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Waste Management Facility, Botany

Integrated Water Management Strategy

PREPARED FOR:

Coombes Property Group Pty Ltd

Waste Management Facility, Botany

Integrated Water Management Strategy

DOCUMENT HISTORY

Revision	Prepared By	Verified By	Date
1	RO	TS/BW	05/03/2024
2	RO	TS	03/ 04/2024
3	RO	BW	29/11/2024
4	TS	BW	20/12/2024
5	TS	BW	08/04/2025
6	TS	BW	02/09/2025

Current Revision

Final

Revision: 6

Date: 02/09/2025

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EXECUTIVE SUMMARY

This Integrated Water Management (IWM) report has been prepared to accompany a development application (DA) which seeks consent for a construction and demolition (C&D) waste management facility at 2-4 Hale Street, Botany (Lot 1 DP 562374) (the subject site). The proposal is classified as State Significant Development (SSD) under Section 4.36 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and is subject to NSW Planning Secretary's Environmental Assessment Requirements (SEARs, SSD-62855708, 25 Oct 2023).

This report has been prepared to address all water-related items listed under the SEARs, including relevant government authority advice. Please refer to Table 1. This report references, and should be read in conjunction with, all documents submitted as part of this DA. These include, although are not limited to: Flood Impact Assessment, Infrastructure, Ecologically Sustainable Development, and Landscape Masterplan reports (refer Section 2.1).

The C&D facility includes buildings (warehouse and office) and on-grade hardstands for vehicle access, parking, and egress. Waste management operations will be undertaken inside the warehouse. The preliminary water balance for the developed site, which details the project's likely water demands and the various water streams flowing into and out of the site, has informed IWM.

The overarching premise of the developed IWM strategy, which is summarised bullet points below, is that the facility is designed and managed such that it does not become a point source of waterway contamination, a risk to the environment, or a burden on the Authority water supply system.

- Operational (warehouse) floor drainage separated from surface water network, and connected to sewer (trade waste agreements *tba*).
- Stormwater drainage appropriately treated prior to discharge to a proposed new Stormwater Discharge Point on Hale St.
- Stormwater treatment train includes roofwater capture and reuse, and a new raingarden integrated into front landscaping.
- Collected roofwater treated as required and made available for nonpotable end uses (landscape irrigation, toilet flushing, wheel wash, and machinery and warehouse floor hose-down).
- The site is in a designated flood prone area and is subject to significant flooding in events greater than the 1% AEP.
- Given the site's location in the heavily flooded area, flood storage is proposed in lieu of on-site detention (OSD).
- In the event of the fire sprinklers being activated, fire sprinkler water will be detained on site (in-ground tank beneath the warehouse floor) to ensure no discharge to the surface water (stormwater) network without appropriate treatment.

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1.1 SEARs REQUIREMENTS AND GOVERNMENT AUTHORITY ADVICE

Table 1. Summary Compilation of the SEARs Requirements and Government Authority Advice Addressed in this IWM Report.

#	SEARs Key Issues – Water Management	Where in this report this is addressed
01.	<p>An Integrated Water Management Strategy, including:</p> <p>A surface and groundwater water discharge assessment in accordance with relevant EPA guidelines, including an assessment of potential impacts on watercourses, riparian areas, key fish habitat and recreational fishing, groundwater, and groundwater-dependent communities nearby</p>	<p>The subject site is in the Georges River catchment, to which up to eleven Water Quality Objectives and twelve coastal River Flow Objectives apply. The NSW Water Quality and River Flow Objectives are interpreted by the catchment management authorities in the development of catchment and land use planning processes. Sydney Water is the primary water quality authority responsible for catchment management.</p> <p>The stormwater and wastewater management systems designed for the proposed project will comply with the requirements and guidelines specified and enforced by Sydney Water and Bayside Council. To ensure no change in water quality or threat to the environmental values of the catchment there will be no unauthorised connections nor discharge of untreated or improperly treated water.</p> <p>Note that there will be no discharge to or extraction of groundwater as part of this proposal and no construction of any major in-ground infrastructure such as basements. Therefore, the proposal will not impact groundwater / groundwater-dependent communities.</p>
02.	<p>Details of the proposed stormwater/wastewater drainage design incorporating water sensitive urban design techniques, including the capacity of on-site detention system(s), on-site sewage management and measures to treat, reuse or dispose of water</p>	<p>Stormwater refers to rainfall runoff from proposed warehouse and office roofs and outdoor trafficable areas (pavements and car parks).</p> <p>Any water that has come into contact with waste management operations, contaminated surfaces or materials, or bunded areas is classified as wastewater and is to be kept separate from the surface water (stormwater) stream.</p> <p>This IWM report describes the proposed stormwater drainage design, including WSUD, detention and water reuse. Please refer to Section 5 in this report for a description of the proposed stormwater drainage design.</p>

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		CJ Arms, 2024a. <i>Waste Management Facility, Botany Infrastructure Assessment – Water, Sewer, and Stormwater</i> report outlines the intention for wastewater management for the project. At this stage, no on-site wastewater treatment or reuse is proposed. Wastewater will be managed in line with any trade waste agreement if applicable (<i>tba</i>).
03.	Characterisation of water quality at the point of discharge to surface and/or groundwater against relevant water quality criteria using a MUSIC water quality model and demonstration that all connections comply with Sydney Water requirements	<p>Characterisation of stormwater quality at the point of discharge: MUSIC modelling including water quality results are included in Sections 5.8 and 5.9 of this report. Modelling demonstrates compliance with Sydney Water stormwater quality discharge requirements as specified in Bayside Technical Specification Stormwater Management.</p> <p>Characterisation of groundwater not relevant as there will be no impact to groundwater from proposed development.</p>
04.	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, the local council or other drainage or water authority	<p>Refer Section 5.7 in this report.</p> <p>The proposed stormwater drainage system (combined roof drainage and surface drainage) for new development will connect to Council’s stormwater drainage system at the front of the site in Hale St.</p> <p>Design of this connection will comply with authority requirements and relevant standards (Australian Standard AS/NZS3500.3) and guidelines, with full hydraulic details and detailed plans and specification to be completed at Construction Certificate stage.</p>
05.	Details of any surface or groundwater mitigation, management and monitoring activities and methodologies.	<p>Refer to Section 5 for a description of surface water management strategy. The proposed strategy complies with Bayside Technical Specification Stormwater Management as modelled in MUSIC.</p> <ul style="list-style-type: none"> • All surface water from hard surfaces (roof and pavements) are to be directed for treatment through the proposed raingarden that will be integrated into the landscape at the front of the subject site. • Roof water will be captured for on-site reuse in a proposed 60 m³ rainwater tank with overflow (if tank full) to the raingarden.

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	Bayside Council Advice	Where in this report this is addressed
06.	10. A detailed Stormwater Management Plan and design certification must be prepared by an accredited professional.	This IWM report details the proposal's stormwater management strategy, which has been prepared and reviewed by Members of the Institute of Engineers Australia with over 20 years' industry experience.
7.	11a. Detailed calculations and parameters used to define the storage volumes and discharge rates of the On-Site Detention (OSD) system.	Given the location of the site at the low point for the catchment in a heavily flood affected area, a flood storage is proposed in lieu of an OSD system. Refer also to Section 5.6 for a summary description of proposed flood storage.
8.	11b. Calculations showing capacity of the internal drainage systems; overflow structures and overland flow paths/floodway (if applicable); location of any Council drainage easements and/or drainage system within and adjacent to the site.	Calculations and details on the capacity of the internal drainage systems to be undertaken at Construction Certificate stage. There is no overland flow path through the subject site. The approximate location of relevant drainage and overflow structures are shown in Appendix B. EXISTING SITE SURVEY .
9.	11c. Design plans and details: i. Site layout ii. Existing site contours and final design levels iii. Catchment area draining to each OSD system iv. Finished floor levels and footprints of the proposed development/ structures v. Location and size of the internal and external drainage systems, rainwater re-use system and OSD systems.	i. The site layout as prepared by the project architect is included in Appendix A. Proposed Site Layout. ii. Site survey is appended in Annexure D and final design levels will be completed at Construction Certificate stage. iii. Not applicable as OSD is not required (flood storage provided in lieu of OSD, refer Section 5.6). iv. Shown in Appendix A. Proposed Site Layout. v. The location and size of the drainage and rainwater reuse systems are shown in Appendix B. EXISTING SITE SURVEY .

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	<ul style="list-style-type: none"> vi. Levels and location of discharge points for each OSD system vii. Maximum water surface levels in each storage. viii. Overflow structures and surcharge/overflow paths ix. Locations and details of each discharge control unit (if any) x. Location and extent of any overland flow path/ floodway through the site (if any). xi. Location and type of pollution control devices. xii. Cross-sections details of the rainwater tanks and OSD systems. 	<ul style="list-style-type: none"> vi. Flood storage (in lieu of OSD) is shown in Appendix B. vii. Designed maximum water levels will be finalised at Construction Certificate stage. viii. The approximate location of relevant drainage and overflow structures shown in Appendix B (to be detailed at Construction Certificate stage). ix. Not applicable as OSD is not required. x. Not applicable as there is no overland flow path through the subject site. xi. Pollution control devices are located on the proposed Stormwater Management plan in Appendix B and described in Section 5.8. xii. Rainwater tanks and flood storage will be detailed at Construction Certificate stage.
<p>10.</p>	<p>12. The development requires the use of a Water Sensitive Urban Design Approach (WSUD) to the design of the drainage system. Bayside Technical Specification Stormwater Management requires development to confirm the targets for the stormwater pollution reduction and to justify the target by an analysis using MUSIC. Bayside Technical Specification Stormwater Management also outlines the stormwater reduction targets:</p>	<p>The WSUD approach for stormwater management has been developed in compliance with Bayside Technical Specification Stormwater Management and modelled using MUSIC.</p> <p>Refer to Sections 5.8 and 5.9 of this IWM report.</p>
<p>11.</p>	<p>13. WSUD modelling utilising MUSIC must be submitted along with the stormwater plans depicting compliance with the following:</p> <ul style="list-style-type: none"> a. Incorporation of a Stormwater Quality Improvement system to ensure compliance with Bayside Technical Specification Stormwater Management, and 	<p>The WSUD treatment train and MUSIC model have been developed in compliance with Bayside Technical Specification Stormwater Management and the NSW MUSIC Modelling Guidelines. Refer Section 5.8 and 5.9 of this report.</p> <p>The MUSIC model is submitted for review with this IWM report.</p>

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	b. The MUSIC model must be prepared in line with the NSW MUSIC Modelling Guidelines.	
	Aerodrome Developments and Airspace Protection (CASA)	Where / how this is addressed in this report
12.	Given the proximity of the subject site to Sydney airport, SEARs advice has been sought from CASA. Water management has not been specifically referenced by CASA although managing the risk of wildlife and bird strikes is an important consideration.	To manage the risk of wildlife and bird strike, the developed water management strategy ensures adequate drainage aimed at minimising the pooling and ponding of water.
	NSW EPA. Site Specific Requirements	Where / how this is addressed in this report
13.	<p>7. Wastewater management</p> <p>The EIS must include details of how wastewater at the facility will be managed. This includes but is not limited to:</p> <ul style="list-style-type: none"> • storage, treatment, sampling and disposal. • mitigation measures proposed to be implemented to prevent and mitigate leaks and spills from on-site activities: <ul style="list-style-type: none"> ○ appropriate primary and secondary containment systems should be included. ○ details of bunding, isolation, overflow prevention and other controls should be prioritised to demonstrate spill and leak related risks have been appropriately considered and addressed. ○ detailed information regarding any trade waste agreements in place with Sydney Water. 	<ul style="list-style-type: none"> • CJ Arms 2024a provides the preliminary strategy for wastewater management, including sewage and trade waste • The proposed project intends to re-use as much wastewater from warehouse and stockpiling operations as practical, noting that wastewater production rates are expected to be very low (refer to Section 4). • Bunding around fuel storage areas and contaminated stockpiles to be detailed at future design stages. • Given the current early stage of the project, Sydney Water has not been consulted regarding proposed wastewater management or future trade waste licencing agreements. Wastewater applications will be undertaken during future design stages and conditions of connection will be identified and communicated at those stages.
14.	8. Water management	

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	<p>It is considered best practice by the EPA for facilities to retain all water on site and not discharge any water in order to limit pollution and contamination. The EPA requires the Applicant first demonstrate that all practical and reasonable alternatives to discharge have been considered and implemented before other options are reviewed. Where discharge of polluted water is unavoidable, the Applicant must:</p> <ul style="list-style-type: none"> • identify all pollutants that pose a risk of non-trivial harm and the potential impact of those pollutants on the environment. • implement all practical measures that can be taken to prevent, control, abate or mitigate the pollution and protect the environment from harm. • consider the environmental values of water affected by the proposed discharge; and implement all practical measures that can be taken to restore or maintain those values. 	<ul style="list-style-type: none"> • CJ Arms 2024a provides the preliminary strategy for wastewater management. • All water generated from waste processing (warehouse floor, stockpiling, wash-down etc.) will be classified as “wastewater” and will be drained to the wastewater management system. • Rainfall runoff from roofs and external pavements will be classified as stormwater and will be drained towards the stormwater treatment and flood storage systems prior to discharge. • Wastewater drainage will be completely isolated from the stormwater drainage system, through necessary bunding, sumps, floor drainage etc. • If required under future trade waste agreements, testing and treatment of the wastewater streams will be undertaken to ensure no discharge of untreated or improperly treated contaminated water to the environment. • Design of wastewater drainage and treatment systems will be undertaken during future design stages.
<p>15.</p>	<p>An assessment of impacts to water, during both construction and operation, must be included in the EIS. This must include at a minimum:</p> <ul style="list-style-type: none"> • characterisation of any proposed discharges from the Premises (both volume and quantity). • assessment of the potential impacts from these discharges. • proposed mitigation measures to manage any impacts (discharges includes, but is not limited to, stormwater (contaminated and uncontaminated), and wastewater (such as from dewatering)). 	<ul style="list-style-type: none"> • A Construction and Environmental Management Plan (CEMP) will be prepared and submitted at Construction Certificate stage (Section 6). • Likely water streams (both quality and flow) from stockpile drain-through, warehouse hose-down, and wheel and machinery washing will be detailed at future design stages. • Wastewater drainage will be completely isolated from the stormwater drainage system, through bunding, sumps, floor drainage etc. as required. • On-site treatment and trade waste agreements for site wastewater will be developed at this time.
<p>16.</p>	<p>Detailed information regarding the management of stormwater during both construction and operation must be included in the EIS.</p>	<p>A Construction and Environmental Management Plan (CEMP) will be prepared and submitted at Construction Certificate stage (Section 6).</p>

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17	Details must be provided of any trade waste agreements which are (or are proposed to be) in place with Sydney Water.	Trade waste agreements will be put in place with Sydney Water. Formal applications will be made after this DA (SEARs) process, at a relatively early stage in the design of this project.
18.	Sufficient evidence must be provided that the proposed systems will be capable of adequately managing stormwater. This includes a thorough integrity assessment of the proposed stormwater system to demonstrate its adequacy and suitability.	Preliminary stormwater design is presented in this report (Section 5). This will be subject to scrutiny and detailing during upcoming stages in the design process.
19.	<p>The waste management warehouse building must be constructed to exclude all stormwater and internal surfaces be graded inwards to contain any contaminated water (being any water that has come into contact with waste or other materials which have the potential to cause contamination).</p> <p>The EPA notes even where all waste activities are conducted within a fully enclosed building, materials may be tracked on to external surfaces leading to the generation of contaminated water.</p> <p>Any external areas where vehicles travel or wait for loading/unloading must drain to a stormwater quality treatment device sufficient to remove any contaminants, both solid and dissolved, prior to discharge offsite.</p>	<ul style="list-style-type: none"> • All water generated from waste processing (stockpile management, wash-down etc.) will be drained to the wastewater management system, with stormwater drainage isolated from this system (refer CJ Arms 2024a). • External pavements to be drained towards the stormwater treatment and flood storage system prior to discharge.

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	SYDNEY WATER	Where / how this is addressed in this report
20.	The proponent needs to ensure the removal of all these unauthorised connections from the property and needs to engage appropriate professionals to ensure stormwater discharge from the development site complies with Sydney Water’s connection requirements.	The proponent confirms that unauthorised connections to the Sydney Water stormwater assets adjacent to the subject site will be removed. Given the close proximity of the subject site to the Sydney Water stormwater asset, building plans to be submitted for approval to Water Servicing Coordinator (WSC). Note that this will take place in future design stages.
21.	No buildings or permanent structures are to be proposed over the stormwater channel / pipe or within 1m from the outside wall of the channel / pipe or within Sydney Water’s easement, whichever is larger. Permanent structures include (but are not limited to) basement car parks, hanging balconies, roof eaves, hanging stairs, stormwater pits, stormwater pipes, elevated driveway, basement access or similar structures. This clearance requirement would apply for unlimited depth and height.	The buildings will be set back from site boundaries, with recommended landscaped buffers and to ensure access and egress for emergency services vehicles. Refer architectural master plan in Appendix A. Proposed Site Layout and CJ Arms 2024b. <i>Hale Street, Botany. Landscape Concept Design</i> report. As the building is within 10m of the assets listed, an Out of Scope BPA is required from Sydney Water during the design phase of the project and building plans will be submitted for approval to WSC.
22.	The applicant is required to submit the elevation drawings with the stormwater channel/ pipe shown, to ensure that the proposed buildings and permanent structures are 1m away from the outside face of the stormwater channel and away from the Sydney Water easement.	Please refer to master plan (Appendix A) and architectural elevation drawings submitted as part of this DA. As the building is within 10m of the assets listed, an Out of Scope BPA is required from Sydney Water during the design phase of the project and building plans will be submitted for approval by a WSC.
23.	Integrated Water Cycle Management	A preliminary IWM strategy has been developed, and has been summarised in Section 4 of this report. The overarching premise of the developed IWM strategy is for the new C&D facility to be designed and managed such that it does not become a point source of waterway contamination, a risk to the environment, or a burden on the Authority water supply system. Water conservation strategies include water efficiency and the capture and reuse of roofwater for nonpotable use.

