TTW Structural Civil Traffic Façade

Civil Engineering Design Report

New High School for Leppington and Denham Court

Prepared for Department of Education (DoE) c/o TSA Riley / 14 January 2025

232024

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Contents

Rev	Date	Prepared By	Approved By	Remarks
0	15/11/2024	K. Subakaran	C. Rope	DRAFT REF
1	15/01/2025	S. Fok	C. Rope	REF Submission

1.0 Introduction

This Civil Engineering Design Report has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the new high school in Leppington (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37A of the T&I SEPP.

The proposed activity is for the construction of a new high school located at 128-134 Rickard Road, Leppington, NSW, 2179 (the site).

The purpose of this report is to address the civil engineering design of the activity including stormwater quantity, stormwater quality, pavements and earthworks design.

1.1 Site Description

The site is known as 128-134 Rickard Road, Leppington, NSW, 2179 and is legally described as Lots A and B in Deposited Plan 411211. The site is located on the eastern side of Rickard Road and is approximately 4.1ha in area. The site is located immediately south of the existing Leppington Public School at 144 Rickard Road and is approximately 700m south of Leppington Train Station.

Figure 1 below provides an aerial image of the site.

Figure 1: Aerial Image of Site (Source: NearMap)

The northern portion of the site is currently used for residential purposes. The southern portion of the site is used for agricultural purposes, with multiple greenhouses and an existing pond on the property.

1.1.1 Site Topography

The existing site topography comprises of a crest central to the site with falls mostly towards the south and west, this can be visualised from the survey markup in Figure 2 below. It is noted that an existing pond is located in the southeast corner of the site.

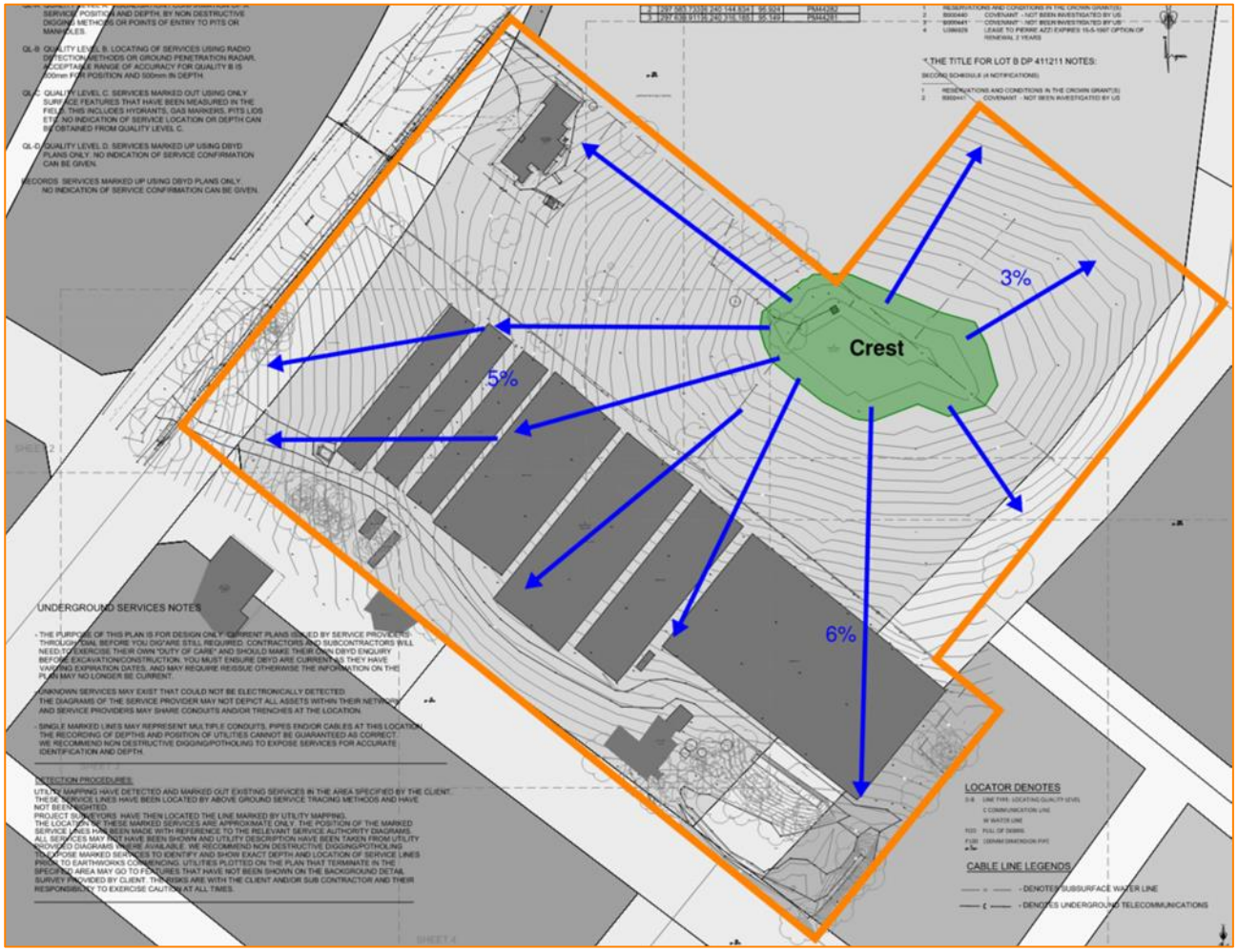

Figure 2: Site Survey (Source: Project Surveyors)

An approximate fall of 10 metres over 200 meters from the centre of the site to the western boundaries is present and equates to a grade of approximately 5%. Additionally, it has a fall of 8 meters over 140 meters from the centre to the southern boundary, equating to an approximate grade of 6%. The approximate grading to the north is 3%.

1.1.2 Existing Services

Taylor Thomson Whitting have conducted a Before You Dig Australia (BYDA) enquiry attached in Appendix A as part of the master plan stage to identify known in-ground public assets that may impact the activity.

The site survey contains location of communications services and overhead electricals. Services may be required to be relocated and diverted around the site or removed as part of the works. It is recommended that services be physically located prior to detailed design to identify any clash points with proposed in-ground infrastructure. The design must be progressed in accordance with the relevant services consultants' design advice and in consultation with all relevant statutory authorities.

1.1.3 Geotechnical Conditions

A geotechnical report for the proposed school site has been reviewed by the design team.

Notes gathered from the existing geotechnical investigation prepared by JK Geotechnics are as follows:

- Existing dam and Pond – All water-softened materials need to be removed prior to filling.
- CBR 1% - Subgrade improvement or replacement is recommended or thicker pavement design
    - Concrete pavements underlain by 150mm thick lean mix concrete subbase
- Salinity may be present (subject to testing)
- Batters
    - Temporary batters are to be no higher than 3 meters and 1:1
    - Permanent cut batters to be no higher than 3 meters and 1:2 (1:3 recommended)
- Residual silty clays are of high plasticity, subject to high swell.

1.2 Proposed Activity Description

The proposed activity is for a new high school in Leppington and Denham Court. The new high school will accommodate up to 1,000 students across 3 new buildings that will comprise 48 permanent teaching spaces (PTS), 3 support teaching spaces (STS), 19 specialist labs/workshops/kitchens and a hall. Buildings A, B and C will be clustered along the southern boundary and the hall will be located in south-east corner of the site. The activity also includes the construction of a sports field in the centre of the site and 3 x multipurpose courts along the northern boundary. The proposed scope of works is illustrated in Figure 3 below.

Figure 3: New Leppington High School and Denham Court (Source: DJRD)

1.2.1 Temporary Internal Road

An internal road is proposed extending along the southern boundary from Rickard Road to the southeast corner of the site. The road is intended to be temporary until future precinct roads are constructed by others. The planned future road works as part of the Leppington Town Centre draft planning proposal impact on the usable area within the site and results in larger setbacks for buildings to the boundary.

1.3 Guidance documents

The following documents have been reviewed and referenced in preparing this report:

- Camden Growth Centre Precincts Development Control Plan (DCP), 2023;
- Camden Council (CC) Development Control Plan (DCP), 2019;
- Camden Council (CC) Engineering Design Specification, 2009;
- Blue Book – Managing Urban Stormwater Soils and Construction (Landcom NSW);
- NSW Department of Education Educational Facilities Standards and Guidelines;
- NSW Floodplain Development Manual;
- Australian Rainfall and Runoff 2019;

Design inputs by others:

- Geotechnical Investigation for Proposed Leppington High School by JK Geotechnics dated 4 January 2024
- Climate Change Risk & Adaptation Assessment Leppington Public School by JHA Consulting Engineers dated 17 March 2023
- New Leppington Hich School | Infrastructure, Demand and Capacity Study by Stantec dated 14 December 2023
- Detailed Survey by Project Surveyors dated 8 January 2025.

2.0 Stormwater

2.1 Stormwater Quantity

2.1.1 Existing Stormwater

The existing site topography allows for water to sheet flow to adjoining properties from the crest in the centre of the site. Sheet flow travels outwards from the crest in the centre of the site. Along the western frontage of the site, stormwater flows to the roadside swale along Rickard Road. Surface water also overflows the other site boundaries to private land. The nearest inground stormwater pits in Rickard Road to the north of the site is approximately 30 meters away, and to the south is approximately 300 meters away.

The site consists of two lots; one used for agriculture, and one used as a residential property with an approximate total area of 4.1 hectares. The existing site is considered to be approximately 80% pervious, with 20% of the site being pervious to allow for the existing buildings and internal roads. The survey investigation identified no in-ground stormwater drainage systems within the site or along the part of Rickard Road fronting the site.

2.1.2 Proposed Stormwater Design

The proposed stormwater design is to be in accordance with the relevant Australian Standards, Australian Rainfall and Runoff 2019 (ARR 2019), the Council's DCP, Council's Stormwater Drainage Guidelines for Building Developments and SINSW's EFSG requirements.

Council's DCP requires that an adequate stormwater system shall be designed and constructed to ensure that new works do not increase stormwater peak flows in any downstream areas for all storm events up to and including the 1% (AEP).

The stormwater design can be separated into two categories – roof stormwater and surface stormwater. All roof stormwater will be collected through the use of gutters and downpipes and directed to rainwater tanks as reuse for landscape irrigation. The overflow from rainwater tanks is conveyed to the in-ground pipes system for surface stormwater up to and including the 20% Annual Exceedance Probability (AEP) storm event. All surface stormwater shall be collected by a series of surface inlet pits and in-ground pipes. Stormwater flows in excess of the 20% AEP and up to the 1% AEP event will be directed either by overland flow paths or in-ground stormwater to an on-site detention tank. Where flows exceed the 1% AEP storm or pits become blocked, surface grading will facilitate overland flow to be conveyed out of the site.

As the majority of the site falls towards the southwest corner, the main point of discharge is proposed to be to the roadside open channel within Rickard Road. Consideration is to be made for augmentation of the proposed discharge to suit the future Rickard Road widening. In the interim, discharge to the northeast and southeast will continue as sheet flow across the boundary. In future, connections to drainage constructed as part of the precinct road works may be made.

2.1.3 Onsite Stormwater Detention

Section 6.5: Ecologically Sustainable Development of Council's Growth Centre Precinct DCP stipulates that post-works peak flows up to and including the 1% AEP storm event must be reduced to pre-works levels by the implementation of stormwater detention. Separately, the DCP requires works to meet a site storage requirement (SSR), and permissible site discharge (PSD) based on the site activity area. Council was contacted and have since confirmed that both requirements of the DCP apply, refer Appendix C.

The SSR and PSD requirements for the activity area for the minor and major storm events have been provided in Table 1. Two OSD tanks are proposed to detain runoff. Most of the works, consisting of the sports field, multisport courts, Building C and Building D drains to OSD Tank 1. Building A and Building B drain to OSD Tank 2. A combined effective OSD volume of 1525m^3 is required to comply with Council requirements.

DRAINS modelling was conducted to assess the compliance of the stormwater management system. The provided site storage and peak site discharge for the minor and major storm events are also provided in Table 1 to demonstrate compliance with Council's requirements.

DRAINS modelling has also been conducted to compare pre-works peak flows to post-works peak flows. As demonstrated in Table 2, post-works flows for all storms up to and including the 1% AEP storm events have been reduced to pre-works levels through the implementation of stormwater detention.

Table 1: Compliance with Site Storage Requirements and Permissible Site Discharge

Storm Event	SSR	Site Storage Provided	PSD (L/s)	Peak Flow (L/s)	Compliant (✓/✗)
2yr ARI	750	1525	75	74	✓
100yr ARI	1480	1525	425	220	✓

Table 2: Pre-Works Peak Flows vs Post-Works Peak Flows

Storm Event	Pre-Works Peak Flow (L/s)	Post-Works Peak Flow (L/s)	Compliant (✓/✗)
1 EY	152	67	✓
50% AEP	171	74	✓
20% AEP	365	104	✓
5% AEP	566	167	✓
1% AEP	939	221	✓

A combined detention and bioretention basin system has been proposed to reduce peak flows discharging through the temporary carpark at the southeast of the site.

A separate DRAINS analysis has been conducted to compare the pre-works peak flows and post-works peak flows from the temporary car park to downstream properties. As demonstrated in Table 3, post-works peak flows for all storms up to and including the 1% AEP storm events have been reduced to pre-works levels through the implementation of stormwater detention and does not impact downstream properties.

Table 3: Pre-Works Peak Flows vs Post-Works Peak Flows from Temporary Carpark

Storm Event	Pre-Works Peak Flow (L/s)	Post-Works Peak Flow (L/s)	Compliant (✓/✗)
1 EY	49	47	✓
50% AEP	56	48	✓
20% AEP	132	88	✓
5% AEP	205	190	✓
1% AEP	329	291	✓

2.2 Stormwater Quality

Stormwater quality treatment is required to comply with the requirements outlined in Section 2.3.2 of Council's Growth Centre Precinct DCP. Council's stormwater quality targets are depicted in Figure 4 below.

Table 2-1: Water quality and environmental flow targets

	WATER QUALITY % reduction in pollutant loads				ENVIRONMENTAL FLOWS Stream erosion control ratio[1]
	Gross Pollutants (>5mm)	Total suspended solids	Total phosphorous	Total nitrogen	
Stormwater management Objective	90	85	65	45	3.5-5.0: 1
'Ideal' stormwater outcome	100	95	95	85	1:1

[1] *This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time.*

Figure 4: DCP Water Quality Targets

A schematic treatment train and MUSIC model has been prepared and meets Council's requirements above. This treatment train consists of the following treatment devices:

- 39 x Ocean Protect Oceanguard pit filter baskets
- 20 x Ocean Protect 690mm Psorb Stormfilter cartridges
- Total of 40kL rainwater tank for landscape irrigation reuse
- 135 m^2 of Bioretention area

Note, the total rainwater tank volume proposed has been informed by the hydraulic and ESD consultants. Irrigation reuse rates were also assumed and will be further developed in the detailed design phase.

2.2.1 MUSIC Modelling

The proposed stormwater quality treatment train was modelled using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) to ensure pollutant load target reductions are met as required by Camden Council. The results of the modelling were compared to the reduction targets prescribed by the Camden Council to determine the effectiveness of the proposed measures.

MUSIC simulates the performance of a group of stormwater management measures, configured in series or in parallel to form a "treatment train" against historic rainfall event data sets. It is the industry standard water quality modelling software developed by the MUSIC development team of the Cooperative Research Centre for Catchment Hydrology (CRCCH).

2.2.2 Treatment Train Effectiveness

The results of the MUSIC model compared to Council's targets are provided in Table 4.

Table 4: MUSIC Model Results

Pollutant	Min. Required Reduction (%)	Modelled Reduction (%)	Compliant (✓/✗)
Gross Pollutants (GP)	90	100	✓
Total Suspended Solids (TSS)	85	87.37	✓
Total Phosphorus (TP)	65	66.48	✓
Total Nitrogen (TN)	45	49.95	✓

2.3 Erosion and Sediment Control

An erosion and sediment control plan (ESCP) will be implemented during the construction stage to mitigate soil erosion and control the discharge of stormwater laden with sediment, nutrients and other pollutants to adjoining properties, bushland, roadways or receiving water bodies. Stormwater controls on site are detailed in ESCPs which are in accordance with Council's DCP and regulatory authority guidelines including Landcom NSW's Managing Urban Stormwater, Soils and Construction ("Blue Book").

The disturbance of the site during construction must be controlled through erosion prevention and sediment control measures. Typical provisions for a site of this type and scale would include:

- Silt fences to prevent silt and waste being washed into neighbouring sites and streets and may be integrated with safety fencing.
- Catch drains with hay bales to carry and treat site runoff
- Sedimentation basin(s) to be installed at the low point of site excavation.
- Shaker grids at the construction site entrance(s) to ensure that vehicles and machinery leave the site with clean wheels.
- Pits will have silt protection installed to prevent silt from entering the stormwater system during construction.

The proposed Erosion and Sediment Control Plan for the site has been developed as part of the civil engineering drawings.

3.0 Civil Works

3.1 Pavement Design

Pavements with vehicular traffic will need to be designed with capacity for the proposed design vehicle and vehicular movements. The EFSG requires the pavement design to meet a minimum 25-year design life however considering the temporary nature of the access road, consideration will be made for a lesser design life in the detailed design of the road. It is noted that the carpark adjacent Building D is proposed to be retained following removal of the temporary road and that access will be sought from the future southern road to be delivered by Camden Council.

3.2 Retaining Wall design

As part of the schematic phase, plans have been produced nominating locations and heights of anticipated retaining walls based on the architectural and landscape design. Given the topography of the site, there are a number of retaining walls proposed to achieve the level platforms for sports courts as well as interfacing between the boundary levels and proposed internal levels. These plans are including in the civil drawings in Appendix D. The landscape design and subsequently retaining walls will be further developed in detailed design phases.

3.3 Earthworks

Earthworks for the school will consist of reshaping the site to provide flat building pads and suitably graded pavements, car parking and play areas. Requirements for the removal of topsoil and any ground improvement will be dependent on the finalisation of geotechnical investigations of the site, including any imported materials and the proposed finished level.

As per geotechnical investigation, site preparation is anticipated to include the following typical measures:

- Stripping of topsoil from work areas to be stockpiled for landscape areas.
- Tyne, water, and roll the areas on which filling, paving or building slabs are to be placed. Proof roll and ameliorate subgrade as required. The final proof roll should have movement no greater than 3mm.
- Placement of acceptable fill material from cut areas or from off-site shall be placed and compacted in layers of no more than 200mm.
- Filled areas and cut areas to be overlain by buildings and pavements are to be protected to maintain constant moisture content in the soil. The protection is to remain in place until construction is complete.
- An independent approved NATA registered testing authority will be required to perform all the compaction testing of earthworks and submit test certificates. Compaction will need to comply with the earthworks specifications.

A Remediation Action Plan (RAP) has been prepared by SMEC to manage contamination found within the site. The preferred method for remediation is onsite encapsulation. This involves excavation of an encapsulation area or ‘borrow pit’ which is used to place fill material containing contamination. This area may then be capped with clean material. The remediation works would precede or be managed in tandem with the bulk earthworks.

3.3.1 Cut & Fill

A preliminary cut and fill analysis has been conducted to provide a high-level estimate of anticipated earthworks to inform costing based on the schematic architectural plan. The initial analysis determined that there was a surplus of approximately 15,700m³ of cut. Based on this, it was advantageous to raise the ground finished floor level to minimise the amount of excess cut.

Following workshops with the architect and structural engineers, TTW raised the sports field, courts and hall, and added fill beneath buildings 1, 2, and 3. In doing so, the resultant overall bulk earthworks reduced to 7,200m³ of cut.

Following further workshops, the Hall has been shifted closer to the eastern boundary, the sports field has been shifted west and a temporary car park has been introduced. In doing so, the resultant overall bulk earthworks reduced to 4,600m^3 of cut. This analysis excluded consideration of proposed landscape works, allowance for topsoil and excavation in rock, services, stormwater trenching and OSD excavation and any remediation works. A bulk earthworks plan is provided in the civil drawings in Appendix D. The bulk earthworks plan will be further developed during the detailed design phase.

There is opportunity to stockpile excess cut onsite. Similarly, in discussion with the project team developing the adjoining primary school project, there may be opportunity to export excess cut to their site. This is to be further investigated.

3.4 Public Domain Works

As part of the activity, there is limited public domain scope proposed prior to the construction of the Rickard Road widening and Council roads along the southern and eastern boundaries. The proposed temporary access road along the southern boundary will provide ‘kiss & ride’ areas. The scope of the traffic works will be determined in more detail by the traffic consultant during detailed design.

4.0 Mitigation Measures

Mitigation Number/Name	Aspect/Section	Mitigation Measure	Reason for Mitigation Measure
Erosion and Sediment Control	Prior to commencement of any construction works and during construction works	The proposed activity will implement measures as documented generally in accordance with NSW Department of Planning, Housing and Infrastructure's Managing Urban Stormwater	To ensure protection of downstream drainage lines, assets, ecosystems or existing hydrological systems from silt, waste and sediment from the site.
Stormwater Quantity	Prior to commencement of operation	The proposed activity incorporates on-site detention to mitigate the impact of stormwater flows.	To ensure stormwater flows for all storm events up to an including the 1% AEP from the activity site will have no adverse impact upon the downstream properties and existing waterbodies.
Water Sensitive Urban Design	Following the removal of temporary water quality (erosion and sediment control) measures.	The proposed activity will include provision of water quality treatment measures as part of water-sensitive urban design, as documented in this report and in the Civil Engineering Drawings provided in Appendix D. Refer to Hydraulic documentation for rainwater tank sizing and reuse strategy	To ensure the proposed activity meets Council's requirements for pollutant reduction

5.0 Conclusion

In conclusion, as discussed in this report, the proposed activity will not have a significant impact on the environment provided that the mitigation measures presented in this report are implemented.

Stormwater quantity management measures have been designed in accordance with Camden Council and EFSG requirements. OSD is proposed to mitigate peak flows post works. Two inground tanks are proposed with a combined effective volume of 1525m^3. An additional 15m^3 of above ground storage has been proposed to mitigate peak flows discharging from the temporary car park at the southeast of the site.

Stormwater quality measures have also been proposed including rainwater reuse and the provision of filter baskets, filter cartridges and bioretention to meet Camden Council's pollutant reduction targets.

Erosion and sediment control measures have been proposed for the site during construction in accordance with the NSW Department of Planning, Housing and Infrastructure's Managing Urban Stormwater ('Blue Book').

Other civil works including earthworks, proposed pavements and retaining walls will not impact the environment.

