Aspect Industrial Estate

SSD-10448 Modification 3

Lots 54-58 DP259135

Mamre Road, Kemps Creek

Civil Infrastructure Report

Mirvac

AUGUST 2022

18-596

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1. Introduction

This Civil Infrastructure Report has been prepared by AT&L on behalf of Mirvac Projects Pty Ltd (Mirvac) to inform a modification application (MOD3) of State Significant Development Application (SSDA) for the staged development of the Aspect Industrial Estate (AIE) at Lots 54-58 Mamre Road, Kemps Creek (reference SSD-10448). The MOD3 application generally relates to changes to SSD-10448 to support a separate SSDA submission for the onlot development located within Lot 9 (reference SSD-46516461).

This report supports the MOD3 application to SSD-10448 for the Site and should be read in conjunction with the EIS, development plans and supporting documentation submitted with the SSDA, which was approved on 24 May 2022.

The location of the AIE site is presented as **Figure 1**.

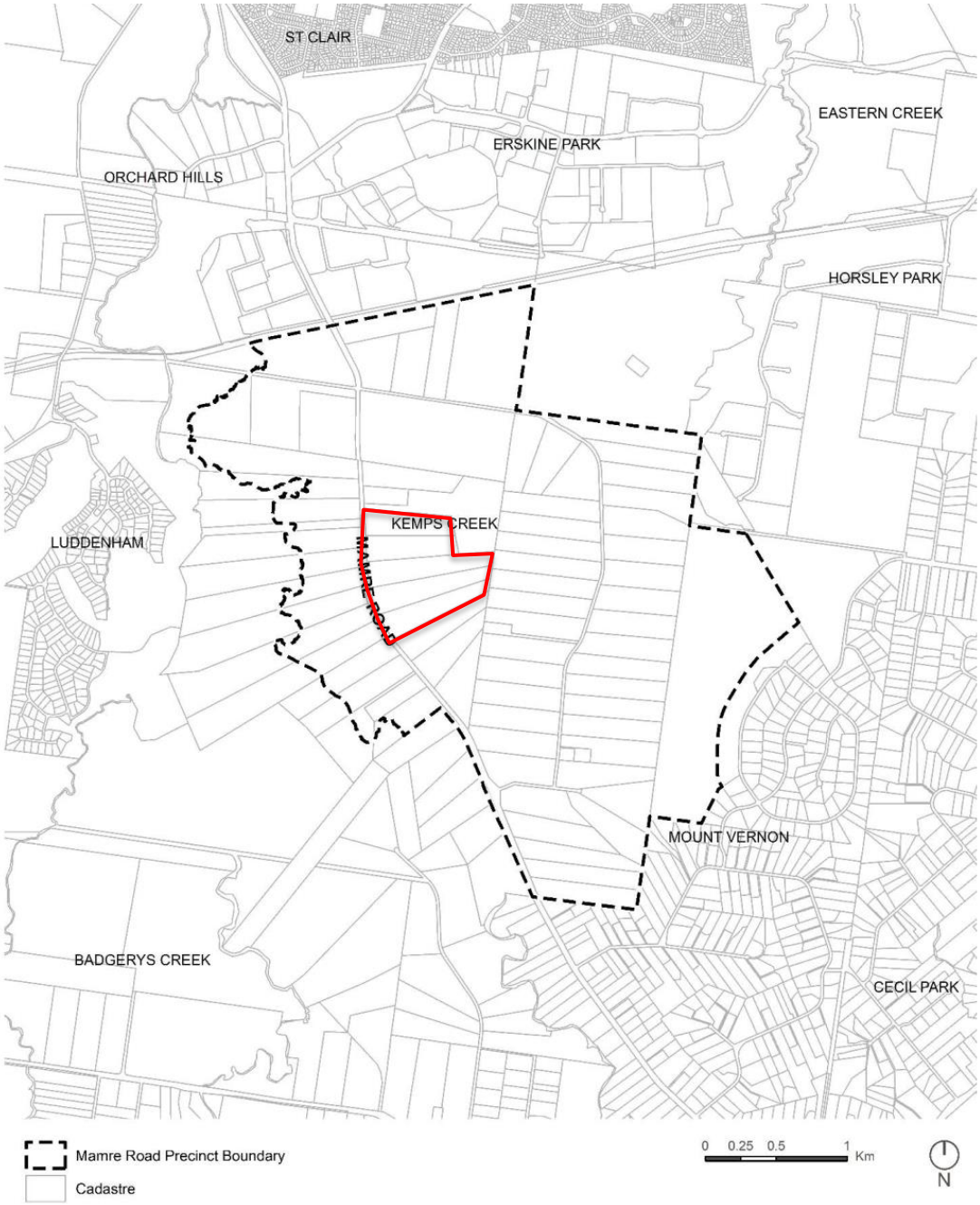


Figure 1: Site Location

1.1. Site Description

The AIE Site is legally described as Lots 54 – 58 in DP 259135, with an area of approximately 55.8 hectares (ha). The site is located east of Mamre Road, Kemps Creek within the Penrith Local Government Area (LGA). The site has approximately 950m of direct frontage to Mamre Road with a proposed intersection providing vehicular access via Mamre Road to the M4 Motorway and Great Western Highway to the north and Elizabeth Drive to the south.

The site is located approximately 4km north-west of the future Western Sydney Nancy-Bird Walton Airport, 13km south-east of the Penrith CBD and 40km west of the Sydney CBD.

The Site has an area is approximately 55.83 Ha and is currently rural in use, comprising of dwellings, sheds, dams and grassed fields.

Refer to **Figure 2** below for aerial image of the Site.

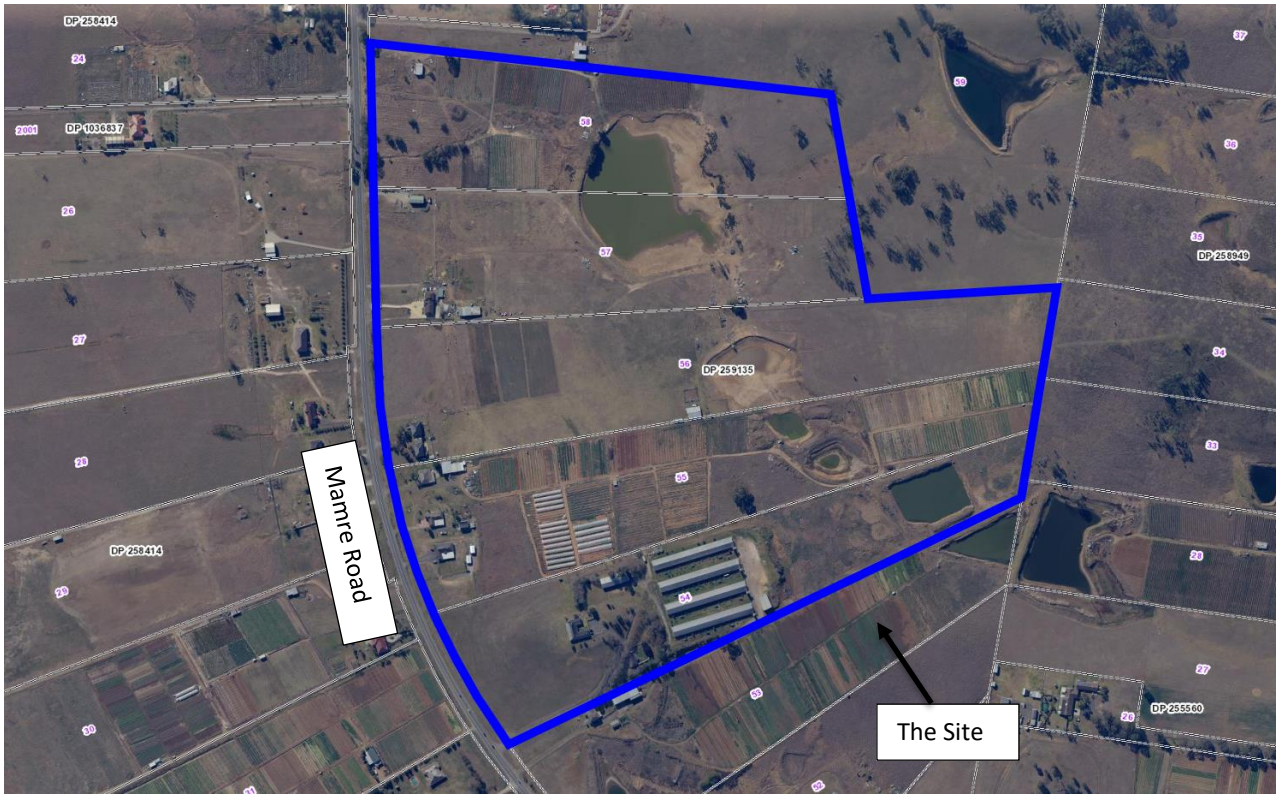


Figure 2: AIE Site Extent

The Site, as outlined in red in **Figure 1**, forms part of the wider *State Environmental Planning Policy (Western Sydney Employment Area) 2009* ("SEPP WSEA") amendment that rezoned the Mamre Road Precinct within the WSEA for employment purposes as *IN1 – General Industrial*.

1.2. Scope of MOD3 Application

The following modifications are proposed to the Concept Approval and Stage 1 of SSD-10448. Specifically, these modifications include:

Concept Modification

- Reconfiguration of the Estate layout south of Access Road 1 and west of Access Road 3 including:
  - Reduction in overall lot numbers across AIE from 11 to 9.
  - Relocation and shortening of Access Road 4.
  - Reconfiguration of warehouse lots 6-11 into lots 6-9.

- New warehouse footprints including GFA of warehousing and office areas, car parking, estate landscaping.

Stage 1 Modification

- Modification of the Stage 1 consent to provide for the following in respect of Access Road 4:
  - Updated road subdivision plan to provide for subdivision of Access Road 4.
  - Updated civil works package to facilitate construction of Access Road 4.
  - Provision of landscaping works within road reserve of Access Road 4.
- Specific civil infrastructure elements that are proposed to be changed under the scope of MOD3 include the following:
  - Adjustment to bulk earthworks levels, generally to the lots bound by Road 1 and Road 3 (Lots 6-9). The overall cut/fill balance across the AIE Site has been maintained.
  - Changes to the proposed stormwater network design. Generally, this will involve changing standard reinforced concrete pipes to a combination of fibre reinforced concrete pipe (up to DN600) and reinforced concrete box culverts.
  - Adjustments to retaining wall 22, to suit the revised bulk earthworks level for Lot 9. Retaining wall 22 is proposed to be both longer and higher at its peak.
  - Inclusion of an additional retaining wall (retaining wall 23) between Lot 9, and Lots 6 and 7. The retaining wall is proposed as part of the Stage 1 works due to its locality to on-lot works within Lot 9 contemplated as part of SSD-46516461.

1.3. Scope of this Report

The objective of this report is to outline the design criteria adopted for the engineering and design of all civil infrastructure components of the development and compare to the requirements of the Mamre Road Precinct Development Control Plan (DCP).

This report should be read in conjunction with the AT&L Civil Engineering drawings as indicated within **Appendix A**.

1.4. Supporting Documentation

Supporting documentation that is referenced and commented on within the report include the following:

- Flooding (Cardno)
- Geotechnical Investigation (PSM)
- Riparian Assessment (Ecological)

2. Compliance with SEARs

This report responds to the NSW Planning Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Planning and Environment on 30th April 2020 and Test of Adequacy Comments on 28 August 2020. **Table 1** below summaries all key civil / infrastructure issues raised in the SEAR's and how they have been addressed in this report.

Table 1: Planning Secretary's Environmental Assessment Requirements addressed in this report

Key issue listed in the SEARs	Response
Traffic and Transport	
SP2 Infrastructure zone and draft Transport Infrastructure Investigation Area. Consideration of the draft SP2 Infrastructure zone and draft Transport Infrastructure Investigation Area within the Draft Mamre Road Precinct Rezoning Package for SEPP WSEA, in consultation with Transport for NSW	The SP2 infrastructure zone as highlighted in the Land Zoning Map (LZN_001, 1 Oct 2020) has been plotted on, and considered as part of, the civil siteworks drawings prepared by AT&L for the section of site fronting Mamre Road.
Address TfNSW detailed design (refer below) Addressing the detailed design comments by Transport for NSW regarding the Mamre Road/development intersection and the future Mamre Road alignment	TfNSW detailed design comments were addressed as part of the initial SSD approval. It is understood that TfNSW have provided concept approval for the proposed signalised intersection documentation.
2.1 The installation of traffic control signals is dependent on general warrants in accordance with TfNSW requirements for Traffic Signal Design – Section 2 *Warrants. A warrant assessment will be required for approval for any signalised intersection being proposed under this development*	A warrant assessment was provided to TfNSW as part of the initial SSD to demonstrate the proposed estate works meets the warrants of signalised intersection. This modification does not alter the previously issued warrants assessment.
2.2 The proposed intersection in the Industrial Estate design does not appear to align with the TfNSW Mamre Road Upgrade design. Without the ability of overlaying both designs, it appears the deceleration lane and length do not alignment. The triangular medians also do not appear to align with the Mamre Road Upgrade design. The intersection should align with Mamre Road Upgrade design to minimise future disruption to the future operation of the Industrial estate. Updated plans should be provided which show that the design aligns with Mamre Road upgrade plans.	As part of the initial SSD approvals, the proposed intersection design was coordinated with the TfNSW Mamre Road upgrade design and a Voluntary Planning Agreement has been executed on this basis. This modification does not require amendments to the signalised intersection documentation.
2.3 In the Mamre Road Upgrade design, this intersection has a U-turn facility for the vehicles to turn around. The Industrial Estate is to provide a facility for vehicles to turn around. This could be in the form of a U-turn facility within the estate or a roundabout at the first intersection within the estate. The turnaround facility is to cater for heavy vehicles.	Noted. U-turn provisioning has been provided within the site via the cul-de-sac at the end of Road 02 and Road 04, and at the roundabout at the intersection of Road 01 and Road 03.
2.4 The stormwater basin, swale and embankment on the north west section of the Industrial Estate appears to be within the future road widening and may impact the future road construction. During the construction, the stormwater basin could be damaged during construction. Overlay the Mamre Road Upgrade boundary with Industrial Estate to	Refer to drawing 18-596-C1059 included in **Appendix A** showing the proposed extension of the Mamre Road reserve boundary. AT&L confirms that, based on the information provided by TfNSW, the proposed stormwater basin,

Key issue listed in the SEARs	Response
confirm if the stormwater basin is within the proposed road reservation. If the Basin is within the road reservation, then the stormwater basin is to be setback.	bio-retention and OSD basin will not impact future Mamre Road upgrade works.
2.5 It appears the proposed Mamre Road alignment in the Industrial Estate maintains the current road alignment and not the future Mamre Road alignment. Design should consider future Mamre Road Upgrade design to assist with realigning the Mamre Road during the SEARS Aspect Industrial Estate development.	As part of the initial SSD approvals, the proposed intersection design was coordinated with the TfNSW Mamre Road upgrade design and a Voluntary Planning Agreement has been executed on this basis. This modification does not require amendments to the signalised intersection documentation.
2.6 The intersection is proposed to access the Aspect Industrial Estate only, but it needs to be used to access the surrounding local area as well. The local road layout will be further understood when the Mamre Road Precinct Structure plan - Local Road Network Structure Plan is completed. Further consultation with Council and TfNSW is required on this matter.	The internal road layout is consistent with the finalised Mamre Road Precinct DCP including the proposed collector road network. This modification does not propose amendments to the collector road network through the estate.
2.7 Additional design comments to be addressed: *2.7.1. The four lanes proposed at the signalised intersection are required to be designed for a minimum of 200m form the intersection.* *2.7.2. The cycle lane adjacent to the left turn lane and the acceleration lane should be removed and just have provision for cyclists adjacent to the median islands. The left turn lane should be 4.5m in width (this is to the face of kerb).* *2.7.3. Clarification is required as whether the acceleration lane is warranted. Having acceleration lanes this short leads to unnecessary conflicts, especially when there is only one through lane. It is recommended that a standard high angle exit is considered (dependent on the traffic modelling outcomes).* *2.7.4. There is no SA kerb, pram ramps or footpath shown on the western side. There should be at a minimum a 2.0m shoulder provided adjacent to the SA kerb on the western side.* *2.7.5. The proposed guard fence to protect the culvert extension doesn't appear to cover the required point of need. The guard fence is to be designed to ensure that the culvert is adequately covered.* *2.7.6. Clarification is required around what is the width of flow against the median islands and medians.* *2.7.7. The two 375mm pipe culverts should be 450mm for maintenance purposes and added strength.* *2.7.8. Clarification is required as to whether Approach Sight Distance (ASD) is achieved for the traffic signals, from the northbound approach in particular.* *2.7.9. On the new side road, there are two marked 'entry' lanes into the development. i.e., one for the left turners traveling south, and the right turners travelling north. Clarification is required as to the need for both lanes for such a short distance.*	TfNSW design comments are acknowledged and have been considered in preparation of the Concept Design undertaken by Orion Consulting and approved by TfNSW. This modification does not require amendments to the signalised intersection document.

Key issue listed in the SEARs	Response
Connection of development to adjoining sites Detailing how the proposed development connects to adjoining sites to facilitate their future development for their intended purposes	The estate collector roads are consistent with the collector road layout as included within the Mamre Road Precinct DCP and provision for future connection to adjoining sites to facilitate future development. This modification does not propose to alter the collector road designs or staging as included for within the initial SSD.
Site access and internal road layout Detailed plans of the site access and proposed layout of the internal road and pedestrian network and parking on site in accordance with the relevant Australian Standards and Council's DCP	Access for the site is off Mamre Road via a proposed signalised intersection consistent with TfNSW' proposed Mamre Road Upgrade strategic design. Refer General Arrangement Plan 18-596-C1003 prepared by AT&L indicating site access along the proposed internal road layouts. Note also pedestrian footpath paths included within the GA plan. Refer to Architectural plans prepared by SBA for internal parking layouts. Internal road and pedestrian networks are proposed to be provided in accordance with Mamre Road Precinct DCP requirements.
Swept path diagrams Swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site	Refer to Vehicle Turn Path drawings 18-596-C1150 to 1156 inclusive showing swept paths at internal access road intersections, cul-de-sacs and the proposed roundabout.
Road upgrade detail Details of road upgrades, infrastructure works, or new roads or access points required for the development	The Concept Design of the proposed intersection upgrade at Mamre Road and Access Road 01 has been documented by Orion Consulting, and detailed design is progressing in line with the TfNSW WAD design process. This modification does not require any amendments to the signalised intersection design.
Bulk Earthworks Clarify how the bulk earthworks and finished site levels will impact on the road connectivity to the adjacent sites to the north and east	Refer to **Section 4** of this report for discussion on bulk earthworks and finished levels across the site. Finished levels at the eastern and northern boundary of the site have been designed to match existing levels to ensure no impacts on any future road works connectivity to adjacent sites. Refer to site sections within AT&L drawing set for clarification.
Soils and Water	
Compliance with Clause 33L stormwater, water quality and water sensitive urban design of the State Environmental Planning Policy (Western Sydney Employment Area) 2009	Refer to **Section 8** of this report for Integrated Stormwater Management strategy discussing how water quality and quantity is addressed. This section of the report highlights: • how water sensitive urban design principles are incorporated into the design • how the riparian, stormwater and flooding measures are integrated. This report should read in conjunction with the Cardno Flood Assessment report

Key issue listed in the SEARs	Response
	• the management actions being implemented to avoid adverse impacts on the land to which the development is to be carried out, adjoining properties, riparian lands, native bushland, waterways, groundwater dependant ecosystems and groundwater systems. This report should also be read in conjunction with the Stormwater Quality and Flow Management Strategy prepared by E2DesignLab, and the Flood Impact Assessment prepared by Cardno dated 14th October 2020.
Topographic assessment A topographic assessment and justification the proposed earthworks are site responsive and contextually appropriate	A Topographic assessment and justification on proposed earthworks are discussed within **Section 4.2** of this report
Detailed site water balance A detailed site water balance including identification of water requirements for the life of the project, measures that would be implemented to ensure an adequate and secure water supply is available for the development and a detailed description of the measures to minimise the water use at the site	A Water Balance section has been included in this report. Refer **Section 9** for all site water balance details, water supply source, usage calculations and efficiency measures.
Satisfactory arrangements for drinking, wastewater and recycled water Demonstration satisfactory arrangements for drinking water, wastewater and if required recycled water services have been made	Refer to **Section 11** of this report for discussion on water and sewerage for the site along with servicing advice received from Sydney Water.
Discharge water quality Characterisation of water quality at the point of discharge to surface and/or groundwater against the relevant water quality criteria (including proposed mitigation measures to manage any impacts to receiving waters and monitoring activities and methodologies)	Refer to E2DesignLab report for details of the characterisation of water quality.
Site specific integrated water management strategy A site-specific integrated water management strategy with details of stormwater/wastewater management system including how it will be designed, operated and maintained, including the capacity of onsite detention system(s), onsite sewage management and measures to treat, reuse (including indicative quantities) or dispose of water	Refer to **Section 7** and **Section 8** of this report for details of the proposed Integrated Water Management strategy.
Measures to minimise water use Description of the measures to minimise water use	Refer to **Section 9** of this report for discussion on water re-use across the site using rainwater harvest tanks
Flooding assessment Detailed flooding assessment	Pre and post development flood assessment of the site has been undertaken by Cardno. Refer Flood

Key issue listed in the SEARs	Response
	Risk Assessment and Flood Impact Assessments supporting this SSD.
Erosion and sediment control Description of the proposed erosion and sediment controls during construction	Sediment and Erosion control measures across the site are discussed in **Section 5** of this report. Note all control measures have been designed in accordance with Managing Urban Stormwater – Soils and Construction (2004) prepared by Landcom. Note also a full set of Erosion and Sediment Control plans has been provided for implementation at completion of the works.
Infrastructure Requirements	
Description of infrastructure required on site A detailed written and/or graphical description of infrastructure required on the site, including any upgrades required	Infrastructure requirements for the site have been documented in the Services and Utilities Coordination Plans prepared by AT&L. **Section 11** of this report also discusses all service utilities within and adjacent to the site. Continued coordination with utility infrastructure providers will be undertaken concurrent to exhibition of the MOD1 application.
Identification of infrastructure upgrades Identification of any infrastructure upgrades required off-site to facilitate the development, and describe any arrangements to ensure that the upgrades will be implemented in a timely manner and maintained	Refer to **Section 11** which highlights proposed infrastructure upgrade works required to service the proposed development. Note all these works will need to be confirmed with the relevant service Authority during detailed design stages. Consultation with each of these Authorities has commenced as part of this SSD process and will continue so during detailed design
Infrastructure delivery and staging plan An infrastructure delivery and staging plan, including a description of how infrastructure on and off-site will be co-ordinated and funded to ensure it is in place prior to the commencement of construction	Refer **Section 12** for indicative infrastructure staging, programme and funding arrangements.
Development impact on existing utility infrastructure An assessment of the impacts of the development on existing utility infrastructure and service provider assets surrounding the site.	Any impacts to existing utility infrastructure will be discussed with the relevant service Authority during the detailed design phase. Mirvac and AT&L has, and will continue to, coordinate with utility Authorities in regard to the proposed AIE SSD development to identify augmentations required to existing infrastructure as a result of the proposed AIE SSD development. No significant impacts on existing utility infrastructure surrounding the site are envisaged as part of the proposed AIE SSD development.

3. Agency Consultation

Consultation and correspondence undertaken with relevant authorities prior to and during exhibition of SSD-10448 is summarised in the Civil Infrastructure Report that supported the SSDA for the AIE Site (AT&L, October 2020), including:

- Penrith City Council
- Sydney Water
- Endeavour Energy
- Transport for NSW
- WaterNSW
- NSW Natural Resources Access Regulator (NRAR)

No further/specific consultation with these or other agencies or authorities has been undertaken by AT&L prior to submission of the MOD3 application.

4. Earthworks

4.1. Existing Geology

Based on a Geotechnical Report undertaken by Pells Sullivan Meynink (PSM) (reference: PSM3739-004L Rev4, dated 14 May 2020) the following inferred sub surface soils were encountered across the site:

- Topsoil – Silty CLAY Depth 0.0 - 0.3m
- Natural Soil/ Fill – CLAY and Silty CLAY: Depth 0.1 to 4.5m

Bedrock –SHALE: Depth 1.0 to 6.5m

4.2. Cut / Fill Requirements

The cut / fill requirements within the AIE have been defined through multiple iterations and careful consideration of the following:

- Undulating topography within the Mamre Road Precinct resulting in the requirement for extensive cut and fill operations in order for AIE to facilitate economic development and provide flexibility to cater for the range of industrial customer requirements.
- TfNSW proposal for a potential co-located intermodal facility within the Mamre Road Precinct therefore driving the requirement to ensure that allotments can facilitate flexibility to cater for current and future connectivity requirements.
- Provisioning for connectivity to adjoining lands and managing existing upstream catchment flows.
- Avoiding retaining walls fronting Mamre Road and mitigating retaining walls fronting internal public road reserves.
- Mitigate extensive cut in bedrock sub-surface units.
- Meet the requirements for the site to cater for IN1 – General Industrial employment which requires large flexible allotments.

It is recommended that the proposed earthworks design contained within the AT&L documentation provides the most contextually and economically appropriate design in consideration of the above requirements. Whilst retaining walls fronting Mamre Road have been avoided, this has resulted in a maximum 12m high cut retaining wall along a section of the AIE southern boundary due to significant topography within the site, as well as a maximum 7 metre high cut wall adjacent to the eastern site boundary.

Refer to Drawing 18-596-C1025 for Bulk Earthworks Cut/Fill Plan within **Appendix A**. Net import is the value highlighted in bold in **Table 2**.

Table 2: Cut / Fill Summary

Item	Volume (m^3)
Net Cut	- 1,182,200
Net Fill	+ 1,175,800
Balance	**+ 6,400 (export)**

Note these volumes are based on the current design, further detailed design may alter these. – (Negative) balance indicates net cut whilst + (positive) balance indicates import required. It is assumed that all topsoil from the site will be re-used on site as per the specification of the Geotechnical Engineer. Excess topsoil will be exported as required.

All import materials will comply with the requirements of the requirements of the Import Fill Protocol and Geotechnical Specifications for the AIE SSDA. Topsoil stripping, blending and placement will be completed in accordance with the Geotechnical Engineering Specifications for the project.

4.3. Retaining Walls

Where possible, batter slopes will be provided to accommodate level changes. Where this is not possible retaining walls will be constructed along the estate road, lots and basins based on the current civil and earthworks design. A keystone product or other similar face block will be adopted for all retaining walls and will be detailed on the civil drawings.

The proposed retaining walls will be built to the manufacturers design guideline requirements and verified by a structural engineer prior to construction. This practice has previously been adopted other developments within the Penrith City Council LGA and considered input from the geotechnical engineer, utility coordination as well as entry and exit points from proposed lots.

Retaining is required along the south and south-eastern site boundary where the proposed building pad levels will be cut down from existing. Refer to Drawing 18-596-C1080 for cut wall locations. Retaining walls will be designed and constructed using standard industry practises.

All retaining walls will be constructed on a staged basis and as required to suit the development earthworks and stormwater basin works. Where the walls are not constructed a batter of 1 in 4 will be maintained for stability purposes. Any batter steeper than 1 in 5 shall be vegetated.

All retaining walls will be located within private property and not within the road reserve areas, unless within drainage easements.

All retaining walls will have pedestrian and vehicular safety barriers (if required) in accordance with Austroads Guidelines as required.

A typical retaining wall section is presented as **Figure 3**.

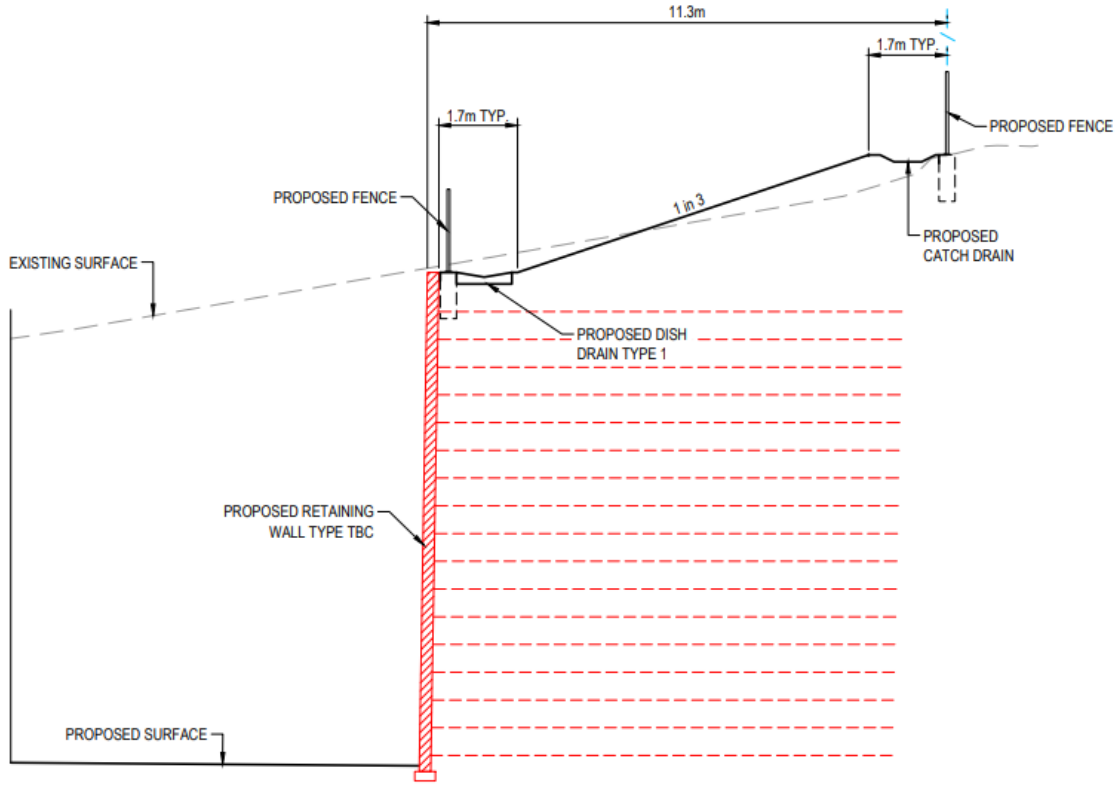


Figure 3: Typical retaining wall section

5. Erosion and Sediment Control

5.1. Construction Phase Erosion and Sediment Control

An Erosion and Sediment Control Plan (ESCP) has been prepared in accordance with the guideline document titled *Managing Urban Stormwater – Soils and Construction* (Landcom, 2004). The key objectives of the ESCP are:

- Acknowledging the activities on a construction site that may contribute to erosion, sedimentation and water quality impacts.
- The implementation of industry best management practices to minimise adverse water quality and sedimentation impacts brought about through construction activities on waterbodies surrounding the work.
- Establishment of processes that effectively manage erosion, sedimentation and water quality practices during the life of the project.

5.2. Sources of Pollution

The activities and aspects of the works that have potential to lead to erosion, sediment transport, siltation and contamination of natural waters include:

- Earthworks undertaken immediately prior to rainfall periods.
- Work areas that have not been stabilised.
- Extraction of construction water from waterways during low rainfall periods.
- Clearing of vegetation and the methods adopted, particularly in advance of construction works.
- Stripping of topsoil, particularly in advance of construction works.
- Bulk earthworks and construction of pavements.
- Works within drainage paths, including depressions and waterways.
- Stockpiling of excavated materials.
- Storage and transfer of oils, fuels, fertilisers and chemicals.
- Maintenance of plant and equipment.
- Ineffective implementation of erosion and sediment control measures.
- Inadequate maintenance of environmental control measures; and
- Time taken for the rehabilitation / revegetation of disturbed areas.

5.3. Potential Impacts

The major potential impacts on waterway health relate to erosion of distributed areas or stockpiles and sediment transportation. Potential adverse impacts from erosion and sediment transportation can include:

- Loss of topsoil.
- Increased water turbidity.
- Decreased levels of dissolved oxygen.
- Changed salinity levels.
- Changed pH levels.
- Smothering of stream beds and aquatic vegetation.
- Reduction in aquatic habitat diversity.
- Increased maintenance costs.
- Decrease in waterway capacity leading to increased flood levels and durations.

5.4. RUSLE Analysis

To inform the design of the ESCP, an analysis using the Revised Universal Soil Loss Equation (RUSLE) has been undertaken in accordance with the "Blue Book". This analysis has been undertaken to predict the long term, average and annual soil loss from sheet and rill flow from the site under specified management conditions.

Estimating soil loss for a proposed development has four important applications to soil and water management. These are to:

a) Assess the erosion risk at a site.
b) Identify suitable measures to overcome the erosion risk.
c) Estimate the required capacity of sediment retarding basins.
d) Compare the effectiveness of various erosion control measured.

Refer to **Table 3** below for estimates of soil loss on the site.

Table 3: RUSLE Analysis

Parameter	Value
Rainfall Erosivity Factor, R	1,897.10
Soil Erodibility Factor, K (Table C20, Blue Book)	0.05
Slope Length/Gradient Factor, LS	1.19
Erosion Control Practice Factor, P	1.20
Ground Cover and Management Factor, C	1
Computed Soil Loss (tonnes/ha/year), (A = R x K x LS x P x C)	**135.45**
Soil Loss Class	1 (Table 4.2 of the Blue Book)
Erosion Hazard	Very Low (Table 4.2 of the Blue Book)

It is noted the following parameters/assumptions were used for the analysis of this site:

- Rainfall Erosivity Factor (R) = 1,897.1 from (Equation 2, Appendix A2 Blue Book).
- Soil Erodibility Factor (K) = 0.05 (from Appendix C, Table C19 of Blue Book).
- Slope Length (LS): Is assumed to not exceed 80m immediately before forecast rainfall or during shutdown periods and a maximum grade of 5%.
- Erosion Control Factor (P): Is the ratio of soil loss with a nominated surface condition ploughed up and down the slope (from Appendix A5, Blue Book); and
- Cover Factor (C): Is the ratio of soil loss from land under specified crop or mulch conditions to the corresponding loss from continuously tilled, bare soil. With the proposed ESC measures being installed post bulk earthworks, it is assumed that all soil is recently disturbed, thus a C factor of 1 is chosen.

5.5. Design of Erosion and Sediment Control Measures

Suitable erosion and sediment controls shall be provided by the Contractor and maintained throughout all stages of works, including at completion of the bulk earthworks.

All design, documentation, installation and maintenance of sediment and erosion controls will be in accordance with the requirements of:

- *Protection of the Environment Operations Act*
- Penrith City Council's guidelines and specifications

- *Managing Urban Stormwater: Soils and Construction*, Landcom, (4th Edition) (The "Blue Book") Volume 1 and Volume 2

With the proposed site being larger than 2,500m^2 in disturbed area, sediment basins are required to be incorporated into the ESCP. Refer to drawing 20-748-C1201 'Earth Basin Wet' SD6-4 for details.

The proposed stormwater detention basin is proposed to be used temporarily as sitewide sediment basin during the bulk earthworks construction. For this approval it has been assumed that the on-lot works will be completed simultaneously, negating the need for individual sediment basins. Ultimately, the final temporary sediment basin locations and sizes will be provided to suit development staging requirements and will be sized and maintained in accordance with the requirements of the above-mentioned authority documents.

5.6. Construction Methodology

The following construction methodology will be followed to minimise the impact of sedimentation due to construction works:

- Diversion of "clean" water away from the disturbed areas and discharge via suitable scour protection.
- Provision of hay bale type flow diverters to catch drainage and divert to "clean" water drains.
- Diversion of sediment-laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required).
- Provision of construction traffic shaker grids and wash-down to prevent vehicles carrying soils beyond the site.
- Provision of catch drains to carry sediment-laden water to sediment basins.
- Provision of silt fences to filter and retain sediments at source.
- Rapid stabilisation of disturbed and exposed ground surfaces with hydro-seeding areas where future construction and building works are not currently proposed.
- All temporary sediment basins will be located clear of the 1% AEP flood extent from catchments upstream of the site.
- The proposed detention basin will be utilised as temporary sediment control basins.

Refer to AT&L Drawings 20-748-1110 to C1119 inclusive for Erosion and Sediment Control Plans, for all proposed control and protection measures across the site until completion of on lot works.

In accordance with condition D26 of the Development Consent for SSD-10448, delivery and operation of all construction phase erosion and sediment controls within the AIE Site will be supervised and certified by a Chartered Professional Erosion and Sediment Control (CPESC) specialist. Monthly audits will be completed by a CPESC and will be kept on record for the duration of construction and for at least 12 months following the completion of construction works.

5.7. Site Inspection and Maintenance

The inspection and maintenance requirements outlined in this section must be carried out while either earthworks or quarrying is being conducted, and all areas re-established.

The Contractor will be required to inspect the site after every rainfall event and at least weekly, and will:

- Inspect and assess the effectiveness of the SWMP and identify any inadequacies that may arise during normal work activities or from a revised construction methodology.
- Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands and waterways.
- Ensure that drains operate properly and to affect any repairs.
- Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas.
- Remove trapped sediment whenever less than design capacity remains within the structure.

- Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate.
- Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the site has been rehabilitated.
- Remove temporary soil conservation structures as the last activity in the rehabilitation.
- Inspect the sediment basin during the following periods:
  - During construction to determine whether machinery, falling trees, or construction activity has damaged and components of the sediment basin. If damage has occurred, repair it.
  - After each runoff event, inspect the erosion damage at flow entry and exit points. If damage has occurred, make the necessary repairs.
  - At least weekly during the nominated wet season (if any), otherwise at least fortnightly; and
  - Prior to, and immediately after, periods of 'stop work' or site shutdown.
- Clean out accumulated sediment when it reaches the marker board/post and restore the original volume. Place sediment in a disposal area or, if appropriate, mix with dry soil on the site.
- Do not dispose of sediment in a manner that will create an erosion or pollution hazard.
- Check all visible pipe connections for leaks, and repair as necessary.
- Check all embankments for excessive settlement, slumping of the slopes or piping between the conduit and the embankment, make all necessary repairs.
- Remove the trash and other debris from the basin and riser; and
- Submerged inflow pipes must be inspected and de-silted (as required) after each inflow event.

5.8. Sediment Basin Maintenance

The site contains 'Type F' soils, or soils that contain a significant proportion of fine grained (33% or more of finer than 0.02mm) and require a much longer residence time to settle.

Stormwater within the settling zone should be drained or pumped out within 5 days (design time), if the nominated water quality targets can be met, to the satisfaction of the superintendent. Flocculation should be employed where extended settling is likely to fail to meet the objectives within the 5-day period.

Flocculation is when flocculating agents are applied to the sediment basins causing the colloidal particles to clump into larger units or 'floc' that can either settle in a reasonable time or be filtered.

Refer to Appendix E4 of the Blue Book for flocculation methodologies and manufacturer's instructions for application rates, regarding the proposed sediment basins.

5.9. Summary

The erosion control measures proposed for the site will comply with the requirements of Penrith City Council Engineering Guidelines and the Department of Planning and Environment (DPE).

The proposed ESCP will ensure that the best management practice is applied to the development site in controlling and minimising the negative impacts of soil erosion.

6. Road Design

6.1. Horizontal and Vertical Geometry

The Estate Roads within Aspect Industrial Estate have generally been designed to meet Austroads requirements and Australian Standards to accommodate B-Double truck movements. The design vehicle is the 30m long Performance Based Standard (PBS) Level 2 Type B vehicle (Type 2B), with the check vehicle being the 36.5m long PBS Type 3A vehicle (A-double).

The proposed road reserve widths have been adopted from the Mamre Road Precinct Development Control Plan (November 2021). A summary of the general design criteria adopted for the internal estate roads is presented in **Table 4**. Typical road cross-sections are presented on drawing 18-596-C1005.

Table 4: General road design criteria

Road Type (as per Mamre Road Precinct DCP)	**Local Industrial Road (Type 1)**	**Typical Collector Road (Type 2)**
Roads within the Estate	Road 02, Road 04	Road 01, Road 03
Signposted speed	50 km/hr	50 km/hr
Design speed	60 km/hr	60 km/hr
Pedestrian and cycle path (within verge width)	Verge 1 – 1.5m path Verge 2 – 2.5m shared path	Verge 1 – 1.5m path Verge 2 – 2.5m shared path
Through traffic lanes	2 x 3.5m = 7.0m	2 x 3.5m = 7.0m
Kerbside / travel lane	2 x 4.0m = 8.0m (No Parking)	2 x 4.6m = 9.2m (No Parking)
Central median	N/A	Required only at key signalised intersections and locations to separate opposing movements which may cause conflicts
Road carriageway width	15.0m	16.2m (mid-block no median)
Verge width	Verge 1 – 4.0m Verge 2 – 5.0m	Verge 1 – 4.6m Verge 2 – 5.6m
Street tree planting	1.9m (both sides of road)	2.5m (both sides of road)
Road reserve width	24.0m (mid-block)	26.4m (mid-block no median)

The internal road network will be designed and constructed in accordance with the following documents:

- Western Sydney Planning Partnership, *Western Sydney Engineering Design Manual* (December 2020)
- Penrith City Council, *Engineering Construction Specification for Civil Works* (October 2017)

Cul-de-sacs will also be designed and constructed in accordance with the Council guidelines requiring a 16.5m radius on the turn heads and to accommodate the design vehicle (PBS Type 2B). Swept paths showing the design vehicle manoeuvres at the proposed roundabout, cul-de-sacs and the intersection of Road 01 and Road 02 are presented on drawings 18-596-C1150 to C1156 inclusive.

6.2. Pavement Design

Pavement will be designed based on the requirements of Austroads Pavement Design Guide – A Guide to the Structural Design of Road Pavements and recommendations provided by Pells Sullivan Meynink (PSM), reports PSM3739-004L & PSM3739-005L submitted as part of AIE SSDA.

The basis of this design is:

- Design Traffic Loading: N =1x107 ESA (in accordance with Penrith City Council requirements for Heavy Industrial, subject to confirmation at detailed design)
- Design subgrade CBR = 2% (based on Section 3.4 of the PSM Report PSM3739-005L)

Based on these parameters the preliminary pavement design is as follows:

- 70mm AC 14 320 Bitumen
- 7mm Spray Seal
- 250mm DGB 20 (placed in two layers)
- 500mm Select Sandstone Fill with minimum CBR = 35% (placed in three layers)

If the subgrade CBR = 5% the bottom 200mm of select sandstone fill can be replaced with select fill with minimum CBR of 5%.

This preliminary pavement design will be subject to refinement based on a review of traffic modelling to confirm the design traffic loading for each road within the AIE Site. In addition, CBR testing is proposed to be undertaken at the subgrade level to confirm this pavement design.

Polymer modified asphalt will be used within all cu-de-sacs with the asphalt concrete layer becoming a 75mm thick polymer modified AC14.

6.3. Batter Design

Any permanent batters steeper than 1 in 5 will be vegetated in accordance with Penrith City Council requirements. All external batters to the development have been limited to 1 in 4 generally, with the maximum localised batter being 1 in 3. Any permanent batters steeper than 1 in 3 will specified in accordance with the geotechnical engineers requirements. Suitable batter stabilisation will be provided for any baters steeper than 1 in 3.

Any temporary batters constructed during the works will be in accordance with the geotechnical report and ongoing advice from the Level 1 supervisor.

6.4. Summary

All road design as demonstrated above is in accordance with Austroads Standards and the requirements of Penrith City Council, as a minimum.

A professional geotechnical engineer will be engaged to design the structural pavement. This will be in accordance with *Austroads Pavement Design Guide – A Guide to Structural Design of Road Pavements*.

7. Stormwater Drainage

7.1. Stormwater Drainage Design Criteria

Design criteria and requirements for the proposed site stormwater management and stormwater drainage are outlined in the following documents:

- *AS 3500.3 – Plumbing and drainage – Stormwater drainage*
- Commonwealth of Australia (Geoscience Australia), *Australian Rainfall and Runoff: A guide to flood estimation*, 2019
- *Mamre Road Precinct Development Control Plan 2021*
- Western Sydney Planning Partnership, *Western Sydney Engineering Design Manual*, December 2020

7.2. Existing Site Stormwater Drainage

Currently the site comprises rural land and is classified as a "greenfield" site with an entire coverage of pervious areas and farm dams.

The majority of the site falls from east to the corner of the northern and western boundary. The high point of the site is located on eastern boundary and is approximately at RL70.5m. This catchment discharges from the Site into the road reserve before draining west underneath Mamre road in existing culverts at RL39.9m.

The remaining small catchment in the south-west corner of the site falls from approximate RL 67 to the west towards Mamre Road. This catchment is captured in a swale to the east of Mamre Road and drains to the west into the existing pipes on the western boundary of the site.

Existing runoff drains across the site to via natural swales and farm dams.

Note for the analysis of the pre-development flow rates all dams on the site are assumed to be full, with no capacity available.

Refer to 18-596-C1045 for a pre-development stormwater catchment plan.

7.3. Proposed Site Stormwater Drainage

Due to the existing topography, site constraints and precinct requirements as discussed within **Section 4.2** and **Section 6.1**, significant cut to fill operations with balance import fill material is required.

The main objective for the stormwater drainage design of the proposed development is to ensure post-developed catchment flows do not exceed the pre-developed catchment flows. With On-Site Detention (OSD) systems in place to limit discharges to pre-developed rates, this will ensure the downstream catchments will not be inundated with flows and cause adverse flooding affects downstream of the development. Design documentation has been completed in accordance with the Penrith City Council Engineering guidelines.

The proposed drainage network within the site has been designed to safely convey major and minor flows prior to discharging towards the existing point of discharge at Mamre Road. The following criteria have been adopted for the proposed drainage system:

- Major system (pit and pipe network, overland flow paths and channels): 1% AEP
- Minor system (pit and pipe network): minimum 5% AEP and increased where required to address major system design requirements.

All stormwater on the lots and within the road reserve for the entire site is proposed to be collected via pits and pipes and connect into an On-Site Detention basin in the north-west corner of the site. The basin will have an outlet structure and overflow weir system to drain into the existing culverts draining below Mamre Road. Scour protection will be provided on these outlet structures to minimise the effects of scour and erosion on the existing creek systems.

Refer to the Civil Drawings 18-596-C1050 to 18-596-C1061 for layout and details for the proposed stormwater network across the site.

7.4. External Upstream Stormwater Drainage

Part of the overall stormwater strategy for the site involves conveying the stormwater flows associated with upstream catchments.

As per AT&L drawing 18-596-C1046, the upstream catchments are large, in the order of 73.5Ha. Approximately 25.3Ha of this upstream catchment comes from the south-east of the site with the remaining 48.2Ha coming from the north-east.

Based on discussions between AT&L and Penrith City Council Engineers it has been agreed to convey the flow from these upstream catchments through and around the site and discharge into the north-east corner of the site into the culverts beneath Mamre Road. This discharge point matches the pre-developed overall flow discharge point for the upstream catchments.

The upstream flows are proposed to be contained via overland swales and have been modelled at greenfield runoff rates. This external catchment network is proposed to contain all storm events up to the 1% AEP and it is the intention to not combine the external catchment runoff with the internal stormwater runoff.

The external catchment runoff will also not be detained or treated and will bypass the site's bio-retention basin. It is assumed stormwater quality and quantity management measures required for these upstream catchments will be incorporated upstream of the Site.

7.5. Riparian Assessment

A Riparian Assessment report was undertaken by Ecological to support the SSDA for the Aspect Industrial Estate. Within this report it was determined there are two mapped hydrolines located within the site. These hydrolines are indicated on **Figure 4**.



Figure 4: Watercourses mapped within the AIE Site

The blue line along the northern extends of the site running east to west is classified as a 2nd order hydroline under the *Water Management Act 2000* (WM Act) however is in a degraded condition with steep and bare banks.

The green line which runs from south to north into the 2nd order hydroline is classified as a 1st order hydroline and does not meet the definition of a "river" under the WM Act.

Based on the Ecological Riparian Assessment report the following advice has been received:

The 2nd order hydroline is to be removed and a vegetated channel is to be constructed on the northern boundary of the development site. This channel will be vegetated with a full complex of native riparian vegetation in the ground, shrub and canopy layers, as per the Vegetation Management Plan prepared by ELA (2019). This will ensure that a waterway that has aquatic instream habitat, dense native riparian vegetation and a range of geomorphic features such as pools and riffles will be created within the development area, which is a marked improvement on the condition of the current 2nd order watercourse within the development area.

The existing 2nd order watercourse to be removed is approximately 180m long and has a riparian area of 0.75Ha. The new channel will be approximately 230m long and have a total riparian area of 1.014 Ha comprised of a 4.1m wide channel, an inner Vegetated Riparian Zone of approximately 0.548Ha and an outer Vegetated Riparian Zone of approximately 0.36Ha.

Refer to Civil Engineering Drawings within **Appendix A** for diversion of watercourse and proposed riparian corridors.

8. Water Management Strategy

This section summarises the proposed water management strategy for the site, including details of the proposed stormwater management measures and characterisation of water quality, quantity and flow volume at the points of discharge at the site boundary against the controls outlined in the Mamre Road Precinct DCP.

This Strategy should be read in conjunction with the Amended Development Report (Urbis, May 2022), which describes the proposed stormwater management measures for the AIE Site approved under SSD-10448.

8.1. Water Management Strategy Objectives and Controls

The main objectives pertaining to the management of stormwater within the proposed development site are outlined in Section 2.4 of the Mamre Road Precinct DCP. Controls relating to stormwater quantity management and the requirement to attenuate peak flow rates are outlined in Section 2.5 of the DCP.

8.2. Water Management Strategy Overview

The Draft *Mamre Road Flood, Riparian Corridor and Integrated Water Cycle Management Report* (FRCIWCM) (Sydney Water, 2020) addresses links between waterway health, hydrology and water quality targets. The stormwater management objectives outlined in the FRCIWCM Report, which have ultimately been adopted in the Mamre Road Precinct DCP, were developed by applying the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions* (NSW OEH, 2017). The effects-based assessment outlined in the FRCIWCM Report addressed three metrics relating to waterway health and stormwater management:

1. *Flow volume – mean annual runoff volume (MARV), measured in ML/ha/year*. The target adopted in the Mamre Road Precinct DCP is 2 ML/ha/year.
2. *Seasonal pulses* – as shown by flow duration curves.
3. *Water quality* – as indicated by stormwater pollution reduction.

Mirvac's approach to Integrated Water Cycle Management for the AIE Site has not changed for MOD3 and no specific amendments are proposed in order to demonstrate compliance to meet waterway health requirements for the Concept Masterplan and Stage 1 operational phase. That said, the controls required for Stage 1 have been updated due to the inclusion of Lot 9, which due to the related SSD-46516461, is being considered as part of the Stage 1 works for the purpose of Water Cycle Management.

