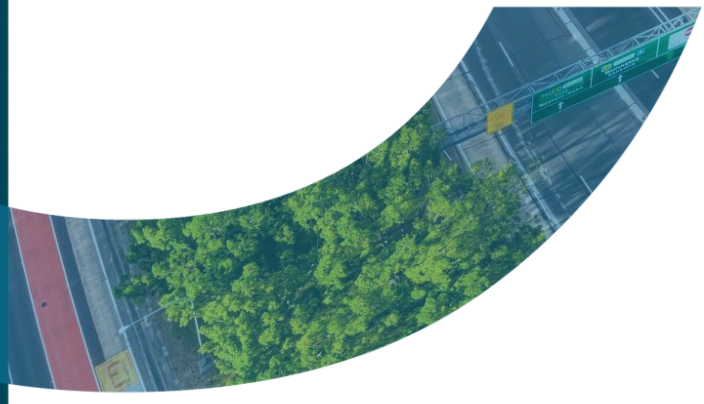
Hickson Road South Upgrade

Civil Engineering 80% IFT / REF Design Report



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1 Introduction

1.1 Project Description

This report has been prepared by Enspire Solutions (**Enspire**) to support the Review of Environmental Factors (REF) for the Hickson Road South upgrade and refurbishment (the **Activity**).

The **Hickson Road South** (refer **Figure 1** - Locality Plan) upgrade and refurbishment design comprises of the upgrade of Hickson Road from the northern side of the Napolean Street intersection connecting to the existing road upgrade north of the High Street Steps, along with utility upgrades running adjacent to Barton Street and intersection upgrades.

The activity has been documented across two (2) stages, as shown in **Figure 1**:

- Stage 3 – designed by Enspire Solutions for Lendlease (Millers Point) Pty Limited in line with the Barangaroo South Project Development Agreement
- Stage 4 – designed by Enspire Solutions for Infrastructure NSW (previously Barangaroo Delivery Authority ABN 94 567 807 277).

This report accompanies a Review of Environmental Factors that seeks approval for the Hickson Road upgrade and refurbishment, which involves the following works:

- Adjustment to horizontal geometry of the existing Hickson Road, enabling the provision of:
  - Additional short term parking bays along the western side of the roadway;
  - A new two-way separated cycleway along the eastern edge of the roadway;
- Provision of two (2) un-signalised pedestrian crossing intersections along Hickson Road, creating pedestrian connections to Hickson Park and Central Barangaroo;
- Provision of two (2) un-signalised pedestrian crossing intersections along Waterman's Quay and Barton Street respectively;
- Installation of a formal left turn slip lane into Waterman's Quay from the north-bound approach on Hickson Road;
- Constructing new footpaths on the western and eastern sides of Hickson Road to match the already completed footpath works to the north and south of the existing extent of proposed works;
- Provision of permeable paving to accommodate existing trees;
- Landscaping works including the establishment of low-median planting between the eastern edge of the road carriageway and eastern footpath and installation of additional medium sized trees along both the eastern and western footpaths and within the landscape medians;
- Relocation and augmentation of utilities where necessary, including electrical, gas, water and telecommunications;
- Final roadworks, including kerb and gutters, road and footpath pavements, signage, lighting and line marking;
- Installation of new stormwater drainage pit and pipe infrastructure, including a trunk drainage line running adjacent Barton Street to an existing outlet to Sydney Harbour;
- Ancillary works for the project including, but not limited to, road furniture, tie-in works, earthworks, adjustments to existing stormwater drainage infrastructure and flood mitigation works.

The Review of Environmental Factors prepared by Ethos Urban provides a full description of the proposed works.

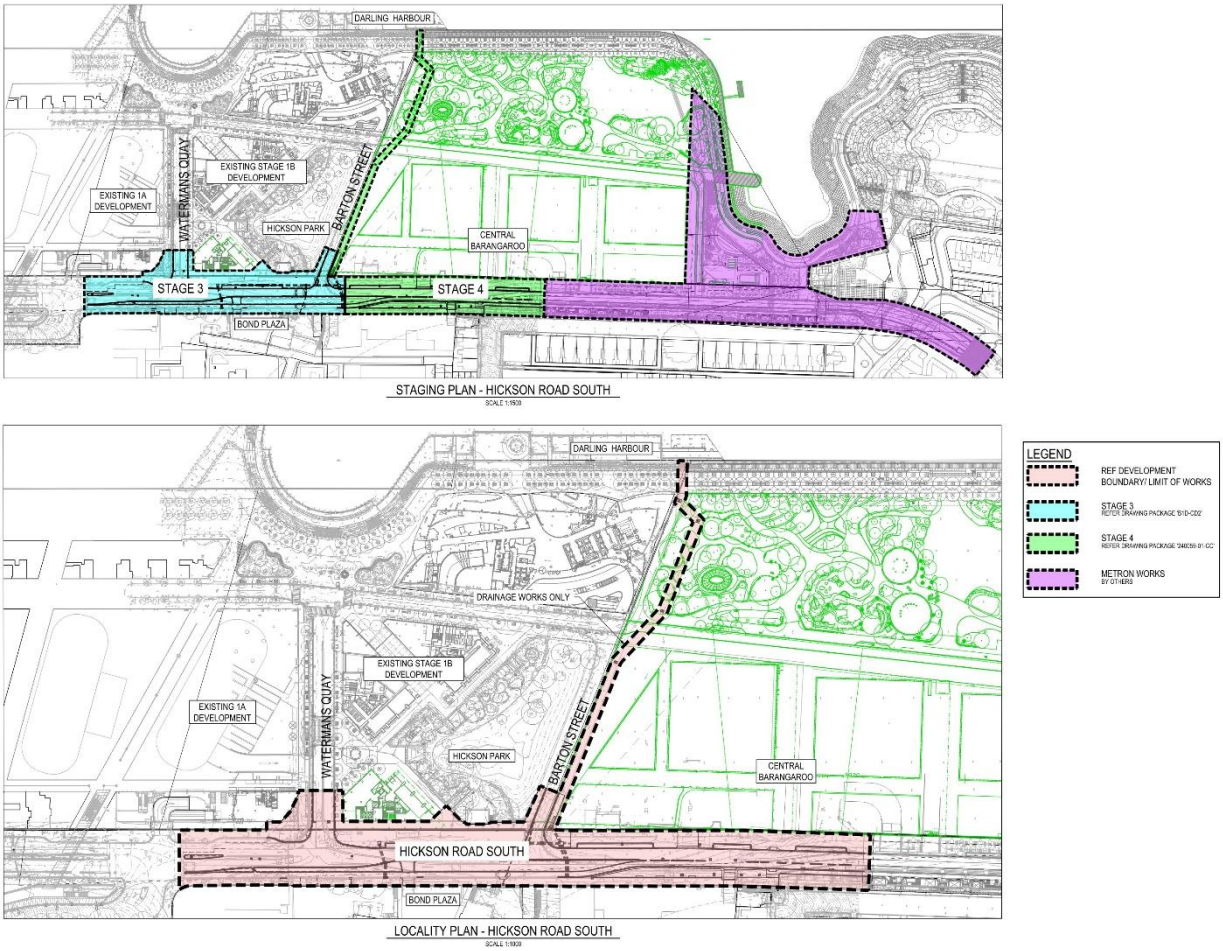

Figure 1 – Context-Staging Plan

The detail design associated with Stage 3 and Stage 4 utilised the reference design prepared by Arup (dated 29 July 2022) for Infrastructure NSW (INSW) and includes:

Stage 3 road, stormwater, utilities and pavement design for Hickson Road from Napolean Street in the south to Barton Street in the north including a temporary connection to the existing road alignment fronting 30 The Bond.

Stage 4 works include a continuation of improvements north of Barton Street to the High Street steps, connecting the Stage 3 works to the works north of the High Street steps undertaken by Metron.

1.2 Scope and Purpose of Report

Though the design process, peer reviews of the ARUP reference design were undertaken including the flood assessment prepared by GRC. Meetings with INSW, the City of Sydney Council and Lendlease have been undertaken to refine design requirements and to outline adjustment to the reference design to ensure a functional design is prepared addressing vehicular and pedestrian safety, flooding and associated overland flow regimes and protection of essential services.

The purpose of this report is to provide a summary of the civil design undertaken to support a Review of Environmental Factors (REF) submission to INSW and the City of Sydney Council.

This report intends to inform the following:

- Existing site conditions;
- Design criteria, assumptions and regulatory requirements;
- Associated risks and mitigation strategies;
- Staging strategy;
- Key design elements.

2 Reference Documents

As part of the detail design the following documents have been considered and coordinated into the design.

2.1.1 Associated Reports and Drawings

1. Civil Engineering drawings prepared by Enspire, refer drawing register Appendix A;
2. Hickson Road reference design prepared by ARUP dated July 2022;
3. Arborist Report reference 2308_b, prepared by Elke dated 15 September 2025;
4. Archaeology, Historical Archaeological Assessment, Impact Statement & Research Design, prepared by Casey & Lowe dated 19 September 2025;
5. Communications design and coordination by DesignIT Telco;
    a. NBN Preliminary design PM37439 dated 20/09/2025
    b. Telstra
    c. Optus
    d. Nexgen
    e. FibreconX
    f. Fiberscense
    g. Aussie Broadband
    h. Vocus
    i. Verixon
    j. TPG
    k. Superloop
    l. Uecomm
6. CPTED Report for Hickson Road Redevelopment Project, Revision V1.2, prepared by ACAD Services dated 4 April 2024;
7. DDA Access Report GDL230396, Revision A, prepared by Group DLA dated 12 September 2025;
8. Electrical and Lighting drawings L153U085, Revision T4, prepared by DEP Consulting dated 16 October 2025;
9. Flooding
    a. Flood Assessment YN210079/NA50613044, Revision 1, prepared by Cardno dated March 2015;

   b. Flood Assessment BRG-HRSPRD-001, Revision A, prepared by GRC dated July 2022;
   c. Flood Review RL-01-1774-02, prepared by RHELM dated 1 December 2022;
   d. Flood Review RR-01-2397-01, prepared by RHELM dated October 2025;
10. Geotechnical Report SYDGE310822-AD, Revision 3 prepared by Tetra Tech Coffey dated 12 August 2024;
11. Heritage Impact Statement, Revision P1, prepared by TKD Architects dated April 2024;
12. Natural Gas connection offer dated 3 September 2021
13. Landscape, Hickson Road Upgrade Landscape Design 016559 & 017641, Revision B, prepared by Hassell dated 12 September 2025;
14. Potable water Case Number 12494PW, Revision C, prepared by RMAI dated 8 September 2025.
15. Potable water Case Number 227463PW, Revision A, prepared by RMAI dated 10 September 2025.
16. Surrounding development
   a. Stage 1B Barangaroo Public Domain Works, project 161804, prepared by Stantec (formerly Cardno) dated September 2018;
   b. Hickson Road North Stage 3 Design prepared by Metron dated May 2022;
17. Survey AU213009952, Revision C, prepared by RPS Australia dated June 2023;
18. Survey AU213009952, Revision F, prepared by RPS Australia dated October 2025;
19. Service Authority existing data obtained through a desktop study (Before You Dig sequence 50985751)
20. Transport Assessment, project 2365, prepared by JMT Consulting dated 12 September 2025
21. Transport for NSW correspondence SYD16/01208/5 dated 10 September 2020
22. Wayfinding Strategy & Specifications, prepared by THERE dated September 2025.

2.1.2 Reference Standards

The following engineering standards and related documents have been used to develop the 80% IFT / REF design of Hickson Road.

1. The City of Sydney Council (CoS) City Streets Technical Specifications, Design Guidelines and Standard Drawings;
2. Austroads Guide to Road Design including:
   a. Part 3, Geometric Design
   b. Part 4, Intersections and Crossings, General
   c. Part 4A, Unsignalised and Signalised Intersections
   d. Guide to Pavement Technology Part 2, Pavement Structural Design
3. Transport for NSW (TfNSW) Material and Roadworks QA Specifications, Materials and Roadworks Specifications;
4. Australian Standards including:
   a. AS1428.1 – Design for Access and Mobility, General Requirements for Access
   b. AS1428.4 – Design for Access and Mobility, Tactile Indicators
   c. AS2890.5 – Parking Facilities, On-Street Parking
   d. AS1742 – Various
   e. AS3725 – Loads on Buried Pipes
5. Australian Rainfall and Runoff (1987).

3 Design Criteria

Hickson Road is an unclassified regional road. INSW is the current roads authority for Hickson Road between Sussex Street and Windmill Street Bridge. As part of coordination meetings with INSW, it is understood the CoS will ultimately be the road authority, however the road is located within the boundary of the Barangaroo site currently under control by INSW.

