

10 Built Heritage

10.1 Introduction

- 10.1.1 This chapter presents an assessment of the potential impacts of construction and operation of the Bank Station Capacity Upgrade (BSCU) on built heritage assets. Potential archaeological impacts are considered within Chapter 11: Archaeology.
- 10.1.2 Built heritage assets include those that are designated (listed buildings, scheduled monuments and conservation areas) as well as those that are non-designated. Non-designated assets include buildings that are either included on a local list of buildings of merit or are identified as making a positive contribution to the character or appearance of a conservation area. Impacts to heritage assets can arise either as a result of physical changes to the fabric of the asset through alteration or demolition, or through changes to its setting.
- 10.1.3 This chapter considers impacts arising from the BSCU both temporarily and permanently and as a result of both construction activities and operation. Construction activities will occur both above and below ground. As tunnelling operations have the potential to cause ground settlement, which can affect the fabric and structure of buildings including decorative features, this chapter also considers this aspect of the BSCU insofar as it affects heritage assets.
- 10.1.4 The key impacts that have been identified arising from the BSCU relate to ground movements and settlement, as a result of below ground activities in proximity to a number of designated assets, construction activities at the Arthur Street Work Site and construction activities on the Whole Block Site including demolition of buildings and construction of the new Station Entrance.
- 10.1.5 Impacts on townscape and visual amenity, including views, are considered within Chapter 7: Townscape and Visual Effects.

10.2 Legislative and Policy Context

Legislation and National Policy

The Planning (Listed Buildings and Conservation Areas) Act 1990

- 10.2.1 *Section 66* establishes a general duty in considering whether to grant planning permission for a development which affects a listed building to have special regard to the desirability of preserving a listed building or its setting or any features of special architectural or historical interest which it possesses. A building is listed by virtue of its special architectural or historical interest (*Section 1(1)*).

- 10.2.2 Section 72 establishes a duty to pay special attention to the desirability of preserving or enhancing the character or appearance of a conservation area.
- National Planning Policy Framework (Department for Communities and Local Government, 2012)
- 10.2.3 Section 12 of the *National Planning Policy Framework (NPPF)* deals with the consideration of cultural heritage assets and sets out the importance of being able to assess the impact of a development on the significance of heritage assets. Significance is defined in *Annex 2* as the value of an asset because of its heritage interest. This interest may be archaeological, architectural, artistic or historic and can extend to its setting. The setting of a heritage asset is defined in *Annex 2* as the *surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve.*
- 10.2.4 The *NPPF* recognises that a balance needs to be struck between the preservation of the significance of a heritage asset and delivering public benefit. With regard to designated assets, *Paragraph 132* states that the more important the asset, the greater the weight should be on its conservation. Distinction is drawn between those assets of highest significance and those of a lesser significance.
- 10.2.5 The *NPPF* identifies harm as being either substantial or less than substantial. *Paragraph 133* states that where the proposal would lead to substantial harm to the significance of designated assets consent should be refused unless the harm or loss is necessary to achieve substantial public benefit that outweighs that harm. In cases where less than substantial harm to the significance of a designated asset is anticipated, *Paragraph 134* requires that *this harm should be weighed against the public benefits of the proposal.* In respect of non-designated assets, *Paragraph 135* requires a balanced judgement having regard to the scale of any harm or loss and the significance of the asset.
- 10.2.6 In accordance with the *NPPF*, this heritage assessment sets out how the significance of buildings is likely to be affected by the BSCU. The information provided in this assessment conforms to *Paragraph 128* of the *NPPF*, thus the level of detail provided is proportionate to the significance of the affected heritage assets and no more than is sufficient to understand the potential impact of the proposal on that significance.
- 10.2.7 Guidance on the application of heritage policy within the *NPPF* is provided both within the *PPS 5 Planning for the Historic Environment Practice Guide* (English Heritage, 2010) and the on-line *Planning Practice Guidance (PPG)* '*Conserving and Enhancing the Historic Environment*' (2014).

Regional Policy

The London Plan (Greater London Authority, 2011)

- 10.2.8 *Policy 7.8* of *The London Plan* deals with heritage assets and archaeology and identifies the contribution that designated and non-designated heritage assets make to London's world class city status. The policy seeks to ensure the sensitive management and promotion of London's heritage assets through recognition of their positive role in place shaping.
- 10.2.9 '*Schedule of Suggested Changes*' to the *Draft Further Alterations of The London Plan* was published in July 2014; the alterations do not include changes to *Policy 7.8* of the current *London Plan*.

Local Policy

Unitary Development Plan (City of London Corporation, 2002)

- 10.2.10 Certain sections of the *Unitary Development Plan* (UDP) remain in force, including *Policies ENV10* and *ENV11* which are of relevance to consideration of the BSCU.
- 10.2.11 *Policies ENV10* and *ENV11* relate to conservation areas and listed buildings and recognise the contribution that historic buildings make to the character and ambience of the City of London. *Policy ENV11* states that proposals to demolish buildings that make a positive contribution to the character or appearance of a conservation area will be resisted.

Core Strategy Development Plan (City of London Corporation, 2011)

- 10.2.12 One of the over-arching objectives of the *Core Strategy* as exemplified by *Strategic Objective 3: City Culture and Heritage*, is the promotion of a high quality of architecture and street scene appropriate to the City of London's position at the historic core of London.
- 10.2.13 *Policy CS12* directly relates to cultural heritage, and aims to *conserve or enhance the significance of the City's heritage assets and their settings, and provide an attractive environment for the City's communities and visitors*, and sets out a number of ways in which this is to be achieved.

The City of London Corporation Supplementary Planning Documents (SPDs)

- 10.2.14 The City of London Corporation has prepared a number of SPDs including those that have been prepared in respect of some of the City of London's conservation areas including documents prepared for *Bank Conservation Area* (2012), and the *Laurence Pountney Conservation Area* (2012).
- 10.2.15 These documents provide detailed analysis of the development and architectural character of the conservation area as well as highlighting

significant streets and buildings that contribute to the character of the conservation area and the setting of specific heritage assets.

English Heritage Guidance

- 10.2.16 English Heritage has published a number of guidance documents in relation to the historic environment of which the following are of particular relevance to the BSCU.

Conservation Principles (English Heritage, 2008)

- 10.2.17 The document sets out six guiding principles governing the approach to decision making. *Principle 3 understanding the significance of places is vital* and *Principle 4 significant places should be managed to sustain their values* are principles that relate to the development process and assessment of harm. *Principle 5* relates to decisions being guided by public policy and the balance to be struck between heritage significance and the impact of change on that significance.

- 10.2.18 Having first understood and addressed the values (evidential, historical, aesthetic and communal) that make up the significance of a place, the document sets out how then to manage impacts on significance.

The Setting of Heritage Assets (English Heritage, 2011)

- 10.2.19 The document defines setting as *the surroundings in which a heritage asset is experienced*. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced, setting is more extensive than the curtilage of a building and comprises factors other than simply visual, including noise, dust and vibration. The document states that an assessment of the impact of a proposed development should identify whether the development would be acceptable in terms of the degree of harm to an asset's setting.

Seeing the History in the View (English Heritage, 2011)

- 10.2.20 This document presents a method for understanding and assessing heritage significance within views. The document provides a series of matrices provided to assist in assessing impact. English Heritage acknowledges that these matrices form a supporting tool only, and that ultimately assessment of the level of effect will be down to professional judgement (page 18). In assessing the magnitude of impact the guidance states that *it is important to consider how the proposed development would relate to heritage assets as the observer moves through the Viewing Place* (page 23).

