INTEGRATED WATER CYCLE MANAGEMENT PLAN

PROPOSED DATA CENTRE

51 Huntingwood Drive

Huntingwood NSW 2148

Brisbane
Level 8, 757 Ann Street
Fortitude Valley QLD 4006
P +61 7 3667 8861
ABN 63 609 812 615

Melbourne
Level 6, 379 Collins Street
Melbourne VIC 3000
P +61 3 8614 5555
ABN 48 158 266 329

Sydney
Level 6, 39 Chandos Street
St Leonards NSW 2065
P +61 2 9436 0433
ABN 56 158 266 301

www.vandermeer.com.au

Approved by:	Andrew Wallis
Position:	Associate Director
Qualifications:	B.E. (Hons), CPEng, N.E.R.
Signed:	
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van der Meer (QLD) Pty Ltd
(ABN 63 609 812 615)
Level 8, 757 Ann Street
FORTITUDE VALLEY 4006
P +61 7 3667 8861
E QLD-enquiries@vandermeer.com.au

van der Meer (VIC) Pty Ltd
(ABN 48 158 266 329)
Level 6, 379 Collins Street,
MEBOURNE VIC 3000
P +61 3 8614 5555
E VIC-enquiries@vandermeer.com.au

van der Meer (NSW) Pty Ltd
(ABN 56 158 266 301)
Level 6, 39 Chandos Street,
ST LEONARDS NSW 2065
P +61 2 9436 0433
E NSW-enquiries@vandermeer.com.au

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1 Introduction

1.1 Purpose of this Report

van der Meer Consulting has been commissioned by AW Edwards to prepare an Integrated Water Cycle Management Plan to support a SSDA modification application for a proposed multi-stage industrial data centre development located at 51 Huntingwood Drive, Huntingwood NSW 2148.

The scope of this report includes a comprehensive assessment of the water cycle management requirements for the proposed development. Accordingly, this report includes findings of the assessment and proposes a best practice water and stormwater management strategy.

The sections of the report that address the relevant Planning Secretary's Environmental Assessment Requirements (SEAR's) are identified below:

Table 1.1 SEARs for Civil Engineering

SEARS Issue	Report Sections
Issue 13 - Ground and Water Conditions	
• Provide an assessment of the potential impacts on surface and groundwater resources (quality and quantity), including related infrastructure, hydrology, aquatic, and groundwater dependent ecosystems, drainage lines, downstream assets, and watercourses.	2, 3, 5, 12
• Identify predicted water discharge points to surface/groundwater and consider discharge quality against relevant water quality criteria	4, 5, 12
• Provide a detailed site water balance including identification of water requirements for the life of the development, and measures to ensure an adequate and secure water supply.	7,8, 11
Issue 14 - Stormwater and Wastewater	
• 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.	2, ALL
• Details the proposed drainage design for the site including any on-site detention facilities, water quality management measures and the nominated discharge points, on-site sewage management, and measures to treat, reuse or dispose of water	4, 5, 6
• Demonstrate compliance with the local council or other drainage or water authority requirements and avoids adverse impacts on any downstream properties.	2, 3, 4, 5, 6
• Where 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.	ALL

Issue 15 – Flooding 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.	10
• Assess the impacts of the development, including any changes to flood risk on-site or off-site, and detail design solutions and operational procedures to mitigate flood risk where required.	10

The following information and documents were utilised in this investigation:

- Detailed Site Survey Plans
- Architectural plans defining proposed works and existing infrastructure
- Blacktown City Council "Development Control Plan-Part J" (DCP), 2015
- Blacktown City Council "Developer Handbook for Water Sensitive Urban Design", 2013
- Blacktown City Council "Engineering Guide for Development", 2005
- Managing Urban Stormwater – Soils and Construction (2004) Landcom
- Blacktown City Council "Works Specification Civil", 2005

1.2 Existing Site

The site is located at 51 Huntingwood Drive, Huntingwood NSW 2148. The site is approximately 9ha with and is occupied by an existing Endeavour Energy office building with surrounding carparking and landscaping. There is also an existing private communications tower located in the south-east corner of the site. The site is bounded by an Arnott's industrial building on the west, Huntingwood drive to the north, the M4 Western Motorway to the south, and several smaller industrial buildings along Healey Circuit to the east. The site currently has one access driveway to Huntingwood Drive at the centre of the Northern boundary.

The existing building located on the site is located on a high point compared to the surrounding area. As a result, about 40% of the site naturally grades to the south-west. Another 30% grades towards the north-east and the remaining 30% grades towards the north-west. There is a crest located on Huntingwood Drive along the northern boundary of the site. Due to this crest, there are council stormwater pits located adjacent to both the north-eastern corner and north-western corner of the site. Appendix E includes the survey for the existing site.



Figure 1.1 – Location of Subject Site

1.2.1 Existing Stormwater Infrastructure

Information regarding existing stormwater assets was available from the Utilities Survey, Site Survey and Satellite imagery.

The existing site has multiple stormwater outlets. The first discharge point is at the north-east corner of the site. A Ø675 pipe connects to an existing kerb inlet pit located at the south side of Huntingwood drive. This pit connects to the grassed swale at the sag point on Huntingwood Drive approximately 25m east of the site boundary.

The second discharge point is to a vegetated detention basin in south-west corner of the site via a Ø450 pipe. The outlet for this basin connects to a Ø450 pipe which crosses DP866251 and likely connects to stormwater assets in the road reserve of the M4 Western Motorway.

There is an additional existing stormwater line which runs west from the south-west corner of the existing carpark at the southern end of the site towards a headwall located on the existing embankment.

There is also an existing underground OSD tank located at the north-west corner of the site in the carpark. However, there is no stormwater information showing any drainage connections to on-site or external stormwater assets.

1.2.2 Water Supply

Information regarding existing Water services was via a Dial-Before-You-Dig request and the Utilities Survey.

The Sydney Water DBYD response map shows an existing Ø250 Ductile Iron Cement Lined pipe running along the southern side of Huntingwood Drive at the northern boundary of the site. There are 3 potable water hydrants along the northern boundary, and two potable water stop valves located at the North-Eastern Corner of the site.

The existing on-site potable water network is primarily connected to the mains supply at the north-eastern corner of the site.

However, the Utilities Survey also shows a connection from the existing fuel area at the south-eastern corner of the site into 12 Healey Circuit. As this property is outside of the scope of work of the survey it is unclear how far this connection runs. The Dial-Before-You-Dig shows a Ø150 CICL pipe running along Healey Circuit which may be the point of connection.

1.3 Proposed Works

The proponent of this development is proposing a data centre to be constructed on the existing site. All existing buildings and services are proposed to be removed from the site.

The data centre will consist of 6 buildings consisting of building modules of tenant spaces, facility support areas and open areas for external containerised plant. Water storage systems, diesel fuel storage areas and electrical plant will also be required for the development.

A ring road will be constructed around the building footprint and will have two separate entrances. Carparking will be on grade, with marked pedestrian access to the foyer of the building. A security fence will surround the development.

2 Objectives & Targets

The objective is to provide stormwater controls that ensure that the proposed development does not adversely impact on the quantity or quality of stormwater flows within, adjacent and downstream of the site.

The site-specific stormwater management and planning elements are to be designed and constructed in accordance with the following:

Water Quantity

Guidelines: Blacktown City Council Engineering Guide for Development, 2005

The proposed development increases the total impervious area of the existing site and therefore may increase the discharge rate to the downstream drainage network and waterways. The main objective is to achieve a natural water balance which seeks to approximate the pre-development site conditions to maintain existing conditions as well as controlling erosion and sediment removal.

Water Quality

Guidelines: Blacktown City Developer Handbook for Water Sensitive Urban Design, 2013The main objective for stormwater quality is to minimise the impacts on downstream water bodies. Blacktown City Council has adopted a stormwater management policy that incorporates “best practice” principles of Water Sensitive Urban Design. The site-specific water quality targets are outlined in Table 2.1.

Table 2.1 Blacktown City Council Pollution Reduction Targets

Pollutant	Criteria
Total Suspended Solids (kg/yr)	85% reduction of the annual load
Total Phosphorus (kg/yr)	65% reduction of the annual load
Total Nitrogen (kg/yr)	45% reduction of the annual load
Gross Pollutants (kg/yr)	90% reduction of the annual load

3 Erosion and Sedimentation Control

3.1 Introduction

During construction, water quality control is achieved by deposition and trapping of silts and clays which often have nutrients such as phosphorus and nitrogen attached to their surfaces. Silt fences will be erected prior to construction to control sediment runoff. This will reduce and isolate sediments and particulate matter.

An Erosion and Sediment Control Plan has been provided in accordance with Landcom's "Managing Urban Stormwater – Soils and Construction (2004)". This will ensure that a significant portion of sediments and attached nutrients can be contained on site during construction.

A copy of the preliminary Soil & Water Management Plan included in Appendix A, details:

- The location and extent of proposed sediment & erosion control measures
- The location of the sediment control fence
- The locations and control measures for temporary stockpiles.
- The locations and control measures for vehicle wash down areas.

3.2 Sedimentation Basin

The subject site cleared area is to be approx. 9 ha which is, and therefore a Soil and Water Management Plan and sediment basin assessment are required. The sedimentation basin(s) are to be design as follows:

- *According to the NSW Blue Book (Landcom's "Managing Urban Stormwater – Soils and Construction (2004))*
- *Type D soils (unless otherwise demonstrated by an analysis of the site soils by a qualified geotechnical consultant and which must be submitted with the development application)*
- *Total rainfall depth used in the analysis is based on 90th-percentile and 5-day rainfall in Blacktown as shown on Table 6.3a in Landcom's "Managing Urban Stormwater – Soils and Construction (2004)*

Based on the calculation, the calculated soil loss (m^3/ha/yr) is greater than 150 m^3/ha/yr and therefore sedimentation basins are required.

Refer to Appendix B for Erosion and Sediment Control Calculations.

4 Stormwater Quantity Control

A roof drainage system will be used to drain the building roof. The box gutter system will be sized for a 1:100yr ARI storm event and connected to inground rainwater tanks. These tanks will overflow into the civil stormwater system.

The north-eastern portion of the site grades towards the north-east and is currently located in a catchment for an existing precinct OSD basin located across the road. The north-western portion of the site will require and OSD tank of 1,100 m^3 and the southern portion of the site will require an OSD Basin of 1,400 m^3 capacity.

The stormwater pipes are designed for flows up to the 1% AEP event and site grading is designed to accommodate overland flow of stormwater in the event of 100% blockage.

On-Site Detention Tank A and On-Site Detention Basin B have been designed in accordance with the Blacktown City Council Deemed to Comply Tool version 1.9 available on council's website.

The proposed civil stormwater system will require 3 separate discharge pipes: Ø375, Ø675 and Ø450.

The stage 1 (northern) building will drain into a stormwater line running to the OSD tank A located at the north-west corner of the site, and discharge via a Ø375 pipe to the existing kerb inlet pit on Huntingwood Drive.

The eastern catchment of the stage 2 (southern) building will drain into a stormwater line which runs via a Ø675 pipe to the existing discharge point at the north-east corner of the site. No OSD will be required for this discharge point.

The western catchment of the stage 2 (southern) building will drain into a stormwater line running to the OSD Basin B located at the south-west corner of the site, and discharge via a Ø450 pipe to the existing pit in the south-west corner of the site.

The conceptual stormwater servicing strategy is shown in Figure 4.1 below:

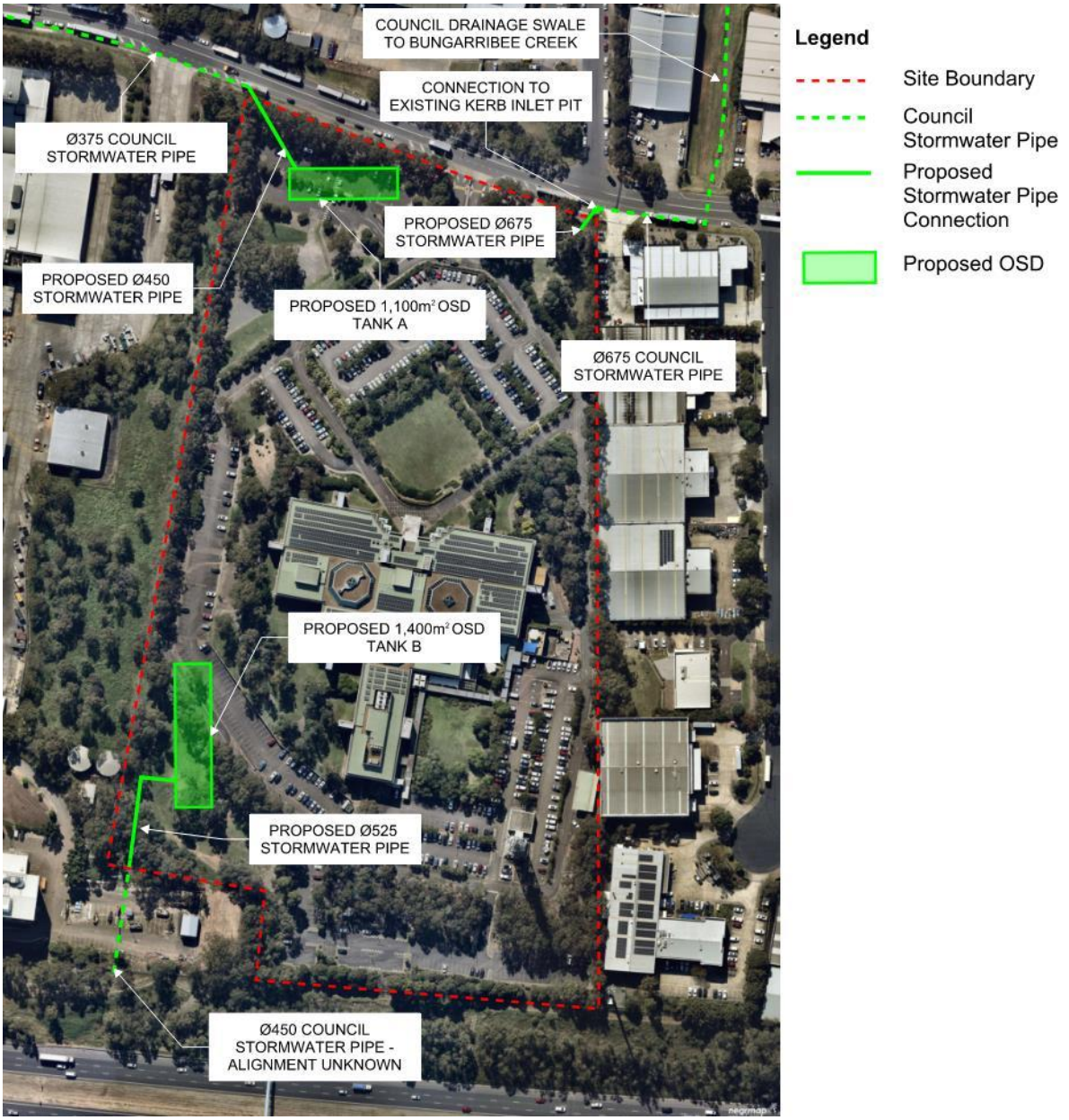


Figure 4.1 Conceptual Stormwater Servicing Strategy

5 Stormwater Quality Control

5.1 Introduction

The quality of runoff from a catchment depends upon many factors such as land use, degree of urbanisation, population density, sanitation, waste disposal practices, landform, soil types, and climate. Pollutants typically transported by runoff include litter, sediment, nutrients, oil, grease, and heavy metals. Whilst all these pollutants have a negative impact on the receiving water quality, suspended solids and nutrients cause the highest detrimental impact to the environment

Additionally, soil erosion during the construction phase presents a potential risk to water quality. The primary risk occurs while soils are exposed during earthworks when suspended sediment and associated pollutants can be washed into downstream watercourses.

5.2 Water Quality Control Measures

The measures proposed for the redevelopment are summarised below:

Filter Cartridges

- *SPEL Filter* is a proprietary device containing multiple cartridge units in a single system, thereby suitable for larger catchments.
- An advantage of using *SPEL Filter* is that the cartridges come with various filtration media available to target site-specific pollutants.
- There will be a total of 95 x 690mm SPEL Filter cartridges within the water quality treatment tanks in the two OSD treatment systems as detailed in the engineering drawings.

SPEL Stormsack

- SPEL Stormsack inserts will be placed at all proposed surface inlet pits within the proposed development.
- Testing at the University of South Australia Urban Water Resources Centre found that the Stormsack or similar units retained all litter up to an approach flow of 100L/s. Allowing it to retain 100% of coarse sediment and gross pollutants as defined by the Victoria Stormwater Committee for particulate sizes ranging from 500µ to 5000µ for a 200µm sized sieve.
- Stormsack or similar units filters show removal of up to 97% Suspended Solids for particulate sizes in the range of 100-500µ (Butler, OcKLeston, Foster).

Rainwater Tank

Cooling towers/hybrid dry coolers will be provided with a concurrently maintainable critical water supply and 24 hours water storage in the event of mains failure. Water storage calculations have been developed based on Cooling Towers, as this will be the worst case from a water use perspective. 16 x emergency 24-hour water storage tanks (total storage 20,944 kL), and 1 x 335 kL and 1x 100 kL inground water tanks will be used to collect rainwater from building roof area before being processed in a filtration plant to be re-used for mechanical make-up water.

As outlined in the Blacktown DCP Part J and the Ecologically Sustainable Development report prepared by Sustainable Building Consultants Rev E, and dated 31.05.2022, the proposed development is required to meet 80% of its non-portable demand using non portable sources. Also stated in the report "The percentage of the proposed roof area directed to a rainwater tank must be maximized to increase the effectiveness and reliability of the reuse system…Where cooling towers are used, they shall Use alternative non-potable water sources where practical."

Given the nature of this development, the primary factor being the use of evaporative cooling towers, the demand quantity of water for the site far exceeds and possible quantity of roof capture quantity. Therefore, it is unlikely to meet this requirement for the proposed development for the non-potable reuse of water for landscape irrigation and internal demands. However, the intention of this requirement, being the capture and reuse of non-potable water, is in line with the design intent of the proposed development.

Section 11 of this report shows the estimated demand for the cooling towers of approx. 7,569 ML/yr, some of this demand will be drawn from the proposed rainwater tanks where practical.

Table below details the various non-portable demands that will be substituted with the use of harvested rainwater as modelled in our MUSIC model.

Table 5.1 Estimated Non-Potable Water Demands

External demands			
Demand	Area (m²)	Rate (KL/yr/m²)	Demand (KL/yr)
Landscape irrigation **	14,000	0.3	4,200
Demand	Persons	Rate	Demand (KL/yr)
Number of Equivalent People (EP)	10#	30 L/EP/day##	110
		Total	4,310

** Subject to final landscape design
\# Note this includes all shifts
\## Assuming 5 flushes per person per day

5.3 Water Quality Modelling

5.3.1 MUSIC

The effectiveness of the proposed water quality measures has been assessed using numerical modelling. Water quality modelling has been conducted using the software program MUSIC (Model for Urban Stormwater Improvement Conceptualisation). This program is used to establish the effectiveness of the water quality treatment proposed for the development site. MUSIC has been developed by the Cooperative Research Centre for Catchment Hydrology and is designed as a planning tool for water quality treatment trains for catchment runoff. The program is able to model pollutant loads present in stormwater runoff from a catchment and assess the effectiveness of different treatment devices in terms of pollutant load reduction.

The rainfall data used was the six-minute time step, as per Blacktown City Developer Handbook for Water Sensitive Urban Design and MUSIC link data accessed on 02/02/2026.

Catchment characteristics were defined using a combination of roof areas and non-roof source node catchments with varying imperviousness ratios to replicate the catchment for the developed condition, source nodes were modelled based on Blacktown City Developer Handbook for Water Sensitive Urban Design.

The MUSIC model layout is shown below.

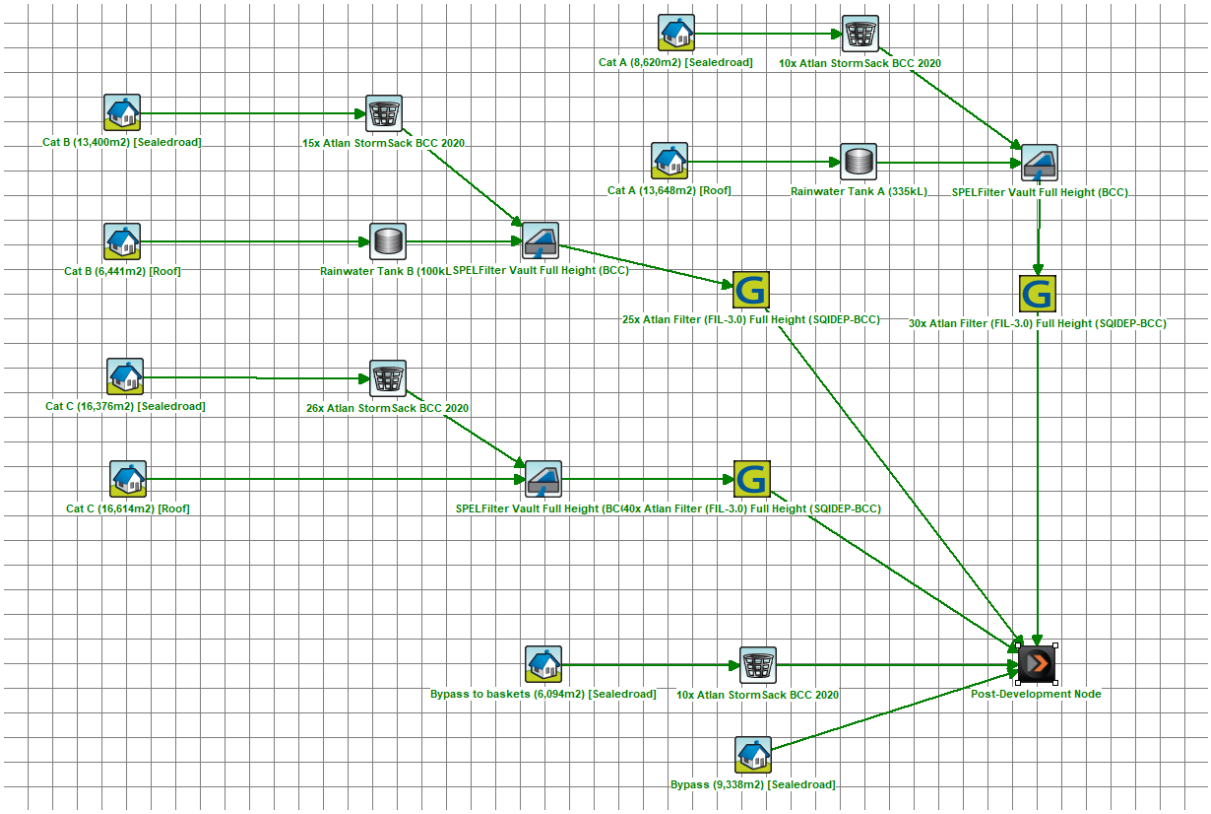


Figure 5.1 Water Quality Treatment Train Diagram

5.3.2 Land Use

Table 5.2 details the various land use areas for the proposed development. It should be noted that only a minor undisturbed landscape area has been treated as bypass from the treatment train, and that the remaining site area is to be collected and treated.

Table 5.2 Land Use Areas

Land Use / Surface Type	Area (ha)
Building Roof to RWT	3.6703
Pavement	3.7802
Pavement (Bypass Filters)	0.0718
Landscaping	0.6688
Landscaping (Bypass Filters)	0.8620
Total	**9.0531**

5.3.3 Results

"Blacktown City Developer Handbook for Water Sensitive Urban Design" outlines council's requirements for the reduction of pollutants from stormwater before it can be discharged from the site. These targets are listed in Table 5.2 below together with the percentage pollution reductions that will be achieved by the proposed treatment train.

Table 5.3 Comparison of Pollutant Reduction Target vs. Achieved

Pollutant	Reduction Target	Reduction Achieved
Total Flow (ML/yr)	N/A	9.1%
Total Suspended Solids (kg/yr)	85%	85.0%
Total Phosphorus (kg/yr)	65%	70.0%
Total Nitrogen (kg/yr)	45%	65.9%
Gross Pollutants (kg/yr)	90%	97.9%

The proposed water quality measures enable the reduction targets to be achieved for all key stormwater pollutants. Nitrogen, Suspended Solids, Phosphorus and Gross Pollutants are above the reduction targets. By implementing the proposed treatment train measures within the proposed development there will a significant improvement on the quality of stormwater running off from the site. MUSIC link report with comments is attached with this report, refer to Appendix C for details.

6 Maintenance

Monitoring and maintenance are required to ensure the stormwater treatment train works as intended for the life of the development. Any unusual event regarding the stormwater system (extreme weather events) should be investigated and mitigated as soon as possible such as localised flooding. However, treatment devices are designed to allow for overflow in the event that they block so even when the devices stop working it can go unnoticed.

Regular inspections are required for each treatment device. These are to be scheduled to ensure devices are cleaned as necessary and any defects discovered rectified. Inspections are also to be performed after any large rainfall event.

Refer to Appendix C for complete maintenance schedule for stormwater system/devices used in the subject site.

7 Water

7.1 Potable Water

The existing Sydney Water Ø250 water main located along Huntingwood Drive is unlikely to be adequate for the full site water demand. It is anticipated that the critical water demand flow rate at 147.4 L/s will exceed the current max. supply water flow rate.

The water main will need to be upgraded to service the proposed development. A Section 73 Feasibility Study has been lodged with Sydney Water to assess the proposed mains amplifications upgrades.

Cooling towers/hybrid dry coolers will be provided with a concurrently maintainable critical water supply and 24 hours water storage in the event of mains failure. Water storage calculations have been developed based on updated HDC supplier specification and water consumption. The 24-hour water storage requirement being a total of 19,600 kL broken up into 16 water storage tanks distributed throughout the site.

7.2 Rainwater Reuse

Rainwater re-use will be utilised for the main roof catchment. 1 x 335 kL and 1x 100 kL inground water tanks will be used to collect rainwater from building roof area before being processed in a filtration plant to be re-used for mechanical make-up water and landscaping.

7.3 Connection Strategy

The conceptual water servicing strategy is shown on figure below.

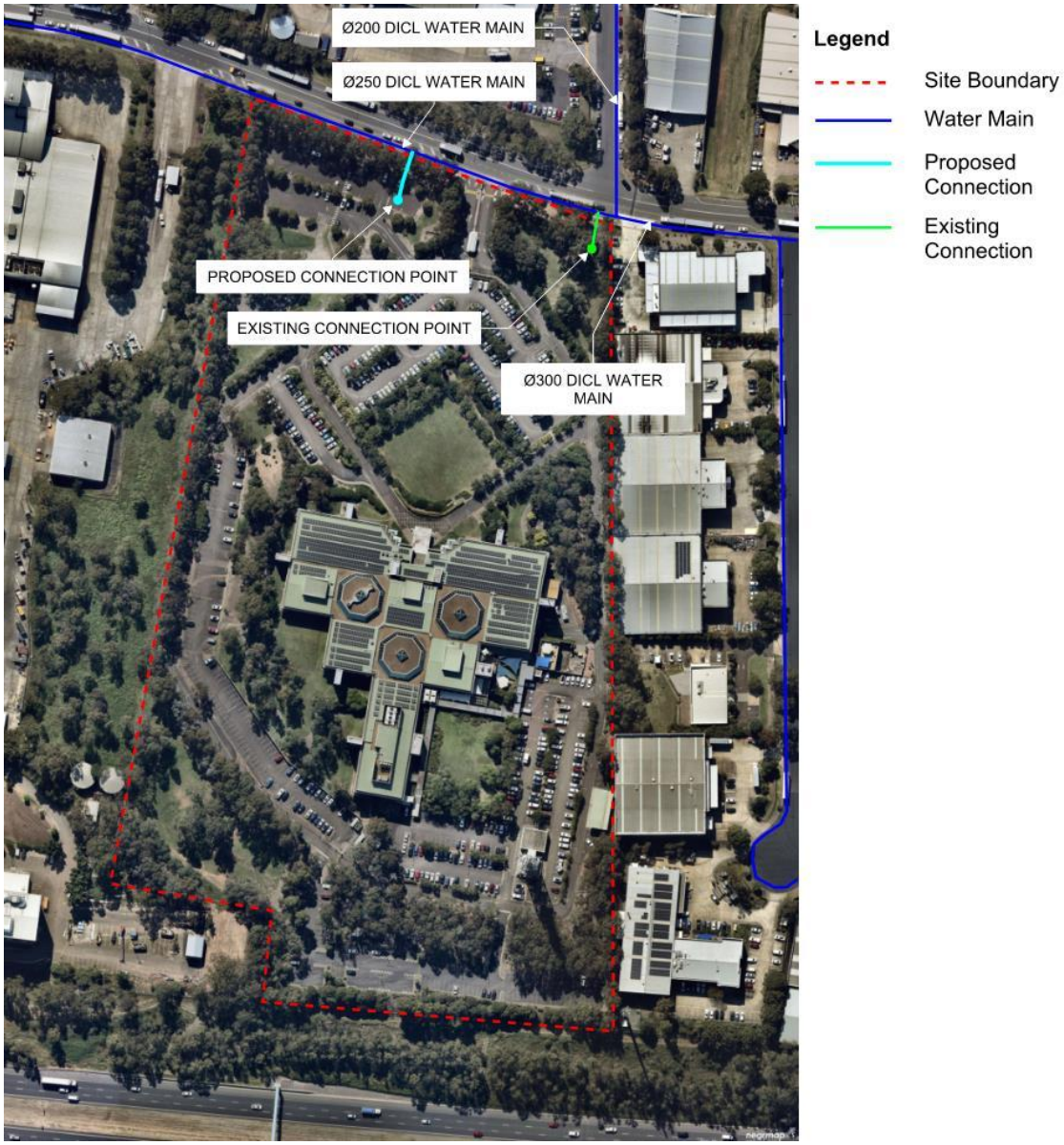


Figure 7.1 – Conceptual Water Servicing Strategy

8 Sewer

The calculated peak sewer drainage rate for the site is 14.7 L/s.

The existing Ø225 sewer main is located along Huntingwood Drive. There is an existing connection at the north-eastern corner of the site. The site can be graded to achieve gravity drainage without provision of pump stations.

Sydney Water will require a Section 73 application to assess the proposed development and provide a notice of requirements. Preliminary discussions have indicated that the existing network can accommodate a 14.7 L/s sewer discharge. A water services coordinator will be required to be appointed for these works.

Metering of sewer discharge will also be provided as Sydney Water typically bases the charges on water consumption. As the site is predominantly using water for evaporative cooling, the sewer discharge will be significantly less than the water usage.

