12. ARCHAEOLOGY

INTRODUCTION

12.1 This chapter assesses the effects of the four Development Scenarios upon known and potential archaeological deposits within the sites of the three applications. The chapter provides a summary of planning policy relevant to archaeological issues and a description of the existing and potential archaeological resources within and around the application sites. The chapter then makes an assessment of the potential effects of the four Development Scenarios upon archaeology, predominately resulting from demolition and construction works, together with any mitigation measures required to prevent, reduce or offset any adverse effects. The resulting residual effects are also discussed.

12.2 The chapter summarises an Archaeological Strategy Document undertaken by the Museum of London Archaeological Service (MoLAS) and included within Technical Appendix 12a.

LEGISLATIVE AND PLANNING POLICY CONTEXT

Legislation

Ancient Monuments and Archaeological Areas Act (as amended), 1979

12.3 The primary legislation concerning protection of archaeological and historical sites is provided by the Ancient Monuments and Archaeological Areas Act, 1979 (as amended) (Ref. 12.1). Under the terms of this Act, the most important (known) sites and monuments in England have been designated Scheduled Ancient Monuments (SAMs). The Act also makes provision for the investigation, preservation and recording of sites of archaeological and historical significance, and for the regulation of all operations and activities that may affect them or their settings. Any developments that might affect SAMs or their settings would normally be subject to the granting of SAM Consent by the Department of Culture, Media and Sport.

National Planning Policy

Code of Good Practice on Archaeological Heritage in Urban Development Policies, 2000

12.4 The Code of Good Practice (Ref. 12.2), established by the Cultural Heritage Committee of the council of Europe states:

"…before taking decisions affecting archaeological heritage, planners should obtain adequate information and advice, applying non-destructive methods of investigation wherever possible… the purpose [of assessment] will be not only to establish if it is necessary to dig but also to build a picture of the Site 's morphology and its potential."

Planning and Policy Guidance 16: Archaeology and Planning, 1990

12.5 Planning Policy Guidance Note 16 (PPG16) (Ref. 12.3) sets out the Secretary of State's policy on archaeological remains on land. PPG16 provides recommendations for dealing with known and potential archaeological resources in a development context, many of which have been integrated into local development plans.

12.6 A key recommendation of PPG16 is that archaeological remains should be seen as a finite and non-renewable resource, and in many cases highly fragile and vulnerable to damage and destruction. Appropriate management is therefore essential to ensure that they survive in good condition. Field evaluations and early consultations with Local Planning Authorities (LPAs) are encouraged where proposed developments are likely to affect archaeological remains. Where important remains are known to exist, or when archaeologists have good reason to believe that

important remains exist, it is favourable to preserve in-situ, although it may be possible for preservation by record where this is not reasonably feasible or desirable.

Regional Planning Policy

The London Plan: Spatial Development Strategy for Greater London, 2008

12.7 Policy 4B.15 (Archaeology) in the Greater London Authority (GLA)'s London Plan (Ref. 12.4) states:

"The Mayor, in partnership with English Heritage, the Museum of London and boroughs, will support the identification, protection, interpretation and presentation of London's archaeological resources. Boroughs in consultation with English Heritage and other relevant statutory organisations should include appropriate policies in their DPDs for protecting scheduled ancient monuments and archaeological assets within their area."

Local Planning Policy

Westminster City Council, Replacement Unitary Development Plan, 2007

12.8 Westminster City Council's (WCC's) Replacement Unitary Development Plan (UDP) (Ref. 12.5) forms the basis of local planning policy. The UDP considers archaeology as a material consideration in the planning process and incorporates recommendations from PPG16 as described above.

12.9 Policy DES 11 states that WCC will promote the conservation, protection and enhancement of Westminster archaeological heritage. The policy adds that where development may affect land of known archaeological potential the applicant is expected to properly assess the archaeological implications. WCC also seeks to ensure that nationally important archaeological remains and their settings are preserved in situ, and where this is inappropriate no development shall be carried out until archaeological investigations have taken place. Remains of local archaeological value should be properly recorded, evaluated and, where practicable, preserved in situ.

