

19. SUMMARY OF RESIDUAL EFFECTS

INTRODUCTION

- 19.1 The residual effects of the four Development Scenarios have been assessed in the preceding technical chapters of the ES (Chapters 7 to 17 inclusive), taking into account the implementation of proposed mitigation measures. For ease of reference, these residual effects have been summarised in Table 19.1.
- 19.2 The EIA has been undertaken in parallel with the design process. As a consequence, many measures to mitigate potential adverse environmental effects have been incorporated into, and are therefore inherent within, the design of the three applications (and therefore, the four Development Scenarios). This is so to avoid, reduce or offset potential adverse effects as part of the overall design process.
- 19.3 With respect to management of the demolition and construction processes, a site specific Environmental Management Plan (EMP) as outlined in Chapter 6: Demolition and Construction, would be prepared in line with Westminster City Council's (WCC's) Code of Construction Practice (Ref. 19.1). This is an established method of controlling and minimising environmental effects resulting from demolition and construction works and would address many of the potential effects associated with traffic routing and access, noise and vibration, dust, risks to surface water and ground water pollution, hazardous materials, contaminated land and waste, together with the protection of archaeological and ecological resources. It is anticipated that certain aspects of the site specific EMP and various mitigation measures identified would be secured by appropriate planning obligations or conditions.

Table 19.1: Summary of Residual Effects

Type of Effect	Stage of Development	Residual Effects				
		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4	
Townscape, Conservation and Visual.	Demolition and Construction.	Adverse: The demolition and construction of any of the four Development Scenarios would involve the use of a range of plant and equipment which are likely to give rise to temporary adverse effects on townscape, conservation and view.				
	Completed Development.	Negligible to beneficial: The most important direct effect of all four Development Scenarios would be the resolution of an enhanced pedestrian public realm, better separation from vehicular routes, and the provision of a series of spaces which are legible and assist in guiding pedestrians to their destination. Townscape, distant and local views and local views have also been considered. Such consideration shows that the four Development Scenarios would bring neutral to beneficial effects. Setting these alongside the benefits of the Development Scenarios and the high quality of architecture which has been achieved, it is judged that all four Development Scenarios would result in highly desirable townscape, conservation and visual outcome.				
	Demolition and Construction.	Negligible: For all Development Scenarios all demolition and construction waste would be managed in accordance with relevant legislative requirements. In particular, the implementation of a Site Waste Management Plan (SWMP) would facilitate the reuse and recycling of all demolition and construction waste. As such, the volume of waste going to landfill would be minimised as far as practically possible. This would be further encouraged by the Applicant’s commitment to reuse or recycle 80% of demolition material derived from the demolition and construction process by mass. In addition, prefabricated building components would be used within construction, wherever possible.				
Completed Development.	Completed Development.	Negligible: Each of the four Development Scenarios would provide appropriate facilities for segregated storage and removal of both commercial and residential waste, and would facilitate the reuse or recycling of approximately 50% of waste generated in the proposed commercial and residential uses.	Negligible: Development Scenario 1 would only result in slight increase of a maximum of 9.8% in the volume of waste currently produced at the existing site of applications 1, 2 and 3 (Development Scenario 1).	Negligible: It is anticipated that Development Scenario 2 would result in a virtually identical amount of waste being produced, compared to the volume of waste currently produced at the existing site of applications 1 and 2 (Development Scenario 2).	Minor adverse: An increase of approximately 18% in waste generation is predicted due to a greater quantum of proposed floor space, compared to existing. The effect would be long-term and at a local level.	Negligible: Development Scenario 4 would only result in a slight increase of a maximum of 5.4% in the volume of waste currently produced at the existing site of application 1 (Development Scenario 4).