The conceptual sewer servicing strategy is shown in Figure below:

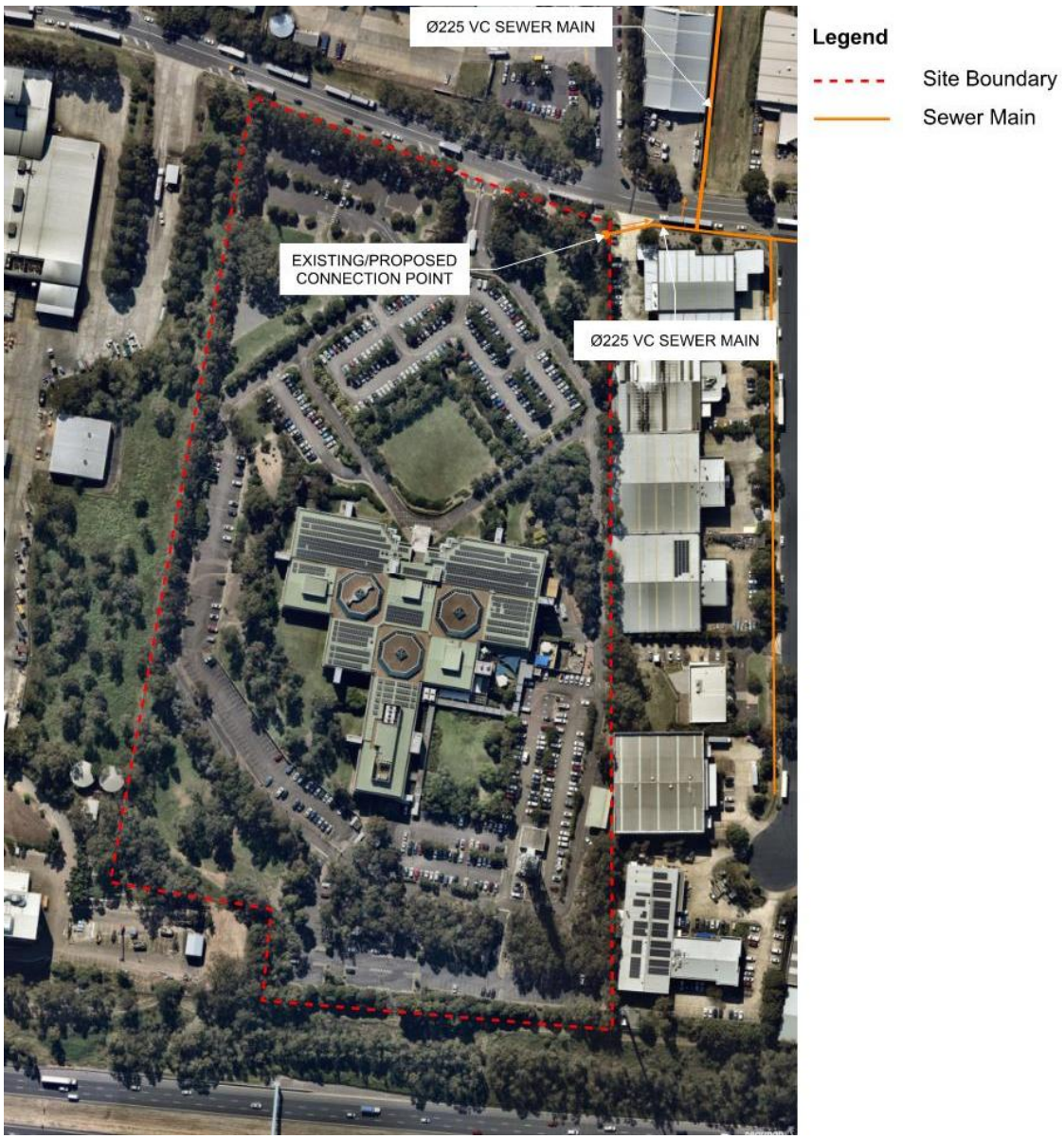


Figure 8.1 – Conceptual Sewer Servicing Strategy

9 Bulk Earthworks

The existing site is quite steep despite it being developed and slopes from a high point where the endeavour energy building is located falling away to the corners of the property.

The existing structure has a single level basement under the full extent of the building. Surrounding carparks have been built to follow the existing surface where possible and limit the amount of retaining walls required.

The proposed development will require demolition of the existing building and surrounding carparks and will involve a significant cut to fill exercise to allow for the proposed building pads and adjoining generator platforms. Estimates for the building slab, hardstand and base material depths have been assumed based on preliminary structural drawings. A detailed geotechnical report will be required to confirm any site stripping requirement.

Bulk earthworks quantities based on our design model are as follows:

Cut:	70,800 m³
Fill:	80,300 m³

The above estimates exclude detailed excavation. Data centres contain significate services, beyond what a typical warehouse would require.

Therefor various additional items have been considered in the earthworks quantities estimates, these are as follows:

- Building Piled Footings = 10,000 m^3 (60 piles x 1.5m dia x 10m deep approx.)
- MV Trenching = 16,354 m^3 (929m x 5.5m wide x 1.6m deep x 2 trenches)
- Stormwater, Hydraulic, Misc services = 5,000 m^3 (assume 5000m x 1m²)
- Retaining Walls and RW backfill = 2,500 m^3 (2,500m Length x 1m² cross sectional area)

The combination of these values is 26,300 m^3 additional.

Estimated final earthworks cut and fill area as follows

Cut:	70,800 m³
Trenching:	33,854 m³
Fill:	80,300 m^3
Balance:	-24,354 m^3

10 Flooding Risk

10.1 Flooding risk

Blacktown City Council maintains an on-line mapping tool providing flood information for properties in the local government area. The mapping tool defines area that are susceptible to flooding and provides extents of Flooding precincts and flood risk categorisation. The proposed development has been checked for its flooding risk and found that there is no risk of flooding on the site.

As stated on council's website: "During heavy rainfall flooding can occur in 2 ways: 1) Mainstream flooding where creeks can overflow, break their banks and flood nearby low-lying areas and properties, and 2) Local overland flooding where the capacity of stormwater pipes is exceeded, and stormwater then flows aboveground following the low areas of the landscape."

Because the site is at a localised high point in the catchment, and significantly distanced from any existing critical stormwater infrastructure, there is no risk of any flooding on site. The proposed development is outside of any flooding precincts as determined by the flooding maps located on council's website. See figure 10.1 below:

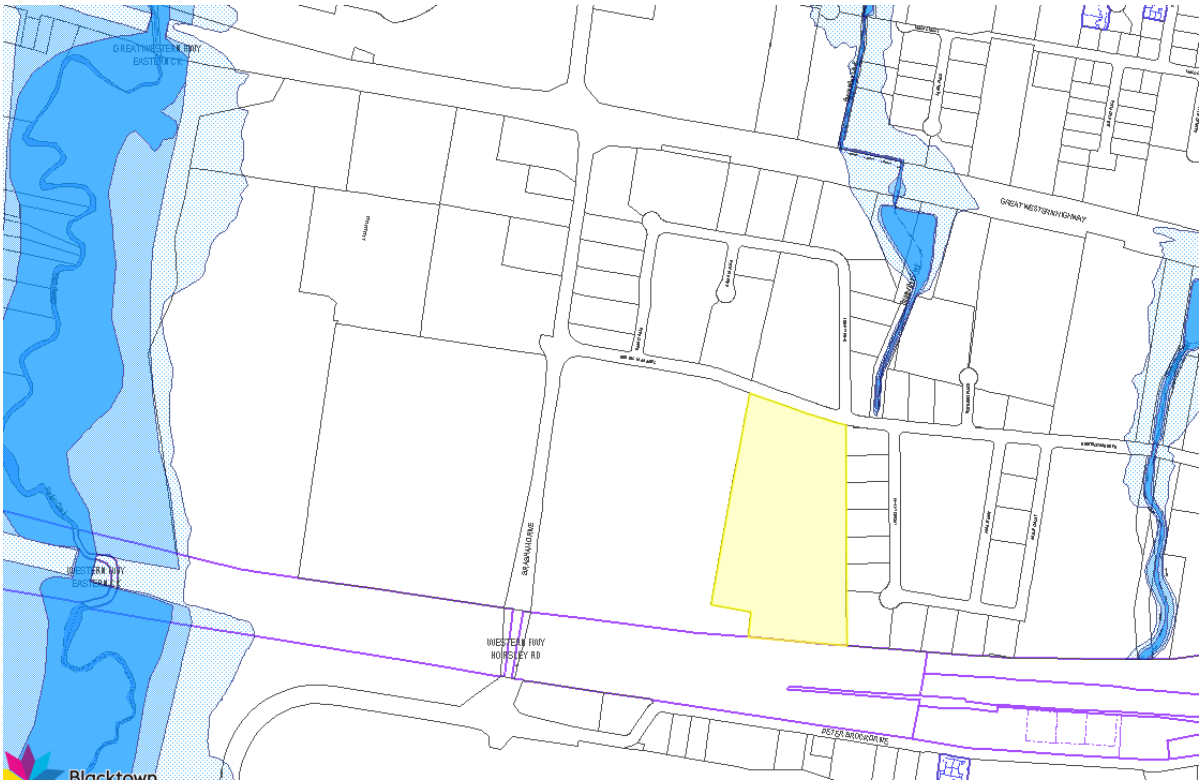


Figure 10.1 – Flooding precincts of development area. Source – Blacktown City Council.

Additionally, this information has been checked against the Flood management Authority (FMA) and State Emergency Service (SES) data available online, against their Peak Maximum Flood (PMF) data for the Hawkesbury-Nepean Valley. This equates to an 0.1% chance of happening in an 80-year lifetime. See figure 10.2 below:

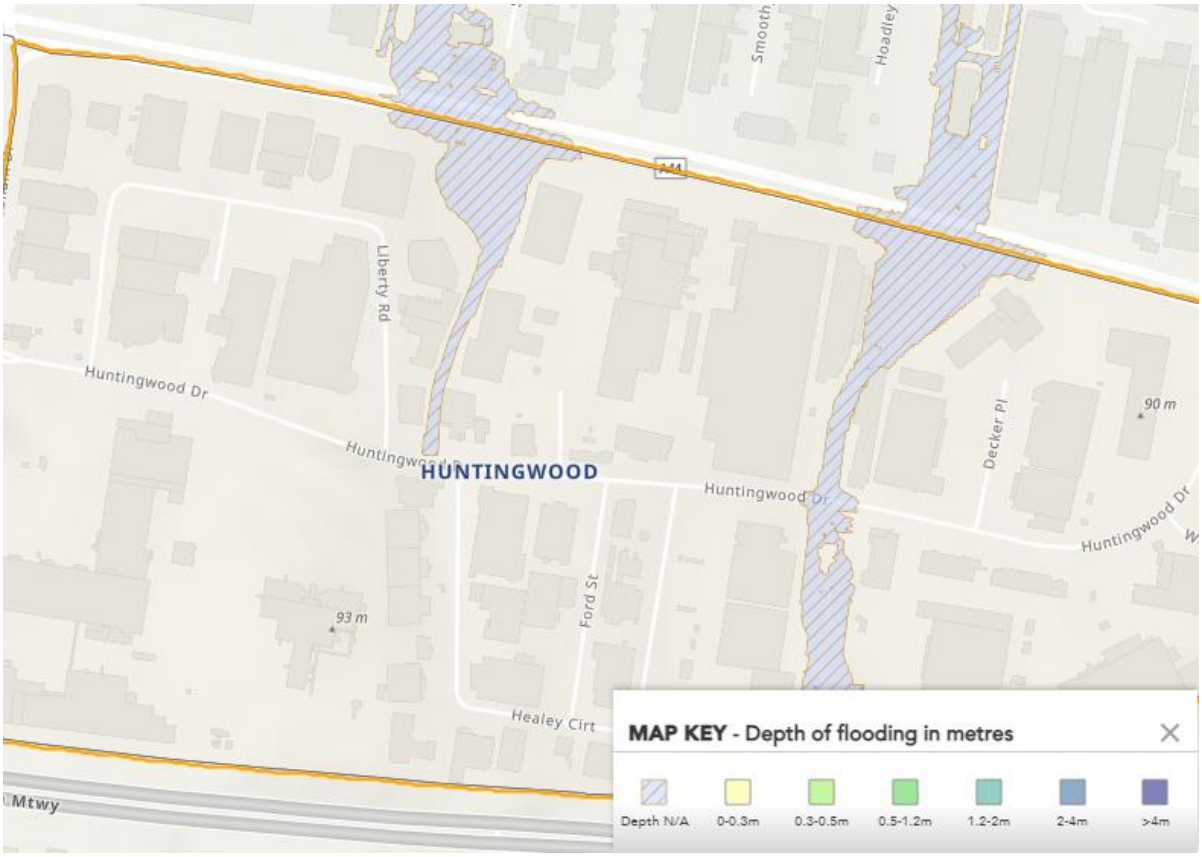


Figure 10.2 – Flooding risk area. Source – State Emergency Services, Hawkesbury-Nepean.

10.2 Flooding impact downstream

Due to the development complying with councils On Site Detention Policy, peak stormwater flows discharging from the site will be limited to the levels they were at pre-development and discharged directly into councils existing stormwater infrastructure network. Meaning that no additional flow will contribute to the downstream stormwater network during anything less than the 100-year ARI storm event.

11 Water Balance

A water balance assessment has been undertaken for the site to estimate annual potable water demands, sewage discharges and stormwater runoff from the site. The water balance used 10 years of rainfall data from 2012 to 2022 at the Prospect Reservoir weather station.

11.1 Water demand

Process Water

The operations consist of an evaporative cooling system with a variable process demand. The daily water demand will vary depending on temperature. In the final configuration, the estimated average annual water demand for the evaporative cooling system is 2,999 ML/year, equating to an average daily water demand of 8,216 kL/day. This water will be supplied by potable water when harvested rainwater is unavailable.

Potable Water

The potable water demand for staff facilities such as bathrooms, kitchens and cleaning is negligible.

The total water demand for the final landscape configuration is estimated to be 4.2 ML/year. The total water demand for the initial landscape configuration is estimated to be 0.3 ML/year, with the water demand for the site will increase as future phases are completed.

The below calculations are based on the final configuration.

11.2 Water supply

Rainwater tanks

There are 1 x 335 kL and 1x 100 kL Rainwater tanks to be utilised on site, to collect water from as much roof surface area as possible.

Rainwater collected in these tanks will be used to supply process water in the building for the cooling evaporative process. Rainwater will be used whenever it is available. It is estimated that on average 30 ML of rainwater can be harvested and reused each year.

Potable water

Potable water will be used to supply staff amenities, general site demands as well as the demand for process water for evaporative cooling that is not met by rainwater harvesting. The estimated total annual demand for the final configuration is 2,999 ML.

11.3 Water discharge

Sewer

Minimal water used on the site will be discharged to the sewer. The primary source of wastewater to discharge to the sewer are from the staff facilities (0.3 kL/day) and site maintenance/washdown (5 kL/day peak), therefore a peak outflow of 5.3 kL/day has been allowed for, which equates to a total discharge of 300 ML/yr.

Site stormwater runoff

The site stormwater runoff will be conveyed to the outlet connection points noted previously. This will include overflow from the rainwater tanks when they are full. The estimated annual site stormwater discharge from rainfall on the site is 57.2 ML.

11.4 Results summary

A summary of the results of the site water balance in the final configuration is included in Table below.

Table 11.1 Site water balance summary

Water Source	Annual Average Total (ML)	
	Inflow	Outflow
Rainfall on site	57.2	
Rainwater used for process		30
Stormwater discharge from site		27.2
Potable water supply	2,999	
Water consumption - drift + evaporation rate		2,699
Discharge to sewer - bleed rate		300
Total	**3,056**	**3,056**

12 Assessment of the potential impacts on surface and groundwater resources

12.1 Surface Water

12.1.1 Erosion and Sediment Control

During construction, a Soil and Water Management Plan must be implemented to prevent scouring and the displacement of exposed soils and construction wastes such as sedimentation, hydrocarbons, litter, and other pollutants entering the receiving waterways via overland flow or the drainage network. Soil loss and sediment transport downstream will be mitigated as per best practice procedures and minimised to acceptable levels per council standards and in accordance with the Landcom Bluebook - Managing Urban Stormwater: Soils and construction - Volume 1. To mitigate these impacts, in addition to implementing the erosion and sediment controls described in the Soil and Water Management Plan, site facilities should be located away from any temporary overland flow paths at the site.

12.1.2 Water Quantity

Due to the proposed development complying with councils OSD policy, as well as discharging into existing council infrastructure, no detrimental effect is to be expected downstream, in terms of peak flow rates during storm events increasing and causing any downstream increase in flood risk.

There will be a slight overall reduction in water quantity produced from the site due to the rainwater harvesting in the evaporative cooling process.

12.1.3 Water Quality

The proposed development includes gross pollutant traps and water treatment device like Atlan Stormsack and Atlan Filters to improve the quality of stormwater discharge for the entire site. MUSIC modelling has been completed which demonstrates that the WSUD reduction targets in the Blacktown City Council DCP are met and therefore provide improved water quality of stormwater discharging from the development site. The site includes a gross pollutant trap and rainwater harvesting tank for water cycle management, which will further improve the quality of stormwater discharge.

12.2 Groundwater Impacts

As stated in the Geotechnical Investigation report by Douglas Partners, Doc no 204972.00.R.001.Rev0, and dated June 2021: “The groundwater observed in monitoring wells screened within the underlying weathered rock is likely to be due to transient seepage flows, with the regional groundwater table interpreted to be below the bulk earthworks level of the site. Water observed in the standpipe installed in Borehole BH112 (which is positioned south-west of and adjacent to the existing building) could be a perched water table within a layer of sandstone, with recharge into the sandstone possibly due to lateral seepage westwards along the ridgeline, leakage of water from buried services, or from lawn/garden irrigation.

It is anticipated that minor groundwater seepage flows will occur from cut faces during the bulk excavation phase, following periods of rainfall, including along the interface between the

bedrock and overlying residual clay and through defects in the rock. Such seepage inflows from excavations could be readily managed with conventional ‘sump and pump’ methods, or by the installation of perimeter drainage measures, directed to the site stormwater disposal system.”

The proposed development will not dispose of any water into the ground, with only natural infiltration of stormwater occurring from landscaped areas into the groundwater table. It is not anticipated that this natural infiltration will significantly impact the groundwater table.

Appendix A – Civil Engineering Plans

DATA CENTRE
51 HUNTINGWOOD DRIVE, HUNTINGWOOD NSW 2148

CIVIL DRAWING LIST

DAC000	COVER SHEET
DAC101	SITE PLAN
DAC201	BULK EARTHWORKS PLAN
DAC210	EROSION & SEDIMENT CONTROL - SHEET 1
DAC211	EROSION & SEDIMENT CONTROL - SHEET 2
DAC401	DRAINAGE LAYOUT - SHEET 1
DAC402	DRAINAGE LAYOUT - SHEET 2
DAC403	DRAINAGE LAYOUT - SHEET 3
DAC405	DRAINAGE DETAILS - SHEET 1
DAC410	OSD TANK DETAILS - SHEET 1
DAC411	OSD BASIN B DETAILS - SHEET 2
DAC450	OSD CATCHMENT PLAN
DAC451	MUSIC CATCHMENT PLAN



LOCALITY PLAN
NTS

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SCALE BAR

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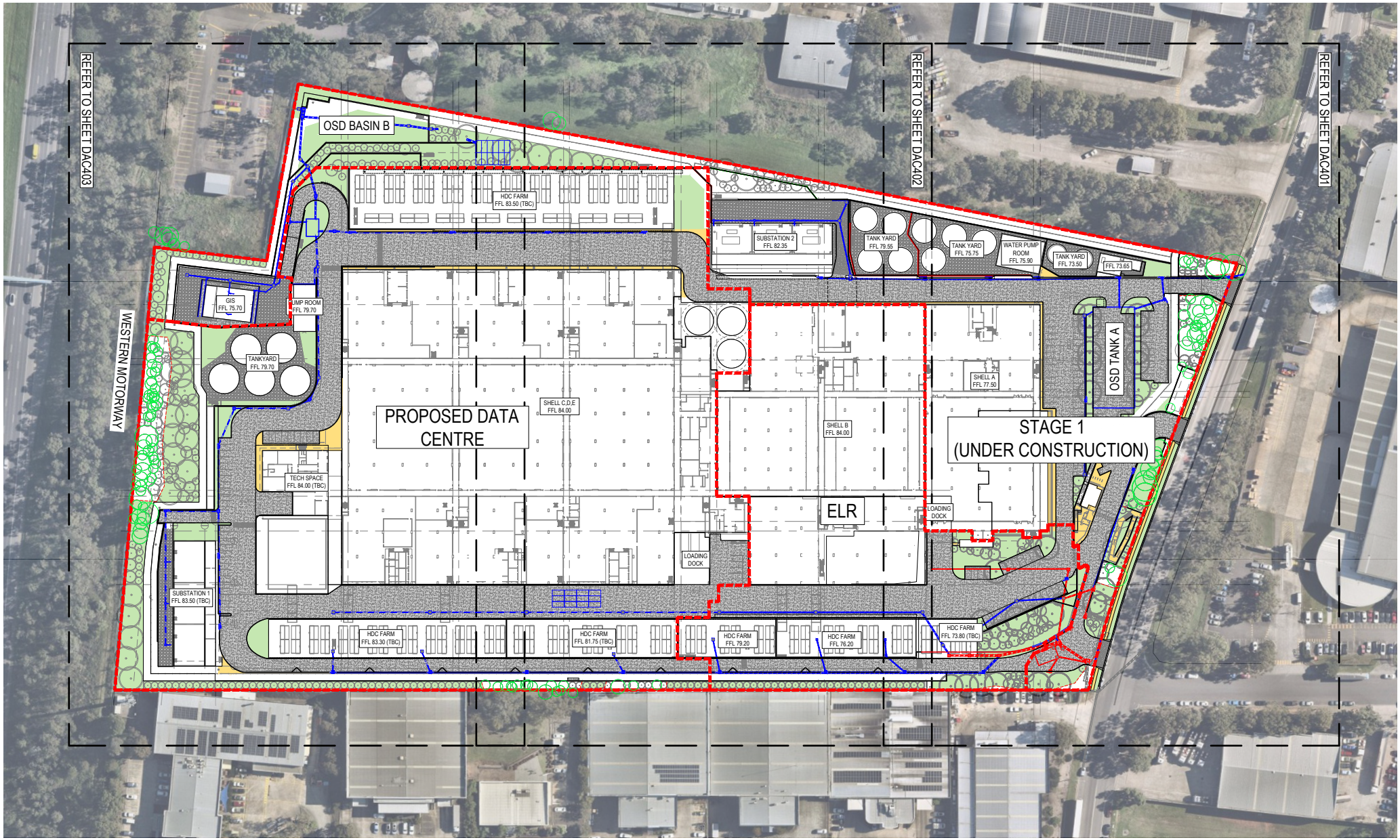
ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
COVER SHEET

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC000	C



PLAN

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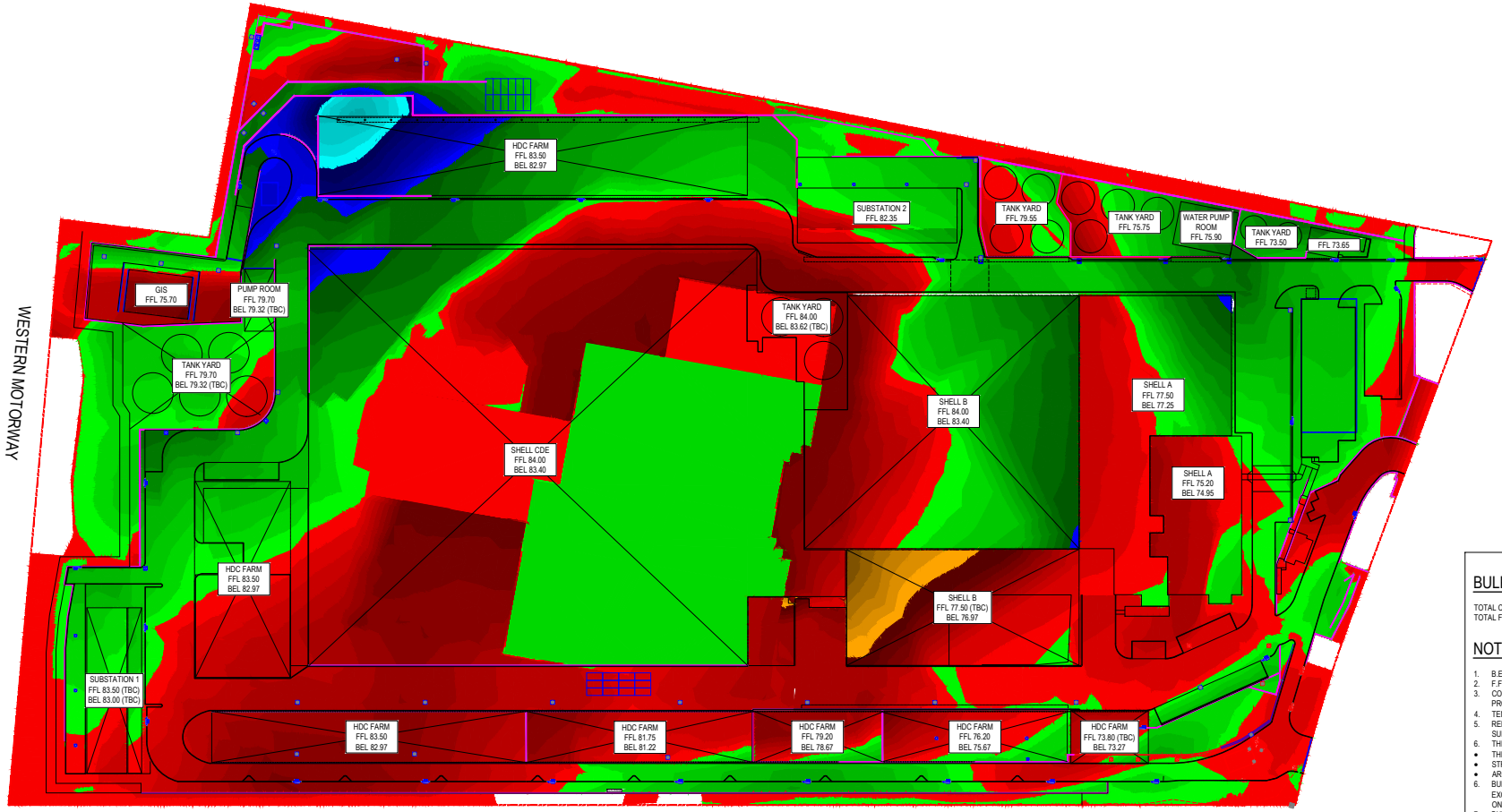
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SY212-053	DAC101		C



PLAN
SCALE 1:750

BULK EARTHWORKS QUANTITES

TOTAL CUT VOLUME: 70,815m³
TOTAL FILL VOLUME: 80,301m³

NOTE

1. B.E.L. REFERS TO BULK EXCAVATION LEVEL
2. F.F.L. REFERS TO FINISHED FLOOR LEVEL
3. CONTOURS AND SPOT LEVELS ON THIS PLAN DENOTE PROPOSED SUBGRADE LEVEL
4. TEMPORARY BATTERS ARE NOT SHOWN FOR CLARITY
5. REFER TO CIVIL SPECIFICATIONS ON DRAWING C001 FOR SUBGRADE PREPARATION REQUIREMENTS
6. THIS PLAN IS TO BE READ IN CONJUNCTION WITH;
   - THE GEOTECHNICAL REPORT
   - STRUCTURAL GROUND FLOOR ARRANGEMENT PLAN
   - ARCHITECT'S GENERAL ARRANGEMENT PLAN
6. BUILDING SLAB BULK EARTHWORKS LEVELS BASED ON EXCAVATION FOR SLAB AND BASE THICKNESS AS DETAILED ON THE STRUCTURAL ENGINEER'S PLANS.
7. BULK EARTHWORKS FOR EXTERNAL WORKS BASED ON PAVEMENT DETAILS IN C300 SERIES OF DRAWINGS AND SITE GRADING ON C400 SERIES OF DRAWINGS.
8. CUT AND FILL QUANTITIES ARE TO STRIPPED SURFACE (200mm TOP SOIL ≈ 19,697m³)
6. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. ALL VOLUMES SHOWN ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS
7. NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS SUCH AS SERVICE TRENCHING, DETAILED EXCAVATION, FOOTINGS, RETAINING WALL AND OTHERS. CONTRACTOR IS TO ALLOW FOR REMOVAL OF EXCESS MATERIAL GENERATED BY THESE WORKS

LEGEND

RW — RETAINING WALL

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

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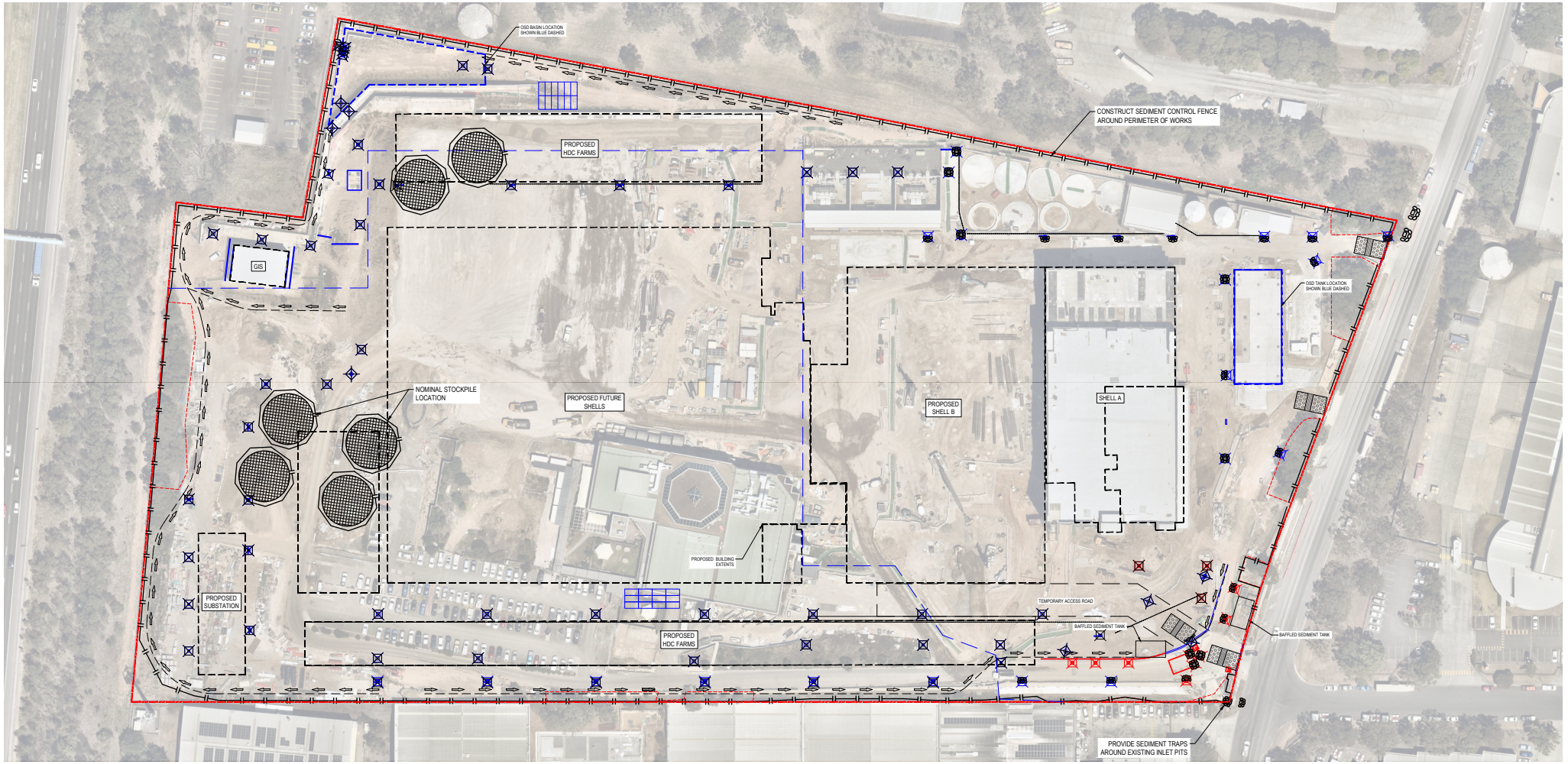
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PROJECT TITLE
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AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC201	C



PLAN

SCALE 1:750

LEGEND

- STORMWATER SEDIMENT TRAPS AT ALL PROPOSED PIT INLETS
- TEMPORARY CONSTRUCTION VEHICLE EXIT
- SEDIMENT CONTROL FENCE
- DIVERSION DRAIN
- STOCKPILE AREA
- SANDBAG KERB INLET SEDIMENT TRAP

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HUNTINGWOOD NSW 2148

DRAWING TITLE
EROSION & SEDIMENT CONTROL
SHEET 1

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APPROVAL ISSUE
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DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC210	C

EROSION AND SEDIMENT NOTES

B1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS SHOWN

B2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT COUNCIL'S APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS".

