COSTIN ROE CONSULTING

CIVIL & STRUCTURAL ENGINEERS

CIVIL ENGINEERING REPORT INCORPORATING WATER CYCLE MANAGEMENT STRATEGY

SSD-71144719

HORSLEY LOGISTICS PARK STAGE 2

3 JOHNSTON CRESCENT, HORSLEY PARK, NSW

Prepared for:

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EXECUTIVE SUMMARY

ESR Australia Pty Ltd are seeking to construct an industrial development located at 3 Johnston Crescent, Horsley Park.

The Proposal is considered a State Significant Development (SSD) and accordingly, an Environmental Impact Statement (EIS) has been prepared to support the SSD Application for the Proposal. This Civil Engineering Report has been prepared by Costin Roe Consulting to support the preparation of the EIS and assess the Proposal's impact on the surrounding environment in relation to soils and water including stormwater and stormwater management for both construction and operational phases of the development.

Proposal overview

The proposed development is for a multi-unit warehouse facility with associated offices on 8.67 Ha parcel of land. Works will include pavements & crossovers, determination of erosion and sediment controls, finished surface levels & surface grading, stormwater drainage (including drainage layout and management of quality and quantity in accordance with Fairfield City Council's Engineering Guideline), retaining walls and batter treatment. The existing site is noted to be comprised of open unpaved land, diversion drains, two temporary sediment basins and perimeter retaining walls.

Access to the development would be made from the east via Johnston Crescent.

Purpose of this assessment

This Civil Engineering Report has been prepared to address the following Secretary's Environmental Assessment Requirements (SEARs):

- Item Number 13: Water Management
- Item Number 14: Flood Risk
- Item Number 21: Infrastructure Requirements and Utilities

Construction impacts

During the construction phase, a Sediment and Erosion Control Plan will be in place to ensure the downstream drainage system and receiving waters are protected from sediment laden runoff. A preliminary sediment and erosion control plan has been prepared on drawing **Co12990.17-SSDA200** and **SSDA251**, **SSDA252**. Reference should also be made to **Section 8** of this report for Construction Soil and Water Management.

Operational impacts

During the operational phase of the development, the proposed stormwater quality treatment system incorporating the use of Ocean Protect Stormfilter filtration cartridges and pit baskets and is proposed to mitigate any increase in stormwater pollutant load generated by the development. Best management practices have been applied to the development to ensure that the quality of stormwater runoff is not detrimental to the receiving environment.

During the operational phase of the development, the proposed stormwater discharge will be controlled by multiple on-site detention systems to ensure the post-

development peak flows do not exceed pre-development peak flows. The development does not increase runoff from existing conditions and, as such, the site discharge will not adversely affect any land drainage system or watercourse following completion of development works.

Further it has been confirmed that the development is outside the 1% AEP Flood extent, and a Flood/Overland Flow Study is not required for the development. The site has very low risk of flooding affectation from Ropes Creek or other regional flooding.

Conclusion

The assessment of the local site drainage confirms that recommended water quality and quantity measures will ensure that no adverse impacts result on receiving waterways as a result of the development.

The detail contained in this report provides sufficient information to show the consent authority that legal points of discharge and a suitable stormwater management strategy is available for the development and the requirements associated with the strategy. It is recommended the management strategies in this report be approved and incorporated into the future detailed design.

TABLE OF CONTENTS

1 INTRODUCTION & SCOPE

1.1 Introduction

Costin Roe Consulting Pty Ltd has been commissioned by ESR Australia Pty Ltd to undertake a *Civil Engineering Report & Water Cycle Management Strategy* (WCMS) to accompany a State Significant Development Application (SSDA) with the NSW Department of Planning, Housing and Infrastructure (DPHI) for an industrial development on the land.

This report presents a civil engineering assessment of the property at 3 Johnston Crescent, Horsley Park. This report provides an assessment of the civil engineering characteristics of the development site and technical considerations of the following aspects:

- Earthworks & geotechnical considerations.
- Water Cycle Management Strategy (WCMS).

The WCMS comprises several key areas of stormwater and water management which are provided below. These key areas have been established with the aim to reduce impacts from the development on the surrounding environment and neighbouring properties. The water cycle management strategy identifies the management measures required to meet the targets set. The key water cycle management areas assessed in this report are:

- Stormwater Quantity.
- Stormwater Quality.
- Water Supply and Reuse.
- Flooding; and
- Erosion and Sediment Control

A request for SEAR's has been completed by ESR. Reference to **Appendix C** should be made for SSD_71144719 SEAR's dated 29 May 2024, and **Section 1.3** of this report for specific responses to civil engineering and water management related items included in the SEAR's.

The design has been completed in accordance with the *Stormwater Management Strategy* set as part of the approved *CSR Industrial Estate* as documented in Brown Consulting (now Calibre) *Stormwater Concept Plan (Ref: X13044 dated December 2013).* It is noted that the adopted Stormwater Management Strategy is consistent with the requirements of the site-specific *Development Control Plan* for the site "*Western Sydney Employment Area – Fairfield City Council Development Control Plan 2016, Lot 1 DP106143, 327-335 Burley Road, Horsley Park"* dated March 2016.

The consent authority the DPHI, however noting due consideration to Fairfield City Council (FCC) requirements and the engineering and policy requirements of FCC, included in their *Stormwater Management Policy September 2017,* have also been considered in the design, where relevant. It is noted that some

differences are present in the above noted DCP and current FCC policy. The engineering design has been completed in accordance with the DCP where differing requirements are present.

1.2 Consultation

Consideration to the various stakeholders has been made in relation to the development, including Council has been made during the assessment period. Consultation with Fairfield City Council and Heritage NSW has included email and telephone correspondence.

Reference should be made to **Appendix E** for email correspondence of the meeting held between Council and ESR on 26 June 2024.

1.3 SEAR's Responses

This report supports the EIS for the proposal and to address the NSW Department of Planning and Environment SEARS letter dated 29 May 2024, reference SSD-71144719.

We note the below "key issues and documentation" assessments are based on the standard Warehouse and Distribution Centre SEAR's document recently implemented (October 2021) by DPHI and following key areas in the document:

- *Item 13. Water Management*
- *Item 14. Flood Risk*
- *Item 21. Infrastructure Requirements and Utilities*

Further reference to the EIS prepared by Urbis should be made for confirmation of how the SEAR's have been addressed for non-civil engineering related items.

Table 1.1 provides a summary of the SEARs General Requirements which relate to civil engineering related items, and where these have been addressed in this report.

Table 1.1. SEARs Warehouse and Distribution Centres Key Areas

SEAR's Key Item No. & Description	Issue & Assessment Requirements	How It Is Addressed	Location Within This Report
13. Water Management	Provide an Integrated Water Management Plan for the development that: • is prepared in consultation with the local council and any other relevant drainage or water authority.	An Integrated Water Management Plan including surface water runoff, water quality and water quantity has been completed. The key stormwater objectives, based on relevant water sensitive urban design criteria, have been set out in **Section 4.1** and **Section 6.1** of the report.	Refer to **Section 4, 5 & 6** for assessment of water resources, hydrology (including quality and quantity), watercourses and riparian lands during operation.

SEAR's Key Item No. & Description	Issue & Assessment Requirements	How It Is Addressed	Location Within This Report
	• outlines the water-related servicing infrastructure required by the development (informed by the anticipated annual and ultimate increase in servicing demand) and evaluates opportunities to reduce water demand (such as recycled water provision). • details the proposed drainage design (stormwater and wastewater) for the site including any on-site detention facilities, water quality management measures and nominated discharge points, on-site sewage management, and measures to treat, reuse or dispose of water. • demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse downstream impacts.	The site forms part of a recently approved industrial subdivision estate. The development of the land will incorporate the use of detention system and WSUD for the stormwater management to result in acceptable impact. Discharge from the site is noted to be made to existing drainage pit, ultimately draining into road drainage infrastructure in Johnston Crescent.	
	Where water and drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and	Refer **Section 4** and drawings in **Appendix A** for detailed assessment of the existing and post development conditions pertaining to the existing site discharge points and overland flow path. It is noted that no new drainage infrastructure works, which are to be handed over to	Refer to **Section 4** and **Appendix A**

SEAR's Key Item No. & Description	Issue & Assessment Requirements	How It Is Addressed	Location Within This Report
	specification of proposed works that have been prepared in consultation with, and comply with the relevant standards of, the local council or other drainage or water authority	local council, Sydney Water or other authority, are proposed as part of this development.	
14. Flood Risk	Identify any flood risk on-site having regard to adopted flood studies, the potential effects of climate change, and any relevant provisions of the NSW Floodplain Development Manual.	Review of the Council's adopted flood studies indicate there is no flooding in the 1% AEP local events. The development is clear of flood risk as noted in **Section 7**.	Refer **Section 7** for confirmation from council regarding flooding and overland flow.
	Where the development could alter flood behaviour, affect flood risk to the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the Flood Impact ad Risk Assessment – Flood Risk management Guide LU01.	We confirm the development will not alter flood behaviour.	
	Detail design solutions and operational procedures to mitigate flood risk where required.	No flood mitigation solutions are required nor proposed for this development.	
21 Infrastructure Requirements and Utilities	In consultation with relevant service providers: • assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site. • identify any infrastructure required on-site and off-site to facilitate	The site has been services as part of the subdivision work completed by CSR. No upgrades or infrastructure delivery and staging plan are proposed for this development.	Refer to **Section 9**

SEAR's Key Item No. & Description	Issue & Assessment Requirements	How It Is Addressed	Location Within This Report
	the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained. • provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.		

2 DEVELOPMENT SITE

2.1 Location

The proposed development is located within Fairfield City Council at 3 Johnston Crescent, Horsley Park. The property, Lot 301 of DP1244594, is located adjacently on the southern side of Burley Road in the suburb of Horsley Park as shown in **Figure 2.1**.

The parcel of land being reviewed as part of this assessment comprises Stage 3 of the original CSR Estate subdivision approval (refer **Section 2.3**).

Figure 2.1. Site Location and Aerial Imagery (Source: Nearmap May 2024)

Review of the historical survey information shows that the land had varying levels across the entire site. The highest level on the site, at approximately RL83.40m AHD, is located on the southern side of the site and the lowest level, at approximately RL 80.00m AHD, is in the northern portion of the site. It is noted that initial earthworks and grading works have been completed by CSR for this development as per Nearmap image update.

2.2 Existing Site Description

The subject site consists of undeveloped land although infrastructure services and perimeter retaining walls and bulk earthworks have been completed.

The existing site comprises of retaining walls recently constructed along the frontages to Burley Road and Johnston Crescent. The site also incorporates erosion and sediment control measures such as diversion drains and sediment ponds to manage the stormwater drainage of the land during the earthworks / construction phase.

2.3 Proposed Development

The proposed development is for the construction of two industrial buildings over the land site area of 8.67 HA. Reference should be made to the architectural plan layout prepared by Nettleton Tribe as shown in **Figure 2.2** and **Figure 2.3**.

The plan layout shows development generally comprise two large warehouses; Warehouse A is approximately 20,783 sqm and is located on the northern portion of the land while Warehouse B is approximately 36,522 sqm and is located on the southern portion of the land. Both buildings are warehouse/distribution type buildings with associated office spaces, car park, fire access roads, truck circulation and truck loading and unloading areas.

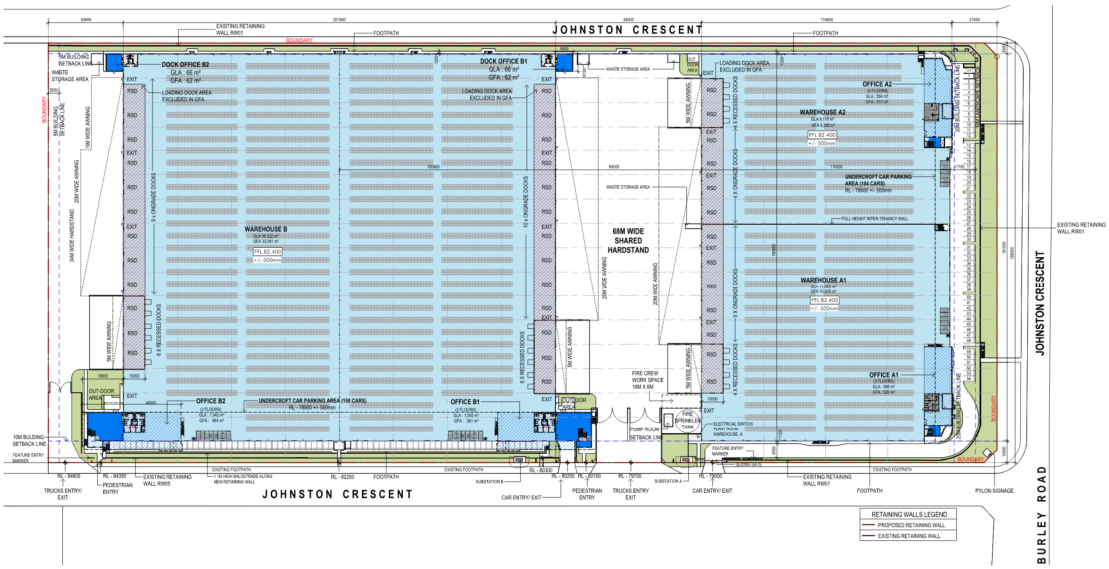

Figure 2.2. Proposed Development Architectural Layout Plan

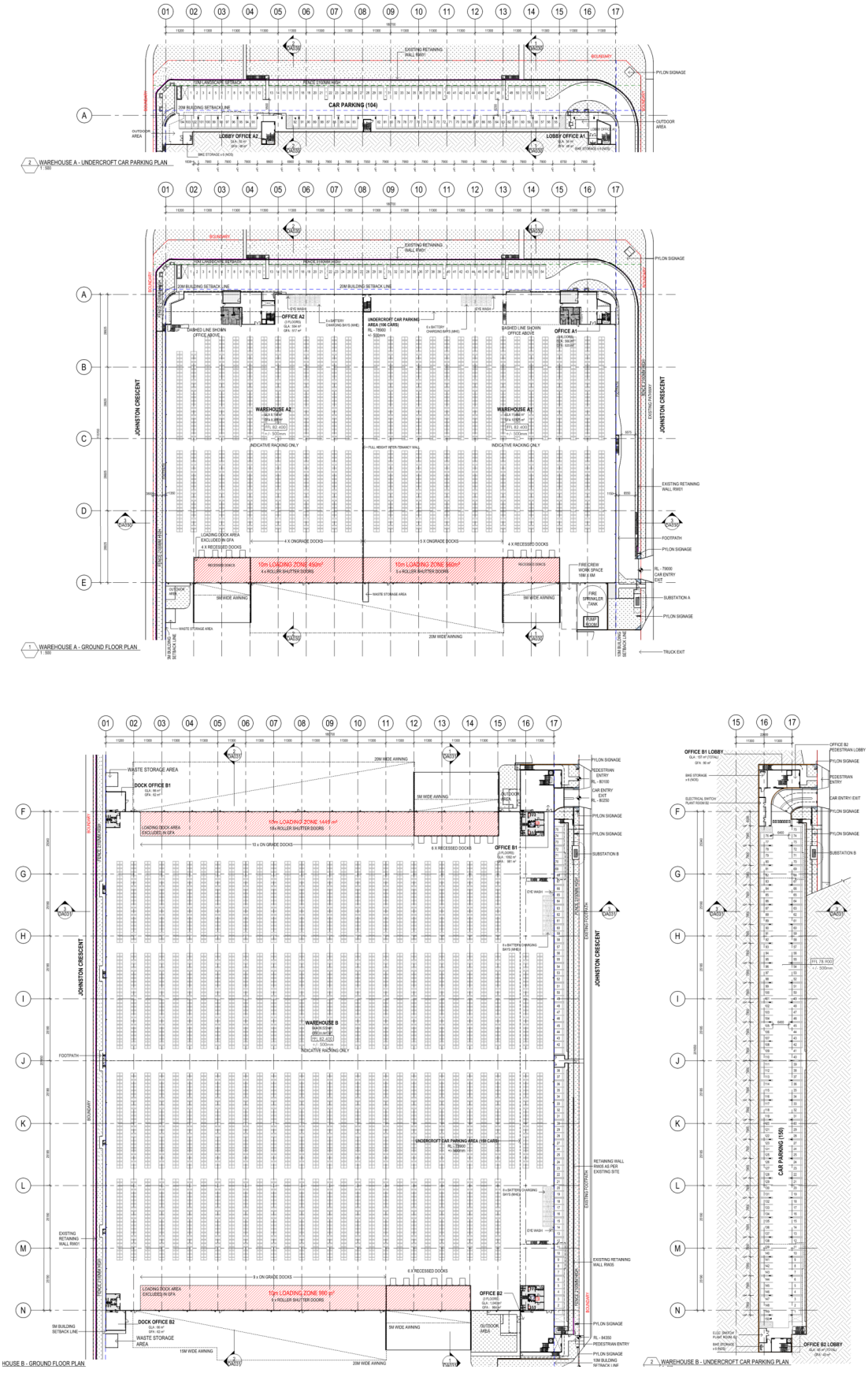

Figure 2.3. Proposed Development showing undercroft parking

2.4 CSR Estate Development Discussion

DA893.1/2013 was lodged with FCC in December 2013 & approved by the Land and Environment Court in July 2015. The approved DA included the proposed development of the 74.48 Ha estate which is proposed to be constructed in three stages.

Stage 1 & 2 has been completed and is currently being developed by others under separate approvals with FCC.

Stage 3 is located in the northern portion of the overall estate and includes the area subject to this application as shown in **Figure 2.4** below.

Bulk Earthworks plans provided by Calibre Group have been approved through a Section 4.55 application with FCC for the infrastructure works (refer **Appendix D**). These works are currently being constructed and will be finalised, or close to be finalised, prior to possession of the development lot by ESR.

Figure 2.4. Lot Layout Plan As Approved Under DA893.1/2013

The indicative master-planning for the site after the completion of all 3 stages incorporates an access road which loops the site, intersecting with Burley Road & the Reserved Road and provides access to development lots within the site. The new access road and associated intersections will be constructed to FCC requirements and ownership transferred to Fairfield Council. Large development lots will flank either side of the access road. Development lots will vary in size, typically in the order of 1.51 Ha to 13.35 Ha. The final layout will be

subject to market demands and the preferred architectural layout. Development lots will be sympathetic to the topography of the land.

The requirements for future developments and sites within the CSR land have been included in the site-specific *Development Control Plan* for the site "*Western City Employment Area – Fairfield City Council Development Control Plan 2016, Lot 1 DP106143, 327-335 Burley Road, Horsley Park"* dated March 2016. These include stormwater management requirements for water quantity and quality as set out in **Sections 5 & 6** of this report.

3 SITE WORKS

3.1 Site Geography

The site has historically (since mid-1970s) been utilised for extractive industry to enable the manufacturing of bricks. Prior to this it is expected that the ground surface once exhibited undulating terrain that was most likely covered in natural bush or grassland. Since the development of the brick manufacturing plant extensive excavation has occurred, reportedly up to 35m deep.

A preliminary geotechnical investigation was performed by Douglas Partners (DP) during October 2013. Furthermore, in the Statement of Environmental Effects for a Subdivision (December 2012) report by Brown Consulting, an analysis of the geotechnical report by Douglas Partners has been undertaken. The following summary is based on information contained in the Brown Consulting Report (December 2015).

"The geotechnical investigation by Douglas Partners was carried out to assess the subsurface conditions, which included a combination of cone penetration and boreholes, in order to provide information on:

- Depth of quarry pits.
- Preliminary extent of quarry pits.
- Composition of back fill material.
- Site preparation and earthworks; and
- Anticipated construction difficulties and potential solutions.

The report identifies several geotechnical constraints to the development on the site including:

- The presence of deep brick pits.
- The partial backfilling of the brick pits with large volumes of uncontrolled filling.
- The presence of many large stockpiles of soil and ripped rock (mostly clay and shale) situated both within the brick pits and scattered across the surrounding site areas; and
- The effects of the kilns on the soils below and surrounding the kilns within the existing brick manufacturing plant.

These geotechnical constraints do not include the existing brick manufacturing facility which includes several large warehouse and office buildings, kilns and areas of hardstand pavements which have not been assessed as part of the preliminary assessment as it was understood that they would be retained for some time in the future.

3.2 Estate Bulk Earthworks

Bulk earthworks have been performed throughout the CSR Stage 3 development area. Bulk earthworks and perimeter retaining walls have been constructed to facilitate the future development of the lots as industrial warehouse distribution use. The works have been approved by FCC and have been completed by CSR.

The approved design has been documented on Calibre Consulting "*Stage 3A Subdivision Design*" package 15-001115.17 (refer **Appendix D**).

The earthworks are being undertaken with the objective to provide large flat building pads, facilitate site access & to drain the site stormwater via gravity and to fill previous brick pits and other quarry works associated with CSR activities on the land.

Earthworks being performed for the Stage 3 development area include pads with nominal grading and levels between RL 83.2m AHD to RL 80.0m AHD. The site generally grades from the south to north of the stage area. Estate Erosion and Sediment Controls have been nominated on the Calibre design package and these measures should remain in place throughout the works period.

Retaining walls have also been constructed on the perimeter of the site to allow for future building works.

3.3 Site Bulk Earthworks

Minor earthworks will only be required as part of the industrial building development works. These works would include final trimming and shaping of the site to suit the detailed architectural site layout, final pavement and coordination of subgrade levels with slab profiles and grading to suit drainage requirements.

Details of earthworks would be provided during detail design/ construction certificate stages of the development. Detailed assessment of the earthworks level will be completed during detailed design stage and some adjustment to the final pad and building floor levels (within +/-500mm of those nominated on site layouts) may be required subject to final geotechnical testing, topsoil assessments and bulking/compaction allowances.

Soil erosion and sediment control measures including sedimentation basins will also be provided for the development – please refer to the Soil and Water Management Plan in **Section 5** of this report.

Any site-specific soil erosion and sediment control measures required to suit the ESR development layout will be performed in accordance with *Landcom Managing Urban Stormwater, Soils and Construction (1998) – The Blue Book*. Please refer to the Soil and Water Management Plan in **Section 8** of this report.

Cut earthworks over the site will be minor, and no major changes or impacts to groundwater is expected because of these works. Reference should be made to drawings **Co12990.17-SSDA300** and **SSDA310** which include extent of earthworks and cut / fill depth across the site.

3.4 Retaining Walls

The civil engineering objective is to minimise retaining walls within the constraints of the site layout, allowing grading to suit industrial development and batters in landscaped areas where possible. Levels have been set to utilise the existing perimeter retaining wall where possible.

Location and indicative heights of retaining walls are shown on drawing **Co12990.17-SSDA50**.

The proposed development will require modifications to the existing perimeter retaining wall to align with the proposed building layout. It is proposed to reduce the height of the existing perimeter retaining wall along the northern and eastern frontage of the development site. No increase in height in the existing perimeter retaining wall is proposed as part of this development.

3.5 Embankment Stability

To assist in maintaining embankment stability, permanent batter slopes in clay will be no steeper than 3 horizontal to 1 vertical while temporary batters will be no steeper than 2 horizontal to 1 vertical. This is in accordance with the recommended maximum batter slopes for residual clays and shale which are present in the area.

Permanent batters will also be adequately vegetated or turfed which will assist in maintaining embankment stability.

Stability of batters and reinstatement of vegetation shall be in accordance with the submitted drawings and the Soil and Water Management Plan in **Section 8**.

3.6 Supervision of Earthworks

All geotechnical testing and inspections performed during the earthwork's operations will be undertaken to Level 1 geotechnical control, in accordance with AS3798-2007.

4 WATER CYCLE MANAGEMENT STRATEGY & DRAINAGE METHODOLOGY

4.1 Key Areas and Objectives

Water Cycle Management (WCM) is a holistic approach that addresses competing demands placed on a region's water resources, whilst optimising the social and economic benefits of development in addition to enhancing and protecting the environmental values of receiving waters.

Developing a WCMS at the SSDA stage of the land development process provides guidance on urban water management issues to be addressed for the estate and development as a whole.

This WCMS has been prepared to inform DPHI and FCC that the development is able to provide and integrate WCM measures into the stormwater management strategy for estate. It presents guiding principles for WCM across the precinct which includes establishing water management targets and identifying management measures required for future building developments to meet these targets, and to confirm consistency with the *Western Sydney Employment Area – Fairfield City Council Development Control Plan 2016, Lot 1 DP106143, 327-335 Burley Road, Horsley Park*.

Several WCM measures have been included in the WCMS and engineering design, which are set out in this report and the attached drawings. The key WCM elements and targets which have been adopted in the design are included in **Table 4.1** following.

Table 4.1. WCM Targets

<table>
<tr><th>Element</th><th>Target</th><th>Reference</th></tr>
<tr><td>Water Quantity</td><td>Maintaining or improving the volume of stormwater flows to estate infrastructure from development lots.

Storage Requirement (SSR) and Permissible Site Discharge (PSD) based on the individual lot areas as outlined below:
<table><tr><th>Attribute</th><th>5 year ARI</th><th>100 year ARI</th></tr><tr><td>PSD* ($m^3/s/ha$)</td><td>0.15</td><td>0.28</td></tr><tr><td>SSR* (m^3/ha)</td><td>170</td><td>290</td></tr></table></td><td>DPI

Table 3 of Western City Employment Area – Fairfield City Council Development Control Plan 2016, Lot 1 DP106143, 327-335 Burley Road, Horsley Park</td></tr>
<tr><td>Water Quality</td><td>Load-based pollution reduction targets based on an untreated urbanised catchment for whole of Estate:

Gross Pollutants 90%
Total Suspended Solids 85%
Total Phosphorus 65%
Total Nitrogen 45%
Total Hydrocarbons 90%</td><td>Western City Employment Area – Fairfield City Council Development Control Plan 2016, Lot 1 DP106143, 327-</td></tr>
</table>

Element	Target	Reference
	Load-based pollution reduction targets based on an untreated urbanised catchment for individual lots: Gross Pollutants 90% Total Suspended Solids 93% Total Phosphorus 74% Total Nitrogen 48% Total Hydrocarbons 90%	*335 Burley Road, Horsley Park*
Flooding	Buildings and road set 500mm above 1% AEP. No affectation to upstream downstream or adjoining properties as a result of development	NSW Floodplain Development Manual.
Water Supply	Reduce water consumption in non-residential properties by 40% consistent with the BASIX Scheme	FCC Stormwater Policy 2017
Erosion and Sediment Control	Appropriate erosion and sedimentation control measures must be described in the environmental assessment for all stages of construction to mitigate potential impacts to downstream areas.	Landcom Blue Book Fairfield City Council DPI

A summary of the how each of the WCM objectives will be achieved are described below. Reference to the relevant sections of the report should be made for further and technical details relating to the WCM measures:

- Stormwater Quantity Management (Refer **Section 5**)

The intent of this criterion is to reduce the impact of urban development on existing drainage system by limiting post-development discharge within the receiving waters to the pre-development peak, and to ensure no affectation of upstream, downstream or adjacent properties.

Attenuation of stormwater runoff from the development is proposed to be managed via a series of measures provided on-lot for each individual development site.

The intention is for water quantity measures to be provided on each development lot. This will mean that the development can be assessed, approved and constructed without the need for estate level detention basins.

The site storage rate and site discharge rate has been defined for development lots in the estate DCP and allows for post development discharge to be limited to pre-development discharge, and also considers the roadways which do not include attenuation.

Reference to drawings **Co12990.17-SSDA400** to **SSDA402** should be made for location of the various stormwater management devices. These drawings are provided to demonstrate how the stormwater management objectives can be achieved. It is noted that these drawing are provided for information only and

the final system for each individual tank would depend on site constraints and final layout. It is noted that although a different system may be adopted, the required stormwater management objectives are to be met for the development as a whole.

Refer to **Section 5** of the document for detailed sizing of detention systems.

- Stormwater Quality Management (Refer **Section 6**)

There is a need to target pollutants that are present in stormwater runoff to minimise the adverse impact these pollutants could have on downstream receiving waters.

The required pollutant reductions are included in **Table 4.1** of this document and MUSIC modelling has been completed to confirm the reduction objectives can be met for the development.

A series of Stormwater quality improvement devises (SQID's) have been incorporated in the design of the estate. The proposed management strategy will include the following measures:

- Development sites will require full on lot treatment. The development lot will need to design and model stormwater treatment measures (which meet objectives per **Table 4.1**).
- Measures have been proposed for the development lot and include treatment trains of gross pollutant traps (GPT's) in the form of pit inserts, proprietary filters and rainwater tank. Reference to drawing **Co12990.17-SSDA400** should be made for a typical stormwater development strategy for the proposed site.

Reference to **Section 6** of this document should be made for detailed Stormwater Quality modelling and measures.

- Flood Management (refer **Section 7**)

The proposed development and CSR Estate is noted to be free from any known flooding or overland flow paths. Limited consideration to flooding and/ or overland flow from large rainfall events is required for the development.

- Water Demand Reduction/ Rainwater Reuse

Rainwater reuse measures will be provided as part of future building development design. Rainwater reuse will be required to provide a minimum rainwater tank which reduces demand on non-potable uses by at least 40%. The reduction in demand will target non-potable uses such as toilet flushing and irrigation. Refer to **Section 4.6**.

4.2 Existing / Estate Drainage System

The development site, which is located in the CSR Estate, had limited pre-existing formal drainage systems. As part of previous site uses, there was a warehouse facility and a brick quarry surrounded by dams & natural vegetation. The pre-construction site primarily drains to a small tributary of Ropes Creek on

the north of the estate, which connects to the main Ropes Creek channel downstream of the Sydney Water Pipeline, approximately 1km northwest of the site.

A trunk drainage system for minor storm events through a conventional pit and pipe system has now been constructed as part of the estate infrastructure and Stage 3 construction. Multiple lot discharge connection points, in the form of RCP pipe stubs, have been provided as part of the constructed estate drainage system for allowance for discharge and conveyance of individual lot developments. Refer **Section 2.3** and **Appendix D** for the estate drainage layout.

The minor system within the estate roads consists of a piped drainage system which has been designed and constructed to accommodate the 1 in 5-year ARI storm event (Q5), which is the minimum required by Fairfield City Council. Normal industry practice for an industrial facility is that the in-ground pipe system would be designed to cater for the 1 in 20-year ARI storm event (Q20) event to ensure suitable operation of the facility during the majority of storm events. The difference in design ARI's will result in the reduced ability for the site drainage to discharge effectively to the infrastructure drainage system. There is also the potential for surcharging of the site drainage system within the property or at the interface of the site and infrastructure drainage systems during storms in the range of 1 in 5 to 1 in 20-year ARI.