Type of Effect	Stage of Development	Residual Effects			
		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
Socio-Economics.	Demolition and Construction.	<p>Minor beneficial: All four Development Scenarios would generate significant amounts of new jobs, albeit on a temporary timescale. These jobs would generate additional expenditure within the local economy. Although the four Development Scenarios would generate different numbers of direct and indirect jobs (764 for Development Scenario 1, 697 for Development Scenario 2, 720 for Development Scenario 3 and 656 for Development Scenario 4) together with varying levels of local expenditure (£0.37 million per year for Development Scenario 1, £0.34 million per year for Development Scenario 2, £0.35 million per year for Development Scenario 3 and £0.32 million per year for Development Scenario 4) such differences are not deemed to be significant.</p> <p>Negligible to minor adverse: Loss of the existing office, retail and leisure floorspace within the three application sites would lead to the inevitable relocation of associated jobs. For all four Development Scenarios, the effect would be minor adverse at the local level, but negligible at all other geographical levels.</p>			
	Completed Development.	<p>Substantial beneficial: All four Development Scenarios would generate productivity benefits. The effect would be long-term and at a local-regional level.</p> <p>The provision of new retail floor space within all of the four Development Scenarios would reinforce the shopping on offer in the West End and Westminster. The effect would be long-term and at a local-district level.</p> <p>The Applicant intends to deliver the overall public realm and highway improvements for the comprehensive VTI2 proposals including those under Building 6a (in Development Scenarios 1 and 3 i.e. where this building exists). The provision of new public realm within all four Development Scenarios (7,830m² within Development Scenario 1 and 3 and 7,511m² within Development Scenario 2 and 4) would be a long-term local substantial beneficial effect</p> <p>Moderate beneficial: All four Development Scenarios would provide additional direct and indirect new jobs (4,163 for Development Scenario 1, 2,949 for Development Scenario 2, 4,035 for Development Scenario 3 and 2,825 for Development Scenario 4). Such employment would be long-term over the local to regional level.</p> <p>A long-term local effect would be created through the provision of additional play space (449m² for Development Scenarios 1 and 2, 270m² for Development Scenarios 3 and 4).</p> <p>Minor beneficial: The generation of additional spending by the residents and employees of all four Development Scenarios (£5.9 million per year for Development Scenario 1, £5.3 million per year for Development Scenario 2, £4.9 million per year for Development Scenario 3 and £4.3 million per year for Development Scenario 4) would have a long-term, local-regional effect.</p> <p>The increased provision of residential units within all four Development Scenarios (143 within Development Scenario 1 and 2 and 108 within Development Scenario 3 and 4) would have a local to regional effect.</p> <p>All four Development Scenarios would improve the well being of residents, employees and visitors. The effect would be long-term and local.</p>			
		<p>Moderate Beneficial: The provision of a new library within Development Scenario 1 and 2 would add to local community facilities. The effect would be long-term and local.</p>	<p>Not applicable.</p>	<p>Not applicable.</p>	