8.2.1. Stormwater Quality and Flow Management Measures

Measures to address the operational stormwater quality and flow targets adopted in the Mamre Road Precinct DCP have been developed for two stages of development, as summarised in **Table 5**.

Table 5: Summary of adopted stormwater quality and flow management measures

Measure	**Stage 1** (refer to drawing 18-596-C1047 in **Appendix A**)	**Concept Masterplan** (refer to drawing 18-596-C1048 in **Appendix A**)
Rainwater tanks (for non-potable reuse)	▪ Tanks on proposed lots 1, 3 and 9 to meet at least 80% demand for non-potable water (toilet flushing and landscape irrigation)	▪ Tanks on proposed lots 1 to 9 inclusive to meet at least 80% demand for non-potable water (toilet flushing and landscape irrigation)
Stormwater reuse tanks for evaporative roof irrigation	▪ Tanks on proposed lots 1, 3 and 9 to store stormwater for evaporative irrigation across 40% of warehouse roof area	▪ Tanks on proposed lots 1 to 9 inclusive to store stormwater for evaporative irrigation across 40% of warehouse roof area

Measure	Stage 1 (refer to drawing 18-596-C1047 in **Appendix A**)	Concept Masterplan (refer to drawing 18-596-C1048 in **Appendix A**)
Stormwater harvesting and reuse for irrigation of the realigned riparian corridor	▪ 1050 kL tank to capture filtered water from Filterra® bio-retention system for irrigation of 50% of the realigned riparian corridor	▪ 1050 kL tank to capture filtered water from Filterra® bio-retention system for irrigation of 50% of the realigned riparian corridor
Primary treatment (Gross Pollutant Traps)	▪ On Lots 1, 3 and 9	▪ On Lots 1 to 9 inclusive
Biofiltration	▪ Proprietary Filterra® bio-retention system within the proposed detention basin between Mamre Road and Lot 1	▪ Same as Stage 1

8.2.2. Stormwater Quantity Management Measures

The proposed detention basin between Mamre Road and Lot 1 is proposed to satisfy the stormwater quantity targets for the AIE Site. The detention basin has been designed to satisfy the following controls adopted in Section 2.5 of the Mamre Road Precinct DCP:

- *12) OSD is to be accommodated on-lot, within the development site, or at the subdivision or estate level, unless otherwise provided at the catchment level to the satisfaction of the relevant consent authority.*
- *13) Stormwater basins are to be located above the 1% AEP.*
- *14) Post-development flow rates from development sites are to be the same or less than pre-development flow rates for the 50% to 1% AEP events.*
- *15) OSD must be sized to ensure no increase in 50% and 1% AEP peak storm flows at the Precinct boundary or at Mamre Road culverts. OSD design shall compensate for any local roads and/or areas within the development site that does not drain to OSD.*

8.3. Proposed Water Management Measures

A general description of the proposed stormwater treatment train components is presented in the following sections.

8.3.1. Rainwater tanks

Rainwater tanks have been adopted to satisfy the following control in the MRP DCP:

- *8) Where development is not serviced by a recycled water scheme, at least 80% of its non-potable demand is to be supplied through allotment rainwater tanks.*

The MUSIC model for the AIE site was developed to estimate the rainwater tank volume required to satisfy this control. To determine the tank volume required to meet at least 80% of non-potable demand on individual lots, the following assumptions have been made:

- Non-potable demand for toilet flushing has been based on 15 litres per person per day, at a rate of 25 persons per hectare of warehouse roof.
- Non-potable demand for landscape irrigation has been based on 50% of the on-lot landscape area being irrigated at a rate of 600 millimetres per year (equivalent to 6 ML/ha/yr).
- 100% of the warehouse roof area would drain to the rainwater tank (or multiple tanks if required based on configuration of roof guttering and downpipes). If a proportion of the roof cannot drain to a rainwater tank, the tank volume would be increased to satisfy the 80% non-potable supply requirement. This would be confirmed during detailed design.

A summary of the rainwater tank volumes adopted in MUSIC is presented in **Table 6**.

Table 6: Rainwater tank volumes adopted in MUSIC

Lot	Total Area (ha)	Roof area to rainwater tank (ha)	Non-potable demand in toilets (kL/day)	Non-potable irrigation demand (ML/year)	Adopted rainwater tank volume (kL)	% of reuse demand met
1	6.19	4.09	1.25	2.01	120	80.1
2	4.01	2.61	0.88	1.19	80	84.4
3	4.29	2.33	0.79	2.44	150	81.2
4	6.96	2.80	0.99	4.35	300	81.4
5	-	-	-	-	-	-
6	1.95	1.03	0.34	0.64	40	82.6
7	2.73	1.62	0.61	1.68	100	80.3
8	7.59	4.82	1.68	3.3	200	82.1
9	11.31	7.66	2.47	2.99	200	84.2

8.3.2. Stormwater reuse tanks for evaporative roof irrigation

Evaporative roof irrigation is a method of reducing stormwater runoff volumes (Sydney Water, 2020). In addition, evaporative roof irrigation is a method that also can reduce ambient temperatures inside and outside of buildings. Evaporative roof irrigation is promoted by the Low Carbon Living CRC (2017) as an urban cooling strategy to reduce the impacts of extreme heat.

While significant water storage is required for each industrial lot, the evaporative roof irrigation infrastructure is relatively simple and can be incorporated into the final building services design.

To estimate the potential water loss by evaporation for a roof irrigation system, stormwater reuse tanks have been modelled in MUSIC. A notional irrigation demand rate of 19.1ML/ha/yr has been adopted and distributed as a fixed annual demand, variable by potential evapotranspiration (PET). This irrigation rate was derived from work undertaken by E2DesignLab and was adopted as the basis for the Concept Masterplan strategies documented in the ADR.

The rainwater tanks described in **Section 8.3.1** could be amalgamated into the stormwater reuse tanks, pending confirmation at detailed design. For the purpose of MUSIC modelling, it is assumed that the rainwater reuse tanks for non-potable water supply would be separate to the tanks for evaporative roof irrigation. MUSIC modelling assumes that the hardstand lot catchment area would drain to the stormwater reuse tank. If a proportion of the hardstand area cannot drain to a stormwater re-use tank, the tank volume would be increased to satisfy the roof irrigation supply requirement. This would be confirmed during detailed design.

Due to potential impacts of roof irrigation systems on the performance of rooftop solar panels and other plant and equipment, it has been assumed that roof irrigation would be applied to no more than 40% of the total warehouse roof area.

Further analysis would be required at the detailed design phase to verify evaporative irrigation system design parameters such as:

- The available roof area for evaporative irrigation, taking into consideration the capital and operating cost of irrigation infrastructure and interface with other infrastructure such as solar panels.
- The impact of an additional irrigation infrastructure (e.g., pipes, pumps, nozzles, etc.) and the corresponding roof weight on the structural design.
- Water quality requirements for evaporative roof irrigation, considering matters such as impacts on irrigation infrastructure, impacts on roofing materials and risk of human contact.
- Irrigation supply patterns and flow rates.
- Ongoing maintenance and WHS considerations associated with roof irrigation infrastructure.

A summary of the rainwater tanks for roof misting adopted in MUSIC is presented in **Table 7**.

Table 7: Summary of stormwater reuse tank parameters

Lot	Total Lot Area (ha)	Roof area to stormwater reuse tank (ha) (A)	Hardstand / carpark area to stormwater reuse tank (ha)	Estimated annual roof irrigation demand (ML/yr) (B)	Adopted roof irrigation tank volume (ML)
1	6.19	4.09	1.63	25.6	2.05
2	4.01	2.61	1.00	18.0	1.35
3	4.29	2.33	1.14	16.2	1.20
4	6.96	2.80	2.72	20.2	1.40
5	Included with Lot 4 above per Ultimate Masterplan Layout				
6	1.95	1.03	0.71	7.0	0.55
7	2.73	1.62	0.54	11.5	0.85
8	7.59	4.82	1.68	34.2	2.45
9	11.31	7.66	2.65	50.3	3.85

(A) The MUSIC model has been configured such that the rainwater tank overflow would be directed to the stormwater reuse tank.

(B) Based on a notional irrigation demand rate of 19.1 ML/ha/year (as determined by E2DesignLab), irrigated across 40% of the warehouse roof area.

8.3.3. Gross pollutant traps

The proposed stormwater treatment train will consist of on-lot Gross Pollutant Traps (GPTs) as a means of primary stormwater treatment. GPTs are designed to capture litter, debris, coarse sediment, as well as some oils and greases.

A high-flow bypass for the GPTs would nominally be equivalent to the 4 EY (3-month ARI) peak flow rate discharging to the GPT. Design flows for the GPTs and their final configuration would be confirmed at the detailed design phase.

8.3.4. Filterra® biofiltration system

The objective of biofiltration systems is to provide a filtering effect when stormwater runoff flows through a vegetation layer and sand and/or gravel filer media to remove pollutants from the runoff. Biofiltration systems generally consist of an open space containing landscaping of native grasses, shrubs and trees with an underlying filter media.

A Filterra® proprietary biofiltration system is proposed to be incorporated into the estate-wide basin located north of Access Road 1, between Mamre Road and proposed Lot 1. The proposed arrangement and surface area of the Filterra® system is consistent with the approved SSDA design.

MUSIC model parameters adopted for the Filterra® system are summarised in **Table 8**.

Table 8: Filterra® biofiltration system parameters

Parameter	Unit	Value
Basin filter area	m^2	1600
Basin surface area	m^2	1600
Extended detention depth	m	0.15
Unlined filter media perimeter	m	0.01
Saturated hydraulic conductivity	mm/hr	3550
Filter depth	m	0.53

Parameter	Unit	Value
TN content of filter media	mg/kg	500
Orthophosphate content of filter media	mg/kg	1.0
Exfiltration rate	mm/hr	0
Base Lined?	-	Yes
Vegetation properties	-	Vegetated with effective nutrient removal plants
Overflow weir width	m	158 (overflow into detention basin)
Underdrain present	-	Yes
Submerged zone	-	No

8.3.5. On-site Stormwater Detention (OSD) design parameters

OSD is required within the development to mitigate post developed flows to pre-developed flow rates for design storm events between the 50% AEP event (approximately equivalent to the 1.5 year ARI) and the 1% AEP event (equivalent to the 100 year ARI).

As discussed in **Section 7.2**, the majority of the site currently falls towards the north-west corner and runoff drains into the culverts underneath Mamre Road. For the post-development case it is proposed to maintain this outlet and ensure peak flow rates are not increased via the OSD basin and controlled outlets within through the use of low flow orifices and high flow weirs. Whilst this SSDA only seeks approval for the Concept Masterplan and Stage 1 works, for the purposes of stormwater and hydraulic design the entire site is assumed fully developed. As such post-developed flows refer to fully developed site conditions. Refer to Drawing 18-596-C1060 and 18-596-C1061 for the OSD basin details.

8.3.6. Stormwater harvesting and reuse for irrigation of the realigned riparian corridor

A stormwater harvesting tank (minimum volume 1050 kL) is proposed to capture outflow (filtered water) from the Filterra® system for storage and irrigation of the realigned riparian corridor adjacent to the northern boundary of the AIE Site. The tank would likely be located underground between the northern end of the Filterra® system and the detention basin outlet structure.

The adopted irrigation area is approximately 14,900 m^2, equivalent to 50% of the total area of the realigned riparian corridor. The rate of irrigation across this area is assumed to be 600mm/year (equivalent to 6 ML/ha/year).

8.4. Hydrological and hydraulic modelling

DRAINS modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the proposed estate-wide stormwater network, including pits, pipes, overland flow paths and detention basin. DRAINS is a software package used for designing and analysing urban stormwater drainage systems and catchments. It is widely accepted by Council's across NSW as the basis for stormwater design and has been confirmed by Penrith City Council as the preferred stormwater software analysis package.

A summary of the key hydrological and hydraulic design parameters adopted in DRAINS to develop a major and minor system drainage design for the proposed development are as follows:

- Minor system (pit and pipe) drainage has been designed to accommodate the 5% AEP storm event.
- The combined pit and pipe drainage and overland flow paths have been designed to accommodate the 1% AEP storm event.
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 1% AEP storm event has been provided. Alternatively, the pipe and inlet system has been upgraded to accommodate the 1% AEP storm event.
- Rainfall intensities have been adopted using the Bureau of Meteorology Design Rainfall Data System (2016).

- Times of concentration for each sub catchment have been determined using the kinematic wave equation.
- The width of flow in the gutter does not exceed 2.5 metres and pits are spaced no further than 75 metres apart.
- Velocity x depth product shall not exceed 0.4 m^2/s for all storms up to and including the 1% AEP event.
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit.
- Blockage factors of 20% and 50% shall be adopted for on-grade and sag pits respectively.
- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design.
- Pipelines in roadways shall have a minimum diameter of 375mm.
- A desirable minimum grade of 1% for all pipelines is preferred for self-cleansing under low flow velocities. An absolute minimum grade of 0.5% has been adopted.
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways.
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased.
- All pipes in trafficable areas will be Reinforced Concrete Pipes (RCP) or Fibre Reinforced Cement (FRC) equivalent.
- Pipes discharging to an overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level.
- Pit Loss coefficients have been calculated in accordance with the Hare Charts as documented in the Queensland Urban Drainage Manual.
- A minimum 150mm freeboard has been maintained between pit HGL and pit surface levels for the minor design storm event (5% AEP).
- Overland flowpaths maintain a minimum of 300mm freeboard to all habitable floor levels.

8.5. Stormwater quality modelling

8.5.1. MUSIC model parameters

MUSIC model of the proposed stormwater management strategy, initially developed by E2DesignLab and subsequently reviewed and refined by AT&L, has been created to simulate post-development mean annual loads and treatment train effectiveness. Modelling has been undertaken in accordance with the *MUSIC Modelling Toolkit – Wianamatta* (NSW DPIE, 2021).

Rainfall and evaporation data

Penrith City Council's MUSIC-link climate data (rainfall and evapotranspiration) was adopted in the MUSIC model. The default meteorological data includes:

- Pluviometer data (six-minute rainfall intensity and evapotranspiration) for Penrith Lakes AWS (Station 67113) for the period between 1999 and 2008 inclusive (average annual rainfall over this period = 691mm).
- Monthly potential evapotranspiration (PET) as per the *MUSIC Modelling Toolkit - Wianamatta*.

Rainfall-runoff parameters

The rainfall-runoff parameters adopted in the MUSIC model are consistent with the parameters adopted in *MUSIC Modelling Toolkit – Wianamatta*, refer to **Table 9**.

Table 9: Rainfall-runoff parameters adopted in MUSIC

Parameter	Unit	Value
Impervious area parameters		
Rainfall Threshold	mm/day	1.0
Pervious area parameter		
Soil Storage Capacity	mm	150
Initial Storage	% of Capacity	30
Field Capacity	mm	130
Infiltration Capacity Coefficient α	-	175
Infiltration Capacity Coefficient β	-	2.5
Groundwater properties		
Initial Depth (groundwater)	mm	10
Daily Recharge Rate	%	25
Daily Baseflow Rate	%	1.4
Daily Seepage Rate	%	0.0

Source nodes and pollutant generation

Pollutant events mean concentrations (EMCs) for base flow and storm flow scenarios have been adopted from Table 6 of Blacktown City Council's WSUD developer handbook (consistent with the *MUSIC Modelling Toolkit - Wianamatta*). The EMC values are applied to source nodes in the MUSIC model to estimate annual pollutant loads exported from the site under the proposed ultimate development scenario. The adopted pollutant EMCs for various catchment types are summarised in **Table 10**.

Table 10: Stormwater quality parameters for MUSIC source nodes

Landuse category		log10 TSS (mg/l)		log10 TP (mg/l)		log10 TN (mg/l)	
		Base flow	Storm flow	Base flow	Storm flow	Base flow	Storm flow
Roof areas	Mean	1.20	1.30	-0.85	-0.89	0.11	0.30
	Std dev	0.17	0.32	0.19	0.25	0.12	0.19
Road areas	Mean	1.20	2.43	-0.85	-0.30	0.11	0.34
	Std dev	0.17	0.32	0.19	0.25	0.12	0.19
Pervious areas	Mean	1.20	2.15	-0.85	-0.60	0.11	0.30
	Std dev	0.17	0.32	0.19	0.25	0.12	0.19

8.5.2. Scenario modelling

MUSIC models have been created and simulated for two scenarios:

1. Stage 1 Development (NB: Lot 9 is included for MOD3 given that MOD3 supports the SSD-46516461 for Lot 9
2. Ultimate Development (based on the Concept Masterplan)

Source nodes for each of the proposed lots and internal estate roads have been adopted based on the Stage 1 and Concept Masterplans. The layouts of the Stage 1 and Ultimate MUSIC models are presented as **Figure 5** and **Figure 6** respectively.

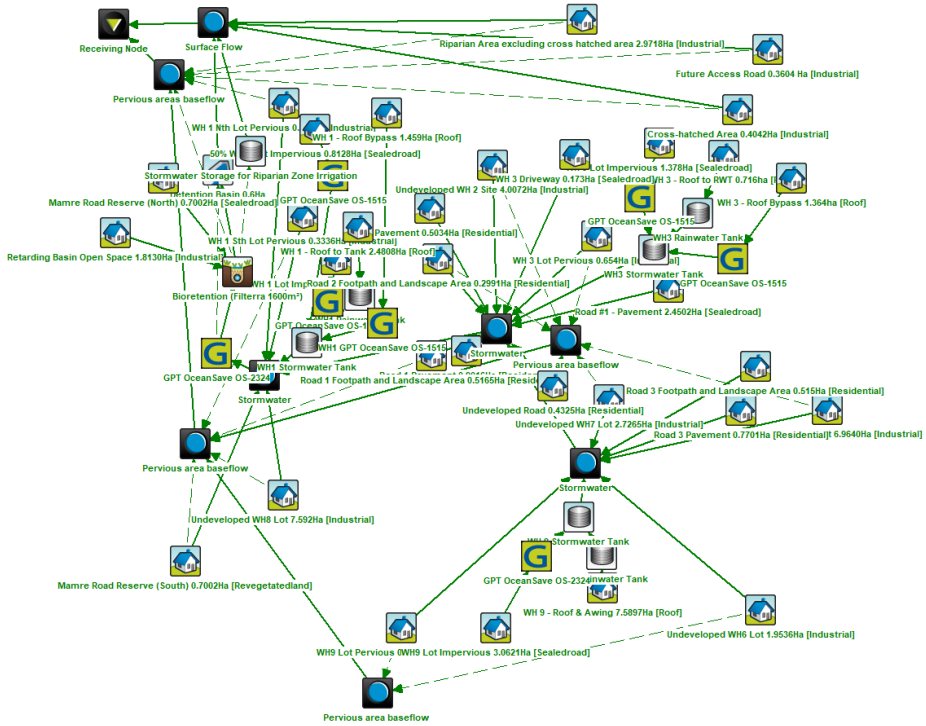


Figure 5: Post-development MUSIC model – Stage 1 Development

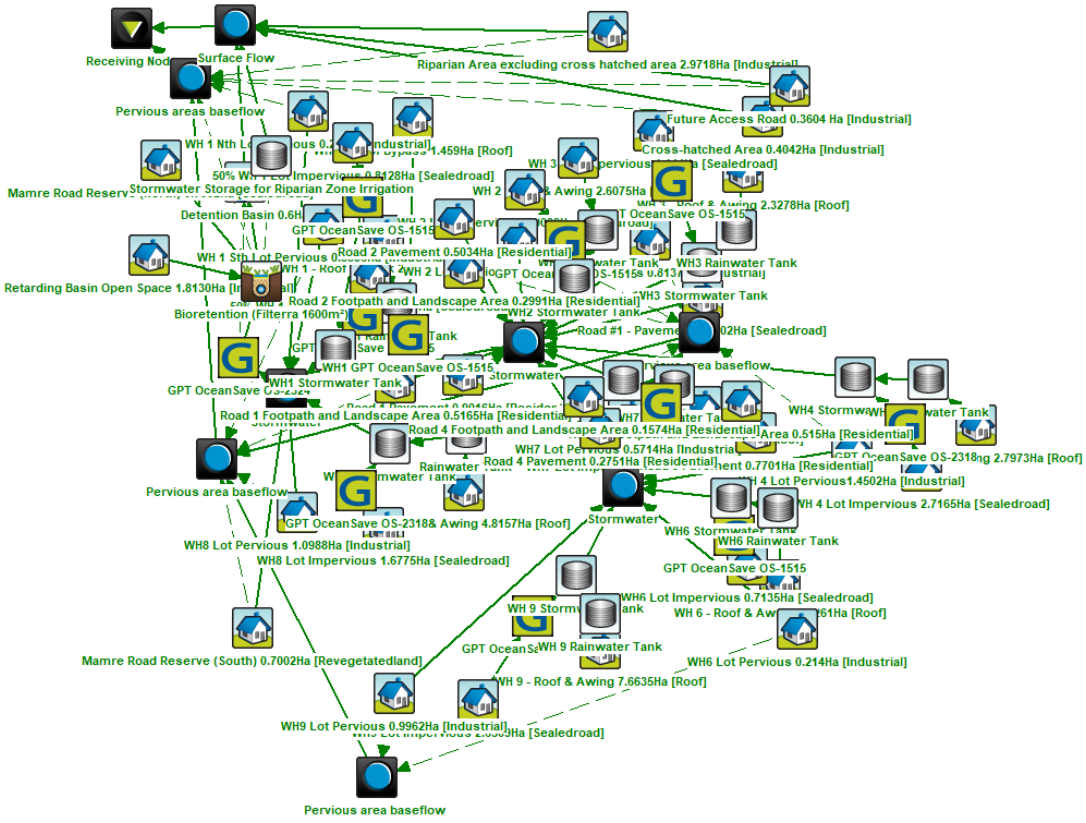


Figure 6: Post-development MUSIC model – Ultimate Concept Masterplan

8.6. Performance against DCP targets

8.6.1. Stormwater quality

MUSIC model results presented as mean annual loads at the receiving node for both the Stage 1 and Ultimate scenarios are presented in **Table 11** and **Table 12** respectively.

Table 11: Summary of MUSIC modelling results against stormwater quality targets – Stage 1

Parameter	Sources – Post-Development	Residual Load – Post-Development	Reduction (%)	Target Reduction (%) – Mamre Road Precinct DCP
TSS (kg/yr)	26,500	934	**96.5**	90
TP (kg/yr)	53.9	5.36	**90.1**	80
TN (kg/yr)	379	71.7	**81.1**	65
Gross Pollutants (kg/yr)	4,590	0	**100**	90

Table 12: Summary of MUSIC modelling results against stormwater quality targets – Ultimate

Parameter	Sources – Post-Development	Residual Load – Post-Development	Reduction (%)	Target Reduction (%) – Mamre Road Precinct DCP
TSS (kg/yr)	41,100	1,210	**97.1**	90
TP (kg/yr)	87	7.21	**91.7**	80
TN (kg/yr)	639	107	**83.2**	65
Gross Pollutants (kg/yr)	7,980	0	**100**	90

The MUSIC model results presenting treatment train effectiveness (load reduction as a percentage of post-development source loads) demonstrate the proposed stormwater management measures under both the Stage 1 and Ultimate scenarios will satisfy the Mamre Road Precinct DCP stormwater quality controls.

8.6.2. Stormwater quantity

The assessment of the performance of stormwater quantity management for the AIE Site has been undertaken for the Ultimate development scenario only, on the basis that the detention basin will be constructed as part of the Stage 1 works and will provide attenuation of stormwater runoff as the site is progressively developed.

Table 13 indicates the pre-development and post-development peak flow rates for a range of design storm events (under the Ultimate development scenario) between and including the 1-year ARI and 100-year ARI at the Mamre Road culverts. Note the modelling of the basin tailwater levels within the Mamre Road culverts have been incorporated based on the Cardno flood modelling (refer **Section 10**).

Table 13: Pre-development and post-development flows at discharge point to Mamre Road culvert

Design Storm Event	Pre-Development Peak Flow (m^3/s)	Post Development Peak Flow (m^3/s)
1-Year ARI (63.2% AEP)	1.40	1.23
2-Year ARI (39.4% AEP)	4.34	2.10
5-Year ARI (18.1% AEP)	8.54	3.34
10-Year ARI (≈ 10% AEP)	10.1	7.40
20-Year ARI (≈ 5% AEP)	12.1	7.79
100-Year ARI (1% AEP)	15.7	10.8

The DRAINS model results demonstrate that the post-development peak flow rates would be less than or equal to pre-development peak flow rates for a range of storm events between (and including) the 50% AEP and 1% AEP design events. Therefore, the stormwater drainage system and detention basins as proposed would satisfy the development controls relating to stormwater quantity management.

8.6.3. Stormwater flow volume

MUSIC model results demonstrating performance of the proposed stormwater management measures against the stormwater flow targets for Stage 1 and Ultimate development are presented in **Table 14** and **Table 15** respectively. The results shown confirm compliance with DCP Option 2 (Flow Duration Curve) for both Stage 1 and the Ultimate development scenarios.

Table 14: Summary of MUSIC model results against stormwater flow targets – Stage 1

Parameter	Result	DCP Target	Complies with DCP target	
			DCP Option 1 (MARV approach)	DCP Option 2 (Flow Duration Curve approach)
Mean annual runoff volume (ML/ha/yr)	1.57	2.0	Yes	n/a
95%ile flow (L/ha/day)	11747	3000 – 15000	n/a	Yes
90%ile flow (L/ha/day)	2609	1000 – 5000	Yes	Yes
75%ile flow (L/ha/day)	227.2	100 – 1000	n/a	Yes
50%ile flow (L/ha/day)	28.7	5 – 100	Yes	Yes
10%ile flow (L/ha/day)	0	0	Yes	n/a
Cease to flow	15.9%	10% to 30%	n/a	Yes

Table 15: Summary of MUSIC model results against stormwater flow targets – Ultimate

Parameter	Result	DCP Target	Complies with DCP target	
			DCP Option 1 (MARV approach)	DCP Option 2 (Flow Duration Curve approach)
Mean annual runoff volume (ML/ha/yr)	2.37	2.0	No	n/a
95%ile flow (L/ha/day)	14197	3000 – 15000	n/a	Yes
90%ile flow (L/ha/day)	2745	1000 – 5000	Yes	Yes
75%ile flow (L/ha/day)	215.1	100 – 1000	n/a	Yes
50%ile flow (L/ha/day)	14.0	5 – 100	Yes	Yes
10%ile flow (L/ha/day)	0	0	Yes	n/a
Cease to flow	17.8%	10% to 30%	n/a	Yes

The resultant flow duration curves for the Stage 1 and Ultimate scenarios are presented in **Figure 7**.

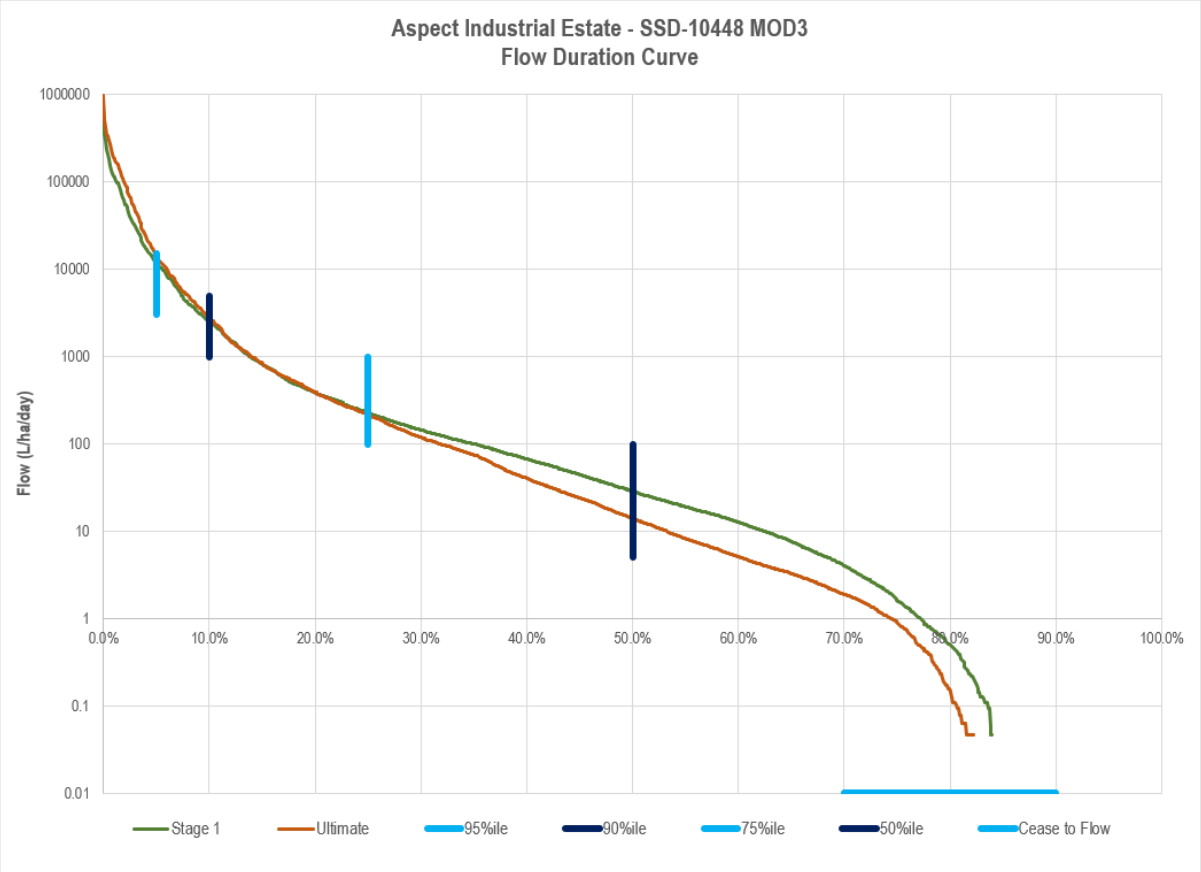


Figure 7: Flow duration curves for the proposed water management measures (Stage 1 and Ultimate)

The results presented above demonstrate the proposed stormwater management measures that will be implemented for the Stage 1 and Ultimate development scenarios will satisfy the DCP stormwater flow targets for the AIE Site per DCP Option 2 (Flow Duration Curve).

8.7. Potential Sydney Water Regional Scheme

As demonstrated above, the proposed stormwater management measures would result in a system that will comply with the Mamre Road DCP stormwater quality, quantity and flow controls without the need for connection or reliance on a regional stormwater management scheme. It is acknowledged that Sydney Water has developed a draft Aerotropolis Stormwater Catchment Framework and draft Scheme Plan for the Mamre Road Precinct. The draft Framework and Scheme Plan were open to feedback from stakeholders until 31 July 2022. As there is no regional stormwater management scheme currently in place to service the AIE Site, Mirvac is proposing to implement a water management strategy that will comply without the need for connection or reliance on a regional scheme. Mirvac proposes that the stormwater management measures outlined within this report, which are to be implemented within the AIE site, would be treated as works-in-kind and offset against any and all works or contributions that may be required as part of a Sydney Water regional scheme, if it is to be adopted. Discussions are currently being undertaken between Mirvac and Sydney Water on this basis.

8.8. Ongoing Management and Maintenance

All proposed water management measures that will be located within the AIE Site would be managed and maintained by the proponent. An Inspection and Maintenance Plan will be prepared and lodged with the construction certificate application for the subdivision works once final design details and the extent and layout of all proposed water management measures is confirmed. It is anticipated that the Inspection and Maintenance Plan would be prepared using current best practice guidance such as *Water sensitive urban design inspection and maintenance guidelines* (Blacktown City Council, 2019) and would describe:

- Each of the functional components of each water management measure
- Expertise required to inspect, maintain and (where necessary) repair or replace components
- Minimum required frequency of inspection, repair or replacement activities
- Inspection and maintenance forms that list all necessary activities and contain a record of activities completed.

9. Site Water Balance

9.1. Water Balance Overview

Potable water supplies in the Sydney area are in recognised short supply with projected population increases, potential climate change and periods of extended drought. It is acknowledged that any development in the Sydney region places greater demand on an already limited water supply. As a result, government bodies, together with Sydney Water have encouraged sustainable development by the implementation of an integrated approach to water cycle management (potable water, sewerage, stormwater and rainwater) to minimise potable water demand and maximise the potential for non-potable water sources to replace potable water demand where possible.

With the appointment of Sydney Water as the regional Waterway Manager and the announcement of a regional stormwater management scheme, opportunities for water reuse within the Mamre Road Precinct will include regional stormwater harvesting and reticulated recycled water.

9.2. Water Requirements

Water requirements within the AIE Site will be typical of large format warehouses and distribution centres. Sources of demand for water within the proposed allotments and public domain will include:

- Office amenities (kitchen, bathrooms)
- Landscape irrigation
- Dust suppression (depending on end user requirements)

9.3. Water Sources

The primary source of water to the Aspect Industrial Estate will be Sydney Water's potable water reticulation network. Details of existing and proposed infrastructure that will be required to service the estate is presented in **Section 11.2**.

A "third-pipe" reticulated recycled water network will supply non-potable water throughout the Mamre Road Precinct. Non-potable water will be supplied from two sources:

- Stormwater harvested within precinct-wide wetlands / ponds, to be delivered and operated by Sydney Water as part of a regional stormwater management scheme.
- Recycled water from the planned Upper South Creek Advanced Recycled Water Centre.

9.4. Water Use Minimisation

Sydney Water provides a wide range of advice and guidance relating to water use minimisation and water efficiency. Whilst warehouses and distribution centres are relatively low water users in comparison to other industrial users, the following water use minimisation principles will apply to development within the Aspect Industrial Estate:

- **Avoid using water** where possible, such as sweeping hard surfaces instead of washing them.
- **Reduce water use** by installing water-efficient appliances and equipment (e.g., toilets, urinals, shower heads).
- **Reuse water** from manufacturing or cooling processes to toilet flushing, landscape irrigation and dust suppression.

10. Flood Report

A Flood Impact Assessment of the Proposed Aspect Industrial Estate was undertaken by Cardno in October 2020.

10.1. Purpose of Flood Report

The purpose of this report is to assess the impact of development proposed in the Aspect Industrial Estate. The flood impact assessment was informed by the assessment of design flood levels, velocities and hazards under Benchmark conditions.

10.2. Flood Modelling Results

Based on the results within the Flood Impact Assessment, Cardno have plotted estimated impacts of the proposed development on the 2-year, 5-year, 100-year, 200-year, 500-year ARI flood levels and velocities and PMF levels and velocities in comparison to the pre-development conditions.

Flood maps within the FIA highlight negligible adverse impacts on flood levels and velocities downstream of Mamre Road in all storm events. In the PMF event modest increases in the flood levels are experienced downstream of Mamre Road.

It is acknowledged within the Cardno Flood Impact Assessment both the ARR1987 and ARR2019 rainfall data were used. Whilst Cardno have concluded for the minor (1 in 2 year AEP) event there were minor increases in peak post-developed flows at Mamre Road compared to the pre-developed flows it should be noted Cardno modelling has been undertaken on a concept basin without detailed outflow design of the basin.

As described in **Section 8.5**, design of the proposed detention basin has been undertaken using the DRAINS software package utilising multi-staged orifices and weirs to demonstrate a design solution whereby post - development peak flow rates do not exceed pre-development peak flow rates for all design storm events between and including the 1-year ARI and 100-year ARI. As such, the basin outlet design undertaken within this report is deemed more detailed than the Cardno model.

11. Utility Services

11.1. Existing utilities in the vicinity of the site

Based on an initial desk top study conducted from information obtained from Dial Before You Dig (DBYD) records, the following utility services are located within the vicinity of the Site:

- Potable water – Sydney Water Corporation
- Electrical – Endeavour Energy
- Telecommunications – Telstra only

No sewer or gas was noted to be located within the vicinity of the Site.

Investigations of the Site were carried out based on:

- Site inspection;
- Dial Before You Dig (DBYD) search;
- Sydney Water Hydra System;
- Penrith City Council Engineering Design Specification;
- LIDAR Survey information; and
- Sydney Water South West Growth Servicing Plan 2017-2022

11.2. Potable Water

11.2.1. Existing Services

Dial Before You Dig (DBYD) indicates the following water services within the area:

- 100mm diameter DICL potable watermain on the eastern side of Mamre Road
- 150mm diameter uPVC potable watermain on the western side of Mamre Road

These assets are supplied from a 200uPVC main approximately 220m north of the site which is current supplied from the Cecil Park reservoir supply zone.

11.2.2. Proposed Services

Initial servicing advice from Sydney Water is contained in **Appendix D**.

In advance of delivery of the ultimate Mamre Road trunk main by Sydney Water, the site will be serviced by an upsized potable watermain delivered by Mirvac for the extents of the proposed signalised intersection at Mamre Road. This will provide connection to the Cecil Park Reservoir.

Significant consultation has been undertaken with Sydney Water regarding potable water servicing strategies for the Western Sydney Employment Area (WSEA), which includes the wider Mamre Road Precinct and the Site.

Sydney Water and various Water Servicing Coordinators have advised that there are multiple potential potable water servicing strategies for the wider Mamre Road Precinct and the Site, including, though not limited to the following:

a) Connection to, or extension and/or amplification of, the existing assets located within Mamre Road; and/or
b) Rezoning of upstream catchment supply areas to alleviate supply constraints on existing supply zone; and/or
c) Connection to the Cecil Park Reservoir supply zone to the south.

Interim and permanent potable water supply arrangements for the wider Mamre Road Precinct may need to be considered subject to existing capacity of the network and development staging.

Sydney Water are currently delivering/investigating several upstream augmentation projects which will ultimately boost supply to the existing potable water assets within the Mamre Road precinct.

Sydney Water have stated:

> *"Drinking water services can be provided from Cecil Park Reservoir. We are working to deliver a trunk main along Mamre Road by 2024-25. We will be working with RMS to deliver trunk mains in Mamre Road during road upgrade, subject to funding approval based on risk for development timeframes. Developer delivered precinct trunk mains will also be required to service the precinct.*
>
> *It is important to mention that to fast-track Sydney Water services for the Mamre Road Precinct is dependent on DPE formal release advice and subject to Sydney Water's policy on developer accelerated servicing."*

11.3. Wastewater

11.3.1. Existing Services

Dial Before You Dig (DBYD) and a review of the Sydney Water Hydra System indicates there is no existing sewer infrastructure located at or adjacent to the Site.

11.3.2. Proposed Services

Initial servicing advice from Sydney Water is contained in **Appendix D**.

An Interim Operating Procedure (IOP) will be delivered by Sydney Water and will service the initial stages of the AIE Site until such time as the ultimate sewage pump station (SPS) is constructed and operational. The SPS will be located to the north and the AIE Site will drain to it by gravity.

Sewerage reticulation within the AIE Site will be designed and delivered to provide connectivity to both the IOP and the ultimate sewer trunk main that will drain north via the future SPS.

Significant consultation has been undertaken with Sydney Water regarding wastewater servicing strategies for the Broader Western Sydney Employment Area (BWSEA) which includes the wider Mamre Road Precinct and the Site.

Sydney Water and various Water Servicing Coordinators have advised that there are multiple potential wastewater servicing strategies for the wider Mamre Road Precinct and the Site, including, though not limited to the following:

a) Connection to the proposed future Sydney Water South Creek Catchment Wastewater Treatment Plant (WWTP), forecast for completion between 2024 – 2026;

b) Connection to the existing St Mary's WWTP network, via either:

Gravity connection along Kemps Creek and ultimately South Creek;

Low pressure rising main connection to existing gravity system.

c) **Interim Operating Procedure (IOP)**

Subject to Sydney Water and Consent Authority Approvals, an Interim Operating Procedure (IOP) for the initial stages of the Site may be provided. An IOP would essentially involve a large holding tank constructed at the lower end of the site. The tank would be emptied via pump out truck as required and then be discharged at a Sydney Water approved site.

Initial site servicing via IOP's is a common infrastructure solution undertaken on larger developments, in anticipation of ultimate solutions, given the lengthy lead-times involved in the planning and construction of the ultimate servicing solution.

Generally, the IOP would be approved under the Section 68 provisions of the Local Government Act by Penrith City Council.

d) Sydney Water delivered decentralised interim WWTP, to service multiple developments throughout the wider Mamre Road Precinct until permanent connection to Sydney Water infrastructure may be made.

e) **Privately delivered decentralised interim WWTP:**

Alternative to Sydney Water wastewater servicing, the Water Industry Competition Act 2006 (WICA) provides key enabling legislation which permits private sector innovation and investment in water and wastewater infrastructure.

Subject to the Independent Pricing and Regulatory Tribunal (IPART) and Consent Authority approvals, there is an option for a decentralised WWTP to be privately provided and operated by a network operator in advance of the proposed Sydney Water permanent South Creek WWTP and separate to any Sydney Water interim decentralised WWTP's.

Further to the above it is understood Sydney Water are currently investigating servicing solutions for the wider Mamre Road precinct as part of the broader Aerotropolis servicing strategy.

Servicing strategies will be subject to Sydney Water, IPART and Consent Authority approvals.

Sydney Water have stated:

> *"Wastewater services to Mamre Road Precinct can be provided temporarily by St Marys STP for up to 4 years, this is based on formal notification of the expected date of connection. Long term potentially we intend to provide wastewater services from will be serviced by the proposed Upper South Creek WRP to be completed by 2025/2026.*
>
> *It is important to mention that to fast track Sydney Water services for the Mamre Road Precinct is dependent on DPE formal release advice and subject to Sydney Water's policy on developer accelerated servicing."*

11.4. Recycled Water

11.4.1. Existing Infrastructure

There is no existing recycled (non-potable) water infrastructure within or in the vicinity of the site.

11.4.2. Proposed Infrastructure

The *Mamre Road Precinct Flood, Riparian Corridor and Integrated Water Cycle Management Strategy* (2020) documents Sydney Water's commitment to the provision of recycled water to the Mamre Road Precinct from the Upper South Creek AWRC.

In their submission to SSD-9138102 dated 6 August 2021, Sydney Water confirmed that recycled water for non-drinking purposes will be provided in the Mamre Road Precinct. The Integrated Water Servicing Options analysis is currently underway and will determine the extent to which recycled stormwater is integrated with recycled wastewater. Sydney Water is currently preparing a Development Servicing Plan (DSP) for the Mamre Road Precinct. This will include Developer Charges for the provision of recycled water services to the Precinct.

Recycled water will be reticulated to service the AIE Site. Recycled water supply will come from the future Upper South Creek AWRC.

Sydney Water's draft recycled water scheme plan for the Mamre Road Precinct is reproduced below as **Figure 8**. It is subject to change depending on the outcome of the Integrated Water Servicing options analysis. Sydney Water will confirm the requirement for recycled water connections on finalisation of the scheme plan for the Precinct. It is likely that the requirements will be a combination of the following:

- Each lot in the subdivision must have a frontage to a recycled water main that is the right size and can be used for connection of the lot to the recycled water main.
- The proponent must construct a recycled water main extension to serve the lots appropriately. The extension must comply with the standards for Dual Water Reticulation Systems.

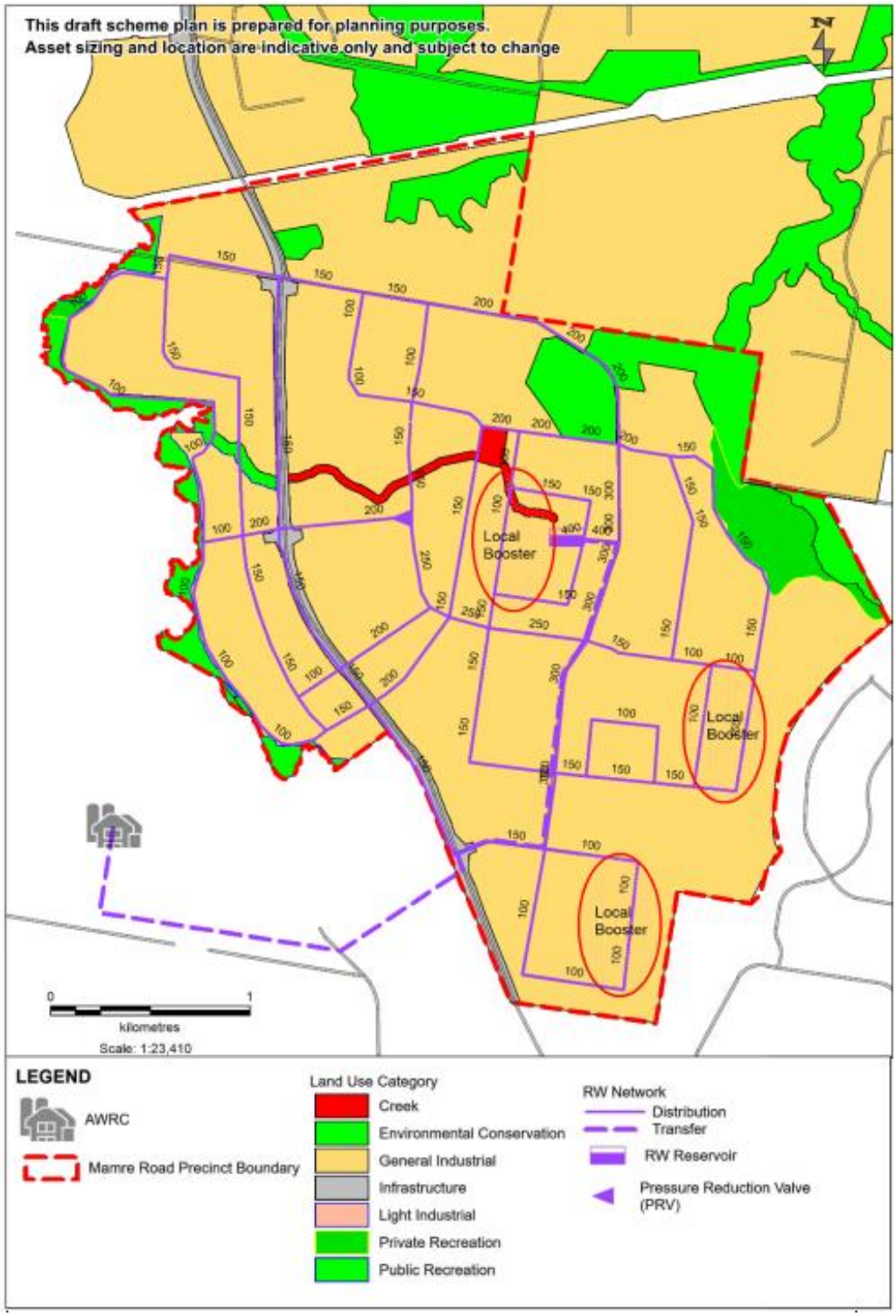


Figure 8: Draft Mamre Road Recycled Water Scheme Plan

11.5. Electrical

11.5.1. Existing Services

Recent site inspection indicates that there is an overhead power line (11kV and 240v) on the eastern side of Mamre Road reserve parallel to the boundary. Dial Before You Dig (DBYD) indicates that there are no underground services within the vicinity of the Site.

Existing Zone Substation locations are as follows:

- Kemps Creek Zone Substation: located approximately 6km south of the Site off Elizabeth Drive; and
- Mamre Road Zone Substation: located at the northern end of John Morphett Place, off Lenore Drive, approximately 3km north of the Site (as the crow flies).
- South Erskine Zone Substation located within Oakdale West approximately 3.2km from the site.

11.5.2. Proposed Services

Satisfactory arrangements have been made for connection between the Aspect Industrial Estate to the newly commission South Erskine Park Zone Substation located within the Oakdale West estate with certified electrical design received 27 May 2022 under Endeavour Energy case UIS0882.

Mirvac is continuing to progress internal electrical applications with Endeavour Energy on a staged basis.

11.6. Telecommunications

11.6.1. Existing Services

Dial Before You Dig (DBYD) indicates that Telstra below ground conduits are located within the Mamre Road Reserve parallel to the boundary.

Site inspection has identified there are aboveground assets along the western side of Mamre Road.

11.6.2. Proposed Services - NBN

Mirvac has entered into an agreement with NBN to deliver telecommunications to the site in time with initial warehouse occupancy requirements.

These works will be delivered by NBN under Part 5 approvals.

11.6.3. Proposed Services - Telstra

Mirvac are in discussions with Telstra regarding the provision of conduits along Mamre Road from Baker Lane to the Aspect Industrial Estate. These works would be delivered parallel to the proposed NBN works.

Any required road opening permits would be obtained prior to installation of any works within a public road.

11.7. Gas

11.7.1. Existing Services

There are no existing Jemena gas mains within the vicinity of the Site. The nearest gas infrastructure to the AIE Site is a DN160 PE 210 kPa main that is located on the northern side of Bakers Lane.

11.7.2. Future Services

A concept design for extension of a gas main from Bakers Lane to the AIE Site has been undertaken by Jemena, refer to **Appendix F**. The works would include:

- Connection of a new DN160 PE main to the existing main in Bakers Lane.
- Installation of a the new main across Bakers Lane and along the eastern side of Mamre Road to the proposed signalised intersection at Access Road 01.
- Installation of gas mains within the AIE Site, including a DN160 PE main along the northern side of Access Road 01.

The concept design described above and presented in **Appendix F** will be subject to an assessment of commercial viability by Jemena.

Any gas infrastructure works would be delivered by Jemena under relevant Part 5 approvals.

12. Infrastructure Delivery and Staging

12.1. Staging

A detailed staging plan is currently being prepared as required under condition A10 of the initial SSD-10448 consent conditions and will be submitted to the Planning Secretary prior to the commencement of construction of the Stage 1 works under the initial SSD. This modification will require alteration to the Staging Plan to include the Stage 1 works contemplated under MOD3, namely Road 4 and the additional retaining wall between Lot 9, and Lots 6 and 7.

Final staging will be subject to authority approvals, construction contractor staging requirements and may occur concurrently with other stages. Indicative target programmes as contained within the staging plan is subject to change, authority approvals, construction staging, inclement weather, and availability of import fill materials.

12.2. Funding Arrangements

The assumed funding arrangement for infrastructure are as follows:

- **Mamre Road Signalised Intersection:** A portion is to be proponent funded with a portion to be delivered as Works in Kind under a Voluntary Planning Agreement as executed by the Secretary.
- **Lead-in services:** Proponent funded with potential reimbursements subject to relevant authority approvals and procurement processes.
- **Internal works:** Proponent funded with works in kind elements for local collector roads subject to voluntary agreement with Penrith City Council.

All funding arrangements will be subject to authority approvals.