10.3 Assessment Methodology

Study Area

- 10.3.1 An initial study area of 150m from the Whole Block Site and Arthur Street Work Site was proposed within the EIA Scoping Report (Appendix A1.1) as being appropriate for consideration of impacts on heritage assets that may arise from surface based construction activities. The study area is considered appropriate to accommodate physical impacts on heritage assets and impacts on setting arising from the BSCU. Site observation and walkthrough of the study area and subsequent reference to the Zone of Visual Influence prepared in relation to Chapter 7: Townscape and Visual Effects, allowed a refinement in the number of assets for which an impact on setting could be anticipated. As a consequence assets within the study area for which no impacts to their setting are anticipated have been scoped out of the assessment. Full descriptions of all assets within the study area are provided in Appendix A10.1: Gazetteer of Built Heritage Assets. Each asset is provided with a unique identifier (**BH****) which is referenced within the text and located on Figure 10.1 (see ES Figures Volume).
- 10.3.2 In consideration of settlement impacts and in accordance with the Settlement Assessment Methodology, assessment was undertaken for all designated assets that are identified by geotechnical assessment as being at risk of experiencing ground movements of more than 1mm. The extent of this area is shown on Figure 10.2 (see ES Figures Volume). These assets are given an [A] or [B] prefix to the **BH**** number.
- 10.3.3 Where impacts arise from utilities works and the potential Walbrook Grout Shaft locations, these are considered within the assessment. All assets which have the potential to be directly affected are within the 1mm settlement contour (shown on Figure 10.2 in the ES Figures Volume) and so are inherently considered as part of the wider assessment.

Sources of Information

- 10.3.4 The preparation of the baseline has been informed by a range of material collected and collated from a variety of sources, including:
- datasets and asset descriptions provided by Greater London Historic Environment Record;
 - Ordnance Survey maps and other historic map sources from the London Metropolitan Archive;
 - details of designated assets from English Heritage National Heritage List for England; and

- information and background context from historical and architectural journals, books and internet sources as appropriate.
- 10.3.5 Site visits were undertaken to identify and determine the setting of assets and their contribution to heritage value. A detailed site visit including analysis of interior fixtures and fittings was undertaken only for those designated assets deemed to be at risk of settlement impacts.

Significance and Impact Assessment Criteria

- 10.3.6 The overall approach to impact assessment is set out in Chapter 6: Method of Assessment.

Significance

- 10.3.7 The *NPPF* (*Paragraph 132*) establishes a hierarchy to the value of assets on the basis of their designated or non-designated status. Amongst other assets the *NPPF* identifies Scheduled Monuments, Grade I and Grade II* listed buildings as having significance (heritage value) greater than Grade II listed buildings. Table 10.1 summarises the factors for determining the heritage value (sensitivity) of heritage receptors (assets).

Table 10.1: Criteria for Determining the Sensitivity of Heritage Receptors (assets)

Sensitivity	Criteria
Very High	Remains of inscribed international importance, such as World Heritage Sites Other buildings or sites of recognised international importance
High	Grade I and Grade II* listed buildings Scheduled Monuments Grade I and Grade II* Registered Parks and Gardens Other non-designated assets, townscapes or areas that can be shown to have exceptional qualities in their fabric or historical association.
Medium	Grade II listed buildings Grade II listed Registered Historic Parks and Gardens Conservation Areas Locally listed buildings identified by the Local Planning Authority and other non-designated assets, townscapes or areas that have special qualities in their fabric or historical association recognised as being of regional or local interest.
Low	Non-designated assets, townscapes or areas that have modest qualities in their fabric or historical association of only a local interest.

Impact Assessment

- 10.3.8 Potential impacts are defined as a change resulting from the BSCU that affects the heritage asset including its setting. These impacts are considered in terms of being adverse or beneficial, direct, indirect or cumulative, and to occur either during construction (some of which may therefore be of a temporary nature) or during operation (and therefore permanent).
- 10.3.9 Elements of a setting may make a positive or negative contribution to the heritage value of an asset and may affect the ability to appreciate that value. This is not only expressed by reference to visual considerations, but by other environmental issues such as noise, vibration and dust. Spatial associations and our understanding of the historic relationship between places will also determine the extent and importance of setting (English Heritage 2011).
- 10.3.10 Professional judgement has been used to apply the five-point scale shown in Table 10.2 in determining the magnitude of impact the BSCU may have on the heritage value of assets, including their setting.

Table 10.2: Factors Determining the Magnitude of Heritage Impacts

Rating	Description of impact
High	Change such that the significance of the asset is totally altered or destroyed. Comprehensive change to setting, resulting in a serious loss in our ability to understand and appreciate the asset and its historical context.
Medium	Change such that the significance of the asset is affected. Noticeably different change to setting, resulting in erosion in our ability to understand and appreciate the asset and its historical context.
Low	Change such that the significance of the asset is slightly affected. Slight change to setting resulting in a change in our ability to appreciate the asset and its historical context.
Very Low	Changes to the asset that hardly affect significance. Minimal changes to setting that result in no real change in our ability to understand and appreciate the asset and its historical context.
No change	The development does not affect the significance of the asset. No change to setting and no change in our ability to understand and appreciate the asset and its historical context.

- 10.3.11 The assessment of effects has been undertaken in two stages. The magnitude of impact was first assessed and the findings were then cross-referenced to the sensitivity (heritage value) of the receptor to categorise the effect that is likely to result from the BSCU (Table 10.3).

Table 10.3: Classification of Heritage Effects

Sensitivity of Receptor	Magnitude of Impact				
	High	Medium	Low	Very Low	No Change
Very High	Major	Major	Moderate	Moderate	No Change
High	Major	Moderate	Moderate	Minor	No Change
Medium	Moderate	Moderate	Minor	Negligible	No Change
Low	Moderate	Minor	Negligible	Negligible	No Change

- 10.3.12 Following the categorisation of effects using this methodology, major and moderate effects are generally considered to be significant. However, further consideration of whether an effect is significant and requires mitigation was determined using professional judgement, taking account of whether effects were considered to be positive or negative, permanent or temporary, and direct or indirect. The duration and frequency of the effect and whether any secondary effects were caused was also considered.
- 10.3.13 If mitigation was proposed a re-assessment of impacts after mitigation was undertaken to determine the residual effect.

Settlement Assessment

- 10.3.14 The BSCU has the potential to cause settlement impacts to buildings. Stage 2 Settlement Assessments have been undertaken for all designated assets (for which there is a statutory duty of preservation extending to fixtures and fittings) which may experience 1mm or more of ground movement (the zone of settlement). The Methodology for Settlement Assessment (further explained within the Stage 2 Assessments within Appendix A10.2) considers the potential impact of ground movement and assigns a damage category from 0 (negligible) to 5 (very severe). In addition, settlement in millimetres is determined at different points across the asset, which identifies the risk of differential settlement. Results of this work (see Appendix A10.2) have been used to determine the magnitude of impact according to the scales in Table 10.2.
- 10.3.15 The sensitivity of each relevant designated asset has taken account of an analysis of its structure and a determination of its condition, together with an assessment of the sensitivity of heritage features, fixtures and finishes. Each of the three categories of structure, heritage features and condition has been assigned a sensitivity score from 0 to 2. A total settlement impact score for the building was then obtained by summation of the scores for damage category, structural sensitivity, heritage sensitivity and condition sensitivity. This level of assessment is sufficient to determine the likelihood of any significant effect and, in broad terms, the measures needed to avoid, prevent or reduce these effects.