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		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
		<p>Negligible: The additional demand for early years, primary and secondary education provision generated by all four Development Scenarios would be accommodated by existing education provision in the local and wider area.</p> <p>The Applicant would make a financial contribution to ensure that the small increase in health care need generated by all four Development Scenarios would not adversely affect the supply and demand of, and for, local GP or dental practices.</p> <p>Existing leisure facilities in proximity to all three application sites (and therefore all four Development Scenarios) would be able to accommodate the additional demand generated by the populations of any of the Development Scenarios.</p>			
	Demolition and Construction.	<p>Negligible: For all four Development Scenarios the implementation of a site-specific EMP would minimise any temporary disruptions to the road network surrounding the application sites.</p> <p>Additional demolition and construction generated road traffic as a result of any of the four Development Scenarios would be insignificant in relation to existing traffic volumes.</p>			
Transportation and Access.	Completed Development.	<p>Negligible: The slight reduction in car parking proposed by each of the four Development Scenarios, together with the commitment to implementing Travel Plan measures would help to ensure car trips generated by all four Development Scenarios are minimal.</p> <p>Trip generation arising from each of the four Development Scenarios would not have a significant effect on any public transport mode (i.e. underground, mainline rail or buses).</p> <p>There are no new taxi facilities proposed as part of the four Development Scenarios. However, the net additional taxi trips generated by each of the four Development Scenarios would not have a significant effect. The attraction of taxis to the Development Scenarios in the AM peak and from the Development Scenarios in the PM peak would complement the demands at existing taxi ranks.</p> <p>For all four Development Scenarios minimal changes in coach trips are forecast.</p> <p>For Development Scenario 1, pedestrian modelling indicated that an improvement in pedestrian comfort on footways is provided. The Applicant intends to deliver the overall public realm and highway improvements for the comprehensive VT12 for all Development Scenarios and therefore it is considered that Development Scenario 2, 3 and 4 would have the same effect on pedestrian comfort on footways.</p> <p>Minor beneficial: For each of the four Development Scenarios the increased provision of cycle parking would improve cycle facilities and help promote cycling as a transport mode.</p> <p>All four Development Scenarios lead to an improved pedestrian permeability through the application sites and provide a network of high quality public realm spaces and pedestrian routes. These would respond to well recognised pedestrian desire lines and connect Victoria Street to Buckingham Palace Road and Victoria Square to Cardinal Place, and provide routes of generous width with high quality street furniture.</p> <p>For Development Scenario 1 pedestrian modelling indicated that generally the level of pedestrian comfort on the crossings onto the application sites are acceptable, with any predicted deterioration at crossings being off-set by marked improvements at others. The Applicant intends to deliver the overall public realm and highway improvements for the comprehensive VT12 for all Development Scenarios and therefore it is considered that Development Scenario 2, 3 and 4 would have the same effect on pedestrian comfort on crossings.</p>			

Type of Effect	Stage of Development	Residual Effects			
		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
		Minor beneficial: For Development Scenario 1 and 2 the majority of servicing would be provided off-street through the main basement, with only the servicing for Building 7b&c being on-street.		Moderate beneficial: For Development Scenarios 3 and 4 off-street servicing would be provided for all proposed buildings through the main basement.	
	Demolition and Construction.	Negligible: For all four Development Scenarios the effects of construction plant operation and construction vehicle movements would be negligible in the context of local background concentrations and existing adjacent road traffic emissions.			
		Minor adverse: For all four Development Scenarios the implementation of a site-specific EMP using standard dust control and management measures would minimise any dust emissions resulting from the demolition and construction works. However, during extreme periods of dry and windy weather, there would be the potential for temporary short to medium term, local effects on surrounding sensitive receptors. Despite this likely temporary effect, the effect is unlikely to extend beyond 100m from the application sites boundaries.			
Air Quality.	Completed Development.	Negligible: For all four Development Scenarios operational plant associated with all four Development Scenarios would be designed in line with the requirements of the Building Regulations so that no unacceptable effects to air quality would arise. Odours from retail (food and drink) units with any the four Development Scenarios would be minimised through appropriate location and servicing of vents and exhausts.			
		Negligible to minor adverse: Operational traffic generated by all four Development Scenarios is predicted to slightly increase atmospheric concentrations of nitrogen dioxide (NO ₂) and fine particulate matter (PM ₁₀) concentrations resulting in effects ranging from negligible to long-term, local effects of minor adverse significance. The effect of introducing new sensitive receptors within all four Development Scenarios is considered to range from negligible to short to long term, local and minor adverse significance, depending on the location of the specific receptor.			
		Negligible: For all four Development Scenarios the implementation of a site-specific EMP, including vibration monitoring, would ensure that all plant and equipment derived vibration would be maintained within acceptable limits. The generation of demolition and construction traffic (and thus construction traffic noise) would be insignificant in the context of the existing traffic flows (and thus traffic noise) surrounding all application sites.			
Noise and Vibration.	Demolition and Construction.	For all Development Scenarios, the implementation of a site-specific EMP would mean that various sensitive receptors (3, 7, 8, 9, B, D and E (refer to Chapter 11: Noise and Vibration for details of receptors)) would not be significantly affected by noise from the operation of demolition plant and equipment Moderate adverse: For all four Development Scenarios, and during particularly noisy and close works various sensitive receptors (1, 2, 4, 5, 6, A and C (refer to Chapter 11: Noise and Vibration for details of receptors)) would be temporarily affected by noise generated from operational plant and equipment.			