B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL IS TO BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY, (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.

B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM DEVICES SUCH THAT NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR AS DIRECTED BY THE SUPERINTENDENT OR COUNCIL.

B5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.

B6. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.

B7. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENTS ARE REVEGETATED OR PAVED.

B8. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.

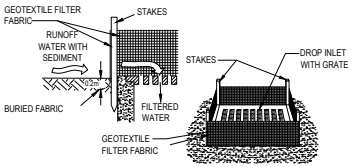
B9. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL :
A) DOWNPIPES CONNECTED
B) PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER

B10. SILT FENCE MAINTENANCE INSPECTION TO BE CARRIED OUT EVERY 3 MONTHS AND AFTER EACH RAINFALL EVENT.

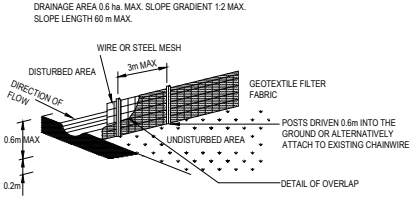
B11. EROSION & SEDIMENT CONTROL SIGNAGE AVAILABLE FROM COUNCIL MUST BE ATTACHED TO THE MOST PROMINENT AVAILABLE STRUCTURE AND BE VISIBLE AT ALL TIMES WHEN ENTERING THE SITE FOR THE DURATION OF CONSTRUCTION.

SITE AREA	BASIN 1
TOTAL CATCHMENT AREA (ha)	4
DISTURBED CATCHMENT AREA (ha)	4
RAINFALL DATA	
DESIGN RAINFALL DEPTH (days)	5
DESIGN RAINFALL DEPTH (percentile)	75
X-DAY, Y-PERCENTILE RAINFALL EVENT	19
RUSLE FACTORS	
RAINFALL EROSIVITY (R-FACTOR)	2630
SOIL ERODIBILITY (K-FACTOR)	0.05
SLOPEE LENGTH (m)	50
SLOPEE GRADIENT (%)	0.88
LENGTH/GRADIENT (LS-factor)	0.17
EROSION CONTROL PRACTICE (P-factor)	1.3
GROUND COVER (C-factor)	1
VOLUMETIC RUNOFF COEFFICIENT (5 Yr)	0.5
CALCULATION	
SOIL LOSS (t/ha/yr)	150
SOIL LOSS CLASS	1
SOIL LOSS (m3/ha/yr)	116
SEDIMENT BASIN STORAGE VOLUME, m³	190
SEDIMENT BASIN SETTING VOLUME, m³	380
TOTAL SEDIMENT BASIN VOLUME REQUIRED, m³	570
TOTAL SEDIMENT BASIN VOLUME RPROVIDED, m³	900

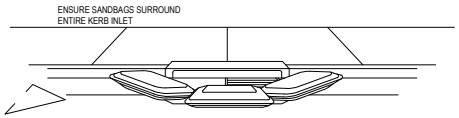
SITE AREA	BASIN 2
TOTAL CATCHMENT AREA (ha)	4.8
DISTURBED CATCHMENT AREA (ha)	4.5
RAINFALL DATA	
DESIGN RAINFALL DEPTH (days)	5
DESIGN RAINFALL DEPTH (percentile)	75
X-DAY, Y-PERCENTILE RAINFALL EVENT	19
RUSLE FACTORS	
RAINFALL EROSIVITY (R-FACTOR)	2630
SOIL ERODIBILITY (K-FACTOR)	0.05
SLOPEE LENGTH (m)	50
SLOPEE GRADIENT (%)	0.88
LENGTH/GRADIENT (LS-factor)	0.17
EROSION CONTROL PRACTICE (P-factor)	1.3
GROUND COVER (C-factor)	1
VOLUMETIC RUNOFF COEFFICIENT (5 Yr)	0.5
CALCULATION	
SOIL LOSS (t/ha/yr)	150
SOIL LOSS CLASS	1
SOIL LOSS (m3/ha/yr)	116
SEDIMENT BASIN STORAGE VOLUME, m³	230
SEDIMENT BASIN SETTING VOLUME, m³	496
TOTAL SEDIMENT BASIN VOLUME REQUIRED, m³	685
TOTAL SEDIMENT BASIN VOLUME RPROVIDED, m³	900



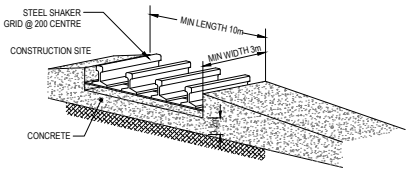
GEOTEXTILE FILTER FABRIC INLET SEDIMENT TRAP
N.T.S.



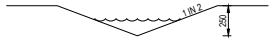
SEDIMENT CONTROL FENCE
N.T.S.



SANDBAG KERB INLET SEDIMENT TRAP
NTS



TEMPORARY CONSTRUCTION VEHICLE EXIT
N.T.S.



DIVERTION DRAIN
N.T.S.

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AW EDWARDS
LEVEL 12/558 PACIFIC HWY
ST LEONARDS NSW 2065

ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

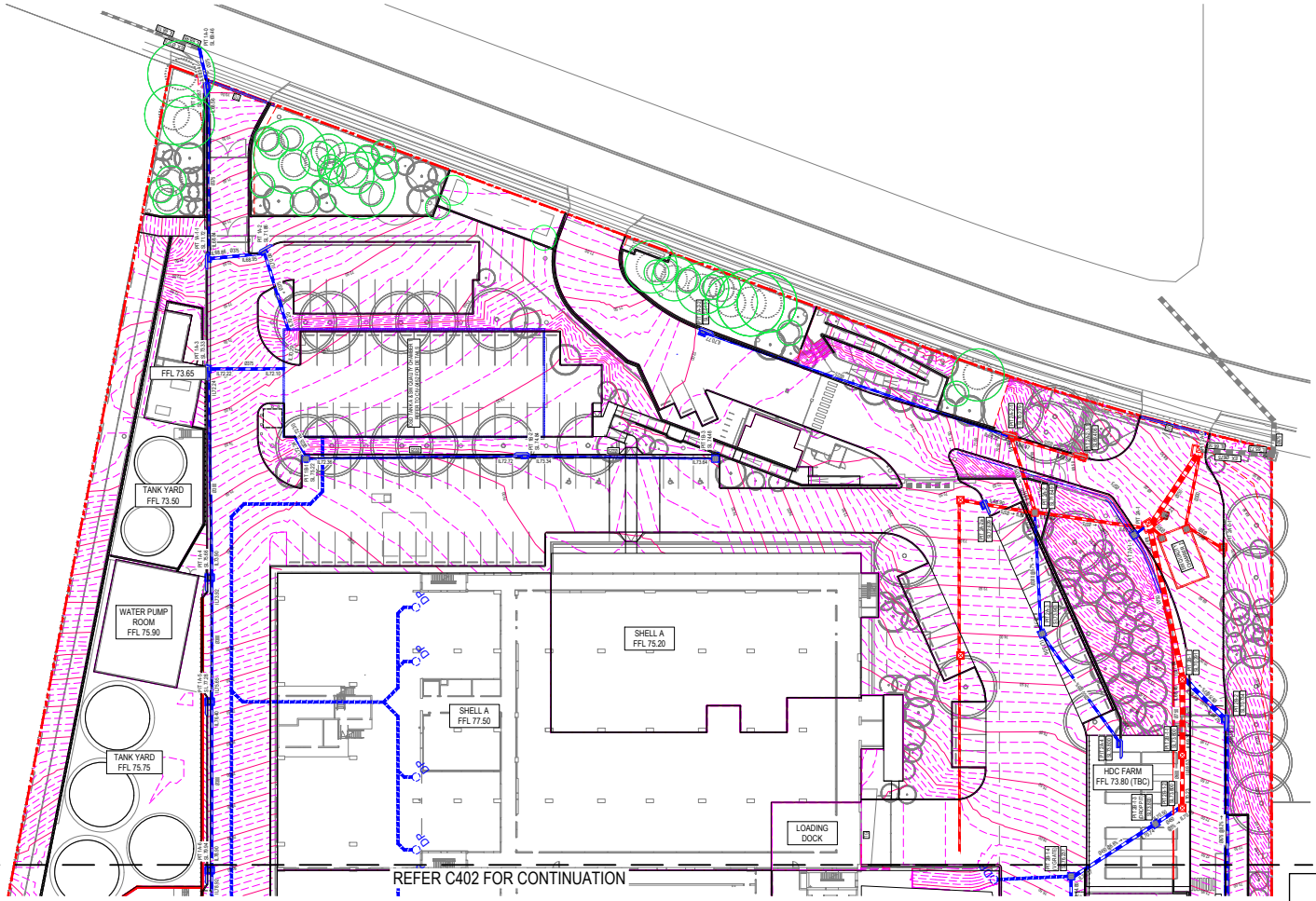
DRAWING TITLE
EROSION & SEDIMENT CONTROL
SHEET 2

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC211	C

LEGEND

- PROPOSED STORMWATER PIT
  REFER TO DRAWING DAC405 FOR DETAILS
- PROPOSED STORMWATER PIPE
  REFER TO DRAWING DAC405 FOR DETAILS
- EXISTING STORMWATER PIT
- EXISTING STORMWATER PIPE
- SUBSOIL DRAIN AND FLUSH POINT
  REFER TO DRAWING DAC451 FOR DETAILS
- DOWNPIPE CONNECTION
  REFER TO HYDRAULIC ENGINEER'S PLAN
- GRATED DRAIN
  REFER TO DRAWING DAC451 FOR DETAILS
- SWALE
- DESIGN CONTOURS (MAJOR AND MINOR)
- EXISTING CONTOURS (MAJOR AND MINOR)
- EXISTING TREE
  TO BE PROTECTED



PLAN
SCALE 1:400

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

REVISIONS:

No.	REVISION DESCRIPTION	DRAWN	DATE
C	ISSUED FOR SSDA MODIFICATION	AB	17.04.2026
B	ISSUED FOR SSDA MODIFICATION	AB	14.11.2025
A	PRELIMINARY	AB	10.11.2025

SCALE BAR
0 10 20 30 40m
SCALE 1:400

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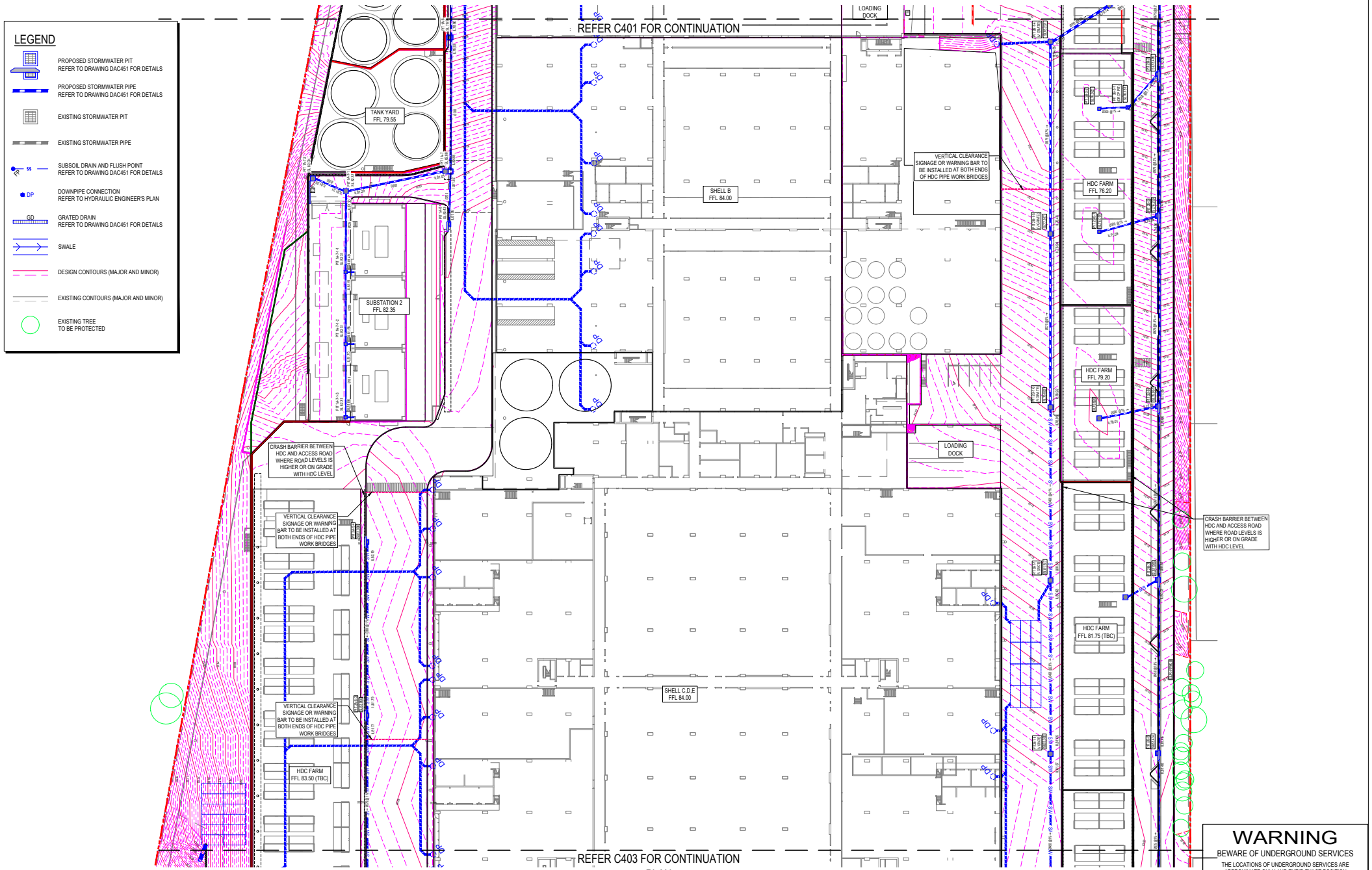
ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
DRAINAGE LAYOUT - SHEET 1

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC401	C



PLAN

SCALE 1:400

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SCALE BAR

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SCALE 1:400

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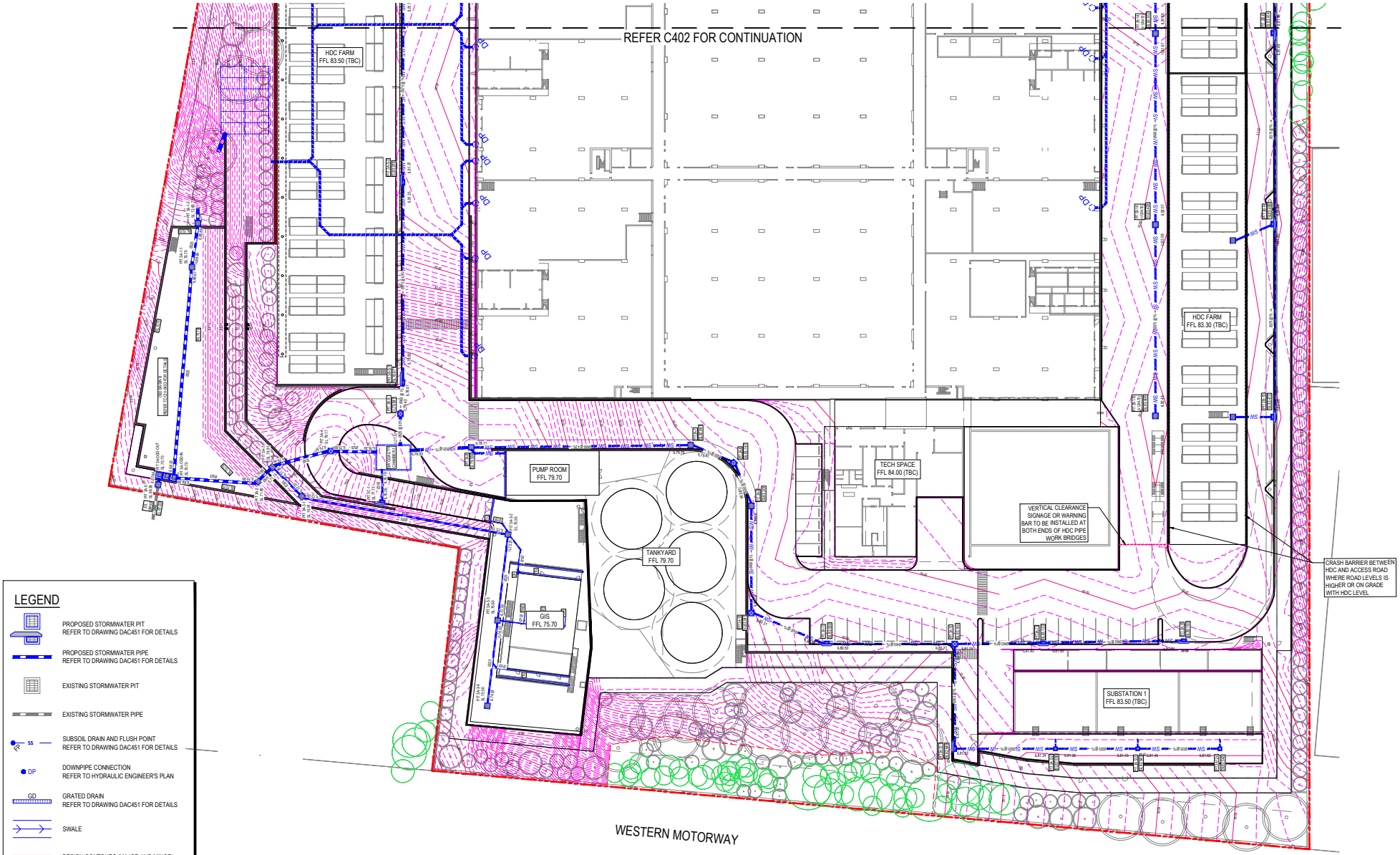
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LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
DRAINAGE LAYOUT - SHEET 2

DRAWING STATUS
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AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC402	C



LEGEND

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PLAN
SCALE 1:400

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SCALE BAR
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SCALE 1:400

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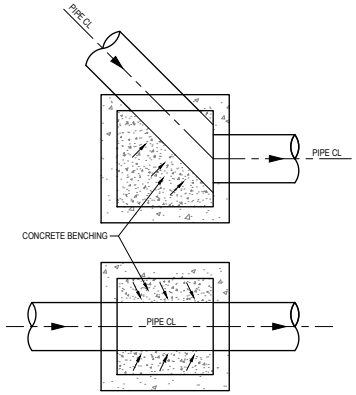
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GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
DRAINAGE LAYOUT - SHEET 3

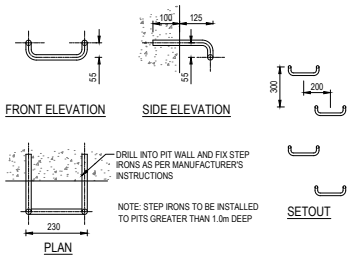
DRAWING STATUS
APPROVAL ISSUE
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PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC403	C



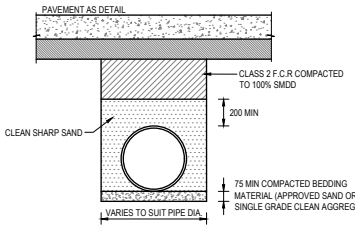
TYPICAL CONCRETE BENCHING

SCALE 1:25



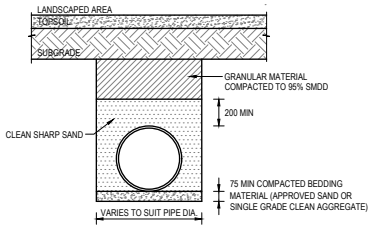
TYPICAL STEP IRON DETAIL

NTS



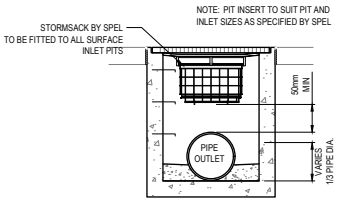
UNDER PAVEMENT PIPE BEDDING

NTS



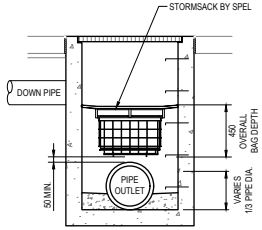
UNDER LANDSCAPING PIPE BEDDING

NTS



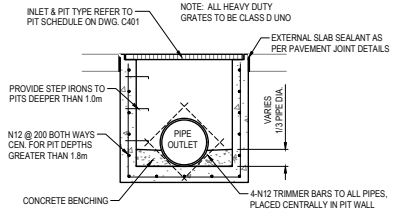
INLET PIT WITH STORMSACK TYPICAL DETAILS

SCALE 1:25



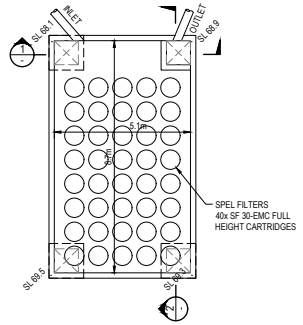
STORMSACK TYPICAL DETAIL WITH INLET PIPE

SCALE 1:25



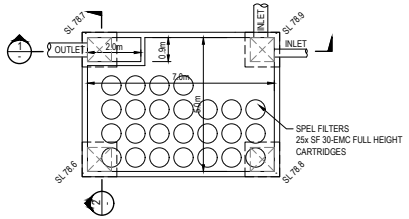
TYPICAL INLET PIT & JUNCTION PIT

SCALE 1:25



FILTER TANK C BASE PLAN

SCALE 1:100



FILTER TANK B (PIT G10) BASE PLAN

SCALE 1:100

DANGER

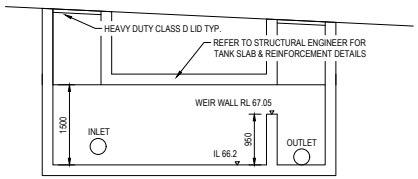
CONFINED SPACE

NO ENTRY WITHOUT CONFINED SPACE TRAINING

CONFINED SPACE DANGER SIGN

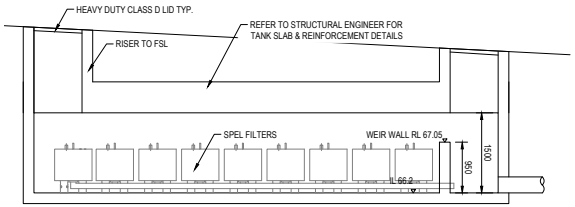
NOTES:

1. A CONFINED SPACE DANGER SIGN SHALL BE PLACED NEXT TO EACH AND EVERY ACCESS POINT SO THAT THEY ARE VISIBLE TO PERSONS ENTERING ANY BELOW GROUND TANK OR PIT.
2. COLOURS:
   - "DANGER" AND BACKGROUND – WHITE
   - ELLIPTICAL AREA – RED
   - RECTANGLE CONTAINING ELLIPSE – BLACK
   - LETTERING AND BORDER – BLACK
3. MINIMUM DIMENSIONS OF THE SIGN:
   - LARGE ENTRIES: – 300mm x 450mm
   - SMALL ENTRIES: – 250mm x 180mm
4. SIGN TO BE MADE FROM COLOUR BONDED ALUMINUM OR POLYPROPYLENE.
5. SIGN FIXED USING HILTI CHEMSETS OR EXPOXY



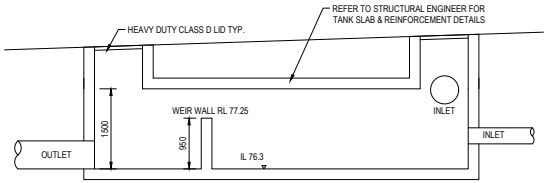
SECTION 1 FILTER TANK C

SCALE 1:50



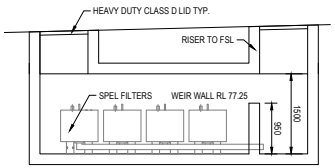
SECTION 2 FILTER TANK C

SCALE 1:50



SECTION 1 FILTER TANK B

SCALE 1:50



SECTION 2 FILTER TANK B

SCALE 1:50

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SCALE BAR 0 1m 2m — SCALE 1:25 — 0 1 2 3 4 5m — SCALE 1:50

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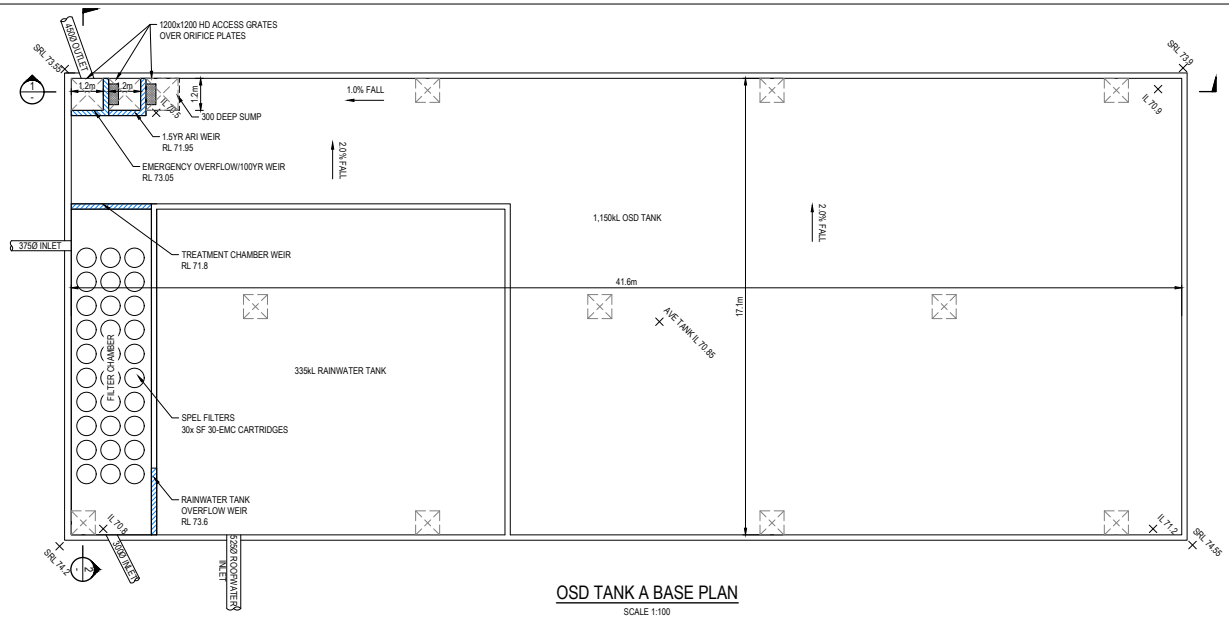
ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
DRAINAGE DETAILS - SHEET 1

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC405	C

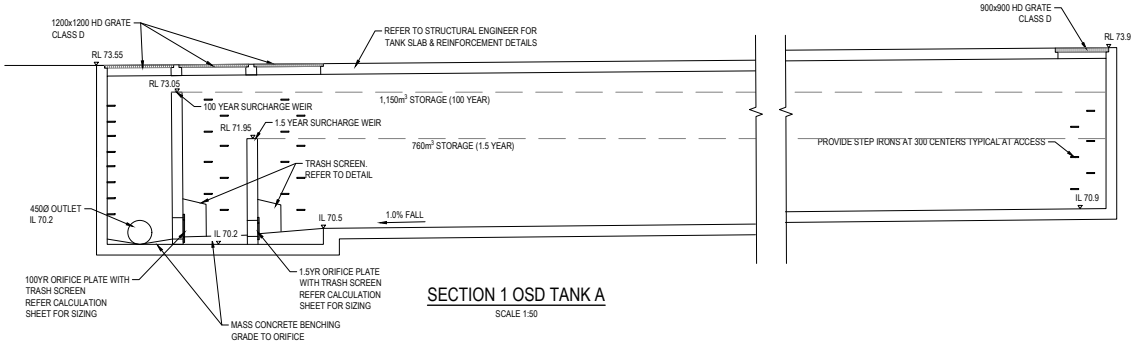


OSD TANK A BASE PLAN

SCALE 1:100

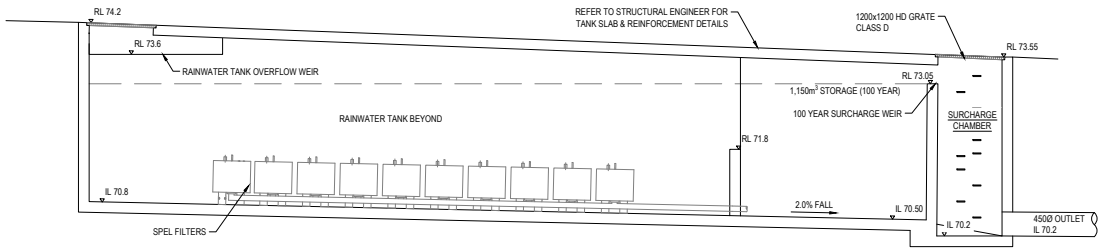
Below Ground OSD Summary with calculated values	
Site:	
Site Area	25541 m²
Site Area NOT Draining to OSD	4256 m²
Reduced Levels (AHD):	
RL of Top of Tank	73.25
RL of Bottom of OSD Tank	70.5
RL of 1.5 Year ARI Overflow Weir	72.075
RL of Emergency Overflow Weir	72.885
RL of 1.5 Year ARI Orifice Centerline	70.5
RL of 100 Year ARI Orifice Centreline	70.5
RL of Invert of Discharge to Council Drainage Pit	68.5
RL of obvert of Pit outlet pipe	68.9
Minium RL of Garage Floor	73.34
Minium RL of House Floor	73.44
OSD Volume:	
Required Storage BELOW 1.5 Year ARI Overflow Weir	766.2 m³
Required Storage BELOW Emergency Overflow Weir	1162.1 m³
Discharge Details:	
Using Filter Cartridges to Manage Water Quality	Yes
Discharge Location	Council Drainage Pit
Length of Emergency Overflow Weir	2.70 m
Maximum 1.5 Year ARI Site Discharge	85.20 L/s
1.5 Year ARI Orifice Discharge	No Orifice Needed
Maximum 100 Year ARI Site Discharge	246.94 L/s
100 Year ARI Orifice Discharge	161.14 L/s
Filter Cartridges design flow	85.20 L/s
Filter Cartridges Discharge with Additional Head	85.80 L/s
Orifice Details:	
Number of 1.5 Year ARI Orifices	1
Number of 100 Year ARI Orifices	1
1.5 Year ARI Orifice Size (mm)	No Orifice Needed
100 Year ARI Orifice Size (mm)	221.5 mm
Notifications:	
Access grates to be provided such that the maximum reach from any point in the tank to the neaest grate is 6.0m. As there is no 1.5year ARI orifice the under drain flow from the filter cartridges will control the minorstorms. To ensure the storage can drain the base of the tank is to be configured to direct flows through the Non-Return flap to the filter storage chamber.	