- 10.3.16 A Stage 3 Settlement Assessment provides detailed analysis of the structure comprising further evaluation (which may include intrusive survey) to clarify and confirm the specific settlement and movements predicted. This Stage 3 Settlement Assessment will determine in detail the need for and form of mitigation and specific monitoring to listed buildings, and will be completed prior to the commencement of construction of the BSCU. Buildings selected for Stage 3 assessments are identified later in this chapter.

Consultation

- 10.3.17 Consultation on the scope and methodology has been undertaken with the City of London Corporation and English Heritage, through the EIA Scoping Report, dated September 2013 (see Appendix A1.1).
- 10.3.18 A meeting with the English Heritage Inspector held on the 14th October 2013 to discuss the scope confirmed that she was content both with the approach taken to assessment of historic buildings, including that proposed for settlement assessment, and with the defined study areas.

10.4 Baseline Conditions

Overview

- 10.4.1 There are no World Heritage Sites, Registered Parks and Gardens or Registered Battlefields within the study area. The study area (see Figure 10.1 in the ES Figures Volume) encompasses parts of the Bank Conservation Area (**BH90**) and Laurence Pountney Conservation Area (**BH92**) and includes a number of designated assets which may be affected by the BSCU, either by settlement or changes to setting.
- 10.4.2 There are 31 designated assets within the 1mm zone of settlement (see Figure 10.2 in the ES Figures Volume). These assets may be affected both by settlement and impacts on setting and comprise:
- six Grade I listed buildings:
 - Bank of England (**BH88** [B3]);
 - 27 Poultry/5 Prince's Street (**BH95** [A4]);
 - The Mansion House (**BH25** [A6]);
 - St. Mary Woolnoth (**BH28** [A27]);
 - St Mary Abchurch (**BH47** [A14]); and
 - St. Clement Eastcheap (**BH67** [B21]).
 - three Grade II* listed buildings:
 - 20 St. Swithin's Lane (**BH46** [A10]);

- 19 St. Swithin's Lane (**BH45** [A10]); and
- Fishmongers Hall, also a scheduled monument (**BH85** [B18]).
- 22 Grade II listed buildings:
 - the piers, iron gates and screen to the entrance of St Mary Woolnoth (**BH27** [A27]);
 - Basildon House at 7-11 Moorgate (**BH99** [B34]);
 - 4 Moorgate (**BH100** [B33]);
 - 3-4 Lothbury (**BH101** [B1]);
 - 6 Lothbury (**BH102** [B31]);
 - National Westminster Bank at 1 Prince's Street (**BH3** [A5]);
 - the statue of the Duke of Wellington (**BH5** [B29]);
 - 1 Queen Victoria Street (**BH23** [B5]);
 - the Police Call Box (**BH24**);
 - 1 Cornhill/82 Lombard Street (**BH13** [B26]);
 - 1-6 Lombard Street (**BH26** [A7]);
 - 1 King William Street (**BH41** [A11]);
 - 5 King William Street (**BH 42** [A12]);
 - 15 Abchurch Lane (**BH48** [A13]);
 - 24 Lombard Street (**BH44** [B24]);
 - 121 Cannon Street (**BH63** [A16]);
 - 123-127 Cannon Street (**BH64** [A17]);
 - 129 Cannon Street (**BH65** [A18]);
 - St. Clement's House (**BH66** [B22]);
 - 6-8 Clement's Lane (**BH103** [B23]);
 - 29 Martin Lane (**BH78** [A34]); and
 - Adelaide House (**BH86** [A39]).

10.4.3 There are an additional six designated assets whose settings only may be affected by the construction of the BSCU. These comprise one Grade I listed

building, The Monument (**BH84**), which is also a scheduled monument (BH84); and five Grade II listed buildings, namely:

- the retaining Wall and railings at Pountney Churchyard (**BH81**);
- 115-117 Cannon Street (**BH62**);
- 113 Cannon Street (**BH61**);
- the Olde Wine Shades, 6 Martin Lane (**BH83**); and
- the railings, stone wall and gates to the former churchyard of St Martin Orgar (**BH77**).

- 10.4.4 The former King William Street underground station (**BH98**), a non-designated heritage asset, is located within the Arthur Street Work Site.
- 10.4.5 There are a great number of non-designated heritage assets that have been identified by the City of London Corporation to make a positive contribution to the character or appearance of the conservation areas within which they are included. Potential impacts on the setting of these assets are considered within the overall assessment of impact on the heritage sensitivity, character or appearance of the conservation area affected.

10.5 Incorporated Mitigation

- 10.5.1 The assessment takes into account measures incorporated into the design of the BSCU and measures proposed within the draft Code of Construction Practice, (CoCP) (see Appendix A4.1), to reduce and control impacts that may arise during the demolition and construction phases. During construction, lorry movements will be concentrated on Cannon Street and to the east, away from the majority of heritage assets. Site hoardings erected to all the boundaries of the BSCU Work Sites will be of a high quality.
- 10.5.2 The construction methodology of the BSCU has been designed to reduce the impacts, particularly in areas where built heritage assets are concentrated. The location of the Arthur Street Shaft as the beginning of the tunnelling route allows the first stages of tunnelling and construction to take place in areas where there are fewer heritage assets.
- 10.5.3 Settlement will be monitored using ground and building based techniques and levels will be set which trigger the use of controls or emergency measures dependant on actual ground movement and its relationship to the predicted ground movement. Although not anticipated to be needed, provision for compensation grout shafts within the Whole Block Site and Walbrook has been made within the Order (and this assessment) to allow for compensation grouting to reduce ground settlement, should monitoring indicate that such measures be required. Ground settlement has been predicted, and this assessment is based on no compensation grouting being carried out. Should

grouting later be implemented, it is assumed that this will reduce ground settlement and the magnitude of impact to heritage assets.

- 10.5.4 It is known that a well exists within The Mansion House (**BH25** [A6]), close to the east wall of the building. Where necessary, physical investigations and potentially protective works prior to tunnelling beneath the building will be undertaken, in agreement with all relevant stakeholders.
- 10.5.5 Similarly, there is evidence of wells beneath four further listed buildings: 5 King William Street (**BH42** [A12]), 1-6 Lombard Street (**BH26** [A7]), 1 Prince's Street (**BH3** [A5]), and 27 Poultry (**BH95** [A4]). Where necessary, physical investigations and potentially protective works prior to tunnelling beneath these buildings will be undertaken, in agreement with all relevant stakeholders. However, the likelihood of such works being required or practical to stage from within the building is considered to be low, and therefore significant effects relating to such works are considered unlikely. The preferred means of mitigating settlement risk posed by a potential well interception with the tunnelling works would be from within below ground works.

10.6 Assessment of Effects

- 10.6.1 Effects on heritage assets arising from construction activities (including demolition) and operation of the BSCU are described below and in Table 10.4.

Construction

Utilities Works

- 10.6.2 Utilities works, individually and collectively would have an adverse effect on the character and appearance of the Bank Conservation Area and potentially to the setting of listed buildings. However, the impact of these works is temporary and is therefore assessed as resulting in a negligible to minor adverse effect which is not considered significant.
- 10.6.3 The Low Level 2 and London Bridge Sewer works would have an adverse effect on the character and appearance of the Bank Conservation Area (**BH90**) and to the setting of listed buildings. However, the impact of these works is temporary and is therefore assessed as resulting in a negligible to minor adverse effect which is not considered significant.