Type of Effect	Stage of Development	Residual Effects			
		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
Archaeology.	Completed Development.	<p>Negligible: The changes to traffic flows as a result of trips generated by all four Development Scenarios would not be significant enough to perceptibly increase or decrease existing levels of road traffic noise.</p> <p>Operational building plant would be designed to meet the operational noise requirements of WCC. In this way, it would be ensured that noise levels generated from all operational plant in all four Development Scenarios would be acceptable.</p> <p>A combination of planning restrictions, licensing restrictions, lease agreements and tenant handbooks would minimise noise breakout from cafes, restaurants and drinking establishments. In addition, all residential units within all four Development Scenarios would be located away from ground floor locations.</p> <p>Suitable: In accordance with current guidance and requirements, appropriate building envelope design and levels of acoustic insulation would ensure noise levels within all proposed residential units of all four Development Scenarios would be suitable for their intended use.</p> <p>Re-radiated train-induced noise is predicted to be below guidance noise levels in Buildings 5 and 6b.</p>			
	Demolition and Construction.	<p>Negligible: Within Development Scenario 1 and 2 all service yards would be located within the main basement and be separated from residential receptors. As such, these receptors would not be affected by service noise. A servicing management plan would be implemented to control service vehicle movements.</p>	<p>Negligible: Within Development Scenario 3 and 4 the service yards, other than for Building 7b/c, would be located within the basement and are separated from residential receptors. As such, these receptors would not be affected by service noise. The street lay-bys used for servicing building 7b/c would only be used in the daytime, where the likely levels of noise created would be low compared to high background noise levels from traffic. A servicing management plan would be implemented to control service vehicle movements</p> <p>The vibration isolation of Building 7b/c would serve to reduce the effects of train induced noise and vibration at residential receptors within this building.</p>		
	Completed Development.	<p>Negligible: The application sites yield a variable potential for archaeological remains. Through previous land activities and development, the majority of remains are likely to have been removed. As such, the survival of archaeological resources would be limited to open areas, with the exception of alluvial deposits which are likely to survive below any existing basements. Consequently, targeted geo-archaeological sampling, localised excavation and/or an archaeological watching brief would be undertaken following demolition of existing buildings to determine the presence of any archaeological remains. Any finds would be recorded and/or preserved as appropriate.</p>			
	Completed Development.	<p>Uncertain: The four Development Scenarios may alter the water table, which may create a possible long-term effect in relation to the deterioration, via drying out, of archaeological remains. It is not possible to quantify this effect based on current knowledge.</p>			