4.3 Proposed Surface Water Drainage System

As per general engineering practice, the client requirements, the guidelines of FCC and the Estate DCP, the proposed stormwater drainage system for the estate development will comprise a minor and major system to safely and efficiently convey collected stormwater run-off from the development to the legal point of discharge.

The minor system is to consist of a piped drainage system which has been designed to accommodate the 1 in 20-year ARI storm event (Q20). This results in the piped system being able to convey all stormwater runoff up to and including the Q20 event. The major system will be designed to cater for storms up to and including the 1 in 100-year ARI storm event (Q100). The major system will employ the use of defined overland flow paths, such as roads and open channels, to safely convey excess run-off from the site.

The design of the stormwater system for this site will be based on relevant national design guidelines, Australian Standard Codes of Practice, the standards of PCC and accepted engineering practice. Runoff from buildings will generally be designed in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage. Overall site runoff and stormwater management will generally be designed in accordance with the Institution of Engineers, Australia publication "Australian Rainfall and Runoff" (1988 Edition), Volumes 1 and 2 (AR&R).

Water management measures as set out in **Table 4.1** are to be adopted to address water quality, quantity and re-use requirements are to be considered in the design to ensure that any increase in the detrimental effects of pollution are mitigated, Water Quantity Objectives are met and that the demand on potable water resources is reduced.

The legal point of discharge is a point specified by Council (or other appropriate consent authority) where stormwater from a property can be discharged. The legal point of discharge is usually Council's stormwater infrastructure (where available), the street kerb and channel for smaller developments or downstream receiving waters like an existing stream or gully, lake, pond or waterbody.

Legal discharge for each development lot is to trunk drainage constructed by CSR as described in **Section 2.3** and **Appendix D**. Refer Costin Roe Consulting drawings included in **Appendix A** for site specific drainage layout, stormwater management measures and civil engineering considerations.

4.4 Climate Change

An assessment has been undertaken for the effect of climate change on the development. The assessment takes into consideration potential effect from increased rainfall intensity and sea level rise.

The effect on development has been assessed for a 10% increase in rainfall intensity. This increase is considered representative of potential climate change impacts for the Western Sydney area (being consistent with projected rainfall increases) in accordance with the New South Wales Department of Environment and Climate Change (DECC) 'Floodplain Risk Management Guideline Practical Consideration of Climate Change' (Table 1, October 2007).

This assessment shows that the proposed stormwater drainage system and stormwater management systems (including the proposed detention system) would have sufficient capacity to manage the increased peak flows and water volume with minor increase in hydraulic grade line and peak water level within the tanks. We confirm the increase in rainfall intensities will achieve the required minimum 0.5m freeboard to the proposed building pad levels in relation to local overland flow paths in and around the estate as nominated on the design drawings.

The site is noted to be situated well upstream from any tidally influenced receiving waters including expected potential sea level rise of 0.3m. We confirm the development will not affect or be affected by potential sea level rise due to the distance from the tidal influence river or stream system and/ or the Pacific Ocean.

An assessment on the stormwater on-site detention basin confirms that the current tank storage design has sufficient capacity to cater for a rainfall intensity increase of 10% from current rainfall intensities.

4.5 Site water Balance Objectives

A daily site water balance analysis was undertaken to determine the feasibility of the proposed rain and stormwater harvesting scheme and in particular the effects of various storage sizes for stormwater harvesting along with changes to demand.

The water balance utilised flows generated using a simple runoff calculation using historical rainfall data, analysed for various rainfall patterns including dry, mean and wet rainfall years. The purpose for modelling dry, mean and wet years was to assess the performance of various tank sizes given the changes to rainfall patterns.

4.6 Water Use Management Features

4.6.1 Existing

Existing water use features comprise Sydney Water Mains supply.
There are no existing rainwater harvesting systems, or water extractions as the proposed site is currently vacant.
There are no current irrigated landscaped areas.

4.6.2 Proposed

Proposed management measures for water use are as follows:

- Existing Sydney Water mains supply is proposed to be maintained throughout the duration of the proposed site operation.
- Stormwater harvesting throughout rainwater reuse to reduce demand on non-potable water uses.
- Sprinkler water storage via Sydney Water mains.

A concept diagram for the proposed re-use scheme is shown in **Figure 4.1** below.

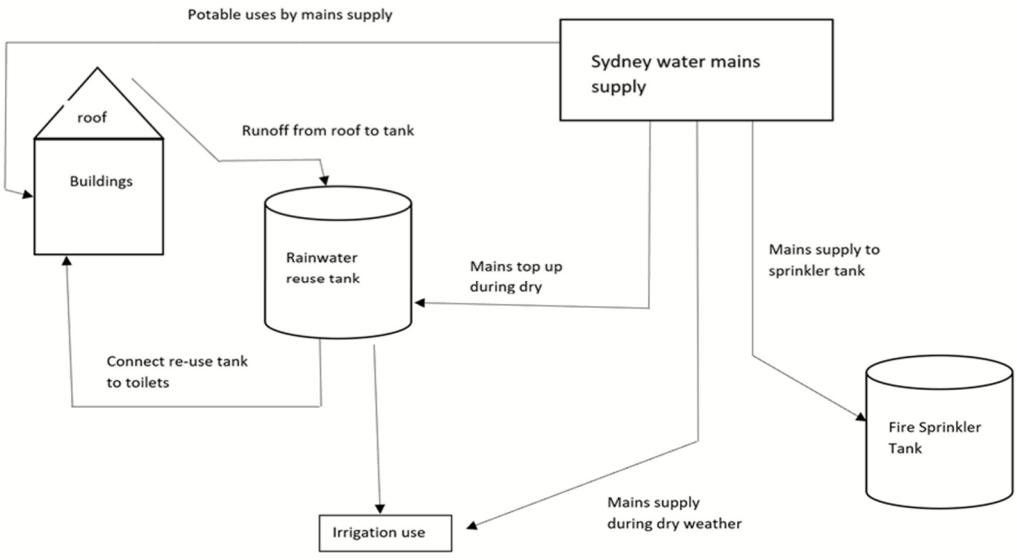

Figure 4.1. Water Cycle Management Schematic

A short description of the expected stormwater harvesting for the development is described below.

Stormwater Harvesting

Stormwater harvesting refers to the collection of stormwater from the development's internal stormwater drainage system for re-use in non-potable applications. Stormwater from the stormwater drainage system can be classified as either rainwater, where the flow is from roof areas only, or stormwater where the flow is from all areas of the development.

Rainwater harvesting is proposed for this development, and rainwater tank sizing will be designed during detail design stage by the hydraulic consultant via a water balance assessment. Indicative rainwater tank size is provided in **Section 4.7.4** of this report. Rainwater tanks are to be sized with reference to the NSW Department of Environment and Conservation document *Managing Urban Stormwater: Harvesting and Reuse*, using a simple water balance analysis to balance the supply and demand, based on the base water demands and the requirements of Council.

The water balance assessment will be based on local rainfall data and specific utilisation rates for the facility for re-use of non-potable applications. The expected reuse applications include internal uses such as toilet flushing, and external applications including irrigation. The aim is to reduce the water demand for the development by 40% as required in FCC Stormwater Policy 2017.

In general terms the rainwater harvesting system will be comprised the following elements:

- In-line tank for the collection and storage of rainwater.
- Overflow to the in-ground stormwater drainage system sized to cater for the catchment being drained to the tank. This will operate at times when the rainwater storage tank is full so that rainwater can pass through the tank and continue to be discharged via gravity into the stormwater drainage system.
- Rainwater from the storage tank will be pumped for distribution throughout the development in a dedicated non-potable water reticulation system to toilets and external irrigation areas, and any other uses as defined in the Construction Certificate stage of the design.
- Mains top up to Sydney Water system for prolonged periods of dry weather.
- First flush diverter and filters to ensure adequate quality of reuse water.
- Tank material will be steel or polymer and appropriately located to minimise visual impact.

4.7 Water Balance Assessment

4.7.1 Internal Base Water Demand

The proposed development is expected to generate 300 operational jobs. Assuming a two-shift roster, it is expected that there will be 150 employees on site per operational day.
Potable water demand is based on each employee using 25 litres per day for showering and inside tap use.
These rates give the following internal non-potable demand:

Potable Water 150 People 3.75 kL/day

Indoor non-potable water demand has been based on each employee using 15 litres of potable water per day for toilet flushing which is typical of an office environment which uses energy efficient flushing devices.
These rates give the following internal non-potable demand:

Toilet Flushing 150 People 2.25 kL/day

4.7.2 Fire Services Base Demand

The proposed sprinkler tanks for fire services require a storage of 300 kL. These are expected to be serviced twice yearly, hence total yearly demand of 600 kL has been allowed.

Fire Services 12.1 kL/day

4.7.3 Irrigation Base Water Demand

External water consumption within each landscaping system varies depending upon the nature of the irrigation system, species of planting, and the prevailing climate. For this development, the base case outdoor potable water demand has been modelled using a simple rainwater balance. The proposed irrigation system will be a drip-fed system with application rates averaging 10 L/m^2 (i.e. 10 mm/m^2). For the purposes of our analysis the average of this application rate has been used, in conjunction with the application regime shown in **Table 6.2**, to determine the monthly and total yearly demand.

Table 6.2. External Irrigation Application Schedule

Month	No. of Applications
January	11
February	11
March	10
April	9
May	8
June	4
July	4
August	4
September	8
October	9
November	10
December	12

The above regime for the landscaped area for the site gives the following yearly outdoor water demands:

Proposed Development	Irrigation tank=3500m^2	3570 kL/year
		9.8 kL/day

4.7.4 Rainwater Tank Sizing

The use of rainwater reduces the mains water demand and the amount of stormwater runoff. By collecting the rainwater run-off from roof areas, rainwater tanks provide a valuable water source suitable for flushing toilets and landscape irrigation.

Rainwater tanks have been designed, using a simple water balance calculation to balance the supply and demand, based on the calculated base water demands and proposed roof catchment areas. Allowances in the calculation have been made for efficiency of collection, absorption/ evaporation losses.

Table 4.3. Rainwater Reuse Requirements

Lot	Roof Catchment to Rainwater Tank (m2)	Tank Size (kL)	Predicted Non-Potable Demand Reduction (%)
#3	10000	70	40

The water balance assessment predicts 40% reduction in non-potable will be met for the developments with the provision of rainwater tank as specified in **Table 4.3** above.

We note that the final configuration and sizing of the rainwater tanks is subject to detail design considerations and optimum site utilisation.

4.7.5 Overall Water Cycle Management

The following table 6.4 shows overall water cycle and each water source.

Table 4.4 Overall Water Cycle

Area	**Daily Demand (kL/ Day)**	
	Via Harvesting/ Reuse	**Via Mains**
Internal	1.32	7.48
External	3.92	5.88
Fire	-	12.1
Total	5.24	25.46

4.7.6 Operational Impact Assessment

Rainwater harvesting is proposed to reduce demand on non-potable applications.

An existing and reliable water supply is available during operations.

Impact on environment from water use is considered to be acceptable.

5 WATER QUANTITY MANAGEMENT

5.1 General Design Principles

Stormwater attenuation is required to limit post development flow rates to pre-development flow rates. This can be achieved through water quantity management via stormwater detention or "On-site Detention (OSD)", to ensure the cumulative effect of development does not have a detrimental effect on the existing stormwater infrastructure and watercourses located within their LGA downstream from the site.

As set out in **Table 5.1**, Site Storage Requirement (SSR) and Permissible Site Discharge (PSD) are based on controls included in the site-specific *Development Control Plan* (DCP) for the site "*Western Sydney Employment Area – Fairfield City Council Development Control Plan 2016, Lot 1 DP106143, 327-335 Burley Road, Horsley Park"* dated March 2016.

The requirements for detention as approved are set out in *Table 3 in Section 3.2* of the DCP, as originally formulated in the Stormwater Management Strategy completed by Brown Consulting is for each lot to construct their own detention system with based on the individual lot areas as outlined in excerpt **Table 5.1** below.

Attribute	5 year ARI	100 year ARI
PSD* ($m^3/s/ha$)	0.15	0.28
SSR* (m^3/ha)	170	290

Table 5.1-PSD & SSR - Brown Consulting (June 2014) & Table 3 of DCP2016

Attenuation of stormwater runoff from the whole of the development is proposed to be managed through several OSD systems on the development lot. The sizing of the development lot detention systems is noted to account for the road catchments remaining un-attenuated such that the total post-development runoff from the whole of the CSR estate is less than or equal to pre-development runoff as required of the DCP.

Refer to drawings included in **Appendix A** for location and general arrangement of detention systems, and **Table 5.2** below which shows PSD and SSR for each sub catchment area.

Tank ID	Area (Ha)	PSD (m3/s)		SSR (m3)	
		5yr ARI	100yr ARI	5yr ARI	100yr ARI
1	0.79	0.12	0.22	134	232
2	1.21	0.18	0.34	206	351
3	4.21	0.63	1.18	715	1220
4	2.55	0.38	0.71	435	740

Table 5.2. PSD and SSR for Development Catchments

6 STORMWATER QUALITY, REUSE AND MAINTENANCE

6.1 Pollution Target Parameters

There is a need to provide design which incorporates the principles of Water Sensitive Urban Design (WSUD) and to target pollutants that are present in the stormwater to minimise the adverse impact these pollutants could have on receiving waters and to also meet the requirements specified by FCC.

The requirements for stormwater quality is to be performed on a catchment wide basis. These are presented in terms of annual percentage pollutant reduction on develop catchment and are as follows:

Table 6.1. Estate Pollution Reduction Targets

Gross Pollutants	90%
Total Suspended Solids	85%
Total Phosphorus	60%
Total Nitrogen	45%

As set out in **Table 4.1 & 6.2**, target rates for individual sites are greater than the base rates noted above, due to development sites being required to provide offset for untreated portions of the overall estate (e.g. the estate road and any other area which bypass treatment) so that the overall estate achieves the required pollution reductions.

Brown Consulting have used the MUSIC software package to model the water quality treatment, allowing for the untreated roads and other bypass areas, have quoted the required pollution reduction rates as follows:

Table 6.2. Individual Lot Pollution Reduction Targets

Gross Pollutants	90%
Total Suspended Solids	93%
Total Phosphorus	74%
Total Nitrogen	48%

6.2 Proposed Stormwater Treatment System

Developed impervious areas of the estate, including roof, hardstand, carparking, roads and other extensive impervious areas are required to be treated by the Stormwater Treatment Measure (STM's). The STM's Shall be sized according to the whole catchment area of the development. The STM's for the estate are based on the treatment train approach at the estate level to ensure that all the objectives above are met.

Components of the treatment train for the estate areas follows:

- Proposed developed lot will require on-lot treatment measures which meet the load-based percentage requirements noted in **Section 6.1** and **Section 4.1**.
- On-lot systems will comprise proprietary filters in combination with pit inserts.
- A portion of the building roofs will also provide a level of treatment via rainwater reuse and settlement within rainwater tank.

6.3 Stormwater Quality Modelling

6.3.1 Introduction

The MUSIC model was chosen to model water quality. This model has been released by the Corporative Research Centre for Catchment Hydrology (CRCCH) and is a standard industry model for this purpose. MUSIC (the Model for Urban Stormwater Improvement Conceptualisation) is suitable for simulating catchment areas of up to 100Km^2 and utilises a continuous simulation approach o model water quality.

By simulating the performance of stormwater management systems, MUSIC can be used to predict if these proposed system and changes to land use are appropriate for their catchments and are capable of meeting specified water quality objectives (CRC 2002). The water quality constituents modelled in MUSIC and of relevance to this report include Total Suspended Solids (TSS), Total Phosphorus (TP) and Total Nitrogen (TN).

The pollutant retention criteria included in Section4.1 & Section 6.1 of this report were used as a basis for assessing the effectiveness of the selected treatment trains.

The MUSIC model "12990.17-REV 1.sqz" was set up to examine the effectiveness of the water quality treatment train and to predict if council requirements have been achieved on an estate wide basis and on individual lots respectively. The layout of the MUSIC model is presented in **Appendix B**.

6.3.2 Rainfall Data

Input	**Data Used**
Rainfall Station	67035 Liverpool (Whitlam)
Rainfall Period	1 January 1967 – 31 December 1976
(10 years)	
Mean Annual Rainfall (mm)	857
Evapotranspiration	Sydney Monthly Areal PET
Model Timestep	6 minutes

6.3.3 Rainfall Runoff Parameters

Parameter	Value
Rainfall Threshold	1.40
Soil Storage Capacity (mm)	170
Initial Storage (% capacity)	30
Field Capacity (mm)	70
Infiltration Capacity Coefficient a	210
Infiltration Capacity exponent b	4.7
Initial Depth (mm)	10
Daily Recharge Rate (%)	50
Daily Baseflow Rate (%)	4
Daily Seepage Rate (%)	0

6.3.4 Pollutant Concentrations

Pollutant concentrations for source nodes are based on values nominated by Fairfield City Council for industrial land use as per the **Table 6.3**:

Flow Type	Surface Type	TSS (log_{10} values)		TP (log_{10} values)		TN (log_{10} values)	
		Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Baseflow	Roof	1.20	0.17	-0.85	0.19	0.11	0.12
	Roads	1.20	0.17	-1.11	0.48	0.14	0.12
Stormflow	Roof	1.30	0.32	-0.89	0.25	0.30	0.19
	Roads	2.43	0.32	-0.30	0.25	0.34	0.19

Table 6.3. Pollutant Concentrations

The MUSIC model has been setup with a treatment train approach based on the pollutant concentrations in **Table 6.3** above.

6.3.5 Modelling Discussion

MUSIC modelling has been performed to assess the effectiveness of the selected treatment trains, and to ensure that the pollutant retention requirements have been met. We note that the MUSIC model target rates for individual sites are greater than the base rates required by Council, due to development sites being required to provide offset for untreated portions of the overall estate (e.g. the estate road and any other area which bypass treatment) so that the overall estate achieves the required pollution reductions.

The MUSIC modelling has shown that the proposed treatment train of STM's will provide stormwater treatment which will meet council requirements in an effective and economical manner.

Hydrocarbon removal cannot easily be modelled with MUSIC software. The proposed distribution/ storage facility would be expected to produce low source loadings of hydrocarbons. Potential sources of hydrocarbons would be limited to leaking engine sumps or for accidental fuel spills/leaks and leaching of bituminous pavements (car parking only). The potential for hydrocarbon pollution is low and published data from the CSIRO indicates that average concentrations from Industrial sites are in the order of 10mg/L and we would expect source loading from this site to be near to or below this concentration. Hydrocarbon pollution would also be limited to surface areas which will be treated via pit inserts and filtration cartridges which are predicted to achieve a 90% reduction of this pollutant.

Given the expected low source loadings of hydrocarbons and removal efficiencies of the treatment devices we consider that the requirements of the FCC and the DCP have been met.

6.4 Stormwater Harvesting

Refer to **Section 6.6** for details on the stormwater harvesting system.

6.5 Maintenance and Monitoring

It is important that each component of the stormwater system and water quality treatment train is properly operated and maintained. In order to achieve the design treatment objectives, an indicative maintenance schedule has been prepared and included as **Appendix E** to assist in the effective operation and maintenance of the various water quality components.

Inspection frequency may vary depending on site specific attributes and rainfall patterns in the area. In addition to the nominated frequency it is recommended that inspections are made following large storm events.

7 FLOODING

Consideration to flooding has been made as part of the project assessment.

The South Creek Flood Study, The Updated South Creek Flood Study, by Worley Parsons, 8th May 2014 has been utilised to confirm the relationship between known flooding areas and overland flow paths with the development site.

The South Creek Study is a regional study commissioned by Penrith Council in-conjunction with Blacktown, Liverpool and Fairfield Councils. The study includes South Creek and associated tributaries, defining flood planning levels and hydraulic hazard zones along the creek, creek floodplain areas and tributaries.

The site is located within the Ropes Creek Catchment to the east of Ropes Creek as shown below in **Figure 7.1** below.

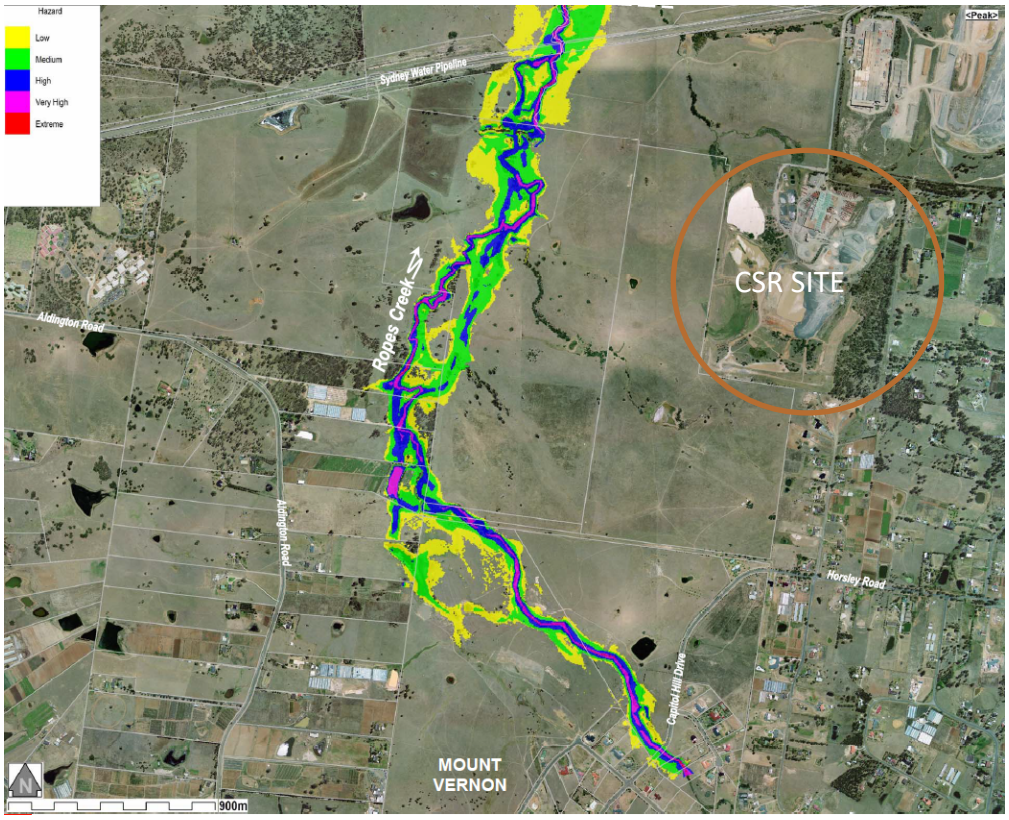

Figure 7.1-Provisional flood hazard mapping for the 1 in 100-year ARI flood. (Source: Worley Parsons)

Using the Fairfield City Council flood planning maps in conjunction with the Worley Parson's South Creek Flood Study, as depicted above it **Figure 7.1**, it can be concluded that the site has a very low risk of flooding affectation from Ropes Creek or other regional flooding. Further that there is no risk that the new development will affect known overland flow paths or other flood affected areas, given local drainage systems for the development are constructed per the recommendations included in this document.

The survey levels also show that the estate is not affected by any external catchments so flooding from local overland flow is also not considered to be a risk for the estate.

8 CONSTRUCTION SOIL AND WATER MANAGEMENT

8.1 Soil and Water Management General

Without any mitigation measures and during typical construction activities, site runoff would be expected to convey a significant sediment load. An *Erosion and Sediment Control Plan* (ESCP), or equivalent, would be implemented for the construction of the Proposal. The ESCPs would be developed in accordance with the principles and requirements of *Managing Urban Stormwater – Soils & Construction Volume 1 ('Blue Book', Landcom, 2004)* with a staged approach.

In accordance with the principles included in the Blue Book, several controls have been incorporated into a preliminary Staged ESCP (refer to accompanying Drawings in **Appendix A**). The Staged ESCP considers initial site establishment, requirements during construction of the development, and completion of development works.

Section 1 provides a summary of the construction works for the Proposal. While all construction activities have the potential to impact on water quality, the key activities are:

- Demolition and removal of existing buildings and retaining existing concrete slabs where possible.
- Erosion and sediment control installation.
- Grading of existing earthworks to suit building layout, drainage layout and pavements.
- Stormwater and drainage works.
- Service installation works.
- Building construction works.

The sections below outline the proposed controls for management of erosion and sedimentation during construction of the Proposal. The staged approach is noted to consider initial site establishment, construction of the development and the completion of the development, as included in the ESCP drawings **Appendix A**.

8.2 Typical Management Measures

Sediment Basins

A sediment basin has been sized for this development based on the 5-day 85th percentile rainfall and located to ensure sediment concentrations in site runoff are within acceptable limits. Preliminary basin sizes have been calculated in accordance with the Blue Book and are based on "Type D" soils.

Sediment Fences

Sediment fences are located around the perimeter of the site to ensure no untreated runoff leaves the site. They have also been located around the existing drainage channels to minimise sediment migration into waterways and sediment basins.

Stabilised Site Access

For the proposal, stabilised site access is proposed at one location at the entry to the works area. This will limit the risk of sediment being transported onto surrounding properties and roads.

8.3 Other Management Measures

Other management measures that will be employed are expected to include:

- Minimising the extent of disturbed areas across the site at any one time.
- Progressive stabilisation of disturbed areas or previously completed earthworks to suit the proposal once trimming works are complete.
- Regular monitoring and implementation of remedial works to maintain the efficiency of all controls.

It is noted that the controls included in the preliminary ESCP are expected to be reviewed and updated as the design, staging and construction methodology is further developed for the Proposal.

9 INFRASTRUCTURE SERVICES

9.1 Services Introduction

The subject site has been serviced with key municipal services as part of its previous subdivision completed by CSR. However, the site will require service connections to suit the new development layout.

An overview of the existing and proposed infrastructure requirements for the development is outlined in the following sections. The report considers the supply and management of the following services required for the development of the property:

- Potable Water (Drinking water);
- Wastewater (Sewer);
- Recycled Water;
- Electricity; and
- Communications

Specifically, the report provides an overview of the following information:

- Layout of existing service networks based on a general service plan prepared by Costin Roe Consulting, as shown on drawing **CO12990.17-SSDA150**;
- Dial Before You Dig (DBYD) information; and
- Indicative utility demands for the current development proposals where available.

An assessment of existing services infrastructure has been undertaken to determine the suitability of existing supply and the need for augmentation and or extensions to suit the proposal.

9.2 Potable Water (Drinking water)

Sydney Water is the servicing authority for potable water in the suburb of Horsley Park.

The existing potable water Sydney Water assets within the site area include:

- A 150mm oPVC line in Johnston Crescent on both east and west side of the development; and
- A 300mm DICLSC line in Reserved Road on the north of the development.

No connections from this lot are currently available from the existing potable water infrastructure to the development lot however a new connection can be made to the existing infrastructure and no upgrades or augmentation are required for this development.

Formal advice from Sydney Water will come in the form of a Notice of Requirements at the issuance of a Development Approval for the development. This will confirm connections requirements to the subject site and the new development.

Detailed design to the requirements of Sydney Water will be prepared and approved by Sydney Water following the receipt of the Notice of Requirements, post development approval.

9.3 Wastewater (Sewer)

Sydney Water is the servicing authority for sewage disposal in the suburb of Horsley Park.

The existing Sydney Water wastewater assets within the site area include:

- A 225mm PP line within the development lot fronting the east of Johnston Crescent; and
- A 375mm GRP line in Reserved Road on the north of the development.

No connections are currently available from the existing wastewater infrastructure to the development lot however a new connection can be made to the existing infrastructure and no upgrades or augmentation are required for this development.

Formal advice from Sydney Water will come in the form of a Notice of Requirements at the issuance of a Development Approval for the development. This will confirm connections requirements to the subject site and the new development.

Detailed design to the requirements of Sydney Water will be prepared and approved by Sydney Water following the receipt of the Notice of Requirements, post development approval.

9.4 Recycled Water

There is no recycled water infrastructure present in the vicinity of the proposed development.

9.5 Electricity

Endeavour Energy is the Electrical Authority in the site area. Endeavour Energy will issue approvals for the required electrical connection for the development site.

Edgewater Connections have been engaged to review electrical supply and any required extensions.

Edgewater Connections have contacted Endeavour Energy and provided confirmation that the electrical capacity at the frontage of the site (2MVA) is sufficient to cater for the expected maximum demand of 1.85MVA from the proposed development. If a large load customer requires more than 2MVA, additional capacity if available from Eastern Creek Zone Substation.

Reference should be made to the letter prepared by Edgewater Connections referenced: EWC5997 dated 12 March 2024.

9.6 Communications

NBN Co and Telstra are the relevant Communications Authority in the site area.

Existing NBN / Telstra services are available in Johnston Crescent and can be readily extended to the development site. The need for minor extensions will be confirmed with NBN Co / Telstra following issuance of the Development Approval.

9.7 Services Conclusion

As discussed above, the CSR estate has already been serviced with key municipal services as part of its previous subdivision completed by CSR. Review of existing services within the estate indicates that there is sufficient infrastructure to cater for the proposed development. Existing infrastructure includes potable water, wastewater, electricity and communications.

The site will require service connections to be made in accordance with the relevant service authority to suit the proposed development layout.

No infrastructure upgrades or augmentation are proposed to accommodate the needs of this development.

10 CONCLUSION

This Civil Engineering Report has been prepared to accompany an SSDA to the NSW DPHI for the development of an 8.67 Ha land parcel located within the Stage 3 of the CSR Estate in Horsley Park.

An overview of FCC and DCP requirements for stormwater management and access has been provided to assist in the SSDA submission. Specific mention has been made to on-site detention and water quality requirements as required as part of the Water Cycle Management Plan for the development lot.

A strategy for the management of stormwater for the site has been provided based on the management measures to be provided as on-lot measures. This option is in the form of a series of combined detention and water quality tanks located at site discharge locations.

The water cycle management strategy has been prepared to ensure compliance with local Council requirements for drainage, water quantity management (on-site detention), water quality management (water sensitive urban design) and to mitigate adverse downstream impacts.

We recommend the strategies included in this report are adopted and integrated into the proposed development.

