

Appendix C – Mitigation Measures SSD-93222706 – Waterloo South

Measures required to mitigate future impacts associated with future detailed development that follows consent of the concept SSDA are extracted in the table below. These measures are identified in appended consultant reports. It is noted that no physical works are proposed as part of this concept SSDA. The measures include considerations for future design of buildings, and recommendations for future environmental assessment requirements.

Consultant	Mitigation Measure	Timing
Pedestrian Wind		
SLR Consulting	<ul style="list-style-type: none"> Street trees and landscape planting will be retained and enhanced to reduce horizontal wind acceleration. Awnings, canopies and appropriate building setbacks will be provided to manage façade downwash at key pedestrian interfaces. Seating, outdoor dining areas and communal open spaces will be located in sheltered positions. Vertical and/or horizontal windbreak elements will be incorporated where required, informed by detailed architectural design. Elevated communal open spaces and private balconies will be subject to building-specific wind assessments at future detailed SSDA stages, with mitigation measures to be refined in response to the final building form, façade articulation and balustrade design. 	Detailed application
Built Form and Visual Impact		
SJB and Urbis	<ul style="list-style-type: none"> Future buildings will be design in accordance with the concept envelopes established by SJB within the Urban Design Report at Appendix F. The detailed design of any built form and public domain shall be conducted with consideration of the masterplan and have regard to the recommendations in all consultant reports summarised in Section 9 of the EIS. The detailed design development should be consistent with the objectives and provisions of the proposed Waterloo South Design Guide updates. Further mitigation measures should be considered at detailed design stage where medium visual amenity impacts are identified. Measures can potentially address items such as; building massing, setbacks and tower separation to reduce bulk and maintain 	Detailed application

Consultant	Mitigation Measure	Timing
	appropriate sky views. Built form articulation, material selection and podium design should respond to the local context and contribute positively to the streetscape.	
Amenity		
SJB	<ul style="list-style-type: none"> Future residential buildings will demonstrate consistency with Chapter 4 of the Housing SEPP and the Apartment Design Guide where practical. Future residential buildings will be designed in accordance with the Urban Design Report prepared by SJB at Appendix F and the proposed Waterloo South Design Guideline updates. Ensure that a minimum of 50 per cent of Waterloo Park, Block 8 Park and Waterloo Oval receive at least four hours of direct sunlight during mid-winter. 	Detailed application
UAP	<ul style="list-style-type: none"> Future detailed applications will refer to public art framework set out by the Preliminary Public Art Plan. 	Detailed application
CPTED		
Urbis	<ul style="list-style-type: none"> Detailed CPTED assessments will be undertaken at future detailed SSDA stages for individual buildings and public spaces, with design refinement implemented in response to assessment outcomes. Lighting, landscaping and sightline measures will be provided and maintained to minimise opportunities for concealment and support passive surveillance. Activation strategies and place management approaches will be implemented to promote ongoing use, natural surveillance and supervision of public spaces. Construction-phase safety and access management measures will be prepared and implemented to address temporary risks associated with redevelopment works. 	Detailed application
		Construction
Landscaping		
Aspect	<ul style="list-style-type: none"> As demonstrated in the concept SSDA, the retention of more than 50 per cent moderate and high value trees can be achieved. The retention of 50 per cent moderate and high value trees will be targeted throughout detailed design. Landscaped areas will be generally provided in accordance with the proposed Design Guide updates. 	Concept and detailed applications
		Concept and detailed applications