Demolition of the Whole Block Site

- 10.6.4 There will be a direct and permanent impact on the Bank Conservation Area (**BH90**) arising from the demolition of a whole block of buildings (excluding the majority of 20 Abchurch Lane). The buildings within the Whole Block Site date to the mid to late 20th century. They are of a modest quality, add little to the streetscape setting of adjacent assets and do not make a positive architectural contribution to the character or appearance of the conservation area. 10 King

William Street has previously been noted as of some heritage interest within the *Bank Conservation Area SPD*, and also by the 20th Century Society. However, it is considered to have a low value, and evidence for this assessment is provided at Appendix A10.3: 10 King William Street Heritage Statement Addendum. In addition, the building was recently refused listed building status by English Heritage. The impact of the demolition of 10 King William Street and associated activities is therefore assessed as low.

- 10.6.5 The setting of buildings on Abchurch Lane will be affected by demolition of the Whole Block Site. The impacts on St Mary Abchurch (**BH47** [A14]) and 15 Abchurch Lane (**BH48** [A13]) will be temporary and of a low magnitude.
- 10.6.6 The demolition of the Whole Block Site will affect the King William Street streetscape, the general streetscape setting of heritage assets on the Bank Junction, and the character of the wider Bank Conservation Area. The impacts on 5 King William Street (**BH 42** [A12]), 1 King William Street (**BH41** [A11]), 1-6 Lombard Street (**BH26** [A7]), the Bank of England (**BH88** [B3]), 1 Prince's Street (**BH3**, [A5]), 1 Cornhill (**BH13** [B26]), St Mary Woolnoth (**BH28** [A27]) and The Mansion House (**BH25** [A6]) will be temporary and of a very low magnitude.
- 10.6.7 The demolition of the Whole Block Site and associated construction activities will affect the Cannon Street and Martin Lane streetscapes and have an impact on the streetscape setting of adjacent heritage assets particularly St Clement Eastcheap (**BH67** [B21]), 29 Martin Lane (**BH78** [A34]), 129 Cannon Street (**BH65** [A18]), 123-127 Cannon Street (**BH64** [A17]), 121 Cannon Street (**BH63** [A16]), 115-117 Cannon Street (**BH62**) and 113 Cannon Street (**BH61**). The impacts on the setting of each of these assets will be temporary and of a very low magnitude.
- 10.6.8 The streetscape, ground level setting of The Monument (**BH84**) will not be affected by the development of the BSCU. However, there will be some impact on historic cityscape views from its viewing gallery. The most notable views from The Monument are those to the north, north-west towards St Paul's and east. The Whole Block Site lies slightly off to the north of the view line to St Paul's, and the presence of a construction site with cranes and scaffolding will not affect this view. However, there will be an impact on wider views towards the Whole Block Site, these impacts will be temporary and of a very low magnitude.

The New Station Entrance

- 10.6.9 Construction activities associated with the new Station Entrance will have an impact on the Bank Conservation Area (**BH 90**) and the settings of associated assets particularly along Cannon Street. Construction activities will be temporary and of a very low impact.

10.6.10 The new Station Entrance will have a permanent impact on the Bank Conservation Area (**BH 90**) and the setting of 121, 123-127, and 129 Cannon Street (**BH63** [A16], **BH64** [A14], **BH65** [A18]). Impacts to setting will not be detrimental to the heritage value of the assets and the impact on the Bank Conservation Area (**BH 90**) and of the setting of designated assets on Cannon Street is assessed as very low.

10.6.11 The impact of construction activities and the new Station Entrance will result in no change to 29 Martin Lane (**BH78** [A34]).

Arthur Street Works Site and the Arthur Street Shaft

10.6.12 The construction of the Arthur Street Shaft will give rise to a permanent adverse impact through loss of the fabric of the disused King William Street Station (**BH98**), a non-designated asset. The asset will not be totally removed, and the area to be directly affected by the shaft does not contain a high level of surviving historic features relating to the 1890 station, but its historic legibility will diminish. The impact is assessed as low and features of the most significance within the disused station will be retained.

10.6.13 Construction activities on Arthur Street including construction traffic and hoarding will affect the settings of the following assets:

- The Olde Wine Shades, 6 Martin Lane (**BH83**);
- wall and railings at the former Churchyard of St Martin Orgar (**BH77**);
- 29 Martin Lane (**BH78** [A34]);
- Fishmongers Hall (**BH85** [B18]);
- Adelaide House (**BH86** [A39]); and
- The Monument (**BH84**).

10.6.14 The impacts in each case will be temporary and of a very low magnitude.

10.6.15 Hoardings around the Arthur Street Work Site and associated construction activities will result in no change to the setting of Laurence Pountney Hill Conservation Area (**BH92**) and no change to the setting of the retaining wall and railings to the former Pountney Churchyard (**BH81**).

Settlement Impacts

10.6.16 The following assessment takes into consideration the Stage 2 Settlement Assessment of listed buildings, the results of which can be found at Appendix A10.2: Building Damage Assessment Reports. In summary, Stage 2 Settlement Assessment provides a model of likely settlement across the tunnelling route, and so allows for development of mitigation proposals. The assessment uses 'damage categories' of 0-5, which in turn relates to predicted

strains. Knowing the characteristics of each building affected, including any specific features that may be particularly vulnerable, it is possible to determine specific potential effects on these particular features and finishes. Listed buildings are given a score for their structural, heritage and condition related sensitivities, and this score added to the damage category completes the ‘total score’. Initial concept recommendations regarding mitigation and monitoring are made at this stage.

- 10.6.17 A summary of the damage category score and likely consequent effects, without mitigation, for each of the designated assets within the 1mm zone of settlement is presented in the following sections. The full assessment reports, which include the scores attributed to damage category, structure, heritage sensitivity and condition giving rise to a total score, are included at Appendix A10.2: Building Damage Assessment Reports.

Grade I Listed Buildings

- 10.6.18 The Bank of England (**BH88 [B3]**) has a predicted damage category of 0, or ‘negligible’, corresponding to low tensile strains. Although the predicted damage is low, a single discontinuity in the rigid curtain wall surrounding the Bank, located at Tivoli Corner, may be the focus for any cracking. However, these cracks are likely to occur at joints, and could be easily repaired. The impact would be temporary and is assessed as very low.
- 10.6.19 27 Poultry/5 Prince’s Street (**BH95 [A4]**) has a predicted damage category of 0, corresponding to low tensile strains. There is a small risk of cracking through decorative marble. Any cracks could be repaired in order to mitigate the aesthetic change. Although permanent this would not harm the heritage value of the asset and the impact is assessed as low.
- 10.6.20 The Mansion House (**BH25 [A6]**) has a predicted damage category of 0, corresponding to low tensile strains. Differential settlement across the length of the building may cause movement which could have an effect on the eastern Egyptian Hall window, internal decorative plaster finishes and potentially affect other features of heritage interest within the building and require adjustment or repair. This could include vault doors which are expected to be sensitive to ground movement. The impact on the building is assessed as medium, and temporary if mitigation measures are undertaken. Given the high sensitivity of this building, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.21 St Mary Woolnoth (**BH28 [A27]**) has a predicted damage category of 0, corresponding to low tensile strains. The building is currently in poor condition, adding to its sensitivity to movement. There may be cracks to interior decorative plaster finishes which would easily be repaired. The impact would be temporary and is assessed as very low.