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<p>4. The proponent should outline any sustainability initiatives that will minimise/reduce the demand for drinking water, including any alternative water supply and end uses of drinking and non-drinking water that may be proposed, and demonstrate water sensitive urban design (principles are used), and any water conservation measures that are likely to be proposed. This will allow Sydney Water to determine the impact of the proposed development on our existing services and required system capacity to service the development.</p>	<p>WSUD and stormwater management is described in Section 5. Detailed design of these systems will be undertaken during future and ongoing design stages early in the design process.</p>

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1.2 RESPONSE TO SUBMISSIONS COMMENTS

A response to this submission was provided by Bayside Council (their ref: SSD-2024/10) dated 09/09/2024 – and the response to their civil engineering queries is summarised below (note flood and landscape related queries are responded to in other respective reports):

Bayside Council Comments	Proponent Response	Location Addressed
<p>It's not clear how the building is set at or above the flood planning level (1% AEP flood level + 500mm freeboard) given Council's flood model indicates flood levels of RL 2.92m directly to the west of the proposed building.</p>	<p>As discussed in the council pre-application meeting the spurious data along the western boundary is due to the lidar data in the council model which is slightly different than the actual topography in this location, largely resulting from issues with lidar representation in the model.</p> <p>This information is reflected in the attached civil concept plan.</p>	<p>Appendix D and B show the updated survey data and proposed level concept respectively.</p>

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Bayside Council Comments	Proponent Response	Location Addressed
<p>The development should investigate the feasibility of having warehouse levels set above the sea level rise/climate change 1% AEP flood level to future proof the building. The commentary in section 10.1.3 is not supported. It is not feasible for the development to rely on drainage upgrades in the surrounding area to mitigate flood level impacts due to climate change/sea level rise.</p>	<p>Additional modelling as requested shows the proposed floor level (2.50m AHD) of the building is already set above the 2100 climate change scenario.</p> <p>The 500mm freeboard provides sufficient protection for climate change scenarios.</p> <p>ARR_BLK Design scenario 2050 CC - rainfall (0.5% AEP) and tidal increase of 0.4m – FL 2.14m AHD 2100 CC - rainfall (0.2% AEP) and tidal increase of 0.9m – FL 2.44m AHD.</p>	<p>Appendix B shows the floor level and approximate extent of inundation in the 1% AEP event up to RL 2.00</p>
<p>The substation is to be flood proofed to the 1% AEP + 500mm level.</p>	<p>Noted. The electrical substation floor level is set at 2.5m which is above 1% AEP + 500mm freeboard.</p>	<p>Appendix B shows the proposed level of the substation.</p>
<p>A set of stormwater plans prepared by a suitably qualified civil engineer were not provided. As a result, the development cannot be assessed to determine if it satisfies clause 6.3 and clause 5.21 of the Bayside LEP and the requirements of the Bayside DCP (section 3.9, 3.10 and 9.5). These plans need to be provided to enable the development to be fully assessed.</p>	<p>We have included a revised and more detailed concept in Appendix B for reference. The provision of a full set of detailed design plans is not typical at this stage of a development application as it will be undertaken at Construction Certificate stage, however the information now included in Appendix B should provide enough detail to facilitate review</p>	<p>Appendix B</p>

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Bayside Council Comments	Proponent Response	Location Addressed
<p>There is a limited number of plans accompanying the development proposal. In the architectural plans submitted there are no details of design surface levels across the site. Full details of design surface levels across the site are necessary to inform the assessment of the development (particularly the flood impact assessment). A civil grading plan and a cut/fill bulk earthworks plan needs to be provided to understand and assess the design surface levels across the site. The gradients on the driveway to the warehouse need to comply with AS2890.2:2018. The levels in the civil grading shall be reflected in the architectural design.</p>	<p>Updated architectural plans with design surface levels across the site have been provided. Refer to Appendix A and Architectural drawing package. Cut and fill plan has been prepared by comparing design versus existing surfaces and is appended in Annexure E. The gradients from the street to the building are indicated on Appendix B and considered practical and compliant with AS2890.2</p>	<p>Appendix A, B and E</p>

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Bayside Council Comments	Proponent Response	Location Addressed
<p>The stormwater plans shall include the following details at minimum:</p> <ul style="list-style-type: none"> • Site layout; • Surface and roof drainage plans; • Existing site contours and final design levels; • WSUD catchment plan; • Finished floor levels and footprints of the proposed development/ structures; • Location and size of the internal and external drainage systems, rainwater re-use system, flood storage tank systems; • Levels and location of discharge points for the stormwater system including design details of the Hale Street drainage extension; • Cross-sections details of the rainwater tanks and flood storage tank; • Maximum water surface levels in each storage; • Details of surcharge/overflow paths for the major storm; • Location and manufacturer spaces of stormwater quality improvement devices; and • Flood storage tank base plan is to be provided, showing all base levels and minimum 1% fall towards the outlet pipe; • A lid plan is to be submitted for the flood storage tank; showing the distance from pit centre to centre. The grates spacing of the access grates to be as per Section 6.6.2 of Bayside Technical Specification Stormwater Management. • Full details of the bioretention system including manufacturers details. • Construction and operational phase sediment and erosion control plan. 	<p>As noted above we have provided a more detailed concept plan that indicates the majority of this information – that we believe is appropriate at this stage of the development process.</p> <p>The degree of detail requested here is achievable in the detail design phase of the project.</p>	<p>Appendix B</p>
<p>Engineering design certification shall be submitted for the stormwater design</p>	<p>As mentioned above, the design certification will be submitted with detail designs</p>	

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Bayside Council Comments	Proponent Response	Location Addressed
<p>Council raises no objection to not having an OSD for the development. However, the approach to designing the flood storage tank in section 5.6 is incorrect. It needs to be designed as a flood mitigation measure (e.g., to offset proposed fill on the site) and be calculated through the flood modelling.</p>	<p>We have updated our report to relate to the flood modelling processes.</p>	<p>Section 5.6</p>
<p>The water quality improvement targets quoted in sections 5.8 & 5.9 of the “Integrated Water Management Report” are incorrect. The correct targets are as per section 7.1.1 table 5 of Bayside Technical Specification Stormwater Management shown below: The MUSIC modelling undertaken is consequently incorrect. The MUSIC modelling must be revised to demonstrate the abovementioned pollutant reduction targets are met or exceeded.</p>	<p>The targets we met were provided by Council in letter to advise on the SEARS requirements and these are understood to be the controlling targets. However, we have updated the treatment train to achieve council treatment targets.</p>	<p>Section 5.8 & 5.9</p>
<p>Furthermore, figure 5 of this report cannot be assessed as it does not include the areas of each catchment and is not supplemented by stormwater plans verifying the catchment areas and demonstrating the treatment train is feasible.</p>	<p>Refer to Table 4 on Section 5.8 and Catchment area plan in Appendix C</p>	<p>Section 5.8: Table 3; Appendix C</p>
<p>The parameters of the bioretention system in the MUSIC model shall be shown. The bioretention system appears to be overperforming and it’s not clear how the site will effectively capture gross pollutants from impervious areas. Furthermore, it needs to be detailed how this system will work given the substation and trees proposed in this area.</p>	<p>This is included in the soft copy of the MUSIC file provided for council review.</p>	<p>Attached .sqz file</p>
<p>A soft copy of the amended MUSIC modelling shall be provided.</p>	<p>As above</p>	<p>Attached .sqz file</p>

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Bayside Council Comments	Proponent Response	Location Addressed
<p>A WSUD catchment plan highlighting the impervious and pervious areas for water quality treatment including areas which bypass the treatment system should be provided. The WSUD catchment plan shall be aligned with the MUSIC modelling and shall be scaled with the architectural plan in the background. The MUSIC modelling shall be consistent with the WSUD catchment plan.</p>	<p>Refer to Table 4 on Section 5.8 and Catchment area plan in Appendix C</p>	<p>Section 5.8: Table 4; Appendix C; Attached .sqz file</p>
<p>The fuel tank must be bunded, located under a roof structure and drained directly to the Sydney water sewer. No run-off from the fuel dispensing area is to be directed to the stormwater system.</p>	<p>This is shown on the architectural drawings and reflected on our updated civil concept plan.</p>	<p>Appendix B</p>
<p>The plans propose an extension of Council’s Hale Street drainage infrastructure. A surveyor must be engaged to determine all relevant levels (e.g., the invert levels) of this infrastructure.</p>	<p>This will be done and submitted with detail design</p>	

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A response to this submission was provided by Department of Planning, Housing and Infrastructure (their ref: SSD-62855708) dated 13/09/2024 – and the response to their civil engineering queries is summarised below (note landscape related queries are responded to in other respective reports):

Dept of Planning, Housing and Infrastructure Comments	Proponent Response	Location Addressed
<p>The level of detail provided regarding the proposed earthworks and stormwater drainage design is insufficient to enable an assessment of these works.</p> <p>Recommendations: A civil engineering report is required that provides design drawings for the proposed stormwater drainage system and bulk earthworks, including the proposed flood storage tank design and finished levels plan(s).</p>	<p>Revised and detailed concept design for the proposed stormwater drainage system has been included at Appendix B and concept bulk earthworks design at Appendix E. The drawings provided in Appendix B and E should provide sufficient design information to enable assessment of the proposed earthworks and stormwater drainage design. Further detailed design, including a civil engineering report, will be undertaken at Construction Certificate stage.</p>	<p>Appendix B and E</p>
<p>The IWMS states a new stormwater discharge point and inlet pit will be installed at the front of the site on Hale Street, with a proposed 22 metre extension to Council’s stormwater drainage system on Hale Street. Insufficient design details have been provided regarding this extension and the environmental impacts of these works have not been assessed.</p> <p>Recommendation: Additional information is provided regarding the design of the proposed stormwater discharge point and extension, including consideration of any associated environmental impacts.</p>	<p>Additional design information regarding the proposed stormwater design, discharge point and extension is provided in Appendix B.</p> <p>Further detailed design, consultation with council engineering, and development of detailed requirements including consideration of any associated environmental impacts, will be undertaken at Construction Certificate stage.</p>	

A response to this submission was also provided by Sydney Water (their ref: 217853, 212452) dated 30/08/2024 . The comments are acknowledged and there are no issues with regards to the comments.

Waste Management Facility, Botany

Integrated Water Management Strategy

A response to this submission was provided by Bayside Council (their ref: 25/148359) dated 12/05/2025 – and the response to their stormwater management comments is summarised below (note flood and landscape related queries are responded to in other respective reports):

Bayside Council Comments	Proponent Response	Location Addressed
i) The stormwater plans submitted are too conceptual to enable an assessment of the stormwater design and are insufficient in addressing Section 6.3 of the Bayside LEP 2021. To understand the level of detail expected for a stormwater concept design, the applicants engineer must review the detail provided in the stormwater plans in other industrial SSDs (e.g., SSD-49734709 & SSD-59024711) to understand the level of detail required for this development.	Refer to Appendix C showing complete set of civil plans	Appendix C – Civil Drawings as standalone package of plans, and also included in this report as appendix

Waste Management Facility, Botany

Integrated Water Management Strategy

Bayside Council Comments	Proponent Response	Location Addressed
<p>j) The following issues have been identified in the plan submitted:</p> <p>i. No sections or design details of the raingarden have been provided for review. This is particularly important as the raingarden appears to be overperforming in its impact on water quality treatment.</p> <p>ii. Design levels and pipe/culvert sizes for the drainage systems were not sufficiently submitted.</p> <p>iii. Proposed pipe sizes are not confirmed.</p> <p>iv. Trapped low points are created in the northern corner of the site with no drainage provided</p> <p>v. Insufficient details have been provided for the drainage works in the road reserve that the development is relying on for discharge. The previous submission matter requiring additional survey data has not been addressed.</p> <p>vi. No manufacturer specifications for the Stormwater Quality Improvement Devices are provided in the drawings. Hence the MUSIC modelling cannot be confirmed.</p> <p>vii. No specifications of drainage elements such as pits including standard details are shown on the plans. "</p>	<p>i. Refer to dwg C-8001 showing details of raingarden.</p> <p>ii. Refer to dwg C-1100 for design levels, and dwg C-1110 and C6001 for drainage system</p> <p>iii. Refer to dwg C-1110 for pipe sizes</p> <p>iv. Refer to dwg C-1100 for design levels and falls. There will be no trapped low points created in the northern corner of the site.</p> <p>v. Refer to dwg C-1110 for drainage system. The updated survey drawing is attached in Appendix B.</p> <p>vi. Refer to dwg C-1110 drainage WSUD system. The OceanGuard 200micron GPT manufacturer is Ocean Protect.</p> <p>vii. Refer to dwg C-8000 for stormwater standard details</p>	<p>Appendix C – Civil Drawings as standalone package of plans, and also included in this report as appendix</p>

Waste Management Facility, Botany

Integrated Water Management Strategy

2. INTRODUCTION

This Integrated Water Management (IWM) report has been prepared as part of a DA seeking consent for a construction and demolition (C&D) waste management facility at 2-4 Hale Street, Botany (Lot 1 DP 562374) (the subject site).

It is planned that the proposed C&D waste management facility will be licenced and designed to accept up to 300,000 tonnes per annum of C&D waste. It would operate as a waste transfer station undertaking receipt and basic sorting with aggregation of material for bulk transport to Luddenham advanced resource recovery facility or another approved facility within the KLF group where more advanced sorting and recycling would be undertaken.

The new C&D waste management facility must be designed and managed such that it does not become a point source of waterway contamination or a risk to the environment. The focus of this report is the appropriate use and sustainable management of water during waste handling and processing, the on-site management of wastewater streams, and the treatment and discharge of stormwater.

2.1 DOCUMENTS REFERENCED IN THIS REPORT

This report refers to, and should be read in conjunction with, all documents submitted as part of this application. These include, and are not limited to: Flood Impact Assessment, Infrastructure, Ecologically Sustainable Development, and Landscape Masterplan reports:

- CJ Arms, 2024a. Waste Management Facility, Botany Infrastructure Assessment – Water, Sewer, and Stormwater report. March 2024
- CJ Arms, 2025b. Hale Street, Botany. Landscape Concept Design report. August 2025
- CJ Arms, 2025c. Waste Management Facility, Botany. Flood Impact Assessment report. August 2025
- JBS&G, 2022. Detailed Site Investigation. 2-4 Hale St Botany. Report 62740/144,250 Rev A.
- SEARs, 25 October 2023. NSW Planning Secretary's Environmental Assessment Requirements Waste Management Facility, Botany, including issued Govt Authority Advice on SEARs.

Waste Management Facility, Botany

Integrated Water Management Strategy

2.2 DEVELOPMENT PROPOSAL

Reference is made to the architectural master plan for the proposed development, which is included in Appendix A. Proposed Site Layout. Please also refer to the architecture drawing set and planning documents submitted as part of this DA.

The subject site covers a total area of around 7,439 m². The development proposal for the site includes a single large warehouse and ancillary buildings with a combined GFA of 3882m², comprising:

- Warehouse (3,559 m²)
- Office - Ground & First Floor (260 m²)
- Gatehouse (15m²)
- Pump room (48 m²)

In addition to the warehouse and office, the site will be laid out and developed to include:

- Vehicle access via Hale Street, including 2 new crossovers (one for cars and one for trucks)
- Large hardstand area, for vehicle ingress, egress, and turning
- On-grade car parking (15 spaces) for staff and visitors
- Inground weighbridges
- New kiosk substation
- Appropriate setbacks from site boundaries
- Landscape buffer to Hale St
- Water management elements, including rainwater tank and raingarden

To prepare the subject site for development, the existing buildings will be demolished, and the existing substation will be decommissioned and removed and replaced with a new kiosk substation in a different location (refer Appendix A).

Waste Management Facility, Botany

Integrated Water Management Strategy

3. SUBJECT SITE – EXISTING

3.1 LOCALITY

Refer Figure 1 below for general site location.

The subject site is located at 2-4 Hale Street, Botany and is identified as Lot 1 in Deposited Plan (DP) 562374 in the Bayside Local Government Area (LGA).

The subject site covers a total area of 7,439 m².



Figure 1: Locality Plan (Source: Nearmap, Jan 2024)

3.2 EXISTING TOPOGRAPHY

Refer to Figure 2 for topographical survey map. Topographical data has been obtained from a topographical level and features survey (United Surveyors, May 2022).