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> The landscape strategy incorporates WSUD principles, such as rain gardens, swales, and permeable surfaces, to manage stormwater, reduce the urban heat island effect, and enhance water quality. These features will be integrated with the streets and public spaces, contributing to a more sustainable and resilient environment. 	Concept and detailed applications
	<ul style="list-style-type: none"> Tree canopy planting is supported through the provision of deep soil zones across the site. The building envelopes proposed under the concept SSDA result in a 9 per cent increase in the provision of deep soil zones across the precinct compared to the original 2022 Design Guide scheme. The provision of deep soil is to be maintained through detailed design stages. 	Concept and detailed applications
Flooding		
GRC Hydro	<ul style="list-style-type: none"> Appropriate Flood Planning Levels and freeboard will be applied to habitable and other sensitive land uses. Building entries, basements and services will be designed to prevent flood ingress. Existing overland flow paths will be retained, and the design will avoid displacement of floodwaters to surrounding properties. Detailed stormwater management and drainage works will be provided and resolved at subsequent development stages. Shelter-in-place principles will be incorporated within the building design and layout. Detailed mitigation measures, including final ground levels, finished floor levels and drainage infrastructure, will be confirmed through future detailed development applications supported by site-specific flood assessments 	Concept and detailed applications
Traffic		
PTC	<ul style="list-style-type: none"> The precinct is to prioritise walking, cycling and public transport access to enable redevelopment without significant increases in parking demand. Bicycle parking and end-of-trip facilities are to be provided in accordance with City of Sydney requirements to support mode shift. Development is to integrate with the existing strategic public transport network and nearby activity centres to minimise car dependency and traffic generation. A Green Travel Plan is to be prepared and implemented to encourage walking, cycling and public transport use and manage trip generation. A delivery and servicing booking system is to be implemented for all tenants, with servicing activities scheduled outside peak traffic periods where feasible. 	<p>Concept and detailed applications</p> <p>Detailed applications</p> <p>Concept and detailed applications</p> <p>Detailed applications and operation</p> <p>Detailed applications and operation</p>

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> Low-impact servicing approaches are to be adopted, including pedestrian porters, cycle freight and e-bikes, electric or low-emission vehicles, consolidated deliveries, shared courier arrangements, off-site freight consolidation, and coordinated waste collection. 	Detailed applications and operation
	<ul style="list-style-type: none"> Other than for retail premises, car parking provision for each development stage is to be determined in accordance with the maximum rates permitted for the site under the Sydney LEP 2012 (not limited by the approximate rates outlined in the reference scheme). 	Detailed applications
Noise and Vibration		
E-LAB	<p>Mechanical plant and operational noise control</p> <p>Mitigation measures for the mechanical plant should be considered during the design development stage to ensure compliance with the outlined criteria at the nearest sensitive receiver catchments. These mitigation measures could include but not limited to the following:</p> <ul style="list-style-type: none"> Positioning mechanical plant away from nearby receivers Acoustic attenuators fitted to duct work Screening/acoustic louvres around mechanical plant Acoustic insulation within duct work <p>It should be noted that the noise reduction requirements will likely be refined and reduced once the mechanical plant and equipment selections and designs have been progressed further during the detailed design of the proposed development. The mitigation measures proposed at this stage of the development are conservative in nature.</p>	Detailed application
	<p>Building facade and internal noise amenity</p> <ul style="list-style-type: none"> Detailed façade design (glazing and non-glazed elements) is to achieve required acoustic performance based on façade noise exposure, with final specifications determined during subsequent development applications. 	Detailed application
	<p>Alternative ventilation for noise affected dwellings</p> <ul style="list-style-type: none"> alternative ventilation complying with NCC, AS 1668.2 and AS/NZS 3666.1 is required for the south facing McEvoy Street apartments. Minor exceedances of the “windows open” internal noise levels are expected at the most traffic noise affected facades, being South facing McEvoy Street and approximately up to Level 20. Mechanical ventilation systems shall be detailed through design development, to ensure noise emissions from the ventilation systems satisfy project external noise limits, and to ensure the system complies with AS1668.2. 	Detailed application
	<p>Rail vibration and structural vibration</p> <ul style="list-style-type: none"> Rail vibration mitigation is to be assessed and implemented following detailed modelling and design. 	Detailed application
	<p>Loading dock and operational activity controls</p> <ul style="list-style-type: none"> Use of loading docks is to be restricted to 7 am–10 pm, with further mitigation to be defined following detailed noise modelling and traffic inputs. 	Detailed application and operation