Supplementary Planning Guidance - A Guide to Archaeology and Planning within Westminster, 2004

12.10 This Supplementary Planning Guidance (SPG) (Ref. 12.6) is based on the relevant policies contained in WCC's UDP, guidance in PPG16 and the Code of Practice published by the British Archaeologists and Developers Liaison Group (Ref 12.7). In addition to the areas around the Houses of Parliament and Westminster Abbey that are of archaeological interest, the SPG highlights five areas of Special Archaeological Priority within WCC's administrative boundary. The document also sets out recommendations for developers considering works on sites where there may be archaeological remains and to raise awareness generally of the importance of WCC's archaeological heritage.

ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

Assessment Methodology

12.11 The Archaeological Strategy (refer to Technical Appendix 12a) upon which this chapter is based, has been produced with reference to the following studies:

- Archaeological Impact Assessment, 2004 (refer to Technical Appendix 12b), which relates to the three application sites;
- Archaeological Impact Assessment report, 2005 (Technical Appendix 12c), which relates to the three application sites; and
- Archaeological evaluation report, 2006 (Technical Appendix 12d), which relates to the three application sites.

12.12 These studies were carried out in accordance with guidance from various bodies including the Institute of Field Archaeologists (IFA) and the Association of County Archaeological Officers. The studies have been informed by the following sources:

- London Archaeological Archive and Resource Centre (LAARC);
- Greater London Site s and Monuments Record (GLSMR);
- MoLAS published historic maps and archaeological publications;
- British Geological Survey (BGS) geology mapping; and
- English Heritage information on statutory designations including Scheduled Monuments and Listed Buildings.

12.13 In summary, the assessment has employed the following steps:

- Undertaking of a comprehensive data search of the GLSMR held and maintained by the English Heritage Greater London Archaeological Advisory Service (GLAAS). This allowed the collation of data upon all known archaeological sites, findspots and listed buildings on the Record;
- Study of historical maps to determine the historical evolution of the three application sites and their surroundings;
- General research of secondary sources available with regard to the City of Westminster;
- Site inspections and surveys carried out by professional and experienced archaeologists;
- Identification of potential effects during the demolition and construction stages of the four Development Scenarios and once the they are complete;
- Identification of appropriate mitigation strategies to prevent, limit and offset any identified adverse effects resulting from any of the Development Scenarios; and
- Identification of any expected residual effects following the successful implementation of the mitigation strategies.

12.14 Consultation has been undertaken with GLAAS, English Heritage and WCC's Planning Department whose comments on the proposed Archaeological Strategy document have been incorporated and agreed.

Significance Criteria

12.15 The significance of archaeological effects resulting from the four Development Scenarios has been assessed using the following process:

- Identification of the importance of known and potential archaeological resources; and
- Identification of the magnitude of the effect.

Importance of Resource

12.16 The determination of the importance of archaeological resources is based on professional judgement using the following criteria:

- Statutory protection or other formal designation;
- Date of the resource;
- Rarity;
- State of preservation;
- Diversity/complexity;
- Contribution to publications;
- Supporting historical documentation or association;
- Collective, group value and/or comparative potential; and
- Educational, social or economic value.

12.17 Table 12.1 provides an indication of the criteria used to assess resource importance.

Table 12.1: Importance of Baseline Resources

Importance of Resource	Examples
Very high (International/ National)	World Heritage Sites. Scheduled Ancient Monuments. Non-designated Site s, settlements and landscapes of equivalent status (exceptional heritage value).
High (National/ Regional)	Burial grounds. Non-designated Sites, settlements and landscapes of equivalent status (rare and well-preserved examples).
Medium (County/ City/Borough)	Non-designated Site s, settlements and landscapes of equivalent status (good preservation, sufficient for comparative study and educational/cultural appreciation). Archaeological Priority Areas.
Low (District/Parish)	Low significance and/or poor state of preservation results in resources of no more than local value.
Very low	Insignificant and/or badly damaged resources of little appreciable value.
Uncertain	Resources that have a clear potential, but for which current knowledge is insufficient to allow significance to be determined.

Magnitude of Change

12.18 The determination of magnitude of change is based on the predicted severity of the effect resulting from the four Development Scenarios (e.g. from piling, ground reduction etc). Table 12.2 provides a list of the criteria used to determine the magnitude of change. It should be noted that the survival of archaeological deposits within any given area is often uncertain, as is their exact extent. Magnitude of change can therefore be difficult to predict with any certainty.