The site falls between 1-3% in a general direction towards the south-east corner of the site. Hale Street, which fronts the site, drains from west to east at a gentle grade of 0.4 %.

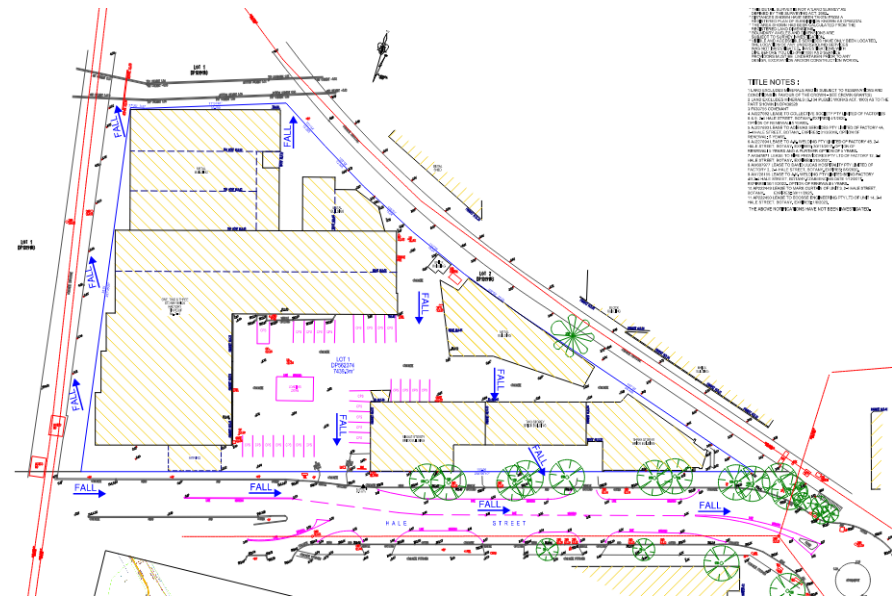


Figure 2: Existing Topography

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3.3 STORMWATER DRAINAGE NETWORK – EXISTING

The subject site currently discharges surface water (stormwater) via several kerb outlets into Hale Street. There is no stormwater drainage network in Hale Street fronting the subject site and drainage is conveyed completely via surface runoff along kerb and channel. The closest kerb inlet pit is on Hale Street approx. 22m downstream from the subject site's southeastern boundary.

There are two downpipe connections from the existing building that discharge directly into the open stormwater drain (Sydney Water channel) to the north of the site. These downpipe connections will be removed as part of redevelopment, and all stormwater from roofs and ground level surfaces will be discharged towards the new Stormwater Discharge Point at the front of the site on Hale St (Figure 3).

Set back areas from the western and northern boundaries of the site are essentially landlocked and currently drain outwards from the site towards the northern drainage channel (Figure 4).



Figure 3. Current site conditions, north of the existing building, showing existing downpipe connections (to be removed).



Figure 4. Current site conditions, west of the existing building – set back between existing building and site boundary.

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Integrated Water Management Strategy

4. INTEGRATED WATER MANAGEMENT (IWM)

The proposed new C&D waste management facility will support the transition to a circular economy, reducing waste and emissions and consumption of resources. At the same time, the facility must be designed and managed such that it does not become a point source of waterway contamination or a risk to the environment. The project must comply with the general requirements of the SEARs, as well as relevant government authority advice, regulations, and guidelines.

The SEARs specifies that an IWM strategy must be developed, which includes the consideration of:

- Water sustainability and conservation measures including initiatives to minimise the consumption of potable water.
- Understanding of potable and nonpotable end uses and consideration of alternative water sources
- Use of Water Sensitive Urban Design principles.

4.1 WATER BALANCE MODELLING

Water balance modelling ascertains projected water flows within and around a project site. Predicted inputs and outputs of water, wastewater, stormwater, and rainwater identified through this process are critical for developing and optimising a functional IWM strategy.

Modelled estimates of indoor and outdoor water use and irrigation, which are compiled in Table 2, indicate that operational water demand will total around 2.5 ML per year, with almost 90% (2.2 ML) for

nonpotable end uses. Nonpotable demands include landscape irrigation, toilet flushing, and warehouse operations where there is minimal direct human contact.

It is considered appropriate to supply nonpotable demands with a fit-for-purpose reclaimed nonpotable water supply, in this case captured roof water.

Potable end uses will be supplied from the authority water supply.

4.2 RAINWATER CAPTURE AND REUSE

Based on the projected nonpotable water demands for the project and the proposed roof area, rainwater capture and reuse modelling has been undertaken. A 60 m³ rainwater tank draining the entire roof area will meet 98% of this demand.

4.3 WASTEWATER

Wastewater will be produced in two main streams:

- Offices: toilet, shower, and kitchen wastewater
- Warehouse operations: hose-down, wheel washing etc. (refer Table 2)

Efficiency of water use will be maximised across all end uses and the volume of wastewater produced will be relatively low (Table 2).

At this stage, no on-site wastewater treatment and reuse is proposed. The quality of operational wastewater will be subject to further investigation and the pre-treatment of wastewater will be included as required under any future trade waste agreement (*tba*).

Waste Management Facility, Botany

Integrated Water Management Strategy

Table 2. Summary of Water Balance Results and Assumptions

Water End use	Water Use Annual (kL/y)	Water Use Daily (L/d)	Water Source	Water Use Assumptions	Wastewater Annual (kL/y)	Wastewater Daily (L/d)
Showers	59	163	Potable	Office staff only (~10 ppl)	59	163
Toilets	65	179	Nonpotable (roof) water	Staff and visitors	65	179
Hand washing	23	63	Potable	" "	22	60
Consumption (drinking)	7	20	Potable	Office staff only (~10 ppl)	0	0
Cleaning (office, tea sinks)	183	500	Potable	" "	91	250
Wheel wash	731	2,000	Nonpotable (roof) water	wheel bath, assisted by brushes	219	600
Vehicle and machinery wash	394	1,080	Nonpotable (roof) water	high pressure hose 9 Lpm, 2 h/d	355	972
Stockpile dust suppression	219	600	Nonpotable (roof) water	5 Lpm, 10 min/h, 12 h/d	11	30
Hose-down	394	1,080	Nonpotable (roof) water	high pressure hose 9 Lpm, 2 h/d	20	54
Irrigation	442	1,200*	Nonpotable (roof) water	500 m ² outdoor landscape	0	0
TOTAL	2,518	6,900 L/d			843 kL/y	2,307 L/d
Nonpotable water	2,246	6,150 L/d				
Potable water	272	745 L/d				

* averaged over the year (summer / peak irrigation demand = approx. 2,300 L/d)

5. STORMWATER DRAINAGE AND TREATMENT – PROPOSED

Please refer to Appendix B. EXISTING SITE SURVEY .

A new stormwater discharge point will be installed at the front of the site on Hale St, with a proposed (approx. 22 m) extension to Council's stormwater drainage system on Hale Street.

A preliminary drainage system has been designed which will cater for all minor and major flows from the subject site to the stormwater discharge point. The stormwater drainage and treatment system for the developed site will comprise:

- Roof drainage. The intention is that the warehouse and office roofs will be drained into a 60 m³ RWT. Collected roofwater will be available for nonpotable reuse.
- Minor drainage: ground level rainfall runoff (stormwater) up to and including the 5% AEP storm event.
- Major drainage: ground level runoff up to and including the 1% AEP storm event.
- Raingarden: 40 m² treatment (filter) area, located at the Hale St frontage of the site.
- Gross Pollutant Trap (GPT) – OceanGuard200um in the last pit connecting to proposed council stormwater point of discharge.
- Minor and major stormwater drainage and overflow from RWT will be directed through the raingarden.

- Flood storage: Refer Section 5.6

5.1 ROOFWATER DRAINAGE SYSTEM

An aboveground 60 m³ rainwater tank (RWT) will be installed directly east of the warehouse next to the carpark. Roofwater from the new warehouse and office will be drained to the inlet of the RWT (roof drainage subject to detailed design).

The RWT system will include a 100% capacity overflow pipe that will discharge into the raingarden at the front of the site.

5.2 RAINWATER TANK SYSTEM

The layout and connections into and out of the RWT will be finalised and detailed at an early design stage.

The RWT has been sized to maximise capture and reuse of roofwater with an efficient use of available space. End uses for the collected roofwater include landscape irrigation, toilet flushing, wheel washing, and hose-down.

5.3 MINOR DRAINAGE SYSTEM

The minor drainage system will be designed to cater for storm events up to and including 5% AEP. Minor stormwater drainage will be collected using a combination of pit and pipe network system which will drain towards the existing kerb inlet pit on Hale Street roughly 22m downstream from the subject site's southeastern boundary. Discharge will be via a proposed 300mm reinforced concrete pipe.

5.4 MAJOR DRAINAGE SYSTEM

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Integrated Water Management Strategy

The major drainage system will be designed to cater for all storm events up to the 1% AEP. Major stormwater drainage will be collected using a combination of surface drainage, and a pit and pipe network system.

5.5 BIOFILTRATION (RAINGARDEN)

Refer to Appendix C for rainwater tank and raingarden location.

The stormwater treatment train comprises the 60kL RWT and a 40 m² raingarden. The raingarden is located at the Hale St frontage of the site and will receive rainfall runoff from the site (minor drainage flows, refer Section 5.3) and piped overflow from RWT.

Refer to Table and Appendix C for catchment areas draining to the raingarden and those which bypass treatment.

Treated stormwater from the raingarden will be discharged via a new stormwater discharge point (proposed double grated gully pit and lintel located at the front of the site on Hale Street, refer Section 5.7).

5.6 FLOOD STORAGE

Given the location of the site at the low point for the catchment in a heavily flooded area (refer CJ Arms, 2025c. *Waste Management Facility, Botany. Flood Impact Assessment* report), flood storage will be provided in lieu of OSD.

Based on the flood modelling requirements (refer Sections 8.1.4 & 9.2.4) of the *Flood Impact Assessment*) for storage in the 1%AEP condition (including AR&R blockage factors) the existing site holds 200m³ of floodwater (deeper than 200mm) and in the proposed conditions the site will hold at least 222.4m³ of floodwater (deeper than

200mm), which is an increase of 22.4m³ more flood storage than the site previously held.

Table 3 shows the flood storage summary obtained from Flood Impact Assessment.

Table 3: Flood Storage Summary

Scenario	Existing Flood Storage m ³	Proposed Flood Storage m ³
1% AEP, 000BLK	9.1	44.5
1% AEP, ARRBLK	200.0	222.4

5.7 STORMWATER DISCHARGE POINT – PROPOSED

As discussed in Section 3.3, there is currently no stormwater drainage network on Hale Street directly fronting the subject site. As part of this project, a new kerb inlet pit is proposed, to which (treated) stormwater from the new development will be discharged.

The new kerb inlet pit will be connected to an existing kerb inlet pit located 22m to the west on Hale Street. Refer to Appendix B for location of stormwater outlet configuration.

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5.8 STORMWATER TREATMENT TRAIN – WSUD

A stormwater treatment train has been developed that incorporates water sensitive urban design (WSUD) techniques, including measures to maximise the reuse of water, and landscape integrated treatment (raingarden).

Stormwater discharged from the new development will be treated in compliance with SEARs and local government authority requirements, specifically the Bayside Technical Specifications as follows:

- Reduce baseline annual load of Gross Pollutants (GP) by 90%.
- Reduce baseline annual load of Suspended Solids (TSS) by 85%.
- Reduce baseline annual load of Total Phosphorous (TP) by 60%.
- Reduce baseline annual load of Total Nitrogen (TN) by 45%.

The catchment areas shown in Table 4 are as per catchment areas plan in Appendix C and fig 5.

Table 4. Stormwater Treatment Train

	Area (m ²)	Treatment Node	% impervious
Roof (Factory & Offices)	3,671	RWT + Raingarden + GPT (OceanGuard 200um)	100%
Catchment_1	371	bypass treatment	0%
Catchment_2	563	GPT (OceanGuard 200um)	8%
Catchment_3	2,350	Raingarden + GPT (OceanGuard 200um)	84%
Catchment_4	442	GPT (OceanGuard 200um)	86%
TOTAL	7,379		

The stormwater treatment train, which is summarised in Table , includes:

- 60kL RWT capturing roof water from the new warehouse, office and pump room.
- Rainwater reuse strategy ensuring fit for purpose water supply to non-potable end uses (landscape irrigation, toilet flushing, wheel washing, and hose-down) (refer Section 4.1).
- Annual non-potable (reuse) demand is 2,246 kL/y

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- 40m² raingarden located in the low side of the development adjacent the main vehicle entrance.
- Overflow from the RWT and the majority of ground level rainfall runoff directed through the raingarden.
- The raingarden will be unlined, to allow the exfiltration of water to the surrounding landscape for passive irrigation.
- Gross Pollutant Trap (GPT) – OceanGuard200um in the last pit connecting to proposed council stormwater point of discharge.
- There are small landscape areas that are unable to be drained through the raingarden or GPT due to constraints such as level (RL) or location (downstream of the raingarden or GPT). These are listed in Table *(bypass treatment)*.

5.9 MUSIC MODELLING RESULTS

Stormwater treatment efficacy was undertaken using a MUSIC model, which was parameterised using rainfall runoff and pollutant parameters in accordance with the NSW MUSIC Modelling Guidelines.

A screen capture of the MUSIC model including the treatment train schematic, with MUSIC modelling treatment performance results is included in Figure 5.

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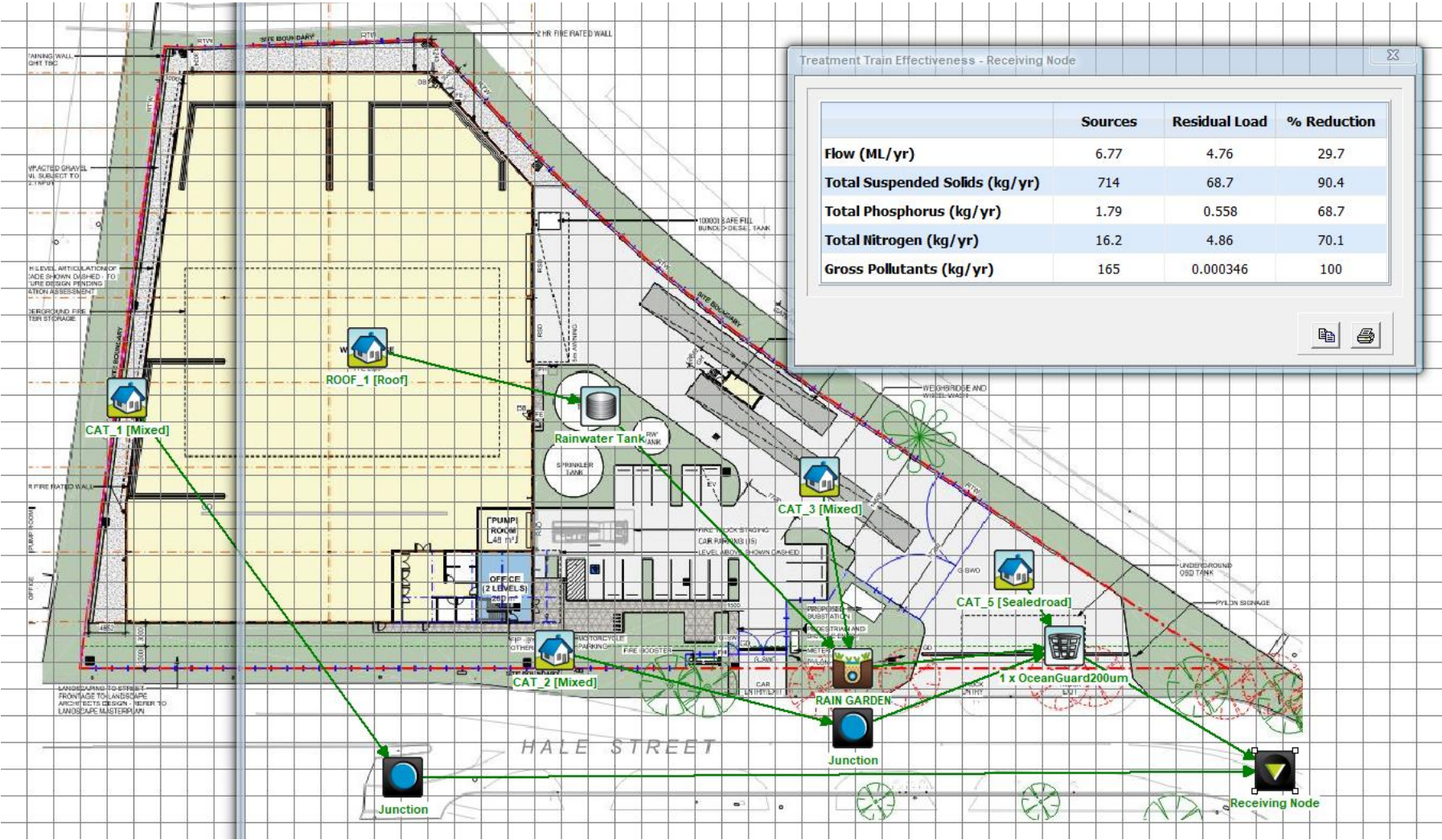


Figure 5. MUSIC Model Treatment Train and Results

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6. BULK EARTHWORKS

The cut and fill plan for the site, which is appended in Appendix C, was prepared by comparing the design versus existing surfaces.

