34 The proposed minor changes to the scheme that result in changes to the assumptions underpinning the assessment of effects on Flood Risk presented in the ES comprise:
- a. lengthening and repositioning the pier
 - b. relocating the cooling water discharge pipe.
- 5.3.35 Lengthening and repositioning the pier does not change the conclusions of the *ES* that the works proposed in the river could impact the flow regime and result in scour arising around the proposed new structures, which could affect flood defences. In addition, the construction of a cofferdam for the relocation of the cooling water are could also result in scour, although the scour would be minimal as the cofferdam would be substantially smaller than the temporary works cofferdam. Nonetheless there would be no increase in flood risk as a result of the proposed development as any potential scour development during construction would be monitored and, if relevant trigger levels are reached, appropriate protection measures would be provided.
- 5.3.36 In addition, the approach to scour in the operational phase would be a reactive approach with mitigation measures only provided if required. Further details of the approach are provided in the *Engineering Design Statement*.
- 5.3.37 All other effects would be as detailed in the *ES*. It is therefore considered that the proposed minor changes to the scheme would not result in any material changes to the likely significant effects presented in the *ES*.

6 Policy implications

6.1 Meeting the need

6.1.1 The proposed minor changes help enable construction of a NSIP, the need for which is established in the NPS.

6.2 Good design

6.2.1 The temporary modifications to Chrysanthemum Pier will not significantly affect the design intent or quality.

6.2.2 The relocated Blackfriars Millennium Pier would be lengthened and slightly re-positioned within the current LLAU but these changes are contained and in scale with the surrounding landscape.

6.2.3 Neither the proposed changes to Chrysanthemum Pier or Blackfriars Millennium Pier have any implications for the design tests in the NPS.

6.3 Water resources and flood risk

Water quality and resources

6.3.1 The reduced annual discharges of untreated sewage as a result of the operational Blackfriars Bridge Foreshore site would have a beneficial effect on river water quality.

6.3.2 There would be no difference to the reduced annual flows as a result of the proposed changes and there are no policy implications on water quality and resources as a result of the proposed changes.

Flood risk

6.3.3 The Flood Risk Assessment submitted with the application shows that neither the development site or surrounding area would be exposed to a significant increase in flood risk.

6.3.4 There would be no increase to flood risk as a result of the proposed changes.

6.4 Air quality, emissions, dust and odour

6.4.1 No further air quality, emissions, dust and odour effects of a significant nature have been identified as a result of the proposed changes and therefore the policy assessment remains unchanged.

6.5 Landscape and visual effects (including townscape)

6.5.1 Although the proposed changes would increase the width and length of both piers, Thames Water has worked with stakeholders to further refine their scale and appearance since the targeted engagement, as shown on the plans in Appendix F.

- 6.5.2 The proposed changes do not alter the overall conclusions of the policy assessment.

6.6 Land use including open space, green infrastructure and green belt

- 6.6.1 The NPS requires consideration to be given to any conflicts between a proposal in a development plan and impacts on existing and proposed land uses near the development site. The effects on the use of the President would be minimal as it would only be closed for a short period during relocation, helping provide continuity to an existing land use.
- 6.6.2 As in the application, the creation of new high quality public realm and the relocation of an existing established central London activity, subject to careful siting and design, would be appropriate in relation to the NPS and the balance of local policy considerations.
- 6.6.3 There are no additional policy implications as a result of the proposed changes.

6.7 Noise and vibration

- 6.7.1 Any effects resulting from the proposed changes were considered quantitatively, based on the methodology used in the *ES*. No changes are proposed to the LLAU; however, the changes to the sheet piling required for the dredged pocket for the relocated Blackfriars Millennium Pier would result in sheet piling activities being closer to the City of London School. Therefore this receptor has been added to the assessment. All other receptors would remain as presented in the *ES*.
- 6.7.2 During the construction phase, the proposed changes to the scheme listed above would result in some changes in the predicted noise levels presented in the *ES*.
- 6.7.3 Measures are incorporated in the *CoCP* Parts A and B to mitigate these effects and the proposed changes would not result in any material changes to the policy assessment.

6.8 Historic environment

Listed buildings and structures

- 6.8.1 The minor works proposed to the President do not substantially change the overall effects on heritage assets to those set out in the application and are considered to comply with the NPS.

Archaeology

- 6.8.2 Mitigation measures applied to the project as a whole, such as scanning and monitoring the arisings of the dredging, would also be followed for the proposed minor changes. With these measures in place, there are no policy implications for archaeology.

6.9 Traffic and transport

- 6.9.1 There are no significant changes to traffic and transport as a result of the proposed changes.
- 6.9.2 An extended area of footpath would be stopped up temporarily to allow for the works to relocate the President and build the access brows; this would be mitigated through provision of a pedestrian diversion route to be maintained at a clear width. With the mitigation in place there would be no NPS implications.

6.10 Waste management

- 6.10.1 No particular waste issues would arise at this site as a result of the submitted design or the proposed changes.

6.11 Socio-economic

- 6.11.1 There would be significant socio-economic impacts from the loss of employment, daytime and nighttime activity if the vessel is not relocated satisfactorily. The socio-economic impacts of the proposed works are mitigated by the temporary relocation of the President and Blackfriars Millennium Pier.
- 6.11.2 The proposed changes to the scheme therefore seek to reduce socio-economic impacts by ensuring the business is relocated and its facilities restored, as required in line with para. 4.15.12 of the NPS.

6.12 Conclusion

- 6.12.1 The proposed minor changes will be beneficial to the scheme and there are no material changes to the policy implications presented in the *Planning Statement* submitted with the application.

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7 Navigational risk assessment

7.1 Summary

- 7.1.1 A supplementary navigational issues and preliminary risk assessment has been produced to support the proposed changes at Blackfriars Bridge Foreshore. This is attached as Appendix E.
- 7.1.2 Residual risks would be mitigated through understanding the operational procedures to ensure minimum disruption to and interaction with existing users. A structural analysis of the mooring system will be completed in the temporary and permanent positions.
- 7.1.3 During construction, a site berthing co-ordination manager would be appointed to liaise with all operators in the area and deal with potential areas of conflict and concern. Notices to Mariners would be issued to inform operators and river users of planned operations.

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8 Statement of Reasons

8.1 Introduction

- 8.1.1 This section explains the need for the alterations to acquisition powers and related matters which arise out of the minor amendments. The *Statement of Reasons* as submitted with the application (doc ref: 4.1) set out information on the need for acquisition powers for the entire project. The table below indicates that most sections of that statement are unchanged by this application for minor amendments. Otherwise this section deals with the need for the changes in acquisition powers, the application of the Infrastructure Planning (Compulsory Acquisition) Regulations and negotiations with landowners.
- 8.1.2 Table 8.1 summarises changes required to the *Statement of Reasons* from the proposed minor changes.

Table 8.1 Summary of changes to the *Statement of Reasons*

<i>Statement of Reasons</i>	Change required
The Purpose of the Application	None
The Requirement For and Content of a Statement of Reasons	None
Powers of Compulsory Purchase Under the Planning Act 2008	None
Powers Pursuant to the Draft Order For the Project	None
Justification For the Acquisition of Land and Rights	None
Location and Description of the Site	There is no change to the location or description of the site
Matters For the Decision Maker	None
The Justification For the Use of the Powers of Compulsory Acquisition	Yes – see Table 8.2 below
Approach to Land Acquisition	Every land owner or interest affected by the proposed modifications was contacted during the engagement exercise. Table 4.1 records whether they have responded and Appendix B records the responses received.
Alternatives to Compulsory Acquisition	None
National Policy and Government Position	None
Special Considerations and Impediments	The Table of Local Authority and Statutory Undertaker Plots needs to be updated – see Table 8.3 below. No additional open space or Crown land is required.

8 Statement of Reasons

Statement of Reasons	Change required
Funding the Project	None
The Human Rights Act 1998	None
Related Applications and Orders Etc	None
Open Space and the Growth and Infrastructure Bill	None
Information For People Affected by the Order	None
Conclusion	None

8.1.3 Table 8.2 would be substituted for the table in section 9 of the Statement of Reasons if the proposed minor changes are accepted. The description of the development would not change, reflecting the very minor nature of these proposed amendments.

Table 8.2 Justification for the Use of the Powers of Compulsory of Acquisition

Site 15: Blackfriars Bridge Foreshore			
Interest to be acquired	Required for	Plot numbersⁱⁱⁱ	Area (m²)
Permanent acquisition of land - surface and subsoil	Construction and maintenance of permanent works including CSO drop shaft (Work No. 17a), foreshore structure, new storm overflow, Low Level Sewer overflow weir chamber, other chambers, culverts, pipes, ducts, electrical and control equipment, kiosks, ventilation columns, other ventilation structures and equipment, scour protection, outfall apron, walls, stairs, pontoon, replacement highway structures, amenity buildings and landscaping (Work No. 17b). Construction of permanent works associated with the relocation of Blackfriars Millennium Pier (part of Work No. 17b). Construction of permanent works associated with the relocation of the President (part of Work No. 17b). Subsurface only - construction and maintenance of Low Level Sewer overflow weir chamber beneath Victoria	City of London: [3a, 4a,] 7, 8, 9, 10, 11, 12, 13, 14, 15, [16,] 17, 18 , 19b, 19c, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 33, 37, 38, 47 and 48	42,745 [21,153]

ⁱⁱⁱ Addition shown in square brackets, deletions shown struck through

Site 15: Blackfriars Bridge Foreshore			
Interest to be acquired	Required for	Plot numbersⁱⁱⁱ	Area (m²)
	Embankment (part of Work No. 17b).		
Permanent acquisition subsoil only	Construction and maintenance of the main tunnel beneath the site (Work No. 1c).	City of London: 2, 6, [8, 15a,] 46, 23, 35, 40 and 45	41,855 [7,814]
Temporary possession	Areas required for construction of Work Nos. 17a and 17b including utility supplies, working areas in the foreshore, provision of temporary campshed, crange, enclosures, concrete batching plant, workshop and stores, office, parking and welfare facilities, and vehicle and pedestrian circulation areas. Areas for construction works associated with the relocation of Blackfriars Millennium Pier. Areas for construction works associated with the relocation of the President.	City of London: 2, 3, 4, 5, 6,[8, 15a,] 4619, 19a, 23, 32, 34, 35, 39, 40, 45, 46	26,077 [17,484]
Works to streets further to Articles 10 and 11 and Schedules 4 and 5 of the draft Order	Highway and utility works to Victoria Embankment (part of Work No. 17b).	City of London: 5, 10, 48, 19, 19a, 19b, 19c, 20, 25, 33, 37	4,778 [4,776]
Rights over third party land	Rights of access to tie in and maintain structures associated with Work Nos. 17a and 17b.	City of London: 19, 19a	2,405

Table 8.3 Local Authority and Statutory Undertaker Plots

Land owner	Number of <i>Book of Reference</i> plots affected by surface works	Number of <i>Book of Reference</i> plots affected by subsoil works
Local authorities	446 [415]	422
rail	57	66
TfL	84 [83]	79
Electricity	98	46
Gas	63	14
Other	43	132

Description of development site

8.1.4 The site comprises two sections of the foreshore of the River Thames: the main site extends from Temple Stairs to Blackfriars Rail Bridge and the secondary site lies between Blackfriars Rail Bridge and the City of London School. The main site comprises approximately 3.1ha and the secondary

site 0.1ha. The site also includes sections of the Blackfriars Bridge westbound off-ramp and areas of the pavement along Victoria Embankment and Paul's Walk. The footings of Chrysanthemum Pier and the President are within the site boundary. Within the site boundary are public toilets and a rifle range within the below-road structure.

- 8.1.5 Blackfriars Millennium Pier lies further east. Crossing over the site is Grade II* listed Blackfriars Bridge. The northern footings of Blackfriars Bridge contain a sports club and toilets (not currently open to the public). Parallel and to the east of Blackfriars Bridge is Blackfriars Rail Bridge, which separates the two parts of the site. To the north of the main site lie multi-storey buildings that are in predominantly business use. To the north of the secondary site, the area is characterised by late 20th century development. The site is bounded to the north by Victoria Embankment/Blackfriars Underpass/Upper Thames Street and to the east, south and west by the River Thames.

8.2 Engagement with land owners

- 8.2.1 As noted in paragraph 10.23 of the Statement of Reasons for the application for development consent, the applicant is engaged in discussion with land owners on this site, including vessel owners and boat operators. Those discussions continue and all land owners and asset owners have been advised of the proposed amendments as set out in Table 4.2 of this Supporting Statement. No new owners, asset owners or operators would be affected as a result of the proposed amendments.

8.3 The Infrastructure Planning (Compulsory Acquisition) Regulations 2010

- 8.3.1 These regulations (the 'IP (CA) Regs') provide for a formal procedure where it is proposed to include 'additional land' within an application. Under regulations 5 to 19, where it is proposed to introduce 'additional land' within an application for development consent, a number of formalities must be complied with including making a formal application to the Secretary of State and then, if the application is accepted, a formal consultation period for affected land owners and other key statutory and other bodies.
- 8.3.2 In considering the minor amendments, consideration was given as to whether these regulations were engaged. The key definition in concluding whether it is necessary to follow the IP (CA) Regs procedures relates to the definition of 'additional land' in regulation 2 (1). That states that 'additional land' means land which it is proposed shall be subject to compulsory acquisition and which was not identified in the *Book of Reference* submitted with the application as land.
- 8.3.3 Affected landowners and others were engaged in the targeted engagement process (see Section 4) and the nature of the changes and its effect on land acquisition proposals was considered in the context of

the IP (CA) Regs. The changes in the *Book of Reference* and Land plans are described in Appendix C.

- 8.3.4 With regard to the works to relocate the access ramp and steps for the vessel, the President, this has resulted in an increase in an area in which unrestricted powers to acquire land will be needed. This area was formerly within plot 5 and designated for temporary use. Plot 10 now includes this area for unrestricted powers of acquisition. In this context the definition of 'additional land' in the regulations only refers to land which was not previously identified in the book of reference as land. This areas were so defined (see original plot 5).
- 8.3.5 The need for dredging and associated sheet piling for the permanent mooring of the President results in a change to plots 2, 3 and 6. These works involve an extension of the area in which unrestricted powers to acquire land will be needed and these are now shown as part of plots 7 and 15 with two new plots, 3a and 4a created to accommodate the change. As these plots were previously identified in the submitted *Book of Reference* as land (plots 2, 3 and 6) no 'additional land' is involved and the ip (CA) regs are not engaged.
- 8.3.6 The areas for dredging, associated sheet piling (pier relocation) which will allow the diversion of the BT cooling water discharge pipe will extend the area in which unrestricted powers to acquire land will be needed. This area was originally within plot 46 . The extended areas for acquisition is now within plot 47. As this area was previously identified in the submitted *Book of Reference* as land, no 'additional land' is involved and the ip (CA) regs are not engaged.

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Appendix A: Example letter to stakeholders



Mr Michael Woolf

Michael Woolf & Company
PO Box 481
Berkhamsted
Herts
HP4 2FD

Unique ref: 100-OG-CMN-CRCLI-000002
Ref: 100-CO-CMN-MULTI-000072

12 July 2012

Dear Mr Woolf

Thames Tideway Tunnel – Blackfriars Bridge Foreshore

We wish to propose some minor alterations to our plans for the Thames Tideway Tunnel, which we believe may affect you.

Ongoing design development work and stakeholder engagement has led us to re-examine our proposed plans for the relocation of the President vessel and Blackfriars Millennium Pier.

President

We have re-examined in greater detail the capacity of the consented access structures at Chrysanthemum Pier (for which Crown River Cruises obtained planning permission and we understand they are to construct) and how the vessel will be moored at both the proposed permanent and temporary locations.

The gangways for the proposed Chrysanthemum Pier, where the President was to be moored during construction, are not sufficient to cope with the vessel's capacity and we need to undertake more extensive modifications to the pier to include the provision of additional piles and wider gangways.

In the event that Crown River Cruises are not able to complete the construction of the proposed Chrysanthemum Pier or if it is deemed not cost effective or appropriate to modify the completed pier, we propose to modify our application for development consent to enable us to either modify or demolish the existing pier structures and in the case of demolition build a new temporary pier similar to the proposed permanent pier for the President.

At the temporary and the permanent locations of the vessel we need to provide the President with mooring chains and anchors, undertake dredging, with associated sheet piling to ensure there is sufficient draft beneath its hull at low tide and undertake some structural strengthening of the President to accommodate the yokes needed to moor it.

The proposed changes mean that we will need to extend the works beyond the boundary we originally identified for the extent of our permanent site structures and alter the description of the development in Schedule 1 of the draft Development Consent Order (DCO) to ensure we have sufficient authority in the DCO to undertake the works. The revised text would be as follows:

Freeport RTCL-HJLR-ZUST
Thames Tideway Tunnel
London
W2 1AF

Tel: 0203 147 7700
Fax: 0203 147 7701
Web: www.thamestidewaytunnel.co.uk

Registered in England and Wales No. 2366661
Registered office: Clearwater Court, Vastern Road
Reading, Berkshire, RG1 8DB

Work no. 17 (b) (vii) a removal of existing mooring for the President and subsequent reinstatement after construction of Work Nos. 17a and 17b including pontoon, means of access over listed river wall including access brows, bank seats and gangways, mooring chains and anchors fixed to the river bed and construction of a river piled wall and dredging to accommodate the relocated vessel.

Work no. 17 (b) (vii) b construction of a temporary mooring at Chrysanthemum Pier which may include modification to the existing mooring and/or its demolition and construction of a new means of access over listed river wall, including access brows, bank seats and gangways to accommodate temporary mooring of the President; mooring chains and anchors fixed to the river bed, construction of a river piled wall and dredging to accommodate the relocated vessel

Ancillary works (general)

(h) the relocation of boats/vessels including works to attach mooring structures and equipment to the boats/vessels.

The design of the mooring structures shown on the drawings provided as part of this engagement are illustrative and reflect our current thinking and may be subject to change following further detailed design.

Blackfriars Millennium Pier

We need to incorporate more extensive sheet piling and dredging at this site to allow the pier pontoon and vessels using the pier to have sufficient draft beneath them at low tide. The works will need to extend the boundary we originally identified for the extent of our permanent site structures.

We have also recently identified a cooling water intake and outlet pipe under the river bed in the location of our proposed works. This is being assessed by ourselves and the pipe owner, and may result in some structural modifications to the intake. In order to undertake these works, a cofferdam may be required to facilitate work to the pipe.

As a result of the above changes we would propose to add the following wording in Schedule 1 of the draft DCO to reflect these changes. The new text would be as follows:

(xviii) In connection with works to relocate Blackfriars Millennium Pier works to modify or divert existing cooling water intake and outlet pipe related to Baynard House including a cofferdam.

The design of the pier structure shown on the drawings provided as part of this engagement are illustrative and reflect our current thinking and may be subject to change following further detailed design. The pier as shown has been lengthened and slightly repositioned.

Way forward

In order to assist you with your consideration of these proposed amendments we have enclosed the following information:

Proposed Vessel Layout Plan

- a) Proposed Vessel Layout Plan (drg ref. 110-DA-ENG-BLABF-000945)
- b) Proposed Vessel Layout Plan (drg ref. 110-DA-ENG-BLABF-000943)
- c) Proposed site features plan west (drg ref. 110-DA-ARC-BLABF-000942)
- d) Proposed site features plan east (drg ref. 110-DA-ARC-BLABF-000944)
- e) Environmental effects arising from proposed scheme amendment (document ref. 100-RG-ENV-BLABF-000001)

We are also arranging eight briefing sessions to discuss these proposals with you. These will be held on Wednesday 17 and Thursday 18 July at ETC. Venues, 57 North Wharf Road, Paddington, London. The following table sets out the proposed start time for each briefing. Should you or a colleague be unable to make these sessions, we will gladly visit you at a time convenient for you.

Site	17 July	18 July
Blackfriars	10.00	11.30
Blackfriars – lunch meeting	13.10	14.30

We would very much welcome your comments and suggestions on these proposed changes and should be grateful if you would send them in writing to email info@tidewaytunnels.co.uk by **5pm on Monday 12 August 2013**. All feedback will be taken into account. Where we are able to we will accommodate any comments into our proposals. We will seek consent from the Planning Inspectorate to amend our proposals at the preliminary meeting due to be held in September.

Yours sincerely



Phil Stride
Head of Thames Tideway Tunnel

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Appendix B: Responses from stakeholders

B.1.1 The feedback received from the targeted engagement at Blackfriars Bridge Foreshore is summarised in Table B.1 below.

B.1.2 The final column of these tables, 'C', specifies whether the feedback lead to change or no change.

B.1.3 The following classifications are used to identify change or no change:

- a. C: where Thames Water has made a change or proposed mitigation to the proposals presented during the pre-application process in response to feedback received.
- b. N: where in response to the feedback received the proposals were not amended.
- c. N/A: The Planning Inspectorate's Advice note fourteen (April 2012) indicates that feedback should relate to site, route, design, form or scale of the scheme. For projectwide sections, a column addressing change was not inserted. For site-specific sections, where feedback does not relate to these categories, N/A is used in the 'C' column.

Table B.1 Blackfriars Bridge Foreshore: Stakeholder feedback

Ref	Stakeholder	Response	Our comment	C
BBF	Design Council CABE	<i>"The additional information provided is substantially the same as the material we reviewed in March 2013. Our letter of 31 May 2012 therefore represents our formal response to this consultation."</i>	No comment required.	N
BBF	City of London Corporation	<i>"The City would require a further evaluation of the possible effects on the Millennium Bridge of scour caused by the proposed changes to the relocated Blackfriars Millennium Pier."</i>	Thames Water will undertake a full assessment of scour during detailed design. If it concludes some protection is needed, Thames Water will commit to providing that mitigation.	N
BBF	City of London Corporation	<i>"The City would require confirmation of the ownership following construction of the sheet piles (Thames Tideway Tunnel or TfL)"</i>	Thames Water would seek to transfer the ownership of the piles to the future pier owner; which is expected to be TfL.	N/A
BBF	City of London Corporation	<i>"The City would require a further evaluation of possible effects on the river wall of scour caused by the proposed changes to Chrysanthemum Pier."</i>	The extent of dredging proposed is to ensure that the vessels and pontoons maintain 0.5m draft at lowest astronomical tide. Associated	N

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Ref	Stakeholder	Response	Our comment	C
			sheet piling is proposed where the natural angle of repose of river bed deposits from the dredged area could result in potential loss of material at the foot of existing river walls. Thames Water therefore indicated that sheet piled support to the river bed would be required to ensure the structural integrity of river walls is not affected.	
BBF	City of London Corporation	<i>“Who would the City enter into the asset protection agreement with, Thames Tideway Tunnel or TfL?”</i>	The asset protection agreement would be with Thames Water.	N/A
BBF	City of London Corporation	<i>“The City would concur with the issues raised by English Heritage in their comments dated 8th August 2013.”</i>	Noted	N
BBF	City of London School	<i>“We were informed there would be high levels of noise and vibration during piling works outside the School. The School requests that (i) ideally such works are conducted during the School’s holidays – details of which area available on its website www.clsb.org.uk or (ii) failing this outside normal school hours – i.e. 08.00 to 17.00: “</i>	Site-specific noise surveys have been undertaken at this location and potential effects on the school are considered and reported in the main text of this report. The CoCP Part B will be amended to include the following: The contractor will use “silent piling” techniques for the eastern end of Blackfriars Millennium Pier dredged pocket (close to the school premises) and if necessary will liaise with the school to agree periods when piling can proceed without causing adverse noise impacts.	C
BBF	City of London School	<i>“b. We would appreciate further information on the likely on-going noise implications for the School in terms of both increased footfall and noise from boats in order to fully assess the implications for the School. Okease treat the School as an interested party.”</i>	We will arrange a meeting with the school to provide this information.	C
BBF	Crown River Cruises	<i>“Crown River Cruises (CRC) have decided as a commercial decision to proceed with the reinstatement of Chrysanthemum Pier on the grounds that they would enjoy valuable use of the facility until such time as the location is</i>	Noted. The proposed changes recognise that the construction of the pier could be at various stages of completeness and provide Thames Water with the necessary powers to complete	N

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Ref	Stakeholder	Response	Our comment	C
		<i>required for the temporary mooring of the President”.</i>	the Works needed to deliver the project. Thames Water also recognises that one option could be to amend the existing arrangement.	
BBF	Crown River Cruises	<i>“Knowing as we all do how schemes of this nature are subject to slippage CRC take the view that their use of the facility is likely to be longer than the period currently envisaged by Thames Tunnel.”</i>	Noted	N/A
	Crown River Cruises	<i>“CRC are considering whether it will be an economic proposition in due course to retrieve those parts of Chrysanthemum Pier which are not required for the mooring of President and to reinstate them at a subsequent date.”</i>	Noted	N/A
	Crown River Cruises	<i>“At the same time they would urge Thames Tunnel to consider whether it might be possible to utilise the reinstated Chrysanthemum Pier for the mooring of President albeit following some adaption. It may be possible even at this stage to incorporate changes to Chrysanthemum Pier specification that would help to facilitate its use by President.”</i>	Noted. The proposed changes recognise that the construction of the pier could be at various stages of completeness and provide Thames Water with the necessary powers to complete the works needed to deliver the project. Thames Water also recognises that one option could be to amend the existing arrangement	N/A
	Crown River Cruises	<i>“It is anticipated that the reinstated Chrysanthemum Pier will be available for use by CRC in the early part of 2014.”</i>	Noted	N/A
BBF	Crown River Cruises	<i>“With regards to the representations Thames Tideway Tunnel have invited to be made by 12th August, subject to the above, CRC have nothing to add to what was said in email of 27th May apart from requesting that agreement be reached with Transport for London / London River Services whereby CRC will have guaranteed berthing rights on the new Blackfriars Pier during the period Chrysanthemum Pier is not available to them. CRC would welcome an early opportunity of discussing with the various parties involved how this might be achieved.”</i>	This is a matter for TfL to agree with Crown River Cruises, although it would replicate the existing situation.	N
BBF	Port of London Authority (PLA)	<i>“It is unfortunate that these changes, and their implications on the River Thames, do not appear to have been formally</i>	Thames Water engaged with all stakeholders at the same time, as soon as the proposed	N

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Ref	Stakeholder	Response	Our comment	C
BBF	PLA	<p><i>raised or discussed with the PLA prior to this consultation”.</i></p> <p><i>“There appears to be no detailed justification for the proposed methodology and extent of the proposed dredging (both permanent and, if necessary, maintenance) or the sheet piled wall landward of the dredged boxes proposed for both the President and the relocated Blackfriars Pier. Notwithstanding that there is no reference to the approach with the Navigational Issues and Preliminary Risk Assessment, the proposal to include sheet piling is not common practice on the River Thames and there is no guarantee that the proposed depths will maintain and that such an approach will result in minimal scour; further justification for this scheme elements is therefore required. The PLA is also concerned that any scour will expose the sheet piles and therefore increase the risk of damaging service and other vessels transiting to the inshore side of the President”.</i></p>	<p>minor changes were formulated</p> <p>The extent of dredging proposed is to ensure that the vessels and pontoons maintain 0.5m draft at lowest astronomical tide. Associated sheet piling is proposed where the natural angle of repose of river bed deposits from the dredged area could result in potential loss of material at the foot of existing river walls. Thames Water wants to avoid affecting the stability of the existing river walls and so without the sheet piling to support the river bed deposits, the loss of any toe support at the base of river walls could affect their stability.</p> <p>Thames Water took a precautionary approach to estimating the extent of dredging and associated sheet piling to ensure that Thames Water did not under-represent the impact when preparing the application. It may be that during the detailed design stage, the extent of these works can be reduced.</p> <p>The risk of vessels grounding on the sheet piling is considered low but mitigation such as topping the piles with timber could be employed to reduce this risk.</p> <p>It is intended that the protective provisions will set out clauses to protect the PLA’s position in respect of their statutory duties and a framework for an approval process for the detailed design of works (including capital dredging) to be authorised under the DCO. Negotiations are on-going between Thames Water and the parties regarding the</p>	N

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Ref	Stakeholder	Response	Our comment	C
			mechanism for securing the details of the approval regime, together with provisions relating to scour monitoring and mitigation, and co-operation between the PLA, EA and Marine Management Organisation in granting the approval of such works.	
BBF	PLA	<i>“ While the PLA has no in-principal issues with the relocation of the Blackfriars Bridge Millennium Pier and indeed it appears to be situated slightly closer inshore than the submitted Draft DCO – and not withstanding the issues raised above -the PLA considers the extent of the sheet piling at the downstream end to be an unacceptable hazard to navigation using the ‘V’ berth and must be reconsidered”.</i>	We have reconfigured the sheet piling at either end of the dredged box to remove the splay arrangement.	C
BBF	PLA	<i>“Any sheet piling at the upstream end must be limited so as not to extend beyond the pontoon access brow”.</i>	As above.	C
BBF	PLA	<i>“The PLA considers that the approach to the discharge from Baynard House requires further work, as the current proposal provides an unacceptable hazard to vessels berthing at the pier at low water”.</i>	We have updated the drawings to show the diverted discharge between the pontoon and river wall. It is recognised that this is subject to further refinement and study once BT has concluded its own study of the discharge pipe.	C
BBF	Port of London Authority	<i>“...there appears to be no analysis as to what, if any, impact relocating this pipework will have on the river’s regime”.</i>	It is intended that the protective provisions will set out clauses to protect the PLA’s position in respect of its statutory duties and a framework for an approval process for the detailed design of works (including capital dredging) to be authorised under the DCO. Negotiations are on-going between Thames Water and the parties regarding the mechanism for securing the details of the approval regime, together with provisions relating to scour monitoring and mitigation, and co-operation between the PLA, EA and Marine Management Organisation in granting the approval of such	C

