COUNCIL SUBMISSION – Sydney Metro West - Parramatta Metro Station - Over and Adjacent Station Development EIS (SSD- 35538829) - public consultation

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EXECUTIVE SUMMARY

City of Parramatta Council (Council) thanks the Department of Planning and Environment (DPE) and Sydney Metro West (SMW) for the opportunity to provide a submission to the public consultation for the Parramatta Station – Over and Adjacent Station Development EIS (SSD- 35538829). Council looks forward to continuing to work closely and proactively with SMW on this critical Project for the City of Parramatta.

Council strongly supports the delivery of the Sydney Metro West, an important part of the city-shaping infrastructure required to support the anticipated growth across the greater Parramatta to Olympic Precinct corridor.

Council notes that the Over-station development SSD EIS and the SMW Stage 3 EIS overlap with each other in respect of the placement of buildings and the layout of the public domain. Council raises strong concern that matters raised previously in the SMW Stage 3 station fitout EIS have not been seriously considered, particularly with regard to Civic Link, New Horwood Place and other public domain areas.

Council welcomes further opportunities to meet with Sydney Metro West to discuss this submission.

In regard to this EIS there are many matters where quality public domain, social and environmental outcomes will require a strong design-led solution. Some of these matters are too detailed for the EIS, therefore Council has focussed on higher level principles, and in some cases, proposed conditions of EIS planning approval to achieve the desired outcome for the community.

Particular matters of concern are as follows.

- The request to vary the floor space ratio of the development under clause 4.6 of the PLEP 2011 cannot be legally supported by Council. Clause 4.6(8)(ca) of the PLEP 2011 restricts variations in floor space ratio to a maximum of 5%. The variation proposed is well over 5%.
- Sydney Metro West Parramatta Over & Adjacent Station Development Design Guidelines must be developed in consultation with City of Parramatta Council.
- The New Horwood Place alignment in and around Kia Ora House is inadequate to provide an activated street in this critical CBD location. This is a very poor outcome and other options are available.
- Deep soil sufficient for mature tree growth in the proposed public domain areas must be identified and clearly articulated in coordination with the City of Parramatta.
- Convenient site access to properties (which are in fragmented ownership) in the north-east and north-west corners of the SMW block must be future-proofed within the Design Guidelines.
- The proposed building envelope outcomes of Buildings A and C are not in alignment with the objectives of the Parramatta CBD Development Control Plan 2021, resulting in inadequate heritage curtilage, setbacks and separation to existing and future adjacent development.
- Setbacks to Heritage buildings (Roxy Theatre/Kia Ora House) are inadequate to protect the curtilage of those buildings and must be aligned to the Parramatta CBD Development Control Plan 2021.
- Flood responses, flood levels, and stormwater design around the site are inconsistent between the EIS flood report and included design documents. These inconsistencies must be

rationalised prior to lodgement of individual Over Station State Significant Development Applications (SSD).

- The EIS has no consideration of continued provision of vehicular access to properties adjoining and adjacent to the site on George and Smith Streets. This must be included in the Over & Adjacent Station Development Design Guidelines.

To ensure the above issues are addressed, Council strongly endorses and requests the inclusion of the condition of consent as below, in order that important matters are considered. A detailed assessment is provided later in the submission with justification for these requirements.

It should be noted that this is a Council officer submission.

a. Proposed Condition of Consent

The following requirements must be met by the proponent before any works commences on Civic Link or the SMW Block 2 Public Domain.

a) The proponent is to coordinate and finalise with the City of Parramatta, design drawings to resolve the creation of New Horwood Place, other laneways and east/west connections, access to third party properties within the block, and heritage building curtilage in a manner not inconsistent with the City of Parramatta Civic Link Special Area provisions within the Parramatta CBD Development Control Plan 2021.

b) The Draft Design drawings are to be finalised by end June 2023, or prior to the proponents submission to the City of Parramatta of draft preliminary design drawings for Block 2 of Civic Link, whichever is the earlier.

c) The full cost of the investigation and design drawings is to be borne by the proponent.

Planning Approval Reporting Requirement – for Approval of the Planning Secretary

b. Proposed Condition of Consent

a) Stormwater drainage, WSUD and flood management measures must be coordinated with the City of Parramatta Council, taking into consideration the following;

A maximum increase in flood levels of.

- 0 mm in residential zoned land
- 0 mm in commercial/industrial zoned land
- 10 mm in public land

b) The full cost of the investigation and design drawings is to be borne by the proponent.

Planning Approval Reporting Requirement – for Approval of the Planning Secretary

KEY ISSUES

1. Civic Link, New Horwood Place and Public Domain

1.1 Guidelines and Public Domain

The CoPC Parramatta City Centre Development Control Plan (DCP) defines the Civic Link Special Area Block 2 as the area bounded by George, Church, Macquarie, and Smith Streets. The DCP identifies the need to deliver a whole-of-precinct approach to public domain within this area, including all streets, lanes and squares within the block. The Metro concept expands on the Council's Civic Link Vision to create a consolidated new public space including Civic Link, New Horwood Place and Welcome Square (with extended temporary space to the north).

The City of Parramatta has prepared and issued to SMW the Civic Link Design Brief, to coordinate outcomes across the four blocks of the Civic Link, refer to Figure 1 - Civic Link Design Brief diagram over page. This document addresses the CBD context, develops strategies for key public domain spaces, streets and laneways, and establishes performance requirements for public domain elements. As the SMW site is only part of Civic Link, it is imperative that a coordinated design is delivered across the different delivery agencies. The Design Brief seeks to inform Metro's reference design and contract with its delivery partner.