Table 12.2: Magnitude of Change

Magnitude of Change	Description of Change
High	Complete destruction of the Site or feature or a fundamental change in our ability to understand and appreciate the resource and its historical setting.
Medium	An *appreciable change* in our ability to understand and appreciate the resource and its historical setting.
Low	A *small change* in our ability to understand and appreciate the resource and its historical setting.
Negligible	*No material change* in our ability to understand and appreciate the resource and its historical setting.
Uncertain	Survival condition of resource in specific locations is not known.

Significance of Environmental Effects

12.19 The significance of an effect is determined by comparing the importance of baseline resources with the magnitude of change resulting from the four Development Scenarios. Effects may be either adverse or beneficial. Where information is insufficient to be able to quantify either the importance of the resource or the magnitude of change with any degree of certainty, the significance of the effect is given as ‘uncertain’.

12.20 In line with the criteria set out in Chapter 2: EIA Methodology, the effects of the four Development Scenarios upon archaeological resources use a five-level scale of significance. As archaeological remains are considered finite and irreplaceable resource, there can be no moderate or substantial beneficial effects to archaeological resources. Table 12.3 provides a matrix to determine the significance of environmental effect prior to mitigation, based on the importance of the resource (refer to Table 12.1) and the magnitude of change (refer to Table 12.2).

Table 12.3: Significance of Environmental Effect Prior to Mitigation

Magnitude of Change	Importance of Resource					
	Very High	**High**	**Medium**	**Low**	**Very Low**	**Uncertain**
High	Substantial	Substantial	Substantial	Moderate	Minor	Uncertain
Medium	Substantial	Substantial	Moderate	Minor	Minor	Uncertain
Low	Moderate	Moderate	Minor	Minor or None	Negligible/ No Impact	Uncertain
Negligible	Minor	Minor or None	Negligible/ No Impact	Negligible/ No Impact	Negligible/ No Impact	Uncertain
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain	Uncertain	Uncertain

Mitigation and Residual Effects

12.21 Measures to mitigate adverse effects would normally consist of design adjustments to the scheme, to allow important resources to be protected and retained (preservation in situ), or where this is not feasible investigation and recording before and during development (preservation by record). The residual effect reflects the success rating for the recommended mitigation strategy. It may be beneficial, negligible or adverse depending on whether mitigation has enhanced or detracted from the resource. Table 12.4 provides an indication of the significance of residual effects (i.e. effects following the implementation of an agreed mitigation strategy). The effects assessed lie entirely within the sites of the three applications.

Table 12.4: Significance of Residual Effects

Significance	Criteria
Substantial adverse	Negative residual effect that would be an important consideration at a national level.
Moderate adverse	Negative residual effect that would be an important consideration at a regional or county level.
Minor adverse	Negative residual effect that would be a relevant consideration in a local context.
Negligible	No effects on known or predicted on resources or their settings, or where mitigation protects the resource from adverse effects.
Uncertain	It is not possible to quantify the significance of residual effect due to lack of information.
Minor beneficial	Positive residual effect that would be a relevant consideration in a local context.
Moderate beneficial	Positive residual effect that would be an important consideration at a regional or county level.
Substantial beneficial	Positive residual effect that would be an important consideration at a national level.

BASELINE CONDITIONS

12.22 This section describes the known and potential archaeological resources relevant to the sites of the three applications and within their surrounding areas. A more detailed description can be found in Technical Appendix 12a.

12.23 The three application sites do not contain statutorily protected heritage resources and does not fall within an Area of Archaeological Priority as defined in WCC's UDP.

Archaeological and Historical Development

Geology and Topography

12.24 London occupies part of the Thames Basin which is formed of chalk and filled with sands and clays. Within the administrative boundary of WCC (as for the majority of London) the Thames Basin comprises London Clay. Above the clay lie the fluvial deposits of the River Thames arranged in gravel terraces. The sites of the four Development Scenarios lie within the marshy flood plain of the River Tyburn which divided into a number of channels at this point. The river channels have now been culverted within the King's Scholars' Pond Sewer, which crosses the sites of the three applications. The subsoil comprises deposits of alluvium over River Terrace Gravel. The alluvium offers a high potential for geo-archaeological and palaeo-environmental information as it may preserve organic material from plants and animals.