3.1.1 Road Geometry

The geometric design criteria adopted for the 80% IFT / REF design is summarised below:

1.	Posted Speed	40km/h
2.	Design Speed	50km/h
3.	Minimum lane width	3.2m
4.	Minimum parking bay width	2.5m
5.	Kerb types	Stone kerb with concrete gutter
6.	Road cross fall	Between 1% and 4%
7.	Footpath cross fall	Between 1% and 2.5%
8.	Horizontal gradient	To match existing, generally 0.5%

3.1.2 Drainage Design

The drainage design criteria for the 80% IFT / REF design is summarised below:

1.	Minor storm	5% AEP
2.	Major Storm	1%
3.	Pit type	CoS standard pits where possible. Special pit as necessary
4.	Pipe type	- Reinforced concrete (RCP) class 4 for pipes 375 dia and greater - SN8 Grade Polyvinyl Chloride (PVC) pipe for 225 dia pipes under the roadway - Polyvinyl Chloride (PVC) pipe for pipes 225 dia and smaller outside of the roadway
5.	Pipe size	225 dia min (under roadway)
6.	Minimum pipe gradient existing services constraints)	0.15% (due to tie in with existing stormwater network and
7.	Blockage factors	20% on grade and 50% for sags
8.	Tailwater level	1.575m AHD for ultimate Stage 3 and 4 Design

3.1.3 Pavement Design

The design criteria adopted to inform pavement design is summarised below. No specific geotechnical testing to inform pavement designs has been undertaken as part of the 80% design.

1.	Design life	20 years (flexible) and 40 years (rigid)
2.	Design CBR	4%, subject to insitu testing

3.1.4 Design Assumptions

The following assumptions have been adopted during the design development of the project:

- Variable thickness asphaltic concrete reinstatement over existing rigid pavement within Stage 3;

- Full depth pavement construction required based on revised site levels and condition of existing pavement within Stage 4 extents;
- Extent of roadworks is limited to tie-in points at Napoleon St, Watermans Quay, Barton Street and Metron works;
- Proposed stormwater drainage network is to drain into the existing drainage infrastructure installed as part of the Barangaroo South development ;
- Stormwater trunk drainage line from Hickson Road to the existing outlet to Darling Harbour at Wulugul Walk;
- No water quality measures are required;
- The largest vehicle entering Watermans Quay is a 12.5m HRV;
- The largest vehicle exiting Watermans Quay turning right into Hickson Road is a 12.5m HRV
- The largest vehicle exiting Watermans Quay turning left into Hickson Road is an 8.8m MRV
- The largest vehicle entering or exiting Barton Street is an 8.8m MRV.

3.1.5 Design Constraints

The following design constraints were identified during the development of the concept design:

- Existing stormwater drainage system installed as part of the Barangaroo South works limits the downstream stormwater network capacity;
- Existing stormwater drainage installed underneath Wulugul Walk is to be maintained and limits the downstream stormwater network capacity;
- Existing boundary levels at the eastern extents of the development are to be maintained, particularly adjacent 30 The Bond and 38 Hickson Road;
- Access to existing carpark driveways at 30 and 38 Hickson Road are to be maintained;
- Levels of western footpath are to integrate seamlessly into the Barangaroo South levels;
- Existing street trees along eastern side of Hickson Road are to remain where possible;
- Existing utilities to be maintained where possible.

3.1.6 INSW Peer Review

INSW commissioned a peer review of the Enspire 80% preliminary civil engineering drawings and Hassell 80% preliminary landscape package, received 03/10/2025. The peer review comments have been considered in preparation of the 80% IFT / REF design packages. Appendix B shows the peer review response matrix.

3.2 Landscape Design

The proposed landscape design has been prepared by Hassell. Paver material, paver orientation, street furniture, tree pits and associated roadside furniture are included in the landscape documents.

3.3 Utilities Survey

Existing utilities have been presented in the civil engineering drawing package based on Before You Dig (BYD) information, authority design documentation and services design information as presented in Metro works package.

Detailed services investigation survey will be undertaken as part of the 100% design to confirm vertical and horizontal alignments of existing services to allow clash detection with proposed services.

4 Proposed Road Design

4.1 Earthworks

As part of civil works, earthworks on the site will generally consist of cut and fill operations to establish proposed road formations and site levels. The levels have been designed to maintain existing levels along the eastern extent of Hickson Road whilst allowing the levels along the western boundary to be raised to integrate into the Barangaroo South and future Central Barangaroo developments.

Approximate cut to fill earthworks operations based on available survey data are summarised in Table 1 and Table 2.

Table 1 – Stage 3 Approximate Fill Volumes

Earthworks	Volume (m^3)
AC	604
Other Volume (i.e. granular material, concrete etc.)	141
Engineered Fill	345

Table 2 – Stage 4 Approximate Cut and Fill Volumes

Earthworks	Volume (m^3)
Cut	948
Fill	603
Balance	345 (Export)

It is noted the cut and fill operations for each stage will be calculated based on the following assumptions:

- No allowance for earthworks bulking factors;
- No allowance for spoil generated from utility service and stormwater drainage trenching;
- Allowance for pavement depths based on DESAs and assumed subgrade CBR values.

4.2 Road Design

4.2.1 Horizontal and Vertical Geometry

As part of the works, it is proposed to maintain one (1) north-bound and one (1) south bound travel lane on Hickson Road. The intersections of Watermans Quay and Barton Street with Hickson Road remain as unsignalised intersections.

Marked pedestrian crossings are provided at Watermans Quay, Barton Street, and north of Hickson Road near the Metron Site to facilitate safe pedestrian movement. A raised marked crossing south of Barton Street on Hickson Road provides pedestrian priority across Hickson Road. Additionally, a proposed cycleway runs along the eastern side of Hickson Road.

A total of sixteen (16) five-minute parking bays are proposed north of Watermans Quay on the western side of Hickson Road.

A temporary Stage 3 tie-in is proposed north of Barton Street connecting the revised alignment and level of Hickson Road to the existing. Stage 4 will connect the Stage 3 Hickson Road upgrade works to the Metron works north of the High Street steps.

Levels along the eastern kerb alignment remain whereas the levels along the western boundary are raised to ensure integration with Barangaroo South and future Central Barangaroo developments resulting in a one-way cross fall west to east. Figures 2, 3 and 4 detail this general road alignment.

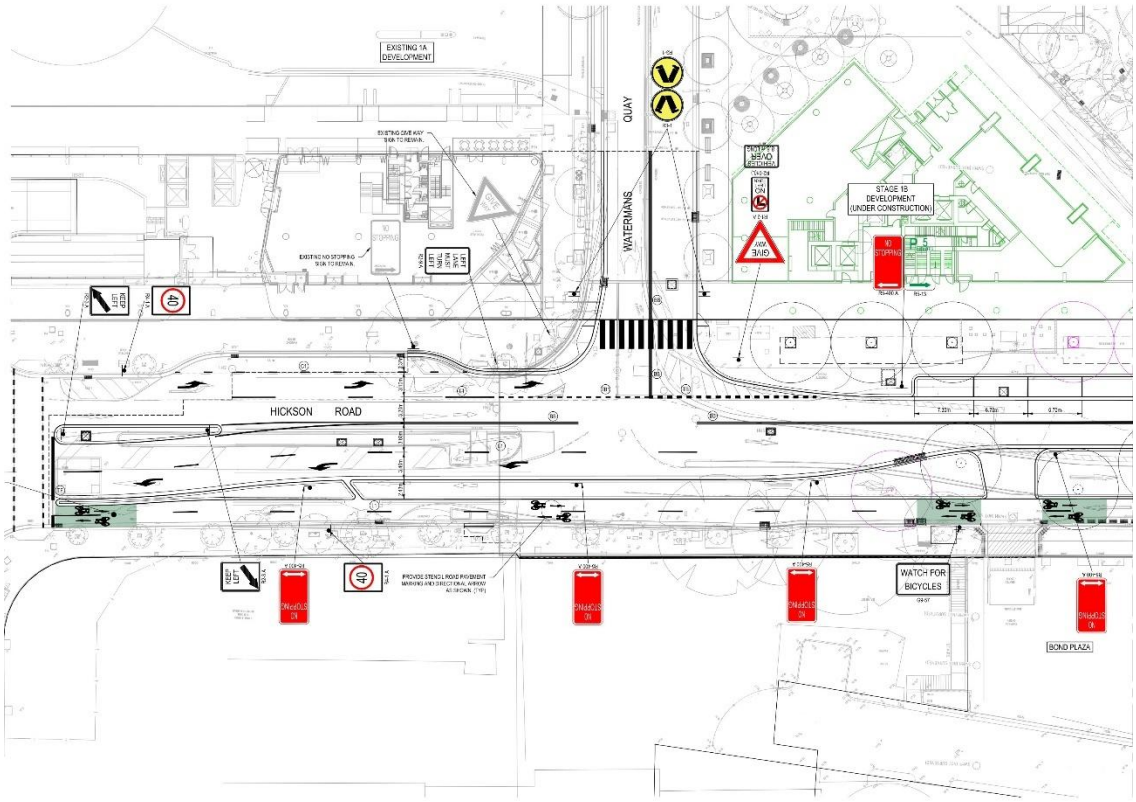

Figure 2 – General Road Layout (South)

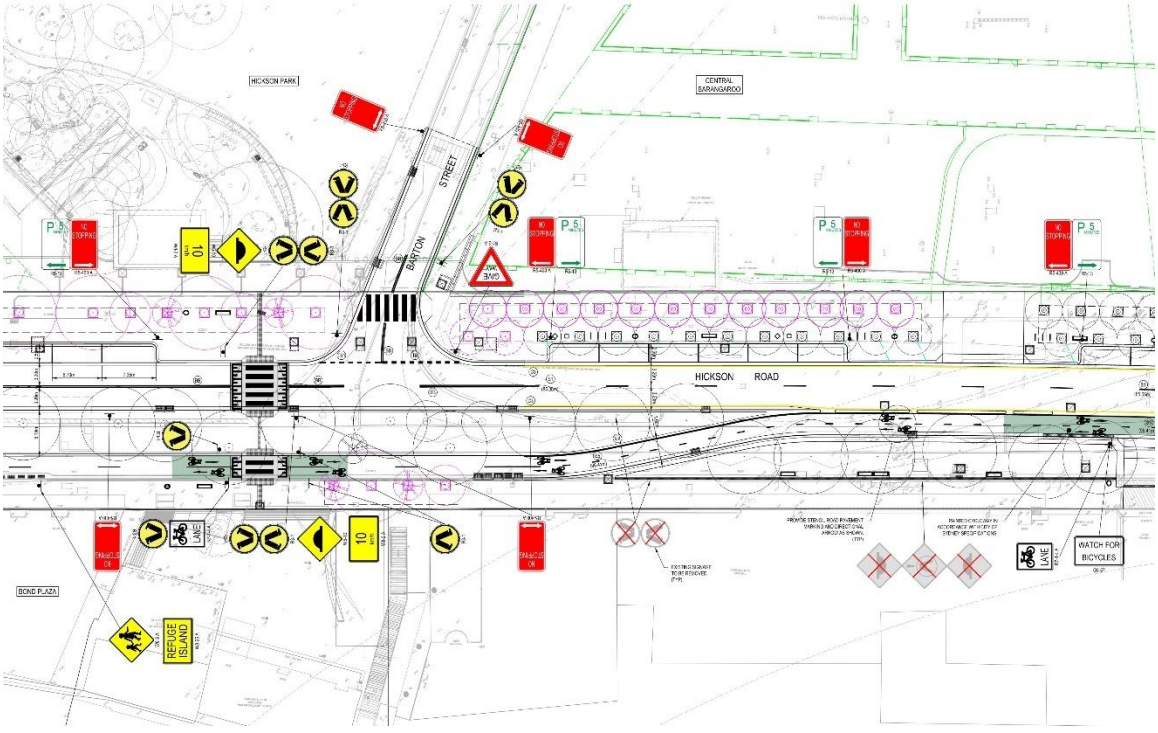

Figure 3 – General Road Layout (Central)

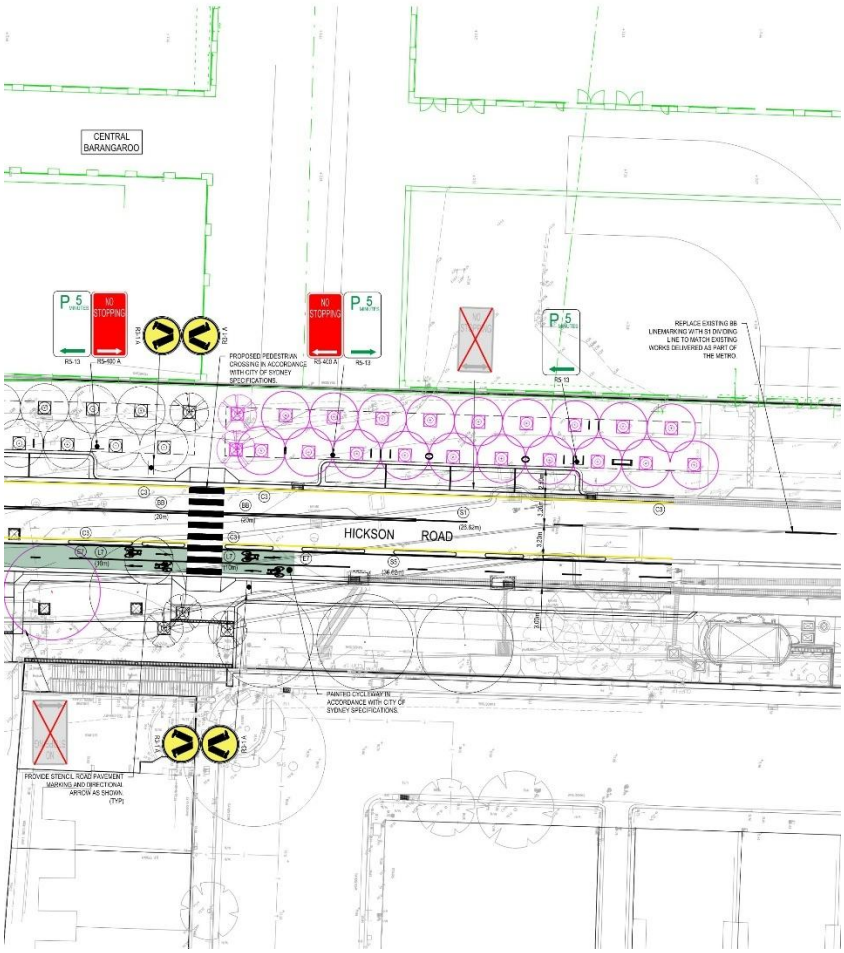

Figure 4 – General Road Layout (North)

Due to the location of existing Sydney Water wastewater manholes, kerb alignments have been designed to ensure no adjustment to the location of this existing infrastructure by deviating alignments around manholes.