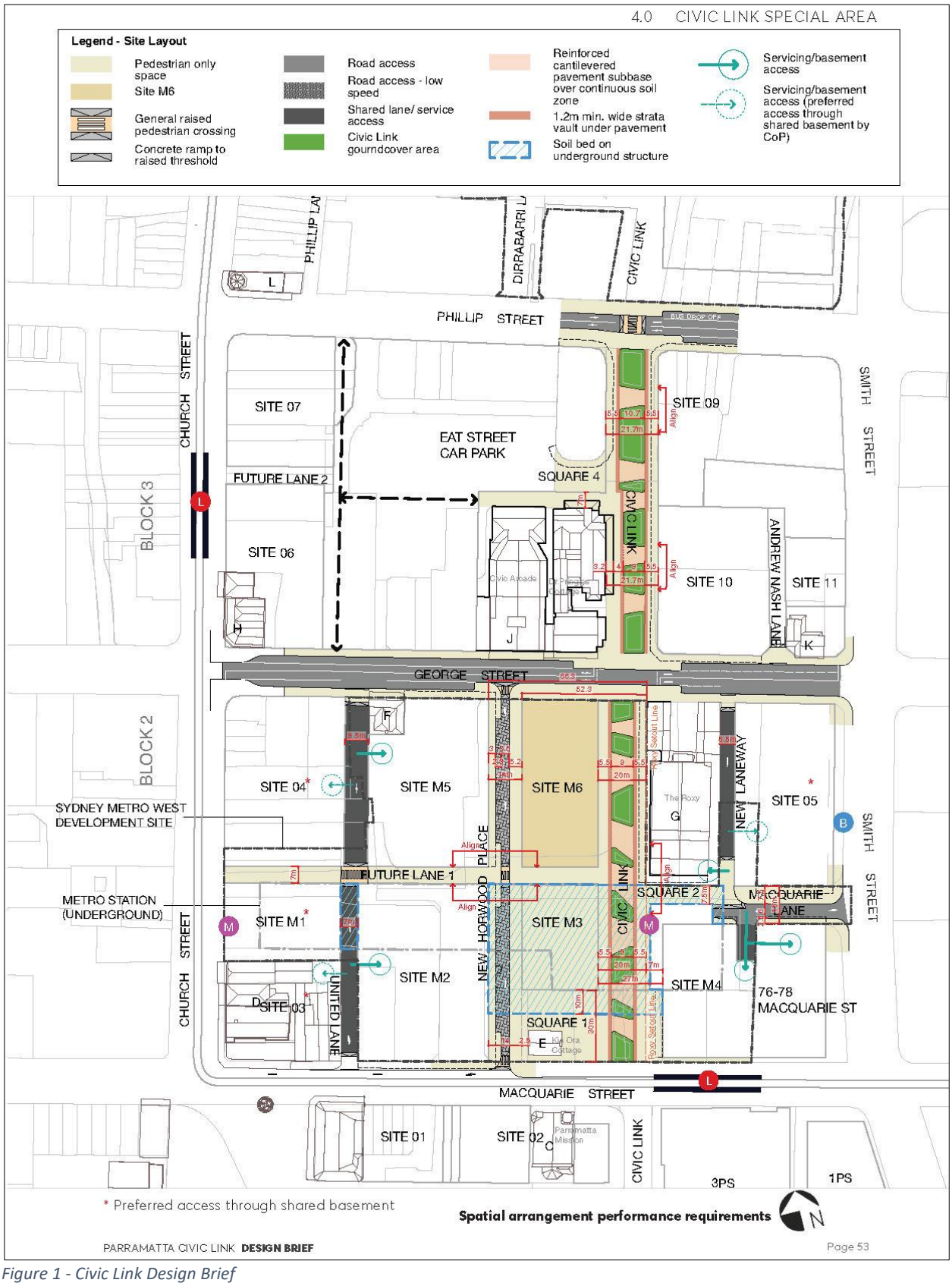

Figure 1 - Civic Link Design Brief

Council is aware that SMW has a Connecting with Country Strategy for the whole Metro West project. Council's Civic Link Design Brief aspires for Country to be an underlying theme for Civic Link, which is an integral part our Council's First Nations Walk. Engagement with the First Nations Community is fundamental to realising both Council projects and Metro's precinct. Council's Design Brief sets out our aspirations to work with Metro to develop a cohesive and integrated approach.

The EIS mainly addresses building form and does not adequately address the spatial definition, functionality and character of the public domain public spaces, streets, and laneways.

Recommendation 1

Sydney Metro West Parramatta Over & Adjacent Station Development Design Guidelines are developed in collaboration with the City of Parramatta to ensure continuity with the City's Civic Link Design Brief and to develop a coordinated design with Country approach within the public domain and with the First Nations People.

Recommendation 2

The Building envelope drawings and Design Guidelines are amended in accordance with the Parramatta CBD Development Control Plan 2021 to addresses the Spatial Layout of the Public Domain within the Metro project boundary, including:

- *Street Types and their dimensions and functions.*
- *Lanes and their dimensions and functions.*
- *Public Squares and their key dimensions, character and uses; and*
- *Basements Extents & Deep Soil under the public domain, including streets and lanes*

Council's 2017 Civic Link Framework Plan sets out an aspiration for the Civic Link to address broader City issues, including urban heat, flood, public transport, active travel, as well as opportunities for Parramatta's cultural offering and identity. These aspirations extend to the enlarged public domain proposed by Metro with the addition of Welcome Square and the temporary public space to the north.

Recommendation 3

The Design Guidelines set objectives and guidance for public domain performance requirements in consultation with City of Parramatta for:

- *Water Management, including WSUD and overland flow paths.*
- *Minimum tree canopy cover and deep soil volumes.*
- *Public Art and Heritage Interpretation.*
- *Spaces for Events & Programming; and*
- *Movement & Circulation for all users.*
- *Public domain elements including furniture, paving, lighting, wayfinding, and smart city elements.*

The Guidelines are incomplete and do not adequately address the interrelated place outcomes across both development and public domain.