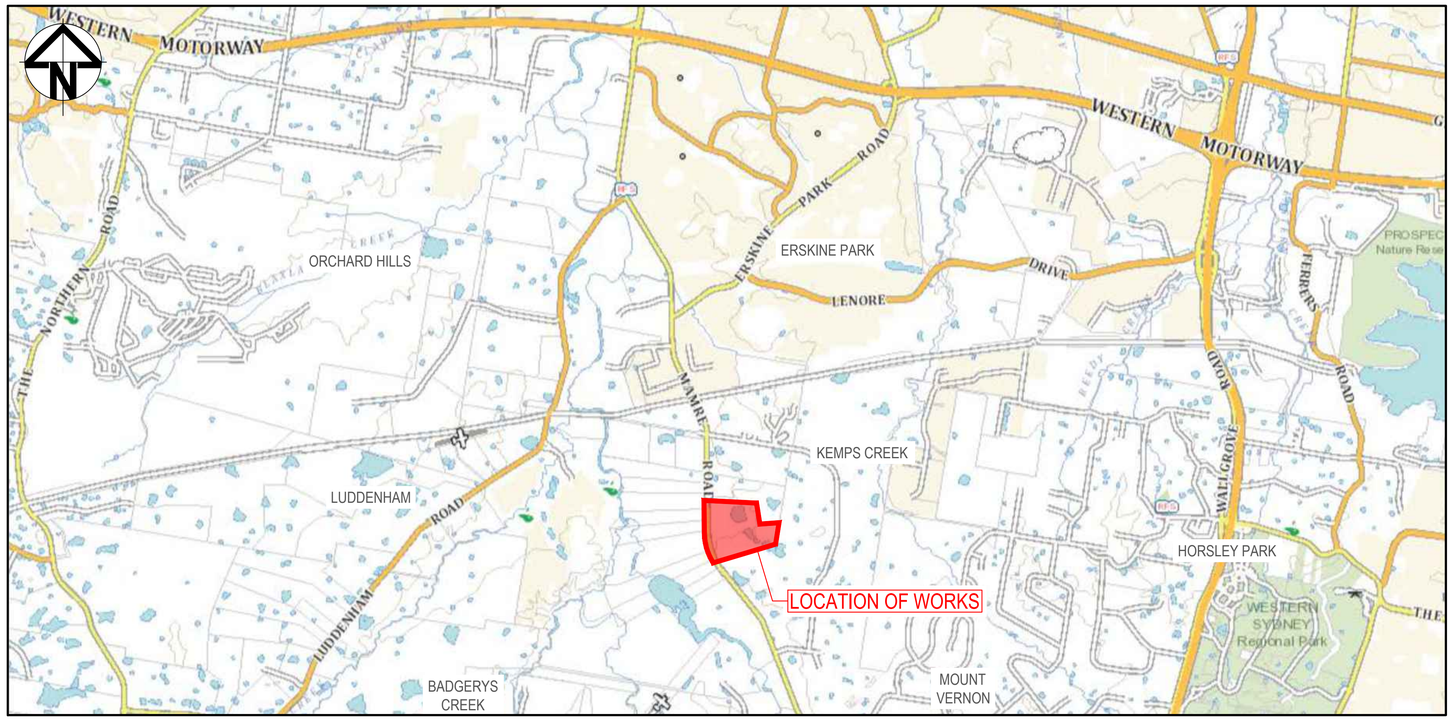
APPENDIX A – Civil Engineering Drawings

ASPECT INDUSTRIAL ESTATE

STAGE 1 CIVIL WORKS PACKAGE

STATE SIGNIFICANT DEVELOPMENT

MOD 3 APPLICATION



LOCALITY PLAN

NOT TO SCALE

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

100mm on Original

THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L

Client

mirvac

Scales

Grid MGA

Height Datum AHD

GDA2020

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

COVER SHEET AND
LOCALITY PLAN

Civil Engineers and Project Managers

at&l

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North Sydney NSW 2060
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Fax: 02 9923 1055
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Status

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.

18-596-C1000

Issue

M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1000.dwg

DRAWINGS INDICATED WITH RED TEXT ARE UNCHANGED FROM SSD
DRAWINGS INDICATED WITH BLUE TEXT ARE UNCHANGED FROM MOD 2
DRAWINGS INDICATED WITH GREEN ARE NO LONGER APPLICABLE AS PART OF MOD 3. THESE NO LONGER FORM PART OF THE CONSOLIDATED SSD,MOD 2 AND MOD 3 PACKAGE

DRAWING LIST MOD 3 APPROVAL ONLY

DRAWING No.	DRAWING TITLE	DRAWING ISSUE
18-596-C1000	COVER SHEET AND LOCALITY PLAN	M
18-596-C1001	DRAWING LIST	N
18-596-C1003	GENERAL ARRANGEMENT PLAN	J
18-596-C1005	TYPICAL ROAD SECTIONS SHEET 1	M
18-596-C1006	TYPICAL ROAD SECTIONS SHEET 2	M
18-596-C1007	TYPICAL ROAD SECTIONS SHEET 3	C
18-596-C1010	TYPICAL SECTIONS SHEET 1	O
18-596-C1011	TYPICAL SECTIONS SHEET 2	N
18-596-C1012	TYPICAL SECTIONS SHEET 3	O
18-596-C1013	TYPICAL SECTIONS SHEET 4	E
18-596-C1020	BULK EARTHWORKS CONTOUR PLAN	O
18-596-C1021	BULK EARTHWORKS SECTIONS SHEET 1	R
18-596-C1022	BULK EARTHWORKS SECTIONS SHEET 2	R
18-596-C1025	BULK EARTHWORKS CUT/FILL PLAN	O
18-596-C1032	BULK EARTHWORKS PLAN SHEET 3	M
18-596-C1033	BULK EARTHWORKS PLAN SHEET 4	M
18-596-C1034	BULK EARTHWORKS PLAN SHEET 5	L
18-596-C1035	BULK EARTHWORKS PLAN SHEET 6	M
18-596-C1036	BULK EARTHWORKS PLAN SHEET 7	L
18-596-C1037	BULK EARTHWORKS PLAN SHEET 8	L
18-596-C1038	BULK EARTHWORKS PLAN SHEET 9	M
18-596-C1039	BULK EARTHWORKS PLAN SHEET 10	M
18-596-C1040	STORMWATER DRAINAGE OVERALL PLAN	N
18-596-C1046	STORMWATER DRAINAGE CATCHMENT PLAN (POST-DEVELOPED)	O
18-596-C1050	ROADWORKS AND STORMWATER DRAINAGE SHEET 1	L
18-596-C1051	ROADWORKS AND STORMWATER DRAINAGE SHEET 2	M
18-596-C1052	ROADWORKS AND STORMWATER DRAINAGE SHEET 3	N
18-596-C1053	ROADWORKS AND STORMWATER DRAINAGE SHEET 4	L
18-596-C1054	ROADWORKS AND STORMWATER DRAINAGE SHEET 5	L
18-596-C1055	ROADWORKS AND STORMWATER DRAINAGE SHEET 6	M
18-596-C1056	ROADWORKS AND STORMWATER DRAINAGE SHEET 7	L
18-596-C1057	ROADWORKS AND STORMWATER DRAINAGE SHEET 8	M
18-596-C1058	ROADWORKS AND STORMWATER DRAINAGE SHEET 9	F
18-596-C1059	ROADWORKS AND STORMWATER DRAINAGE SHEET 10	I
18-596-C1060	ROADWORKS AND STORMWATER DRAINAGE SHEET 11	I
18-596-C1061	ROADWORKS AND STORMWATER DRAINAGE SHEET 12	K
18-596-C1062	ROADWORKS AND STORMWATER DRAINAGE SHEET 13	D
18-596-C1073	ROAD 04 LONGITUDINAL SECTION SHEET 1	D
18-596-C1080	RETAINING WALL GENERAL ARRANGEMENT PLAN	N
18-596-C1082	RETAINING WALL PROFILES SHEET 2	M
18-596-C1084	ALTERNATE RETAINING WALL 22 PROFILE SHEET 1	B
18-596-C1085	ALTERNATE RETAINING WALL 22 SECTIONS SHEET 1	B
18-596-C1090	SERVICES AND UTILITIES COORDINATION OVERALL PLAN	N
18-596-C1091	SERVICES AND UTILITIES COORDINATION PLAN SHEET 1	M
18-596-C1092	SERVICES AND UTILITIES COORDINATION PLAN SHEET 2	M
18-596-C1093	SERVICES AND UTILITIES COORDINATION PLAN SHEET 3	M
18-596-C1094	SERVICES AND UTILITIES COORDINATION PLAN SHEET 4	G
18-596-C1112	EROSION AND SEDIMENT CONTROL PLAN SHEET 3	M
18-596-C1113	EROSION AND SEDIMENT CONTROL PLAN SHEET 4	M
18-596-C1114	EROSION AND SEDIMENT CONTROL PLAN SHEET 5	L
18-596-C1115	EROSION AND SEDIMENT CONTROL PLAN SHEET 6	M
18-596-C1116	EROSION AND SEDIMENT CONTROL PLAN SHEET 7	L
18-596-C1117	EROSION AND SEDIMENT CONTROL PLAN SHEET 8	L
18-596-C1118	EROSION AND SEDIMENT CONTROL PLAN SHEET 9	M
18-596-C1119	EROSION AND SEDIMENT CONTROL PLAN SHEET 10	M
18-596-C1150	VEHICLE TURN PATHS PLAN SHEET 1	L
18-596-C1151	VEHICLE TURN PATHS PLAN SHEET 2	L
18-596-C1154	VEHICLE TURN PATHS PLAN SHEET 5	F
18-596-C1155	VEHICLE TURN PATHS PLAN SHEET 6	F
18-596-C1156	VEHICLE TURN PATHS PLAN SHEET 7	F
18-596-C1203	TEMPORARY WORKS GENERAL ARRANGEMENT PLAN	H
18-596-C1210	TEMPORARY WORKS TYPICAL SECTIONS SHEET 1	G
18-596-C1220	TEMPORARY WORKS BULK EARTHWORKS CONTOUR PLAN	H
18-596-C1221	TEMPORARY WORKS BULK EARTHWORKS SECTIONS SHEET 1	G
18-596-C1230	TEMPORARY WORKS BULK EARTHWORKS PLAN SHEET 1	H
18-596-C1231	TEMPORARY WORKS BULK EARTHWORKS PLAN SHEET 2	G
18-596-C1250	TEMPORARY WORKS ROADWORKS AND STORMWATER DRAINAGE SHEET 1	H
18-596-C1310	TEMPORARY WORKS EROSION AND SEDIMENT CONTROL PLAN SHEET 1	H
18-596-C1311	TEMPORARY WORKS EROSION AND SEDIMENT CONTROL PLAN SHEET 2	G

DRAWING LIST CONSOLIDATED SSD, MOD 2 AND MOD 3

DRAWING No.	DRAWING TITLE	DRAWING ISSUE
18-596-C1000	COVER SHEET AND LOCALITY PLAN	M
18-596-C1001	DRAWING LIST	O
18-596-C1002	NOTES AND LEGENDS SHEET	F
18-596-C1003	GENERAL ARRANGEMENT PLAN	J
18-596-C1005	TYPICAL ROAD SECTIONS SHEET 1	M
18-596-C1006	TYPICAL ROAD SECTIONS SHEET 2	M
18-596-C1007	TYPICAL ROAD SECTIONS SHEET 3	C
18-596-C1010	TYPICAL SECTIONS SHEET 1	O
18-596-C1011	TYPICAL SECTIONS SHEET 2	N
18-596-C1012	TYPICAL SECTIONS SHEET 3	O
18-596-C1013	TYPICAL SECTIONS SHEET 4	E
18-596-C1014	TYPICAL SECTIONS SHEET 5	A
18-596-C1020	BULK EARTHWORKS CONTOUR PLAN	O
18-596-C1021	BULK EARTHWORKS SECTIONS SHEET 1	R
18-596-C1022	BULK EARTHWORKS SECTIONS SHEET 2	R
18-596-C1025	BULK EARTHWORKS CUT/FILL PLAN	O
18-596-C1030	BULK EARTHWORKS PLAN SHEET 1	L
18-596-C1031	BULK EARTHWORKS PLAN SHEET 2	L
18-596-C1032	BULK EARTHWORKS PLAN SHEET 3	M
18-596-C1033	BULK EARTHWORKS PLAN SHEET 4	M
18-596-C1034	BULK EARTHWORKS PLAN SHEET 5	L
18-596-C1035	BULK EARTHWORKS PLAN SHEET 6	M
18-596-C1036	BULK EARTHWORKS PLAN SHEET 7	L
18-596-C1037	BULK EARTHWORKS PLAN SHEET 8	L
18-596-C1038	BULK EARTHWORKS PLAN SHEET 9	M
18-596-C1039	BULK EARTHWORKS PLAN SHEET 10	M
18-596-C1040	STORMWATER DRAINAGE OVERALL PLAN	N
18-596-C1045	STORMWATER DRAINAGE CATCHMENT PLAN (PRE-DEVELOPED)	F
18-596-C1046	STORMWATER DRAINAGE CATCHMENT PLAN (POST-DEVELOPED)	O
18-596-C1047	STORMWATER MANAGEMENT PLAN STAGE 1	A
18-596-C1048	STORMWATER MANAGEMENT PLAN MOD 4 MASTER PLAN	A
18-596-C1050	ROADWORKS AND STORMWATER DRAINAGE SHEET 1	L
18-596-C1051	ROADWORKS AND STORMWATER DRAINAGE SHEET 2	M
18-596-C1052	ROADWORKS AND STORMWATER DRAINAGE SHEET 3	N
18-596-C1053	ROADWORKS AND STORMWATER DRAINAGE SHEET 4	L
18-596-C1054	ROADWORKS AND STORMWATER DRAINAGE SHEET 5	L
18-596-C1055	ROADWORKS AND STORMWATER DRAINAGE SHEET 6	M
18-596-C1056	ROADWORKS AND STORMWATER DRAINAGE SHEET 7	L
18-596-C1057	ROADWORKS AND STORMWATER DRAINAGE SHEET 8	M
18-596-C1058	ROADWORKS AND STORMWATER DRAINAGE SHEET 9	F
18-596-C1059	ROADWORKS AND STORMWATER DRAINAGE SHEET 10	I
18-596-C1060	ROADWORKS AND STORMWATER DRAINAGE SHEET 11	I
18-596-C1061	ROADWORKS AND STORMWATER DRAINAGE SHEET 12	K
18-596-C1062	ROADWORKS AND STORMWATER DRAINAGE SHEET 13	B
18-596-C1070	ROAD 01 LONGITUDINAL SECTION SHEET 1	F
18-596-C1071	ROAD 02 LONGITUDINAL SECTION SHEET 1	L
18-596-C1072	ROAD 03 LONGITUDINAL SECTION SHEET 1	F
18-596-C1073	ROAD 04 LONGITUDINAL SECTION SHEET 1	D
18-596-C1080	RETAINING WALL GENERAL ARRANGEMENT PLAN	N
18-596-C1081	RETAINING WALL PROFILES SHEET 1	L
18-596-C1082	RETAINING WALL PROFILES SHEET 2	M
18-596-C1083	ALTERNATE RETAINING WALL 22 PROFILE SHEET 1	B
18-596-C1084	ALTERNATE RETAINING WALL 22 SECTIONS SHEET 1	B
18-596-C1085	RETAINING WALL PROFILES SHEET 3	B
18-596-C1090	SERVICES AND UTILITIES COORDINATION OVERALL PLAN	N
18-596-C1091	SERVICES AND UTILITIES COORDINATION PLAN SHEET 1	M
18-596-C1092	SERVICES AND UTILITIES COORDINATION PLAN SHEET 2	M
18-596-C1093	SERVICES AND UTILITIES COORDINATION PLAN SHEET 3	M
18-596-C1094	SERVICES AND UTILITIES COORDINATION PLAN SHEET 4	G
18-596-C1110	EROSION AND SEDIMENT CONTROL PLAN SHEET 1	L
18-596-C1111	EROSION AND SEDIMENT CONTROL PLAN SHEET 2	L
18-596-C1112	EROSION AND SEDIMENT CONTROL PLAN SHEET 3	M
18-596-C1113	EROSION AND SEDIMENT CONTROL PLAN SHEET 4	M
18-596-C1114	EROSION AND SEDIMENT CONTROL PLAN SHEET 5	L
18-596-C1115	EROSION AND SEDIMENT CONTROL PLAN SHEET 6	M
18-596-C1116	EROSION AND SEDIMENT CONTROL PLAN SHEET 7	L
18-596-C1117	EROSION AND SEDIMENT CONTROL PLAN SHEET 8	L
18-596-C1118	EROSION AND SEDIMENT CONTROL PLAN SHEET 9	M
18-596-C1119	EROSION AND SEDIMENT CONTROL PLAN SHEET 10	M
18-596-C1120	EROSION AND SEDIMENT CONTROL DETAILS	F
18-596-C1150	VEHICLE TURN PATHS PLAN SHEET 1	L
18-596-C1151	VEHICLE TURN PATHS PLAN SHEET 2	E
18-596-C1152	VEHICLE TURN PATHS PLAN SHEET 3	E
18-596-C1153	VEHICLE TURN PATHS PLAN SHEET 4	E
18-596-C1154	VEHICLE TURN PATHS PLAN SHEET 5	F
18-596-C1155	VEHICLE TURN PATHS PLAN SHEET 6	F
18-596-C1156	VEHICLE TURN PATHS PLAN SHEET 7	F
18-596-C1203	TEMPORARY WORKS GENERAL ARRANGEMENT PLAN	H
18-596-C1210	TEMPORARY WORKS TYPICAL SECTIONS SHEET 1	G
18-596-C1220	TEMPORARY WORKS BULK EARTHWORKS CONTOUR PLAN	H
18-596-C1221	TEMPORARY WORKS BULK EARTHWORKS SECTIONS SHEET 1	G
18-596-C1230	TEMPORARY WORKS BULK EARTHWORKS PLAN SHEET 1	H
18-596-C1231	TEMPORARY WORKS BULK EARTHWORKS PLAN SHEET 2	G
18-596-C1250	TEMPORARY WORKS ROADWORKS AND STORMWATER DRAINAGE SHEET 1	H
18-596-C1310	TEMPORARY WORKS EROSION AND SEDIMENT CONTROL PLAN SHEET 1	H
18-596-C1311	TEMPORARY WORKS EROSION AND SEDIMENT CONTROL PLAN SHEET 2	G

Issue	Description	Date
O	ISSUED FOR DEVELOPMENT APPLICATION	24-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22

Bar Scales

100mm on Original

THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L

Client: mirvac

Scales

Grid MGA

Height Datum AHD

GDA2020

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
DRAWING LIST

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
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Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1001

Issue
O

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1001.dwg

SITEWORKS NOTES

1. ORIGIN OF LEVELS:- REFER SURVEY NOTES.
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO AT & L.
3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS.
4. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
5. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMAPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
6. PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVEMENTS.
7. ASPHALTIC CONCRETE SHALL CONFORM TO R.M.S SPECIFICATION R116.
8. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S FORM 3051 (UNBOUND). R.M.S FORM 3052 (BOUND) COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m OF BASECOURSE MATERIAL PLACED.
9. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S FORM 3051, 3051.1 AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m^3 OF SUB-BASE COURSE MATERIAL PLACED.
10. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (9) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH R.M.S FORM 3051 AND 3051.1 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF AT & L.
11. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THE CONTRACTOR IS TO SEEK ACCEPTANCE OF THE PRODUCT FROM AT&L. THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
12. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.
13. ALL WORKS CARRIED OUT ADJACENT TO AND WITHIN TRANSGRID'S EASEMENT TO COMPLY WITH TRANSGRID'S GUIDELINES AND REQUIREMENTS.
14. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH PENRITH CITY COUNCIL'S ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY CARDNO HARD & FORESTER PTY LTD and LAND PARTNERS PTY LTD, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. AT & L DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
PRIOR TO THE COMMENCEMENT OF THE WORKS, THE CONTRACTOR SHALL UNDERTAKE A DETAILED BOUNDARY SURVEY AND COMPARE AGAINST THE DESIGN FOR DISCREPANCIES.
SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA, DESIGN DATA AND ACTUAL FIELD DATA, CONTACT AT & L IMMEDIATELY.

THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS.

THE TITLE BOUNDARIES SHOWN HEREON WERE NOT MARKED AT THE TIME OF SURVEY AND HAVE BEEN DETERMINED BY PLAN DIMENSIONS ONLY AND NOT BY FIELD SURVEY.

SERVICES SHOWN HEREON HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. IF NOT ABLE TO BE SO LOCATED, SERVICES HAVE BEEN PLOTTED FROM THE RECORDS OF RELEVANT AUTHORITIES WHERE AVAILABLE AND HAVE BEEN NOTED ACCORDINGLY ON THE PLAN. WHERE SUCH RECORDS DO NOT EXIST OR ARE INADEQUATE A NOTATION HAS BEEN MADE HEREON.

PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATIONS OF ALL SERVICES.

DEWATERING

1. IF REQUIRED ANY DEWATERING WORKS TO BE AS PER THE DEWATERING PROCEDURE AS CONTAINED WITHIN THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP).

EXISTING UNDERGROUND SERVICES

1. THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
2. AT & L CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.
3. CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.
4. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.
5. CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
6. PRIOR TO COMMENCEMENT OF WORKS, THE CONTRACTOR IS TO CONFIRM THE ALIGNMENT AND LEVELS OF ALL EXISTING SERVICES AT ALL LOCATIONS WHERE THE PROPOSED SERVICES ARE TO CROSS, CONNECT TO, OR ARE LOCATED IN CLOSE PROXIMITY TO THE EXISTING SERVICES.

CONCRETE NOTES

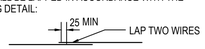
1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. CONCRETE QUALITY
   ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

ELEMENT	AS 3600 F'c MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
VEHICULAR BASE	32	60	20
KERBS, PATHS, AND PITS	25	80	20

   - CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL
   - PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379.
3. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY AT & L.
4. CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL EDGES UNLESS NOTED OTHERWISE.
5. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
6. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED AND CURED IN ACCORDANCE WITH R.M.S SPECIFICATION R83.
7. REINFORCEMENT SYMBOLS:
   N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N
   R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS 1302
   SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304

   NUMBER OF BARS IN GROUP — BAR GRADE AND TYPE
   17 N 20 250
   NOMINAL BAR SIZE IN mm — SPACING IN mm

   THE FIGURE FOLLOWING THE FABRIC SYMBOL SL IS THE REFERANCE NUMBER FOR FABRIC TO AS 1304.
8. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:



DECOMMISSIONING / DEMOLITION

1. DEMOLITION OF EXISTING DWELLING TO BE CONDUCTED IN ACCORDANCE WITH THE PROVISIONS OF AS2601-2001 - DEMOLITION OF STRUCTURES BY CONTRACTORS EXPERIENCED IN THIS CLASS OF WORK AND HOLDING REQUIRED CURRENT PERMITS AND LICENSES AS REQUIRED.
2. EXISTING INTERNALS FENCING, CATTLE YARDS, UTILITIES AND OTHER REDUNDANT STRUCTURES TO BE DEMOLISHED AND REMOVED TO AN APPROVED WASTE MANAGEMENT FACILITY.
3. DAM DECOMMISSIONING TO BE COMPLETED AS PER THE DAM DECOMMISSIONING PROCEDURE AS CONTAINED WITHIN THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP).
4. ALL EXISTING SERVICES (INCLUDING SEPTIC TANKS) SHALL BE REMOVED FROM SITE.
5. ALL UNDERGROUND CABLES AND PIPES SHALL BE GRUBBED OUT AND CAPPED AT THE BOUNDARY OF THE SITE.

CONTINUED ABOVE

DECOMMISSIONING / DEMOLITION

CONTINUED FROM BELOW

6. ALL OVERHEAD SERVICES SHALL BE REMOVED FROM WITHIN THE SITE BOUNDARY AND MADE SAFE AT THE TERMINATION LOCATION. ANY POLES SHALL BE REMOVED FROM THE SITE.
7. ALL EXISTING SERVICES TO BE CONSIDERED AS LIVE UNTIL THE CONTRACTOR HAS TESTED AND CONFIRMED TO THE SUPERINTENDENT THAT THE SERVICES ARE DEAD / REDUNDANT.

KERBING NOTES

1. ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa U.N.O IN REINFORCED CONCRETE NOTES.
2. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MIN. 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 95% MODIFIED DRY DENSITY (AS 1289 5.2.1).
3. EXPANSION JOINTS (E.J) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
4. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
5. BROOM FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
6. IN THE REPLACEMENT OF KERB AND GUTTER :-
   IF REQUIRED EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 900mm WIDE U.N.O.

STORMWATER DRAINAGE NOTES

1. STORMWATER DESIGN CRITERIA:
   (A) AVERAGE RECURRENCE INTERVAL :
   1:100 YEARS MAJOR STORM (OVERLAND FLOW)
   1:20 YEARS MINOR STORM (PIPED NETWORK)
   (B) RAINFALL INTENSITIES:
   TIME OF CONCENTRATION:5 MINUTES
   1:100 YEARS= 219 mm/hr
   1:20 YEARS= 167 mm/hr
   (C) RUNOFF COEFFICIENTS:
   ROOF AREAS: C 100 =1.0
   EXTERNAL PAVEMENTS: C 100 =1.0
2. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '3' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O. ALL ROAD CROSSINGS TO BE CLASS '4' U.N.O..
3. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
4. EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED, SUBJECT TO THE APPROVAL OF PENRITH CITY COUNCIL.
5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
6. PIPES TO BE INSTALLED TO TYPE HS2 SUPPORT IN ACCORDANCE WITH AS 3725 IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
7. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
8. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
9. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
10. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
11. GRATES AND COVERS SHALL CONFORM TO AS 3996 AND PENRITH CITY COUNCIL CONSTRUCTION SPECIFICATIONS.
12. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
13. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED, DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.
14. ALL STORMWATER PITS ARE TO BE CAST IN-SITU IN ACCORDANCE WITH THE STORMWATER DETAILS AND SPECIFICATIONS, UNLESS APPROVED BY THE SUPERINTENDENT / PENRITH CITY COUNCIL. IF APPROVED AND IN ADDITION TO THE SPECIFICATION,

A. ALL PRE-CAST PITS ARE TO BE STRUCTURALLY CERTIFIED TO MEET RELEVANT AUSTRALIAN STANDARDS (AS3600, AS3996).
B. ALL PRECAST PITS TO BE FOUNDED ON CONCRETE BLINDING LAYER WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 100KPA UP TO 3.0M DEPTH TO INVERT AND 150KPA FROM 3.0M TO 6.0M DEPTH TO INVERT (MINIMUM 100MM THICK 25MPA OR DEEPER TO ENSURE MINIMUM SPECIFIED BEARING CAPACITY IS ACHIEVED).
C. PRE-CAST STORMWATER PITS ARE TO BE CUSTOM MADE WITH OPENINGS WITHIN +50MM OD OF PIPE, HEIGHTS AND PIPE PENETRATIONS DURING MANUFACTURE. ANY ADDITIONAL PENETRATIONS SHALL BE CORE DRILLED.
D. DEMOLITION SAWS ARE NOT TO BE USED IN ANY CIRCUMSTANCES.
E. SINGLE UNITS PREFERRED BUT IF REQUIRED MINIMUM RISER DEPTH 600MM PIT INSTALLATION AND JOINTING PIPES TO PITS SHALL BE UNDERTAKEN IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

CONTINUED ABOVE

CONTINUED FROM BELOW

F. ANY DAMAGE TO THE STRUCTURAL INTEGRITY OF THE PRE-CAST PIT WILL BE REPAIRED AND STRUCTURALLY CERTIFIED TO THE SATISFACTION OF THE SUPERINTENDENT / PENRITH CITY COUNCIL.
G. ALL PRE-CAST PIT PENETRATIONS SHALL BE CUT SO THAT IT IS FLUSH WITH THE INTERNAL WALL.
H. PIPE JOINTING/SEALING OF PIPE PENETRATION TO BE WITH A NON-SHRINK MORTAR MIX, E.G. LANKO 702 DURABED OR SIMILAR APPROVED.

EMBANKMENT CONSTRUCTION SEQUENCE

1. STRIP VEGETATION AND TOPSOIL FROM EMBANKMENT AREA AND STOCKPILE TOPSOIL FOR LATER USE. CUT BACK AREA TO FIRM GROUND.
2. CONSTRUCT EMBANKMENT IN PRESENCE OF QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER IF NOT ROCK.
3. IN THE CASE WHERE THE EMBANKMENT AREAS SHOW ANY FAILURE, THE CONTRACTOR IS TO ENGAGE A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER TO DETERMINE THE CAUSE AND METHOD OF RECTIFICATION
4. COMPACT CLAY STABILISED WITH GYPSUM (3% BY DRY MASS, MINIMUM) AS APPROVED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER INTO THE CUT-OFF TRENCH OF LAYERS NOT EXCEEDING 150mm LOOSE THICKNESS TO A DRY DENSITY EQUIVALENT TO 98% OF THAT DETERMINED BY STANDARD COMPACTION (AS 1289.5.1.1) AND AT A MOISTURE CONTENT OF -2% TO +2% OF OPTIMUM MOISTURE CONTENT.
5. GYPSUM STABILISED NATURAL SOILS EXPOSED IN EMBANKMENT AREA WITH MINIMUM 3% GYPSUM BY DRY MASS AND COMPACT AS FOR #4. ALL TO THE APPROVAL OF A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER.
6. CONSTRUCT BODY OF EMBANKMENT WITH CLAYEY MATERIAL WON FROM SITE. COMPACT THE CLAYEY MATERIAL APPROVED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER IN LAYERS NOT EXCEEDING 150mm THICKNESS TO A DRY DENSITY EQUIVALENT TO 98% OF THAT DETERMINED BY STANDARD COMPACTION (AS 1289.5.1.1) AND AT A MOISTURE CONTENT OF -2% TO +2% OF OPTIMUM MOISTURE CONTENT. MOST IMPORTANTLY, IF SHRINKAGE CRACKS OCCUR, AS DIRECTED BY A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER.
7. OVERFILL THE EMBANKMENT AND TRIM OFF, SO THAT THE ENTIRE BODY OF THE EMBANKMENT IS COMPACTED.
8. TRIM THE EMBANKMENTS BATTERS TO THE OVERFILLED MATERIAL, STABILISE THE UPSTREAM CLAY BATTERS WITH WELL MIXED GYPSUM (3% BY DRY MASS, MINIMUM) AND COMPACT TO MIN. 98% STD -2% TO +2% OMC.
9. PLACE ROCK RIP-RAP AS SHOWN.
10. RECOVER TOPSOIL FROM STOCKPILE AND SPREAD OVER EMBANKMENT AND CUT BATTERS (A THIN COVER OF TOPSOIL ONLY HAS BEEN NOMINATED). ONLY LIGHTLY TRACK-ROLL THE TOPSOIL AND THEN LANDSCAPE IN ACCORDANCE WITH THE LANDSCAPE AREA DRAWINGS.
11. WATER AND FERTILISE LANDSCAPE AS REQUIRED BY CLIMACTIC CONDITIONS TO ENSURE THE LANDSCAPE IS SUCCESSFUL.
12. AT THE COMPLETION OF WORK WRITTEN CONFIRMATION AND CERTIFICATION IS TO BE PROVIDED FROM A QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER THAT THE EMBANKMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THESE DRAWINGS.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

1. THE CONTRACTOR IS RESPONSIBLE FOR ENGAGING A SUITABLY QUALIFIED EROSION AND SEDIMENT CONSULTANT FOR THE DURATION OF THE CONTRACT WITH THE EXPERTISE IN DESIGNING AND DOCUMENTING THE CONTROLS TO ALLOW THE INSTALLATION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROLS. SUITABLE EROSION AND SEDIMENT CONTROLS SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR REQUIRED TO SUIT THE CONSTRUCTION STAGING
2. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
   a. NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
   b. LOCAL AUTHORITY REQUIREMENTS
   c. EPA REQUIREMENTS
3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
4. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
5. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

6. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN / INSTALLED AS DIRECTED BY THE CONTRACTORS EROSION AND SEDIMENT CONTROL CONSULTANT.

EROSION CONTROL

7. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
8. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

EROSION AND SEDIMENT CONTROL NOTES

SEDIMENT CONTROL

9. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
10. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
11. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

OTHER MATTERS

13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
   (A) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
   (B) ENSURING THAT NOTHING IS NAILED TO THEM
   (C) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
      (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER
      (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
      (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

STAGING

SUITABLE EROSION AND SEDIMENT CONTROLS SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT ALL STAGES OF WORKS, THROUGHOUT THE FULL TERM OF THE CONTRACT, WHERE SHOWN ON AT&L DRAWINGS OR WHERE DIRECTED BY THE SUPERINTENDENT OR PENRITH CITY COUNCIL'S ENGINEERS. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING, DOCUMENTING, INSTALLING AND MAINTAINING THE SEDIMENT AND EROSION CONTROLS REQUIRED TO SUIT THE SELECTED CONSTRUCTION STAGING. THIS IS TO BE DOCUMENTED IN THE FORM OF A SOIL AND WATER MANAGEMENT PLAN TO BE DEVELOPED BY THE CONTRACTOR AND THEIR EROSION ND SEDIMENT CONSULTANT AND PROVIDED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION COMMENCEMENT.

SUCH CONTROLS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROTECTION OF THE ENVIRONMENT OPERATIONS ACT, PENRITH CITY COUNCIL'S SPECIFICATIONS AND THE OFFICE OF ENVIRONMENT AND HERITAGE'S 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION. LANDCOM, (4TH EDITION) MARCH 2004 (REPRINTED 2006) (THE "BLUE BOOK"). VOLUME 1 AND VOLUME 2.

FINISHED SURFACE LEVELS

1. ALL FINISHED SURFACE LEVELS ARE ±1000mm U.N.O.

SITEWORKS LEGEND:

- EXISTING BOUNDARY
- EXISTING ELECTRICITY
- PROPOSED BOUNDARY
- PROPOSED EASEMENT
- PROPOSED RETAINING WALL
- 48.00 PROPOSED MAJOR CONTOUR
- 48.20 PROPOSED MINOR CONTOUR
- PROPOSED BATTER TEMPORARY BATTER 1(V):4(H) PERMANENT BATTER 1(V):5(H) U.N.O
- K&G PROPOSED KERB AND GUTTER
- PROPOSED DRIVEWAY LAYBACK
- PROPOSED KERB RAMP
- LIMIT OF WORKS
- PROPOSED CATCH DRAIN
- PROPOSED STORMWATER JUNCTION PIT
- PROPOSED STORMWATER SURFACE INLET PIT
- PROPOSED STORMWATER KERB INLET PIT WITH LINTEL
- PROPOSED STORMWATER PIPE WITH HEADWALL
- PROPOSED CAPPED STORMWATER PIPE
- PROPOSED STORMWATER LINE

DIAL 1100 BEFORE YOU DIG

CONTRACTOR SHALL CALL;
DIAL BEFORE YOU DIG 1100
PRIOR TO COMMENCEMENT OF WORK TO OBTAIN ALL CURRENT SERVICE AUTHORITY PLANS

Issue	Description	Date
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20
B	ISSUED FOR DEVELOPMENT APPLICATION	12-10-20

Bar Scales

100mm on Original

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Client: mirvac

Scales
Drawn KR
Designed KR
Grid MGA
Checked AT
Height Datum AHD
Approved AM

GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
NOTES AND LEGENDS SHEET

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
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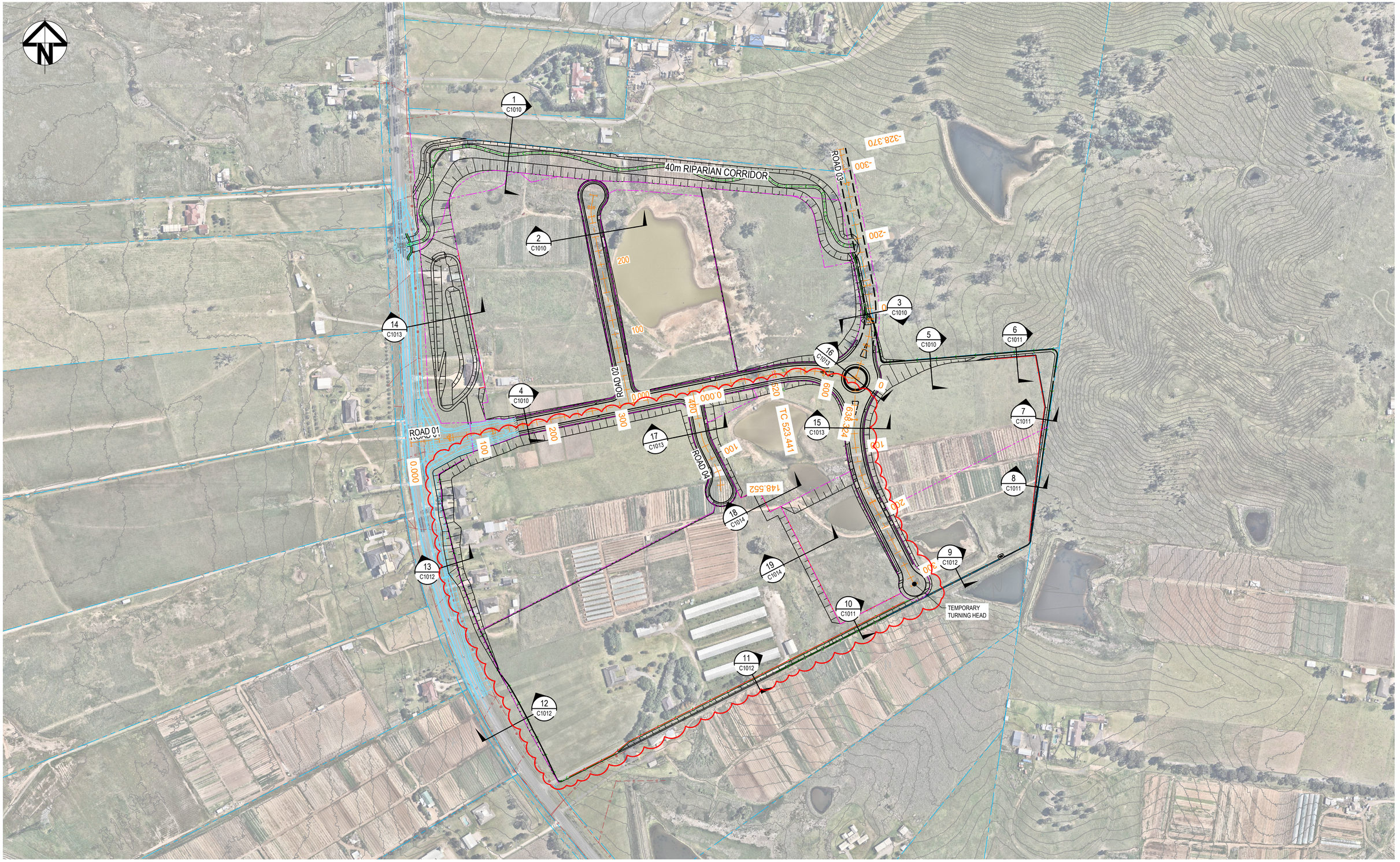
Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1002

Issue
K

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Issue	Description	Date
J	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
T	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
S	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
R	ISSUED FOR DEVELOPMENT APPLICATION	05-07-22
Q	ISSUED FOR DEVELOPMENT APPLICATION	05-07-22
P	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
N	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
M	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
N	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22

Bar Scales

0 50 100 150 200 250m

1 : 2500 @ A1

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Client

mirvac

Scales	1:2500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

GENERAL ARRANGEMENT PLAN

Civil Engineers and Project Managers

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Status: FOR APPROVAL
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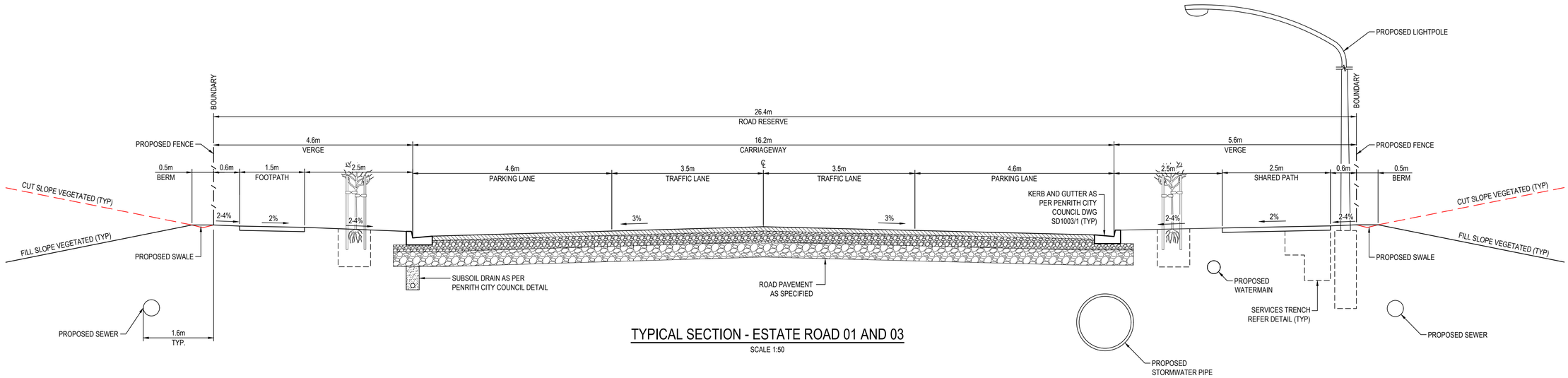
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Project - Drawing No.: 18-596-C1003

Issue: J

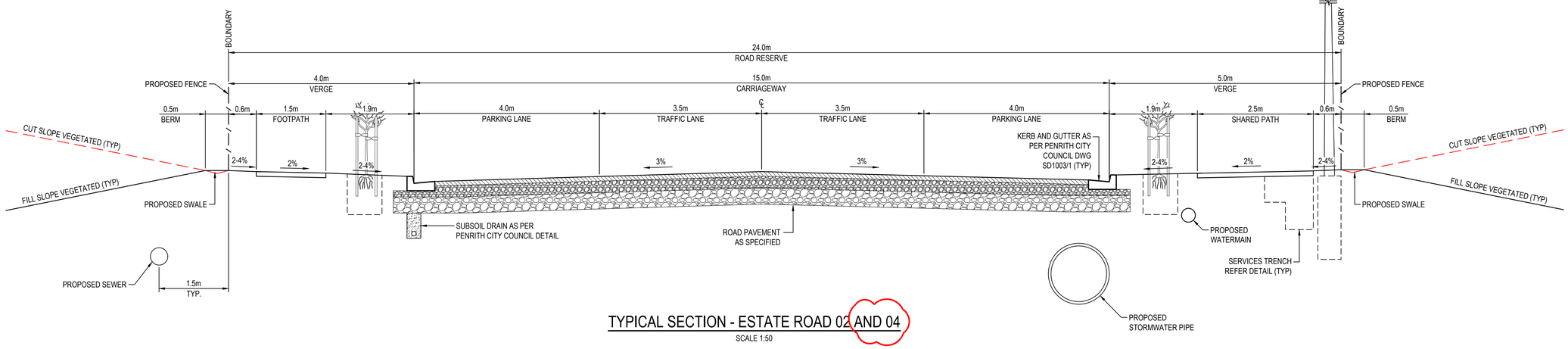
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TYPICAL SECTION - ESTATE ROAD 01 AND 03

SCALE 1:50



TYPICAL SECTION - ESTATE ROAD 02 AND 04

SCALE 1:50

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	16-12-21
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 1 2 3 4 5m

1 : 50 @ A1 1 : 100 @ A3

100mm on Original

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Client: mirvac

Scales	1:50	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: TYPICAL ROAD SECTIONS
SHEET 1

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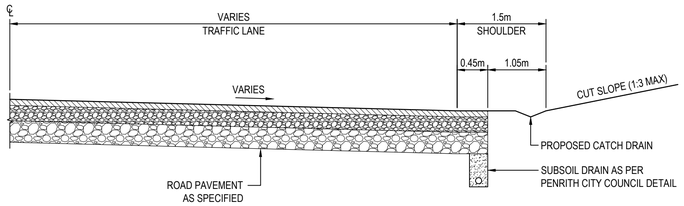
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A1

Project - Drawing No.: 18-596-C1005

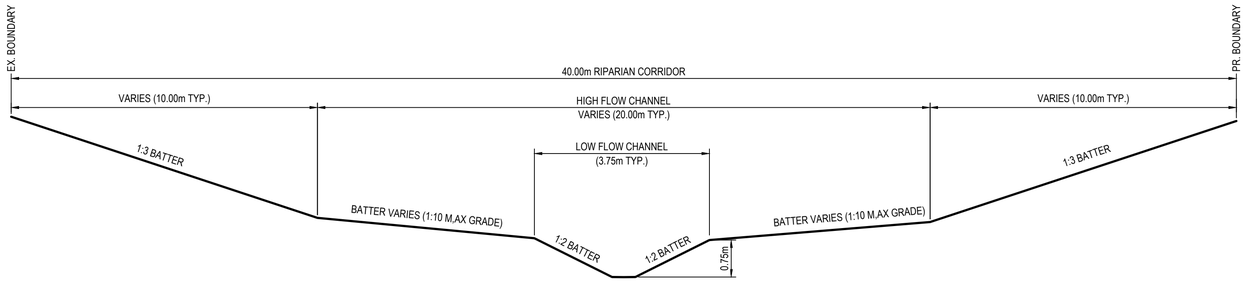
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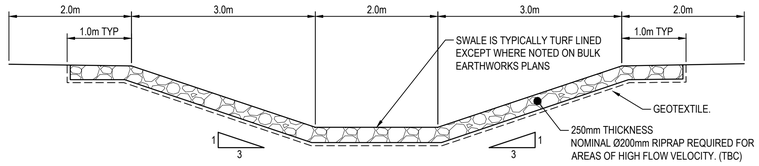


TYPICAL SECTION - TEMPORARY TURNING HEAD

SCALE 1:50

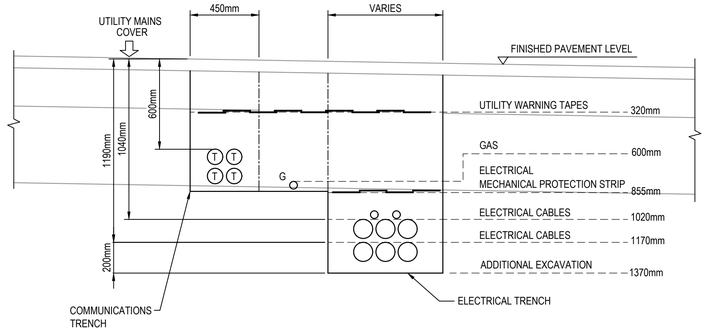


TYPICAL RIPARIAN CORRIDOR SECTION



TYPICAL STORMWATER DIVERSION CATCH DRAIN

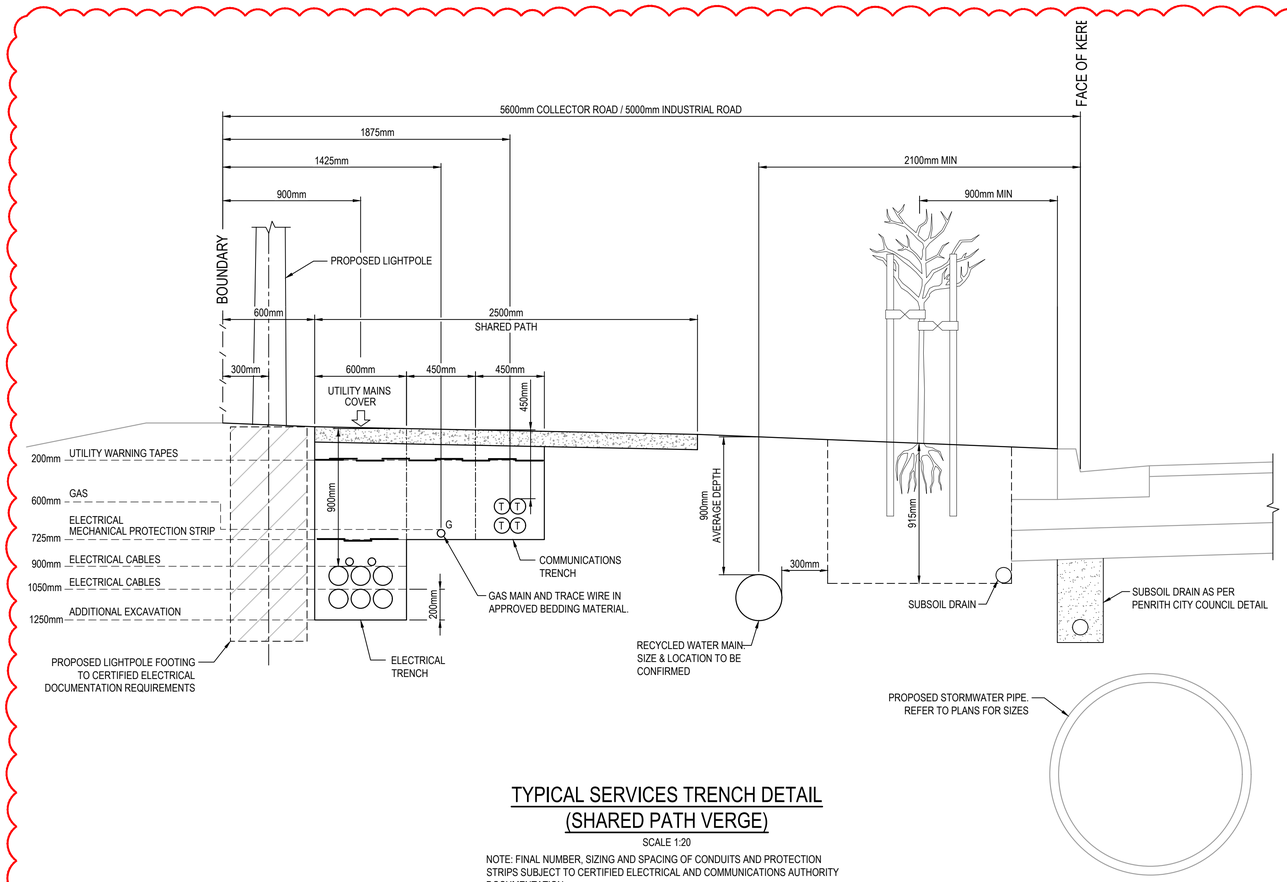
SCALE 1:50



TYPICAL SERVICES TRENCH DETAIL (ROAD CROSSING)

SCALE 1:20

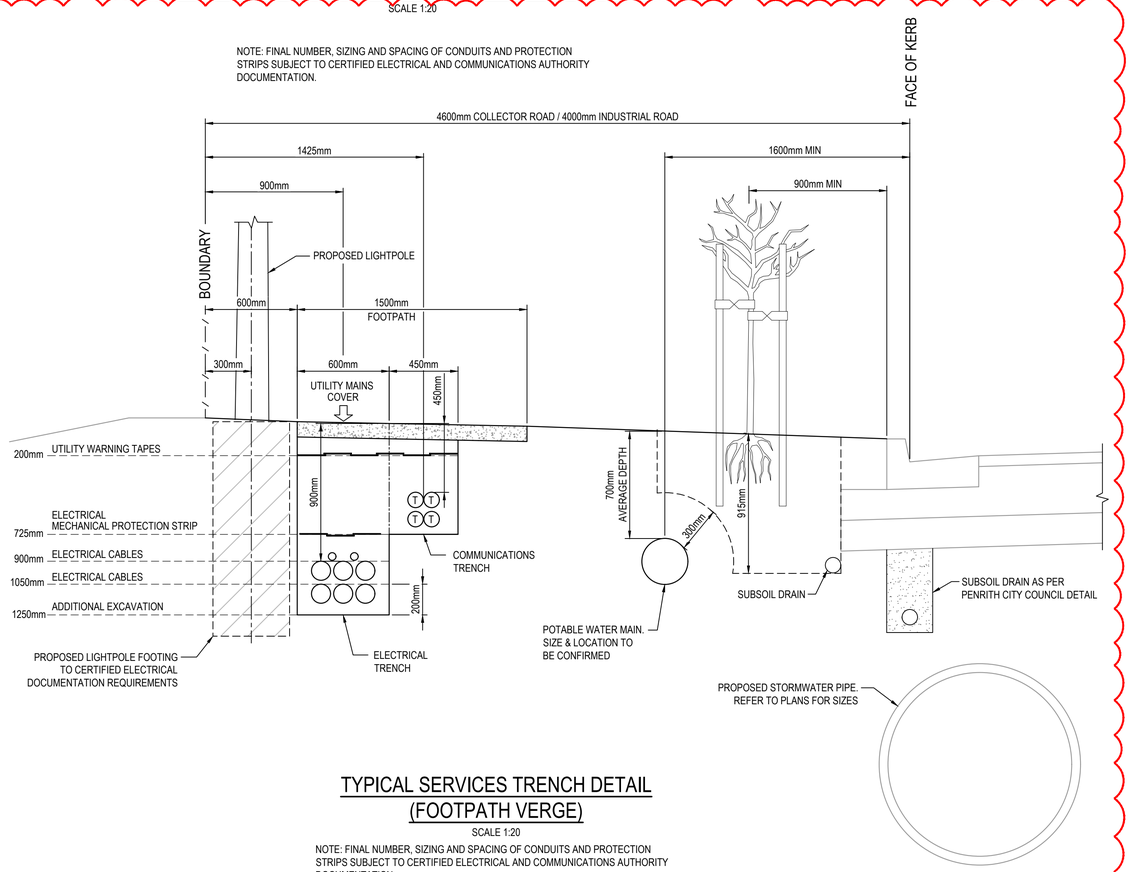
NOTE: FINAL NUMBER, SIZING AND SPACING OF CONDUITS AND PROTECTION STRIPS SUBJECT TO CERTIFIED ELECTRICAL AND COMMUNICATIONS AUTHORITY DOCUMENTATION.