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7. CONSTRUCTION PHASE CONTROLS

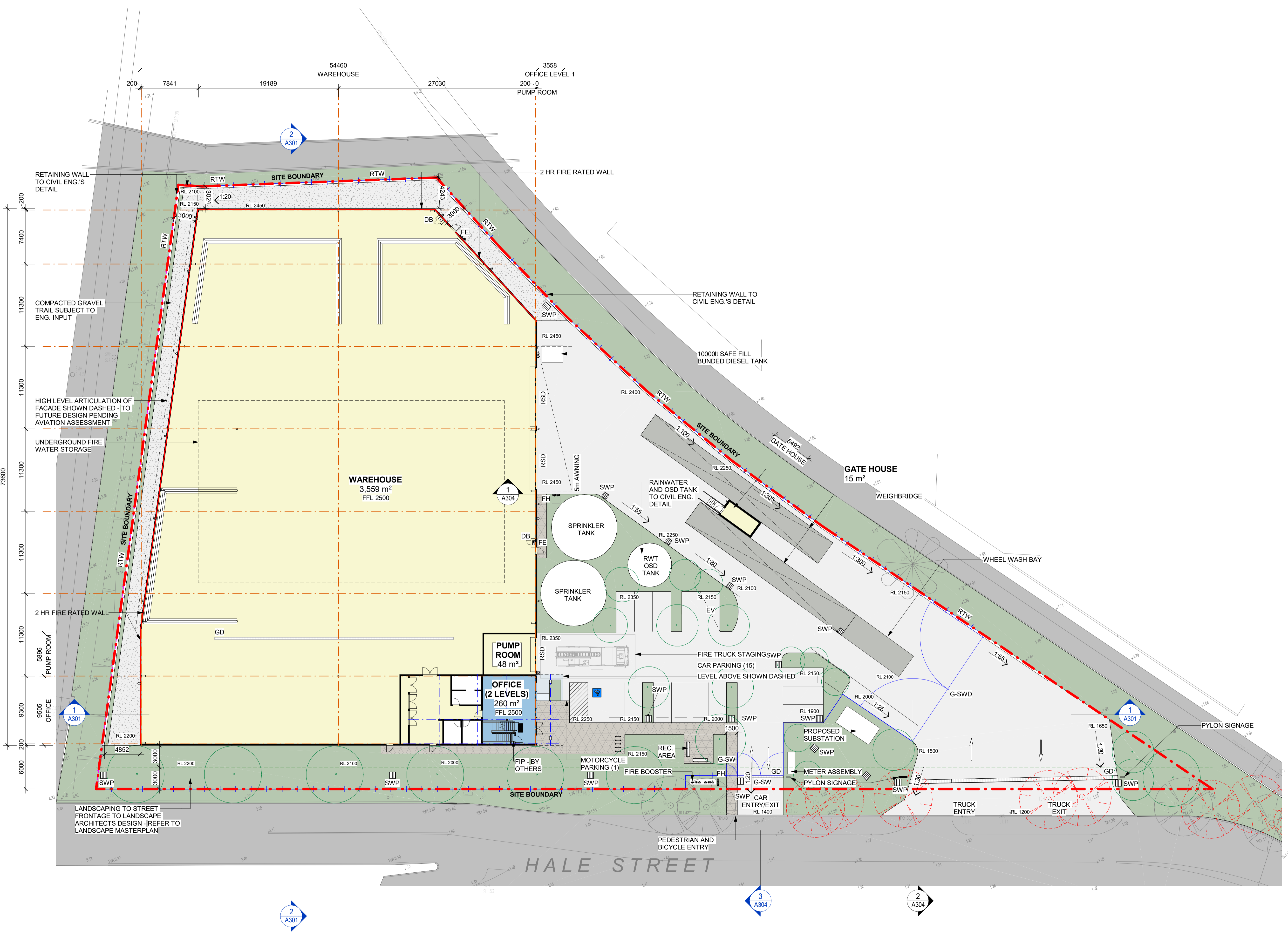
The construction phases of the hardscaping, drainage, and building works must be properly managed to ensure environmental values are continually protected.

To do this, Construction and Environmental Management Plan (CEMP) will be prepared to address construction-related impacts. Plans will be submitted for approval prior to commencement of any works.

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8. APPENDIX A. PROPOSED SITE LAYOUT

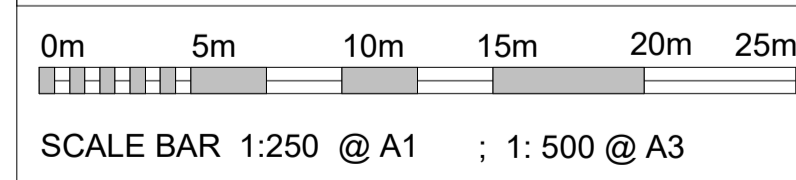


DEVELOPMENT AREA SCHEDULE	
SITE AREA	7,439 m²
WAREHOUSE	3,559 m ²
OFFICE - GROUND FLOOR - FIRST FLOOR	260 m ² (60 m ²) (200 m ²)
GATEHOUSE	15 m ²
PUMP ROOM	48 m ²
TOTAL BUILDING AREA	3,882 m²
TOTAL PARKING PROVIDED	15 SPACES

LEGEND	
	SITE BOUNDARY
	LANDSCAPE SETBACK
	FNC-1: 2.1 M PALISADE FENCE
	FNC-2: 2.1 M CHAINLINK FENCE
	WAREHOUSE
	LOADING ZONE
	OFFICE
	HEAVY DUTY PAVEMENT
	LIGHT DUTY PAVEMENT
	COMPACTED GRAVEL TRAIL
	PEDESTRIAN PAVEMENT
	LANDSCAPING
	PROPOSED TREE TO LANDSCAPE DETAIL
	TREE RETAINED
	TREE REMOVED

ABBREVIATION	
DB	DISTRIBUTION BOARD
EV	ELECTRIC VEHICLE PARKING
FE	FIRE EXIT DOOR
FH	FIRE HYDRANT
G-SW	GATE SINGLE (SWING)
G-SWD	GATE DOUBLE (SWING)
RSD	ROLLER SHUTTER DOOR
GD	GRATED DRAIN

- NOTES**
- ALL LEVELS AND EXTENTS ARE INDICATIVE & SHOULD BE READ IN CONJUNCTION WITH CIVIL ENG. DWGS FOR FINAL LEVELS OF ALL EARTH WORKS AND EXCAVATION.
 - ALL LANDSCAPING TO LANDSCAPE ARCHITECT'S DETAILS.
 - ALL INFORMATION SUBJECT TO DETAILED DESIGN AND ENGINEERING INPUT.
 - HYD, MECH, ELECTRICAL, AND FIRE ELEMENTS ARE INDICATIVE ONLY.
 - ALL MEASUREMENTS OF EXISTING STRUCTURES ARE APPROXIMATE ONLY, AND TO BE CONFIRMED ON SITE.
 - TENANT FITOUT ITEMS SHOWN BLUE.



Notes
 -This drawing and design is subject to Reid Campbell (NSW) Pty Ltd copyright and may not be reproduced without prior written consent.
 -Contractor to verify all dimensions on site before commencing work.
 -Report all discrepancies to project manager prior to construction.
 -Figured dimensions to be taken in preference to scaled drawings.
 -All work is to conform to relevant Australian Standards and other Codes as applicable, together with other Authorities' requirements and regulations.
 Michael Morony NSWARB No. 8218, QLD Reg. No. 5852, ARBV No. VIC00002, APBSA No. s3931, WA00026

Issue	Description	Date	By	QA
D	Development Application	23.02.2024	CL	MF
E	Development Application Updates	01.03.2024	CL	MF
F	Development Application Updates	07.03.2024	CL	MF
G	Development Application Updates	13.03.2024	CL	MF
H	Development Application	15.03.2024	CL	MF
J	Development Application	22.03.2024	CL	MF
K	Development Application - Tree Updates	03.04.2024	CL	MF
L	Issue for Information	11.10.2024	PY	MF
M	Issue for Information	05.11.2024	PY	MF
N	Issue for Information	03.12.2024	PY	MF

REID CAMPBELL
 STRATEGY | DESIGN | DELIVERY
 A/CN: 002 003 801 A/CN: 29 317 805 875
 Level 15, 124 Walker Street
 North Sydney NSW 2060 Australia
 Tel: 61 02 9554 5011
 Fax: 61 02 9554 4946
 Email: sydney@reidcampbell.com
 Website: www.reidcampbell.com

DEVELOPMENT APPLICATION

CLIENT

 COOMBS PROPERTY GROUP

PROJECT MANAGER
 PROJECT MANAGER

PROJECT
 WASTE MANAGEMENT FACILITY
 2-4 HALE ST, BOTANY
 Drawn DT, Checked LA, PRINT DATE 3/12/2024 5:20:26 PM

NORTH POINT

 Drawing Title
SITE PLAN
 SHEET NUMBER
1220011_A005
 ISSUE
N

Waste Management Facility, Botany

Integrated Water Management Strategy

9. APPENDIX B. EXISTING SITE SURVEY

REVISION	DATE	DETAILS
B	01/07/2022	ADDITIONAL
C	19/07/2022	ADDITIONAL
D	18/03/2024	ADDITIONAL

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DATUM: AUSTRALIAN HEIGHT DATUM
ORIGIN: GLOBAL POSITIONING SYSTEM
DWG REF: 11654-1
REDUCTION RATIO: 1:300
SHEET SIZE: A1
DATE OF SURVEY: 18 MAY 2022
SURVEYOR: GS/JF
SHEET 1 OF 1



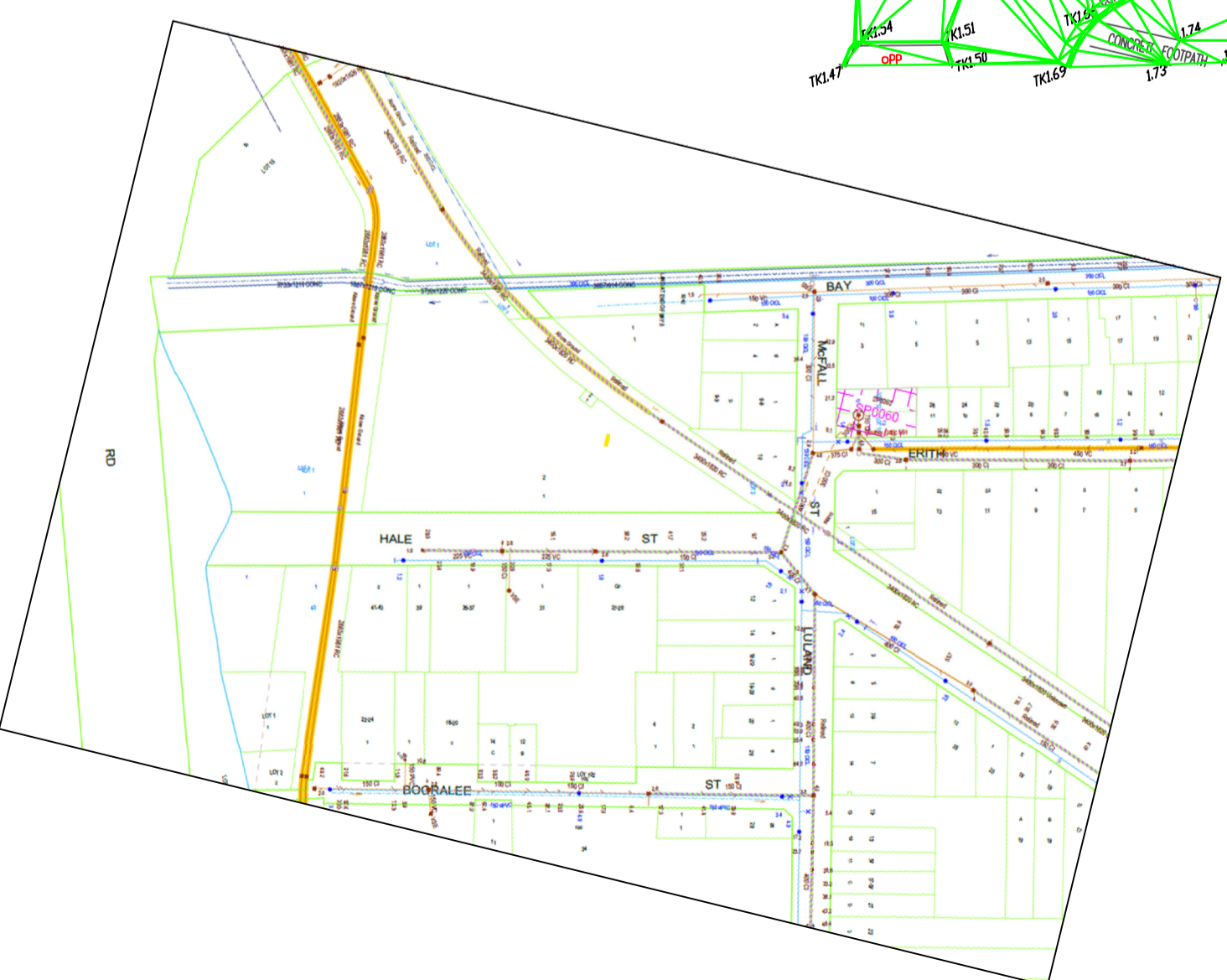
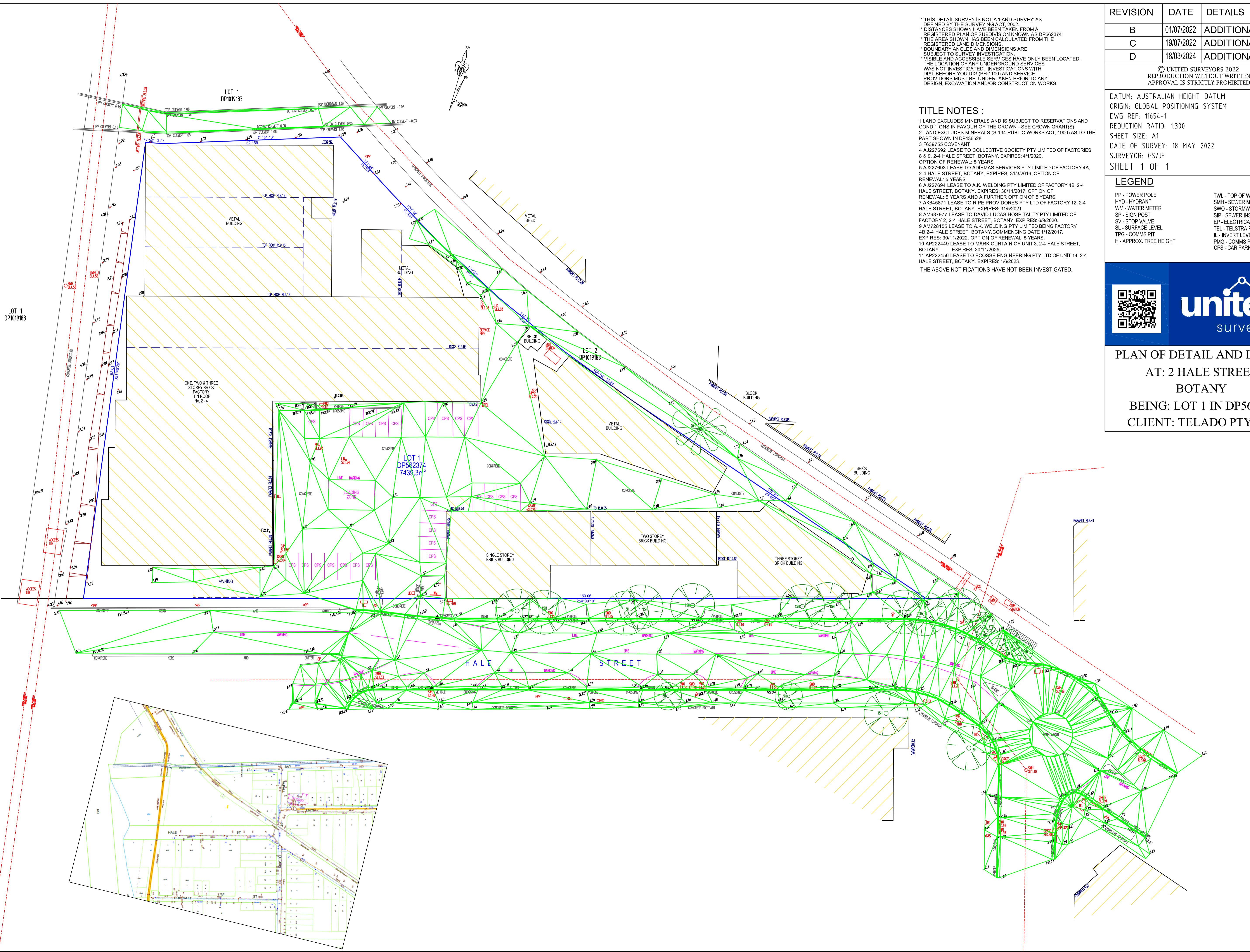
LEGEND

PP - POWER POLE	TWL - TOP OF WALL
HYD - HYDRANT	SMH - SEWER MANHOLE
WM - WATER METER	SWO - STORMWATER OUTLET
SP - SIGN POST	SIP - SEWER INSPECTION POINT
SV - STOP VALVE	EP - ELECTRICAL PILLAR
SL - SURFACE LEVEL	TEL - TELSTRA PIT
TPG - COMMS PIT	IL - INVERT LEVEL
H - APPROX. TREE HEIGHT	PMG - COMMS PIT
	CPS - CAR PARKING SPACE

PLAN OF DETAIL AND LEVELS
AT: 2 HALE STREET
BOTANY
BEING: LOT 1 IN DP562374
CLIENT: TELADO PTY LTD

* THIS DETAIL SURVEY IS NOT A 'LAND SURVEY' AS DEFINED BY THE SURVEYING ACT, 2002.
* DISTANCES SHOWN HAVE BEEN TAKEN FROM A REGISTERED PLAN OF SUBDIVISION KNOWN AS DP562374
* THE AREA SHOWN HAS BEEN CALCULATED FROM THE REGISTERED LAND DIMENSIONS
* BOUNDARY ANGLES AND DIMENSIONS ARE SUBJECT TO SURVEY INVESTIGATION
* VISIBLE AND ACCESSIBLE SERVICES HAVE ONLY BEEN LOCATED. THE LOCATION OF ANY UNDERGROUND SERVICES WAS NOT INVESTIGATED. INVESTIGATIONS WITH DIAL BEFORE YOU DIG (PB1100) AND SERVICE PROVIDERS MUST BE UNDERTAKEN PRIOR TO ANY DESIGN, EXCAVATION AND/OR CONSTRUCTION WORKS.