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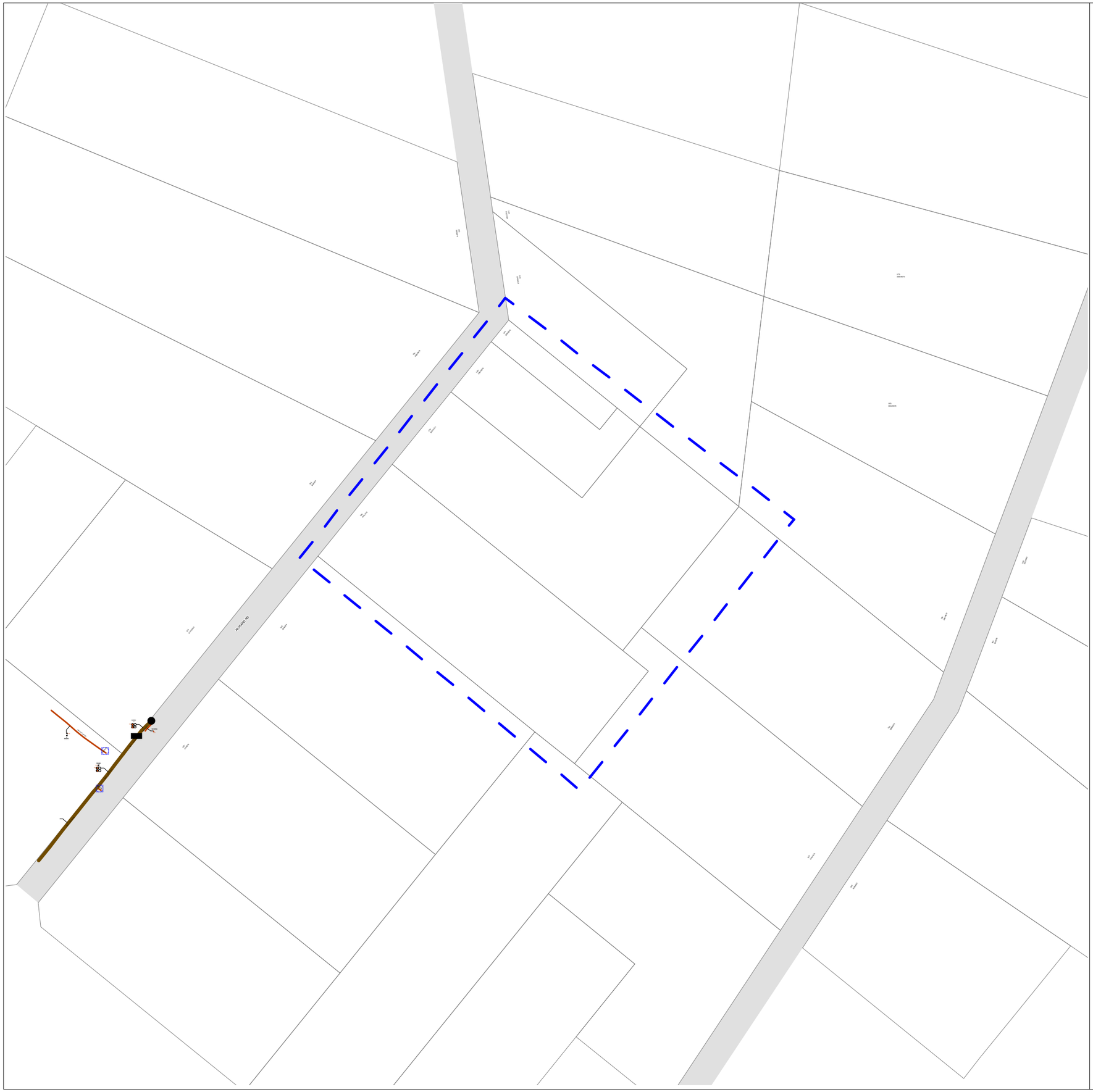
Appendix A

BYDA Documents



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- **All electrical apparatus shall be regarded as live until proved de-energised.** Contact with live electrical apparatus will cause severe injury or death.
- Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.
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- Endeavour Energy plans **do not** show any underground customer service mains or information relating to service mains within private property.
- Asbestos or asbestos-containing material may be present on or near Endeavour Energy's underground assets.
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- All plans must be made available at the worksite where excavation is to be undertaken in either printed or electronic format. If the plans are in an electronic format, they must be in a format visible on a screen size 10 inches or greater. Plans must be reviewed and understood by the crew on site prior to commencing excavation.
- Non-destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice

INFORMATION PROVIDED BY ENDEAVOUR ENERGY

- Any plans provided pursuant to this service are intended to show the approximate location of underground assets relative to road boundaries, property fences and other structures at the time of installation.
- Depth of underground assets may vary significantly from information provided on plans as a result of changes to road, footpath or surface levels subsequent to installation.
- Such plans have been prepared solely for use by Endeavour Energy staff for design, construction and maintenance purposes.
- All enquiry details and results are kept in a register.

DISCLAIMER

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or — Street light column

Padmount substation

or — Overground pillar (O.G.Box)

Underground pit

Duct run

Cable run

Typical duct section

Asbestos warning

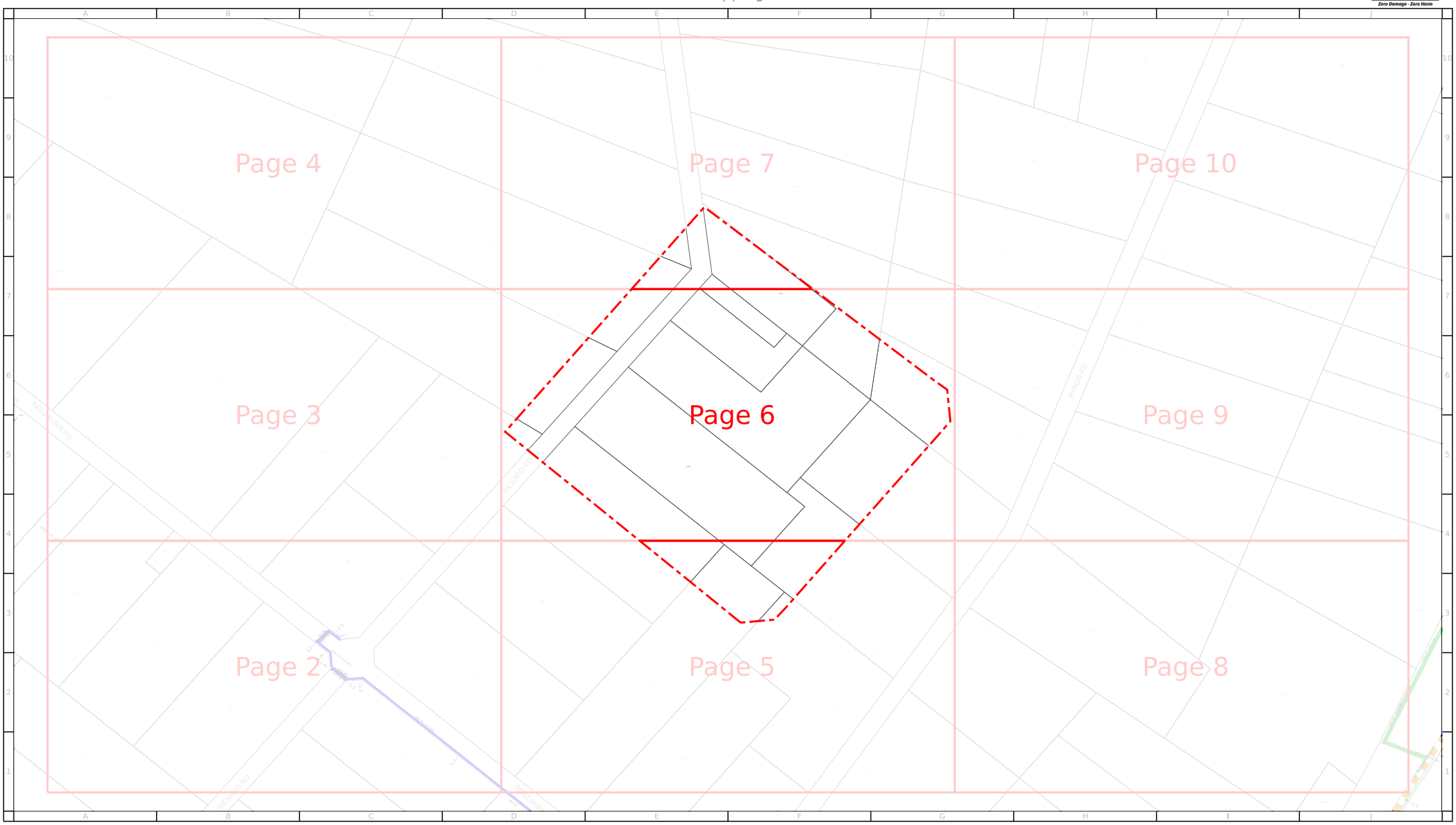
N

NOT TO SCALE

BYDA Sequence No.:	240112375
Issued Date:	04/06/2024

BYDA Authority: Jemena Gas Networks (NSW)

BYDA Location: 134 Rickard Road Leppington NSW, 2179



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For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

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Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765
Overview Page:

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The information contained on this plan is only valid for 28 days from the date of issue.

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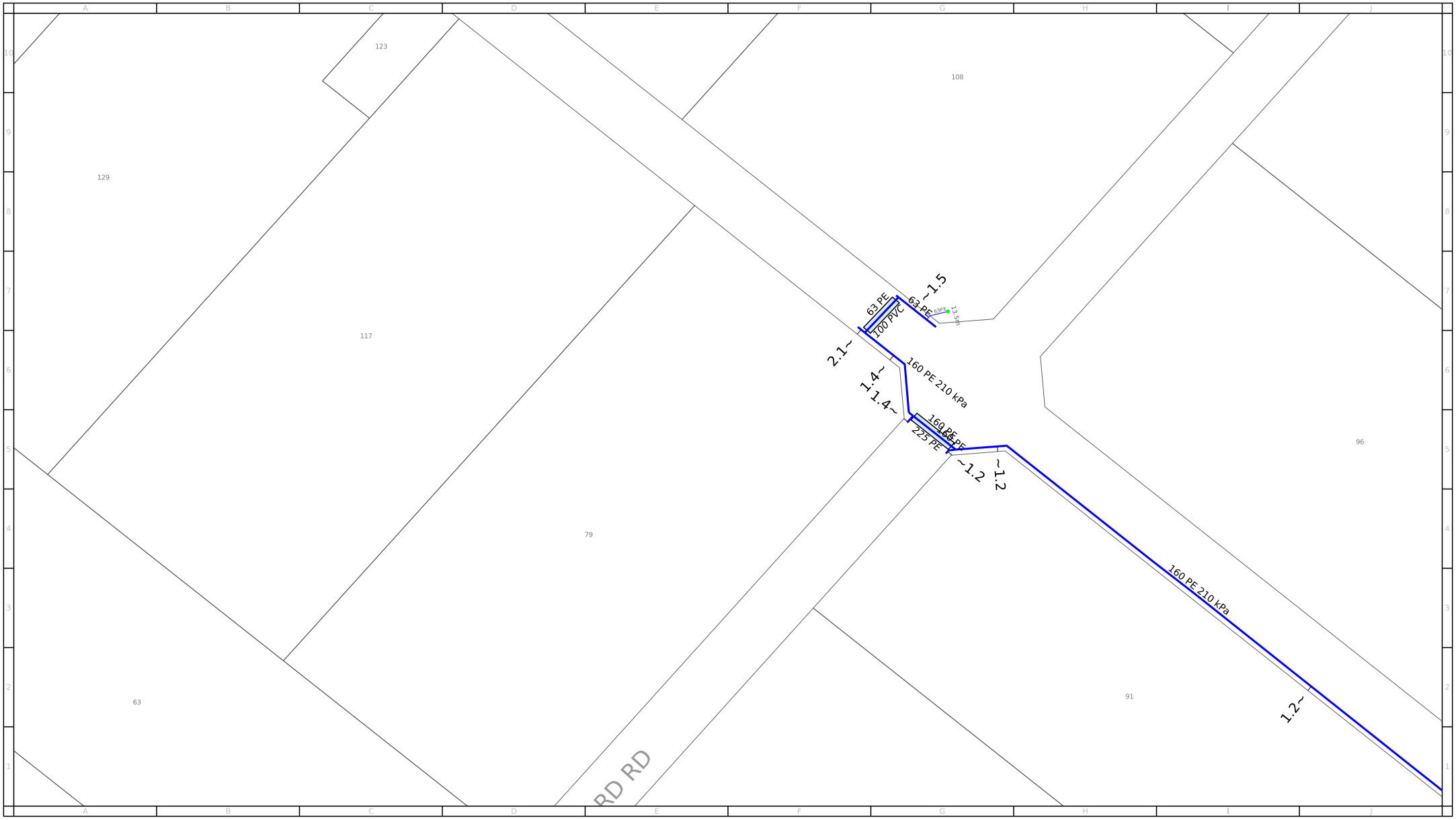

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For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

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Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765

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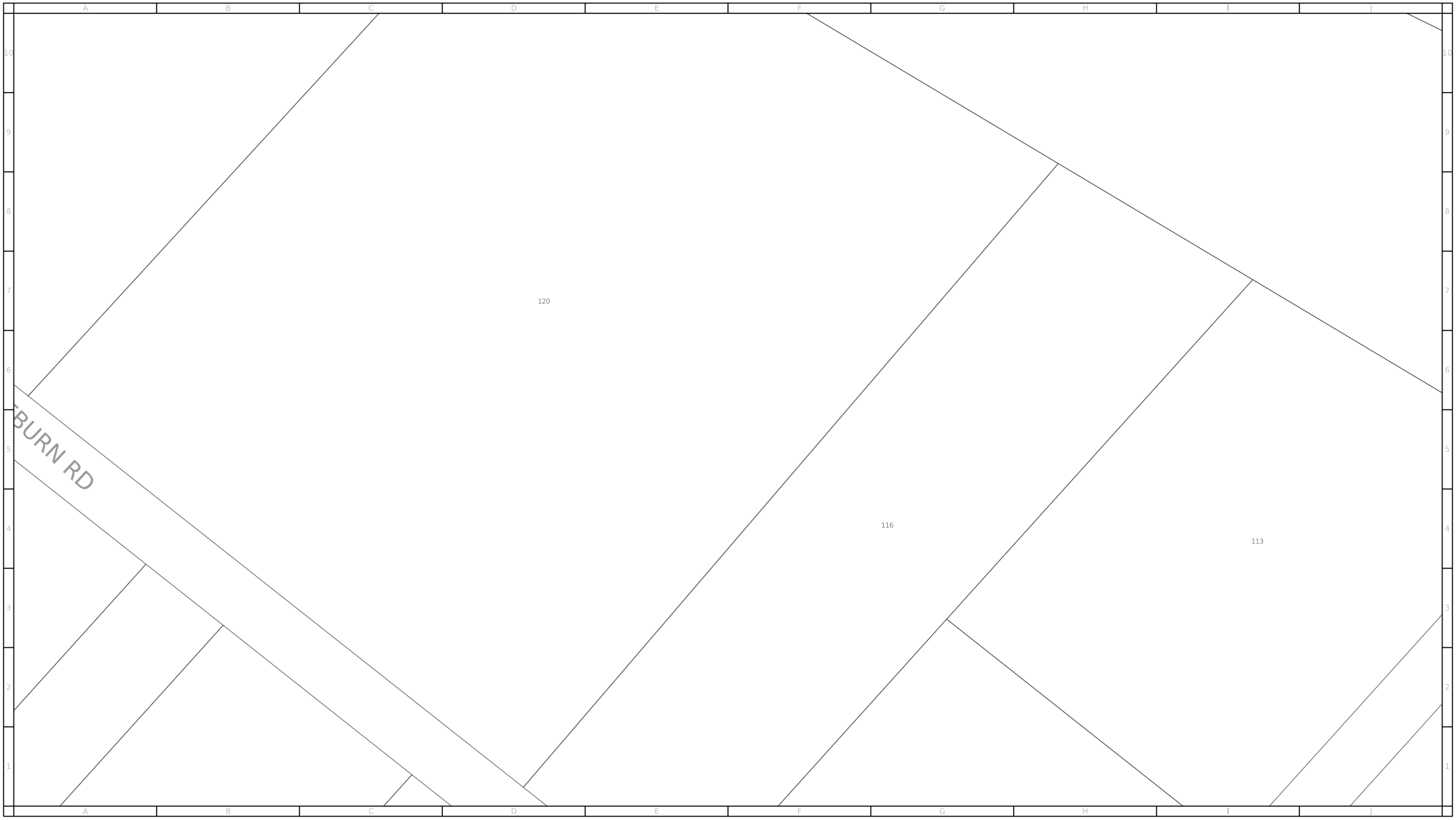

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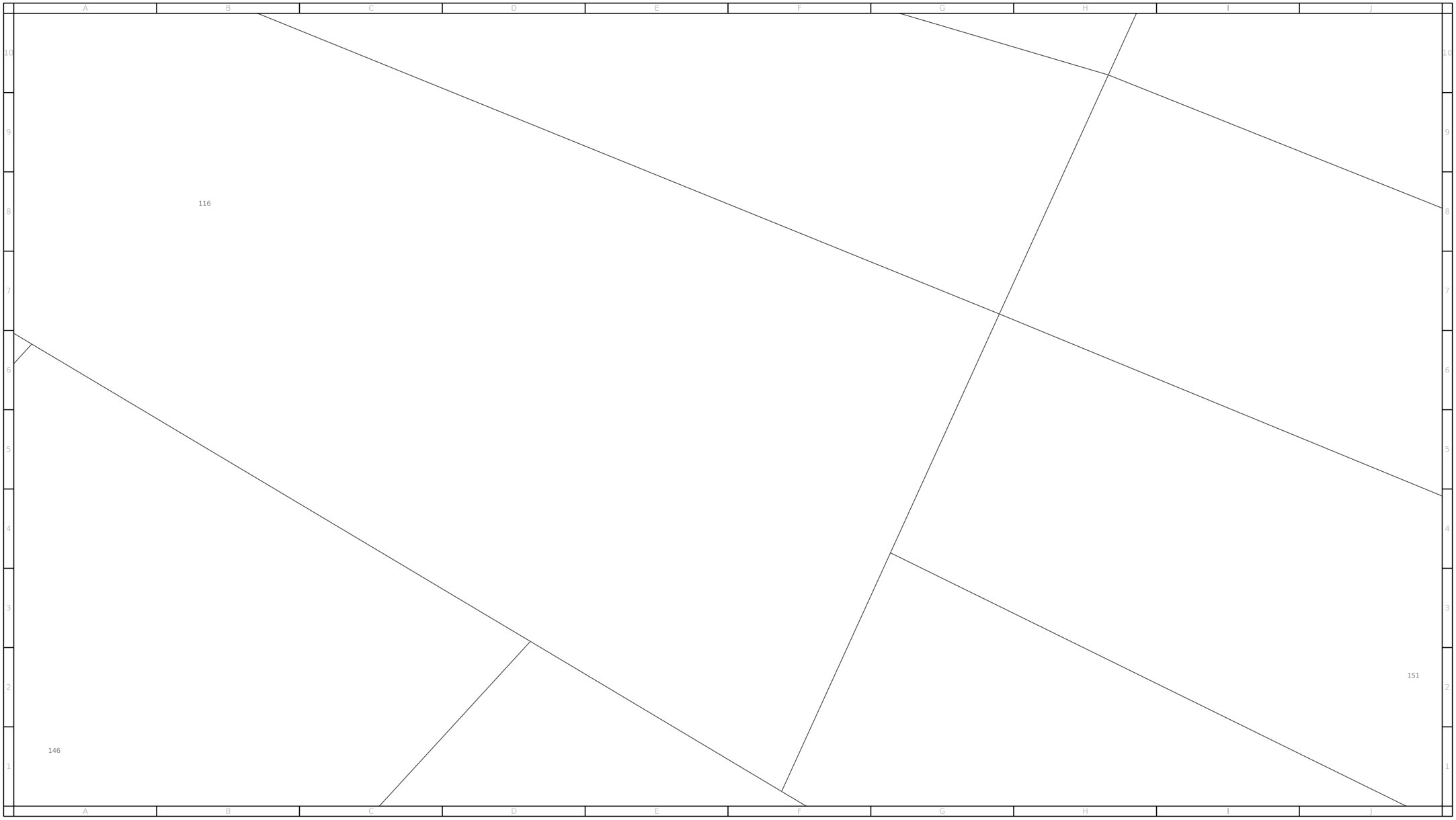

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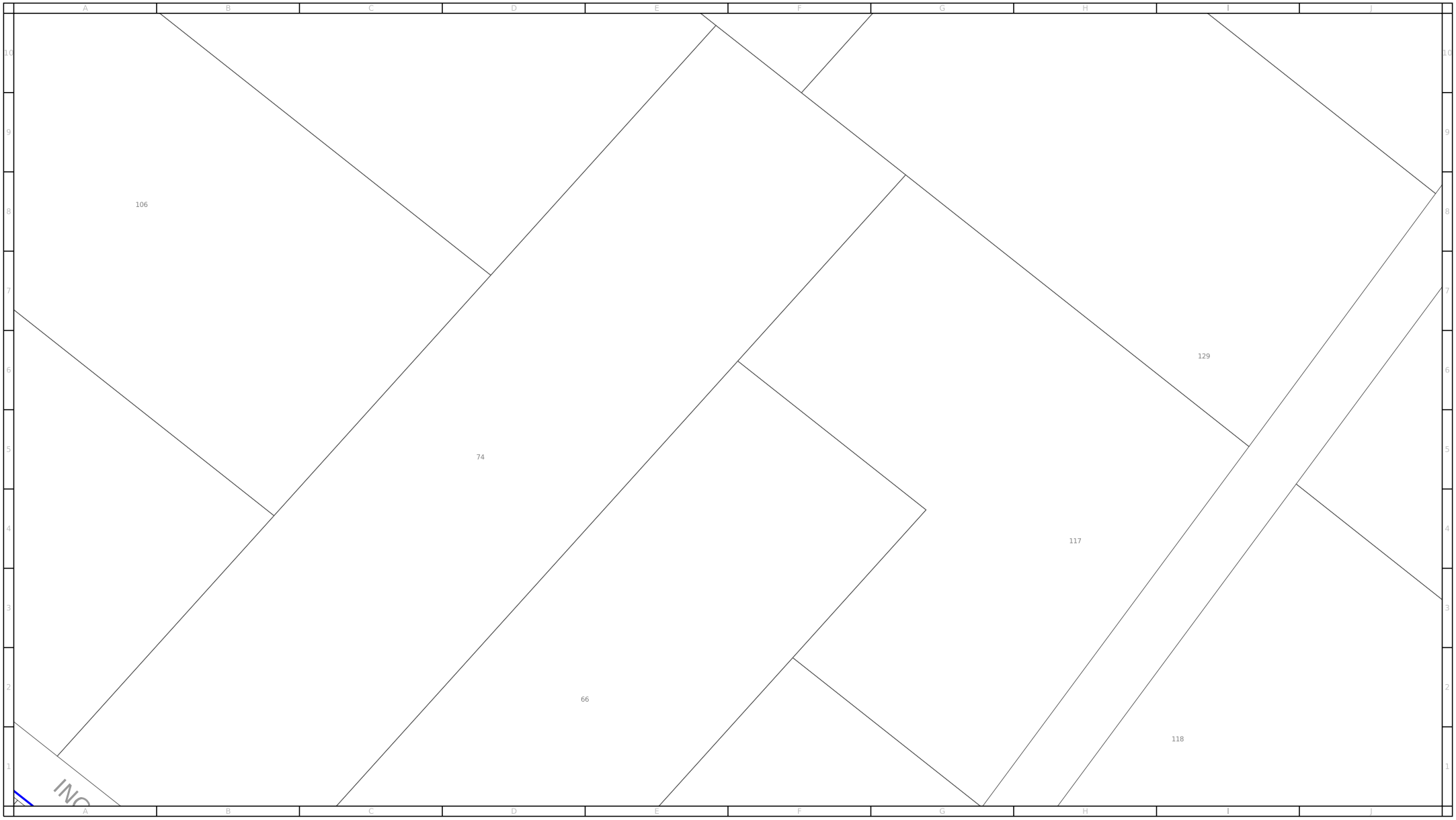

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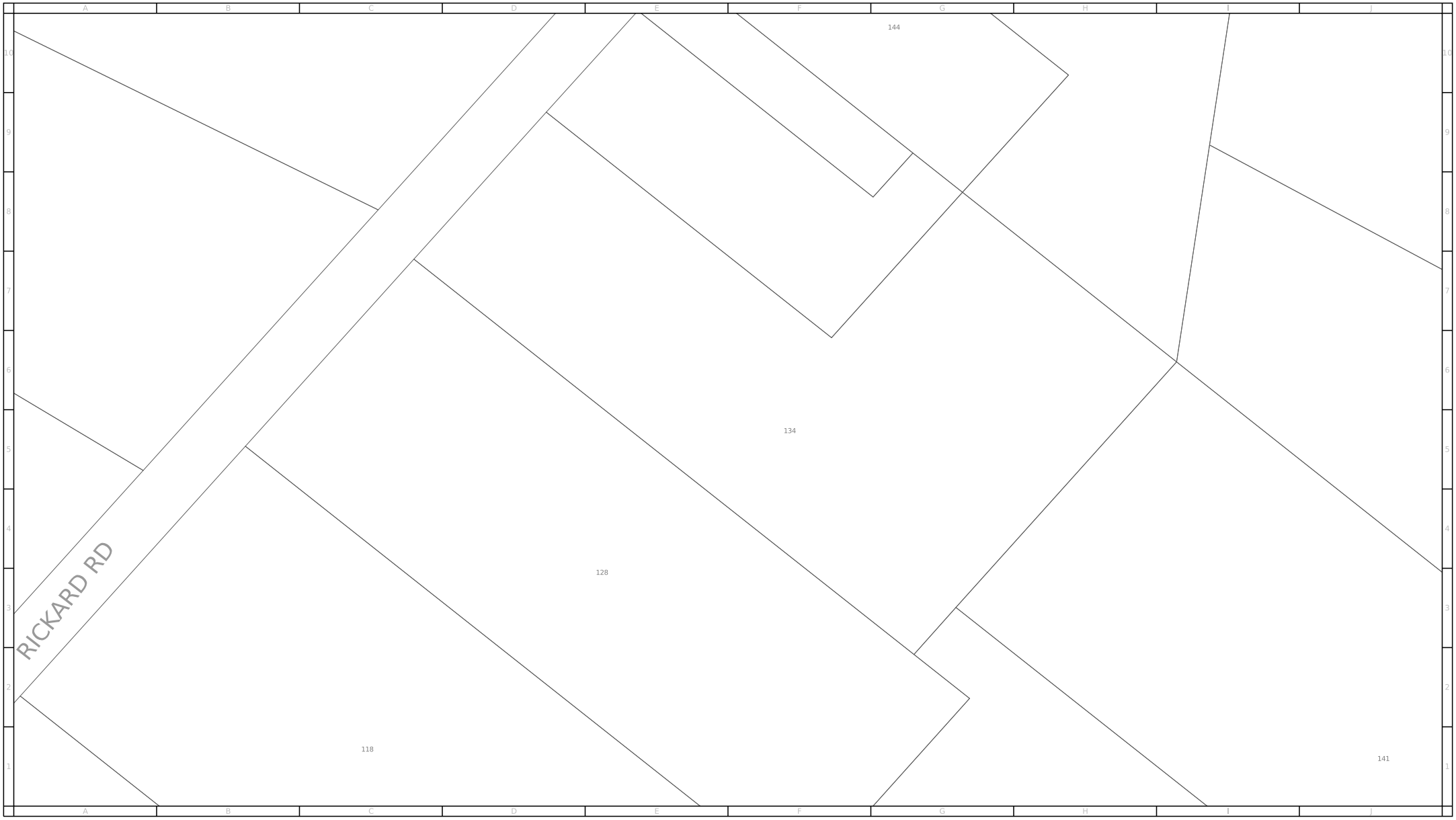


Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

N
W
E
S

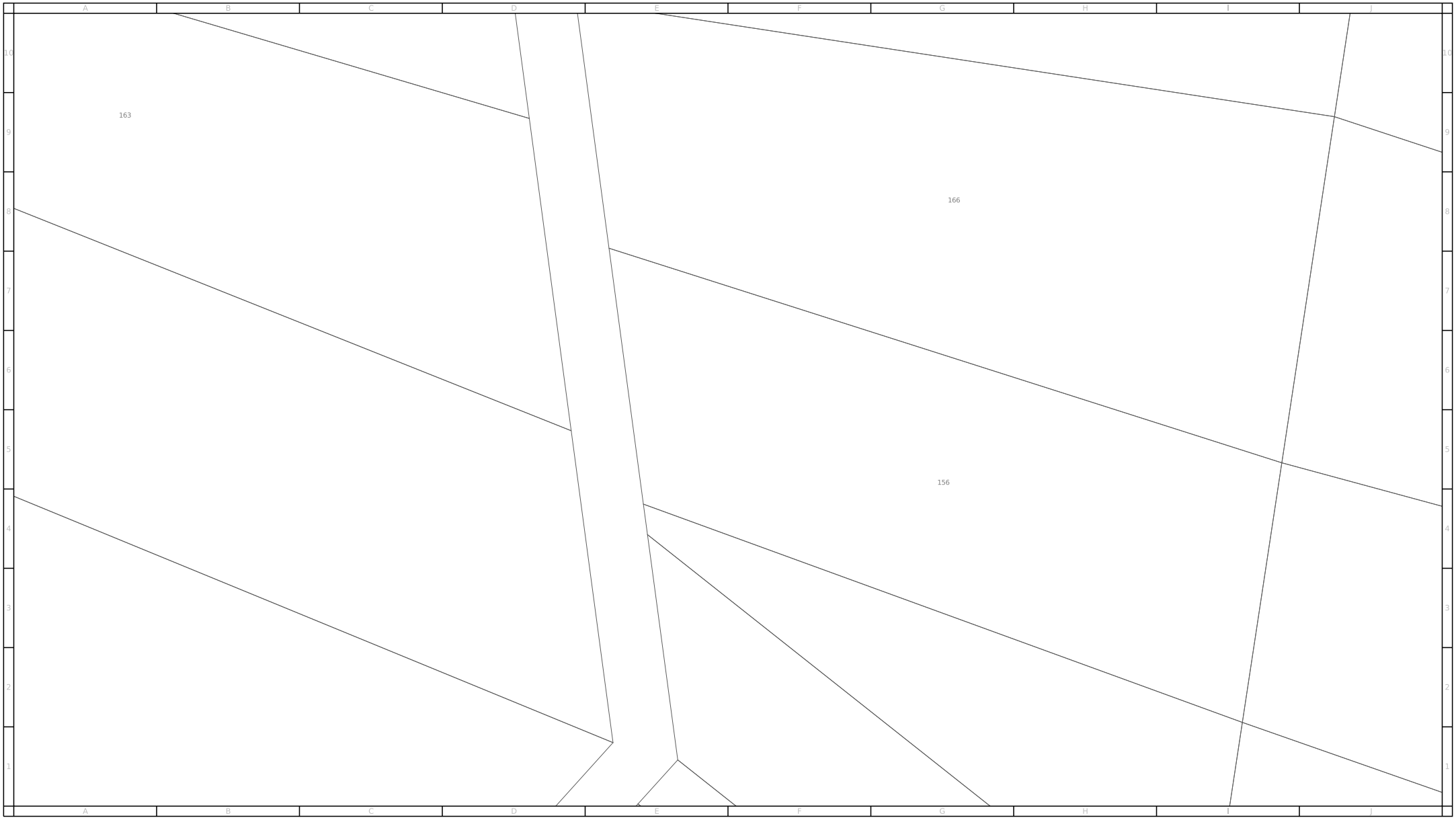
Scale: 1:2000

Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765

0m 10m 20m 30m 40m 50m 60m 70m 80m

BYDA Authority: Jemena Gas Networks (NSW)

BYDA Location: 134 Rickard Road Leppington NSW, 2179



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

N
W
E
S

Scale: 1:2000

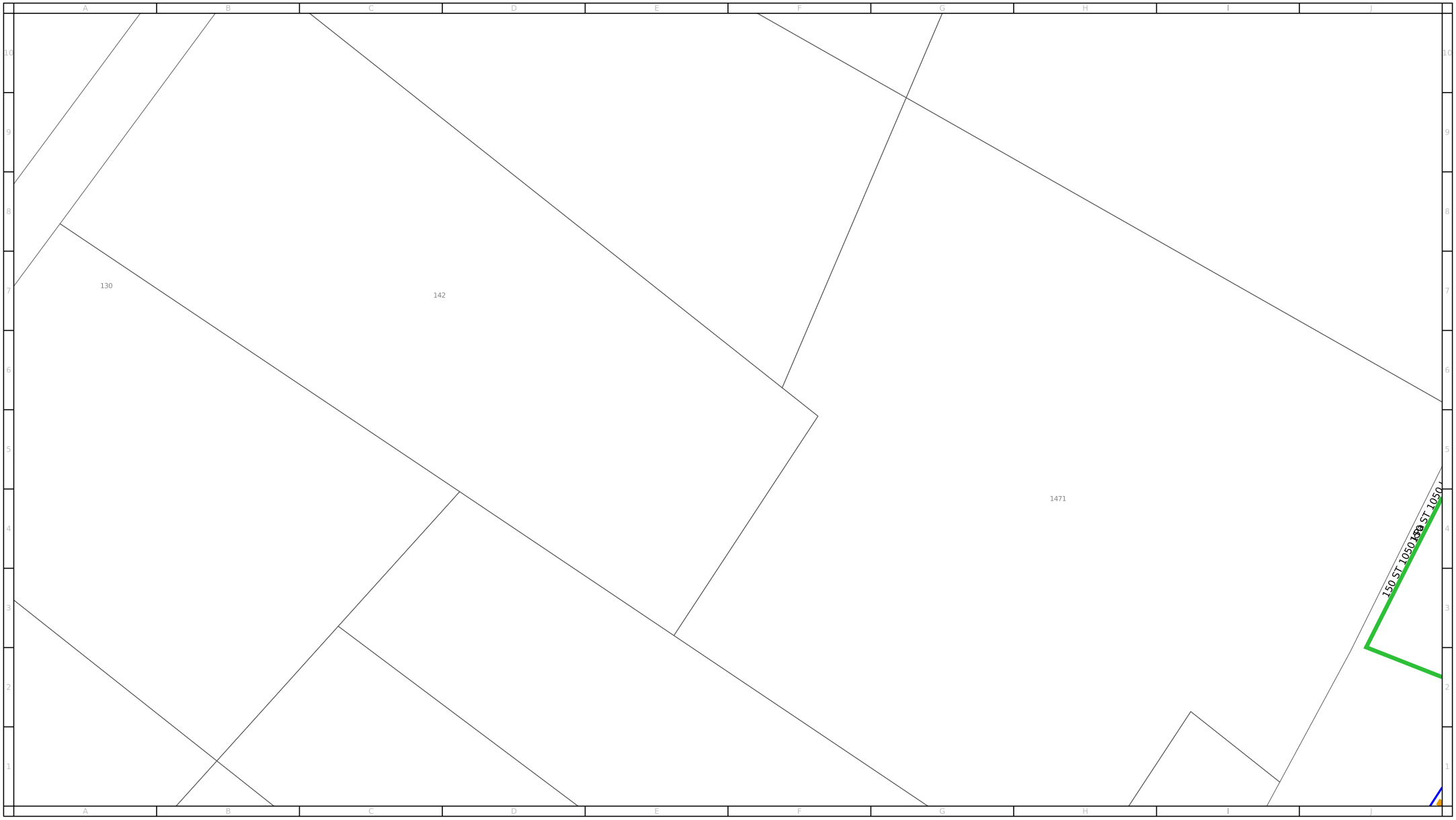
Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765

0m 10m 20m 30m 40m 50m 60m 70m 80m

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

BYDA Authority: Jemena Gas Networks (NSW)

BYDA Location: 134 Rickard Road Leppington NSW, 2179



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

N
W
E
S

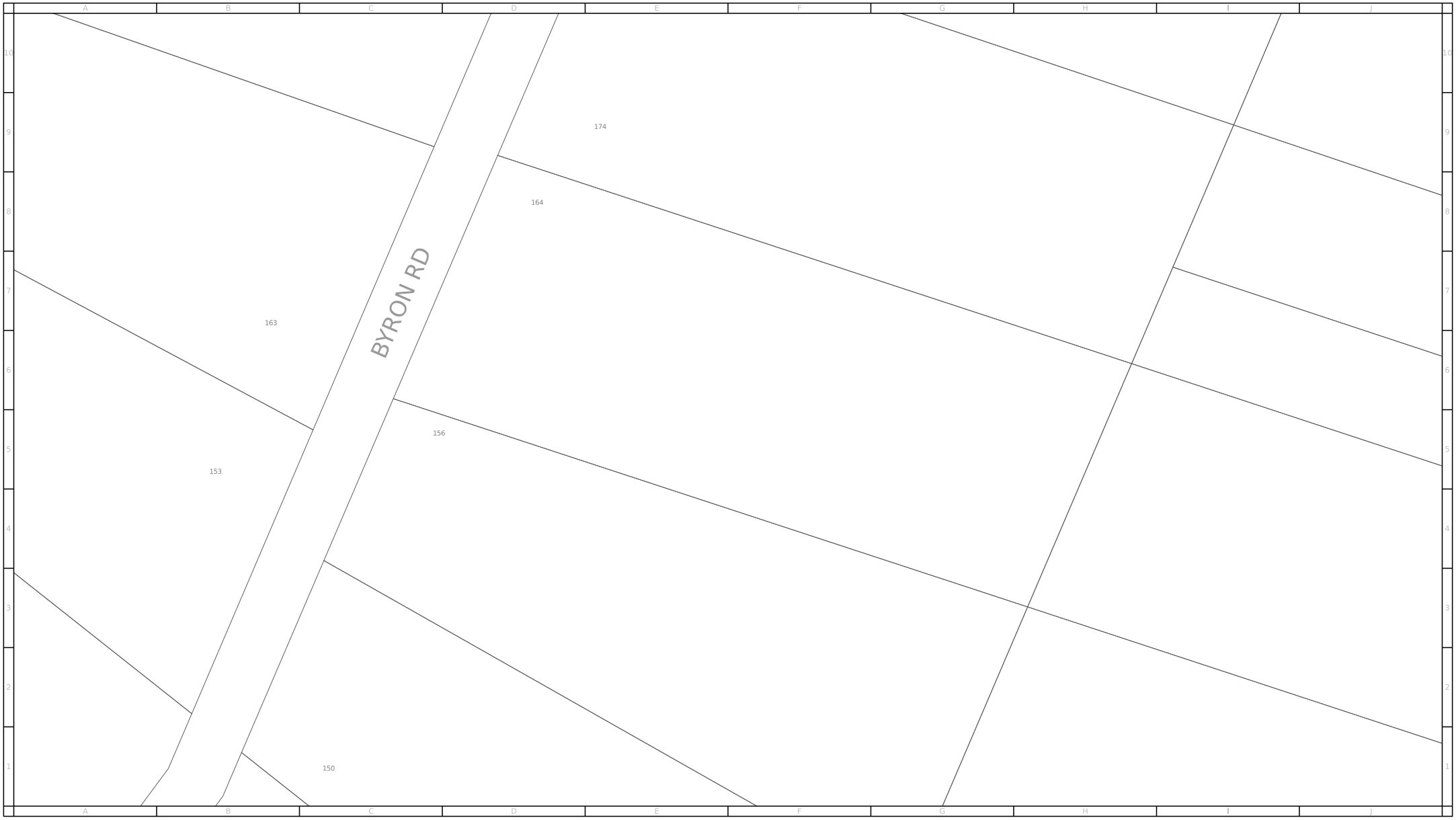
Scale: 1:2000

Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765

0m 10m 20m 30m 40m 50m 60m 70m 80m

BYDA Authority: Jemena Gas Networks (NSW)

BYDA Location: 134 Rickard Road Leppington NSW, 2179



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

N
W E
S

Scale: 1:2000

Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765

0m 10m 20m 30m 40m 50m 60m 70m 80m

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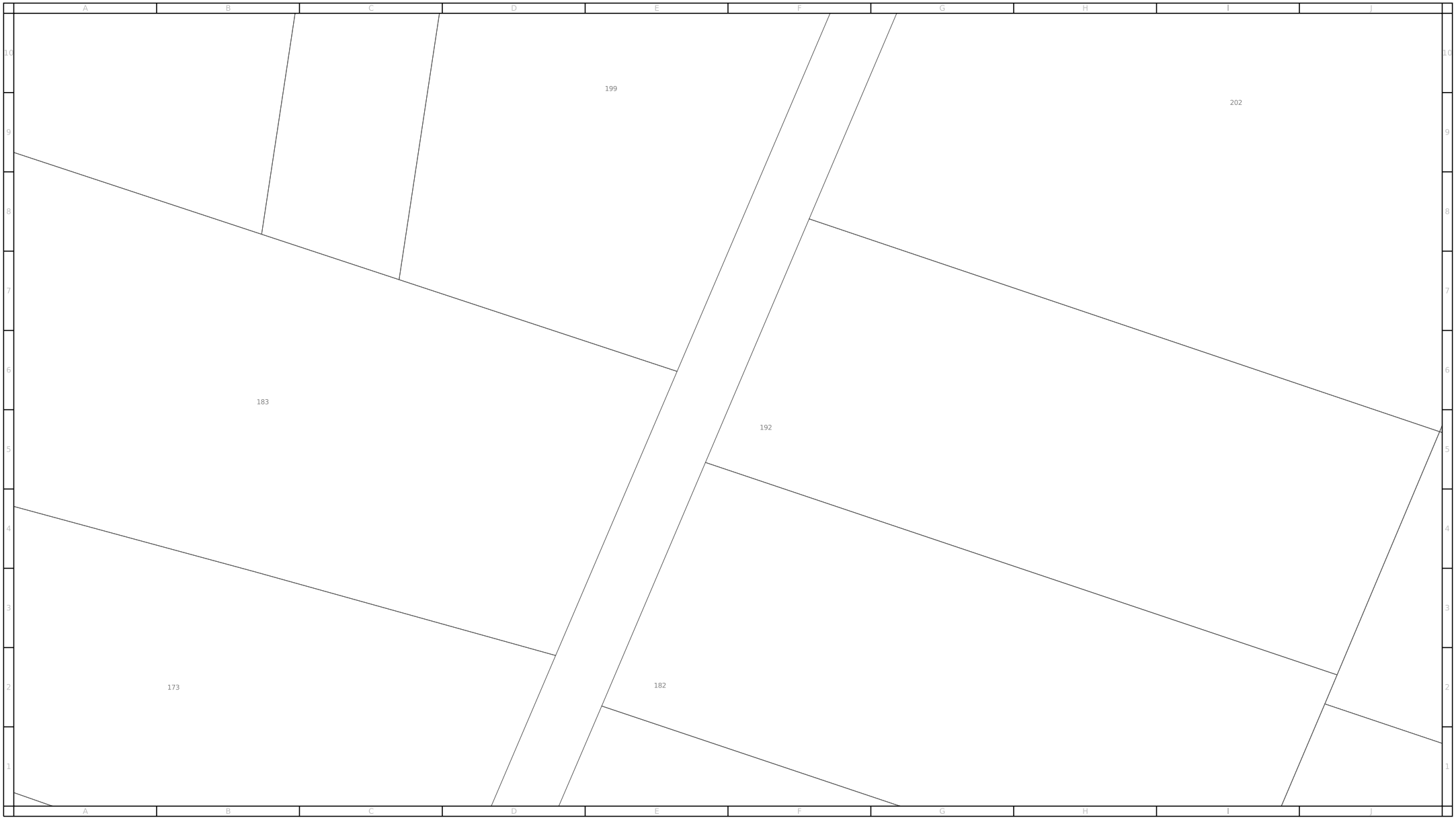
BYDA Authority: Jemena Gas Networks (NSW)

BYDA Location: 134 Rickard Road Leppington NSW, 2179



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

N
W
E
S

Scale: 1:2000

Issue Date: 04/06/2024
BYDA Seq No: 240112377
BYDA Job No: 36829765

0m 10m 20m 30m 40m 50m 60m 70m 80m

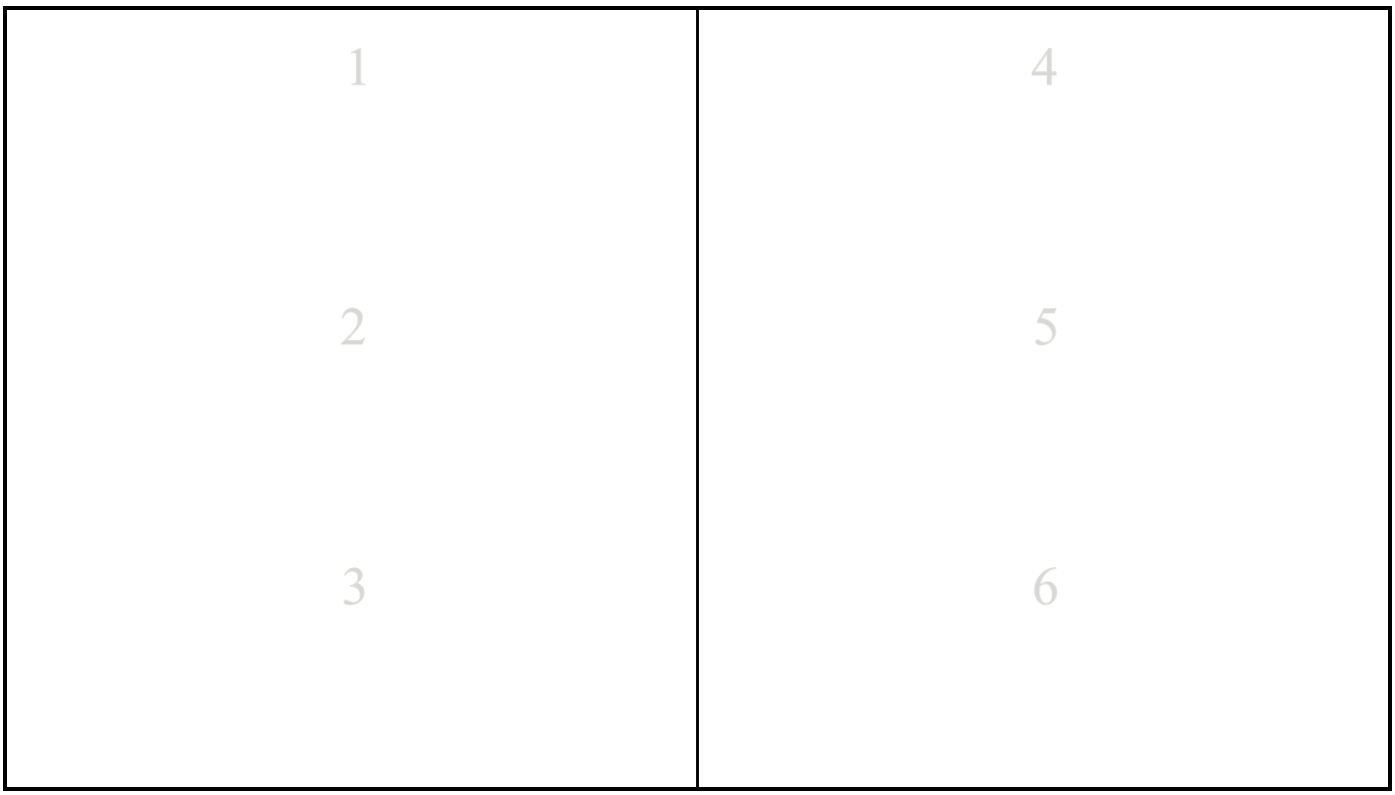
WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

To:	Kyrellos Habib
Phone:	Not Supplied
Fax:	Not Supplied
Email:	Kyrellos.habib@ttw.com.au

Dial before you dig Job #:	36829765
Sequence #	240112374
Issue Date:	04/06/2024
Location:	134 Rickard Road , Leppington , NSW , 2179

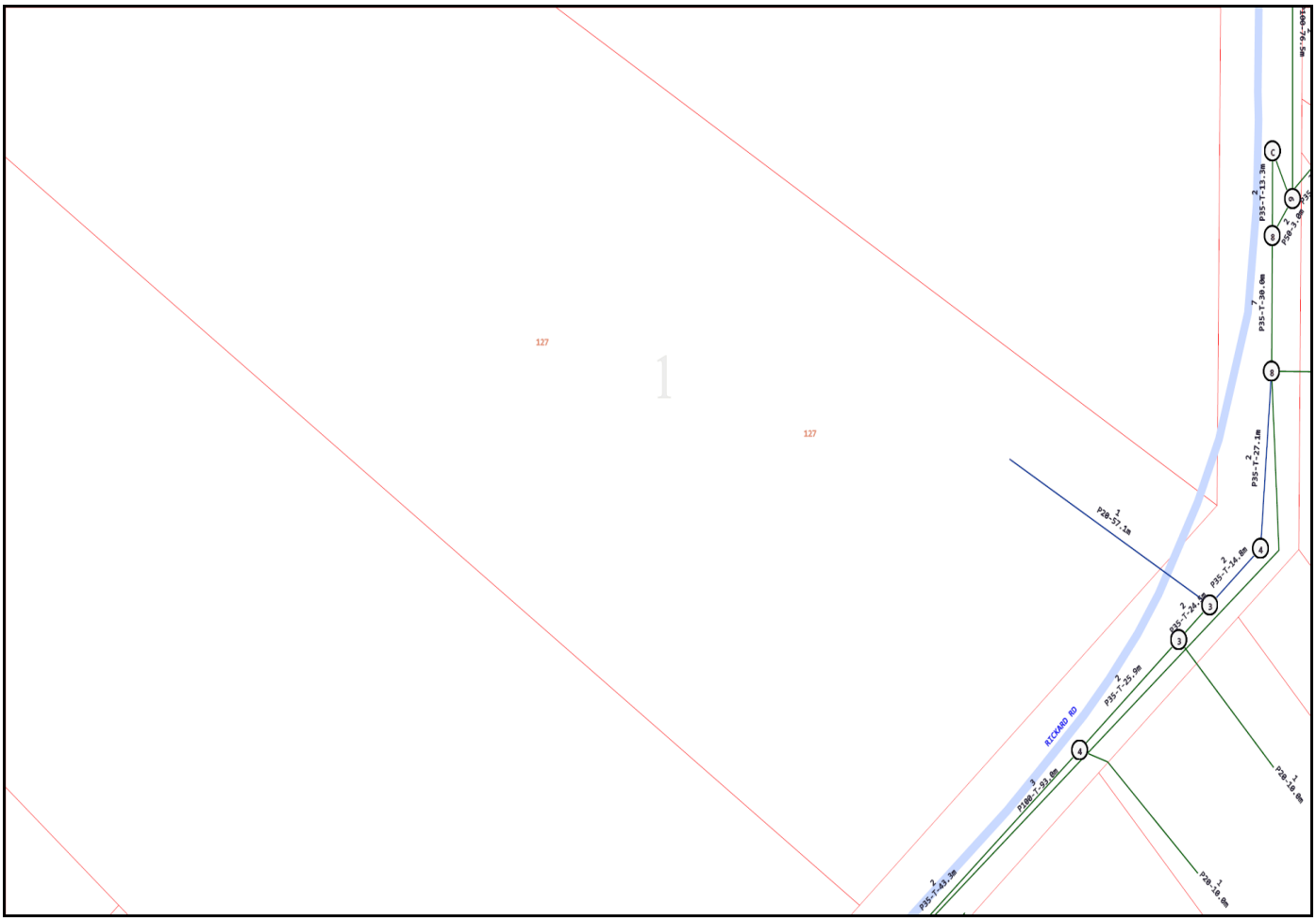
BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