Prehistoric (480,000BC – AD 43)

12.25 During the prehistoric periods, much of the sites of the three applications would have been wet and marshy with pools of water separated by boggy ground. There would have been many small channels surrounding higher areas forming sandy islands. Areas such as this would have been exploited by prehistoric people for food and building materials.

12.26 A few scattered prehistoric finds in the area have been recorded, including a Palaeolithic scraper in Piccadilly to the north of the application sites and a Neolithic axe in Francis Street to the south-west of these sites. A Bronze Age pal stave was found at Buckingham Palace Road and other prehistoric finds may potentially be located within Westminster.

Roman (AD 43 – AD 410)

12.27 The history of the area immediately around the application sites in the Roman period is not well known. An early crossing of the Thames at a ford between Lambeth and Westminster has been postulated and a Roman presence at Thorney Island, near Westminster Abbey, has been shown on a number of sites in the vicinity. However, the land to the west of Thorney Island formed part of an extensive marsh during the Roman period. This is likely to have included the sites of the three applications. A few stray Roman finds have been found locally.

Saxon (AD 410 – AD 1066)

12.28 Similarly, the history of the area immediately around the application sites in the Saxon period is also not well known. The main focus of the Early and Middle Saxon settlement was a busy trading port further to the east around Aldwych, the Strand, and Covent Garden, in an area known in the 8th century as Lundenwic.

12.29 No archaeological evidence has been found on the sites of the applications for this period.

Medieval (AD 1066 – AD 1500)

12.30 Within the Medieval period, the sites of the three applications were on marginal land, which would have been unsuitable for settlement. No archaeological evidence has been found on the application sites for this period.

Post-Medieval (AD 1500 – present)

12.31 Although there is little archaeological evidence from which to determine the nature of the application sites in the 16th century, later maps show that it was undeveloped and set within open fields.

12.32 The sites of the three applications are crossed by the King's Scholars' Pond Sewer, running approximately from north to south (Ref. 12.8). The artificial channel may have been dug in the 17th century probably to drain marshland to the south, and was probably bricked over early in the 19th century. It is possible that this channel was constructed on the line of a much older ditch.

12.33 The Stag Brewery, established in the 1640s, was rebuilt in 1797-1807 but was closed in 1959 and subsequently demolished.

12.34 In 1793, the Chelsea Waterworks Company was founded. In order to create a reservoir for the use of the company, some existing streams and creeks were enlarged to form the reservoir. This was located outside the application sites, to the south of Victoria Street. The reservoir was fed by the waterworks canal which was filled from the Thames at high tide and retained by sluices at low tide. The waterworks canal was converted for commercial use in the 1820s. By 1929, the canal had largely been infilled and the railway line from the River Thames to the new Victoria Mainline Station subsequently followed its route. Victoria Mainline Station was opened in 1860.

12.35 The area to the east of Buckingham Palace Road remained relatively open, with marshy low-lying ground which was used for pasture, osier beds and market gardens. This continued until the end of the 18th century up until the time when the land was reclaimed for large-scale residential development. Small terraced houses are shown on maps of this period to the north of Brewer Street (the present day Allington Street) and gardens, a timber yard and Pimlico Wharf to the south. By 1827, the application sites are shown to be occupied by buildings and by the late 19th Century, the area to the north of Brewer Street had been rebuilt.

12.36 The London Underground Limited (LUL), District and Circle line was constructed in 1868. It runs to the south of the sites of the four Development Scenarios, south of Victoria Street. This was a cut and cover line. The tunnelled Victoria Line, constructed between 1968 and 1971, runs from north to south on the eastern side of the application sites.

12.37 The sites of the three applications suffered some minor blast damage during World War II. Damage occurred to some of the buildings that lined Victoria Street and minor blast damage occurred to the south of the Stag Brewery.

12.38 Further information regarding the Post-Medieval features relevant to the sites of the four Development Scenarios can be obtained by reference with Technical Appendix 12a and the Volume 3 of this Environmental Statement: Townscape, Conservation and Visual Assessment.