OSD TANK A (HUNTINGWOOD DRIVE)
CALCULATIONS



SECTION 1 OSD TANK A

SCALE 1:50



SECTION 2 OSD TANK A

SCALE 1:50

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SCALE BAR 0 1 2 3 4 5m
SCALE 1:50
0 1 2 3 4 5m 10m
SCALE 1:100

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LEVEL 12/558 PACIFIC HWY
ST LEONARDS NSW 2065

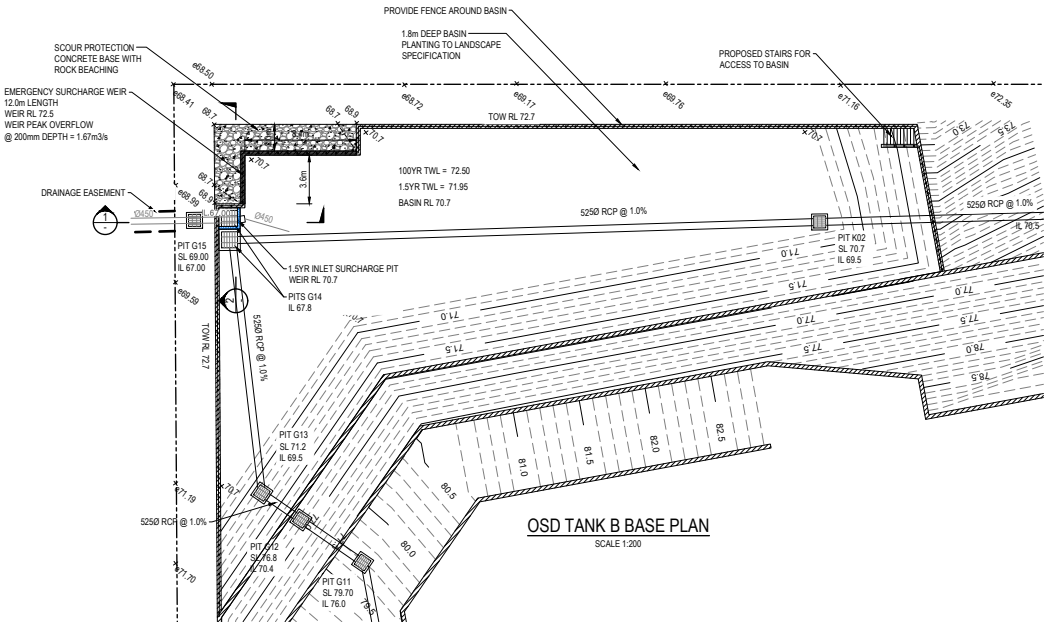
ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
OSD TANK A DETAILS - SHEET 1

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC410	C



OSD TANK B BASE PLAN

SCALE 1:200

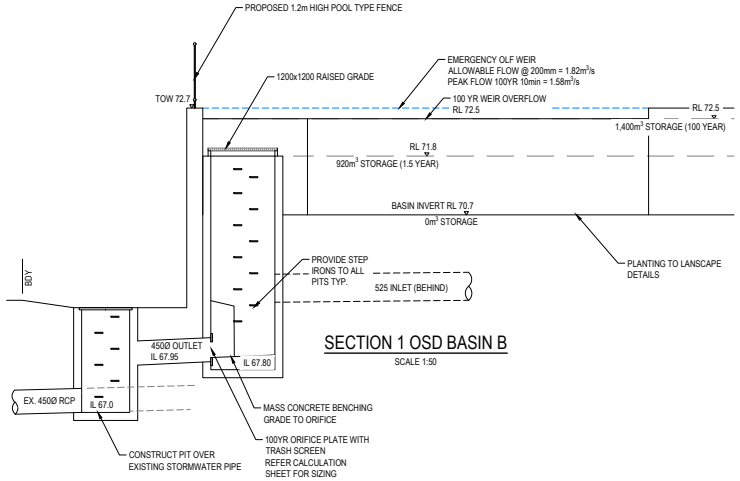
Above Ground OSD Summary with calculated values	
Site:	
Site Area	32102 m²
Site Area NOT Draining to OSD	3585 m²
Reduced Levels (AHD):	
RL of Top of Tank	72.5
RL of Bottom of OSD Tank	70.7
RL of 1.5 Year ARI Overflow Weir	71.78
RL of Emergency Overflow Weir	72.335
RL of 1.5 Year ARI Orifice Centerline	68.3
RL of 100 Year ARI Orifice Centreline	68.3
RL of Invert of Discharge to Council Drainage Pit	67
RL of obvert of Pit outlet pipe	67.45
Minium RL of Garage Floor	72.59
Minium RL of House Floor	72.69
OSD Volume:	
Required Storage BELOW 1.5 Year ARI Overflow Weir	963.1 m³
Required Storage BELOW Emergency Overflow Weir	1460.6 m³
Discharge Details:	
Using Filter Cartridges to Manage Water Quality	No
Discharge Location	Council Drainage Pit
Length of Emergency Overflow Weir	12.00 m
Maximum 1.5 Year ARI Site Discharge	106.90 L/s
1.5 Year ARI Orifice Discharge	106.90 L/s
Maximum 100 Year ARI Site Discharge	409.18 L/s
100 Year ARI Orifice Discharge	409.18 L/s
Orifice Details:	
Number of 1.5 Year ARI Orifices	1
Number of 100 Year ARI Orifices	1
1.5 Year ARI Orifice Size (mm)	164.5 mm
100 Year ARI Orifice Size (mm)	310.0 mm
Notifications:	

OSD BASIN B (M4) CALCULATIONS



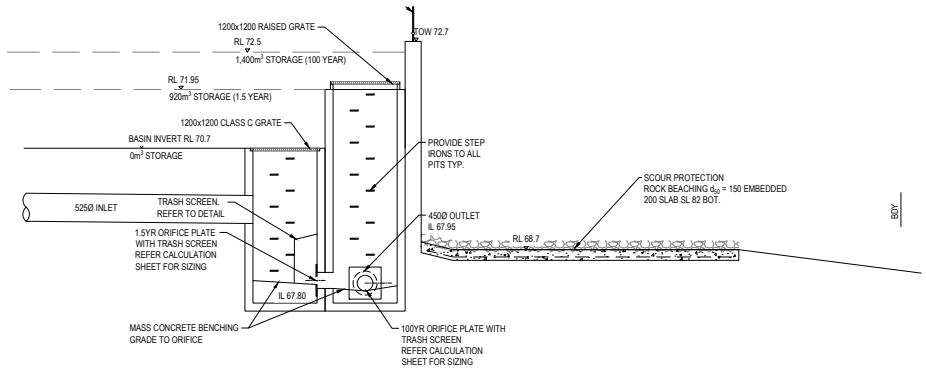
ON SITE STORMWATER DETENTION WARNING SIGN

NOTES:
1. SIGN SHALL BE PLACED IN A CLEAR AND VISIBLE LOCATION AT EACH DETENTION BASIN.
2. COLOURS:
   TRIANGLE AND "WARNING" - RED
   WATER - BLUE
   FIGURE AND LETTERING - BLACK
3. SIGN TO BE MADE FROM COLOUR BONDED ALUMINIUM OR POLYPROPYLENE.
4. SIGN FIXED USING HILTI CHEMSETS OR EXPOXY



SECTION 1 OSD BASIN B

SCALE 1:50



SECTION 2 OSD BASIN B

SCALE 1:50

REVISIONS:			
C	ISSUED FOR SSDA MODIFICATION	AB	17.04.2026
B	ISSUED FOR SSDA MODIFICATION	AB	14.11.2025
A	PRELIMINARY	AB	10.11.2025
No.	REVISION DESCRIPTION	DRAWN	DATE

SCALE BAR 0 1 2 3 4 5m

SCALE 1:50 0 1 2 3 4 5 10m 15 20m

SCALE 1:200

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ST LEONARDS NSW 2065
Telephone 61-2-9436 0433 Fax 61-2-9436 1370
www.vandermeer.com.au
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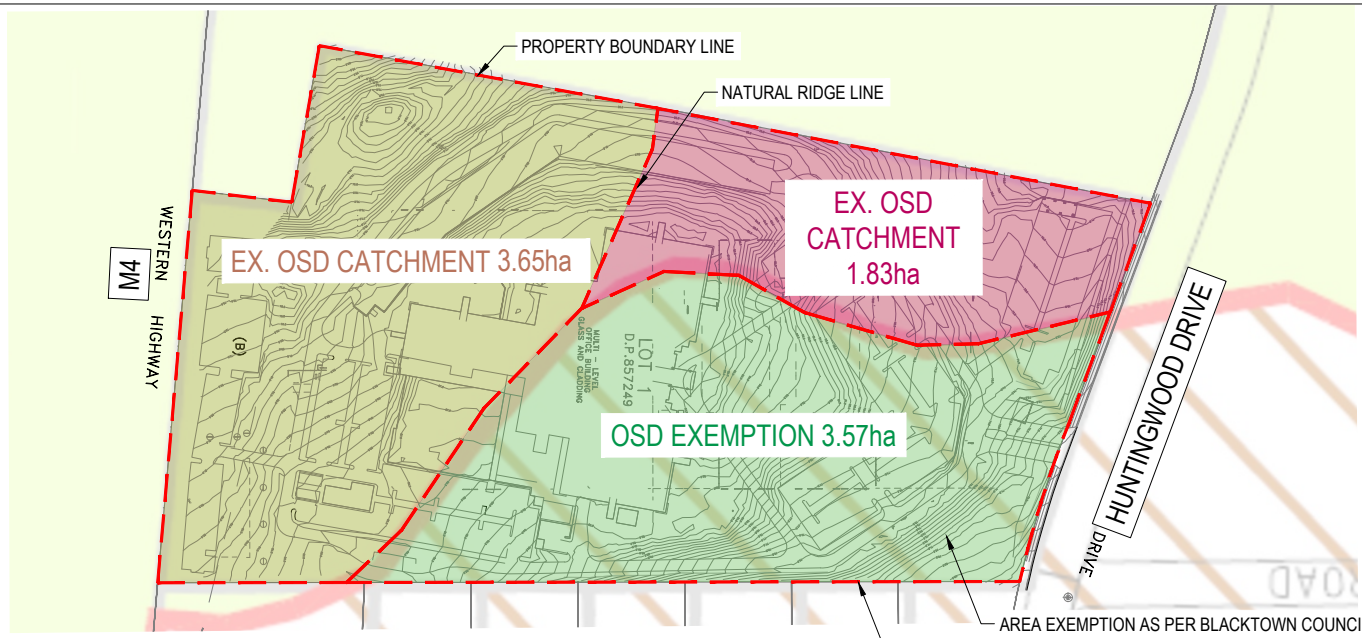
ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
OSD BASIN B DETAILS - SHEET 2

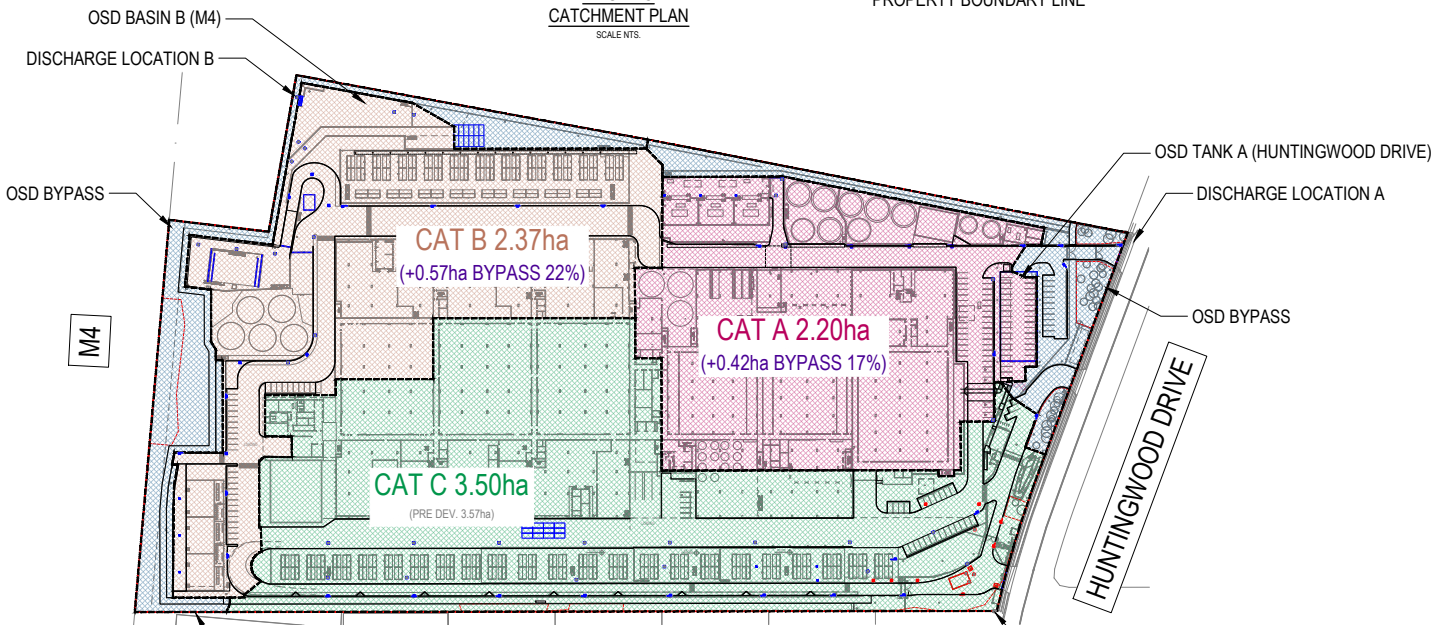
DRAWING STATUS
APPROVAL ISSUE
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PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC411	C



EXISTING CATCHMENT PLAN

SCALE NTS.



PROPOSED CATCHMENT PLAN

SCALE NTS.

REVISIONS:			
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SCALE BAR

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ST LEONARDS NSW 2065
Telephone 61-2-9436 0433 Fax 61-2-9436 1370
www.vandermeer.com.au
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ST LEONARDS NSW 2065

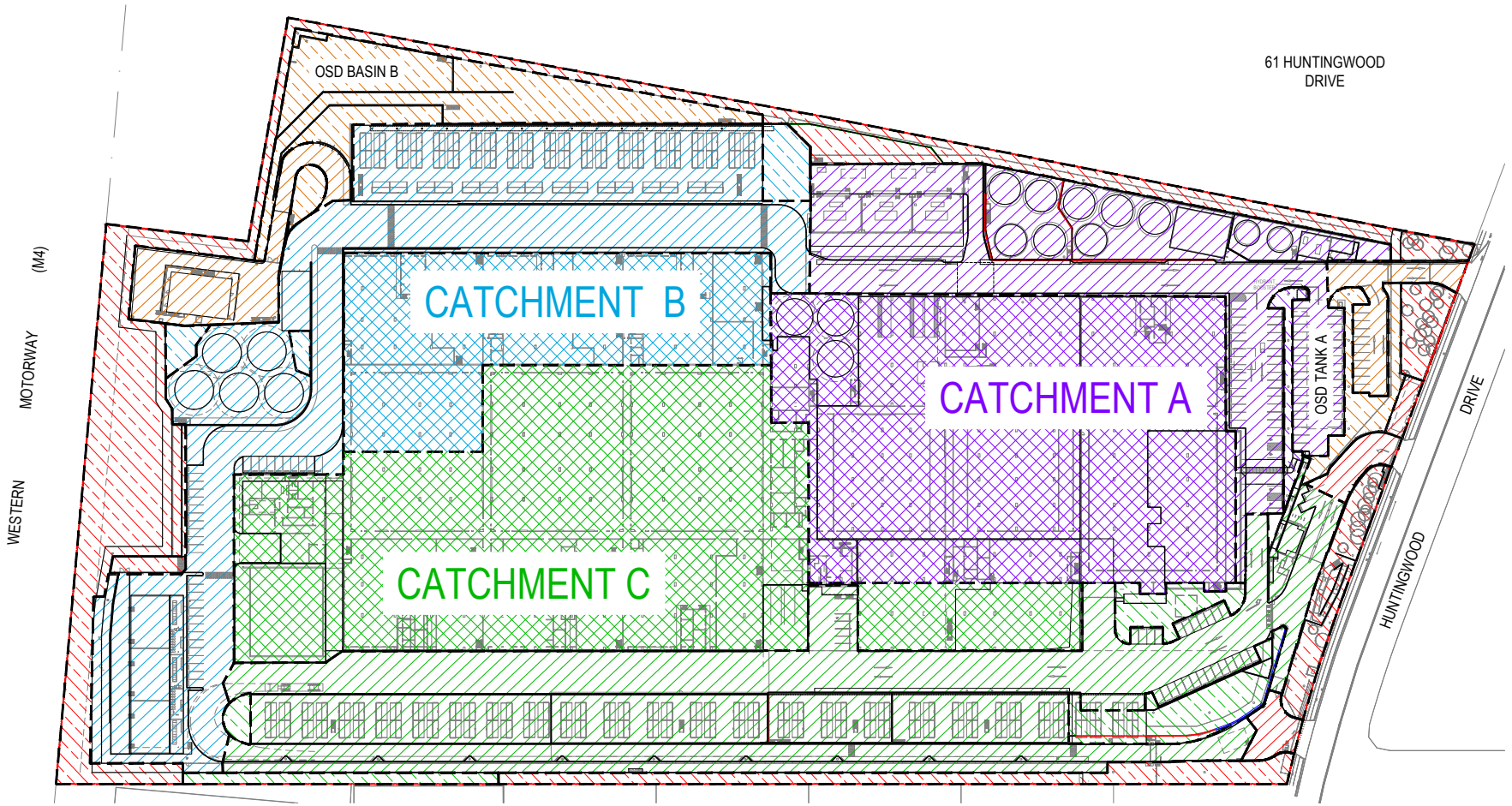
ARCHITECT
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PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
OSD CATCHMENT PLAN

DRAWING STATUS
APPROVAL ISSUE
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PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC450	C



PLAN
SCALE 1:750

LEGEND

CATCHMENT A
HARDSTAND (8,356)
ROOF (13,648)
LANDSCAPE (264)

CATCHMENT B
HARDSTAND (12,798)
ROOF (6,441)
LANDSCAPE (602)

CATCHMENT C
HARDSTAND (14,381)
ROOF (16,614)
LANDSCAPE (1,995)

BYPASS (WITH BASKETS)
BYPASS HARDSTAND (2,267)
BYPASS LANDSCAPE (3,827)

BYPASS (NO BASKETS)
BYPASS HARDSTAND (718)
BYPASS LANDSCAPE (8,620)

REVISIONS:

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SCALE BAR
0 15 30m 45 60m
SCALE 1:750

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ST LEONARDS NSW 2065

ARCHITECT
GREENBOX ARCHITECTURE
LEVEL 22/68 PITT STREET, SYDNEY NSW 2000

PROJECT TITLE
AIRTRUNK SYD3
51 HUNTINGWOOD DRIVE
HUNTINGWOOD NSW 2148

DRAWING TITLE
MUSIC CATCHMENT PLAN

DRAWING STATUS
APPROVAL ISSUE
NOT TO BE USED FOR CONSTRUCTION

PROJECT LEADER	DESIGNER	SIGNATURE	
AW	AB		
DRAFTSPERSON	SCALE	DATE	SHEET SIZE
AB	AS SHOWN	DATE DRAWN	A1
JOB No.		DRAWING No.	REVISION
SY212-053		DAC451	C

Appendix B – Sedimentation Basin Calculation

51 HUNTINGWOOD PDE

DATA CENTRE

SEDIMENT AND EROSION CONTTROL CALCULATIONS

VAN DER MEER

SITE AREA	BASIN 1
TOTAL CATCHMENT AREA (ha)	4
DISTURBED CATCHMENT AREA (ha)	4
RAINFALL DATA	
DESIGN RAINFALL DEPTH (days)	5
DESIGN RAINFALL DEPTH (percentile)	75
X-DAY, Y-PERCENTILE RAINFALL EVENT	19
RUSLE FACTORS	
RAINFALL EROSIVITY (R-FACTOR)	2630
SOIL ERODIBILITY (K-FACTOR)	0.05
SLOPEE LENGTH (m)	50
SLOPEE GRADIENT (%)	0.88
LENGTH/GRADIENT (LS-factor)	0.17
EROSION CONTROL PRACTICE (P-factor)	1.3
GROUND COVER (C-factor)	1
VOLUMETIC RUNOFF COEFFICIENT (5 Yr)	0.5
CALCULATION	
SOIL LOSS (t/ha/yr)	150
SOIL LOSS CLASS	1
SOIL LOSS (m3/ha/yr)	116
SEDIMENT BASIN STORAGE VOLUME, m³	190
SEDIMENT BASIN SETTING VOLUME, m³	380
TOTAL SEDIMENT BASIN VOLUME REQUIRED, m³	570
TOTAL SEDIMENT BASIN VOLUME RPROVIDED, m³	900

SITE AREA	BASIN 2
TOTAL CATCHMENT AREA (ha)	4.8
DISTURBED CATCHMENT AREA (ha)	4.5
RAINFALL DATA	
DESIGN RAINFALL DEPTH (days)	5
DESIGN RAINFALL DEPTH (percentile)	75
X-DAY, Y-PERCENTILE RAINFALL EVENT	19
RUSLE FACTORS	
RAINFALL EROSIVITY (R-FACTOR)	2630
SOIL ERODIBILITY (K-FACTOR)	0.05
SLOPEE LENGTH (m)	50
SLOPEE GRADIENT (%)	0.88
LENGTH/GRADIENT (LS-factor)	0.17
EROSION CONTROL PRACTICE (P-factor)	1.3
GROUND COVER (C-factor)	1
VOLUMETIC RUNOFF COEFFICIENT (5 Yr)	0.5
CALCULATION	
SOIL LOSS (t/ha/yr)	150
SOIL LOSS CLASS	1
SOIL LOSS (m3/ha/yr)	116
SEDIMENT BASIN STORAGE VOLUME, m³	230
SEDIMENT BASIN SETTING VOLUME, m³	456
TOTAL SEDIMENT BASIN VOLUME REQUIRED, m³	685
TOTAL SEDIMENT BASIN VOLUME RPROVIDED, m³	900

Appendix C – MUSIC Link Report

MUSIC-*link* Report

Project Details		Company Details	
Project:	51 Huntingwood Drive	**Company:**	van der Meer Consulting
Report Export Date:	16/04/2026	**Contact:**	Hary Budhi
Catchment Name:	SY212053 - 51 HUNTINGWOOD DRIVE IWCMP (26.02.02)	**Address:**	Level 6 / 39 Chandos Street, St Leonards NSW 2065
Catchment Area:	9.05ha	**Phone:**	
Impervious Area*:	83.22%	**Email:**	hary.budhi@vandermeer.com.au
Rainfall Station:	67035 LIVERPOOL(WHITLAM		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1967 - 31/12/1976 11:54:00 PM		
Mean Annual Rainfall:	857mm		
Evapotranspiration:	1261mm		
MUSIC Version:	6.4.0		
MUSIC-link data Version:	6.41		
Study Area:	Blacktown		
Scenario:	Blacktown Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness

Node: Post-Development Node	Reduction
Flow	9.12%
TSS	85%
TP	70%
TN	65.9%
GP	97.9%

Treatment Nodes

Node Type	Number
Rain Water Tank Node	2
Detention Basin Node	3
Generic Node	3
GPT Node	4

Source Nodes

Node Type	Number
Urban Source Node	8

Comments

NOTE: A successful self-validation check of your model does not constitute an approved model by Blacktown City Council
MUSIC-*link* now in MUSIC by eWater – leading software for modelling stormwater solutions

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Detention	SPELFilter Vault Full Height (BCC)	% Reuse Demand Met	None	None	0
Detention	SPELFilter Vault Full Height (BCC)	% Reuse Demand Met	None	None	0
Detention	SPELFilter Vault Full Height (BCC)	% Reuse Demand Met	None	None	0
GPT	10x Atlan StormSack BCC 2020	Hi-flow bypass rate (cum/sec)	None	None	0.11
GPT	10x Atlan StormSack BCC 2020	Hi-flow bypass rate (cum/sec)	None	None	0.11
GPT	15x Atlan StormSack BCC 2020	Hi-flow bypass rate (cum/sec)	None	None	0.165
GPT	26x Atlan StormSack BCC 2020	Hi-flow bypass rate (cum/sec)	None	None	0.286
Post	Post-Development Node	% Load Reduction	None	None	9.12
Post	Post-Development Node	GP % Load Reduction	90	None	97.9
Post	Post-Development Node	TN % Load Reduction	45	None	65.9
Post	Post-Development Node	TP % Load Reduction	65	None	70
Post	Post-Development Node	TSS % Load Reduction	85	None	85
Urban	Bypass (9_338m2)	Area Impervious (ha)	None	None	0.073
Urban	Bypass (9_338m2)	Area Pervious (ha)	None	None	0.859
Urban	Bypass (9_338m2)	Total Area (ha)	None	None	0.933
Urban	Bypass to baskets (6_094m2)	Area Impervious (ha)	None	None	0.222
Urban	Bypass to baskets (6_094m2)	Area Pervious (ha)	None	None	0.386
Urban	Bypass to baskets (6_094m2)	Total Area (ha)	None	None	0.609
Urban	Cat A (13_648m2)	Area Impervious (ha)	None	None	1.364
Urban	Cat A (13_648m2)	Area Pervious (ha)	None	None	0
Urban	Cat A (13_648m2)	Total Area (ha)	None	None	1.364
Urban	Cat A (8_620m2)	Area Impervious (ha)	None	None	0.838
Urban	Cat A (8_620m2)	Area Pervious (ha)	None	None	0.023
Urban	Cat A (8_620m2)	Total Area (ha)	None	None	0.862
Urban	Cat B (13_400m2)	Area Impervious (ha)	None	None	1.284
Urban	Cat B (13_400m2)	Area Pervious (ha)	None	None	0.05555
Urban	Cat B (13_400m2)	Total Area (ha)	None	None	1.34
Urban	Cat B (6_441m2)	Area Impervious (ha)	None	None	0.644
Urban	Cat B (6_441m2)	Area Pervious (ha)	None	None	0
Urban	Cat B (6_441m2)	Total Area (ha)	None	None	0.644
Urban	Cat C (16_376m2)	Area Impervious (ha)	None	None	1.443
Urban	Cat C (16_376m2)	Area Pervious (ha)	None	None	0.193
Urban	Cat C (16_376m2)	Total Area (ha)	None	None	1.637
Urban	Cat C (16_614m2)	Area Impervious (ha)	None	None	1.661
Urban	Cat C (16_614m2)	Area Pervious (ha)	None	None	0
Urban	Cat C (16_614m2)	Total Area (ha)	None	None	1.661

Only certain parameters are reported when they pass validation

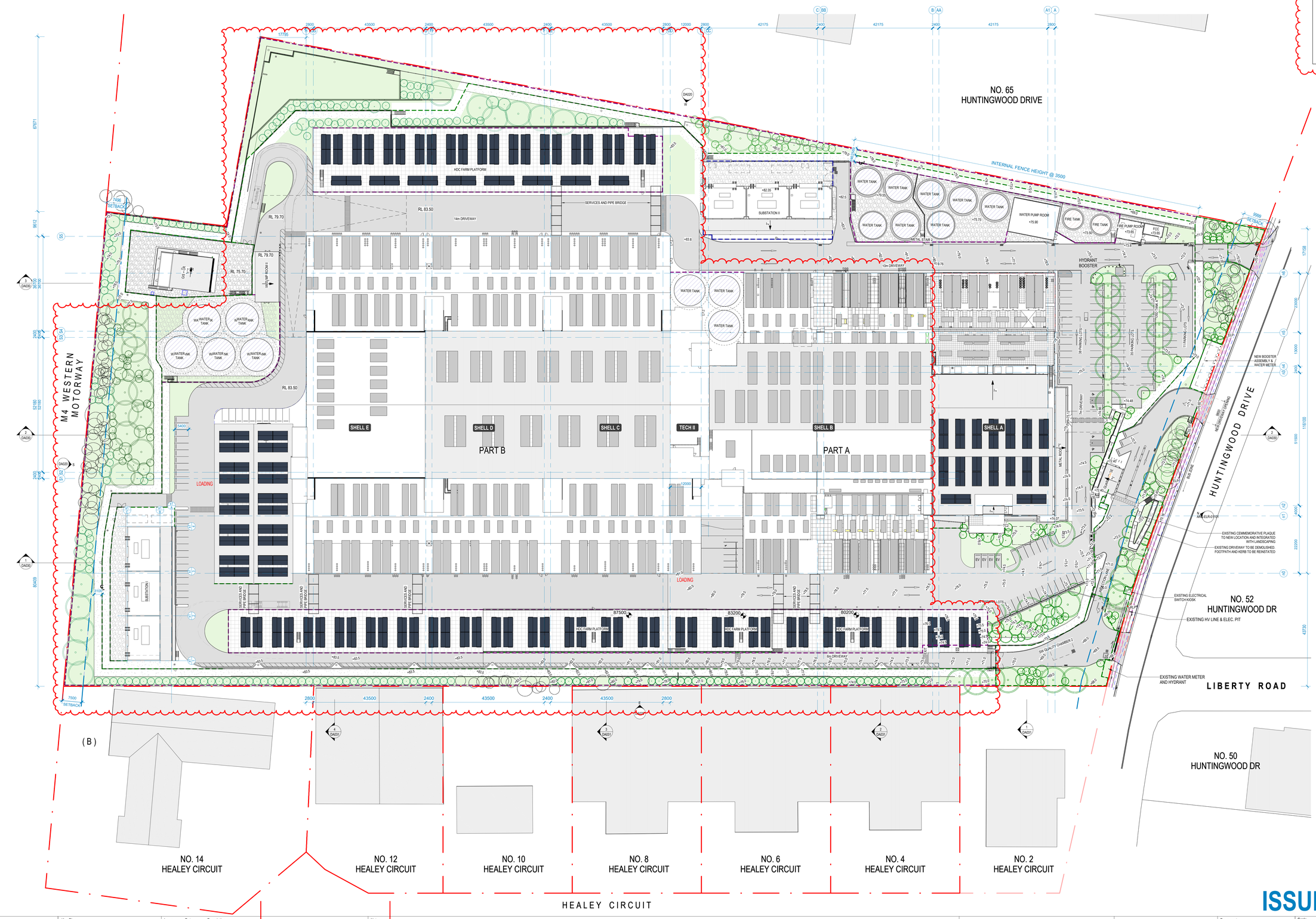
Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Rain	Rainwater Tank A (335kL)	% Reuse Demand Met	80	None	75.1153
Rain	Rainwater Tank B (100kL)	% Reuse Demand Met	80	None	34.7663