Consultant	Mitigation Measure	Timing
	<p>Outdoor communal space noise management</p> <ul style="list-style-type: none"> • To prevent intrusive night-time noise: <ul style="list-style-type: none"> - signage is to remind residents to minimise noise - restrictions on shouting, amplified music, and parties are to apply, particularly during sensitive hours (10 pm–7 am). 	Detailed application and operation
	<p>Construction noise and vibration management</p> <ul style="list-style-type: none"> • Construction noise is to be reduced by: <ul style="list-style-type: none"> - maximising distance between works and receivers - using temporary barriers, stockpiles, containers or site buildings as screens - constructing permanent or purpose-built acoustic barriers, sheds or enclosures early in the works - considering screening layouts during site planning. • Vibration-intensive activities must: <ul style="list-style-type: none"> - maintain recommended safe working distances - include attended vibration monitoring at commencement - adopt alternative construction methods or lower-capacity plant if limits are exceeded - implement additional monitoring where required. • Vibration-intensive activities must: <ul style="list-style-type: none"> - maintain recommended safe working distances - include attended vibration monitoring at commencement - adopt alternative construction methods or lower-capacity plant if limits are exceeded - implement additional monitoring where required. 	Construction
Non-Aboriginal Archaeology and Non-Aboriginal Heritage		
Artefact	<p>Mitigation through design and archaeological impact assessment</p> <ul style="list-style-type: none"> • During the finalisation of the design, it is recommended that proposed bulk excavation within areas assessed as having high potential for significant archaeological resources be limited where possible to avoid major impact. • Should detailed design outline impact to areas outside the scope of this assessment, additional assessment in the form of a revised Archaeological Impact Assessment may be required. • Detailed design should seek to minimise or mitigate physical impacts to heritage items. Basement, footings and services designs should seek to avoid intersection with the Pressure Tunnel and Shafts (SHR no. 01630). 	Detailed application
	Archaeological Research Design and Excavation Methodology (ARDEM) – Mitigation Measures	Detailed application – informed by test excavations

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> • Undertake archaeological management in all areas proposed to be disturbed or removed that have identified archaeological potential, to address impacts on local and State significant archaeological resources, where relevant prior to detailed application stage. • Prepare an Archaeological Research Design and Excavation Methodology (ARDEM) for each relevant development stage prior to construction, based on the detailed design and final construction footprint, to: <ul style="list-style-type: none"> - confirm areas requiring archaeological investigation/management; - define the investigation and recording methodology; and - establish research questions and reporting requirements. • Implement archaeological investigations in accordance with the stage-specific ARDEM prior to, and where required during, bulk excavation and ground disturbance works. Archaeological management may include (as appropriate to the confirmed impacts): archaeological monitoring, test excavation, salvage excavation, and/or archival recording. • Appoint a suitably qualified Excavation Director to oversee and manage all archaeological works, including fieldwork, compliance with the ARDEM, and coordination with construction sequencing. • Use findings to refine construction methodology where feasible, including adjustment of excavation approaches and sequencing to support appropriate management and/or preservation outcomes where archaeological material is identified. • Document and report outcomes of archaeological management for each stage (including results, significance assessment where required, and any recommendations for further work), and undertake additional assessment if findings indicate implications for the development proposal or require changes to management approach. 	
	<p>Heritage Interpretation</p> <ul style="list-style-type: none"> • The final project design should incorporate appropriate heritage interpretation in accordance with the NSW Heritage Manual. • The heritage interpretation should consider the results of the archaeological management undertaken as part of the project. Where appropriate, opportunities should be considered for visually or virtually representing archaeological resources and incorporating them into the project design. 	Detailed application
	<ul style="list-style-type: none"> • A heritage induction is to be prepared and implemented for the project. All personnel involved in the proposed works, including design consultants and contractors, are to complete the induction prior to commencing site activities. 	Pre-construction
	<ul style="list-style-type: none"> • A Statement of Heritage Impact is to be prepared at each stage of design development to assess the effects of the detailed design on heritage items within the study area and the surrounding 250-metre buffer. 	Detailed application
	<ul style="list-style-type: none"> • Locally listed heritage items are to be retained and appropriately considered within the broader precinct planning and design framework. 	Concept and detailed applications
	<ul style="list-style-type: none"> • Detailed design is to minimise impacts associated with building scale and mass on nearby heritage items and adjoining open spaces, including reducing overshadowing and adverse changes to established setting and skyline. Appropriate design controls are to be implemented to manage building scale, massing, and setbacks at heritage interfaces to minimise adverse heritage impacts. 	Detailed applications