Potential for Archaeological Survival

12.39 The potential for archaeological survival within the sites of the three applications is dependent upon past activities associated with the areas in question, together with the degree to which the potential remains of these activities have been truncated by subsequent land uses and activities. Based on the historical development of the application sites as outlined above, an assessment of the potential for archaeological survival has been made. This has revealed that the application sites have a potential for geo-archaeological survival and the preservation of prehistoric remains and a high potential for post-medieval remains in some areas. The potential for remains from other periods is considered to be low. The archaeological potential of the application sites is detailed below and shown on Figure 12.1.

12.40 At the north of the application sites the majority of existing buildings were constructed between 1959 and 1964. It is currently thought that Elliot House, Carrier House and the Stag public house (within the site of application 1) are not basemented, but The Royal Westminster Thistle Hotel and Lake View Court (to the west of Warwick Row within the site of application 1) have an underground car park. It is thought that the car park has a basement depth of approximately 4m below ground level (BGL). It is therefore expected that archaeological remains would have been removed down to this level, with only alluvial deposits still surviving below basement depth.

12.41 In consideration of the above, the area to the west of Warwick Row (within the site of application 1) is considered to have a **low** archaeological potential, and the area to the east of Warwick Row and north of Allington Street (within all three application sites) has a **moderate** potential for geo-archaeological, prehistoric and post-medieval remains.

12.42 In the southern part of the application sites the buildings are mostly from the 19th century with some more recent additions. The Grade II listed Victoria Palace Theatre and adjacent Duke of York public house are located in this area however these buildings lie outside the boundaries of the three application sites.

12.43 Although, the basement status of many of the buildings between Allington Street and Victoria Street is currently unknown, it is likely that cellars associated within the Victorian and Edwardian properties in this location would have partially truncated any archaeological remains. Similarly, the construction of modern basemented buildings in this block (particularly 19 Allington Street) would have further disturbed archaeological deposits. The area in the centre of the block, behind the buildings fronting onto Victoria Street (within the site of application 1) has largely remained undisturbed and therefore has **moderate** potential for geo-archaeological, prehistoric and post-medieval remains.

12.44 The land adjoining Bressenden Place (within the sites of application 1 and 2) has experienced more modest development including small factory/workshop buildings and some more substantial structures fronting onto Victoria Street. Consequently, the archaeological potential in this area is considered to be **moderate**. Individual properties at 120-124 Victoria Street (within the site of application 2) and 140-150 Victoria Street (within the site of application 1) are thought to contain basements of around 4m depth. In addition, an underground subway exists beneath Bressenden Place. Some truncation of deposits is therefore expected in these areas. However, a borehole in this area showed that potentially important archaeological deposits remain. The area may also form the edge of a channel or lake and is therefore of great interest palaeo-environmentally. The area is therefore assessed as being of **low to moderate** potential for geo-archaeological, prehistoric and post-medieval remains.

Roads

12.45 Allington Street (within the site of application 1) was in existence by the mid to late 18th century, prior to the widespread development of the area, and apart from a subway under Bressenden Place and truncation associated with the installation of modern services, any archaeological remains beneath the roads within the three application sites are likely to be largely undisturbed.. There is therefore a **high** potential for substantial 18th to 19th century post-medieval remains in this area.

Summary of Archaeological Potential

12.46 The potential for survival of ancient ground surfaces within the application sites is likely to be limited to areas under existing roads, spaces behind buildings and/or within properties that have not been deeply basemented. However alluvial deposits may still survive below basements dependant on their depth.

12.47 Within all three application sites archaeological survival is likely to be extremely limited in some areas, primarily due to the significant extent of disturbance associated with the LUL infrastructure together with modern building intrusion. However, there are many sections of the application sites which are likely to be less truncated, including areas under roads and in yards/open areas, some of which have remained as such throughout the progressive development of the application sites. It is anticipated that the average depth of archaeological deposits where they do survive is likely to be between 1m and 3m below ground level (BGL). However alluvial material could be encountered at greater depths (up to approximately 7m BGL). Known areas of basementing and other disturbances within the application sites are shown on Figure 12.2.