11 REFERENCES

Managing Urban Stormwater: Harvesting and Reuse – 2006 (NSW DEC);

Managing Urban Stormwater: Source Control – 1998 (NSW EPA);

Managing Urban Stormwater: Treatment Techniques – 1997 (NSW EPA);

Managing Urban Stormwater: Soils & Construction – 2004(LANDCOM);

Fairfield City Council – Development Control Plan 2013,

Water Sensitive Urban Design – "Technical Guidelines for Western Sydney" by URS Australia Pty Ltd, May 2004

Appendix A
Drawings By Costin Roe Consulting Pty Ltd
SSDA Drawings

HORSLEY LOGISTICS PARK STAGE 2

3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

STATE SIGNIFICANT DEVELOPMENT APPLICATION

DRAWING LIST

DRAWING NO.	DRAWING TITLE
C012990.17-SSDA100	DRAWING LIST & GENERAL NOTES
C012990.17-SSDA150	EXISTING SERVICES PLAN
C012990.17-SSDA200	EROSION & SEDIMENT CONTROL PLAN
C012990.17-SSDA251	EROSION & SEDIMENT CONTROL DETAILS - SHEET 1
C012990.17-SSDA252	EROSION & SEDIMENT CONTROL DETAILS - SHEET 2
C012990.17-SSDA300	BULK EARTHWORKS PLAN
C012990.17-SSDA310	CUT/FILL PLAN
C012990.17-SSDA351	BULK EARTHWORKS SECTIONS - SHEET 1
C012990.17-SSDA352	BULK EARTHWORKS SECTIONS - SHEET 2
C012990.17-SSDA353	BULK EARTHWORKS SECTIONS - SHEET 3
C012990.17-SSDA400	STORMWATER DRAINAGE KEY PLAN
C012990.17-SSDA401	STORMWATER DRAINAGE PLAN-SHEET1
C012990.17-SSDA402	STORMWATER DRAINAGE PLAN-SHEET2
C012990.17-SSDA410	STORMWATER CATCHMENTS PLAN - MUSIC
C012990.17-SSDA450	STORMWATER DRAINAGE DETAILS - SHEET 1
C012990.17-SSDA451	STORMWATER DRAINAGE DETAILS - SHEET 2
C012990.17-SSDA465	OSD TANK WATER DETAILS-SHEET1
C012990.17-SSDA466	OSD TANK WATER DETAILS-SHEET2
C012990.17-SSDA467	OSD TANK WATER DETAILS-SHEET3
C012990.17-SSDA468	OSD TANK WATER DETAILS-SHEET4
C012990.17-SSDA500	FINISHED LEVELS KEY PLAN
C012990.17-SSDA501	FINISHED LEVELS PLAN-SHEET1
C012990.17-SSDA502	FINISHED LEVELS PLAN-SHEET2
C012990.17-SSDA551	TYPICAL SECTIONS-SHEET 1
C012990.17-SSDA552	TYPICAL SECTIONS-SHEET 2
C012990.17-SSDA553	TYPICAL SECTIONS-SHEET 3
C012990.17-SSDA554	TYPICAL SECTIONS-SHEET 4
C012990.17-SSDA600	RETAINING WALL PLAN
C012990.17-SSDA650	RETAINING WALL SECTIONS - SHEET 1
C012990.17-SSDA651	RETAINING WALL SECTIONS - SHEET 2
C012990.17-SSDA652	RETAINING WALL SECTIONS - SHEET 3
C012990.17-SSDA653	RETAINING WALL SECTIONS - SHEET 4

GENERAL NOTES:

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE.
   ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
   ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT.
   REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION.
4. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
5. UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
6. ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

ELECTRONIC INFORMATION NOTES:

1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

LOCALITY PLAN
NTS

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
REVISED AS CLOUDED	16.07.24	B
ISSUED FOR INFORMATION	06.06.24	A

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
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DRAWING TITLE: DRAWING LIST & GENERAL NOTES

DRAWING No: C012990.17-SSDA100

ISSUE: B

EXISTING SERVICES NOTES:

1. DURING THE EXECUTION OF WORKS, THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF EXISTING SERVICES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED TO THE EXISTING SERVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT SERVICE AUTHORITY, AT NO COST TO THE PRINCIPAL.
2. WHERE IT IS NECESSARY TO REMOVE, DIVERT OR CUT INTO ANY EXISTING SERVICE, THE CONTRACTOR SHALL GIVE AT LEAST THREE (3) DAYS NOTICE OF ITS REQUIREMENTS TO THE SUPERINTENDENT, WHO WILL ADVISE WHAT ARRANGEMENTS SHOULD BE MADE FOR THE ALTERATION OF SUCH EXISTING WORKS.
3. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA. THE ACCURACY IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO COMMENCING WORK. ALL CLEARANCES AND APPROVALS SHALL ALSO BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL NEW AND EXHUMED SERVICES THAT CROSS EXISTING AND FUTURE ROADS/PAVEMENTS WITHIN THE SITE SHALL BE BACKFILLED WITH DGB20 MATERIAL TO SUBGRADE LEVEL AND COMPACTED TO 98% STANDARD DENSITY RATIO. SUBJECT TO PRIOR APPROVAL FROM RELEVANT AUTHORITY.
5. ON COMPLETION OF SERVICES INSTALLATION. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AREAS, GRASSED AREAS AND ROAD PAVEMENTS.
6. CARE TO BE TAKEN WHEN EXCAVATING NEAR UTILITY SERVICES. NO MECHANICAL EXCAVATION TO BE UNDERTAKEN OVER SERVICES. LIAISE WITH RELEVANT AUTHORITY.
7. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY THE WORKS WITHIN THE CONTRACT AREA AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT. ALL TO REGULATORY AUTHORITY STANDARDS AND APPROVAL.
8. THE CONTRACTOR IS TO MAINTAIN EXISTING STORMWATER DRAINAGE FLOWS THROUGH THE ROADS AT ALL TIMES. MAKE DUE ALLOWANCE FOR ALL SUCH FLOWS AT ALL TIMES.
9. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL OBTAIN THE SUPERINTENDENT'S APPROVAL OF THE PROGRAM FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
10. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES AS REQUIRED TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
11. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE OR DAMAGE TO THE ADJACENT RESIDENCES. CONTRACTOR TO GAIN APPROVAL OF THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
12. THE CONTRACTOR SHALL UNDERTAKE A DIAL BEFORE YOU DIG (DBYD 1100) SERVICES SEARCH BEFORE THE COMMENCEMENT OF ANY WORKS.

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LANDPARTNERS DATED 03/06/2024.

- S(D) – SEWER (DETECTED)
- OH – ELECTRICITY (OVERHEAD)
- W(D) – WATER (DETECTED)
- E(D) – ELECTRICITY (DETECTED)
- T – COMMUNICATIONS (DETECTED)
- G – GAS (DBYD)
- T – COMMUNICATIONS (DBYD)
- W – WATER (DBYD)
- S – SEWER (DBYD)
- E – ELECTRICITY (U'GROUND) (DBYD)
- SW SW – STORMWATER
- – EXISTING LIGHT POLE (DETECTED)
- – EXISTING SUBSTATION (DETECTED)

EXISTING SERVICES PLAN

SCALE 1:750

6m 0 15 30 45 60 75m

SCALE 1:750 AT A1 SIZE SHEET

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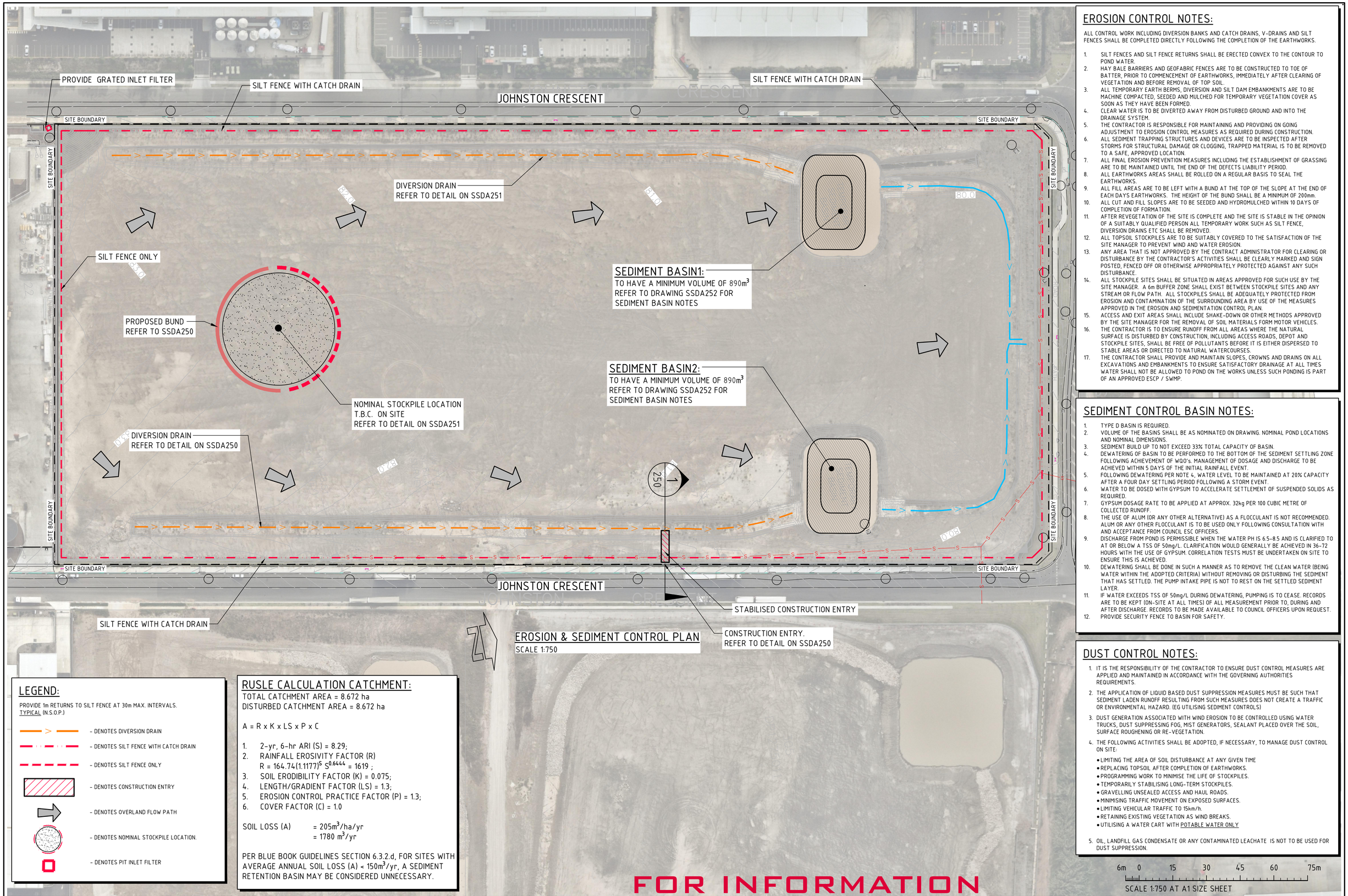
DRAWING TITLE: EXISTING SERVICES PLAN

DRAWING No: C012990.17-SSDA150

ISSUE: A



EROSION CONTROL NOTES:

ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH DRAINS, V-DRAINS AND SILT FENCES SHALL BE COMPLETED DIRECTLY FOLLOWING THE COMPLETION OF THE EARTHWORKS.

1. SILT FENCES AND SILT FENCE RETURNS SHALL BE ERECTED CONVEX TO THE CONTOUR TO POND WATER.
2. HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
3. ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
4. CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
6. ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
7. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE DEFECTS LIABILITY PERIOD.
8. ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
9. ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS EARTHWORKS. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200mm.
10. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
11. AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
12. ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
13. ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
14. ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS APPROVED FOR SUCH USE BY THE SITE MANAGER. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES APPROVED IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
15. ACCESS AND EXIT AREAS SHALL INCLUDE SHAKE-DOWN OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FORM MOTOR VEHICLES.
16. THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
17. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.

SEDIMENT CONTROL BASIN NOTES:

1. TYPE D BASIN IS REQUIRED.
2. VOLUME OF THE BASINS SHALL BE AS NOMINATED ON DRAWING. NOMINAL POND LOCATIONS AND NOMINAL DIMENSIONS.
3. SEDIMENT BUILD UP TO NOT EXCEED 33% TOTAL CAPACITY OF BASIN.
4. DEWATERING OF BASIN TO BE PERFORMED TO THE BOTTOM OF THE SEDIMENT SETTLING ZONE FOLLOWING ACHIEVEMENT OF WQO's. MANAGEMENT OF DOSAGE AND DISCHARGE TO BE ACHIEVED WITHIN 5 DAYS OF THE INITIAL RAINFALL EVENT.
5. FOLLOWING DEWATERING PER NOTE 4, WATER LEVEL TO BE MAINTAINED AT 20% CAPACITY AFTER A FOUR DAY SETTLING PERIOD FOLLOWING A STORM EVENT.
6. WATER TO BE DOSED WITH GYPSUM TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS AS REQUIRED.
7. GYPSUM DOSAGE RATE TO BE APPLIED AT APPROX. 32kg PER 100 CUBIC METRE OF COLLECTED RUNOFF.
8. THE USE OF ALUM (OR ANY OTHER ALTERNATIVE) AS A FLOCCULANT IS NOT RECOMMENDED. ALUM OR ANY OTHER FLOCCULANT IS TO BE USED ONLY FOLLOWING CONSULTATION WITH AND ACCEPTANCE FROM COUNCIL ESC OFFICERS.
9. DISCHARGE FROM POND IS PERMISSIBLE WHEN THE WATER PH IS 6.5-8.5 AND IS CLARIFIED TO AT OR BELOW A TSS OF 50mg/L. CLARIFICATION WOULD GENERALLY BE ACHIEVED IN 36-72 HOURS WITH THE USE OF GYPSUM. CORRELATION TESTS MUST BE UNDERTAKEN ON SITE TO ENSURE THIS IS ACHIEVED.
10. DEWATERING SHALL BE DONE IN SUCH A MANNER AS TO REMOVE THE CLEAN WATER (BEING WATER WITHIN THE ADOPTED CRITERIA) WITHOUT REMOVING OR DISTURBING THE SEDIMENT THAT HAS SETTLED. THE PUMP INTAKE PIPE IS NOT TO REST ON THE SETTLED SEDIMENT LAYER.
11. IF WATER EXCEEDS TSS OF 50mg/L DURING DEWATERING, PUMPING IS TO CEASE. RECORDS ARE TO BE KEPT (ON-SITE AT ALL TIMES) OF ALL MEASUREMENT PRIOR TO, DURING AND AFTER DISCHARGE. RECORDS TO BE MADE AVAILABLE TO COUNCIL OFFICERS UPON REQUEST.
12. PROVIDE SECURITY FENCE TO BASIN FOR SAFETY.

DUST CONTROL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE DUST CONTROL MEASURES ARE APPLIED AND MAINTAINED IN ACCORDANCE WITH THE GOVERNING AUTHORITIES REQUIREMENTS.
2. THE APPLICATION OF LIQUID BASED DUST SUPPRESSION MEASURES MUST BE SUCH THAT SEDIMENT LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD. (EG UTILISING SEDIMENT CONTROLS)
3. DUST GENERATION ASSOCIATED WITH WIND EROSION TO BE CONTROLLED USING WATER TRUCKS, DUST SUPPRESSING FOG, MIST GENERATORS, SEALANT PLACED OVER THE SOIL, SURFACE ROUGHENING OR RE-VEGETATION.
4. THE FOLLOWING ACTIVITIES SHALL BE ADOPTED, IF NECESSARY, TO MANAGE DUST CONTROL ON SITE:
   - LIMITING THE AREA OF SOIL DISTURBANCE AT ANY GIVEN TIME
   - REPLACING TOPSOIL AFTER COMPLETION OF EARTHWORKS.
   - PROGRAMMING WORK TO MINIMISE THE LIFE OF STOCKPILES.
   - TEMPORARILY STABILISING LONG-TERM STOCKPILES.
   - GRAVELLING UNSEALED ACCESS AND HAUL ROADS.
   - MINIMISING TRAFFIC MOVEMENT ON EXPOSED SURFACES.
   - LIMITING VEHICULAR TRAFFIC TO 15km/h.
   - RETAINING EXISTING VEGETATION AS WIND BREAKS.
   - UTILISING A WATER CART WITH POTABLE WATER ONLY
5. OIL, LANDFILL GAS CONDENSATE OR ANY CONTAMINATED LEACHATE IS NOT TO BE USED FOR DUST SUPPRESSION.

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS.
TYPICAL (N.S.O.P.)

- DENOTES DIVERSION DRAIN
- DENOTES SILT FENCE WITH CATCH DRAIN
- DENOTES SILT FENCE ONLY
- DENOTES CONSTRUCTION ENTRY
- DENOTES OVERLAND FLOW PATH
- DENOTES NOMINAL STOCKPILE LOCATION.
- DENOTES PIT INLET FILTER

RUSLE CALCULATION CATCHMENT:

TOTAL CATCHMENT AREA = 8.672 ha
DISTURBED CATCHMENT AREA = 8.672 ha

A = R x K x LS x P x C

1. 2-yr, 6-hr ARI (S) = 8.29;
2. RAINFALL EROSIVITY FACTOR (R)
   $R = 164.74(1.1177)^S S^{0.6444} = 1619$;
3. SOIL ERODIBILITY FACTOR (K) = 0.075;
4. LENGTH/GRADIENT FACTOR (LS) = 1.3;
5. EROSION CONTROL PRACTICE FACTOR (P) = 1.3;
6. COVER FACTOR (C) = 1.0

SOIL LOSS (A) = 205m³/ha/yr
= 1780 m³/yr

PER BLUE BOOK GUIDELINES SECTION 6.3.2.d, FOR SITES WITH AVERAGE ANNUAL SOIL LOSS (A) < 150m³/yr, A SEDIMENT RETENTION BASIN MAY BE CONSIDERED UNNECESSARY.

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

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3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

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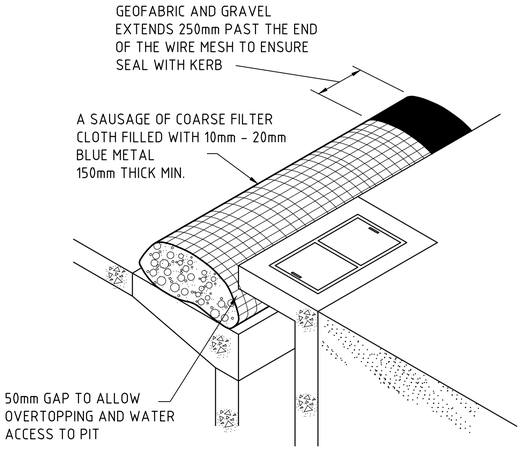
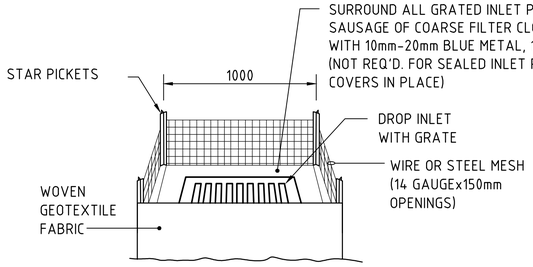
DRAWING TITLE: EROSION & SEDIMENT CONTROL PLAN

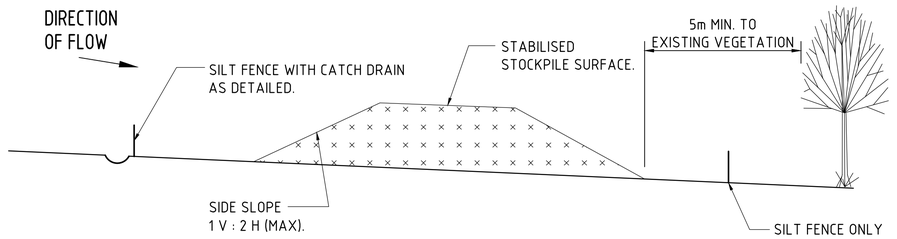
DRAWING No: C012990.17-SSDA 200 ISSUE: A



KERB INLET PIT CONTROL
N.T.S



GRATED INLET PIT FILTER DETAIL
N.T.S

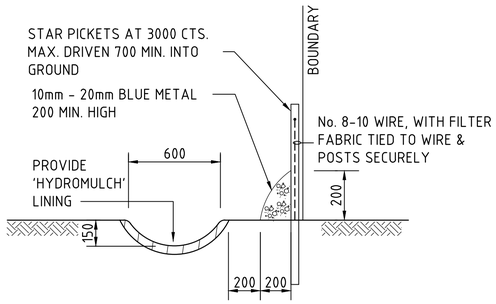


TYPICAL STOCKPILE DETAIL
N.T.S.

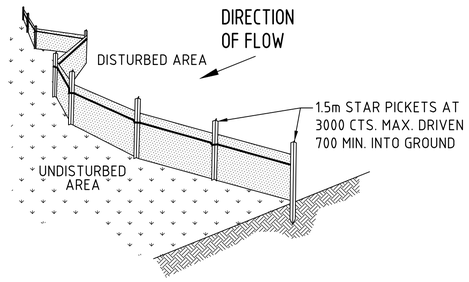
STOCKPILE NOTES

1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.

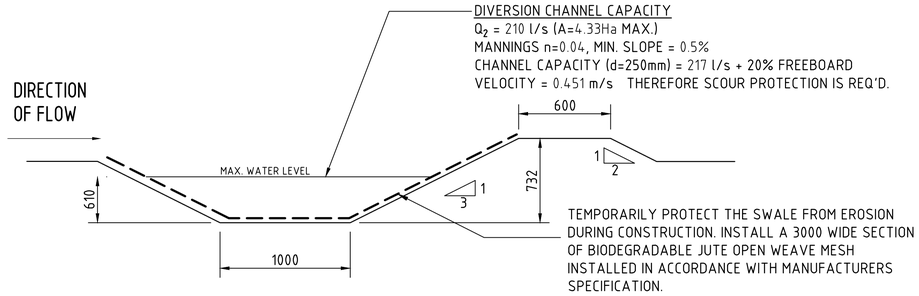
NOTE : ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.



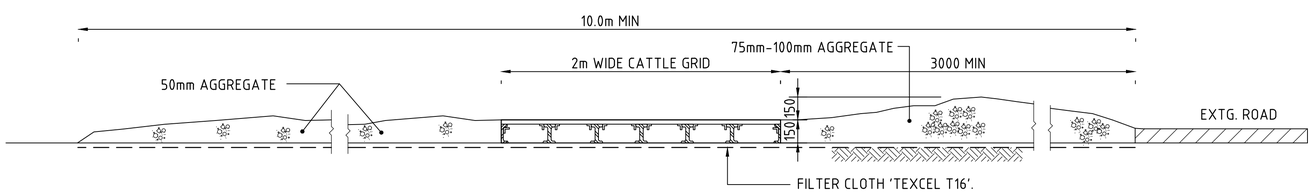
TYPICAL OPEN DRAIN & SILT FENCE
SCALE 1:20



TYPICAL SILT FENCE DETAIL
N.T.S
NOTE: PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL



DIVERSION DRAIN SECTION



SECTION 1:20 1 / C200 : STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

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DRAWING TITLE: EROSION & SEDIMENT CONTROL PLAN SHEET 1

DRAWING No: C012990.17-SSDA 251

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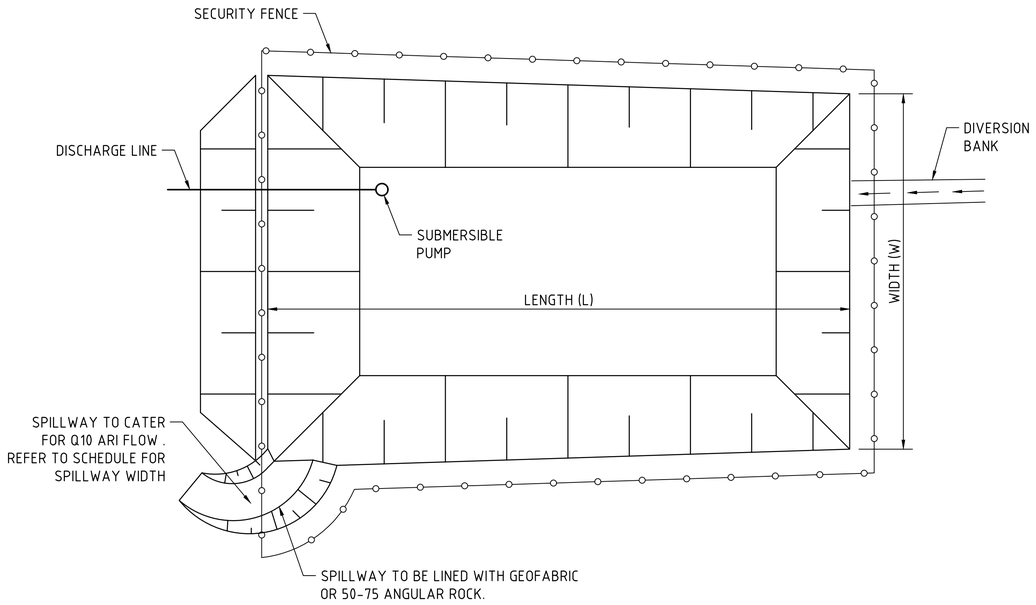
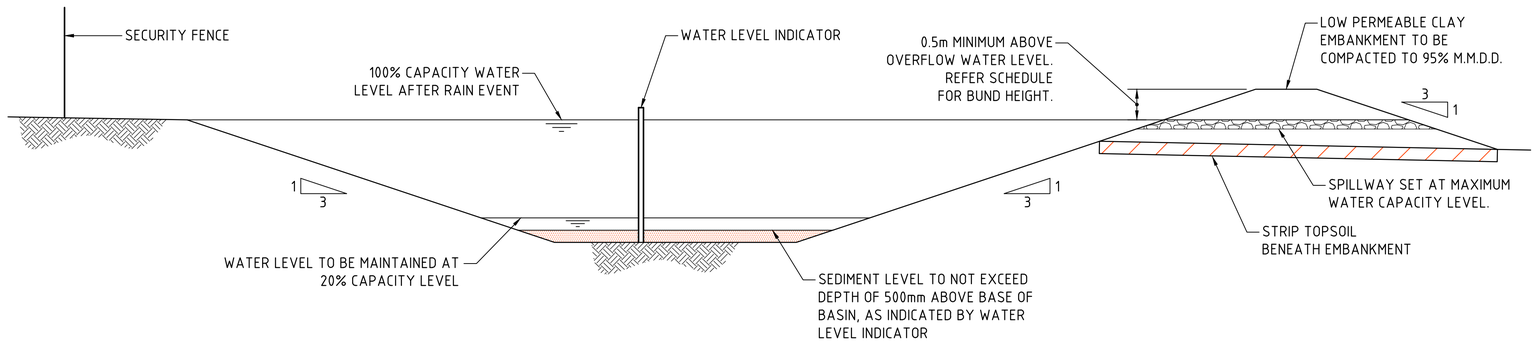


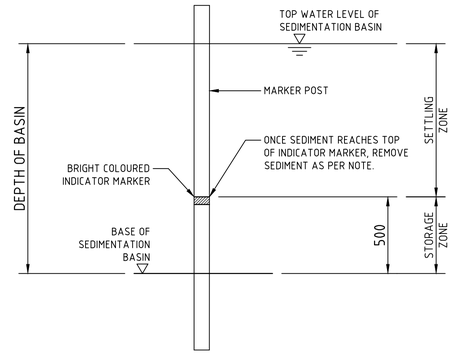
TYPICAL SEDIMENT CONTROL POND PLAN

SCALE 1:250



TYPICAL SEDIMENT CONTROL BASIN SECTION

SCALE 1:50



SEDIMENT STORAGE MARKER

SCALE 1:20

200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A1 SIZE SHEET

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A1 SIZE SHEET

2m 0 5 10 15 20 25m
SCALE 1:250 AT A1 SIZE SHEET

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DRAWING TITLE: EROSION & SEDIMENT DETAILS SHEET 2

DRAWING No: C012990.17-SSDA 252

ISSUE: A

SITE PREPARATION NOTES:

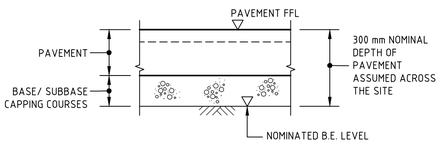
1. ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT DOUGLAS PARTNERS PROVIDED BY 76582.18 R.001.Rev0 DATED 16/09/2019.
2. EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LANDPARTNERS DATED 03/06/2024.
3. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED. TOPSOIL BLENDING IS NOT ACCEPTABLE. ANY BLENDING PROPOSAL IS TO BE REFERRED TO THE ENGINEER.
4. COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +0mm/-20mm ELSEWHERE.
5. PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION. WHERE EXPOSED ROCK (WEATHERED SHALE OR SANDSTONE) IS ENCOUNTERED AT CUT SUBGRADE LEVEL, THE EARTHWORKS CONTRACTOR IS TO ALLOW TO RIP THE SURFACE TO A NOMINAL 0.3-0.4m DEPTH AND RECOMPACT (PER THE ENGINEERING SPEC) AS REQUIRED.
6. AREAS TO RECEIVE FILL (THAT ARE NOT ON BENCHED BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER.
7. SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
8. IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HILF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HILF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
9. ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 mm SIEVE. ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HILF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% RETAINED ON THE 37.5 mm SIEVE. WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 mm SIEVE THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION
10. ALL EARTHWORKS SHALL BE COMPLETED UNDER LEVEL 1 CONTROL IN ACCORDANCE WITH AS 3798-2007.
11. PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
12. EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
13. MATCH EXISTING LEVELS AT BATTER INTERFACE.
14. CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.
15. DURING EARTHWORKS THE CONTRACTOR IS TO ENSURE ALL AREAS ARE FREE DRAINING & WILL NOT RETAIN WATER DURING RAINFALL. PROVIDE TEMPORARY MEASURES AS REQUIRED TO ENSURE FREE FLOWING RUNOFF THROUGH MANAGED DRAINAGE PATHS, DIVERSION DRAINS OR OTHER SUITABLE DISPOSAL METHOD AS AGREED DURING THE WORKS. REFER ANY CONCERNS TO THE ENGINEER. REFER TO EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES.

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY GEOSURV DATED 22/03/2024.