Type of Effect	Stage of Development	Residual Effects			
		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
Ground Conditions and Contamination.	Demolition and Construction.	<p>Minor beneficial: The significant excavation of material during the basement dig of all four Development Scenarios (227,875m³ for Development Scenario 1, 226,868m³ for Development Scenario 2, 226,107m³ for Development Scenario 3 and 225,100m³ for Development Scenario 4) is likely to remove historical contamination and improve the sub-surface contaminative status of underlying soils. This effect would be long term and at a local level.</p> <p>Negligible: The disposal of any contaminated spoil arising from all four Development Scenarios would be subject to legislative and regulatory control. Any contaminated spoil would be treated prior to disposal.</p> <p>Implementation of a site-specific EMP would stipulate the use of (amongst other items) protective equipment and health and safety planning. In addition, the risk posed by unexploded ordnance would be minimised through education of the construction work force and the active presence of an Explosive Ordnance Disposal Engineer during all intrusive works undertaken in areas of medium to high unexploded ordnance risk.</p> <p>Risk of water and ground contamination would be minimised through the undertaking of a Foundations Works Risk Assessment, negotiation with the Environment Agency (EA), the careful design of piles and the implementation of standard construction site environmental protective measures by the construction team.</p> <p>Minor adverse: Despite the implementation of a site-specific EMP, the occurrence of unforeseen accidental spillages cannot be ruled out.</p>			
	Completed Development.	<p>Negligible: The inherent concrete capping layer formed by the new basement, buildings and public realm areas within all four Development Scenarios would encapsulate any residual underlying contamination from future occupants and users (including fauna and flora). Furthermore, areas of soft landscaping would be set within an appropriate thickness of clean, inert material.</p> <p>The operation of all four Development Scenarios would not contain any potentially contaminating land uses. There would therefore be no risk of contamination to underlying soils and/or groundwater.</p>			
Surface Water Drainage and Flood Risk.	Demolition and Construction.	<p>Negligible: All three application sites (and therefore, all four Development Scenarios) are not at risk from tidal, fluvial surface water drainage, foul water drainage or groundwater flooding.</p> <p>Measures to protect ground and surface water resources, such as the use of bunded tanks, site drainage design and contingency planning would all be included within the site specific EMP.</p> <p>All drainage flow routes and connections would be appropriately maintained throughout the demolition and construction works. All works would be subject to the relevant controls of the EA and Thames Water.</p> <p>All basement areas would be constructed using standard sealed construction techniques, thereby preventing groundwater flooding. In addition, a programme of groundwater monitoring, prior to the works, would confirm the need for any dewatering and any further mitigation required to prevent off Site groundwater flooding. Should dewatering be required, the precise methodology would be agreed with the EA.</p>			

		Residual Effects			
Type of Effect	Stage of Development	Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
	Completed Development.	<p>Minor beneficial: For all Development Scenarios, pre-development and post-development surface water run-off flows would be similar. However, reductions in surface water flows would be achieved by the provision of a Sustainable Urban Drainage System (SuDS), including sedum and green roofs and a rain water harvesting system.</p> <p>Negligible: All four Development Scenarios would be adequately protected by the existing flood defences of the River Thames. In addition, a Flood Warning and Evacuation Plan would be prepared for the relevant consented application(s).</p> <p>As noted above, on and off-site groundwater flooding for all four Development Scenarios would be minimised through the waterproofing of proposed basement areas and appropriate mitigation informed by a programme of groundwater monitoring.</p> <p>The proposed sewer network would maintain the capacity for current flow thereby minimising risks of foul water drainage flooding for all four Development Scenarios.</p>			
	Demolition and Construction.	<p>Negligible: The demolition and construction works would not create any significant effects upon wind conditions in and surrounding the three application sites.</p>			
Wind.	Completed Development.	<p>Negligible: The wind conditions within and surrounding Development Scenario 1 are considered suitable for pedestrian activities at all but two test locations.</p>	<p>Negligible: The wind conditions within and surrounding Development Scenario 2 are considered suitable for pedestrian activities at all but one test location.</p>	<p>Negligible: The wind conditions within and surrounding Development Scenario 3 are considered suitable for pedestrian activities at all but two test locations.</p>	<p>Negligible: The wind conditions within and surrounding Development Scenario 4 are considered suitable for pedestrian activities at all but two test locations.</p>
		<p>Adverse: Development Scenario 1 is considered to have a long-term and local adverse effect on wind conditions at the entrance to the Health and Fitness Centre (test location 77) and Portland House (test location 79) to the east of the application sites.</p>	<p>Adverse: Development Scenario 1 is considered to have a long-term and local adverse effect on wind conditions at the entrance to the Health and Fitness Centre (test location 77) to the east of the application sites.</p>	<p>Adverse: Development Scenario 1 is considered to have a long-term and local adverse effect on wind conditions at the entrance to the Health and Fitness Centre (test location 77) and Portland House (test location 79) to the east of the application sites.</p>	<p>Adverse: Development Scenario 1 is considered to have a long-term and local adverse effect on wind conditions at the entrance to the Health and Fitness Centre (test location 77) and Portland House (test location 79) to the east of the application sites.</p>