4.3 Sight Distance

Vehicle sight lines at unsignalised intersections remain unchanged. The introduction of the raised pedestrian facility immediately south of Barton Street reduces through movement travel speeds, improving the overall safety of the intersection. The intersection of Watermans Quay and Hickson Road remains fundamentally the same. No further assessment is proposed as part of the 80% IFT / REF or 100% IFC designs.

4.4 Aquaplaning

Flow depths at the intersection of Watermans Quay and Hickson Road have been reviewed to ensure maximum flow depths of surface flows across Hickson Road do not exceed 0.4mm/m. Based on a drainage path length of 23m, the maximum flow depth above the pavement surface is approximately 0.2mm/m

4.5 Vehicle Swept Path Analysis

Vehicle swept path analysis using Autoturn software has been undertaken for all movements at intersections and the private driveways to 30 and 38 Hickson Road. Turn paths are based on a design speed of 10km/h with a clearance of 0.5m to kerbs or obstructions.

4.6 Pedestrian and Cyclist Provisions

Pedestrian desire lines have been determined to be along the western side of Hickson Road in a north south direction generally between Watermans Quay and Barton Street and will extend north fronting Central Barangaroo.

Further desire lines have been identified from the Bond Plaza and Watermans Quay. To address the potential for pedestrians crossing Hickson Road, a raised marked pedestrian crossing is proposed opposite the Bond Plaza and a marked pedestrian crossing infront of the High Street steps ensuring safe crossing points to the Barangaroo development.

A dedicated 3.0m wide cycle way is provided on the eastern side of Hickson Road aligning with the existing cycleway to the south of Napolean Street. The cycleway is currently designed as a two-way system.

Footway widths vary with the eastern footway remaining at its current width, varying between 3.5m to 4.6m. The western footpath also varies between 3.8m and 9.95m in width. Both the eastern and western footways have street trees proposed reducing effective widths to a minimum of 1.5m from tree surrounds.

4.7 Kerbs and Kerb Ramps

Kerb types have been determined based on carriageway cross fall direction with the western kerb being a stone kerb with a concrete toe. This removes the need to introduce varying crossfall on the western footway or the provision of crest and sags along the kerb alignment.

The kerb along the eastern side of Hickson Road, kerbs within Watermans Quay and Barton Street are proposed as stone kerbs and concrete gutters.

Median islands are proposed as stone median kerbs. All kerb and kerb ramp profiles are based on the CoS standard kerb and kerb ramp standards.

4.8 Roadside Furniture and Safety Barriers

Roadside furniture including Smartpoles, bins and miscellaneous furniture are shown on the landscape documents. The design has eliminated the need for vehicular safety barriers, noting the development site is located within an urban zone with a posted speed limit of 40km/h.

4.9 Signage and Line Markings

Pavement markings including directional arrows, lane line markings and intersection control line markings are provided to ensure safe and clear direction for motorists, pedestrians and cyclists.

Signage supplements pavement markings to provide guidance to motorists of associated pedestrian crossing point locations, intersection controls, parking and bus stop locations.

4.10 Pavements

Pavement types are based on the CoS design requirements and are summarised below in Table 2.

Table 3 – Pavement Types

Location	Design Life	Pavement Type	AADT 2024	Annual Growth	% Heavy Vehicles	AADT 2030	DESA
Footways		Rigid base with paver wearing course					
Road Carriageway (including parking bays)	20	Flexible	15,000(1)	1%	5	16,100	1×10^7

(1) Sourced from JMT Traffic Assessment
(2) Estimated. No data available

Vehicular pavement design are based on an assumed CBR value of 4% based on the geotechnical testing completed by TetraTech. Geotechnical testing has been undertaken to confirm subgrade conditions prior to pavement construction as per the geotechnical report prepared by TetraTech, REF: 754-SYDGE331685-AD, dated 27 October 2025.

4.11 Road Safety Audit

No formal Road Safety Audit has been undertaken. Peer review comments from the Traffic Engineer and INSW have been incorporated into the design where applicable. A formal Road Safety Audit is recommended to be undertaken prior to design finalisation.

5 Proposed Stormwater Management

5.1 Erosion and Sediment Control

The objectives of the erosion and sediment control for the development site are to ensure:

- Adequate erosion and sediment control measures are applied prior to the commencement of construction and are maintained throughout construction
- Construction site runoff is appropriately treated in accordance with North Sydney Council requirements.

As part of the works, the erosion and sedimentation control will be constructed in accordance with Council requirements and the NSW Department of Housing Manual, “Managing Urban Stormwater Soil & Construction” 2004 (Blue Book) prior to any earthworks commencing on site.

5.1.1 Sediment and Erosion Control Measures

Prior to any earthworks commencing on site, sediment and erosion control measure shall be implemented generally in accordance with the “Blue Book” and the City of Sydney Council requirements. The measures shown on the drawings are intended to be a minimum treatment only as the contractor will be required to modify and stage the erosion and sedimentation control measures to suit the construction program, sequencing and techniques. These measures, which are recommended to form mitigation measures of the REF, will include:

- A temporary site security/safety fence is to be constructed around the site to suit construction staging;
- Sediment fencing provided downstream of disturbed areas, including any topsoil stockpiles;

- Dust control measures including covering stockpiles, installing fence hessian and watering exposed areas;
- Placement of hay bales or mesh and gravel inlet filters around and along proposed catch drains and around stormwater inlets pits.

Any stockpiled material shall be located as far away as possible from any associated overland flow paths. Sediment fences shall be installed to the downstream side of stockpiles and any embankment formation.

5.1.2 Hydrology

The stormwater drainage system has been designed in accordance with the minor / major storm design philosophy in accordance with the City of Sydney Council (CoS) and Australian Rainfall and Runoff requirements.

Based on the CoS standards, the minor storm is the 5% AEP. This is catered for in the proposed and existing inground pit and pipe network. The major storm is the 1% AEP, partially catered for in the inground pit and pipe network.

The intent of the Hickson Road South design is to ensure there is no adverse impact to adjacent properties, predominantly 30 The Bond and 38 Hickson Road in all storms up to and including the 1% AEP.

It is noted that at the completion of Stage 4, no overland flow path are provided and the drainage system will need to ensure capture and conveyance of the 1% AEP storm to Darling Harbour via the proposed trunk drainage system. Furthermore, the drainage network is to allow for future sea level rise. Both the design of Barangaroo South incorporates a predicted MHWS + 0.90m Sea level rise of RL1.575m AHD as the design tailwater level in the 1%AEP. The proposed additional capture pits and trunk drainage pipe are incorporated into the Stage 4 design documentation.

5.1.3 Existing Drainage Network

A series of pits and associated pipes are located within Hickson Road. The existing pit and pipe network south of chainage 225 drains south into the trunk stormwater drainage network constructed as part of the Barangaroo South. Flows from Napoleon Street including overland flows are directed south into Sussex Street and into this trunk drainage system catering for the 1%AEP.

This trunk network is a Sydney Water asset approved under Case No. 126589SW.

The existing inground drainage network north of Chainage 225 drains to the existing 1350 dia Sydney Water asset approved under Case No. 135414SW. This pipe connects to an existing 1800 dia Sydney Water asset within the Watermans Quay carriageway discharging to Watermans Cove.

As part of the Barangaroo South works, a capture pit was designed and constructed to capture upstream flows from the Kent Street and Jenkins Lane catchments. The intent of this work was to manage the impact the Barangaroo South development had on the external stormwater drainage network including ensuring the Barangaroo South development did not increase flood levels along Hickson Road.

Hydraulic modelling provided by INSW indicates surcharge from the inground drainage network in the 1%AEP. This overland flow traverses north along Hickson Road and ponds until the depth of ponding tops the existing western boundary of Hickson Road, allowing overland flow into future Central Barangaroo development site. Figure 5 details the existing Hydraulic model results based on a tail water level at Watermans Cove of RL1.575m AHD.

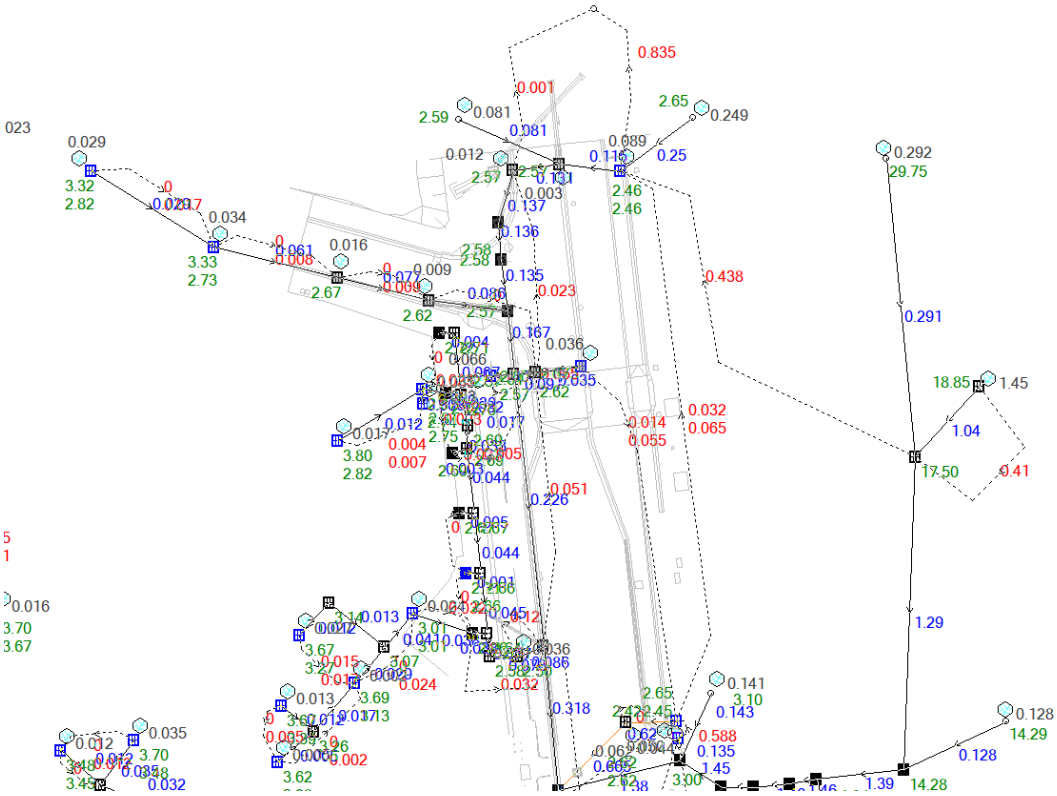

Figure 5 – Existing Hydraulic Model Results (Tailwater level RL1.575m)

Based on a tailwater level of 1.575m, there is approximately 0.835m3/s overland flow within Hickson Road.

The pit and pipe network within Watermans Quay and the Barangaroo South development is an independent drainage network designed to capture and convey the 1% AEP. A splitter pit located within the carriageway at the intersection of Watermans Quay and Barangaroo Avenue. At this pit low flows are diverted through a gross pollutant device with major flows being diverted into the Sydney Water 1800 dia trunk drainage system.

5.1.4 Proposed Drainage Network

As part of the road upgrade works, the predominant change is to provide a one-way cross fall from west to east. To ensure surface flows are collected and conveyed into the existing Sydney Water trunk drainage system a series of inlet pits are proposed along proposed kerb alignments.

Additionally, as part of the Stage 4 works, a stormwater trunk drainage line from Hickson Road to the existing outlet to Darling Harbour at Wulugul Walk will be constructed. The existing DN600 and seawall outlet to Darling Harbour will not be replaced or upsized but inspected and cleaned.

Proposed pits are located to control flow width in accordance with the CoS design criteria for the minor event and shall be constructed to meet the CoS standards unless noted otherwise. Minor adjustments are required to junction pits and kerb outlets to meet proposed surface levels, kerb alignments and raised pedestrian ramps.