TYPICAL SERVICES TRENCH DETAIL (SHARED PATH VERGE)

SCALE 1:20

NOTE: FINAL NUMBER, SIZING AND SPACING OF CONDUITS AND PROTECTION STRIPS SUBJECT TO CERTIFIED ELECTRICAL AND COMMUNICATIONS AUTHORITY DOCUMENTATION.



TYPICAL SERVICES TRENCH DETAIL (FOOTPATH VERGE)

SCALE 1:20

NOTE: FINAL NUMBER, SIZING AND SPACING OF CONDUITS AND PROTECTION STRIPS SUBJECT TO CERTIFIED ELECTRICAL AND COMMUNICATIONS AUTHORITY DOCUMENTATION.

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	16-12-21
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

0 1 2 3 4 5m
1 : 50 @ A1 1 : 100 @ A3

0 500 1000 1500 2000mm
1 : 20 @ A1 1 : 40 @ A3

100mm on Original

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Client: mirvac

Scales	1:100, 1:50, 1:20
Grid	MGA
Height Datum	AHD
Drawn	KR
Designed	KR
Checked	AT
Approved	AM

GDA2020

Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: TYPICAL ROAD SECTIONS
SHEET 2

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

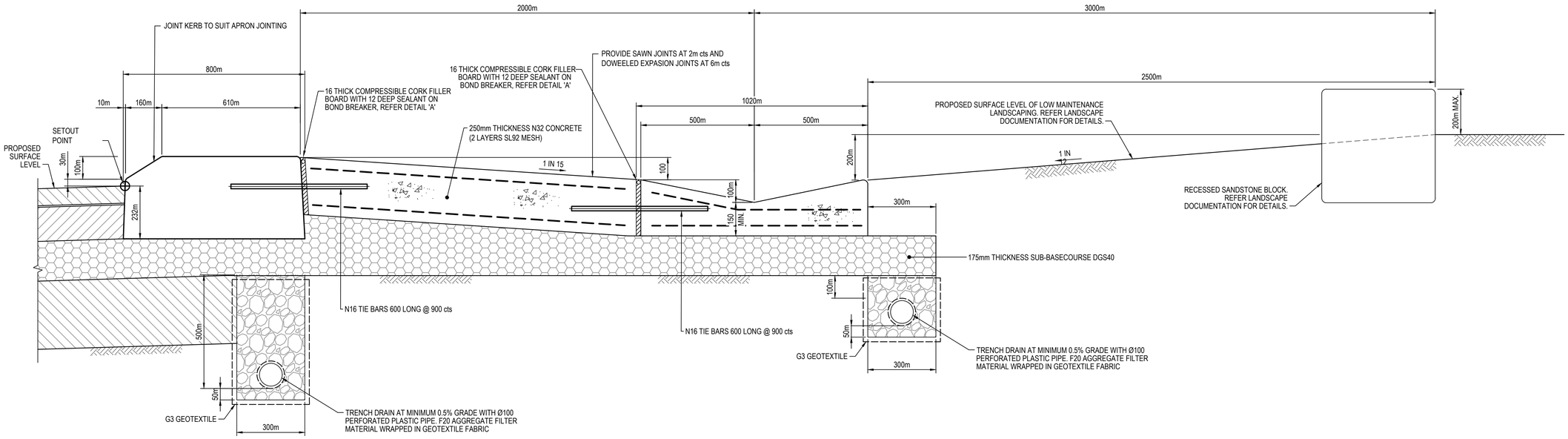
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1006

Issue: M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1006.dwg



SECTION 1 / C1013
1 : 10

Issue	Description	Date
C	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
B	ISSUED FOR DEVELOPMENT APPLICATION	'29-04-22
A	ISSUED FOR DEVELOPMENT APPLICATION	'14-04-22

Bar Scales

0 100 200 400 600 800 1000mm

1 : 10 @ A1 1 : 20 @ A3

100mm on Original

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Client: mirvac

Scales		Drawn	KR
	1:10	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
TYPICAL ROAD SECTIONS
SHEET 3

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Fax: 02 9923 1055
www.atl.net.au
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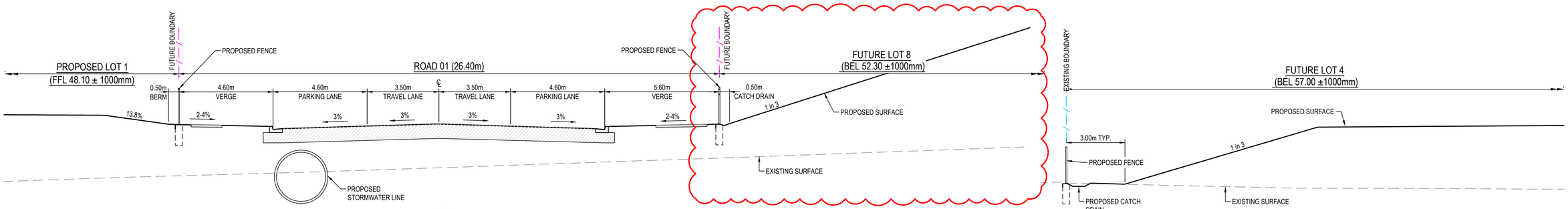
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1007

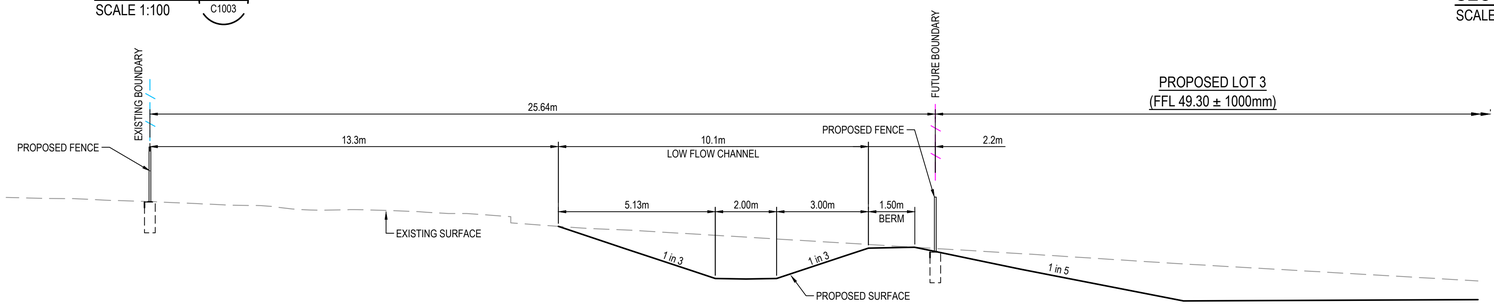
Issue: C

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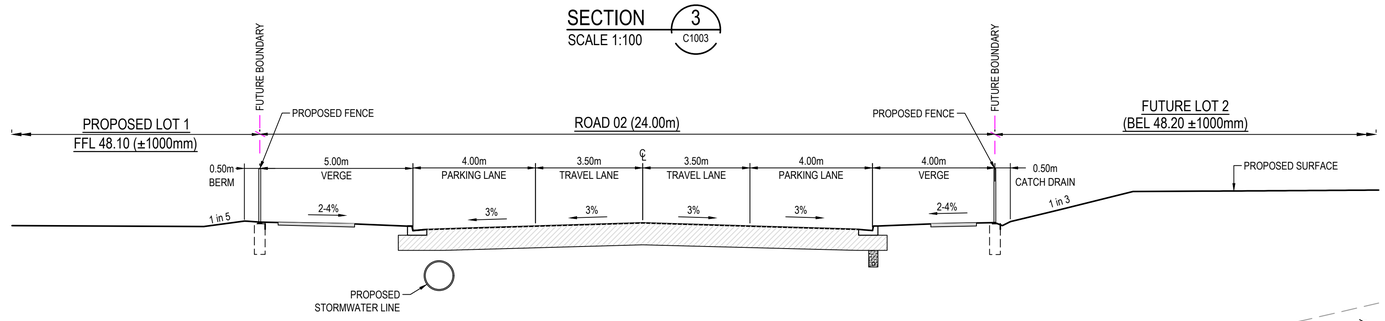


SECTION 4 C1003
SCALE 1:100

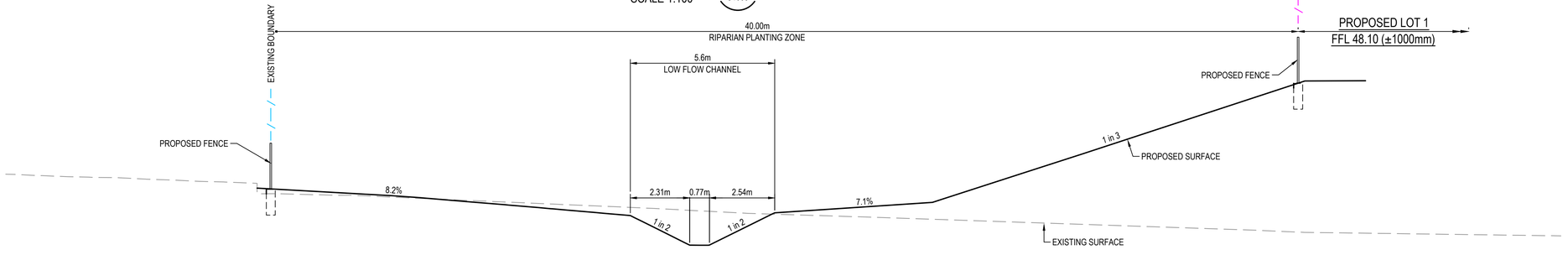
SECTION 5 C1003
SCALE 1:100



SECTION 3 C1003
SCALE 1:100



SECTION 2 C1003
SCALE 1:100



SECTION 1 C1003
SCALE 1:100

Issue	Description	Date
O	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

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Client

mirvac

Scales 1:100

Drawn KR

Designed KR

Grid MGA

Checked AT

Height Datum AHD

Approved AM

GDA2020

Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

TYPICAL SECTIONS
SHEET 1

Civil Engineers and Project Managers

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www.atl.net.au
info@atl.net.au

Status FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No. 18-596-C1010

Issue O

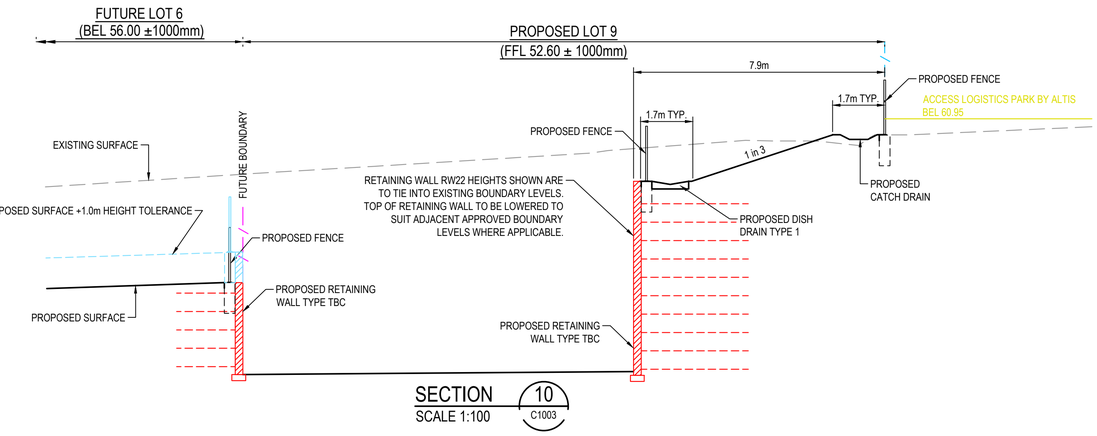
100mm on Original

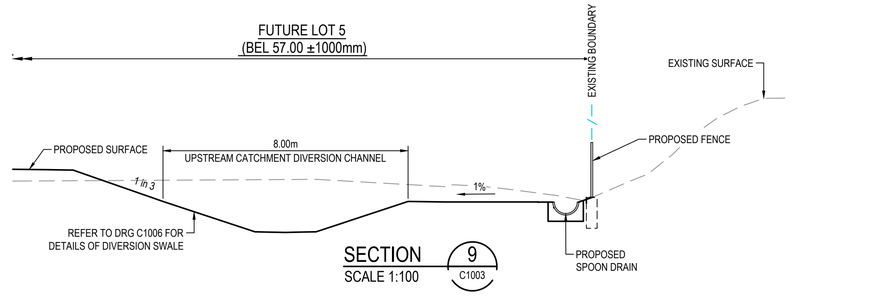
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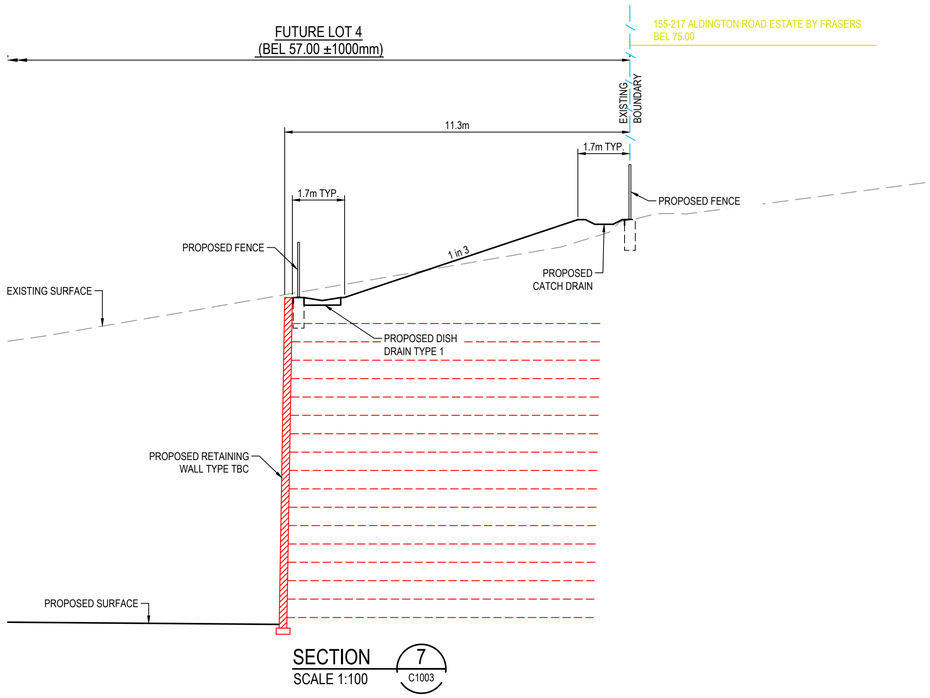
LEGEND

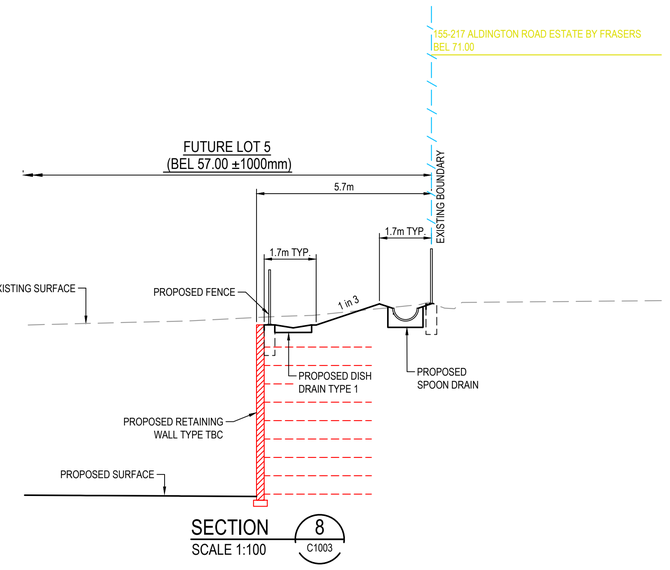
NEIGHBOURING SITE BULK EARTHWORKS LEVELS

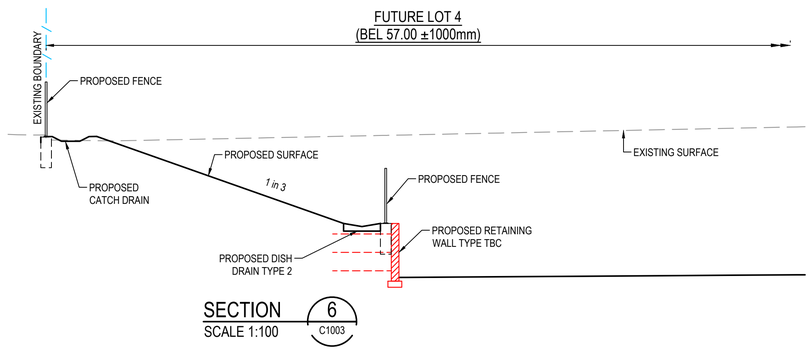
PROPOSED LEVEL +1.0m HEIGHT TOLERANCE











Issue	Description	Date
N	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	23-06-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

100mm on Original

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

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Client: mirvac

Scales	1:100	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: TYPICAL SECTIONS
SHEET 2

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
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Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

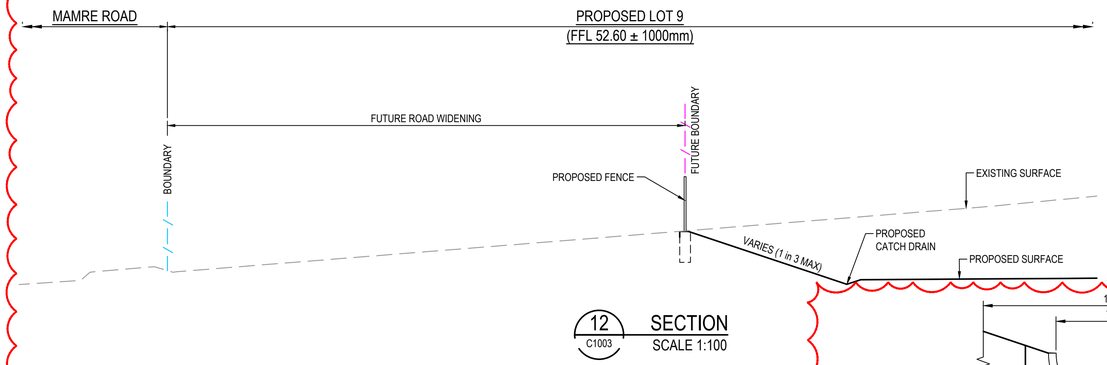
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

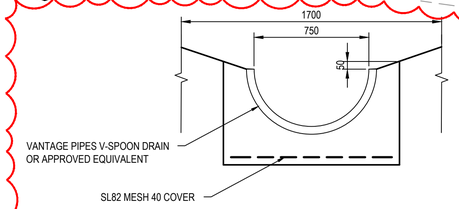
Project - Drawing No.: 18-596-C1011

Issue: N

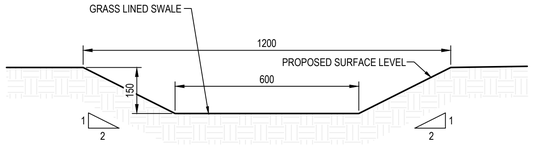
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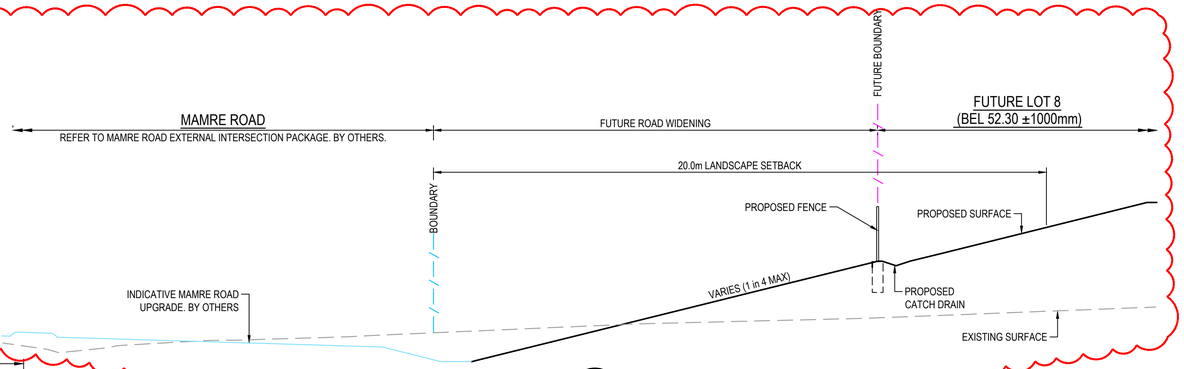
12 C1003 SECTION
SCALE 1:100



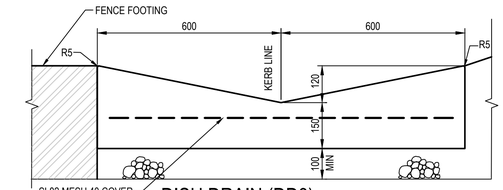
SPOON DRAIN (SD)
SCALE 1:10



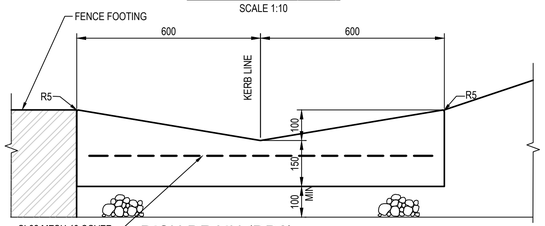
CATCH DRAIN (CD)
SCALE 1:10



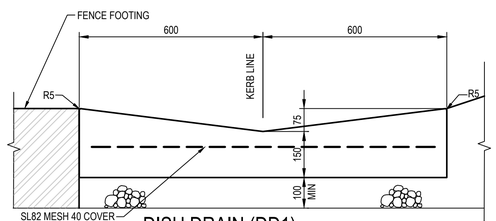
SECTION 13 C1003
SCALE 1:100



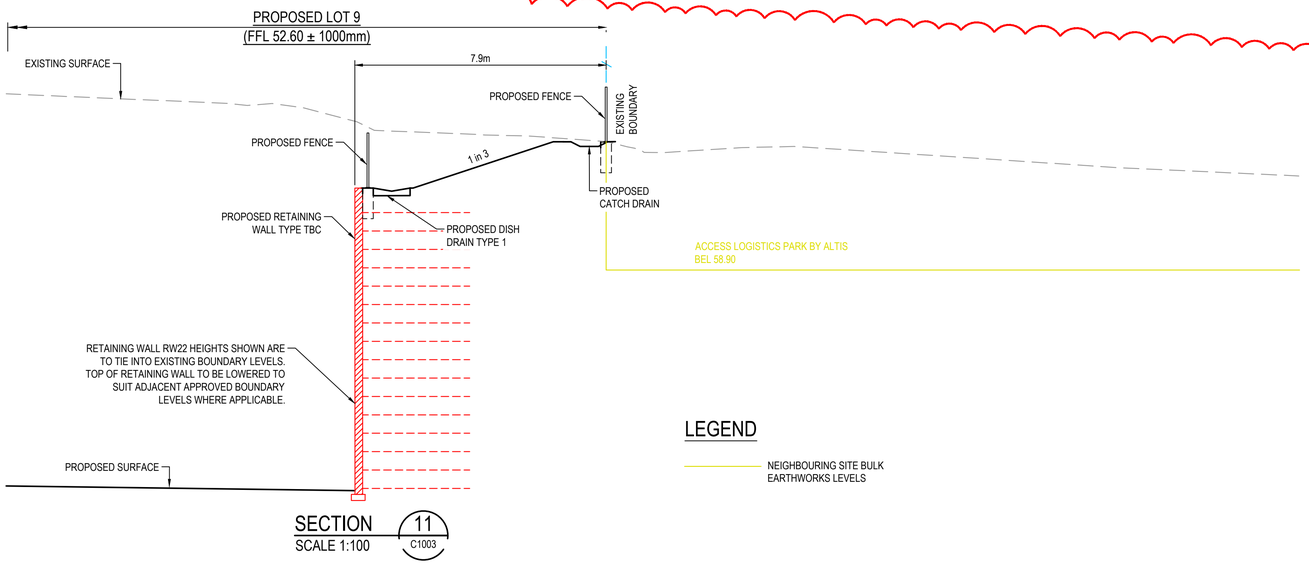
DISH DRAIN (DD3)
SCALE 1:10



DISH DRAIN (DD2)
SCALE 1:10



DISH DRAIN (DD1)
SCALE 1:10



SECTION 11 C1003
SCALE 1:100

LEGEND

NEIGHBOURING SITE BULK EARTHWORKS LEVELS

Issue	Description	Date
O	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	23-06-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

100mm on Original

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Client

mirvac

Scales	1:100	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
TYPICAL SECTIONS
SHEET 3

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

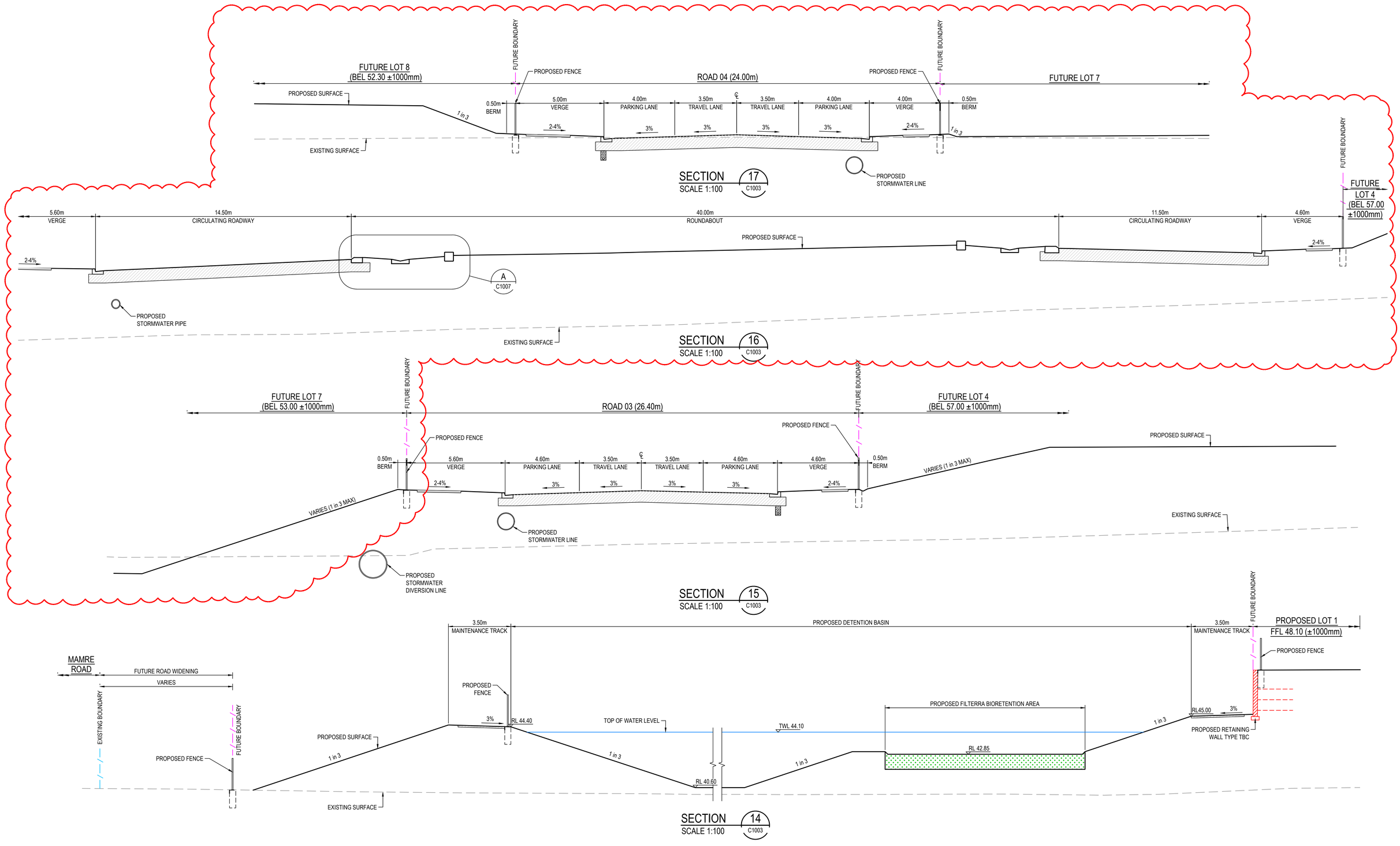
Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1012

Issue
O

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1012.dwg



Issue	Description	Date
E	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
D	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
C	ISSUED FOR DEVELOPMENT APPLICATION	'29-04-22
B	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
A	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

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Client: mirvac

Scales	1:100
Grid	MGA
Height Datum	AHD
Drawn	KR
Designed	KR
Checked	AT
Approved	AM

GDA2020

Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: TYPICAL SECTIONS
SHEET 4

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Fax: 02 9923 1055
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info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

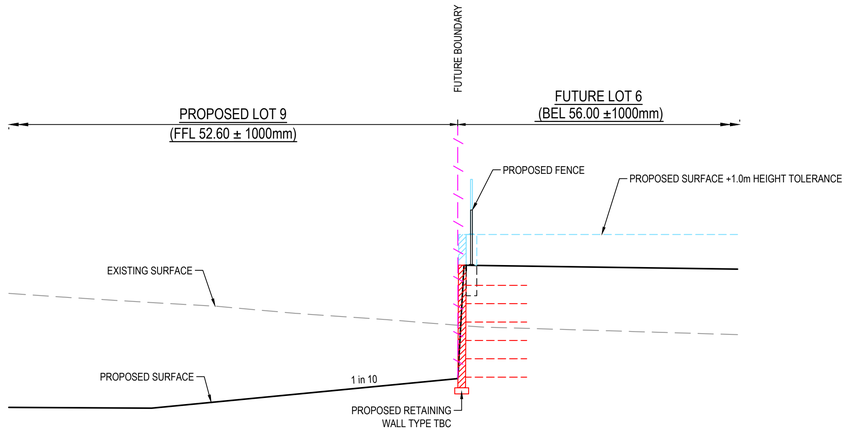
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Project - Drawing No.: 18-596-C1013

Issue: E

100mm on Original

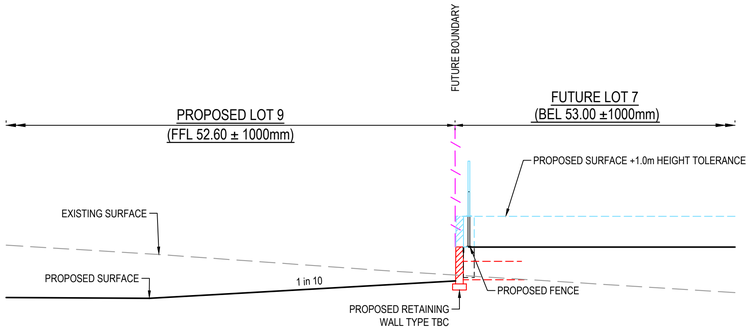
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SECTION 19
SCALE 1:100 C1003

LEGEND

PROPOSED LEVEL +1.0m
HEIGHT TOLERANCE



SECTION 18
SCALE 1:100 C1003

Issue	Description	Date
A	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

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Client: mirvac

Scales	1:100
Grid	MGA
Height Datum	AHD
Drawn	KR
Designed	KR
Checked	AT
Approved	AM

GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
TYPICAL SECTIONS
SHEET 5

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info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

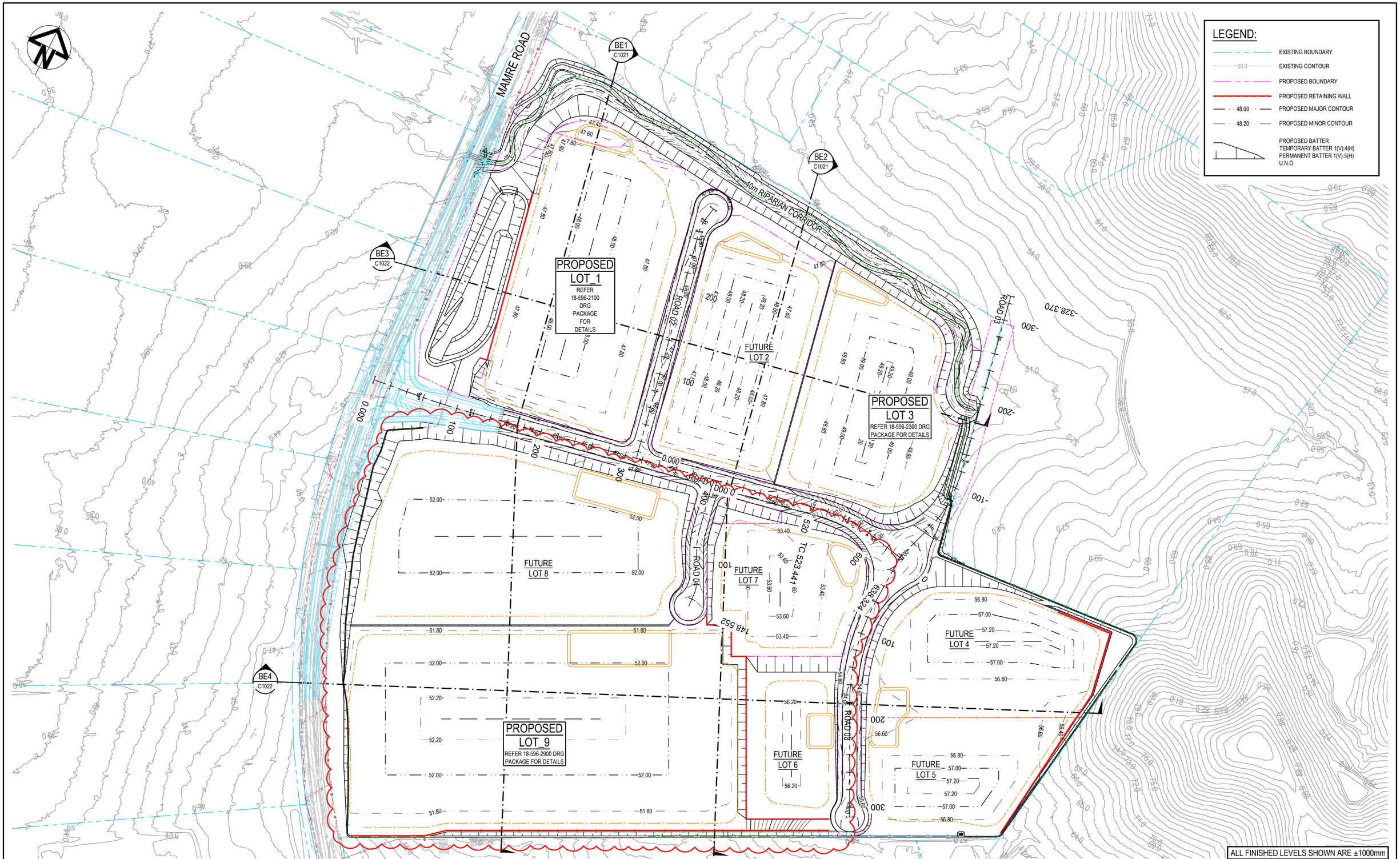
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Project - Drawing No.
18-596-C1014

Issue
A

100mm on Original

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Issue	Description	Date
O	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	10-02-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client

mirvac

Scales	1:2000	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

BULK EARTHWORKS
CONTOUR PLAN

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Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

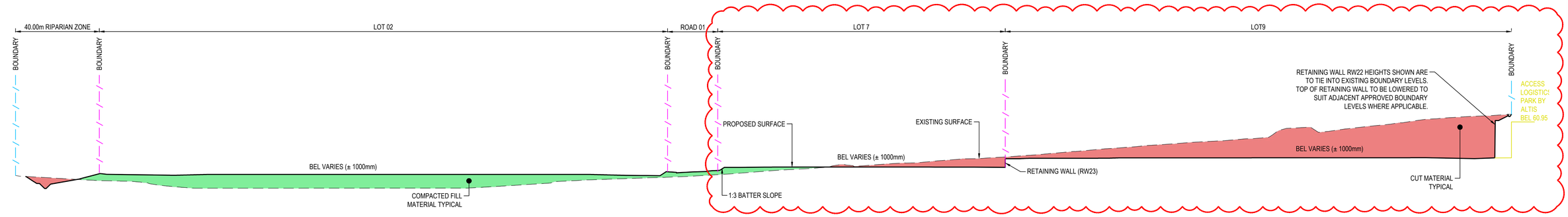
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Project - Drawing No.: 18-596-C1020

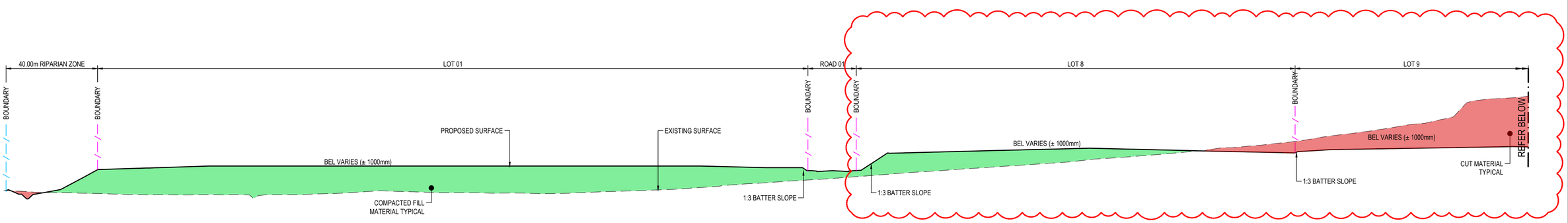
Issue: O

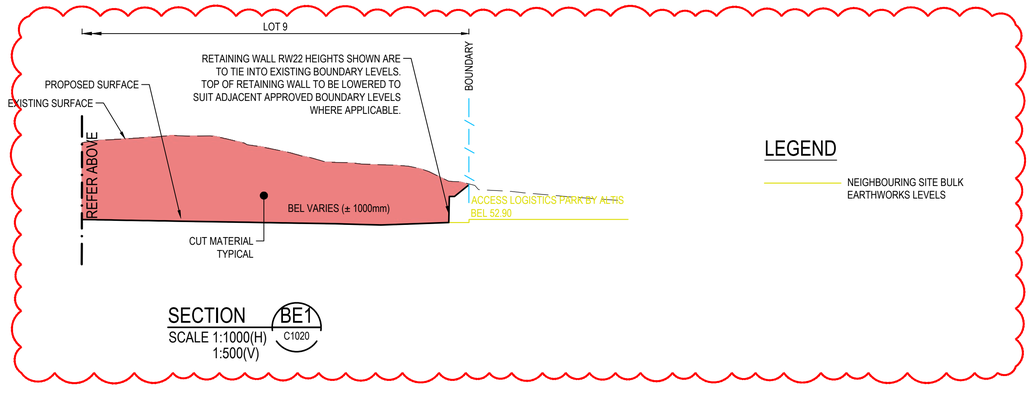
100mm on Original

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1020.dwg



SECTION BE2
SCALE 1:1000(H) 1:500(V)
C1020





SECTION BE1
SCALE 1:1000(H) 1:500(V)
C1020

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
R	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
Q	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
P	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
N	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
M	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
L	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
K	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
J	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
H	ISSUED FOR DEVELOPMENT APPLICATION	16-02-22

Bar Scales

0 20 40 60 80 100m
1 : 1000 @ A1 1 : 2000 @ A3
0 10 20 30 40 50m
1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

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Client: mirvac

Scales: 1:1000(H) 1:500(V)
Grid: MGA
Height Datum: AHD
GDA2020

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

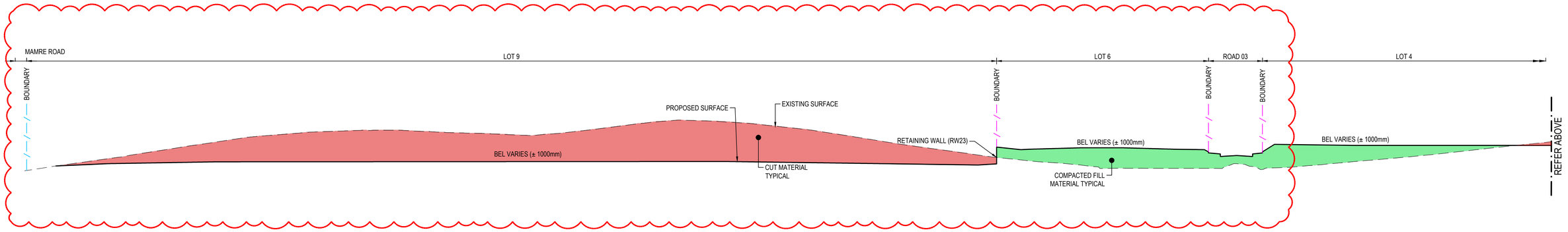
Title
BULK EARTHWORKS
SECTIONS
SHEET 1

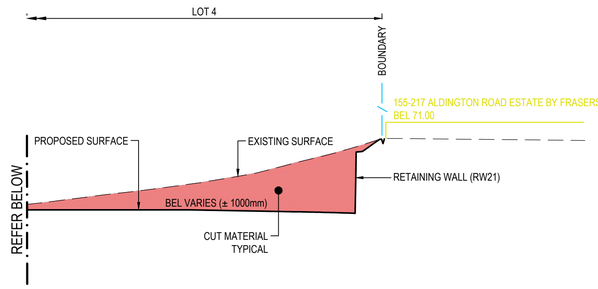
Civil Engineers and Project Managers
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Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION
A1

Project - Drawing No.: 18-596-C1021
Issue: R

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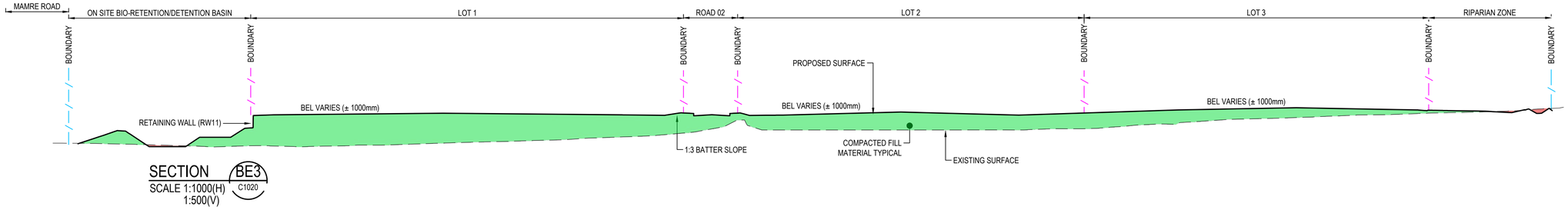




SECTION BE4
SCALE 1:1000(H)
1:500(V)
C1020

LEGEND

NEIGHBOURING SITE BULK EARTHWORKS LEVELS



SECTION BE3
SCALE 1:1000(H)
1:500(V)
C1020

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
R	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
Q	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
P	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
N	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
M	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
L	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
K	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
J	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
H	ISSUED FOR DEVELOPMENT APPLICATION	16-02-22

Bar Scales

0 20 40 60 80 100m
1 : 1000 @ A1 1 : 2000 @ A3

0 10 20 30 40 50m
1 : 500 @ A1 1 : 1000 @ A3

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Client: mirvac

Scales		Drawn	KR
	1:1000(H) 1:500(V)	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
BULK EARTHWORKS SECTIONS SHEET 2

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Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1022

Issue: R

100mm on Original

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EARTHWORKS VOLUMES

A	B	C	D	E	F	G = A+B+C+D+E+F
EXISTING TOPSOIL STRIPPING VOLUME (cu.m) REFER NOTE No.1	EXCAVATION OF EXISTING CREEKS AND DAMS (cu.m) REFER NOTE No.3	INFRAWORKS SERVICES TRENCHING SPOIL	APPROXIMATE VOLUME OF SELECT MATERIAL IMPORT FOR RETAINING WALLS	NET CUT (cu.m)	NET FILL (cu.m)	BALANCE (cu.m)
-44,486	-51,506	-25,000	-44,411	-1,016,851	1,175,839	-6,415

CUT/FILL DEPTH RANGE LEGEND

Lower_value		Upper_value		Colour
-10.0	to	-8.0	m	
-8.0	to	-7.0	m	
-7.0	to	-6.0	m	
-6.0	to	-5.0	m	
-5.0	to	-4.0	m	
-4.0	to	-3.0	m	
-3.0	to	-2.0	m	
-2.0	to	-1.0	m	
-1.0	to	0.0	m	
0.0	to	1.0	m	
1.0	to	2.0	m	
2.0	to	3.0	m	
3.0	to	4.0	m	
4.0	to	5.0	m	
5.0	to	6.0	m	
6.0	to	7.0	m	
7.0	to	8.0	m	
8.0	to	10.0	m	

EARTHWORKS AREAS

CUT (ha)	17.8
FILL (ha)	38.0
FARM DAMS (ha)	3.0
TOTAL (ha)	58.8

MAMRE ROAD

BEL 47.80 (±1000mm)

40m RIPARIAN CORRIDOR

PROPOSED LOT_1 REFER 18-596-2100 DRG PACKAGE FOR DETAILS

ROAD 02

BEL 48.20 (±1000mm) FUTURE LOT 2

BEL 49.00 (±1000mm)

PROPOSED LOT 3 REFER 18-596-2300 DRG PACKAGE FOR DETAILS

ROAD 01

FUTURE LOT 8 BEL 52.30 (±1000mm)

ROAD 04

FUTURE LOT 7 BEL 53.00 (±1000mm)

FUTURE LOT 4 BEL 57.00 (±1000mm)

PROPOSED LOT_9 REFER 18-596-2900 DRG PACKAGE FOR DETAILS

BEL 52.30 (±1000mm)

ROAD 03

FUTURE LOT 6 BEL 56.00 (±1000mm)

FUTURE LOT 5 BEL 57.00 (±1000mm)

LEGEND:

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- PROPOSED RETAINING WALL
- PROPOSED BATTER TEMPORARY BATTER 1(V):4(H) PERMANENT BATTER 1(V):5(H) U.N.O
- EXTENT OF EXCAVATION OF EXISTING CREEKS AND DAMS (REFER NOTE No.3)

NOTES

1. EXISTING TOPSOIL STRIPPED 150mm IN AREAS OF LESS THAN 2m OF ENGINEERED FILL TO BE PLACED OVER THE EXISTING SUBGRADE. IT IS ASSUMED THAT ALL TOPSOIL FROM THE SITE WILL BE RE-USED ON SITE AS PER THE SPECIFICATION OF THE GEOTECHNICAL ENGINEER. EXCESS TOPSOIL WILL BE EXPORTED AS REQUIRED.
2. ALLOWANCE HAS BEEN MADE FOR RETAINING WALL BACKFILL MATERIAL (IMPORT).
3. ADDITIONAL EXCAVATION OF EXISTING CREEKS AND DAMS WITHIN SITE AREA TO A DEPTH 1m BELOW EXISTING INVERT AND WIDTH OF EXISTING CREEK/DAM EXTENT. VOLUMES ARE APPROXIMATE.
   DEPTH OF DAMS HAS BEEN ASSUMED AT 2.5m DEEP. EXCAVATED MATERIAL TO BE FARMED AND USED AS GENERAL FILL WITHIN FILL ZONES 1m BELOW FINAL SURFACE (GEOTECHNICAL ENGINEER TO CONFIRM SUITABILITY OF MATERIAL).
4. POSITIVE BALANCE VOLUMES INDICATE SHORTFALL OF MATERIAL REQUIRED (IMPORT).
5. THE VOLUMES DO NOT TAKE INTO ACCOUNT THE FOLLOWING :-
   - BULKING FACTORS OF REMOVED CUT
   - REMOVAL OF EXISTING BUILDING SLABS AND PAVEMENTS
   - REMOVAL AND/OR REMEDIATION OF ANY EXISTING UNCONTROLLED FILL
   - PROPOSED LANDSCAPING
   - STORMWATER AND UTILITY TRENCHING
   - EROSION AND SEDIMENTATION CONTROL SWALES AND BASINS
6. BUILDING PADS HAVE BEEN GRADED AT MINIMUM 0.5% GRADE
7. PROPOSED PAVEMENT BOX OUT HAS BEEN SHOWN AT 700mm DEPTH. PAVEMENT DEPTH TO CONFIRMED DURING DETAILED DESIGN.