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Ref	Stakeholder	Response	Our comment	C
			works.	
BBF	Port of London Authority	<i>“Additionally, further details are required on the implications of the proposed dredging at both sites, including seasonality and cumulative effects”.</i>	<p>Thames Water will undertake a full assessment of scour during detailed design. If that concludes some protection is needed Thames Water will commit to providing that mitigation.</p> <p>It is intended that the protective provisions will set out clauses to protect the PLA’s position in respect of itsw statutory duties and a framework for an approval process for the detailed design of works (including capital dredging) to be authorised under the DCO. Negotiations are on-going between Thames Water and the parties regarding the mechanism for securing the details of the approval regime, together with provisions relating to scour monitoring and mitigation, and co-operation between the PLA, EA and Marine Management Organisation in granting the approval of such works.</p>	C
BBF	Port of London Authority	<i>“The proposed intentional infilling of the dredge box following the completion of the temporary works must be undertaken with suitably controlled with coarse material which can support the surrounding riverbed from erosion and collapse. Spillage from dredging at the volumes referred to within the documents does not accord with best practice and. More importantly, they are assessed as not significant without any reference to the sediment quality provided within the Environmental Statement submitted with the DCO”.</i>	At this stage, Thames Water intends to reinstate temporary dredged pockets and remove associated sheet piling from the river bed. This will be undertaken with suitable material and taking account of the stability of material supporting the existing river wall. Further work will be undertaken as part of the detailed design stage to address this issue.	C
BBF	English Heritage	<i>“English Heritage considers that the public benefit of the TTT NSIP itself is established in principle, and, as the HMS President is able to be returned to its original location, considers that it presents no additional harm to the setting of</i>	Noted. No action required.	N

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Ref	Stakeholder	Response	Our comment	C
		<i>surrounding heritage assets. Although English Heritage would have welcomed more detail concerning the widening of the gangways in relation to the listed wall, on the basis of that there is to be no additional harm to the listed wall to that proposed in the original application, we are content with the proposed changes”.</i>		
BBF	English Heritage	<i>“In relation to Blackfriars Millennium Pier proposals, on the basis of the information that we have been provided with we do not consider that they have significant impacts on nationally designated heritage assets or their settings. We would, however, have preferred to have some visualisations of the new location of the pier in making such an assessment”.</i>	Noted. The preparation of visualisations would be considered in any further material prepared in relation to the proposed minor changes.	N
	English Heritage	<i>“In addition, English Heritage considers it unfortunate that such a large dredge will be required both of the proposed works. We will, however, be content with the proposed mitigation of scanning the dredge arisings for archaeological mater, provided this is appropriately monitored”</i>	Noted	N
BBF	TfL	<i>“It’s worth noting that the plan you have sent to show the proposed changes, No. 110-DA-ENG-BLABF-000945, suggests that the BT cooling tunnel was shown on your original DCO submission. I am not sure this is the case, as its relevance as an issue and its impacts are only now being discussed in detail with TfL. You will be aware that this issue was further discussed at a meeting on 19 July 2013 between Thames Water, TfL, the PLA and BT. At this meeting TfL made it clear that it is not acceptable for the outflow of the tunnel to emerge in the river bed immediately below where vessels would berth at the pier. We believe this would cause unacceptable operational risks for these vessels and would also potentially operationally constrain the future use of this pier. Potential alternative options were discussed at the meeting, including moving the outflow further towards the river wall - TfL hopes a solution can be</i>	We have updated the drawings to show the diverted discharge between the pontoon and river wall. It is recognised that this is subject to further refinement once BT has concluded its own study of the discharge pipe. Thames Water will discuss with TfL any further implications this may have for the operations of the proposed pier.	C

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Ref	Stakeholder	Response	Our comment	C
		<i>found and we look forward to discussing this with you. TfL does of course however welcome the fact that you are proposing to increase the length of the pier pontoon as there were significant operational concerns with the original design'. Given this, we cannot at present agree to your proposed changes as we cannot agree to your original proposal, which in itself has the same issue surrounding the impact of the outflow pipe."</i>		
BBF	TfL	<i>"You will also be aware of the fact that TfL is still seeking a binding agreement with Thames Water regarding the proposal to relocate Blackfriars Pier, and that we require assurances as to an approved design and methodology for the replacement facility which must be provided and agreed by TfL before any work commences which affects the current operational facility".</i>	The design for the replacement pier are being discussed with TfL and City of London in order to resolve conflicting issues regarding its design and operational requirements. Thames Water is confident this can be resolved satisfactorily.	C
BBF	TfL	<i>"If the issues described above can be resolved to TfL's satisfaction, then we do not envisage any serious adverse impacts upon our assets or operations from your proposed changes to amend and increase the sheet piling and works boundary for dredging. This comment is however subject to ongoing communication between TUWL and TfL and, taking London Underground as an example, adherence to LUL's standard requirements / constraints for piling in close proximity to its structures during the detailed design and construction phases of your project".</i>	Noted	N/A
BBF	Natural England	<i>"The proposed changes do not significantly alter the proposed scheme but have the potential to impact on foraging and migratory routes for fish and invertebrates".</i>	The serial or cumulative impacts of the foreshore structures on juvenile fish migration was assessed within the ES using an individual based modelling approach. The study concluded that although the structures cause juvenile fish into deeper water where they are at greater risk of predation and 'wash out', the refuges from the current offered by the structures offset this negative impact.	N

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Ref	Stakeholder	Response	Our comment	C
			Given the scale of the changes the conclusions in relation to fish migration are considered to be unchanged. No effects on benthic invertebrates are anticipated since the areas of loss are limited and the communities which occur in this section are widespread in the tidal Thames.	
BBF	Natural England	<i>“On the basis of the information submitted in support of the above, the Natural England is of the opinion that the proposed changes to the Blackfriars Bridge Foreshore do not significantly alter the scheme and that our previous Statement of Relevant Representation dated 24 May 2013 is still valid”.</i>	Noted. No action required.	N
BBF	Natural England	<i>“Pro rata compensation for habitat loss should be discussed with the Environment Agency as part of their ongoing consultation and Statement of Relevant Representation, as well as part of any compensatory package to be agreed.”</i>	Noted	N
BBF	Natural England	<i>“Ongoing discussion with the Environment Agency, to identify and assess suitable and appropriate foreshore habitat compensation as part of the Development Consent Order application, is to be undertaken as per our comments in the Statement of Relevant Representation dated 24 May 2013. Natural England is prepared to offer advice and support, where appropriate and as requested to both parties.”</i>	Noted	N
BBF	Environment Agency	<i>“Why is dredging and the retaining piled walls necessary when the positions of the vessels are no nearer to the river wall than they currently are today?”</i>	The bathymetry of the river bed varies significantly along the foreshore, and so if a vessel is being moved, it is highly unlikely that a suitable depression exists at the new location and it will need a new dredged pocket to sit in. The President would be moved back to its original location, but this will be for a period of	N

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Ref	Stakeholder	Response	Our comment	C
			<p>approximately six years. In that six-year period, the dredged pocket that currently exists is likely to have been partially or wholly filled in due to the daily movement of silt up and down the river with the tide, but also due to the piling that will have been installed and removed in that location for the temporary working platform.</p> <p>The extent of dredging proposed is to ensure that the vessels and pontoons maintain 0.5m draft at lowest astronomical tide. Associated sheet piling is proposed where the natural angle of repose of river bed deposits from the dredged area could result in potential loss of material at the foot of existing river walls. Thames Water wants to avoid affecting the stability of the existing river walls and so without the sheet piling to support the river bed deposits, the loss of any toe support at the base of river walls could affect their stability.</p> <p>A precautionary approach to estimating the extent of dredging and associated sheet piling was taken to ensure that Thames Water did not under-represent the impact when preparing the application. It may be that during the detailed design stage, the extent of these works can be reduced.</p>	
BBF	Environment Agency	<i>"Why were dredging and the retaining piled walls not shown in the current DCO application?"</i>	As a result of on-going design development, it was established that additional dredging and associated sheet piling would be required.	N
BBF	Environment Agency	<i>"What is the justification for the extent of the dredged areas proposed? The areas appear to include dredging beneath</i>	The incoming and outgoing action of the tide has a souring effect beneath existing vessels	N

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Ref	Stakeholder	Response	Our comment	C
		<i>the pontoons and connecting brow and be greater than simply to accommodate the vessels”.</i>	that usually creates and maintains a depression in the river bed. When vessels are moved to a new location, Thames Water needs to consider whether the river bed needs to be lowered to ensure adequate clearance to the underside of the vessel at all states of the tide to prevent grounding. Thames Water estimates the stable slope angle of the river bed and where there is a risk that an unsupported dredged depression could result in undermining of a nearby river wall, Thames Water has taken a precautionary approach and indicated that sheet piled support to the river bed will be required to ensure the structural integrity of river walls are not affected.	
BBF	Environment Agency	<i>“It is not clear to what extent a cofferdam would be needed to accommodate the lowering of the cooling water tunnel at the Blackfriars Bridge Foreshore site. No details of the alterations to the cooling water tunnel have been shown on a plan or drawing”.</i>	We have updated the drawings to show the diverted discharge between the pontoon and river wall and an estimated extent of cofferdam required to carry out the works. It is recognised that this is subject to further refinement once BT have concluded their own study regarding the discharge pipe. We will discuss with the EA any further implications this may have.	C
BBF	Environment Agency	<i>“It is unclear what the function of the gabion mattress (3.3.1) at Blackfriars Millennium Pier relocation would be, and whether this is the best mitigating measure”.</i>	The gabion mattress is one measure intended to reduce the risk and consequence of scour.	N
BBF	Environment Agency	<i>“The amended applications should be revised to explain / illustrate the above points”.</i>	No further revisions will be made to the application but comments will be considered and incorporated where possible.	N
BBF	Environment Agency	<i>“The proposed alterations add nothing to our understanding of the impact on river hydraulics and the magnitude of scour</i>	See below	C

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Ref	Stakeholder	Response	Our comment	C
		<i>effects. Paragraph 3.3.31 of the Blackfriars Bridge Foreshore environmental effects document, raises the possibility of an ‘impact on the flow regime and result in scour arising around the new structures’ and ‘construction of a cofferdam for the relocation of a third party cooling party water tunnel could also result in scour’.</i>		
BBF	Environment Agency	<i>“The way this matter is being addressed in the proposal of minor alterations is the same as the original application i.e. scour impacts are not being fully identified, rather reliance is being made on monitoring and mitigating actions and significance of impact / risk is reported assuming such actions have been carried out. In this instance the mitigation proposals are the sheet piles to retain the foreshore, the gabion mattresses and if monitoring identifies possible further protection then other measures will be put in place”.</i>	The approach to scour modelling, monitoring and mitigation has been developed over a two year process in discussion with the EA and a draft strategy for monitoring and mitigation of scour is being further updated. Thames Water will undertake a full assessment of scour during detailed design. If that concludes some protection is needed Thames Water will commit to providing that mitigation.	C
BBF	Environment Agency	<i>“The re-siting of the boat, piers and associated works will need to be additionally included within the scour and accretion modelling. The outcome of this modelling will have direct implications on the scour and accretion monitoring and mitigation”.</i>	It is intended that the protective provisions will set out clauses to protect the EA's position in respect of its statutory duties and a framework for an approval process for the detailed design of works (including capital dredging) to be authorised under the DCO. Negotiations are on-going between Thames Water and the parties regarding the mechanism for securing the details of the approval regime, together with provisions relating to scour monitoring and mitigation, and co-operation between the PLA, EA and Marine Management Organisation in granting the approval of such works.	C
BBF	Environment Agency	<i>“The proposed alterations represent an increase in the area of permanent loss of foreshore and river bed modification. We continue to seek that permanent loss and modification be kept to a minimum and that figures within the current</i>	The compensation package to address the adverse effects resulting from habitat loss form part of the terms of reference for an independently chaired working group that has	C

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Ref	Stakeholder	Response	Our comment	C
		<i>DCO application, identifying areas of loss and modification, need to be amended to reflect changes. The outcome of the assessment of significance and extent of foreshore habitat loss will have direct implications on any proposed ecological compensation package. There should be consideration of the reinstatement of the foreshore following the use of temporary locations of the vessels”.</i>	been set up with stakeholders including representatives from the EA, Natural England, the PLA and the London Wildlife Trust. The EA confirmed in the first inception meeting of this working group held on 23 July 2013 that it would accept the recommendation of the group in addressing the above compensation issue.	
BBF	Cory Environmental Ltd	<i>“The proposed vessel layout plan East (110-DA-ENG-BLABF-000945) show’s the transponder information was collected on Cory’s barges during trials in November 2011 and September 2012. As clearly demonstrated on the plan, both of the barge trials show Cory’s vessels coming within very close proximity of the proposed relocated passenger pier.”</i>	Thames Water has already moved the proposed Blackfriars Millennium Pier back towards the river wall during the consultation phase of the project. It is not possible to move it any further back at this stage. The outcome of two surveys that tracked Cory barges travelling upstream 49 times through arch 2 of Blackfriars Bridge showed that they usually keep within the Authorised Channel and maintain a clearance of between 10m and 15m to the proposed mooring location for the Thames Clipper. Only three barges came within 10m of the Thames Clipper mooring location, the closest track being 4.3m which was from the 2011 survey which was a completely unconstrained survey. The later 2012 survey that included a marker buoy which marked the location of the edge of the Thames Clipper maintained a minimum clearance of 5.5m.. The later trial was with two marker buoys and not two vessels and it is likely that Cory would steer further away from a fixed vessel than marker buoys.	C
BBF	Cory Environmental Ltd	<i>“Cory does not find the clearance distances demonstrated by the trials and detailed on this plan to be acceptable’. The relocated passenger pier in the position as detailed within the DCO application shows one of Cory’s barges passing by the structure with 12.5m clearance. This clearance is even further reduced by 2m when a passenger vessel is moored alongside the pier.”</i>		C
BBF	Cory Environmental Ltd	<i>“In the proposed revision to the location of the relocated passenger pier (plan. Ref: 110-DA-ENG-BLACBF-000945), in the example used above, Cory’s barge would have cleared the pier by the same distance, some 12.5m, and with a passenger vessel moored alongside this distance is reduced to 3.2m.”</i>		C
BBF	Cory Environmental Ltd	<i>“It is highly likely that these trials were undertaken during benign weather conditions. As such, it is likely that these clearance distances would have been further reduced in unfavourable conditions.”</i>		C
BBF	Cory Environmental Ltd	<i>“Cory is of the view that with such significant health and safety concerns for its own personal as well as members of</i>	The Navigational Issues and Preliminary Risk Assessment concludes that having already	C

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Ref	Stakeholder	Response	Our comment	C
		<i>the public, the detailed assessment of the risks associated with the relocation of the pier cannot be justifiably be assessed at a later date, prior to commencement of building activities, as detailed in para. 2.4.2 of the Navigational Impact Risk Assessment”.</i>	moved the pier closer to the river wall following consultation with Cory earlier in the design process; and designing in the option for a Thames Clipper to moor in a more easterly position on the pier; and co-ordinating works so that arch No 2 closures do not coincide with scheduled maintenance work/inspections at arches No 3 and 4; and issuing a Notice to Mariners, informing river users of the planned closures and in-river works, the proposals are acceptable.	
BBF	Cory Environmental Ltd	<i>“In addition, the location of the passenger pier is still only detailed on plans which are marked as ‘illustrative’, this means that there is potential for the final pier to be located further into the river channel as long as it is within the Limits of land to be acquired or used (LLAU).”</i>	Thames Water will not move the proposed pier closer to the navigational tracking lines and will maintain a minimum clearance of 5.8m.	N
BBF	Cory Environmental Ltd	<i>“Cory continues to have significant concerns regarding the location of the relocated passenger pier and feel that the potential for, and severity of, a barge making contact with the pier and any passenger vessel moored alongside is not reflected within the ‘most likely’ scenarios assessed within the Navigational Issues and Preliminary Risk Assessment (NIPRA) for the site submitted as part of the DCO application. It is also of significance that the effect of tidal set has not been assessed within the NIPRA; again, this may have a significant impact of the clearance distances detailed above.”</i>	Although Thames Water cannot make any further changes to the application, it will consider moving the replacement Blackfriars Millennium Pier closer to the river wall pending constraints associated with the BT pipe.	C
BBF	London Borough of Southwark	<i>“The proposed change involves more extensive work to Chrysanthemum Pier to facilitate the mooring of the President to it during construction. The proposed wording change to Work No. 17b within Schedule 1 of the Draft DCO would allow for three possible scenarios: 1. CRC complete the construction of Chrysanthemum Pier and Thames Water would modify the pier prior to the</i>	Noted	N/A

Ref	Stakeholder	Response	Our comment	C
		<p>commencement of the TTT construction.</p> <p>2. CRC complete the construction of Chrysanthemum Pier and Thames Water replace it with a modified pier suitable for temporary use.</p> <p>3. CRC do not complete the construction of Chrysanthemum Pier and Thames Water would have to build a new pier.”</p>		
BBF	London Borough of Southwark	<p>“LB Southwark notes that the environmental effects have been considered with regard to scenario 3 which is considered to be the ‘worst case scenario’ in section 3 of the Blackfriars Bridge Foreshore proposed scheme changes consultation document. However, Southwark considers that the degree of uncertainty of the type of work proposed at the site is an issue of concern. LB Southwark considers that keeping this level of flexibility in the type of works that may be carried out on the site means that we are unable to provide appropriate advice as to the level of impact and the necessary mitigation that may be required for residents on the south side of the river.”</p>	<p>It is appropriate to consider a reasonably foreseeable worst case scenario in an assessment to ensure that potential worst case effects are identified and reported and provision made for appropriate mitigation.</p>	N
BBF	London Borough of Southwark	<p>“Thames Water states in para. 2.3.10 of the Blackfriars Bridge Foreshore proposed scheme changes consultation document that ‘the layout of Blackfriars Millennium Pier with the application is shown in the ..’Illustrative’ plan; given the fact the plan is illustrative, this detail did not form part of the assessment of effects presented in the ES”.</p>	<p>Work has been undertaken to identify any differences between the environmental effects of the proposed amendments compared to the application scheme, set out in the ES. This exercise is reported earlier in this document. No material changes to the effects reported in the ES were found.</p>	N
BBF	London Borough of Southwark	<p>“LB Southwark has significant concerns that the environmental effects of the proposed changes have not been considered within the ES submitted to the Planning Inspectorate. LB Southwark has continued to raise objection to the fact the site plans are described as “illustrative” in the submission documents. We consider that this late change demonstrates how the plans need to be agreed within the DCO. Final site plans are needed at this stage in the process in order for LB Southwark to appropriately assess</p>	<p>See above response</p>	N

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Ref	Stakeholder	Response	Our comment	C
		<i>the impact of this scheme on our local residents, schools and businesses and ensure that appropriate mitigation is provided to overcome any negative impacts.”</i>		
BBF	London Borough of Southwark	<i>“The proposed changes constitute significant changes in the type of development proposed in the submitted Draft DCO. The changes would lead to increased activity at the site including, but not limited to: an increased amount of sheet piling, the construction of a pier structure, increased dredging and the potential insertion of a cofferdam.”</i>	Thames Water believes that the proposed changes are minor and not material.	N
BBF	London Borough of Southwark	Object to the fact the site plans are described as “illustrative” as final site plans are needed for Southwark to appropriately assess the impact of the scheme on the borough.	The status of the Illustrative drawings is explained in the <i>Planning Statement</i> , which accompanied the application. Thames Water believes that the proposed changes are minor and not material and that sufficient material has been provided.	N
BBF	London Borough of Southwark	It should be noted that the scale of the works has introduced a new receptor, that of the City of London School. LB Southwark has significant concerns that the “illustrative” nature of the site plans can allow for changes to the proposed works that may introduce new sensitive receptors after consent has been granted. This would severely impact on the ability of the LPA to ensure appropriate consideration and suitable mitigation of negative impacts, needed to avoid harm to local residents, schools and businesses close to the site.	Work has been undertaken to consider the potential effects of the proposed amendments and develop appropriate mitigation. There are no material changes to the effects reported in the <i>ES</i> .	N
BBF	London Borough of Southwark	LB Southwark questions whether the environment statement, as submitted to the Planning Inspectorate, has adequately assessed the scale and nature of the impact of the changes at every site along the proposed route given these substantial changes proposed for the works at Blackfriars Bridge Foreshore.	This comment appears to relate to the application, rather than the proposed changes. The environmental effects of the proposed changes have been assessed.	
BBF	HMS President (1918) Ltd	<i>“The length of the entrance ramps will deter potential customers particularly the elderly / partially disabled people resulting in loss of trade and our client requests a revised</i>	Plans of the amended access arrangements for the President vessel have been shortened in response to this comment by the owners.	C

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Ref	Stakeholder	Response	Our comment	C
		<i>design to shorten the ramps as much as practicable but to an acceptable maximum incline”.</i>		
BBF	HMS President (1918) Ltd	<i>“The walkway will need to be covered to offer protection from the elements and to replicate the ship’s current facility”.</i>	Plans of the amended access arrangements for the President vessel have been further revised to include a canopy in response to this comment by the owners.	C
BBF	Crown Estate	The Crown Estate has no comments to make in relation to the proposed minor changes at Victoria Embankment and Blackfriars Foreshore as far as its land ownership of these areas of foreshore is concerned.	Noted	

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Appendix C: Book of Reference

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The Thames Water (Thames Tideway Tunnel) Order
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City of London - Part 1

Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
1	1066 square metres Subsoil below river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
2	3444 square metres River (River Thames), dolphin and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
3	1808 square metres River (River Thames), dolphin and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
3a	40 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
4	2227 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
4a	680 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
5	1070 square metres Public road and footway (Victoria Embankment, A3211) (excluding all interests of the Crown)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>	
6	Number Not Used				
7	1012 square metres Pier and river (River Thames) and bed thereof and permanent moorings and vessel (HMS President)	<p>HMS President (London) Limited Victoria Embankment London EC4Y 0HJ (trading as HMS President 1918)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>		<p>HMS President (London) Limited Victoria Embankment London EC4Y 0HJ (trading as HMS President 1918)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>	
8	586 square metres River (River Thames) and bed thereof	<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>		<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
9	27 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
10	183 square metres Public footway and stairs (Victoria Embankment, A3211) (excluding all interests of the Crown)	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ HMS President (London) Limited Victoria Embankment London EC4Y 0HJ (trading as HMS President 1918 in respect of access stairs for HMS President, London, EC4Y) The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
11	1 square metres Pier above river (River Thames) and bed thereof	HMS President (London) Limited Victoria Embankment London EC4Y 0HJ (trading as HMS President 1918) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		HMS President (London) Limited Victoria Embankment London EC4Y 0HJ (trading as HMS President 1918) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
12	4 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
13	1 square metres Site of lamp post (Victoria Embankment) (excluding all interests of the Crown)	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX	
14	7 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
15	8854 square metres River (River Thames) and bed thereof	London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
15a	38 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
16	1 square metres Site of lamp post (Victoria Embankment) (excluding all interests of the Crown)	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX	
17	466 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
18	Number Not Used				

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
19	1885 square metres Public road and footway (Victoria Embankment) and footway (Bazalgette Walk) over underpass (Blackfriars Underpass) and subway below, and footway (Paul's Walk) and shooting gallery and public conveniences (disused), excluding river wall (excluding all interests of the Crown). Rights required over river wall to alter and maintain	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnel - Waterloo and City line)</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	<p>Brian Woodall NSRA Lord Roberts Centre Bisley Camp Brookwood Woking GU24 0NP (in respect of The Stock Exchange Rifle Club, London, EC4Y)</p>	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnel - Waterloo and City line)</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>The National Small-Bore Rifle Association Lord Roberts Centre Bisley Camp Brookwood Woking GU24 0NP (in respect of shooting gallery)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
19a	520 square metres Public footway (Blackfriars Bridge, A201), and public footway (Paul's Walk) below bridge carrying public road and footways (Blackfriars Bridge, A201) and hardstanding, excluding river wall (excluding all interests of the Crown). Rights required over river wall to alter and maintain	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
19b	72 square metres Public footway (Paul's Walk and Bazalgette Walk) (excluding all interests of the Crown)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	
19c	28 square metres Public footway (Paul's Walk and Bazalgette Walk) (excluding all interests of the Crown)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
20	127 square metres Public footway (Paul's Walk and Bazalgette Walk) and public road and footway (Victoria Embankment, A3201) (excluding all interests of the Crown)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	
21	44 square metres River (River Thames) and bed thereof	<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>		<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
22	409 square metres Pier (Blackfriars Millennium Pier) and river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House)	Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR	Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House) Thames Clippers Limited The Studio The O2 London SE10 0DX	
23	3132 square metres River (River Thames), foreshore and bed thereof	London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
24	236 square metres Pier, footbridge, pump house and stairs (Blackfriars Millennium Pier) and river (River Thames) and bed thereof	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of stairs at Victoria Embankment and St Paul's Services Subway Tunnel)</p> <p>London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House)</p>	<p>Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR</p>	<p>Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR</p> <p>London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House)</p> <p>Thames Clippers Limited The Studio The O2 London SE10 0DX</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
25	264 square metres Public footway (Paul's Walk and Bazalgette Walk) and ramp carrying public road and footway (Victoria Embankment and Bazalgette Walk) and shooting gallery and public conveniences (disused) (excluding all interests of the Crown)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	<p>Brian Woodall NSRA Lord Roberts Centre Bisley Camp Brookwood Woking GU24 0NP (in respect of The Stock Exchange Rifle Club, London, EC4Y)</p>	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>The National Small-Bore Rifle Association Lord Roberts Centre Bisley Camp Brookwood Woking GU24 0NP (in respect of shooting gallery)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
26	12 square metres Pier (Blackfriars Millennium Pier) and river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House)	Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR	Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House) Thames Clippers Limited The Studio The O2 London SE10 0DX	
27	47 square metres Pier (Blackfriars Millennium Pier) and river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House)	Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR	Crown River Cruises Limited Blackfriars Pier The Old Pump House Pauls Walk London EC4V 3QR Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Millennium Pier and Pump House) Thames Clippers Limited The Studio The O2 London SE10 0DX	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
28	20 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
29	1 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
30	815 square metres River (River Thames), foreshore and bed thereof	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of St Paul's Services Subway Tunnel) London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of St Paul's Services Subway Tunnel) London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
31	1111 square metres Subsoil below river (River Thames) and bed thereof	London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Waterloo and City line) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
32	210 square metres River (River Thames), foreshore and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
33	461 square metres Bridge carrying public road and footway (Blackfriars Bridge, A201) and stairs (Paul's Walk), and river (River Thames), foreshore and bed thereof	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>		<p>Bridge House Estates Budget Division City of London Corporation PO Box 270 Guildhall London EC2P 2EJ (in respect of maintenance and replacement of Blackfriars Bridge, London, EC4V)</p> <p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
34	499 square metres River (River Thames) and bed thereof below bridge deck carrying public road and footways (Blackfriars Bridge, A201)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>		<p>Bridge House Estates Budget Division City of London Corporation PO Box 270 Guildhall London EC2P 2EJ (in respect of maintenance and replacement of Blackfriars Bridge, London, EC4V)</p> <p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
35	316 square metres River (River Thames) and bed thereof below bridge deck carrying public road and footways (Blackfriars Bridge, A201)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>		<p>Bridge House Estates Budget Division City of London Corporation PO Box 270 Guildhall London EC2P 2EJ (in respect of maintenance and replacement of Blackfriars Bridge, London, EC4V)</p> <p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
36	784 square metres Subsoil below bridge carrying public road and footways (Blackfriars Bridge, A201) and river (River Thames) and bed thereof	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
37	166 square metres Footpath (Paul's Walk) below bridge carrying public road and footway (Blackfriars Bridge, A201) and access stairs and hardstanding and garden (excluding all interests of the Crown)	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
38	127 square metres River (River Thames), foreshore and bed thereof	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of subway tunnel - St Paul's Services Subway Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of subway tunnel - St Paul's Services Subway Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
39	618 square metres River (River Thames), foreshore and bed thereof	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of subway tunnel - St Paul's Services Subway Tunnel)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of subway tunnel - St Paul's Services Subway Tunnel)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>	
40	67 square metres River (River Thames) and bed thereof	<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>		<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p> <p>UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
41	1475 square metres Subsoil below river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG UK Power Networks (Operations) Limited Newington House 237 Southwark Bridge Road London SE1 6NP (in respect of Cable Tunnel - EDF Bankside Cable Tunnel)	
42	848 square metres Subsoil below bridge (Blackfriars Railway Bridge) carrying railway and works (Elephant and Castle and Blackfriars) over river (River Thames) and bed thereof	Network Rail Infrastructure Limited Kings Place 90 York Way London N1 9AG Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Railway Bridge, London, EC4V)		Network Rail Infrastructure Limited Kings Place 90 York Way London N1 9AG Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames beneath Blackfriars Railway Bridge, London, EC4V)	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
43	166 square metres Subsoil below bridge (Blackfriars Railway Bridge) carrying railway and works (Elephant and Castle and Blackfriars) over river (River Thames) and bed thereof	Network Rail Infrastructure Limited Kings Place 90 York Way London N1 9AG Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of River Thames beneath Blackfriars Railway Bridge, London, EC4V)		Network Rail Infrastructure Limited Kings Place 90 York Way London N1 9AG Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of River Thames beneath Blackfriars Railway Bridge, London, EC4V)	
44	9200 square metres Subsoil below river (River Thames) and bed thereof	British Telecommunications plc 81 Newgate Street London EC1A 7AJ (in respect of GPO tunnel - BT Openreach Blackfriars to St. Paul's Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		British Telecommunications plc 81 Newgate Street London EC1A 7AJ (in respect of GPO tunnel - BT Openreach Blackfriars to St. Paul's Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
45	231 square metres River (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
46	1016 square metres River (River Thames), foreshore and bed thereof	British Telecommunications plc 81 Newgate Street London EC1A 7AJ (in respect of GPO tunnel - BT Openreach Blackfriars to St. Paul's Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		British Telecommunications plc 81 Newgate Street London EC1A 7AJ (in respect of GPO tunnel - BT Openreach Blackfriars to St. Paul's Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
47	6717 square metres River (River Thames), foreshore and bed thereof	British Telecommunications plc 81 Newgate Street London EC1A 7AJ (in respect of GPO tunnel - BT Openreach Blackfriars to St. Paul's Tunnel) City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of St Paul's Services Subway Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		British Telecommunications plc 81 Newgate Street London EC1A 7AJ (in respect of GPO tunnel - BT Openreach Blackfriars to St. Paul's Tunnel) City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of St Paul's Services Subway Tunnel) Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
48	331 square metres Public footway and shrubbery (Paul's Walk)	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL	
49	143 square metres Subsoil below bridge carrying public footway (London Millennium Footbridge) and river (River Thames) and bed thereof	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)		City of London Corporation Guildhall PO Box 270 London EC1P 2EJ Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)	
50	5912 square metres Subsoil below river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
51	261 square metres Subsoil below bridge carrying public road and footways (Southwark Bridge, A300) above river (River Thames) and bed thereof	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p>	
52	2442 square metres Subsoil below river (River Thames) and bed thereof	<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>		<p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>	
53	683 square metres Subsoil below bridge carrying railway and works (Cannon Street and London Bridge) and river (River Thames) and bed thereof	<p>Network Rail Infrastructure Limited Kings Place 90 York Way London N1 9AG (in respect of Cannon Street Railway Bridge, London, EC4R)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p>		<p>Network Rail Infrastructure Limited Kings Place 90 York Way London N1 9AG (in respect of Cannon Street Railway Bridge, London, EC4R)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
54	3753 square metres Subsoil below river (River Thames) and bed thereof	<p>London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Northern line)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>		<p>London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnels - Northern line)</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG</p>	
55	451 square metres Subsoil below bridge carrying public road and footways (London Bridge, A3) and river (River Thames) and bed thereof	<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>		<p>City of London Corporation Guildhall PO Box 270 London EC1P 2EJ</p> <p>Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG (in respect of the River Thames)</p> <p>Transport for London The Property Asset Register Manager Windsor House 42-50 Victoria Street London SW1H 0TL (in respect of red route)</p>	