- 50.00 – EXISTING CONTOUR (0.20m INTERVAL)
- 50.00 – B.E.L. CONTOUR (MAJOR 1.0m)
- 50.10 – B.E.L. CONTOUR (MINOR 0.10m)
- 50.00 – B.E.L. SPOT LEVEL



NOMINATED B.E.L. DETAIL
NTS

EARTHWORK ESTIMATES

SITE AREA	= 8.60 Ha
TOPSOIL STRIP (200mm OVER 8.60 Ha)	=(-17,200m³) (TO BE EXPORTED)
CUT	= -38,300m³
FILL	= +54,770m³
ALLOWANCES	
DETAILED EXCAVATION (2,000m³/Ha)	= + 17,200m³
DIFFERENCE	= +33,670m³ (i.e. FILL OVER CUT)

NOTE:
VOLUMES BASED ON 50mm TOPSOIL STRIP OVER THE NOMINATED AREA. EARTHWORKS VOLUMES ARE APPROXIMATE ONLY.
NO ALLOWANCE HAS BEEN MADE FOR DELETERIOUS MATERIAL, EROSION AND SEDIMENT CONTROL, BULKING OR COMPACTION OF FILLED SOILS, THE REMOVAL OF UNCONTROLLED OR CONTAMINATED MATERIAL OR ANY OTHER UNSPECIFIED EXCAVATION RELATED TO CONSTRUCTION ACTIVITIES. DETAILED EXCAVATION ALLOWANCE IS APPROXIMATE ONLY AND ACCOUNTS FOR STORMWATER/SERVICES TRENCHING AND FOUNDATIONS. THE DETAILED EXCAVATION VOLUMES ARE TO BE CONFIRMED BY THE CONTRACTOR. REFER ANY CONCERNS TO ENGINEER.

RETAINING WALLS LEGEND
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL

BULK EARTHWORKS PLAN
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
REVISED AS CLOUDED	12.07.24	B
ISSUED FOR INFORMATION	06.06.24	A

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA300

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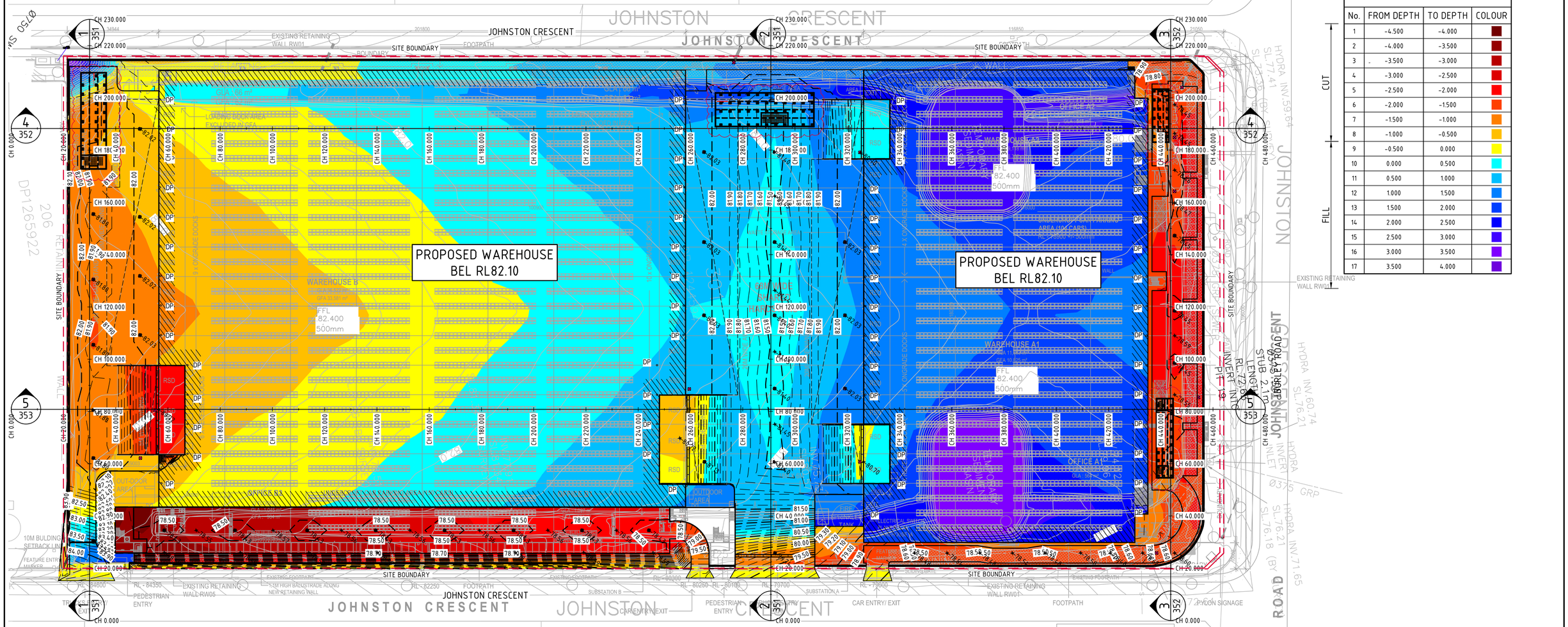
COSTIN ROE CONSULTING | CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE: BULK EARTHWORKS PLAN

DRAWING No: C012990.17-SSDA 300 ISSUE: B



DEPTH RANGE			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	-4.500	-4.000	
2	-4.000	-3.500	
3	-3.500	-3.000	
4	-3.000	-2.500	
5	-2.500	-2.000	
6	-2.000	-1.500	
7	-1.500	-1.000	
8	-1.000	-0.500	
9	-0.500	0.000	
10	0.000	0.500	
11	0.500	1.000	
12	1.000	1.500	
13	1.500	2.000	
14	2.000	2.500	
15	2.500	3.000	
16	3.000	3.500	
17	3.500	4.000	

CUT

FILL

RETAINING WALLS LEGEND
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL

CUT/FILLPLAN
SCALE 1:750

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
REVISED AS CLOUDED	12.07.24	B
ISSUED FOR INFORMATION	06.06.24	A

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PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA310

CONSULT AUSTRALIA

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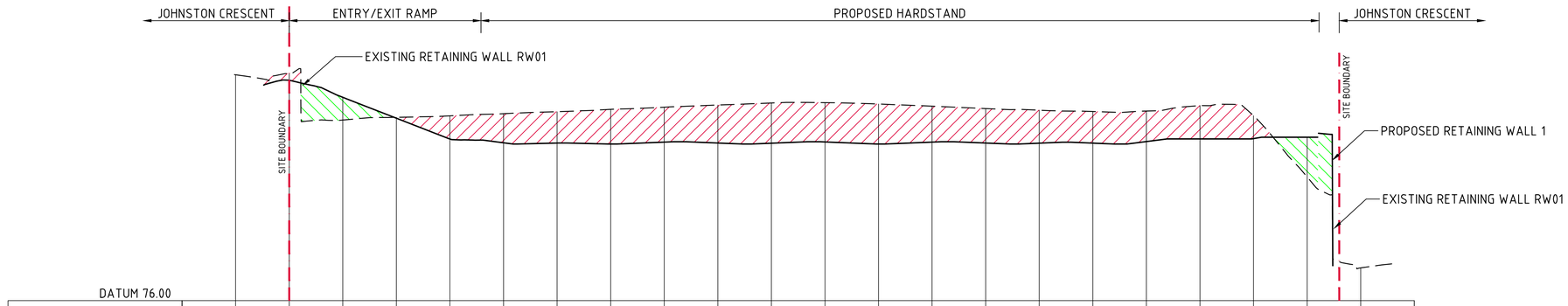
DRAWING TITLE
CUT/FILL PLAN

DRAWING No C012990.17-SSDA 310

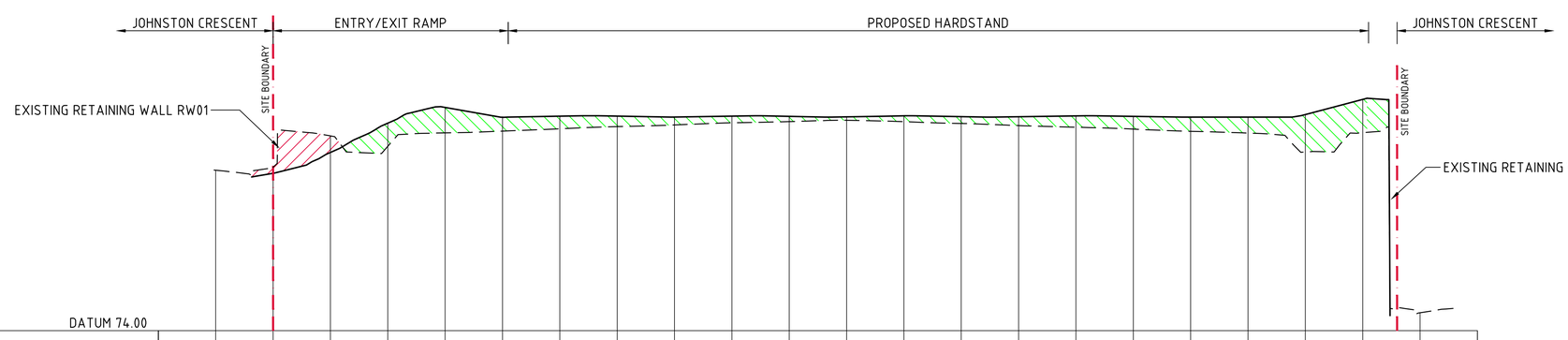
ISSUE B



DATUM 76.00

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000
EXISTING SURFACE LEVEL		84.433	84.481	82.742	82.844	82.898	82.981	83.053	83.141	83.223	83.303	83.379	83.391	83.340	83.260	83.170	83.111	83.062	83.078	83.281	82.905	80.620	77.226	
BULK EARTHWORKS LEVEL			84.227	83.590	82.811	82.036	81.893	81.885	81.848	81.919	81.885	81.878	81.925	81.848	81.919	81.885	81.879	81.880	81.949	82.037	82.049	82.100		
CUT/FILL DEPTH			-0.254	0.848	-0.033	-0.863	-1.088	-1.168	-1.293	-1.305	-1.477	-1.500	-1.466	-1.491	-1.342	-1.285	-1.232	-1.182	-1.138	-1.244	-0.856	1.480		

SECTION 1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



DATUM 74.00

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000
EXISTING SURFACE LEVEL		79.592	79.697	80.788	80.427	80.893	80.955	81.036	81.111	81.170	81.246	81.287	81.334	81.284	81.223	81.149	81.092	81.027	80.947	80.888	80.228	80.899	74.624	
BULK EARTHWORKS LEVEL			79.486	80.214	81.232	81.781	81.439	81.476	81.478	81.445	81.478	81.469	81.452	81.488	81.458	81.455	81.484	81.468	81.442	81.443	81.530	82.060		
CUT/FILL DEPTH			-0.211	-0.574	0.805	0.888	0.484	0.440	0.367	0.275	0.232	0.182	0.117	0.204	0.235	0.307	0.393	0.440	0.495	0.555	1.302	1.161		

SECTION 2
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

LEGEND:

- DENOTES BULK EARTHWORKS PROFILE
- DENOTES EXISTING PROFILE
- DENOTES AREA IN CUT
- DENOTES AREA IN FILL

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A1 SIZE SHEET

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	06.06.24	A

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PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA351

CONSULT AUSTRALIA

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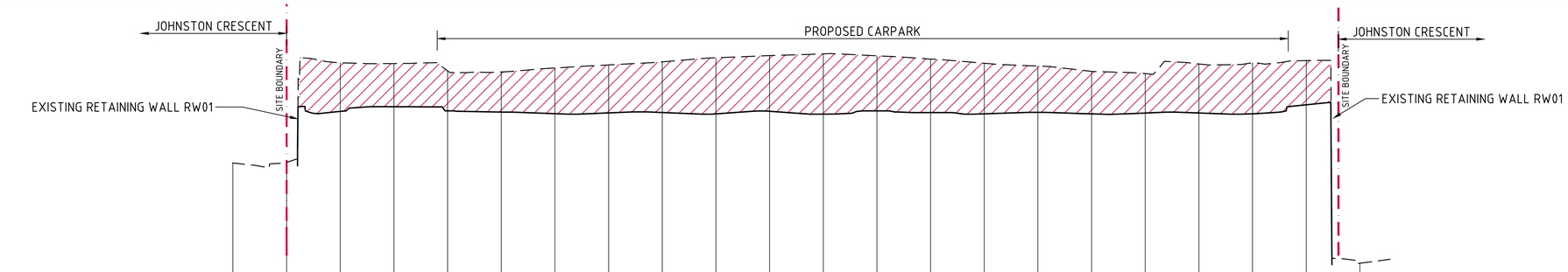
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
BULK EARTHWORKS SECTIONS
SHEET 1

DRAWING No C012990.17-SSDA 351
ISSUE A

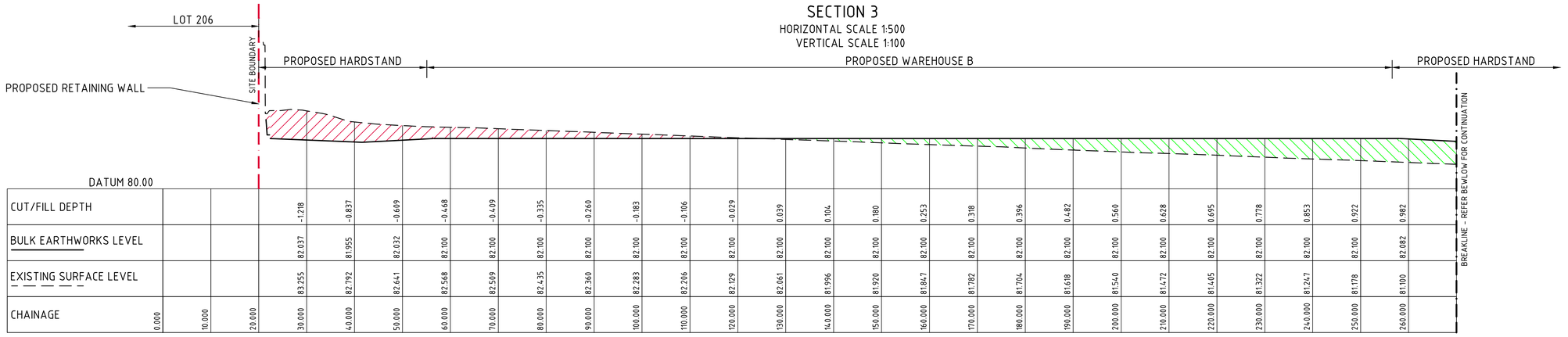


DATUM 72.00

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000
CUT/FILL DEPTH				-1.814	-1.611	-1.489	-1.495	-1.704	-1.791	-1.893	-2.094	-2.077	-2.251	-2.054	-1.998	-1.887	-1.728	-1.584	-1.474	-1.830	-1.906	-1.650		
BULK EARTHWORKS LEVEL				78.579	78.753	78.600	78.555	78.495	78.522	78.536	78.487	78.584	78.477	78.600	78.534	78.489	78.542	78.487	78.517	78.519	78.489	78.824		
EXISTING SURFACE LEVEL		76.649	76.678	80.393	80.364	80.089	80.050	80.199	80.313	80.429	80.581	80.661	80.727	80.654	80.532	80.376	80.270	80.071	79.990	80.349	80.396	80.473	72.911	

SECTION 3

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

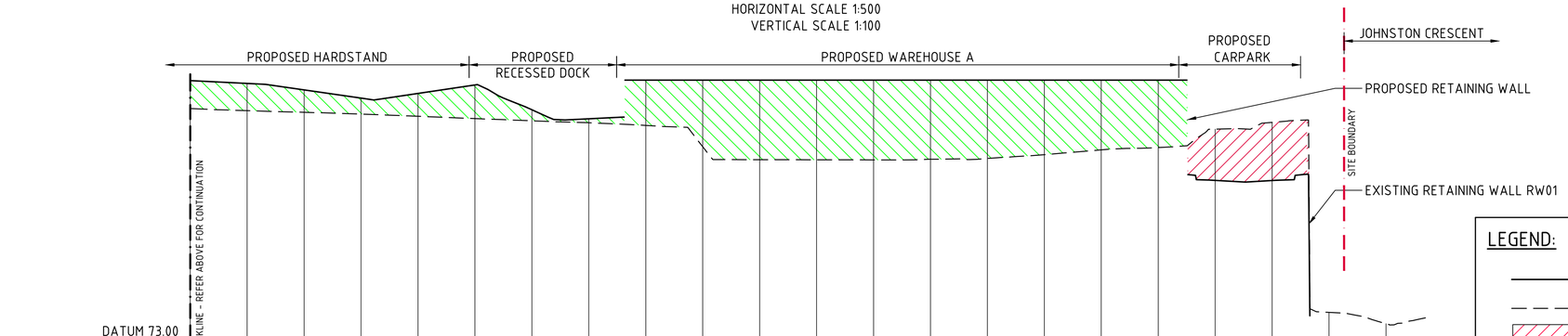


DATUM 80.00

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000
CUT/FILL DEPTH			-1.218	-0.837	-0.609	-0.468	-0.409	-0.335	-0.260	-0.183	-0.106	-0.029	0.039	0.104	0.180	0.253	0.318	0.396	0.482	0.560	0.628	0.695	0.778	0.853	0.922	0.982	
BULK EARTHWORKS LEVEL			82.037	81.955	82.032	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.082	
EXISTING SURFACE LEVEL			83.255	82.792	82.641	82.568	82.509	82.435	82.360	82.283	82.206	82.129	82.061	81.996	81.920	81.847	81.782	81.704	81.618	81.540	81.472	81.405	81.322	81.247	81.178	81.100	

SECTION 4

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



DATUM 73.00

CHAINAGE	270.000	280.000	290.000	300.000	310.000	320.000	330.000	340.000	350.000	360.000	370.000	380.000	390.000	400.000	410.000	420.000	430.000	440.000	450.000	460.000	470.000	480.000
CUT/FILL DEPTH	0.957	0.787	0.559	0.805	1.182	0.387	0.139	1.594	2.341	2.799	2.802	2.806	2.781	2.754	2.622	2.452	2.372	-1.804	-2.043			
BULK EARTHWORKS LEVEL	81.982	81.754	81.465	81.631	81.929	81.056	80.738	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	78.573	78.570			
EXISTING SURFACE LEVEL	81.025	80.967	80.906	80.827	80.747	80.669	80.599	80.506	79.759	79.301	79.298	79.294	79.319	79.346	79.478	79.648	79.728	80.377	80.613	73.931	73.535	

LEGEND:

- DENOTES BULK EARTHWORKS PROFILE
- DENOTES EXISTING PROFILE
- DENOTES AREA IN CUT
- DENOTES AREA IN FILL

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A1 SIZE SHEET

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

SECTION 4

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

FOR INFORMATION

ISSUED FOR INFORMATION	06.06.24	A
AMENDMENTS	DATE	ISSUE

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PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA352

CONSULT AUSTRALIA

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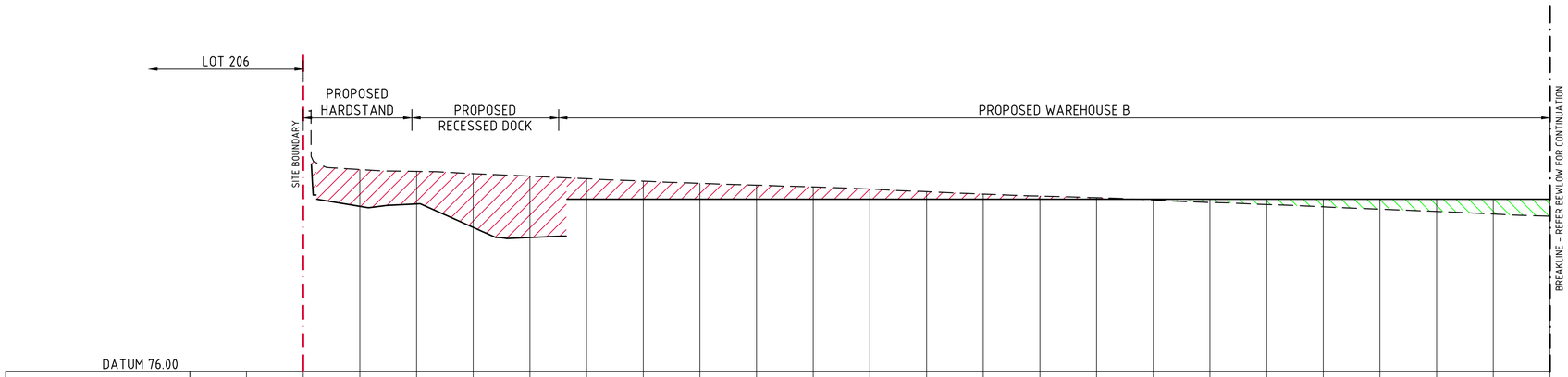
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
BULK EARTHWORKS SECTIONS
SHEET 2

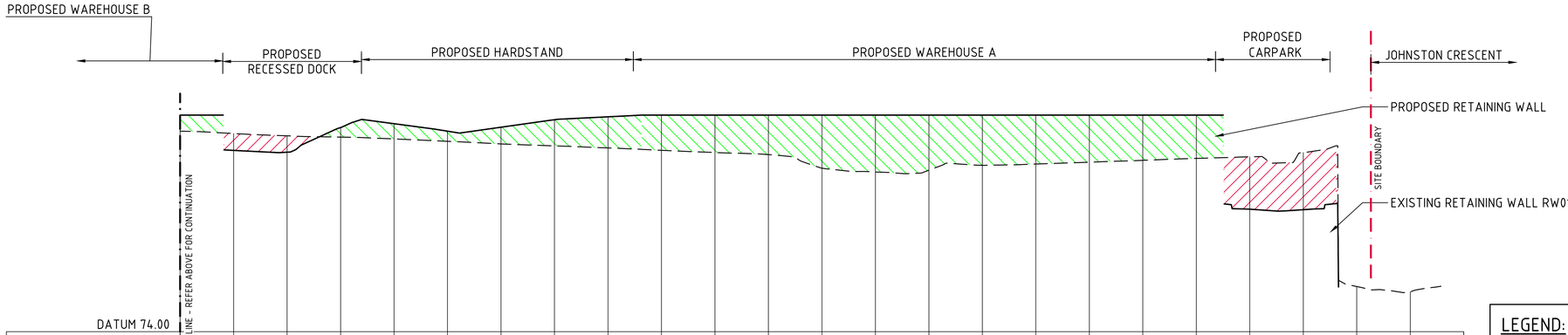
DRAWING No C012990.17-SSDA 352
ISSUE A



DATUM 76.00

CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000
CUT/FILL DEPTH				-1.300	-1.147	-1.896	-2.166	-0.725	-0.640	-0.564	-0.498	-0.435	-0.360	-0.269	-0.183	-0.113	-0.057	0.029	0.113	0.188	0.269	0.353	0.432	0.524
BULK EARTHWORKS LEVEL				81.848	81.935	81.104	80.749	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100
EXISTING SURFACE LEVEL				83.148	83.082	83.001	82.914	82.825	82.740	82.664	82.598	82.535	82.460	82.369	82.283	82.213	82.157	82.071	81.987	81.912	81.831	81.747	81.668	81.576

SECTION 5
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



DATUM 74.00

CHAINAGE	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000	340.000	350.000	360.000	370.000	380.000	390.000	400.000	410.000	420.000	430.000	440.000	450.000	460.000	470.000	480.000
CUT/FILL DEPTH	-0.630	-0.612	0.357	0.570	0.377	0.627	0.979	1.165	1.316	1.399	1.477	1.985	2.126	2.061	1.878	1.829	1.760	1.691	1.618	-1.960	-2.136			
BULK EARTHWORKS LEVEL	80.782	80.713	81.636	81.780	81.499	81.649	81.931	82.038	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	82.100	78.580	78.562			
EXISTING SURFACE LEVEL	81.412	81.325	81.279	81.210	81.122	81.022	80.951	80.873	80.784	80.701	80.623	80.115	79.974	80.039	80.222	80.271	80.340	80.409	80.482	80.540	80.699	75.690	75.494	

SECTION 5
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

LEGEND:

- DENOTES BULK EARTHWORKS PROFILE
- DENOTES EXISTING PROFILE
- DENOTES AREA IN CUT
- DENOTES AREA IN FILL

500mm 0 1 2 3 4 5m
SCALE 1:50 AT A1 SIZE SHEET

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	06.06.24	A
AMENDMENTS	DATE	ISSUE

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PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA353

CONSULT AUSTRALIA

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COSTIN ROE CONSULTING
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
BULK EARTHWORKS SECTIONS
SHEET 3

DRAWING No C012990.17-SSDA 353
ISSUE A

DISCHARGE POINT 4:
SITE DISCHARGE TO EXISTING PIT AT IL 74.84
TOP OF KERB RL 77.27

STORMWATER MANAGEMENT TANK 3
COMBINED ONSITE DETENTION & FILTRATION CARTRIDGE TANK (4.21HA)
MIN VOLUME 1221m³
NOM. DIMS: 37.4X12.57X3.18
ALLOW FOR 90X690 PSORB STORM FILTERS
OSD SUMP RL 75.07

DISCHARGE POINT3:
SITE DISCHARGE TO EXISTING Ø750 STUB
DS/IL 71.86
LENGTH 8.0m
TOP OF KERB RL 74.88

DISCHARGE POINT1:
SITE DISCHARGE TO EXISTING Ø750 STUB
US/IL 71.57
DS/IL 70.04
19.09m @ 8.0%

TOP OF KERB RL72.93

EXISTING PIT 04

JOHNSTON CRESCENT

SITE BOUNDARY

EXISTING RETAINING WALL TO BE PARTIALLY REMOVED AND RECONSTRUCTED FOR PROPOSED STORM WATER CONNECTION

RETAINING WALL

STORMWATER MANAGEMENT TANK4
COMBINED ONSITE DETENTION & FILTRATION CARTRIDGE TANK(2.55HA)
MIN VOLUME 740m³
NOM. DIMS: 36.5X9.38X2.69
ALLOW FOR 60X690 PSORB STORM FILTERS
OSD SUMP RL 77.50

PROPOSED WAREHOUSE
BEL RL 82.40

WAREHOUSE B
FFL 82.400
500mm

INDICATIVE WALL STRAPS

RETAINING WALL

STORMWATER MANAGEMENT TANK 1
COMBINED ONSITE DETENTION & FILTRATION CARTRIDGE TANK(0.79HA)
MIN VOLUME 229m³
NOM. DIMS: 20X6X2.62
ALLOW FOR 20X690 PSORB STORM FILTERS
OSD SUMP RL 75.33

PROPOSED WAREHOUSE
BEL RL 82.40

RETAINING WALL

EXISTING RETAINING WALL TO BE PARTIALLY REMOVED AND RECONSTRUCTED FOR PROPOSED STORM WATER CONNECTION

NOTE:
WORKS ADJACENT TO EXISTING SEWER ZONE OF INFLUENCE TO BE REVIEWED AND COORDINATED WITH SYDNEY WATER/WSC REQUIREMENTS.

EXISTING SEWER LINE

70 KL RAINWATER TANK
ALL RAINWATER TANK REUSE WATER ENTERING THE TANK TO BE PRE TREATED BY A FIRST FLUSH DEVICE DIRECTLY PRIOR TO TANK.

STORMWATER MANAGEMENT TANK 2
COMBINED ONSITE DETENTION & FILTRATION CARTRIDGE TANK(1.00HA)
MIN VOLUME 290m³
VOLUME PROVIDED 303 m³
NOM. DIMS: 30X6X2.13
ALLOW FOR 25X690 PSORB STORM FILTERS
OSD SUMP RL 74.75

DISCHARGE POINT 2:
EXISTING PIT TOP RL 74.42
PIT IL 73.70

STORMWATER DRAINAGE PLAN
SCALE 1:750

STORMWATER DRAINAGE NOTES:
STORMWATER DRAINAGE NOTES ARE APPLICABLE FOR PRIVATE INTERNAL STORMWATER DRAINAGE WORKS ONLY, REFERENCE SHOULD BE MADE TO THE RELEVANT COUNCIL/ ROADS AUTHORITY GUIDELINES AND SPECIFICATIONS FOR ALL STORMWATER DRAINAGE WORKS NOT PART OF THE PRIVATE INTERNAL WORKS.

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS C012990.17-SSDA500.
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 (WITH HS2 SUPPORT) REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø300 TO BE uPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12–200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c=25 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 9 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. CONCRETE PIPES UNDER, OR WITHIN THE ZONE OF INFLUENCE OF PAVED AREAS SHALL BE LAID USING HS2 TYPE SUPPORT, AS A MINIMUM, IN ACCORDANCE WITH AS 3725. AGGREGATE BACKFILL SHALL NOT BE USED FOR PIPE BEDDING AND OR HAUNCH/SIDE SUPPORT.
13. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
14. ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
15. WHERE SUBSOIL DRAINAGE PASSES UNDER A PAVEMENT OR A SLAB, UNSLOTTED UPVC ARE TO BE PROVIDED UNLESS NOTED OTHERWISE.
16. ALL PIPE GRADES 1 IN 200 MINIMUM UNO.
17. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
18. MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
19. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY'. WHERE FORKLIFT USE IS REQUIRED EXTERNAL TO THE BUILDING PIT COVERS SHALL BE MIN. CLASS E. PIT COVERS IN CONTAINER PAVEMENTS ARE TO BE MIN. CLASS G. REFER TO ENGINEER FOR SPECIAL DETAILS. THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
20. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
21. DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE U.N.O. ON PLAN. PROVIDE CLEANING EYE AT GROUND LEVEL.
22. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.
23. WHERE CONNECTION TO EXISTING INGROUND DRAINAGE SYSTEMS, OPEN SWALES, CHANNELS OR ANY OTHER EXISTING SYSTEM, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND INVERT ON SITE AT THE BEGINNING OF THE CONSTRUCTION PERIOD. REFER ANY VARIANCE FROM DOCUMENTATION OR SURVEYS TO THE ENGINEER FOR CLARIFICATION.

LEGEND:
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LANDPARTNERS DATED 03/06/2024.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- GD, GRATED DRAIN (300W x 225D UNO)
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- ROOFWATER DOWNPIPE (INDICATIVE)
- ROOFWATER LINE
- SUBSOIL LINE
- OVERLAND FLOW DIRECTION
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- EXISTING SEWER
- SWALE
- BREAK IN KERB FOR OVERLAND FLOW
- WALL STRAPS
- DENOTES AREA DRAINING TO RAINWATER TANK

WATER QUALITY NOTE:
ALL SURFACE INLET PITS & ROOFWATER COLLECTION PITS DENOTED WITH ◇ TO BE FITTED WITH OCEANPROTECT OCEANGUARD OG200 PIT INSERTS.