TITLE NOTES :
1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - (SEE CROWN GRANTS)
2 LAND EXCLUDES MINERALS (S.134 PUBLIC WORKS ACT, 1990) AS TO THE PART SHOWN IN DP436528
3 F639755 COVENANT
4 AJ227692 LEASE TO COLLECTIVE SOCIETY PTY LIMITED OF FACTORIES 8 & 9, 2-4 HALE STREET, BOTANY. EXPIRES: 4/1/2020.
OPTION OF RENEWAL: 5 YEARS.
5 AJ227693 LEASE TO ADIEMAS SERVICES PTY LIMITED OF FACTORY 4A, 2-4 HALE STREET, BOTANY. EXPIRES: 31/3/2016. OPTION OF RENEWAL: 5 YEARS.
6 AJ227694 LEASE TO A.K. WELDING PTY LIMITED OF FACTORY 4B, 2-4 HALE STREET, BOTANY. EXPIRES: 30/11/2017. OPTION OF RENEWAL: 5 YEARS AND A FURTHER OPTION OF 5 YEARS.
7 AK645871 LEASE TO RIPE PROVIDORES PTY LTD OF FACTORY 12, 2-4 HALE STREET, BOTANY. EXPIRES: 31/5/2021.
8 AM687977 LEASE TO DAVID LUCAS HOSPITALITY PTY LIMITED OF FACTORY 2, 2-4 HALE STREET, BOTANY. EXPIRES: 6/9/2020.
9 AM728155 LEASE TO A.K. WELDING PTY LIMITED BEING FACTORY 4B, 2-4 HALE STREET, BOTANY. COMMENCING DATE: 1/12/2017. EXPIRES: 30/11/2022. OPTION OF RENEWAL: 5 YEARS.
10 AP222449 LEASE TO MARK CURTAIN OF UNIT 3, 2-4 HALE STREET, BOTANY. EXPIRES: 30/11/2025.
11 AP222450 LEASE TO ECOSSE ENGINEERING PTY LTD OF UNIT 14, 2-4 HALE STREET, BOTANY. EXPIRES: 1/6/2023.
THE ABOVE NOTIFICATIONS HAVE NOT BEEN INVESTIGATED.



Waste Management Facility, Botany

Integrated Water Management Strategy

10. APPENDIX C. PROPOSED CIVIL PLANS

HALE STREET

2-4 HALE STREET BOTANY

CIVIL SITEWORKS

Sheet List Table

Sheet Number	Sheet Title
C-0000	TITLE SHEET & LOCALITY PLAN
C-1100	FINISHED LEVELS PLAN
C-1110	DRAINAGE LAYOUT PLAN
C-1120	STORMWATER MUSIC CATCHMENT PLAN
C-2100	SITE SECTIONS
C-2101	SITE SECTIONS
C-2102	CROSSOVER SECTIONS
C-3200	CUT AND FILL PLAN
C-6100	DRAINAGE CULVERT LONGSECTION
C-8000	STORMWATER CONSTRUCTION DETAILS
C-8001	STORMWATER CONSTRUCTION DETAILS



LOCALITY PLAN (N.T.S)

Revision	Date	By	Check
A	28.08.25	TS	BW
		Drawn	Checked

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Project		HALE STREET, BOTANY		Drawing Title		TITLE SHEET & LOCALITY PLAN	
Client		COOMBES PROPERTY GROUP		Drawn By		TS	
Project Name		FOR DEVELOPMENT APPLICATION		Checked By		BW	
Project Number		15146	CJA	Drawn Scale		AS SHOWN @ A1	
Origin	Zone	Level	File Type	Revision	Number	Revision	
00	00	00	DWG	C	0000	A	

DRAWING LEGEND

HATCHING

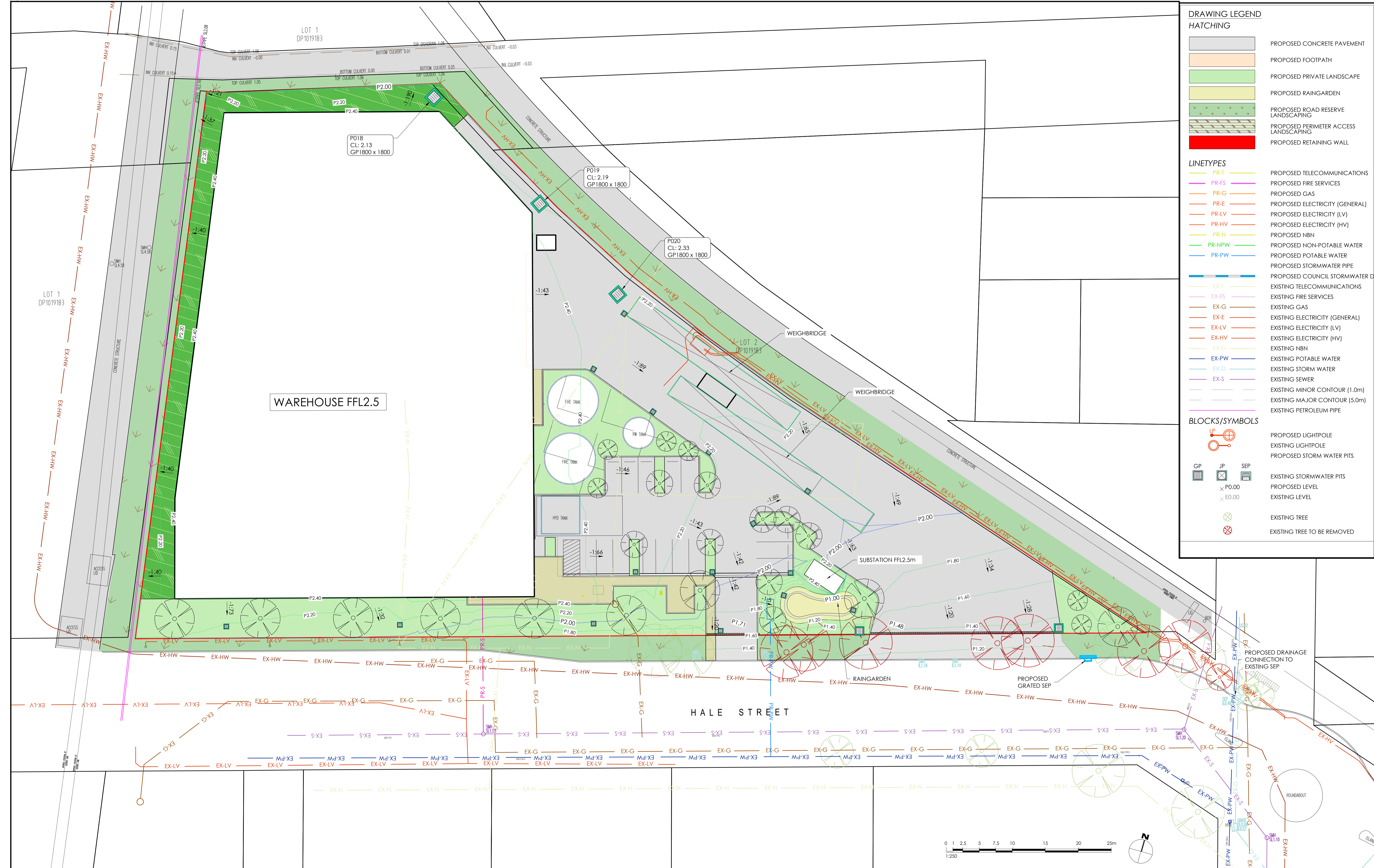
- PROPOSED CONCRETE PAVEMENT
- PROPOSED FOOTPATH
- PROPOSED PRIVATE LANDSCAPE
- PROPOSED RAINGARDEN
- PROPOSED ROAD RESERVE LANDSCAPING
- PROPOSED PERIMETER ACCESS LANDSCAPING
- PROPOSED RETAINING WALL

LINETYPES

- PROPOSED TELECOMMUNICATIONS
- PROPOSED FIRE SERVICES
- PROPOSED GAS
- PROPOSED ELECTRICITY (GENERAL)
- PROPOSED ELECTRICITY (LV)
- PROPOSED ELECTRICITY (HV)
- PROPOSED NBN
- PROPOSED NON-POTABLE WATER
- PROPOSED POTABLE WATER
- PROPOSED STORMWATER PIPE
- PROPOSED COUNCIL STORMWATER D
- EXISTING TELECOMMUNICATIONS
- EXISTING FIRE SERVICES
- EXISTING GAS
- EXISTING ELECTRICITY (GENERAL)
- EXISTING ELECTRICITY (LV)
- EXISTING ELECTRICITY (HV)
- EXISTING NBN
- EXISTING POTABLE WATER
- EXISTING STORM WATER
- EXISTING SEWER
- EXISTING MINOR CONTOUR (1.0m)
- EXISTING MAJOR CONTOUR (5.0m)
- EXISTING PETROLEUM PIPE

BLOCKS/SYMBOLS

- PROPOSED LIGHTPOLE
- EXISTING LIGHTPOLE
- PROPOSED STORM WATER PITS
- EXISTING STORMWATER PITS
- PROPOSED LEVEL
- EXISTING LEVEL
- EXISTING TREE
- EXISTING TREE TO BE REMOVED



Revision	Date	Reason	Drawn	Checked
1	28.08.25	ISSUED FOR DEVELOPMENT APPLICATION	TS	BW

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CIVIL SITeworks

Project: HALE STREET, BOTANY
 Client: COOMBES PROPERTY GROUP
 Purpose: FOR DEVELOPMENT APPLICATION

Drawing Title: FINISHED LEVELS PLAN

Drawn By: TS
 Checked By: BW
 Date of Issue: 28.08.25

Project Number	Origin	Zone	Level	File Type	Rev	Number	Revision
15146	CJA	00	00	DR	C	1100	A

DRAWING LEGEND

HATCHING

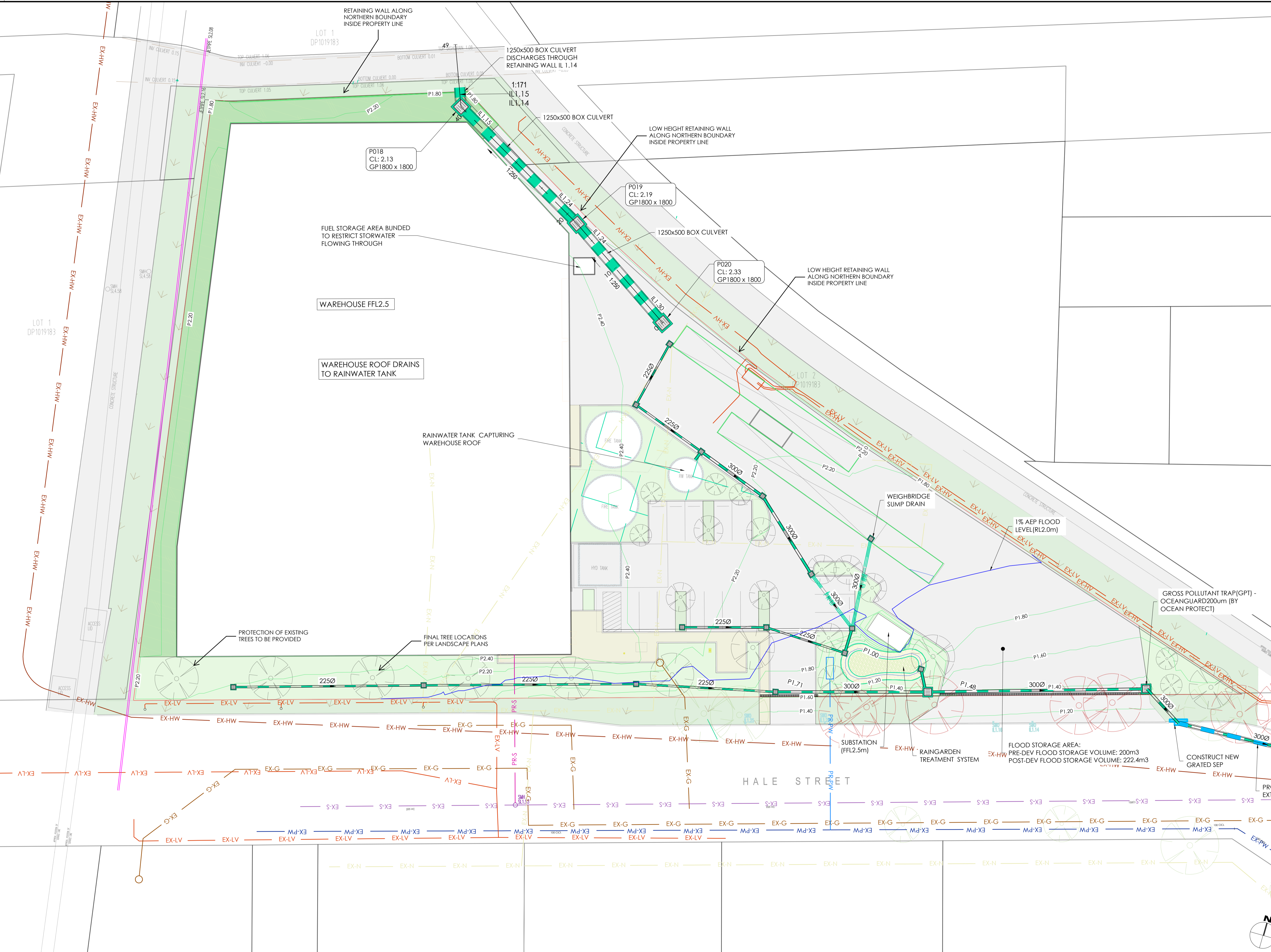
- PROPOSED CONCRETE PAVEMENT
- PROPOSED FOOTPATH
- PROPOSED PRIVATE LANDSCAPE
- PROPOSED RAINGARDEN
- PROPOSED ROAD RESERVE LANDSCAPING
- PROPOSED PERIMETER ACCESS LANDSCAPING
- PROPOSED RETAINING WALL

LINETYPES

- PROPOSED TELECOMMUNICATIONS
- PROPOSED FIRE SERVICES
- PROPOSED GAS
- PROPOSED ELECTRICITY (GENERAL)
- PROPOSED ELECTRICITY (LV)
- PROPOSED ELECTRICITY (HV)
- PROPOSED NBN
- PROPOSED NON-POTABLE WATER
- PROPOSED POTABLE WATER
- PROPOSED STORMWATER PIPE
- PROPOSED COUNCIL STORMWATER DRAIN
- EXISTING TELECOMMUNICATIONS
- EXISTING FIRE SERVICES
- EXISTING GAS
- EXISTING ELECTRICITY (GENERAL)
- EXISTING ELECTRICITY (LV)
- EXISTING ELECTRICITY (HV)
- EXISTING NBN
- EXISTING POTABLE WATER
- EXISTING STORM WATER
- EXISTING SEWER
- EXISTING MINOR CONTOUR (1.0m)
- EXISTING MAJOR CONTOUR (5.0m)
- EXISTING PETROLEUM PIPE

BLOCKS/SYMBOLS

- PROPOSED LIGHTPOLE
- EXISTING LIGHTPOLE
- PROPOSED STORM WATER PITS
- EXISTING STORMWATER PITS
- PROPOSED LEVEL
- EXISTING LEVEL
- EXISTING TREE
- EXISTING TREE TO BE REMOVED



Revision	Date	Reason	Drawn	Checked
1	28.08.25	ISSUED FOR DEVELOPMENT APPROVAL	TS	BW