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> The SOHI is to be provided to the City of Sydney Council and Heritage NSW to inform them of the proposed development and its potential impacts on heritage items within the study area listed under the Sydney Local Environmental Plan 2012 and the State Heritage Register. 	Concept and detailed applications
	<ul style="list-style-type: none"> Consultation is to be undertaken with Sydney Water and Heritage NSW for any works proposed in proximity to the State heritage-listed sewer infrastructure. 	Detailed design and pre-construction
Aboriginal Cultural Heritage and Archaeology		
Artefact	<ul style="list-style-type: none"> Detailed design should avoid PAD where feasible through detailed design refinement. If avoidance is not possible the ACHAR recommends a staged archaeological test program to be undertaken by a suitably qualified archaeologist in consultation with RAPs. 	Detailed application
	<ul style="list-style-type: none"> Archaeological test excavation is to occur post demolition and be supported by an Excavation Methodology approved by Heritage NSW. The results of the test excavation program would inform the detailed design for the first Stage 1 construction certificate application prior to any excavation works being undertaken. 	Pre-construction – test excavations
	<ul style="list-style-type: none"> Further mitigation measures will be developed with future detailed application design and construction in consultation with RAPs. 	Detailed application
Contamination		
JBS&G	<ul style="list-style-type: none"> Implementation of the Operational Remedial Action Plan (O-RAP) to guide remediation across the precinct. 	Detailed application
	<ul style="list-style-type: none"> Preparation and approval of stage-specific Remedial Works Plans prior to redevelopment of individual stages. 	Detailed application
	<ul style="list-style-type: none"> Removal, treatment and/or containment of contaminated fill material to achieve suitability for the proposed land uses. 	Pre-construction
	<ul style="list-style-type: none"> Management of asbestos-containing materials in accordance with NSW EPA and SafeWork NSW requirements. 	Pre-construction
	<ul style="list-style-type: none"> Validation of remediated areas by an independent suitably qualified environmental consultant. 	Pre-construction
	<ul style="list-style-type: none"> Implementation of construction environmental management measures to control dust, runoff and potential worker exposure. 	Construction
Infrastructure		
WScE	<ul style="list-style-type: none"> Infrastructure should be staged and delivered in accordance with the Infrastructure Delivery and Staging Plan prepared by WScE. 	Detailed application
	<ul style="list-style-type: none"> Detailed Construction Environmental Management Plans (CEMPs) will be prepared at subsequent stages to manage construction impacts in accordance with relevant guidelines and standards. 	Detailed application

Consultant	Mitigation Measure	Timing
Water Management		
WSce	<ul style="list-style-type: none"> Stormwater will be managed generally in accordance with the proposed Design Guide update, and will address the requirements of Section 12 of this Design Guide. 	Concept and detailed application
	<ul style="list-style-type: none"> The concept stormwater management strategy has been prepared having regard to the requirements of Sydney DCP 2012 and will be further developed and refined during detailed design. 	Concept and detailed application
	<ul style="list-style-type: none"> A stormwater quality assessment will be prepared for each development block at detailed design stage in accordance with Sydney DCP 2012 to confirm treatment measures and compliance. 	Detailed application
	<ul style="list-style-type: none"> The stormwater system for each development block will incorporate On-Site Detention (OSD) in accordance with the factored requirements for Waterloo South, including the Permissible Site Discharge (PSD) and required OSD storage volumes. 	Detailed application
	<ul style="list-style-type: none"> Water quality modelling using MUSIC (or an equivalent model) will be undertaken at detailed design stage to demonstrate compliance with the following minimum pollutant reduction targets: <ul style="list-style-type: none"> 85 per cent reduction in Total Suspended Solids (TSS) 65 per cent reduction in Total Phosphorus (TP) 45 per cent reduction in Total Nitrogen (TN) 90 per cent reduction in Gross Pollutants 	Detailed application
	<ul style="list-style-type: none"> Hydraulic modelling will be undertaken to confirm that post-development peak flows will not exceed pre-development conditions for all design events up to and including the 5 per cent AEP storm event, with larger storm event behaviour addressed through the relevant flood assessment documentation (including 1 per cent AEP and beyond, as applicable). 	Concept and detailed application
	<ul style="list-style-type: none"> Maintenance and operational requirements for stormwater and water quality infrastructure (including WSUD and OSD elements) will be identified and documented to support long-term system performance and to inform design documentation and tender/operations requirements. 	Detailed application
Flood		
WSce	<ul style="list-style-type: none"> Appropriate Flood Planning Levels and freeboard for habitable and sensitive land uses have been considered at concept stage and will be applied at detailed application stage. 	Concept and detailed application
	<ul style="list-style-type: none"> Building entries, basements and services have been designed to prevent flood ingress. 	Concept and detailed application