FOR INFORMATION

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

REVISED AS CLOUDED	08.01.25	D
REVISED AS CLOUDED	19.07.24	C
REVISED AS CLOUDED	16.07.24	B
ISSUED FOR INFORMATION	06.06.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT: nettletontribe
CLIENT: ESR
PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA400

CONSULT AUSTRALIA

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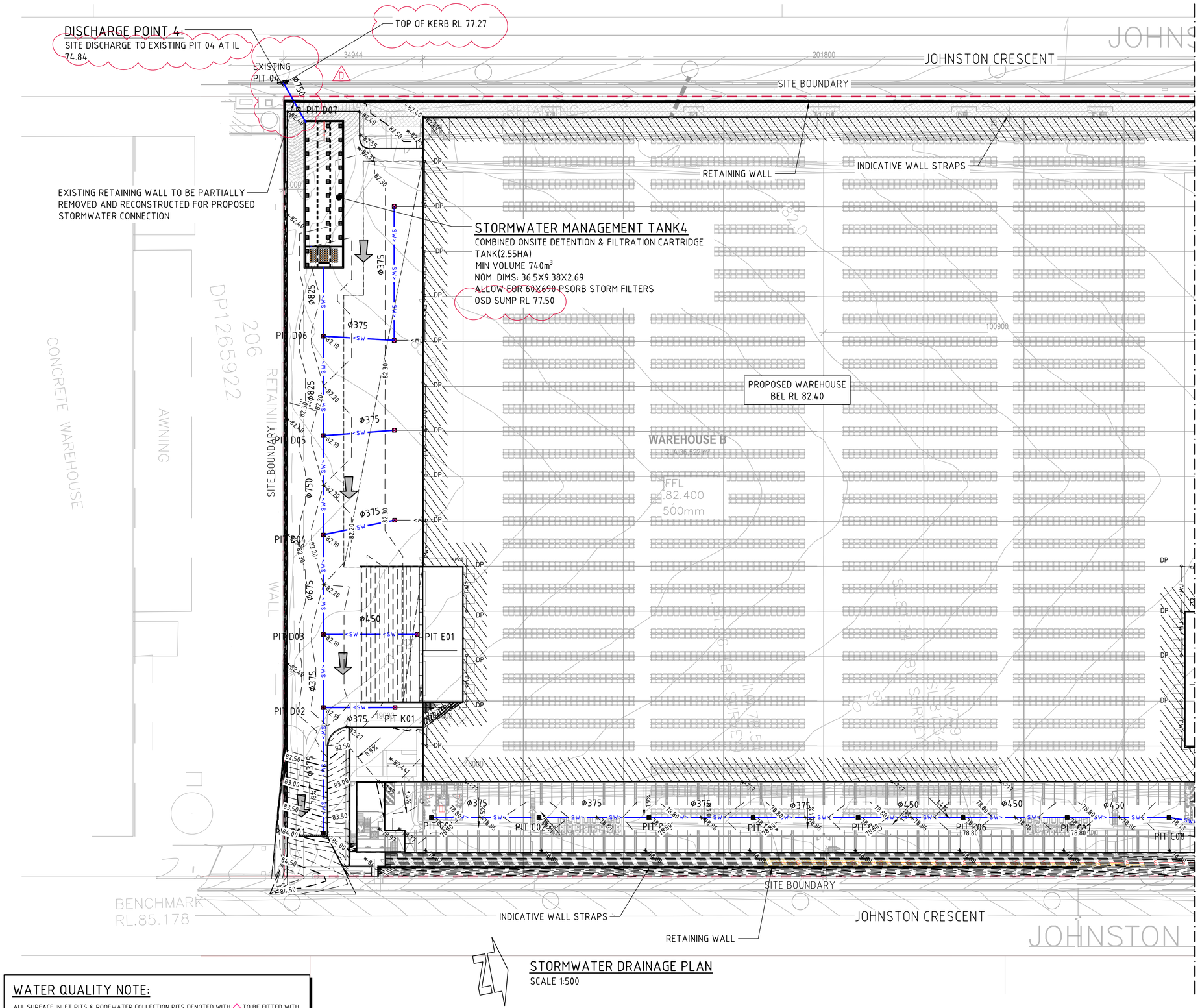
COSTIN ROE CONSULTING
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE: STORMWATER DRAINAGE PLAN
DRAWING No: C012990.17-SSDA 400
ISSUE: D



STORMWATER DRAINAGE PLAN
SCALE 1:500

WATER QUALITY NOTE:

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STORMWATER DRAINAGE NOTES:

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7. ALL PIPES UP TO AND INCLUDING Φ300 TO BE uPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12–200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c=25 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
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LEGEND:

LEVELS DATUM IS AHD.

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- SJP, SEALED JUNCTION PIT
- GD, GRATED DRAIN (300W x 225D UNO)
- SW> PROPOSED DRAINAGE LINE
- SW> EXISTING DRAINAGE LINE
- DP ROOFWATER DOWNPIPE (INDICATIVE)
- RW> ROOFWATER LINE
- SS> SUBSOIL LINE
- OVERLAND FLOW DIRECTION
- 50.00 FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- 50.10 FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- S EXISTING SEWER
- SWALE
- BREAK IN KERB FOR OVERLAND FLOW
- WALL STRAPS
- DENOTES AREA DRAINING TO RAINWATER TANK

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
REVISED AS CLOUDED	08.01.25	D
REVISED AS CLOUDED	19.07.24	C
REVISED AS CLOUDED	16.07.24	B
ISSUED FOR INFORMATION	06.06.24	A

ARCHITECT: nettletontribe
CLIENT: ESR

PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA401

CONSULT AUSTRALIA

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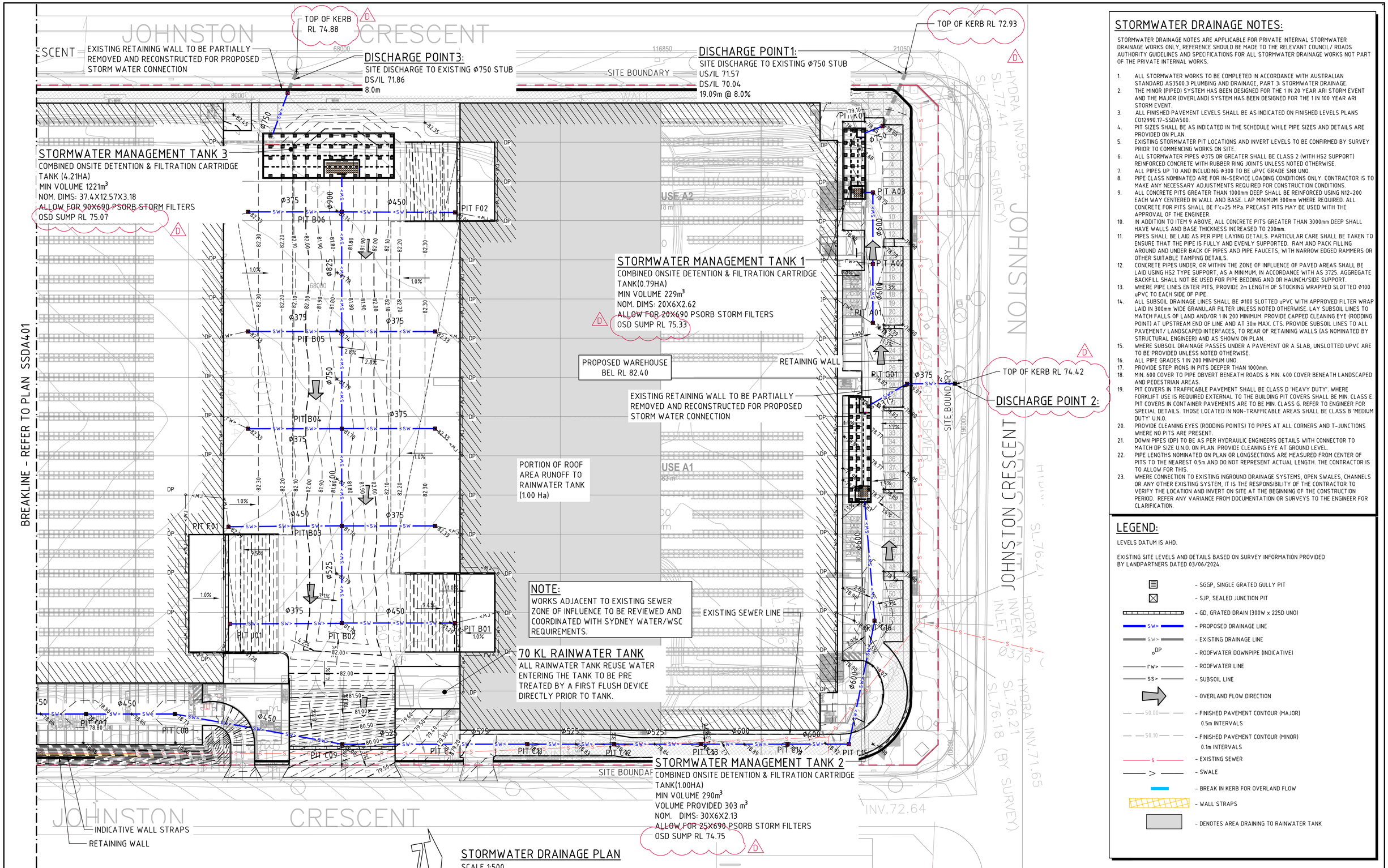
COSTIN ROE CONSULTING | CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
STORMWATER DRAINAGE PLAN SHEET 1

DRAWING No C012990.17-SSDA 401
ISSUE D



STORMWATER DRAINAGE PLAN
SCALE 1:500

STORMWATER DRAINAGE NOTES:

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7. ALL PIPES UP TO AND INCLUDING ⌀300 TO BE uPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12–200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c=25 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
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- SJP, SEALED JUNCTION PIT
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- SW> — EXISTING DRAINAGE LINE
- DP — ROOFWATER DOWNPIPE (INDICATIVE)
- RW> — ROOFWATER LINE
- SS> — SUBSOIL LINE
- OVERLAND FLOW DIRECTION
- 50.00 — FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- 50.10 — FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- S — EXISTING SEWER
- SWALE
- BREAK IN KERB FOR OVERLAND FLOW
- WALL STRAPS
- DENOTES AREA DRAINING TO RAINWATER TANK

WATER QUALITY NOTE:

ALL SURFACE INLET PITS & ROOFWATER COLLECTION PITS DENOTED WITH ◇ TO BE FITTED WITH OCEANPROTECT OCEANGUARD OG200 PIT INSERTS.

FOR INFORMATION

5m 0 10 20 30 40 50m
SCALE 1:500 AT A1 SIZE SHEET

AMENDMENTS	DATE	ISSUE
REVISED AS CLOUDED	08.01.25	D
REVISED AS CLOUDED	19.07.24	C
REVISED AS CLOUDED	16.07.24	B
ISSUED FOR INFORMATION	06.06.24	A

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA401

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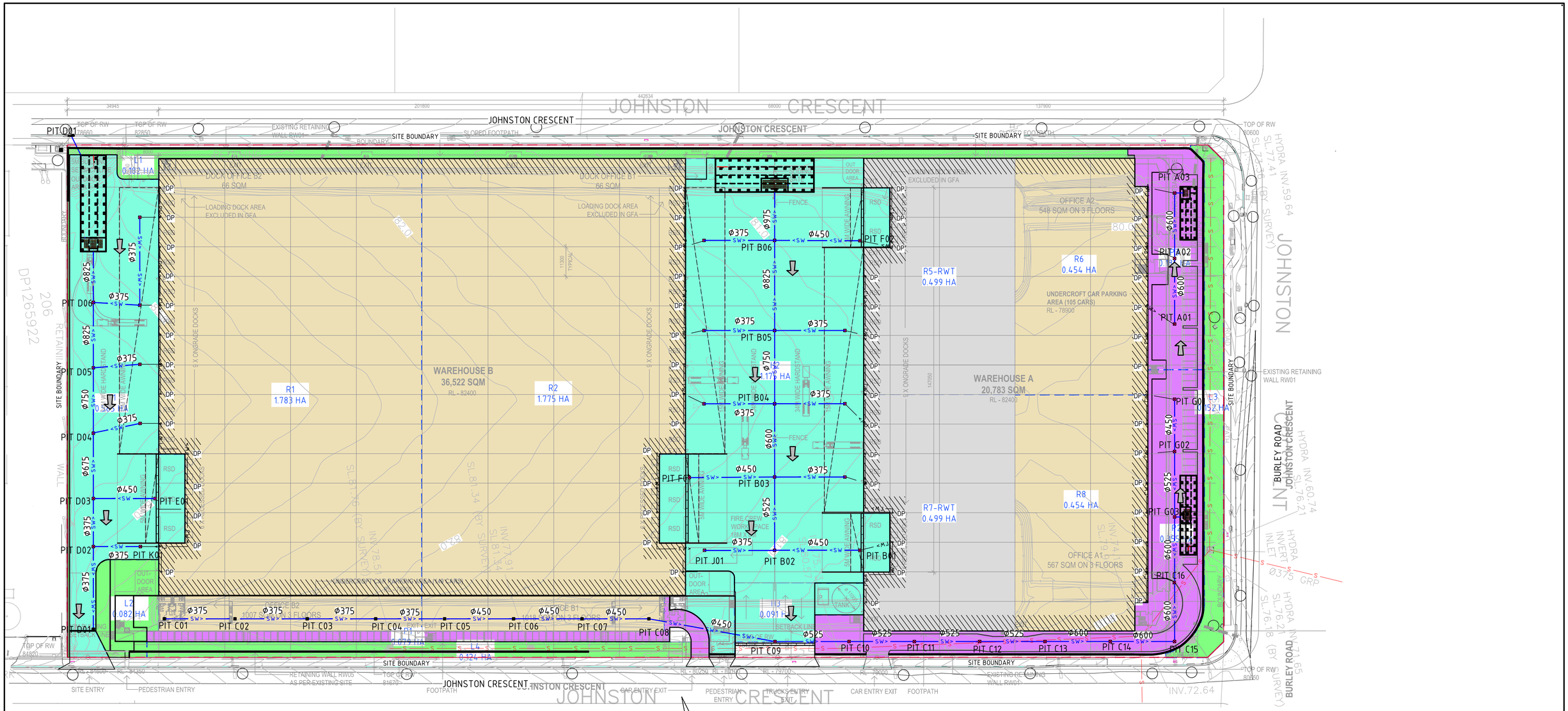
DRAWING TITLE: STORMWATER DRAINAGE PLAN SHEET 2

DRAWING No: C012990.17-SSDA 401 ISSUE: D



STORMWATER CATCHMENTS PLAN-MUSIC

SCALE 1:750

ROOF
ROOF-RWT
LANDSCAPE
HARDSTAND
PAVED PARKING

MUSIC - SITE AREAS

CODE	NAME	AREA	IMPERVIOUS	TREATMENT
H1	HARDSTAND	0.585 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
R1	ROOF	1.783 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
L2	LANDSCAPE	0.082 HA	0%	OG200 PIT INSERT + OP STORMFILTERS
R2	ROOF	1.775 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
H2	HARDSTAND	1.175 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
R5-RWT	ROOF	0.500 HA	100%	RAINWATER TANK + OP STORMFILTERS
R7-RWT	ROOF	0.500 HA	100%	RAINWATER TANK + OP STORMFILTERS
R6	ROOF	0.454 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
R8	ROOF	0.454 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
P1	CAR PARK	0.079 HA	95%	OG200 PIT INSERT + OP STORMFILTERS
P2	CAR PARK	0.355 HA	95%	OG200 PIT INSERT + OP STORMFILTERS
P3	CAR PARK	0.186 HA	95%	OG200 PIT INSERT + OP STORMFILTERS
H3	HARDSTAND	0.091 HA	100%	OG200 PIT INSERT + OP STORMFILTERS
L1	LANDSCAPE	0.182 HA	0%	BYPASS
L3	LANDSCAPE	0.152 HA	0%	BYPASS
L4	LANDSCAPE	0.0508 HA		OG200 PIT INSERT + OP STORMFILTERS

FOR INFORMATION

6m 0 15 30 45 60 75m

SCALE 1:750 AT A1 SIZE SHEET

ISSUED FOR INFORMATION	06.06.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA410

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COSTIN ROE CONSULTING
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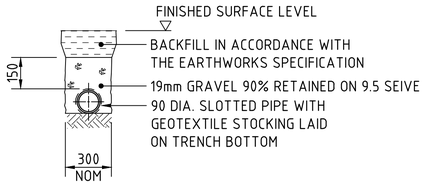
DRAWING TITLE: STORMWATER CATCHMENT PLAN MUSIC

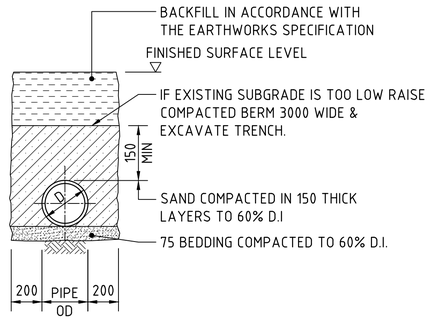
DRAWING No: C012990.17-SSDA 410

ISSUE: A



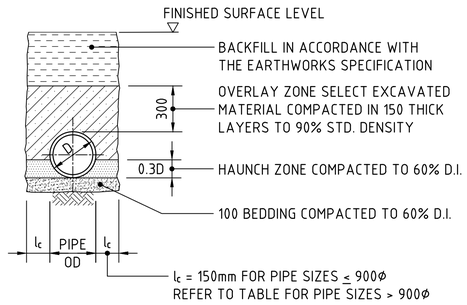
SUPPORT TO AGRICULTURAL DRAIN

SCALE 1:20



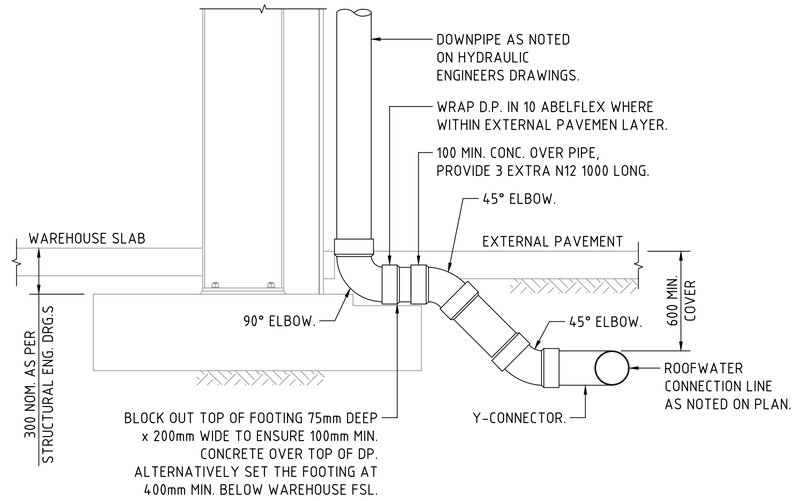
SUPPORT TO uPVC PIPES

SCALE 1:20



TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS

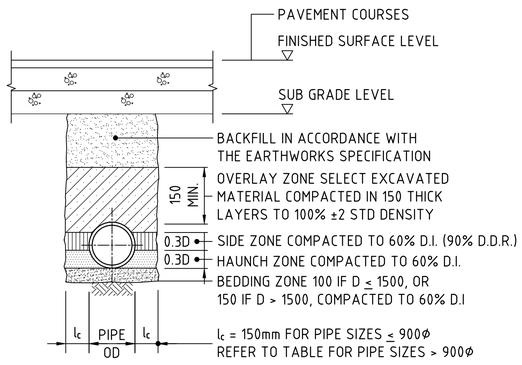
SCALE 1:20



DOWNPIPE TURN-UP DETAIL A

(AT FOOTING LOCATION)

SCALE 1:20



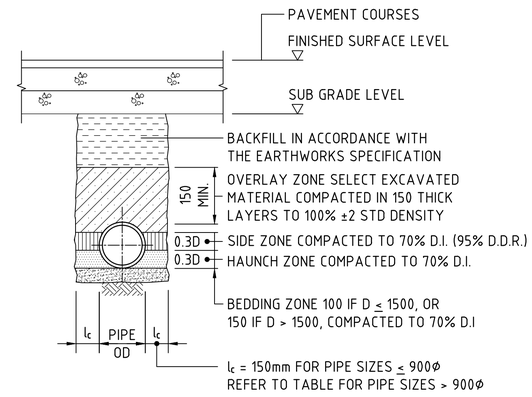
TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

SCALE 1:20

D ≤ 1350, MAX FILL = 4.0m

D > 1350, MAX FILL = 3.0m

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0



TYPE HS3 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

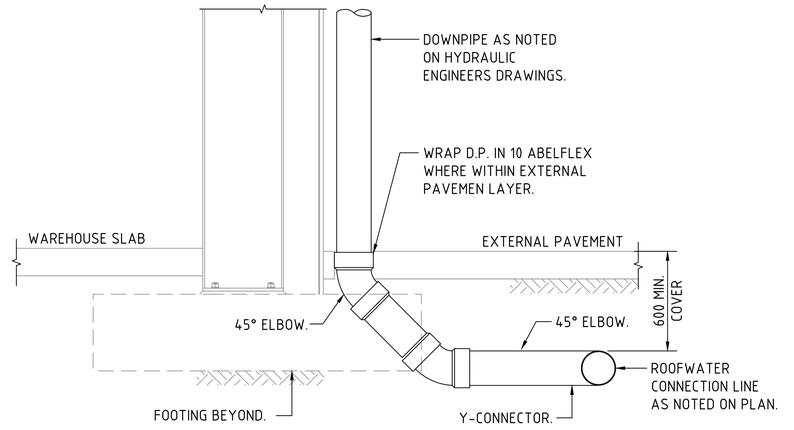
SCALE 1:20

D ≤ 1050, MAX FILL = 6.0m

D > 1050, MAX FILL = 4.8m

SIDE ZONE WIDTH	
PIPE SIZE (mm)	l_c (mm)
≤ 900Ø	150
1050Ø	175
1200Ø	200
1350Ø	225
1500Ø	250
1650Ø	275
1800Ø	300
ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800Ø	

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
9.5	100 TO 50
2.6	100 TO 30
0.60	50 TO 15
0.075	25 TO 0
SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725	



DOWNPIPE TURN-UP DETAIL B

(CLEAR OF FOOTING)

SCALE 1:20

6m 0 15 30 45 60 75m

SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	06.06.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA451

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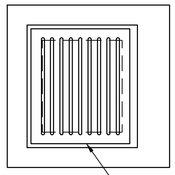
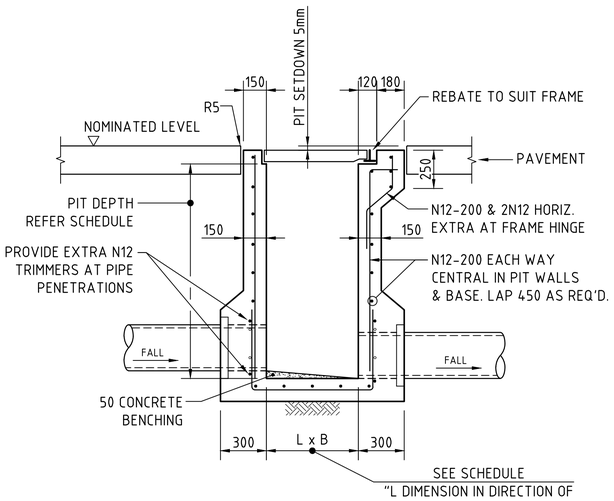
DRAWING TITLE: STORMWATER DRAINAGE DETAILS SHEET 1

DRAWING No: C012990.17-SSDA 451

ISSUE: A

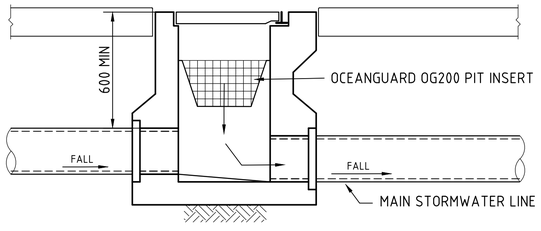


PLAN
SCALE 1:20

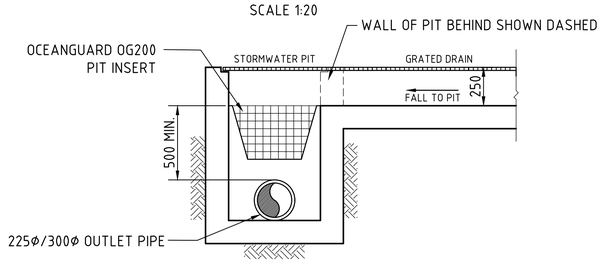


SECTION
SCALE 1:20

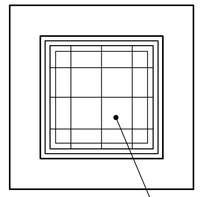
SINGLE GRATED GULLY PIT - SGGP



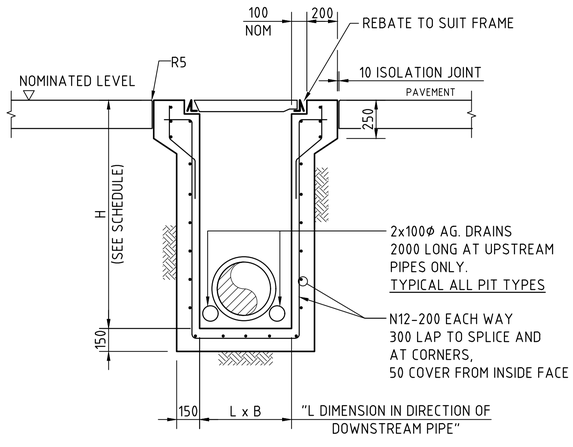
STORMWATER PIT WITH OCEANGUARD
CONFIGURATION
SCALE 1:20



GRATED DRAIN/STORMWATER PIT WITH
OCEANGUARD CONFIGURATION
SCALE 1:20

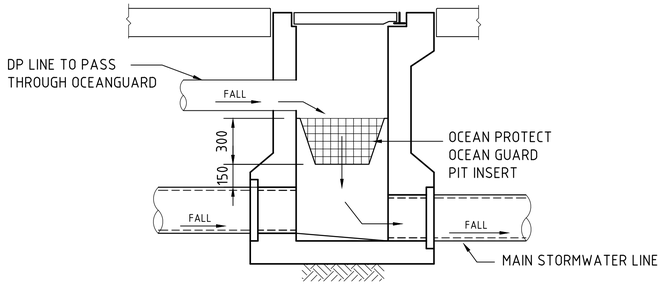


PLAN
SCALE 1:20



SECTION
SCALE 1:20

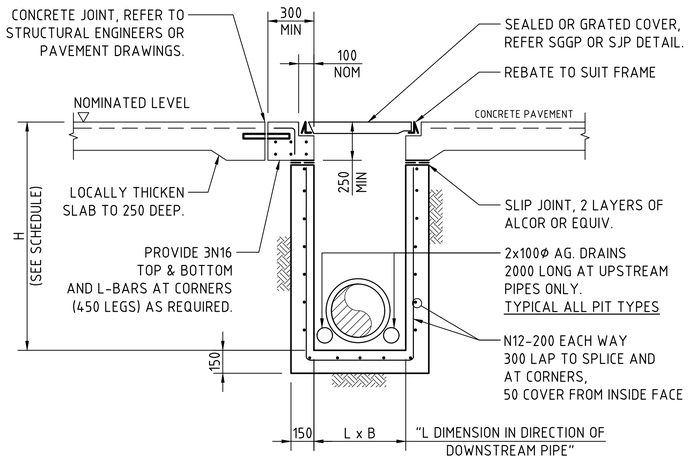
SEALED PIT - SJP



ROOFWATER/STORMWATER PIT WITH
OCEANGUARD CONFIGURATION
SCALE 1:20

NOTE:

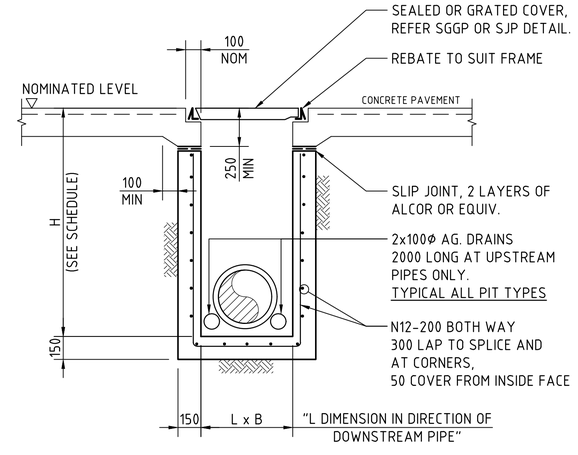
OCEAN PROTECT OCEANGUARD PIT INSERTS TO BE FITTED WITH AN OIL/HYDROCARBON ADSORBENT MATERIAL FOR ALL SURFACE INLET COLLECTION PITS WITHIN HARDSTAND AND CARPARK AREAS.



SECTION
SCALE 1:20

SJP/CIS & SGGP/CIS (CAST IN SLAB) PIT DETAIL
GRATE/COVER SUPPORT
CAST-INTO PAVEMENT SLAB

(ADOPT IN CONCRETE PAVEMENT FOR SGGP's & SJP's,
WHERE PITS ARE LOCATED IN THE CORNER OF SLAB
PANELS OR ADJACENT TO SLAB PANEL JOINTS)



SECTION
SCALE 1:20

SJP/CIS & SGGP/CIS (CAST IN SLAB) PIT DETAIL
GRATE/COVER SUPPORT
CAST-INTO PAVEMENT SLAB

(ADOPT IN CONCRETE PAVEMENTS FOR SGGP's & SJP's, WHERE
JOINTS ARE NOT LOCATED WITHIN PROXIMITY OF THE GRATE)

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	06.06.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA452

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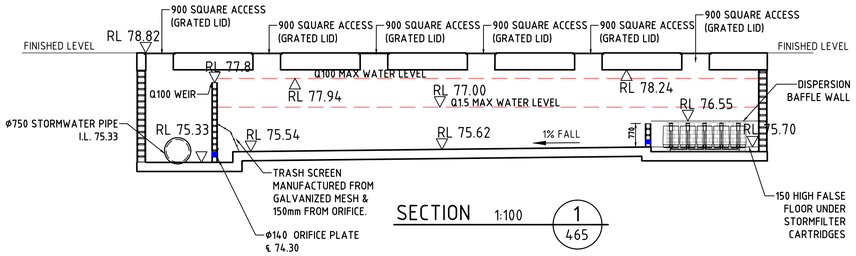
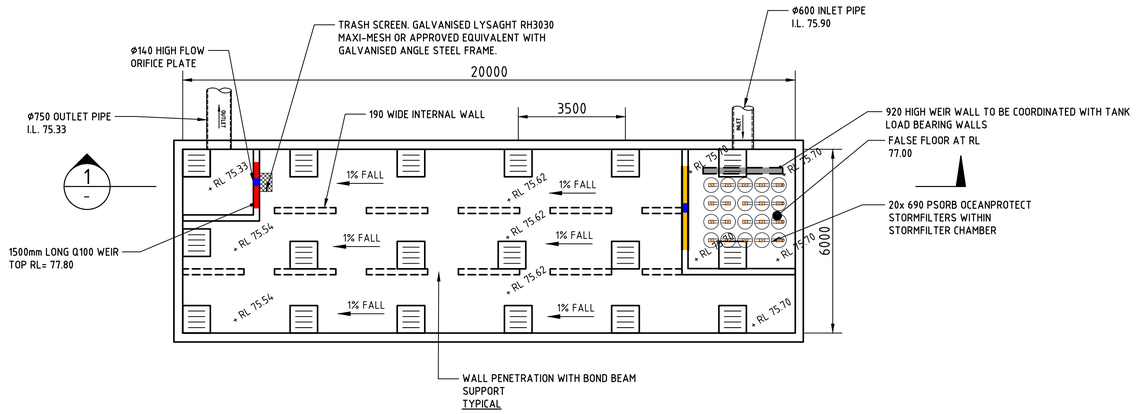
DRAWING TITLE: STORMWATER DRAINAGE DETAILS SHEET 2

DRAWING No: C012990.17-SSDA 452

ISSUE: A



SECTION 1:100 (1/465)



OSD 1 TANK PLAN
SCALE 1:100

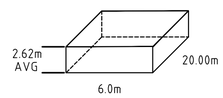
OSD TANK DETAILS

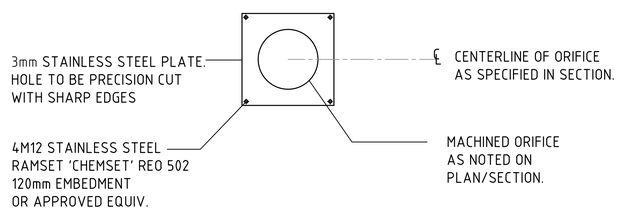
TOTAL SITE AREA	86,000m^2
TOTAL SITE AREA DRAINING TO STORAGE (95% IMPERVIOUS)	7,900m^2

STORAGE

OSD STORAGE AREA	114 m^2
Q5 ORIFICE ø	140mm
Q5 ORIFICE ℄ =	RL 75.47
5 YEAR ARIVOLUME PROVIDED	156.0m MIN.
5 YEAR ARI VOLUME REQUIRED	134.0m MIN.
100 YEAR ARIVOLUME PROVIDED	265.0m MIN.
100 YEAR ARI VOLUME REQUIRED	229.0m MIN.