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Number on Plan	Description of Property	Category 1			Category 2
		Owners or Reputed Owners	Lessees or Tenants	Occupiers	
56	403 square metres Subsoil below river (River Thames) and bed thereof and London Underground tunnel (Northern line) (excluding all interests of the Crown)	London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnel - Northern line) The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX		London Underground Limited 55 Broadway London SW1H 0BD (in respect of London Underground tunnel - Northern line) The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of caution, under and by virtue of the Crown Lands Act 1829 to 1927)
57	1395 square metres Subsoil below river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	
58	1120 square metres Subsoil below river (River Thames) and bed thereof (excluding all interests of the Crown)	The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX		The Crown Estate Commissioners The Crown Estate 16 New Burlington Place London W1S 2HX	City of London Corporation Guildhall PO Box 270 London EC1P 2EJ (in respect of caution, under and by virtue of the Crown Lands Act 1829 to 1927)
59	26 square metres Subsoil below river (River Thames) and bed thereof	Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG		Port of London Authority London River House Royal Pier Road Gravesend DA12 2BG	

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Number on Plan	Description of Land	Owner of Crown Interest in the Land
5	1070 square metres Public road and footway (Victoria Embankment, A3211) (excluding all interests of the Crown)	The Crown Estate Commissioners
10	183 square metres Public footway and stairs (Victoria Embankment, A3211) (excluding all interests of the Crown)	The Crown Estate Commissioners
13	1 square metres Site of lamp post (Victoria Embankment) (excluding all interests of the Crown)	The Crown Estate Commissioners
16	1 square metres Site of lamp post (Victoria Embankment) (excluding all interests of the Crown)	The Crown Estate Commissioners
19	1885 square metres Public road and footway (Victoria Embankment) and footway (Bazalgette Walk) over underpass (Blackfriars Underpass) and subway below, and footway (Paul's Walk) and shooting gallery and public conveniences (disused), excluding river wall (excluding all interests of the Crown). Rights required over river wall to alter and maintain	The Crown Estate Commissioners
19a	520 square metres Public footway (Blackfriars Bridge, A201), and public footway (Paul's Walk) below bridge carrying public road and footways (Blackfriars Bridge, A201) and hardstanding, excluding river wall (excluding all interests of the Crown). Rights required over river wall to alter and maintain	The Crown Estate Commissioners
19b	72 square metres Public footway (Paul's Walk and Bazalgette Walk) (excluding all interests of the Crown)	The Crown Estate Commissioners
19c	28 square metres Public footway (Paul's Walk and Bazalgette Walk) (excluding all interests of the Crown)	The Crown Estate Commissioners
20	127 square metres Public footway (Paul's Walk and Bazalgette Walk) and public road and footway (Victoria Embankment, A3201) (excluding all interests of the Crown)	The Crown Estate Commissioners

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Number on Plan	Description of Land	Owner of Crown Interest in the Land
25	264 square metres Public footway (Paul's Walk and Bazalgette Walk) and ramp carrying public road and footway (Victoria Embankment and Bazalgette Walk) and shooting gallery and public conveniences (disused) (excluding all interests of the Crown)	The Crown Estate Commissioners
37	166 square metres Footpath (Paul's Walk) below bridge carrying public road and footway (Blackfriars Bridge, A201) and access stairs and hardstanding and garden (excluding all interests of the Crown)	The Crown Estate Commissioners
56	403 square metres Subsoil below river (River Thames) and bed thereof and London Underground tunnel (Northern line) (excluding all interests of the Crown)	The Crown Estate Commissioners
58	1120 square metres Subsoil below river (River Thames) and bed thereof (excluding all interests of the Crown)	The Crown Estate Commissioners

Appendix D: Noise and vibration – comparison of impacts: Proposed minor changes and effects presented in the Environmental Statement

D.1 Construction Noise

Table D.1 Comparison of impacts at residential receptors (daytime only)

Receptor	ABC impact criterion threshold level	Noise levels: Maximum-minimum(typical), dBL _{Aeq}		Total duration above criterion for all works (months)		Worst case excess above criterion, dBL _{Aeq}	
		ES	Amended scheme	ES	Amended scheme	ES	Amended scheme
BB1/7-13 Kings Bench Walk	75	45-70 (52)	45-72 (52)	0	0	-5	-3
BB6/ 1-87 River Court	70	46-62 (55)	46-63 (59)	0	0	-8	-7

Table D.2 Comparison of impacts at non-residential receptors (daytime only)

Receptor	Ambient baseline noise level	Noise levels: Maximum-minimum(typical), dBL _{Aeq}		Total duration above ambient for all works (months)		Worst case excess above ambient, dBL _{Aeq}	
		ES	Amended scheme	ES	Amended scheme	ES	Amended scheme
BB2 40-50 Victoria Embankment	77	50-74 (62)	55-74 (62)	0	0	-3	-3
BB3 Sion Hall	77	54-74 (64)	60-74 (64)	0	0	-3	-3
BB4 60 Victoria Embankment	73	57-73 (61)	57-73 (61)	0	0	0	0
BB5 Mermaid Conference	74	44-71 (49)	44-71 (49)	0	0	-3	-3

Receptor	Ambient baseline noise level	Noise levels: Maximum-minimum(typical), dBL _{Aeq}		Total duration above ambient for all works (months)		Worst case excess above ambient, dBL _{Aeq}	
		ES	Amended scheme	ES	Amended scheme	ES	Amended scheme
Centre							
BB7 Unilever House	73	52-71 (58)	52-71 (58)	0	0	-2	-2
BB8 President Vessel	77	53-73 (61)	53-77 (61)	0	0	-4	-3
City of London School (not in original assessment)	56	46-65 (54)*	46-69 (54)	1	2	+9	+13 **

* Results as would have been presented in the ES. The receptor was not included in the ES as there were closer receptors to the works.

** Unmitigated value – see para. 5.3.20 for details of mitigation

D.2 Operational noise

Receptor	Background baseline noise level, L _{A90} , daytime	Noise level from Thames Clippers 1m from building facade, L _{Aeq,30mins}
City of London School (not in original assessment)	53	51

D.3 Vibration

Table D.3 Vibration: Comparison of human response to vibration impacts

Receptor	Impact (highest predicted eVDV, m/s ^{1.75})		Magnitude	
	ES	Amended scheme	ES	Amended scheme
BB1/7-13 Kings Bench Walk	<0.3	<0.3	No impact	No impact
BB2 40-50 Victoria Embankment	<0.5	<0.5	No impact	No impact
BB3 Sion Hall	<0.4	<0.4	No impact	No impact

Receptor	Impact (highest predicted eVDV, m/s ^{1.75})		Magnitude	
	ES	Amended scheme	ES	Amended scheme
BB4 60 Victoria Embankment	<0.4	<0.4	No impact	No impact
BB5 Mermaid Conference Centre	<0.2	<0.2	No impact	No impact
BB6/ 1-87 River Court	<0.1	<0.1	No impact	No impact
BB7 Unilever House	<0.3	<0.3	No impact	No impact
BB8 President Vessel	<0.4	<0.4	No impact	No impact
City of London School (not in original assessment)	<0.3*	<0.3	No impact	No impact

* * Results as would have been presented in the ES. The receptor was not included in the ES as there were closer receptors to the works.

Table D.4 Vibration: Comparison of building vibration impacts and magnitudes

Receptor	Impact (highest predicted PPV, mm/s)		Magnitude	
	ES	Amended scheme	ES	Amended scheme
BB1/7-13 Kings Bench Walk	0.1	0.1	No impact	No impact
BB2 40-50 Victoria Embankment	0.3	0.3	No impact	No impact
BB3 Sion Hall	0.3	0.3	No impact	No impact
BB4 60 Victoria Embankment	0.3	0.3	No impact	No impact
BB5 Mermaid Conference Centre	0.2	0.2	No impact	No impact
BB6/ 1-87 River Court	0.1	0.1	No impact	No impact
BB7 Unilever House	0.2	0.2	No impact	No impact
BB8 President Vessel	0.3	0.3	No impact	No impact

Receptor	Impact (highest predicted PPV, mm/s)		Magnitude	
	ES	Amended scheme	ES	Amended scheme
City of London School (not in original assessment)	0.1*	0.1	No impact	No impact

* Results as would have been presented in the *ES*. The receptor was not included in the *ES* as there were closer receptors to the works.

Appendix E: Navigational Issues and Preliminary Risk Assessment Addendum

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Application for Development Consent

Application Reference Number: WWO10001

Navigational Issues and Preliminary Risk Assessment Addendum

Blackfriars Bridge Foreshore

September 2013

Thames Tideway Tunnel

Navigational Issues and Preliminary Risk Assessment Addendum: Blackfriars Bridge Foreshore

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1 Executive summary

- 1.1.1 The proposed works at the Blackfriars Bridge Foreshore site include the permanent relocation of Blackfriars Millennium Pier.
- 1.1.2 Thames Water's application for development consent (the 'application') for the Thames Tideway Tunnel project, submitted in February 2013, included the *Navigational Issues and Preliminary Risk Assessment: Blackfriars Bridge Foreshore* (Doc ref: 7.20.02 Blackfriars Bridge Foreshore). That document comprised an assessment of the relocation of Blackfriars Millennium Pier.
- 1.1.3 This document details the review activities conducted in July 2013 relating to the proposed revised location of the pier. It sets out the navigational impact that the new location would have on river traffic, particularly as it passes through the arches of the Blackfriars Road and Rail Bridges (the 'Blackfriars Bridges').
- 1.1.4 This review focuses on the following four key areas:
- a. tugs and tows through arch No 2 with Thames Clipper on pier
 - b. tugs and tows through arch No 2 without Thames Clipper on pier
 - c. tugs and tows transit/passage plan
 - d. general interaction.
- 1.1.5 The revised layout for the pier demonstrates that Thames Water has considered the comments and feedback it received during its pre-application consultation. Moving the pier to the west would reduce the distance passengers would have to walk; extending the pier length would improve operations; and moving the pier closer to the river wall would increase its distance from the authorised channel. It should be noted that these changes would have minimal impact on navigational safety issues associated with this site.

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2 Changes to pier layout and location

- 2.1.1 As a result of stakeholder engagement and detailed design review, the proposed location of the pier has changed since the submission of the application. These changes include:
- moving the pier approximately 0.9m closer to the river wall
 - moving the pier approximately 8m to the west – closer to the Blackfriars Bridges
 - extending the overall pier length by approximately 24m.
- 2.1.2 The pier layout in the current application for development consent is shown in Figure 2.1 and the proposed revised layout is shown in Figure 2.2.
- 2.1.3 The limits of land to be acquired or used (LLAU) has not changed from the LLAU in the current application for development consent (ie, as submitted in February 2013).
- 2.1.4 The River foreshore zones of working drawing (DCO-PP-17X-BLAF-190055 - Rev1) is shown in Figure 3.2 and the Millennium Pier vessel tracking drawing (DCO-PP-17X-BLAF-190069 - Rev 1) is shown in Figure 3.3.

Figure 2.1 Current application for development consent layout

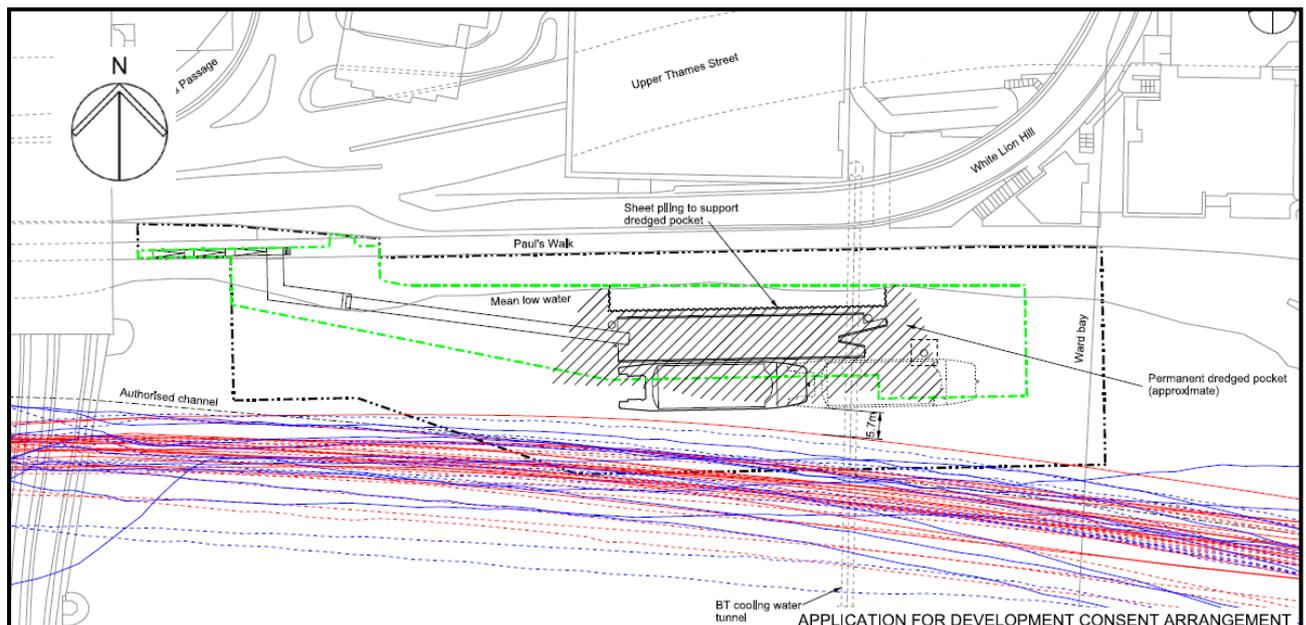
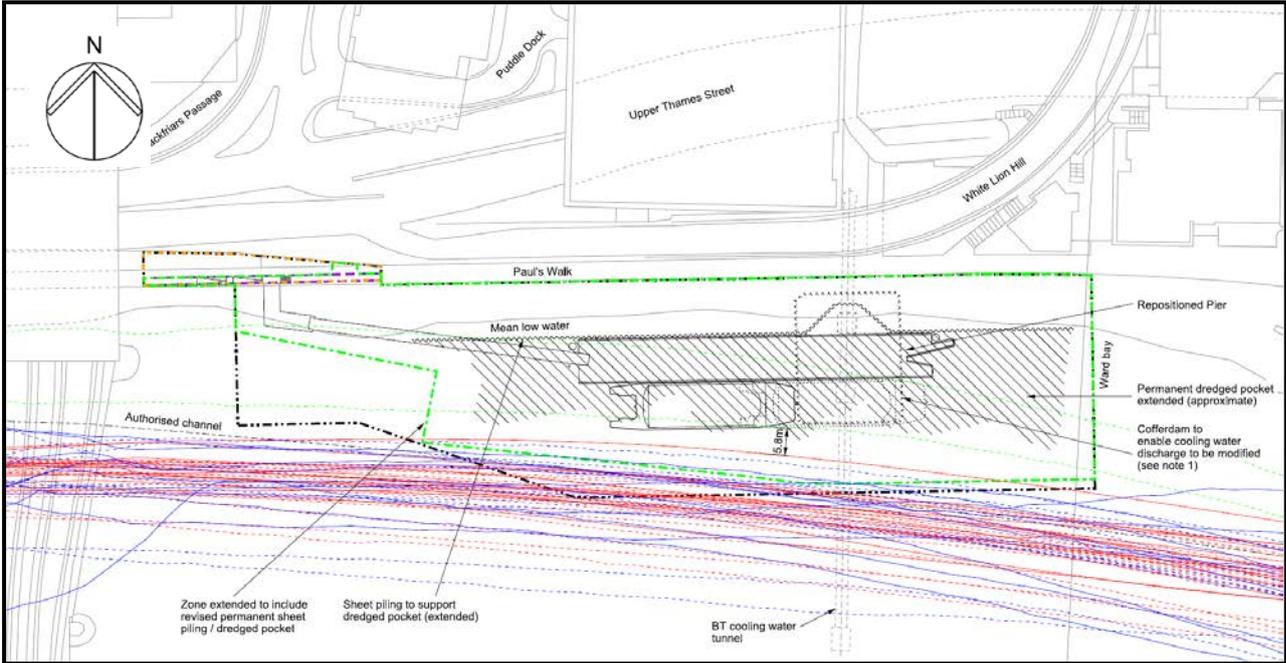


Figure 2.2 Proposed revised layout



3 Tugs and tows

3.1 Overview

- 3.1.1 The tide set in this area is such that it pushes vessels slightly towards the north bank. The preferred route for larger vessels and tugs and tows is through the centre arch of both Blackfriars Bridges (arch No 3), passing directly beneath or slightly to the south of the amber lights that mark the highest point of their spans.
- 3.1.2 When arch No 3 is not available, masters of inward bound freight traffic would need to position their vessels to the north of the authorised channel to enable safe transit through arch No 2 of the bridges. Vessels using arch No 2 would experience a stronger tide set to the north and reduced headroom.
- 3.1.3 This review focuses on the main freight traffic service that transits through this section of the river and its interaction with passenger services eg, Thames Clippers. Cory Environmental Ltd ('Cory') operates a waste transport service, transferring containerised waste between its Cringle Dock and Western Riverside Transfer Stations to disposal sites further down river. Cory operates a daily service (currently weekdays) consisting of three tugs with up to four barges (tows) per tug in inward and outward bound directions.
- 3.1.4 It is acknowledged that although this review and previous navigational risk assessments have concentrated on Cory's waste transfer operations, a number of other freight services operate on the tidal Thames. The rationale for using Cory as a notional 'worst case' is that its service is well established, operates on a daily basis and has one of the highest numbers of daily movements of the operators considered.

3.2 Tugs and tows through arch No 2 with Thames Clipper at pier

- 3.2.1 The proposal in the application considered a representative Thames Clipper vessel placed at the eastern end of the pier, berthed with its stern against the pier and secured at the bow by a fendered pile arrangement. A distance of 5.7m was shown between the vessel's starboard quarter and the closest Cory track. The Cory track represented the route taken by a Cory tug, with two ranks of barges, between 8 November 2011 and 25 November 2011. The transponder that generated these tracks was located approximately 1.5m from the edge of the starboard side of the outermost barge.
- 3.2.2 The revised layout shows a representative Thames Clipper vessel berthed directly adjacent to the extended pier. This layout would leave a separation distance of 5.8m, increasing the passing distance by almost two per cent.

- 3.2.3 The move puts vessels closer to the apex of the recorded track routes at the point where they straighten up to pass through arch No 2.
- 3.2.4 It should be noted that this circumstance would manifest where inward bound freight traffic uses arch No 2 (instead of arch No 3) while a vessel is berthed alongside the pier at the eastern end.
- 3.2.5 A number of mitigation measures were identified and proposed in the *Navigational Issues and Preliminary Risk Assessment: Blackfriars Bridge Foreshore* submitted with the application in February 2013, including:
- a. design
 - b. physical measures
 - c. river operations.
- 3.2.6 One of the key measures identified during that assessment process was the requirement to review barge operations and a recommendation that tugs only pull a single rank of barges through this section of the river when arch No 3 is closed. Thames Water recommends a further review of operating procedures taking into consideration the revised layout.

3.3 Tugs and tows through arch No 2 without Thames Clipper at pier

- 3.3.1 The likelihood and consequences of an incident in this location would be greatly reduced when there are no vessels at Blackfriars Millennium Pier. The most likely accident to occur is a barge making contact with the pier structure. This would most likely be a 'glancing' blow resulting in possible damage to the pier and to the barge.
- 3.3.2 The revised layout indicates a distance of approximately 18.5m between the western end of the pier and the authorised channel, which would be the closest point between the two.
- 3.3.3 Analysis of Cory tracks undertaken in September 2012 indicated that the closest Cory barges would get to the revised pier location is 14.5m.

3.4 Tugs and tows transit/passage plan

- 3.4.1 Freight traffic, including tugs and tows, tends to plan journeys using the tide to its advantage. Travelling with the tide reduces transit times and operating costs; therefore traffic movements and approximate times at key points along the river are known in advance.
- 3.4.2 The majority of freight traffic passes this area approximately two to three hours before high tide in order to reach its final destination and berth safely.
- 3.4.3 The Thames Automatic Identification System (AIS) was introduced by the Port of London Authority in 2007 as a key navigational tool aimed at improving the situational awareness of vessels navigating the tidal Thames. It also provides additional information to the London Vessel Traffic Service.

- 3.4.4 The following categories of vessel must carry Thames AIS if they intend to navigate between Margaretness and Richmond Lock:
- vessels of more than 40m in length overall
 - vessels having a gross tonnage of over 50 tons
 - vessels engaged in towing or pushing operations
 - specified vessels or vessels carrying marine pollutants in bulk
 - vessels holding a Certificate of Compliance under Thames Byelaw 16.3.
- 3.4.5 Thames AIS provides passenger vessels and freight traffic with a bigger picture of traffic on the tidal Thames and enables them to plan for potential conflicts.
- 3.4.6 Thames Clippers vessels are fitted with Thames AIS and are in communication with the London Vessel Traffic Service. This enables them to appraise not only their immediate surroundings but also a wider geographical area, both up and down river.
- 3.4.7 In the event that a tug and tow is due to pass Blackfriars Millennium Pier while a passenger vessel is berthed alongside it, various actions can be taken such as moving away from the berth before the tug and tow pass or waiting until after they have passed. It is acknowledged that freight vessels have limited manoeuvrability and that passenger vessels have timetables to adhere to.

3.5 General interaction

- 3.5.1 Thames Clippers currently operate a service that calls at Blackfriars Millennium Pier followed by Bankside Pier. The vessels are highly manoeuvrable craft, capable of speeds in excess of 20 knots and many have low wash characteristics.
- 3.5.2 Thames Clippers' current passage plan for eastbound commuter services states: *"When leaving Blackfriars Pier ensuring its [sic] safe and clear, navigate down through the number two arches of Blackfriars Bridges, then immediately cross over to the starboard side of the fairway and line the vessel up for the approach to Bankside Pier"*.
- 3.5.3 This passage plan would need to be amended and take into consideration the proximity of Bankside Pier to the proposed new location of Blackfriars Millennium Pier (approximately 175m). Vessels departing from the new Blackfriars Millennium Pier would need to ensure that the area is safe and clear and that there is sufficient clearance to cross from the northern side of the river to the southern side. As indicated above, vessels currently transit through arch No 2 prior to crossing the river; therefore no additional river crossings would be required. Figure 3.1 below provides an illustrative example of the manoeuvres that are expected to be encountered.
- 3.5.4 For westbound passenger services it is expected that vessels would depart from the new Blackfriars Millennium Pier and proceed through arch No 2, if it is safe to do so and the arch is available for navigation. They

would then continue their journey to Embankment and the London Eye, navigating on the starboard side of the fairway. In the event that arch No 2 is not available for navigation, they would use arch No 3.

3.6 Actions required

3.6.1 Required actions include:

- a. Continued consultation with PLA and river freight operators regarding safe navigation and operating procedures taking into consideration the revised layout.

3.7 Mitigation measures: Design

3.7.1 The following measures are embedded in the design of the temporary and permanent sites. This assessment only considers the residual risk assuming these measures to be effectively implemented.

- a. Constraints have been placed on the working areas within the river, as identified on the Zones of Foreshore Working drawing (Figure 3.2) to minimise the duration that arch No 2 is closed to facilitate the relocation works.
- b. Relocation of the pier as close as practical to the river wall to facilitate safe passage of tug and tows and while limiting the extent of dredging required, and therefore minimising the need for ongoing dredging to keep the pier operational. The pontoon was moved to the east following review of unconstrained barge tracks and then moved north following review of the tracks carried out with buoys in place to increase the distance between the pier and passing barges.
- c. Increasing the length of the pier to enable vessels to moor further from Blackfriars Bridge safely, thereby increasing the distance between moored vessels and passing barges when tug and tow are using arch No 2

3.7.2 The following sections propose mitigation measures to address the residual risks.

3.8 Mitigation measures: Physical

3.8.1 None identified.

3.9 Mitigation measures: River operations

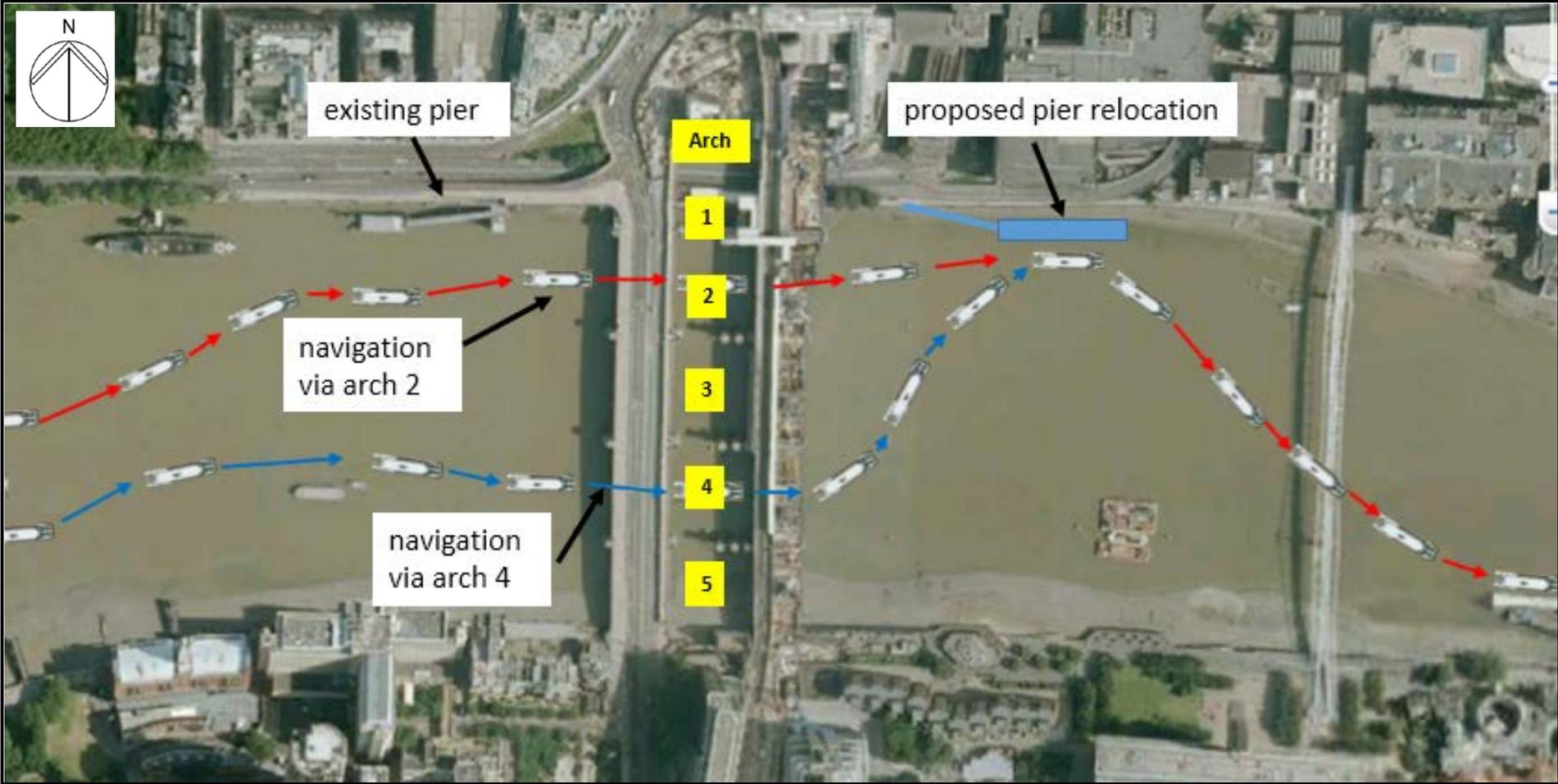
3.9.1 Measures to address river operations issues include:

- a. Amend operational procedures for vessels using Blackfriars Pier to require vessels to moor on the eastern extent of the pier, when tug and tow are using arch No 2.
- b. Co-ordinate works so that arch No 2 closures do not coincide with scheduled maintenance work/inspections at arch No 3 and 4.