Pipe grades have been determined based on invert levels of existing infrastructure and existing services within the carriageway, resulting in gradients of between 0.15% and 1.0%. Self-cleaning velocities of 0.6m/s in the 1 year event have been achieved for the majority of proposed pipe routes. It is noted existing pipes have gradients as flat as 0.15%, with velocities not reaching self-cleaning requirements.

To cater for the reduction in flood storage resulting in raising the western boundary alignment levels, existing pipes within Hickson Road opposite Barton Street are proposed to be removed and upgraded from 375 dia to 1050 dia pipes connection to the existing stormwater chamber denoted A01/05. By increasing this section of the network, the overland flow reduces from approximately 0.835m3/s to 0.578m3/s as demonstrated in Figure 6.

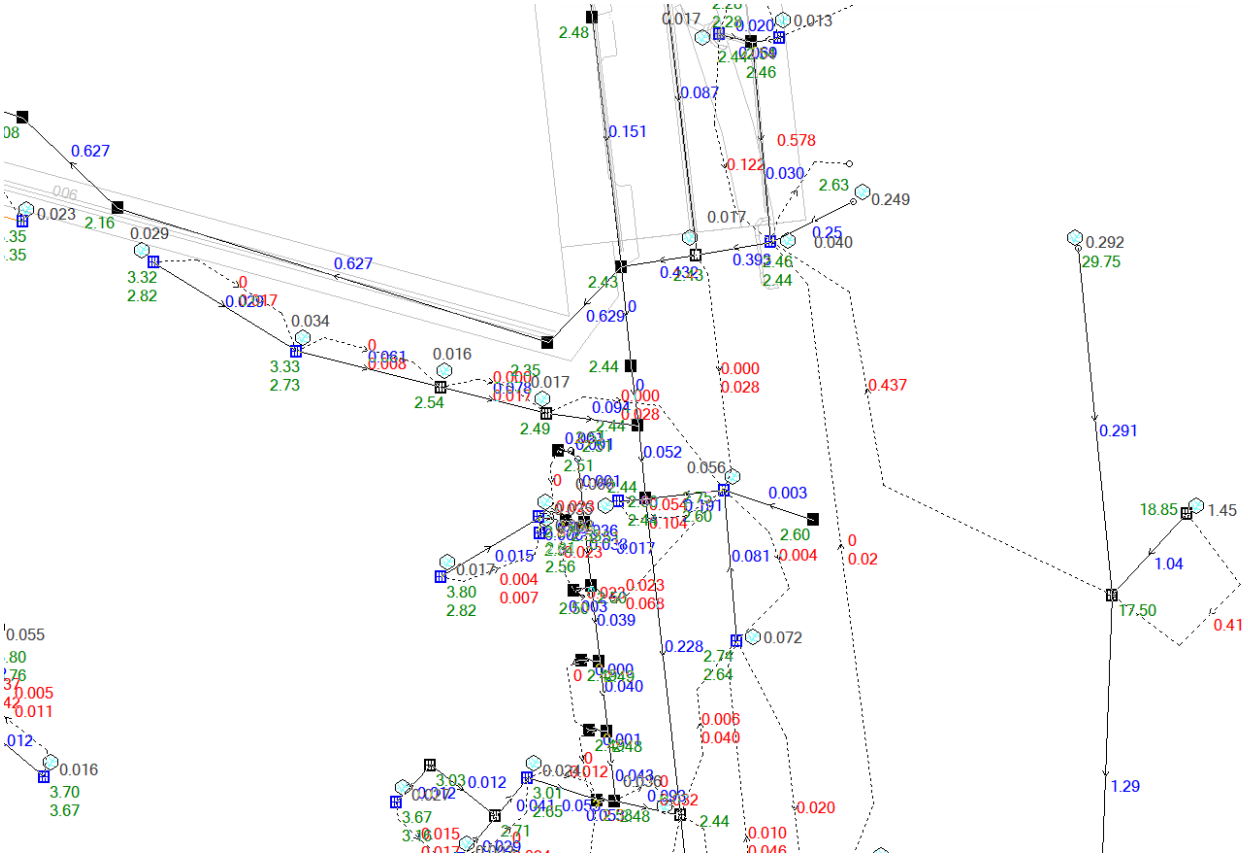

Figure 6 – Proposed Hydraulic Model Results (Tailwater level RL 1.575m)

The proposed stormwater drainage system for both the Stage 3 and Stage 4 Hickson Road upgrade works captures and conveys stormwater flows to Watermans Cove ensuring no adverse impact to flood levels in storms up to and including the 1%.

Drainage works to the north of the High Street stairs form part of works by Metron. This drainage network drains north to Nami Cove including overland flow paths to the north.

It is not proposed to include any on line or off line water quality facilities into the drainage system as the catchment regime has not changed.

Final stormwater drainage pipe alignments and pit locations will be determined at the completion of physical test pits to determine accurate locations of all existing utility services to remain.

5.1.5 Flooding

An interim flood assessment based on the proposed Hickson Road South upgrade works is currently being undertaken by RHELM. The aim of this assessment is to determine if there is any adverse impacts to surrounding properties as a result of the proposed works based on a tailwater level of 1.575m AHD.

Initial model results indicate the proposed Hickson Road South works have no adverse impact on surrounding property up to and including the 1% AEP, noting the existing flood regime will remain in the 1%AEP event. For more detailed flood investigation refer to the Flood Impact and Risk Assessment (FIRA) report prepared by Rhelm, REF: RR-01-2397-01, dated October 2025.

Final modelling results will be issued as an addendum prior to the 100% IFC documentation finalisation.

6 Utilities

6.1 Existing Utilities

The following utilities have been identified:

1. Potable water;
2. Waste water;
3. High and low voltage electrical;
4. Street lighting;
5. Natural gas; and
6. Communications.

Information relating to existing services has been compiled from survey information, authority data and “works as executed” information provided by INSW, prepared by Utec Utility Solutions dated 5 December 2019. Additionally, Ausgrid data ‘SM31697-0009’ regarding the additional HV conduit bank recently installed in Hickson Road was provided by INSW.

Applications for connection or adjustment of telecommunications, gas, potable water and wastewater services will be undertaken separately by the relevant services authorities. These works and approvals are outside the scope of this REF and will be subject to separate assessment and approval processes by the respective utility providers in accordance with their statutory requirements.

6.2 Proposed Utilities

Proposed utility services, protection and or relocation of existing services have been based on the above existing available information and consultation with service authorities.

6.2.1 Electrical

Electrical requirements have been undertaken by DEP Consulting. It is not proposed to adjust any high voltage or low voltage electrical assets within the works area. Further assessment will be necessary once test pit data has been provided to accurately location and level existing utility services.

6.2.2 Street Lighting

Street Lighting design has been assessed and prepared by DEP Consulting. As part of the Hickson Road South upgrade works, it is proposed to remove isolated existing street lighting along the eastern side of Hickson Road and to provide new street lighting to CoS requirements. New lighting is proposed along the western kerb alignment and at pedestrian crossing facilities. Street lighting design has been undertaken to ensure compliance with the CoS Lights Design Guide, AS1158.1 and AS1158.4. These lighting locations have been shown on the civil drawings in line with the electrical drawings prepared by DEP Consulting.

6.2.3 Crime Prevention Through Environmental Design (CPTED)

ACAD Services Group have undertaken an assessment of CPTED to ensure the design enhances the safety and security for regular users of the space whilst deterring criminal and anti-social behaviour.

The recommendations in the report have been reviewed and implemented into the design.

6.2.4 Communications

Communications designs have been prepared by IT Telco through consultation with communication providers.

Existing communications pits within the eastern footway will be adjusted as required to suit the installation of paver infills.

Proposed NBN and Telstra services are to be provided on the western side of Hickson Road within the footway. The location of each service bank has been coordinated with the proposed strata vault installation.

6.2.5 Natural Gas

Natural gas mains are located on the western and eastern sides of Hickson Road. It is proposed to maintain all existing gas services and to extend the 150 dia main from the existing co-con pit north to Barton Street. This extension is to be undertaken in accordance with the current Jemena scope and offer dated 3 September 2021, however, is subject to a meeting held with Jemena on 27/09/2025. Enspire are currently awaiting a response from Jemena on current validity of the offered scope.

6.2.6 Potable Water

Sydney Water records indicate a 300 dia CICL potable water pipe exists on the western side of Hickson Road. This main was constructed in circa 1928. Due to the age of the existing asset and the limited space within the verge area, constrained by proposed trees and existing services, it is proposed to install a new main within the road carriageway connecting to the existing main constructed as part of the Metron Works to the north. An application has been made to Sydney Water and we are currently awaiting consent to commence Design Investigation for the adjustment/deviation of assets.

6.2.7 Waste Water

A number of existing sewer manholes are located within the existing and proposed carriageway. Adjustments to these manholes are required to match proposed surface levels. A site assessment has been undertaken to identify the type of manhole and whether adjustment to the top of the manhole can be undertaken to align with proposed kerb alignments and to inform the design as to the likelihood of adjustment to suit proposed levels noting adjustment from 40mm to 500mm is required.

No additional infrastructure is proposed as part of the Hickson Road South works including coordination of or design of the potential sewer pump station relocation.

7 Safety in Design

A Safety in Design matrix has been developed in parallel with the design to identify potential hazards to work health and safety and develop risk assessment methods to potentially reduce the likelihood and severity of hazards and has been prepared in accordance with the requirements of the Work Health and Safety Act 2011 and the Work Health and Safety Regulation Part 6.2 Clause 295.

Under the Work Health and Safety Act designers have the responsibility to ensure their design eliminates or minimises risks to health and safety and give adequate information to people commissioning the design and undertaking construction, operation and maintenance activities based on the design. Appendix C presents Enspire's Safety In Design Risk Register which forms part of the civil engineering drawing package.

8 Conclusion

This Civil Engineering Design Report has been prepared to provide an understanding of the design assumptions, inputs and guide to the roadworks and stormwater design for the proposed Hickson Road South upgrade works as depicted in Figures 2, 3 and 4. The Hickson Road upgrade has been designed so that there is not a significant effect on the environment and any impacts can be generally mitigated through mitigation measures. This report has been submitted in support of the submission of the 80% IFT / REF civil engineering plans to Infrastructure NSW.

Appendix A Civil Engineering Drawing Register

Table 4 – Stage 3 drawing register

Document Reference	Title
B1D-CD2-000001	COVER SHEET AND DRAWING SCHEDULE
B1D-CD2-000010	SPECIFICATION NOTES SHEET 01
B1D-CD2-000011	SPECIFICATION NOTES SHEET 02
B1D-CD2-000020	STAGING CONTEXT PLAN
B1D-CD2-000030	GENERAL ARRANGEMENT PLAN
B1D-CD2-000050	STAGE 1 CONSTRUCTION STAGING PLAN
B1D-CD2-000051	STAGE 2 CONSTRUCTION STAGING PLAN
B1D-CD2-200000	DEMOLITION PLAN SHEET 01
B1D-CD2-200001	DEMOLITION PLAN SHEET 02
B1D-CD2-200010	ALIGNMENT CONTROL PLAN AND SETOUT SHEET 01
B1D-CD2-200011	ALIGNMENT CONTROL PLAN AND SETOUT SHEET 02
B1D-CD2-200030	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 01
B1D-CD2-200031	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 02
B1D-CD2-200035	EROSION AND SEDIMENTATION CONTROL DETAILS
B1D-CD2-200040	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01
B1D-CD2-200041	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 02
B1D-CD2-200042	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 03
B1D-CD2-200043	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 04
B1D-CD2-200044	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 05
B1D-CD2-200045	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 06
B1D-CD2-200046	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 07
B1D-CD2-200050	BULK EARTHWORKS FILL PLAN SHEET 01
B1D-CD2-200051	BULK EARTHWORKS FILL PLAN SHEET 02
B1D-CD2-400001	ROAD TYPICAL CROSS SECTIONS
B1D-CD2-400010	ROAD LONGITUDINAL SECTIONS SHEET 01
B1D-CD2-400011	ROAD LONGITUDINAL SECTIONS SHEET 02
B1D-CD2-500001	ROAD CROSS SECTIONS SHEET 01
B1D-CD2-500002	ROAD CROSS SECTIONS SHEET 02
B1D-CD2-500003	ROAD CROSS SECTIONS SHEET 03
B1D-CD2-500004	ROAD CROSS SECTIONS SHEET 04
B1D-CD2-500005	ROAD CROSS SECTIONS SHEET 05
B1D-CD2-500006	ROAD CROSS SECTIONS SHEET 06
B1D-CD2-500007	ROAD CROSS SECTIONS SHEET 07
B1D-CD2-500020	INTERSECTION PLAN AND KERB RETURN PROFILE SHEET 01
B1D-CD2-500021	INTERSECTION PLAN AND KERB RETURN PROFILE SHEET 02
B1D-CD2-500022	INTERSECTION PLAN AND KERB RETURN PROFILE SHEET 03
B1D-CD2-500023	INTERSECTION PLAN AND KERB RETURN PROFILE SHEET 04
B1D-CD2-500050	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 01
B1D-CD2-500051	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 02
B1D-CD2-500052	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 03
B1D-CD2-500053	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 04
B1D-CD2-500054	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 05
B1D-CD2-500055	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 06
B1D-CD2-500056	MEDIAN ISLAND PLAN AND KERB PROFILES SHEET 07
B1D-CD2-600001	PAVEMENT PLAN SHEET 01
B1D-CD2-600002	PAVEMENT PLAN SHEET 02
B1D-CD2-600003	JOINTING PLAN SHEET 01
B1D-CD2-600004	JOINTING PLAN SHEET 02
B1D-CD2-600005	RAISED PEDESTRIAN CROSSINGS PLAN AND DETAILS
B1D-CD2-600010	SIGNAGE AND LINEMARKING PLAN SHEET 01