- Building C and the eastern metro entrance location, which appears to be sited within the extension of Macquarie Lane, are not sufficiently described with contradictory outcomes shown in different parts of the documentation. The encroachment of the Metro station into the public domain of Macquarie Lane is not accurately assessed for pedestrian circulation and the relationship to the Roxy. The street wall height of Building C at Macquarie Lane and Civic Link does not align with Council DCP and an alternative approach is not justified.
- Skylights to the Metro station are shown notionally in one diagram. These could have a negative impact the functionality of the public space.
- Heritage items are only addressed in part in relation to the proposed street wall heights. The alignment of towers and their visual setting for heritage items is not sufficiently addressed. Kia Ora is only addressed as a potential for an adaptive reuse and addition to the rear. The setting of the Roxy and Kia Ora are not adequately addressed in the documentation.

Recommendation 4

The building envelope drawings and Design Guidelines are amended to include all proposed buildings, their interface with the public domain and heritage buildings.

1.2 New Horwood Place Alignment

The eastern extent of the podium and tower of Building A and D disrupts the alignment of New Horwood Place and creates insufficient separation between the heritage listed Kia Ora and new development to the west.

- The alignment of New Horwood Place is kinked around Kia Ora cottage. A straight street alignment with a 14m street reserve is required (as per Council's DCP) to provide sufficient space for a footpath along the western side of Kia Ora cottage and tree planting for separation and a green backdrop to the cottage. The kinked street alignment does not acknowledge the heritage setting and visually terminates on the north-west corner of the rear façade of the cottage.
- The kinked street creates a poor street edge definition to Welcome Square and constrains the space to the north of the cottage which will limit options for future heritage sensitive additions to the rear of the cottage.
- The turning radius from Macquarie Street to New Horwood Place does not appear to be sufficient. Emergency and service vehicles should be accommodated.
- Horwood Place is shown as a single lane. More information is required to quantify the likely traffic volume from the south and south-west of the Metro site and to demonstrate the capacity of the single lane carriageway to accommodate the required traffic.
- Building A and Building D should be setback to accommodate a 14 m road reservation with a straight carriageway alignment. Alternatively, Kia Ora could be relocated to the east to centrally aligned with the Leigh Memorial Church to enable a 14m road reservation with a straight carriageway alignment.

Recommendation 5

The alignment of Horwood Place be straightened with a straight 14m street reservation width to accommodate parking, footpaths and tree planting along both sides of the street and to ensure Kia Ora has an appropriate curtilage and setting.

1.3 Soil depth and tree planting to public spaces

Soil depths and locations are not addressed in Appendix F: Building Envelope Drawings and Appendix Q: Design Quality Guidelines.

- New public spaces - Civic Link, Welcome Square and New Horwood Place – are supported by CoPC, but these spaces require tree planting that can be sustained in the long term for the performance and amenity of the city. A continuous line of tree planting along Civic Link is a key attribute of the Civic Link Framework Plan endorsed by Council in 2017 and as reinforced by the City Centre DCP.

- Council has provided advice to SMW on the design development for Civic Link and a Draft Design Brief with performance requirements. Where a structure is proposed underground, a nominal depth of soil zone of 1500mm from finished paving level to top of drainage layer within an overall depth of 3m to support utilities and services is required to ensure the health and longevity of trees as per Figure 2.

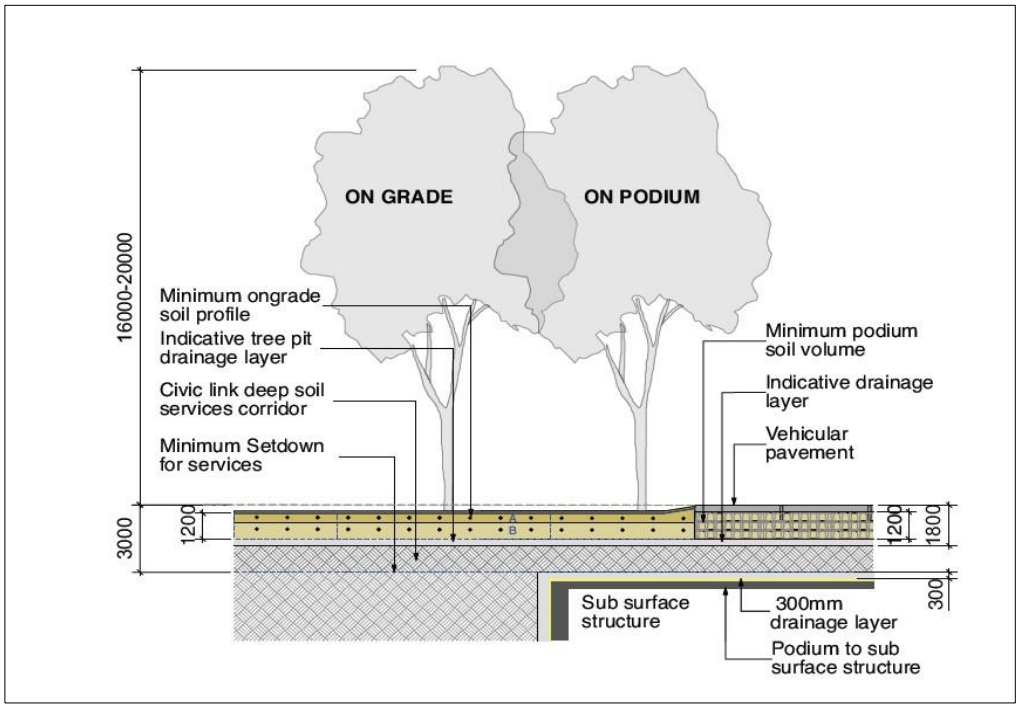

Figure 2- Soil depth & utility requirements

- Civic Link in the EIS documentation is shown with a discontinuous tree canopy with breaks adjacent the Metro Station and along the side of the Roxy. This is not acceptable. Council's Design Brief demonstrates how tree canopy, pedestrian movement to the station and seating can be accommodated together to ensure consistent tree canopy along Civic Link as per Figure 3 below.