Only certain parameters are reported when they pass validation

Appendix D – Architectural Plan

(B) DEMPTES RESTRICTION ON USE
- VIDE DP815719



LEGEND

- SITE BOUNDARY
- FENCE TYPE 1 - STEEL PALISADE (SP30) FENCE 2438mm (H) UNLESS NOTED OTHERWISE, BLACK FINISH, MOW STRIP WHERE REQUIRED
- FENCE TYPE 2 - CHAIN LINK MESH FENCE, 2100mm (H) PLUS 450mm (H) POST EXTENSION, BLACK FINISH
- FENCE TYPE 3 - WELD MESH FENCE 2438mm (H) UNLESS NOTED OTHERWISE, 358 STEEL WELD MESH, POINTED POSTS, BLACK FINISH, MOW STRIP WHERE REQUIRED

DA SITE AREA

	AREA
51 HUNTINGWOOD DRIVE	90527 m²

DA GBA CALCULATION

LEVEL	SPACE	GBA
L1	ANCILLARY BUILDING	491 m²
L1	FIRE STAIRS	160 m²
L1	GANTRY / PLANT	1020 m²
L1	SUBSTATION	1990 m²
L1	SUPPORT SPACE	3549 m²
L1		7209 m²
M	SUPPORT SPACE	1309 m²
M		1309 m²
L2	DATA HALL	10862 m²
L2	FIRE STAIRS	548 m²
L2	GANTRY / PLANT	15239 m²
L2	SUPPORT SPACE	4414 m²
L2		31063 m²
L3	DATA HALL	13664 m²
L3	FIRE STAIRS	349 m²
L3	GANTRY / PLANT	15427 m²
L3	SUPPORT SPACE	710 m²
L3		30151 m²
L4	DATA HALL	13665 m²
L4	FIRE STAIRS	348 m²
L4	GANTRY / PLANT	15425 m²
L4	SUPPORT SPACE	671 m²
L4		30109 m²
L5	DATA HALL	13676 m²
L5	FIRE STAIRS	348 m²
L5	GANTRY / PLANT	15419 m²
L5	SUPPORT SPACE	667 m²
L5		30110 m²
L6	FIRE STAIRS	339 m²
L6	GANTRY / PLANT	12886 m²
L6	SUPPORT SPACE	358 m²
L6		13584 m²
L7	GANTRY / PLANT	671 m²
L7		671 m²
TOTAL GBA		144206 m²

DA GFA CALCULATION

LEVEL	Name	GFA
L1	GFA	1815 m²
L1	GFA (Office)	1366 m²
M	GFA (Office)	1311 m²
L2	GFA	13812 m²
L3	GFA	12883 m²
L4	GFA	12884 m²
L5	GFA	12910 m²
L6	GFA	7365 m²
TOTAL GFA		64346 m²

DA PARKING LOT

	QUANTITY
PARKING LOT	149
PARKING LOT (ACCESSIBLE)	4

DA BICYCLE PARKING

	QUANTITY
BICYCLE	10

ISSUE FOR SSDA

Key Plan

Issue	Date	Description
B	2022.03.28	Preliminary DA
C	2022.03.31	Preliminary DA
D	2022.04.04	PRE-SCOPING
E	2022.04.27	DRAFT UPDATES
F	2022.05.20	ISSUE FOR SSDA
G	2022.05.30	ISSUE FOR SSDA
H	2022.07.11	ISSUE FOR SSDA
I	2023.04.20	ISSUE FOR SSDA
J	2023.05.08	ISSUE FOR SSDA
K	2023.08.31	ISSUE FOR SSDA
L	2025.02.14	ISSUE FOR SSDA
M	2025.11.14	MOD 1, REV 2 Issue
N	2026.03.30	ISSUE FOR INFORMATION
O	2026.04.10	ISSUE FOR 30% SWO SCHEMATIC DESIGN DRAFT SUBMISSION

Notes

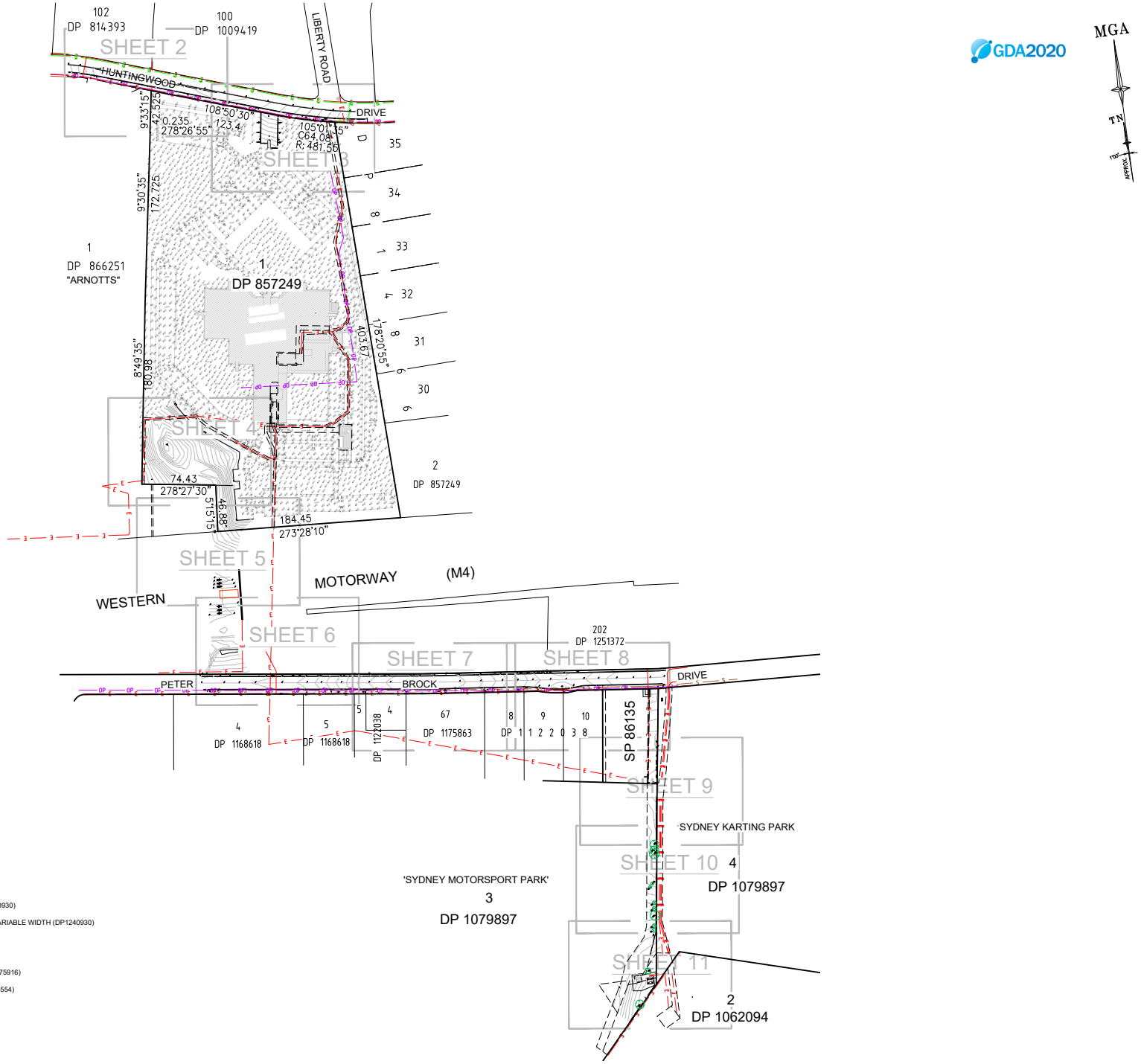
Greenbox
+61 2 8069 8930
LEVEL 22
68 PITT STREET
SYDNEY NSW 2000 AUSTRALIA

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ABN: 79 139 779 098
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- Do not scale from drawing
- Contractors shall confirm all dimensions on-site prior to commencing any work or producing any shop drawings
- All materials to be used in accordance with the manufacturer's specifications and instructions and shall comply with the relevant Australian Standards
- Copyright of this drawing and design remain the property of Greenbox Architecture Pty Ltd
- Nominated Architect - Gerard Page: NSW reg No.7247, NZ reg No.3715, Vic reg No.17664, SA reg No.3061, QLD reg No.4538, WA reg No.2489

Proponent	EMKC³
Project	Data Centre 51 Huntingwood Drive, Huntingwood
Scale	1 : 500
Sheet	A0
Scale Bar	1:500 0 5 10 15 25m
Drawn By	RT/WW/FM
Checked By	DK
Approved By	AO
Project Status	**ISSUE FOR SSDA**
Drawing Title	**OVERALL SITE PLAN**
Job Number	210043
Drawing Number	DA010
Issue	O

Appendix E – Site Survey



LEGEND

BENCH MARK	▲
COMMS PIT	COM
TELSTRA PIT	TEL
OPTUS PIT	OP
ELECTRIC LIGHT POLE	ELP
ELECTRICITY BOX	EL
PIT WITH CONCRETE LID	CLID
PIT WITH METAL LID	MLID
STREET SIGN	SS
GRATED INLET PIT	GIP
KERB INLET PIT	KIP
STORMWATER MANHOLE	SWMH
STOP VALVE	SV
HYDRANT	HYD
WATER METER	WM
GATE	
VEHICLE CROSSING	(VC)
PRAM CROSSING	(PC)
GAS	G
OPTUS	OP
COMMUNICATION	C
WATER	W
SEWER	S
ELECTRICITY (U'GROUND)	E

NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED ON GROUND
2. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY NSW LAND REGISTRY SERVICES AND ARE SUBJECT TO FINAL SURVEY
3. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM SSM103436 R.L. 51.855 (A.H.D.) IN LIDCO STREET
4. ORIGIN OF MGA2020 COORDINATES IS SSM54393 AT CNR HUNTINGWOOD DRIVE AND LIBERTY ROAD.
5. CONTOUR INTERVAL 0.5 m
6. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
7. KERB LEVELS ARE TO TOP OF KERB UNLESS SHOWN OTHERWISE
8. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
9. SHOWS APPROXIMATE POSITION OF ROAD LINEMARKING AND IS INDICATIVE ONLY
10. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH
11. INFORMATION SHOWN IN GREYSCALE SURVEYED BY SP SITE SETOUT PTY LTD 31-05-2021 DRAWING REF: SP1224-001.PRO AS PROVIDED BY AIRTRUNK PTY LTD

EASEMENTS

(A) RIGHT OF ACCESS 10 WIDE 1.5 WIDE (VIDE DP1122038)
(A1) PROPOSED EASEMENT FOR UNDERGROUND CABLES 9 WIDE (DP1280825)
(A2) PROPOSED EASEMENT FOR UNDERGROUND CABLES 10 WIDE & VARIABLE (DP1280825)
(B) EASEMENT FOR UNDERGROUND CABLES 1.2 WIDE (VIDE DP1122038)
(B1) PROPOSED EASEMENT FOR OVERHEAD POWERLINES VARIABLE WIDTH (DP1280825)
(C) EASEMENT FOR COMMUNICATION EQUIPMENT 7 WIDE (AN444554)
(C1) PROPOSED EASEMENT FOR ELECTRICITY EQUIPMENT VARIABLE WIDTH (DP1280825)
(D) EASEMENT FOR DRAINAGE OF WATER 2.9 WIDE (DP1122038)
(E) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP1170648)
(E1) PROPOSED EASEMENT FOR OVERHEAD POWERLINE, UNDERGROUND CABLES 15.1 WIDE (DP1240930)
(E2) PROPOSED EASEMENT FOR UNDERGROUND CABLES & COMMUNICATION CABLES 6 WIDE & VARIABLE (DP1240930)
(E3) PROPOSED EASEMENT FOR UNDERGROUND CABLES 6 WIDE & VARIABLE (DP1240930)
(E4) PROPOSED EASEMENT FOR OVERHEAD POWERLINE, UNDERGROUND CABLES & COMMUNICATION CABLES VARIABLE WIDTH (DP1240930)
(F) RESTRICTION ON THE USE OF LAND (DP1170648)
(G) RESTRICTION ON THE USE OF LAND (DP1170648)
(J) EASEMENT FOR UNDERGROUND CABLES 2.5 WIDE & VARIABLE (DP1275916)
(K) EASEMENT FOR UNDERGROUND CABLES 2.5 WIDE & VARIABLE (DP1275916)
(L) EASEMENT FOR UNDERGROUND COMMUNICATION CABLES 5 WIDE (LIMITED IN STRATUM) (DP1275916)
(M) EASEMENT FOR UNDERGROUND COMMUNICATION CABLES 2.5 WIDE & VARIABLE (LIMITED IN STRATUM) (DP1275916)
(N) EASEMENT FOR UNDERGROUND CABLES VARIABLE WIDTH (LIMITED IN STRATUM) (DP1275916)
(O) EASEMENT FOR OVERHEAD POWERLINE, UNDERGROUND CABLES & COMMUNICATION CABLES 6 WIDE (AN444554)
(P) EASEMENT FOR OVERHEAD POWERLINES VARIABLE WIDTH (AN444554)
(Q) EASEMENT FOR SWITCHING STATION VARIABLE WIDTH (LIMITED IN STRATUM) (DP1275916)
(R) EASEMENT FOR INDOOR SUBSTATION VARIABLE WIDTH (LIMITED IN STRATUM) (DP1275916)
(S) EASEMENT FOR COMMUNICATIONS EQUIPMENT VARIABLE WIDTH (LIMITED IN STRATUM) (DP1275916)
(T) BENEFITTED BY EASEMENT TO DRAIN WATER 1.5 WIDE (DP815719)
(U) EASEMENT FOR INDOOR SUBSTATION VARIABLE WIDTH (LIMITED IN STRATUM) (DP1275916)
(V) EASEMENT FOR COMMUNICATIONS EQUIPMENT 12.75 WIDE (DP1275916)
(W) RIGHT OF ACCESS 1, 4.6 & 7.5 WIDE (LIMITED IN STRATUM) (DP1275916)

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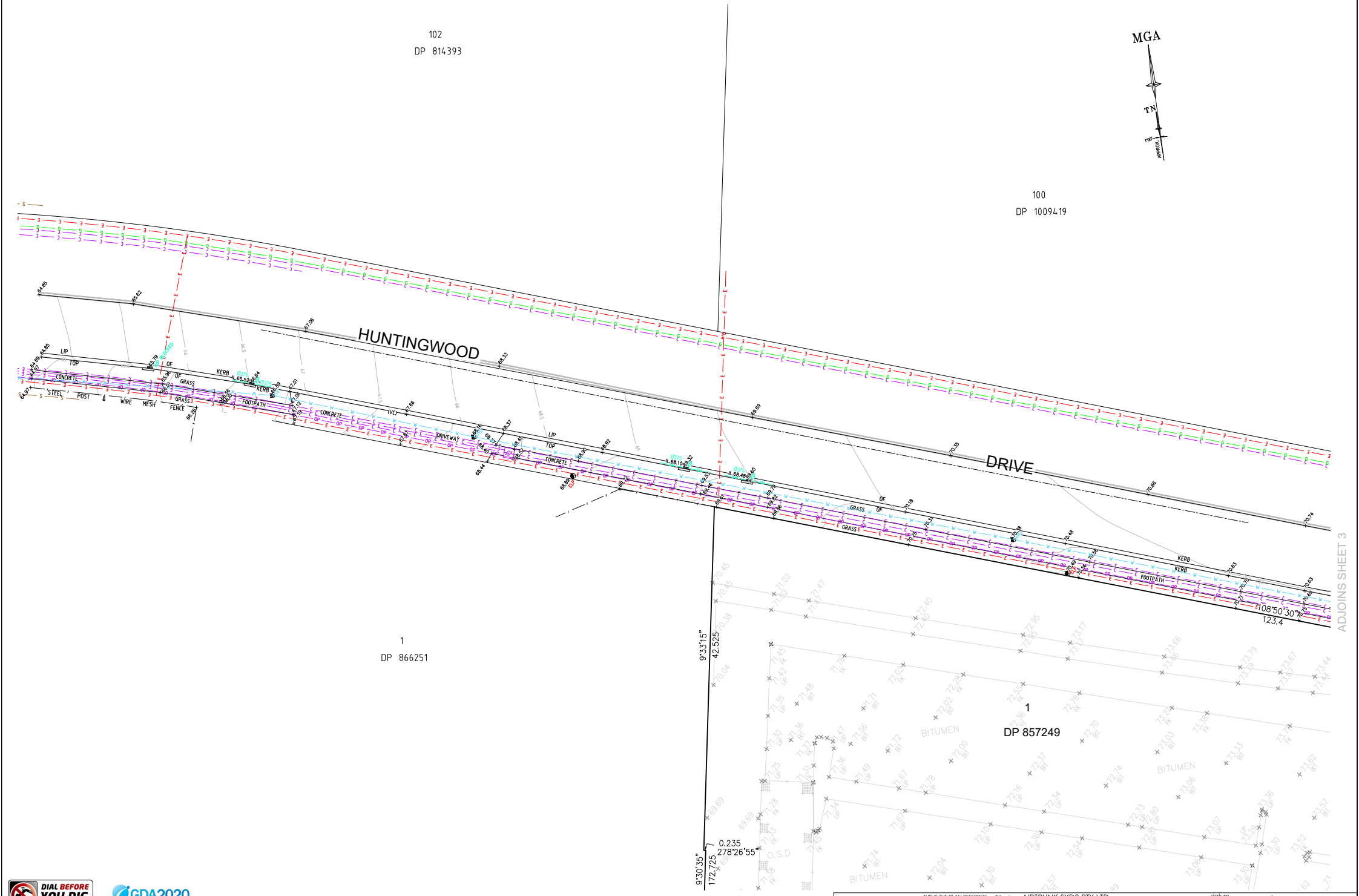
Registered Surveyor NSW

Client - AIRTRUNK SYD3 PTY LTD

Drawing title
PLAN OF DETAIL AND LEVELS OVER THE WESTERN MOTORWAY / PETER BROCK DRIVE AND SYDNEY MOTORSPORT PARK, EASTERN CREEK FOR 132Kv FEEDER

datum AHD
site Area N/A
LGA BLACKTOWN

reference number 51643 001DT
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date of survey 21/02/2022
SHEET 1 OF 11



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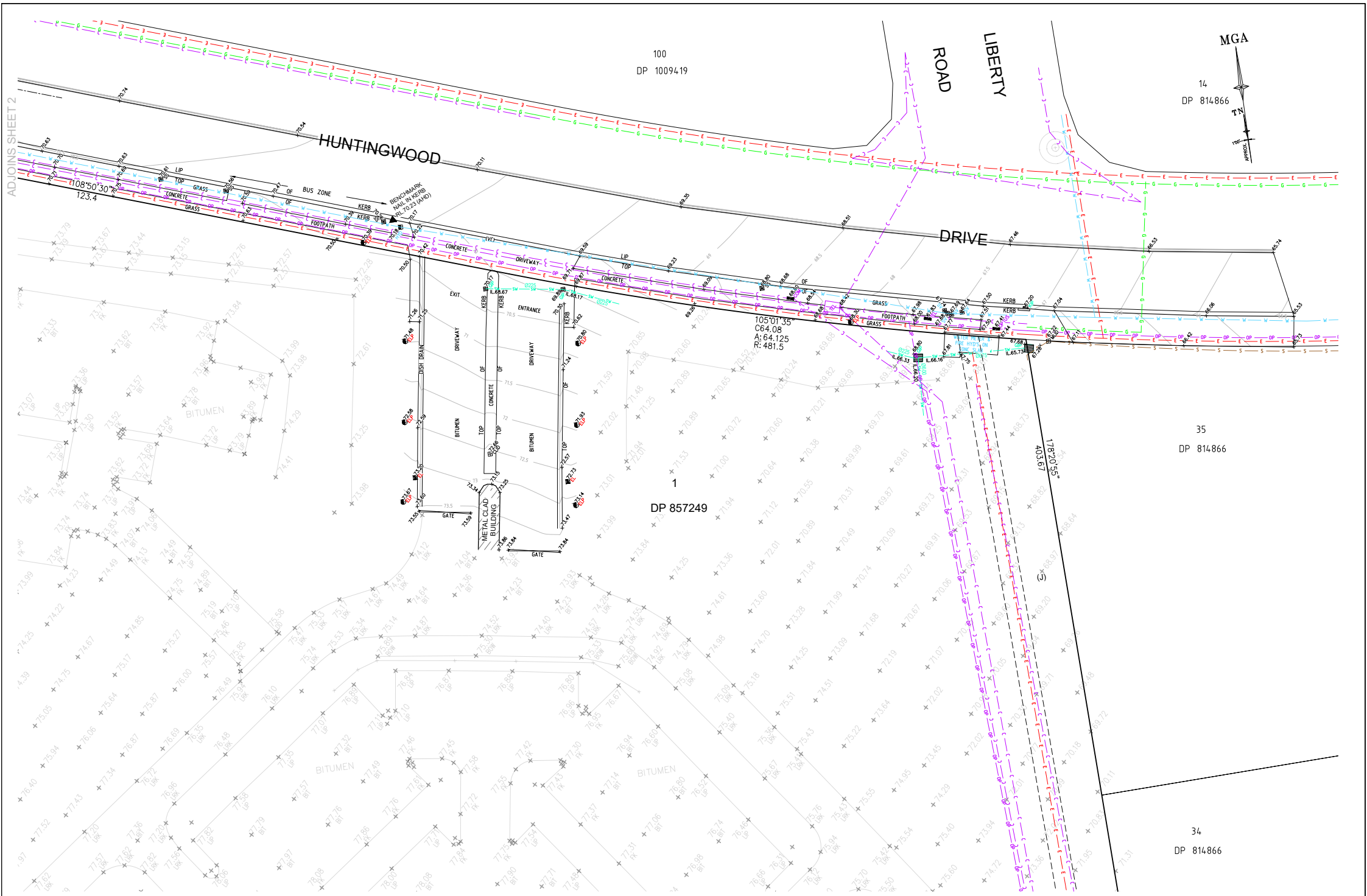
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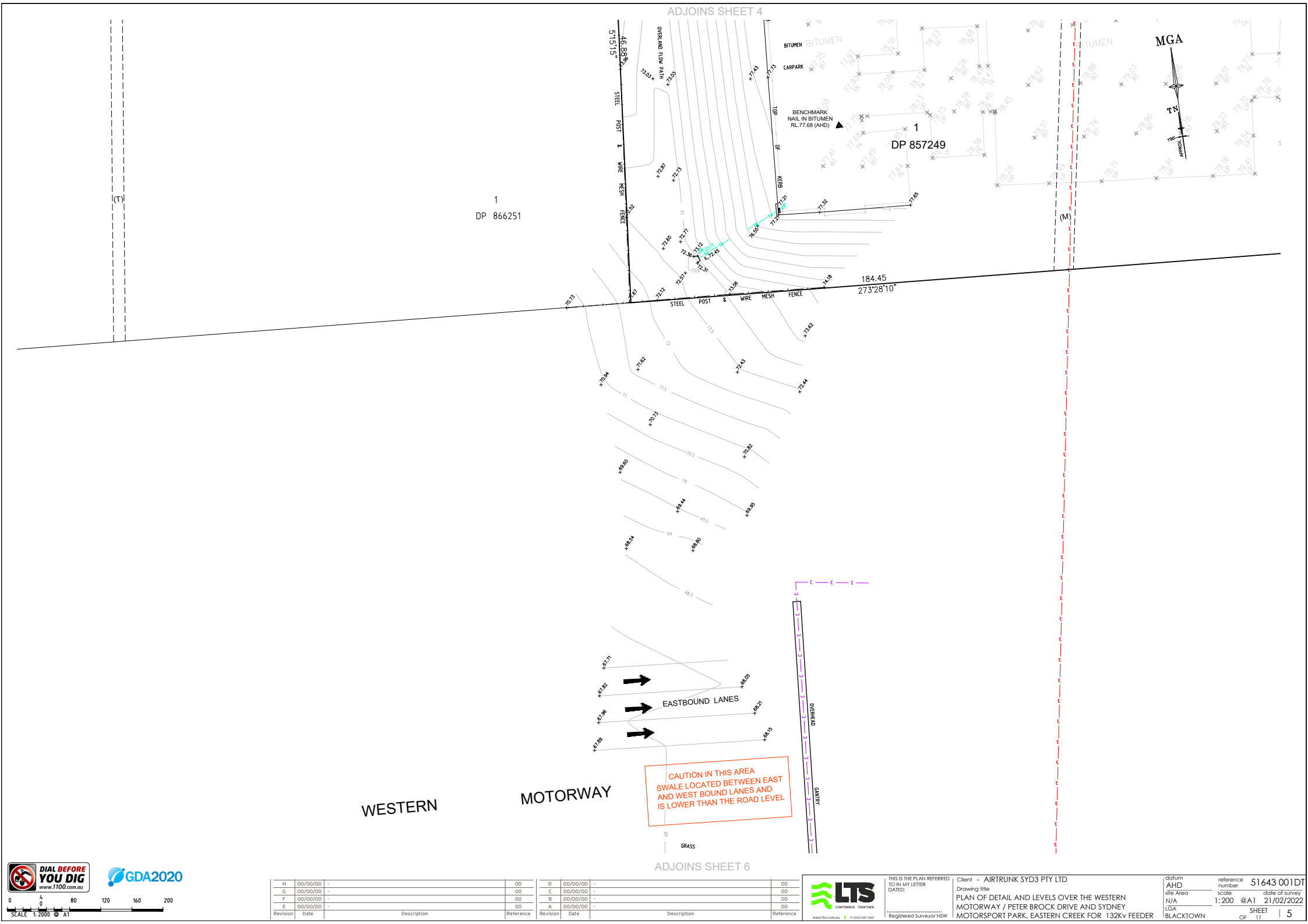
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LGA	BLACKTOWN
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scale	1:200 @A1
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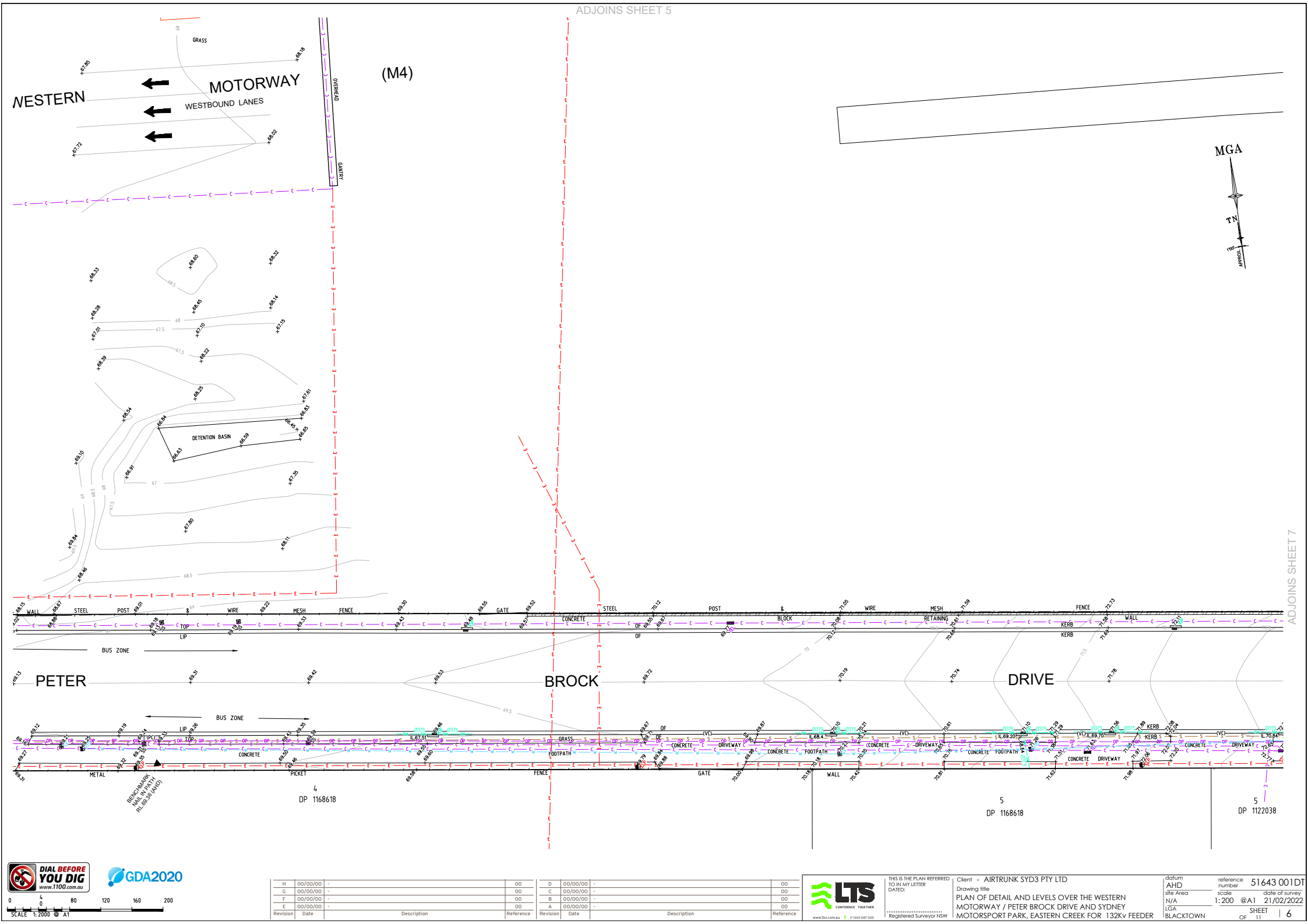
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ADJOINS SHEET 5