Issue	Description	Date
O	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
H	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
F	ISSUED FOR DEVELOPMENT APPLICATION	10-02-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client: mirvac

Scales: 1:2000

Drawn: KR

Designed: KR

Checked: AT

Approved: AM

Grid: MGA

Height Datum: AHD

GDA2020

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: BULK EARTHWORKS CUT/FILL PLAN

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Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1025

Issue: O

100mm on Original

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1025.dwg

ADJOINS DRG No 18-596-C1030

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

MAMRE ROAD

DETENTION BASIN

BIO RETENTION
BEL 42.75

RETAINING WALL RW11 (LENGTH: 204m MAX. HEIGHT: 2.5m)

BEL40.72 BEL40.72 BEL 47.51

BEL40.88 BEL40.88

BEL44.34

BEL41.09 BEL41.10

BEL41.23 BEL41.25

BEL44.95 BEL44.95

BEL44.96

BEL 46.70

BEL 48.65

BEL 48.65

PROPOSED LOT 1
REFER 18-596-2100 DRG PACKAGE FOR DETAILS

0.5% MIN

0.5% MIN

0.5% MIN

0.5% MIN

0.3% MIN

0.3% MIN

47.80

48.00

48.00

47.80

47.20

47.20

46.80

46.80

1 3 MAX BATTER

1 3 MAX BATTER

1 3 MAX BATTER

1 3 MAX BATTER

1 3 MAX BATTER

ROAD 01

82°59'25"
L55.456
R-800
L61.029

ROAD 02

348°37'18"
L288.602

78°37'10"
L406.955
0.000

CREST 161.801

SAG 53.933
TC 55.456
CT 116.486

FUTURE LOT 8
BEL 51.80

FUTURE LOT 2
SAG 28.143
BEL 47.65

FUTURE LOT 8
BEL 51.80

3082m³

REFER ORION CONSULTING DRGS FOR INTERSECTION DETAILS

ALL FINISHED LEVELS SHOWN ARE ±100mm

ADJOINS DRG No 18-596-C1033

ADJOINS DRG No 18-596-C1034

ADJOINS DRG No 18-596-C1035

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
BULK EARTHWORKS
PLAN
SHEET 3

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Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1032

Issue
M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1032.dwg

ADJOINS DRG No 18-596-C1031

ADJOINS DRG No 18-596-C1032

ADJOINS DRG No 18-596-C1035

ADJOINS DRG No 18-596-C1036

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

BEL 48.15 · BEL 47.60 · BEL 48.70 · BEL 48.70 · BEL 48.15

0.5% MIN · 0.5% MIN · 0.3% MIN · 0.5% MIN · 0.5% MIN · 0.5% MIN · 0.5% MIN · 0.5% MIN · 0.3% MIN

FUTURE LOT 2

BEL 49.00 · BEL 49.00 · BEL 49.00

PROPOSED LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

40m RIPARIAN CORRIDOR

1 3 MAX BATTER · 1 3 MAX BATTER · 1 3 MAX BATTER · 1 3 MAX BATTER · 1 3 MAX BATTER · 1 3 MAX BATTER

UPSTREAM CATCHMENT DIVERSION CHANNEL. REFER TO TO DRG 18-596-C1006 FOR DETAIL

BEL 47.65 · BEL 47.60 · BEL 48.70 · BEL 48.69

ROAD 01 · ROAD 04 · ROAD 03 · ROAD 01

BEL 51.80 · BEL 51.80 · FUTURE LOT 7 · BEL 53.25 · BEL 53.25 · BEL 53.25

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1 · SHEET 2 · SHEET 3 · SHEET 4 · SHEET 5 · SHEET 6 · SHEET 7 · SHEET 8 · SHEET 9 · SHEET 10

Client: mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: BULK EARTHWORKS PLAN SHEET 4

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Status: FOR APPROVAL
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A1

Project - Drawing No. 18-596-C1033

Issue M

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1033.dwg

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

ADJOINS DRG No 18-596-C1032

MAMRE ROAD

BEL 51.80

1 3 MAX BATTER

FUTURE LOT 8

52.00

BEL 52.20

0.5% MIN

PROPOSED LOT_9 SUBJECT TO SEPARATE SSDA

BEL 51.70

BEL 54.10

ALL FINISHED LEVELS SHOWN ARE ±1000mm

ADJOINS DRG No 18-596-C1035

ADJOINS DRG No 18-596-C1037

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client: mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project: ASPECT INDUSTIAL ESTATE MAMRE ROAD, KEMPS CREEK STAGE 1

Title: BULK EARTHWORKS PLAN SHEET 5

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Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1034

Issue: L

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1034.dwg

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

ADJOINS DRG No 18-596-C1032

ADJOINS DRG No 18-596-C1033

ADJOINS DRG No 18-596-C1034

ADJOINS DRG No 18-596-C1036

ADJOINS DRG No 18-596-C1038

3082m³

4447m³

PROPOSED LOT_9 SUBJECT TO SEPARATE SSDA

FUTURE LOT 8

FUTURE LOT 7

ROAD 04

RETAINING WALL RW23 LENGTH: 372m MAX. HEIGHT: 3.8m +/- 1.0m

BEL 51.80 · BEL 52.20 · BEL 53.25 · BEL 53.70 · BEL 51.70 · BEL 52.38 · BEL 52.43 · BEL 52.60 · BEL 56.00 · BEL 51.64 · BEL 51.75 · BEL 54.10

0.5% MIN · 3 MAX BATTER · 10 TYP. BATTER

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

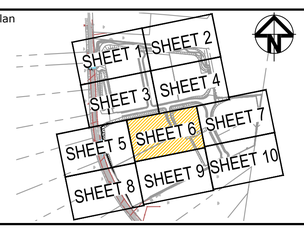
Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan



Client: mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: BULK EARTHWORKS PLAN SHEET 6

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Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No. 18-596-C1035

Issue M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1035.dwg

ADJOINS DRG No 18-596-C1033

ADJOINS DRG No 18-596-C1035

ADJOINS DRG No 18-596-C1039

BEL 53.25
BEL 53.25
BEL 53.25
BEL 53.25
BEL 53.25
BEL 56.00
BEL 56.00
BEL 56.30
BEL 56.57
BEL 56.75
BEL 56.70
BEL 56.60
BEL 57.30
BEL 57.30
BEL 57.30
BEL 56.70
BEL 56.50

ROAD 01
ROAD 03
ROAD 03

53.00
53.20
53.20
53.00
53.00
53.20
53.40
53.60
53.80
54.00
54.20
54.40
54.60
54.40
54.20
55.00
54.40

600
697m³
638.324
100
1573m³
200
889m³

FUTURE LOT 7
FUTURE LOT 4
FUTURE LOT 6
FUTURE LOT 5

1 3 MAX BATTER
1 3 TYP. BATTER

0.3% MIN
0.5% MIN
56.80
57.00
57.20
56.60
56.80
57.00
57.20
56.80
57.00
57.20
56.60
56.80
57.00
57.20
56.60

RETAINING WALL RW21 (LENGTH: 307m, MAX. HEIGHT: 10.9m +/- 1.0m)

DISH DRAIN TO CONNECT INTO SEDIMENT AND EROSION CONTROL CATCH DRAIN

DISH DRAIN TYPE 2 BEHIND RETAINING WALL. REFER TO DRG C1012 FOR DETAIL.

CATCH DRAIN. REFER TO DRG C1012 FOR DETAIL.

DISH DRAIN TYPE 1 BEHIND RETAINING WALL. REFER TO DRG C1012 FOR DETAIL.

SMOOTHLY TRANSITION CATCH DRAIN INTO SPOON DRAIN. CONTRACTOR TO ENSURE NO PONDING TO OCCUR.

SPOON DRAIN. REFER TO DRG C1012 FOR DETAIL.

DD1
DD2
SD
CD

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client

mirvac

Scales 1:500

Grid MGA

Height Datum AHD

Drawn KR

Designed KR

Checked AT

Approved AM

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GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
BULK EARTHWORKS PLAN SHEET 7

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
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Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1036

Issue
L

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1036.dwg

ADJOINS DRG No 18-596-C1034

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

BEL 51.70

1 3 MAX BATTER

BEL 54.10

52.00

52.20

BEL 52.32

0.5% MIN

PROPOSED LOT_9 SUBJECT TO SEPARATE SSDA

MAMRE ROAD

1 3 MAX BATTER

BEL 51.70

RETAINING WALL RW22 (LENGTH: 534m, MAX. HEIGHT: 10.80m +/- 1.0m)

CD

CATCH DRAIN. REFER TO DRG C1012 FOR DETAIL.

BEL 51.70

ALL FINISHED LEVELS SHOWN ARE ±1000mm

ADJOINS DRG No 18-596-C1038

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client: mirvac

Scales: 1:500

Grid: MGA

Height Datum: AHD

Drawn: KR

Designed: KR

Checked: AT

Approved: AM

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GDA2020

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: BULK EARTHWORKS PLAN SHEET 8

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Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1037

Issue: L

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ADJOINS DRG No 18-596-C1035

ADJOINS DRG No 18-596-C1037

ADJOINS DRG No 18-596-C1039

BEL 54.10

BEL 54.10

BEL 52.32

BEL 52.32

0.5% MIN

0.5% MIN

0.5% MIN

52.00

52.20

PROPOSED
LOT_9
REFER 18-596-2900 DRG PACKAGE FOR DETAILS

BEL 52.60

BEL 52.60

BEL 56.00

BEL 56.00

0.5% MIN

FUTURE
LOT 6

BEL 56.00

1
10 TYP.
BATTER

BEL 56.00

BEL 51.64

BEL 52.64

51.80

0.3% MIN

1
3 TYP.
BATTER

DD1

CD

DISH DRAIN TYPE 1 BEHIND RETAINING WALL. REFER TO DRG C1012 FOR DETAIL.

CATCH DRAIN. REFER TO DRG C1012 FOR DETAIL.

BEL 51.70

1
3 TYP.
BATTER

DD3

DD1

CD

DISH DRAIN TYPE 1 BEHIND RETAINING WALL. REFER TO DRG C1012 FOR DETAIL.

DISH DRAIN TYPE 3 BEHIND RETAINING WALL. REFER TO DRG C1012 FOR DETAIL.

51.80

RETAINING WALL RW22 (LENGTH: 534m, MAX. HEIGHT: 10.80m +/- 1.0m)

DD3

BUILDING

CATCH DRAIN. REFER TO DRG C1012 FOR DETAIL.

BEL 51.70

CD

52.00

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

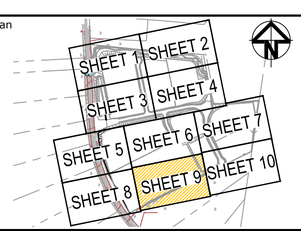
Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan



Client

mirvac

Scales		Drawn	KR
	1:500	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

BULK EARTHWORKS
PLAN
SHEET 9

Civil Engineers and Project Managers

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Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

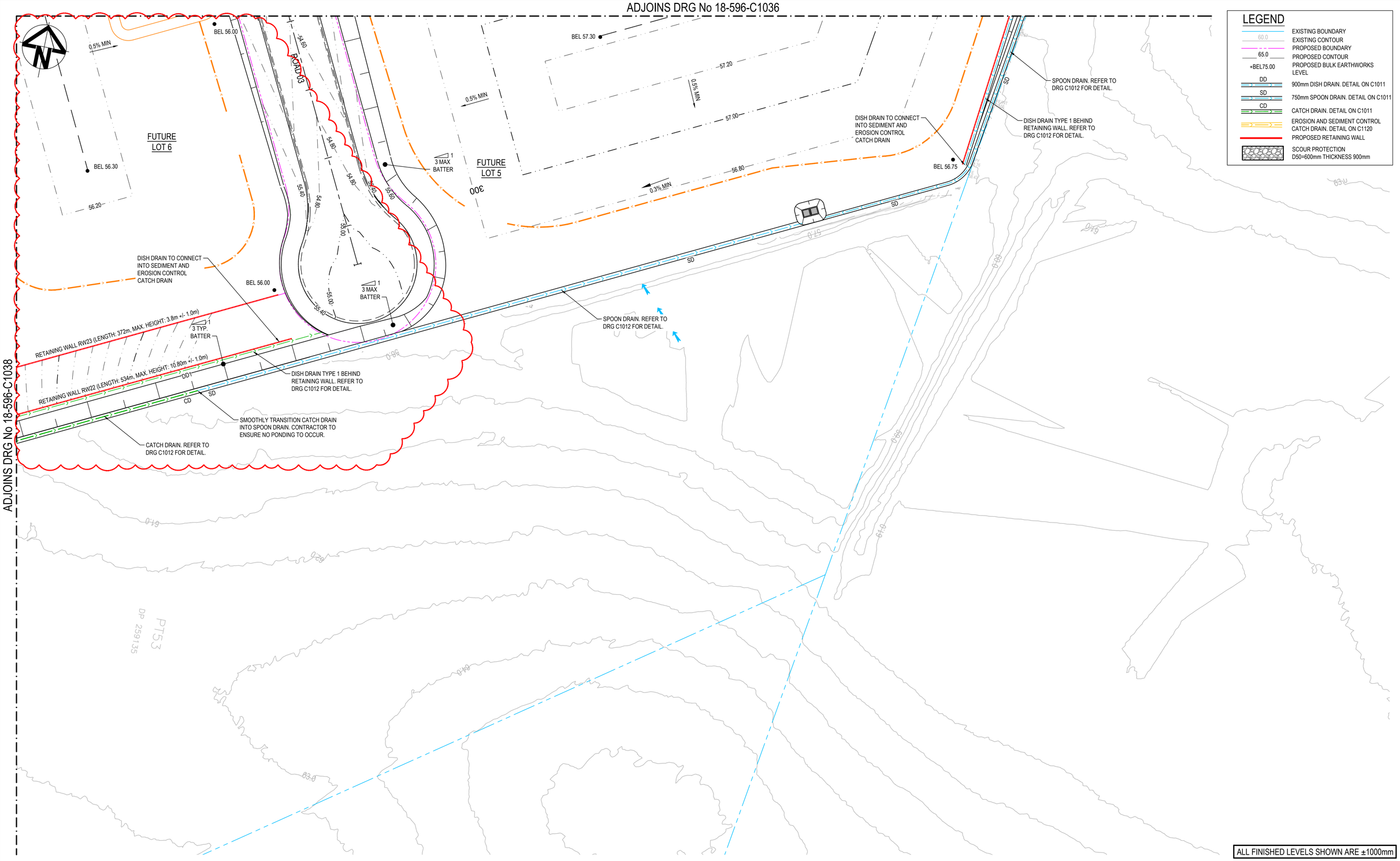
Project - Drawing No.
18-596-C1038

Issue
M

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1038.dwg

ADJOINS DRG No 18-596-C1036

ADJOINS DRG No 18-596-C1038



LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

ALL FINISHED LEVELS SHOWN ARE ±1000mm

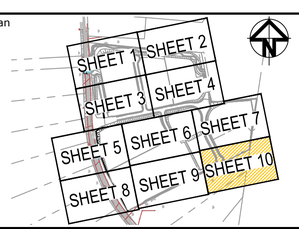
Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client: mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: BULK EARTHWORKS PLAN SHEET 10

Civil Engineers and Project Managers
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info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

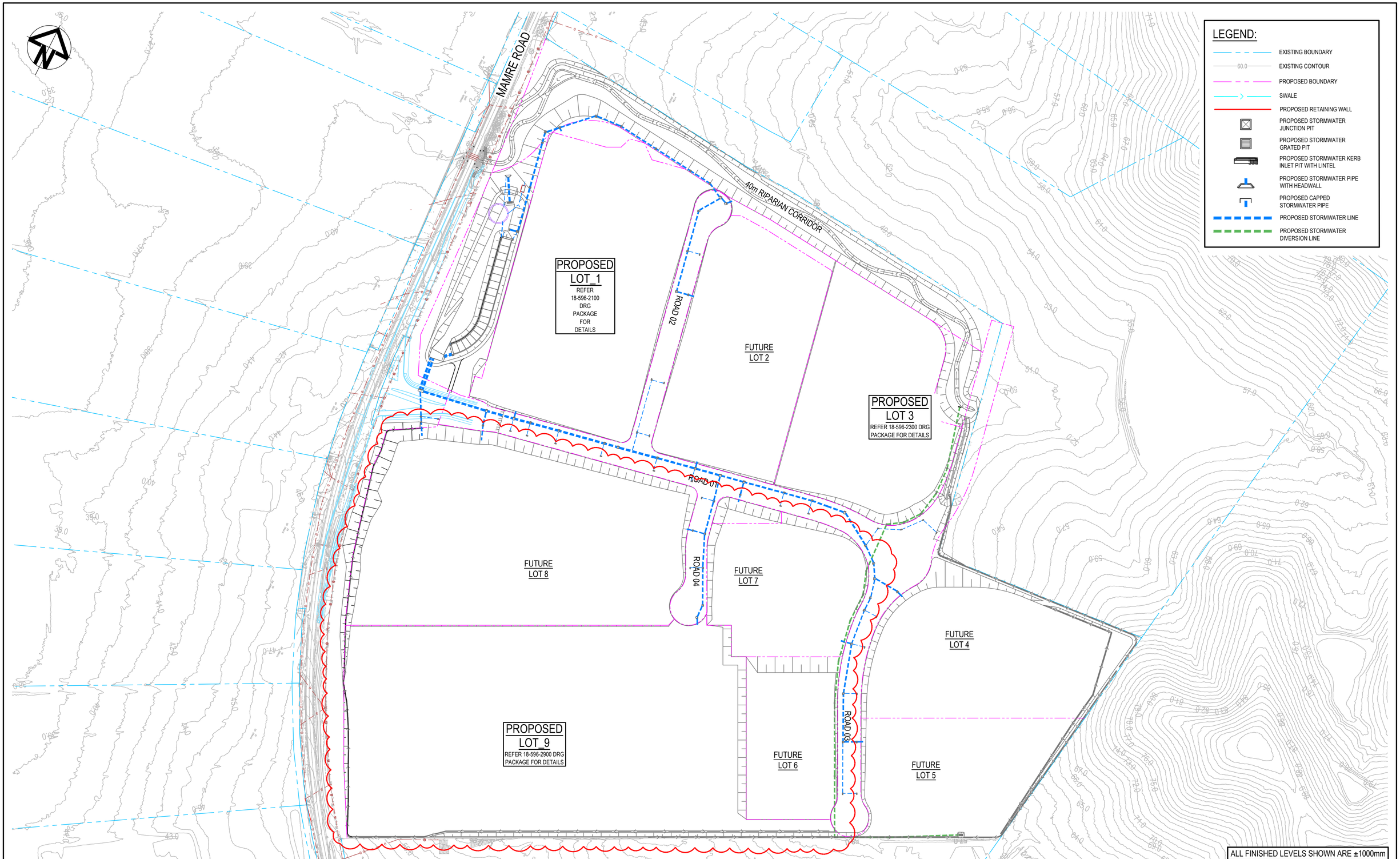
A1

Project - Drawing No.: 18-596-C1039

Issue: M

100mm on Original

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Issue	Description	Date
N	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client

mirvac

Scales	1:2000	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

STORMWATER DRAINAGE
OVERALL PLAN

Civil Engineers and Project Managers

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info@atl.net.au

Status

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.

18-596-C1040

Issue

N

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1040.dwg

EXIST-1
3.303 ha

EXIST-2A
4.848ha

EXIST-2B
28.266ha

EXIST-2C
30.385 ha

EXIST-2D
18.890ha

EXIST-2E
17.792 ha

EXIST-2F
1.841 ha

EXIST-3
16.463ha

EXT-4
3.507ha

EXT-7
3.981ha

LEGEND:

- EXISTING BOUNDARY
- SITE EXTENT
- EXISTING CATCHMENT
- CATCHMENT DISCHARGE POINT

Issue	Description	Date
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20
B	ISSUED FOR DEVELOPMENT APPLICATION	12-10-20

100mm on Original

Bar Scales

0 50 100 150 200 250m

1 : 2500 @ A1

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Client

mirvac

Scales	1:2500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
STORMWATER DRAINAGE
CATCHMENT
PLAN
(PRE-DEVELOPED)

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North Sydney NSW 2060
ABN 96 130 882 405
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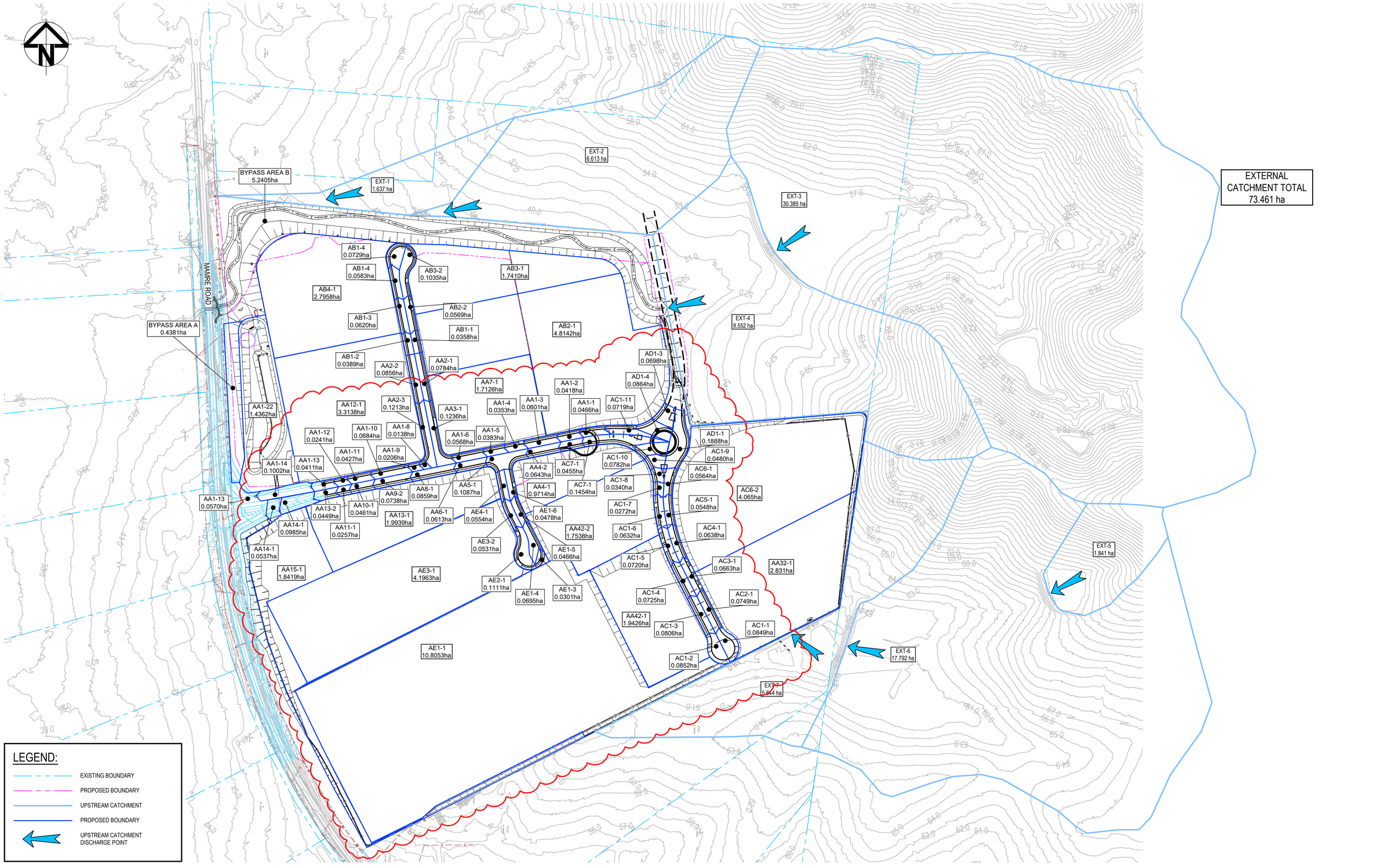
Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1045

Issue
K

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1045.dwg



Issue	Description	Date
O	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	16-05-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22

100mm on Original

Bar Scales

0 50 100 150 200 250m

1 : 2500 @ A1

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Client

mirvac

Scales	1:2500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

STORMWATER DRAINAGE CATCHMENT PLAN (POST-DEVELOPED)

Civil Engineers and Project Managers

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North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
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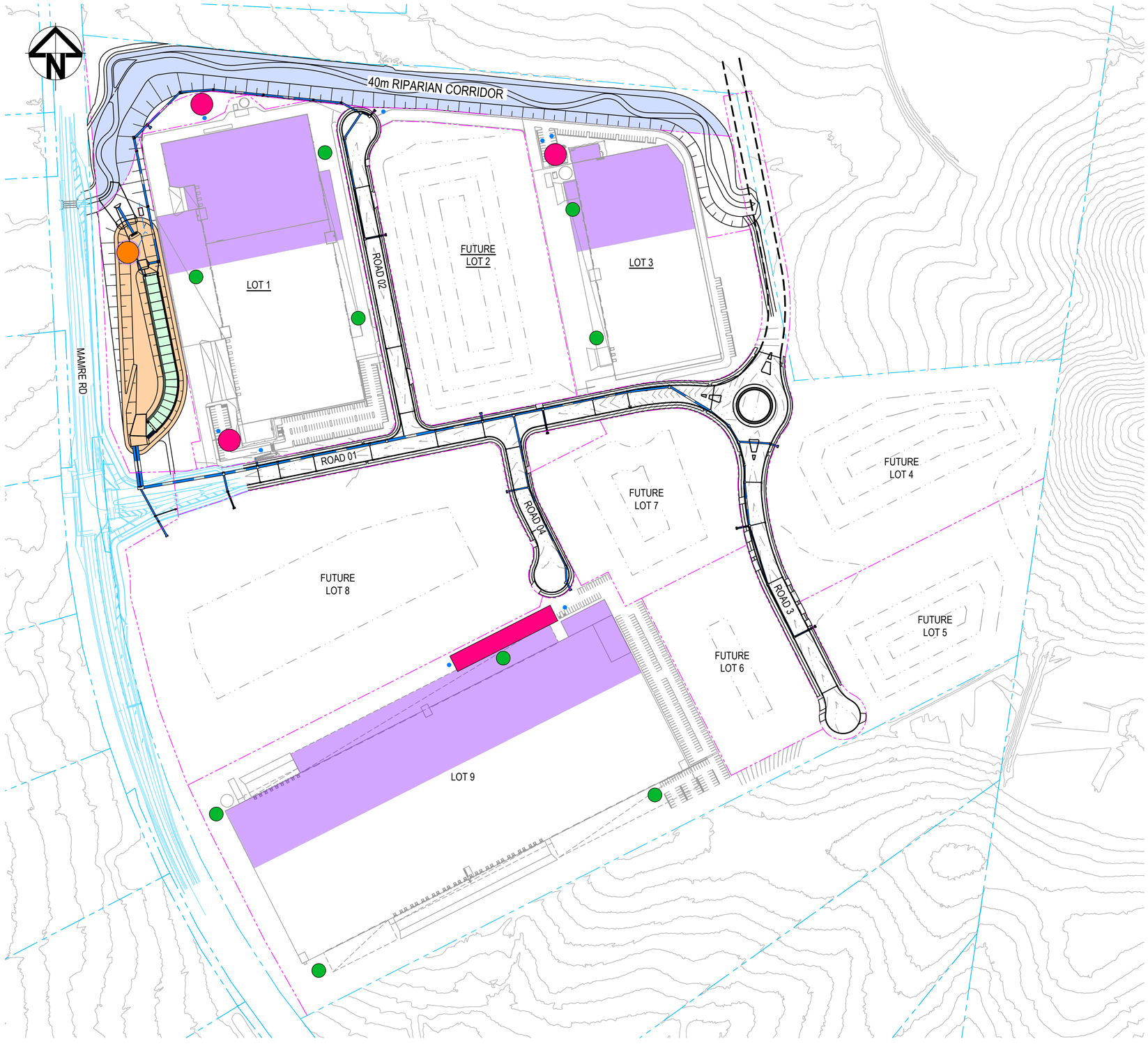
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1046

Issue: O

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1046.dwg



LEGEND

- APPROXIMATE EXTENT OF EVAPORATIVE IRRIGATION ON WAREHOUSE ROOF AREAS (EQUIVALENT TO 40% OF TOTAL WAREHOUSE ROOF AREA)
- 50% OF TOTAL AREA OF C2 CORRIDOR TO BE IRRIGATED APPROXIMATE AREA = 12,600m^2
- DETENTION BASIN APPROXIMATE VOLUME = 15,500m^3
- FILTERRA PROPRIETARY BIO-RETENTION SYSTEM APPROXIMATE AREA = 1,600m^2
- STORMWATER REUSE TANK FOR EVAPORATIVE ROOF IRRIGATION (INDICATIVE SIZE AND LOCATION ONLY)
- GROSS POLLUTANT TRAP (INDICATIVE SIZE AND LOCATION ONLY)
- STORMWATER REUSE TANK FOR IRRIGATION OF 80% OF THE C2 CORRIDOR (INDICATIVE SIZE AND LOCATION ONLY)
- RAINWATER TANK - FOR ON-LOT NON-POTABLE REUSE (TOILETS AND LANDSCAPE IRRIGATION) (INDICATIVE SIZE AND LOCATION ONLY)

TABLE 1: STORMWATER REUSE DETAILS

	RAINWATER TANK VOLUME (m3)	LANDSCAPE AREA TO BE IRRIGATED (m2)	STORMWATER REUSE TANK VOLUME (m3)	STORMWATER REUSE TANK - ANNUAL IRRIGATION RATE (ML/yr)	WAREHOUSE ROOF / AWNING AREA TO BE IRRIGATED (m2)
Lot 1	120	6,220	2,050	25.6	13,400
Lot 3	150	8,140	1,200	16.2	8,500
Lot 9	200	9,960	3,850	50.3	26,400

NOTE - ALL FIGURES PRESENTED IN TABLE 1 ARE TO BE CONFIRMED DURING DETAILED DESIGN OF EACH LOT
- RAINWATER TANKS CAN BE CO-LOCATED WITH STORMWATER REUSE TANK. TO BE CONFIRMED DURING DETAILED DESIGN OF EACH LOT

NOTE

THIS PLAN PRESENTS STORMWATER MANAGEMENT MEASURES THAT WILL BE REQUIRED TO SATISFY STORMWATER QUALITY, QUANTITY AND FLOW TARGETS STIPULATED IN THE MAMRE ROAD PRECINCT DCP 2021 FOR THE STAGE 1 DEVELOPMENT.

REFER TO AT&L CIVIL INFRASTRUCTURE & WATER MANAGEMENT REPORT FOR FURTHER DETAILS.

Issue	Description	Date
A	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client: mirvac

Scales	1:2000	Drawn	MH
		Designed	TM
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

GDA2020

Project: ASPECT INDUSTIAL ESTATE MAMRE ROAD, KEMPS CREEK STAGE 1

Title: STORMWATER MANAGEMENT PLAN STAGE 1

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Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1047

Issue: A

100mm on Original

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LEGEND

- APPROXIMATE EXTENT OF EVAPORATIVE IRRIGATION ON WAREHOUSE ROOF AREAS (EQUIVALENT TO 40% OF TOTAL WAREHOUSE ROOF AREA)
- 50% OF TOTAL AREA OF C2 CORRIDOR TO BE IRRIGATED APPROXIMATE AREA = 12,600m^2
- DETENTION BASIN APPROXIMATE VOLUME = 15,500m^3
- FILTERRA PROPRIETARY BIO-RETENTION SYSTEM APPROXIMATE AREA = 1,600m^2
- STORMWATER REUSE TANK FOR EVAPORATIVE ROOF IRRIGATION (INDICATIVE SIZE AND LOCATION ONLY)
- GROSS POLLUTANT TRAP (INDICATIVE SIZE AND LOCATION ONLY)
- STORMWATER REUSE TANK FOR IRRIGATION OF 50% OF THE C2 CORRIDOR (INDICATIVE SIZE AND LOCATION ONLY)
- RAINWATER TANK - FOR ON-LOT NON-POTABLE REUSE (TOILETS AND LANDSCAPE IRRIGATION) (INDICATIVE SIZE AND LOCATION ONLY)

TABLE 1: STORMWATER REUSE DETAILS

	RAINWATER TANK VOLUME (m3)	LANDSCAPE AREA TO BE IRRIGATED (m2)	STORMWATER REUSE TANK VOLUME (m3)	STORMWATER REUSE TANK - ANNUAL IRRIGATION RATE (ML/yr)	WAREHOUSE ROOF / AWNING AREA TO BE IRRIGATED (m2)
Lot 1	120	6,220	2,050	25.6	13,400
Lot 2	80	3,960	1,350	18.0	9,400
Lot 3	150	8,140	1,200	16.2	8,500
Lot 4	300	14,500	1,400	20.2	10,600
Lot 6	40	2,140	550	7.0	3,700
Lot 7	100	5,710	850	11.5	6,000
Lot 8	200	10,990	2,450	34.2	17,900
Lot 9	200	9,960	3,850	50.3	26,400

NOTE - ALL FIGURES PRESENTED IN TABLE 1 ARE TO BE CONFIRMED DURING DETAILED DESIGN OF EACH LOT
- RAINWATER TANKS CAN BE CO-LOCATED WITH STORMWATER REUSE TANK. TO BE CONFIRMED DURING DETAILED DESIGN OF EACH LOT

NOTE

THIS PLAN PRESENTS STORMWATER MANAGEMENT MEASURES THAT WILL BE REQUIRED TO SATISFY STORMWATER QUALITY, QUANTITY AND FLOW TARGETS STIPULATED IN THE MAMRE ROAD PRECINCT DCP 2021 FOR THE MOD 4 MASTER PLAN.

REFER TO AT&L CIVIL INFRASTRUCTURE & WATER MANAGEMENT REPORT FOR FURTHER DETAILS.

Issue	Description	Date
A	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22

100mm on Original

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client: mirvac

Scales: 1:2000

Grid: MGA

Height Datum: AHD

GDA2020

Drawn	MH
Designed	TM
Checked	DS
Approved	AM

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: STORMWATER MANAGEMENT PLAN
MOD 4 MASTER PLAN

Civil Engineers and Project Managers
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Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1048

Issue: A

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ADJOINS DRG 18-596-C1060

LEGEND:

- EXISTING BOUNDARY
- EXISTING ELECTRICITY
- PROPOSED BOUNDARY
- PROPOSED EASEMENT
- PROPOSED RETAINING WALL
- 48.00 PROPOSED MAJOR CONTOUR
- 48.20 PROPOSED MINOR CONTOUR
- PROPOSED BATTER STAGE 1A WORKS TEMPORARY BATTER 1(V):4(H) PERMANENT BATTER 1(V):5(H) U.N.O
- MK PROPOSED MOUNTABLE KERB TO PCC SPECIFICATION
- K&G PROPOSED KERB AND GUTTER TO PCC SPECIFICATION
- PROPOSED DRIVEWAY LAYBACK
- PROPOSED KERB RAMP
- LIMIT OF WORKS
- PROPOSED CATCH DRAIN
- PROPOSED STORMWATER JUNCTION PIT
- PROPOSED STORMWATER JUNCTION PIT
- PROPOSED STORMWATER KERB INLET PIT WITH LINTEL
- PROPOSED STORMWATER PIPE WITH HEADWALL
- PROPOSED CAPPED STORMWATER PIPE
- PROPOSED STORMWATER LINE
- PROPOSED INDUSTRIAL ROAD PAVEMENT TO PCC SPECIFICATION
- PROPOSED FOOTPATH PAVEMENT TO PCC SPECIFICATION
- PROPOSED INDUSTRIAL DRIVEWAY PAVEMENT TO PCC SPECIFICATION
- CUL-DE-SEC ROUNDABOUT PAVEMENT
- MAINTENANCE ACCESS TRACK
- BASIN MAINTENANCE DRIVEWAY
- REINFORCED CONCRETE WIER
- LANDSCAPED MEDIAN
- CONCRETE MEDIAN

F44.40
F41.00
F45.00
4 x Ø600 FRC
USIL 41.44
DSIL 41.31
PROPOSED LOW FLOW PIPE TO DRAIN TREATABLE FLOW TO FILTERRA BIO-RETENTION SYSTEM REFER TO DRG 18-596-C1059 FOR DETAILS
AA1-15
PROPOSED STORMWATER DETENTION BASIN.
GRADE LANDSCAPE TO DRAIN 100 YEAR ARI STORMWATER OVERLAND FLOW TO BASIN
OVERLAND FLOW PATH TYP.
BOX CULVERT 2 x 2.4W x 2.4H
PROPOSED STORMWATER SPLITTER PIT WITH LOW AND HIGH FLOW WEIR. LOW FLOW IS TO BE DIRECTED INTO BIO BASN AND HIGH FLOW IS TO BE DIRECTED INTO OSD BASIN
1 VARIES (3 MAX) BATTER
PROPOSED LOT 1
REFER 18-596-2100 DRG PACKAGE FOR DETAILS
CAP PROPOSED STORMWATER PIP FOR FUTURE CONNECTION
AA12-1
BOX CULVERT 1.5W x 0.9H
AA1-14
AA1-13
BOX CULVERT 2.4W x 2.4H
AA1-12
1.50m
4.60m
ROAD 01
82°59'25"
L55.456
R=800
L61.029
REFER ORION CONSULTING DRGS FOR INTERSECTION DETAILS
8.10m
26.40m ROAD RESERVE
FRC Ø375
AA11-1
2.50m
5.60m
INTERSECTION GEOMETRY (INCLUSIVE OF BOUNDARY) BASED ON INDICATIVE TfNSW CONCEPT PLAN. TBC WITH TfNSW AT DETAILED DESIGN
FRC Ø525
AA14-1
AA14-2
AA13-2
FRC 2 x Ø525
AA15-2
AA13-1
TC 55.456
SAG 53.933
CT 116.486
AA15-1
CAP PROPOSED STORMWATER PIPE FOR FUTURE CONNECTION
FUTURE LOT 8
20
40
60
80
120
140
160
ALL FINISHED LEVELS SHOWN ARE ±1000mm

ADJOINS DRG 18-596-C1051

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan

Client: mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project: ASPECT INDUSTIAL ESTATE MAMRE ROAD, KEMPS CREEK STAGE 1

Title: ROADWORKS AND STORMWATER DRAINAGE SHEET 1

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Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1050

Issue: L

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ADJOINS DRG 18-596-C1057

ADJOINS DRG 18-596-C1050

ADJOINS DRG 18-596-C1052

PROPOSED LOT 1
REFER 18-596-2100 DRG PACKAGE FOR DETAILS

24.00m ROAD RESERVE
5.00m | 7.50m | 7.50m | 4.00m
2.50m | 1.50m

ROAD 02

FUTURE LOT 2

40

SAG 28.143

20

1 VARIES (3 MAX) BATTER

AA1-11 | AA1-10 | AA1-9 | AA1-8 | AA1-7 | AA1-6

BOX CULVERT 2.4W x 2.4H
BOX CULVERT 2.1W x 2.4H

AA2-3 | AA3-1

FRC Ø375
FRC Ø600

1.50m
4.60m
8.10m
26.40m ROAD RESERVE
8.10m
2.50m
5.60m

47.00 | 47.20 | 47.40 | 47.80 | 48.00

ROAD 01

78°37'10"
L406.955

0.000

AA10-1 | AA9-1 | AA8-1 | AA6-1

FUTURE LOT 8

180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan

Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 2

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Status
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A1

Project - Drawing No.
18-596-C1051

Issue
M

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FUTURE
LOT 2

PROPOSED LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

1 VARIES (3 MAX) BATTER

CAP PROPOSED STORMWATER PIPE FOR FUTURE CONNECTION

AA7-1

BOX CULVERT 1.5W x 0.9H

AA1-5

BOX CULVERT 2.1W x 2.4H

AA1-4

BOX CULVERT 1.8W x 1.8H

AA1-3

1.50m
4.60m

BOX CULVERT 1.8W x 1.5H

AA1-2

BOX CULVERT 1.8W x 1.5H

AA1-1

BOX CULVERT 1.8W x 1.5H

ADJOINS DRG 18-596-C1051

ADJOINS DRG 18-596-C1053

FRC Ø375

ROAD 01

48.20

48.40

ROAD 04

BOX CULVERT 1.5W x 1.2H

48.60

000.0

2 x Ø600 FRC

8.10m

26.40m ROAD RESERVE

48.80

49.00

49.20

49.40

49.60

49.80

50.00

50.20

50.40

50.60

AA5-1

AA4-2

AA4-1

AC10-1

AC7-1

FRC Ø450

AE4-1

AE1-6

CAP PROPOSED STORMWATER PIPE FOR FUTURE CONNECTION

20

FUTURE
LOT 7

1 VARIES (3 MAX) BATTER

1 VARIES (3 MAX) BATTER

TEMPORARY STAGE 1A TURNING HEAD.
REFER TO DRG C1250 FOR DETAILS.
TO BE REMOVED IN STAGE 1B.

380

400

L60 869

168°37'9"

420

440

480

500

520

40

TC 523.441

ALL FINISHED LEVELS SHOWN ARE ±100mm

Issue	Description	Date
N	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
M	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

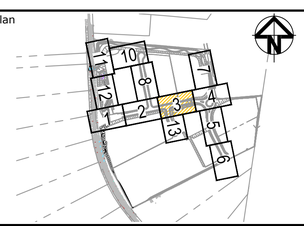
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 3

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Status
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A1

Project - Drawing No.
18-596-C1052

Issue
N

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ADJOINS DRG 18-596-C1056

PROPOSED LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

ADJOINS DRG 18-596-C1052

ADJOINS DRG 18-596-C1054

TC 523.441

FUTURE LOT 7

FUTURE LOT 4

1 VARIES (3 MAX) BATTER

CONNECT TO EXISTING STORMWATER

BOX CULVERT 1.8W x 1.5H

BOX CULVERT 1.5W x 1.5H

BOX CULVERT 1.5W x 1.2H

BOX CULVERT 1.5W x 0.9H

BOX CULVERT 1.2W x 1.2H

AA1-1 AA1-2 AC1-11 AC1-10 AC1-9 AC1-8 AC6-2 AC6-1 AC7-1 AC10-1

AD1-1 AD1-2 AD1-3

DV1-9 DV1-10 DV1-11 DV1-12 DV1-13

FRC Ø375 FRC Ø450

ROAD 01 ROAD 03

26.40m ROAD RESERVE

1.50m 4.60m 8.10m 8.10m 2.50m 5.60m

GRASS LINED SWALE

TEMPORARY STAGE 1A TURNING HEAD.
REFER TO DRG C1250 FOR DETAILS.
TO BE REMOVED IN STAGE 1B

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

100mm on Original

Key Plan

Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 4

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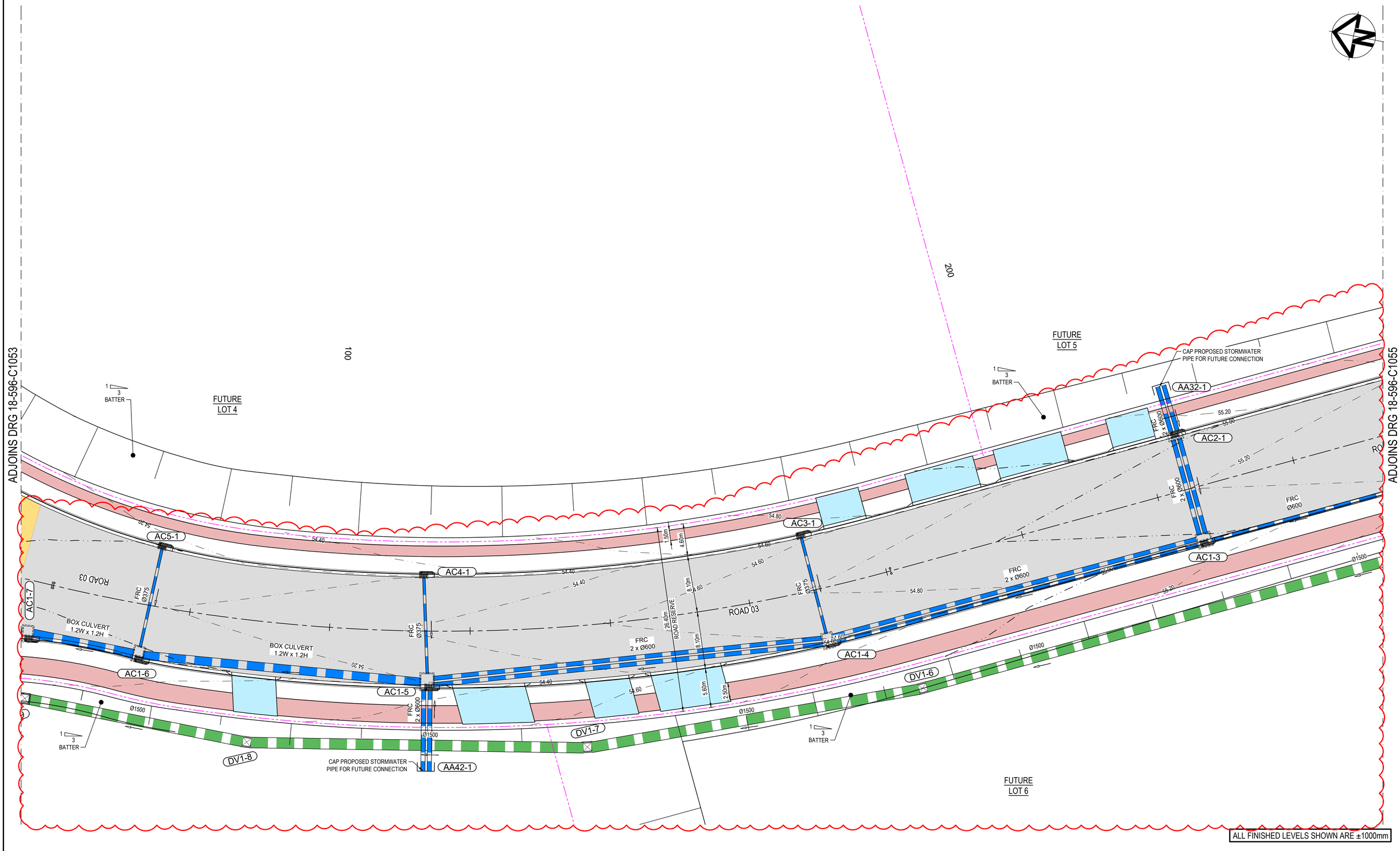
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Project - Drawing No.
18-596-C1053

Issue
L

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Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
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D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

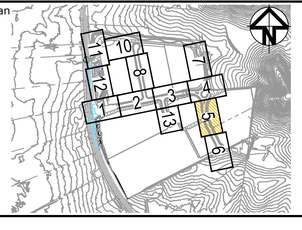
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales		Drawn	KR
	1:250	Designed	KR
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Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

ROADWORKS
AND STORMWATER DRAINAGE
SHEET 5

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A1

Project - Drawing No.: 18-596-C1054

Issue: L

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ADJOINS INSET A ON THIS DRAWING

ADJOINS DRG 18-596-C1054

FUTURE
LOT 5

FUTURE
LOT 6

ROAD 03

26.40m ROAD RESERVE

8.10m

1.50m

2.50m

5.60m

AC1-1

AC1-2

DV1-5

FRC Ø525

FRC Ø600

55.60

55.40

55.80

Ø1500

300

STORMWATER DIVERSION SWALE APART OF STAGE 1A SITEWORKS TO BE INFILLED AND REPLACED WITH GRASS LINED SWALE OVER STORMWATER DIVERSION PIPE

FUTURE CONNECTION WITH SOUTHERN DEVELOPMENT

DV1-4

STORMWATER DIVERSION PIPE SIZE AND LOCATION TO BE CONFIRMED WITH DEVELOPMENT TO THE SOUTH

1 in 3 BATTER

RETAINING WALL RW23
(LENGTH: 372m, MAX. HEIGHT: 3.80m +/- 1.0m, SUBJECT TO DETAILED DESIGN)

RETAINING WALL RW22
(LENGTH: 534m, MAX. HEIGHT: 10.80m +/- 1.0m, SUBJECT TO DETAILED DESIGN)

DV1-1

DV1-2

2x 1500x1500 SAG INLET PITS

SD

Ø1500

1 in 3 BATTER

DV1-3

ADJOINS ABOVE
INSET A

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
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E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

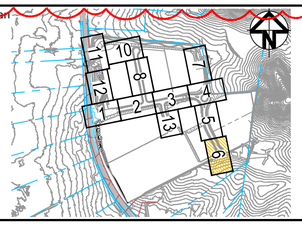
Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

100mm on Original

Key Plan



Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 6

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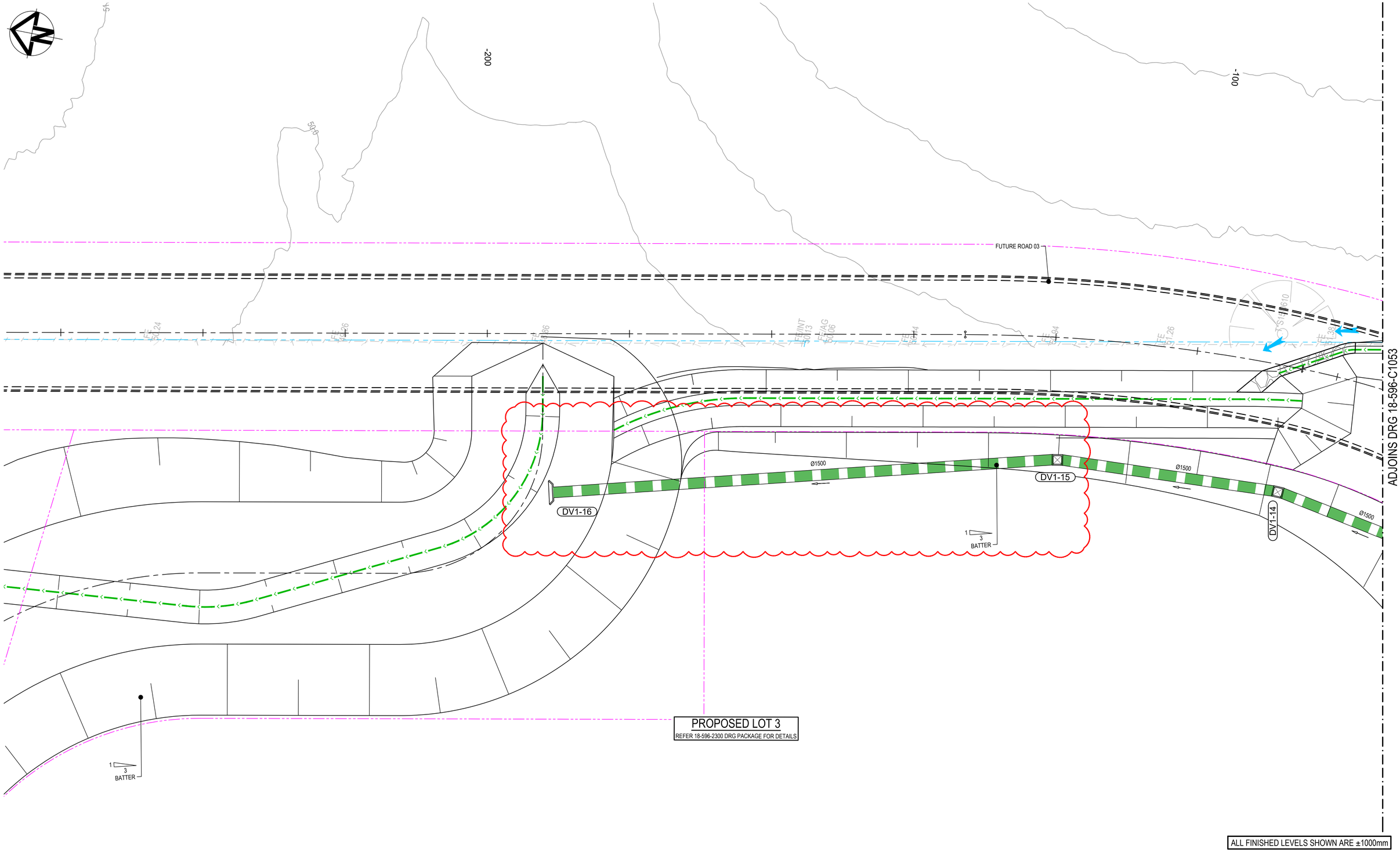
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Project - Drawing No.
18-596-C1055