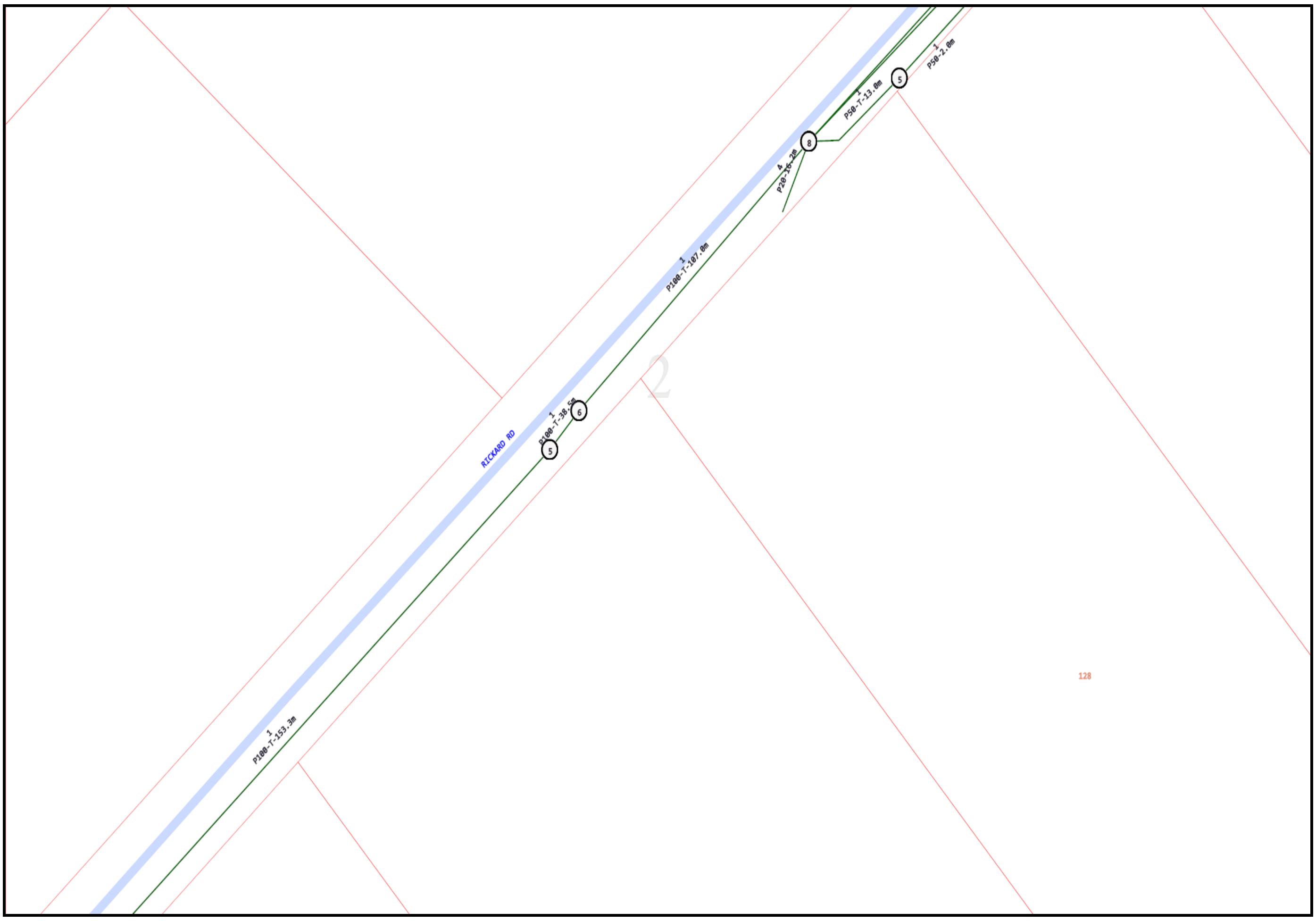
Indicative Plans are tiled below to demonstrate how to layout and read nbn asset plans

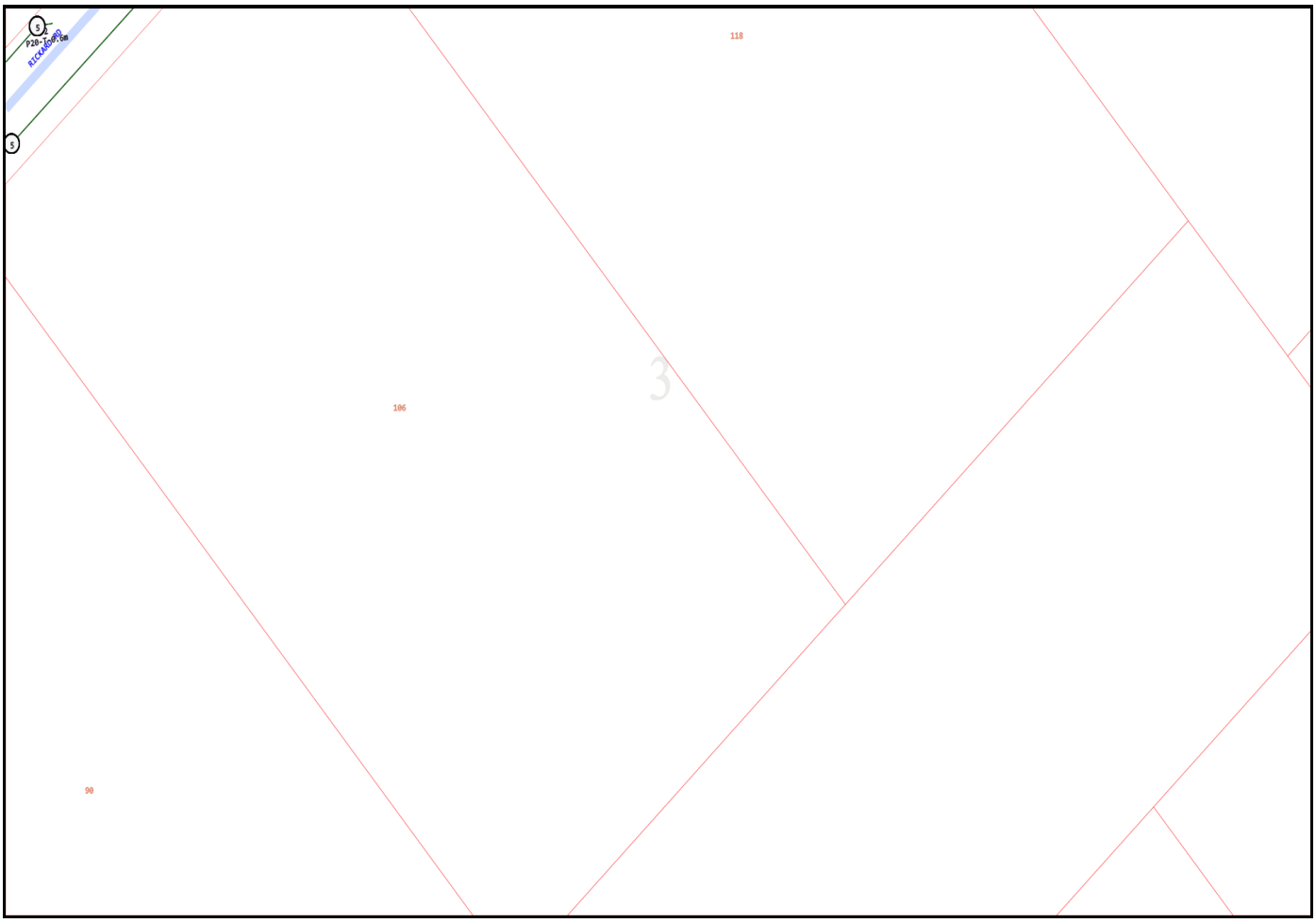


LEGEND

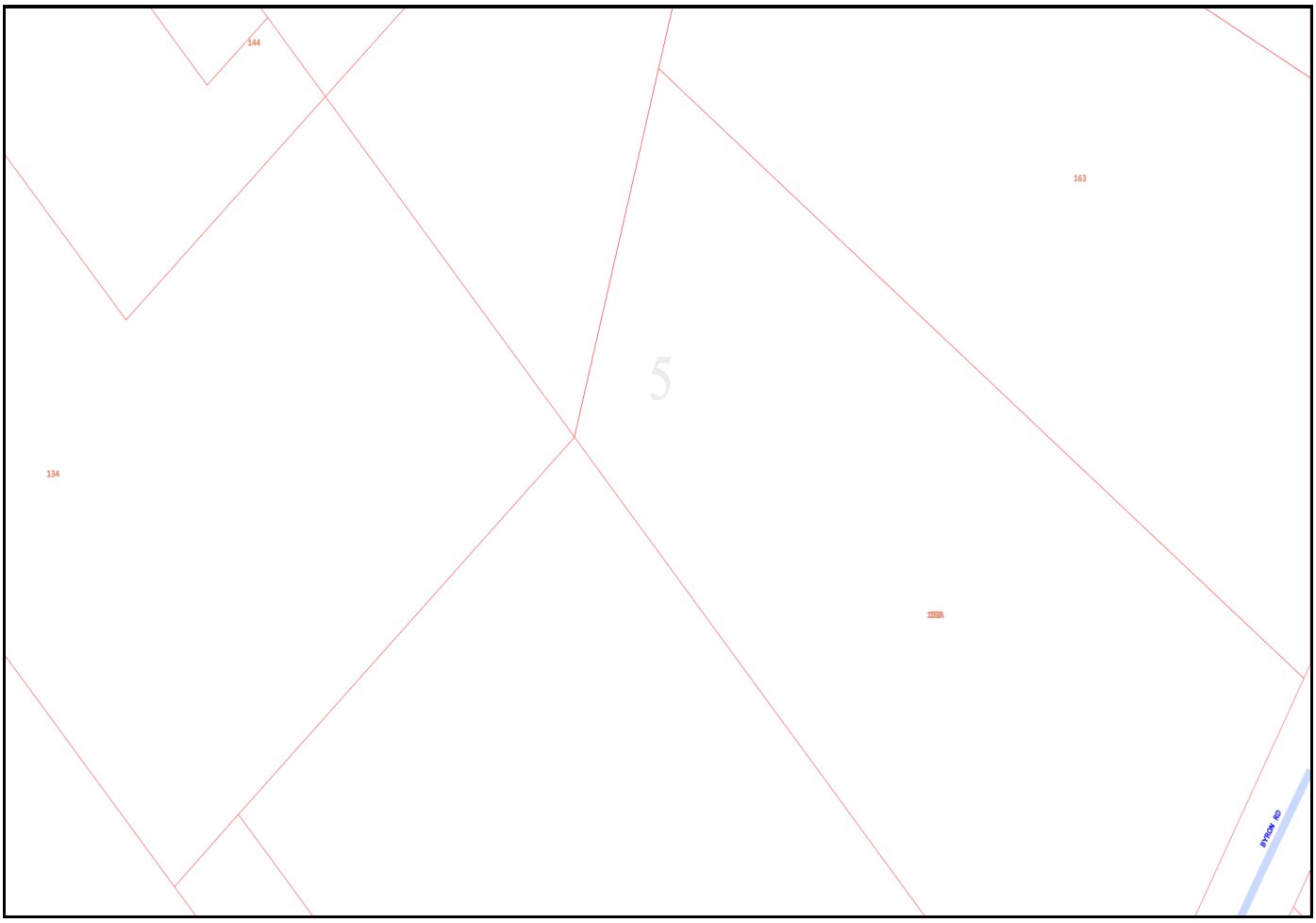
34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

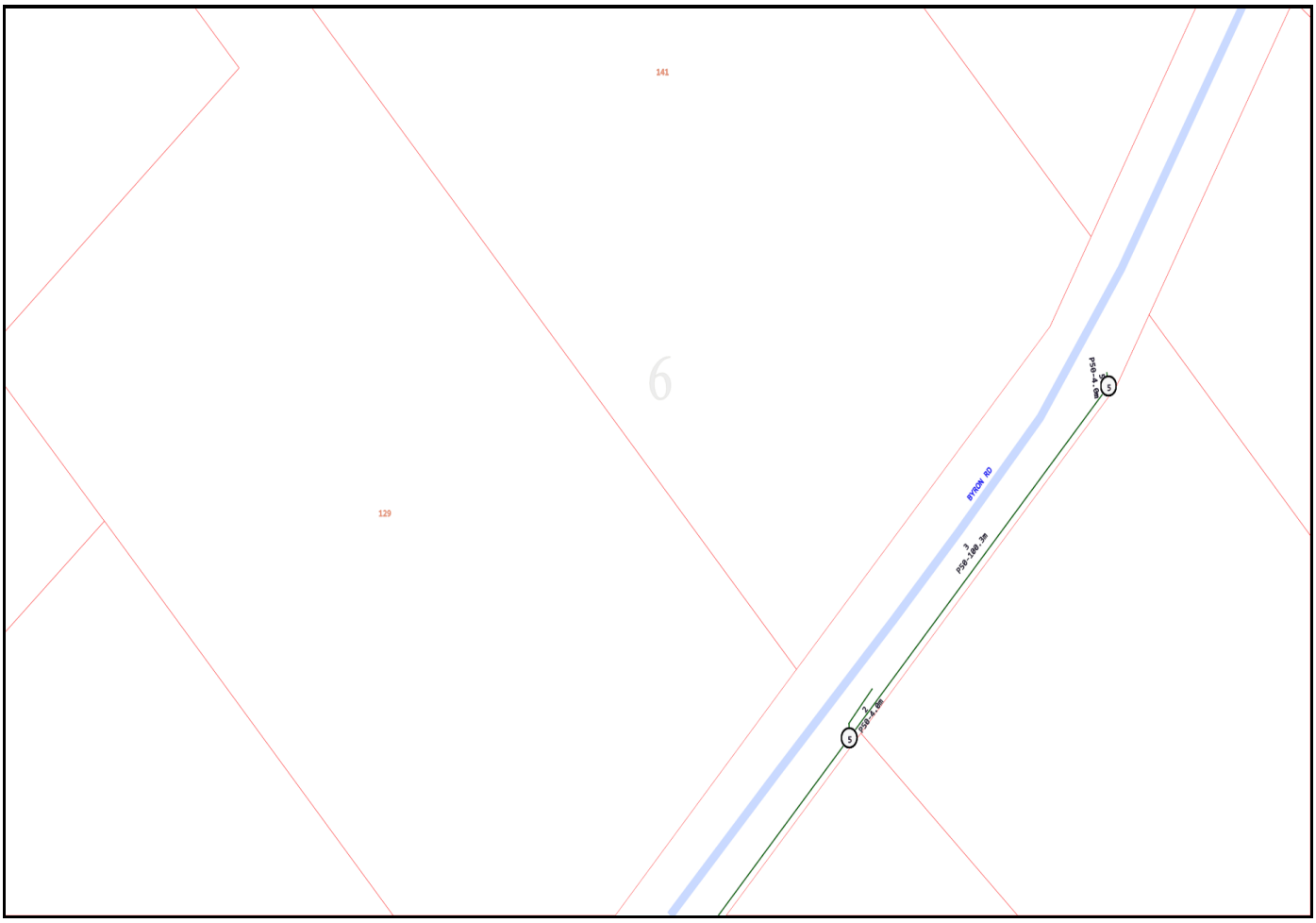

127
1
127
RICKARD RD
P28-57.1m
P35-T-27.1m
P35-T-30.0m
P35-T-13.3m
P35-T-14.8m
P35-T-25.0m
P100-T-93.0m
P35-T-43.3m
P28-16.0m
P28-16.0m