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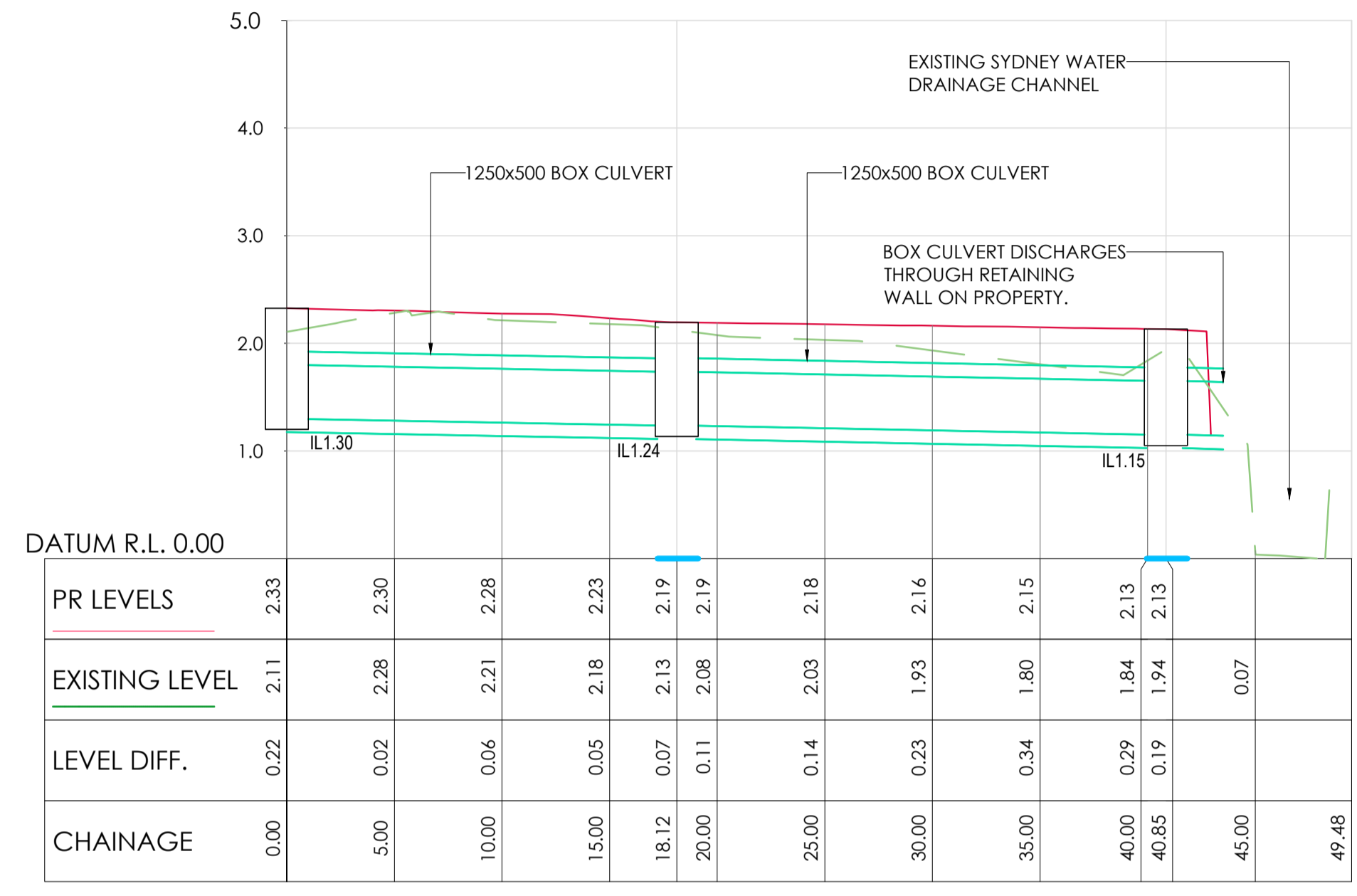


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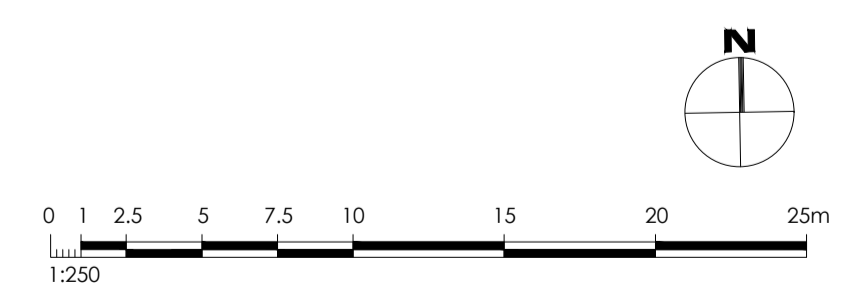
Project: HALE STREET, BOTANY
 Client: COOMBS PROPERTY GROUP
 Purpose: FOR DEVELOPMENT APPLICATION

Drawn By: TS
 Checked By: BW
 Drawn Scale: 1:250 @ A1
 Date of first issue: 28.08.25

Project Number	Origin	Zone	Level	File Type	Rev	Number	Revision
15146	CJA	00	00	DWG	C	1110	A



FLOOD CULVERT CL - LONG SECTION
 SCALES: HORIZONTAL 1:250 VERTICAL 1:50 (5x)



Revision	Date	By	Checked
A	29.08.25	IS	BW
ISSUED FOR DEVELOPMENT APPLICATION			

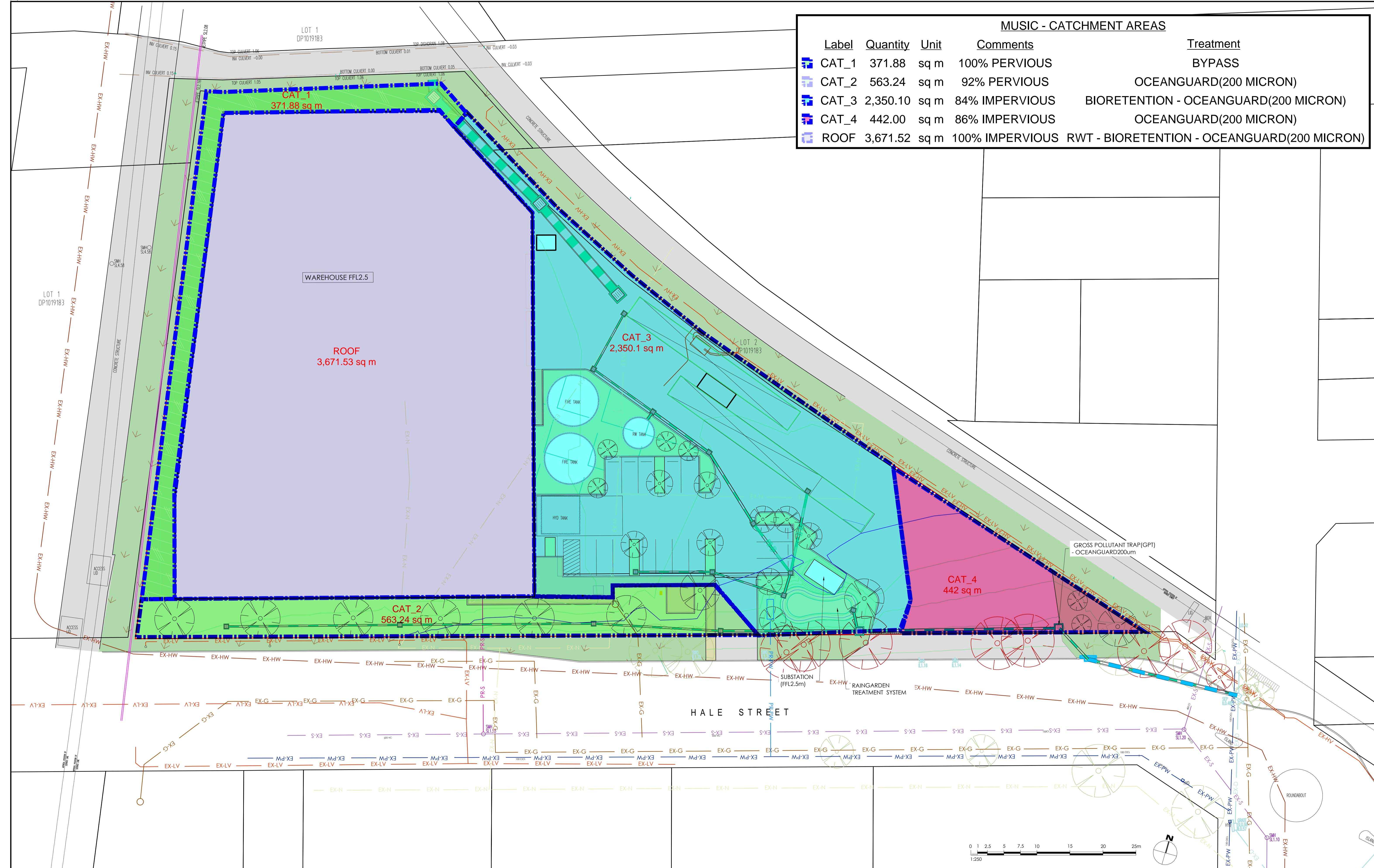
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CIVIL SITEWORKS

Project HALE STREET, BOTANY				Drawing Title DRAINAGE CULVERT LONGSECTION			
Client COOMBES PROPERTY GROUP				Drawn By IS	Checked By BW	Drawn Scale 1:250 @ A1	Date of first issue 29.08.25
Purpose of Issue FOR DEVELOPMENT APPLICATION							
Project Number 15146	Origin CJA	Zone 00	Level 00	File Type DWG	Revision C	Number 6001	Revision A

MUSIC - CATCHMENT AREAS				
Label	Quantity	Unit	Comments	Treatment
CAT_1	371.88	sq m	100% PERVIOUS	BYPASS
CAT_2	563.24	sq m	92% PERVIOUS	OCEANGUARD(200 MICRON)
CAT_3	2,350.10	sq m	84% IMPERVIOUS	BIORETENTION - OCEANGUARD(200 MICRON)
CAT_4	442.00	sq m	86% IMPERVIOUS	OCEANGUARD(200 MICRON)
ROOF	3,671.52	sq m	100% IMPERVIOUS	RWT - BIORETENTION - OCEANGUARD(200 MICRON)



WAREHOUSE FFL2.5

ROOF
3,671.53 sq m

CAT_3
2,350.1 sq m

CAT_4
442 sq m

CAT_2
563.24 sq m

CAT_1
371.88 sq m

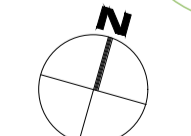
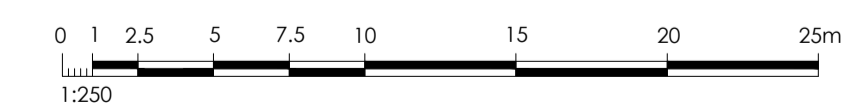
HALE STREET

GROSS POLLUTANT TRAP(GPT)
- OCEANGUARD200um

SUBSTATION
(FFL2.5m)

RAINGARDEN
TREATMENT SYSTEM

ROUNDBOUT



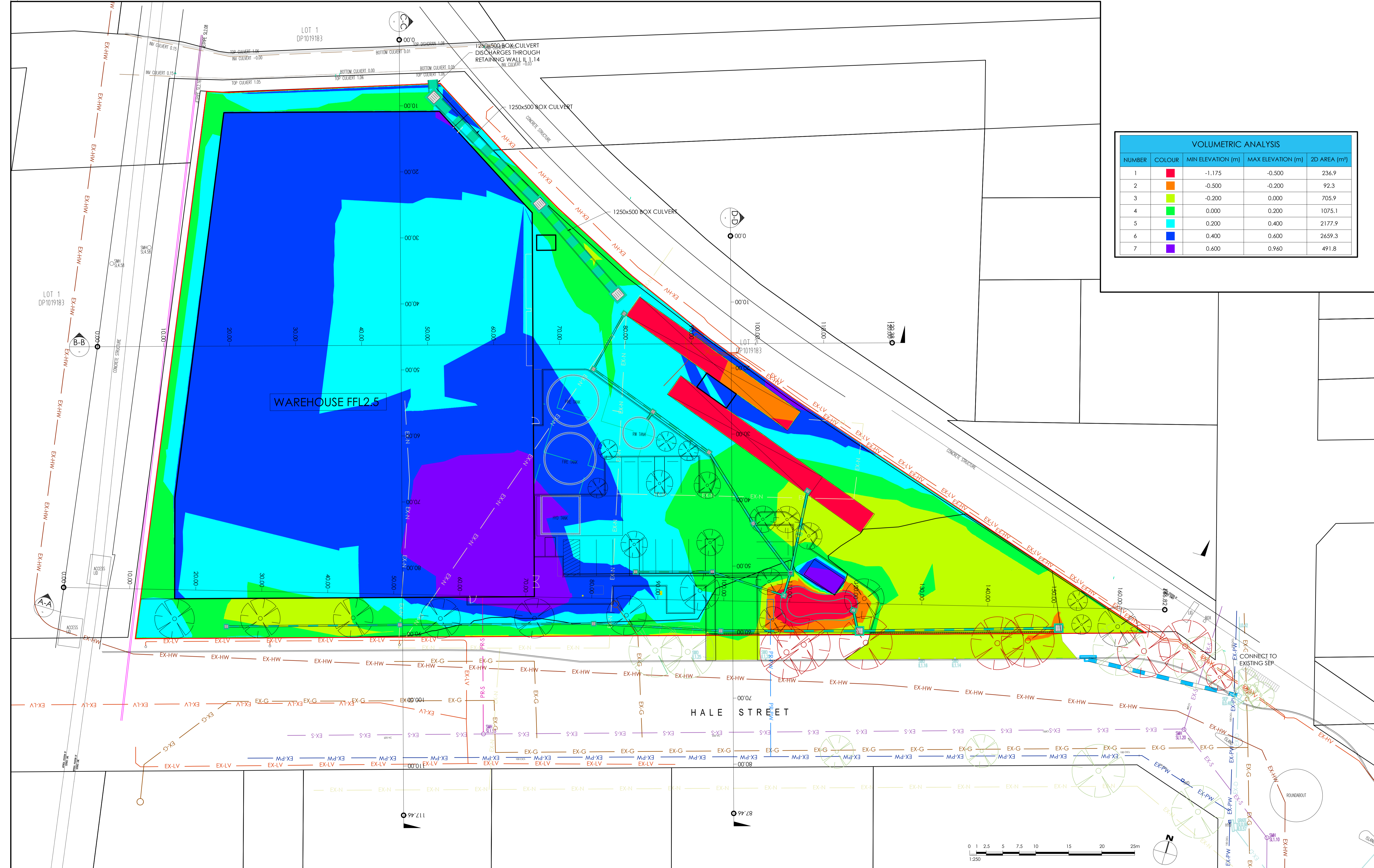
Revision	Date	Reason	Drawn	Checked
A	28.08.2025	ISSUED FOR DEVELOPMENT APPLICATION	TS	BW



CIVIL SITING WORKS

Project		HALE STREET, BOTANY		Drawing Title		STORMWATER MUSIC CATCHMENT PLAN	
Client		COOMBES PROPERTY GROUP		Drawn By		TS	
Project Number		15146		Checked By		BW	
Zone		00		Drawn Scale		1:250 @ A1	
Level		00		Date of first issue		28.08.25	
File Type		DWG		Revision		A	

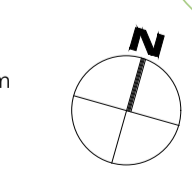
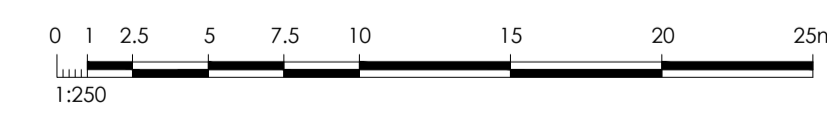
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VOLUMETRIC ANALYSIS				
NUMBER	COLOUR	MIN ELEVATION (m)	MAX ELEVATION (m)	2D AREA (m²)
1	Red	-1.175	-0.500	236.9
2	Orange	-0.500	-0.200	92.3
3	Yellow	-0.200	0.000	705.9
4	Light Green	0.000	0.200	1075.1
5	Cyan	0.200	0.400	2177.9
6	Blue	0.400	0.600	2659.3
7	Purple	0.600	0.960	491.8

WAREHOUSE FFL2.5

HALE STREET



Revision	Date	Reason	Drawn	Checked
A	28.08.25	ISSUED FOR DEVELOPMENT APPLICATION	TS	BW