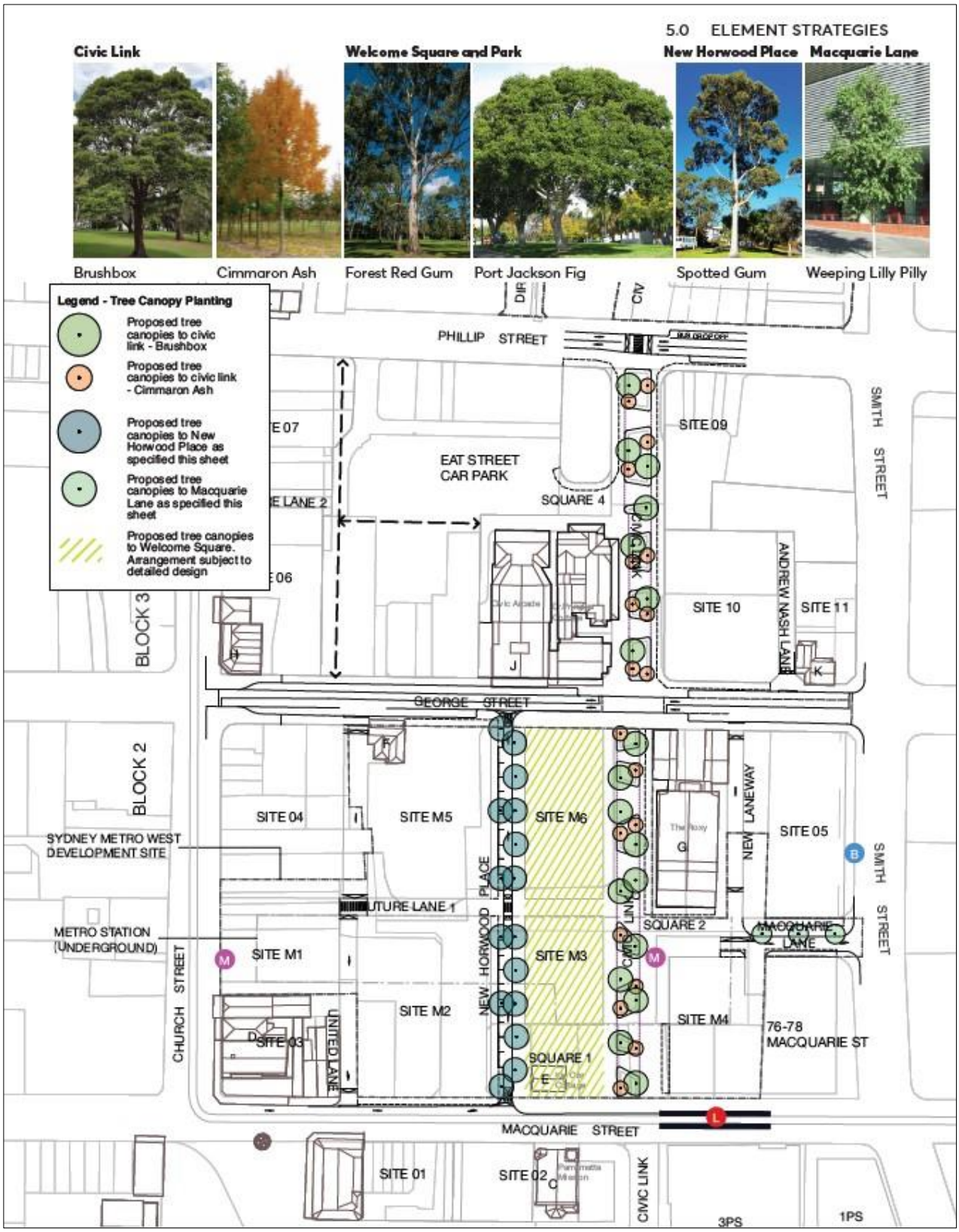

Figure 3- Proposed Tree Canopies

Recommendation 6:

The building envelope drawings and Design Guidelines are amended to set out below ground development extents in relation to the finished level of the public domain at ground and include soil depth and utilities/service requirements above structures.

1.4 Adjacent site access

The proposal has not addressed site access to properties in the north-east and north-west corners of the block, which are in fragmented ownership. Council's DCP supports amalgamation of these properties to realise the objectives of the City Centre and support the commercial core zoning with appropriate development footprints.

- Northeast corner at Smith Street and George Street (Site 05 in Council's DCP below) – Council's DCP describes a preference for the amalgamation of 71 (part, on grade carpark), 73 and 75 Smith Street to facilitate commercial development in alignment with the City Centre LEP and DCP. Piecemeal outcomes on individual sites also result in poor access solutions for the 3 properties and for the adjacent Roxy Theatre. The retention of the on-grade carpark to the east of the Roxy is a poor public domain outcome in the heart of the city centre and conflicts with pedestrian access between the proposed bus interchange at Smith Street and the Metro Station.
- Northwest corner at Church Street and George Street (Site 04 in Council's DCP below-Figure 4) – Council's DCP describes a preference for amalgamation of the multiple small properties facing Church St and George Street in the north-west corner of the block. Existing service access to buildings facing Church Street rely on an easement across the Metro site. There are no drawings that show how access to these properties will be achieved in their existing condition and in the future condition with the proposed Metro development.