INTERNAL TANK DIMENSIONS (INC. HIGH FLOW CHAMBERS)





ORIFICE PLATE DETAIL
NTS

1m 0 1 2 3 4 5 6 7 8 9 10m
SCALE 1:100 AT A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	16.07.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA465

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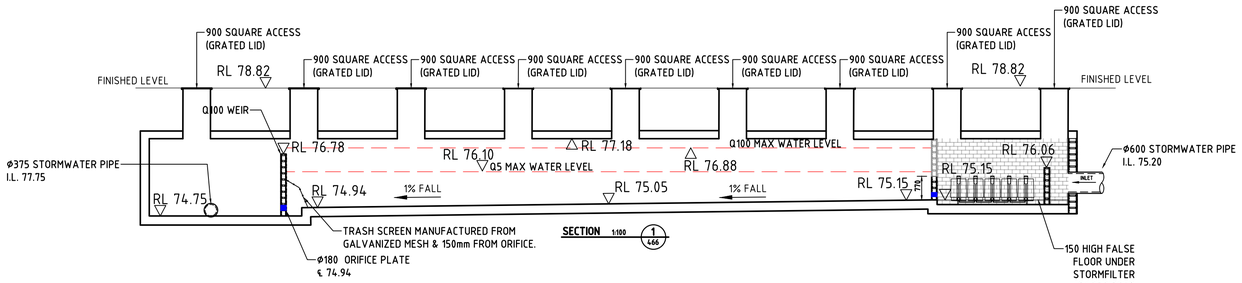
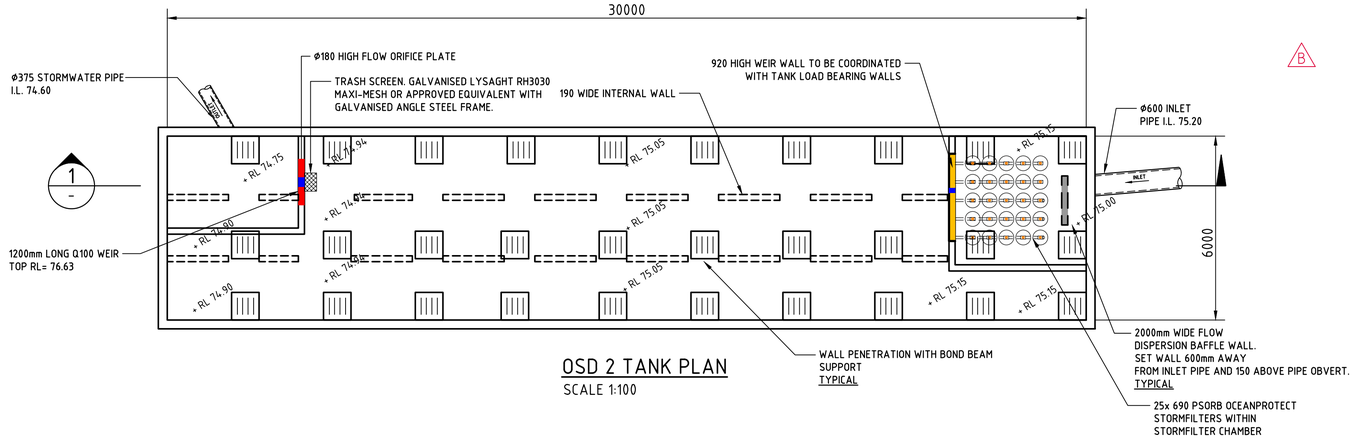
DRAWING TITLE: OSD TANK / WATER QUALITY DETAILS SHEET 1

DRAWING No: C012990.17-SSDA 465 ISSUE: A





OSD 2 TANK PLAN
SCALE 1:100

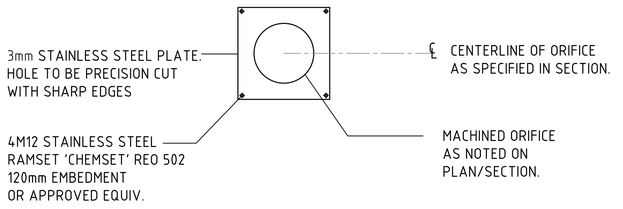
OSD TANK DETAILS

TOTAL SITE AREA	86,000m^2
TOTAL SITE AREA DRAINING TO STORAGE (95% IMPERVIOUS)	10,000m^2

STORAGE

OSD STORAGE AREA	166 m
Q5 ORIFICE Ø	180mm
Q5 ORIFICE ℄ =	RL 74.94
5 YEAR ARIVOLUME PROVIDED	174.3m MIN.
5 YEAR ARI VOLUME REQUIRED	170.0m MIN.
100 YEAR ARIVOLUME PROVIDED	303.0m MIN.
100 YEAR ARI VOLUME REQUIRED	290.0m MIN.

INTERNAL TANK DIMENSIONS
(INC. HIGH FLOW CHAMBERS)



ORIFICE PLATE DETAIL
NTS

1m 0 1 2 3 4 5 6 7 8 9 10m
SCALE 1:100 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	08.01.25	B
ISSUED FOR INFORMATION	16.07.24	A

ARCHITECT
nettletontribe

CLIENT
ESR

PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA466

CONSULT AUSTRALIA

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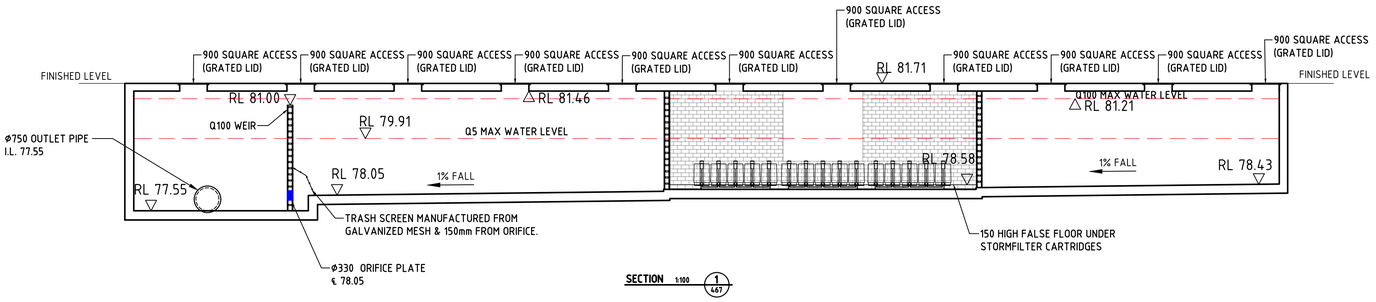
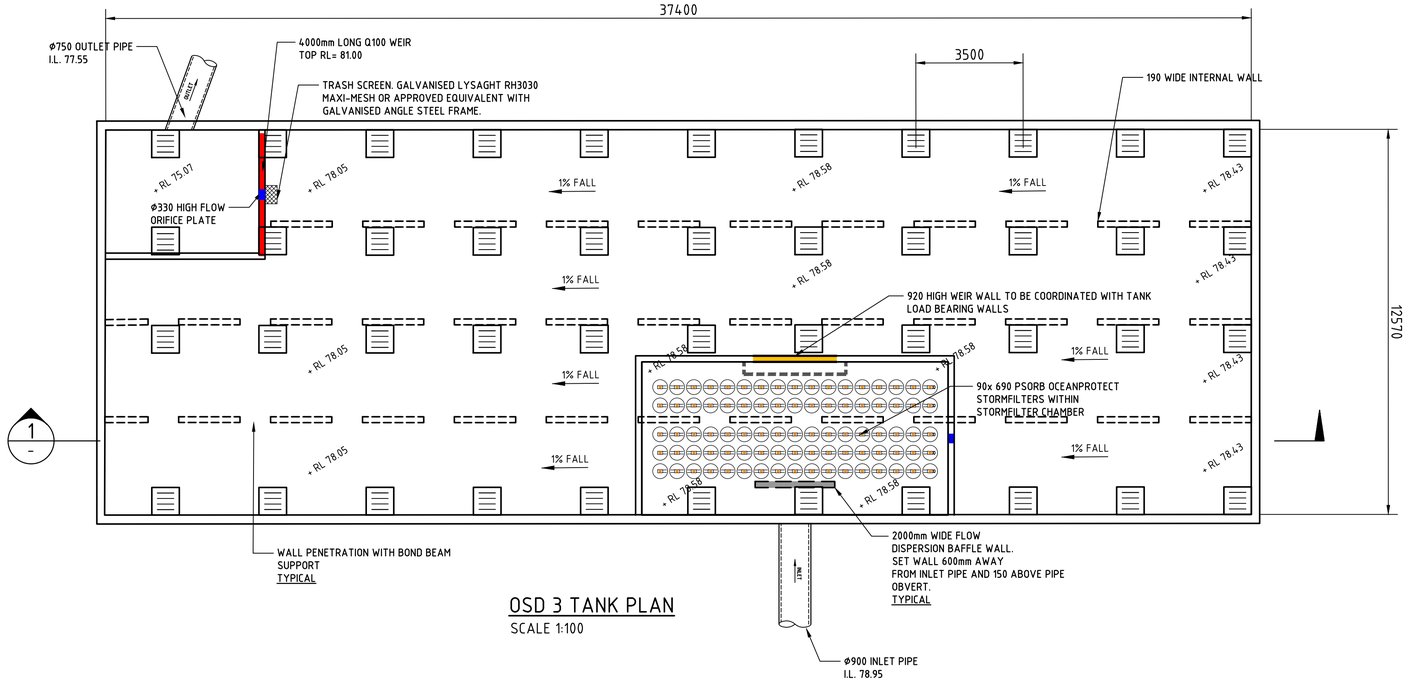
DRAWING TITLE
OSD TANK / WATER QUALITY DETAILS SHEET 2

DRAWING No C012990.17-SSDA 466 ISSUE B



SECTION 1:100 (1 / 467)



OSD 3 TANK PLAN
SCALE 1:100

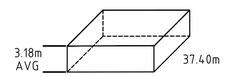
OSD TANK DETAILS

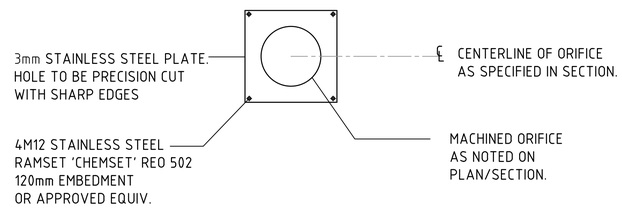
TOTAL SITE AREA	86,000m^2
TOTAL SITE AREA DRAINING TO STORAGE (95% IMPERVIOUS)	42,100m^2

STORAGE

OSD STORAGE AREA	454 m
Q5 ORIFICE ø	330mm
Q5 ORIFICE ℄ =	RL 78.05
5 YEAR ARIVOLUME PROVIDED	740.0m MIN.
5 YEAR ARI VOLUME REQUIRED	716.0m MIN.
100 YEAR ARIVOLUME PROVIDED	1330.0m MIN.
100 YEAR ARI VOLUME REQUIRED	1221.0m MIN.

INTERNAL TANK DIMENSIONS
(INC. HIGH FLOW CHAMBERS)





ORIFICE PLATE DETAIL
NTS

1m 0 1 2 3 4 5 6 7 8 9 10m
SCALE 1:100 AT A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	16.07.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA467

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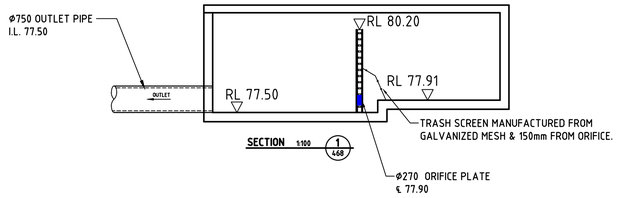
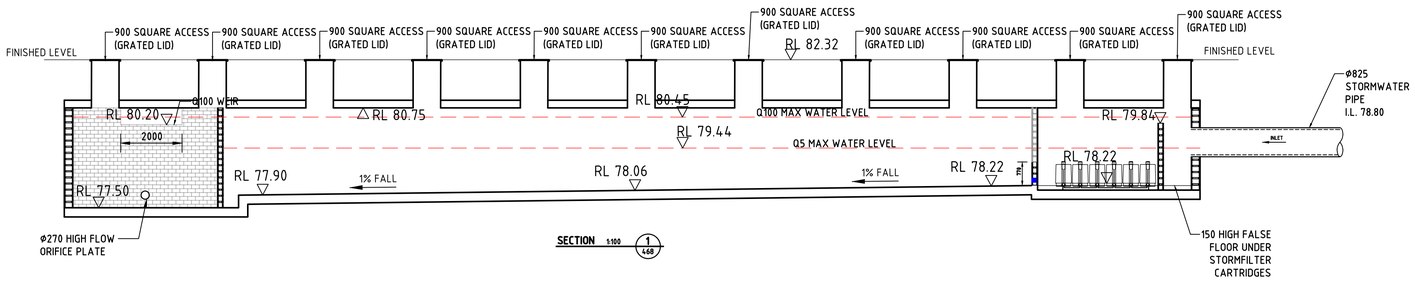
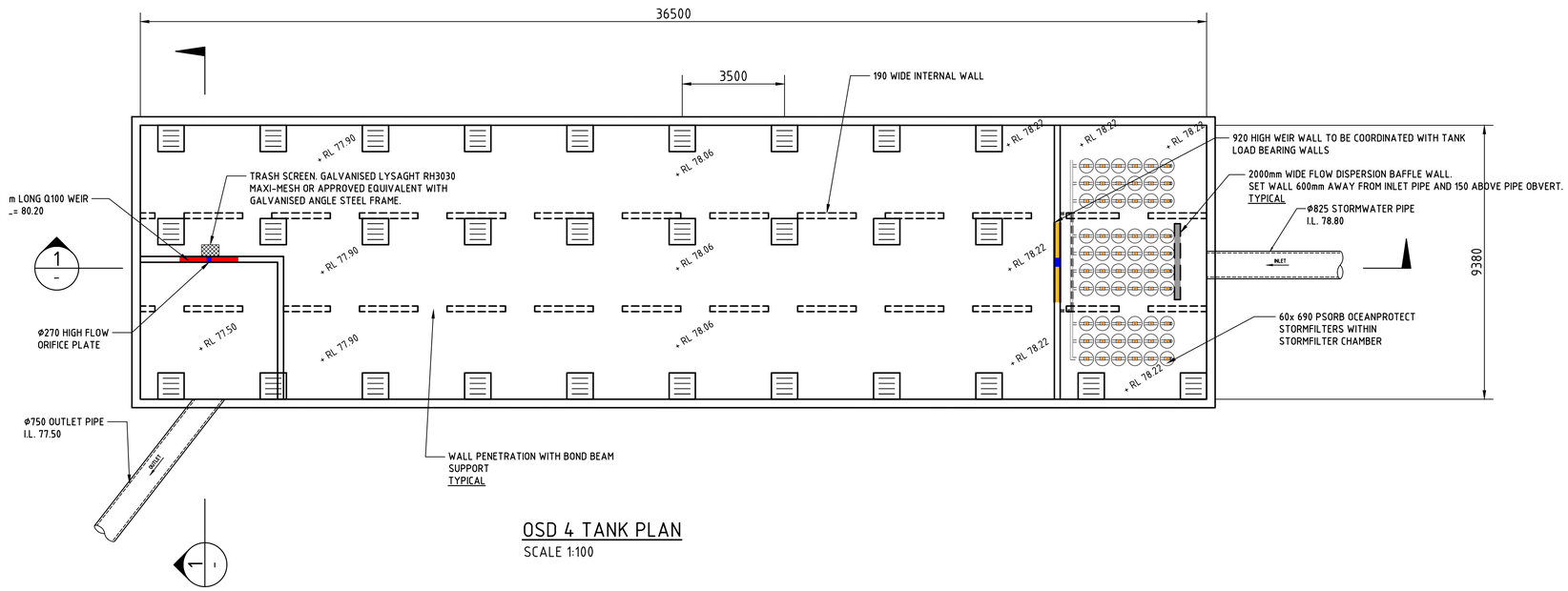
DRAWING TITLE: OSD TANK / WATER QUALITY DETAILS SHEET 3

DRAWING No: C012990.17-SSDA 467 ISSUE: A







OSD 4 TANK PLAN
SCALE 1:100

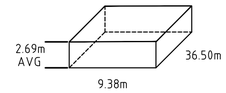
OSD TANK DETAILS

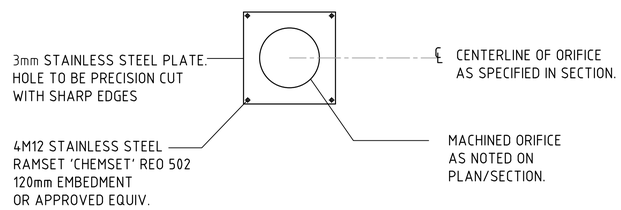
TOTAL SITE AREA	86,000m^2
TOTAL SITE AREA DRAINING TO STORAGE (95% IMPERVIOUS)	25,500m^2

STORAGE

OSD STORAGE AREA	320 m
Q5 ORIFICE ø	270mm
Q5 ORIFICE ℄ =	RL 77.90
5 YEAR ARIVOLUME PROVIDED	442.0m MIN.
5 YEAR ARI VOLUME REQUIRED	434.0m MIN.
100 YEAR ARIVOLUME PROVIDED	765.0m MIN.
100 YEAR ARI VOLUME REQUIRED	740.0m MIN.

INTERNAL TANK DIMENSIONS
(INC. HIGH FLOW CHAMBERS)





ORIFICE PLATE DETAIL
NTS

6m 0 15 30 45 60 75m
SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	16.07.24	A
AMENDMENTS	DATE	ISSUE

ARCHITECT
nettletontribe

CLIENT
ESR

PROJECT
PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA468

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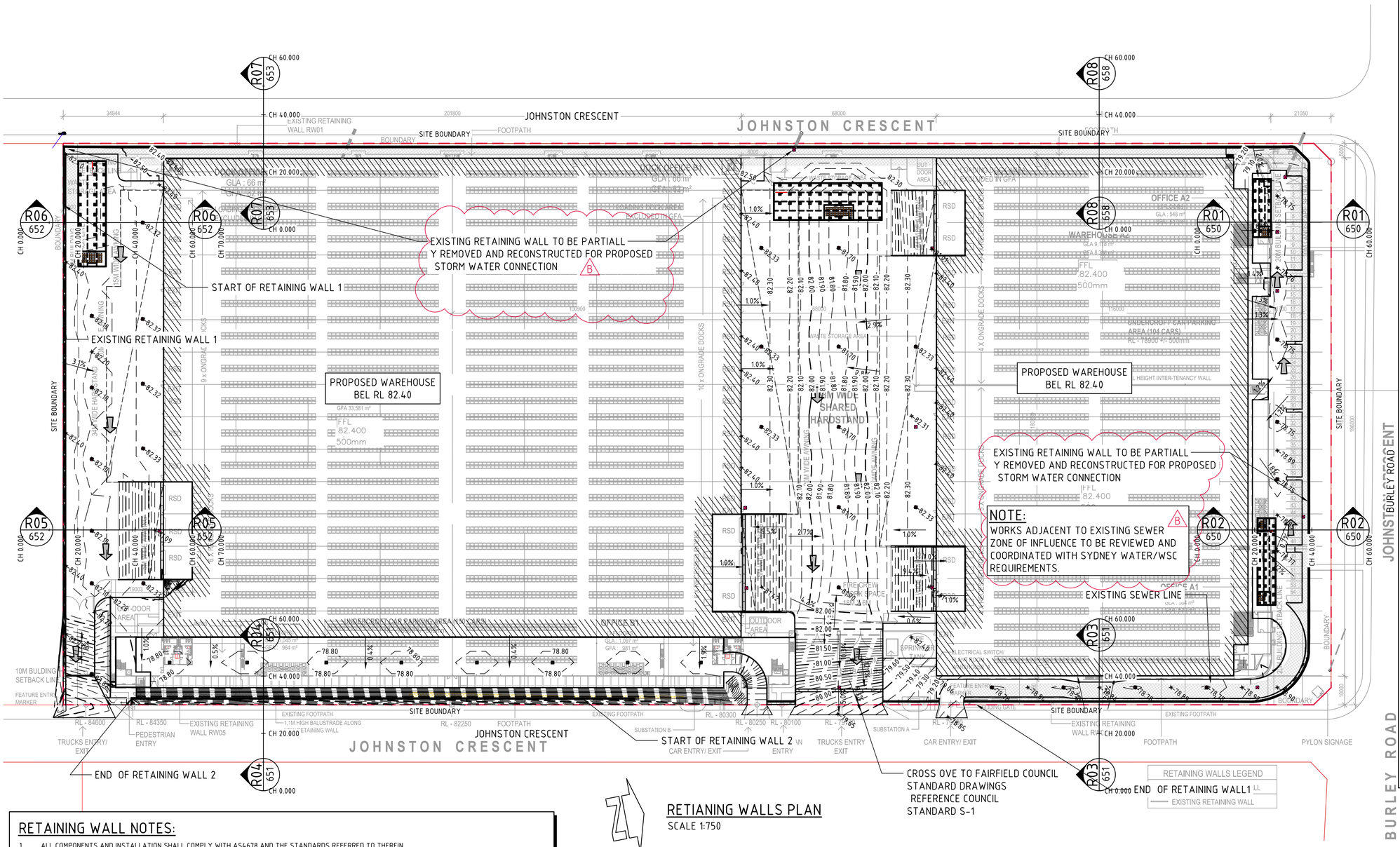
DRAWING TITLE
OSD TANK / WATER QUALITY DETAILS
SHEET 4

DRAWING No C012990.17-SSDA 468
ISSUE A



REINFORCED EARTH RETAINING WALL NOTES:

1. ALL COMPONENTS AND INSTALLATION SHALL COMPLY WITH AS4678 AND THE STANDARDS REFERRED TO THEREIN.
2. MINIMUM HEIGHT (H) TO GEOGRID REINFORCEMENT LENGTH (L) TO BE 1.0.
3. MINIMUM BEARING CAPACITY OF FOUNDATION (BASED ON MINIMUM H/L RATIO OF 1.0) TO BE AS FOLLOWS :
   a. H MAX. 2.0m = 100 kPa
   b. H MAX. 3.5m = 150 kPa
   c. H MAX. 5.0m = 200 kPa
   BEFORE COMMENCEMENT OF CONSTRUCTION THE FOUNDATION SHALL BE INSPECTED AND VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER.
4. WHERE MINIMUM BEARING IS NOT ACHIEVABLE OR NOT MEETING DESIGN REQUIREMENT, THE FOUNDATION MATERIAL IS TO BE EXCAVATED AND REPLACED WITH APPROVED MATERIAL PLACED IN ACCORDANCE WITH THE FILLING SPECIFICATION TO A MINIMUM COMPACTION OF 100% SMDD AND PLACED WITHIN 2% OF OMC.
5. MINIMUM SURCHARGE LOADS TO BE APPLIED AS FOLLOWS U.N.O. ON PLAN:
   a. LIVE LOAD = 20 kPa
   b. DEAD LOAD = 5 kPa
   c. CONSTRUCTION TRAFFIC LIVE LOAD = 10 kPa
6. THE GEOGRIDS SHALL BE OF THE TYPE AND INDEX STRENGTH NOMINATED ON THE DRAWINGS. THE MINIMUM GEOGRIDS SHALL BE A SINGLE LENGTH IN THE DIRECTION OF DESIGN TENSION, NOT LAPPED, MAKING PROVISION FOR CONNECTION TO THE FACING ACROSS THE WHOLE WIDTH OF THE FACING AND PROVIDING FOR THE SPECIFIED ANCHORAGE WITHIN THE DESIGNATED ANCHORAGE ZONE. GEOGRIDS SHALL COVER THE WHOLE OF THE PLAN AREA BEHIND THE WALL FOR THE SPECIFIED ANCHORAGE LENGTH AND SHALL BE LAPPED WITH ADJACENT SECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. MINIMUM WALL EMBEDMENT AT THE TOE OF THE WALL TO BE 300mm.
8. DESIGN LIFE OF STRUCTURE IS TO BE 100 YEARS.
9. SELECT BACKFILL MATERIAL WITHIN THE REINFORCED SOIL BLOCK SHALL BE SOUND GRANULAR MATERIAL OF NATURAL OR INDUSTRIAL ORIGIN, NON-EXPANSIVE, FREE FROM ORGANIC OR OTHER DELETERIOUS MATERIAL CONFORMING TO THE PHYSICAL, CHEMICAL AND ELECTROCHEMICAL LIMITS AS SPECIFIED AND SHALL NOT BE SUBJECT TO BREAKDOWN UNDER COMPACTION. THE SELECT BACKFILL MATERIAL IS TO HAVE THE FOLLOWING PARAMETERS:
   a. MINIMUM INTERNAL FRICTION, Ø = 34°
   b. EFFECTIVE COHESION, C'= 0 kPa
   c. UNIT WEIGHT = 21 kN/m³
   d. PH BETWEEN 4 AND 9.
10. SELECT BACKFILL IS TO BE PLACED AND COMPACTED IN LAYERS NOT MORE THAN 300mm (LOOSE). COMPACTION TO NOT LESS THAN 100% SMDD WILL BE ACHIEVED AND MATERIAL PLACED WITHIN 2% OF OMC. DENSITY TESTING SHALL BE PERFORMED IN EACH COMPACTED LIFT IN ACCORDANCE WITH AS3798.
11. PROVIDE A DRAINAGE LAYER DIRECTLY BEHIND THE FACING UNITS IN A MINIMUM 300mm WIDE 12~20mm AGGREGATE LAYER. FACING UNIT VOIDS TO BE FILLED WITH AGGREGATE. PROVIDE 100mm MINIMUM AG. DRAIN IN GEOTEXTILE SOCK AT TOE OF WALL FACING AND CONNECT TO DRAINAGE SYSTEM AT 30m MAX. SPACING.
12. THE NEED FOR A CHIMNEY DRAIN OR DRAINAGE AT THE REAR OF THE MASS SOIL BLOCK IS TO BE CONFIRMED ON SITE BY THE GEOTECHNICAL ENGINEER AND DESIGNER FOLLOWING PREPARATION OF THE FOUNDATION AND PRIOR TO CONSTRUCTION OF THE MASS SOIL BLOCK.
13. CONSTRUCTION EQUIPMENT WEIGHING MORE THAN 500KG STATIC WEIGHT IS TO BE KEPT BACK 1.5m FROM THE REAR FACE OF THE WALL FACING UNITS. COMPACTION OF THE SELECT FILL MATERIAL WITHIN THE 1.5m STRIP ADJACENT TO THE WALL SHALL BE ACHIEVED BY LIGHT MECHANICAL TAMPERS (VIBRATING PLATE, TRENCH COMPACTOR OR SIMILAR) TO GIVE THE SAME DENSITY AS IN THE REMAINDER OF THE SELECT FILL.
14. ALL DESIGN AND CONSTRUCT WALL SYSTEM TO BE COMPLETED IN ACCORDANCE WITH THESE NOTES.
15. TOP OF WALL HEIGHTS ARE NOTED TO ALIGN WITH FINISHED PAVEMENT HEIGHTS. THE CONTRACTOR AND THEIR DESIGN AND CONSTRUCT WALLING CONTRACTORS ARE TO ENSURE THAT ALL WALL STRAPS ARE INSTALLED BELOW THE DESIGN EARTHWORKS SUBGRADE. CONTRACTOR TO ALLOW FOR WALL STRAPS TO BE GRADED AWAY FROM THE FACE OF THE WALL OR OTHERWISE INSTALLED TO SUIT EARTHWORKS DESIGN LEVELS AND GRADES.
16. DIFFERENTIAL SETTLEMENT NOTE:
    FUTURE BUILDING AND SERVICE DESIGNERS TO CONSIDER DIFFERENTIAL SETTLEMENT OF REINFORCED EARTH WALL BLOCK AND GENERAL FILL AREAS. PARTICULAR ATTENTION TO BE DRAWN TO HEAVILY LOADED AREAS, OR DIFFERING LOADED AREAS (INCLUDING SPRINKLER TANK AND TRUCK PAVEMENT AREAS) AND WHERE SIGNIFICANT CHANGES IN OVERALL WALL HEIGHT OR FILL AMOUNTS ARE EXPERIENCED. IT IS THE RESPONSIBILITY OF THE FUTURE DESIGNERS TO ENSURE APPROPRIATE DESIGN CONSIDERATION TO DIFFERENTIAL SETTLEMENT ARE MADE DEPENDING ON THE DESIGN ELEMENT AND INTERACTION WITH RETAINED ELEMENTS AND GENERAL FILL MATERIAL.