Table 12.5: Summary of archaeological potential within the four Development Scenarios

Summary of key potential	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Brewery buildings	Possibly in area on west side of Bressenden Place, only limited potential			Not present
Kings Scholars Pond Sewer	Extends under Buildings 6a and 7b	Extends under Building 7b	Extends under Building 6a	Not present
18th/19th-century structures	Within the double basement area			
Potential deep sequences under Allington Street	Within the double basement area			
Geo-archaeological alluvial sequences	Within the double basement area and under Elliot House and 3–11 Bressenden Place	Within the double basement area and under 3–11 Bressenden Place	Within the double basement area and under Elliot House	Within the double basement area
Peat deposits at channel margins	Possibly in the western part of the double basement area and under 3–11 Bressenden Place	Possibly in the western part of the double basement area and under 3–11 Bressenden Place	Possibly in the western part of the double basement area	Possibly in the western part of the double basement area
Possible prehistoric land surfaces	The greatest potential is under Allington Street and around The Stag public house			

POTENTIAL EFFECTS

Demolition and Construction

12.48 The demolition of existing buildings on the three application sites is unlikely to have an effect on existing archaeological remains. However, removal of existing slabs at basement and ground level in areas of greater archaeological potential could have the potential to affect archaeological remains. As such, potential effects associated with intrusive construction works are assessed by Development Scenario as follows:

Development Scenario 1

12.49 The most destructive site activities associated with the implementation of Development Scenario 1 are likely to include:

- Excavation and basement construction;
- Piling and foundation structures; and
- Installation and diversion of underground services.

12.50 Development Scenario 1 would contain a basement beneath parts of Buildings 5, 6a, 6b and 7a. This would comprise approximately the western two-thirds of the area of the Development Scenario 1. The double basement would extend to a maximum depth of –8.25m OD. Development Scenario 1 also contains a basement beneath building 7b/c to a depth of 0.8m OD. The basements would be sufficiently deep to remove all archaeological remains within the basement footprints.

12.51 Piling would be undertaken for all buildings and would range in depth from -30m OD to -45m OD and in the case of Building 6a between -65m OD to -76m OD.

12.52 In view of the archaeological potential identified within the three application sites (which make up Development Scenario 1) and the proposed ground works associated with Development Scenario 1, the potential effects on any archaeological remains of Development Scenario 1 in the absence of mitigation have been summarised in Table 12.6.

Table 12.6: Potential Archaeological Effects of Development Scenario 1

Archaeological Resource	Potential Effect	Importance of Archaeological Resource	Magnitude of the Effect	Significance of the Effect
Geo-archaeological deposits	Localised destruction caused by basement excavation piling, foundations and the installation and diversion of underground services	Medium	Medium	**Permanent**, **local** and of **minor** to **moderate adverse** significance
Prehistoric deposits		Low, to medium	Medium	**Permanent**, **local** and of **minor** to **moderate adverse** significance.
Roman deposits		Low	Low	**Minor adverse or negligible** significance
Saxon deposits		Low	Low	**Minor adverse or negligible** significance.
Medieval deposits		Low	Medium	**Permanent**, **local** and of **minor adverse** significance.
Post-medieval deposits		Medium	Medium	**Permanent**, **local** and of **minor to moderate adverse** significance.

Development Scenario 2

12.53 The potential effects of Development Scenario 2 would be the same as those of Development Scenario 1. This is due to the fact that the extent and depth of the proposed basement beneath the buildings of Development Scenario 2 would be the same as for Development Scenario 1. Indeed, piling would be undertaken for all buildings and would range in depth to between -30m OD to -45m OD.

12.54 Despite the above, it should be noted that work proposed within Development Scenario 2 would have no effect upon archaeological remains in the area of proposed Building 6a because Building 6a is not included within application 1 and 2 (which make up Development Scenario 2). In summary, the potential effects of Development Scenario 2 upon archaeological remains would be **permanent** and **local**, ranging from **minor** to **moderate adverse** significance.

Development Scenario 3

12.55 The potential effects of Development Scenario 3 would also be the same as those of Development Scenario 1. However, the effects would extend over a smaller area. Piling would be undertaken for all buildings provided by Development Scenario 3 and would range in depth to between -30m OD to -45m OD. However, in the case of Building 6a piling depths would range from -65m OD to -76m OD.