B1D-CD2-600011	SIGNAGE AND LINEMARKING PLAN SHEET 02
B1D-CD2-600020	SERVICES COORDINATION PLAN SHEET 01
B1D-CD2-600021	SERVICES COORDINATION PLAN SHEET 02
B1D-CD2-600030	SYDNEY WATER ASSET ADJUSTMENTS SHEET 01
B1D-CD2-600031	SYDNEY WATER ASSET ADJUSTMENTS SHEET 02
B1D-CD2-600040	UTILITIES ADJUSTMENT PLAN SHEET 01
B1D-CD2-600041	UTILITIES ADJUSTMENT PLAN SHEET 02
B1D-CD2-600042	UTILITIES ADJUSTMENT PLAN SHEET 03
B1D-CD2-600050	UTILITY TYPICAL CROSS SECTIONS SHEET 01
B1D-CD2-600051	UTILITY TYPICAL CROSS SECTIONS SHEET 02
B1D-CD2-600052	UTILITY TYPICAL CROSS SECTIONS SHEET 03
B1D-CD2-700001	SITEWORKS DETAILS SHEET 01
B1D-CD2-700002	SITEWORKS DETAILS SHEET 02
B1D-CD2-700008	SMART POLE DETAILS
B1D-CD2-700010	STORMWATER LONGITUDINAL SECTIONS SHEET 01
B1D-CD2-700011	STORMWATER LONGITUDINAL SECTIONS SHEET 02
B1D-CD2-700020	STORMWATER DETAILS SHEET 01
B1D-CD2-700021	STORMWATER DETAILS SHEET 02
B1D-CD2-700022	STORMWATER DETAILS SHEET 03
B1D-CD2-700023	STORMWATER DETAILS SHEET 04
B1D-CD2-700030	INTERNAL STORMWATER CATCHMENT PLAN
B1D-CD2-700040	EXTERNAL STORMWATER CATCHMENT PLAN
B1D-CD2-700050	TURN PATH PLAN SHEET 01
B1D-CD2-700051	TURN PATH PLAN SHEET 02
B1D-CD2-900001	SAFETY IN DESIGN

Table 5 – Stage 4 drawing register

Document Reference	Title
240059-01-CC-C01.01	COVER SHEET AND DRAWING SCHEDULE
240059-01-CC-C01.21	SPECIFICATION NOTES SHEET 01
240059-01-CC-C01.22	SPECIFICATION NOTES SHEET 02
240059-01-CC-C01.31	STAGING CONTEXT PLAN
240059-01-CC-C01.41	GENERAL ARRANGEMENT PLAN
240059-01-CC-C02.01	DEMOLITION PLAN SHEET 01
240059-01-CC-C02.02	DEMOLITION PLAN SHEET 02
240059-01-CC-C02.51	ALIGNMENT CONTROL PLAN AND SETOUT SHEET 01
240059-01-CC-C02.52	ALIGNMENT CONTROL PLAN AND SETOUT SHEET 02
240059-01-CC-C03.01	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 01
240059-01-CC-C03.02	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 02
240059-01-CC-C03.21	EROSION AND SEDIMENTATION CONTROL DETAILS
240059-01-CC-C04.01	BULK EARTHWORKS CUT AND FILL PLAN SHEET 01
240059-01-CC-C04.02	BULK EARTHWORKS CUT AND FILL PLAN SHEET 02
240059-01-CC-C05.01	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01
240059-01-CC-C05.02	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 02
240059-01-CC-C05.03	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 03
240059-01-CC-C05.51	TRUNK DRAINAGE PLAN
240059-01-CC-C05.61	BARTON STREET ROAD CLOSURE PLAN
240059-01-CC-C06.01	ROAD TYPICAL CROSS SECTIONS SHEET 01
240059-01-CC-C06.02	ROAD TYPICAL CROSS SECTIONS SHEET 02
240059-01-CC-C07.01	ROAD LONGITUDINAL SECTIONS
240059-01-CC-C08.01	ROAD CROSS SECTIONS SHEET 01

240059-01-CC-C08.02	ROAD CROSS SECTIONS SHEET 02
240059-01-CC-C08.03	ROAD CROSS SECTIONS SHEET 03
240059-01-CC-C08.04	ROAD CROSS SECTIONS SHEET 04
240059-01-CC-C08.05	ROAD CROSS SECTIONS SHEET 05
240059-01-CC-C08.06	ROAD CROSS SECTIONS SHEET 06
240059-01-CC-C08.07	ROAD CROSS SECTIONS SHEET 07
240059-01-CC-C09.01	DRIVEWAY LONGITUDINAL SECTION AND DETAILS
240059-01-CC-C10.01	PAVEMENT AND JOINTING PLAN SHEET 01
240059-01-CC-C10.02	PAVEMENT AND JOINTING PLAN SHEET 02
240059-01-CC-C11.01	SIGNAGE AND LINEMARKING PLAN SHEET 01
240059-01-CC-C11.02	SIGNAGE AND LINEMARKING PLAN SHEET 02
240059-01-CC-C12.01	SERVICES COORDINATION PLAN SHEET 01
240059-01-CC-C12.02	SERVICES COORDINATION PLAN SHEET 02
240059-01-CC-C12.31	SERVICES LID ADJUSTMENT PLAN SHEET 01
240059-01-CC-C12.32	SERVICES LID ADJUSTMENT PLAN SHEET 02
240059-01-CC-C12.33	SERVICES LID ADJUSTMENT PLAN SHEET 03
240059-01-CC-C12.51	SYDNEY WATER ASSET ADJUSTMENT SHEET 01
240059-01-CC-C12.52	SYDNEY WATER ASSET ADJUSTMENT SHEET 02
240059-01-CC-C13.01	SERVICES SECTIONS SHEET 01
240059-01-CC-C14.01	SITEWORKS DETAILS SHEET 01
240059-01-CC-C14.02	SITEWORKS DETAILS SHEET 02
240059-01-CC-C17.01	STORMWATER LONGITUDINAL SECTIONS SHEET 01
240059-01-CC-C17.02	STORMWATER LONGITUDINAL SECTIONS SHEET 02
240059-01-CC-C17.02	STORMWATER LONGITUDINAL SECTIONS SHEET 03
240059-01-CC-C18.01	STORMWATER DETAILS SHEET 01
240059-01-CC-C18.02	STORMWATER DETAILS SHEET 02
240059-01-CC-C18.03	STORMWATER DETAILS SHEET 03
240059-01-CC-C20.01	INTERNAL STORMWATER CATCHMENT PLAN
240059-01-CC-C20.21	EXTERNAL STORMWATER CATCHMENT PLAN
240059-01-CC-C22.01	TURNING PATH PLAN
240059-01-CC-C23.01	SAFETY IN DESIGN

Appendix B INSW Peer Review Matrix

Hickson Road Upgrade Stages 3 and 4 - INSW Comments Register
Civil

Comment	Document No.	Title	Rev	Status	Section	Page	Organisation	Raised By	50% Design (Stage 4), INSW Comments (July 2025)	Consultant Response	REF Design, INSW Comments (October 2025)	Consultant Response	COMMENT CATEGORY*	STATUS
1	240059-01-CC-C01.22	SPECIFICATION NOTES SHEET 02	3	50% DESIGN UPDATE			INSW	PL	CONCRETE NOTE 14: FORMWORK CLASS SHALL BE IN ACCORDANCE WITH AS380. PLEASE CONFIRM IF THIS IS THE CORRECT STANDARD	This is a drafting error - note to be updated to refer to AS3610.		Already updated as part of 50% design response. Can this be closed now?	O	
2	240059-01-CC-C02.01	DEMOLITION PLAN SHEET 01	3	50% DESIGN UPDATE			INSW	PL	ADD A NEW NOTE 8: ANY EXISTING STONE KERBS TO BE STORED AND REUSED	Noted. To be added.		Already updated as part of 50% design response. Can this be closed now?	O	
3	240059-01-CC-C02.02	DEMOLITION PLAN SHEET 02	3	50% DESIGN UPDATE			INSW	PL	ADD A NEW NOTE 8: ANY EXISTING STONE KERBS TO BE STORED AND REUSED	Noted. To be added.		Already updated as part of 50% design response. Can this be closed now?	O	
4	240059-01-CC-C04.02	BULK EARTHWORKS CUT AND FILL PLAN SHEET 2	3	50% DESIGN UPDATE			INSW	PL	THE TIE-IN TO METRO WORKS INDICATE 0.5M TO 0.75M CUT IN EXISTING PAVEMENTS. METRO PAVEMENT IS 250MM ASPHALT THICKNESS, A CUT BELOW 250MM WILL REMOVE THE BASECOURSE AND 750MM CUT WILL REMOVE THE SUB-BASE. PLEASE CHECK IF THIS DEPTH OF CUT IS REQUIRED, SHOULD ONLY EXISTINGG ASPHALT BE REMOVED AND THE BASECOURSE LAYER REMAIN?	Existing pavement assumed to be removed and replaced at this stage. Approximately 600mm of cut is required in this location to bulk out the Hickson Road pavement. Full depth pavement subject to contractor investigation.		Already updated as part of 50% design response. Can this be closed now?	O	
5	240059-01-CC-C05.01	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	POTABLE WATER MAIN IS DIRECTLY UNDER THE WESTERN ROW OF TREES ON WESTERN FOOTPATH. SUGGEST IT BE RELOCATED TO SAY MIDDLE OF FOOTPATH AWAY FROM TREE ROOTBALLS. TO BE FUNDED BY SYDNEY WATER / AQUALAND DEVELOPMENT CONTRIBUTIONS	Potable water to be shifted approximately 1.0m towards the east to avoid tree rootballs.		Potable Water shifted to roadway. Already updated as part of 50% design response. Can this be closed now?	O	
6	240059-01-CC-C05.01	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	PROPOSED TEST PIT LOCATION IS DIRECTLY ABOVE HV CONDUITS. THERE ISN'T A CLASH, NOT SURE OF PURPOSE BUT SUGGEST THE PROPOSED TEST PIT BE RELOCATED AWAY FROM HV CONDUITS OR DELETE THIS PIT	For discussion - could potentially use GPR in this location instead of a test pit. Remove test pit in this location.		Already updated as part of 50% design response. Can this be closed now?	O	
7	240059-01-CC-C05.01	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	HP & LP GAS LINES ON WESTERN FOOTPATH. DON'T THINK WE NEED GAS - AWAITING CONFIRMATION FROM AQUALAND	Noted - we will await confirmation from Aqualand. Gas to be pulled back to Barton St, Stage 3 extent.		Gas pulled back to Barton St, Stage 3 extent. Already updated as part of 50% design response. Can this be closed now?	O	
8	240059-01-CC-C05.02	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 02	3	50% DESIGN UPDATE			INSW	PL	POTABLE WATER MAIN IS DIRECTLY UNDER THE WESTERN ROW OF TREES ON WESTERN FOOTPATH. SUGGEST IT BE RELOCATED TO SAY MIDDLE OF FOOTPATH AWAY FROM TREE ROOTBALLS. TO BE FUNDED BY SYDNEY	Refer Note 5.		Potable Water shifted to roadway. Already updated as part of 50% design response. Can this be closed now?	O	
9	240059-01-CC-C05.02	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 02	3	50% DESIGN UPDATE			INSW	PL	PROPOSED TEST PIT NEXT TO EX17 ON THE EASTERN FOOTPATH. DOESN'T SEEM TO BE A CLASH - IS THIS REQUIRED OR CAN IT BE DELETED?	This test pit can be removed.		Already updated as part of 50% design response. Can this be closed now?	O	
10	240059-01-CC-C05.02	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 02	3	50% DESIGN UPDATE			INSW	PL	CYCLEWAY MEDIAN NOT SHOWN TO THE NORTH OF HV PIT 50268. IS A SECTION OF THE CYCLEWAY MEDIAN MISSING HERE?	The median was removed to address turn paths for vehicles exiting 30 The Bond. The median can be extended by approximately 7.0m.		Already updated as part of 50% design response. Can this be closed now?	O	
11	240059-01-CC-C05.03	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 03	3	50% DESIGN UPDATE			INSW	PL	TWO TEST PITS ARE PROPOSED IN CLOSE PROXIMITY THE EASTERN CYCLEWAY K&G. ARE THESE NECESSARY OR CAN 1 BE	Both test pits can be removed.		Already updated as part of 50% design response. Can this be closed now?	O	
12	240059-01-CC-C05.03	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 03	3	50% DESIGN UPDATE			INSW	PL	ELECTRICAL CONDUIT. THIS LIGHTING CIRCUIT IS FOR CITY OF SYDNEY HICKSON RD LIGHTING. THE CITY HAS A SWITCHBOARD ON HIGH STREET, PLEASE ASSESS IF THE LIGHTS NEED TO BE CONNECTED TO CITY'S HIGH ST SWITCHBOARD	To be discussed with DEP.		DEP previously confirmed this. Can this be closed now?	O	
13	240059-01-CC-C05.03	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 03	3	50% DESIGN UPDATE			INSW	PL	NBN CONDUITS SHOULD CONNECT TO METRO'S NBN CONDUITS WHICH ARE NEXT TO THE AQUALAND PROPERTY BOUNDARY, NOT AT THE K&G. PLEASE REFER TO SYDNEY METRO DRAWING SMCSWSBR-MET-SBR-CE-DWG-014003	Noted - to be updated.		Already updated as part of 50% design response. Can this be closed now?	O	
14	240059-01-CC-C05.51	TRUNK DRAINAGE PLAN	3	50% DESIGN UPDATE			INSW	PL	BARTON ST STORMWATER TRUNK LINE BY OTHERS	Noted - for discussion. INSW to advise if documentation of stormwater longsection on sheet C18.01 is to include the same note. Cloud the line on C05.51 and the stormwater longsesction to make it clear that it will be done by others.		This no longer applies. Can this be closed now?	O	
15	240059-01-CC-C06.01	ROAD TYPICAL CROSS SECTIONS SHEET 01	3	50% DESIGN UPDATE			INSW	PL	IT WOULD BE GOOD TO HAVE A PLAN SHOWING WHERE THE CROSS SECTIONS ARE CUT	Refer to alignment control plan C02.51-C02.52. Chainages also included on siteworks drawings. Include an inset with the section locations.		Already updated as part of 50% design response. Can this be closed now?	O	