- 10.6.22 St Mary Abchurch (**BH47 [A14]**) has a predicted damage category of 0, corresponding to low tensile strains. The church contains many brittle finishes including the painted dome and plasterwork, as well as close jointed wall and floor monuments all of which may be affected. Cracking to interior finishes and exterior fabric would be repairable but some cracking may be permanent. The impacts, some of which may be permanent, are assessed as medium. Given the high sensitivity of this building, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.23 St Clement Eastcheap (**BH67 [B21]**) has a predicted damage category of 0, corresponding to low tensile strains. This level of ground movement may cause hairline cracks to delicate finishes and exterior stonework, concentrated on areas that are currently of poor condition, and which would be easily repairable. The impact is temporary and assessed as very low.

Grade II* Listed Buildings

- 10.6.24 20 St Swithin's Lane (**BH46 [A10]**) and 19 St Swithin's Lane (**BH45 [A10]**) are combined into one block [A10] for the purposes of damage assessment, as they interlock at basement and upper storey levels. The predicted damage category is 1, or very slight. Due to the composition of the buildings, damage would be concentrated at building junctions, and would be repairable following completion of works. The impact to both buildings would be temporary and is assessed as very low.
- 10.6.25 Fishmongers Hall (**BH85 [B18]**) has a predicted damage category of 0, corresponding to low tensile strains. Any cracking would be easily repairable after works are complete. The impact would be temporary and is assessed as very low.

Grade II Listed Buildings

- 10.6.26 The piers, gates and screen of St Mary Woolnoth (**BH28 [A27]**) have not been assessed using the standard methodology for building damage, as they do not conform to the typical model. Structural assessment has concluded that the gates, which are predicted to experience up to 1mm of settlement, will not be damaged during the works, and there will be no change to their heritage significance.
- 10.6.27 Basildon House (**BH99 [B34]**) has a predicted damage category of 0, corresponding to low tensile strains. Any impacts due to movement would be easily repairable after works are complete. The impact would be temporary and is assessed as very low.
- 10.6.28 4 Moorgate (**BH100 [B33]**) has a predicted damage category of 0, corresponding to low tensile strains. Any impacts due to movement would be

- easily repairable after works are complete. The impact would be temporary and is assessed as very low.
- 10.6.29 3-4 Lothbury (**BH101 [B1]**) has a predicted damage category of 0, corresponding to low tensile strains. This level of ground movement may cause hairline cracks in the exterior stonework, concentrated at the joints. This level of damage will be easily repairable after works are complete. The impact would be temporary, and is assessed as very low.
- 10.6.30 6 Lothbury (**BH102 [B31]**) has a predicted damage category of 0, corresponding to and low tensile strains. This level of ground movement may cause hairline cracks in the exterior stonework, concentrated at the joints. This level of damage will be easily repairable after works are complete. The impact would be temporary and is assessed as very low.
- 10.6.31 1 Prince's Street (**BH3 [A5]**) has a predicted damage category of 0, corresponding to low tensile strains. The southern façade of the building is characterised by large openings and decorative features including statuary. As a consequence the facade may be sensitive to small movements. As some damage may be difficult to repair the heritage value of the asset may be affected. The impacts, some of which may be permanent are assessed as medium. Given the sensitivity of the facade, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.32 The statue of the Duke of Wellington (**BH5**) has a predicted damage category of 0, corresponding to low tensile strains. The statue itself will not be affected by the movement, and any cracking will occur to the joints of the granite plinth which will be repairable. The impact would be temporary and is assessed as very low.
- 10.6.33 1 Queen Victoria Street (**BH23 [B5]**) has a predicted damage category of 0, corresponding to low tensile strains. This level of ground movement may cause hairline cracks in the exterior stonework, concentrated at the joints, and the level of damage will be easily repairable after works are complete. The impact would be temporary and is assessed as very low.
- 10.6.34 The Police Call Box (**B24**) has not been assessed using the standard methodology for building damage, as it does not conform to the typical model. Structural assessment has concluded that the structure, which is small and not attached to any rigid surface, will not be damaged by the predicted settlement, and there will be no change to the heritage significance of the asset.
- 10.6.35 1 Cornhill/82 Lombard Street (**BH13 [B26]**) has a predicted damage category of 0, corresponding to low tensile strains. This level of ground movement may cause hairline cracks in both the exterior stonework which has decorative elements, and interior decorative finishes particularly within the foyer. Cracking will be concentrated on stonework joints and in plaster and will be easily

repairable on completion of the works. The impact would be temporary and is assessed as low.

- 10.6.36 1-6 Lombard Street (**BH26 [A7]**) has a predicted damage category of 0, corresponding to low tensile strains. Movement will be at its greatest in proximity to the restaurant which has fragile decorative finishes some in poor condition. Any damage will be repairable on completion of the works. The impact is temporary and assessed as medium. Given the medium sensitivity of this building, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.37 1 King William Street (**BH41 [A11]**) has a predicted damage category of 2 or slight, corresponding to potentially damaging tensile strains. The building will experience differential settlements which may result in cracking through stonework. Any repairs that are required may be visible, the permanent impact of which is assessed as medium. Cracking through interior decorative plaster finishes will be repairable. Given the medium sensitivity of this building, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.38 5 King William Street (**BH 42 [A12]**) has a predicted damage category of 1 or very slight. The building is characterised by a number of sensitive heritage features that are structurally vulnerable. These features may be sensitive to the levels of movement. The impact may be permanent, and is assessed as medium. Given the medium sensitivity of this building, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.39 15 Abchurch Lane (**BH48 [A13]**) has a predicted damage category of 0, corresponding to low tensile strains. Differential settlement is also possible, which may affect areas of the building with fragile or damaged features. The impacts, some of which may be permanent, are assessed as medium. Given the medium sensitivity of this building, the effect is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.40 24 Lombard Street (**BH44 [B24]**) has a predicted damage category of 0, corresponding to low tensile strains. Any such hairline cracks in the exterior stonework will be concentrated at the joints, and will be easily repairable after works are complete. The impact would be temporary and is assessed as very low.
- 10.6.41 121 Cannon Street (**BH63 [A16]**) has a predicted damage category of 0, corresponding to low tensile strains. Any such hairline cracks in the interior finish will be easily repairable after works are complete. The impact would be temporary and is assessed as very low.
- 10.6.42 123-127 Cannon Street (**BH64 [A17]**) has a predicted damage category of 0, corresponding to low tensile strains. Any such hairline cracks in the interior

finish will be easily repairable after works are complete. The impact would be temporary and is assessed as very low.

- 10.6.43 129 Cannon Street (**BH65 [A18]**) has a predicted damage category of 0, corresponding to low tensile strains. Any such cracks in the exterior and interior finishes will be easily repairable after works are complete. The predicted impact would be temporary and is assessed as very low.
- 10.6.44 St Clement's House (**BH66 [B22]**) has a predicted damage category of 0, corresponding to low tensile strains. The exterior stonework shows signs of previous movement in places and any further cracking due to settlement from the BSCU is likely to be concentrated in these areas. However, this will be easily repairable after works are complete. The impact would be temporary and is assessed as low.
- 10.6.45 29 Martin Lane (**BH78 [A34]**) has a predicted damage category of 0, corresponding to low tensile strains. This level of ground movement may affect the bell tower and the structural integrity of the bow window. The impact may be permanent, and though assessed as low is potentially significant. This effect will be mitigated, as described in Section 10.7.
- 10.6.46 Adelaide House (**BH86 [A39]**) has a predicted damage category of 0, corresponding to low tensile strains. Any cracking will be concentrated on the exterior stone joints. Although the stonework of the facades most likely affected is very finely jointed, any cracks will be easily repaired following completion of works. The impact will be temporary and is assessed as very low.
- 10.6.47 6-8 Clement's Lane (**BH103 [B23]**) has a predicted damage category of 0, corresponding to low tensile strains. The settlement will not impact the retained historic façade, which is the only remaining heritage feature of this building; hairline cracking to the modern finishes of the building will not affect its heritage value. There will be no change to the heritage value of the asset.