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> Existing overland flow paths have been retained to avoid floodwater displacement to surrounding properties. 	Concept and detailed application
	<ul style="list-style-type: none"> Detailed stormwater management and drainage works are to be resolved at subsequent development stages. 	Detailed application
	<ul style="list-style-type: none"> Shelter-in-place principles have been considered within the building design and layout. 	Concept and detailed application
	<ul style="list-style-type: none"> Detailed mitigation measures, including final ground levels, floor levels and drainage infrastructure, will be confirmed through future detailed applications supported by detailed flood assessments. 	Concept and detailed application
Biodiversity		
Tree Removal	<ul style="list-style-type: none"> Tree Protection Specifications outlined in the Arboricultural Impact Assessment will be implemented, including provision of tree protection fencing, trunk protection, ground protection, mulching and irrigation. 	Pre-construction
	<ul style="list-style-type: none"> Sensitive construction techniques, including under-boring and vacuum excavation, will be used to minimise root disturbance where services are installed within Tree Protection Zones. 	Construction
	<ul style="list-style-type: none"> Works within or adjacent to Nominal Root Zones (NRZs) and Structural Root Zones (SRZs) will be supervised by a suitably qualified project arborist. 	Construction
	<ul style="list-style-type: none"> Root mapping investigations will be undertaken to inform final retention or removal outcomes for trees subject to major incursions. 	Pre-construction
	<ul style="list-style-type: none"> Detailed Arboricultural Impact Assessments and tree protection plans will be prepared for each future detailed application stage. 	Detailed application
Biodiversity	<ul style="list-style-type: none"> Future works within the subject site should aim to minimise impacts to large native canopy and habitat features within the site. 	Detailed application
	<ul style="list-style-type: none"> Pre-clearance survey be undertaken prior to any future demolition works to confirm the absence of roosting individuals at that time. 	Pre- construction
	<ul style="list-style-type: none"> Future landscaping should prioritise the retention of larger native canopy trees where feasible and incorporate locally native species to enhance biodiversity outcomes over time. 	Detailed application and construction
Aviation		
ARUP	<ul style="list-style-type: none"> Future built form will be designed to be consistent with the proposed concept envelopes which sit below the PAN OPS. 	Detailed application
	<ul style="list-style-type: none"> Crane Height Restrictions: Temporary intrusions into airspace during construction due to cranes will be mitigated by limiting crane heights to below PANS-OPS surfaces. 	Construction