Issue
M

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Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
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C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

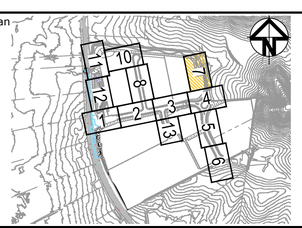
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Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales 1:250

Drawn KR

Designed KR

Checked AT

Approved AM

Grid MGA

Height Datum AHD

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Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

ROADWORKS
AND STORMWATER DRAINAGE
SHEET 7

Civil Engineers and Project Managers

at&l

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info@atl.net.au

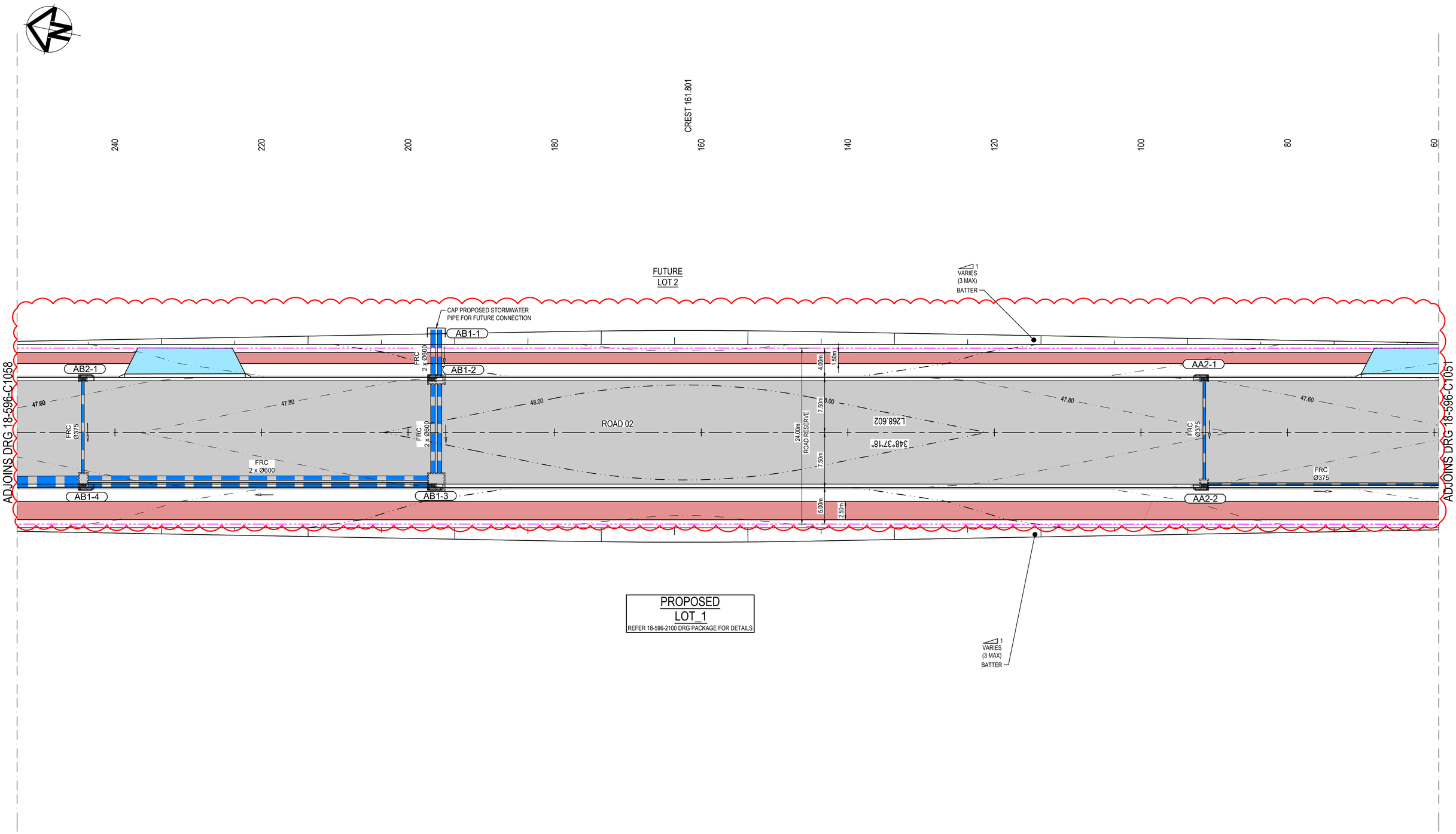
Status FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No. 18-596-C1056

Issue L

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ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales 1:250

Grid MGA

Height Datum AHD

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

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Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

ROADWORKS
AND STORMWATER DRAINAGE
SHEET 8

Civil Engineers and Project Managers

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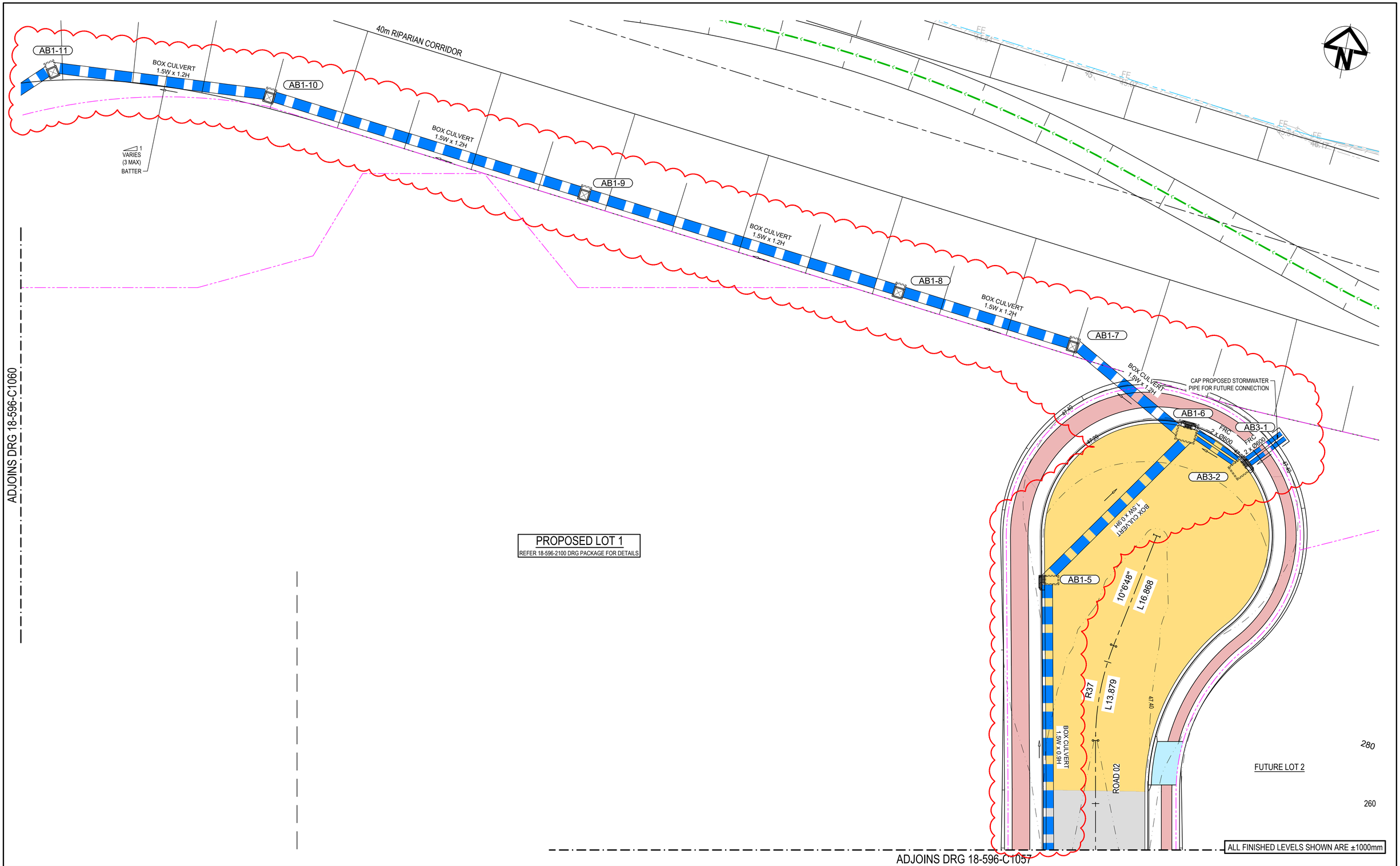
Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1057

Issue
M

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Issue	Description	Date
I	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
H	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	'14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

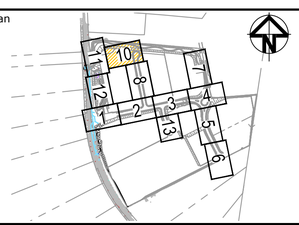
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales 1:250

Drawn KR

Designed KR

Grid MGA

Checked DS

Height Datum AHD

Approved AM

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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

ROADWORKS
AND STORMWATER DRAINAGE
SHEET 10

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Status FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No. 18-596-C1059

Issue I

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ADJOINS DRG 18-596-C1059

ADJOINS DRG 18-596-C1061

PROPOSED LOT 1
REFER 18-596-2100 DRG PACKAGE FOR DETAILS

BOX CULVERT 1.8W x 1.2H

BOX CULVERT 1.8W x 0.9H

AB4-1

CAP PROPOSED STORMWATER PIPE FOR FUTURE CONNECTION

AB1-12

AB1-13

AB1-14

AB1-15

1 in 3 BATTER

IRRIGATION WATER PIPE TO PUMP UNIT

NOM. LOCATION OF PUMP AND TREATMENT UNIT, SUBJECT TO COORDINATION WITH LANDSCAPE AND IRRIGATION CONSULTANT

RETAINING WALL RW11 (LENGTH: 211m, MAX. HEIGHT: 2.5m)

BLOCK RETAINING WALL

PIPE TO C2 CORRIDOR IRRIGATION SYSTEM, SIZE AND LOCATION TO BE CONFIRMED DURING DETAILED DESIGN

LOW FLOW CHANNEL

PROPOSED POND LOCATION. 300m² APPROXIMATE AREA

PROPOSED BASIN OVERFLOW MINIMUM WIDTH 15m AT RL44.10m

PROVIDE ROCK SCOUR PROTECTION

STORMWATER BASIN TO DISCHARGE TO PROPOSED SWALE

AO1-1

AO1-2

BOX CULVERT 2.1W X 1.8H

Ø375

STORMWATER BASIN DISCHARGE LINE

STORMWATER REUSE TANK Ø375 OVERFLOW RELIEF PIPE

PROPOSED STORMWATER HIGH FLOW DISCHARGE PIT. REFER TO DRG C1019 FOR DETAILS.

STORMWATER REUSE TANK FOR IRRIGATION OF THE C2 CORRIDOR 1050kL (NOM.) TANK FSL 40.65 BEL 36.25 (INDICATIVE SIZE AND LOCATION ONLY)

FOR BOTH STAGE 1 AND THE ULTIMATE MASTERPLAN LAYOUT PER MODIFICATION NO. 4, 50% OF THE C2 CORRIDOR IS TO BE IRRIGATED. APPROXIMATE AREA TO BE IRRIGATED = 12,600m2

SWALE IL39.26 AT 0.5% GRADE

INLET AND OUTLET SCOUR PROTECTION AND ENERGY DISSIPATION TO BE CONFIRMED

MAKE SMOOTH CONNECTION WITH EXISTING CHANNEL

REFER TO ECOLOGIST AND LANDSCAPE PLANS FOR BATTER PLANTING TREATMENTS

EXISTING 3No. 900 HIGH x 1800 WIDE ROAD CULVERT CROSSING. UPSTREAM INVERT LEVEL IL38.97

EXISTING CULVERT WING WALLS TO BE RETAINED.

1 in 4 BATTER

1 in 10 BATTER

EXISTING POWER POLES TO REMAIN

MAMRE ROAD

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
I	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
H	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	'14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan

Client

mirvac

Scales		Drawn	KR
	1:250	Designed	KR
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 11

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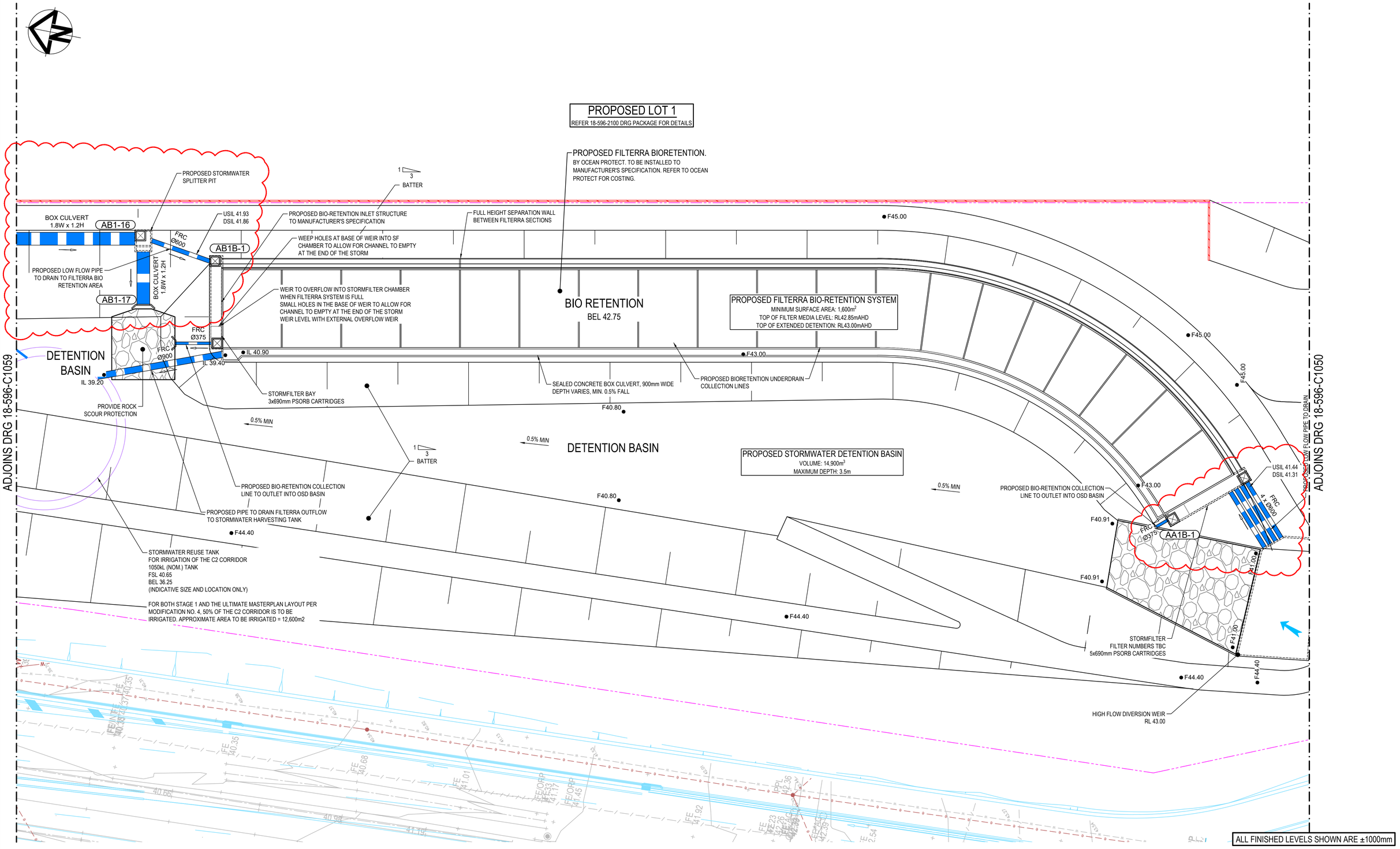
Status
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A1

Project - Drawing No.
18-596-C1060

Issue
I

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1060.dwg



Issue	Description	Date
K	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
J	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
H	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22

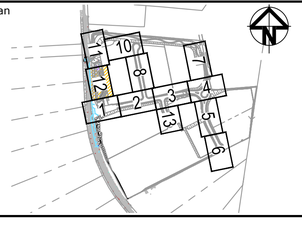
Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

100mm on Original

Key Plan



Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

ROADWORKS
AND STORMWATER DRAINAGE
SHEET 12

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Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1061

Issue: K

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ADJOINS DRG 18-596-C1052

RETAINING WALL RW23
(LENGTH: 372m, MAX. HEIGHT: 3.80m +/- 1.0m,
SUBJECT TO DETAILED DESIGN)

PROPOSED
LOT_9
SUBJECT TO SEPARATE SSDA

1 VARIES (3 MAX) BATTER

FUTURE LOT 7

FUTURE LOT 8

AA4-2 FRC 2 x Ø600

AA4-1 FRC 2 x Ø600

CAP PROPOSED STORMWATER PIPE FOR FUTURE CONNECTION

AE1-1 BOX CULVERT 1.5W x 1.2H

AE1-2 BOX CULVERT 1.5W x 1.2H

AE1-3 BOX CULVERT 1.5W x 1.2H

AE1-4 BOX CULVERT 1.5W x 1.2H

AE1-5 BOX CULVERT 1.5W x 1.2H

AE1-6 BOX CULVERT 1.5W x 1.2H

AE2-1 BOX CULVERT 1.2W x 0.9H

AE3-1 BOX CULVERT 1.2W x 0.9H

AE3-2 BOX CULVERT 1.2W x 0.9H

AE4-1 BOX CULVERT 2.5W x 0.9H

AA5-1 FRC Ø450

ROAD 01

ROAD 04

ROAD RESERVE 24.00m

R37 L15.287 176°48'30" L14.661

153°8'9" L36.117 R-80 L21.619

168°37'9" L60.869

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
D	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
C	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan

Client

mirvac

Scales 1:250

Grid MGA

Height Datum AHD

Drawn KR

Designed KR

Checked DS

Approved AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 13

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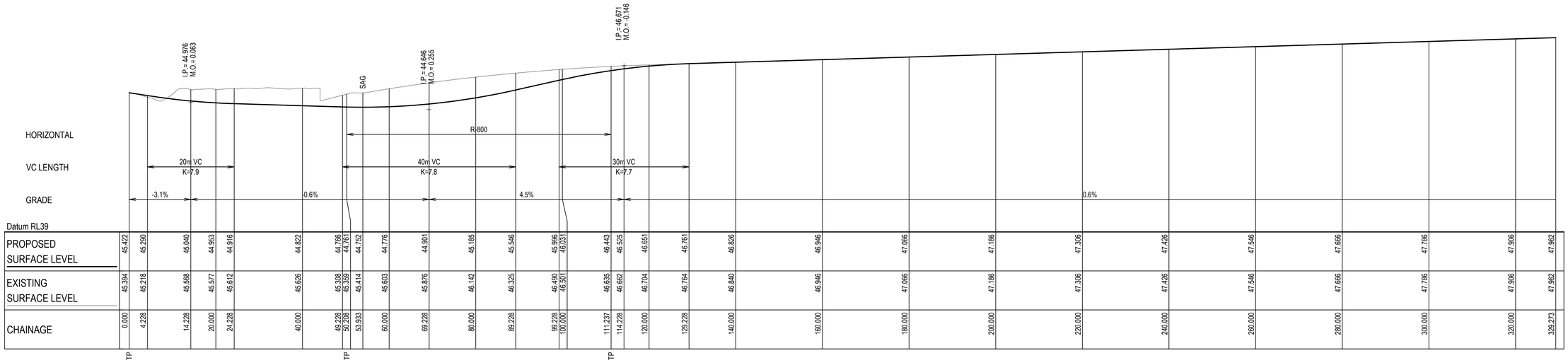
Status
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Project - Drawing No.
18-596-C1062

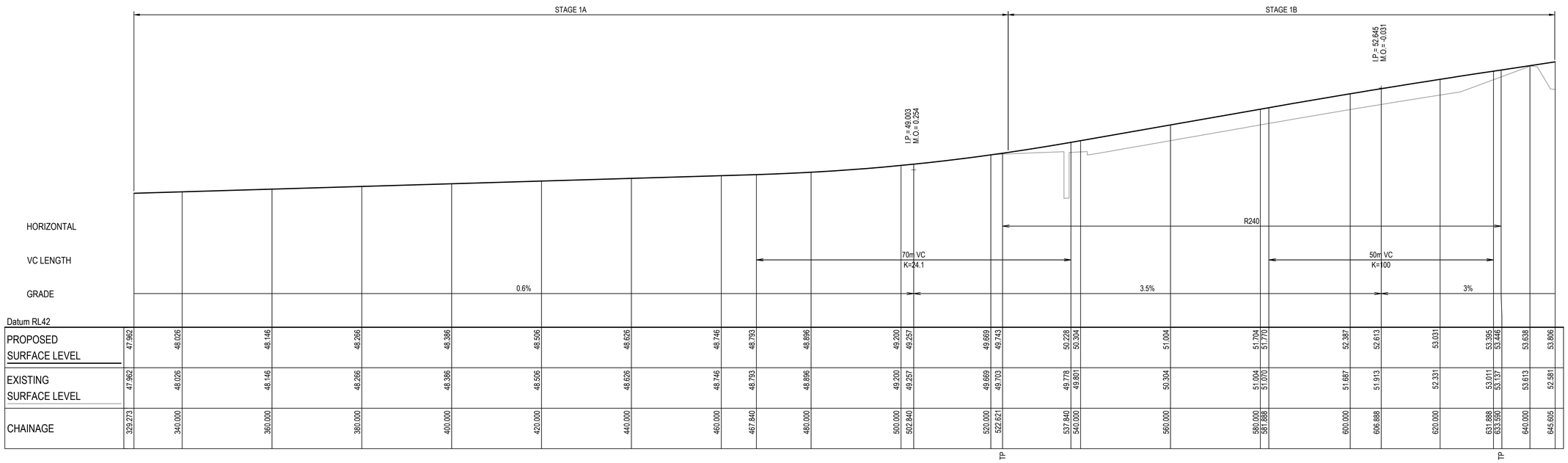
Issue
D

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ROAD 01 LONGITUDINAL SECTION

SCALE 1:500 HORI.
1:100 VERT.



ROAD 01 LONGITUDINAL SECTION

SCALE 1:500 HORI.
1:100 VERT.

Issue	Description	Date
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20
B	ISSUED FOR DEVELOPMENT APPLICATION	12-10-20

100mm on Original

Bar Scales

0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

0 10 20 30 40 50m
1 : 500 @ A1 1 : 1000 @ A3

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Client: mirvac

Scales: 1:500 (H) 1:100 (V)
Grid: MGA
Height Datum: AHD
GDA2020

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

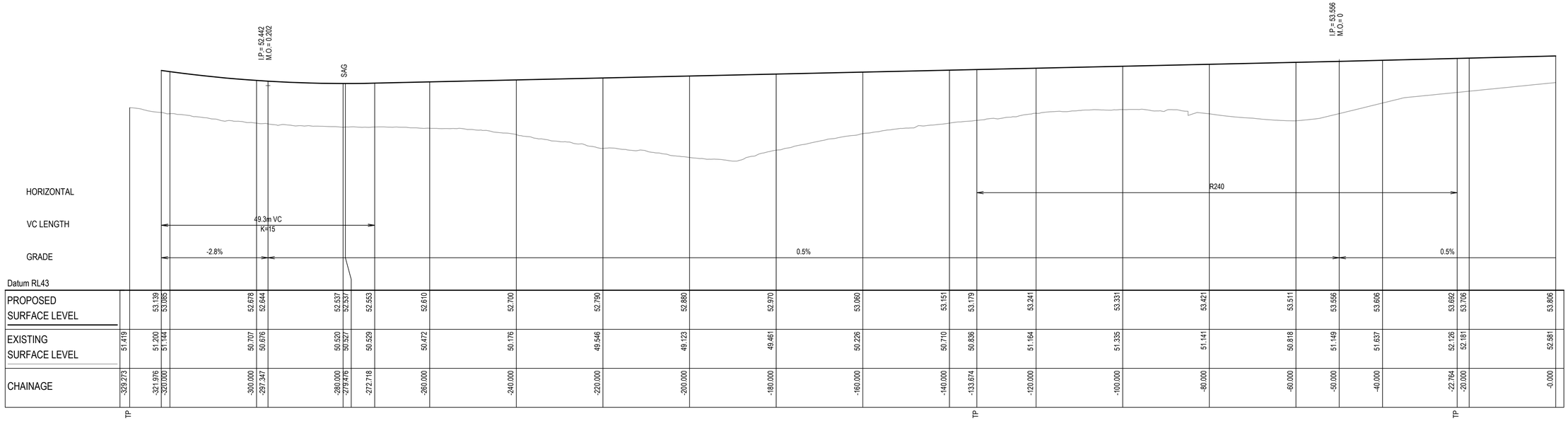
Title
ROAD 01
LONGITUDINAL SECTION
SHEET 1

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Status: FOR APPROVAL
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A1

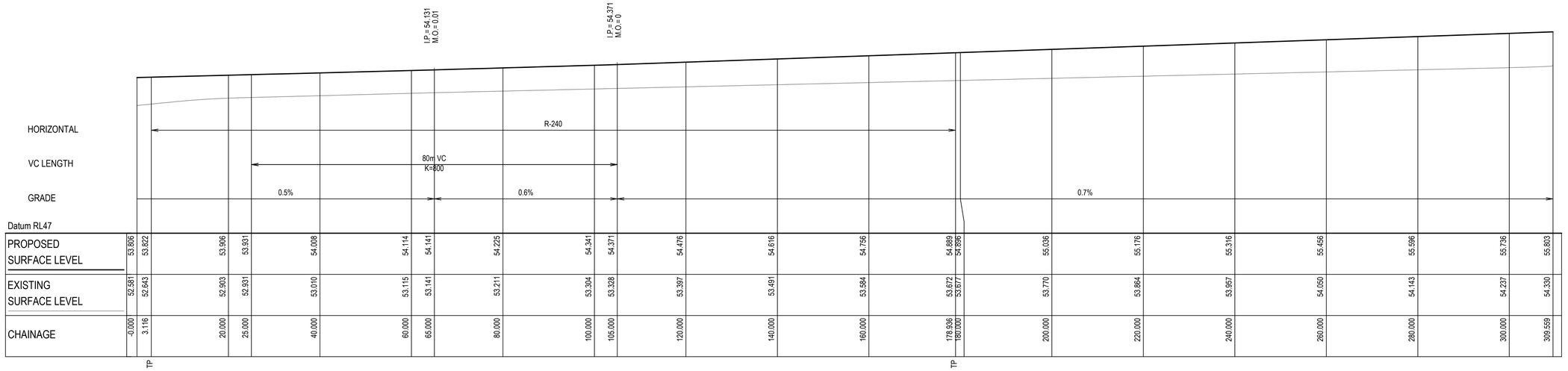
Project - Drawing No.: 18-596-C1070
Issue: K

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ROAD 03 LONGITUDINAL SECTION

SCALE 1:500 HORI.
1:100 VERT.



ROAD 03 LONGITUDINAL SECTION

SCALE 1:500 HORI.
1:100 VERT.

Issue	Description	Date
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20
B	ISSUED FOR DEVELOPMENT APPLICATION	12-10-20

Bar Scales

0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

0 10 20 30 40 50m
1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

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Client: mirvac

Scales: 1:500 (H) 1:100(V)
Grid: MGA
Height Datum: AHD
GDA2020

Drawn: KR
Designed: KR
Checked: AT
Approved: AM

Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

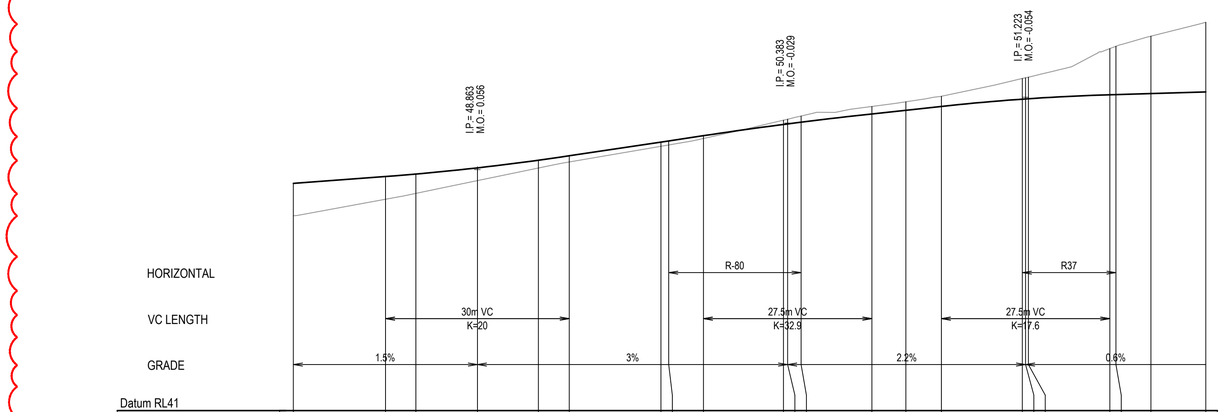
Title: ROAD 03
LONGITUDINAL SECTION
SHEET 1

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Project - Drawing No.: 18-596-C1072
Issue: K

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ROAD 04 LONGITUDINAL SECTION

SCALE 1:500 HORI.
1:100 VERT.

Issue	Description	Date
D	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
C	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
B	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
A	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22

100mm on Original

Bar Scales

0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

0 10 20 30 40 50m
1 : 500 @ A1 1 : 1000 @ A3

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Client: mirvac

Scales: 1:500 (H) 1:100 (V)
Grid: MGA
Height Datum: AHD
GDA2020

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: ROAD 04
LONGITUDINAL SECTION
SHEET 1

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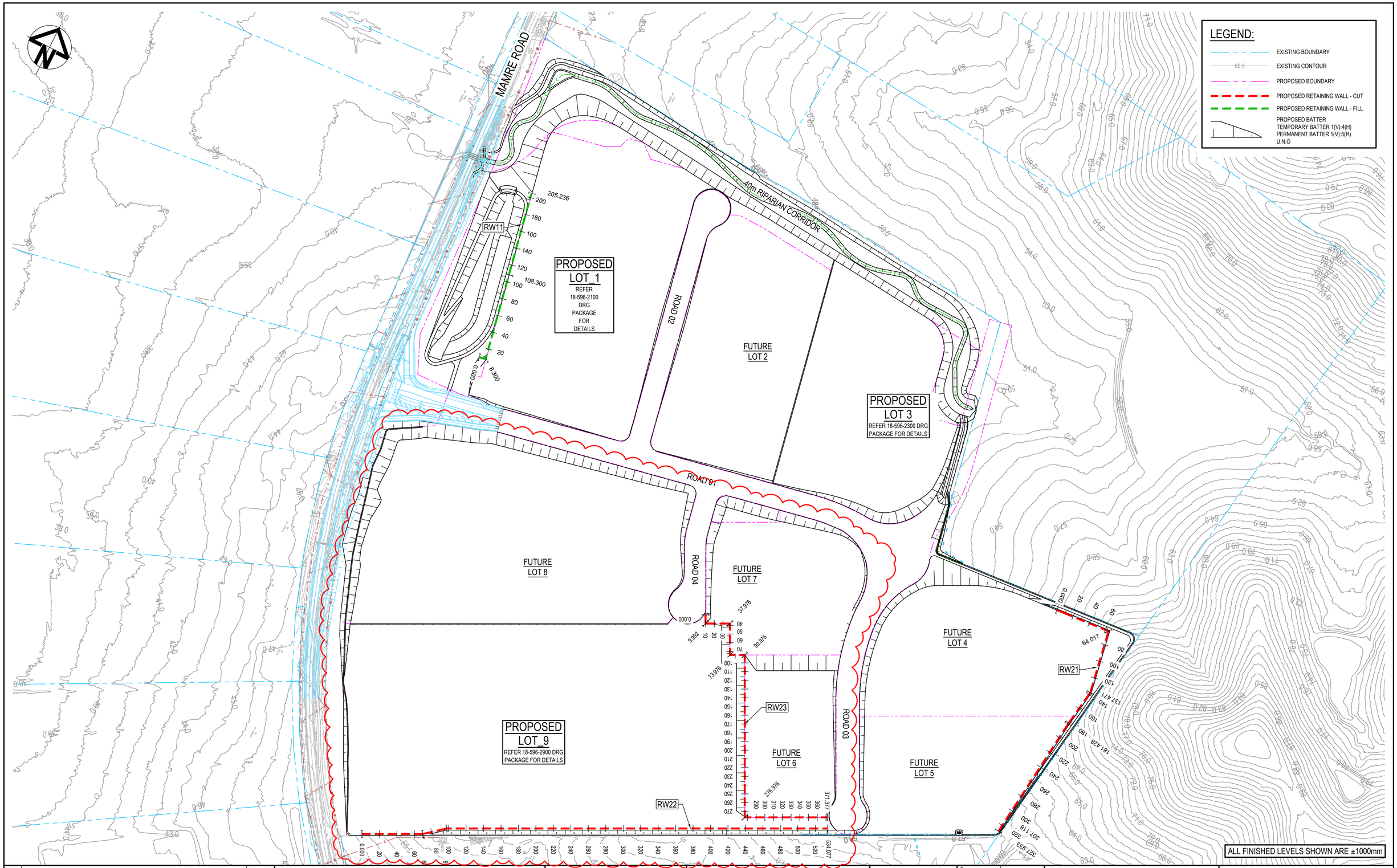
Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1073

Issue: D

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Issue	Description	Date
N	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client

mirvac

Scales	1:2000	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

RETAINING WALL
GENERAL ARRANGEMENT
PLAN

Civil Engineers and Project Managers

at&l

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Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

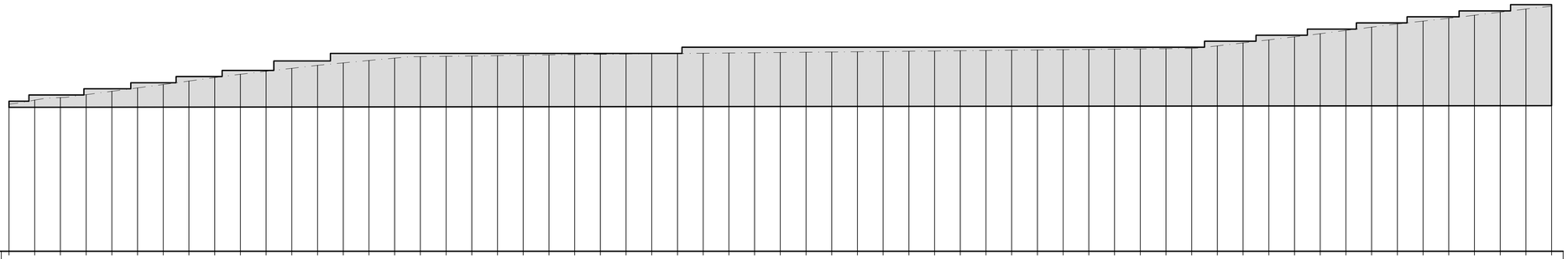
Project - Drawing No.: 18-596-C1080

Issue: N

100mm on Original

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1080.dwg

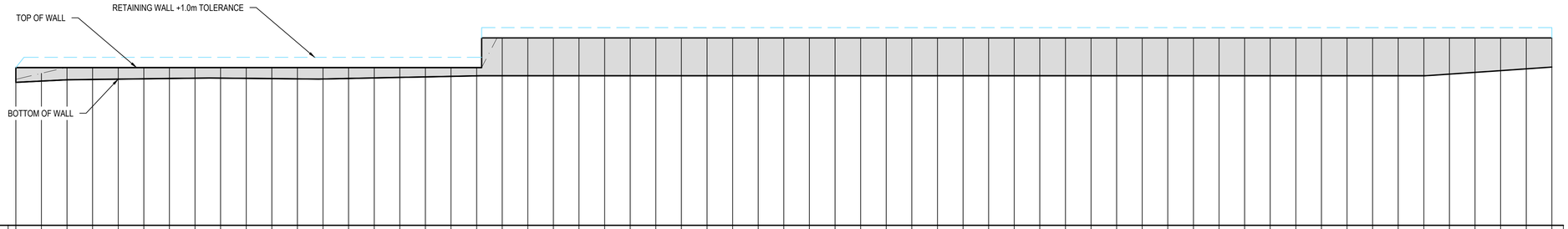
NOTE:
RETAINING WALL DESIGN AND DETAIL TO BE CONFIRMED AT DETAILED DESIGN STAGES.



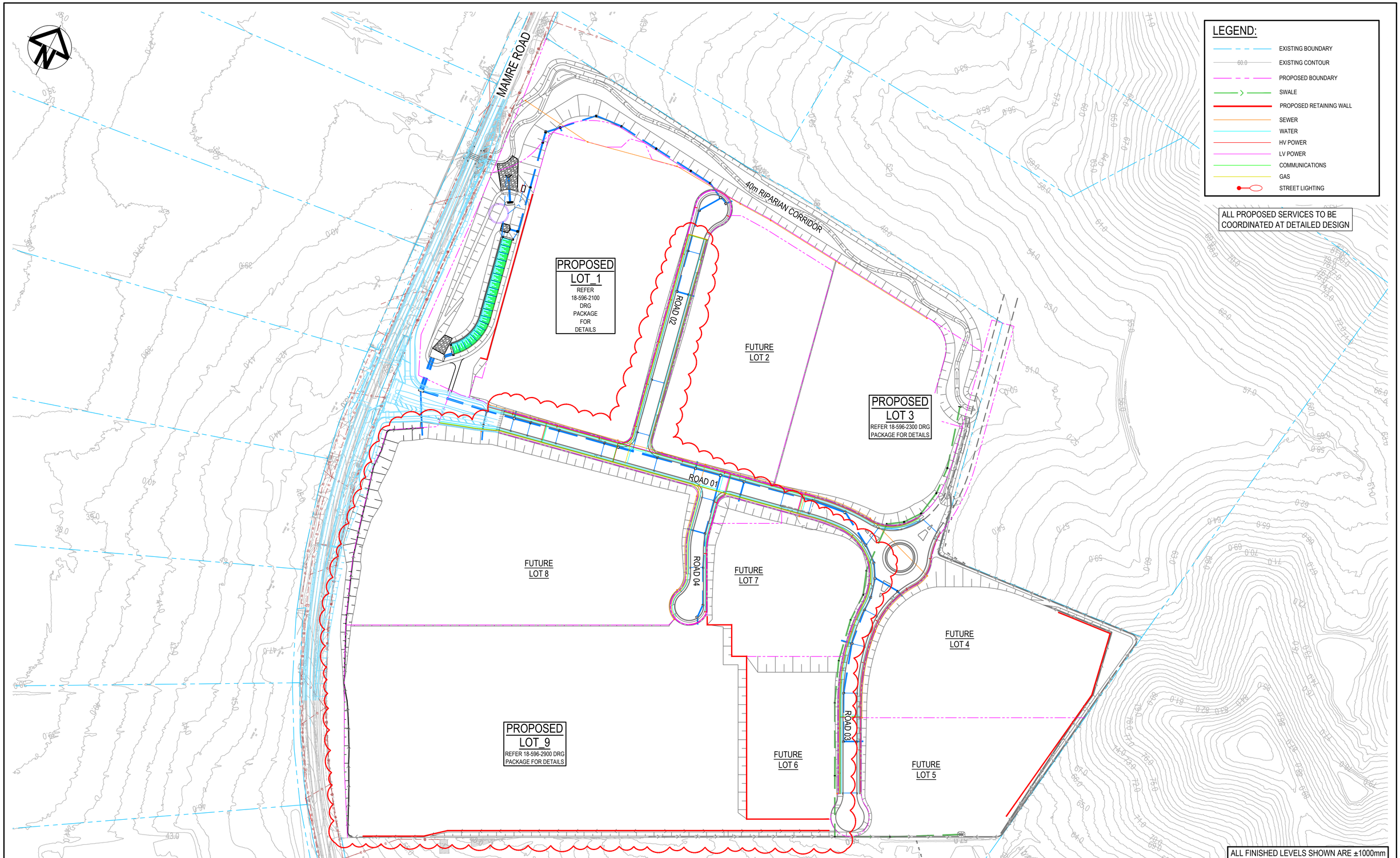
Datum RL38

| | | |

NOTE:
RETAINING WALL DESIGN AND DETAIL TO BE CONFIRMED AT DETAILED DESIGN STAGES.



| Datum RL38 | | |



Issue	Description	Date
N	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

100mm on Original

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Client

mirvac

Scales	1:2000	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

SERVICES AND UTILITIES COORDINATION OVERALL PLAN

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1090

Issue: N

\\ATLSERVER2\Projects\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1090.dwg

ADJOINS DRG No 18-596-C1093

LEGEND

GENERAL

- EXISTING BOUNDARY
- 50 EXISTING CONTOURS
- 65.0 PROPOSED CONTOURS
- FUTURE MAMRE ROAD WIDENING
- PROPOSED BOUNDARY

UTILITIES - PROPOSED

- STORMWATER PIPE WITH SIZE
- KERB INLET PIT
- KERB INLET SAG PIT
- GROSS POLLUTANT TRAP
- JUNCTION PIT
- GRATED INLET PIT
- HEADWALL
- S SEWER
- W WATER
- HV HV POWER
- LV LV POWER
- T COMMUNICATIONS
- G GAS
- STREET LIGHTING

UTILITIES - EXISTING

- e ELECTRICITY LINE
- w WATER

NOTE

REFER TO TYPICAL ROAD SECTIONS ON DRG C1005 & 1006 FOR DIMENSIONS OF SERVICE ALLOCATIONS

ALL PROPOSED SERVICES TO BE COORDINATED AT DETAILED DESIGN

PROPOSED LOT_1
REFER 18-596-2100 DRG PACKAGE FOR DETAILS

ROAD 01

ROAD 02

FUTURE LOT 2

FUTURE LOT 8

SAG 28.143

TC 55.456
SAG 53.933
CT 116.486

REFER ORION CONSULTING DRGS FOR INTERSECTION DETAILS

ADJOINS DRG No 18-596-C1092

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4

Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
SERVICES AND UTILITIES COORDINATION PLAN
SHEET 1

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION
A1

Project - Drawing No. 18-596-C1091
Issue M

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1091.dwg

ADJOINS DRG No 18-596-C1093

INSET A

PROPOSED
LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

SERVICES BUILT DURING STAGE 1A ARE TO BE CAPPED AT THE TURNING HEAD FOR FUTURE EXTENSION DURING STAGE 1B

ROAD 04

FUTURE LOT 8

FUTURE LOT 4

TC 523.441

CT 82.487 80

TC 118.604

CT 133.891

148.552

TC 60.869

638.324

ADJOINS INSET A ON THIS DRG

ADJOINS DRG No 18-596-C1091

ADJOINS DRG No 18-596-C1094

LEGEND

GENERAL

- EXISTING BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FUTURE MAMRE ROAD WIDENING
- PROPOSED BOUNDARY

UTILITIES - PROPOSED

- STORMWATER PIPE WITH SIZE
- KERB INLET PIT
- KERB INLET SAG PIT
- GROSS POLLUTANT TRAP
- JUNCTION PIT
- GRATED INLET PIT
- HEADWALL
- SEWER
- WATER
- HV POWER
- LV POWER
- COMMUNICATIONS
- GAS
- STREET LIGHTING

UTILITIES - EXISTING

- ELECTRICITY LINE
- WATER

NOTE
REFER TO TYPICAL ROAD SECTIONS ON DRG C1005 & 1006 FOR DIMENSIONS OF SERVICE ALLOCATIONS

ALL PROPOSED SERVICES TO BE COORDINATED AT DETAILED DESIGN

ALL FINISHED LEVELS SHOWN ARE ±1000mm

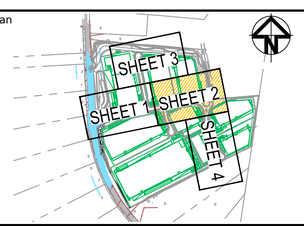
Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
SERVICES AND
UTILITIES COORDINATION
PLAN
SHEET 2

Civil Engineers and Project Managers
at&l
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North Sydney NSW 2060
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Tel: 02 9439 1777
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info@atl.net.au

Status
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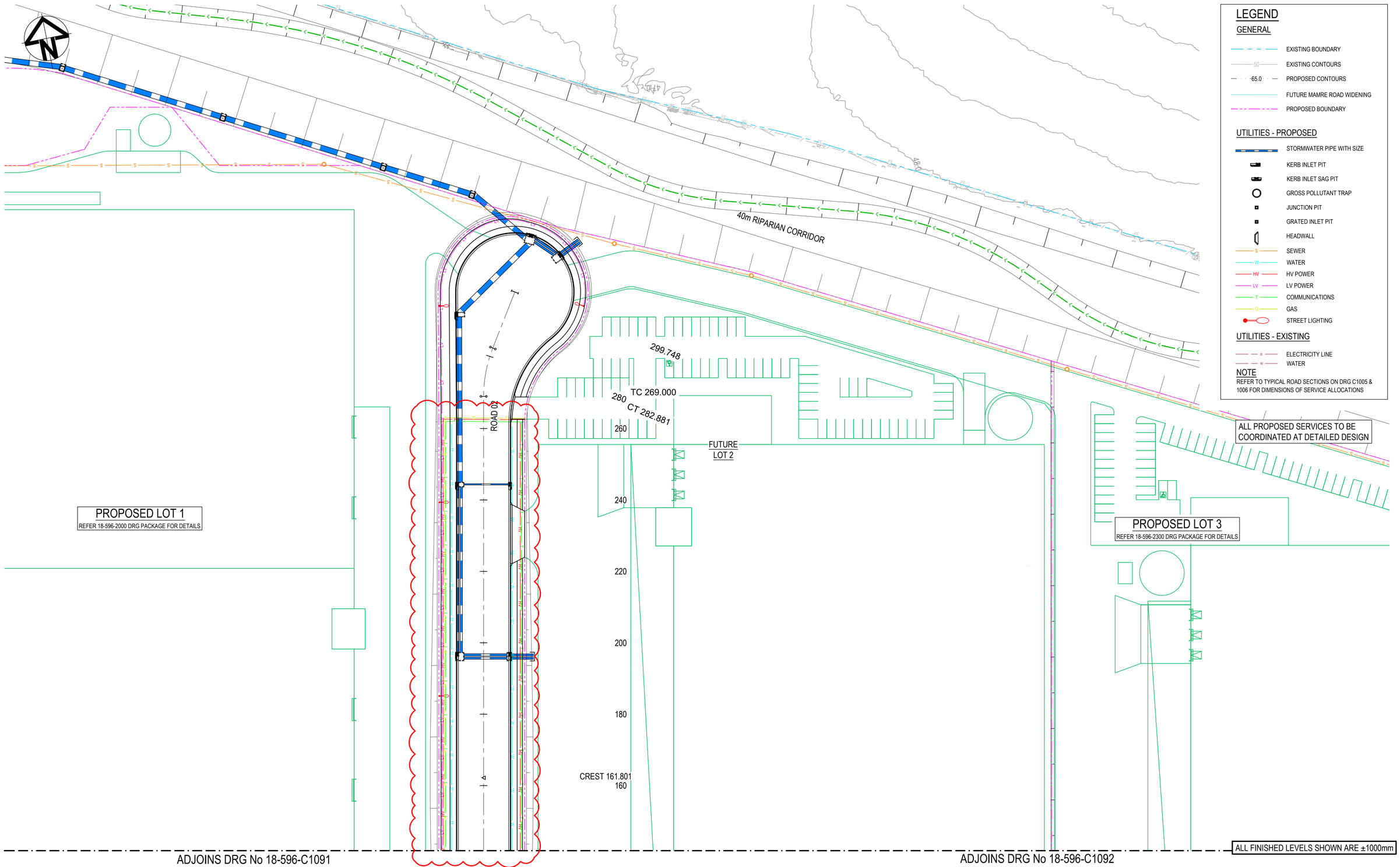
A1

Project - Drawing No.
18-596-C1092

Issue
M

100mm on Original

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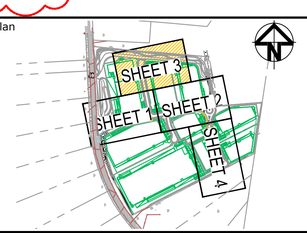
Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
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H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client

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Scales 1:500

Grid MGA

Height Datum AHD

Drawn KR

Designed KR

Checked AT

Approved AM

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Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

SERVICES AND UTILITIES COORDINATION PLAN
SHEET 3

Civil Engineers and Project Managers

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Status FOR APPROVAL
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A1

Project - Drawing No. 18-596-C1093

Issue M

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1093.dwg

FUTURE LOT 4

FUTURE LOT 5

FUTURE LOT 6

FUTURE LOT 8

ROAD 01

ROAD 03

638/324

600

100

200

300

550

520

500

480

TC 523.441

SERVICES BUILT DURING STAGE 1A ARE TO BE CAPPED AT THE TURNING HEAD FOR FUTURE EXTENSION DURING STAGE 1B

ALL PROPOSED SERVICES TO BE COORDINATED AT DETAILED DESIGN

ALL FINISHED LEVELS SHOWN ARE ±1000mm

ADJOINS DRG No 18-596-C1092

LEGEND

GENERAL

- EXISTING BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FUTURE MAMRE ROAD WIDENING
- PROPOSED BOUNDARY

UTILITIES - PROPOSED

- STORMWATER PIPE WITH SIZE
- KERB INLET PIT
- KERB INLET SAG PIT
- GROSS POLLUTANT TRAP
- JUNCTION PIT
- GRATED INLET PIT
- HEADWALL
- SEWER
- WATER
- HV POWER
- LV POWER
- COMMUNICATIONS
- GAS
- STREET LIGHTING

UTILITIES - EXISTING

- ELECTRICITY LINE
- WATER

NOTE

REFER TO TYPICAL ROAD SECTIONS ON DRG C1005 & 1006 FOR DIMENSIONS OF SERVICE ALLOCATIONS

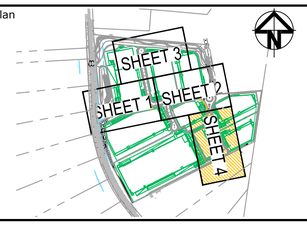
Issue	Description	Date
G	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	'14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client: mirvac

Scales		Drawn	KR
1:500		Designed	KR
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

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Project: ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: SERVICES AND UTILITIES COORDINATION PLAN SHEET 4

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
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www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1094

Issue: G

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1094.dwg

ADJOINS DRG No 18-596-C1110

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

MAMRE ROAD

DETENTION BASIN

BIO RETENTION
BEL 42.75

PROVIDE SEDIMENT FENCE (TYP.)