RETAINING WALL NOTES:

1. ALL COMPONENTS AND INSTALLATION SHALL COMPLY WITH AS4678 AND THE STANDARDS REFERRED TO THEREIN.
2. MINIMUM BEARING CAPACITY OF FOUNDATION TO BE AS FOLLOWS :
   a. H MAX. 2.0m = 100 kPa
   b. H MAX. 3.5m = 150 kPa
   c. H MAX. 5.0m = 200 kPa
3. BEFORE COMMENCEMENT OF CONSTRUCTION THE FOUNDATION SHALL BE INSPECTED AND VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER.
4. WHERE MINIMUM BEARING IS NOT ACHIEVABLE OR NOT MEETING DESIGN REQUIREMENT, THE FOUNDATION MATERIAL IS TO BE EXCAVATED AND REPLACED WITH APPROVED MATERIAL PLACED IN ACCORDANCE WITH THE FILLING SPECIFICATION TO A MINIMUM COMPACTION OF 100% SMDD AND PLACED WITHIN 2% OF OMC.
5. MINIMUM SURCHARGE LOADS TO BE APPLIED AS FOLLOWS U.N.O. ON PLAN :
   a. LIVE LOAD = 20 kPa
   b. DEAD LOAD = 5 kPa
   c. CONSTRUCTION TRAFFIC LIVE LOAD = 10 kPa
6. MINIMUM WALL EMBEDMENT AT THE TOE OF THE WALL TO BE 300mm MINIMUM UNLESS NOTED OTHERWISE.
7. DESIGN LIFE OF STRUCTURE IS TO BE 100 YEARS.
8. TIED WALLS ARE TO BE TEMPORARILY PROPPED AT TOP UNTIL SUCH TIME THE TOP OF WALL IS TIED TO THE SLAB AND 28-DAY CONCRETE STRENGTH HAS BEEN ACHIEVED.
9. CONSTRUCTION EQUIPMENT WEIGHING MORE THAN 500KG STATIC WEIGHT IS TO BE KEPT BACK 1.5m FROM THE REAR FACE OF THE WALL FACING UNITS. COMPACTION OF THE SELECT FILL MATERIAL WITHIN THE 1.5m STRIP ADJACENT TO THE WALL SHALL BE ACHIEVED BY LIGHT MECHANICAL TAMPERS (VIBRATING PLATE, TRENCH COMPACTOR OR SIMILAR) TO GIVE THE SAME DENSITY AS IN THE REMAINDER OF THE SELECT FILL.
10. ALL DESIGN AND CONSTRUCT WALL SYSTEM TO BE COMPLETED IN ACCORDANCE WITH THESE NOTES.
11. WALL ELEVATIONS ALLOW FOR NOMINAL EMBEDMENT DEPTHS. WHERE DESIGN AND CONSTRUCT (D+C) WALL SYSTEMS ARE PROPOSED IT IS THE CONTACTORS RESPONSIBILITY TO ALLOW FOR THE FINAL EMBEDMENT DEPTHS AS PER THE D+C DESIGN. ALLOWANCE FOR OVERALL WALL AREAS TO CONSIDER THE FINAL EMBEDMENT DEPTH.
12. WALL ELEVATIONS AND AREAS ARE BASED ON THE VERTICAL PLAN AREA. CONTRACTOR TO ALLOW ADDITIONAL SURFACE AREA WHERE WALLS ARE NOT VERTICAL OR HAVE BACKSLOPES.

RETIANING WALLS PLAN

SCALE 1:750

6m 0 15 30 45 60 75m

SCALE 1:750 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
ISSUED FOR INFORMATION	19.07.24	B
ISSUED FOR INFORMATION	16.07.24	A

ARCHITECT: nettletontribe

CLIENT: ESR

PROJECT: PROPOSED DEVELOPMENT
3 JOHNSTON CRESCENT, HORSLEY PARK, NSW, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MJ	RN	MAY '24	XC	A1	AS SHOWN	C012990.17-SSDA600

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DRAWING TITLE: RETAINING WALLS PLAN

DRAWING No: C012990.17-SSDA 600

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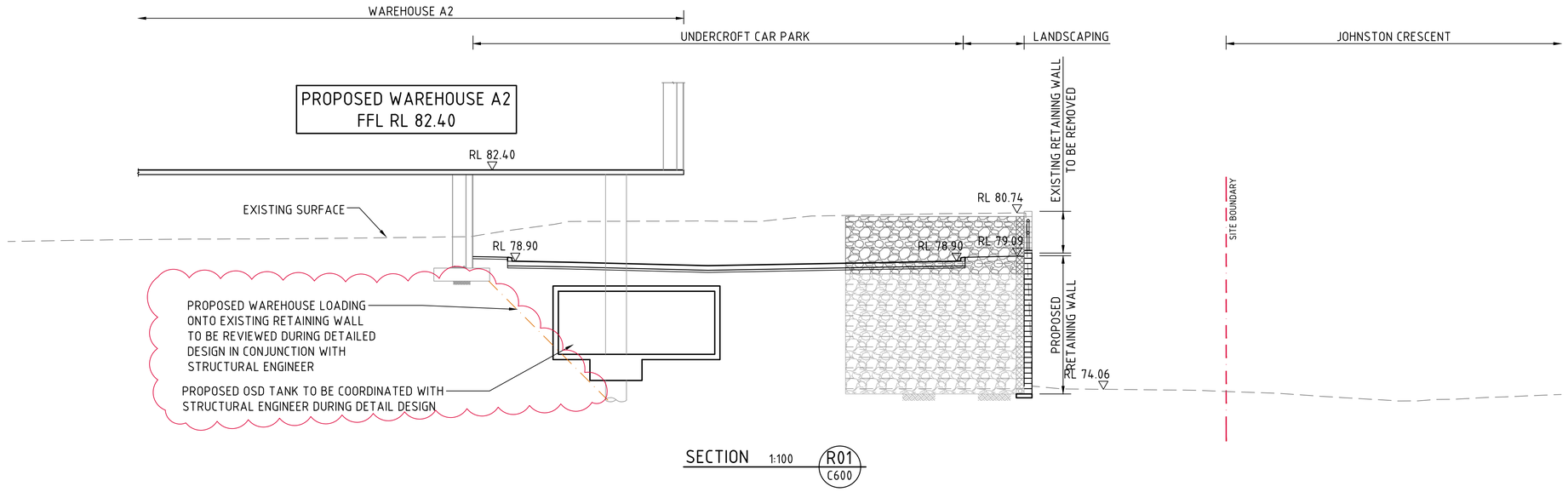
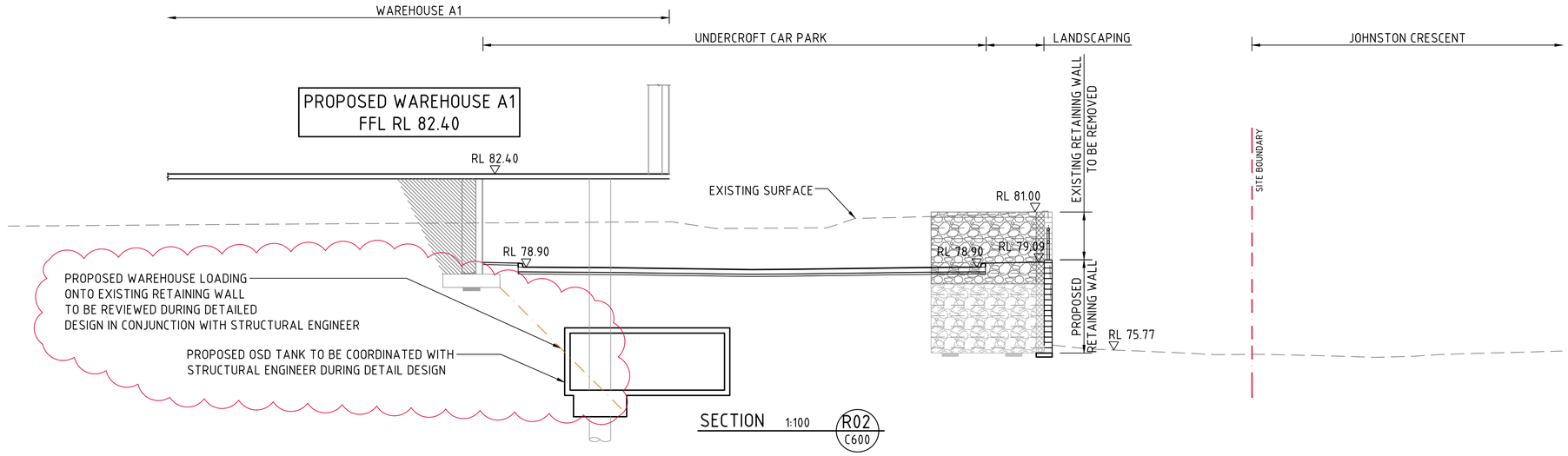


LEGEND:

B – DENOTES ZONE OF INFLUENCE LINE



1m 0 1 2 3 4 5 6 7 8 9 10m

SCALE 1:100 AT A1 SIZE SHEET

FOR INFORMATION

AMENDMENTS	DATE	ISSUE
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ISSUED FOR INFORMATION	16.07.24	A

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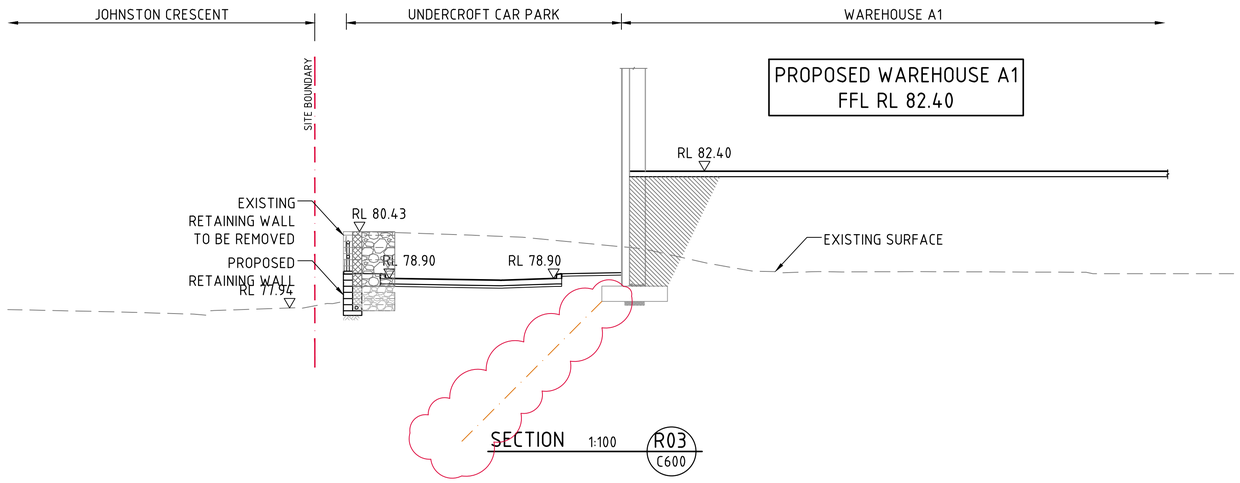
DRAWING TITLE
RETAINING WALLS SECTION
SHEET 1

DRAWING No C012990.17-SSDA 650

ISSUE B



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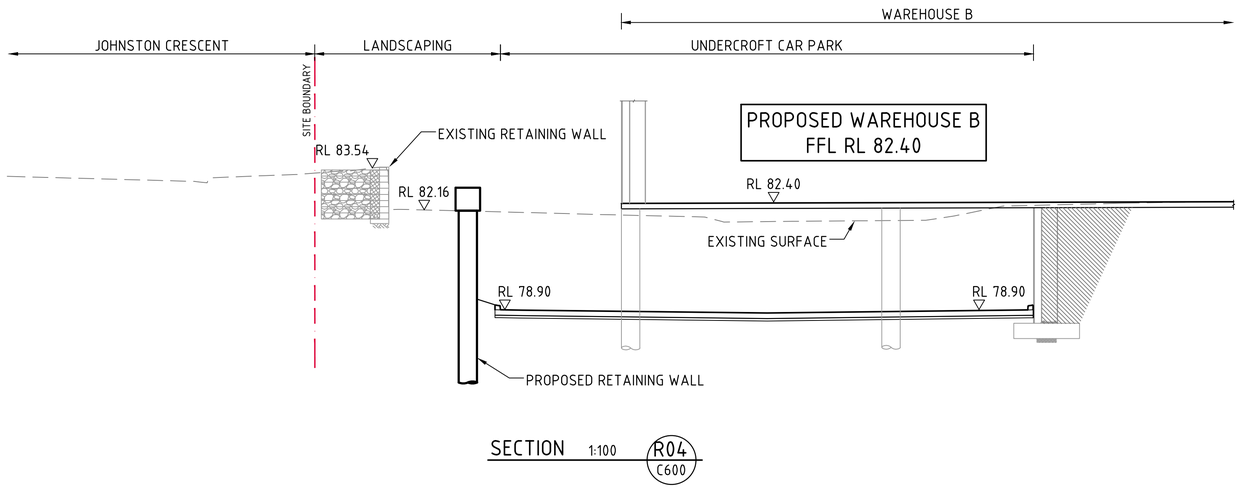

SECTION 1:100 R04 C600

LEGEND:

B - DENOTES ZONE OF INFLUENCE LINE

1m 0 1 2 3 4 5 6 7 8 9 10m

SCALE 1:100 AT A1 SIZE SHEET

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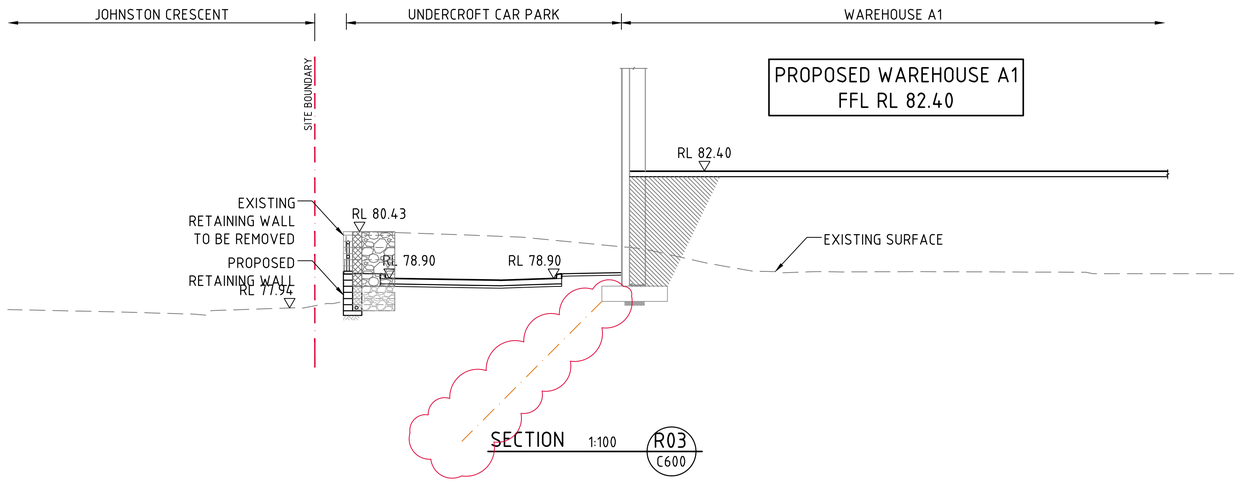
RETAINING WALLS SECTION
SHEET 2

DRAWING No C012990.17-SSDA 651

ISSUE A



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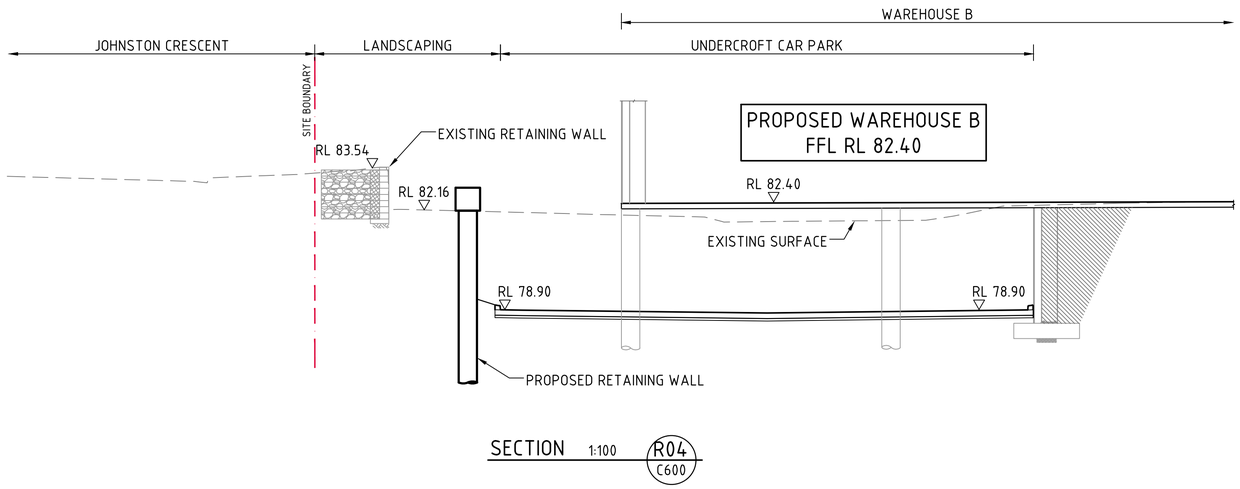

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LEGEND:

B - DENOTES ZONE OF INFLUENCE LINE

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SCALE 1:100 AT A1 SIZE SHEET

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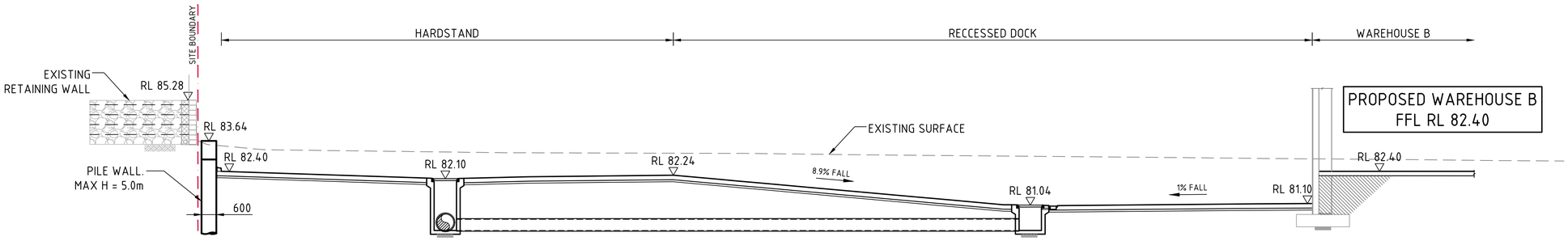

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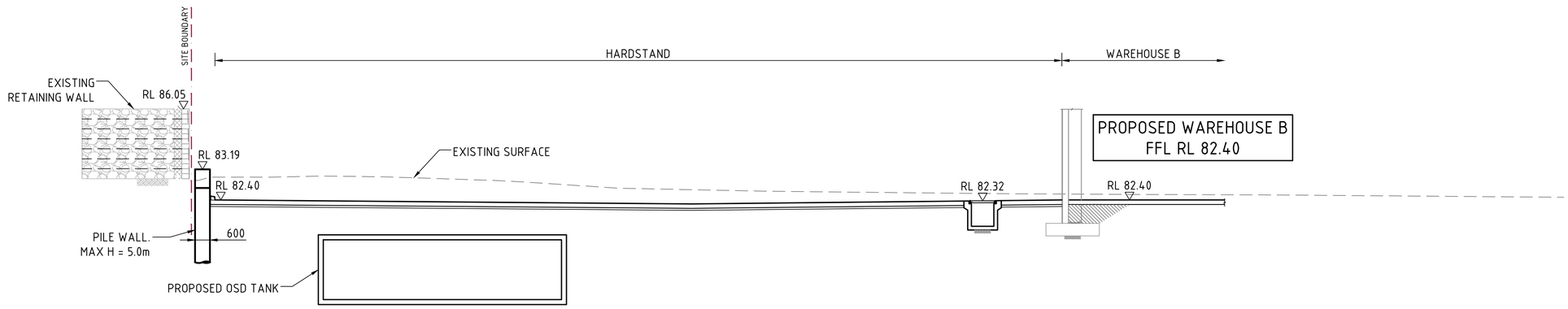

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SCALE 1:100 AT A1 SIZE SHEET

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AMENDMENTS	DATE	ISSUE

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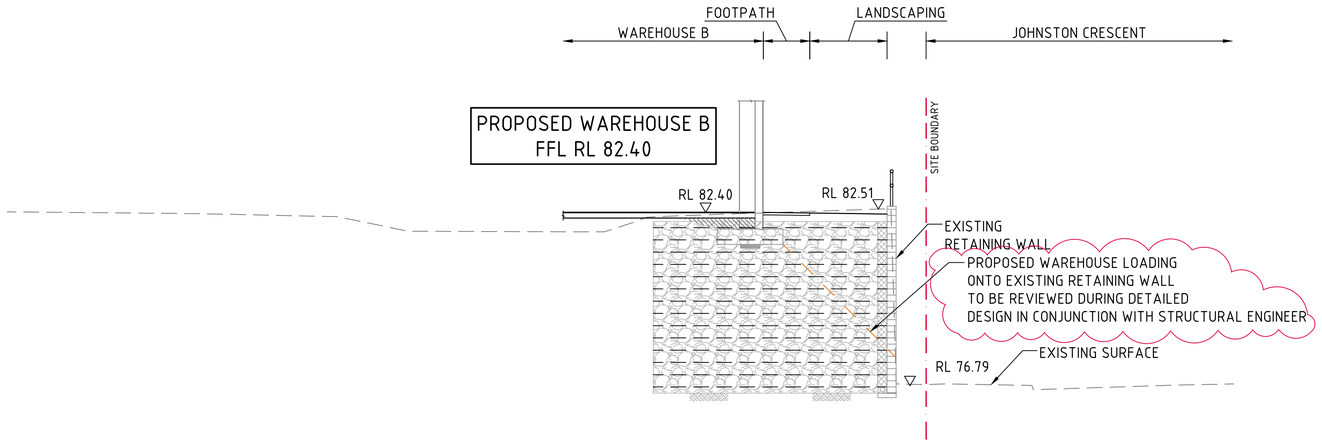
RETAINING WALLS SECTION
SHEET 3

DRAWING No C012990.17-SSDA 652 ISSUE A



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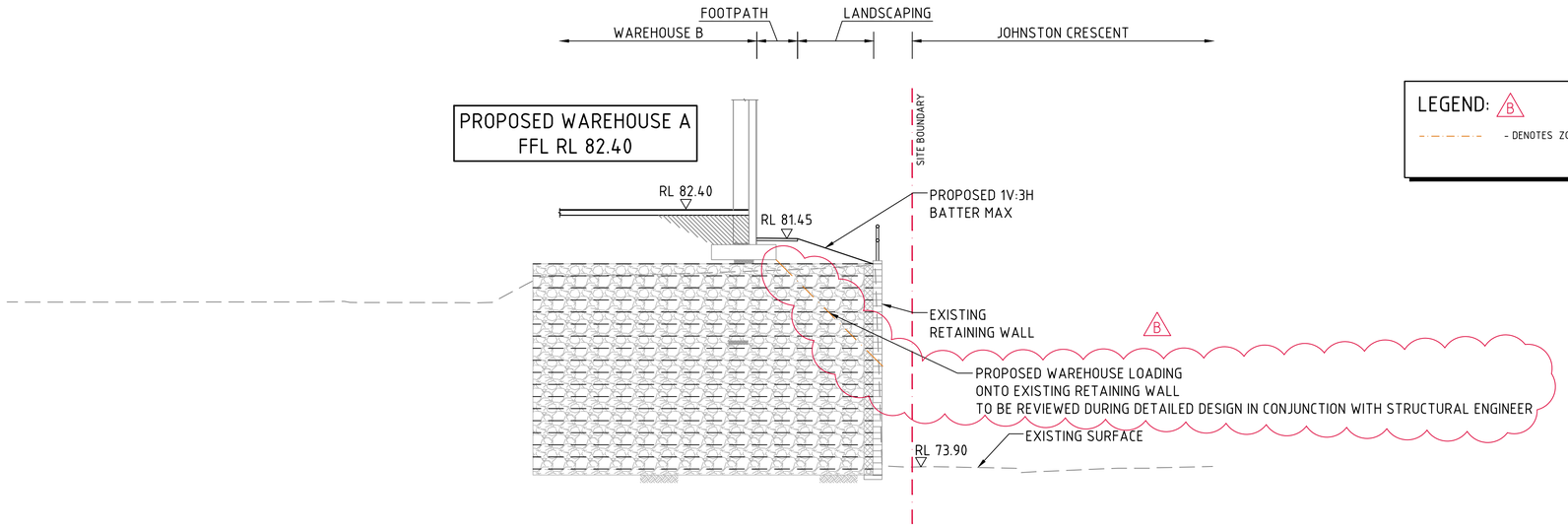

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SCALE 1:100 AT A1 SIZE SHEET

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PROJECT
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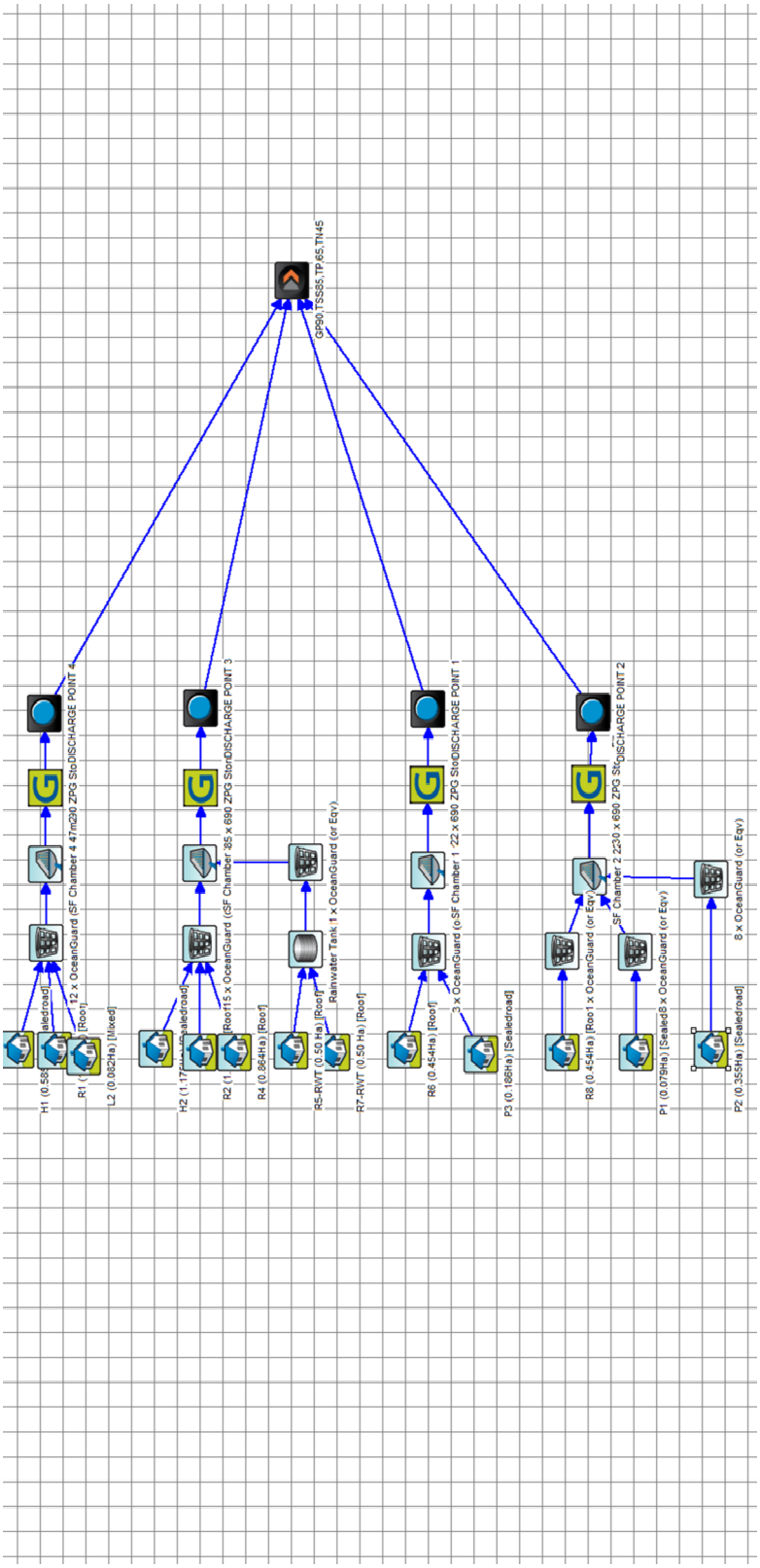
DRAWING TITLE
RETAINING WALLS SECTION
SHEET 4

DRAWING No C012990.17-SSDA 653

ISSUE B

Appendix B

MUSIC Layout



Appendix C

SSD SEAR's

Planning Secretary's Environmental Assessment Requirements

Warehouses and distribution centres

Development details

Application number	SSD-71144719
Project name	Horsley Logistics Park Stage 2
Location	3 Johnston Crescent, Horsley Park within Fairfield City Local Government Area
Applicant	ESR Australia Pty Ltd
Date of issue	29 May 2024

Content and guidance

Any Environmental Impact Statement (EIS) must meet the minimum form and content requirements as prescribed by Part 8 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the *State Significant Development Guidelines*.

Relevant policies and guidelines can be found at https://www.planningportal.nsw.gov.au/major-projects/assessment/policies-and-guidelines.