- c. Issue a Notice to Mariners, informing river users of the planned closures and in-river works.

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Figure 3.1 Possible Thames Clipper routes



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Figure 3.2 River foreshore zones of working (updated sheet 2 of 2)

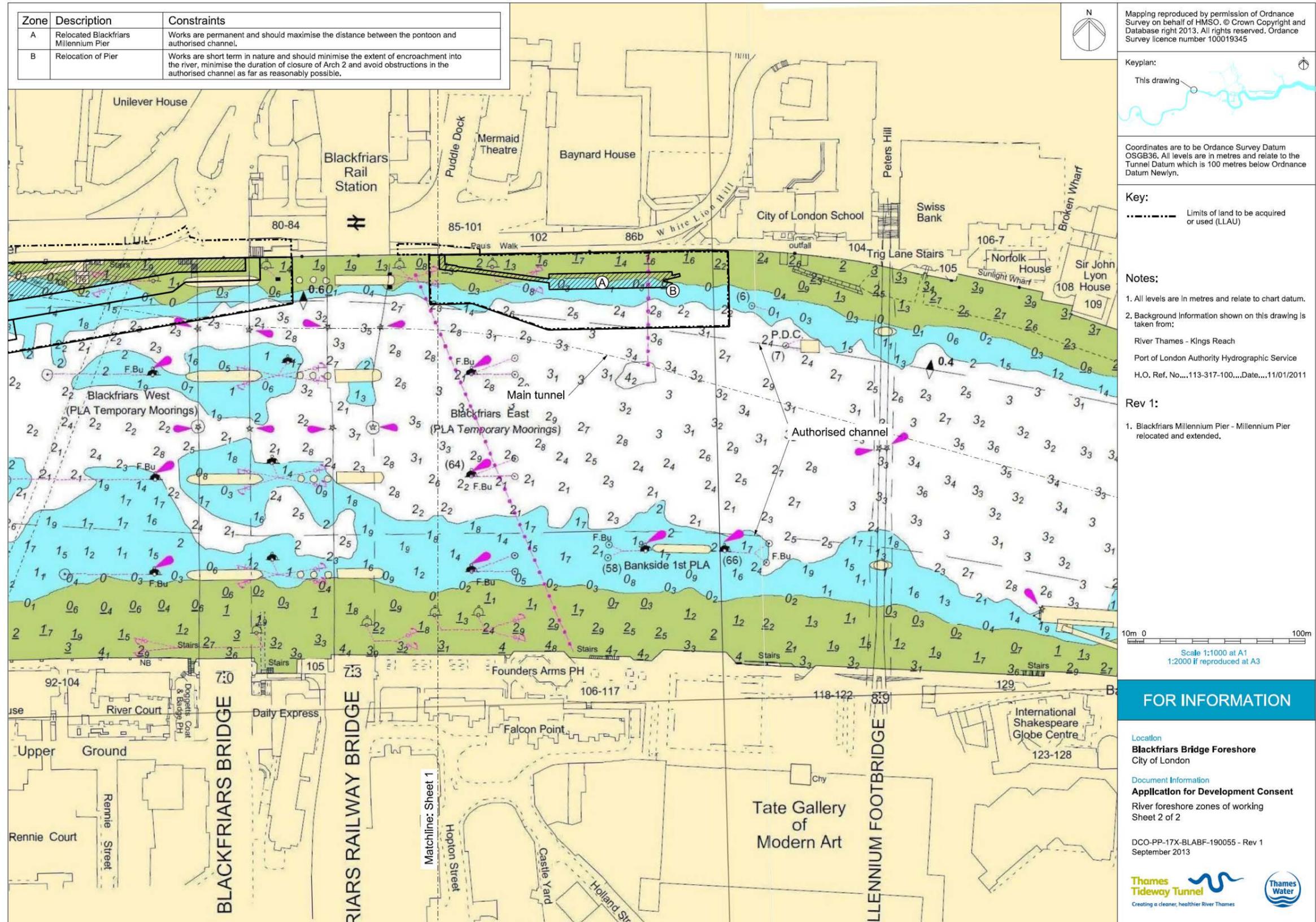


Figure 3.3 Millennium Pier vessel tracking



Appendix F: Proposed minor changes to the Book of Plans

Thames Tideway Tunnel
Thames Water Utilities Limited



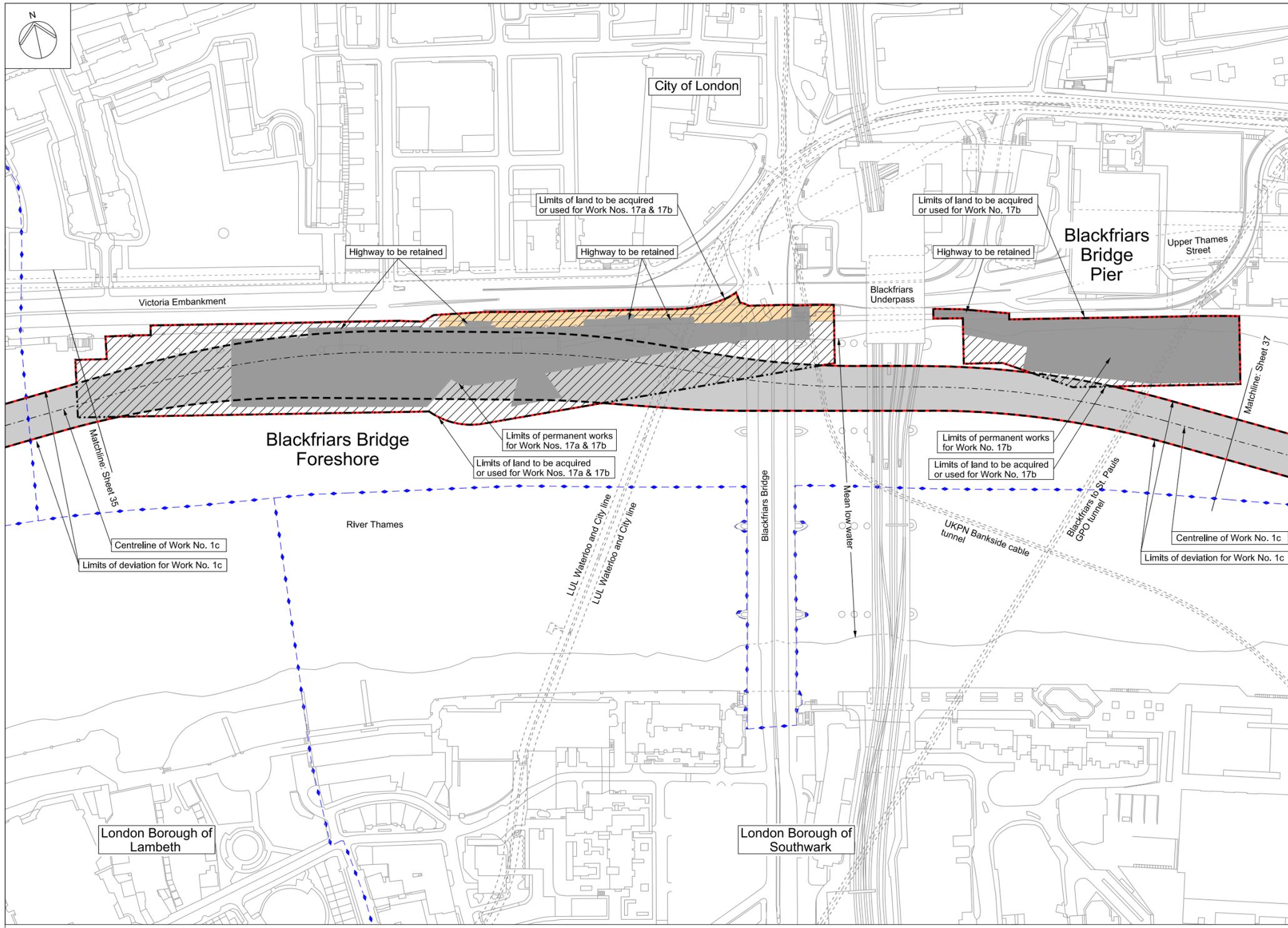
Application for Development Consent

Application Reference Number: WWO10001

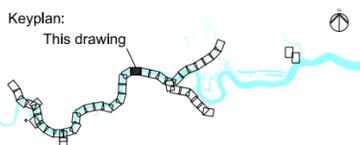
Blackfirars Bridge Foreshore

Appendix F Book of Plans: Proposed Minor Changes

September 2013



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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Local authority boundary
 - Order limits
 - Limits of land to be acquired or used (LLAU)
 - Tunnel limits of deviation (LOD)
 - Works centreline
 - Permanent acquisition of land - surface and subsoil
 - Permanent acquisition of land - subsoil only
 - Land at the surface to be temporarily used
 - Land at the surface to be temporarily used and permanent acquisition of subsoil
 - Land at the surface to be temporarily used and acquisition of permanent rights over third party land

Notes:

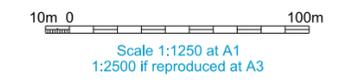
- Any areas of highway which are shown within the limits of permanent works will be retained as highway, but it may be appropriate to acquire the subsurface.

Rev 1:

- Key expanded to differentiate between land required for different purposes.

Rev 2:

- Permanent and temporary acquisition or use land areas amended at both Blackfriars Bridge Foreshore and Blackfriars Bridge Pier.



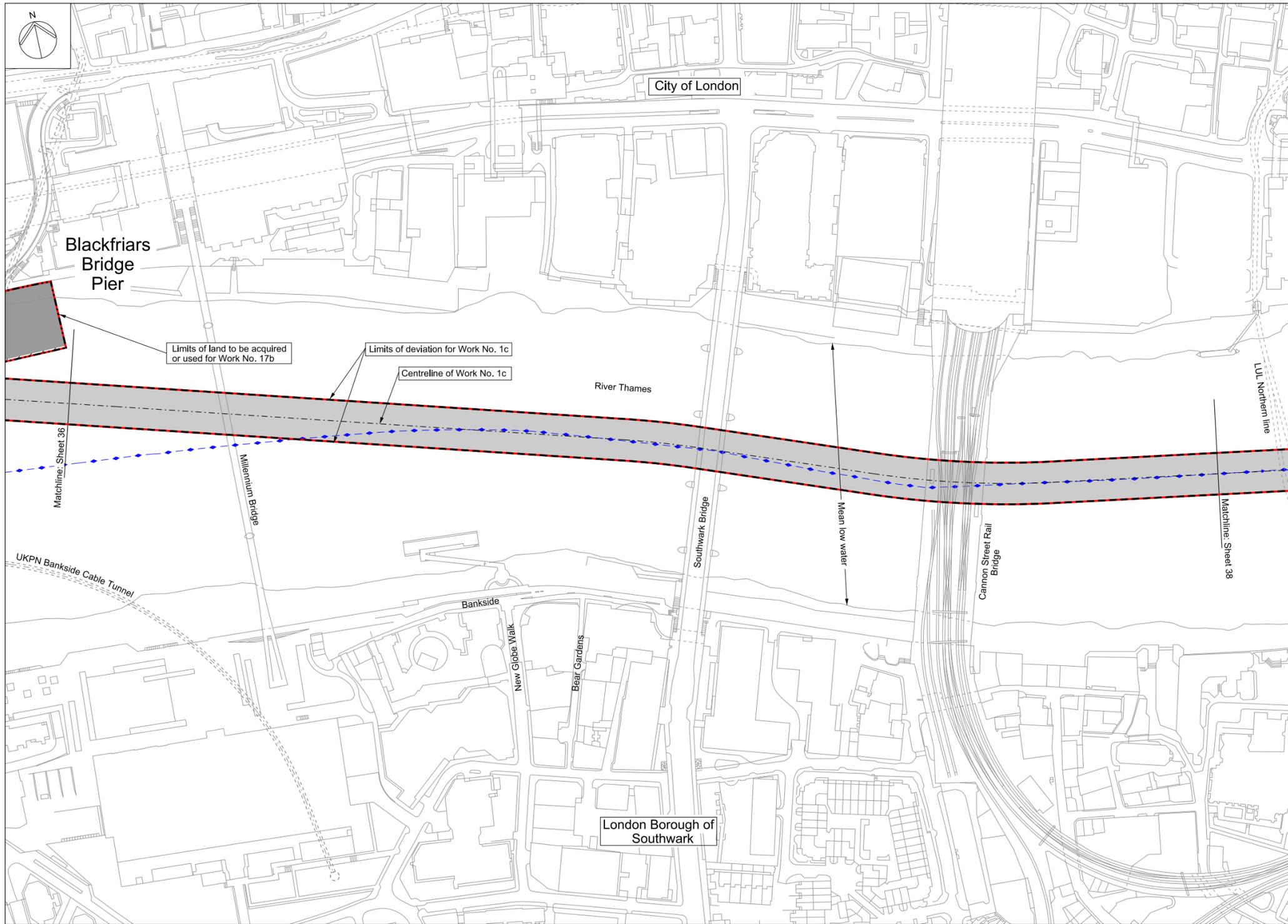
FOR INFORMATION

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Project wide
London

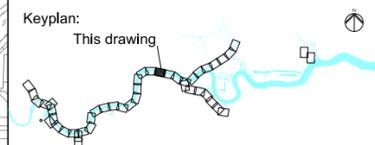
Document Information
Application for Development Consent
Land acquisition plan
Main tunnel sheet 36
Book of plans - section 2
DCO-LA-000-ZZZZ-020027 - Rev 2
September 2013



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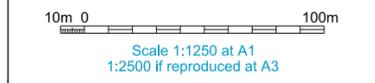
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 - Order limits
 - Limits of land to be acquired or used (LLAU)
 - Tunnel limits of deviation (LOD)
 - Works centreline
 - Permanent acquisition of land - surface and subsoil
 - Permanent acquisition of land - subsoil only
 - Land at the surface to be temporarily used

Rev 1:

1. Key expanded to differentiate between land required for different purposes.

Rev 2:

1. Permanent and temporary acquisition or use land areas amended at Blackfriars Bridge Pier.



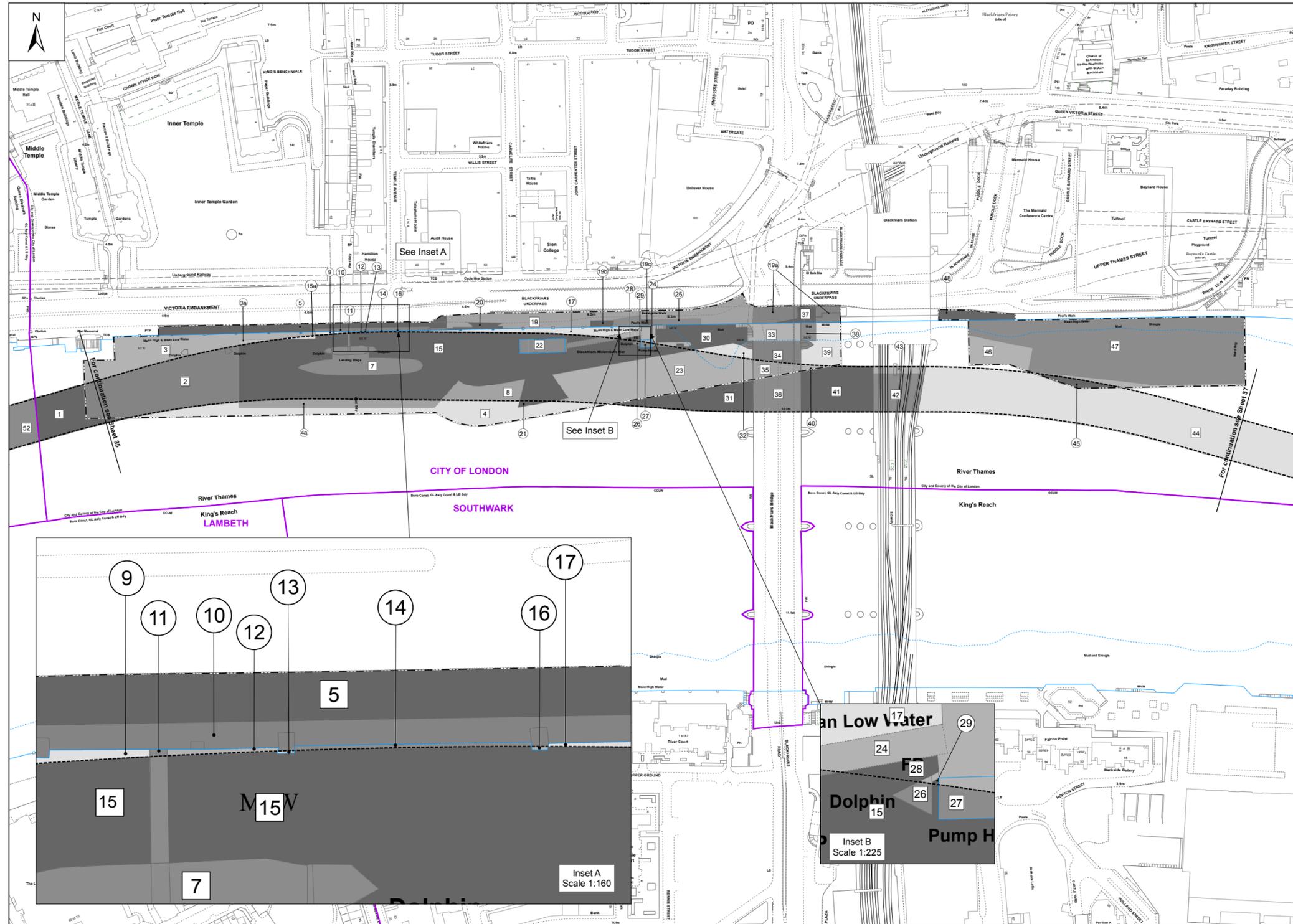
FOR INFORMATION

Location
Project wide
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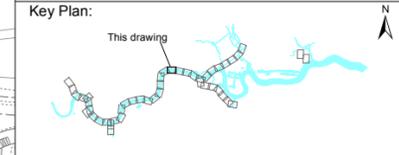
Document Information
Application for Development Consent
 Land acquisition plan
 Main tunnel sheet 37
 Book of plans - section 2
 DCO-LA-000-ZZZZ-020028 - Rev 2
 September 2013



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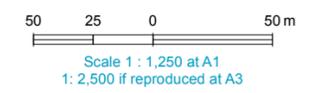


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Key:
 - - - Limits of deviation (LoD)
 - - - Limits of land to be acquired or used (LLAU)
 - Local authority boundary

Notes:
 Rev 1:
 1. Symbology of local authority boundary has changed
 2. Larger scale inset for A
 Rev 2:
 1. Change to permanent and temporary acquisition or use land areas at Blackfriars Bridge Foreshore



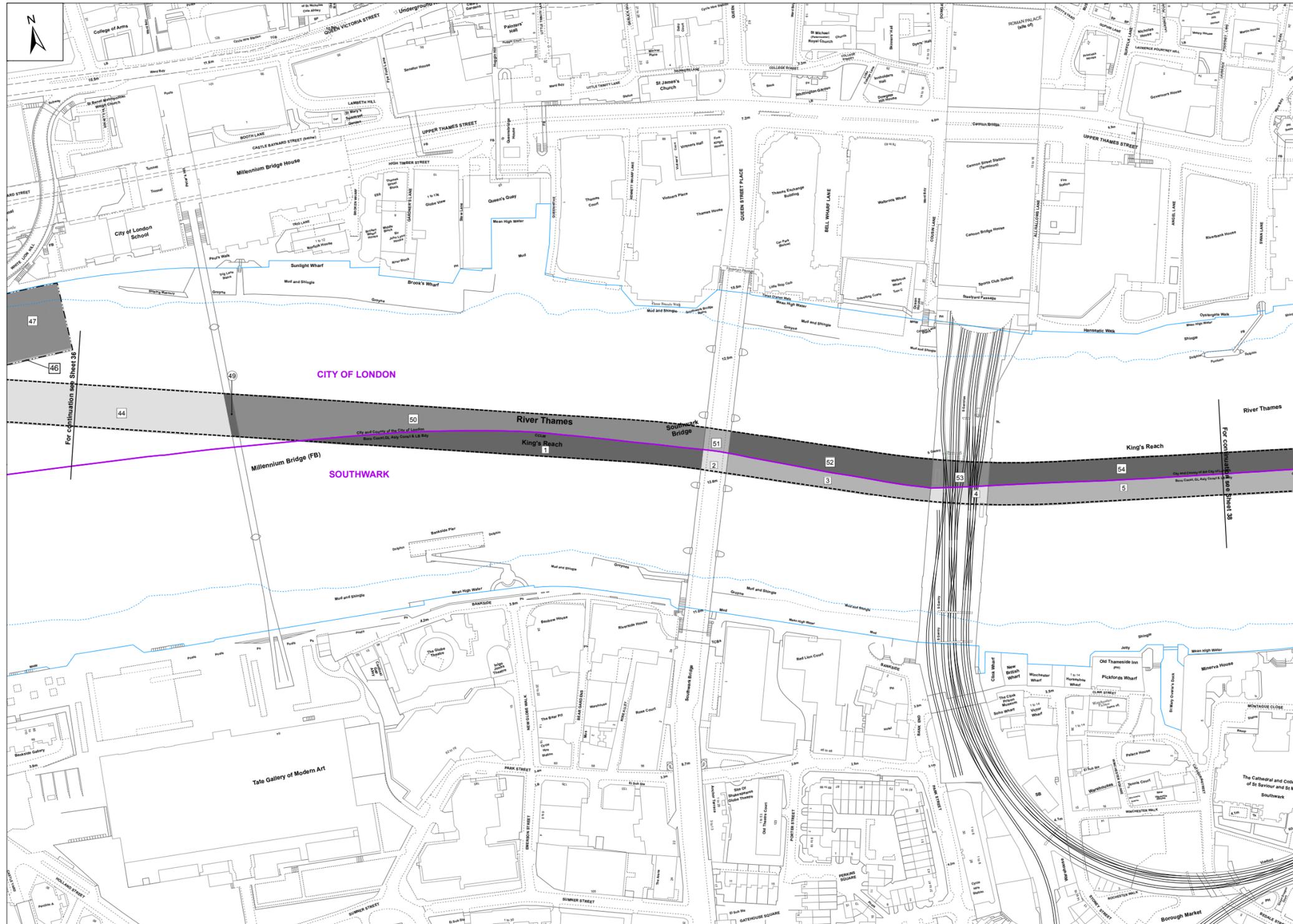
FOR APPROVAL

Location
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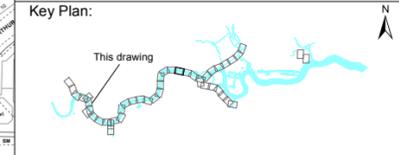
Document Information
 Application for Development Consent
 Land plan
 Main tunnel sheet 36
 Book of plans - section 3
 DCO-LP-000-ZZZZ-030027 - Rev 2
 September 2013



City of London				City of Westminster			
Unrestricted powers to acquire or use land	Powers limited to acquisition of subsoil only	Powers limited to temporary use of land or acquisition of rights	Powers limited to acquisition of subsoil or temporary use of land or acquisition of rights	Unrestricted powers to acquire or use land	Powers limited to acquisition of subsoil only	Powers limited to temporary use of land or acquisition of rights	Powers limited to acquisition of subsoil or temporary use of land or acquisition of rights
Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan
3a, 4a, 7, 9-11, 17, 19b, 19c, 20-22, 24, 25, 26, 27, 28, 29, 30, 33, 37, 38, 47 and 48	1, 31, 36, 41-43 and 44	3-5, 19, 19a, 32, 34, 39 and 46	2, 8, 15a, 23, 35, 40 and 45	N/A	52	N/A	N/A



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Key:

- Limits of deviation (LoD)
- Limits of land to be acquired or used (LLAU)
- Local authority boundary

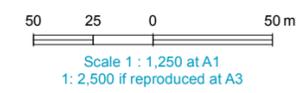
Notes:

Rev 1:

- Symbology of local authority boundary has changed

Rev 2:

- Change to permanent and temporary acquisition or use land areas at Blackfriars Bridge Foreshore



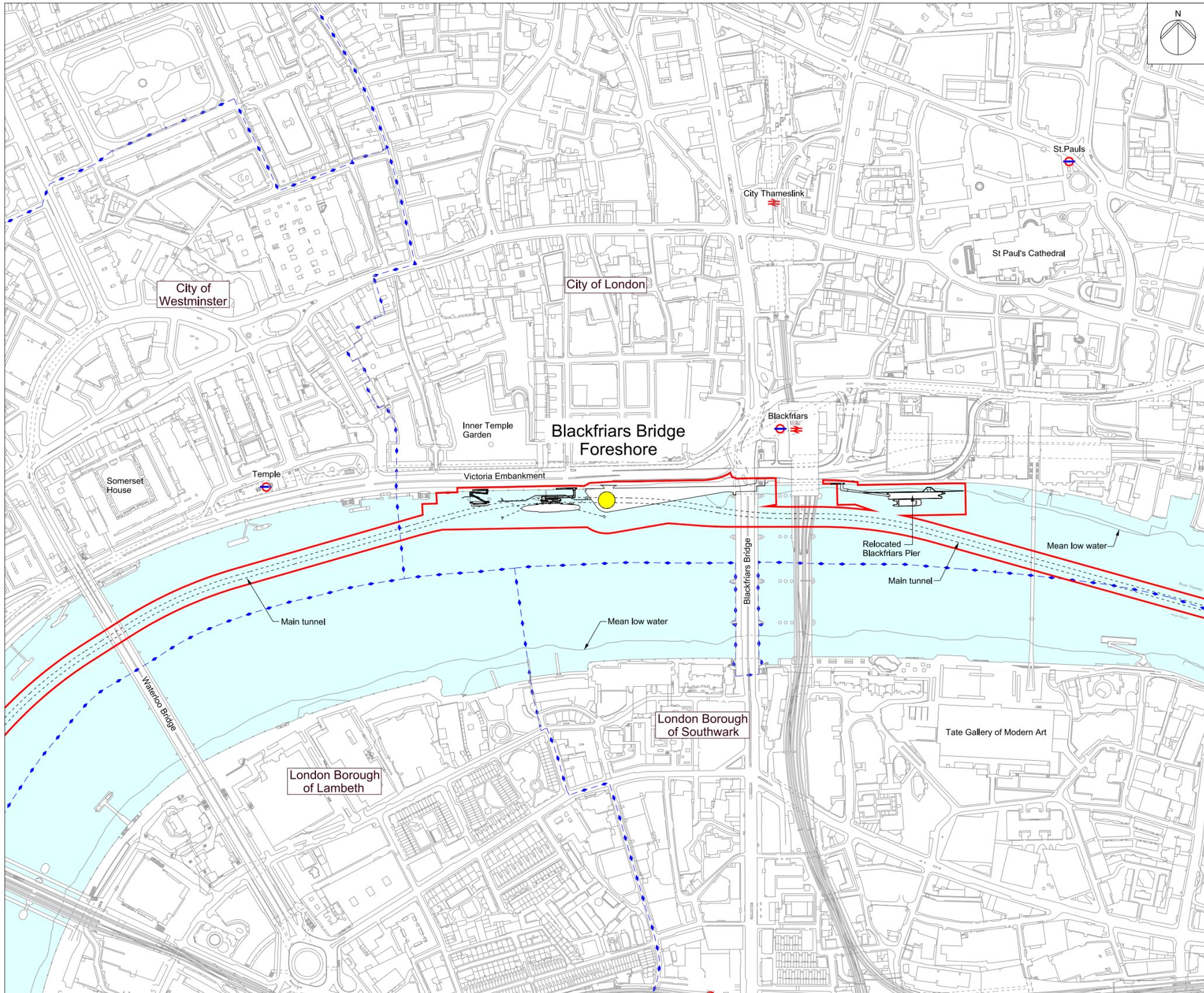
FOR APPROVAL

Location
Project wide
 London

Document Information
Application for Development Consent
 Land plan
 Main tunnel sheet 37
 Book of plans - section 3
 DCO-LP-000-ZZZZ-030028 - Rev 2
 September 2013



City of London				London Borough of Southwark			
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Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan	Number on Plan
47	44, 49-53 and 54	46	N/A	N/A	1-4 and 5	N/A	N/A



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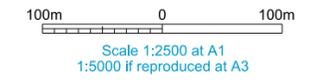
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Local authority boundary
 - Order limits
 - Tunnel
 - Shaft

Notes:

1. The alignment of the tunnels are illustrative within limits of deviation.

- Rev 1:
1. President - Permanent vessel mooring access ramp revised. Anchors and chains shown. Permanent dredging and associated sheet piling revised.
 2. Blackfriars Millennium Pier - Millennium Pier relocated and extended. Dredging and associated sheet piling revised.