12.56 Work proposed within Development Scenario 3 would have no effect upon archaeological remains to the east of Victoria Palace Theatre. This is due to the fact that this area is not included within the site of Development Scenario 3.

12.57 In summary, without mitigation, the potential archaeological effects of Development Scenario 3 are considered to be **permanent**, **local** and of **minor** to **moderate adverse** significance.

Development Scenario 4

12.58 The potential effects of Development Scenario 4 would be the same as those of Development Scenario 1, 2 and 3, but would extend over a smaller area than all other Development Scenarios. Piling would be undertaken for all buildings resulting from Development Scenario 4 and would range in depth to between -30m OD to -45m OD.

12.59 Works proposed within Development Scenario 4 would not have an effect on any archaeological remains to the east of the Victoria Palace Theatre because this area is not included within the site of application 1, or in the area of proposed Building 6a because Building 6a is not included within application 1.

12.60 To summarise, in the absence of mitigation the potential effects of Development Scenario 4 are considered to be **permanent**, **local** and of **minor** to **moderate adverse** significance.

Completed Development

12.61 On completion and operation of the four Development Scenarios, no additional ground disturbance would occur. However, there is a possible long-term impact in relation to deterioration via drying out of archaeological remains including organic deposits in the vicinity of all four Development Scenarios. It is not possible to quantify this impact based on current knowledge, except to say that some deterioration may occur, and so at this stage the potential effects for all four Development Scenarios is **uncertain.**

MITIGATION

Demolition and Construction

Development Scenario 1

12.62 This assessment has demonstrated that a large part of the sites of the three applications (which make up Development Scenario 1) presents little or no potential for surviving archaeological remains. In addition, any survival is likely to be associated with remains of local significance. However, the site of three applications is extensive and any deposits of significance are likely to be associated with geo-archaeological, palaeo-environmental and prehistoric remains. The extent and importance of such potential remains are difficult to assess using conventional desk-top analysis. As such, there is some uncertainty regarding the extent and significance of the remains. Evaluation work has demonstrated the survival of both post-medieval structures and organic peat horizons.

12.63 In consideration of the above and in line with PPG16, the archaeological mitigation strategy for Development Scenario 1 proposes a programme of more extensive evaluation to define areas which should be targeted for geo-archaeological sampling, localised excavation and/or implementation of an archaeological watching brief. The mitigation strategy has been agreed with WCC and English Heritage. This strategy is presented in detail within Technical Appendix 12a and summarised below. Figure 12.3 shows areas which would be targeted for archaeological investigation in relation to Development Scenario 1.

12.64 For Development Scenario 1 provisions would be made for further targeted evaluation through the excavation of test pits/trenches in areas where the potential for archaeological survival is considered to be greatest. These areas are shown on Figure 12.3. In general, areas with known deep basements have been excluded from the potential evaluation areas. As such, the following areas would be targeted:

- Area where no modern basements are thought to be present;
- Areas where the current status of basements is mostly unknown;
- Areas of the roads where development or alteration is proposed.

12.65 A written scheme of investigation would be prepared in accordance with the construction programme and would be approved by English Heritage on behalf of WCC. Results of fieldwork would be detailed in a report that would further inform future strategies for the remainder of the three application sites.

12.66 Those areas where evaluation results indicate the need for further work would require:

- Geo-archaeological sampling;
- Localised excavation; and/or
- An archaeological watching brief.

12.67 All measures as described above would be implemented by way of suitable planning obligations or conditions (as appropriate).

12.68 Following the implementation of the above measures a variety of mitigation measures might be adopted for Development Scenario 1. The main archaeological potential at the area that Development Scenario 1 covers comprises the geo-archaeological and palaeo-archaeological deposits which would probably require sampling. If prehistoric material, such as flint scatters or evidence for early settlement, is encountered then localised excavation and recording might be envisaged. For post-medieval structures stripping large areas, principally using a tracked machine, and recording layout through digital capture techniques with localised excavation of significant finds assemblages would be a more appropriate approach. Where evaluation establishes that deep basements or significant truncation has already taken place then further substantial fieldwork is unlikely. As noted above precise methodologies would need to be developed in agreement with the Archaeological Advisor to WCC.