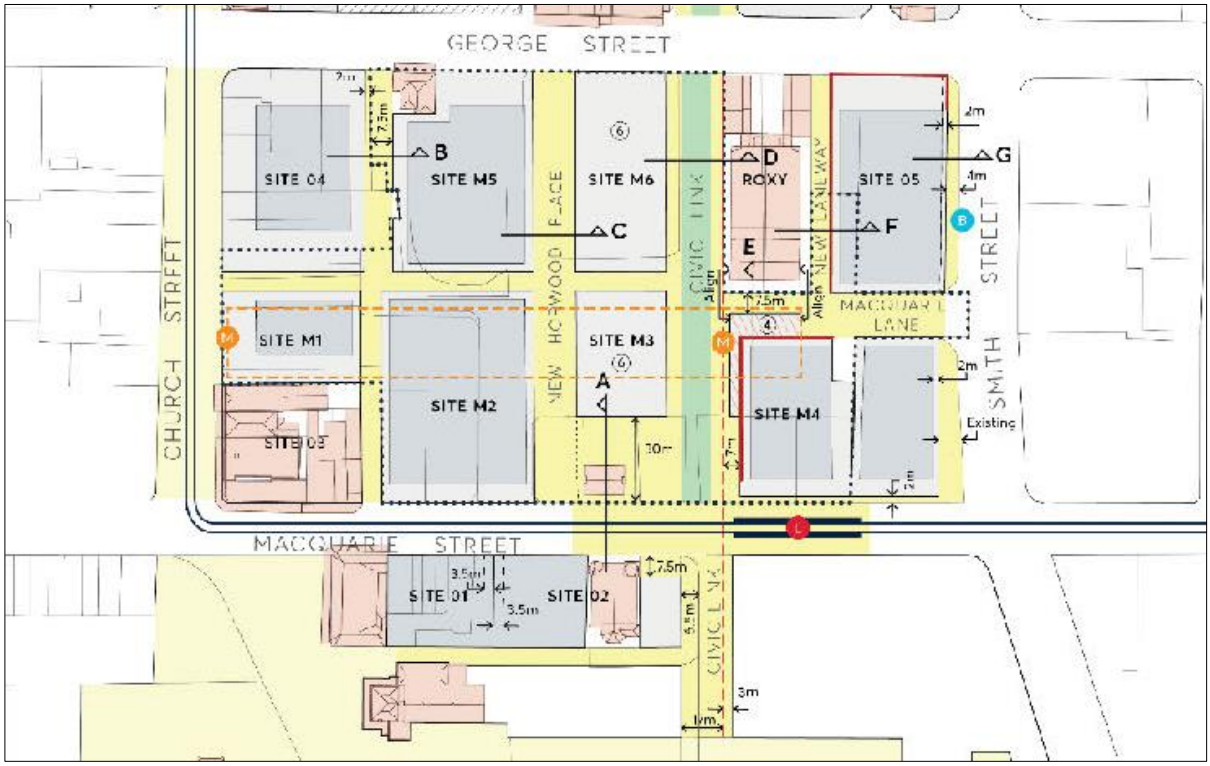

Figure 4- City Centre DCP setbacks

Recommendation 7

Additional information is to be provided that show how vehicle and service access properties is provided for properties adjacent Metro for both existing fragmented development and for future development under Council's LEP/DCP.

1.5 Building envelopes

The SSD proposes alternative podium heights and upper level setbacks from Council's DCP. The 6m upper level setback and 2-4 storey street wall heights along Horwood Place are supported given the proposed open space that these buildings are now proposed to address (vs Council DCP which included buildings). The proposed street wall heights along Macquarie Street and George Street are also supported.

The following proposed building envelop outcomes are not in alignment with the objectives of Council's DCP and are not supported and/or require additional consideration.

- Building A relationship to the heritage shop at George Street – Tower A overhangs the heritage shop on George Street and is not supported.
- Building A separation with properties to the west at Church and George Streets – The western edge of Building A has insufficient separation with the adjoining sites to the west. It is not clear in the documentation how this would be resolved with existing buildings and future development opportunities.
- Building C relationship to the Roxy and Macquarie Lane – There is not sufficient information describing the building podium and station entry structure and canopy. The EIS documentation varies in the location of the eastern Metro entry with some drawings showing it within Building C and others within the extension of Macquarie Lane. A canopy over the entry is also shown in some drawings. Neither is sufficiently defined in the Building Envelopes or addressed in the Design Guidelines. The proximity to the Roxy as a State heritage item and pedestrian volume requirements for the laneway are also not addressed. Council's DCP include heritage objectives and controls to define a 6 storey podium setting to the Roxy. This is not addressed, and an adequate alternative solution is not proposed.
- Building C setback to Macquarie Street – Council's DCP includes a 2m setback to Macquarie Street to improve pedestrian circulation around the light rail stop.
- Building C separation with 25 Smith Street – Separation is not addressed. It is not clear in the documentation how this would be resolved with existing buildings and future development opportunities.

Recommendation 8

The Building Envelope Drawings and Design Guidelines be amended for Building A and C to address heritage curtilages and setbacks and separation with existing and future adjacent development.

1.6 Roxy Theatre

Sydney Metro west should to address the future opportunity of the Roxy Theatre to have an active frontage to Macquarie Lane

Recommendation 9

Sydney Metro West need to consider the requirement for Roxy Theatre to have an active frontage to Macquarie Lane in their planning and in relationship to their station entry, structure and building C canopy.

2. Design Excellence

Appendix P relates to the Design Excellence Strategy.

Council queries the SMW proposed Design Excellence Strategy being relied upon because any future detailed application would likely trigger Clause 7.12 of PLEP 2011 and as such require a design competition. A contrary position by the Applicant to this must be justified to Council.

Recommendation 10

Review of the Design Excellence strategy viz a viz Clause 7.12 requirements of PLEP 2011 and appropriate justification if the review is contrary to these requirements.

3. Proposed variation under clause 4.6 of PLEP2011

Appendix II of the EIS documentation relates to a Clause 4.6 variation request seeking to justify contravention of the development standard set out in Clause 7.24 – 'Commercial premises in Zone B4 Mixed Use' of PLEP 2011. The standard relates to the minimum floor space ratio required for the purposes of commercial premises, in this instance for Building B which is in the B4 – Mixed use zone.