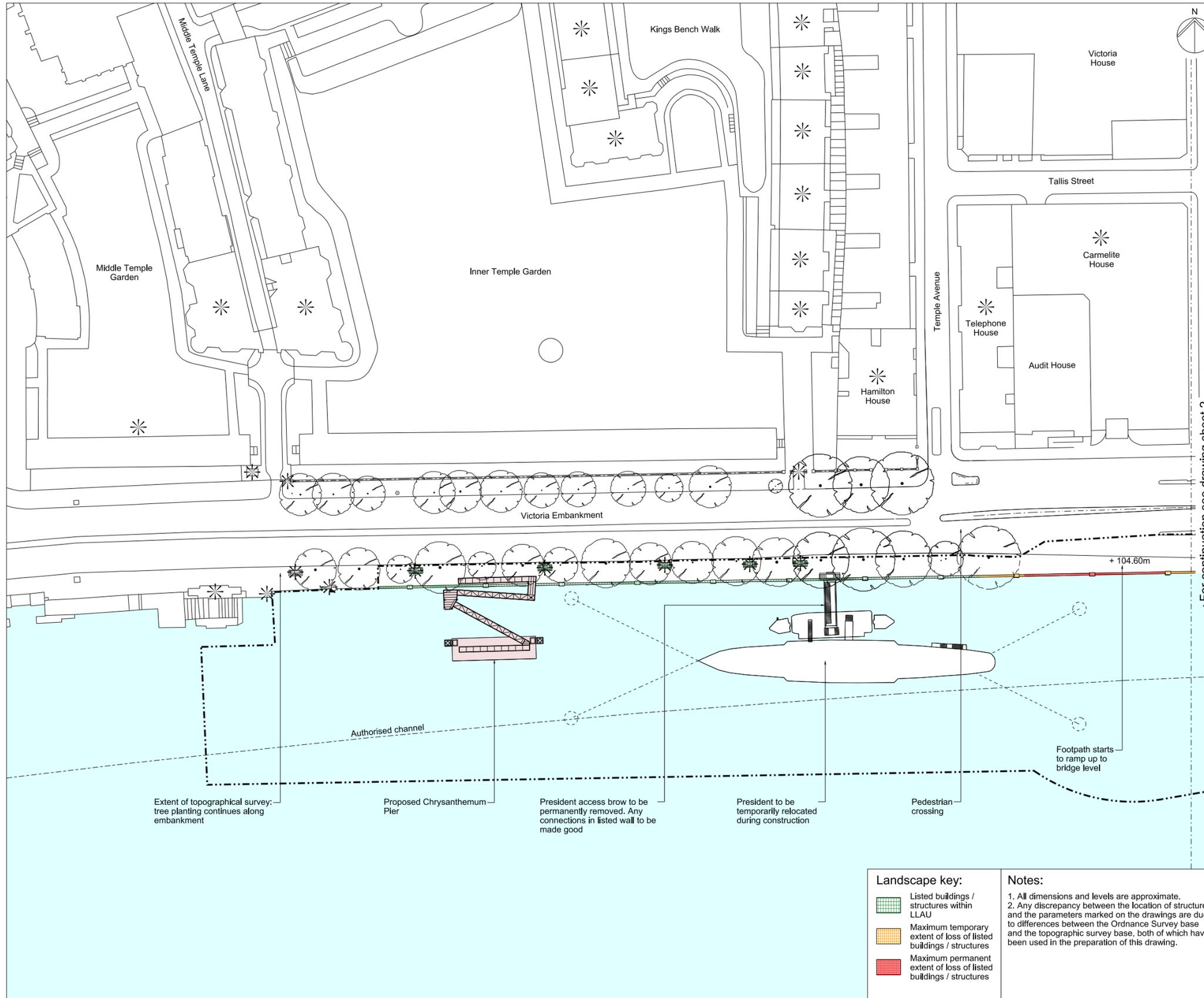
FOR INFORMATION

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Location plan

Book of plans - section 19
 DCO-PP-17X-BLABF-190001 - Rev 1
 September 2013





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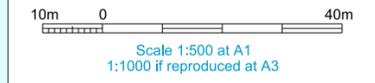
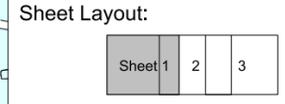
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - - - - - Authorised channel
 - Consented development footprint (by others)
 - * Listed buildings/structures
 - ⊙ Existing trees within surveyed area (trunk sizes vary)

Rev 1:

1. President - Anchors and chains shown. Chrysanthemum Pier note added

For continuation see drawing sheet 2



FOR INFORMATION

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 As existing site features plan
 Sheet 1 of 3
 Book of plans - section 19
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 September 2013



- Landscape key:**
- Listed buildings / structures within LLAU
 - Maximum temporary extent of loss of listed buildings / structures
 - Maximum permanent extent of loss of listed buildings / structures

Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.

Extent of topographical survey; tree planting continues along embankment

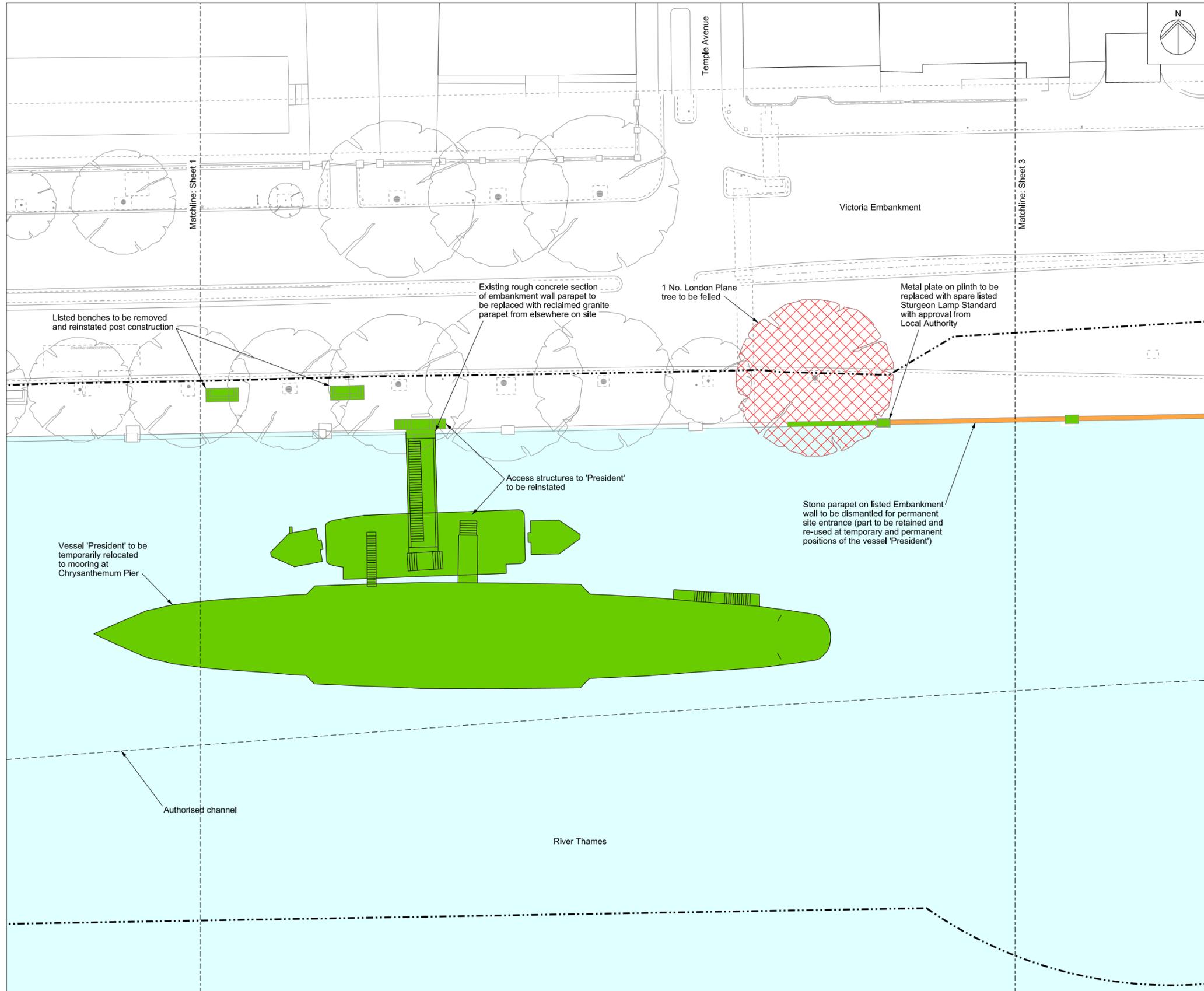
Proposed Chrysanthemum Pier

President access brow to be permanently removed. Any connections in listed wall to be made good

President to be temporarily relocated during construction

Pedestrian crossing

Footpath starts to ramp up to bridge level



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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Trees to be removed
 - Above ground structures to be removed
 - Structure to be removed and relocated or reinstated

- Notes:
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.
 3. All listed Sturgeon Lamp Standards and benches to be carefully removed and stored securely off site until reinstatement.

- Rev 1:
1. Sheet numbers revised.

Sheet Layout

Sheet 1	Sheet 2	Sheet 3	Sheet 4	Sheet 5
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10m 0 10m

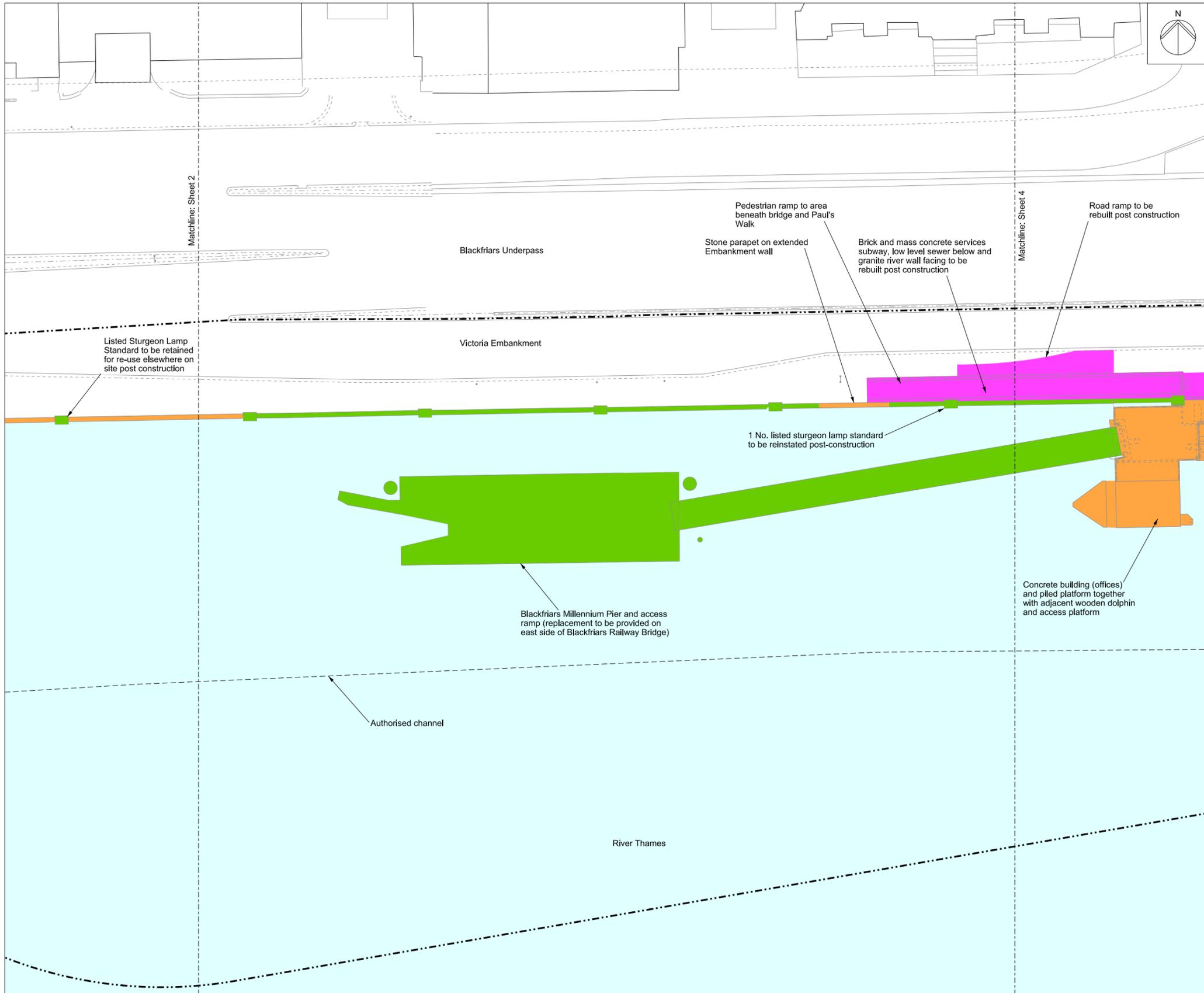
Scale 1:200 at A1
1:400 if reproduced at A3

FOR APPROVAL

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Demolition and site clearance
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 September 2013





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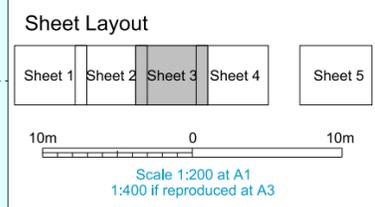


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Above ground structures to be removed
 - Below ground structures to be removed or infilled
 - Structure to be removed and relocated or reinstated

- Notes:**
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.
 3. All listed Sturgeon Lamp Standards and benches to be carefully removed and stored securely off site until reinstatement.

- Rev 1:**
1. Sheet numbers revised.

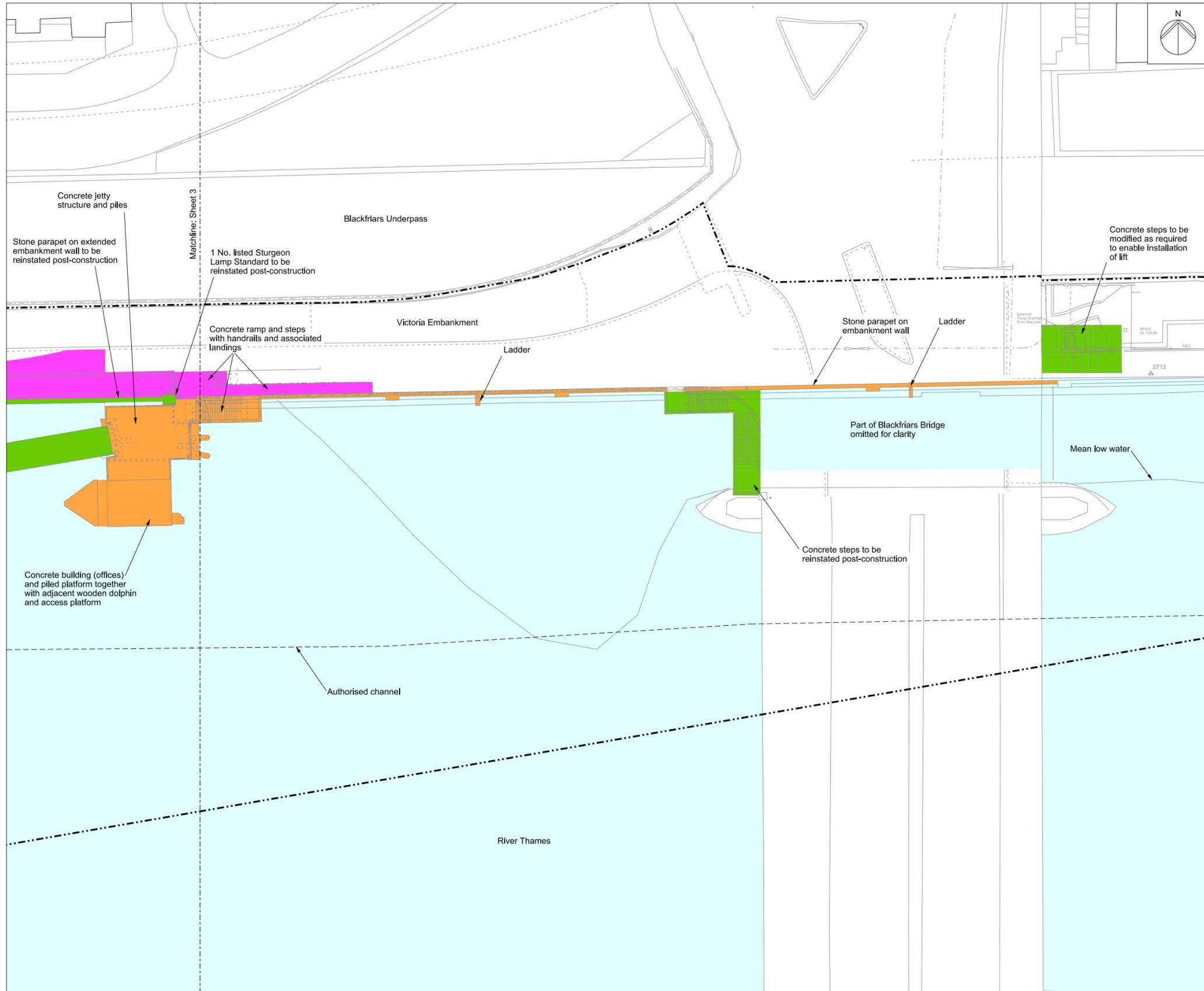


FOR APPROVAL

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Demolition and site clearance
 Sheet 3 of 5
 Book of plans - section 19
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 September 2013





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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Above ground structures to be removed
 - Below ground structures to be removed or infilled
 - Structure to be removed and relocated or reinstated

- Notes:**
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.
 3. All listed Sturgeon Lamp Standards and benches to be carefully removed and stored securely off site until reinstatement.

- Rev 1:**
1. Sheet numbers revised.

Sheet Layout

Sheet 1	Sheet 2	Sheet 3	Sheet 4	Sheet 5
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10m 0 10m

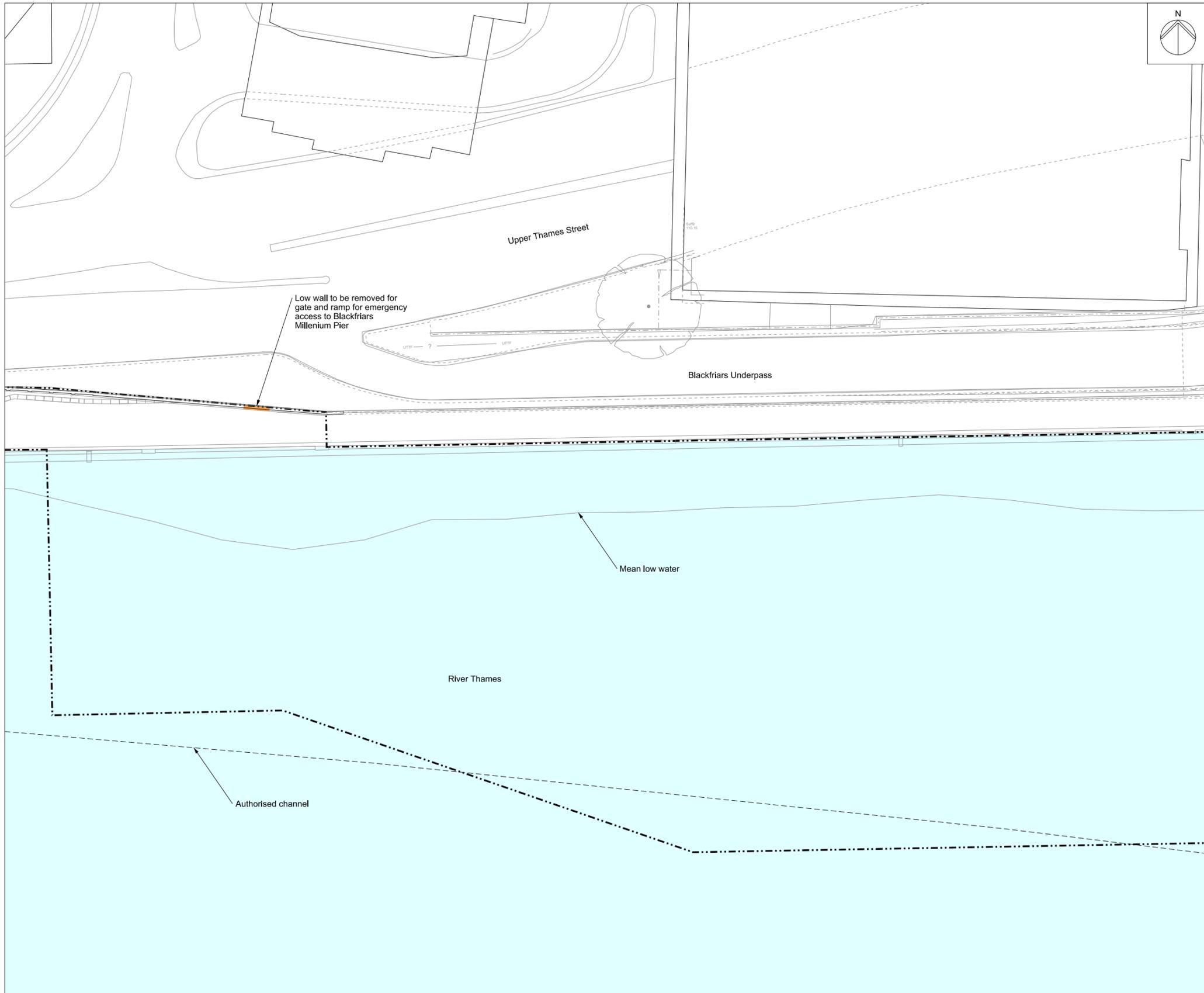
Scale 1:200 at A1
1:400 if reproduced at A3

FOR APPROVAL

Location
Blackfriars Bridge Foreshore
City of London

Document Information
Application for Development Consent
Demolition and site clearance
Sheet 4 of 5
Book of plans - section 19
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September 2013

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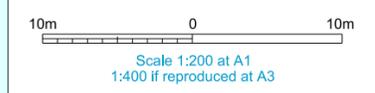
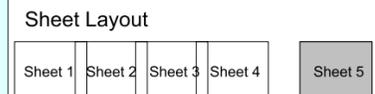


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Above ground structures to be removed

- Notes:
1. All listed Sturgeon Lamp Standards and benches to be carefully removed and stored securely off site until reinstatement.
 2. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 3. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.

- Rev 1:
1. Sheet numbers revised.



FOR APPROVAL

Location
Blackfriars Bridge Foreshore
City of London

Document Information
Application for Development Consent
Demolition and site clearance
Sheet 5 of 5
Book of plans - section 19
DCO-PP-17X-BLABF-190009 - Rev 1
September 2013



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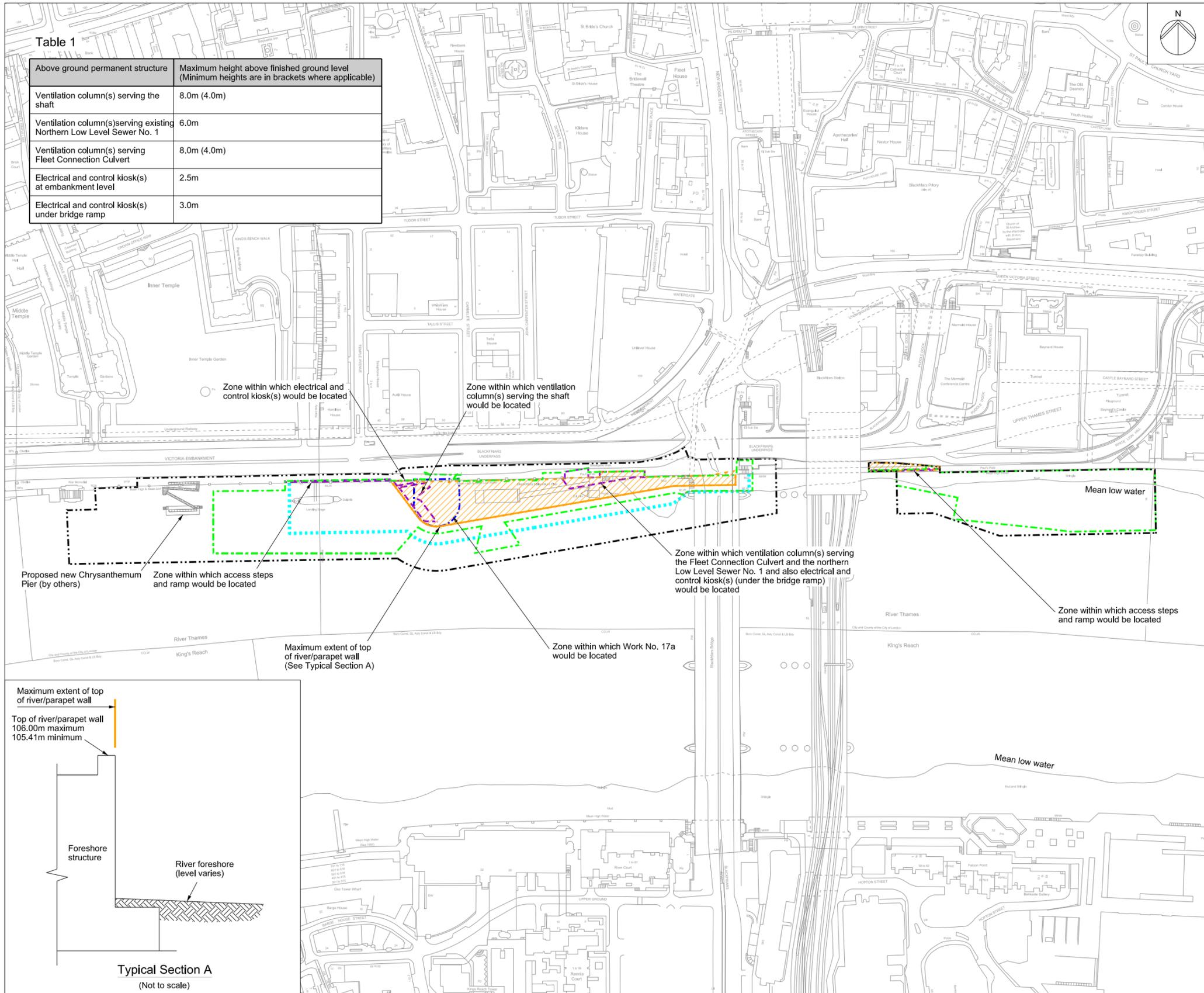
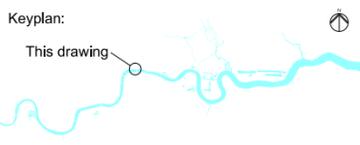


Table 1

Above ground permanent structure	Maximum height above finished ground level (Minimum heights are in brackets where applicable)
Ventilation column(s) serving the shaft	8.0m (4.0m)
Ventilation column(s) serving existing Northern Low Level Sewer No. 1	6.0m
Ventilation column(s) serving Fleet Connection Culvert	8.0m (4.0m)
Electrical and control kiosk(s) at embankment level	2.5m
Electrical and control kiosk(s) under bridge ramp	3.0m

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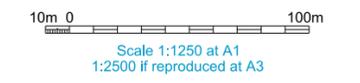


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which all permanent site structures would be located
 - Zone within which the shaft would be located
 - Zone within which permanent above ground structures would be located (those listed in Table 1)
 - Zone within which required landscaping would be located
 - Maximum extent of top of river/parapet wall
 - Maximum extent of temporary works platform

- Notes:**
1. All dimensions and levels are approximate.
 2. The Site Works Parameter Key Plan identifies each zone independently.
 3. The zone within which the shaft would be located would include all permanent works including shaft walls (including appropriate allowances for construction tolerances) and if applicable under-reaming. Shaft construction temporary works may be located within or outside this zone provided they are located within the Limits of land to be acquired or used.

- Rev 1:**
1. President - Chrysanthemum Pier note added. Zone within which all permanent site structures would be located extended. Zones within which permanent above ground structures would be located extended.
 2. Blackfriars Millennium Pier - Zone within which all permanent site structures would be located extended.