Development Scenario 2

12.69 Figure 12.4 shows areas which would be targeted for archaeological investigation in relation to Development Scenario 2. The mitigation measures recommended above for Scenario 1 would also be appropriate for Scenario 2.

Development Scenario 3

12.70 Figure 12.5 shows areas which would be targeted for archaeological investigation in relation to Development Scenario 3. The mitigation measures recommended above for Development Scenario 1 would also be appropriate for Development Scenario 3. Under Development Scenario 3, these measures would not need to be implemented to the east of Victoria Palace Theatre, because this area is not included within the sites for applications 1 and 3.

Development Scenario 4

12.71 Figure 12.6 shows areas which would be targeted for archaeological investigation in relation to Development Scenario 4. The mitigation measures recommended above for Development Scenario 1 would also be appropriate for Development Scenario 4. Under Development Scenario 4, these measures would not need to be implemented to the east of the Victoria Palace Theatre as this area is not included within the site for application 1.

Completed Development

12.72 As no additional ground disturbance works would occur once construction of the Development is complete, no further mitigation measures would be required for any of the four Development Scenarios. As the impact of the completed Development on archaeological remains lying outside the four Development Scenarios through the drying out of organic deposits is uncertain, mitigation would be limited to ensuring that such deposits within the four Development Scenarios are adequately recorded.

RESIDUAL EFFECTS

Demolition and Construction

12.73 Implementation of the mitigation measures as outlined above would ensure that any archaeological finds are either preserved in-situ and/or appropriately removed, recorded and preserved. This would ameliorate all identified potential effects for all Development Scenarios to a **negligible** level.

Completed Development

12.74 It is possible that the Development will have an impact on the water table on and within the vicinity of the VTI2 scheme. Any possible long-term impact in relation to deterioration via drying out of archaeological remains including organic deposits in the vicinity of the VTI2 scheme is presently unquantifiable beyond the assumption that some deterioration may occur. As this can be addressed by the incorporation of recording deposits for future comparison it is concluded there are unlikely to be any significant residual effects arising from operation. This would be the same in the case of all Development Scenarios.

12.75 Based on current knowledge regarding any possible dewatering, the residual effect of the completed Development for all four Development scenarios is **uncertain**.

SUMMARY AND CONCLUSIONS

12.76 The sites of the three applications have moderate potential for the survival of geo-archaeological and palaeo-environmental remains and high potential for post-medieval remains to survive, principally of local significance. The recent archaeological and geo-archaeological investigation on the three application sites revealed alluvium and peat that could contain palaeo-environmental evidence.

12.77 Previous activity has removed much of the archaeological deposit across the sites of the three applications. The potential for survival of ancient ground surfaces (horizontal archaeological stratification) within the application sites would be limited to open areas such as under the existing roads, spaces behind buildings or within properties that have not been deeply basemented. However alluvial deposits are likely to survive below basements, dependant on their depth.

12.78 The principal effect of the four Development Scenarios on surviving archaeology would be the extensive basement and other groundworks such as foundations for new buildings and services. The effect of these constructions would be to remove any surviving archaeological deposits across much of the sites of the three applications.

12.79 An archaeological strategy has been prepared and agreed in principle with WCC and EH which recommends a programme of evaluation to define any areas which should be targeted for geo-archaeological sampling, localised excavation and watching brief, or a combination of these methods, for each of the four Development Scenarios. Wherever possible mitigation would be undertaken at the detailed design and enabling works stages, well in advance of main construction. This strategy would mitigate the effects of all the four Development Scenarios on any affected archaeological remains.

12.80 Implementation of the mitigation measures as outlined above would ensure that any archaeological finds are either preserved in-situ and/or appropriately removed, recorded and preserved. This would result in residual effects in relation to Demolition and Construction for all four Development Scenarios of a **negligible** level.

12.81 On completion and operation of the four Development Scenarios, no additional ground disturbance would occur. However, there is a possible long-term impact in relation to deterioration via drying out of archaeological remains including organic deposits in the vicinity of all three application sites, As it is not possible to quantify this impact based on current knowledge, except to say that some deterioration may occur, at this stage the potential effects for all four Development Scenarios is **uncertain.**