The nominal site area for Building B is 2,470m2. Clause 7.24(3)(b) requires a gross floor area equal to a floor space ratio of at least 1:1 to be provided for commercial premises at Building B, equating to a minimum commercial GFA requirement of 2,470m2 .

The Concept SSDA seeks approval for 1,114m2 of commercial (retail) GFA within Building B, which is less than the 2,470m2 (i.e. FSR 1:1) required, necessitating this clause 4.6 variation. This is a variation of more than 5% for the commercial space shortfall in Building B.

Council cannot legally support this variation as this contravenes Clause 4.6(8)(ca) of PLEP 2011, which caps any floor space variation at 5%. This is a very significant issue for SMW and has not been addressed.

4. Cycle and pedestrian access

4.1 Bicycle parking and end of trip facilities

Bicycle parking and end of trip facilities are provided in the basements serving the proposed development. The commercial facilities are accessed via lifts or bicycle stairways (i.e. stairs with a wheeling ramp adjacent to the stair). The residential bicycle parking is accessed via a lift from the east-west laneway through the site. This is inconsistent with AS2890.3.

Recommendation 11

Access to end of trip facilities is to be via a ramp in line with AS2890.3 and within 1 floor of the ground plane. Stair access with wheeling ramps is strongly discouraged. AS2980.3 states "All bicycle parking should be accessible from a road, driveway or footpath via a bicycle-friendly access path".

Recommendation 12

The east west link between Macquarie Lane and Church Street be cycle friendly.

4.2 Pedestrian Facilities

The raised pedestrian crossing in George Street must be designed in accordance with current standards and guidelines and to Council's requirements. Detailed plans must be submitted to Council for review and approval prior to construction. The design of the crossing must be made narrower to a width of 3.6m with the raised platform to be 5.6m wide to meet Council's standard practice as well as Australian Standards and Austroads Guidelines.

A raised pedestrian crossing must be provided within the Civil Link where the east-west pedestrian way crosses. The pedestrian crossing must be designed in accordance with current standards and guidelines and to Council's requirements. Detailed plans must be submitted to Council for review and approval prior to construction.

Recommendation 13

A raised pedestrian crossing shall be provided in George Street and within Civic Link as per Council requirements subject to Council approval.

5. Flooding and Stormwater

5.1 Flooding

- An electronic copy of all Drainage and Flood Models together with a copy of flood report must to be provided to Council for review. The design of the stormwater pit and pipe network should be modelled in DRAINS and all flood modelling should be undertaken using TUFLOW. It should include Pre and Post Development scenarios along with impact analysis and mapping. The models should be peer reviewed by independent flooding expert consultants.

- Underground drainage to Smith Street may need upgrading and detailed investigation needs to be undertaken to provide safe access to Civic Link and Metro Station in relation to flooding. There is an opportunity to utilise Civic Link as an additional underground stormwater system with safe overland flow to mitigate the existing flooding situation in surrounding areas including Macquarie St and Smith St. It is recommended that Sydney Metro consider this opportunity and ensure the overland flow/ improved drainage through the site is achieved in design so that there is no adverse flood impact to Parramatta Light Rail in Macquarie St or any other property due to this development.

- There is sag point at Macquarie Street (at close proximity to Building C) where water is expected to pond in the 1% AEP flood event. The flood levels available from other studies undertaken for sites such as 3PS (Parramatta Square) refer to a flood level of approximately 10.4m AHD at this point. In Parramatta Square study the depth of water ponding at Macquarie Street in the 1% AEP event is approximately 0.75 to 1.0m deep whereas the Appendix T – Flooding Report, September 2022 (figure A-02) shows there is minimal flooding on the street. Refer to Figure 5 with annotations below. This is different from the Flooding figure under Chapter 8.4 of Appendix E- Built form and urban Design report from the EIS documentation. The drainage capacity is limited on the street and therefore it must be further investigated to ensure a realistic representation of flood behaviour. Site survey must be utilised in the flood models, as LIDAR may have limited accuracy.

- The Macquarie Street drainage system has been updated recently due to drainage works conducted by the Parramatta Square development and drainage works by PLR along Macquarie Street in conjunction with the upgrade of the drainage system at Smith Street and Macquarie Street intersection, crossing the PLR corridor. These upgrade works should be some improvement to the flooding problem at the low point in Macquarie Street for the 5% AEP event, however there may still be flooding in larger storm events and the provision of an additional drainage system and overland flow path through the proposed Civil Link to drain overflows from Macquarie Street in the 1% AEP should also be included in this design.

Figure 5- Appendix T- Flooding Fig A-02

- 1% AEP Climate change scenario map (Figure 5, and section 5.3.1 Flooding Report, Sep 2022) shows no flooding or ponding which is unlikely given sag location in Macquarie Street and Smith Street drainage being under capacity. Council Flood Map shows flood water within Macquarie Street. Detailed investigation is required and consideration to comment 1 (ii) above should be given and updated statement to be included in EIS document.

- Flooding Report, Sep 2022, section 6.2, Paragraph 4 states “For local stormwater flooding a freeboard of 0.3 metre freeboard above internal overland flow paths has been adopted for the Sydney Metro West project area”. As per council’s current guidelines and current practice the minimum Habitable Finished Floor Level should be set as 1% AEP flood level with climate change plus 500 mm Freeboard. Freeboard less than 500 mm should not be used. The Finished Floor Level should be based on the higher of mainstream Flooding and local flood level allowing for 100% blockage of the underground drainage pipe system. In addition, flood protection up to PMF levels needs to be ensured and demonstrated how it could be achieved. This is more important being a critical infrastructure. Our preference would be to avoid mechanical flood barrier and to design entry levels to protect from all flood events up to and including the PMF.

5.2 Climate Change Inclusion

Flooding Report, Sep 2022, section 3.1 indicates that climate change with RCP 8.5 and Reference Year 2100 has been incorporated in the model.

Climate change reference year should be representative of design life/service life of the development. Further, being critical infrastructure, it is important to adopt representative reference year for climate change.