Type of Effect	Stage of Development	Residual Effects			
		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
Daylight, Sunlight, Overshadowing, Light Pollution and Solar Glare.	Demolition and Construction.	<p>Moderate beneficial to minor beneficial: Levels of daylight, sunlight, overshadowing and light pollution to existing properties closest to the application sites would vary with the progression of the demolition and construction works. During periods of site clearance, assuming the implementation of a site-specific EMP, which would control on-site lighting, light availability to, and light pollution on, the closest surrounding receptors are likely to improve.</p> <p>Negligible: Levels of daylight, sunlight, overshadowing and light pollution to existing properties at a greater distance from the application sites are not likely to be significantly affected by the demolition and construction works.</p> <p>Effects of solar glare during demolition are deemed to be negligible.</p>			
	Completed Development.	<p>Negligible: The levels of daylight that would be received by the residential elements of all four Development Scenarios would be excellent given the urban location of the application sites.</p> <p>Levels of permanent overshadowing within the surrounding amenity areas would be substantially within the BRE guidelines acceptable levels.</p> <p>None of the surrounding residential properties or amenity areas would receive shadow from any of the four Development Scenarios for prolonged periods of the day. As such, the potential effects from transient overshadowing are considered to be negligible.</p> <p>Mitigation measures including shielded light fittings and occupancy sensor or time controlled lighting would reduce or remove effects of light pollution due to the spill of light into residential windows within the proposed Buildings 5 and 7b/c.</p> <p>The effects of light pollution from upward light spill, source intensity and building luminance are all deemed to be insignificant.</p> <p>The solar glare assessments show that the potential effects are likely to be negligible for each of the four Development Scenarios.</p> <p>Negligible to minor adverse: Within all four Development Scenarios the sunlight levels received by a number of proposed residential windows would fall below the standards of the BRE Guidelines. However, the levels that would be received by the windows of habitable rooms would generally be reasonable given the dense, urban location of the application sites.</p> <p>Minor adverse: Some internal amenity areas within all four Development Scenarios would not accord with the BRE overshadowing Guidelines.</p> <p>Negligible to moderate adverse: All four Development Scenarios would result in a range of daylight and sunlight effects to existing surrounding properties with potential long-term, local effects of minor or moderate adverse significance at 10-30 Buckingham Palace Road inclusive, 185-187 Victoria Street, and 16-18 Victoria Square.</p>			

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		Development Scenario 1	Development Scenario 2	Development Scenario 3	Development Scenario 4
Radio and Television Reception.	Demolition and Construction.	<p>Minor beneficial to negligible: Depending on the stage of demolition and construction, there would be limited improvements to the quality of satellite television reception due to the removal of existing buildings.</p> <p>The adoption of a site-specific EMP and the adoption of additional measure, including periodic realignment or relocation of satellite dishes may be required to mitigate any temporary disruption to satellite reception due to the construction works.</p> <p>Negligible: Periodic repositioning of terrestrial television reception antennae and the retuning of aerials to alternative transmitters or repeater stations may be required to mitigate any temporary disruption to terrestrial television reception due to the construction works</p> <p>Due to the physical properties of radio waves (which can travel around physical obstacles), there would be no significant effects upon radio signals.</p>			
	Completed Development.	<p>Negligible: For the reasons stated above, none of the four Development Scenarios would affect broadcast radio signals.</p> <p>Any impairment to signals would be improved by realigning aerials, upgrading equipment or switching to digital services. All mitigation would be informed by a detailed pre-and post- development measured interference survey. In addition, the proposed digital switchover in 2012 would remove any adverse ghosting effects to terrestrial television reception.</p>			