Blockade

- 10.6.48 It is not anticipated that any effects on built heritage assets are likely to arise from the proposed blockade.

Summary of Construction Effects

- 10.6.49 Table 10.4 summarises the effects of the BSCU to heritage assets during construction.

Table 10.4: Effects on Built Heritage Assets: Construction

BH Number	Asset Name	Sensitivity	Impact Magnitude	Effect
Impacts from Utilities works (including Low Level 2 and London Bridge Sewer works)				
-	Potentially all assets within the study area	Medium - High	Very low	Negligible to Minor Adverse
Impacts from the Whole Block Site				
BH47 [A14]	St Clement Eastcheap	High	Very low	Minor Adverse
BH78 [A34]	29 Martin Lane	Medium	Very low	Negligible
BH61	113 Cannon Street	Medium	Very low	Negligible
BH62	115-117 Cannon Street	Medium	Very low	Negligible
BH63 [A16]	121 Cannon Street	Medium	Very low	Negligible
BH64 [A17]	123-127 Cannon Street	Medium	Very low	Negligible
BH65 [A18]	129 Cannon Street	Medium	Very low	Negligible
BH90	Bank Conservation Area	Medium	Very low	Negligible
BH47 [A14]	St Mary Abchurch	High	Low	Moderate Adverse
BH48 [A13]	15 Abchurch Lane	Medium	Low	Minor Adverse
BH41 [A11]	1 King William Street	Medium	Very Low	Negligible
BH42 [A12]	5 King William Street	Medium	Very Low	Negligible
BH26 [A7]	1-6 Lombard Street	Medium	Very Low	Negligible
BH88 [B3]	Bank of England	High	Very Low	Minor Adverse
BH3 [A5]	1 Prince's Street	Medium	Very Low	Negligible
BH13 [B26]	1 Cornhill	Medium	Very Low	Negligible
BH28 [A27]	Church of St Mary Woolnoth	High	Very Low	Minor Adverse
BH25 [A6]	The Mansion House	High	Very Low	Minor Adverse
BH84	The Monument (viewing gallery only)	Hlgh	Very Low	Minor Adverse
Impacts from the new Station Entrance				
BH90	Bank Conservation Area	Medium	Very Low	Negligible

BH Number	Asset Name	Sensitivity	Impact Magnitude	Effect
BH63 [A16]	121 Cannon Street	Medium	Very low	Negligible
BH64 [A14]	123-127 Cannon Street	Medium	Very low	Negligible
BH65 [A18]	129 Cannon Street	Medium	Very low	Negligible
Impacts from the Arthur Street Work Site and Shaft				
BH98	King William Street Station	Medium	Low	Minor Adverse
BH83	6 Martin Lane (Old Wine Shades)	Medium	Very low	Negligible
BH77	Wall and railings at the former churchyard, St Martin Orgar	Medium	Very low	Negligible
BH78	29 Martin Lane	Medium	Very low	Negligible
BH85	Fishmongers Hall	High	Very low	Minor Adverse
BH86	Adelaide House	Medium	Very low	Negligible
BH84	The Monument	High	Very low	Minor Adverse
BH81	Retaining wall and railings to the former Pountney Churchyard	Medium	No change	No change
BH92	Laurence Pountney Conservation Area	Medium	No change	No change
Impacts from settlement				
BH88 [B3]	Bank of England	High	Very low	Minor Adverse
BH95 [A4]	27 Poultry/5 Prince's Street	High	Low	Moderate Adverse
BH25 [A6]	The Mansion House	High	Medium	Moderate Adverse
BH28 [A27]	Church of St Mary Woolnoth	High	Very low	Minor Adverse
BH47 [A14]	St Mary Abchurch	High	Medium	Moderate Adverse
BH67 [B21]	St Clement Eastcheap	High	Very low	Minor Adverse
BH46 [A10]	20 St Swithin's Lane	High	Very low	Minor Adverse
BH45 [A10]	19 St Swithin's Lane	High	Very low	Minor Adverse
BH85 [B18]	Fishmongers Hall	High	Very low	Minor Adverse

BH Number	Asset Name	Sensitivity	Impact Magnitude	Effect
BH27 [A27]	Piers, gate and screen at St Mary Woolnoth	Medium	No change	No change
BH99 [B34]	Basildon House	Medium	Very low	Negligible
BH100 [B33]	4 Moorgate	Medium	Very low	Negligible
BH101 [B1]	3-4 Lothbury	Medium	Very low	Negligible
BH102 [B31]	6 Lothbury	Medium	Very low	Negligible
BH3 [A5]	1 Prince's Street	Medium	Medium	Moderate Adverse
BH5 [B29]	Statue of the Duke of Wellington	Medium	Very low	Negligible
BH23 [B5]	1 Queen Victoria Street	Medium	Very low	Negligible
BH24	Police Call Box	Medium	No change	No change
BH13 [B26]	1 Cornhill	Medium	Low	Minor Adverse
BH26 [A7]	1-6 Lombard Street	Medium	Medium	Moderate Adverse
BH41 [A11]	1 King William Street	Medium	Medium	Moderate Adverse
BH42 [A12]	5 King William Street	Medium	Medium	Moderate Adverse
BH48 [A13]	15 Abchurch Lane	Medium	Medium	Moderate Adverse
BH44 [B24]	24 Lombard Street	Medium	Very low	Negligible
BH63 [A16]	121 Cannon Street	Medium	Very low	Negligible
BH64 [A17]	123-127 Cannon Street	Medium	Very low	Negligible
BH65 [A18]	129 Cannon Street	Medium	Very low	Negligible
BH66 [B22]	St Clement's House	Medium	Low	Minor Adverse
BH78 [A34]	29 Martin Lane	Medium	Low	Minor Adverse
BH86 [A39]	Adelaide House	Medium	Very low	Negligible
BH102 [B23]	6-8 Clement's Lane	Medium	No change	No change

Operation

Settlement Impacts

- 10.6.50 Settlement is largely considered to be a construction impact, though the settlement may continue on completion of the BSCU. As impacts arising from

settlement during construction may endure during operation, impacts are the same as those reported during construction and are not further considered. Settlement will be monitored until significant movement is demonstrated to have ceased. This will be defined by monitoring, after all construction work that would potentially result in ground movement has been completed, to show at least three months duration of readings which show no change.

The Arthur Street Work Site and the Arthur Street Shaft

- 10.6.51 On completion of the BSCU and during operation, the Arthur Street Work Site will return to its pre-construction state. Temporary impacts on the settings of heritage assets will be removed and as a consequence there will be no permanent impacts.

The New Station Entrance

- 10.6.52 On completion of the BSCU temporary effects (which will endure throughout the project and persist until construction of the Over Site Development (OSD) is complete) will be removed, and there will be no permanent change to heritage assets.