1
P50-2.0m
5
1
P50-T-13.0m
8
4
P20-16.2m
1
P100-T-107.0m
2
1
P100-T-38.5m
6
5
RICKARD RD
1
P100-T-153.3m
128


118
106
90
3


156
1
P20-20.0m
4
173

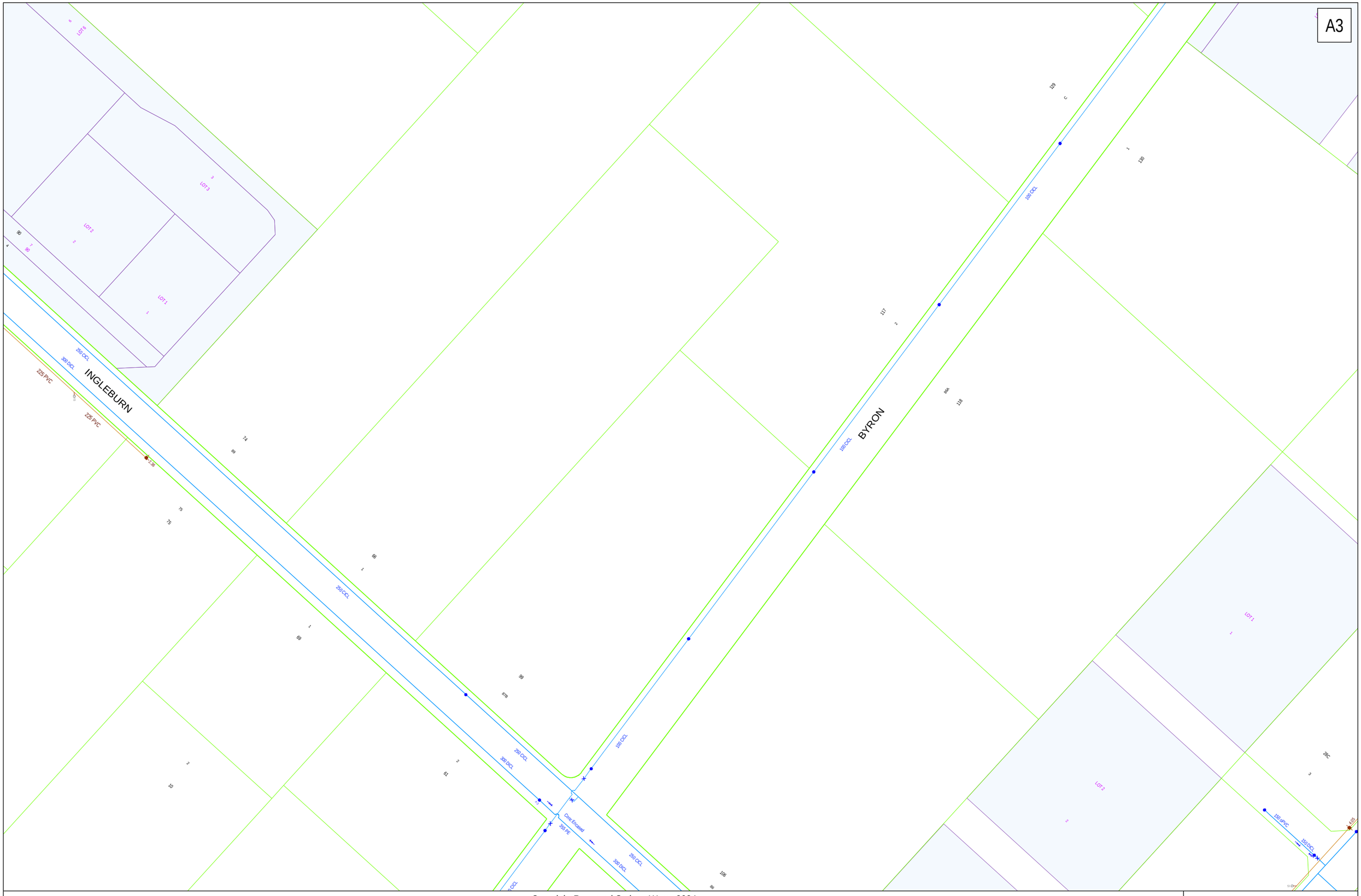

144
163
5
134
BYRON RD



Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

A3



DBYD Address:
134 Rickard Road
Leppington NSW 2179

DBYD Job No: 36829765

DBYD Sequence No: 240112376

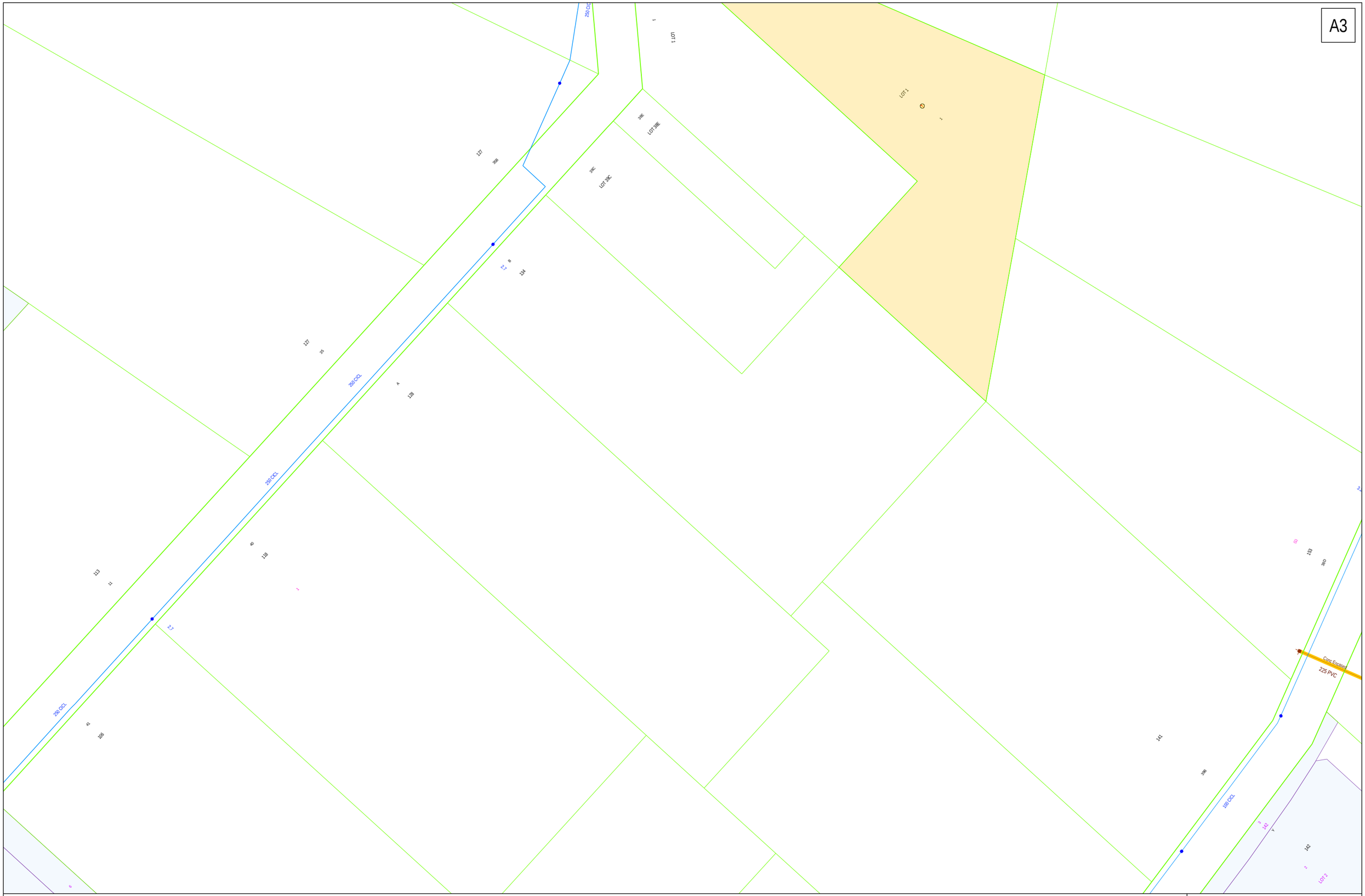
Scale: 1:1500

Date of Production: 04/06/2024

N

0m 9m 18m 27m 36m

A3



DBYD Address:
134 Rickard Road
Leppington NSW 2179

DBYD Job No: 36829765

DBYD Sequence No: 240112376

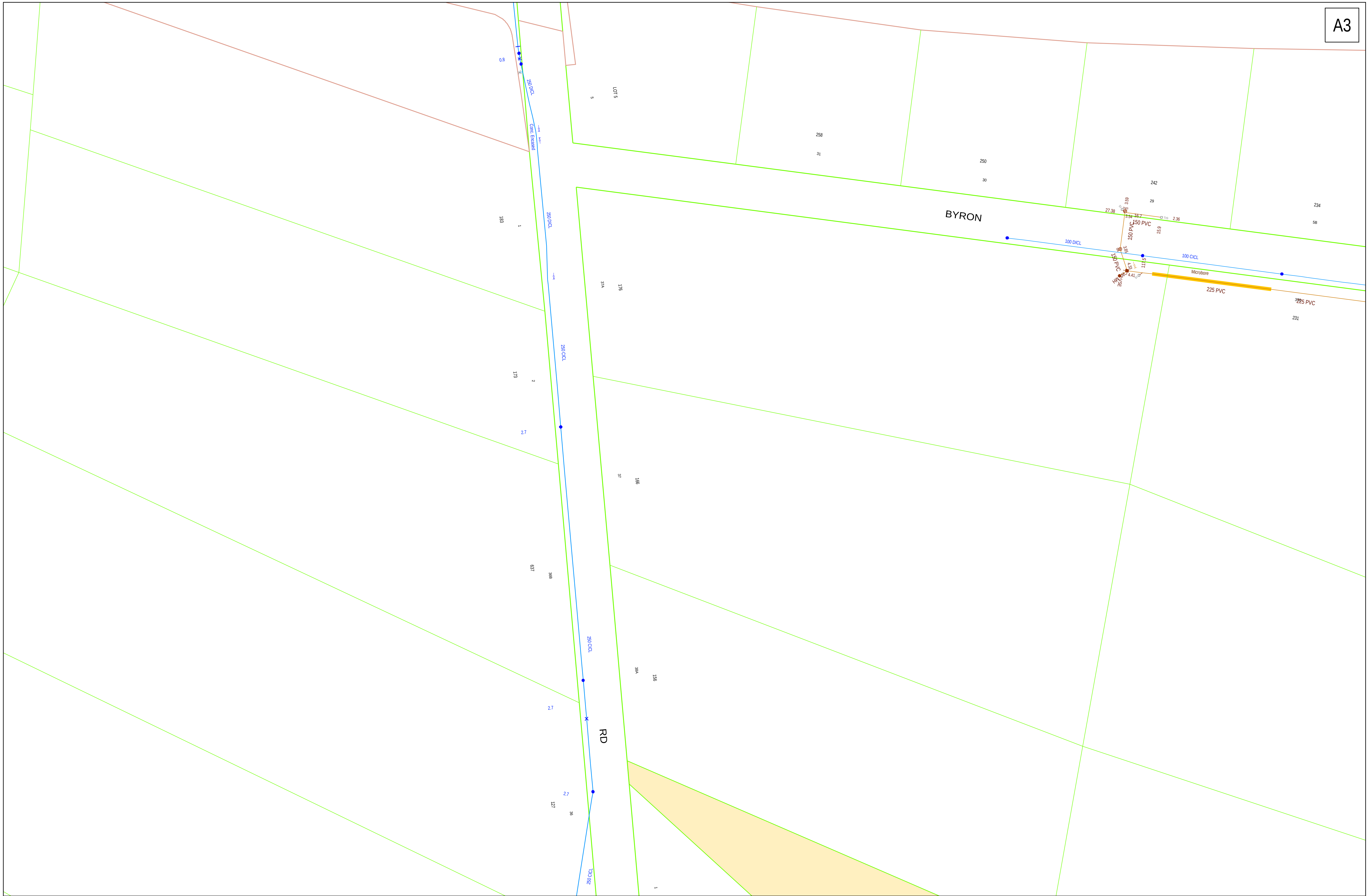
Scale: 1:1500

Date of Production: 04/06/2024

Plan 2 of 3

N

0m 9m 18m 27m 36m



DBYD Address:
134 Rickard Road
Leppington NSW 2179

DBYD Job No: 36829765

DBYD Sequence No: 240112376

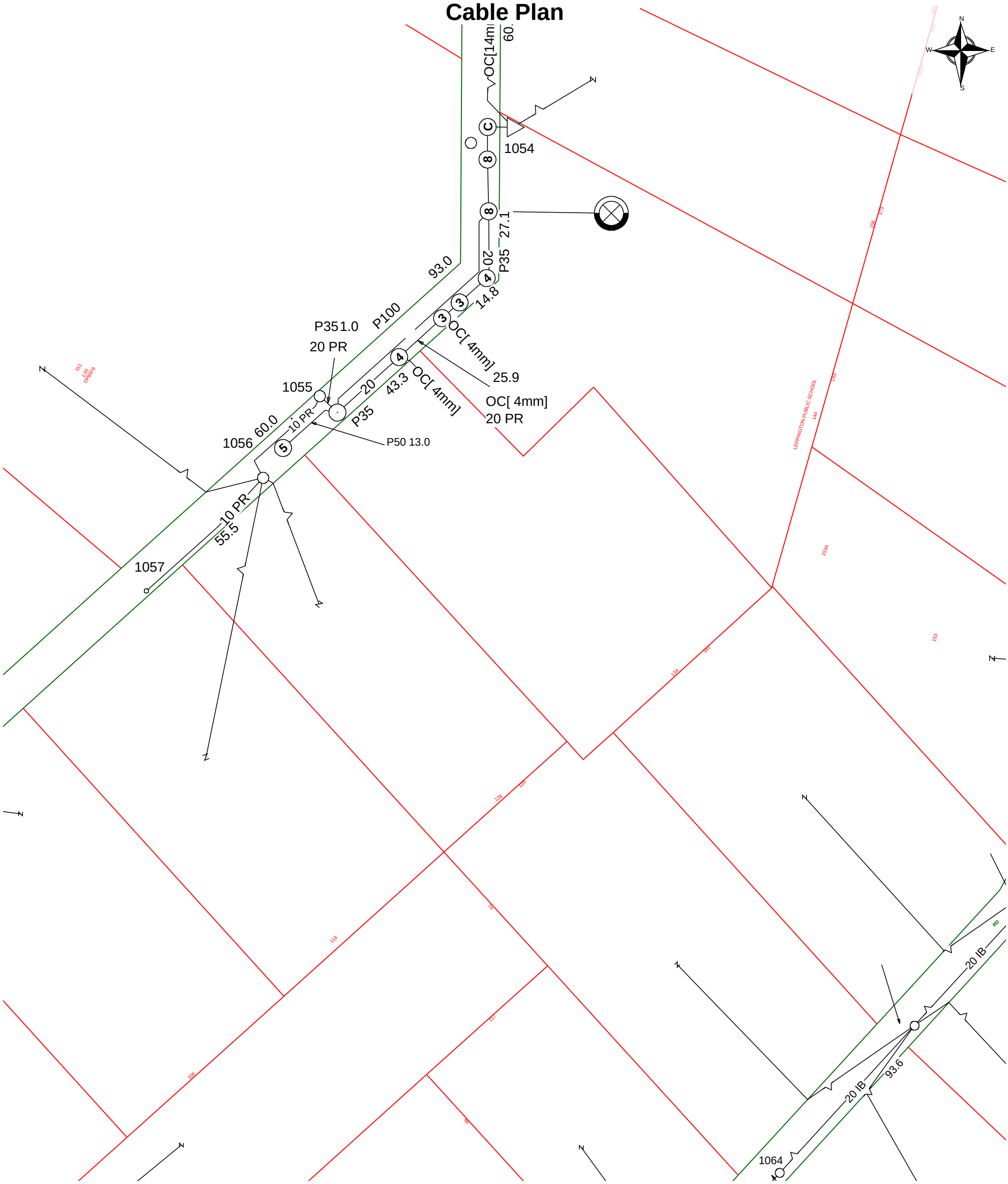
Scale: 1:1500

Date of Production: 04/06/2024

N

0m 9m 18m 27m 36m

Cable Plan



Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment
Ph - 13 22 03
Email - Telstra.Plans@team.telstra.com
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA LIMITED A.C.N. 086 174 781

Generated On 04/06/2024 12:48:26

Sequence Number: 240112378

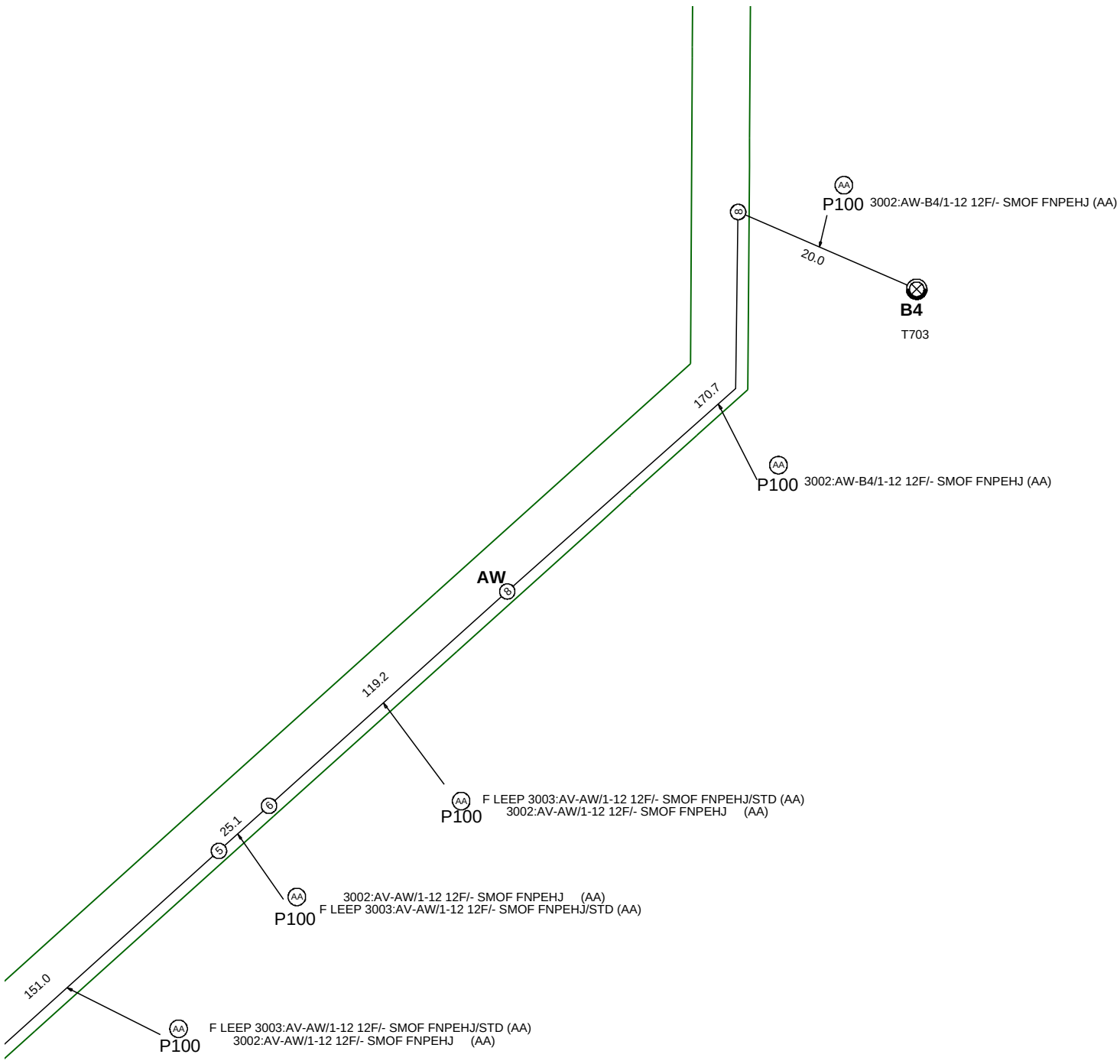
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information.
As such,Telstra supplied location information is indicative only.Spatial accuracy is not applicable to Quality Level D.
Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it.
Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy.
Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.
A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

Mains Cable Plan



NPEHJ/STD (AA)
HJ (AA)

TD <- (AA)

SMOF FNPEHJ/STD (AA)
MOF FNPEHJ/STD (AA)
)
FNPEHJ (BA)

V-GC/1-12 12F/- SMOF SM@RTCORE (AA)

Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 240112378
TELSTRA LIMITED A.C.N. 086 174 781	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.
Generated On 04/06/2024 12:48:27	

WARNING
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See the Steps- Telstra Duty of Care that was provided in the email response.

Appendix B

Site Survey

LOCATING QUALITY LEVELS PURSUANT TO AS5488-2013

QL-A QUALITY LEVEL A. VISUALISATION / CONFIRMATION OF A SERVICE, POSITION AND DEPTH, BY NON DESTRUCTIVE DIGGING METHODS OR POINTS OF ENTRY TO PITS OR MANHOLES.

QL-B QUALITY LEVEL B. LOCATING OF SERVICES USING RADIO DETECTION METHODS OR GROUND PENETRATION RADAR. ACCEPTABLE RANGE OF ACCURACY FOR QUALITY B IS 300mm FOR POSITION AND 500mm IN DEPTH.

QL-C QUALITY LEVEL C. SERVICES MARKED OUT USING ONLY SURFACE FEATURES THAT HAVE BEEN MEASURED IN THE FIELD. THIS INCLUDES HYDRANTS, GAS MARKERS, PITS LIDS ETC. NO INDICATION OF SERVICE LOCATION OR DEPTH CAN BE OBTAINED FROM QUALITY LEVEL C.

QL-D QUALITY LEVEL D. SERVICES MARKED UP USING DBYD PLANS ONLY. NO INDICATION OF SERVICE CONFIRMATION CAN BE GIVEN.

RECORDS SERVICES MARKED UP USING DBYD PLANS ONLY. NO INDICATION OF SERVICE CONFIRMATION CAN BE GIVEN.

SCHEDULE OF SURVEY CONTROL

STN	EASTING	NORTHING	LEVEL	DESCRIPTION
1	297 524.104	6 240 067.800	91.855	STN1 GIN
2	297 583.733	6 240 144.834	95.924	PM44282
3	297 639.911	6 240 316.185	95.149	PM44281

* THE TITLE FOR LOT A DP 411211 NOTES:

SECOND SCHEDULE (4 NOTIFICATIONS)

1	RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)	
2	B900440	COVENANT - NOT BEEN INVESTIGATED BY US
3	B900441	COVENANT - NOT BEEN INVESTIGATED BY US
4	U386929	LEASE TO PIERRE AZZI EXPIRES 15-5-1997 OPTION OF RENEWAL 2 YEARS

* THE TITLE FOR LOT B DP 411211 NOTES:

SECOND SCHEDULE (4 NOTIFICATIONS)

1	RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)	
2	B900441	COVENANT - NOT BEEN INVESTIGATED BY US

MGA

TN

APPROX.

NOTES :

* BOUNDARIES HAVE NOT BEEN DEFINED BY SURVEY AND ARE DIAGRAMMATIC ONLY
* LAND DIMENSIONS AND AREAS HAVE BEEN COMPILED FROM PLANS OBTAINED FROM NSW LRS
* BEARINGS RELATE TO PM44282 NORTH ORIGINATING FROM DP 411211
* EXISTENCE OF SERVICES MUST BE VERIFIED BY CONTACTING BEFORE YOU DIG (BYDA) BYDA.COM.AU CRITICAL SERVICES MUST BE EXPOSED AND LOCATED.
* NEIGHBOURING HOUSES, WINDOWS AND ROOF POSITIONS ARE APPROXIMATELY ONLY.
* FLOOR LEVELS GENERALLY SURVEYED AT DOOR THRESHOLDS. INTERNAL ROOMS NOT SURVEYED.
* CONTOURS SHOWN ARE INDICATIVE OF LAND FORM. SPOT LEVELS SHOULD TAKE PRECEDENCE.
* REFER TO FACE OF PLAN FOR SUBJECT TITLE NOTATIONS.
* THIS TITLEBLOCK IS AN INTEGRAL PART OF THIS DRAWING AND SHOULD NOT BE REMOVED.

GDA 2020

SCIMS SURVEY MARK

LEGEND

AWN - AWNING	MW - MONITORING WELL
BB - BOTTOM OF BANK	PP - POWER POLE
BIT - BITUMEN	RDG - RIDGE
CL - CENTRELINE	SIGN - SIGN POST
COL - COLUMN	STN - TRAVERSE STATION
CONC - CONCRETE SURFACE LEVEL	TB - TOP OF BANK
ELP - ELECTRIC LIGHT POLE	TEL - TELSTRA PIT
FCE - FENCE	TG - TOP OF GUTTER
HYD - HYDRANT	TK - TOP OF KERB
0.1D/3S/5H - TREE DIAMETER, SPREAD, HEIGHT	TW - TOP OF WALL
	VC - VEHICLE CROSSING

E	ADD INFORMATION TO TITLE BLOCK	08/01/2025
D	ADD MONITORING WELL LOCATIONS	27/02/2024
C	VERSION INFORMATION	16/02/2024
B	ADD ARBORIST MARKED TREES	15/02/2024
A	ADD No.134 & SOME LEVELS	08/12/2023
	ORIGINAL ISSUE	29/11/2023

SCALE 1:500

0 5 10 20 30 40 50

SHEET 1 0F 4 - DETAIL SURVEY

CLIENT: SINSW

JOB REF. : 5576
DRAWING No. 5576-DET-E
SURVEYOR: PHILLIP KIM
CHECKED: JONATHAN SAXON
REGISTERED LAND SURVEYOR
DATE: 28/11/2023
DATUM: A.H.D.
ORIGIN: PM 44282 RL 95.924
REFERENCE SYSTEM: GDA 2020

PLAN OF: 128 & 134 RICKARD ROAD LEPPINGTON, NSW, 2179

BEING: LOT A & LOT B IN DP 411211

SHOWING: GENERAL DETAIL AND SITE LEVELS

PURPOSE: REF SUBMISSION TO DoE

ABN 20 068 433 974

BELLA VISTA

PO Box 7419 BAULKHAM HILLS NSW 2153
UNIT 1, GROUND FLOOR, 16 LEXINGTON DRIVE, BELLA VISTA NSW 2153
PHONE : 9056 1900
email: office@projectsurveyors.com.au

www.projectsurveyors.com.au

PROJECT SURVEYORS
Professional Innovative... Results.

SHEET 2

SHEET 5

SHEET 3

SHEET 4

UNDERGROUND SERVICES NOTES

- THE PURPOSE OF THIS PLAN IS FOR DESIGN ONLY. CURRENT PLANS ISSUED BY SERVICE PROVIDERS THROUGH "DIAL BEFORE YOU DIG"ARE STILL REQUIRED. CONTRACTORS AND SUBCONTRACTORS WILL NEED TO EXERCISE THEIR OWN "DUTY OF CARE" AND SHOULD MAKE THEIR OWN DBYD ENQUIRY BEFORE EXCAVATION/CONSTRUCTION. YOU MUST ENSURE DBYD ARE CURRENT AS THEY HAVE VARYING EXPIRATION DATES, AND MAY REQUIRE REISSUE OTHERWISE THE INFORMATION ON THE PLAN MAY NO LONGER BE CURRENT.

- UNKNOWN SERVICES MAY EXIST THAT COULD NOT BE ELECTRONICALLY DETECTED. THE DIAGRAMS OF THE SERVICE PROVIDER MAY NOT DEPICT ALL ASSETS WITHIN THEIR NETWORK AND SERVICE PROVIDERS MAY SHARE CONDUITS AND/OR TRENCHES AT THE LOCATION.

- SINGLE MARKED LINES MAY REPRESENT MULTIPLE CONDUITS, PIPES END/OR CABLES AT THIS LOCATION. THE RECORDING OF DEPTHS AND POSITION OF UTILITIES CANNOT BE GUARANTEED AS CORRECT. WE RECOMMEND NON DESTRUCTIVE DIGGING/POTHOLING TO EXPOSE SERVICES FOR ACCURATE IDENTIFICATION AND DEPTH.

DETECTION PROCEDURES:

UTILITY MAPPING HAVE DETECTED AND MARKED OUT EXISTING SERVICES IN THE AREA SPECIFIED BY THE CLIENT. THESE SERVICE LINES HAVE BEEN LOCATED BY ABOVE GROUND SERVICE TRACING METHODS AND HAVE NOT BEEN SIGHTED.
PROJECT SURVEYORS HAVE THEN LOCATED THE LINE MARKED BY UTILITY MAPPING.
THE LOCATION OF THESE MARKED SERVICES ARE APPROXIMATE ONLY. THE POSITION OF THE MARKED SERVICE LINES HAS BEEN MADE WITH REFERENCE TO THE RELEVANT SERVICE AUTHORITY DIAGRAMS. ALL SERVICES MAY NOT HAVE BEEN SHOWN AND UTILITY DESCRIPTION HAVE BEEN TAKEN FROM UTILITY PROVIDED DIAGRAMS WHERE AVAILABLE. WE RECOMMEND NON DESTRUCTIVE DIGGING/POTHOLING TO EXPOSE MARKED SERVICES TO IDENTIFY AND SHOW EXACT DEPTH AND LOCATION OF SERVICE LINES PRIOR TO EARTHWORKS COMMENCING. UTILITIES PLOTTED ON THE PLAN THAT TERMINATE IN THE SPECIFIED AREA MAY GO TO FEATURES THAT HAVE NOT BEEN SHOWN ON THE BACKGROUND DETAIL SURVEY PROVIDED BY CLIENT. THE RISKS ARE WITH THE CLIENT AND/OR SUB CONTRACTOR AND THEIR RESPONSIBILITY TO EXERCISE CAUTION AT ALL TIMES.

MONITORING WELL

MW	EASTING	NORTHING	LEVEL	DESCRIPTION
1	297552.54	6240041.03	94.99	TOP OF CASING
1			88.44	GROUND WATER LEVEL
1			84.59	BOTTOM OF WELL
2	297682.10	6240117.23	101.31	TOP OF CASING
2			90.08	BOTTOM OF WELL
3	297722.60	6239940.83	95.90	TOP OF CASING
3			94.72	GROUND WATER LEVEL
3			86.83	BOTTOM OF WELL

LOCATOR DENOTES

D-B	LINE TYPE- LOCATING QUALITY LEVEL
	C COMMUNICATION LINE
	W WATER LINE
FOD	FULL OF DEBRIS
P100	100MM DIMENSION PIPE

CABLE LINE LEGENDS

W - DENOTES SUBSURFACE WATER LINE

C - DENOTES UNDERGROUND TELECOMMUNICATIONS

A1

LOCATOR DENOTES

C-A LINE TYPE- LOCATING QUALITY LEVEL
C COMMUNICATION LINE
W WATER LINE
FOD FULL OF DEBRIS
PINV PIT INVERT
INV100 INVERT OF PIPE,PIPE DIMENSION 100mm
P100X2 2 100MM DIMENSION PIPES

LOCATING QUALITY LEVELS PURSUANT TO AS5488-2013

QL-A QUALITY LEVEL A. VISUALISATION / CONFIRMATION OF A SERVICE, POSITION AND DEPTH, BY NON DESTRUCTIVE DIGGING METHODS OR POINTS OF ENTRY TO PITS OR MANHOLES.

QL-B QUALITY LEVEL B. LOCATING OF SERVICES USING RADIO DETECTION METHODS OR GROUND PENETRATION RADAR. ACCEPTABLE RANGE OF ACCURACY FOR QUALITY B IS 300mm FOR POSITION AND 500mm IN DEPTH.

QL-C QUALITY LEVEL C. SERVICES MARKED OUT USING ONLY SURFACE FEATURES THAT HAVE BEEN MEASURED IN THE FIELD. THIS INCLUDES HYDRANTS, GAS MARKERS, PITS LIDS ETC. NO INDICATION OF SERVICE LOCATION OR DEPTH CAN BE OBTAINED FROM QUALITY LEVEL C.

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RECORDS SERVICES MARKED UP USING DBYD PLANS ONLY. NO INDICATION OF SERVICE CONFIRMATION CAN BE GIVEN.