Key issues and documentation

Issue and Assessment Requirements	Documentation
1. Statutory Context • Address all relevant legislation, environmental planning instruments (EPIs) (including drafts), plans, policies, guidelines and planning circulars. • Identify compliance with applicable development standards and provide a detailed justification for any non-compliances. • Provide an explanation of how the development as described in the EIS is consistent with the development as was described in the request for SEARs (including any components that were not SSD) and provide a justification for any differences. • Address the requirements of any approvals applying to the site, including any concept approval or recommendation from any Gateway determination.	• Address in EIS
2. Estimated Development Cost and Employment • Provide the estimated development cost (EDC) of the development prepared in accordance with the relevant planning circular using the Standard Form of EDC Report. • Provide an estimate of the retained and new jobs that would be created during the construction and operational phases of the development, including details of the methodology to determine the figures provided.	• EDC Report

Issue and Assessment Requirements	Documentation

3. Design Quality
• Demonstrate how the development will achieve:
  ○ design excellence in accordance with any applicable EPI provisions.
  ○ good design in accordance with the seven objectives for good design in *Better Placed*.
• Where required by an EPI or concept approval, demonstrate that the development has been subject to a competitive design process, or reviewed by the State Design Review Panel (SDRP) where required under the *NSW SDRP: Guidelines for Project Teams*. Recommendations are to be addressed prior to lodgement.
	• Address in EIS
	If required:
	• Design Review Report (where the project has been reviewed by the SDRP)
	• Design Excellence Strategy (where design excellence is required by an EPI)
	• Competition Report (where a competitive design process has been held)

4. Built Form and Urban Design • Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach. • Demonstrate how the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality. • Demonstrate how the building design will deliver a high-quality development, including consideration of façade design, articulation, materials, finishes, colours, any signage and integration of services. • Assess how the development complies with the relevant accessibility requirements.	• Architectural drawings • Design Report • Survey Plan • Building Code of Australia Compliance Report • Accessibility Report
5. Visual Impact • Provide a visual analysis of the development from key viewpoints, including photomontages or perspectives showing the proposed and likely future development. • Where the visual analysis has identified potential for significant visual impact, provide a visual impact assessment that addresses the impacts of the development on the existing catchment.	• Visual Analysis • Visual Impact Assessment
6. Traffic, Transport and Accessibility • Provide a transport and accessibility impact assessment, which includes:	• Transport and Accessibility Impact Assessment • Construction Traffic Management Plan

Issue and Assessment Requirements	Documentation
○ details of all traffic types and volumes likely to be generated during construction and operation, including a description of key access and haul routes. ○ an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts on existing performance levels of nearby intersections (using industry standard modelling). ○ plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network. ○ details and plans of any proposed internal road network, loading dock provision and servicing, on-site parking provisions, and sufficient pedestrian and cyclist facilities, in accordance with the relevant Australian Standards. ○ swept path analysis for the largest vehicle requiring access to the development. ○ details of road upgrades, infrastructure works, or new roads or access points required for the development if necessary. • Provide a Construction Traffic Management Plan detailing predicted construction vehicle, routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.	• Green Travel Plan or equivalent
7. Trees and Landscaping • Provide a detailed site-wide landscape plan, that: ○ identifies the number and location of trees to be removed and retained, and how opportunities to retain significant trees have been explored and/or informs the plan. ○ details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage (as a percentage of the site area). ○ demonstrates how the proposed development would: ▪ contribute to long term landscape setting in respect of the site and streetscape. ▪ mitigate the urban heat island effect and ensure appropriate comfort levels on-site. ▪ contribute to the objective of increased urban tree canopy cover. ▪ maximise opportunities for green infrastructure, consistent with *Greener Places* and having regard to any bush fire risk.	• Landscape Plan

Issue and Assessment Requirements	Documentation

8. Ecologically Sustainable Development (ESD)
• Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.
• Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.
• Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.
• If Chapter 3 of SEPP (Sustainable Buildings) 2022 applies:
  ○ demonstrate how the development has been designed to address the provisions set out in in Chapter 3.2(1).
  ○ provide a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35BA of the EP&A Regulation.
	• ESD Report
	• NABERS Embodied Emissions Materials Form

9. Biodiversity • Assess any biodiversity impacts associated with the development in accordance with the *Biodiversity Conservation Act 2016* and the *Biodiversity Assessment Method 2020*, including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the site is on biodiversity certified land. • If the development is on biodiversity certified land, provide information to identify the site (using associated mapping) and demonstrate the proposed development is consistent with the relevant biodiversity measure conferred by the biodiversity certification.	• Biodiversity Development Assessment Report or BDAR Waiver
10. Air Quality • Identify significant air emission sources at the proposed development (during construction and operation), assess their potential to cause adverse off-site impacts, and detail proposed management and mitigation measures that would be implemented. Where air emissions during operation have the potential to cause adverse off-site impacts, provide a quantitative air quality impact assessment prepared in accordance with the relevant NSW Environment Protection Authority (EPA) guidelines.	• Address in EIS If required: • Air Quality Impact Assessment
11. Noise and Vibration • Provide a noise and vibration assessment prepared in accordance with the relevant EPA guidelines. The assessment must detail construction and	• Noise and Vibration Impact Assessment

Issue and Assessment Requirements	Documentation
operational noise and vibration impacts on nearby sensitive receivers and structures and outline the proposed management and mitigation measures that would be implemented.	

12. Ground and Water Conditions
• Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity and acid sulfate soils.
• Provide a Surface and Groundwater Impact Assessment that assesses potential impacts on:
  ○ surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses.
  ○ groundwater resources in accordance with the *Groundwater Guidelines*.
	• Geotechnical Assessment
	• Surface and Groundwater Impact Assessment
	• Salinity Management Plan and/or Acid Sulfate Soils Management Plan

13. Water Management
• Provide an Integrated Water Management Plan for the development that:
  ○ is prepared in consultation with the local council and any other relevant drainage or water authority.
  ○ outlines the water-related servicing infrastructure required by the development (informed by the anticipated annual and ultimate increase in servicing demand) and evaluates opportunities to reduce water demand (such as recycled water provision).
  ○ details the proposed drainage design (stormwater and wastewater) for the site including any on-site detention facilities, water quality management measures and nominated discharge points, on-site sewage management, and measures to treat, reuse or dispose of water.
  ○ demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse downstream impacts.
• Where water and drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards of, the local council or other drainage or water authority.
	• Integrated Water Management Plan

14. Flood Risk • Identify any flood risk on-site having regard to adopted flood studies, the potential effects of climate change, and any relevant provisions of the *NSW Flood Risk Management Manual.*	• Flood Impact Risk Assessment

Issue and Assessment Requirements	Documentation
• Where the development could alter flood behaviour, affect flood risk to the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the Flood Impact and Risk Assessment – Flood Risk Management Guide LU01. • Detail design solutions and operational procedures to mitigate flood risk where required.	
15. Hazards and Risks • Where there are dangerous goods and hazardous materials associated with the development provide a preliminary risk screening in accordance with Chapter 3 of SEPP (Resilience and Hazards) 2021. • Where required by SEPP (Resilience and Hazards) 2021, provide a Preliminary Hazard Analysis prepared in accordance with *Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis* and *Multi-Level Risk Assessment*. • If the development is adjacent to or on land in a pipeline corridor, report on consultation outcomes with the operator of the pipeline, and prepare a hazard analysis.	• Preliminary Hazard Analysis If required: • Hazard Analysis (Pipeline)
16. Contamination and Remediation • In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.	• Preliminary Site Investigation If required: • Detailed Site Investigation • Remedial Action Plan • Preliminary Long-term Environmental Management Plan
17. Waste Management • Identify, quantify and classify the likely waste streams to be generated during construction and operation. • Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. • Identify appropriate servicing arrangements for the site. • If buildings are proposed to be demolished or altered, provide a hazardous materials survey.	• Waste Management Plan • Hazardous Material Survey
18. Aboriginal Cultural Heritage • Provide an Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with relevant guidelines, identifying, describing and	• Aboriginal Cultural Heritage Assessment Report

Issue and Assessment Requirements	Documentation
assessing any impacts to any Aboriginal cultural heritage sites or values associated with the site.	
19. Environmental Heritage • Where there is potential for direct or indirect impacts on the heritage significance of environmental heritage, provide a Statement of Heritage Impact and Archaeological Assessment (if potential impacts to archaeological resources are identified), prepared in accordance with the relevant guidelines, which assesses any impacts and outlines measures to ensure they are minimised and mitigated.	• Statement of Heritage Impact • Archaeological Assessment
20. Social Impact • Provide a Social Impact Assessment prepared in accordance with the *Social Impact Assessment Guidelines for State Significant Projects*.	• Social Impact Assessment
21. Infrastructure Requirements and Utilities • In consultation with relevant service providers: o assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site. o identify any infrastructure required on-site and off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained. o provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.	• Infrastructure Delivery, Management and Staging Plan
22. Bush Fire Risk • If the development is on mapped bush fire prone land, or a bush fire threat is identified on or adjoining the site, provide a bush fire assessment that details proposed bush fire protection measures and demonstrates compliance with *Planning for Bush Fire Protection*.	• Bush Fire Assessment
23. Construction, Operation and Staging • If staging is proposed, provide details of how construction and operation would be managed and any impacts mitigated.	• Address in EIS
24. Contributions and Public Benefit • Address the requirements of any relevant contribution plan(s), planning agreement or EPI requiring a monetary contribution, dedication of land and/or works-in-kind and include details of any proposal for further material public benefit.	• Address in EIS

Issue and Assessment Requirements	Documentation
• Where the development proposes alternative public benefits or a departure from an existing contributions framework, the local council, the Department and relevant State agencies are to be consulted prior to lodgement and details, including how comments have been addressed, are to be provided.	
25. Engagement • Detail engagement undertaken and demonstrate how it was consistent with the *Undertaking Engagement Guidelines for State Significant Projects*. Detail how issues raised and feedback provided have been considered and responded to in the project. In particular, applicants must consult with: o the relevant Department assessment team. o any relevant local councils. o any relevant agencies (including the Western Parkland City Authority for development within the Western Parkland City). o the community. o if the development would have required an approval or authorisation under another Act but for the application of s 4.41 of the EP&A Act or requires an approval or authorisation under another Act to be applied consistently by s 4.42 of the EP&A Act, the agency relevant to that approval or authorisation.	• Engagement Report

Appendix D
Calibre Consulting "*Stage 3A Subdivision Design*" Reference Package 15-001115.17.

CSR HORSLEY PARK - STAGES 3A, 3B & 3C
SUBDIVISION DESIGN

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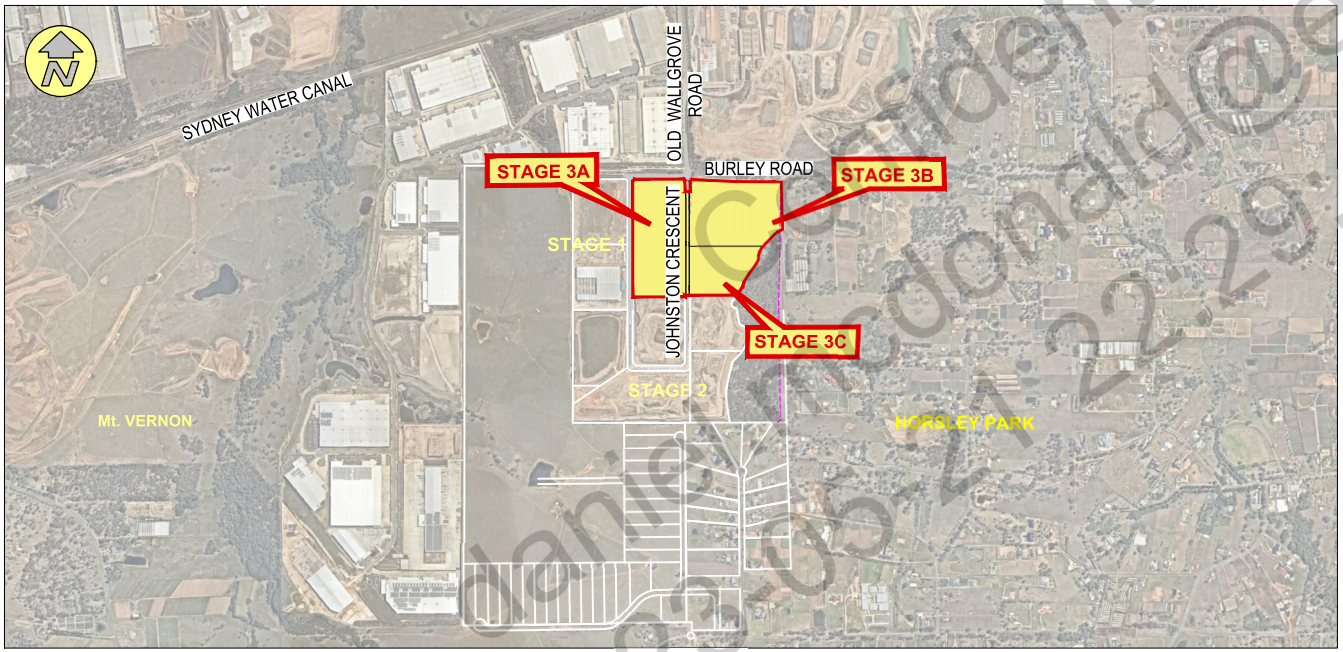
ISSUED FOR SECTION 4.56



LOCALITY PLAN
N.T.S.

CLIENT:

CSR

FairfieldCity
Celebrating diversity

LGA FAIRFIELD COUNCIL
DA 893.1/2013
LOT 2, DP 1228114

DRAWING LIST

NO.	DRAWING TITLE
	GENERAL
000	COVER SHEET
001	GENERAL NOTES AND LEGEND
002	GENERAL ARRANGEMENT PLAN
	SEDIMENT & EROSION CONTROL
101	SOIL & WATER MANAGEMENT PLAN
	SITE REGRADING
201	SITE REGRADING PLAN SHEET 01 OF 04
202	SITE REGRADING PLAN SHEET 02 OF 04
203	SITE REGRADING PLAN SHEET 03 OF 04
204	SITE REGRADING PLAN SHEET 04 OF 04
211	SITE REGRADING SECTIONS SHEET 01 OF 04
212	SITE REGRADING SECTIONS SHEET 02 OF 04
213	SITE REGRADING SECTIONS SHEET 03 OF 04
214	SITE REGRADING SECTIONS SHEET 04 OF 04
	ENGINEERING PLANS
301	ENGINEERING PLAN SHEET 01 OF 04
302	ENGINEERING PLAN SHEET 02 OF 04
303	ENGINEERING PLAN SHEET 03 OF 04
304	ENGINEERING PLAN SHEET 04 OF 04
	ROAD LONGITUDINAL SECTIONS
401	ROAD LONGITUDINAL SECTION AND TYPICAL CROSS SECTION

Fairfield City Council

These plans are to be read in conjunction with the MODIFIED development consent DA No. MA 893.9/2013, dated 12 May 2021

NOTE: This is not an approval to erect/demolish a building under Section 80 of the Environmental Planning and Assessment Act, 1979, as amended.

FairfieldCity
Celebrating diversity

Project Number 15-001115.17

CSR HORSLEY PARK - STAGES 3A, 3B & 3C
SUBDIVISION DESIGN

Project No.:	Stage:	Milestone:	Revision Date.:	Drawing No.:	Revision:
15-001115	3	S4.56	12/03/2021	000	1

GENERAL NOTES

GENERAL

G1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH FAIRFIELD COUNCIL'S ENGINEERING DESIGN AND ENGINEERING CONSTRUCTION POLICY No. 4-515, "SPECIFICATIONS FOR ROADWORKS AND DRAINAGE ASSOCIATED WITH SUBDIVISION OR OTHER DEVELOPMENT" AND TO THE REQUIREMENTS OF THE CERTIFYING AUTHORITY.

G2. INSPECTIONS BY CERTIFYING AUTHORITY ARE REQUIRED AT THE FOLLOWING STAGES AND THE WORKS APPROVED PRIOR TO CONTINUANCE OF ANY FUTURE WORK:

(A) FOLLOWING INSTALLATION OF EROSION AND SEDIMENT CONTROL STRUCTURES/MEASURES.

(B) PRIOR TO BACKFILLING PIPELINES, SUBSOIL DRAINS AND DAMS.

(C) PRIOR TO CASTING OF PITS AND OTHER CONCRETE STRUCTURES, INCLUDING KERB AND GUTTER BUT FOLLOWING PLACEMENT OF FOOTINGS, FORMWORK, AND REINFORCEMENT.

(D) PRIOR TO PLACEMENT OF SUB BASE AND ALL SUBSEQUENT PAVEMENT LAYERS, A PROOF ROLLER TEST OF EACH PAVEMENT LAYER IS REQUIRED.

(E) FORMWORKS PRIOR TO POURING CONCRETE IN PARKING AREA FOR FOOTPATH CROSSING AND OTHER ASSOCIATED WORK.

(F) PRIOR TO BACKFILLING PUBLIC UTILITY CROSSINGS IN ROAD RESERVES.

(G) FINAL INSPECTIONS AFTER ALL WORKS ARE COMPLETED AND 'WORKS AS EXECUTED' PLANS HAVE BEEN SUBMITTED TO COUNCIL.

(H) ADDITIONAL INSPECTION MAY BE REQUIRED BY PRINCIPAL CERTIFIER (COUNCIL). CONFIRM STAGE INSPECTIONS WITH PC PRIOR TO COMMENCEMENT OF WORKS.

G3. NO TREES SHALL BE PRUNED OR REMOVED WITHOUT PRIOR WRITTEN CONSENT IN THE FORM OF A TREE PRESERVATION ORDER FROM FAIRFIELD CITY COUNCIL.

G4. MAKE SMOOTH JUNCTIONS WITH EXISTING WORKS.

G5. NO WORK IS TO BE CARRIED OUT ON COUNCIL PROPERTY OR ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER/S.

G6. VEHICULAR ACCESS AND ALL UTILITIES/SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION.

G7. ALL RUBBISH, BUILDINGS, SHEDS AND FENCES TO BE REMOVED TO SATISFACTION OF COUNCIL'S ENGINEER.

G8. COUNCIL ENGINEERS HAVE DISCRETION TO VARY, AS CONSIDERED NECESSARY, THE ENGINEERING REQUIREMENTS IN RESPECT OF A PARTICULAR SUBDIVISION OR DEVELOPMENT HAVING REGARD TO THE SITE CONTEXT.

G9. WHERE CONSTRUCTION WORKS ARE OBSTRUCTED BY EXISTING BUILDINGS AND/OR FACILITIES. DEMOLITION OF EXISTING STRUCTURES ARE TO BE IN ACCORDANCE TO DA 357.1/2019.

EARTHWORKS

E1. EARTHWORKS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE COUNCIL. UNSUITABLE MATERIALS ARE TO BE REMOVED FROM ROADS AND LOTS PRIOR TO FILLING. THE CONTRACTOR IS TO ARRANGE AND MAKE AVAILABLE COMPACTION TESTING RESULTS FOR ALL AREAS THAT CONTAIN FILL IN EXCESS OF 200 MM.

E2. COMPACTION OF EARTHWORKS SHALL CONTINUE UNTIL A DRY DENSITY RATIO OF 95% FOR SITE FILLING AND 100% FOR ROAD PAVEMENT SUBGRADES HAS BEEN ACHIEVED IN ACCORDANCE WITH TEST METHOD AS1289.5.3.1 OR AS.1289.5.1.1. THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS'. WHERE IT IS PROPOSED TO USE TEST METHOD AS1289.5.8.1 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS.

E3. THE SUITABLE QUALIFIED GEOTECHNICAL ENGINEER, SHALL HAVE A LEVEL 1 RESPONSIBILITY FOR ALL FILLING AS DEFINED IN APPENDIX B AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS', AND AT THE END OF THE WORKS SHALL CONFIRM THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION AND DRAWINGS BY WRITTEN NOTIFICATION.

E4. IN AREAS TO BE FILLED WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS 1(V):4(H), BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF THE PLACED FILL MATERIAL AS REQUIRED BY THE COUNCIL.

E5. ALL BATTERS ARE TO BE SCARIFIED TO A DEPTH OF 50 MM TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.

E6. PROVIDE MINIMUM 100 MM AND MAXIMUM 300 MM COMPACTED THICKNESS OF APPROVED TOPSOIL SHALL BE PLACED OVER THE BALANCE AREA OF ALL FOOTPATHS AND CYCLE WAYS, FILLED AREAS AND ALL OTHER AREAS DISTURBED DURING CONSTRUCTION. TOPSOILED AREAS TO BE STABILISED WITH APPROVED VEGETATION A MAXIMUM OF 14 DAYS AFTER TOPSOILING AND ARE TO BE WATERED TO ENSURE GERMINATION.

E7. THE CONTRACTOR SHALL CONTROL SEDIMENTATION, EROSION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION' PRODUCED BY LANDCOM.

E8. AS PER DETAL SD 6-13 ON DWG No.103, A CONTINUOUS STRIP OF COUCH GRASS SHALL BE PLACED BEHIND THE BACK OF ALL KERBS AND OTHER CONCRETE STRUCTURES IMMEDIATELY AFTER THE COMPLETION OF THE FOOTPATH GRADING OR OTHER ELEMENTS AS APPLICABLE, AND SHALL BE MAINTAINED AND REPLACED AS REQUIRED DURING THE CONSTRUCTION MAINTENANCE PERIOD.

E9. ANY LOT FILLING OPERATIONS CARRIED OUT IN ACCORDANCE WITH THIS CONSENT SHALL BE TESTED TO ESTABLISH THE FIELD DRY DENSITY EVERY 300mm RISE IN VERTICAL HEIGHT. THE MINIMUM COMPACTION REQUIREMENT IN 95% STANDARD COMPACTION. TEST SITES SHALL BE LOCATED RANDOMLY ACROSS THE FILL SITE WITH 1 TEST PER 500m² (MINIMUM 1 TEST PER 300mm LAYER_ A REPORT FROM A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER SHALL BE SUBMITTED IN THIS REGARD

CALIBRE CONSULTING GENERAL

CG1. SURVEY SOURCED FROM:
-SURVEYOR: CALIBRE CONSULTING
-D.T.M.: HORSLEY PARK BRICK PLANT - MGA Z56, SURVEY DATED 05 JUNE 2013
-BOUNDARY: X13044.SP1 DATED 03 APRIL 2013

CG2. CONTRACTOR IS TO ENSURE THAT ALL WORKS ASSOCIATED WITH PROPERTY BOUNDARIES ARE TO BE SET OUT OR VERIFIED BY A REGISTERED SURVEYOR

ROADWORKS

R1. SUBGRADES AND SUB BASES ARE TO BE COMPACTED IN ACCORDANCE WITH COUNCIL'S CONSTRUCTION SPECIFICATION.

R2. SUBSOIL DRAINS TO BE PROVIDED ON BOTH SIDES OF ROADS (EXCEPT WHERE THERE IS STORMWATER DRAINAGE).

R3. LIPLESS PERAMBULATOR CROSSINGS ARE TO BE PROVIDED IN ALL KERB RETURNS AND WHERE REQUIRED BY COUNCIL.

R4. SERVICE CONDUITS TO BE PLACED AS DIRECTED BY ALL PUBLIC UTILITY AUTHORITIES INCLUDING ENDEAVOUR ENERGY, TELSTRA AND SYDNEY WATER.

R5. PROPOSED UTILITIES AND SERVICES CROSSING EXISTING ROADS SHALL BE PROVIDED FOR USING A TRENCHLESS TECHNIQUE SO AS NOT TO DAMAGE THE EXISTING SURFACE. ALL SERVICE CONDUITS UNDER ROADS MUST BE LAID TO A MINIMUM DEPTH OF 750 MM.

R6. CONCRETE FOOTPATH CONSTRUCTION IS TO BE BONDED WITH COUNCIL PENDING COMPLETION OF UTILITY/SERVICES.

R7. ALL TEMPORARY ROADS MUST BE TEMPORARILY SEALED WITH A SINGLE COAT FLUSH SEAL.

R8. ALL PERMANENT ROADS MUST BE SEALED WITH A SINGLE COAT FLUSH SEAL AND 50 MM OF AC THE ASPHALTIC CONCRETE IS TO BE LAID WITH A 30mm THICK (AC14) LAYER FOLLOWED BY A 20mm THICK (AC10) LAYER. THE SECOND LAYER OF AC IS TO BE BONDED WITH COUNCIL AND PLACED FOLLOWING APPROVAL FROM COUNCIL.

R9. SIGNPOSTING AND LINE MARKING SHALL CONFORM TO AS1742.2 'TRAFFIC CONTROL DEVICES FOR GENERAL USE'. RAISED RETRO-REFLECTIVE PAVEMENT MARKERS TO CONFORM TO AS1906 'RETRO-REFLECTIVE USE'. RAISED RETRO-REFLECTIVE PAVEMENT MARKERS TO CONFORM TO AS1906 'RETRO-REFLECTIVE MATERIALS AND DEVICES FOR ROAD TRAFFIC CONTROL PURPOSES'. ALL APRONS AND KERB FACE ON CENTRAL ISLANDS OF ROUNDABOUTS AND ALL OTHER ISLANDS TO BE DELINEATED BY REFLECTIVE WHITE MARKING. INSTALLATION SHALL OCCUR IN ACCORDANCE WITH THE PLAN APPROVED BY FAIRFIELD CITY COUNCIL IN CONJUNCTION WITH THE LOCAL TRAFFIC COMMITTEE.

R10. STREET SIGNS TO COUNCIL STANDARD MUST BE INSTALLED BY THE CONTRACTOR.

STORMWATER

S1. ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED.

S2. ALL LONGITUDINAL PIPELINES IN ROADS MUST BE LOCATED UNDER KERB AND GUTTER AND BE BACKFILLED WITH APPROVED GRANULAR MATERIAL UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S3. DRAINAGE LINES MUST BE BACKFILLED WITH APPROVED GRANULAR MATERIAL IN TRAFFICABLE AREAS. THREE (3) METRES OF SUBSOIL DRAINAGE WRAPPED IN GEOTEXTILE STOCKING MUST BE PROVIDED TO ALL DOWNSTREAM PITS.

S4. GULLY PITS TO COUNCIL'S STANDARD AND LINTELS CENTRALLY PLACED AT SAG PITS. DEEP PIT REFER TO STRUCTURAL DESIGN.

S5. ALL PITS MUST BE BENCHED AND STREAMLINED. PROVIDE GALVANISED STEP IRONS IN ALL PITS OVER 1.2-METRES DEEP AS MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE PIT.

S6. CONCRETE IS TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 32MPA AT 28-DAYS UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S7. ALL INTERALLOTMENT DRAINAGE MUST HAVE A MINIMUM PIPE DIAMETER OF 150 MM AND A MINIMUM GRADE OF 1% UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S8. ALL INTERALLOTMENT DRAINAGE LINES MUST BE LAID CENTRALLY WITHIN DRAINAGE EASEMENTS. INSPECTION PITS MUST BE PROVIDED AT ALL CHANGES OF GRADE AND DIRECTION.

S9. INTERALLOTMENT DRAINAGE LINES MUST BE INSTALLED AFTER SYDNEY WATER SEWERAGE LINES HAVE BEEN INSTALLED WHERE SEWER IS PROPOSED ADJACENT TO INTERALLOTMENT DRAINAGE LINES.

S10. 1% AEP OVERLAND FLOW PATHS MUST BE FORMED AND SHOWN ON 'WORKS AS EXECUTED' DRAWINGS.

S11. ALL PLANS (BOTH DESIGN AND WAE) ARE TO CLEARLY DELINEATE THE EXTENT/LOCATION OF FLOOD LINES INCLUDING THE 5% AEP, 1% AEP AND PMF.

S12. ADEQUATE PROVISION IS TO BE MADE TO PREVENT SCOURING AND SEDIMENTATION FOR ALL DRAINAGE WORKS IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.

S13. CATCH DRAINS MUST BE CONSTRUCTED AS REQUIRED BY THE APPROVED PLANS OR THE PRINCIPAL CERTIFYING AUTHORITY.

S15. SOIL AND WATER MANAGEMENT PLANS ARE TO BE PREPARED FOR ALL DISTURBED SITES AND ADHERED TO AT ALL TIMES DURING THE CONSTRUCTION AND MAINTENANCE PERIODS.

Project Number 15-001115.17

Fairfield City Council

These plans are to be read in conjunction with the MODIFIED development consent DA No. MA 893.9/2013, dated 12 May 2021

NOTE: This is not an approval to erect/demolish a building under Section 80 of the Environmental Planning and Assessment Act, 1979, as amended.

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LEGEND

DESCRIPTION	PROPOSED	EXISTING	FUTURE
STORMWATER PIPELINE	375Ø		
STORMWATER DRAINAGE PITS			
DRAINAGE LINE No. 3 DRAINAGE PIT No. 10	3/10	3/10	3/10
CONCRETE HEADWALL			
SUBSOIL DRAIN	SS		
150mm KERB AND GUTTER	K&G	EXIST. K&G	FUT. K&G
ROLL KERB AND GUTTER	RK	EXIST. RK	FUT. RK
KERB ONLY	KO	EXIST. KO	FUT. KO
EDGE STRIP	ES	EXIST. ES	FUT. ES
MOUNTABLE KERB	MK	EXIST. MK	FUT. MK
DISH CROSSING	DC	EXIST. DC	FUT. DC
VEHICULAR CROSSING	VC	EXIST. VC	FUT. VC
PEDESTRIAN RAMP	PR		
EDGE OF BITUMEN	EOB	EXIST. EOB	FUT. EOB
ROAD PAVEMENT			
BENCHMARK		BM: 115 RL:165.32	
BATTERS			
CONCRETE PATHWAY			
CONTOURS	99.5 99.0	99.5 99.0	99.5 99.0
SITE REGRADING AREA	CUT FILL		
SERVICE LINES SEWER, GAS, WATER, ELECTRICITY, RECYCLED WATER	S G W E RW	ex.S ex.G ex.W ex.E ex.RW	fut.S fut.G fut.W fut.E fut.RW
COMMUNICATION LINES TELSTRA, FIBRE OPTIC, NBN	T OF NBN	ex.T ex.OF ex.NBN	fut.T fut.OF fut.NBN
OVER HEAD LINES AND POLES	OH	ex.OH	fut.OH
SERVICE PITS ... MBER, ... VALVE			
... TION			
	D-LOTNO	E-LOTNO	F-LOTNO
... SITE ... N SITE		RETAIN REMOVE	
ROOF WATER OUTLET TO KERB			
ROOF WATER OUTLET TO BACK OF PIT			

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
	AV	JS	CK	EF	18/12/2020	
AMENDMENTS 1	LH	JS	CK	EF	12/03/2021	

STATUS: FOR SECTION 4.56

AUTHORISED FOR ISSUE:
BY: ENRIQUE FRANCO
BE(Hons) MIEAust. CPEng NER
SIGN: DATE: 14/3/21

SCALE

CLIENT: CSR

calibre
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PROJECT: CSR HORSLEY PARK STAGES 3A, 3B & 3C SUBDIVISION DESIGN

DISCLAIMER: ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

DRAWING TITLE: GENERAL NOTES AND LEGEND

PROJECT No.	DRAWING No.	STAGE	REVISION
15-001115	001	S4.56	1