It is recommended that further advice is obtained from DPE in relation to the application of climate change and potential to include climate change impact up to 2150.

In addition, climate change should be included as design case and mitigation measures should be referenced with the inclusion of climate change.

5.3 Defining 'Not Worsening'

Flooding Report, Sep 2022, section 3.1 defines 'Not worsen' flooding on properties or infrastructure up to the 1% AEP climate change flood event. Not worsen is defined as:

- a maximum increase in flood levels of 50 mm
- a maximum increase in time of inundation on one hour
- no increase in potential soil erosion and scouring from any increase in flow velocity.

A maximum increase in flood levels of **50 mm** is not acceptable and should be adopted as below;

- 0 mm in residential zoned land
- 0 mm in commercial/industrial zoned land
- 10 mm in public land

5.4 Sensitivity with ARR 1987 Methodology

Flood Modelling has been undertaken utilising ARR2019 methodology which seems resulting lower flood levels and flows. As advised in DRAFT Floodplain Risk Manual, 2022, sensitivity analysis with ARR1987 methodology should also be undertaken and appropriate measures to be incorporated.

5.5 Cumulative Impacts

EIS document section 2.4 mentions that no significant development proposals, under assessment or approved within the immediate locality that need to be considered from a cumulative impact's perspective. It doesn't mention Parramatta Light Rail. It should be included in the assessment under cumulative impacts.

6. Integrated Water Management Plan

6.1 Public stormwater and Private Stormwater discharge approach

It is not clear from the EIS documents whether the public stormwater and private stormwater discharge are separate or combined. Stormwater discharge from public domain should be separately connected to council stormwater infrastructure after appropriate water quality treatment. Water Quality treatment elements should also be separate to private stormwater quality treatment elements. Council do not recommend proprietary water quality treatment for public domain except GPTs rather prefers standard raingarden and other natural devices. Similarly, council does not prefer tree pits as water quality treatment unit due to maintenance issues rather prefers standard raingarden and other natural devices.

A detailed DRAINS model for stormwater drainage design and a detailed MUSIC model for water quality treatment needs to be developed and need to be submitted to council for review along with detailed report.

6.2 Stormwater Drainage Design

Stormwater from the subject site is proposed to be connected ultimately to existing Smith Street Stormwater drainage system which is under capacity. Due to several constraints Smith Street drainage system upgrade is also limited. The proposed civic link may provide a good opportunity to incorporate additional drainage line to cater stormwater as per current standard. This will also provide better conveyance from sag location at Macquarie St. The current Council standard for stormwater system design is to be adequate for up to 5%

AEP inclusive of climate change with 50% blockage in sag pit and 20% blockage in on-grade pit with safe 1%AEP (inclusive of climate change) overland flow.

This needs to be demonstrated by DRAINS model and made available to council for review.

The drainage network shown on Appendix T – Flooding Report, September 2022 Figure 4-2, can be improved to show pit inlet points and sizes of inlets, currently there is very limited pit capacity along the sag point at Macquarie Street. The capacity of the existing Council network must be identified and ensured that there is adequate capacity in the network to safely convey the proposed scenario flows. The inlet capacities may be increased by upgrading the existing drainage pits on the street if this is not adequate pipe upgrades can also be investigated.

The proposed drainage arrangement must be updated to include surface grading (surface levels with suitable contour spacing) to provide a clearer view of on the direction of flows.

The existing capacity of Council's drainage system must be assessed, it must be ensured there is no increased flows connecting to the system and there is adequate capacity.

Detailed drainage plans to be submitted for Council review, the diameter of any pipe and longitudinal grades must be shown on the submitted plans. The minimum permissible gradients are shown in City of Parramatta Design Guidelines (2018). The long section of pipes should also be shown on the drainage plans.

Tailwater levels needs to be considered when designing the internal site drainage.

A maintenance schedule is to be prepared to ensure the required maintenance and frequency for each component to allow the system to function effectively.

Blockage is a common occurrence in urban drainage systems especially during rare storm events and blockage may result in major changes in flood behaviour and levels at the proximity of the site. A sensitivity is recommended to test 100% pit and pipe blockage to estimate the impacts on flooding. This is particularly recommended for the 5% and 1% AEP scenarios with and without climate change.

6.3 PMF Flood Level

City of Parramatta Council adopted flood levels for the PMF (Probable Maximum Flood) must also be investigated and compared to the calculated flood levels in this study. The station entrances must be protected up to the PMF flood event. It is recommended to raise the crest levels inside entrance points to prevent flood water entering the station and flood water may also enter basement levels via stairwells, lift shafts etc. which should also be protected up the PMF flood.

6.4 Internal Site Drainage

OSD (On Site Stormwater Detention) calculations should be undertaken using the Upper Parramatta River Catchment Trust OSD Handbook Fourth Edition (December, 2005) for integration of rainwater storage and OSD.

The OSD system shall function during all storm events up to and including the 1 % AEP plus climate change. When assessing the tailwater levels 1% AEP plus climate change scenario must also be considered.

The design should consider relevant safety provisions and provide adequate freeboard when the OSD system malfunctions or overflows in the event of a 1% AEP (inc. climate change) storm event.

It must be ensured that the OSD tank can be readily inspected and can be maintained at all times.

The 1% AEP flood levels on Macquarie Street and surroundings may impact OSD design, in current calculations it is assumed as a free discharge outlet however relevant tailwater conditions may apply and drowned outlet conditions will need to be assessed which may result in increases in OSD volumes.

If the OSD has a completely drowned outlet and it should be designed accordingly, refer to section 6.4 Drowned Outlets for the OSD Handbook. The SSRt requires to be increased as per the recommendation of the guideline which will result in a significantly larger OSD size.

Council requires the submission of Concept OSD drawings to assist in determining the likely impacts that the

development may have on the existing natural and built environments.