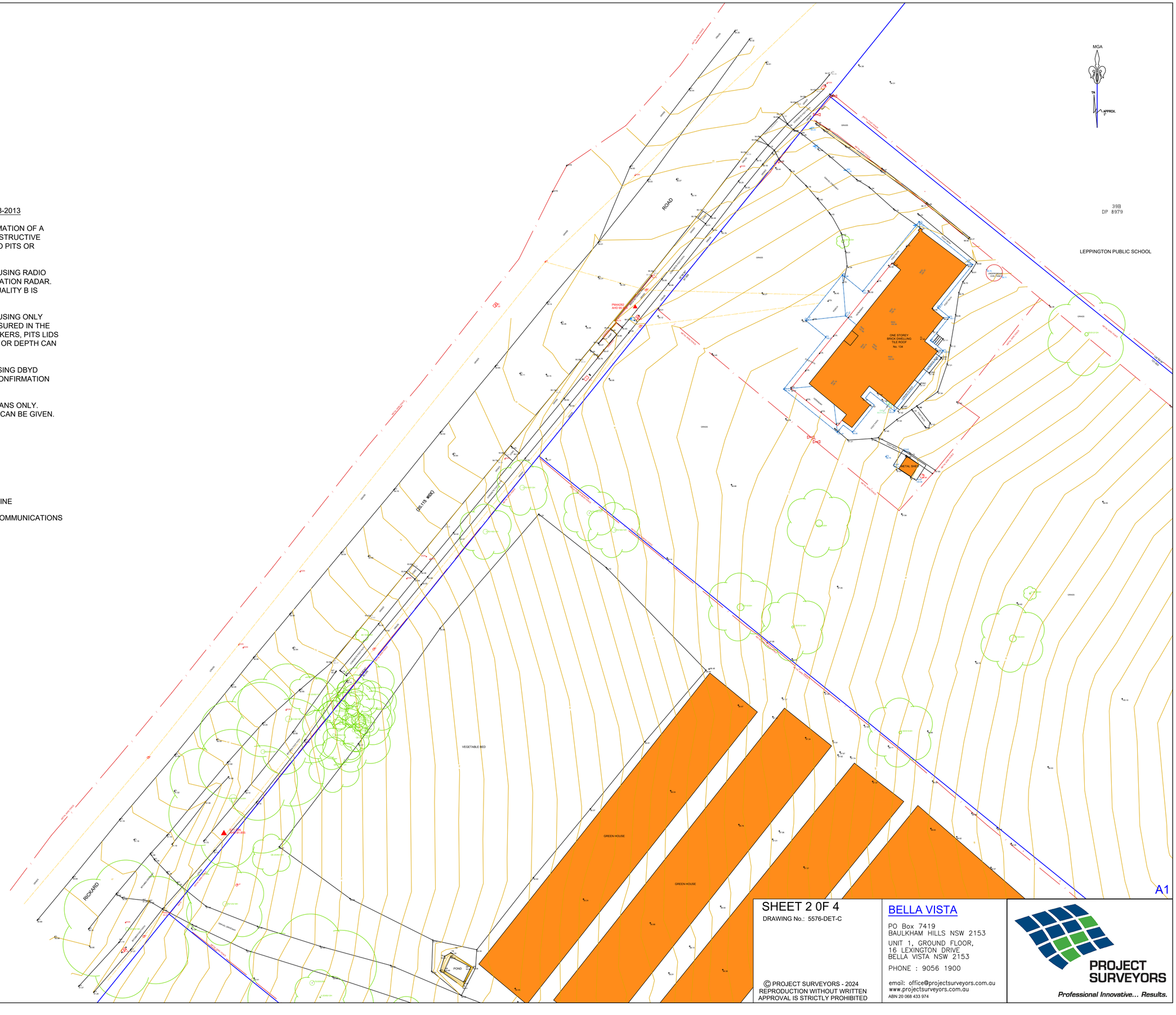
CABLE LINE LEGENDS

W - DENOTES SUBSURFACE WATER LINE

C - DENOTES UNDERGROUND TELECOMMUNICATIONS

LEGEND

AWN - AWNING
BB - BOTTOM OF BANK
BIT - BITUMEN
CL - CENTRELINE
COL - COLUMN
CONC - CONCRETE SURFACE LEVEL
ELP - ELECTRIC LIGHT POLE
FCE - FENCE
HYD - HYDRANT
0.1D/3S/5H - TREE DIAMETER, SPREAD, HEIGHT
MW - MONITORING WELL
PP - POWER POLE
RDG - RIDGE
SIGN - SIGN POST
STN - TRAVERSE STATION
TB - TOP OF BANK
TEL - TELSTRA PIT
TG - TOP OF GUTTER
TK - TOP OF KERB
TW - TOP OF WALL
VC - VEHICLE CROSSING



A1

SHEET 2 0F 4
DRAWING No.: 5576-DET-C

BELLA VISTA
PO Box 7419
BAULKHAM HILLS NSW 2153
UNIT 1, GROUND FLOOR,
16 LEXINGTON DRIVE
BELLA VISTA NSW 2153
PHONE : 9056 1900
email: office@projectsurveyors.com.au
www.projectsurveyors.com.au
ABN 20 068 433 974

PROJECT SURVEYORS
Professional Innovative... Results.

LOCATOR DENOTES

C-A LINE TYPE- LOCATING QUALITY LEVEL
C COMMUNICATION LINE
W WATER LINE
FOD FULL OF DEBRIS
PINV PIT INVERT
INV100 INVERT OF PIPE,PIPE DIMENSION 100mm
P100X2 2 100MM DIMENSION PIPES

LOCATING QUALITY LEVELS PURSUANT TO AS5488-2013

QL-A QUALITY LEVEL A. VISUALISATION / CONFIRMATION OF A SERVICE, POSITION AND DEPTH, BY NON DESTRUCTIVE DIGGING METHODS OR POINTS OF ENTRY TO PITS OR MANHOLES.

QL-B QUALITY LEVEL B. LOCATING OF SERVICES USING RADIO DETECTION METHODS OR GROUND PENETRATION RADAR. ACCEPTABLE RANGE OF ACCURACY FOR QUALITY B IS 300mm FOR POSITION AND 500mm IN DEPTH.

QL-C QUALITY LEVEL C. SERVICES MARKED OUT USING ONLY SURFACE FEATURES THAT HAVE BEEN MEASURED IN THE FIELD. THIS INCLUDES HYDRANTS, GAS MARKERS, PITS LIDS ETC. NO INDICATION OF SERVICE LOCATION OR DEPTH CAN BE OBTAINED FROM QUALITY LEVEL C.

QL-D QUALITY LEVEL D. SERVICES MARKED UP USING DBYD PLANS ONLY. NO INDICATION OF SERVICE CONFIRMATION CAN BE GIVEN.

RECORDS SERVICES MARKED UP USING DBYD PLANS ONLY. NO INDICATION OF SERVICE CONFIRMATION CAN BE GIVEN.

CABLE LINE LEGENDS

—— W —— - DENOTES SUBSURFACE WATER LINE

—— C —— - DENOTES UNDERGROUND TELECOMMUNICATIONS

MONITORING WELL

MW	EASTING	NORTHING	LEVEL	DESCRIPTION
1	297552.54	6240041.03	94.99	TOP OF CASING
1			88.44	GROUND WATER LEVEL
1			84.59	BOTTOM OF WELL
2	297682.10	6240117.23	101.31	TOP OF CASING
2			90.08	BOTTOM OF WELL
3	297722.60	6239940.83	95.90	TOP OF CASING
3			94.72	GROUND WATER LEVEL
3			86.83	BOTTOM OF WELL

LEGEND

AWN - AWNING
BB - BOTTOM OF BANK
BIT - BITUMEN
CL - CENTRELINE
COL - COLUMN
CONC - CONCRETE SURFACE LEVEL
ELP - ELECTRIC LIGHT POLE
FCE - FENCE
HYD - HYDRANT
0.1D/3S/5H - TREE DIAMETER, SPREAD, HEIGHT
MW - MONITORING WELL
PP - POWER POLE
RDG - RIDGE
SIGN - SIGN POST
STN - TRAVERSE STATION
TB - TOP OF BANK
TEL - TELSTRA PIT
TG - TOP OF GUTTER
TK - TOP OF KERB
TW - TOP OF WALL
VC - VEHICLE CROSSING

SCALE 1:250

0 5 10 15 20

SHEET 3 0F 4
DRAWING No.: 5576-DET-C

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DRAWING No.: 5576-DET-C

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MGA

TN

APPROX.

338
DP 8979

LEPPINGTON PUBLIC SCHOOL

B
DP 411211
AREA 2.036Ha

METAL SHED

MONITORING WELL

MW	EASTING	NORTHING	LEVEL	DESCRIPTION
1	297552.54	6240041.03	94.99	TOP OF CASING
1			88.44	GROUND WATER LEVEL
1			84.59	BOTTOM OF WELL
2	297682.10	6240117.23	101.31	TOP OF CASING
2			90.08	BOTTOM OF WELL
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LEGEND

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0.1D/3S/5H - TREE DIAMETER, SPREAD, HEIGHT	TW - TOP OF WALL
	VC - VEHICLE CROSSING

SCALE 1:250

0 5 10 15 20

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SHEET 4 0F 4

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PROJECT SURVEYORS

Professional Innovative... Results.

Appendix C

Council Correspondence

Stephen Fok

From: Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>
Sent: Monday, 29 July 2024 5:17 PM
To: Stephen Fok
Subject: RE: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

Hi Stephen,

You will be expected to meet **all** relevant requirements of the DCP. If it comes to a point when we are assessing the applications where deviation from the Spec. or DCP is the only option, we will assess it on a case-by-case basis.

Kind Regards,

Nikhil Pattanashetti
Land Development Engineer

70 Central Avenue, Oran Park, 2570
PO Box 183, Camden NSW 2570
(02) 4654 7699
Nikhil.Pattanashetti@camden.nsw.gov.au
www.camden.nsw.gov.au

Camden Council acknowledges the Dharawal peoples as the Traditional Custodians of our lands and waterways, and also recognises the Dharug and Gundungurra Nations. We pay our respects to Elders past, present and emerging and to all Aboriginal and Torres Strait Islander peoples on these lands.

From: Stephen Fok <stephen.fok@ttw.com.au>
Sent: Monday, July 29, 2024 3:12 PM
To: Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>
Subject: RE: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

Hi Nikhil,

Apologies for the repetitiveness, I just wanted to confirm we can follow a pre vs post development flow assessment (as indicated by your comments and under Section 2.3.2 Control 6 (pg 17) of the Camden growth

precincts DCP below) rather than following the SSR and PSD requirements provided in Section 6.5 Control 5 (pg158) of the same document (also shown below). For example, if we are able to meet the pre-development flows with a storage volume less than the relevant SSR based on DRAINS modelling, then this would still be compliant.

6. The developed 1%, 20% and 50% AEP peak flows are to be maintained at pre-development flows through the incorporation of stormwater detention and management devices. Where subdivision works occur prior to the completion of required trunk drainage works, temporary on site facilities need to be provided in order to limit drainage volume and velocity to that experienced prior to development.
7. Where development includes the construction of water quality treatment infrastructure, the infrastructure is to be constructed in accordance with the Precinct Water Cycle Management Strategy (available from Council) and Council's Engineering Specification. The applicant must demonstrate that the proposed infrastructure will achieve the water quality targets in **Table 2-1.**
8. Trunk drainage channels are to be designed and constructed as naturalised channels.
9. Council may consider amendments to the Precinct water cycle management strategy if a revised strategy is submitted that can demonstrate to Council's satisfaction:
   - compliance with the targets in **Table 2-1**;
   - any costs associated with construction (including the cost of land) will be met by the applicant; and
   - a maintenance framework addressing maintenance strategies and life-cycle maintenance costs
10. Where development is located on land that drains towards the Sydney Catchment Authority Upper Canal, specific water quality measures may be required to ensure that development does not adversely impact on the quality of water in the Upper Canal. Specific controls are contained in relevant Precinct Schedules.

amenity, public safety and the integrity of property are not compromised, and it does not interfere with overland flow paths or adversely affect flood behaviour.

5. The required upper and lower limits for sizing the OSD shall be informed by the following:

2yr ARI SSR* (m³/ha)	2yr ARI PSD** (l/s/ha)	100yr ARI SSR (m³/ha)	100yr ARI PSD (l/s/ha)
300	30	594	170

**SSR: Site Storage Requirement – the volume of stormwater required to be stored on site.*

***PSD: Permissible Site Discharge – the allowable rate of stormwater discharge from a development site.*

Regards,
Stephen

Stephen Fok | Senior Civil Engineer
+61 2 9439 7288 | | stephen.fok@ttw.com.au
TTW Engineers | Sydney
Read our latest news here

From: Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>
Sent: Wednesday, July 17, 2024 12:34 PM
To: Stephen Fok <stephen.fok@ttw.com.au>
Cc: Kyrellos Habib <kyrellos.habib@ttw.com.au>
Subject: RE: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

Hi Stephen,

Yes, confirming yellow highlighted are correct.

Regarding the enviro flows requirement, I wouldn't stress about it now and if any issues are raised during DA assessment, guidance will be provided. Noting that following discussions with my team, we generally don't look into compliance with the enviro flows requirement of the spec.

Kind Regards,

Nikhil Pattanashetti
Land Development Engineer

70 Central Avenue, Oran Park, 2570
PO Box 183, Camden NSW 2570
(02) 4654 7699
Nikhil.Pattanashetti@camden.nsw.gov.au
www.camden.nsw.gov.au

From: Stephen Fok <stephen.fok@ttw.com.au>
Sent: Wednesday, July 17, 2024 12:03 PM
To: Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>
Cc: Kyrellos Habib <kyrellos.habib@ttw.com.au>
Subject: RE: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

Thanks Nikhil,

Appreciate you getting back to me.

So confirming, the yellow highlighted assumptions below are correct?

Also, are you able to provide some guidance on how the environmental flows requirements is met or examples of where it has been met? I haven't come across this requirement before.

Regards,
Stephen

Stephen Fok | Senior Civil Engineer
+61 2 9439 7288 | | stephen.fok@ttw.com.au
TTW Engineers | Sydney
Read our latest news here

From: Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>
Sent: Tuesday, July 16, 2024 11:53 AM
To: Stephen Fok <stephen.fok@ttw.com.au>
Subject: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

Hi Stephen,

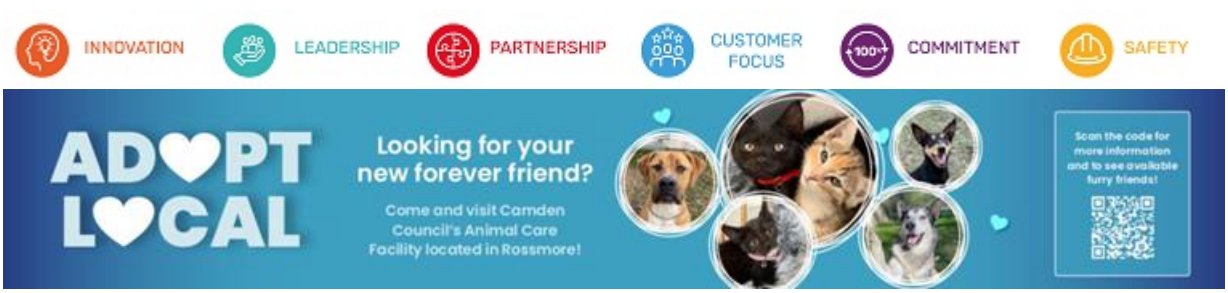
Thank you for sending your query for the abovementioned sites. I have responded to the questions in this email for the Leppington job, however please use these responses for the Gledswood Hills job as well, noting that the questions were the same. Please see below:

Regarding your queries below, please see my responses below in red.

Kind Regards,

Nikhil Pattanashetti
Land Development Engineer

70 Central Avenue, Oran Park, 2570
(02) 4654 7699
www.camden.nsw.gov.au
PO Box 183, Camden NSW 2570
Nikhil.Pattanashetti@camden.nsw.gov.au



From: Stephen Fok <stephen.fok@ttw.com.au>
Sent: Friday, July 5, 2024 11:37 AM
To: Council Mailbox <Council.Mailbox@camden.nsw.gov.au>
Cc: Mardi Christian <mardi.christian@tsariley.au>; Alexander Quah-Smith <alexander.quahsmith@tsariley.au>; Colin Rope <colin.rope@ttw.com.au>
Subject: Stormwater Requirements - 128-134 Rickard Road, Leppington

Warning - This email originates from an external organisation

Dear Sir/Madam,

I am hoping to get confirmation on the stormwater requirements for a proposed development at 128-134 Rickard Road, Leppington.

I understand the requirements of the Camden Growth Centre Precincts Development Control Plan apply to this site. From this, the proposed development is required to:

- Provide detention to attenuate peak flows from the 50% AEP to the 1% AEP storms
- Provide water quality treatment in accordance with Table 2-1 of the DCP (excerpt below)

Table 2-1: Water quality and environmental flow targets

	WATER QUALITY % reduction in pollutant loads				ENVIRONMENTAL FLOWS Stream erosion control ratio[1]
	Gross Pollutants (>5mm)	Total suspended solids	Total phosphorous	Total nitrogen	
Stormwater management Objective	90	85	65	45	3.5-5.0: 1
'Ideal' stormwater outcome	100	95	95	85	1:1

[1] *This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time.*

- Prepare soil and water management plans in accordance with 'The Blue Book'

A few queries:

- Majority of the site currently discharges to an open channel in Rickard Road. We are proposing to maintain this as the discharge point for the developed site noting that OSD will be provided. Does Council have any comments on this proposal? I don't believe there should be any issues with this, however once a DA is submitted, any issues with the discharge points will be looked at more closely. Council may issue you with an ultimate design for Rickard Rd fronting your development, which you may use for designs, or may instruct you to develop interim designs. The Leppington team (which looks after developments fronting major roads within Leppington and their ultimate designs) will provide this advice.
- Could you please confirm if the environmental flows requirement applies to this development? Yes.
- There are significant areas of the site that will remain undeveloped as part of the development including areas designated for future road or road widening (Rickard Road). Do the requirements above apply to the entire site or just areas that are to be developed or otherwise draining to areas that are to be developed? The entire site is usually considered during a pre-development vs. post-development assessment.
- Is there a timeline for when the Rickard Road widening and Town Centre Road are to be delivered? Leppington team may assist you with this query.
- Are there any further specific requirements which apply to development at this site? N/A, items may raise during DA assessment.

Regards,

Stephen

Stephen Fok | Senior Civil Engineer
+61 2 9439 7288 | | stephen.fok@ttw.com.au
TTW Engineers | Sydney
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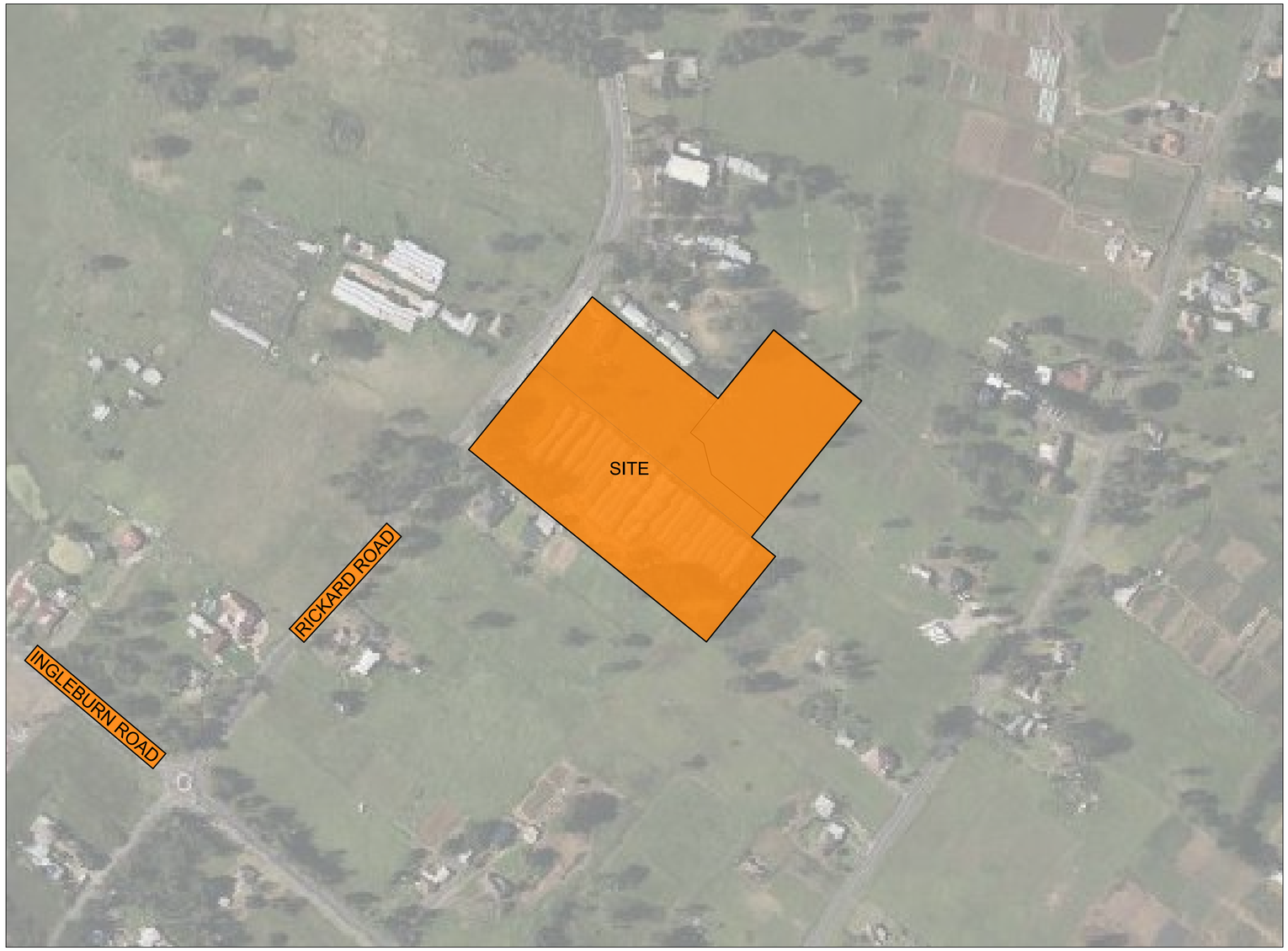
Appendix D

Civil Engineering Drawings

NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT

LEPPINGTON, NSW 2179



NUMBER	DRAWING TITLE
GENERAL-00000	
LHS-TTW-01-00-DR-C-00001	GENERAL COVER SHEET
LHS-TTW-01-00-DR-C-00003	GENERAL NOTES AND LEGEND
LHS-TTW-01-00-DR-C-00401	GENERAL ARRANGEMENT PLAN SHEET 1
LHS-TTW-01-00-DR-C-00402	GENERAL ARRANGEMENT PLAN SHEET 2
LHS-TTW-01-00-DR-C-01501	ROAD TYPICAL SECTION
EROSION AND SEDIMENT CONTROL-02000	
LHS-TTW-01-00-DR-C-02001	EROSION AND SEDIMENT CONTROL NOTES AND LEGEND
LHS-TTW-01-00-DR-C-02101	EROSION AND SEDIMENT CONTROL PLAN
EARTHWORKS-03000	
LHS-TTW-01-00-DR-C-03101	EARTHWORKS CUT AND FILL VOLUMES PLAN
STORMWATER-04000	
LHS-TTW-01-00-DR-C-04001	STORMWATER NOTES AND LEGEND
LHS-TTW-01-00-DR-C-04101	STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 1
LHS-TTW-01-00-DR-C-04102	STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 2
LHS-TTW-01-00-DR-C-04501	STORMWATER DETAILS SHEET 1
LHS-TTW-01-00-DR-C-04502	STORMWATER DETAILS SHEET 2
RETAINING WALLS-06000	
LHS-TTW-01-00-DR-C-06501	RETAINING WALL DETAILS
PAVEMENT-07000	
LHS-TTW-01-00-DR-C-07001	PAVEMENT NOTES AND LEGEND
LHS-TTW-01-00-DR-C-07101	PAVEMENT PLAN SHEET 1
LHS-TTW-01-00-DR-C-07102	PAVEMENT PLAN SHEET 2
LHS-TTW-01-00-DR-C-07501	PAVEMENT DETAILS SHEET 1
SIGNAGE AND LINEMARKING-08000	
LHS-TTW-01-00-DR-C-08101	SIGNAGE AND LINEMARKING PLAN

Z:\jobs\23\232024\civilsheets\10\232024-TTW-10-DR-CI-00001.dwg

Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT 13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	RT 21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: GENERAL COVER SHEET

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-00001-3					

14.01.2025 4:30 PM

NOT FOR CONSTRUCTION

GENERAL

1. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT.
2. STRIP ALL TOPSOIL FROM THE CONSTRUCTION AREA. ALL STRIPPED TOPSOIL SHALL BE DISPOSED OF OFF-SITE UNLESS DIRECTED OTHERWISE.
3. MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.
4. COMPACT SUBGRADE UNDER BUILDINGS AND PAVEMENTS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.1.1. COMPACTION UNDER BUILDINGS TO EXTEND 2M MINIMUM BEYOND BUILDING FOOTPRINT.
5. ALL WORK ON PUBLIC PROPERTY, PROPERTY WHICH IS TO BECOME PUBLIC PROPERTY, OR ANY WORK WHICH IS TO COME UNDER THE CONTROL OF THE STATUTORY AUTHORITY; THE CONTRACTOR IS TO ENSURE THAT THE DRAWINGS USED FOR CONSTRUCTION HAVE BEEN APPROVED BY ALL RELEVANT AUTHORITIES PRIOR TO COMMENCEMENT SITE.
6. ALL WORK ON PUBLIC PROPERTY, PROPERTY WHICH IS TO BECOME PUBLIC PROPERTY, OR ANY WORK WHICH IS TO COME UNDER THE CONTROL OF THE STATUTORY AUTHORITY IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUTHORITY. THE CONTRACTOR SHALL OBTAIN THESE REQUIREMENTS FROM THE AUTHORITY, WHERE THE REQUIREMENTS OF THE AUTHORITY ARE DIFFERENT TO THE DRAWINGS AND SPECIFICATIONS, THE REQUIREMENTS OF THE AUTHORITY SHALL BE APPLICABLE.
7. FOR ALL TEMPORARY BATTERS REFER TO GEOTECHNICAL RECOMMENDATIONS.