Hickson Road Upgrade Stages 3 and 4 - INSW Comments Register
Civil

Comment	Document No.	Title	Rev	Status	Section	Page	Organisation	Raised By	50% Design (Stage 4), INSW Comments (July 2025)	Consultant Response	REF Design, INSW Comments (October 2025)	Consultant Response	COMMENT CATEGORY*	STATUS
16	240059-01-CC-C10.01	PAVEMENT AND JOINTING PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	BARTON ST PEDESTRIAN CROSSING RELOCATED TO CORNER OF HICKSON RD BY OTHERS	To be clarified.		Already updated as part of 50% design response. Can this be closed now?	O	
17	240059-01-CC-C10.01	PAVEMENT AND JOINTING PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	VEHICLE CROSSOVER CROSSOVER INTO BASEMENT CARPARK TO BE COORDINATED WITH CENTRAL BARANGAROO DEVELOPER	Note to be added.		Already updated as part of 50% design response. Can this be closed now?	O	
18	240059-01-CC-C10.01	PAVEMENT AND JOINTING PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	NOTE 1: ALL PAVEMENT DESIGN SUBJECT TO DETAILED GEOTECHNICAL INVESTIGATION AND WILL BE CONFIRMED AT 100% DETAIL DESIGN STAGE. DUE TO A CHANGE IN DELIVERY STRATEGY, INSW HAS REQUESTED THAT DESIGN BE COMPLETED TO 80% AND NOT 100%. HENCE, PLEASE REPLACE 100% WITH 80%.	Note to be amended.		Already updated as part of 50% design response. Can this be closed now?	O	
19	240059-01-CC-C10.02	PAVEMENT AND JOINTING PLAN, SHEET 02	3	50% DESIGN UPDATE			INSW	PL	NOTE 1: ALL PAVEMENT DESIGN SUBJECT TO DETAILED GEOTECHNICAL INVESTIGATION AND WILL BE CONFIRMED AT 100% DETAIL DESIGN STAGE. DUE TO A CHANGE IN DELIVERY STRATEGY, INSW HAS REQUESTED THAT	Note to be amended.		Already updated as part of 50% design response. Can this be closed now?	O	
20	240059-01-CC-C12.01	SERVICES COORDINATION PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	3x63mm ELECTRICAL PVC AND 3x50mm COMMS PVC ARE LOCATED CLOSE TO CENTRAL BOUNDARY. THESE LV AND COMMS ARE REQUIRED FOR LIGHTING AND CCTV AND SHOULD BE LOCATED INLINE WITH THE SMARTPOLES. PLEASE SWAP LV/COMMS WITH THE NBN/TELSTRA CONDUIT LOCATIONS IN ORDER TO LINE UP WITH SYDNEY METRO AS BUILTS	Noted. LV/Comms and NBN/Telstra locations be swapped. Show existing elec/comms to be removed.		Already updated as part of 50% design response. Can this be closed now?	O	
21	240059-01-CC-C12.01	SERVICES COORDINATION PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	POTABLE WATER MAIN IS DIRECTLY UNDER THE WESTERN ROW OF TREES ON WESTERN FOOTPATH. SUGGEST IT BE RELOCATED TO SAY MIDDLE OF FOOTPATH AWAY FROM TREE ROOTBALLS.	Refer Note 5.		Potable Water shifted to roadway. Already updated as part of 50% design response. Can this be closed now?	O	
22	240059-01-CC-C12.01	SERVICES COORDINATION PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	BLUE COLOUR PILES AND FOOTINGS APPROX. 0.5M BELOW ROAD FL IN FRONT OF 30 THE BOND - THESE ARE FROM LENDLEASE EPS AS BUILTS - NOT SURE [illegible]	Blue piles are part of the remediation works base file and were included for the contamination consultant to prepare their REF assessment. [illegible]		Already updated as part of 50% design response. Can this be closed now?	O	
23	240059-01-CC-C12.01	SERVICES COORDINATION PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	PROPOSED TWO TEST PITS ARE OVER SYDNEY WATER'S ELECTRICAL CABLES SUPPLYINFG SPS1129. THIS IS CRITICAL INFRASTRUCTURE AND CARE IS TO BE EXCERCISED DURING POT HOLING. ARE TWO TEST PITS NECESSARY	We will require both test pits to determine potential clashes with the proposed stormwater infrastructure.		Already updated as part of 50% design response. Can this be closed now?	O	
24	240059-01-CC-C12.02	SERVICES COORDINATION PLAN, SHEET 01	3	50% DESIGN UPDATE			INSW	PL	3x63mm ELECTRICAL PVC AND 3x50mm COMMS PVC ARE REQUIRED FOR LIGHTING AND CCTV AND SHOULD BE LOCATED INLINE WITH THE SMARTPOLES. NBN/TELSTRA CONDUITS IN THE METRO WORKS AREA ARE IN THE WRONG LOCATION, THEY ARE CONSTRUCTED [illegible]	Noted. LV/Comms and NBN/Telstra locations be swapped. Show existing elec/comms to be removed.		Already updated as part of 50% design response. Can this be closed now?	O	
25	240059-01-CC-C12.33	SERVICES LID ADJUSTMENT PLAN, SHEET 03	3	50% DESIGN UPDATE			INSW	PL	Pit 31: AUSGRID HV PIT LID WILL BE ADJUSTED HIGHER 4CM. THIS REQUIRES AUSGRID APPROVAL, ASP1 CONTRACTOR AND REQUIRES SIGNIFICANT TIME AND COST - IS IT POSSIBLE TO ADJUST ROAD LEVELS AND RETAIN EXISTING HV PIT LID LEVEL?	To be discussed with DEP regarding impact of adjusting pit lids.		To be confirmed.	O	

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26	240059-01-CC-C13.01	SERVICES SECTIONS SHEET 01	3	50% DESIGN UPDATE			INSW	PL	WITH REFERENCE TO PREVIOUS COMMENTS ON UTILITIES ARRANGEMENT: A) HIGH PRESSURE AND LOW PRESSURE GAS MAINS ARE NOT REQUIRED - AWAITING AQUALAND CONFIRMATION. B). NBN / TELSTRA CONDUITS - SUGGEST THESE BE RELOCATED TO WESTERN BOUNDARY IN PLACE OF GAS MAINS LOCATION. C). LIGHTING LV AND COMMS CONDUITS SHOULD BE ALIGNED WITH LIGHT POLES TO PROVIDE POWER AND CCTV FOR LIGHTING. D) SYDNEY WATER MAIN IS DIRECTLY UNDER A TREE ROOTBALL, CAN ALIGNMENT BE MOVED IN-BETWEEN THE TREES E). 375 DIA. STORMWATER PIPES ARE INSTALLED ON WESTERN SIDE OF ROAD AT CHAINAGE 390 & 450 - THE NEW ROAD HAS A ONE-WAY CROSSFALL. ARE THESE STORMWATER PIPES REQUIRED?	Noted. A) Gas to be removed from section upon confirmation from Aqualand. B) NBN/Telstra to be relocated. C) Lighting and LV to be relocated. D) Water main to be relocated. E) Stormwater pipes are still required to be installed along the western side of the road to avoid a clash with the HV conduits.		Already updated as part of 50% design response. Can this be closed now?	O	
27	240059-01-CC-C14.01	SITEWORKS DETAILS SHEET 01	3	50% DESIGN UPDATE			INSW	PL	PAVEMENT TYPE 1 ROAD PAVEMENT HAS MINIMUM CBR 3%. THIS IS A VERY LOW VALUE AND I EXPECT CBR IS LIKELY >10%. WILL THE PAVEMENT THICKNESS BE REDUCED IF CBR IS 10? CONSCIOUS OF REDUCING COST	Potential for pavement thickness to be optimised based on results of underlying ground conditions including any floating concrete sections. If CBR of underlying material is better than assumed, pavement thickness can likely be reduced. Propose a geotechnical field test is completed to confirm condition of underlying material. This will also reduce excavation and removal of material from site. Should we review the pavement		To be confirmed.	O	
28	240059-01-CC-C14.01	SITEWORKS DETAILS SHEET 01	3	50% DESIGN UPDATE			INSW	PL	PAVEMENT TYPE 2 FOOTPATH AND TYPE 3 DRIVEWAY, PAVER THICKNESS IS 50MM. PLEASE CONFIRM IF IT SHOULD BE 60MM?	Paver thickness to be 50mm as per Hickson Road Stage 3 and CoS Spec 2.2.1.		Already updated as part of 50% design response. Can this be closed now?	O	
29	240059-01-CC-C17.02	STORMWATER LONGITUDINAL SECTIONS SHEET 02	3	50% DESIGN UPDATE			INSW	PL	ARE THE 375MM DIA PIPE GRADIENTS COMPLIANT AND DO THEY HAVE SELF-CLEANSING VELOCITIES?	The pipe gradients for line K01 must remain as per the current proposed grades due to restricted invert levels at both the upstream and downstream ends.		Already updated as part of 50% design response. Can this be closed now?	O	
30	240059-01-CC-C22.01	TURNING PATH PLAN	3	50% DESIGN UPDATE			INSW	PL	VEHICLE PROFILE: PLEASE CHECK IF DESIGN VEHICLE - FOR BARTON ST INTERSECTION SHOULD BE 12.5m SINGLE UNIT TRUCK / BUS. - 30 THE BOND LOADING DOCK SHOULD BE 12.5m HRV	To be investigated. Loading dock design vehicle to be confirmed by The Bond. We expect the design vehicle for the loading dock to be an SRV based on a low clearance limit of 3.2m into the basement entry.		Already updated as part of 50% design response. Can this be closed now?	O	
31	240059-01-CC-C23.01	SAFETY IN DESIGN	3	50% DESIGN UPDATE			INSW	PL	ITEM 1: TREE REMOVAL - I DON'T THINK ANY TREES WILL BE REMOVED - IF SO THIS ITEM CAN BE DELETED	Noted. To be removed.		Already updated as part of 50% design response. Can this be closed now?	O	
32	240059-01-CC-C01.21 and 22	Specification Notes Sheets 01 and 02 - Stagte 4	5	For Information			INSW	PL			Earthworks Note 7 specifies Road & Paved Areas compaction to Council Standard at 100% SMDD - the City of Sydney Specification specifies the Subbase and Base course compaction at 100% SMDD. However, notes in the Pavements section refers to TfNSW Specifications. Note 2, 10 and 11 specifies compaction standards for Base: 98% MMDD and Subbase: 95% MMDD. It can cause confusion on compaction requirements as the drawings reference both Council and TfNSW standards which are different Standards. Please clarify which compaction standard applies for subgrade, subbase and base course layers.	TfNSW specifications not required. Hickson Road is a Council Road. Specifications to be updated.	C	O
33	240059-01-CC-C01.21	Specification Notes Sheets 01 - Stage 4	5	For Information			INSW	PL			Siteworks Notes: A dilapidation report for existing structures and adjacent buildings is required. Please add a note for this requirement	Note added.	C	O
34	240059-01-CC-C02.01	DEMOLITION PLAN SHEET 01 - Stage 4	5	For Information			INSW	PL			Existing smart poles/lights on Hickson Rd east - please clarify if these are to be removed/reused or will they stay in current locations?	Existing lightpoles to be removed. New electrical files received from DEP and incoporated into drawings.	C	O