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> Obstacle Lighting: Buildings that exceed the OLS surfaces will be required to install obstacle lights to enhance visibility and safety. 	Construction and operation
	<ul style="list-style-type: none"> Controlled Activity Approvals: Applications for controlled activities will be submitted to the relevant authorities (e.g., Sydney Airport) for approval, with ongoing monitoring during construction to ensure compliance with aviation safety regulations. 	Detailed application
	<ul style="list-style-type: none"> Wildlife Strikes: Further advice should be sought from a wildlife hazard expert advice at detailed application stage given the potential for Village Green to attract wildlife that could be hazardous to Sydney Airport. 	Detailed application
ESD		
	<ul style="list-style-type: none"> Consider the ESD initiatives outlined in the ESD Concept Report prepared by WSP at Appendix FF when developing the building design to maximised environmental performance and energy efficiency of buildings. 	Detailed application
	<ul style="list-style-type: none"> The detailed design of the development shall demonstrate a pathway to 6-Star Green Star Communities rating, with all residential building elements targeting a minimum 5-Star Green Star Buildings rating. 	Detailed application
WSP	<ul style="list-style-type: none"> Implementation of energy-efficient systems, solar power integration, and the use of low-emission materials to reduce the overall carbon footprint will occur at detailed design stage. 	Detailed application
	<ul style="list-style-type: none"> Detailed design should include the Installation of water-efficient appliances, rainwater harvesting systems, and low-water-use landscaping to reduce reliance on potable water. 	Detailed application
Waste Management		
	<p>Operational Waste</p> <ul style="list-style-type: none"> Provide waste stream separation across residential, non-residential and community uses (core streams as a minimum), with capacity for extended/additional streams (e-waste, textiles, secure paper etc.) subject to operator preference and tenancy needs. 	Detailed application and operation
	<ul style="list-style-type: none"> Provide appropriate waste rooms and holding areas within buildings and adjacent to loading docks, including designated bin holding zones located close to loading docks to enable direct collection. 	Detailed application and operation
WSP	<ul style="list-style-type: none"> Manage internal transfers via facilities management, using basement routes where available and programming transfers outside peak periods; use mechanical bin tugs for longer routes to reduce manual handling and conflict risks. 	Operation
	<ul style="list-style-type: none"> Minimise kerbside impacts by limiting on-street collections to the specific locations/volumes identified and ensuring bins are presented only for collection and immediately returned (no permanent storage outside the title boundary). 	Operation
	<ul style="list-style-type: none"> Amenity controls including ventilation, regular cleaning, vermin management, chute flushing/nozzles (where chutes are used), and acoustic controls/collection timing to minimise noise and disturbance. 	operation

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"> Access and security to allow collection operators safe and efficient access to service doors and waste areas (e.g., controlled access arrangements). 	Detailed application and operation
	<p>Construction waste</p> <ul style="list-style-type: none"> Prepare a Construction Management Plan for each works package, including waste types/volumes, reuse/recycling pathways, storage locations, and nominated collection points. 	Detailed application and construction
	<ul style="list-style-type: none"> Target 90 per cent diversion from landfill for construction waste through segregation, accurate ordering, off-site prefabrication where feasible, and active site education/monitoring. 	Construction
	<ul style="list-style-type: none"> Prepare Hazardous Materials Surveys per package and manage hazardous wastes with specialist contractors and compliant transport/disposal. 	Detailed application and construction
	<ul style="list-style-type: none"> Manage construction waste collection via private contractors and in accordance with construction traffic controls and approved hours. 	Construction
Social Impacts		
	<ul style="list-style-type: none"> Facilitate a design that is tenure-blind, accessible and culturally respectful, incorporating Designing with Country principles, a fine-grained street network and adaptable community spaces Current social housing residents are to be supported during relocations Support to be provided to tenants and local communities during the period of change 	Pre-construction
Urbis	<ul style="list-style-type: none"> Construction impacts are to be managed through the implementation of relevant management plans Practical measures to protect pedestrians, cyclist and public transport users are to be implemented throughout construction stages. Emergency service access is to be maintained at all times. Temporary community spaces are to be provided during construction stages, where existing facilities and services are impacted. Ongoing engagement with community members will occur to ensure they are kept informed about construction activities, timeframes, expected impacts and available support . 	Construction
	<ul style="list-style-type: none"> Operational management is to be focused on delivering a socially sustainable inclusive and well-governed precinct that responds to local needs as the community evolves. The future retail mix is to include affordable and accessible options to support food security, health and wellbeing for lower-income households. A range of social and health services will be delivered in the local area. Opportunities for local businesses, social enterprises and community groups will be provided to support economic resilience, employment pathways and social cohesion. 	Operational stage

Appendix D – Mitigation Measures

Consultant	Mitigation Measure	Timing
	<ul style="list-style-type: none"><li>• Ongoing, inclusive, and multilingual engagement across all project stages, with clear feedback mechanisms and support for First Nations and culturally diverse communities.	All stages