REFERENCE DRAWINGS

1. THESE DRAWINGS HAVE BEEN BASED FROM, AND TO BE READ IN CONJUNCTION WITH THE FOLLOWING CONSULTANTS DRAWINGS. ANY CONFLICT TO THE DRAWINGS MUST BE NOTIFIED IMMEDIATELY TO THE ENGINEER.

CONSULTANT	DRAWING TITLE	DRAWING NUMBER	REVISION	DATE
DRJD	OVERALL GROUND FLOOR PLAN - STAGE 01	LHS-DJRD-00-GF-DR-A-0250-CAD(P04)	P04	10.01.2025
PROJECT SURVEYORS	SURVEY		C	16.02.2024
SITE IMAGE	LANDSCAPE	S1-100	A	05.08.2024

BOUNDARIES AND EASEMENTS

1. THE PROPERTY BOUNDARY AND EASEMENT LOCATIONS SHOWN ON TAYLOR THOMSON WHITTING DRAWING'S HAVE BEEN BASED ON INFORMATION RECEIVED FROM : PROJECT SURVEYORS

2. TAYLOR THOMSON WHITTING MAKES NO GUARANTEES THAT THE BOUNDARY OR EASEMENT INFORMATION SHOWN IS CORRECT. TAYLOR THOMSON WHITTING WILL ACCEPT NO LIABILITIES FOR BOUNDARY INACCURACIES. THE CONTRACTOR/BUILDER IS ADVISED TO CHECK/CONFIRM ALL BOUNDARIES IN RELATION TO ALL PROPOSED WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. BOUNDARY INACCURACIES FOUND ARE TO BE REPORTED TO THE SUPERINTENDENT PRIOR TO CONSTRUCTION STARTING.

SURVEY

ORIGIN OF LEVELS: PM 44282 RL 95.924
DATUM OF LEVELS: AHD
COORDINATE SYSTEM: GDA2020
SURVEY PREPARED BY: PHILLIP KIM

1. TAYLOR THOMSON WHITTING DOES NOT GUARANTEE THAT THE SURVEY INFORMATION SHOWN ON THESE DRAWINGS IS ACCURATE AND WILL ACCEPT NO LIABILITY FOR ANY INACCURACIES IN THE SURVEY INFORMATION PROVIDED TO US FROM ANY CAUSE WHATSOEVER.

UNDERGROUND SERVICES - WARNING

1. THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ON TAYLOR THOMSON WHITTINGS DRAWINGS HAVE BEEN PLOTTED FROM DIAGRAMS PROVIDED BY SERVICE AUTHORITIES. THIS INFORMATION HAS BEEN PREPARED SOLELY FOR THE AUTHORITIES OWN USE AND MAY NOT NECESSARILY BE UPDATED OR ACCURATE.
2. THE POSITION OF SERVICES AS RECORDED BY THE AUTHORITY AT THE TIME OF INSTALLATION MAY NOT REFLECT CHANGES IN THE PHYSICAL ENVIRONMENT SUBSEQUENT TO INSTALLATION.
3. THE CONTRACTOR MUST CONFIRM THE EXACT LOCATION AND EXTENT OF SERVICES PRIOR TO CONSTRUCTION AND NOTIFY ANY CONFLICT WITH THE DRAWINGS IMMEDIATELY TO THE ENGINEER/SUPERINTENDENT.
4. THE CONTRACTOR IS TO GET APPROVAL FROM THE RELEVANT STATE SURVEY DEPARTMENT, TO REMOVE/ADJUST ANY SURVEY MARK. THIS INCLUDES BUT IS NOT LIMITED TO; STATE SURVEY MARKS (SSM), PERMANENT MARKS (PM), CADASTRAL REFERENCE MARKS OR ANY OTHER SURVEY MARK WHICH IS TO BE REMOVED OR ADJUSTED IN ANY WAY.
5. TAYLOR THOMSON WHITTING PLANS DO NOT INDICATE THE PRESENCE OF ANY SURVEY MARK. THE CONTRACTOR IS TO UNDERTAKE THEIR OWN SEARCH.

BEFORE YOU DIG AUSTRALIA (BYDA)

1. PUBLIC SERVICE UTILITY INFORMATION SHOWN ON PLAN HAS BEEN COMPLIED FROM INFORMATION RECEIVED FROM DIAL BEFORE YOU DIG INQUIRY, REFERENCE NUMBER 36829765 OBTAINED ON 04.06.2024 UNLESS SPECIFICALLY SHOWN OTHERWISE, THIS LOCATION AND DEPTH OF SERVICES SHOWN ON THIS PLAN HAVE NOT BEEN VERIFIED.
2. THE LOCATION OF SERVICES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED AS ACCURATELY AS POSSIBLE FROM DIAGRAMS PROVIDED BY SERVICE AUTHORITIES AND SHOULD BE CONFIRMED BY SITE INSPECTION."

SITE WORKS

1. ALL BASECOURSE MATERIAL TO COMPLY WITH RMS SPECIFICATION NO 3051 AND COMPACTED TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
2. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
3. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH AN APPROVED SELECT MATERIAL AND COMPACTED TO A MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1

PUBLIC DOMAIN WORKS

1. PUBLIC DOMAIN WORKS ARE NOT TO COMMENCE UNTIL THESE DRAWINGS ARE STAMPED AS APPROVED. SINSW TO CONFIRM IF THESE DRAWINGS WILL BE STAMPED AS APPROVED.

DESIGN AND CONSTRUCT DOCUMENTATION

1. THE LEVEL OF DETAIL / DESIGN REFLECTED IN THESE DOCUMENTS IS BASED ON THE UNDERSTANDING THIS WILL BE BUILT AS PART OF A DESIGN & CONSTRUCT CONTRACT.
2. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY TO UNDERTAKE DETAILED DESIGN, CONFIRM COMPLIANCE WITH RELEVANT STANDARDS, CONSENT CONDITIONS & THE SPECIFICATION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE FINAL DESIGN IS CO-ORDINATED FULLY WITH OTHER CONSULTANTS.
4. NO VARIATION WILL BE ACCEPTED FOR DESIGN AMENDMENTS REQUIRED TO MEET THE FUNCTIONAL OBJECTIVE OF THIS DOCUMENTATION.

SAFETY IN DESIGN

CONTRACTOR TO REFER TO APPENDIX B OF THE CIVIL SPECIFICATION FOR THE CIVIL RISK AND SOLUTIONS REGISTER.

1. EXISTING SERVICES
   CONTRACTOR TO BE AWARE EXISTING SERVICES ARE LOCATED WITHIN THE SITE. LOCATION OF ALL SERVICES TO BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORKS. CONTRACTOR TO CONFIRM WITH RELEVANT AUTHORITY REGARDING MEASURES TO BE TAKEN TO ENSURE SERVICES ARE PROTECTED OR PROCEDURES ARE IN PLACE TO DEMOLISH AND/OR RELOCATE.

2. EXISTING STRUCTURES
   CONTRACTOR TO BE AWARE EXISTING STRUCTURES MAY EXIST WITHIN THE SITE. TO PREVENT DAMAGE TO EXISTING STRUCTURE(S) AND/OR PERSONNEL, SITE WORKS TO BE CARRIED OUT AS FAR AS PRACTICABLY POSSIBLE FROM EXISTING STRUCTURE(S).

3. EXISTING TREES
   CONTRACTOR TO BE AWARE EXISTING TREES EXIST WITHIN THE SITE WHICH NEED TO BE PROTECTED. TO PREVENT DAMAGE TO TREES AND/OR PERSONNEL, SITE WORKS TO BE CARRIED OUT AS FAR AS PRACTICABLY POSSIBLE FROM EXISTING TREES. ADVICE NEEDS TO BE SOUGHT FROM ARBORIST AND/OR LANDSCAPE ARCHITECT ON MEASURES REQUIRED TO PROTECT TREES.

4. GROUNDWATER
   CONTRACTOR TO BE AWARE GROUND WATER LEVELS ARE CLOSE TO EXISTING SURFACE LEVEL. TEMPORARY DE-WATERING MAY BE REQUIRED DURING CONSTRUCTION WORKS.

5. EXCAVATIONS
   DEEP EXCAVATIONS DUE TO STORMWATER DRAINAGE WORKS IS REQUIRED. CONTRACTOR TO ENSURE SAFE WORKING PROCEDURES ARE IN PLACE FOR WORKS. ALL EXCAVATIONS TO BE FENCED OFF AND BATTERS ADEQUATELY SUPPORTED TO APPROVAL OF GEOTECHNICAL ENGINEER.

6. GROUND CONDITIONS
   CONTRACTOR TO BE AWARE OF THE SITE GEOTECHNICAL CONDITIONS. REFER TO GEOTECHNICAL REPORT BY

   - GEOTECHNICAL INVESTIGATION FOR PROPOSED LEPPINGTON HIGH SCHOOL PREPARED BY JK GEOTECHNICS DATED 3RD SEPTEMBER 2024 (REF.35910LTrpt)

7. HAZARDOUS MATERIALS
   EXISTING ASBESTOS PRODUCTS & CONTAMINATED MATERIAL MAY BE PRESENT ON SITE. CONTRACTOR TO ENSURE ALL HAZARDOUS MATERIALS ARE IDENTIFIED PRIOR TO COMMENCING WORKS. SAFE WORKING PRACTICES AS PER RELEVANT AUTHORITY TO BE ADOPTED AND APPROPRIATE PPE TO BE USED WHEN HANDLING ALL HAZARDOUS MATERIALS. REFER TO GEOTECHNICAL/ENVIRONMENTAL REPORT BY

   - PROPOSED LEPPINGTON HIGH SCHOOL - HAZEDOUS BUILDING MATERIALS SURVEY PREPARED BY JBS&G DATED 15TH AUSGUST 2024 (REF. JBS&G 67303)
   - DETAILED SITE INVESTIGATION LEPPINGTON HIGH SCHOOL - ADJACENT SITES PREPARED BY SMEC DATED 18TH MARCH 2024 (REF. 30018043)

8. CONFINED SPACES
   CONTRACTOR TO BE AWARE OF POTENTIAL HAZARDS DUE TO WORKING IN CONFINED SPACES SUCH AS STORMWATER PITS, TRENCHES AND/OR TANKS. CONTRACTOR TO PROVIDE SAFE WORKING METHODS AND USE APPROPRIATE PPE WHEN ENTERING CONFINED SPACES.

9. MANUAL HANDLING
   CONTRACTOR TO BE AWARE MANUAL HANDLING MAY BE REQUIRED DURING CONSTRUCTION. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ENSURE MANUAL HANDLING PROCEDURES AND ASSESSMENTS ARE IN PLACE PRIOR TO COMMENCING WORKS.

10. WATER POLLUTION
    CONTRACTOR TO ENSURE APPROPRIATE MEASURES ARE TAKEN TO PREVENT POLLUTANTS FROM CONSTRUCTION WORKS CONTAMINATING THE SURROUNDING ENVIRONMENT.

11. SITE ACCESS/EGRESS
    CONTRACTOR TO BE AWARE SITE WORKS OCCUR IN CLOSE PROXIMITY TO FOOTPATHS AND ROADWAYS. CONTRACTOR TO ERECT APPROPRIATE BARRIERS AND SIGNAGE TO PROTECT SITE PERSONNEL AND PUBLIC.

12. VEHICLE MOVEMENT
    CONTRACTOR TO SUPPLY AND COMPLY WITH TRAFFIC MANAGEMENT PLAN AND PROVIDE ADEQUATE SITE TRAFFIC CONTROL INCLUDING A CERTIFIED TRAFFIC MARSHALL TO SUPERVISE VEHICLE MOVEMENTS WHERE NECESSARY.

CIVIL INSPECTION CERTIFICATES

THE FOLLOWING MUST BE PROVIDED BY THE CONTRACTOR A MINIMUM 2 WEEKS PRIOR TO THE REQUESTED DATE OF A CIVIL INSPECTION CERTIFICATE FOR OCCUPATION CERTIFICATE. SUBMISSIONS MUST BE PROVIDED PROGRESSIVELY AS WORKS ARE COMPLETED IN ACCORDANCE WITH THE CIVIL SPECIFICATION. THE PROGRAM MUST ALLOW ADEQUATE TIME FOR DEFECTS TO BE RECTIFIED SHOULD THIS BE REQUIRED.

1. NOTIFICATION THAT ALL CIVIL WORKS TO BE CERTIFIED HAVE BEEN COMPLETED TO ALLOW A FINAL INSPECTION TO BE UNDERTAKEN.
2. 2.WRITTEN CONFIRMATION FROM THE CONTRACTOR THAT ALL CIVIL SITE INSPECTION REPORTS HAVE BEEN CLOSED OUT.
3. 3.CCTV (INCLUDING WINCAN LOG OR EQUIVALENT) OF ALL CIVIL STORMWATER WORKS TO BE CERTIFIED.
4. 4.WAE FROM A REGISTERED SURVEYOR (PDF & DWG) FOR ALL CIVIL STORMWATER TO BE CERTIFIED.
5. 5.WAE FROM A REGISTERED SURVEYOR (PDF, DWG & 3D TIN) FOR ALL EXTERNAL CIVIL LEVELS TO BE CERTIFIED.
6. 6.HEAD CONTRACTORS STATEMENT OF CONSTRUCTION COMPLIANCE.
7. 7.HYDRAULIC CONTRACTORS INSTALLATION CERTIFICATE.
8. 8.3RD PARTY INSTALLATION CERTIFICATES FOR PROPRIETARY PRODUCTS AND/OR D&C ELEMENTS.
9. 9.COMPACTION TEST RESULTS IN ACCORDANCE WITH THE CIVIL SPECIFICATION.
10. 10.MATERIALS CERTIFICATES PRIOR TO INSTALLATION IN ACCORDANCE WITH THE CIVIL SPECIFICATION.
11. 11.WRITTEN CONFIRMATION FROM TFNSW AND/OR COUNCIL CONFIRMING COMPLETION AND ACCEPTANCE OF S138 WORKS IF APPLICABLE.

BOUNDARIES

EXISTING	REMOVED	PROPOSED	
			BLOCK BOUNDARY

BUILDINGS

EXISTING	REMOVED	PROPOSED	
			BUILDING ENVELOPE
			FUTURE BUILDING ENVELOPE

LANDSCAPE

SOFT LANDSCAPE

EXISTING SERVICES

- cSW Ø150 — STORMWATER
- cLV — cLV — ELECTRICAL
- cG Ø50 — cG Ø50 — GAS
- cCOMM — cCOMM — TELECOMMUNICATIONS
- cS Ø150 — cS Ø150 — SEWER
- cW Ø150 — cW Ø150 — WATER
- SERVICE TO BE DEMOLISHED

CLASSIFICATION OF EXISTING UTILITY INFORMATION

A - SIGHTED, MUST BE LOCATED, THEN POTHOLED. UTILITY MUST BE PHYSICALLY SIGHTED AND MEASURED.

B - ELECTRONICALLY DETECTED AND LOCATED ON SITE USING VARIOUS TRACING METHODS.

C - ALIGNED FROM SURFACE FEATURES AND DIGITISED DATA.

D - DIGITISED DATA (DIAL BEFORE YOU DIG).

NOTE

1. BELOW GROUND SERVICES CAN BE REPRESENTED AS GREY FOR EXISTING AND BLACK FOR PROPOSED DEPENDING ON THE PLAN.
2. EXISTING SERVICES PITS, STRUCTURES AND COLUMNS ARE ILLUSTRATED AS PER THE ORIGINAL SURVEY.

Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT 13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	RT 21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: GENERAL NOTES AND LEGEND

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-00003-3					

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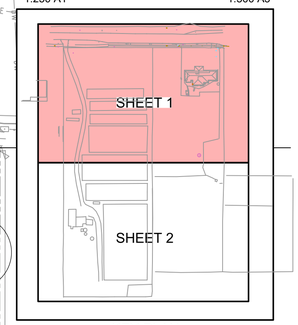

KEY PLAN

RICKARD ROAD

20x0.6 MEDIAN ISLAND

PROPOSED COUNCIL STANDARD ACCESS WAY. REFER 07000 SERIES DRAWINGS

BUILDING OUTLINE EXTENT. REFER ARCHITECTURAL DOCUMENTATION (TYPICAL)

PROPOSED TREES. REFER LANDSCAPE ARCHITECTS DOCUMENTATION (TYPICAL)

SITE BOUNDARY

PROVIDE HEADWALL FOR STORMWATER DISCHARGE ONTO VERGE. LOCATION OF OUTLET SUBJECT TO LOCATION OF TREE TPZ/SRZ

A
DP 411211

PROPOSED RICKARD ROAD WIDENING

B
DP 411211

FUTURE SITE BOUNDARY

FL 96.8

FL96.80

FL96.80

FL96.80

NEW BUILDING
BUILDING C
FFL96.900

CAR PARK ARRANGEMENT AND GRADES IS SHOWN INDICATIVELY BASED ON ARCHITECTURAL SITE PLANS, TO BE DEVELOPED IN DETAIL DESIGN.

PROPOSED OSD TANK. REFER 04000 SERIES DOCUMENTATION.

KG

FL96.8

FL97.00

PROPOSED SOFT LANDSCAPE ZONE (TYPICAL)

NEW BUILDING
BUILDING B
FFL96.900

FL96.75

ACTUAL EXTEND OF SPORTS FIELD BULK EARTHWORKS. ARCHITECTURAL BACKGROUND YET TO BE REVISED TO REFLECT THE LATEST CHANGES.

FL98.70

FL96.2

FL97.60

RETAINING WALLS APPROX 700mm HIGH.

FL100.00

40
DP 8979

FL100.20

FL95.45

RETAINING WALL APPROX 1000mm HIGH.

PROPOSED OSD TANK. REFER 04000 SERIES DOCUMENTATION.

PROPOSED STORMWATER NETWORK. REFER 04000 SERIES DOCUMENTATION. (TYPICAL)

SPORTS COURT

1
01501

PROPOSED SWALE

FL96.25

FL100.60

FL101.13

SPORTS COURT

NEW KISS N RIDE ZONE

FL95.62

PROPOSED KERB ONLY. REFER 03000 SERIES DRAWINGS

NEW BUILDING
BUILDING A
FFL96.900

FL100.65

RETAINING WALLS APPROX 1000mm HIGH.

RETAINING WALLS APPROX 1000mm HIGH.

FL102.00

FL101.53

ADJOINS SHEET 2

39B
DP 8979

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT 13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	RT 21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: GENERAL ARRANGEMENT PLAN SHEET 1

Scale at A1	Drawn	Designed	Approved
250	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-00401-3					

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ADJOINS SHEET 1
NOT FOR CONSTRUCTION
This drawing is copyright and is the property of TTW and must not be used without authorisation.
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES AND LEGENDS
SITE BOUNDARY
NEW KISS N RIDE ZONE
PROPOSED SWALE
PROPOSED KERB ONLY. REFER 03000 SERIES DRAWINGS
40
DP 8979
NEW BUILDING
BUILDING A
FFL96.900
RETAINING WALL APPROX 1000mm HIGH
SPORTS COURT
RETAINING WALLS APPROX 1000mm HIGH
39B
DP 8979
ACTUAL EXTEND OF SPORTS FIELD BULK EARTHWORKS. ARCHITECTURAL BACKGROUND YET TO BE REVISED TO REFLECT THE LATEST CHANGES.
B
DP 411211
BATTER 1:8 TO FACILITATE MAINTENANCE VEHICLE ACCESS
KEY PLAN
SHEET 1
SHEET 2
RWT
NEW BUILDING
HALL
FFL98.800
BUILDING OUTLINE EXTENT. REFER ARCHITECTURAL DOCUMENTATION (TYPICAL)
PROPOSED STORMWATER NETWORK. REFER 04000 SERIES DOCUMENTATION. (TYPICAL)
RETAINING WALL APPROX 1000mm HIGH
PROPOSED CAR PARK
PRPOSED TREES. REFER LANDSCAPE ARCHITECTS DOCUMENTATION (TYPICAL)
89
DP 8979
A
DP 411211
PROPOSED TURNING HEAD
LOCATION OF OUTLET TO BE COORDINATED WITH TREE TPZ/SRZ
C
DP 411211
39B
DP 8979
CAR PARK ARRANGEMENT AND GRADES IS SHOWN INDICATIVELY BASED ON ARCHITECTURAL SITE PLANS, TO BE DEVELOPED IN DETAIL DESIGN.
0.0 5.0 10.0 15.0 20.0m
1:250 A1
1:500 A3
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Rev	Description	Eng	Draft	Date
3	REF SUBMISSION	SF	RT	14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT	13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	RT	21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: GENERAL ARRANGEMENT PLAN SHEET 2

Scale at A1	Drawn	Designed	Approved
250	RT	AW	CR

Project No / Originator / Type / Role / Sheet No. / Rev: LHS-TTW-01-00-DR-C-00402-3

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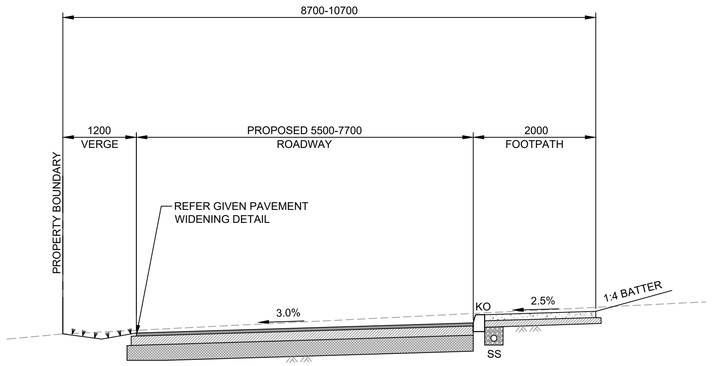

SECTION 1 DRIVEWAY TYPICAL SECTION
SCALE 1:50 (00401)

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Rev	Description	Eng Draft	Date
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Client: School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: ROAD TYPICAL SECTION

Scale at A1	Drawn	Designed	Approved
50	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-01501-3					

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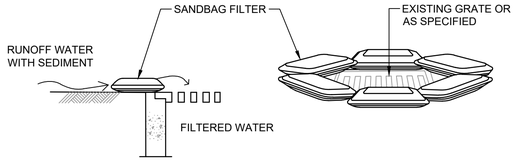
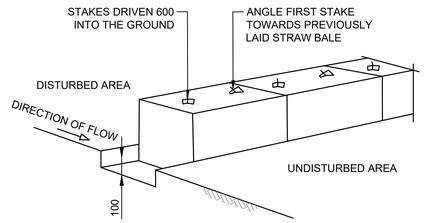
EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

ANY ACCUMULATED WATER CONTAMINATED WITH SEDIMENT, FROM A SEDIMENT BASIN OR EXCAVATION PIT, IS TO BE FLOCCULATED OR FILTERED IN ORDER TO LOWER THE SUSPENDED SOLID LOAD TO LESS THAN 50MG PER LITRE GYPSUM GAS OR OTHER APPROVED FLOCCULANT SHOULD BE APPLIED WITHIN 24 HOURS OF THE END OF THE STORM EVENT. THE GYPSUM MUST BE SPREAD EVENLY OVER THE ENTIRE WATER SURFACE. PUMPING IS NOT TO OCCUR FOR AT LEAST 36 HOURS AND PREFERABLY 48 HOURS AFTER APPLICATION. CLEAN WATER IS TO BE DISCHARGED TO THE WATER TABLE VIA A HALE BAIL SEDIMENT FILTER IN A WAY THAT DOES NOT PICK UP SEDIMENT THAT HAS DROPPED TO THE BOTTOM.
NOTE: GYPSUM IS A HYDRATED FORM OF CALCIUM SULPHATE AND IS AVAILABLE AT MANY SWIMMING POOL SHOPS AND HARDWARE STORES.