FOR APPROVAL

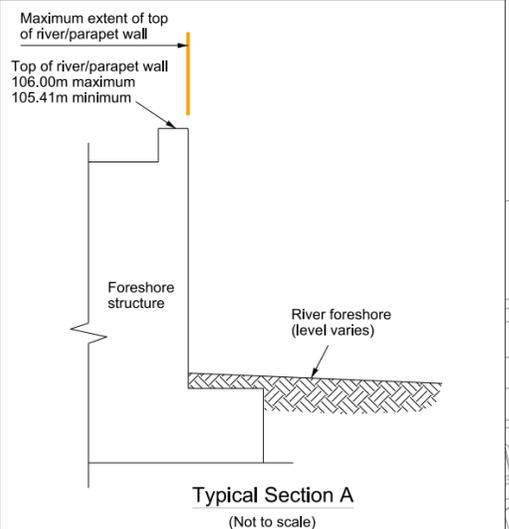
Location
Blackfriars Bridge Foreshore
 City of London

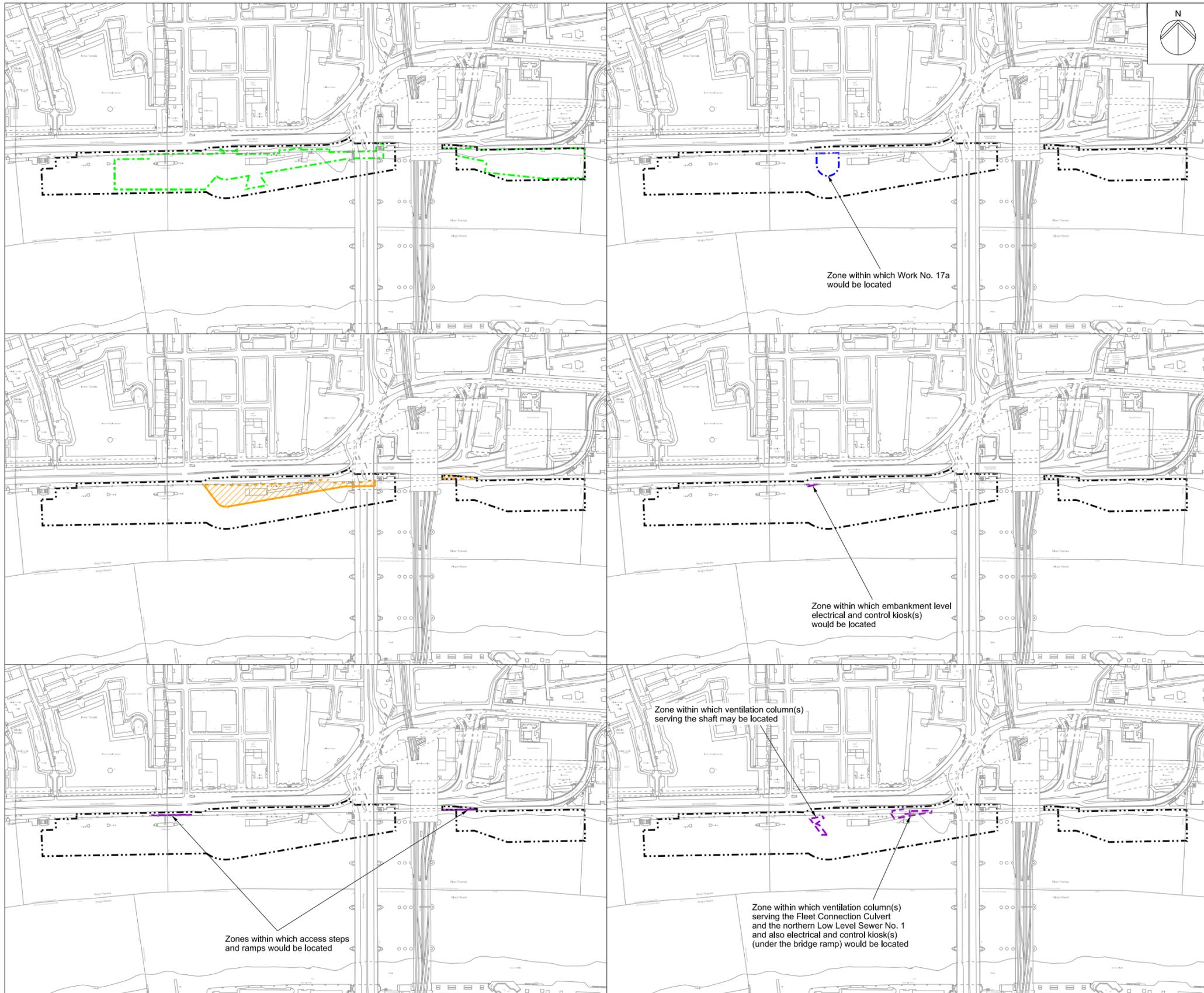
Document Information
Application for Development Consent
 Site works parameter plan

Book of plans - section 19
 DCO-PP-17X-BLAF-190010 - Rev 1
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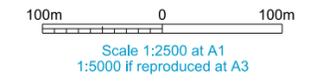


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which all permanent site structures would be located
 - Zone within which the shaft would be located
 - Zone within which permanent above ground structures would be located
 - Zone within which required landscaping would be located
 - Maximum extent of top of river/parapet wall

- Notes:**
- All dimensions and levels are approximate.
 - The Site Works Parameter Key Plan identifies each zone independently. The zones are identical to those shown on the site works parameter plan.
 - The zone within which the shaft would be located would include all permanent works including shaft walls (including appropriate allowances for construction tolerances) and if applicable under-reaming. Shaft construction temporary works may be located within or outside this zone provided they are located within the Limits of land to be acquired or used.

- Rev 1:**
- President - Temporary and permanent vessel mooring access ramp revised. Zone within which all permanent site structures would be located extended. Zones within which permanent above ground structures would be located extended.
 - Blackfriars Millennium Pier - Zone within which all permanent site structures would be located extended.



FOR INFORMATION

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Site works parameter key plan

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 September 2013



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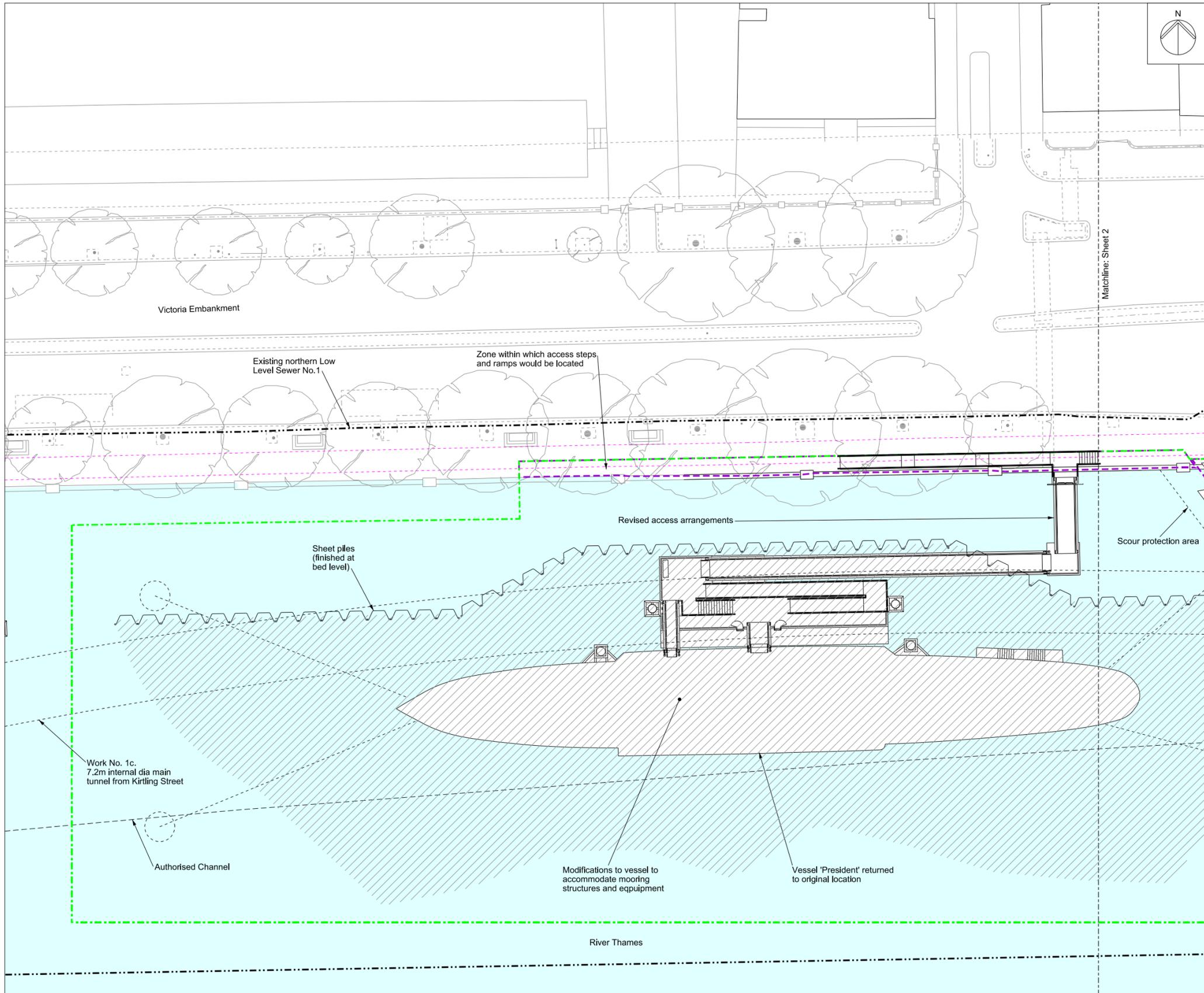
Zones within which access steps and ramps would be located

Zone within which Work No. 17a would be located

Zone within which embankment level electrical and control kiosk(s) would be located

Zone within which ventilation column(s) serving the shaft may be located

Zone within which ventilation column(s) serving the Fleet Connection Culvert and the northern Low Level Sewer No. 1 and also electrical and control kiosk(s) (under the bridge ramp) would be located



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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing sewers
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located
 - Dredged pocket (approximate)

- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.

- Rev 1:**
1. President - Permanent vessel mooring access ramp revised. Anchors and chains shown. Dredging and associated sheet piling revised. Zone within which all permanent site structures would be located extended. Zones within which permanent above ground structures would be located extended.
 2. Sheet numbers revised.

Sheet Layout

Sheet 1	Sheet 2	Sheet 3	Sheet 4	Sheet 5	Sheet 6
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10m 0 10m

Scale 1:200 at A1
1:400 if reproduced at A3

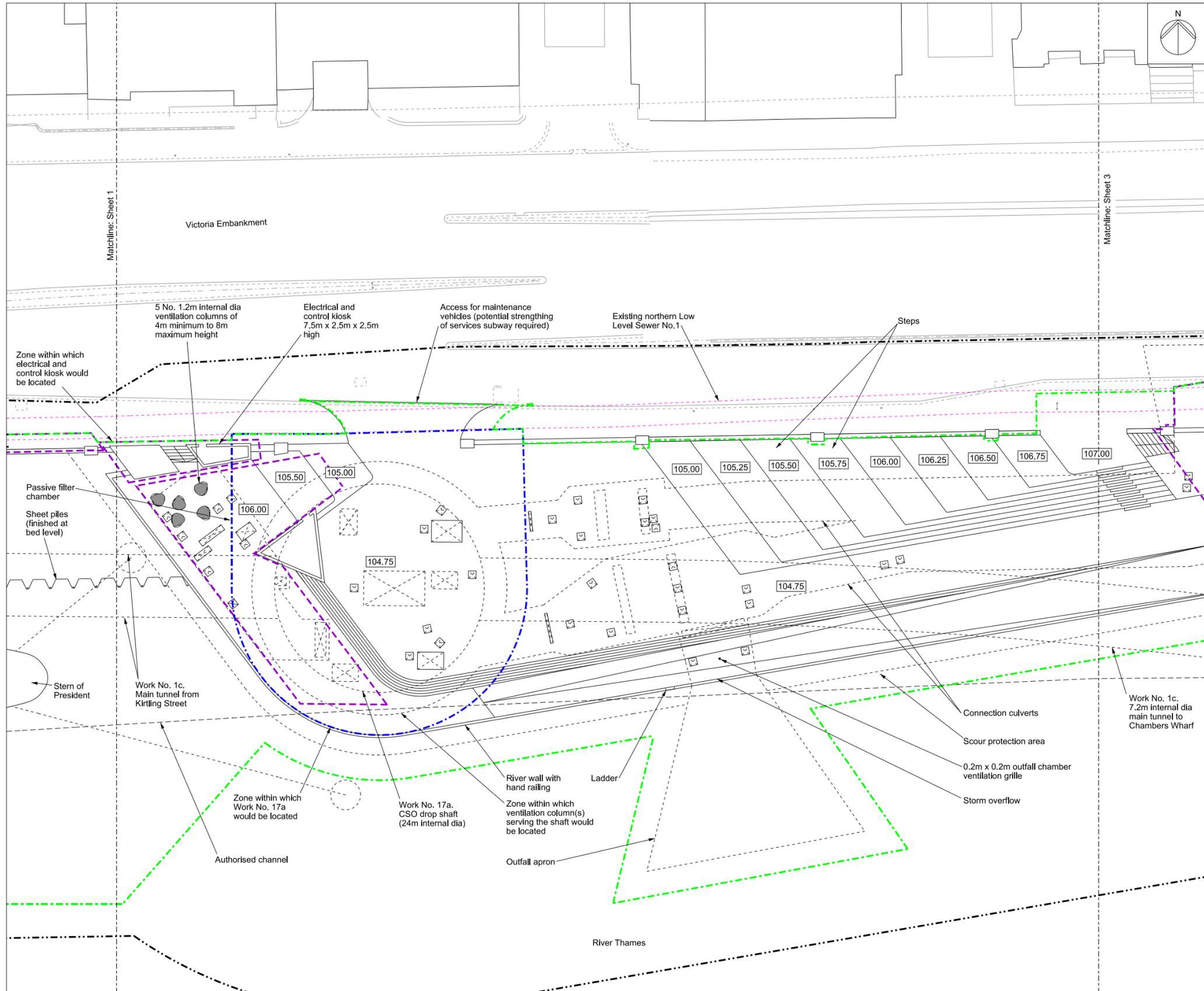
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Location
Blackfriars Bridge Foreshore
City of London

Document Information
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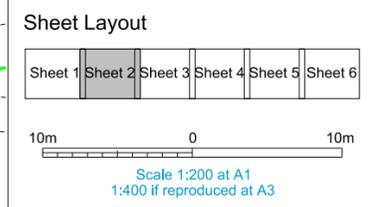


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing sewers
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located

- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.

- Rev 1:**
1. President - Anchors and chains shown. Zone within which all permanent site structures would be located extended. Zones within which permanent above ground structures would be located extended. Zones within which all permanent site structures would be located extended.
 2. Sheet numbers revised.



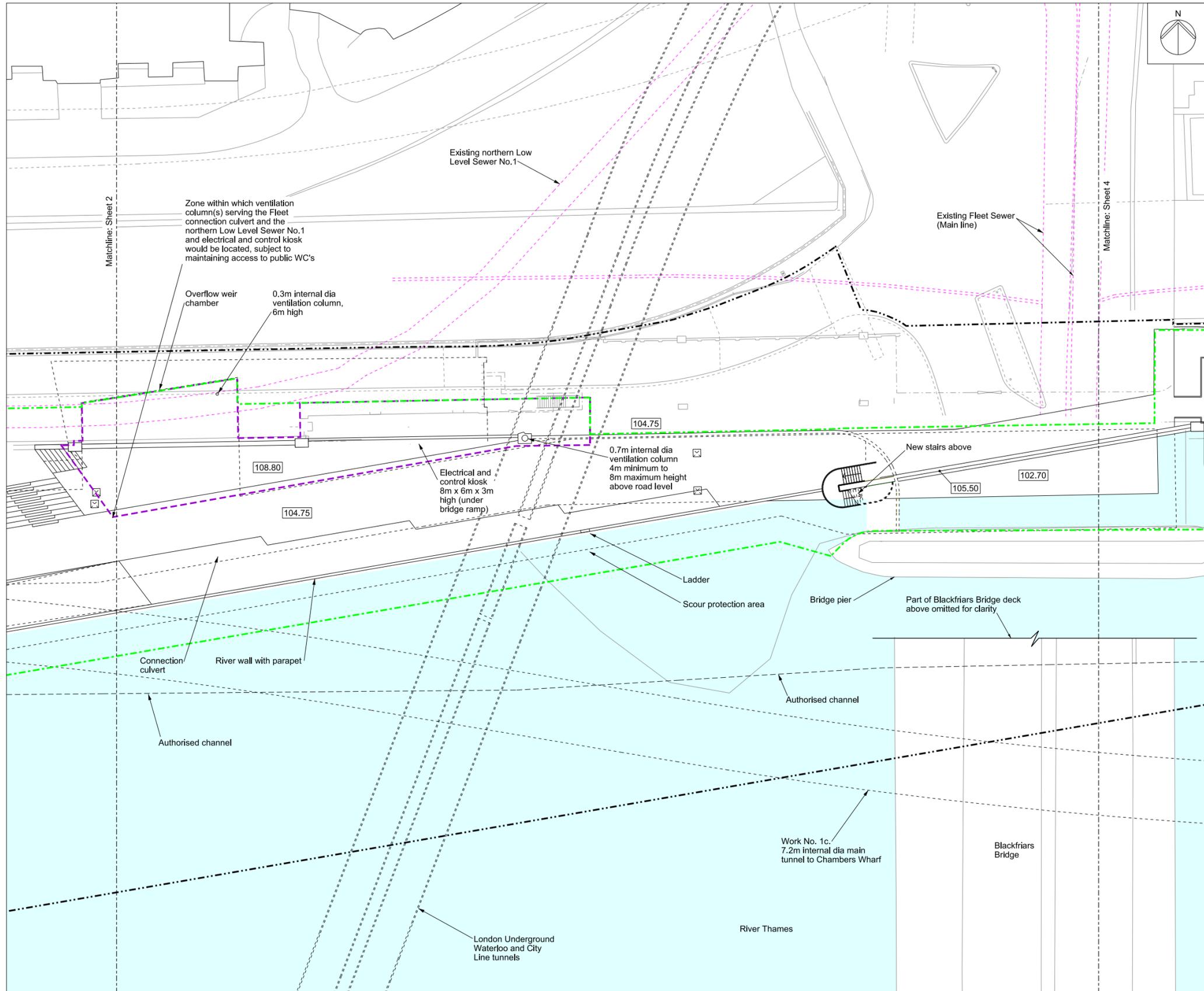
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Location
Blackfriars Bridge Foreshore
 City of London

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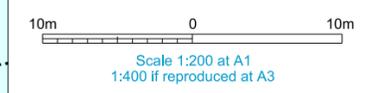
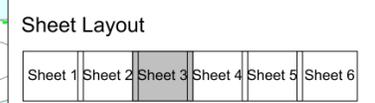


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing sewers
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located

- Notes:**
- All dimensions and levels are approximate.
 - Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 - This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.

- Rev 1:**
- Sheet numbers revised.

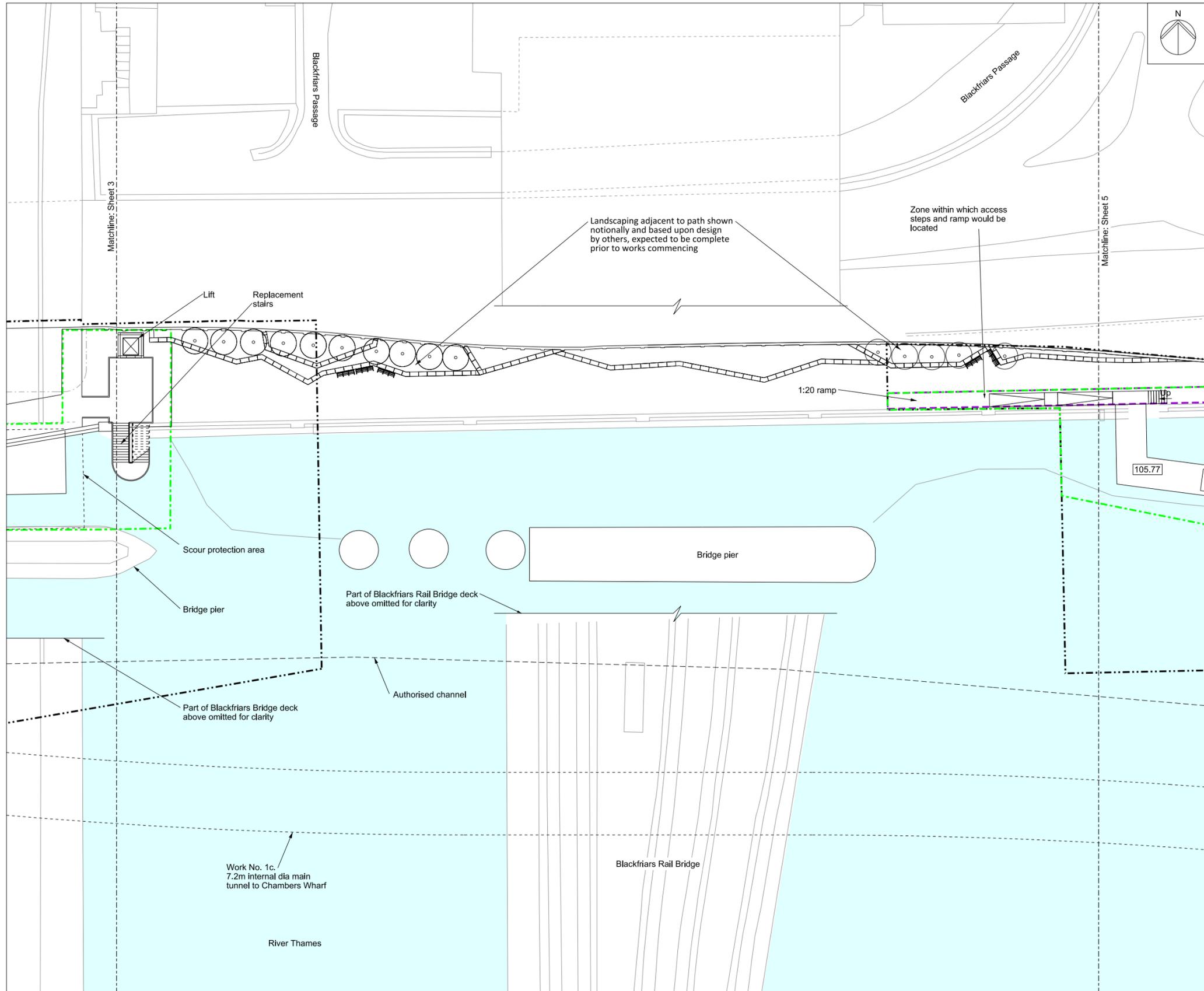


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Location
Blackfriars Bridge Foreshore
City of London

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Permanent works layout
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September 2013





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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing sewers
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located

- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.

- Rev 1:**
1. Blackfriars Millennium Pier - Millenium Pier extended.
 2. Sheet numbers revised.

Sheet Layout

Sheet 1	Sheet 2	Sheet 3	Sheet 4	Sheet 5	Sheet 6
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10m 0 10m

Scale 1:200 at A1
1:400 if reproduced at A3

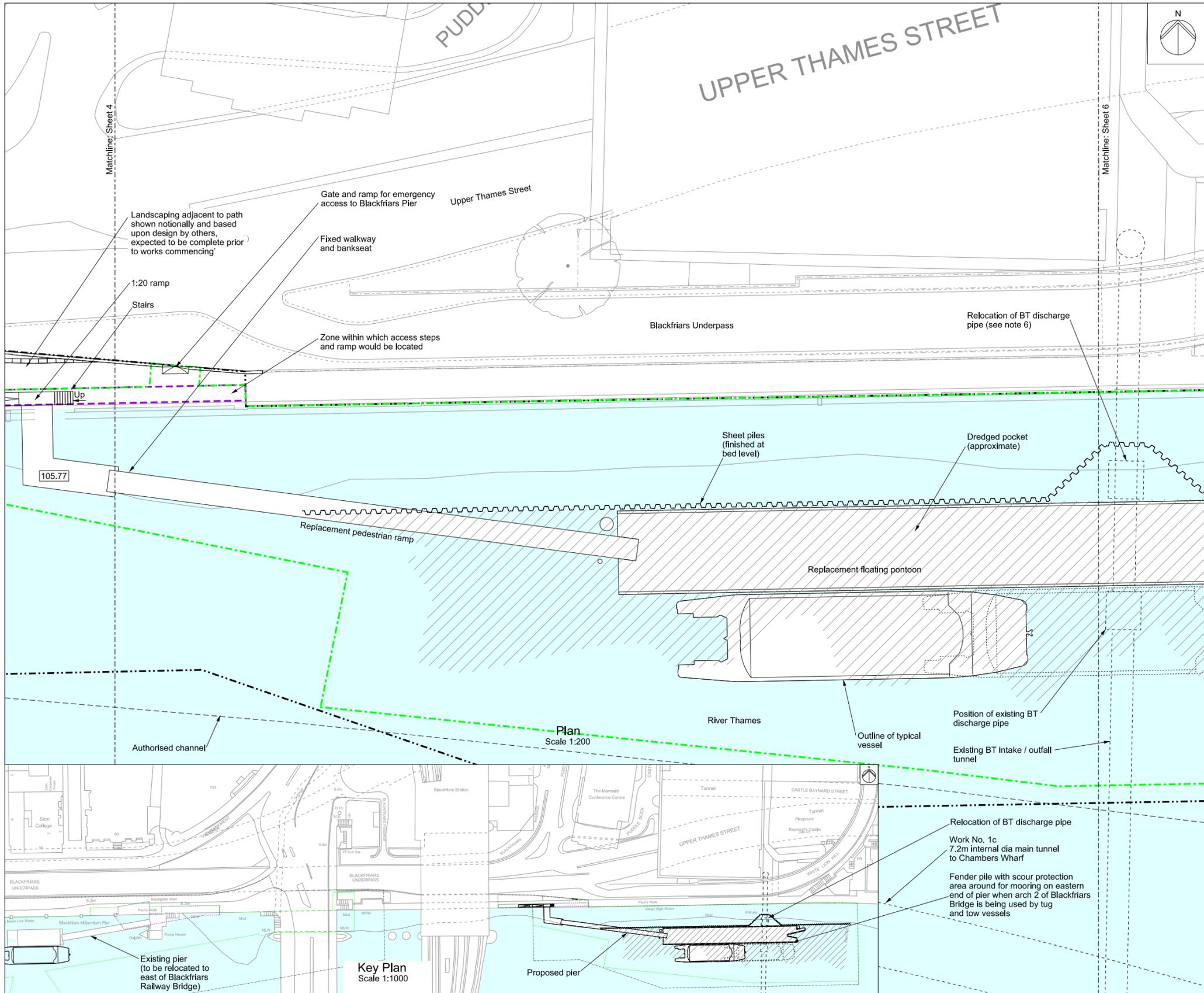
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Location
Blackfriars Bridge Foreshore
 City of London

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 Sheet 4 of 6
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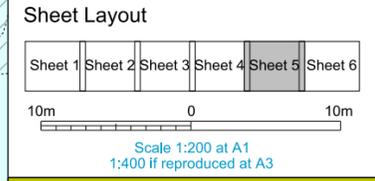


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - 104.50 Proposed level (shown in metres above tunnel datum)
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located
 - Approximate extent of dredging

- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.
 4. Design to current river flood defence level 105.41m above tunnel datum (ATD).
 5. Landing stage proposed level as existing stage.
 6. Method of modifying / diverting cooling water tunnel to be confirmed. This illustrates one possible option.

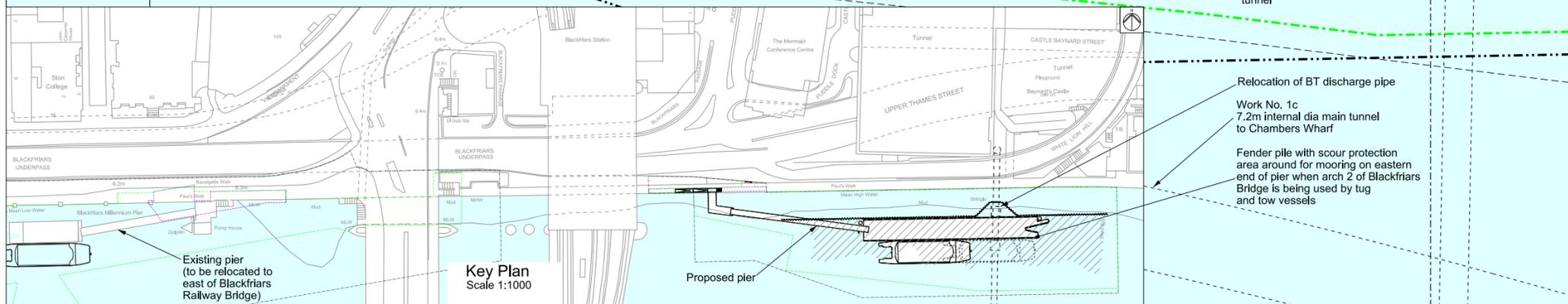
- Rev 1:**
1. Blackfriars Millennium Pier - Millennium Pier relocated and extended. Dredging and associated sheet piling revised. BT discharge pipe and outfall diversion added. Zone within which all permanent site structures would be located extended. Note 6 added.
 2. Sheet numbers revised.