Summary of Effects

Settlement Effects

- 10.6.53 There would be moderate adverse effects to seven designated assets as a result of settlement from construction of the BSCU.
- 10.6.54 There would be minor adverse effects to eight designated assets, as a result of settlement from construction of the BSCU. In most instances the impact is repairable and therefore temporary.

BSCU Work Sites

- 10.6.55 On completion of the BSCU temporary impacts on the settings of heritage assets will be removed. The BSCU will have no permanent effect on the Bank Conservation Area or to the settings of associated designated assets.

10.7 Mitigation

King William Street Station

- 10.7.1 Prior to commencing works which affect the former King William Street Station a programme of building recording works will be undertaken to an approved specification. Although building recording works will contribute to knowledge gain, the works do not in themselves mitigate the loss of fabric.

General Mitigation of Settlement

- 10.7.2 Monitoring of building movements within the 1mm zone of settlement as part of the BSCU is provided for within the draft CoCP (see Appendix A4.1) and as such is considered to be embedded mitigation as detailed in Section 10.5.
- 10.7.3 The instrumentation used to monitor building movement will be fixed to all heritage assets such that there will be a negligible impact on the heritage significance of the buildings. Details of monitoring will be set out in method statements for approval by the City of London Corporation and relevant stakeholders prior to installation. Areas of fixing will be made good following the completion of the BSCU.
- 10.7.4 For those structures that will, based on the findings of the Stage 2 Assessment, not require any further (Stage 3) assessment, or in those cases where other specific mitigation would not provide a reduction in the overall impact, repair of any damage will be implemented on completion of the BSCU. The scope of repair measures will be bespoke to each building according to circumstances of fabric and finishes affected, and a specification prepared for each building where required. Works of repair will involve the making good of cracking to finishes caused by settlement, and will be based on a defect and condition survey to take place prior to the construction of the BSCU commencing.

Specific Mitigation of Settlement – Stage 3 Buildings

- 10.7.5 The Stage 2 Assessment process forms a robust method for determining impacts and the likely significance of any effects on heritage assets arising from predicted settlement. It enables the scoping of an appropriate range of measures to avoid, prevent or reduce potentially significant effects; such that they are appropriately mitigated (i.e. effects become not significant). In some cases it is necessary to implement additional Stage 3 Assessment in order to verify whether mitigation is required and if so, to determine the precise form of this mitigation.
- 10.7.6 For those buildings requiring it, Stage 3 Settlement Assessment will support the detailed design of specific mitigation measures (where necessary) either in the form of pre-commencement repair, structural support or temporary removal of at risk features. The following buildings are proposed to be examined with a view to the implementation of mitigation:
- BH 47 [A14] St Mary Abchurch;
 - BH 48 [A13] 15 Abchurch Lane;
 - BH25 [A6] The Mansion House;
 - BH26 [A7] 1-6 Lombard Street;
 - BH41 [A11] 1 King William Street;

- BH42 [A12] 5 King William Street;
 - BH3 [A5] 1 Prince's Street; and
 - BH78 [A34] 29 Martin Lane.
- 10.7.7 In each case the scope of Stage 3 Assessment is likely to comprise elements of the following, dependant on the type of further information and assessment required:
- desk top review of additional survey and structural information including any previously unseen reports that become available as well as measured survey plans;
 - full, detailed visual structural survey to inform detailed modelling and analysis;
 - modelling and analysis of soil structure interaction to justify reduced settlements and building strains;
 - non-intrusive and intrusive surveys to better understand the building's sensitivities to predicted settlements and strains;
 - material sampling of interior finishes to facilitate informed repair;
 - recording heritage features to facilitate informed repair;
 - consideration of the potential pros and cons of physical mitigation;
 - mitigation design; and
 - formulation of movement monitoring plan.
- 10.7.8 Where intrusive survey is required as part of the Stage 3 assessment, full specifications and method statements will be provided to the City of London Corporation and relevant stakeholders for approval prior to commencement. The surveys will be designed to have a negligible, short-term temporary effect on the heritage assets, and all areas of intrusion will be made good following the survey.
- 10.7.9 Stage 3 Assessment was also triggered for 27 Poultry/5 Prince's Street (**BH95** [A4]), however, it has been determined that any requirement for mitigation for this building is likely to be as per the general mitigation for settlement set out in paragraph 10.7.2 and 10.7.3 (monitoring and repair of any damage).
- 10.7.10 Bank of England (**BH88** [B3]) has been identified as having sensitive structural elements and further work will be undertaken to verify the form and foundation of Tivoli Corner. It is considered likely that any mitigation required for this building would be as per the general mitigation for settlement set out in paragraph 10.7.2 and 10.7.3 (monitoring and repair of any damage) and would be local to the Tivoli Corner.

- 10.7.11 St Mary Woolnoth (**BH28 [A27]**) may be highly sensitive due to its current condition. Whilst Stage 3 assessment is not recommended, a full condition survey will be undertaken prior to the commencement of the BSCU construction. Any requirement for mitigation for this building is likely to be as per the general mitigation for settlement set out in paragraph 10.7.2 and 10.7.3 (monitoring and repair of any damage).
- 10.7.12 The Stage 2 Assessment process has allowed the likely scope of mitigation measures to be identified for each building for which a Stage 3 Assessment is proposed. The scope of likely mitigation is outlined in Table 10.5.
- 10.7.13 The Stage 3 Assessment process will determine actual mitigation requirements and enable a refinement of the mitigation measures currently proposed. The results of the Stage 3 Assessment will be available before, and mitigation will be implemented prior to, commencing construction of the BSCU (where such an approach is required and appropriate).
- 10.7.14 The following table identifies the potential scope of mitigation for each building for which a Stage 3 Assessment is proposed. The detail and necessity for this will be confirmed on completion of the Stage 3 process. These measures are considered likely to be sufficient to mitigate the potentially significant effects.

Table 10.5: Potential Scope of Mitigation Measures for Buildings where Stage 3 Assessment is Proposed

Building Ref	Location	Potential Scope of Mitigation
BH47 [A14]	St Mary Abchurch	Strengthening the roof structure of the dome by the addition of cleets and ties; consolidating the painted plaster finish of the dome; temporary bracing to selected windows; and temporarily removing selected wall monuments to safe storage.
BH25 [A6]	The Mansion House	Adjustment and enhancement of existing internal structural ties; temporary removal for specialist repair/conservation of a section of stained glass from the eastern window of the Egyptian Hall and installation of a temporary replica panel; and consolidation of vulnerable decorative plaster in the principal and second floor reception rooms in the north and central areas of the building.
BH26 [A7]	1-6 Lombard Street	Consolidation of decorative plaster to ceiling/dome within the ground floor restaurant and temporary strengthening of cantilevered stair through the use of fixed props.
BH42 [A12]	5 King William Street	Adjustment of existing internal façade fixings and insertion of additional ties and brackets to the Sherborne Lane elevation.
BH41 [A11]	1 King William Street	Adjustment of existing internal façade fixings and insertion of additional ties and brackets to the Sherborne Lane elevation.
BH 48 [A13]	15 Abchurch Lane	Consolidation and repair of existing cracked stonework and brickwork on the Abchurch Lane elevation.
BH3 [A5]	1 Prince's Street	Strengthening of fixings to statuary at attic level on the south-eastern corner elevation, including temporary removal of the statues to safe storage.
BH78 [A34]	29 Martin Lane	Provision of temporary external bracing to bay window at basement to first floor on southern elevation to be fixed to the main elevation, and insertion of internal ties and brackets.