ADJOINS SHEET 7

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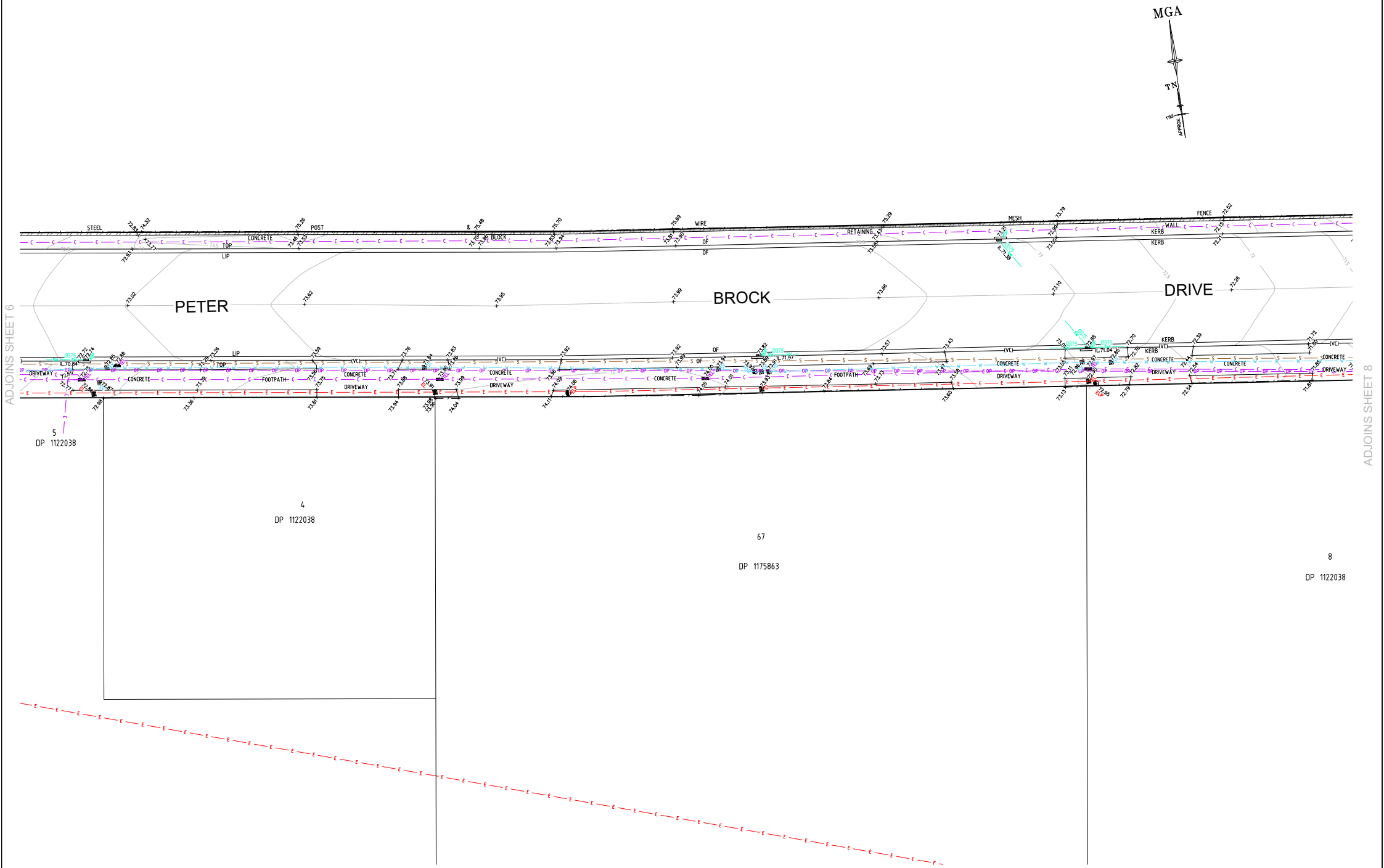
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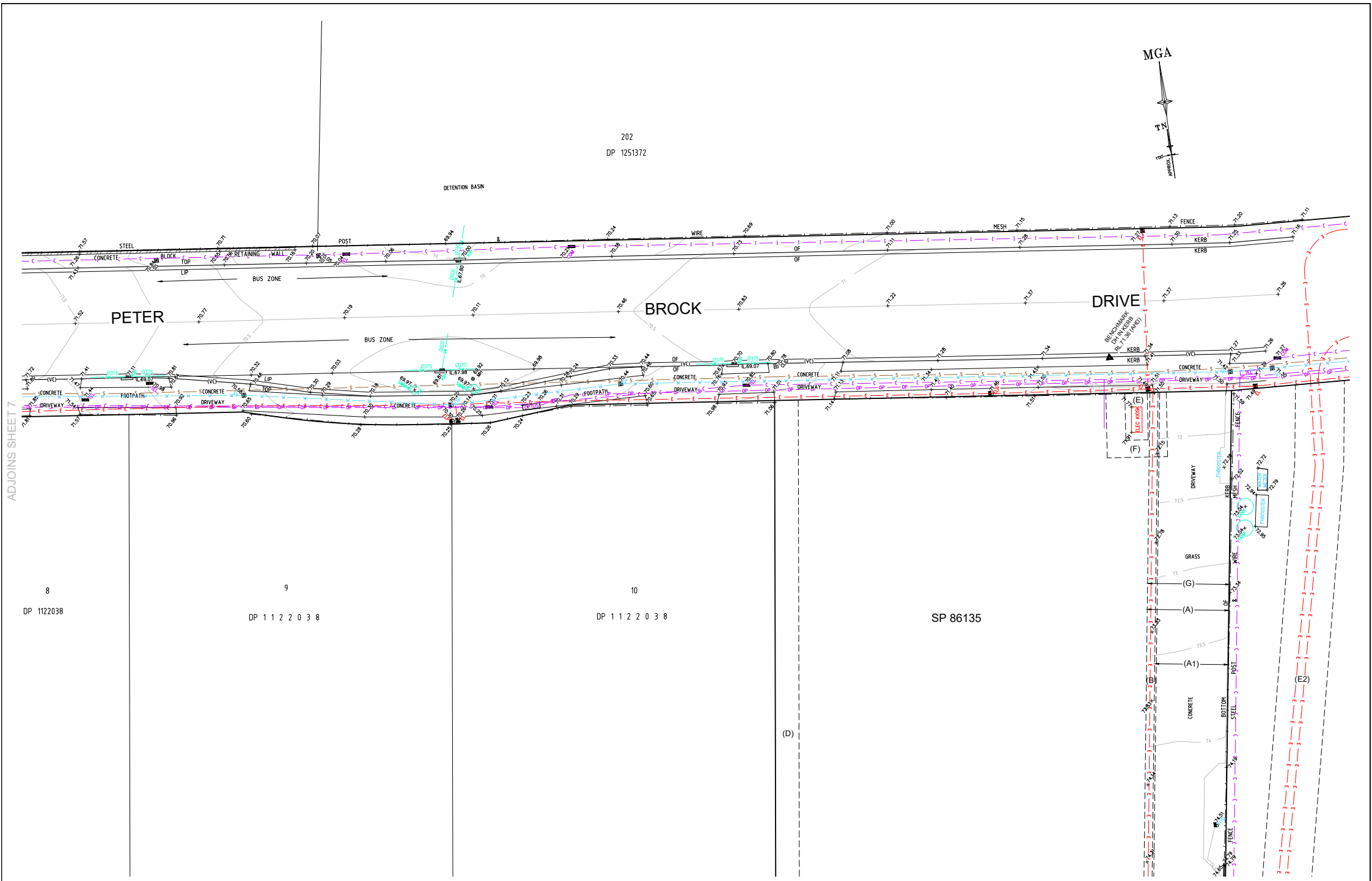
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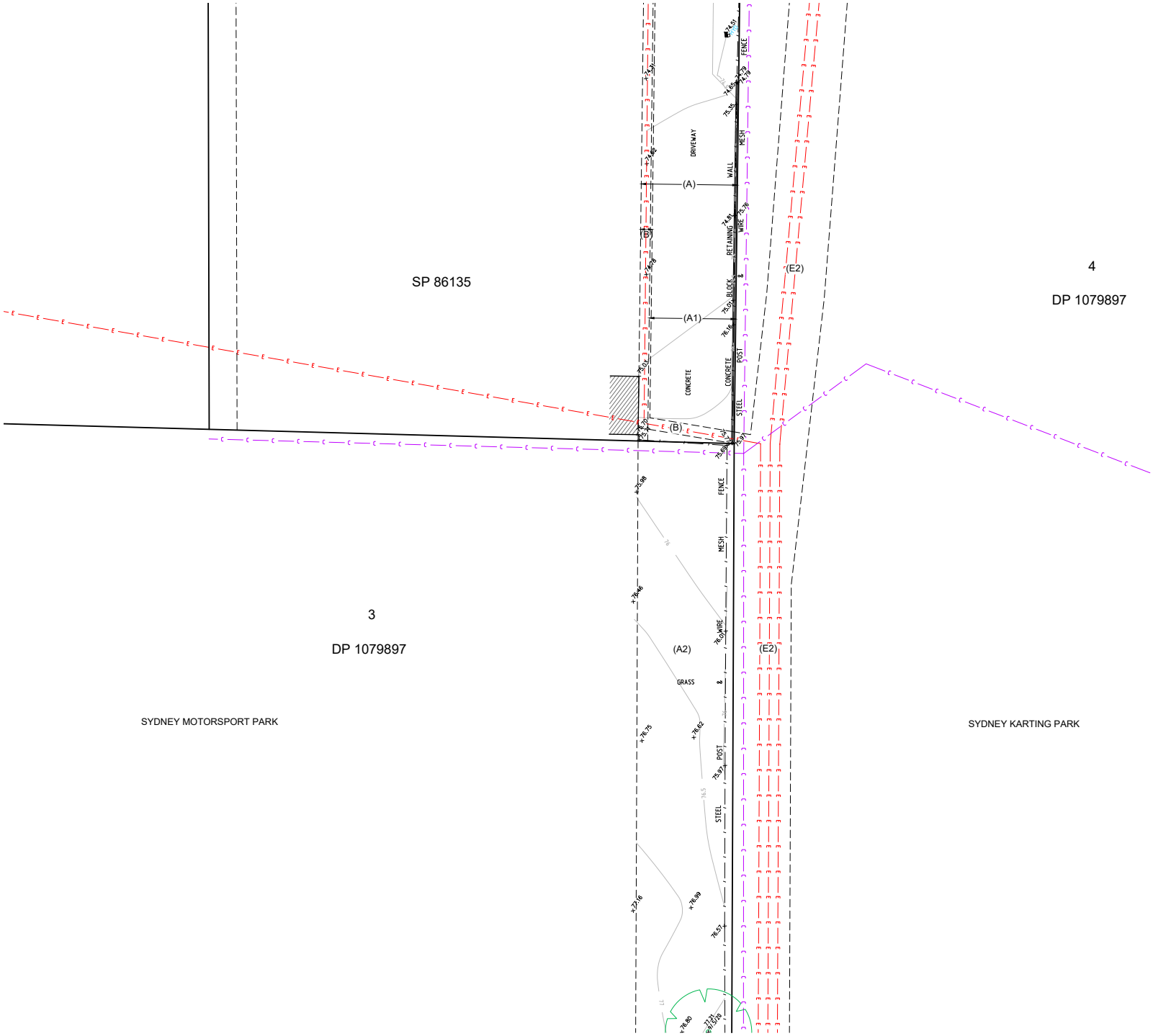
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ADJOINS SHEET 8



ADJOINS SHEET 10

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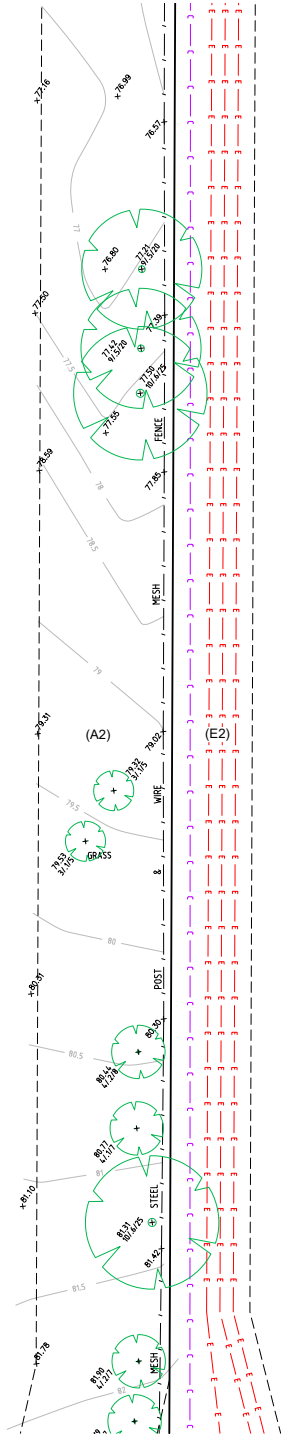
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SHEET 9 OF 11

ADJOINS SHEET 9



MGA

TN

'SYDNEY MOTORSPORT PARK'

4

DP 1079897

SYDNEY KARTING PARK

4

DP 1079897

ADJOINS SHEET 11

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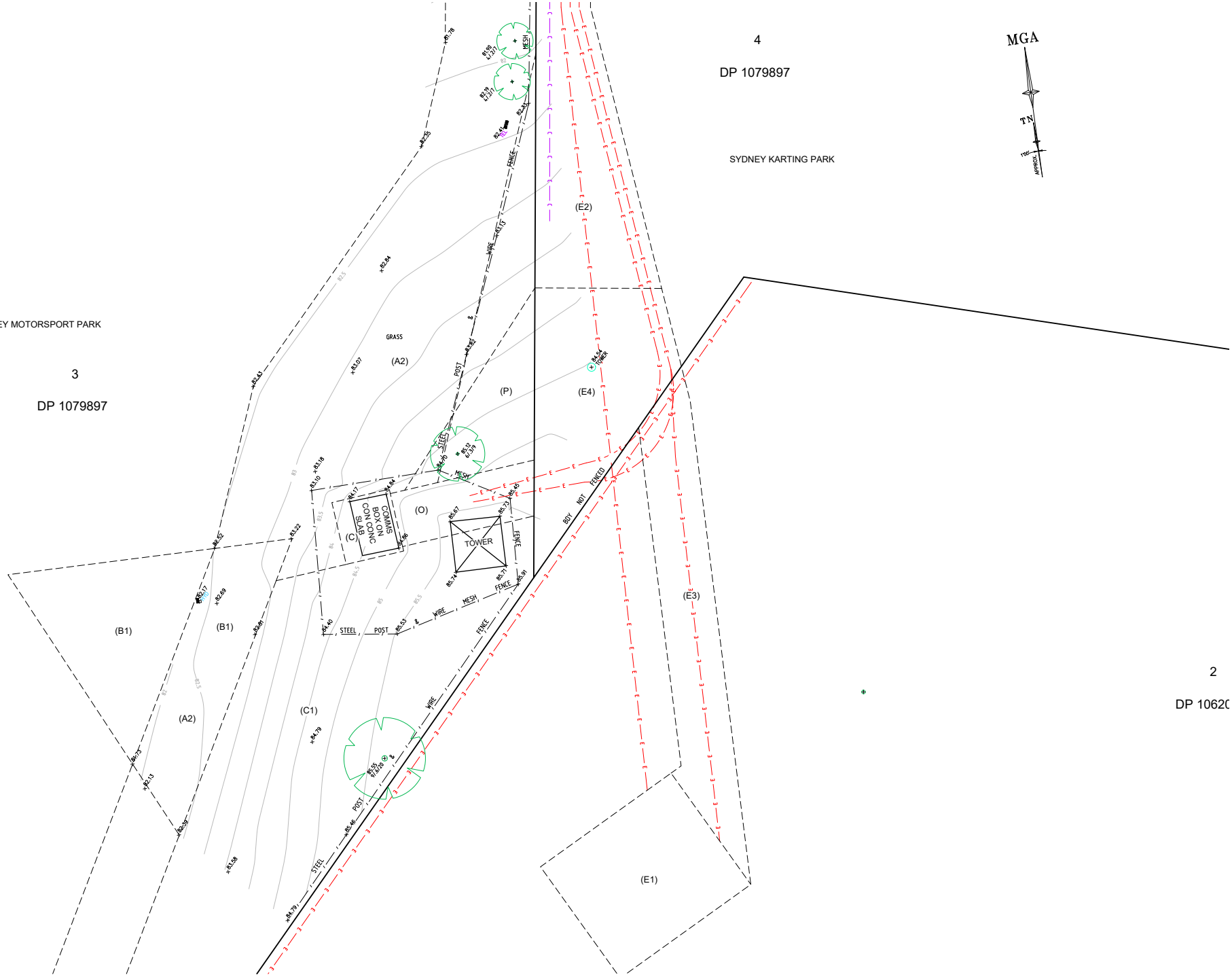
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ADJOINS SHEET 10



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SHEET 11 OF 11

Appendix F – Process Water Consumption Calcs

ARUP

Project Name: AirTrunk SYD3 Masterplan
Sheet Title: Industrial Water Calculations
Date : 08/04/26

WATER STORAGE CALCULATION

Table 1. Tank Provisions

Tank Yard	A	B	C	Overall	Unit
Diversity	89.43%				%
24hr Storage	12.73				ML
Buffer	6.85				ML
% Buffer	54%				%
Tanks (duty)	8.00	2.00	5.00	-	#
Tanks (standby)	0.00	1.00	0.00	-	#
Tank effective volume	1.17	1.37	1.22	-	ML
Total effecitve capacity (N)	9.36	2.74	6.11	18.21	ML
Total effecitve capacity (N + R)	9.36	4.12	6.11	19.59	ML
Hrs of storage in failure (N)	34.33				hrs

*Scenario A3

Assumptions

1 HDC data based on condenser water temps of 31.5/41.5C and 10 COC.
2 Linear relationship between heat rejection capacity and water usage for the referenced HDC models. Based on water usage data provided by HDC vendors.
3 Potable water provision for other purposes is 1.48L/s
4 Based on day final IT capacities and Authority Water Provisions. Refer Table 3 for HDC types and quantities.
5 Assumed constant diversified IT load, Estimated IT load as noted.
6 Shell B to E based on Arup 30% calculations.
7 Shell A heat rejection capacity based on CLM 90% Warm Shell package
8 Based on 20 years of weather data from 2005 to late 2025, the peak 24hr usage occurs on the 2/02/2020 and the peak annual usage starting from Sep 2024.
9 Worst case multiday event occurs from December 2016 to March 2017, noting there is currently an ongoing multiday event (Feb 2026) that has yet to peak. To be evaluated when weather data is complete.
10 Tank yards are full at t=0.
11 Concurrent peak weather event and tank failure not considered. Total capacity at N tanks to meet 24 hour storage requirement.
12 Based on a ring main configuration across the site connecting all tank yards. Failure scenario shared between yards based on N+1, where the worst case scenario is failure of 1 tank at yard
13 Note all results are based on a diversified load. (e.g. peak 24hr usage, peak annual usage, etc.)

Table 2. Sitewide Diversity Results - Tank Quantity

* Scenario A2 is current design

Scenario	A	A0	A1	A2	A3	A4	A5
Yard B - Tank Quantity		5	4	3	2	1	0
Diversity	100.0%	90.05%	89.74%	89.43%	89.12%	88.3%	87.2%
% Change			0.34%	0.34%	0.35%	0.87%	1.29%
Total Site Heat Rejection, kW	433024	389948	388610	387271	385932	382559	377618
Hrs of storage in Failure (N)		39.23	36.78	34.33	31.85	29.51	27.25
Water Volume (ML)	36.05	22.33	20.96	19.59	18.21	16.84	15.47
Heat Rejection kW/L	0.0120	0.0175	0.0185	0.0198	0.0212	0.0227	0.0244
% Change			6.18%	6.64%	7.16%	7.20%	7.46%

Table 3. Sitewide Diversity Results - HDC Type

Scenario	B0	B1	B2	B3
Shell A	16 BAC - SS			
Shell B	12 BAC - Gal			
Shell B - E - HDC Type	**BAC - Gal**	**BAC - SS**	**Evapco - Gal**	**Evapco - SS**
HDC Quantity	92	92	92	92
Diversity	92.5%	92.95%	89.43%	91.36%

*Based on Scenario A2 (current design)

Table 4. Site Shell Summary

Shell	HDC type	HDCs N + R	HDCs N	HDCs R	IT capacity, MW	Heat rejection, kW Total	Diversity %	Diversified	N + R	N	Heat Rejection KW/IT load kW
A - ELR	BAC - Stainless	16	14	2	48.1	59823	89.43%	53502.13	3343.88	3821.58	1.24
B - TFS	BAC - Galvanised	12	12	0	71.2	95668	89.43%	85559.77	3290.76	3564.99	1.34
	Evapco - Galvanised	14	12	2	-	-	-	-	-	-	-
C - TFS	Evapco - Galvanised	26	24	2	71.5	92511	89.43%	82736.33	3182.17	3447.35	1.29
D - TFS	Evapco - Galvanised	26	24	2	71.5	92511	89.43%	82736.33	3182.17	3447.35	1.29
E -TFS	Evapco - Galvanised	26	24	2	71.5	92511	89.43%	82736.33	3182.17	3447.35	1.29
TOTAL/AVERAGE		120	110	10	333.78	433024	89.4%	387270.89			

*Based on CLM 90% Calc
*12 No. BAC gal units included in shell B

Table 5. HDC Quantity

Type	Overall	
BAC - Galvanised	12	10%
BAC - Stainless	16	13%
Evapco - Galvanised	92	77%
Evapco - Stainless	0	0%
TOTAL	120	100.0%

Table 6. Heat Rejection

Total connected heat rejection, MW	387.27
Average heat rejection per HDC, kW	3227.26
% of HDC data	92%

Table 7. Tank Yard Usage

	per HDC (L/s)	Total usage	
Average water usage	0.746	89.4912	L/s
Peak water usage (Instantaneous)	1.77	196.25	L/s
Peak water usage (Average over 24 hours)	1.23	147.39	L/s
Peak annual usage	2998.21		ML

Table 8. Incoming Provision Summary

Peak provision	108.0	L/s
Off-peak provision	134.5	L/s
Average provision	123.5	L/s

Table 9 & 10. Water Memo Summaries

Criterion	Total	Note
Peak instantaneous demand, L/s	187.1	Can be managed using storage/buffer to offset demand above site provision
Peak demand (average over 24 hrs), L/s	147.4	Used for 24 hour storage sizing
Peak daily usage, m3	12,735	
Peak annual usage, m3	2,998,214	
24 hour storage (no peak buffer)	12,735	Same as peak daily usage, level would drop below 100% on peak day (as usage > site provision)
24 hour storage (peak buffer)	19586.0	Required to offset peak usage to ensure 24 hour storage always maintained
Buffer % required	54%	% of peak daily usage
Tank yard current capacity, N	18.2	ML
Tank yard current capacity, N + R	19.6	ML

Criterion	Total
Peak instantaneous bleed, L/s	18.7
Peak bleed (average over 24 hrs), L/s	14.7
Peak day bleed, m3	1273.5
Annual bleed, ML (peak year)	299.8
Daily bleed, m3 (average of peak year)	821.4

Figures 1. Tank Yard Usage

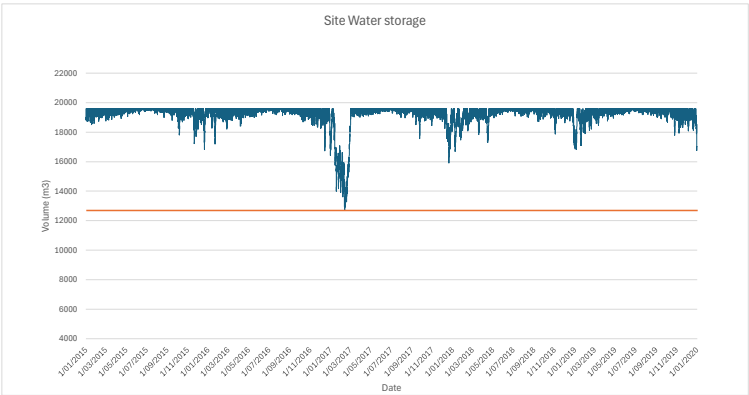


Table 11. Peak 24hr Usage

Weather Data					24hr usage		
Date	Time	Dry Temperature	Wet Temperature	Dew Point Temperature	HDC water usage, L/s	HDC water usage, m3/hr	Rolling 24hr peak, m3
1/02/2020	8:00:00 AM	25.25	22.96	21.96	118.39	426.21	11189.8
1/02/2020	9:00:00 AM	28.00	23.35	21.42	124.10	446.76	11210.4
1/02/2020	10:00:00 AM	31.15	24.17	21.38	139.86	503.51	11287.7
1/02/2020	11:00:00 AM	35.24	24.84	20.71	148.01	532.83	11373.7
1/02/2020	12:00:00 PM	39.36	25.24	19.54	167.49	602.96	11499.9
1/02/2020	1:00:00 PM	42.60	24.55	16.64	177.18	637.86	11634.2
1/02/2020	2:00:00 PM	43.93	23.54	13.59	181.52	653.47	11722.1
1/02/2020	3:00:00 PM	44.67	22.84	11.43	181.52	653.47	11807.6
1/02/2020	4:00:00 PM	45.07	23.59	12.85	181.52	653.47	11893.2
1/02/2020	5:00:00 PM	44.13	24.37	15.46	187.09	673.52	11991.4
1/02/2020	6:00:00 PM	42.37	23.62	14.75	173.32	623.97	12082.5
1/02/2020	7:00:00 PM	39.42	23.45	16.16	165.34	595.23	12174.3
1/02/2020	8:00:00 PM	36.95	23.36	17.28	157.10	565.56	12236.3
1/02/2020	9:00:00 PM	34.95	23.14	17.94	148.83	535.79	12295.3
1/02/2020	10:00:00 PM	33.15	23.04	18.64	139.86	503.51	12352.0
1/02/2020	11:00:00 PM	32.37	23.11	19.13	139.86	503.51	12408.8
2/02/2020	12:00:00 AM	31.02	22.82	19.28	132.45	476.82	12459.4
2/02/2020	1:00:00 AM	30.59	22.86	19.54	132.45	476.82	12510.0
2/02/2020	2:00:00 AM	29.59	22.73	19.80	132.45	476.82	12560.6
2/02/2020	3:00:00 AM	28.35	22.65	20.22	124.10	446.76	12581.2
2/02/2020	4:00:00 AM	27.42	22.63	20.60	124.10	446.76	12629.9
2/02/2020	5:00:00 AM	26.72	22.54	20.77	124.10	446.76	12678.5
2/02/2020	6:00:00 AM	26.08	22.28	20.63	118.39	426.21	12706.7
2/02/2020	7:00:00 AM	25.77	21.85	20.12	118.39	426.21	12734.8
Peak water usage over 24 hours (m3):	**12734.8**						

Appendix G – Water Quality Device Details

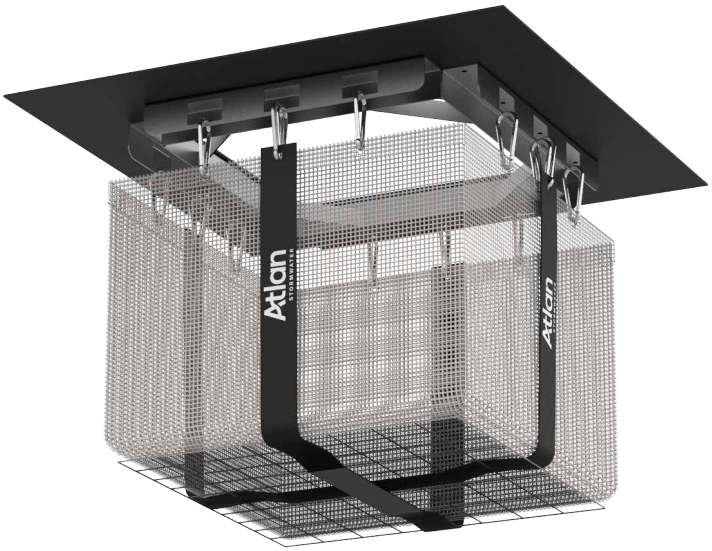
StormSack

At-Source Gross Pollutant Trap



atlan.com.au

Atlan STORMWATER





The Atlan StormSack is specifically designed for the capture of gross pollutants, sediment, litter, and oil and grease. Ideally suited for storm drain retrofits, the StormSack's unique design allows maintenance to be performed using conventional vacuum suction equipment.

StormSack filtration solutions are highly engineered water quality devices that are deployed directly in the stormwater system to capture contaminants close the surface for ease of maintenance. Easily retrofitted into new or existing structures, StormSack filtration technology is a decentralized approach to stormwater treatment that essentially repurposes traditional site infrastructure and customizes it to meet specific site water quality goals. In this way, it satisfies important objectives of today's LID (Low Impact Development) criteria.

From an operations perspective, catch basins with StormSack filters are also easier and quicker to clean out because pollutants are trapped just under the grate.

APPLICATIONS

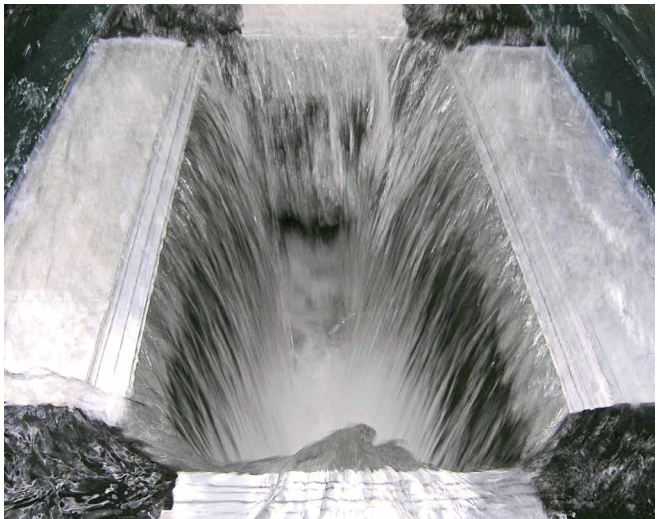
- Council storm drain retrofits
- Commercial / retail / residential
- Litter prone urban areas
- Scrap metal / solid waste / oil storage
- Part of treatment train
- Construction sediment / erosion

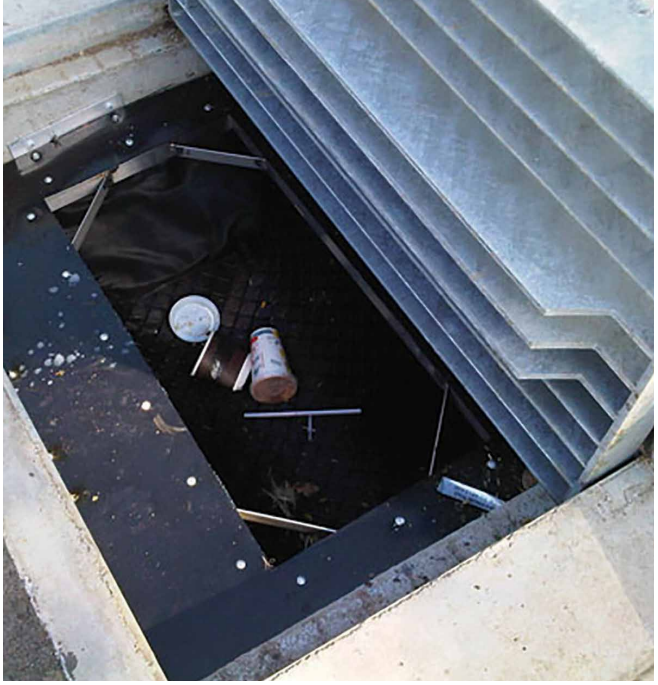
BENEFITS

- Can be modelled in MUSIC in conjunction with bio-retention
- Low cost gross pollutant capture
- Quick & easy installation
- Simple maintenance
- At-source capture
- Adjusts to custom pit sizes

The StormSack was introduced to the Australian market in 2012 and field testing is underway at several locations in South-east Queensland. Laboratory testing has shown capture of 99.99% of gross pollutants up to the bypass flow rate. Further results will be provided as they become available.