PROVIDE CATCH DRAIN (TYP.)

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

BEL40.72 BEL40.72 BEL40.88 BEL40.88 BEL44.34 BEL41.09 BEL41.10 BEL41.23 BEL41.25 BEL44.96 BEL44.95 BEL44.95 BEL 47.51

47.80

0.3% MIN

0.5% MIN

48.00

BEL 48.65 BEL 48.65

47.80

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

PROVIDE CATCH DRAIN (TYP.)

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

PROVIDE CATCH DRAIN (TYP.)

0.3% MIN

47.20 47.20 47.80 46.80 47.80

STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA

STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA

PROVIDE SEDIMENT FENCE (TYP.)

BEL 46.70

BEL 47.65

PROPOSED SEDIMENT BASIN J
REFER TO DRG 18-596-C1114 FOR DIMENSIONS

PROVIDE SEDIMENT FENCE (TYP.)

46.20 46.40 46.60 46.80 47.20

EMERGENCY BASIN OVERFLOW

PROPOSED SEDIMENT BASIN F2
REFER TO DRG 18-596-C1115 FOR DIMENSIONS

47.80

BEL 51.80 BEL 51.80

3082m³

ALL FINISHED LEVELS SHOWN ARE +1000mm

ADJOINS DRG No 18-596-C1114

ADJOINS DRG No 18-596-C1115

ADJOINS DRG No 18-596-C1113

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client

mirvac

Scales 1:500

Grid MGA

Height Datum AHD

Drawn KR

Designed KR

Checked AT

Approved AM

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Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
EROSION AND SEDIMENT CONTROL PLAN
SHEET 3

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1112

Issue
M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1112.dwg

ADJOINS DRG No 18-596-C1111

ADJOINS DRG No 18-596-C1112

ADJOINS DRG No 18-596-C1115

ADJOINS DRG No 18-596-C1116

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

PROVIDE CATCH DRAIN (TYP.)

STRAWBALE AND GEOTEXTILE SEDIMENT FILTER AT 30m SPACING (TYP.)

STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA

EMERGENCY BASIN OVERFLOW

PROVIDE SEDIMENT FENCE (TYP.)

0.5% MIN

0.3% MIN

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

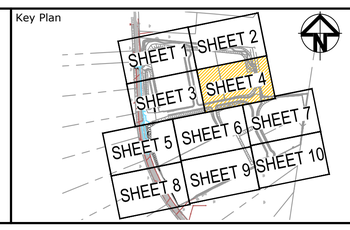
Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan



Client

mirvac

Scales		Drawn	KR
1:500		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

EROSION AND SEDIMENT CONTROL PLAN
SHEET 4

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
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Tel: 02 9439 1777
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www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1113

Issue: M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1113.dwg

ADJOINS DRG No 18-596-C1112

MAMRE ROAD

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

PROVIDE CATCH DRAIN (TYP.)

PROVIDE SEDIMENT FENCE (TYP.)

52.00

0.5% MIN

52.00

PROVIDE CATCH DRAIN (TYP.)

51.80

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

ALL FINISHED LEVELS SHOWN ARE ±1000mm

ADJOINS DRG No 18-596-C1115

ADJOINS DRG No 18-596-C117

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

EROSION AND SEDIMENT CONTROL PLAN
SHEET 5

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A1

Project - Drawing No.: 18-596-C1114

Issue: L

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1114.dwg

ADJOINS DRG No 18-596-C1112

ADJOINS DRG No 18-596-C1113

ADJOINS DRG No 18-596-C1114

ADJOINS DRG No 18-596-C1116

ADJOINS DRG No 18-596-C1118

ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)

PROVIDE CATCH DRAIN (TYP.)

3082m³

PROPOSED SEDIMENT BASIN G
CATCHMENT AREA = 6.45 Ha
DEPTH OF SETTLING ZONE = 600mm
SURFACE AREA = 3425m²
SETTLING ZONE VOLUME = 2055m³
SEDIMENT STORAGE VOLUME = 1027m³
TOTAL BASIN VOLUME = 3082m³

52.00

0.5% MIN

48.40 48.60 48.80 49.00 49.20 49.40 49.60 49.80 50.00 50.20 50.40 50.80

53.60 53.40

EMERGENCY BASIN OVERFLOW

4447m³

PROPOSED SEDIMENT BASIN H
CATCHMENT AREA = 10.60 Ha
DEPTH OF SETTLING ZONE = 600mm
SURFACE AREA = 4943m²
SETTLING ZONE VOLUME = 2965m³
SEDIMENT STORAGE VOLUME = 1482m³
TOTAL BASIN VOLUME = 4447m³

ALL FINISHED LEVELS SHOWN ARE ±1000mm

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
L	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client

mirvac

Scales		Drawn	KR
1:500		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project
ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
EROSION AND SEDIMENT CONTROL PLAN
SHEET 6

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1115

Issue
M

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1115.dwg

ADJOINS DRG No 18-596-C1113

ADJOINS DRG No 18-596-C1115

ADJOINS DRG No 18-596-C1119

PROPOSED SEDIMENT BASIN F
CATCHMENT AREA = 2.65 Ha
DEPTH OF SETTLING ZONE = 600mm
SURFACE AREA = 775m²
SETTLING ZONE VOLUME = 465m³
SEDIMENT STORAGE VOLUME = 232m³
TOTAL BASIN VOLUME = 697m³

697m³

PROPOSED SEDIMENT BASIN D
CATCHMENT AREA = 5.991 Ha
DEPTH OF SETTLING ZONE = 600mm
SURFACE AREA = 1749m²
SETTLING ZONE VOLUME = 1049m³
SEDIMENT STORAGE VOLUME = 524m³
TOTAL BASIN VOLUME = 1573m³

1573m³

PROPOSED SEDIMENT BASIN E
CATCHMENT AREA = 3.385 Ha
DEPTH OF SETTLING ZONE = 600mm
SURFACE AREA = 989m²
SETTLING ZONE VOLUME = 593m³
SEDIMENT STORAGE VOLUME = 296m³
TOTAL BASIN VOLUME = 889m³

889m³

PROVIDE SEDIMENT FENCE (TYP.)
ROCK RIFFLE CHECK DAM AT 30m SPACING (TYP.)
PROVIDE CATCH DRAIN (TYP.)
STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA
EMERGENCY BASIN OVERFLOW
0.5% MIN
0.3% MIN

LEGEND
- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

Bar Scales
0 10 20 30 40 50m
1 : 500 @ A1 1 : 1000 @ A3

Key Plan
SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10

Client
mirvac

Scales 1:500
Grid MGA
Height Datum AHD

Drawn	KR
Designed	KR
Checked	AT
Approved	AM

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GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
EROSION AND SEDIMENT CONTROL PLAN SHEET 7

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
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Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

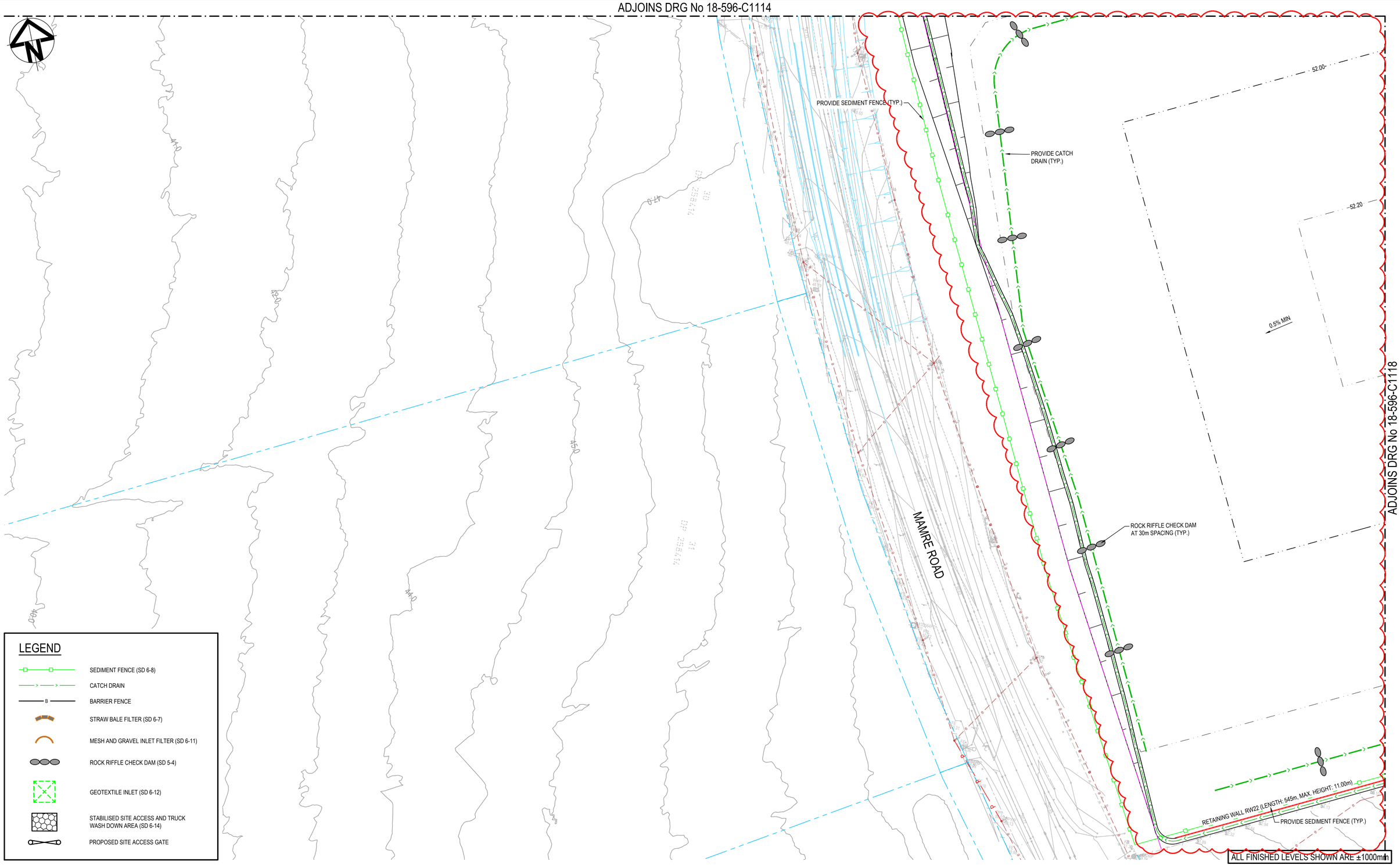
Project - Drawing No.
18-596-C1116

Issue
L

100mm on Original

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ADJOINS DRG No 18-596-C1114



LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20

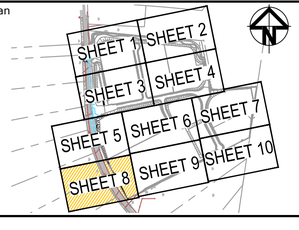
100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client

mirvac

Scales		Drawn	KR
	1:500	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

EROSION AND SEDIMENT CONTROL PLAN SHEET 8

Civil Engineers and Project Managers

at&l

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info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1117

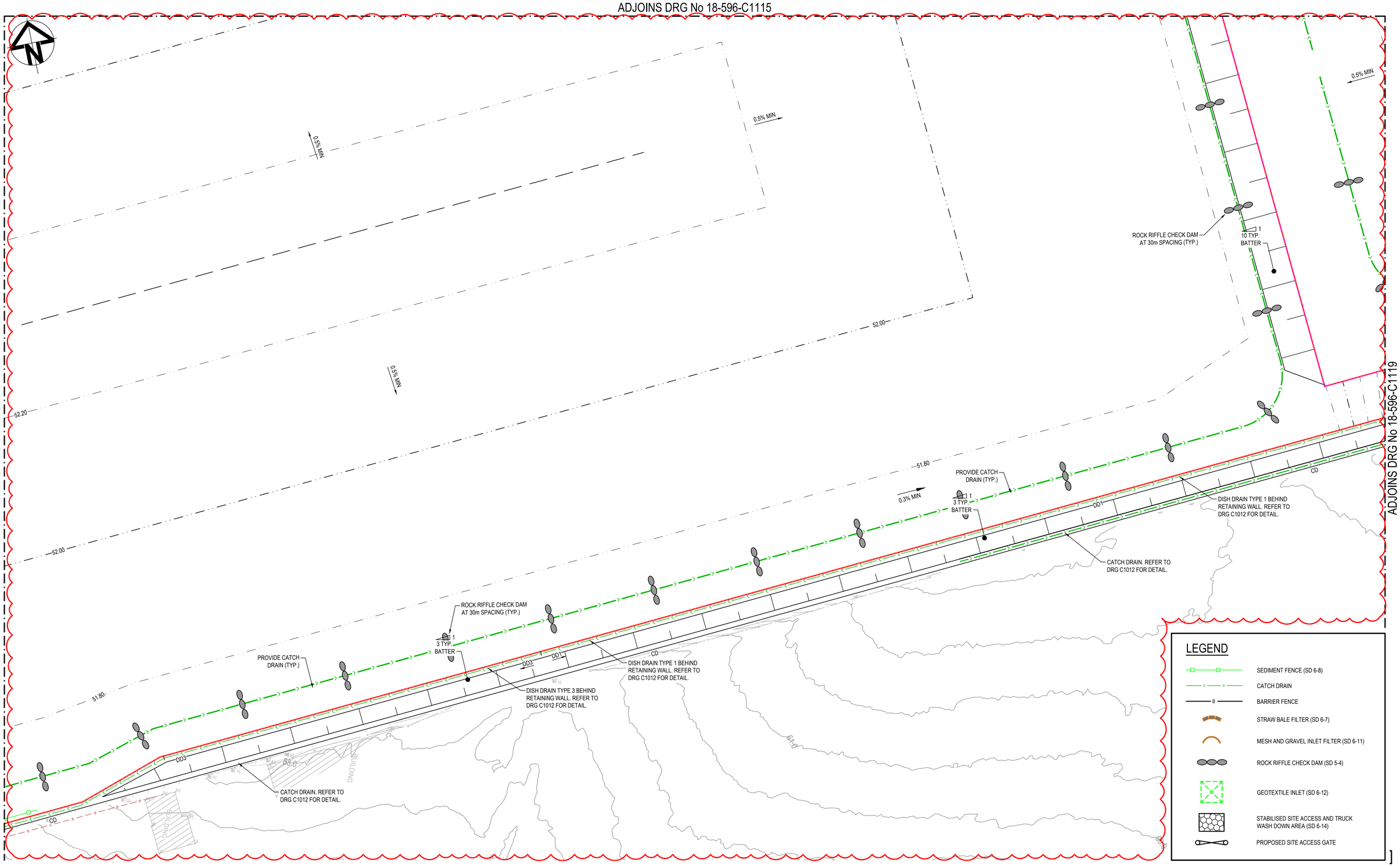
Issue: L

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ADJOINS DRG No 18-596-C1115

ADJOINS DRG No 18-596-C1117

ADJOINS DRG No 18-596-C1119



LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

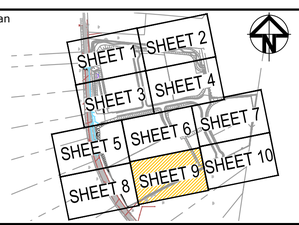
100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client

mirvac

Scales		Drawn	KR
1:500		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

EROSION AND SEDIMENT CONTROL PLAN
SHEET 9

Civil Engineers and Project Managers

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info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

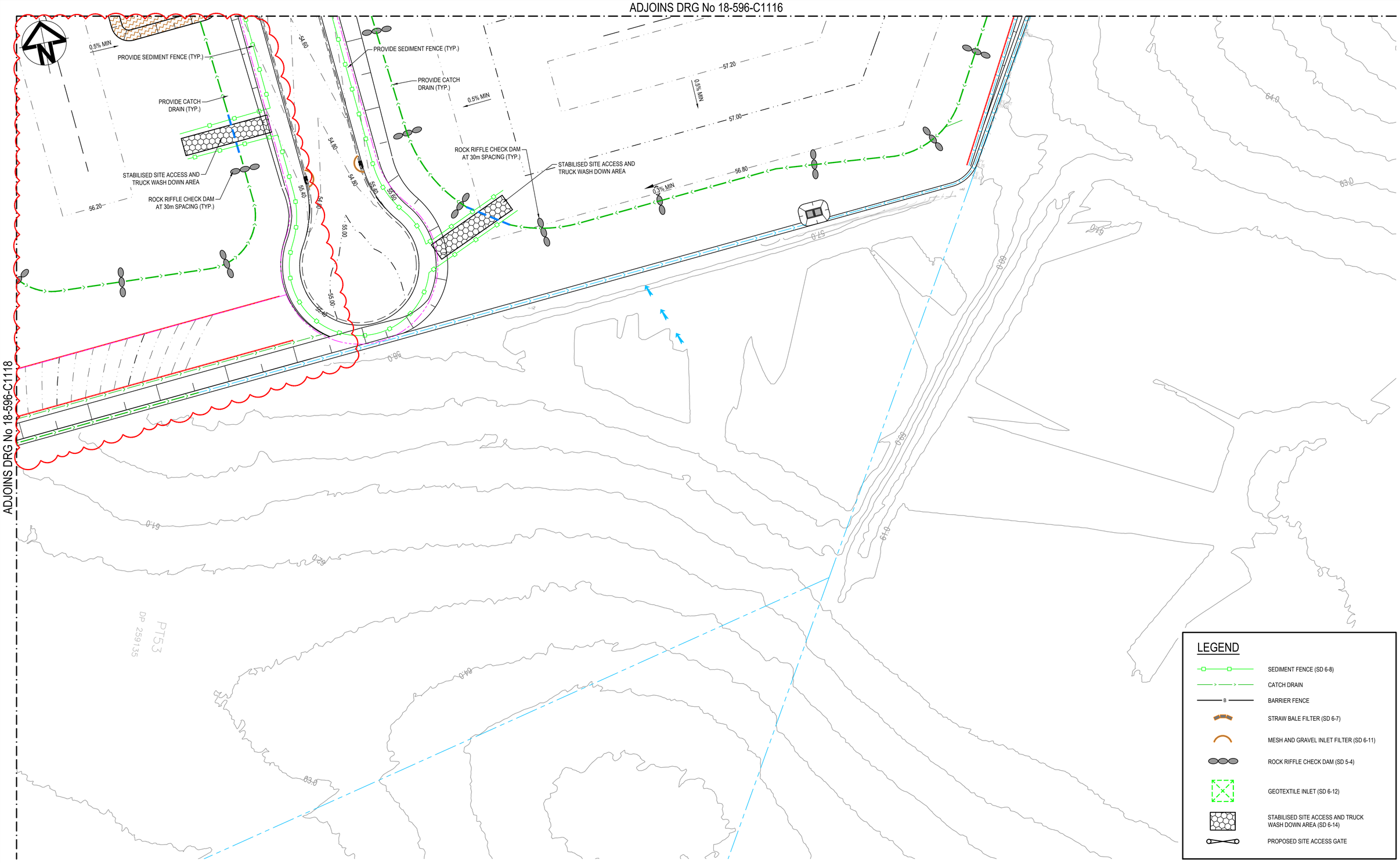
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Issue: M

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ADJOINS DRG No 18-596-C1116

ADJOINS DRG No 18-596-C1118



Issue	Description	Date
M	ISSUED FOR DEVELOPMENT APPLICATION	19-08-22
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

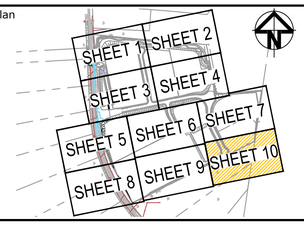
100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client

mirvac

Scales		Drawn	KR
	1:500	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

EROSION AND SEDIMENT CONTROL PLAN
SHEET 10

Civil Engineers and Project Managers

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www.atl.net.au
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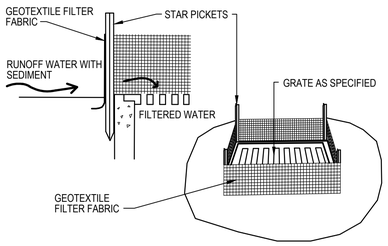
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1119

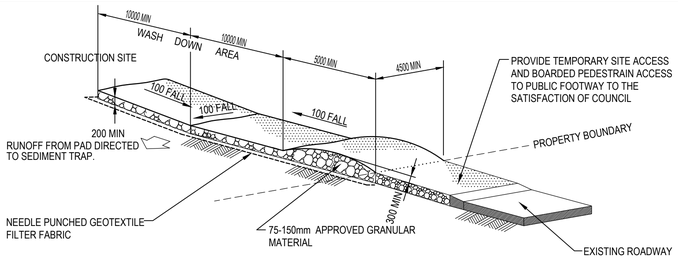
Issue: M

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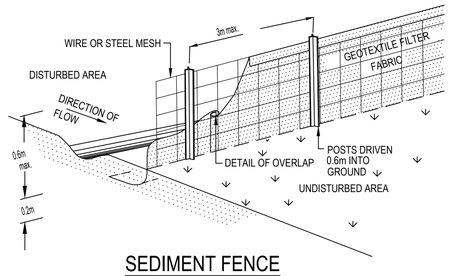
GEOTEXTILE FILTER PIT SURROUND

NTS



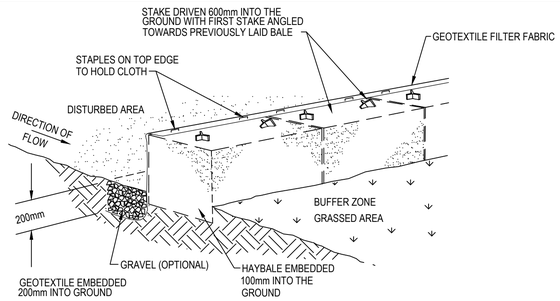
STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA

NTS



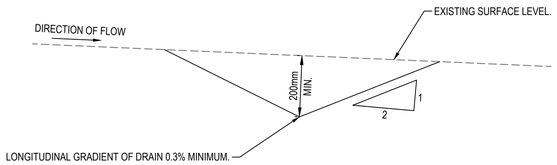
SEDIMENT FENCE

NTS



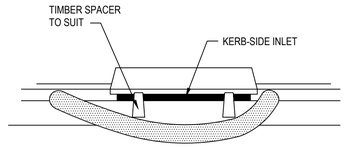
HAYBALE AND GEOTEXTILE SEDIMENT FILTER

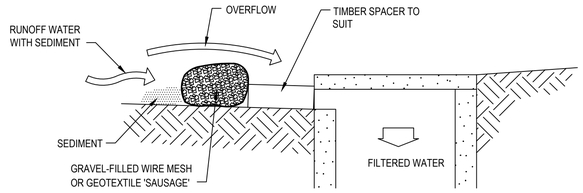
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CATCH DRAIN DETAIL

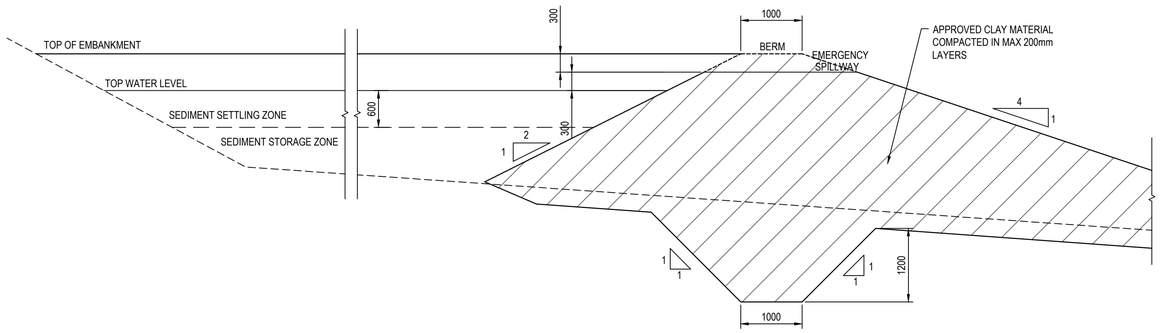
SCALE 1:10





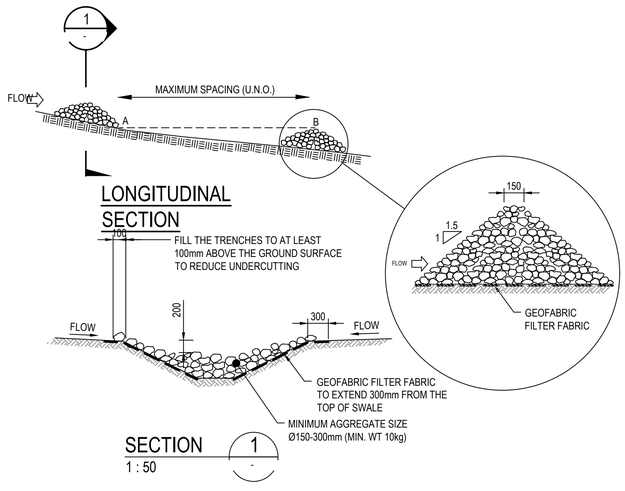
MESH AND GRAVEL INLET FILTER

NTS



SEDIMENT BASIN TYPICAL CROSS SECTION

1 : 50



ROCK RIFFLE CHECK DAM (SD 5-4)

1 : 50

Issue	Description	Date
K	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
J	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
G	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
E	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21
C	ISSUED FOR DEVELOPMENT APPLICATION	15-10-20
B	ISSUED FOR DEVELOPMENT APPLICATION	12-10-20

Bar Scales

0 100 200 400 600 800 1000mm

1 : 10 @ A1 1 : 20 @ A3

0 1 2 3 4 5m

1 : 50 @ A1 1 : 100 @ A3

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Client: mirvac

Scales		Drawn	KR
	1:10 1:50	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

GDA2020

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: EROSION AND SEDIMENT CONTROL DETAILS

Civil Engineers and Project Managers
at&l
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North Sydney NSW 2060
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info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1120

Issue: K

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1120.dwg

FUTURE
LOT 2

ROAD 01

ROAD 02

30m A-DOUBLE_PBS LEVEL 2B
Custom

30m A-DOUBLE_PBS LEVEL 2B
Custom

30m A-DOUBLE_PBS LEVEL 2B
Custom

30m A-DOUBLE_PBS LEVEL 2B
Custom

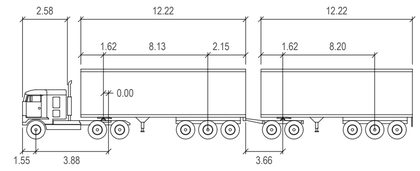
FUTURE
LOT 8

LEGEND

VEHICLE BODY ENVELOPE

0.5m VEHICLE BODY
CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILE



30m PBS TYPE 2B

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
J	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
G	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
E	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
C	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

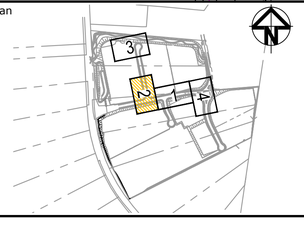
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
VEHICLE
TURN PATHS
PLAN
SHEET 1

Civil Engineers and Project Managers
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North Sydney NSW 2060
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Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

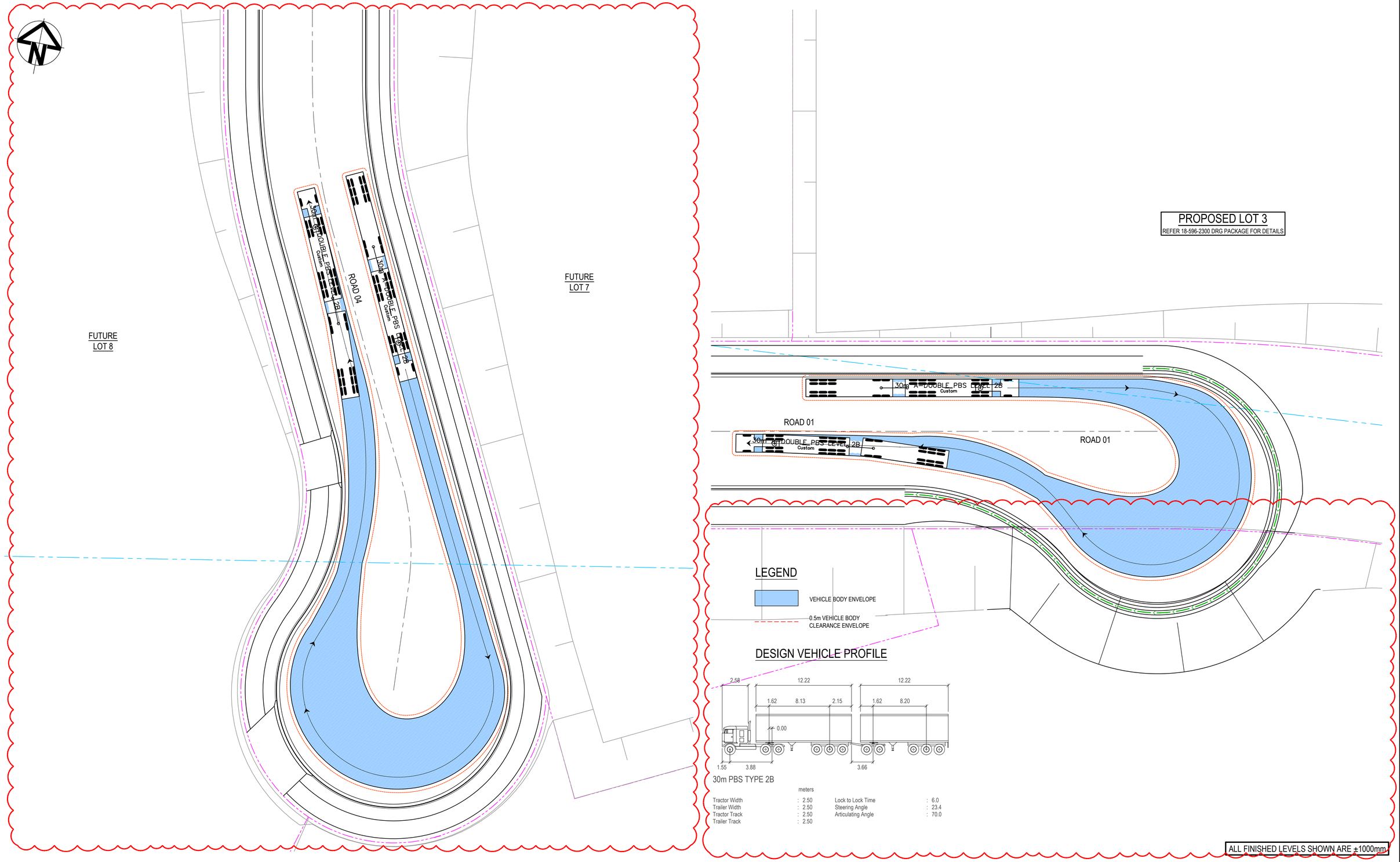
Status
FOR APPROVAL
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A1

Project - Drawing No.
18-596-C1150

Issue
L

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Issue	Description	Date
L	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
K	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
J	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
H	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
G	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
F	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
E	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
D	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22
C	ISSUED FOR DEVELOPMENT APPLICATION	08-10-21

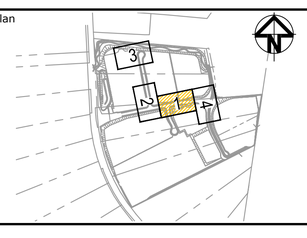
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales		Drawn	KR
	1:250	Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

VEHICLE
TURN PATHS
PLAN
SHEET 2

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
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www.atl.net.au
info@atl.net.au

Status

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.

18-596-C1151

Issue

L

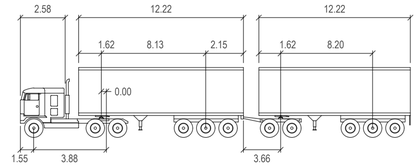
F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1151.dwg

LEGEND

VEHICLE BODY ENVELOPE

0.5m VEHICLE BODY CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILE



30m PBS TYPE 2B

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

FUTURE LOT 4

FUTURE LOT 3

FUTURE LOT 7

ROAD 01

ROAD 03

30m @ DOUBLE PBS Custom LEVEL 2B

ALL FINISHED LEVELS SHOWN ARE ±1000mm

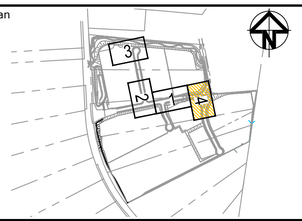
Issue	Description	Date
F	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
E	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
C	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
A	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales		Drawn	KR
1:250		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

VEHICLE
TURN PATHS
PLAN
SHEET 5

Civil Engineers and Project Managers

at&l

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North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

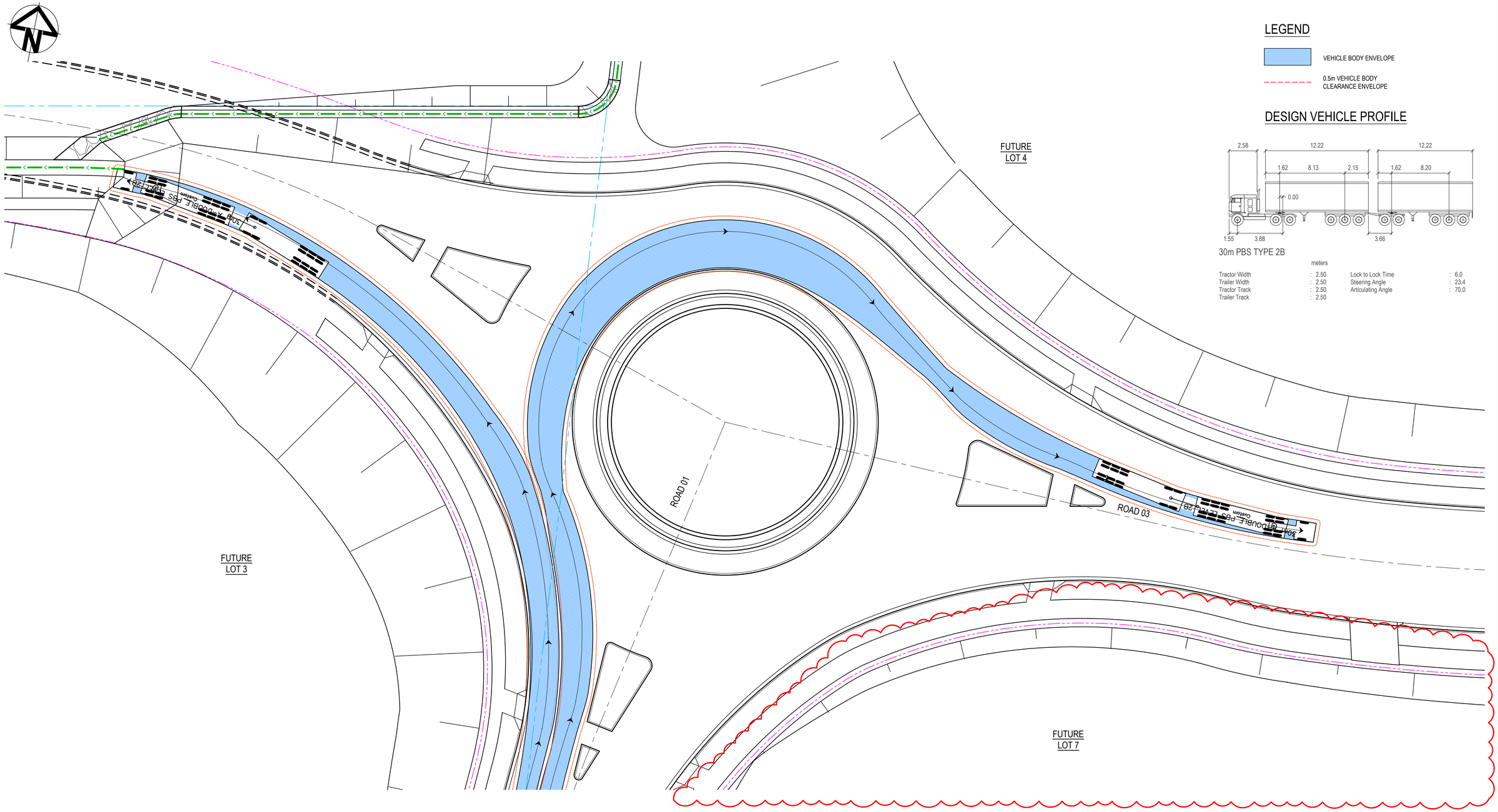
A1

Project - Drawing No.: 18-596-C1154

Issue: F

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1154.dwg



LEGEND

VEHICLE BODY ENVELOPE

0.5m VEHICLE BODY CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILE

30m PBS TYPE 2B

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
F	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
E	ISSUED FOR DEVELOPMENT APPLICATION	29-04-23
D	ISSUED FOR DEVELOPMENT APPLICATION	14-04-23
C	ISSUED FOR DEVELOPMENT APPLICATION	18-03-23
B	ISSUED FOR DEVELOPMENT APPLICATION	04-03-23
A	ISSUED FOR DEVELOPMENT APPLICATION	24-02-23

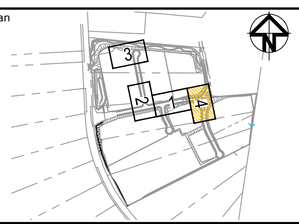
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales	1:251	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

VEHICLE
TURN PATHS
PLAN
SHEET 6

Civil Engineers and Project Managers

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info@atl.net.au

Status

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.

18-596-C1155

Issue

F

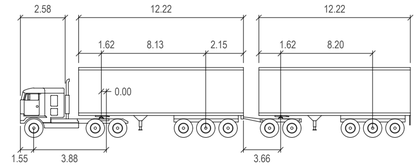
F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1155.dwg

LEGEND

VEHICLE BODY ENVELOPE

0.5m VEHICLE BODY CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILE



30m PBS TYPE 2B

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

FUTURE LOT 4

FUTURE LOT 3

FUTURE LOT 7

ROAD 01

ROAD 03

30m B-DOUBLE PBS Custom 2B

30m A-DOUBLE PBS Custom 2B

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
F	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
E	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
C	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
A	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22

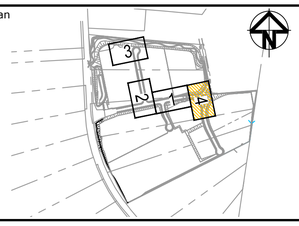
100mm on Original

Bar Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Key Plan



Client

mirvac

Scales	1:250	Drawn	KR
		Designed	KR
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	AM

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GDA2020

Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

VEHICLE
TURN PATHS
PLAN
SHEET 7

Civil Engineers and Project Managers

at&l

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North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
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info@atl.net.au

Status

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

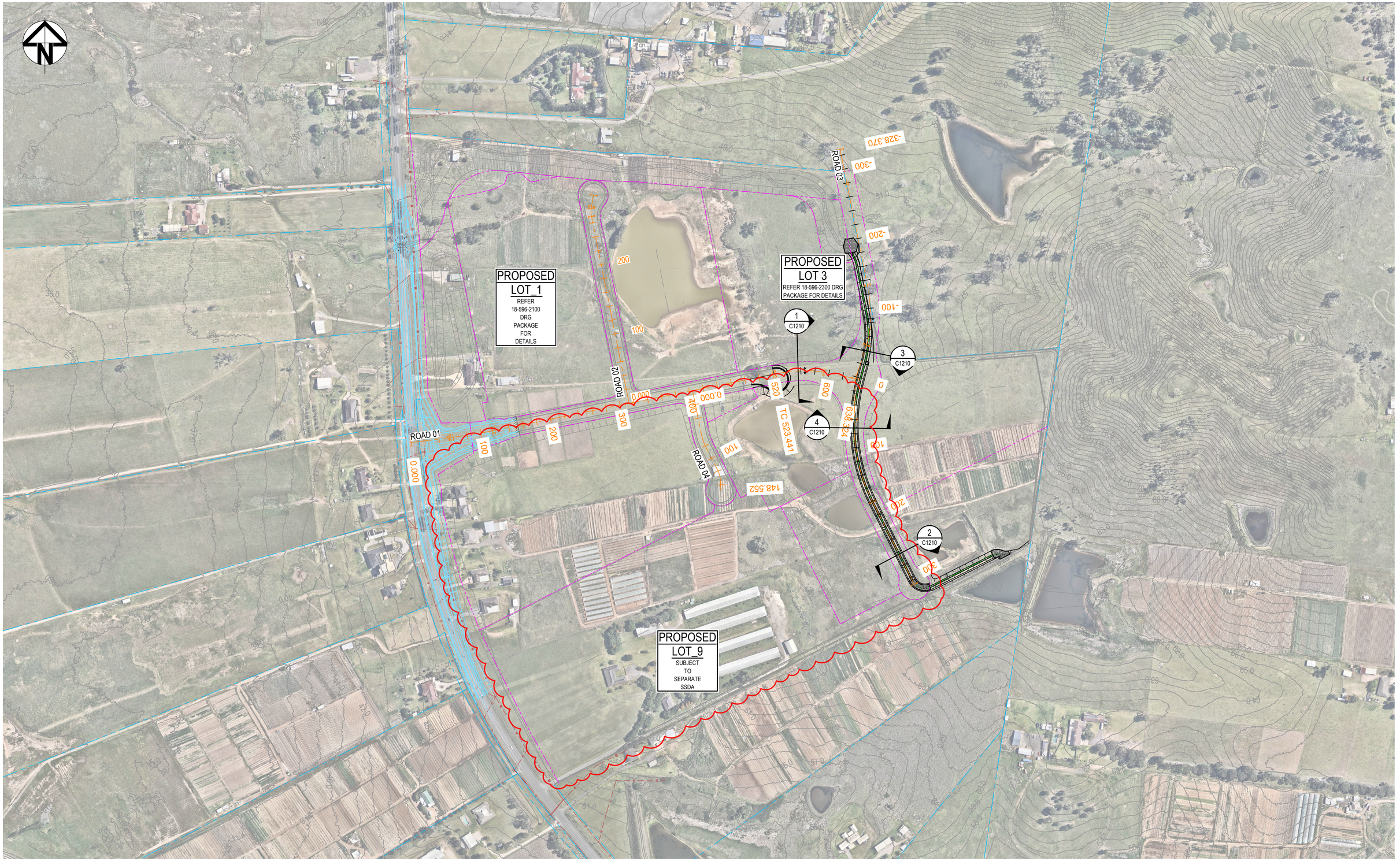
Project - Drawing No.

18-596-C1156

Issue

F

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Issue	Description	Date
H	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

100mm on Original

Bar Scales

0 50 100 150 200 250m

1 : 2500 @ A1

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Client

mirvac

Scales	1:2000
Grid	MGA
Height Datum	AHD
Drawn	KR
Designed	KR
Checked	DS
Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

TEMPORARY WORKS
GENERAL ARRANGEMENT
PLAN

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

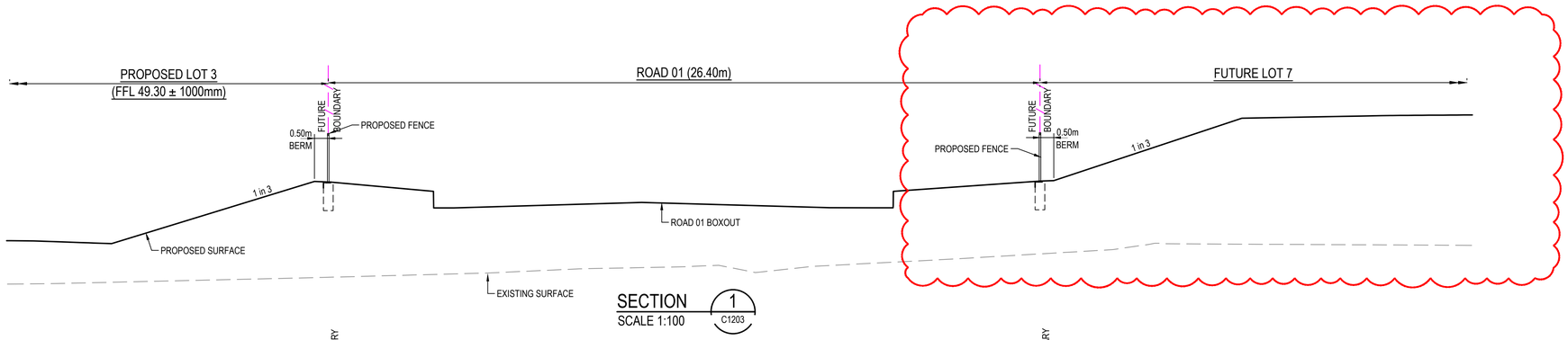
Project - Drawing No.