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35	240059-01-CC-C05.01	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 01 - Stage 4	6	For Information			INSW	PL			Trunk Stormwater drainage line Pit J01/04: A GPT is required for the trunk stormwater line, it would be better to locate the GPT upstream due to tidal levels. Is GPT included?	It is not proposed to include a GPT in the stormwater network. The GPT ill be inundated due to tidal levels. A floating boom with trash rack will be proposed in pit J01/05.	NC?	O
36	240059-01-CC-C05.01	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 01 - Stage 4	6	For Information			INSW	PL			3x63mm ELECTRICAL CONDUITS along the Central property boundary. Please clarify what these are required for? LV Electrical conduits for the light poles are allowed for next to the kerb, can the 3x63mm LV next to property line be deleted?	Noted. 3 x 63mm ELECTRICAL CONDUITS note to be removed along the Central property boundary.	C	O
37	240059-01-CC-C05.02	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 02 - Stage 4	6	For Information			INSW	PL			3x63mm ELECTRICAL CONDUITS along the Central property boundary. Please clarify what these are required for? LV Electrical conduits for the light poles are allowed for next to the kerb, can the 3x63mm LV next to property line be deleted?	Noted. 3 x 63mm ELECTRICAL CONDUITS note to be removed along the Central property boundary.	C	O
38	240059-01-CC-C05.02	ROADWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 02 - Stage 4	6	For Information			INSW	PL			Stormwater Pit EX20 RESET GRATES TO MATCH REVISED KERB ALIGNMENT. I think the top of the pit needs to be demolished and adjusted to suit proposed levels and road alignment	Noted. Note to be amended.	C	O
39	240059-01-CC-C06.02	ROAD TYPICAL CROSS SECTIONS, SECTION 02 - Stage 4	6	For Information			INSW	PL			Hickson Rd typical sections 5 and 6 show a median break between the road carriageway and cycleway. Should there be a 400mm wide stone kerb separator in these locations?	Stone kerb separator to be included in typical sections.	C	O
40	240059-01-CC-C10.01	PAVEMENT AND JOINTING PLAN SHEET 01 - Stage 4	5	For Information			INSW	PL			There are a significant number of bicycle hoops along the western footpath which are carried over from the landscape design. These hoops will impede access to kerbside lane usage and adds clutter. Per comments in the landscape pack - bicycle hoops can be accomodated in the Central Barangaroo footprint. Please delete all hoops along the western footpath	Bicycle hoops removed.	C	O
41	240059-01-CC-C10.02	PAVEMENT AND JOINTING PLAN SHEET 02 - Stage 4	5	For Information			INSW	PL			There are a significant number of bicycle hoops along the western footpath which are carried over from the landscape design. These hoops will impede access to kerbside lane usage and adds clutter. Per comments in the landscape pack - bicycle hoops can be accomodated in the Central Barangaroo footprint. Please delete all hoops along the western footpath	Bicycle hoops removed.	C	O
42	240059-01-CC-C12.01	SERVICES COORDINATION PLAN SHEET 01 - Stage 4	6	For Information			INSW	PL			3x63mm ELECTRICAL CONDUITS along the Central property boundary. Please clarify what these are required for? LV Electrical conduits for the light poles are allowed for next to the kerb, can the 3x63mm LV next to property line be deleted?	Noted. 3 x 63mm ELECTRICAL CONDUITS note to be removed along the Central property boundary.	C	O
43	240059-01-CC-C12.01	SERVICES COORDINATION PLAN SHEET 01 - Stage 4	6	For Information			INSW	PL			A) 2xP125 ELECTRICAL CONDUITS near High Steps crossing Hickson Rd - these conduits may contain cables supplying power to Sydney Water SPS 1129. If so they should not be disturbed, please confirm.	Electrical conduits are understood to be approximately 1.5m deep (to be confirmed on-site). Conduits will not be disturbed. Additional note added to sheet C12.01.	C	O
44	240059-01-CC-C12.012	SERVICES COORDINATION PLAN SHEET 02 - Stage 4	6	For Information			INSW	PL			3x63mm ELECTRICAL CONDUITS along the Central property boundary. Please clarify what these are required for? LV Electrical conduits for the light poles are allowed for next to the kerb, can the 3x63mm LV next to property line be deleted?	Noted. 3 x 63mm ELECTRICAL CONDUITS note to be removed along the Central property boundary.	C	O
45	240059-01-CC-C13.01	SERVICES SECTIONS, SHEET 01 - Stage 4	6	For Information			INSW	PL			Both sections have 3x63mm ELECTRICAL CONDUITS along the Central property boundary Please clarify what these are required for? LV Electrical conduits for the light poles are allowed for next to the kerb, can the 3x63mm LV next to property line be deleted?	Noted. 3 x 63mm ELECTRICAL CONDUITS note to be removed along the Central property boundary.	C	O
46	240059-01-CC-C13.01	SERVICES SECTIONS, SHEET 01 - Stage 4	6	For Information			INSW	PL			HICKSON ROAD (CH 450.00): This is also shown in Drawing 240059-01-CC-C12.31. Existing HV pit 50268 straddles the road, K&G and eastern footpath which are all at different levels? I think this is a single pit lid with two different pit lids. Please clarify how the pit lid can be accomodated at various levels?	Our understanding is that this is an underground pit with two risers. Levels of each riser and pit to be independent of eachother based on the finished surface level of the civil works. Adjustment works to be carried out by Ausgrid.	NC	O

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47	240059-01-CC-C14.01	SITEWORKS DETAILS, SHEET 01 - Stage 4	5	For Information			INSW	PL			Pavement Type 1: Note 1: MIN CBR 3.0% (CONTRACTOR TO CONFIRM ONSITE). As discussed in site meetings, CBR 3% is considered low for the site and could result in an over designed and thick pavement. Please confirm results from GI and update CBR as necessary. Note 2: DESIGN LOADING = $5x10^6$, please clarify the units of measurement - are these ESAs?	The pavement design is in line with the Metro pavement design.	C	O
48	240059-01-CC-C14.01	SITEWORKS DETAILS, SHEET 01 - Stage 4	5	For Information			INSW	PL			PAVEMENT TYPE 3, DRIVEWAY: - Pavers are 50mm thick, should these be 80mm as per City specifications? Please clarify - 200 THICKNESS CONCRETE WITH SL82 MESH 50mm TOP COVER. Should this be 250mm thick with TWO LAYERS SL82 50 COVER TOP & BOTTOM. Please clarify.	CoS standard paving is 50mm on a 30mm mortar bed as per detail 2.2.10. - Driveway pavement thickness to be updated to 250mm thick with two layers SL82.	C	O
49	240059-01-CC-C14.01	SITEWORKS DETAILS, SHEET 01 - Stage 4	5	For Information			INSW	PL			TYPICAL SHALLOW ELECTRICAL SERVICES PROTECTION DETAIL Does LV require concrete encasement in the footpath?	Not proposing to reduce existing cover to existing LV conduits in the footpath. The detail can be removed.	C	O
50	240059-01-CC-C18.02	STORMWATER DETAILS, Sheet 02 - Stage 4	5	For Information			INSW	PL			Please provide GPT details for the Barton St trunk drainage line	It is not proposed to include a proprietary standalone GPT i.e. Oceanprotect CDS unit, in the stormwater network. The GPT ill be inundated due to tidal levels. A floating boom with trash rack will be proposed in pit J01/05.	C	O
51	240059-01-CC-C22.01	TURNING PATH PLAN - Stage 4	5	For Information			INSW	PL			Three swept paths are shown for the Hickson Rd / Barton Street intersection including for the test vehicle. It's unclear whether the intersection is suitable for the design vehicle - which of the images demonstrate this?	See service vehicle and passenger car turn path.	C	O
52	240059-01-CC-C23.01	SAFETY IN DESIGN - Stage 4	5	For Information			INSW	PL			SAFE DESIGN RISK REGISTER ITEM 9 . Design action is to "PROVIDE PEDESTRIAN BARRIER FENCING BETWEEN CROSSING POINTS ON EASTERN SIDE OF HICKSON ROAD. Please note that Hickson Rd has been designed to be accessible and pedestrian friendly, there is no barrier fencing along Hickson Rd east footpath.	Noted. Design action removed for this item.	C	O
53	B1D-CD2-000010 and 11	Specification Notes Sheets 01 and 02 - Stage 3	6	For Information			INSW	PL			Earthworks Note 7 specifies Road & Paved Areas compaction to Council Standard at 100% SMDD - the City of Sydney Specification specifies the Subbase and Base course compaction at 100% SMDD. However, notes in the Pavements section refers to TfNSW Specifications. Note 2, 10 and 11 specifies compaction standards for Base: 98% MMDD and Subbase: 95% MMDD. It can cause confusion on compaction requirements as the drawings reference both Council and TfNSW standards which are different Standards. Please clarify which compaction standard applies for subgrade, subbase and base course layers.	TfNSW specifications not required. Hickson Road is a Council Road. Specifications to be updated.	C	O
54	B1D-CD2-000010	Specification Notes Sheets 01 - Stage 3	6	For Information			INSW	PL			Siteworks Notes: A dilapidation report for existing structures and adjacent buildings is required. Please add a note for this requirement	Note added.	C	O
55	B1D-CD2-000030	GENERAL ARRANGEMENT PLAN - Stage 3	6	For Information			INSW	PL			SHEET 200043 and 200044 show the "transition" area between Stage 3 & 4 works. I suggest we mark up and identify the following: - Northern limit of Stage 3 works. - "transition area" between Stage 3 & 4 works assuming that the Stage 3 Works are delivered first, followed by Stage 4 Works. If the Contractor chooses to Stage the works in an altenative sequence, it may be that the "transition area" may not be required.	Noted. Additional annotations to be added to general arrangement plan.	C	O

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56	B1D-CD2-000050 B1D-CD2-000051	STAGE 1 CONSTRUCTION STAGING PLAN - Stage 3 STAGE 2 CONSTRUCTION STAGING PLAN	5	For Information			INSW	PL			There are 8 stages of construction which was developed by LLC when Stage 3 works was a standalone scope. As Hickson Rd Stages 3 & 4 are now combined into one delivery package, the Contractor can determine it's own sequencing of work to suit. Please delete these two Staging sheets - keep the plan for proposed location of the Site Sheds.	Staging sheets to be removed.	C	O
57	B1D-CD2-200000	DEMOLITION PLAN - Stage 3	6	For Information			INSW	PL			a) At 38 Hickson Road: EXISTING DRIVEWAY TO BE DEMOLISHED AND REMOVED FROM SITE - Please reword to "Existing vehicular crossover to be demolished and a new one build " b) EXISTING TIMBER LIGHTPOLE TO BE RETAINED - shouldn't all timber light poles on eastern footpath be removed from site? c). The temporary footpath and jersey barriers in front of Lendlease building R3 need to be demolished. PLease refer to the RPS survey file and "20250820 Building R3-Hickson Rd Works" render provided by Lendlease, file is on the following link https://infrastructurensw.sharepoint.com/:b:/r/sites/MetroInfrastructure/Shared%20Documents/General/16.%20Hickson%20Rd%20South%20-%20Stage%204/REF%20Reports-Combined%20Stage%203%20%26%204/20250820%20Building%20R3-Hickson%20Rd%20Works-To%20issue%20to%20Enspire%20with%20REF%20Comments.pdf?csf=1&web=1&e=eRvKod	a) Noted. To be updated. b) Timber lightpoles to be removed. Note updated. C) Note added to plan 'ANY REMAINING JERSEY BARRIERS INFRONT OF R3 TO BE REMOVED AND DEMOLISHED'.	C	O
58	B1D-CD2-200001	DEMOLITION PLANS - Stage 3	6	For Information			INSW	MD			Existing pedestiran crossing to be removed' along Barton St has already been moved and relocated closer the corner. To be updated.	Noted. Updated as per new crossing location.	C	O
59	B1D-CD2-200001	DEMOLITION PLAN - Stage 3	6	For Information			INSW	PL			The temporary footpath and jersey barriers in front of Hickson Park amenities building need to be demolished	Note added to plan.	C	O
60	B1D-CD2-200001	DEMOLITION PLAN - Stage 3	6	For Information			INSW	PL			Hickson Rd East: EXISTING 3 x RHS KERB OUTLETS TO BE REMOVED. I'm just wanting to understand what modifications are needed to the big inlets. Drawing B1D-CD2-200042 state EXISTING STORMWATER INLET STRUCTURE TO REMAIN. Please clarify if inlets are demolished or remain. It would benefit to make use of the existing inlet and huge culvert structures.	The existing 3 x RHS kerb outlets to be removed are in a different location to the existing stormwater linlet structure to remain.	C	O
61	B1D-CD2-200010	CONTROL PLAN + SETOUT - Stage 3	6	For Information			INSW	MD			Clarify the difference between trees in pink vs black.	Please refer legend on siteworks sheet. Trees in pink are proposed trees that may have a possible services clash which is to be checked on site.	C	O
62	B1D-CD2-200011	CONTROL PLAN + SETOUT - Stage 3	6	For Information			INSW	MD			Clarify the difference between trees in pink vs black.	Please refer legend on siteworks sheet. Trees in pink are proposed trees that may have a possible services clash which is to be checked on site.	C	O
63	B1D-CD2-200020	CONTROL PLAN + SETOUT - Stage 3	6	For Information			INSW	MD			Ensure scope of Stage 4 matches the Stage 4 package i.e. drainage along Barton St.	Stage 4 works are not shown as part of this drawing as it is not relevant. Please refer to separate package prepared by Enspire. Stage 4 works have been shown on the siteworks and signage plans to indicate tie in locations.	C	O
64	B1D-CD2-200040	SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01 - Stage 3	8	For Information			INSW	PL			Hickson Rd/Napolean St median: In the Landscape Package, I have queried whether there should be any planting in the median which is narrow. If plantings are removed and an alternative is provided in lieu, then delete subsoil draingage	Noted. To be coordinated with the landscape architect.	C	O