Recommended minimum clearance from bottom of StormSack to inside bottom of vault is 50mm. Typical frame adjustability range of 127mm in each direction.





HOW IT WORKS

This technology is a post developed stormwater treatment system. The StormSack provides effective filtration of solid pollutants and debris typical of urban runoff, while utilising existing or new storm drain infrastructure. The StormSack is designed to rest on the flanges of conventional catch basin frames and is engineered for most hydraulic and cold climate conditions.

Installation procedures shall include removing the storm grate, cleaning the ledge of debris and solids, measuring catch basin clear opening and adjusting flanges to rest on the grate support ledge. Install StormSack with splash guard under curb opening so the adjustable flanges are resting on the grate support ledge. Install corner filler pieces. Reinstall storm grate directly on support flanges rise shall be no more than 3mm.

FEATURES

POLLUTANT	EFFICIENCY
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	61%
Total Phosphorus (TP)	28%
Total Nitrogen (TN)	45%

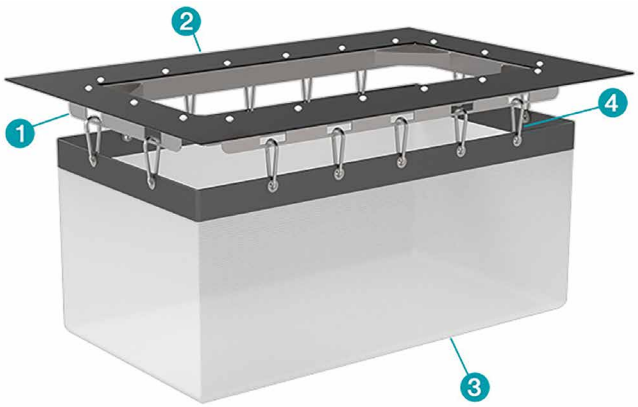
*Contact Atlan to confirm approved performance for the project LGA

MAINTENANCE

Typically the StormSack is serviceable from the street level, and therefore maintenance does not require confined space entry into the catch basin structure. The unit is designed to be maintained in place with a vacuum hose attached to a sweeper or a vactor truck. Use only Atlan replaceable parts.

Application	Regulatory Issue	Target Pollutants
Council Storm Drain Retrofits	At-source litter capture	Sediment, Litter, O&G
Commercial/Retail/Residential	Stormwater Compliance	Sediment, Litter, O&G
Litter Prone Urban Areas	Cost effective litter control	Litter ≥ 5 mm
Scrap Metal/Solid Waste/Oil Storage/Etc	Industrial Multi-Sector General Permit	Gross Pollutants, O&G
Part of Treatment Train	Council Stormwater Quality Improvement Targets	Sediment, Litter, O&G
Construction Sediment/Erosion	Sediment Control Plan	Sediment/Erosion Control

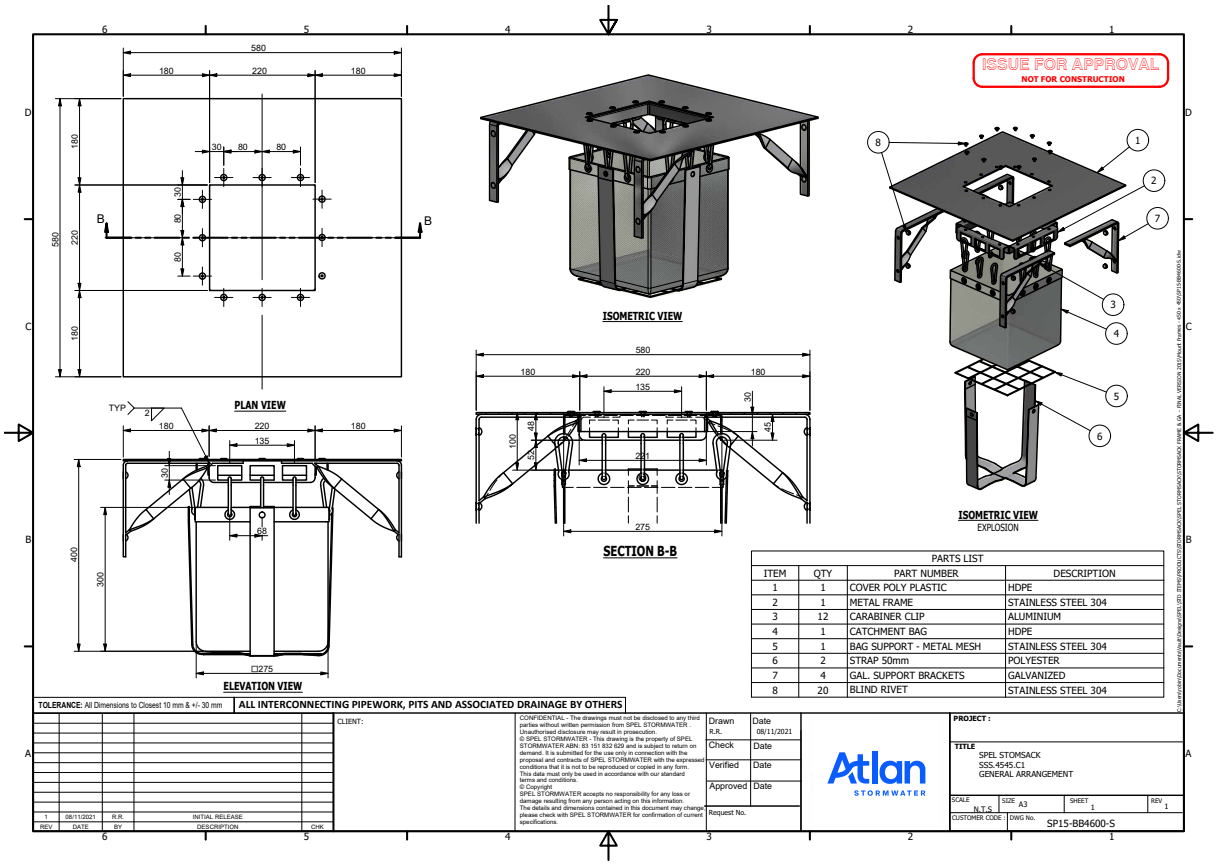
Features	
1.	1. Ultra-Durable Aluminium Frame • Available in 450x450mm, 600x600mm, 600x900mm and 900x900mm sizes • Custom pit arrangements upon request
2.	Black Poly Surround riveted to Frame • Can be cut to suit on site
3.	Reinforced Stormsack Bag • Bag has sewed eyelets • Square bottom design for even distribution
4.	Karabiners attach Bag to Frame for easy service & replacement
5.	5. Aluminium Support Angles & Fixings

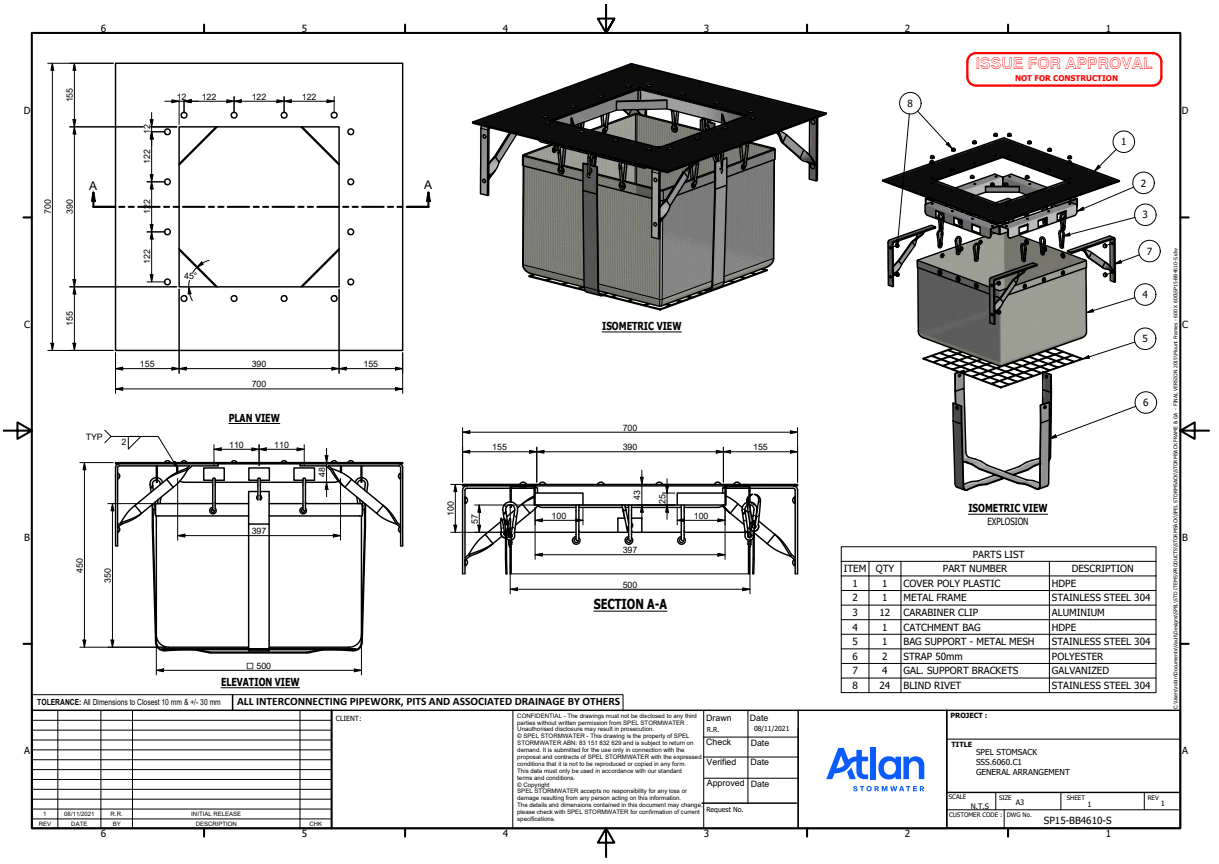


Standard StormSack to suit Pit Sizes
450x450mm
600x600mm
900x600mm
900x900mm

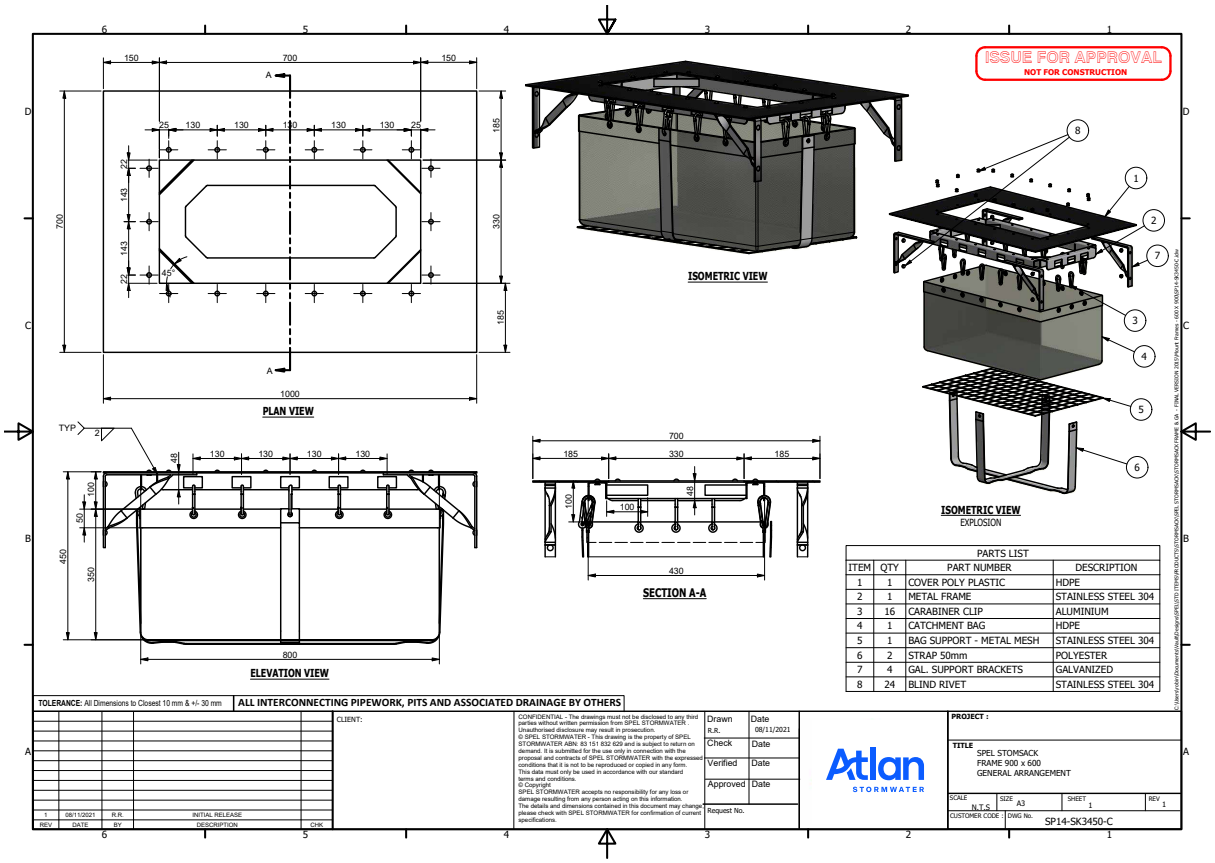
Custom sizes (i.e. 1200x900mm) can be manufactured on short lead times

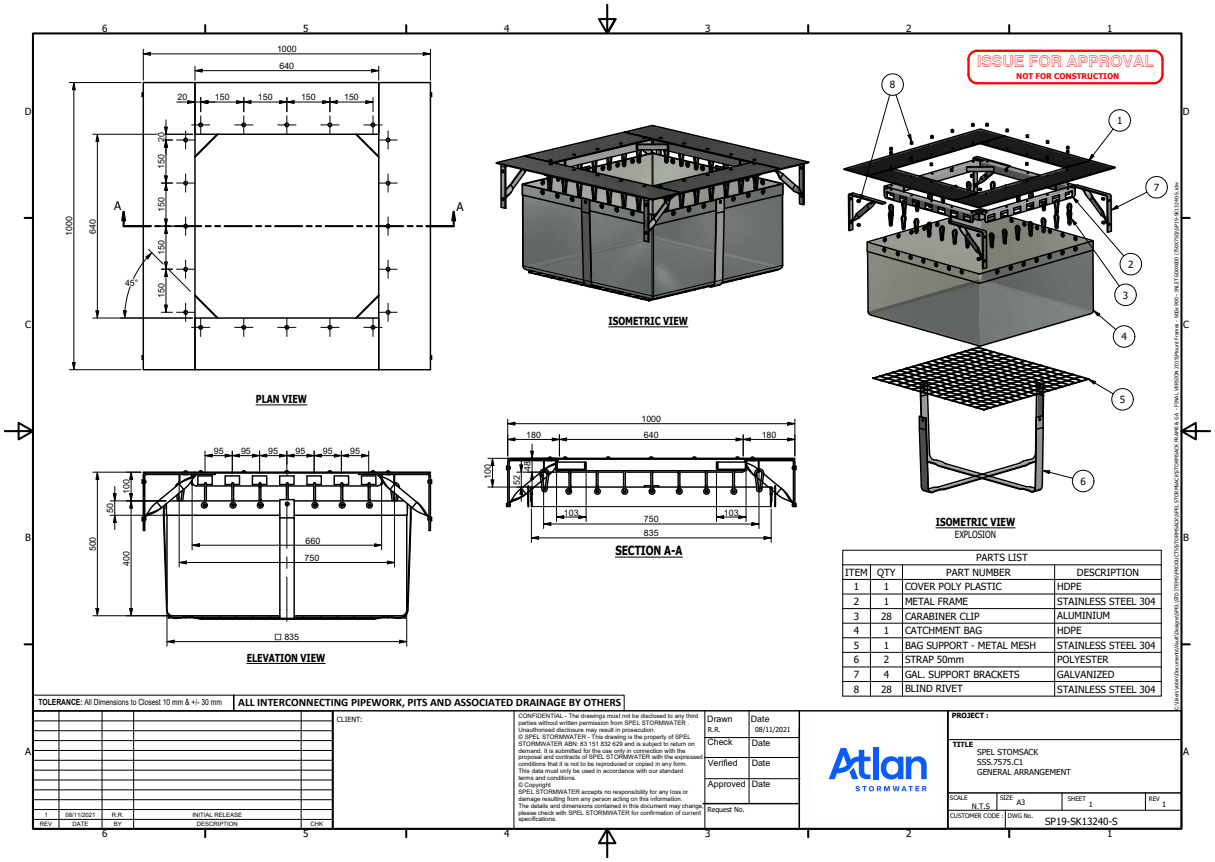
TECHNICAL DRAWINGS



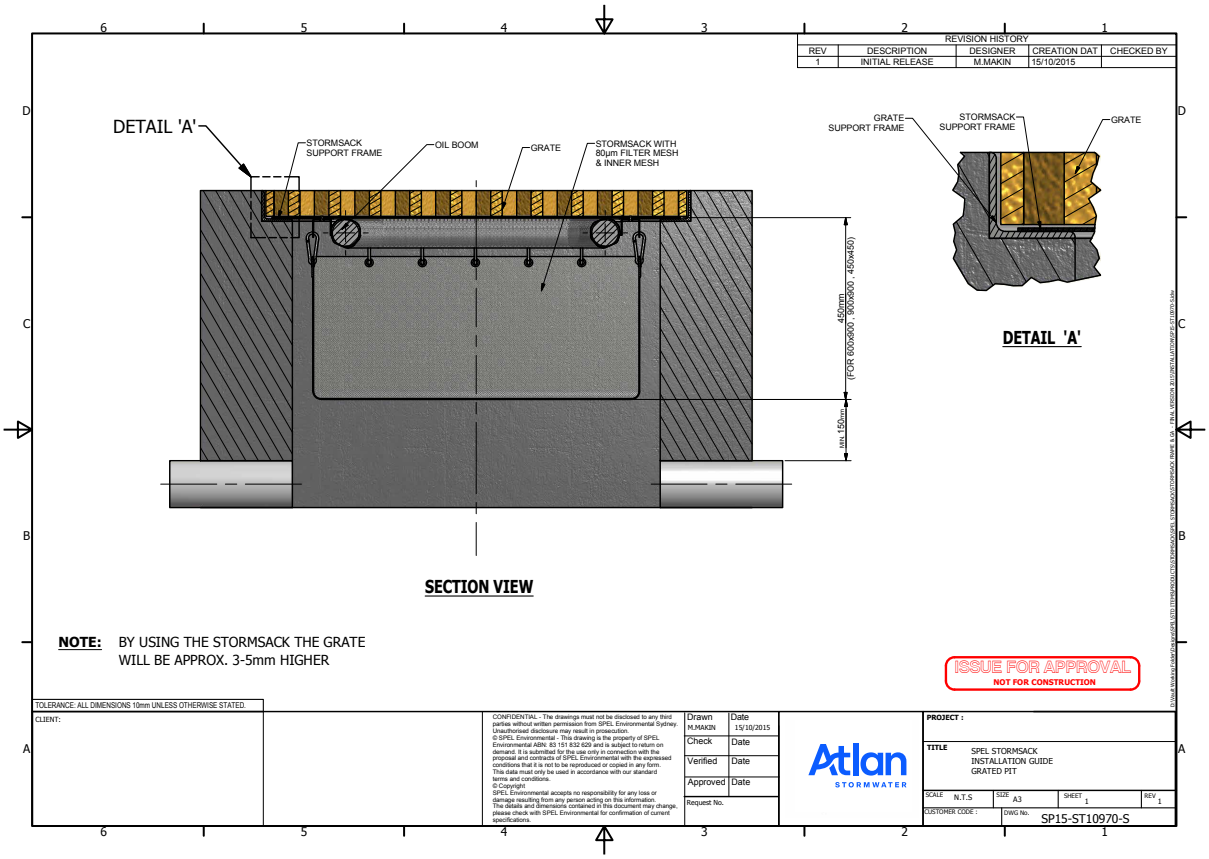


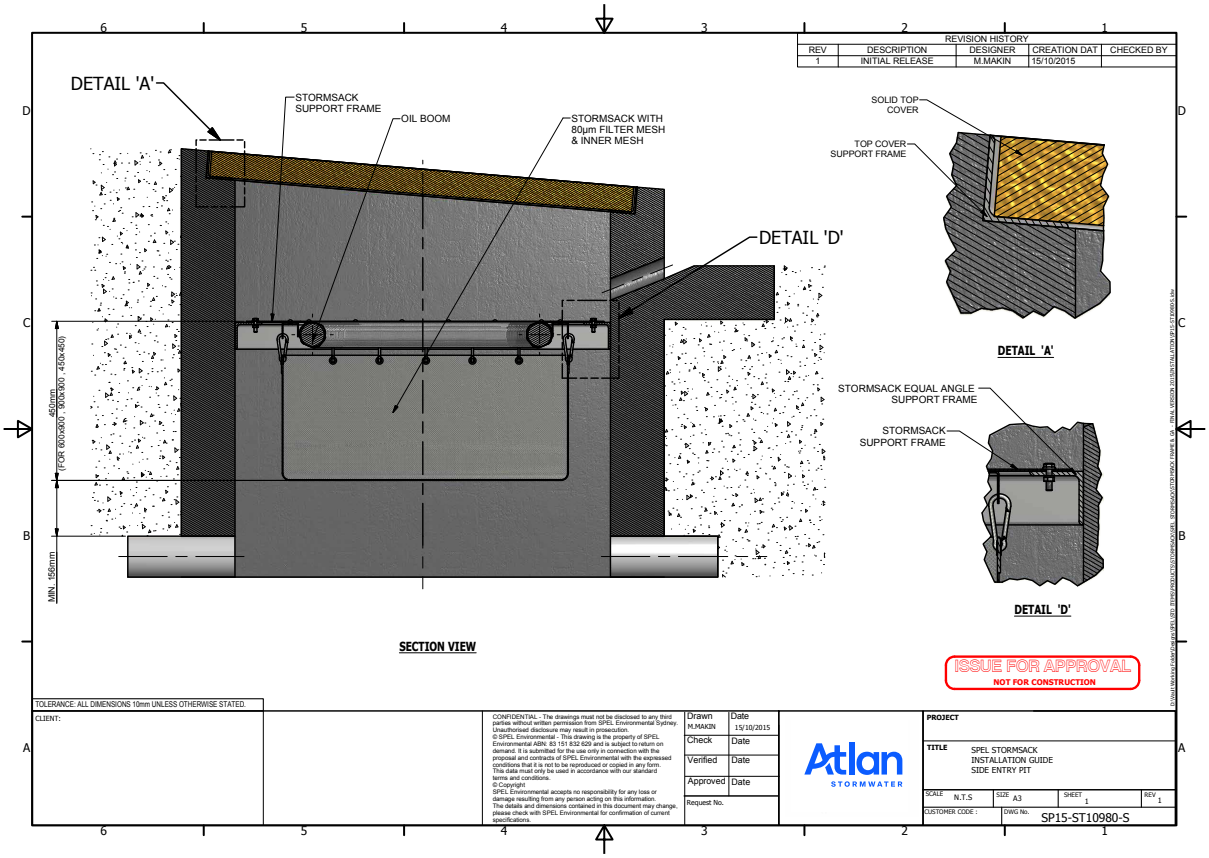
TECHNICAL DRAWINGS





INSTALLATION DETAILS





StormSack

At-Source Gross Pollutant Trap



NSW HEAD OFFICE 100 Silverwater Rd, Silverwater NSW 2128 PO Box 7138, Silverwater NSW 1811 P: +61 2 8705 0255 P: 1300 773 500 nsw.sales@atlan.com.au	**QLD MAIN OFFICE** 130 Sandstone Pl, Parkinson QLD 4115 P: +61 7 3271 6960 P: 1300 773 500 qld.sales@atlan.com.au	**VIC & TAS OFFICE** 897 Wellington Rd Rowville VIC 3178 P: +61 3 5274 1336 P: 1800 810 139 sales@atlan.com.au **VIC GEELONG BRANCH** 70 Technology Close, Corio VIC
SA OFFICE 9 Hampden Road, Mount Barker SA 5251 P: 1300 773 500 sales@atlan.com.au	**QLD SUNSHINE COAST BRANCH** 19-27 Fred Chaplin Cct, Bells Creek, QLD 4551 P: 1300 773 500 qld.sales@atlan.com.au	**WA OFFICE** 2 Modal Cres Canning Vale WA 6155 P: +61 8 9350 1000 P: 1800 335 550 sales@atlan.com.au
NZ OFFICE WANGANUI 43 Heads Road Wanganu New Zealand P: +64 6 349 0088 sales@atlan.com.au atlan.co.nz	**NZ OFFICE WELLINGTON** 41 Raiha St Porirua Wellington New Zealand P: +64 4 239 6006 sales@atlan.com.au atlan.co.nz	**NZ OFFICE AUCKLAND** 100 Montgomerie Road Airport Oaks P: +64 9 276 9045 sales@atlan.com.au atlan.co.nz

Joy in water

'We believe clean waterways are a right not a privilege and we work to ensure a joy in water experience for you and future generations.'

Andy Hornbuckle

Atlan STORMWATER

P 02 8705 0255 | sales@atlan.com.au
100 Silverwater Rd, Silverwater NSW 2128 Australia
atlan.com.au

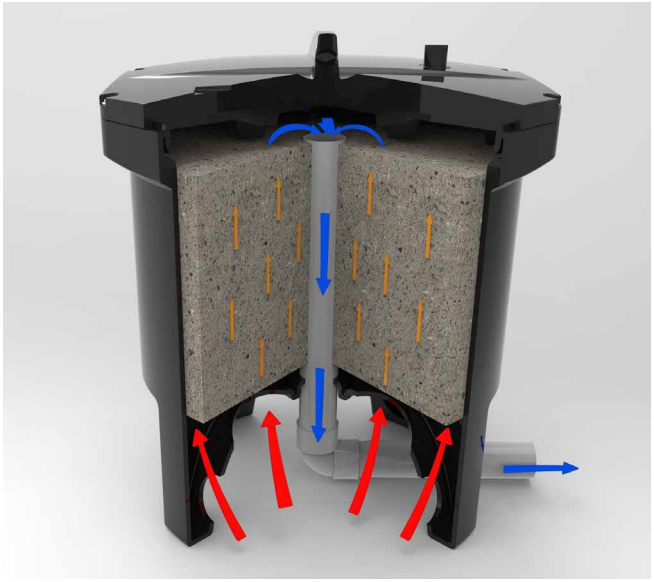
Atlan Filter

Cartridge filter for tertiary stormwater treatment



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Atlan
STORMWATER



APPLICATIONS

- Car Parks & Shopping Centres
- Council Depots
- Industrial Estates
- Heavy Vehicle Maintenance
- Airport Aprons & Tarmacs
- Transport Depots & Loading Bays
- Tunnels
- Highways & Transport Corridors
- Recycling Yards

Atlan Filter is a cartridge filter system that incorporates an upflow treatment process that maximises surface treatment area. Flow through the filter cartridges utilises a self-regulating siphon which results in low maintenance and high performance stormwater treatment. Automatic backwash technology further lengthens the lifespan of the filter.

Hydraulic pressure forces water through the filter media resulting in a constant velocity throughout the filter area. This ensures consistent media contact time and treatment outcomes.

Optimised to suit your site specific water quality outcomes and local authority requirements, The Atlan Filter has no moving parts and uses a true siphon effect to ensure high-performance pollution removal. These devices maintain excellent removal efficiency whilst maintaining site surface yield.

FEATURES

The media cartridge provides a significantly greater surface contact area to footprint ratio than other filters.

With a flow rate of 3L/s per cartridge and underground installation, the Atlan Filter provides excellent removal efficiency whilst maintaining site surface yield.

- No moving parts, generating a true siphon effect
- Small footprint
- Inorganic filter media (doesn't leach nutrients)
- Can be deployed in various drainage structures such as manholes, OSD tanks, & vaults
- Contains no moving parts



Tested Treatment Efficiencies*

POLLUTANT	EFFICIENCY
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	74%
Total Nitrogen (TN)	59%

*Contact Atlan to confirm approved performance for the project LGA



Atlan Filter is SQIDEP approved after passing Stormwater Australia's rigorous testing and performance assessment process.



BENEFITS

PROVEN SAND FILTER PERFORMANCE

The uniform size silica-sand filter media provides higher removal efficiencies than coarser types of media. Atlan Filter media is inorganic – it doesn't leach nitrogen and other nutrients.

Each Atlan Filter automatically backflushes under gravity. The backflush clears most sediment particles from out of the media and back into the vault floor, which allows the hydraulic conductivity from degrading throughout its service life. No moving parts are involved, which increases reliability. The Atlan Filter cartridge design life is in excess of 5 years.

HOW IT WORKS

The Atlan Filter has an upflow treatment process that maximises surface area. The innovative cartridge filter system provides excellent pollutant removal in a small footprint.

Hydraulic pressure forces water through the filter media, which discharges through the centre tube and out through the outlet collection manifold.

Upon completion of a treatment cycle, each cartridge backwashes and effectively dislodges particulates from the filtration layers. This reestablishes filter media porosity. The dislodged particles accumulate on the vault floor for easy removal during maintenance. Atlan Filter's design has no moving parts and generates a true siphon effect.

Atlan Filters are often installed downstream of nearby devices in a treatment train. For example, a Flowceptor Class 1 upstream greatly increases the life cycle interval of the Atlan Filter. These devices will remove larger gross pollutants, coarse sediments, total suspended solids and hydrocarbons - enabling the Atlan Filter to target fine particulate matter and nutrients.