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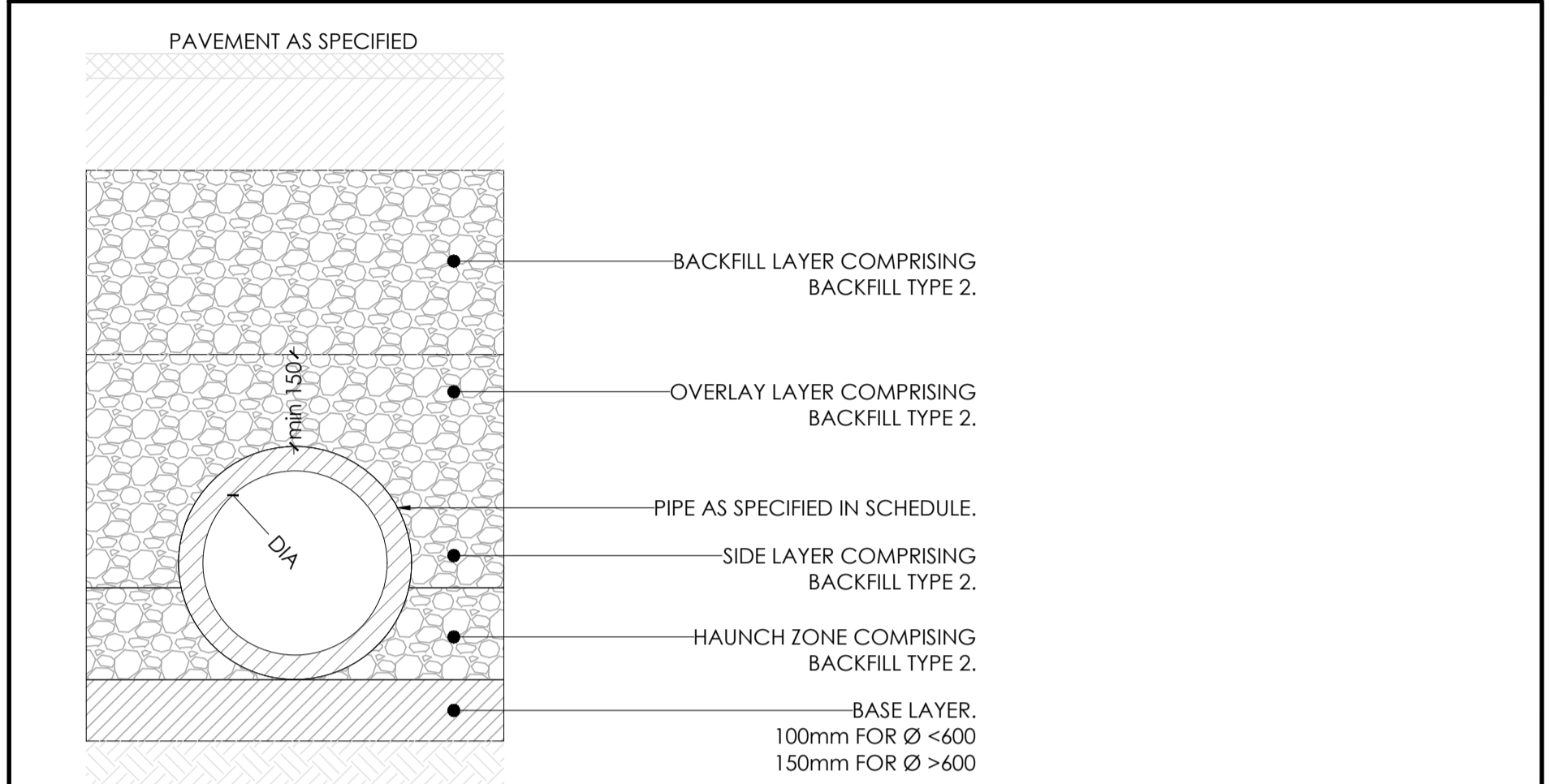
CIVIL SITING WORKS

Project: HALE STREET, BOTANY		Drawing Title: CUT AND FILL PLAN	
Client: COOMBES PROPERTY GROUP		Drawn By: TS	Checked By: BW
Project Number: 15146		Level: 00	Date of first issue: 28.08.25
Origin: CJA	Zone: 00	File Type: DWG	Revision: A

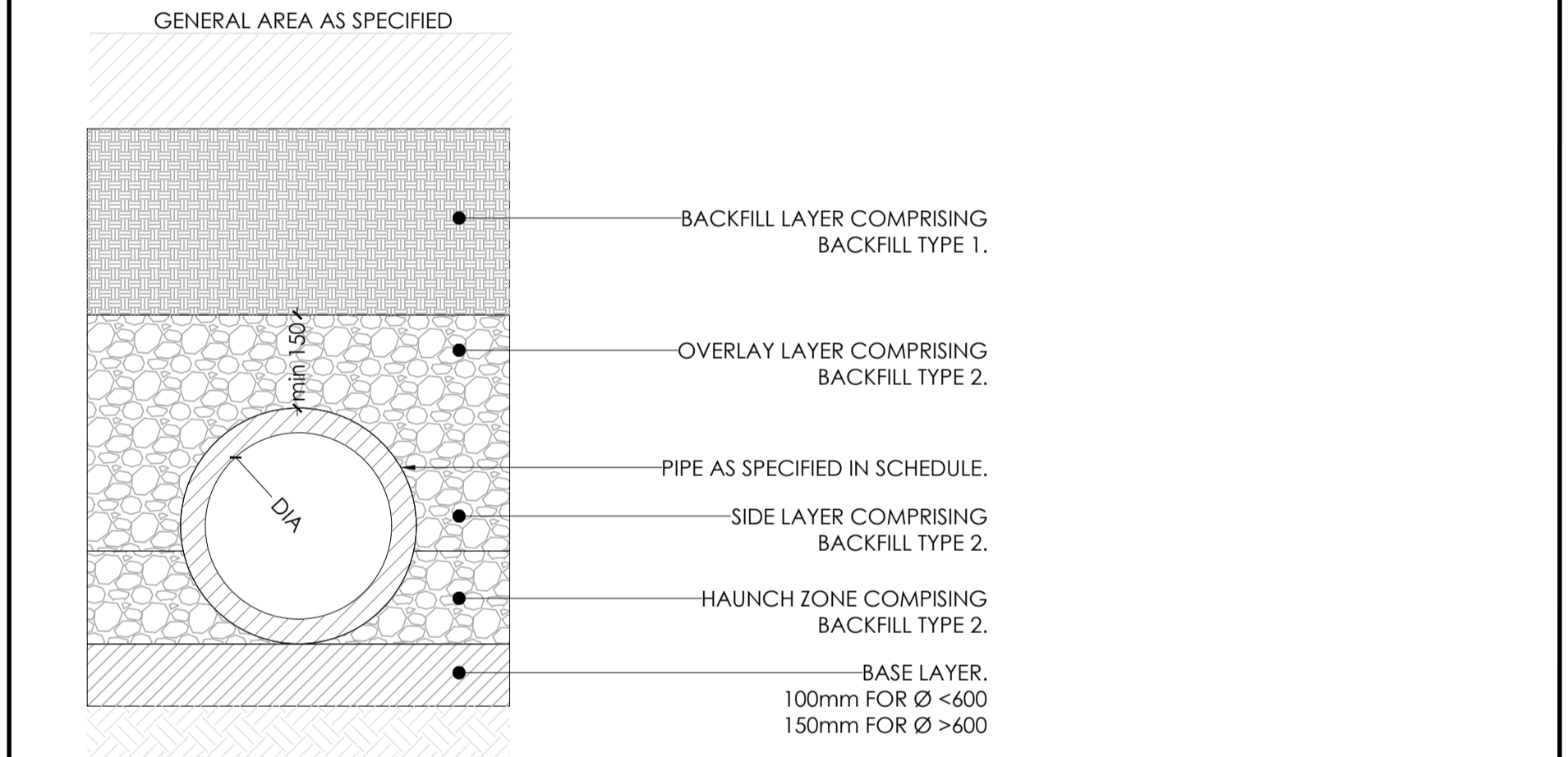
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TABLE.01 - PIPE BEDDING SPECIFICATION

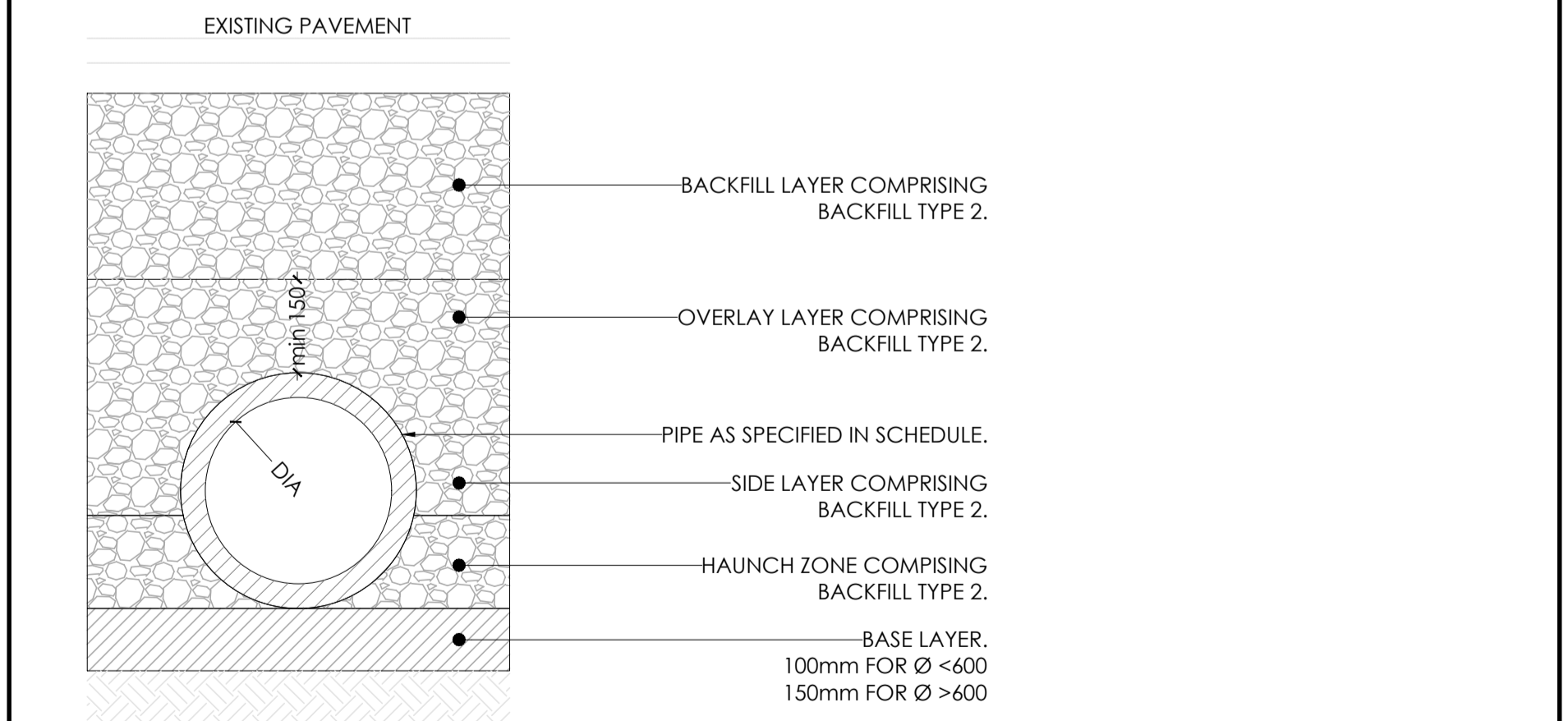
LAYER	MATERIAL SPECIFICATION	COMPACTION SPECIFICATION
BACKFILL (TYPE 1)	SITE WON FILL MATERIAL	COMPACTED TO ACHIEVE A MINIMUM DENSITY OF ADJACENT MATERIAL, TO BE COMPACTED IN MAX 150mm LAYERS.
BACKFILL (TYPE 2)	DGB20 GRANULAR MATERIAL IN COMPLIANCE WITH 'TRANSPORT FOR NSW - REGISTER OF MATERIAL'.	COMPACTED TO ACHIEVE A MINIMUM 98% (MODIFIED) IN ACCORDANCE WITH AS1289.5.2.1. TO BE COMPACTED IN MAX 150mm LAYERS.
BASE LAYER	DGB20 GRANULAR MATERIAL IN COMPLIANCE WITH 'TRANSPORT FOR NSW - REGISTER OF MATERIAL'.	COMPACTED TO ACHIEVE A MINIMUM 98% (MODIFIED) IN ACCORDANCE WITH AS1289.5.2.1. TO BE COMPACTED IN MAX 150mm LAYERS.



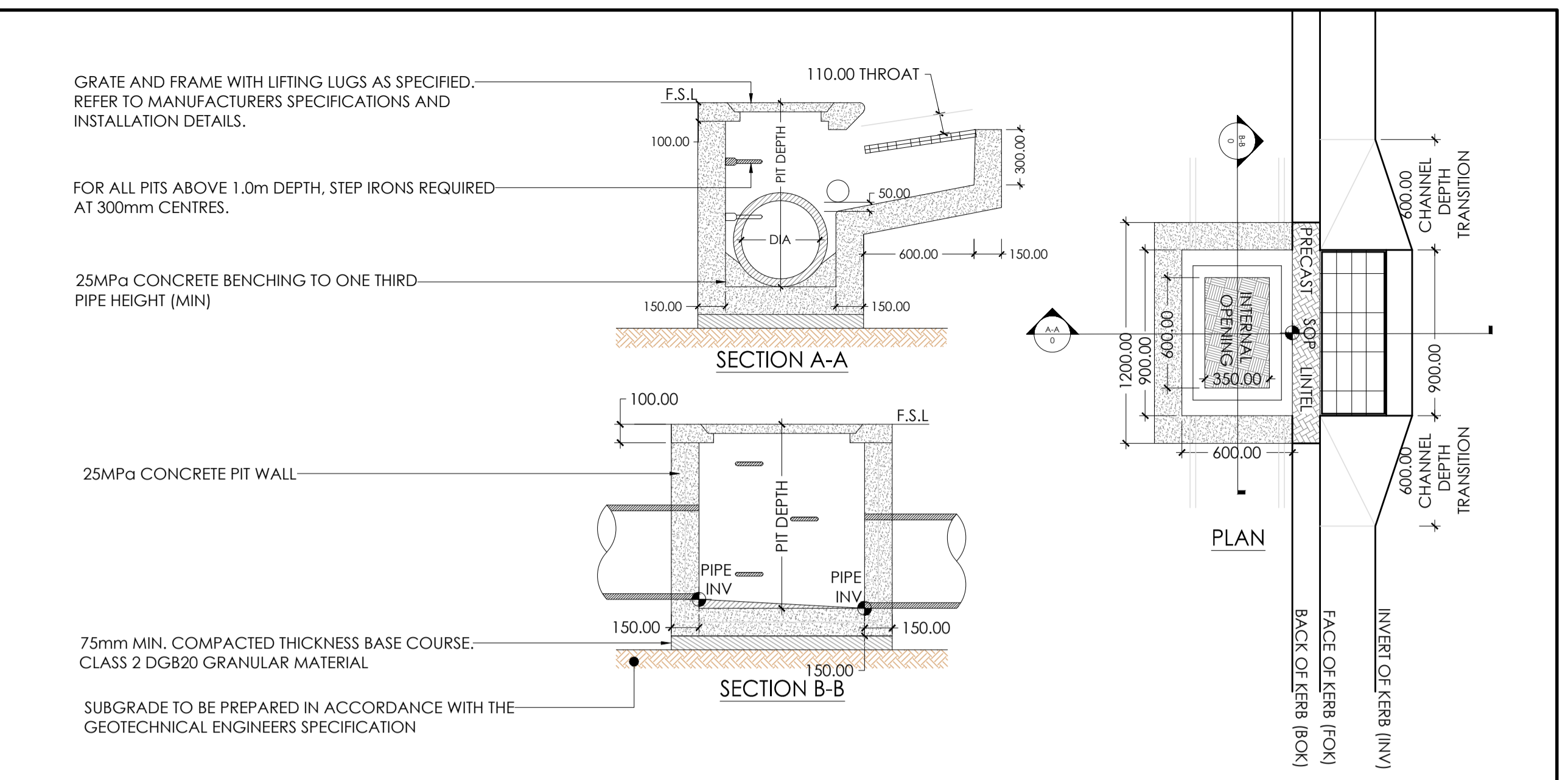
PT.01 - TYPICAL PIPE TRENCH (UNDER PAVEMENTS) [<math>< 600\text{mm}</math> COVER TO TOP OF PIPE] SCALE 1:10



PT.01 - TYPICAL PIPE TRENCH (GENERAL AREAS) [<math>< 600\text{mm}</math> COVER TO TOP OF PIPE] SCALE 1:10