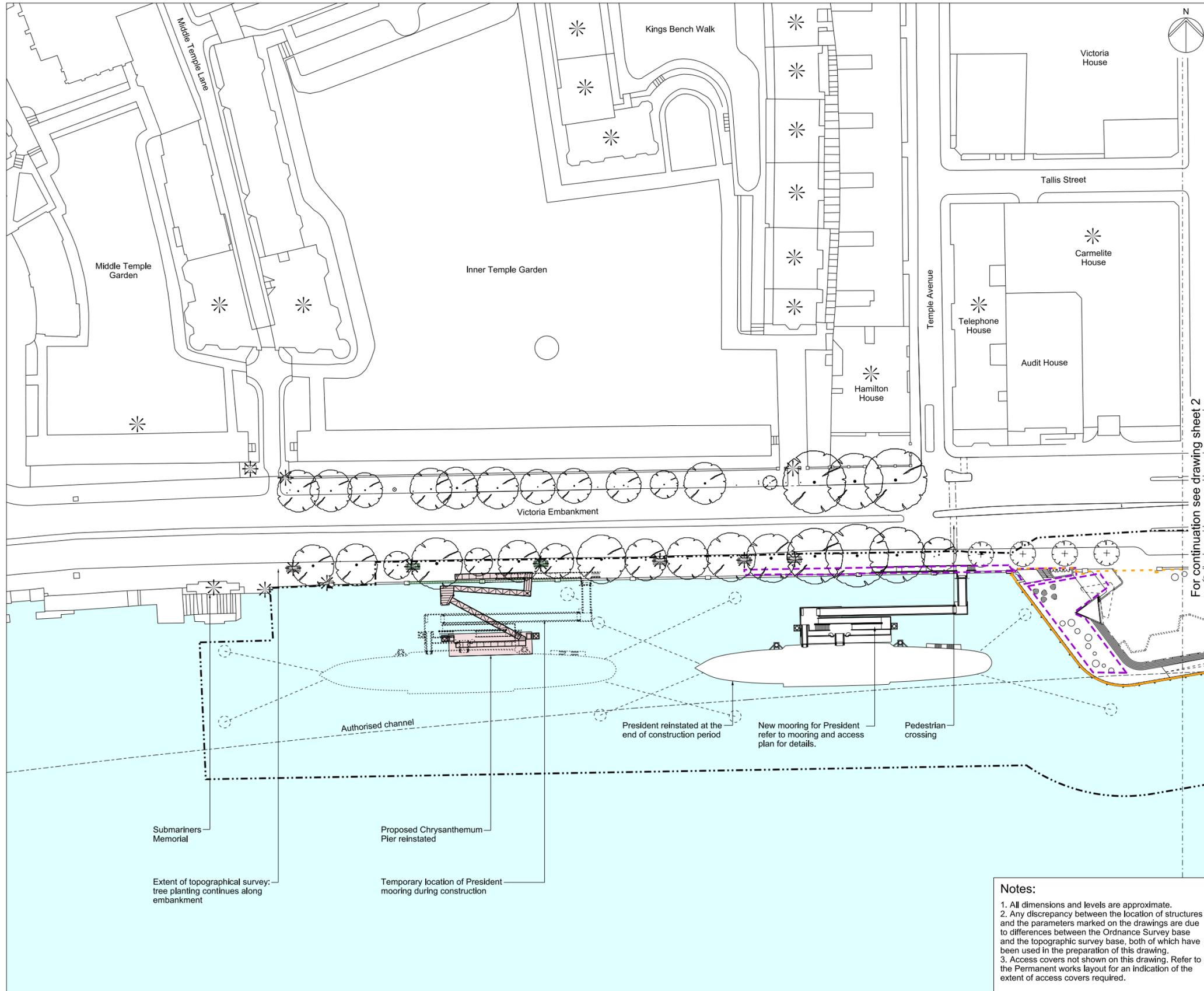


ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Permanent works layout
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 Book of plans - section 19
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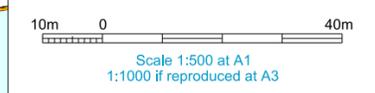
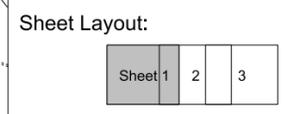
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - - - Zone within which permanent above ground structures would be located
 - - - Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - - - Authorised channel
 - * Listed buildings/structures
 - ⊙ Existing trees within surveyed area (trunk sizes vary)
 - ⊕ Proposed trees (London Plane)

- Rev 1:
1. President - temporary and permanent vessel mooring access ramp revised. Anchors and chains shown. Zone within which permanent above ground structures would be located extended.



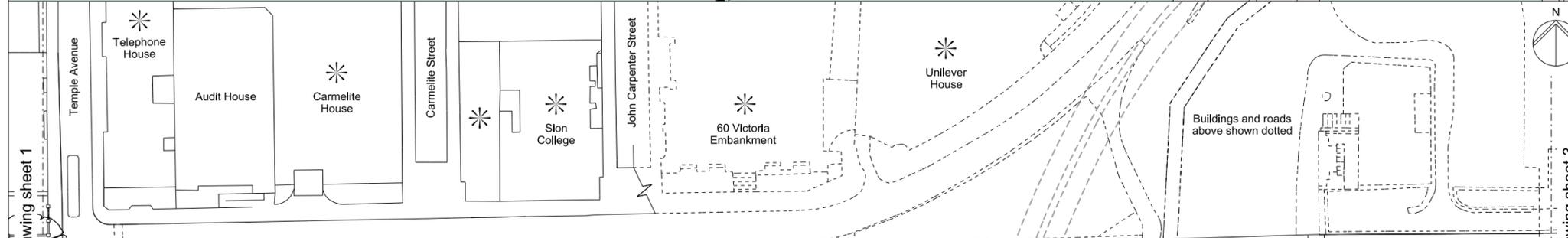
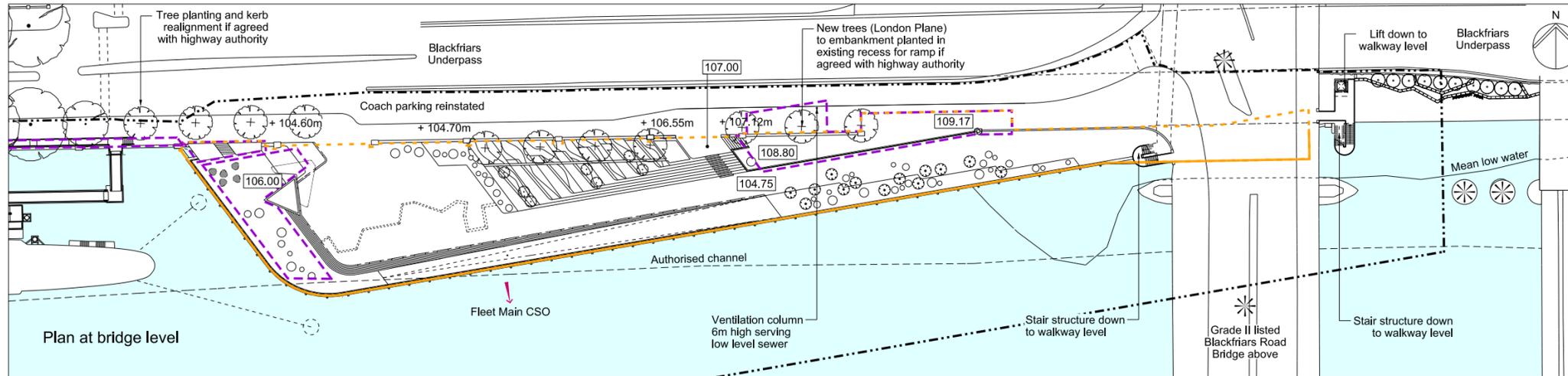
ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Proposed site features plan
 Sheet 1 of 3
 Book of plans - section 19
 DCO-PP-17X-BLABF-190017- Rev 1
 September 2013

- Notes:
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
 3. Access covers not shown on this drawing. Refer to the Permanent works layout for an indication of the extent of access covers required.





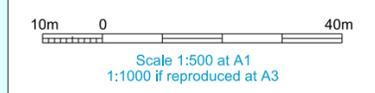
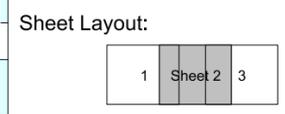
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which permanent above ground structures would be located
 - Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - Authorised channel
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - * Consented development footprint (by others)
 - Approximate position of CSO outlet
 - ⊗ Existing trees within surveyed area (trunk sizes vary)
 - ⊗ Proposed trees (London Plane)

- Rev 1:**
1. President - permanent vessel mooring access ramp revised. Anchors and chains shown. Zone within which permanent above ground structures would be located extended.



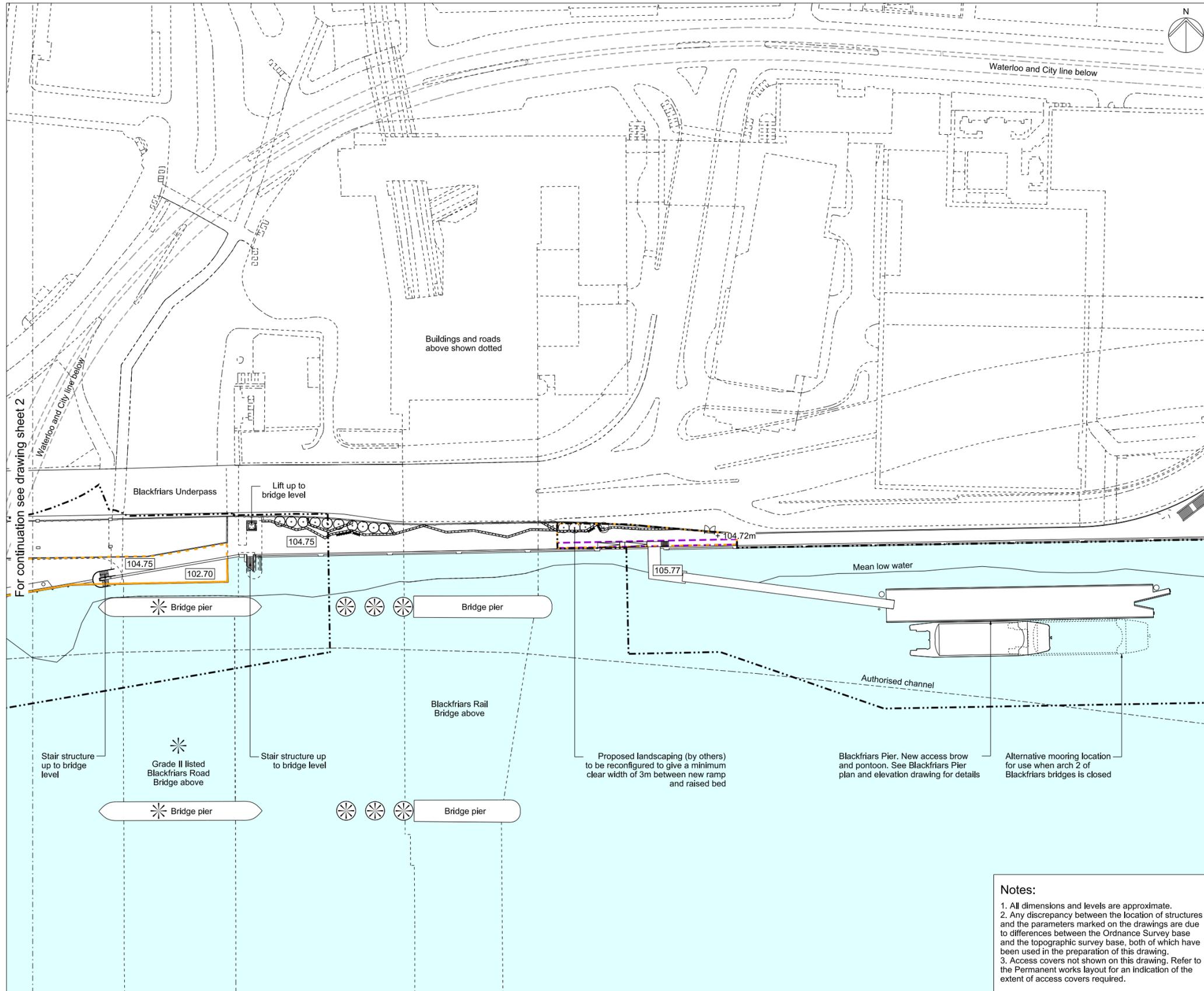
INDICATIVE
Save for layout of above ground structures which is illustrative

Location
Blackfriars Bridge Foreshore
City of London

Document Information
Application for Development Consent
Proposed site features plan
Sheet 2 of 3
Book of plans - section 19
DCO-PP-17X-BLABF-190018- Rev 1
September 2013



- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
 3. The above ground structures in the "save for the layout of above ground structures which is illustrative" statement are those listed in Table 1 on the Site works parameter plan.
 4. Access covers not shown on this drawing. Refer to the Permanent works layout for an indication of the extent of access covers required.



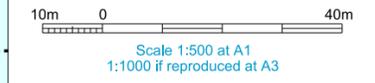
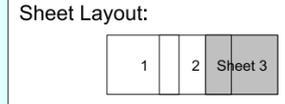
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which permanent above ground structures would be located
 - Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - Authorised channel
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - * Listed buildings/structures

- Rev 1:**
1. Blackfriars Millenium Pier - Millenium Pier relocated and extended. Zone for lift equipment room removed.



ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Proposed site features plan
 Sheet 3 of 3
 Book of plans - section 19
 DCO-PP-17X-BLAF-190019- Rev 1
 September 2013



Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
3. Access covers not shown on this drawing. Refer to the Permanent works layout for an indication of the extent of access covers required.

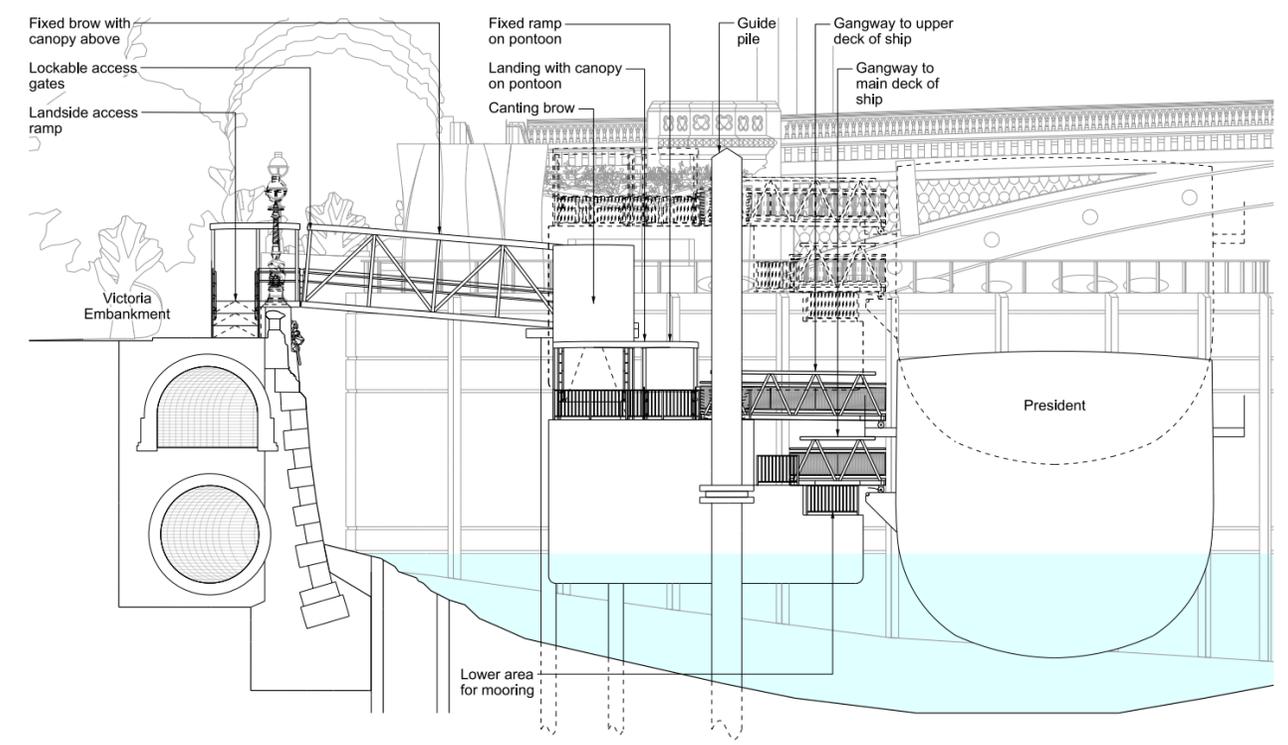
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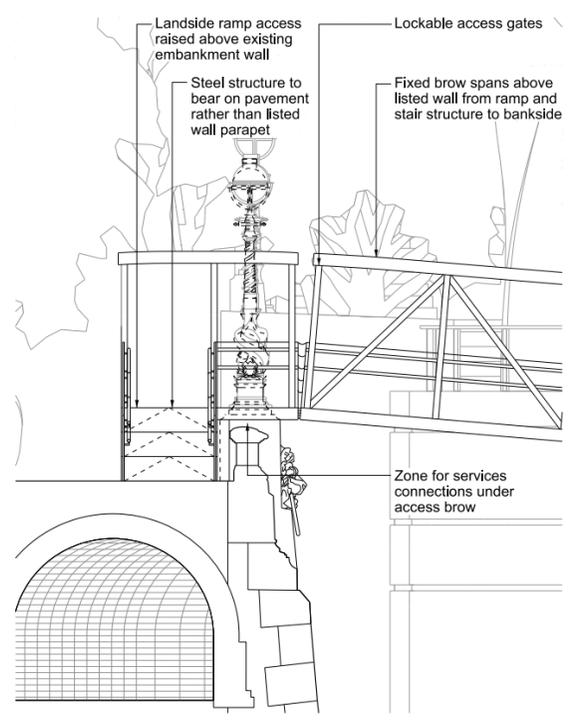
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
1. All dimensions and levels are approximate.

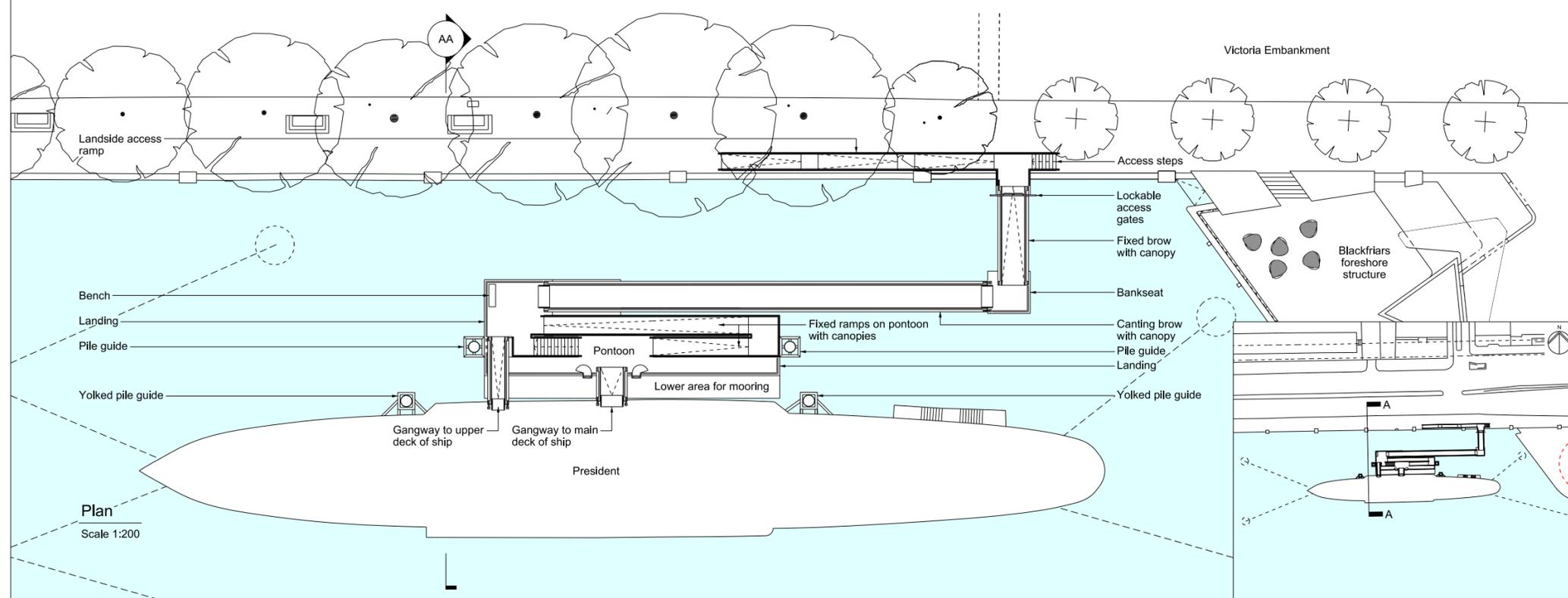
Rev 1:
1. President - permanent vessel mooring access ramp revised. Anchors and chains shown.



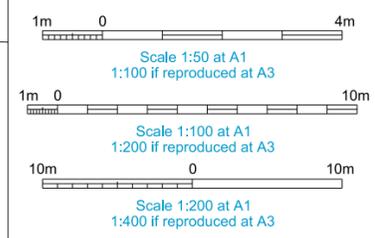
Section AA
Scale 1:100



Detail Section
Scale 1:50



Plan
Scale 1:200

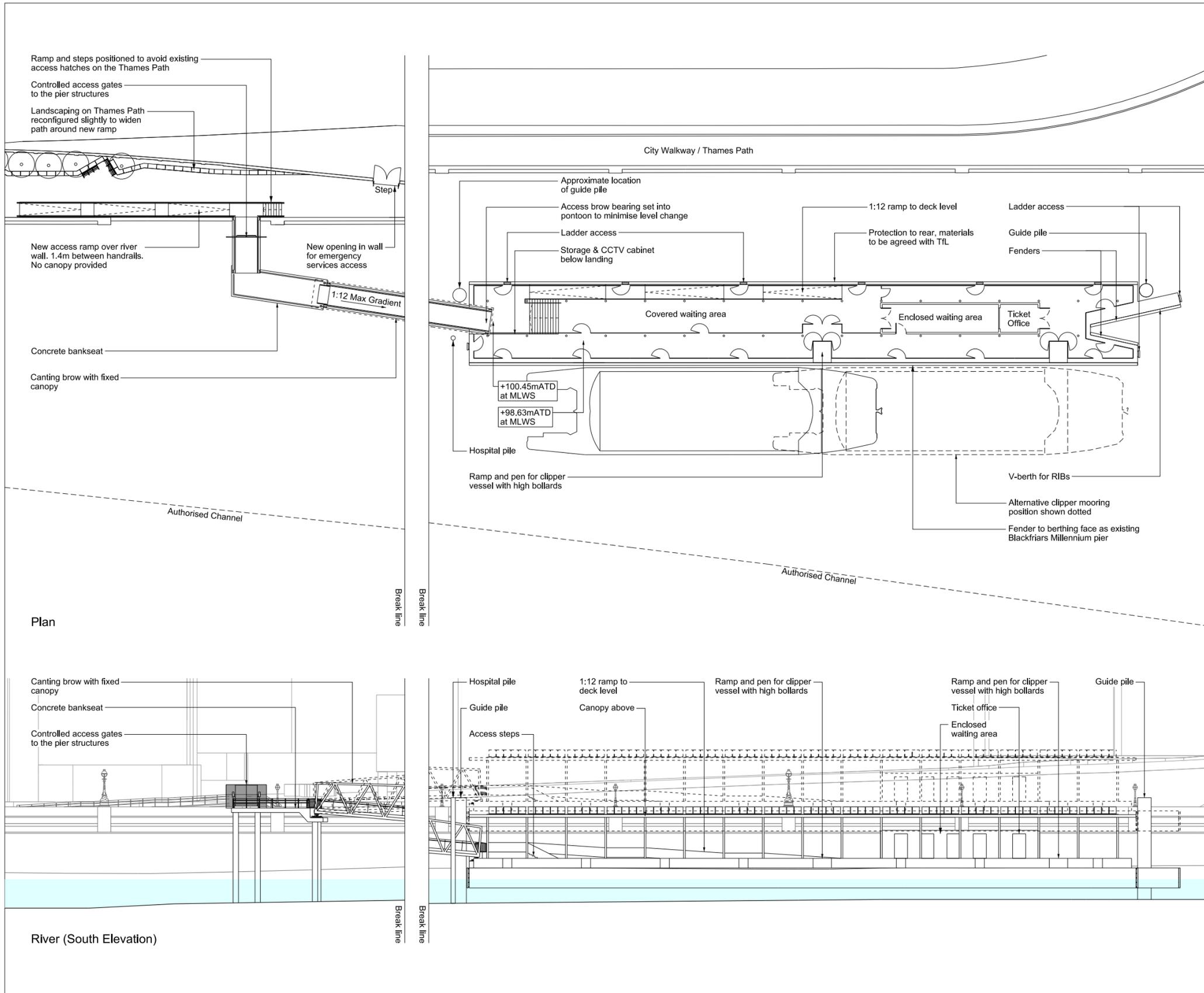


ILLUSTRATIVE
Save for the detail of spanning the listed wall which is for approval

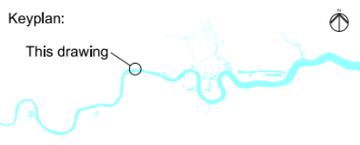
Location
Blackfriars Bridge Foreshore
City of London

Document Information
Application for Development Consent
Permanent president mooring access
Plan and elevation
Book of plans - section 19
DCO-PP-17X-BLABF-190045- Rev 1
September 2013





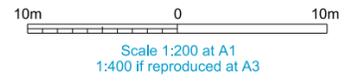
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Notes:**
- All dimensions and levels are approximate.
 - The following are to be provided in agreement with TFL London River Services:
 - Bird wire to the roof of pier and brow
 - Nonslip surfaces on all decks and walkways
 - Grab chains on the water line
 - Navigation lights masts with counter-balanced mast or winch to change bulbs easily
 - CCTV Cameras covering all areas of the pier, brows and entrance with 1 pan and tilt camera on the berth front
 - Poster frames for safety and passenger information to be DRU and 2RU frames supplied by TFL supplier
 - Standpipes for fire and freshwater hoses on the bankseat and pier
 - Flag poles and banner poles and TFL designed gate entrances
 - Electronic real time signs
 - Utilities: Lighting, electricity, water, telephone (PSTN), CCTV to the pontoon.
 - Signage to be comply with TFL standards for safety, passenger movement and corporate identity
 - Low energy LED lighting
 - Benches to comply with TFL standards and to be supplied by TFL approved supplier
 - Safety wires to be provided on roof to allow access and maintenance
 - Stainless steel capping rail (or agreed maintenance-free alternative) to handrails
 - All boarding gates to have locks operated by the boat crew inboard of the guarding
 - MOB ladders on the upstream and downstream ends of the pier shall be protected into the pier to prevent damage. They should also extend below the waterline for easy access below water
 - Timed lock on all enclosed waiting room doors
 - Fender system to be installed a white edge marking line
 - roof area to have an access hatch

- Rev 1:**
- Blackfriars Millenium Pier - Millenium Pier relocated and extended.



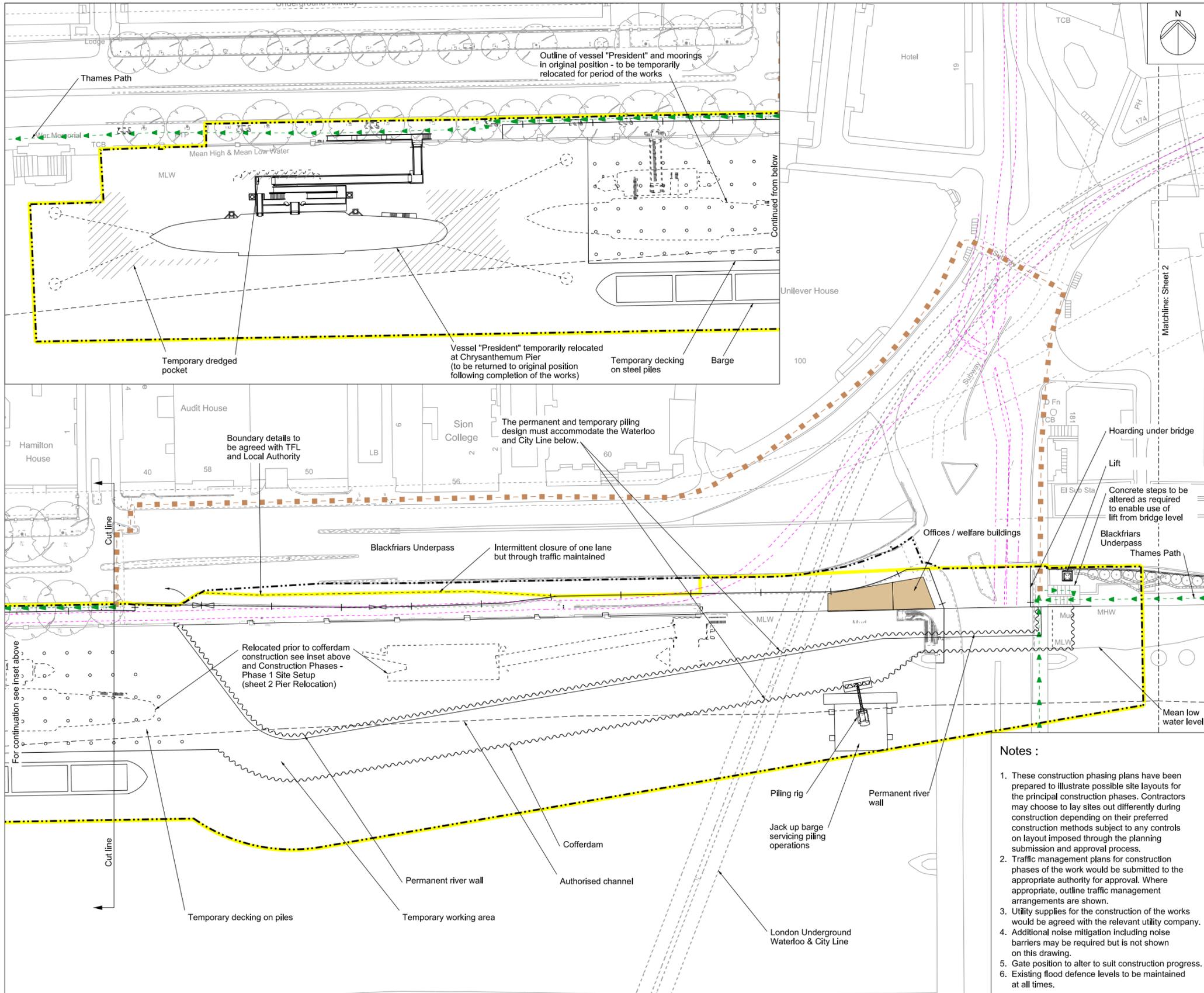
ILLUSTRATIVE

Location
 Blackfriars Bridge Foreshore
 City of London

Document Information
 Application for Development Consent
 Pontoon relocated
 Blackfriars Pier
 Book of plans - section 19
 DCO-PP-17X-BLABF-190046- Rev 1
 September 2013



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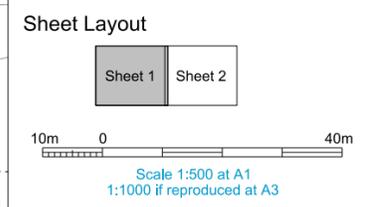
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Site access
 - Existing sewers
 - Sheet piles
 - Temporary dredged pocket (approximate)

- Rev 1:
1. President - Temporary vessel mooring access ramp revised. Anchors and chains shown. Temporary dredging and associated sheet piling revised.