FLEXIBILITY

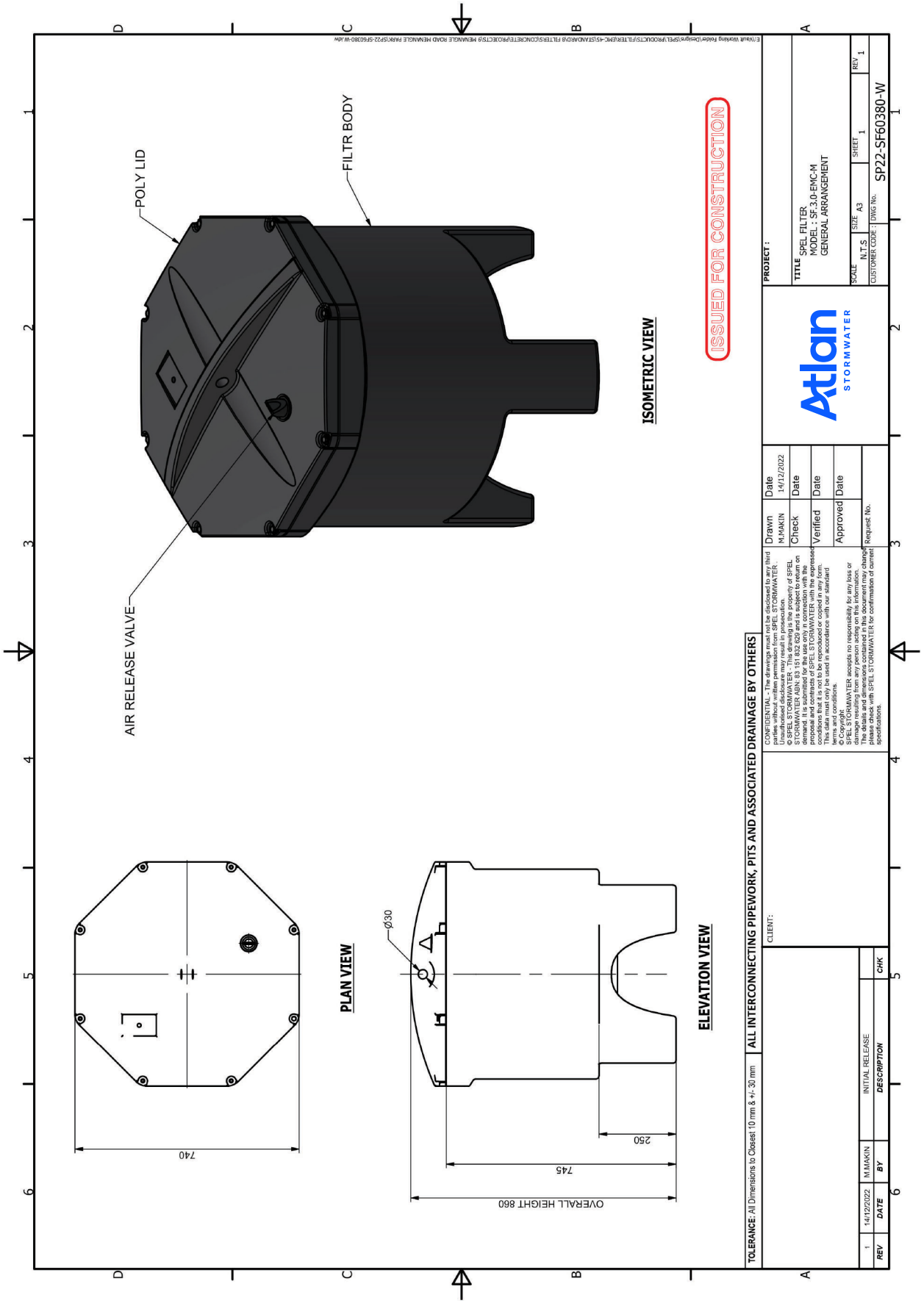
Due to greater surface area and high flow capacity, combined with the modular cartridge design, the Atlan Filter systems can be deployed in a variety of structures including manholes, precast vaults, and cast-in-place structures.

Each system is optimised to suit your specific site and local authority requirements by qualified and experienced professionals.

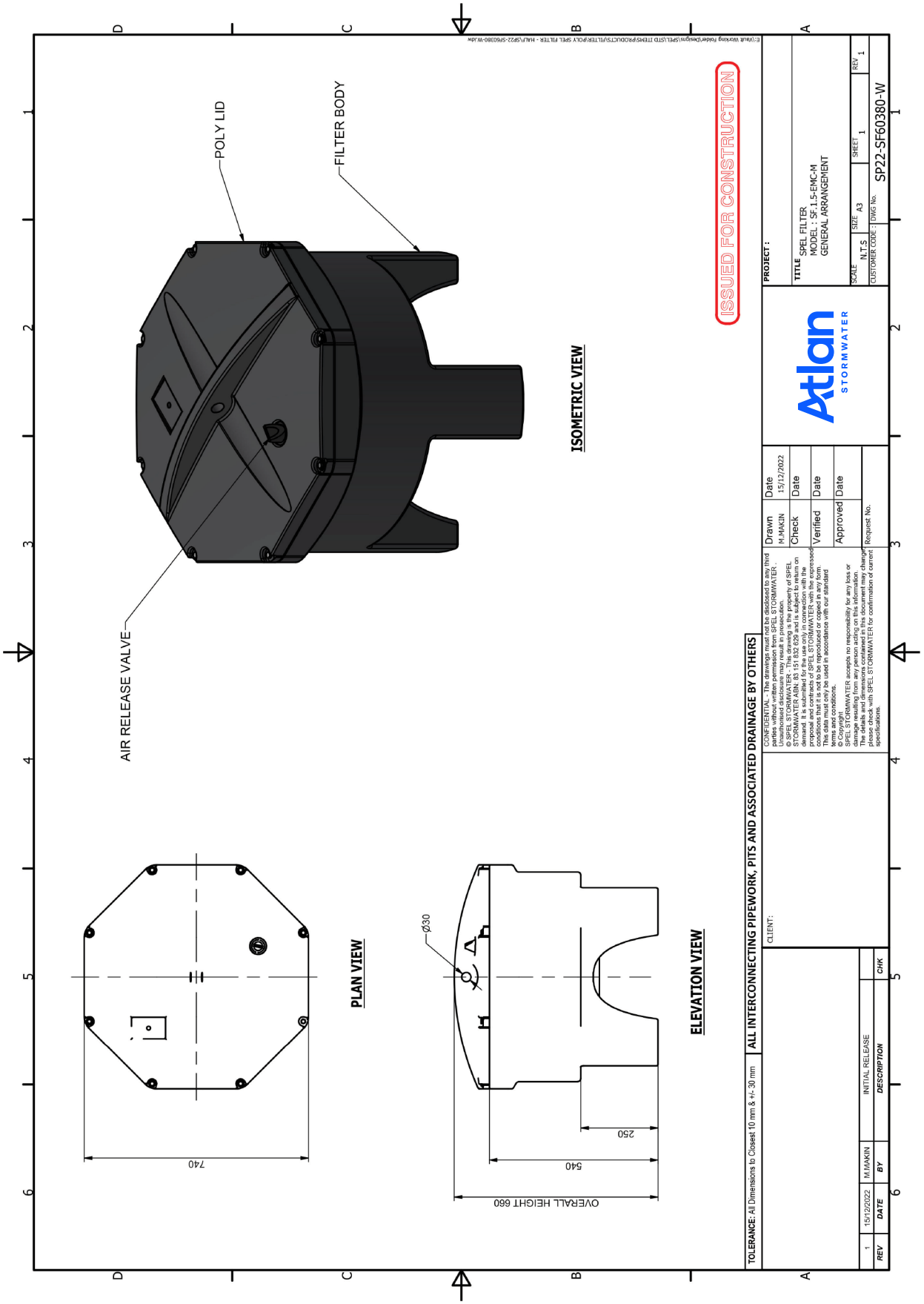
SIZE SPECIFICATIONS

ATLAN FILTER	FULL HEIGHT FIL.30-EMC-M	HALF HEIGHT FIL.15-EMC-M
Total height	860mm	660mm
Diameter	740mm	740mm
Minimum head required	850mm	550mm
Treatment flow rate	3.0L/s	1.5 L/s
Height of inlet ports above vault floor	250mm	250mm
Filtered water collection pipe diameter	50mm	50mm

DRAWING - FULL HEIGHT

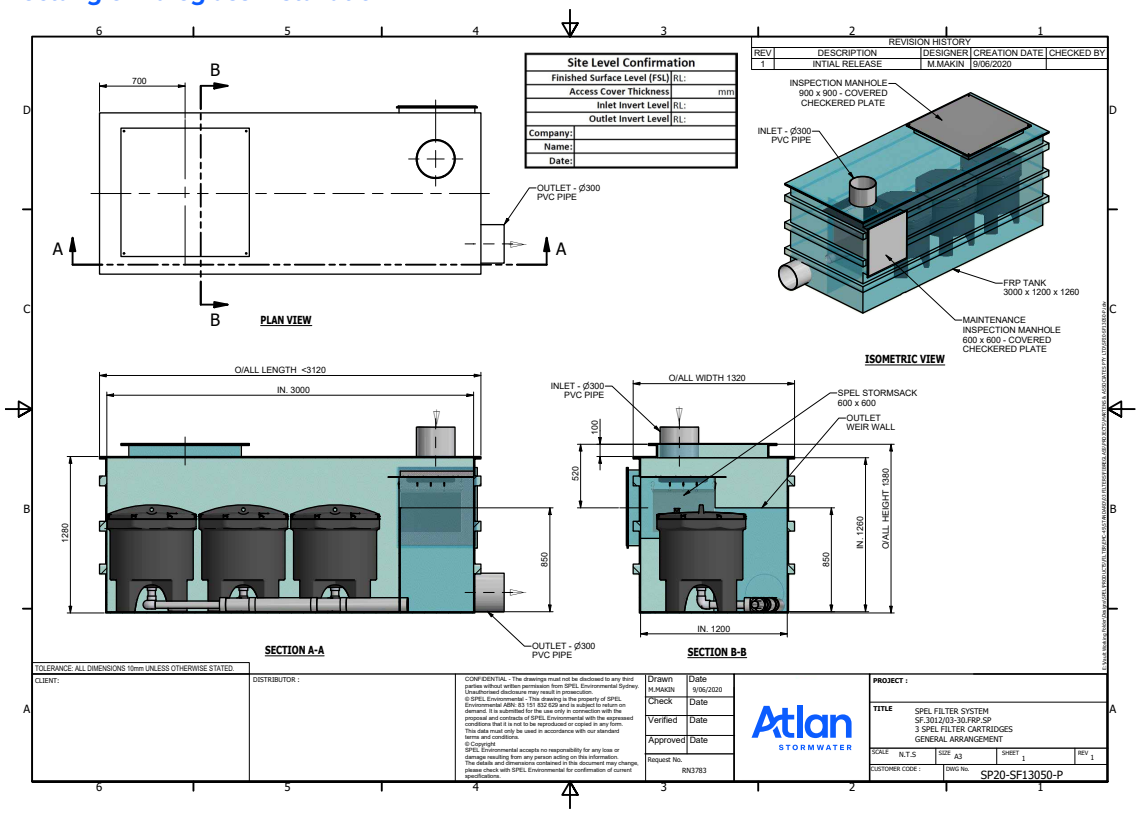


DRAWING - HALF HEIGHT

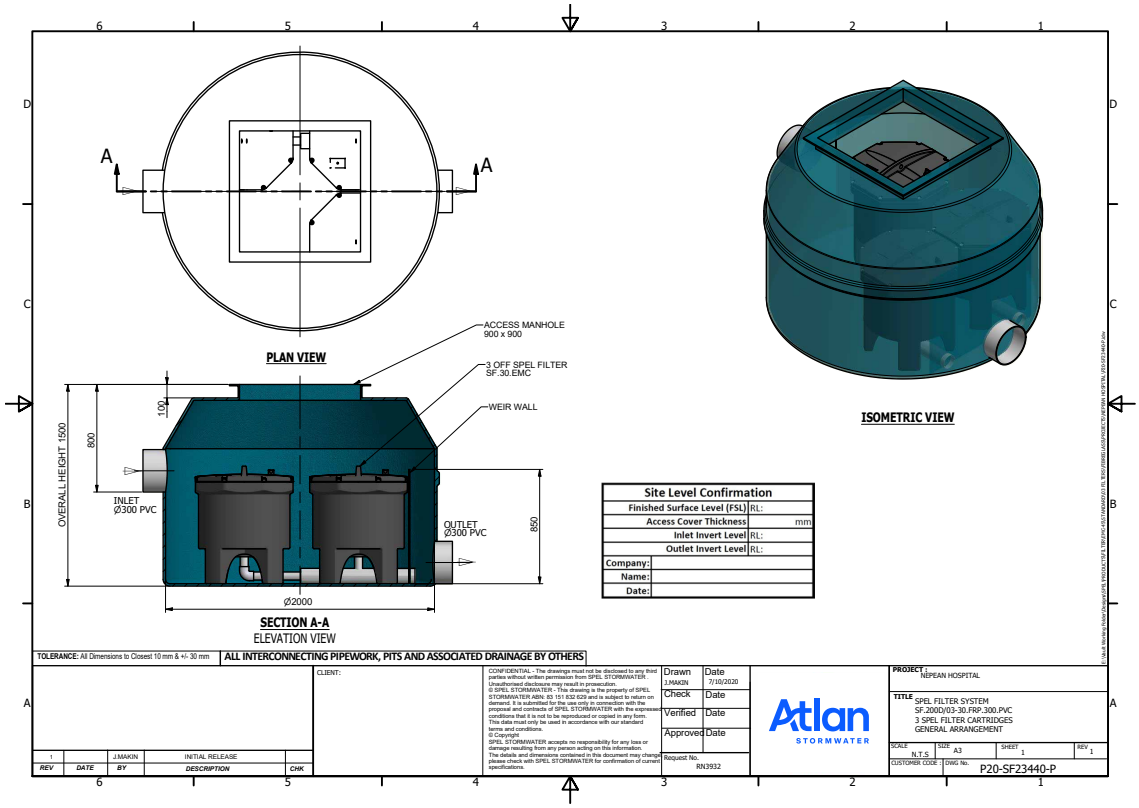


DRAWINGS

Rectangle Fibreglass Installation

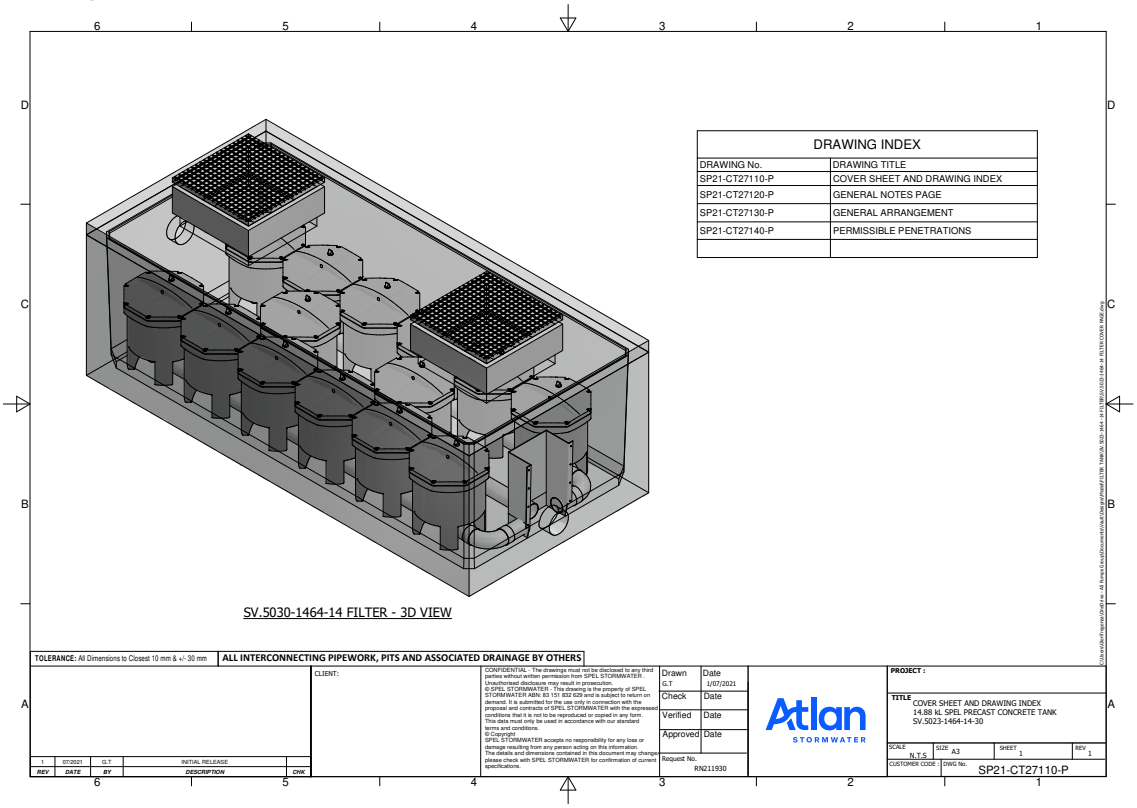


Round Fibreglass Tank Installation



DRAWINGS

Rectangle Concrete Installation



DRAWING INDEX	
DRAWING No.	DRAWING TITLE
SP21-CT27110-P	COVER SHEET AND DRAWING INDEX
SP21-CT27120-P	GENERAL NOTES PAGE
SP21-CT27130-P	GENERAL ARRANGEMENT
SP21-CT27140-P	PERMISSIBLE PENETRATIONS

SV.5030-1464-14 FILTER - 3D VIEW

TOLERANCE: All Dimensions to Closest 10 mm & +/- 30 mm

ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS

CLIENT:

REV	DATE	BY	DESCRIPTION	CHK
1	07/2021	G.T	INITIAL RELEASE	

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Drawn	G.T	Date 1/07/2021
Check		Date
Verified		Date
Approved		Date
Request No.	RN211930	

Atlan STORMWATER

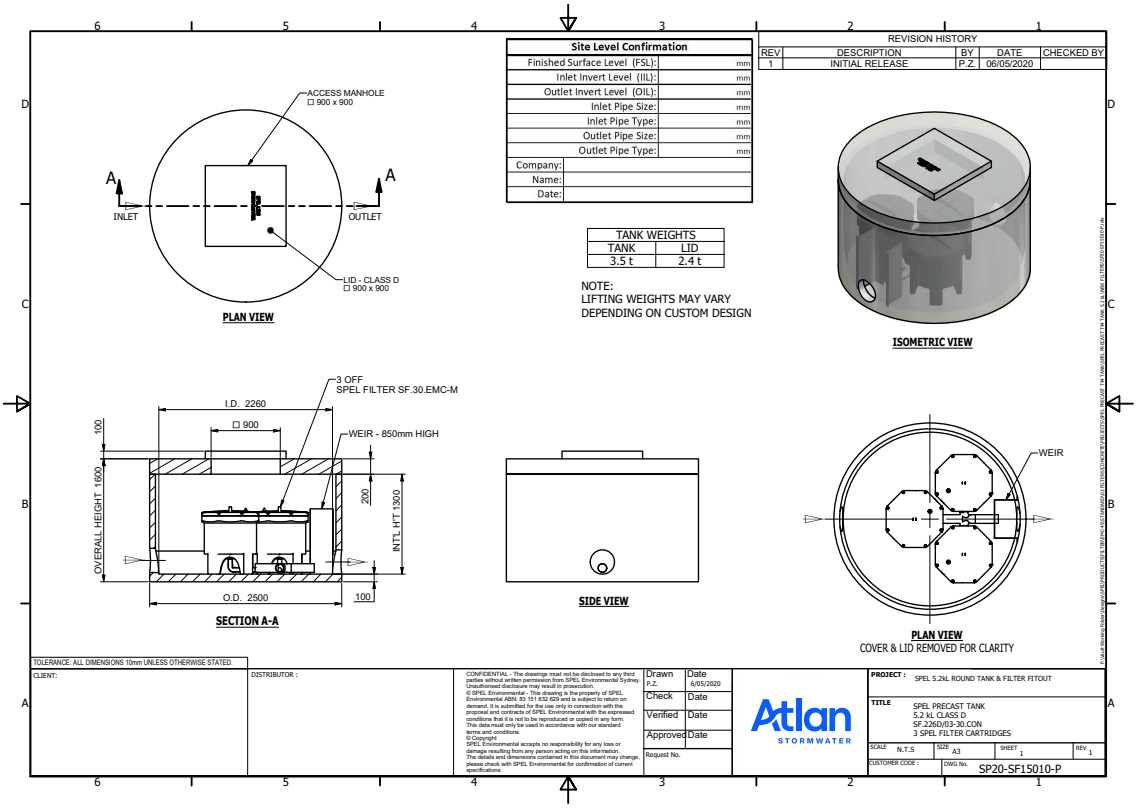
PROJECT :

TITLE
COVER SHEET AND DRAWING INDEX
14.88 kL SPEL PRECAST CONCRETE TANK
SV.5023-1464-14-30

SCALE	SIZE	SHEET	REV
N.T.S	A3	1	1

CUSTOMER CODE : DWG No. SP21-CT27110-P

Round Concrete Tank Installation



REVISION HISTORY				
REV	DESCRIPTION	BY	DATE	CHECKED BY
1	INITIAL RELEASE	P.Z.	06/05/2020	

Site Level Confirmation	
Finished Surface Level (FSL):	mm
Inlet Invert Level (IIL):	mm
Outlet Invert Level (OIL):	mm
Inlet Pipe Size:	mm
Inlet Pipe Type:	mm
Outlet Pipe Size:	mm
Outlet Pipe Type:	mm
Company:	
Name:	
Date:	

TANK WEIGHTS	
TANK	LID
3.5 t	2.4 t

NOTE:
LIFTING WEIGHTS MAY VARY
DEPENDING ON CUSTOM DESIGN

ACCESS MANHOLE
□ 900 x 900
INLET
OUTLET
LID - CLASS D
□ 900 x 900

PLAN VIEW

ISOMETRIC VIEW

3 OFF
SPEL FILTER SF.30.EMC-M
I.D. 2260
□ 900
WEIR - 850mm HIGH
100
OVERALL HEIGHT 1600
200
INTL HT 1300
100
O.D. 2500

SECTION A-A

SIDE VIEW

WEIR

PLAN VIEW
COVER & LID REMOVED FOR CLARITY

TOLERANCE: ALL DIMENSIONS 10mm UNLESS OTHERWISE STATED.

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Drawn	P.Z.	Date 6/05/2020
Check		Date
Verified		Date
Approved		Date
Request No.		

Atlan STORMWATER

PROJECT : SPEL 5.2kL ROUND TANK & FILTER FITOUT

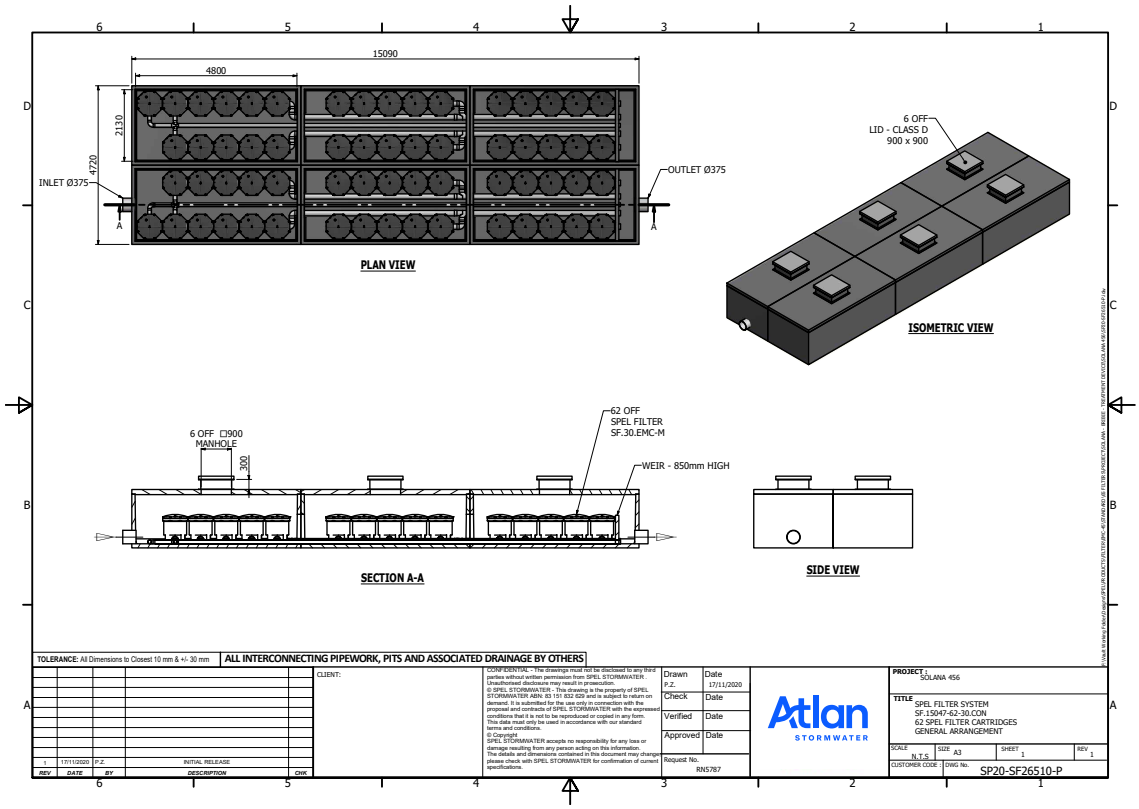
TITLE
SPEL PRECAST TANK
5.2 kL CLASS D
SF.226D/03-30.CON
3 SPEL FILTER CARTRIDGES

SCALE	SIZE	SHEET	REV
N.T.S	A3	1	1

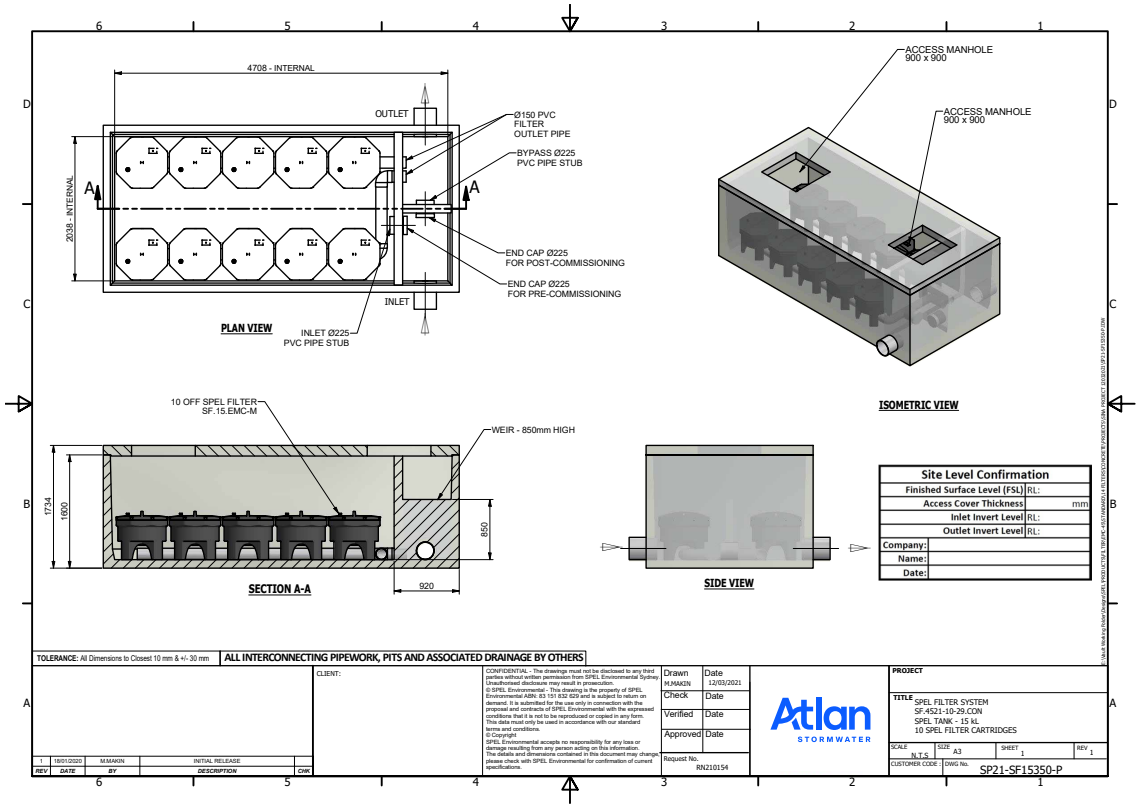
CUSTOMER CODE : DWG No. SP20-SF15010-P

DRAWINGS

Modular Filtration Tank Installation



Internal Bypass Arrangement Tank



Atlan Filter

Cartridge filter for tertiary stormwater treatment



NSW HEAD OFFICE 100 Silverwater Rd, Silverwater NSW 2128 PO Box 7138, Silverwater NSW 1811 P: +61 2 8705 0255 P: 1300 773 500 nsw.sales@atlan.com.au	**QLD MAIN OFFICE** 130 Sandstone Pl, Parkinson QLD 4115 P: +61 7 3271 6960 P: 1300 773 500 qld.sales@atlan.com.au	**VIC & TAS OFFICE** 897 Wellington Rd Rowville VIC 3178 P: +61 3 5274 1336 P: 1800 810 139 sales@atlan.com.au **VIC GEELONG BRANCH** 70 Technology Close, Corio VIC
SA OFFICE 9 Hampden Road, Mount Barker SA 5251 P: 1300 773 500 sales@atlan.com.au	**QLD SUNSHINE COAST BRANCH** 19-27 Fred Chaplin Cct, Bells Creek, QLD 4551 P: 1300 773 500 qld.sales@atlan.com.au	**WA OFFICE** 2 Modal Cres Canning Vale WA 6155 P: +61 8 9350 1000 P: 1800 335 550 sales@atlan.com.au
NZ OFFICE WANGANUI 43 Heads Road Wanganu New Zealand P: +64 6 349 0088 sales@atlan.com.au atlan.co.nz	**NZ OFFICE WELLINGTON** 41 Raiha St Porirua Wellington New Zealand P: +64 4 239 6006 sales@atlan.com.au atlan.co.nz	**NZ OFFICE AUCKLAND** 100 Montgomerie Road Airport Oaks P: +64 9 276 9045 sales@atlan.com.au atlan.co.nz

Joy in water

'We believe clean waterways are a right not a privilege and we work to ensure a joy in water experience for you and future generations.'

Andy Hornbuckle

Atlan STORMWATER

P 02 8705 0255 | sales@atlan.com.au
100 Silverwater Rd, Silverwater NSW 2128 Australia
atlan.com.au