Secondary Effects Arising from Mitigation

- 10.7.15 Mitigation measures may themselves cause an impact on heritage assets and impact on uses of buildings, and their appreciation by users, due to the need for intrusive works to historic fabric. These impacts will be mostly temporary and will cease on completion of the BSCU. In some cases buildings may have a permanent change made to their structure should additional ties or structural strengthening be added. However, these measures will be sensitively implemented and will not significantly affect the buildings' heritage value.

- 10.7.16 Proposed mitigation to St Mary Abchurch (**BH28 [A27]**) would temporarily detract from the aesthetic and historic value of the building whilst consolidation works take place and during the temporary period where fixtures and features have been removed. Although such mitigation would affect the appreciation by visitors and users of the Church, it would not prevent use of the building. This is considered to be a medium magnitude of impact on a building of high sensitivity. Whilst this would equate to a moderate effect, it is temporary, mainly involving protective works either at the beginning or after the construction of the BSCU. Strengthening of the structure of the dome, would be permanent, but would not impact the heritage value of the building.
- 10.7.17 The mitigation proposed to the high sensitivity Mansion House (**BH25 [A6]**) may require the temporary removal of historic fabric (a panel from the Egyptian Hall's eastern stained glass window). Removal, repair (of existing damage) and subsequent reinstatement will be undertaken following conservation principles, and will not permanently affect the heritage value of the building. The impact is considered to be low resulting in a temporary moderate adverse effect on people's appreciation of the heritage but a permanent beneficial effect on the feature itself. During the works a replica panel would be installed to maintain the appearance of the window. With this mitigation, the temporary moderate effect would become minor (and not significant).
- 10.7.18 The consolidation of plaster finishes to the restaurant at 1-6 Lombard Street (**BH26 [A7]**), would rectify existing damage resulting in a permanent minor beneficial effect. Propping of the stair would change the appearance of this element of the medium sensitivity heritage asset, but will be temporary and of a low impact to users' appreciation of the asset resulting in a minor adverse effect.
- 10.7.19 The strengthening of external façade elements to 1 King William Street (**BH41 [A11]**), 5 King William Street (**BH 42 [A12]**), and 1 Prince's Street (**BH3 [A5]**), would be undertaken in a way that would avoid damage to heritage finishes. It would therefore have a low impact on the heritage assets (all medium sensitivity assets) during the period when intrusive mitigation works are underway. This is not considered likely to have more than a very low impact on the use and appreciation of the buildings resulting in a temporary minor adverse effect.
- 10.7.20 The repair of the damaged façade of 15 Abchurch Lane (**BH48 [A13]**) (a medium sensitivity heritage asset) would have a temporary low impact on the heritage assets during intrusive works to achieve the proposed mitigation. However, this is unlikely to have more than a very low impact on the use and appreciation of the building resulting in a temporary minor adverse effect. On completion of the repair works the improvements would have a permanent low

magnitude of impact on the appreciation of the building resulting in a minor beneficial effect.

- 10.7.21 Strengthening of the bow window to 29 Martin Lane (**BH78** [A34]) (a medium sensitivity heritage asset) would have a temporary impact. If fixings are achieved internally, the impact would be very low resulting in a negligible effect on heritage value and the appreciation of the building. If external works are required, these would diminish the heritage value of the building for a short period, and affect its appreciation, although this is considered to be a low magnitude impact resulting in a minor adverse effect.
- 10.7.22 External strengthening and repair of building facades, windows and finishes would temporarily result in low magnitude impacts on the setting of listed buildings while works are carried out. This would impact on the appreciation of the heritage asset by people working in the City of London and visitors to the area resulting in a moderate adverse effect. However, due to the relatively short duration of such works, this is not considered significant.
- 10.7.23 Although compensation grouting is not expected to be required to mitigate the effects of settlement, provision for compensation grout shafts is being sought as part of the order. Shafts would be located within the Whole Block Site and within Walbrook. The shaft location within the Whole Block Site would not have an effect on the setting or fabric of any heritage asset. The Walbrook Grout Shaft would have a localised adverse effect on the character and appearance of the Bank Conservation Area (a medium sensitivity asset) and to the setting of listed buildings including The Mansion House (**BH 25** [A6]) (a high sensitivity asset) and 1 Queen Victoria Street (**BH23** [B5]) (a medium sensitivity asset). However, these works are temporary and the heritage impact is therefore considered very low, resulting in no more than a minor adverse effect which is not considered significant. Other potential effects of these works are considered in other chapters of the ES – such as Chapter 9: Noise and Vibration and Chapter 7: Townscape and Visual Effects as appropriate.
- 10.7.24 The secondary adverse effects resulting from mitigation would be temporary in nature and are not considered to be significant. Where consolidation or repair prior to construction works is proposed, this will result in a beneficial effect that is not considered to be significant.

10.8 Residual Effects

- 10.8.1 In the majority of cases where settlement impacts are predicted, measures to protect or repair the fabric of designated assets will be implemented such that significant residual effects are unlikely. In a small number of cases, more detailed protective measures may be necessary. All such protective or cosmetic measures will, as determined in each case by the local planning authority, be secured by means of listed building consents. The majority of impacts will be temporary. Where there are permanent effects, i.e. where cracking affects marble finishes or stone and where repairs will remain visible, these will not reduce the overall heritage value of the asset.
- 10.8.2 The BSCU will result in a minor adverse permanent residual effect (which is not significant) to the fabric and heritage value of the disused former King William Street Station (**BH98**) a non-designated asset.

10.9 Inter-relationships and Cumulative Effects

- 10.9.1 The settings of Fishmongers Hall (**BH85** [B18]) and Adelaide House (**BH86** [A39]) would be affected by the development of 33 King William Street, of which some of the construction phases will be concurrent with construction activity at the Arthur Street Work Site. Though there will be a cumulative impact on setting this is assessed as very low.
- 10.9.2 Views west from The Monument (**BH84**) will encompass both the 33 King William Street construction site and the Arthur Street Work Site. The cumulative impacts on setting are assessed as very low.

10.10 Assumptions and Limitations

- 10.10.1 This assessment has been undertaken with the assumption that the mitigation measures identified at Stage 2 and the scope of measures considered in respect of those identified for Stage 3 assessment present a worst case scenario, in line with EIA best practice, against which impacts can be assessed.
- 10.10.2 It is acknowledged that the assessment is based on predicted levels of settlement which will be monitored. The project allows for protective works to be implemented, should survey work or monitoring indicate that this is required.

10.11 Conclusions

- 10.11.1 The impacts of settlement would potentially result in moderate adverse effects to a number of buildings. However, mitigation is proposed to alleviate these impacts such that effects will not be significant and heritage value will not change.

- 10.11.2 Construction activities at the Arthur Street Work Site and Whole Block Site (and new Station Entrance) will have a temporary impact on the Bank Conservation Area and to the setting of associated designated assets. The overall effect is assessed as not significant. Permanent effects to the setting of assets and to the character and appearance of the Conservation Areas as a result of the BSCU are not considered to be significant.
- 10.11.3 The construction phase of the BSCU will result in a minor adverse residual effect on the former King William Street Station which will result in a permanent loss of historic fabric and a change in the heritage value of this non-designated asset. A programme of building recording will preserve a record of the current form. On implementation of this mitigation, this effect is not considered to be significant.
- 10.11.4 Any secondary adverse effects resulting from mitigation required to protect heritage assets would be temporary in nature and are not considered to be significant. Where consolidation or repair prior to construction works is proposed, this would result in a beneficial effect that is not considered to be significant.

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