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65	B1D-CD2-200043	SITEWORKS AND STORMWATER MANAGEMENT PLAN, SHEET 04 - Stage 3	8	For Information			INSW	PL			Transition area between Stage 3 & 4 works: per the comment on B1D-CD2-000030 above: If the Contractor chooses to Stage the works in an altenative sequence, it may be that the "transition area" may not be required. Please hatch/mark up the transition area and add a note "If the Contractor chooses to Stage the works in an altenative sequence, it may be that the "transition area" may not be required." There are several drawings with the transition area which may need to be annotated	Temporary tie in annotated on plan.	C	O
66	B1D-CD2-500002	ROAD CROSS SECTIONS Sheet 02 - Stage 3	6	For Information			INSW	PL			A bank of 16 existing communications conduits are shown in the road reserve. Please confirm.	Existing bank of conduits in cross section removed.	C	O
67	B1D-CD2-500003	ROAD CROSS SECTIONS Sheet 03 - Stage 3	6	For Information			INSW	PL			A bank of 16 existing communications conduits are shown in the road reserve. Please confirm.	Existing bank of conduits in cross section removed.	C	O
68	B1D-CD2-500004	ROAD CROSS SECTIONS Sheet 04 - Stage 3	6	For Information			INSW	PL			A bank of 16 existing communications conduits are shown in the road reserve. Please confirm.	Existing bank of conduits in cross section removed.	C	O
69	B1D-CD2-500005	ROAD CROSS SECTIONS Sheet 05 - Stage 3	6	For Information			INSW	PL			A bank of 16 existing communications conduits are shown in the road reserve. Please confirm.	Existing bank of conduits in cross section removed.	C	O
70	B1D-CD2-600001	CONTROL PLAN + SETOUT - Stage 3	5	For Information			INSW	MD			Median strip on eastern side of Hickson Rd, shown as Pavement type 6 - landscape plans show this as planted. To be coordinated.	Civil plan updated to be shown as planted as per landscape drawings.	C	O
71	B1D-CD2-600010	SIGNAGE AND LINEMARKING PLAN SHEET 01 - Stage 3	6	For Information			INSW	PL			Watermans Quay east-bound intersection with Hickson Rd - the "Give Way" sign doesn't have line marking, should there be give way line marking?	TB give way linemarking provided.	C	O
72	B1D-CD2-600021	SERVICES COORDINATION PLAN SHEET 02 - Stage 3	8	For Information			INSW	PL			Western footpath near SPS 1129: the sewer line is denoted as "SEWER STRIKE INV RL - 1.72m" - not sure why this description	Annotation removed.	C	O
73	B1D-CD2-600051	UTILITY TYPICAL CROSS SECTIONS SHEET 02 - Stage 3	5	For Information			INSW	PL			HICKSON ROAD (CH 320.00) shows a bus parking in the parking lane - there is no bus stop here. Is this to indicate a coach drop off, if not show a car instead?	This is a carry over. Updated to show car.	C	O
74	B1D-CD2-700001	SITEWORKS DETAILS SHEET 01 - Stage 3	6	For Information			INSW	PL			Pavement Type 1, 4 and 8: Note 1: MIN CBR 3.0% (CONTRACTOR TO CONFIRM ONSITE). As discussed in site meetings, CBR 3% is considered low for the site and could result in an over designed and thick pavement. Please confirm results from GI and update CBR as necessary. Note 2: DESIGN LOADING = $5x10^6$, please clarify the units of measurement - are these ESAs?	The pavement design is in line with the Metro pavement design.	C	O
75	B1D-CD2-700001	SITEWORKS DETAILS SHEET 01 - Stage 3	6	For Information			INSW	PL			PAVEMENT TYPE 3, DRIVEWAY: - Pavers are 50mm thick, should these be 80mm as per City specifications? Please clarify - 200 THICKNESS CONCRETE, should this be 250mm thick ?	CoS standard paving is 50mm on a 30mm mortar bed as per detail 2.2.10. - Driveway pavement thickness to be updated to 250mm thick with two layers SL82.	C	O
76	B1D-CD2-900001	SAFETY IN DESIGN - Stage 3	6	For Information			INSW	PL			SAFE DESIGN RISK REGISTER ITEM 10. Design action is to "PROVIDE PEDESTRIAN BARRIER FENCING BETWEEN CROSSING POINTS ON EASTERN SIDE OF HICKSON ROAD. Please note that Hickson Rd has been designed to be accessible and pedestrian friendly, there is no barrier fencing along Hickson Rd east footpath.	Noted. Design action removed for this item.	C	O
77	240059-01-CC-C02.01	Demolition Plan Sheet 1 - Stage 4	5	Draft			INSW	YC			Remove reference to 'and handed over to INSW'.	Noted. Removed.		
78	240059-01-CC-C02.02	Demolition Plan Sheet 2 - Stage 4	5	Draft			INSW	YC			Remove reference to 'and handed over to INSW'.	Noted. Removed.		
79	B1D-CD2-000050	Stage 1 Construction Staging Plan - Stage 3	5	Draft			INSW	YC			Clarify that Option 2 does not interfere with the construction of the stormwater pipe running alongside Barton Street (that form part of Stage 4 works).	Drawing removed as per comment 56.		
80	B1D-CD2-200001	Demolition Plan Sheet 2 - Stage 3	6	Draft			INSW	YC			Update that the Barton Street pedestrian crossing has already been relocated (closer to the Hickson Road intersection) and does not need to be demolished.	Annotation updated to note that the recently constructed temporary pedestrian is to be demolished and proposed in the new location.		

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81				Draft	General - all drawings/plans		INSW	YC			Please ensure all section measurements align with measurements included in the landscape design drawings.	Noted.		

Appendix C Safety in Design Register

SAFE DESIGN RISK REGISTER

ITEM	ACTIVITY	HAZARD	STAGE	INITIAL RISK			DESIGN ACTION	RESIDUAL RISK			PERSON RESPONSIBLE FOR CONTROLS	STATUS
				LIKELIHOOD	CONSEQUENCE	RISK LEVEL		LIKELIHOOD	CONSEQUENCE	RISK LEVEL		
1	TREE REMOVAL	FALL FROM HEIGHT CRUSH INJURY FROM FALLING TREE	CONSTRUCTION	2	5	VERY HIGH	- LIMIT NUMBER OF TREES TO BE REMOVED. - CERTIFIED ARBORIST USING BEST PRACTICES RESPONSIBLE FOR TREE REMOVAL.	2	3	MODERATE	CONTRACTOR	OPEN
2	SERVICES TRENCHING	FALL INTO DEEP EXCAVATIONS AND CONFLICT WITH EXISTING SERVICES	CONSTRUCTION	1	4	HIGH	- MINIMISE PIPE TRENCH DEPTH - UNDERTAKE BEFORE YOU DIG SERVICES SEARCH AND NOTIFY AUTHORITY TO ENSURE SPOTTERS NOT REQUIRED	1	2	LOW	CONTRACTOR	OPEN
3	STORMWATER DRAINAGE TRENCHING	FALL INTO DEEP EXCAVATIONS AND CONFLICT WITH EXISTING SERVICES. INFLOW OF TIDAL WATER	CONSTRUCTION	4	3	HIGH	- UNDERTAKE BEFORE YOU DIG SERVICES SEARCH - ALLOW FOR DEWATERING AND UNDERTAKE TRENCH EXCAVATIONS IN SMALL LENGTHS TO MINIMISE RISK OF TIDAL INFLOWS	1	2	LOW	CONTRACTOR	OPEN
4	WORKS ON A LIVE ROAD	CONFLICT WITH VEHICLES AND CONSTRUCTION WORKERS	CONSTRUCTION	4	5	VERY HIGH	-PREPARE CONSTRUCTION AND PEDESTRIAN MANAGEMENT PLAN AND IMPLEMENT ADEQUATE TEMPORARY BARRIERS AND WARNING SIGNAGE -PROVIDE TRAFFIC MANAGEMENT TO CONTROL MOVEMENTS OF CONSTRUCTION VEHICLES AND THROUGH TRAFFIC MOVEMENTS	1	5	HIGH	CONTRACTOR	OPEN
5	WORKS ON LIVE ROAD	CONFLICT WITH PEDESTRIANS AND CONSTRUCTION VEHICLES	CONSTRUCTION	4	5	VERY HIGH	-PREPARE CONSTRUCTION AND PEDESTRIAN MANAGEMENT PLAN AND IMPLEMENT ADEQUATE TEMPORARY BARRIERS AND WARNING SIGNAGE -PROVIDE TRAFFIC MANAGEMENT TO CONTROL MOVEMENTS OF CONSTRUCTION VEHICLES AND PEDESTRIAN MOVEMENTS	1	5	HIGH	CONTRACTOR	OPEN
6	INSTALLATION OF STORMWATER DRAINAGE PIPES	FALL INTO DEEP EXCAVATIONS AND CONFLICT WITH EXISTING SERVICES. INFLOW OF TIDAL WATER	CONSTRUCTION	4	3	HIGH	- MONITOR WEATHER THROUGH BUREAU OF METEOROLOGY -MONITOR WEATHER WARNINGS THROUGH SES - ALLOW FOR DEWATERING AND UNDERTAKE TRENCH EXCAVATIONS IN SMALL LENGTHS TO MINIMISE RISK OF TIDAL INFLOWS	1	3	MODERATE	CONTRACTOR	OPEN
7	FLASH FLOODING DURING CONSTRUCTION ACTIVITY	EXCAVATIONS FILLING WITH SURFACE WATER, LOSE OF STOCKPILED MATERIAL	CONSTRUCTION	3	4	VERY HIGH	- MONITOR WEATHER THROUGH BUREAU OF METEOROLOGY -MONITOR WEATHER WARNINGS THROUGH SES	1	3	HIGH	CONTRACTOR	OPEN
8	GEOTECHNICAL	POOR / UNSUITABLE GROUND CONDITIONS	CONSTRUCTION	3	3	HIGH	-UNDERTAKE GEOTECHNICAL TESTING TO CONFIRM GROUND CONDITIONS	1	1	LOW	CONTRACTOR / DEVELOPER	OPEN
9	NIGHT WORKS	POOR VISIBILITY TO CONSTRUCTION WORKERS, THROUGH TRAFFIC AND PEDESTRIANS	CONSTRUCTION	3	4	VERY HIGH	-PREPARE CONSTRUCTION AND PEDESTRIAN MANAGEMENT PLAN AND IMPLEMENT ADEQUATE TEMPORARY BARRIERS AND WARNING SIGNAGE -PROVIDE TRAFFIC MANAGEMENT TO CONTROL MOVEMENTS OF CONSTRUCTION VEHICLES AND PEDESTRIAN MOVEMENTS -PROVIDE ADEQUATE TEMPORARY LIGHTING	1	3	HIGH	CONTRACTOR	OPEN
10	PEDESTRIAN AND VEHICULAR CONFLICT	PEDESTRIAN CROSSING ROAD AT OTHER THAN PROVIDED LOCATIONS	OPERATIONAL PHASE	4	5	VERY HIGH	-PROVIDE ALLOCATED CROSSING POINTS -PROVIDE PEDESTRIAN BARRIER FENCING BETWEEN CROSSING POINTS ON EASTERN SIDE OF HICKSON ROAD	1	5	HIGH	DESIGN	CLOSED
11	VEHICULAR CONFLICT AT "T" INTERSECTIONS	MOTORISTS NOT GIVING WAY	OPERATIONAL PHASE	4	3	HIGH	-PROVIDE LINE MARKING AND SIGNAGE AT INTERSECTIOSN CLEARLY DEFINING LANES AND INTERSECTYION PRIORITY	2	3	MODERATE	DESIGN	CLOSED
12	ACCESS TO EXISTING DRIVEWAYS	THROUGH TRAFFIC BLOCKING DRIVEWAY TO 38 HICKSON ROAD	OPERATIONAL PHASE	5	1	HIGH	-PROVIDE LINEMARKING TO INFORM MOTORISTS TO KEEP INTERSECTION CLEAR	3	1	LOW	DESIGN	CLOSED