6.5 Water Quality Requirements

An electronic copy of MUSIC Model must be provided to Council for assessment and review.

Council recommends using PARRAMATTA NORTH MASONS DR (66124) RAINFALL STATION 6 minutes data from 1988 to 1998 (10 years). It is also available in MUSIC-Link for MUSIC_X.

6.6 Flood Emergency Response

The public domain area is impacted by the PMF flood and the depth of flooding is significant which may pose significant safety risks to public. A detailed flood emergency response plan (FERP) is recommended to be prepared for the site at early stages of the design so that the necessary measures can be implemented early in the process. The plan should be prepared in consultation with the local State Emergency Service (SES). BOM Flood warnings and City of Parramatta Council's Flood Smart service should also be used in developing the plan to provide early flood warnings where possible.

All passengers/workers/occupants must have access to a safe area of refuge above the PMF where they can remain until the flood event has passed and any subsequent disruption after the flood has been rendered safe and serviceable. A safe area of refuge can be within a communal area for workers and visitors. Off-site evacuation must be provided to and from the site and investigate/provide safe access points for emergency vehicles.

Flood evacuation routes mapping should be prepared and submitted as part of the FERP.

The plan should consider a range of floods and durations, each flood event could be different, some floods may have a slow onset and last for longer depending on the temporal pattern of the rainfall that caused the storm. The number of passengers visitors that are expected in the proximity of the station should be calculated as part of the FERP to ensure timely evacuation of all passengers/workers including disabled persons.

Recommendation 14

A safety in design report is prepared by a suitably qualified professional and submitted to Council for review demonstrating the risks and mitigation measures in place to remove or the reduce the flood risk. It should investigate and implement measures for risks such as automatic flood barriers failure, flood warning failures, the risk of fire during a flood and medical emergencies during a flood etc.

Recommendation 15

A copy of the DRAINS model used to develop the Public Domain Internal Catchments Flow calculations must be provided to Council for review.

Recommendation 16

Detailed drainage plans to be submitted for Council review. The diameter of any pipe and longitudinal grades must be shown on the submitted plans. The minimum permissible gradients are shown in City of Parramatta Design Guidelines (2018). The long section of pipes should also be shown on the drainage plans along with maintenance schedules. The provision of an additional drainage system and overland flow path through the proposed Civil Link to drain overflows from Macquarie Street in the 1% AEP should also be included in this design.

Recommendation 17

An electronic copy of MUSIC Model must be provided to Council for assessment and review.

Recommendation 18

Detailed storm water and flooding design should consider and incorporate the following.

A maximum increase in flood levels of.

- *0 mm in residential zoned land*
- *0 mm in commercial/industrial zoned land*
- *10 mm in public land*

7. Traffic and Vehicular access

7.1 Loading & Servicing Facilities

The submitted T&A report indicates that the proposed development will provide 19 parking spaces for delivery vehicles as well as 18 loading bays for SRVs and 8 loading bays for MRVs. Loading and unloading facilities are to be designed in accordance with the requirements of the Australian Standard AS 1890.2:2018. Details are to be illustrated on plans submitted with the final DA.

7.2 Driveway from Smith Street

The estimated inbound + outbound in the AM and PM peak for the southern basement are 184. This number exceeds the TfNSW requirements for a Shared Zone which states that Shared Zones must have less than 100 vehicles per hour and less than 1,000 vehicles per day. It is further noted that the main pedestrian entrance for the Metro Station will be located within close proximity to this driveway/shared zone meaning that there will be a significant volume of pedestrians. As such, the proposed vehicle entrance to the southern basement carpark is not considered safe due to the vehicle pedestrian conflict.

Recommendation 19

The location and type of vehicle entrance must be revised such that the conflict between high vehicle volumes and high pedestrian volumes is removed and separated.

Retaining the access restriction of Macquarie Lane in its current configuration of left-in left-out will force the traffic coming from the north to use Parkes Street and Station Street to access the site. Northbound queues in Station Street at Hassall Street extend back to Parkes Street during the peak periods, and traffic in both directions turning from Parkes Street into Station Street causes delays in Parkes Street. Council is currently considering a restriction on the right turn from Parkes Street into Station Street (northbound). Council has concerns about adding additional traffic to the right turn from Parkes Street onto Station Street and to northbound traffic on Station Street due to the lack of options for traffic entering the car park for the southern part of the Metro Station development.

Recommendation 20

It is recommended that an additional access be provided to the southern basement (e.g. either directly from Macquarie Street or the new Horwood Place) in order to facilitate access of the vehicles coming from the north to the southern basement. Delivery and service vehicle access must be maintained to 238-262 Church Street Parramatta.

7.3 Macquarie Street and Shared Zones

The proposed Shared Zone within the Civil Link between Macquarie Street and George Street and in any part of Macquarie Street as shown within Appendix E (Built Form and Urban Design Report) is not supported as the vehicle volumes will be too high to comply with TfNSW Policy and Guidelines which state that Shared Zones must have less than 100 vehicles per hour and less than 1,000 vehicles per day. It is noted that as per the PLR Stage 2 EIS submission, the volume of traffic they have shown to be carried on Macquarie Street in the morning peak hour was 476 vehicles and, in the afternoon peak hour, it was 542 vehicles. This high volume of traffic cannot be safely accommodated within a Shared Zone. It is noted that traffic volumes for Macquarie Street between Marsden Street and Horwood Place have not been provided as part of the Metro submission due to previous road closures as part of the PLR Stage 1 works.

Recommendation 21

Shared zone within Civic link between Macquarie Street and George Street not supported.

Recommendation 22

It is recommended that a Construction Pedestrian and Traffic Management Plan (CPTMP) report as part of the SSD process to demonstrate how the construction of the proposed development will be managed to ensure that the impact of the constructions activities of the proposed development on the vehicular and pedestrian movements on the operation of the surrounding road network are minimised. The CPTMP report is to be assessed prior to the application determination.