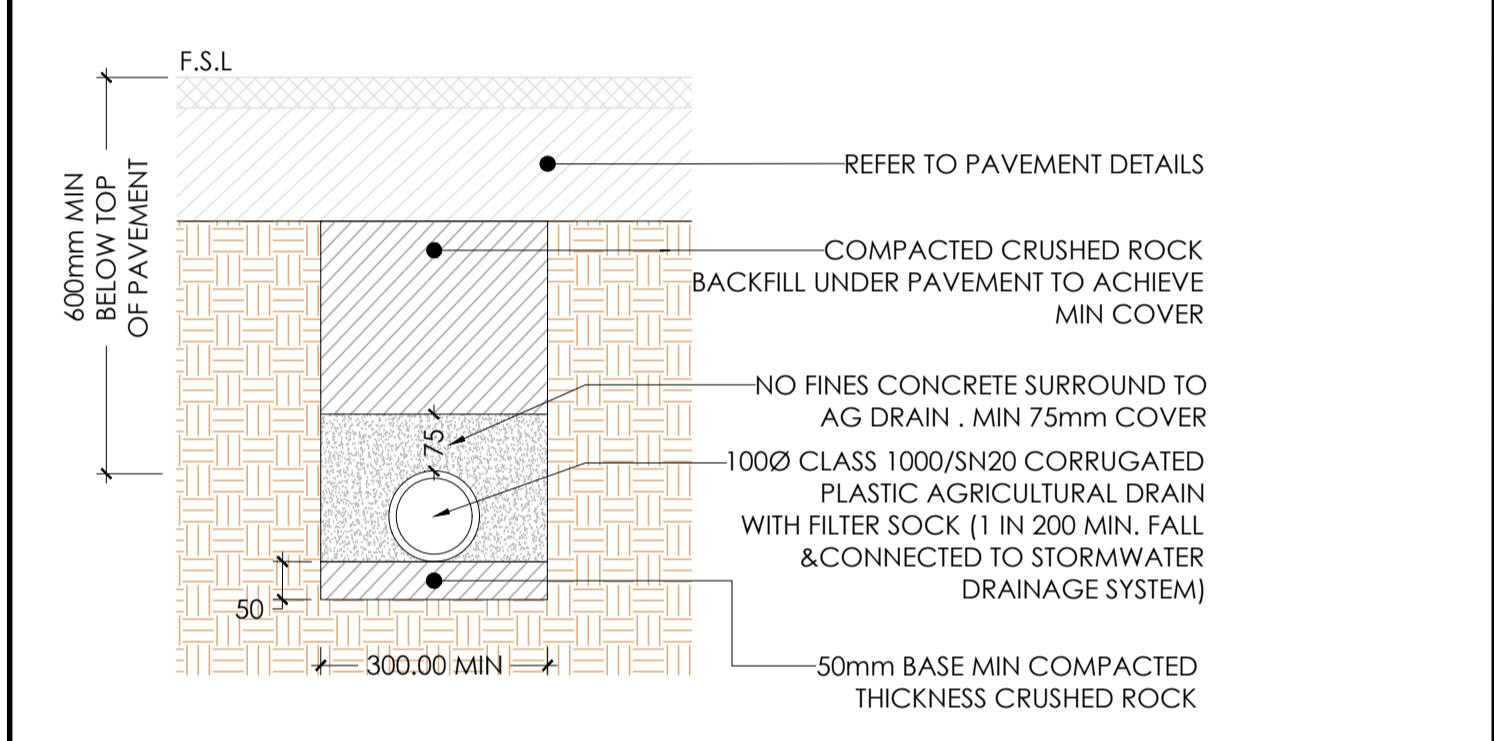


PT.01 - TYPICAL PIPE TRENCH (UNDER EXISTING PAVEMENTS) [<math>< 600\text{mm}</math> COVER TO TOP OF PIPE] SCALE 1:10

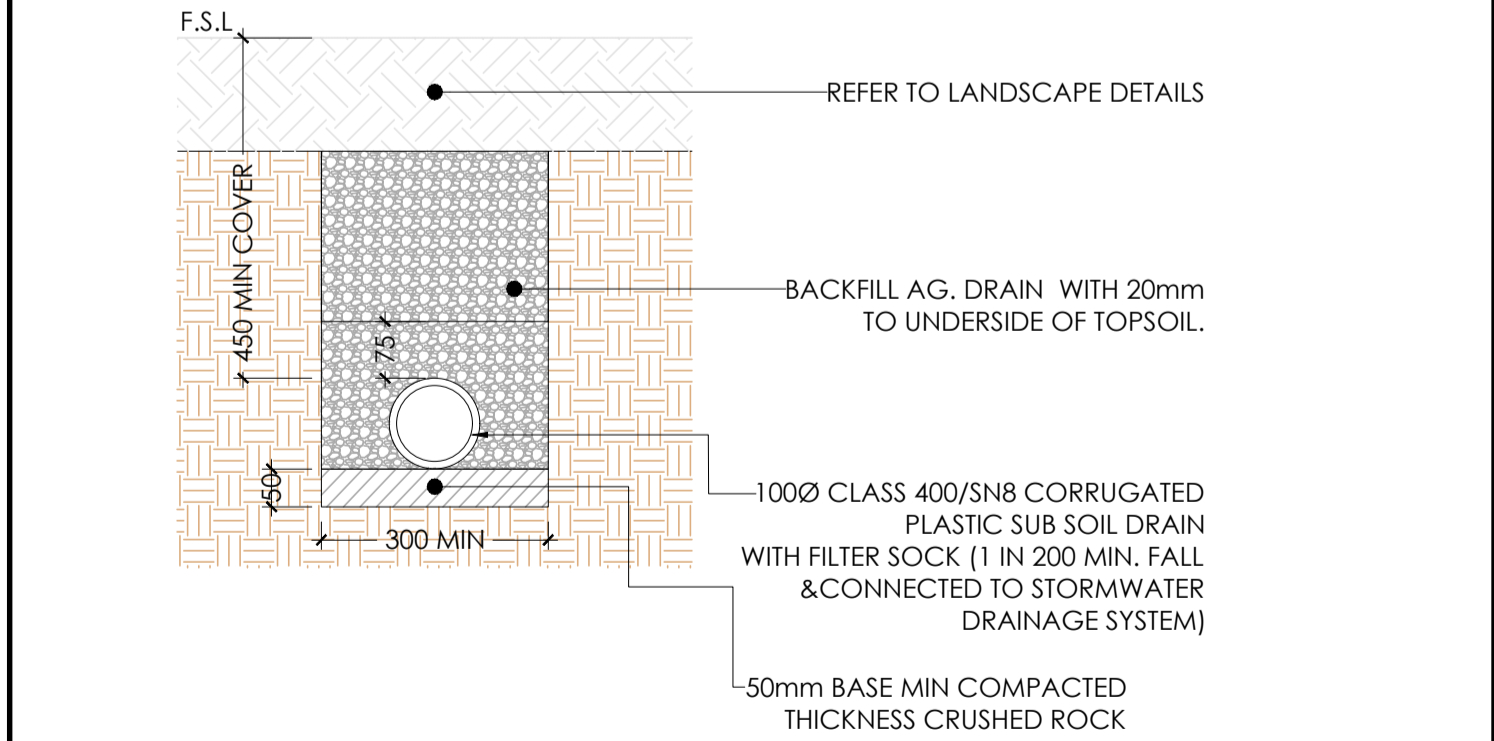


PT.03 - COMBINED GRATED AND SIDE ENTRY PIT DETAIL (GSEP) SCALE 1:25

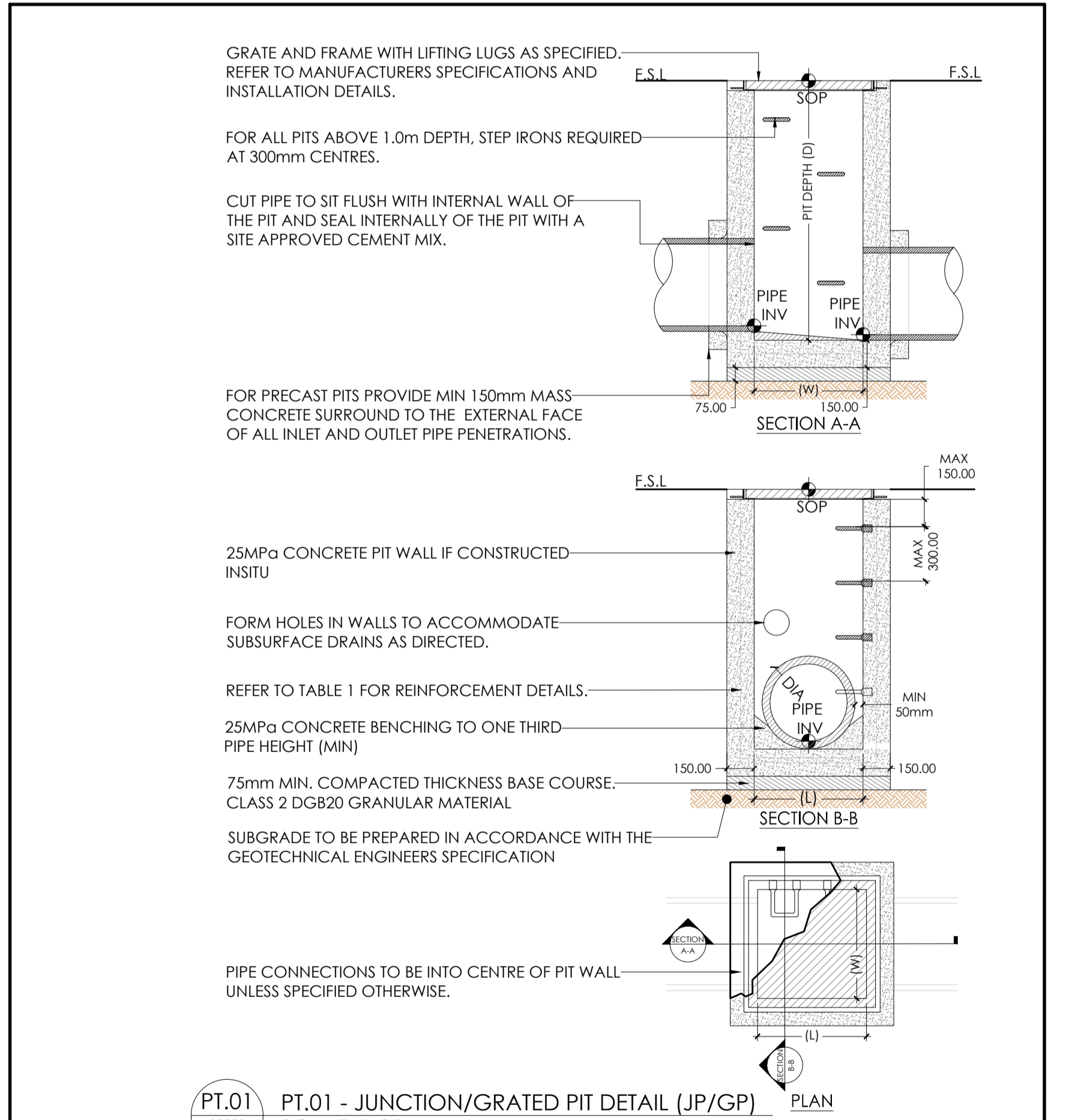
ALL DIMENSIONS IN (mm) UNLESS STATED OTHERWISE.



AG.01 - AG DRAIN UNDER PAVEMENT AREA DETAIL SCALE 1:10



AG.02 - AG DRAIN UNDER LANDSCAPED AREA DETAIL [STANDARD] SCALE 1:10



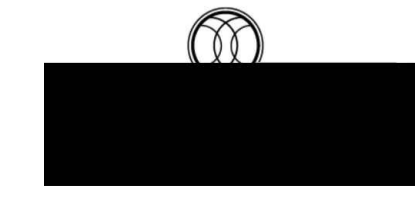
PT.01 - JUNCTION/GRATED PIT DETAIL (JP/GP) SCALE 1:25

ALL DIMENSIONS IN (mm) UNLESS STATED OTHERWISE.

JUNCTION/GRATED PIT DETAILS

Revision	Date	By	Check
1	28.08.25	TS	BW
2			
3			

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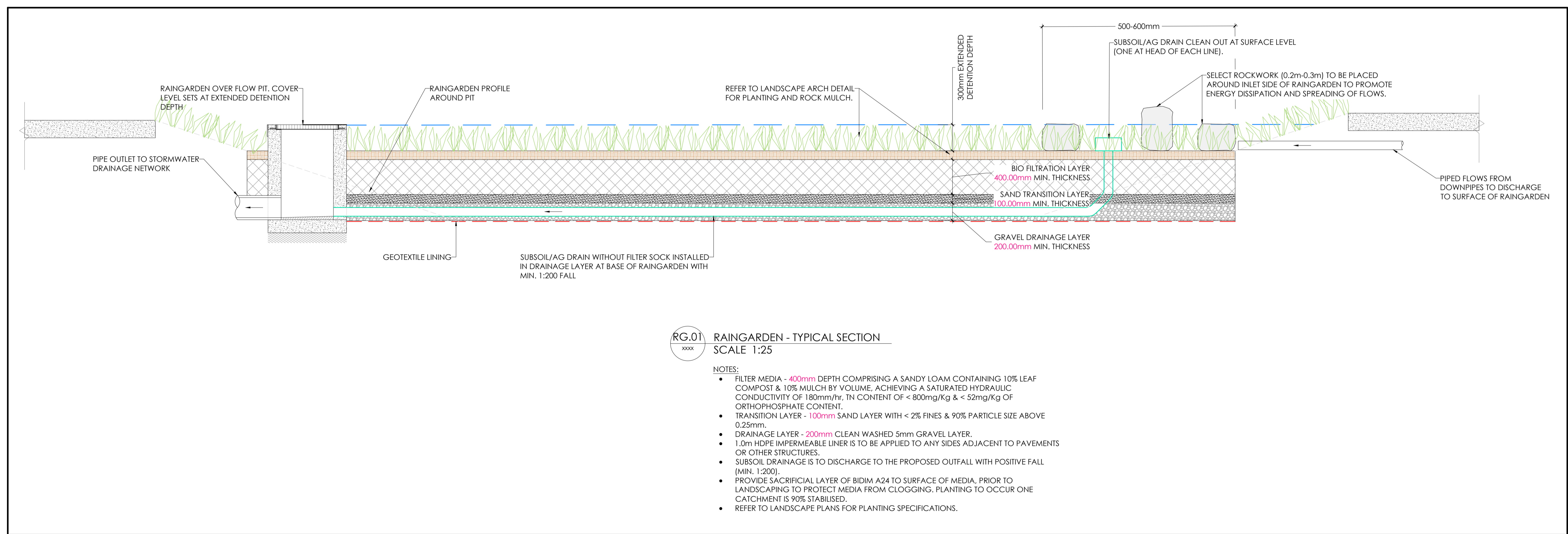
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CIVIL SITWORKS
 MELBOURNE SYDNEY
 T: +61 3 9285 2800 | F: +61 2 8234 8370 | E: info@cjarms.com | W: www.cjarms.com

Project: HALE STREET, BOTANY
 Client: COOMBS PROPERTY GROUP
 For Development Application

Drawn By: TS
 Checked By: BW
 Drawn Scale: AS SHOWN @ A1
 Date of first issue: 28.08.25

Project Number	Origin	Zone	Level	File Type	Rev	Number	Revision
15146	CJA	00	00	DWG	C	8000	A

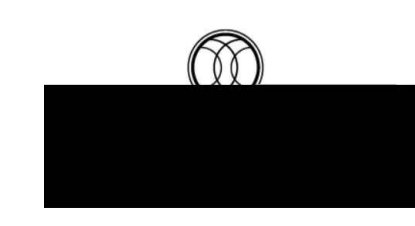


RG.01
RAINGARDEN - TYPICAL SECTION
SCALE 1:25

- NOTES:**
- FILTER MEDIA - 400mm DEPTH COMPRISING A SANDY LOAM CONTAINING 10% LEAF COMPOST & 10% MULCH BY VOLUME, ACHIEVING A SATURATED HYDRAULIC CONDUCTIVITY OF 180mm/hr, TN CONTENT OF < 800mg/Kg & < 52mg/Kg OF ORTHOPHOSPHATE CONTENT.
 - TRANSITION LAYER - 100mm SAND LAYER WITH < 2% FINES & 90% PARTICLE SIZE ABOVE 0.25mm.
 - DRAINAGE LAYER - 200mm CLEAN WASHED 5mm GRAVEL LAYER.
 - 1.0m HDPE IMPERMEABLE LINER IS TO BE APPLIED TO ANY SIDES ADJACENT TO PAVEMENTS OR OTHER STRUCTURES.
 - SUBSOIL DRAINAGE IS TO DISCHARGE TO THE PROPOSED OUTFALL WITH POSITIVE FALL (MIN. 1:200).
 - PROVIDE SACRIFICIAL LAYER OF BIDIM A24 TO SURFACE OF MEDIA, PRIOR TO LANDSCAPING TO PROTECT MEDIA FROM CLOGGING. PLANTING TO OCCUR ONE CATCHMENT IS 90% STABILISED.
 - REFER TO LANDSCAPE PLANS FOR PLANTING SPECIFICATIONS.

Revision	Date	By	Checked
A	28.08.25	TS	BW
ISSUED FOR DEVELOPMENT APPLICATION			

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CJ ARMS
www.cjarms.com

CIVIL SITeworks
MELBOURNE SYDNEY
T: +61 3 9285 2800 | F: +61 2 8334 8370 | E: info@cjarms.com | W: www.cjarms.com

Project: HALE STREET, BOTANY
Client: COOMBS PROPERTY GROUP
Drawing Title: STORMWATER CONSTRUCTION DETAILS

Drawn By: TS
Checked By: BW
Drawn Scale: AS SHOWN @ A1
Date of first issue: 28.08.25

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
15146	CJA	00	00	DWG	C	8001	A