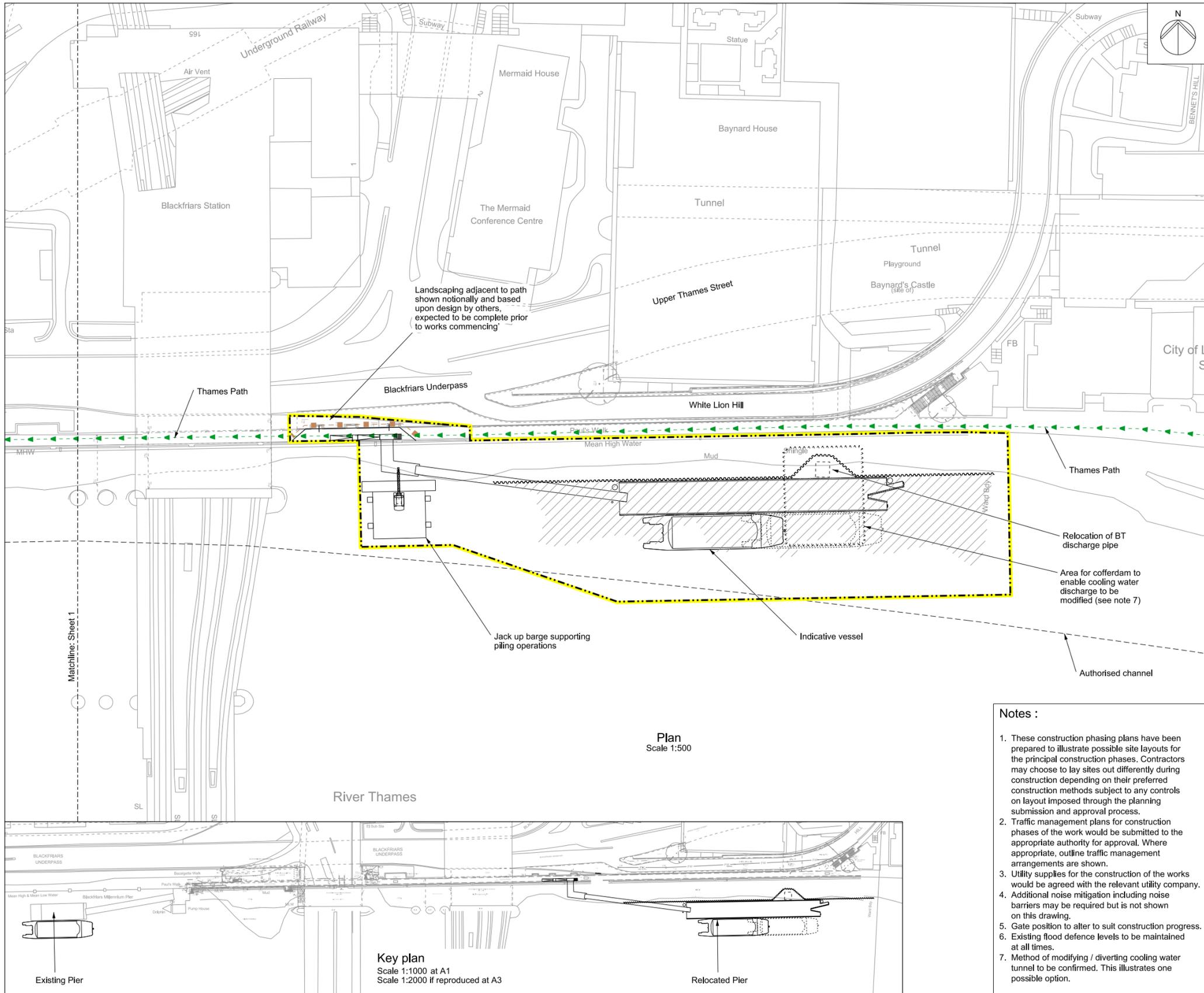
ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

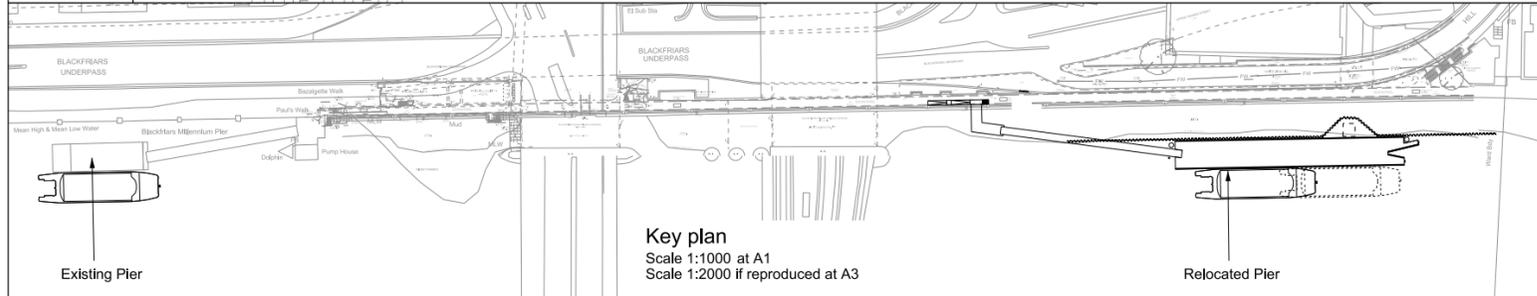
Document Information
Application for Development Consent
 Construction phases - phase 1
 Site setup sheet 1 of 2 - main works
 Book of plans - section 19
 DCO-PP-17X-BLAF-190047- Rev 1
 September 2013



- Notes :
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Gate position to alter to suit construction progress.
 6. Existing flood defence levels to be maintained at all times.



Plan
Scale 1:500



Key plan
Scale 1:1000 at A1
Scale 1:2000 if reproduced at A3

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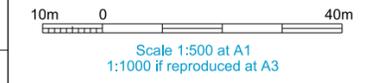


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - +— Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Existing sewers
 - Dredged pocket (approximate)

- Rev 1:
1. Blackfriars Millennium Pier - Millennium Pier relocated and extended. Dredging and associated sheet piling revised. BT discharge pipe and outfall diversion added. Note 7 added.

Sheet Layout



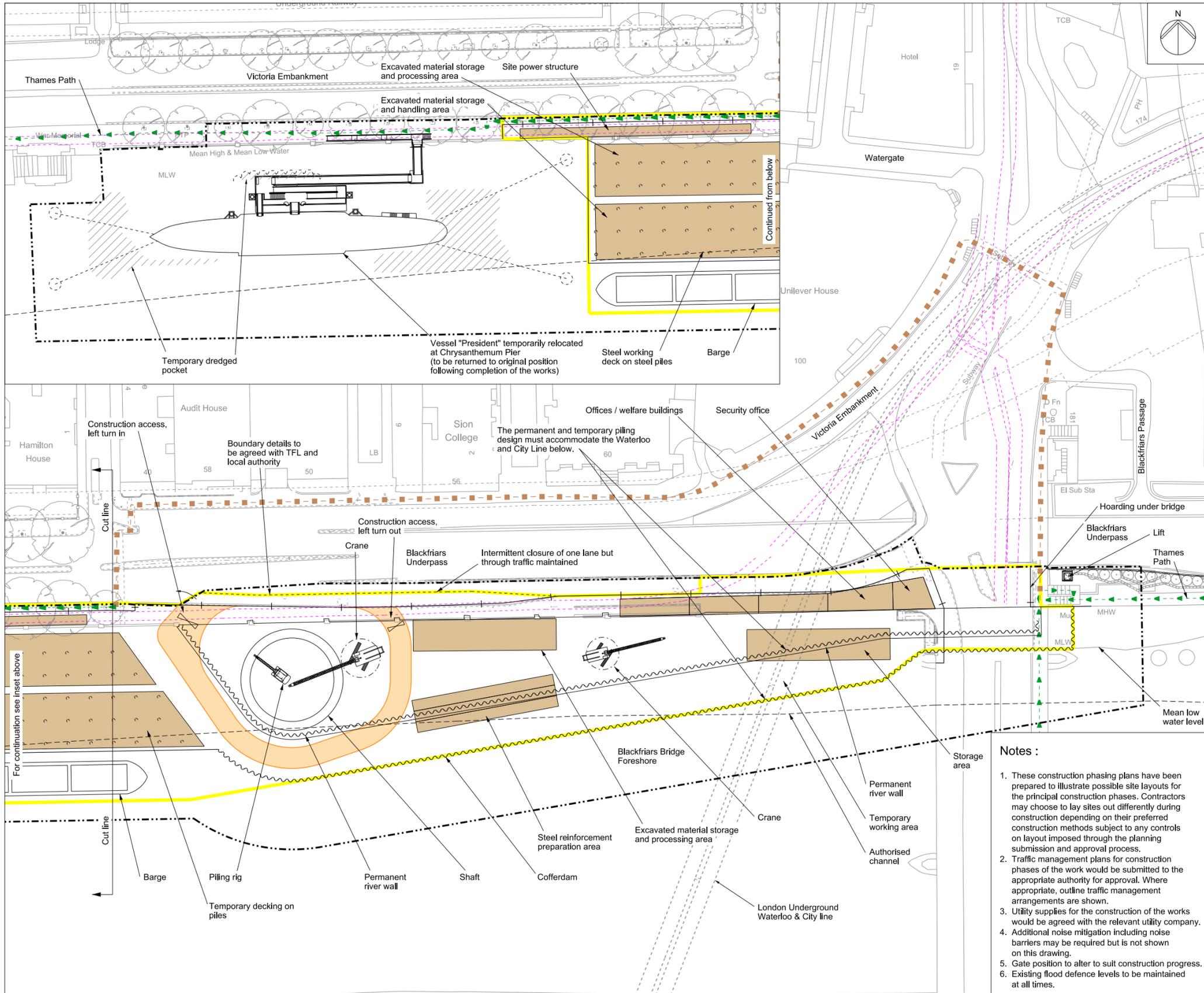
ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
City of London

Document Information
Application for Development Consent
Construction phases - phase 1
Site setup sheet 2 of 2 - pier relocation
Book of plans - section 19
DCO-PP-17X-BLAF-190048 - Rev 1
September 2013



- Notes :
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Gate position to alter to suit construction progress.
 6. Existing flood defence levels to be maintained at all times.
 7. Method of modifying / diverting cooling water tunnel to be confirmed. This illustrates one possible option.



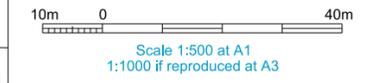
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Site access
 - Access / haul route
 - Existing sewers
 - Sheet piles
 - temporary dredged pocket (approximate)

- Rev 1:
1. President - Temporary vessel mooring access ramp revised. Anchors and chains shown. Temporary dredging and associated sheet piling revised.



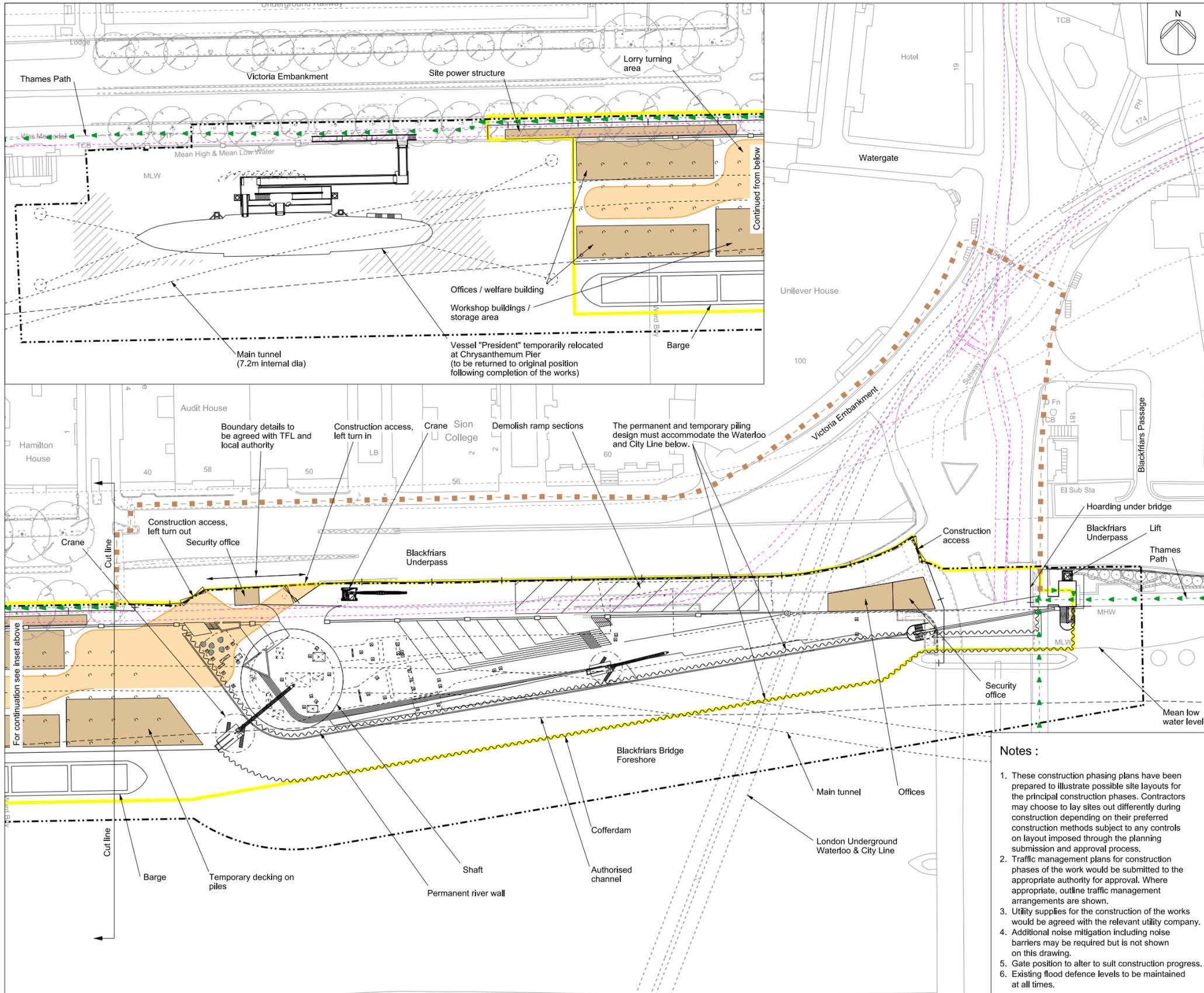
ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

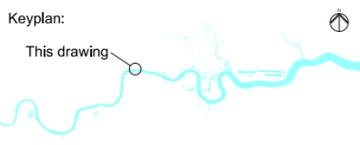
Document Information
Application for Development Consent
 Construction phases - phase 2
 Shaft construction
 Book of plans - section 19
 DCO-PP-17X-BLAF-190049 - Rev 1
 September 2013



- Notes :
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Gate position to alter to suit construction progress.
 6. Existing flood defence levels to be maintained at all times.



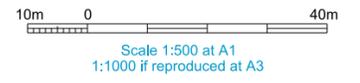
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Site access
 - Access / haul route
 - Existing sewers
 - Sheet piles
 - temporary dredged pocket (approximate)

- Rev 1:
1. President - Temporary vessel mooring access ramp revised. Anchors and chains shown. Temporary dredging and associated sheet piling revised.



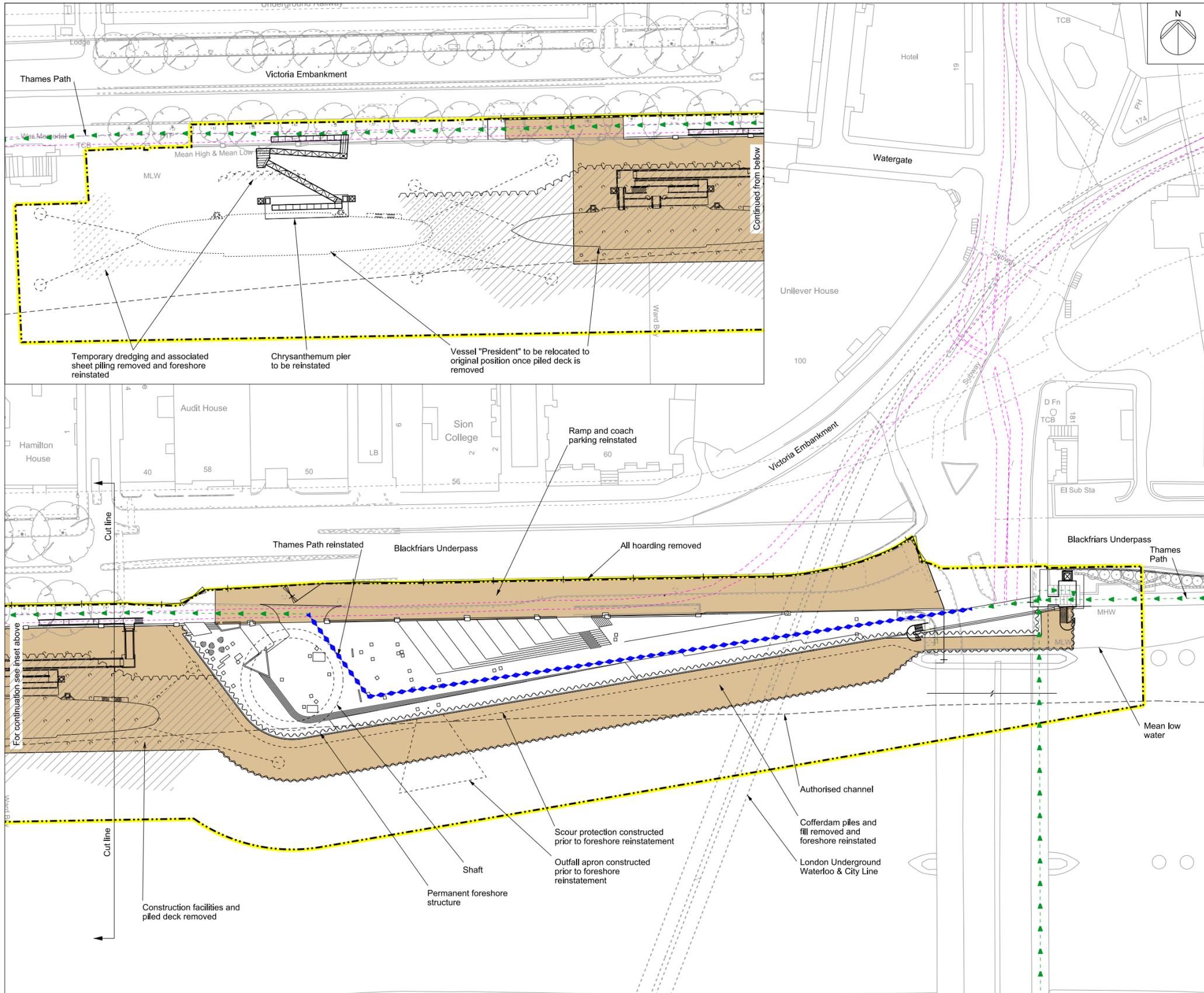
- Notes :
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Gate position to alter to suit construction progress.
 6. Existing flood defence levels to be maintained at all times.

ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Construction phases - phase 3
 Construction of other structures
 Book of plans - section 19
 DCO-PP-17X-BLAF-190050 - Rev 1
 September 2013





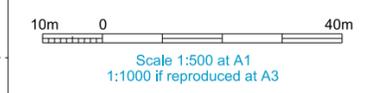
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Site access
 - Existing sewers
 - Sheet piles
 - Provision of permanent permissive right of way
 - Dredged pocket (approximate)

- Rev 1:
1. President - Temporary and permanent vessel mooring access ramp revised. Anchors and chains now shown. Dredging and associated sheet piling revised. Existing public right of way diverted.

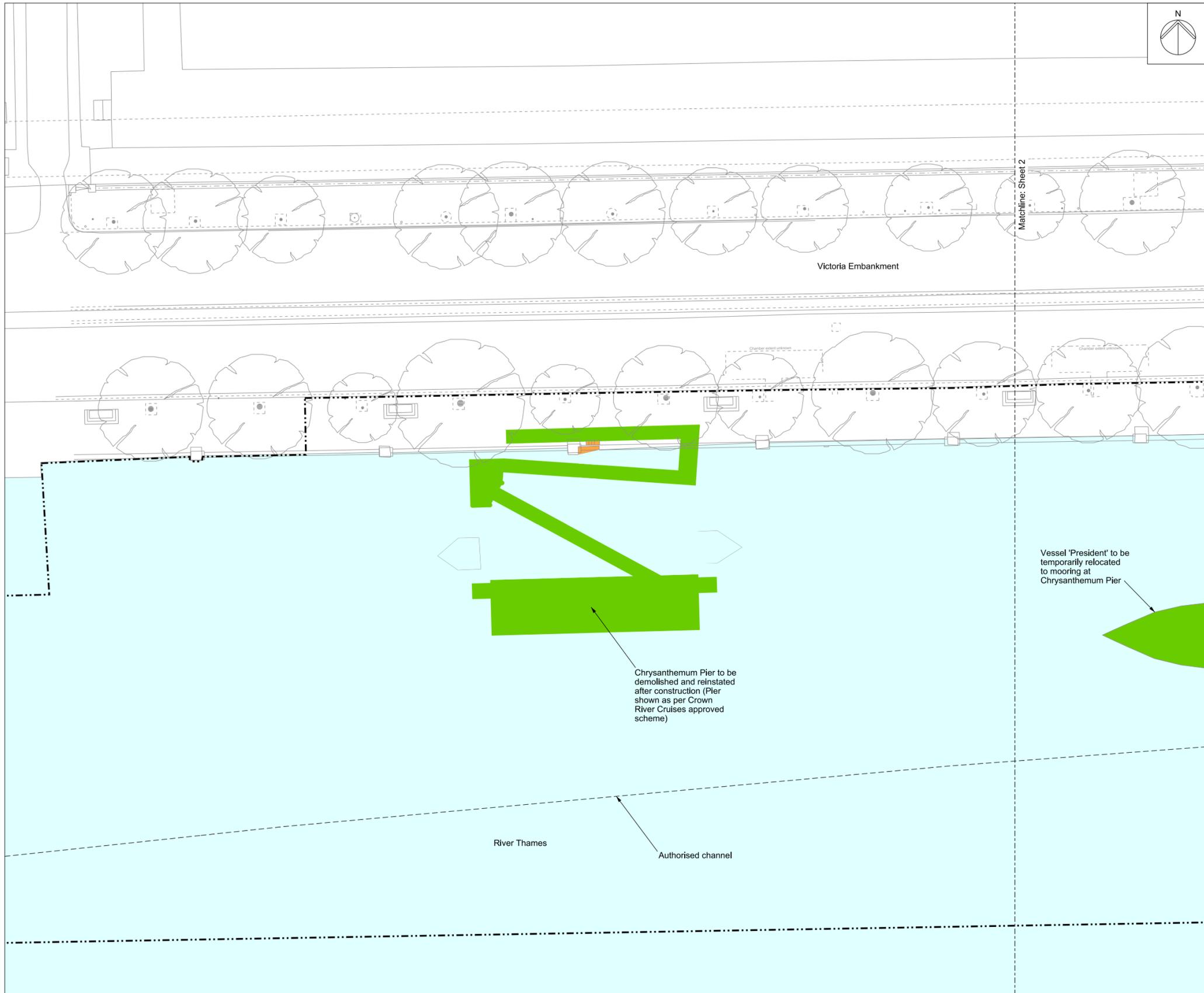


ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Construction phases - phase 4
 Site demobilisation
 Book of plans - section 19
 DCO-PP-17X-BLABF-190051 - Rev 1
 September 2013





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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Structure to be removed and relocated or reinstated
 - Above ground structures to be removed

- Notes:**
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.
 3. All listed Sturgeon Lamp Standards and benches to be carefully removed and stored securely off site until reinstatement.

Sheet Layout

Sheet 1	Sheet 2	Sheet 3	Sheet 4	Sheet 5
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Scale 1:200 at A1
1:400 if reproduced at A3

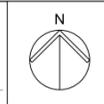
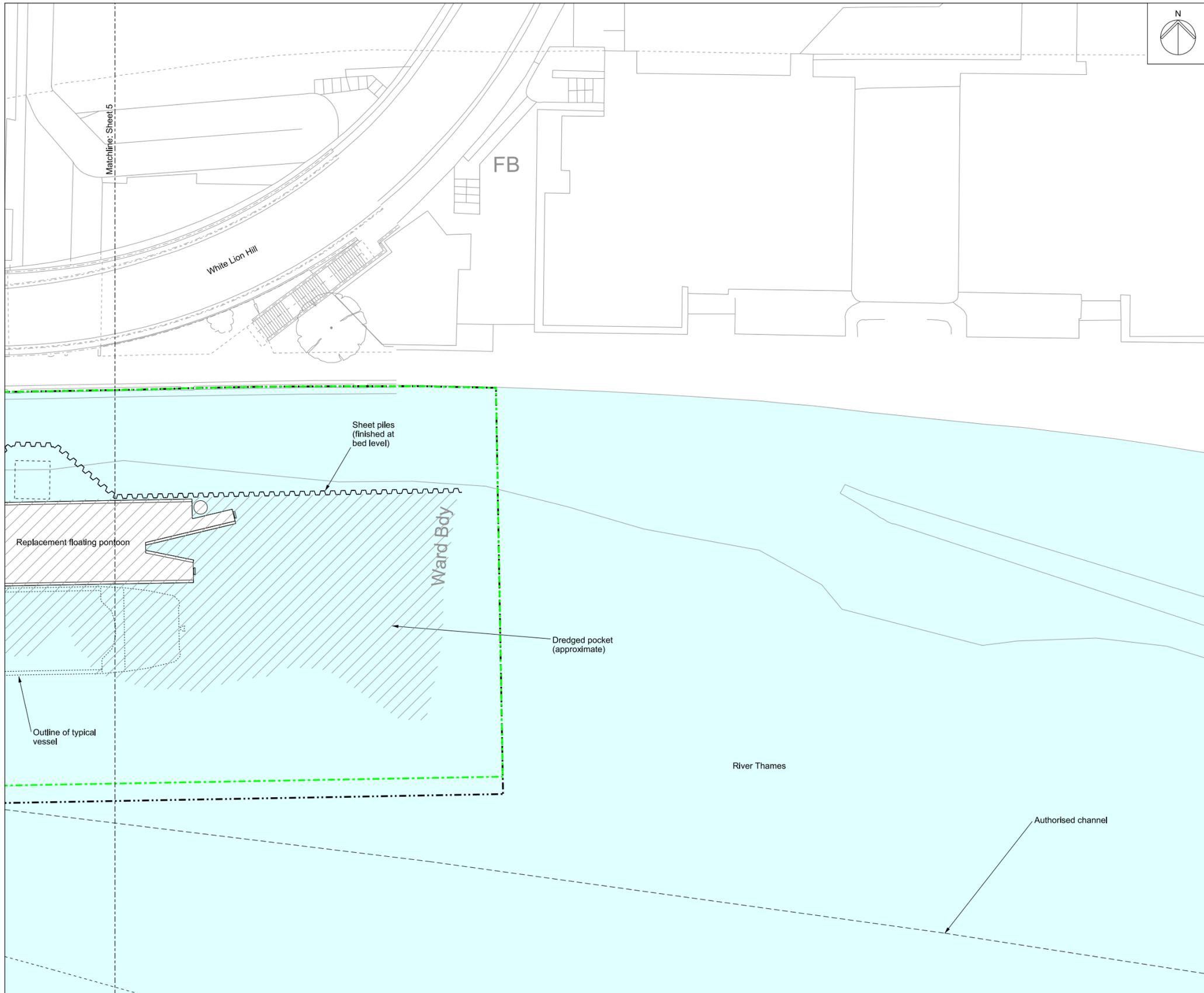
FOR APPROVAL

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Demolition and site clearance
 Sheet 1 of 5
 Book of plans - section 19
 DCO-PP-17X-BLABF-190067
 September 2013



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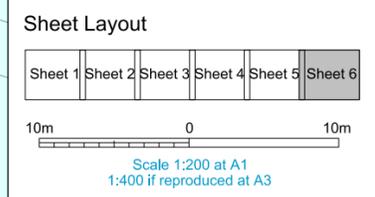
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Proposed level (shown in metres above tunnel datum)
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located
 - Approximate extent of dredging

- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.
 4. Design to current river flood defence level 105.41m above tunnel datum (ATD).
 5. Landing stage proposed level as existing stage.



ILLUSTRATIVE

Location
Blackfriars Bridge Foreshore
 City of London

Document Information
Application for Development Consent
 Permanent works layout
 Sheet 6 of 6
 Book of plans - section 19
 DCO-PP-17X-BLABF-190068
 September 2013



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