18-596-C1203

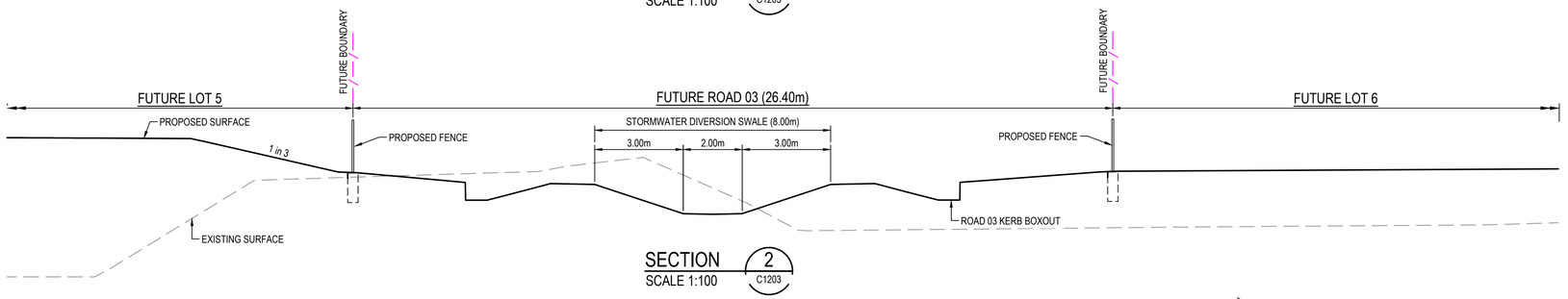
Issue

H

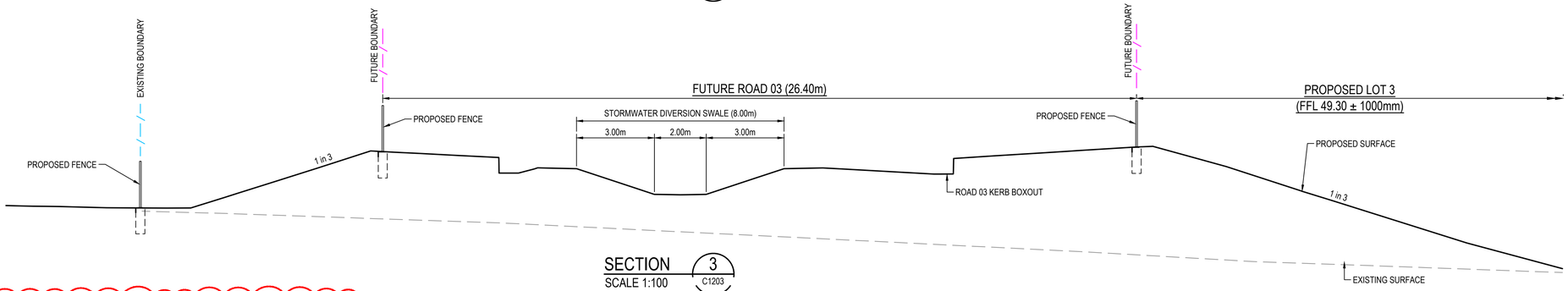
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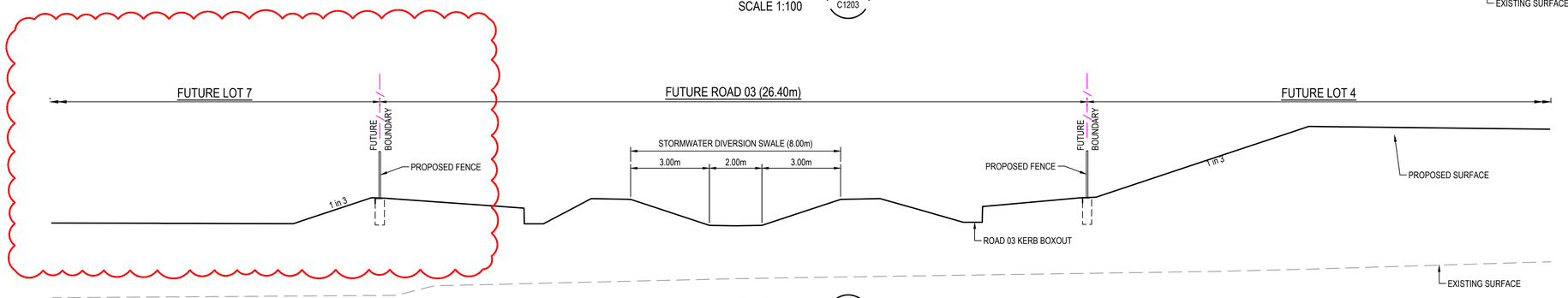
SECTION 1
SCALE 1:100 C1203



SECTION 2
SCALE 1:100 C1203



SECTION 3
SCALE 1:100 C1203



SECTION 4
SCALE 1:100 C1203

Issue	Description	Date
G	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

100mm on Original

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

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Client: mirvac

Scales: 1:100

Grid: MGA

Height Datum: AHD

GDA2020

Drawn: KR

Designed: KR

Checked: DS

Approved: AM

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: TEMPORARY WORKS
TYPICAL SECTIONS
SHEET 1

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

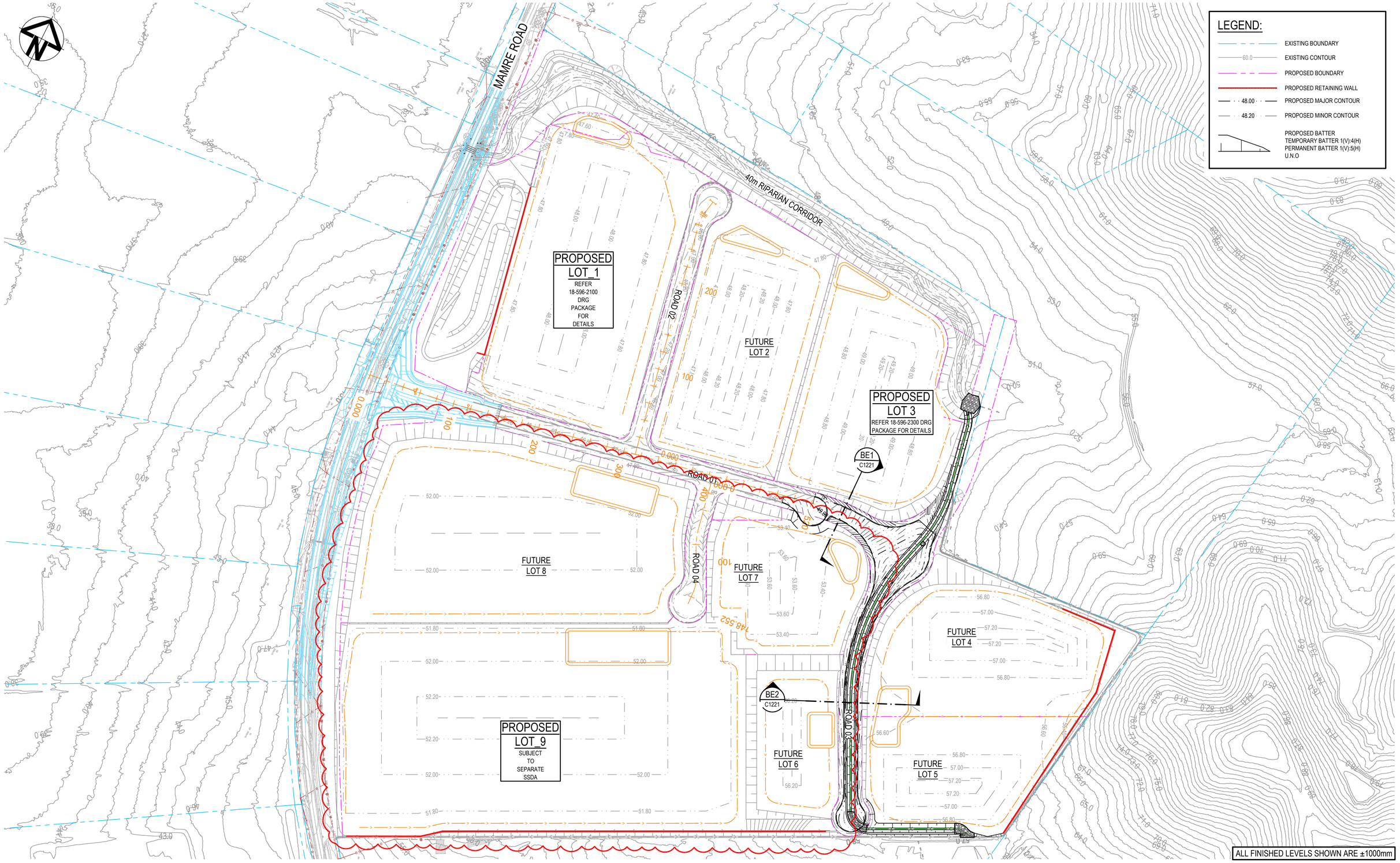
Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1210

Issue: G

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Issue	Description	Date
H	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 50 100 150 200m

1 : 2000 @ A1

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Client

mirvac

Scales	1:2000	Drawn	KR
		Designed	KR
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

GDA2020

Project

ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

TEMPORARY WORKS
BULK EARTHWORKS
CONTOUR PLAN

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

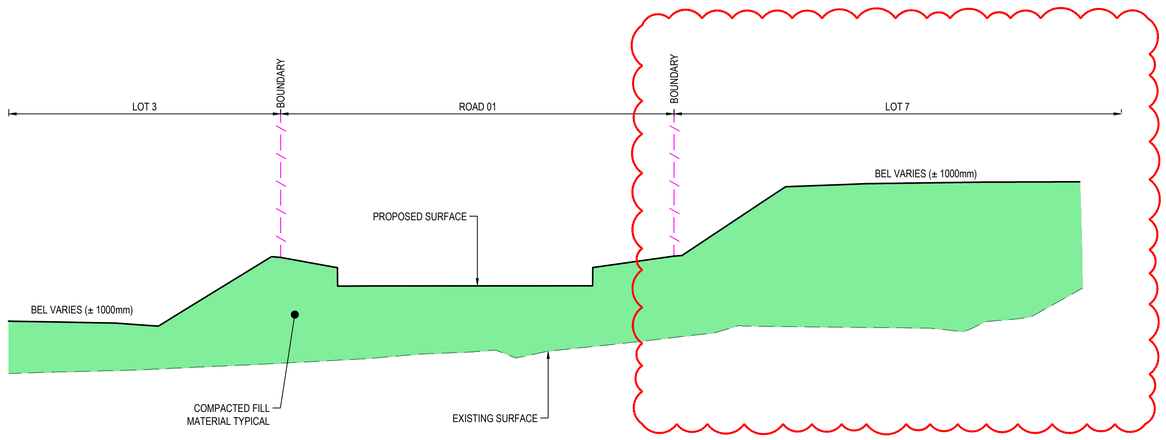
A1

Project - Drawing No.: 18-596-C1220

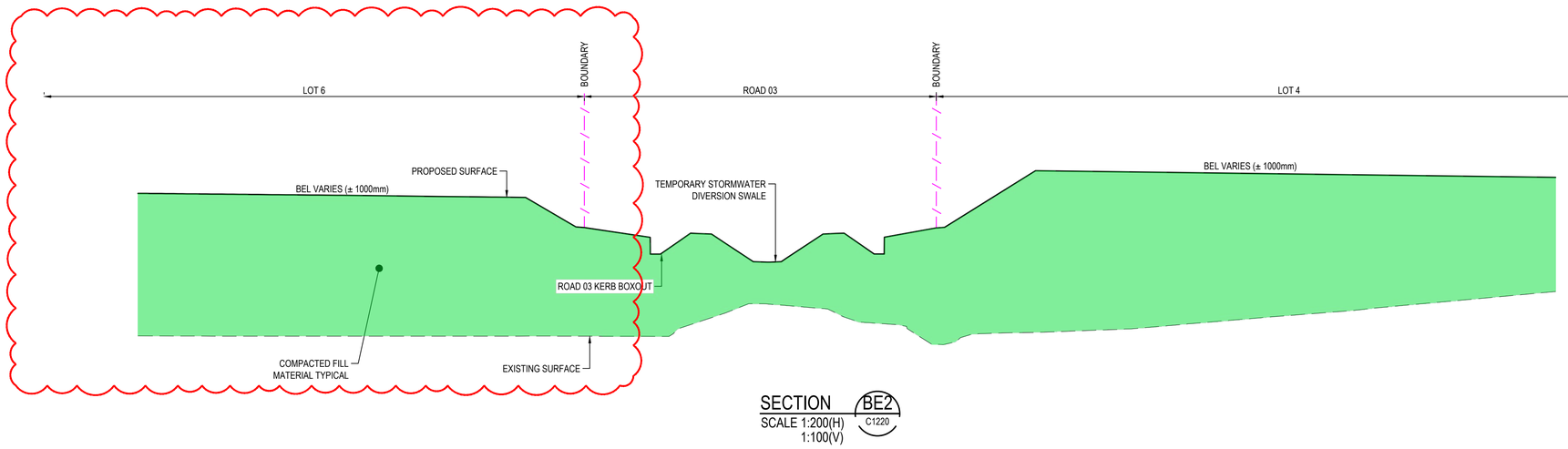
Issue: H

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1220.dwg



SECTION BE1 C1220
SCALE 1:200(H)
1:100(V)



SECTION BE2 C1220
SCALE 1:200(H)
1:100(V)

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
G	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales

0 5 10 15 20m
1 : 200 @ A1 1 : 400 @ A3
0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

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Client: mirvac

Scales: 1:200(H) 1:100(V)
Grid: MGA
Height Datum: AHD
GDA2020

Drawn: KR
Designed: KR
Checked: DS
Approved: AM

Project: ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title: TEMPORARY WORKS
BULK EARTHWORKS
SECTIONS
SHEET 1

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ABN 96 130 882 405
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Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION
A1
Project - Drawing No.: 18-596-C1221
Issue: G

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1221.dwg

LEGEND

- EXISTING BOUNDARY
- EXISTING CONTOUR
- PROPOSED BOUNDARY
- PROPOSED CONTOUR
- +BEL75.00 — PROPOSED BULK EARTHWORKS LEVEL
- DD — 900mm DISH DRAIN. DETAIL ON C1011
- SD — 750mm SPOON DRAIN. DETAIL ON C1011
- CD — CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

PROPOSED
LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

ROAD 01

ROAD 03

RETAINING WALL RW21 (LENGTH: 307m, H

FUTURE
LOT 7

FUTURE
LOT 4

TC 523.441

ST50610

ALL FINISHED LEVELS SHOWN ARE ±1000mm

ADJOINS DRG No 18-596-C1230

Issue	Description	Date
H	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

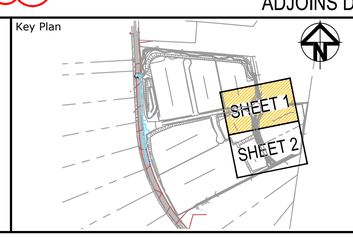
100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan



Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

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GDA2020

Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
TEMPORARY WORKS
BULK EARTHWORKS
PLAN
SHEET 1

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1230

Issue
H

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1230.dwg

ADJOINS DRG No 18-596-C1230

LEGEND

- EXISTING BOUNDARY
- 60.0 EXISTING CONTOUR
- PROPOSED BOUNDARY
- 65.0 PROPOSED CONTOUR
- +BEL75.00 PROPOSED BULK EARTHWORKS LEVEL
- DD 900mm DISH DRAIN. DETAIL ON C1011
- SD 750mm SPOON DRAIN. DETAIL ON C1011
- CD CATCH DRAIN. DETAIL ON C1011
- EROSION AND SEDIMENT CONTROL CATCH DRAIN. DETAIL ON C1120
- PROPOSED RETAINING WALL
- SCOUR PROTECTION D50=600mm THICKNESS 900mm

ROAD 03

FUTURE LOT 4

FUTURE LOT 5

FUTURE LOT 6

RETAINING WALL RW22 (LENGTH: 545m, MAX. HEIGHT: 11.00m)

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
G	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
D	ISSUED FOR DEVELOPMENT APPLICATION	18-03-22
C	ISSUED FOR DEVELOPMENT APPLICATION	04-03-22
B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1

SHEET 2

Client

mirvac

Scales		Drawn	KR
1:500		Designed	KR
Grid	MGA	Checked	DS
Height Datum	AHD	Approved	AM

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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

TEMPORARY WORKS
BULK EARTHWORKS
PLAN
SHEET 2

Civil Engineers and Project Managers

at&l

Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.: 18-596-C1231

Issue: G

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1231.dwg

LEGEND:

- EXISTING BOUNDARY
- EXISTING ELECTRICITY
- PROPOSED BOUNDARY
- PROPOSED EASEMENT
- PROPOSED RETAINING WALL
- 48.00 PROPOSED MAJOR CONTOUR
- 48.20 PROPOSED MINOR CONTOUR
- PROPOSED BATTER STAGE 1A WORKS TEMPORARY BATTER 1(V):4(H) PERMANENT BATTER 1(V):5(H) U.N.O
- MK PROPOSED MOUNTABLE KERB TO PCC SPECIFICATION
- K&G PROPOSED KERB AND GUTTER TO PCC SPECIFICATION
- PROPOSED DRIVEWAY LAYBACK
- PROPOSED KERB RAMP
- LIMIT OF WORKS
- PROPOSED CATCH DRAIN
- PROPOSED STORMWATER JUNCTION PIT
- PROPOSED STORMWATER JUNCTION PIT
- PROPOSED STORMWATER KERB INLET PIT WITH LINTEL
- PROPOSED STORMWATER PIPE WITH HEADWALL
- PROPOSED CAPPED STORMWATER PIPE
- PROPOSED STORMWATER LINE
- PROPOSED INDUSTRIAL ROAD PAVEMENT TO PCC SPECIFICATION
- PROPOSED FOOTPATH PAVEMENT TO PCC SPECIFICATION
- PROPOSED INDUSTRIAL DRIVEWAY PAVEMENT TO PCC SPECIFICATION
- CUL-DE-SEC ROUNDABOUT PAVEMENT
- MAINTENANCE ACCESS TRACK
- BASIN MAINTENANCE DRIVEWAY
- REINFORCED CONCRETE WIER
- LANDSCAPED MEDIAN
- CONCRETE MEDIAN

PROPOSED LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

AC1-11
AC1-10
AC10-1
Ø1800
Ø1800
Ø375
ROAD 01
CAP PROPOSED STORMWATER PIPE FOR FUTURE CONNECTION
FUTURE ROAD 01 ALIGNMENT. SEE DRGS C1050-C1061 FOR DETAIL.
TEMPORARY TURNING HEAD. SEE DETAIL ON DRG C1006.
49.00
49.20
49.40
49.60
49.80
48.40
1 VARIES (3 MAX) BATTER
FUTURE LOT 7
FUTURE LOT 7
440
460
480
500
520
40
ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
H	ISSUED FOR DEVELOPMENT APPLICATION	21-07-22
G	ISSUED FOR DEVELOPMENT APPLICATION	13-07-22
F	ISSUED FOR DEVELOPMENT APPLICATION	29-04-22
E	ISSUED FOR DEVELOPMENT APPLICATION	14-04-22
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B	ISSUED FOR DEVELOPMENT APPLICATION	24-02-22
A	ISSUED FOR DEVELOPMENT APPLICATION	03-02-22

Bar Scales
0 5 10 15 20 25m
1 : 250 @ A1 1 : 500 @ A3

Key Plan

Client
mirvac

Scales 1:250
Grid MGA
Height Datum AHD
Drawn KR
Designed KR
Checked DS
Approved AM

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Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
TEMPORARY WORKS
ROADWORKS
AND STORMWATER DRAINAGE
SHEET 1

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
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www.atl.net.au
info@atl.net.au

Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

A1

Project - Drawing No.
18-596-C1250

Issue
H

100mm on Original

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1250.dwg

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

PROPOSED
LOT 3
REFER 18-596-2300 DRG PACKAGE FOR DETAILS

STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA

ROAD 01

PROVIDE SEDIMENT FENCE (TYP.)

PROPOSED SWALE VEHICLE CROSSING. PROVIDE 2No. Ø1050 RCP WITH HEADWALL INLET/OUTLETS

ROAD 03

STRAWBALE AND GEOTEXTILE SEDIMENT FILTER AT 30m SPACING (TYP.)

PROVIDE SEDIMENT FENCE (TYP.)

PROVIDE SEDIMENT FENCE (TYP.)

PROVIDE SEDIMENT FENCE (TYP.)

FUTURE LOT 7

FUTURE LOT 4

ADJOINS DRG No 18-596-C1311

ALL FINISHED LEVELS SHOWN ARE ±1000mm

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Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

100mm on Original

Key Plan

SHEET 1
SHEET 2

Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	DS
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Project
ASPECT INDUSTIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title
TEMPORARY WORKS
EROSION AND
SEDIMENT CONTROL
PLAN SHEET 1

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
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info@atl.net.au

Status
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A1

Project - Drawing No.
18-596-C1310

Issue
H

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1310.dwg

ADJOINS DRG No 18-596-C1310

LEGEND

- SEDIMENT FENCE (SD 6-8)
- CATCH DRAIN
- BARRIER FENCE
- STRAW BALE FILTER (SD 6-7)
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- ROCK RIFFLE CHECK DAM (SD 5-4)
- GEOTEXTILE INLET (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE

FUTURE LOT 4

FUTURE LOT 5

FUTURE LOT 6

ROAD 03

ROAD 03

STRAWBALE AND GEOTEXTILE SEDIMENT FILTER AT 30m SPACING (TYP.)

PROVIDE SEDIMENT FENCE (TYP.)

PROVIDE SEDIMENT FENCE (TYP.)

STRAWBALE AND GEOTEXTILE SEDIMENT FILTER AT 30m SPACING (TYP.)

ALL FINISHED LEVELS SHOWN ARE ±1000mm

Issue	Description	Date
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100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Key Plan

SHEET 1

SHEET 2

Client

mirvac

Scales	1:500	Drawn	KR
		Designed	KR
Grid	MGA	Checked	DS
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Project

ASPECT INDUSTRIAL ESTATE
MAMRE ROAD,
KEMPS CREEK
STAGE 1

Title

TEMPORARY WORKS
EROSION AND
SEDIMENT CONTROL
PLAN SHEET 2

Civil Engineers and Project Managers

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Status: FOR APPROVAL
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A1

Project - Drawing No.: 18-596-C1311

Issue: G

F:\18-596 Mamre Road\6.0 Drgs\Civil\Final\SSD\1000_STAGE 1 SSD_MOD 2\18-596-C1311.dwg

APPENDIX B – Sydney Water Servicing Advice

17 June 2019

Russell Hogan
Development Manager, Mirvac
Level 28, 200 George Street
Sydney, NSW 2000

RE: Sydney Water servicing – proposed Mamre Road SEPP WSEA amendment.

Thank you for meeting with Sydney Water to discuss servicing options for the Mamre Road Precinct and Mirvac's proposal for SEPP WSEA amendment.

Sydney Water is progressing with planning services for the Mamre Road Precinct by 2026 based on current growth forecast and timeframes provided by the Department of Planning and Environment (DPE). This includes the following:

- **Wastewater** services to Mamre Road Precinct can be provided temporarily by St Marys STP for up to 4years, this is based on formal notification of the expected date of connection. Long-term potentially we intend to provide wastewater services from will be serviced by the proposed Upper South Creek WRP to be completed by 2025/26.

- **Drinking water** services can be provided from Cecil Park Reservoir. We are working to deliver a trunk main along Mamre Road by 2024-25. We will be working with RMS to deliver trunk mains in Mamre Road during road upgrade, subject to funding approval based on risk for development timeframes. Developer delivered precinct trunk mains will also be required to service the precinct.

- **Recycled water** services are being investigated for the whole of the Western Sydney Aerotropolis Growth Area (WSAGA) including this Precinct. We are seeking information on potential recycled water demands, types of use and will provide further advice later in the year. Consideration should be given to incorporating third pipe reticulation and recycled water plumbing connections during your planning stages.

- **Stormwater** – Sydney Water is collaborating with the Western Sydney Planning Partnership Office (PPO), member Councils and agencies on typologies, flood and waterway health models for the whole South Creek Catchment, to inform WSAGA LUIIP 2 and the WSAGA Precinct Plans. Consideration should be given to better use, manage flooding and stormwater quality runoff.

It is important to mention that to fast track Sydney Water services for the Mamre Road Precinct is dependent on DPE formal release advice and subject to Sydney Water's policy on developer accelerated servicing.

Sydney Water is committed to servicing Western Sydney and we are working closely with the Western Sydney Planning Partnership Office in delivering collaborative community outcomes. Please feel free to contact me at any time.

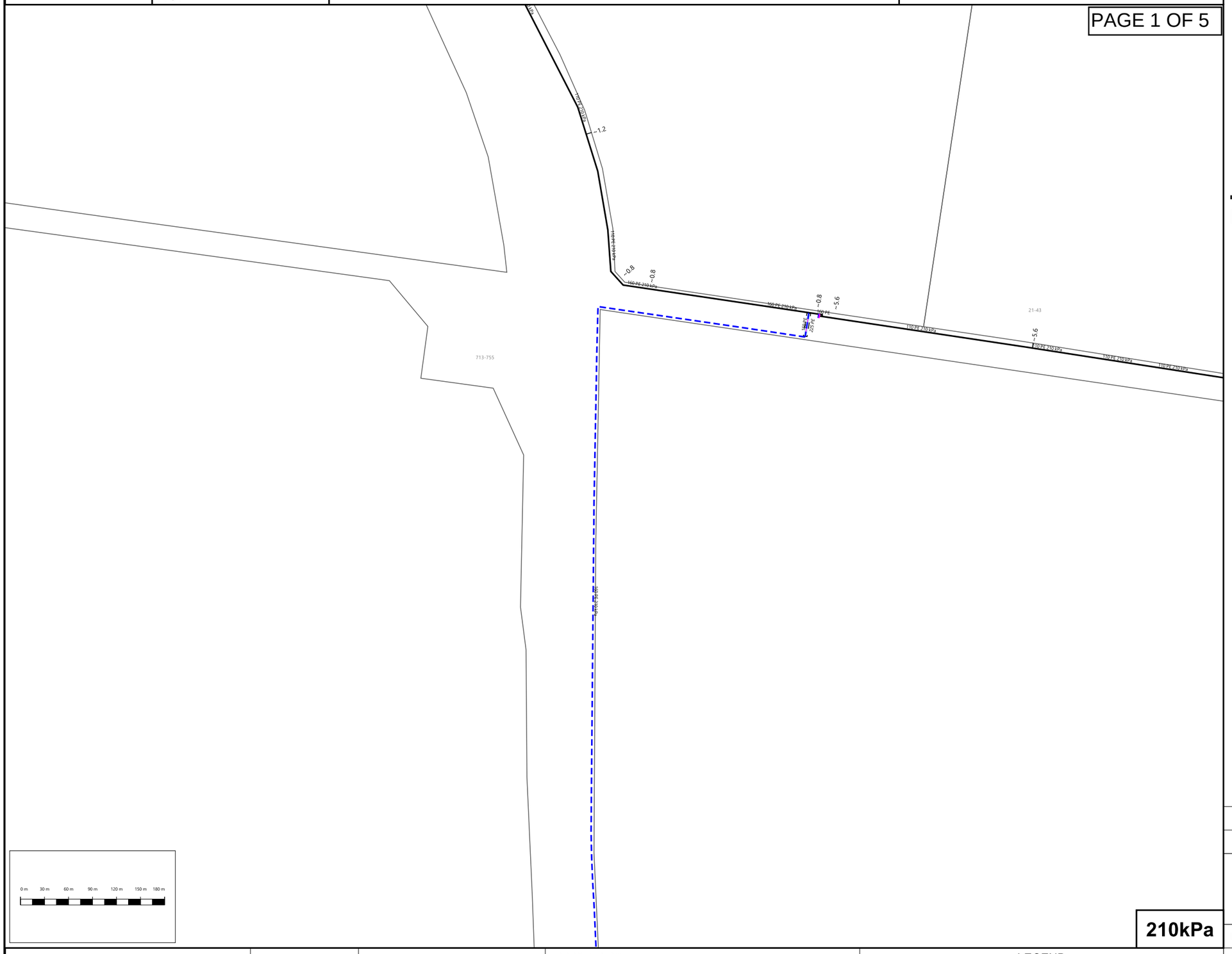
Yours sincerely



Fernando Ortega
Account Manager for the Western Sydney Planning Partnership
Liveable City Solutions
Sydney Water
0407 702 994

APPENDIX C – Jemena Gas Main Extension Concept Design

INQ No: 13099244	PMO No:	Job Address: ASPECT ESTATE - MIRVAC	LGA: PENRITH



PROPOSED DETAILS

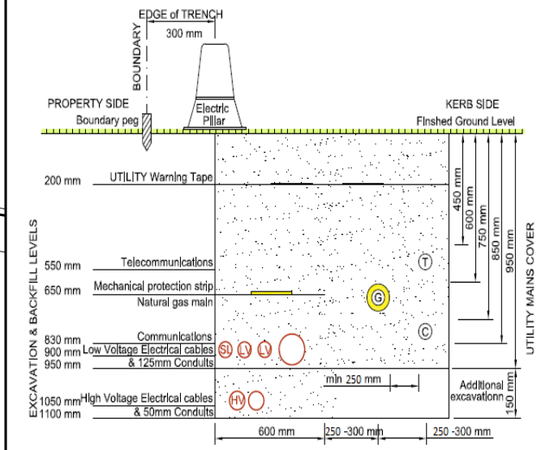
1: LAY MCT 40mm		
2: LAY MCT 63mm		
3: LAY MCT 110mm	PE	550m
4: LAY MCT 160mm	PE	1970m
5: LAY MPE 160mm	PE	700m
6: STUBS (1m)		
7: LAY Secondary		

INSTALL VALVE:

INSTALL REGULATOR:

CUT, CAP & ISOLATE:

PROPOSE ABANDON VALVE/REG:



TYPICAL SHARED TRENCH DETAIL

MINIMUM SEPARATION BETWEEN SERVICES & NATURAL GAS MAINS

Nylon or Polyethylene Gas Mains	Telecommunication cables and/or conduits	Protected Low Voltage Electricity Cables	Protected High Voltage Electricity Cables
Gas Mains up to 75mm Diameter	250mm	250mm	300mm
Gas Mains of 110mm Diameter or larger	300mm	300mm	300mm

JEMENA ROAD CROSSING CONDUIT SPECIFICATIONS

PIPE SIZES (OD mm)		CONDUIT DIAMETER (min ODmm)	DEPTH OF COVER (mm)	TYPE (for all sizes)
Nylon Pipe Polyethylene Pipe (PE)	32 & 50 40	100	750	PE Pipe (tiger striped) Rigid PVC Pipe Smooth or Ribbed Exterior Smooth Bore Blue/Grey in colour
Nylon Pipe Polyethylene Pipe (PE)	75 & 110 63	150	750	
Polyethylene Pipe (PE)	110 & 160	225	750	

PE MATERIAL PIPE DETAILS

INSTALLATION	MAOP	SIZE	SDR
DIRECT LAY	<= 300kPa	20-63mm	SDR11
	<= 300kPa	110-250mm	SDR17
	400kPa	ALL	SDR11
HDD/CASE BORE	2-400kPa	ALL	SDR11

210kPa

REFER TO CONSTRUCTION FIELD MANUAL FOR MORE DETAILS

SITE CONTACT:	FIELD COMPLETION DATE:		APPROVED BY:
CONTACT NUMBER:	VENDOR:		DATE APPROVED:
COMMENTS:	FIELD SUPERVISOR NAME:		NOT FOR CONSTRUCTION

LEGEND

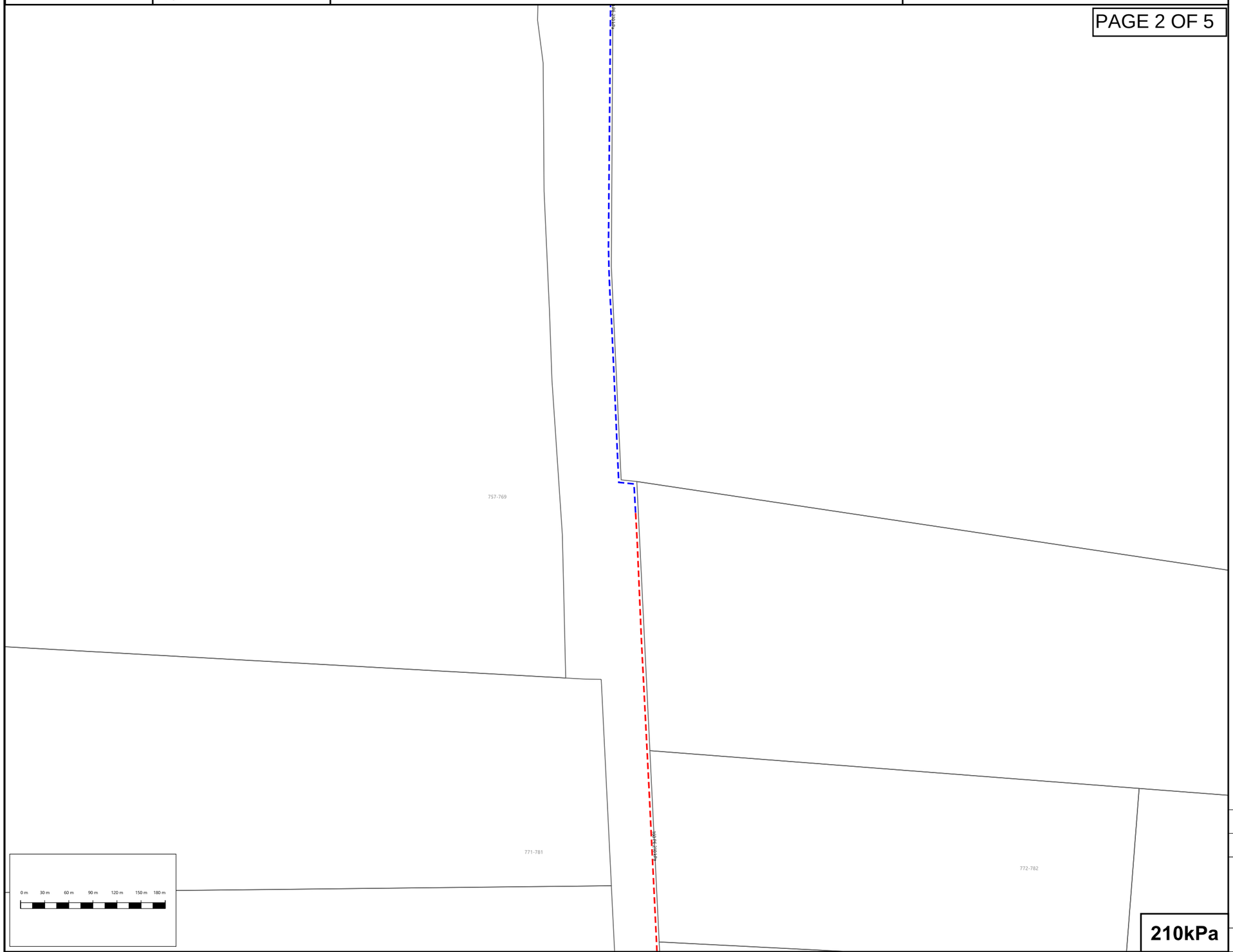
Existing Network		Primary Network	
Proposed Network		Proposed Casing	
Secondary Network		Existing Casing	
~1.0	MBL		Existing Cap
Railway			Proposed Cap

DRAWN BY:	kkc	DATE DRAWN:	19/04/2022
REV	0		
SIZE	A3		

N NorWest SE Port S

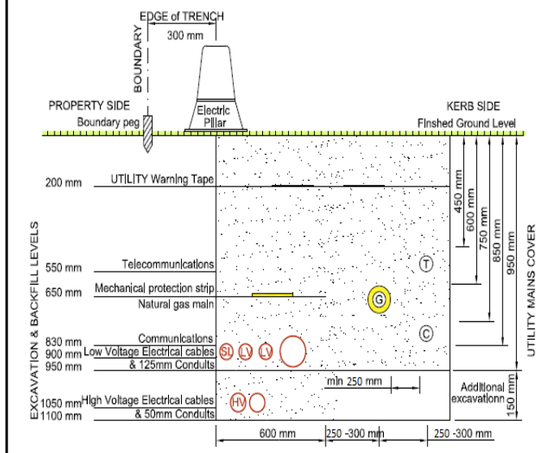
Jemena
bringing energy to life

INQ No: 13099244	PMO No:	Job Address: ASPECT ESTATE - MIRVAC	LGA: PENRITH



PROPOSED DETAILS

1: LAY MCT 40mm		
2: LAY MCT 63mm		
3: LAY MCT 110mm	PE	550m
4: LAY MCT 160mm	PE	1970m
5: LAY MPE 160mm	PE	700m
6: STUBS (1m)		
7: LAY Secondary		
INSTALL VALVE:		
INSTALL REGULATOR:		
CUT, CAP & ISOLATE:		
PROPOSE ABANDON VALVE/REG:		



TYPICAL SHARED TRENCH DETAIL

MINIMUM SEPARATION BETWEEN SERVICES & NATURAL GAS MAINS

Nylon or Polyethylene Gas Mains	Telecommunication cables and/or conduits	Protected Low Voltage Electricity Cables	Protected High Voltage Electricity Cables
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Gas Mains of 110mm Diameter or larger	300mm	300mm	300mm

JEMENA ROAD CROSSING CONDUIT SPECIFICATIONS

PIPE SIZES (OD mm)		CONDUIT DIAMETER (min ODmm)	DEPTH OF COVER (mm)	TYPE (for all sizes)
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PE MATERIAL PIPE DETAILS

INSTALLATION	MAOP	SIZE	SDR
DIRECT LAY	<= 300kPa	20-63mm	SDR11
	<= 300kPa	110-250mm	SDR17
	400kPa	ALL	SDR11
HDD/CASE BORE	2-400kPa	ALL	SDR11

210kPa

REFER TO CONSTRUCTION FIELD MANUAL FOR MORE DETAILS

SITE CONTACT:	FIELD COMPLETION DATE:	APPROVED BY:	
CONTACT NUMBER:	VENDOR:	DATE APPROVED:	
COMMENTS:	FIELD SUPERVISOR NAME:	**NOT FOR CONSTRUCTION**	

LEGEND

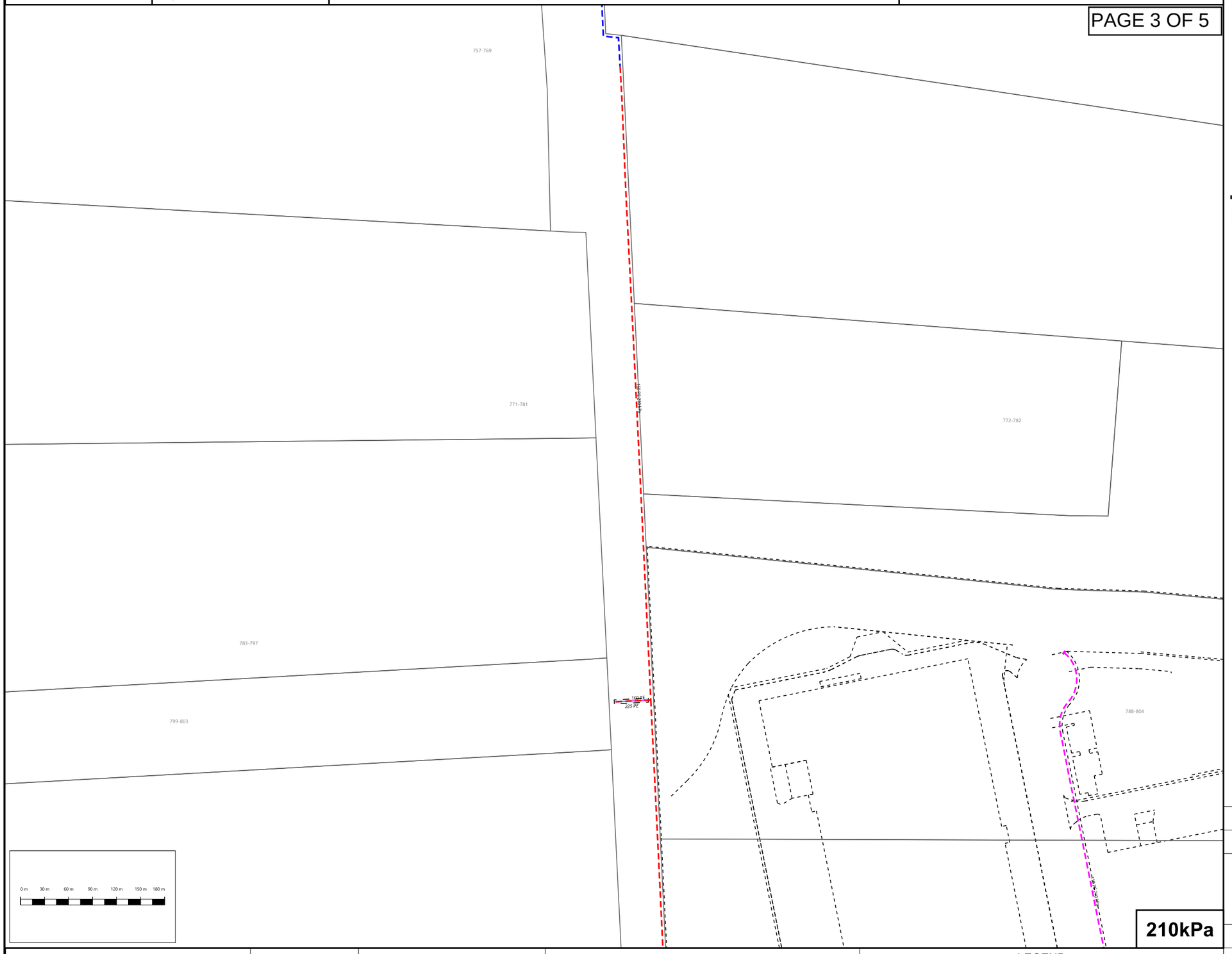
Existing Network		Primary Network	
Proposed Network		Proposed Casing	
Secondary Network		Existing Casing	
~1.0	MBL		Existing Cap
Railway			Proposed Cap

DRAWN BY:	kkc	DATE DRAWN:	19/04/2022
REV	0		
SIZE	A3		

N NW NE W E SW SE S

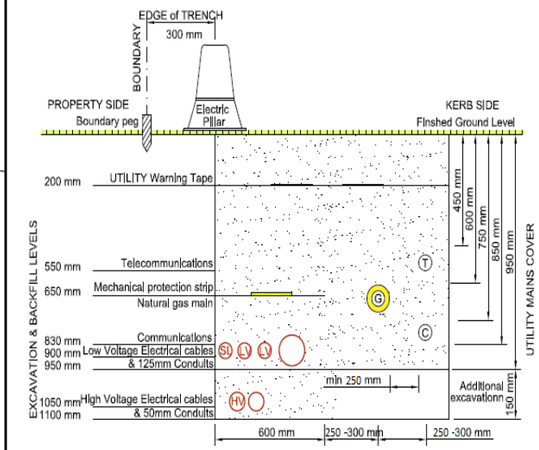
Jemena
bringing energy to life

INQ No: 13099244	PMO No:	Job Address: ASPECT ESTATE - MIRVAC	LGA: PENRITH



PROPOSED DETAILS

1: LAY MCT 40mm		
2: LAY MCT 63mm		
3: LAY MCT 110mm	PE	550m
4: LAY MCT 160mm	PE	1970m
5: LAY MPE 160mm	PE	700m
6: STUBS (1m)		
7: LAY Secondary		
INSTALL VALVE:		
INSTALL REGULATOR:		
CUT, CAP & ISOLATE:		
PROPOSE ABANDON VALVE/REG:		



TYPICAL SHARED TRENCH DETAIL

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HDD/CASE BORE	2-400kPa	ALL	SDR11

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LEGEND

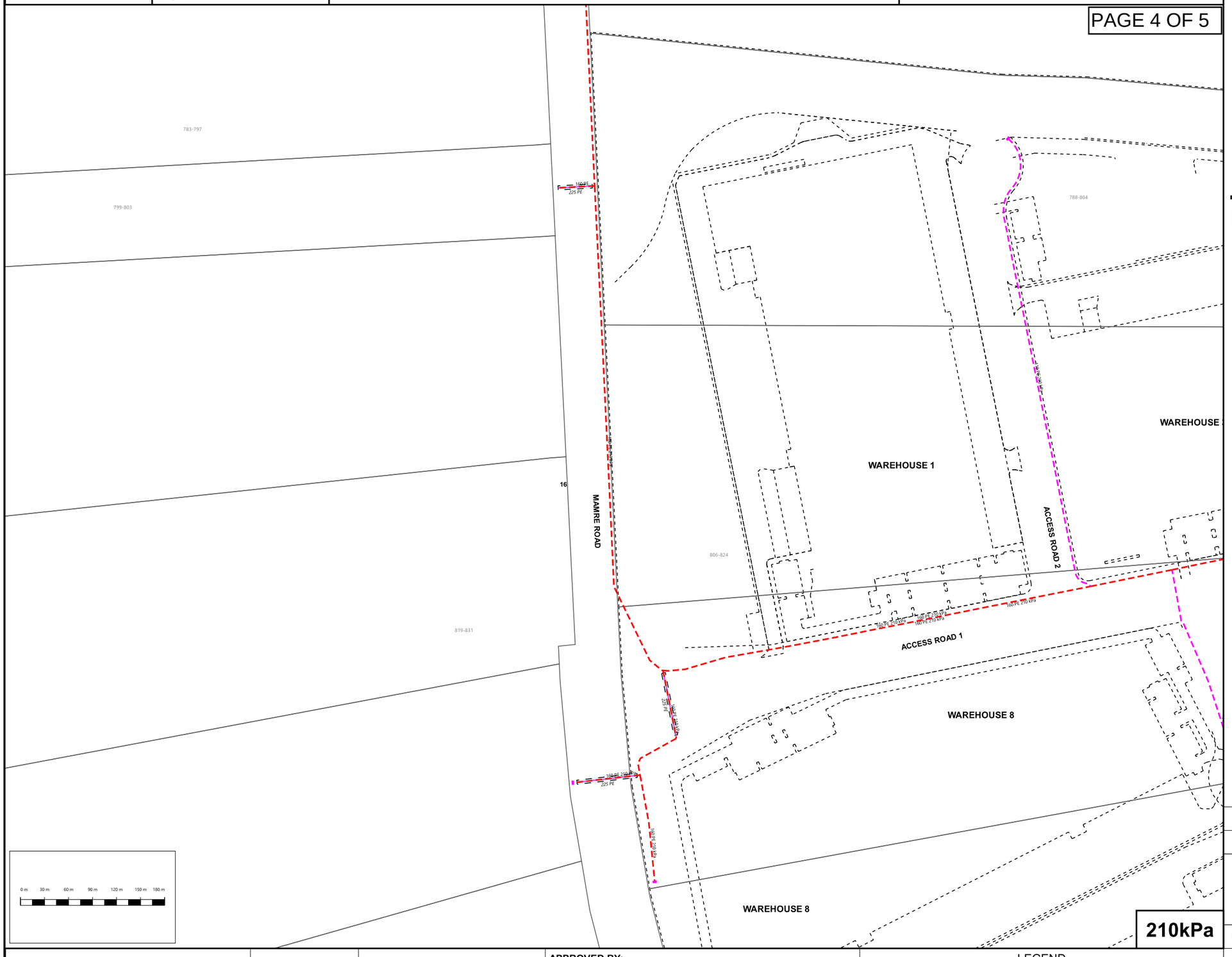
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Railway			Proposed Cap

DRAWN BY:	kkc	DATE DRAWN:	19/04/2022
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SIZE	A3		

N NE E SE S SW W NW

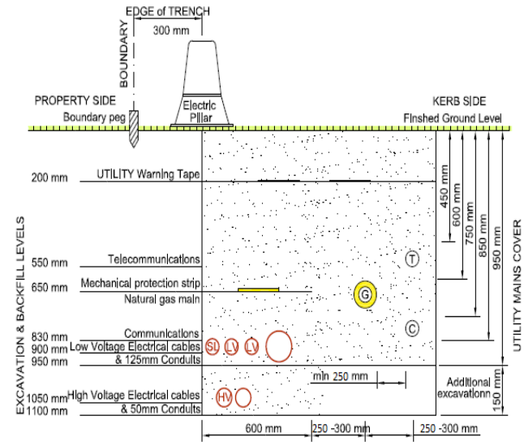
Jemena
bringing energy to life

INQ No: 13099244	PMO No:	Job Address: ASPECT ESTATE - MIRVAC	LGA: PENRITH



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INSTALL VALVE:			
INSTALL REGULATOR:			
CUT, CAP & ISOLATE:			
PROPOSE ABANDON VALVE/REG:			



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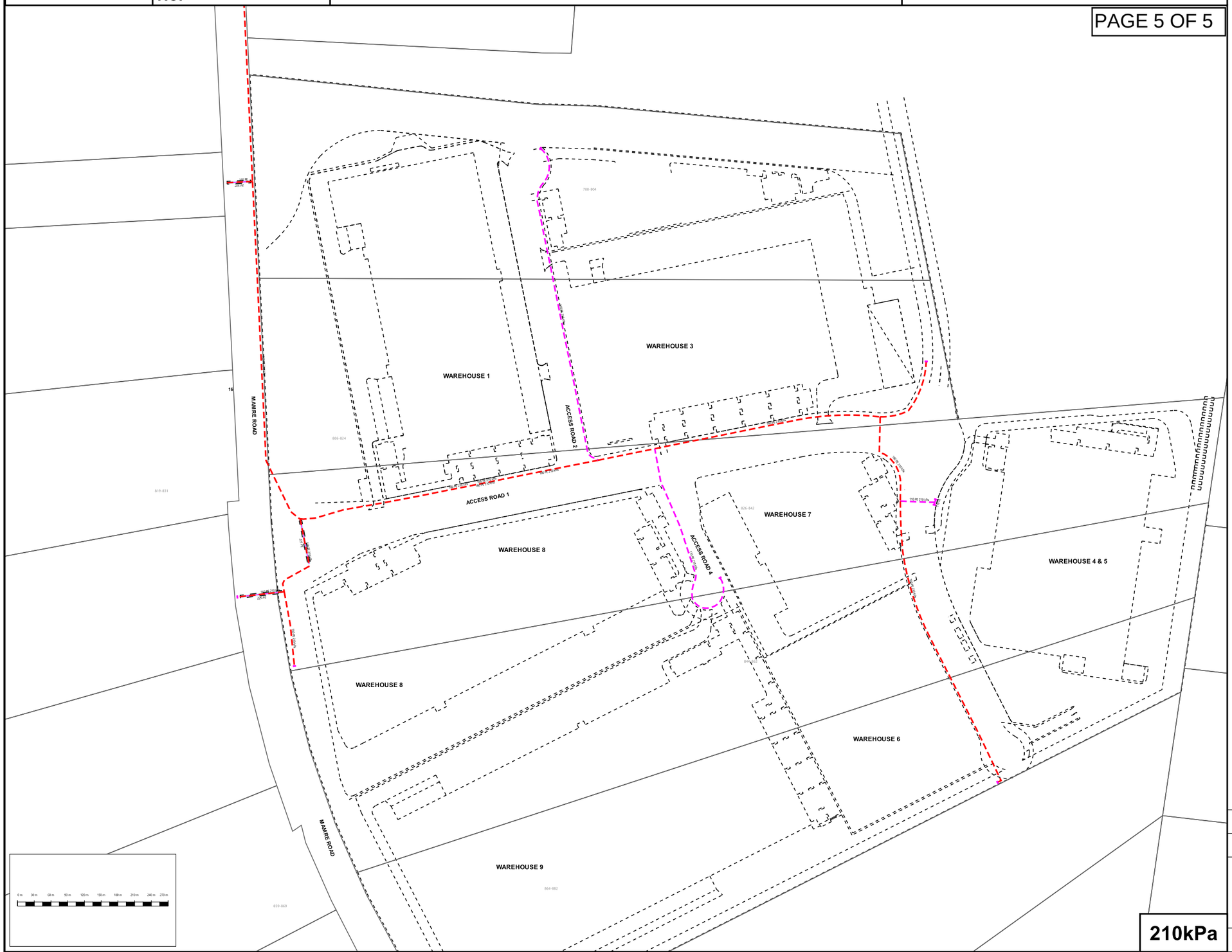
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~1.0	MBL		Existing Cap
Railway			Proposed Cap

DRAWN BY:	kkc	DATE DRAWN:	19/04/2022
REV	0		
SIZE	A3		

N NW NE W E SW SE S

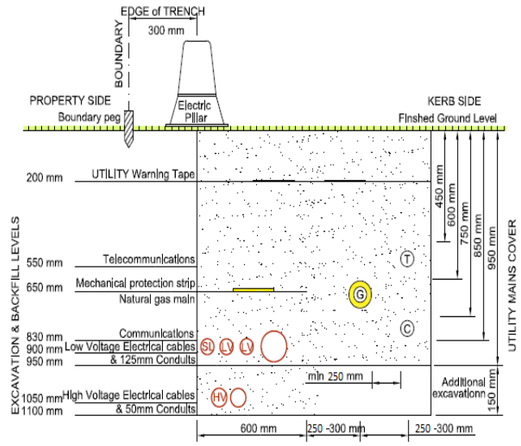
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INQ No: 13099244	PMO No:	Job Address: ASPECT ESTATE - MIRVAC	LGA: PENRITH



PROPOSED DETAILS

1: LAY MCT 40mm		
2: LAY MCT 63mm		
3: LAY MCT 110mm	PE	550m
4: LAY MCT 160mm	PE	1970m
5: LAY MPE 160mm	PE	700m
6: STUBS (1m)		
7: LAY Secondary		
INSTALL VALVE:		
INSTALL REGULATOR:		
CUT, CAP & ISOLATE:		
PROPOSE ABANDON VALVE/REG:		



TYPICAL SHARED TRENCH DETAIL

MINIMUM SEPARATION BETWEEN SERVICES & NATURAL GAS MAINS

Nylon or Polyethylene Gas Mains	Telecommunication cables and/or conduits	Protected Low Voltage Electricity Cables	Protected High Voltage Electricity Cables
Gas Mains up to 75mm Diameter	250mm	250mm	300mm
Gas Mains of 110mm Diameter or larger	300mm	300mm	300mm

JEMENA ROAD CROSSING CONDUIT SPECIFICATIONS

PIPE SIZES (OD mm)		CONDUIT DIAMETER (min ODmm)	DEPTH OF COVER (mm)	TYPE (for all sizes)
Nylon Pipe Polyethylene Pipe (PE)	32 & 50 40	100	750	PE Pipe (tiger striped) Rigid PVC Pipe Smooth or Ribbed Exterior Smooth Bore Blue/Grey in colour
Nylon Pipe Polyethylene Pipe (PE)	75 & 110 63	150	750	
Polyethylene Pipe (PE)	110 & 160	225	750	

PE MATERIAL PIPE DETAILS

INSTALLATION	MAOP	SIZE	SDR
DIRECT LAY	<= 300kPa	20-63mm	SDR11
	<= 300kPa	110-250mm	SDR17
	400kPa	ALL	SDR11
HDD/CASE BORE	2-400kPa	ALL	SDR11

REFER TO CONSTRUCTION FIELD MANUAL FOR MORE DETAILS

SITE CONTACT:	FIELD COMPLETION DATE:		APPROVED BY:
CONTACT NUMBER:	VENDOR:		DATE APPROVED:
COMMENTS:	FIELD SUPERVISOR NAME:		NOT FOR CONSTRUCTION

LEGEND			
	Existing Network		Primary Network
	Proposed Network		Proposed Casing
	Secondary Network		Existing Casing
~1.0	MBL		Existing Cap
	Railway		Proposed Cap

DRAWN BY:	kkc	DATE DRAWN:	19/04/2022
REV	0		
SIZE	A3		

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