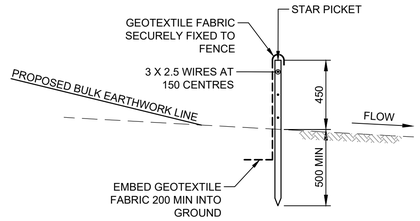


SANDBAG KERB SEDIMENT TRAP
NTS



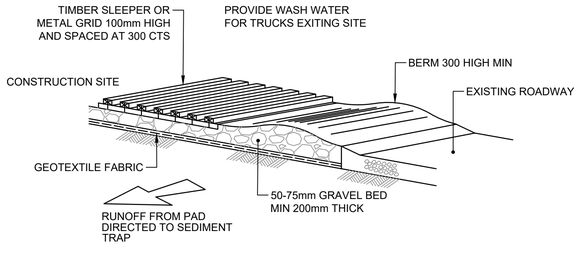
HAY BALE SEDIMENT FILTER
NTS

NOTE: STAKE TO BE EITHER TAR COATED STAR OR 50 x 50 HARDWOOD



NOTE
ENDS OF SILTATION FENCE TO RETURNED UP SLOPE TO PREVENT RUNOFF

SILTATION FENCE DETAIL
SCALE 1:20



TEMPORARY CONSTRUCTION VEHICLE EXIT
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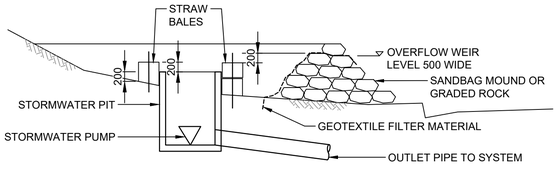

SEDIMENTATION TRAP
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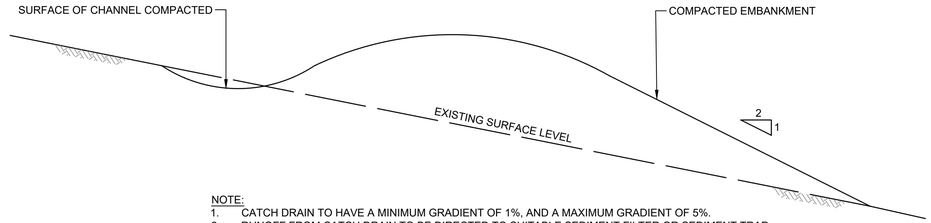
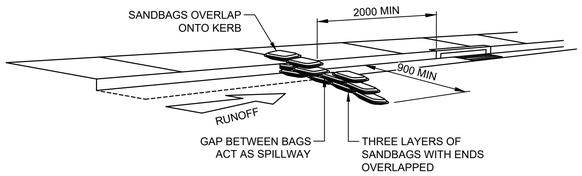


NOTE:
1. CATCH DRAIN TO HAVE A MINIMUM GRADIENT OF 1%, AND A MAXIMUM GRADIENT OF 5%.
2. RUNOFF FROM CATCH DRAIN TO BE DIRECTED TO SUITABLE SEDIMENT FILTER OR SEDIMENT TRAP.

TYPICAL SECTION THROUGH CATCH DRAIN
SCALE 1:20



SANDBAG KERB SEDIMENT TRAP
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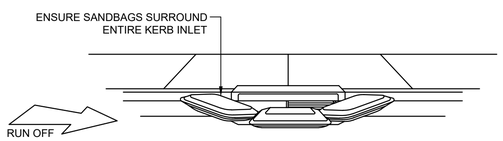

SANDBAG KERB INLET SEDIMENT TRAP
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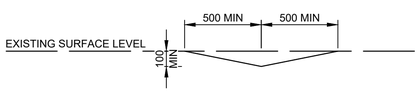
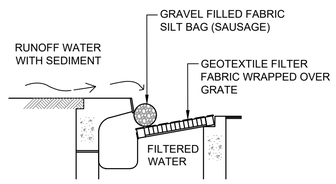
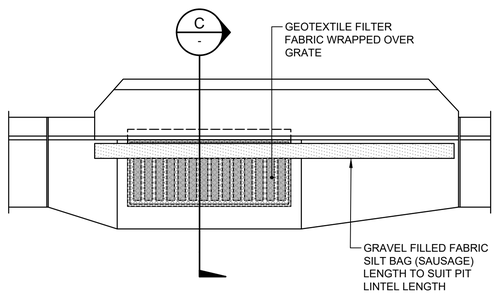


TYPICAL SECTION THROUGH CATCH DRAIN
SCALE 1:20



SECTION C
SCALE 1:20



KERB INLET SEDIMENT TRAP
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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT 13.12.2024
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Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: EROSION AND SEDIMENT CONTROL NOTES AND LEGEND

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-02001-3					

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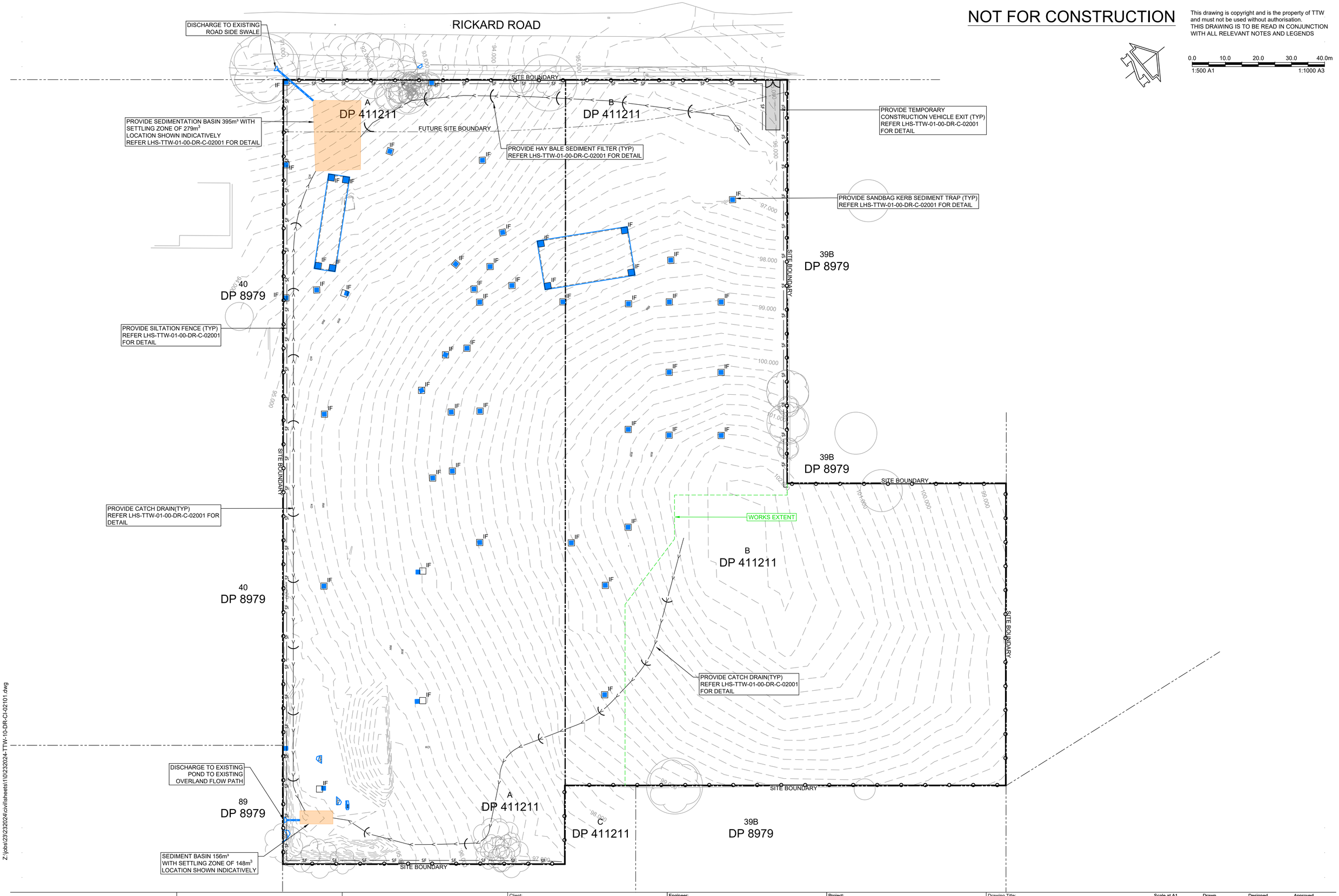

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Rev	Description	Eng Draft	Date
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Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: EROSION AND SEDIMENT CONTROL PLAN

Scale at A1	Drawn	Designed	Approved
500	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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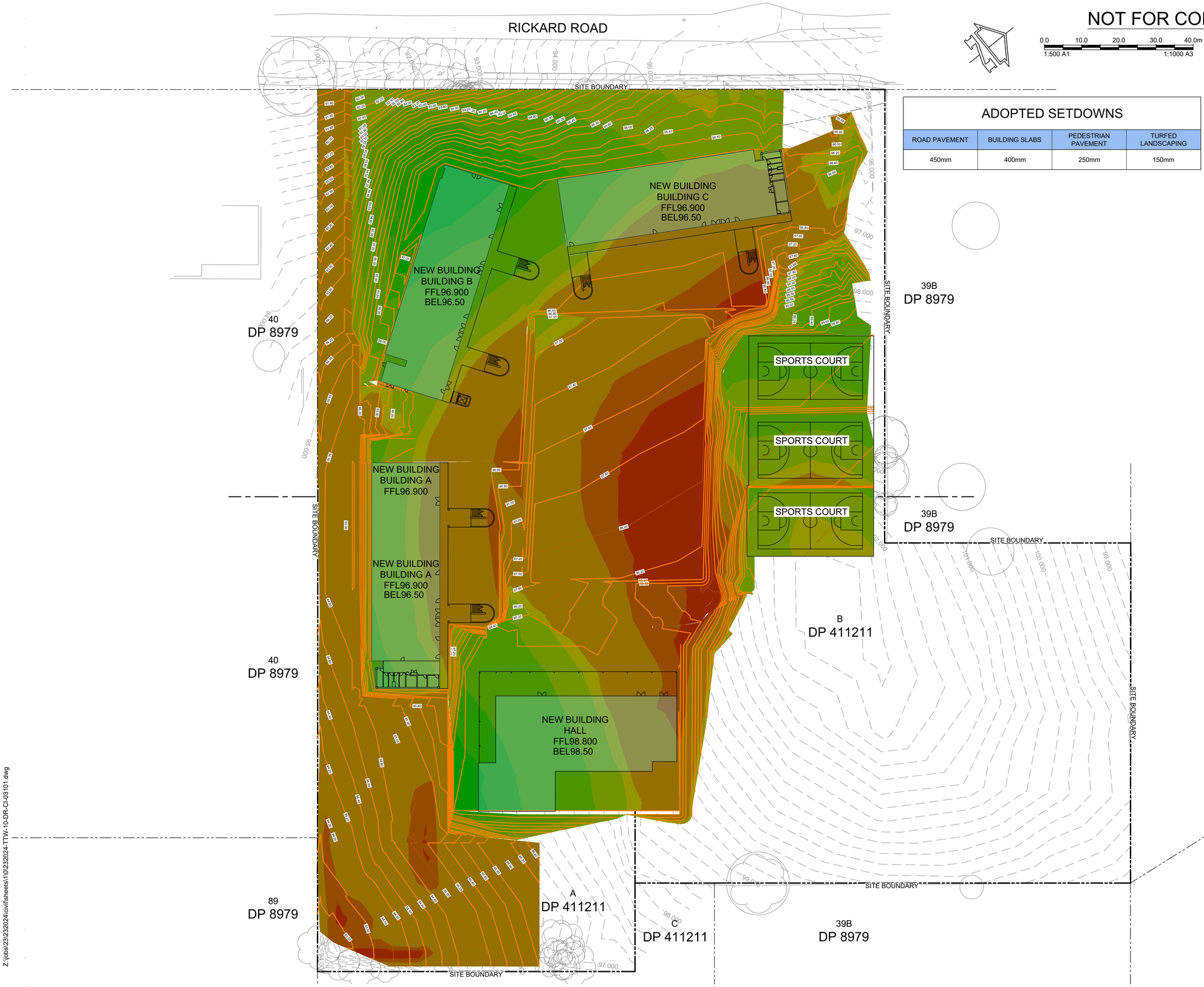


ADOPTED SETDOWNS

ROAD PAVEMENT	BUILDING SLABS	PEDESTRIAN PAVEMENT	TURFED LANDSCAPING
450mm	400mm	250mm	150mm

BULK EARTHWORKS NOTES

1. All bulk earthworks setout from grid lines U.N.O.
2. All batters at a slope of 2 (H) : 1 (V) U.N.O.
3. Excavated material may be used as structural fill provided,
   (i) it complies with the specification requirements for fill material,
   (ii) the placement moisture content complies with the Geotechnical Consultants requirements, and allows filling to be placed and proofrolled in accordance with the specification. Where necessary the Contractor must moisture condition the excavated material to meet these requirements.
4. Compact fill areas and subgrade to not less than:

Location	Standard dry density (AS 1289 5.1.1.)	Moisture (OMC)
Under building slabs on ground:	98%	±2%
Under roads and carparks:	98%	±2%
Landscaped areas:	95%	±2%

5. Before placing fill, proof roll exposed subgrade with a 12 tonne minimum roller to test subgrade and then remove soft spots(areas with more than 3mm movement under roller). Soft spots to be replaced with granular fill U.N.O.
6. Contractor shall place safety barriers around excavations in accordance with relevant safety regulations.
7. For interpretation of bulk earthworks foot print line shown on the bulk earthworks drawings refer to the bulk earthworks construction legend.
8. Bulk earthwork drawings are not to be used for detailed excavation.
9. Refer to Geotechnical Report
10. Detailed earthworks such as piling, pile caps, ground beams, lift pits, service trenching & landscape mounding etc is excluded.
11. All bulk earthworks in accordance with AS3798-2007 Guidelies on earthworks for commercial and residential developments.

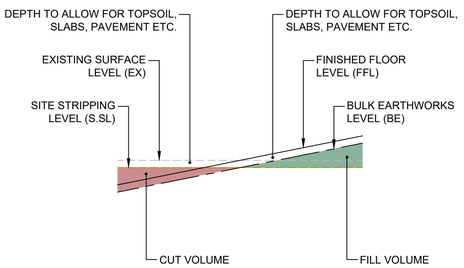
LEVELS TABLE

No.	FROM LEVEL (m)	TO LEVEL (m)	COLOUR
1	-2.75	-2.20	
2	-2.20	-1.70	
3	-1.70	-1.20	
4	-1.20	-0.70	
5	-0.70	-0.20	
6	-0.20	0.00	
7	0.00	0.50	
8	0.50	1.00	
9	1.00	1.50	
10	1.50	2.00	
11	2.00	2.50	
12	2.50	3.17	

CUT/FILL SUMMARY

AREA (m²)	CUT (m³)	FILL (m³)	NET (m³)
27948	13366	8742	4624(CUT)

NOTES:
1. SITE STRIP OF TOPSOIL HAS NOT BEEN SEPARATED FOR CUT AND FILL VOLUMES. CONTRACTOR TO MAKE ALLOWANCE FOR SITE STRIP, STOCKPILE AND DISPOSAL.
2. STRUCTURAL SLAB ON GRADE SOLUTION FOR GROUND FLOOR BUILDING SLABS ASSUMES REMOVAL OF THE EXISTING FILL AND RE-COMPACTION OF SITE-WON CLAY TO A MAXIMUM DEPTH OF 500mm. ANY ADDITION FILLING REQUIRED TO MEET BULK EXCAVATION LEVELS IS TO USE A NON-REACTIVE GRANULAR MATERIAL. REFER TO THE GEOTECHNICAL ADVICE FOR FURTHER DETAIL.
3. BULK EARTHWORKS PREPARED TO A SCHEMATIC DESIGN LEVEL ONLY BASED ON INFORMATION AVAILABLE. CONTRACTOR TO CONDUCT THEIR OWN ASSESSMENT OF BULK EARTHWORKS CUT AND FILL VOLUMNS.
4. CONTRACTOR TO MAKE ALLOWANCE FOR STOCKPILE/ SPREADING OF EXCESS CUT ON SITE.



EARTHWORKS TYPICAL SECTION

LEGEND

EX308.00 — EXISTING SURFACE CONTOUR

BE308.80 — BULK EARTHWORKS CONTOUR

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF RT	14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF RT	13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF RT	21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: EARTHWORKS CUT AND FILL VOLUMES PLAN

Scale at A1	Drawn	Designed	Approved
500	RT	AW	CR

Project No | Originator | Type | Role | Sheet No. | Rev
LHS-TTW-01-00-DR-C-03101-3

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NOT FOR CONSTRUCTION

STORMWATER DRAINAGE

1. STORMWATER DESIGN CRITERIA

   (A) AVERAGE EXCEEDANCE PROBABILITY: -
   - 1% AEP FOR ROOF DRAINAGE TO FIRST EXTERNAL PIT
   - 5% AEP FOR PAVED AND LANDSCAPED AREAS

   (B) RAINFALL INTENSITIES : -
   - TIME OF CONCENTRATION: 5 MINUTES
   - 1% AEP = 226mm/hr
   - 5% AEP = 168mm/hr

   (C) RAINFALL LOSSES: -
   - IMPERVIOUS AREAS: IL = 1mm CL = 0mm/hr
   - PERVIOUS AREAS: IL = 25.96mm CL = 0.92mm/hr

2. PIPES 300 DIA AND LARGER TO BE REINFORCED CONCRETE CLASS "-" APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O.
3. PIPES UP TO 300 DIA MAY BE SEWER GRADE UPVC WITH SOLVENT WELDED JOINTS, SUBJECT TO APPROVAL BY THE ENGINEER
4. EQUIVALENT STRENGTH VCP OR FRP PIPES MAY BE USED SUBJECT TO APPROVAL.
5. PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY ENGINEER.
6. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE MANUFACTURED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
7. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED UPVC SEWER GRADE PIPE IS TO BE USED.
8. GRATES AND COVERS SHALL CONFORM WITH AS 3996-2006, AND AS 1428.1 FOR ACCESS REQUIREMENTS.
9. PIPES ARE TO BE INSTALLED IN ACCORDANCE WITH AS 3725. ALL BEDDING TO BE TYPE H2 U.N.O.
10. CARE IS TO BE TAKEN WITH INVERT LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
11. ALL STORMWATER PIPES TO BE 150 DIA AT 1.0% MIN FALL U.N.O.
12. SUBSOIL DRAINS TO BE SLOTTED FLEXIBLE UPVC U.N.O.
13. ADOPT INVERT LEVELS FOR PIPE INSTALLATION (GRADES SHOWN ARE ONLY NOMINAL).

STORMWATER PIPE INFORMATION

PIPE INFORMATION

USIL	UPSTREAM INVERT LEVEL
Ø000	PIPE INTERNAL DIAMETER
--- '-'	PIPE MATERIAL AND CLASS
0.0m	PIPE LENGTH
0.0 m/s	HYDRAULIC FLOW RATE
%0.0	PIPE GRADE
DSIL	DOWNSTREAM INVERT LEVEL

TIE INFORMATION

SW	
L 10.0m	TIE LENGTH
D 1.0m	TIE DEPTH
Ø150	TIE DIAMETER

STORMWATER STRUCTURE IDENTIFICATION

SW1-2 LINE NUMBER 1 - STRUCTURE NUMBER 2

SUBSOIL DRAINAGE

1. ALL SUBSOIL DRAINAGE WORKS ARE TO BE COMPLETED IN ACCORDANCE WITH THE RELEVANT STANDARDS AND SPECIFICATIONS OUTLINED IN THE PROJECT SPECIFICATION.
2. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
3. SUBSOIL DRAINS TO BE Ø100 SLOTTED FLEXIBLE uPVC UNLESS NOTED OTHERWISE.
4. ALL SUBSOIL DRAINS ARE TO BE AT MINIMUM 1% GRADE UNLESS NOTED OTHERWISE.
5. ALL SUBSOIL DRAINS TO BE RODDED PRIOR TO THE PLACEMENT OF ASPHALT.
6. ALL SUBSOIL DRAINS ARE DRAWN DIAGRAMMATICALLY FOR CLARITY. REFER TO TYPICAL DETAIL FOR SUBSOIL SETOUT.

STORMWATER LEGEND

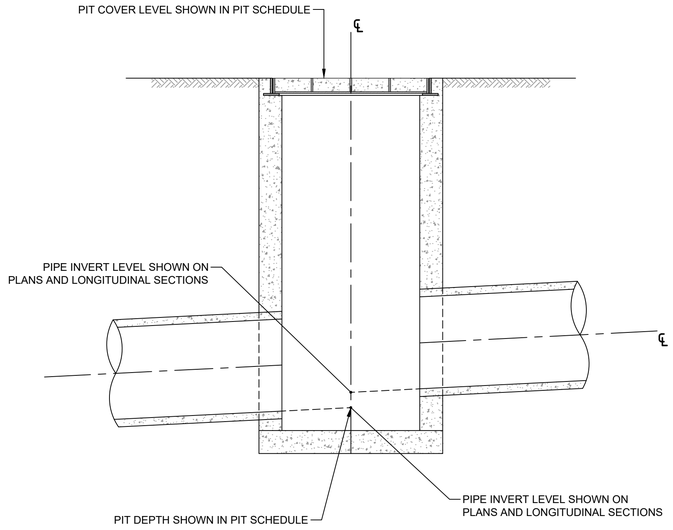
	STORMWATER PIT AND PIPE
DP	DOWN PIPE
RP	RODDING POINT
PO	PLANTER OUTLET
RO	RAINWATER OUTLET
GPT	GROSS POLLUTANT TRAP
	OVERLAND FLOW ARROW
	CONCRETE INCASED PIPE
	SWALE DRAIN

STORMWATER ANNOTATIONS

IL	PIPE INVERT LEVEL
OL	PIPE OBVERT LEVEL
CL	PIT COVER LEVEL
WL	WATER LEVEL

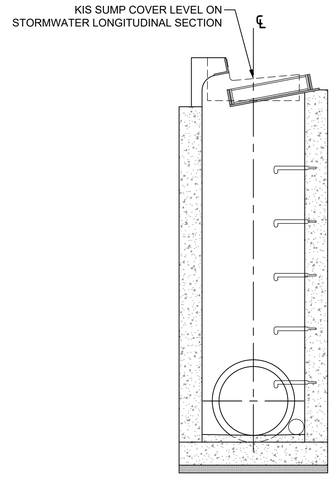
NOTE

STORMWATER DRAINAGE NOTES AND LEGEND IS TO READ IN CONJUNCTION WITH GENERAL NOTES AND LEGEND. REFER DRAWING No. 00002



DESIGN INVERT LEVELS AT STORMWATER STRUCTURES

SCALE 1:20



KERB INLET STRUCTURE (KIS) COVER LEVEL FOR KIS IN ROAD

SCALE 1:20

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF RT	14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF RT	13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF RT	21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: STORMWATER NOTES AND LEGEND

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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RICKARD ROAD

PROVIDE HEADWALL FOR STORMWATER DISCHARGE ONTO VERGE. LOCATION OF OUTLET SUBJECT TO LOCATION OF TREE TPZ/SRZ

IL 91.40 TO MATCH SURFACE LEVEL

PROVIDE HEADWALL FOR STORMWATER DISCHARGE ONTO VERGE LOCATION OF OUTLET TO BE COORDINATED WITH TREE TPZ/SRZ

IL 93.00 TO MATCH SURFACE LEVEL

BUILDING OUTLINE EXTENT. REFER ARCHITECTURAL DOCUMENTATION (TYPICAL)

SITE BOUNDARY

A
DP 411211

PROPOSED RICKARD ROAD WIDENING

B
DP 411211

FUTURE SITE BOUNDARY

PROPOSED GRATED INLET PIT (TYPICAL)

PIT DEPTH APPROX. 3.1m

NEW BUILDING
BUILDING C
FFL96.900

IN GROUND OSD TANK WITH 390m³ EFFECTIVE VOLUME. IL91.60. TOP OF TANK 94.20. OSD ACCESS POINTS SHOWN INDICATIVELY. PROVIDE 10 x OCEANPROTECT 690mm PSORB STORMFILTER CARTRIDGES OR APPROVED EQUIVALENT INTERNAL TO TANK

NEW BUILDING
BUILDING B
FFL96.900

PIT DEPTH APPROX. 2.8m

PROPOSED TANK.

40
DP 8979

39B
DP 8979

SITE BOUNDARY

COMBINED IN-GROUND RAINWATER AND OSD TANK WITH 20KL RAINWATER TANK STORAGE AND 1095m³ EFFECTIVE VOLUME. IL93.80. TOP OF TANK 96.40. OSD ACCESS POINTS SHOWN INDICATIVELY. PROVIDE 10 x OCEANPROTECT 690mm PSORB STORMFILTER CARTRIDGES OR APPROVED EQUIVALENT INTERNAL TO TANK
RAINWATER TANK TO OVERFLOW TO OSD

SPORTS COURT

SPORTS COURT

NEW BUILDING
BUILDING A
FFL96.900

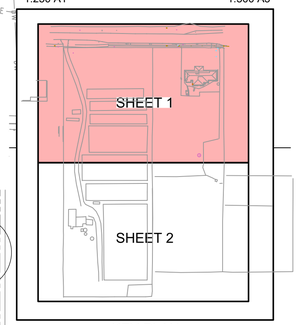
ADJOINS SHEET 2

NOTE:

1. SUBSOIL TO BE PROVIDED BEHIND ALL RETAINING WALLS, KEBS, PAVEMENT EDGES AND WITHIN THE SPORTS FIELD. LAYOUT TO BE CONFIRMED IN DETAILED DESIGN
2. ALL INLET PITS TO BE INSTALLED WITH OCEANPROTECT OCEANGUARD OR APPROVED EQUIVALENT

NOTES
1. ALL NEW STORMWATER TO BE MIN 1% LONGITUDINAL GRADE, MIN. COVER 600MM.
2. MAXIMUM PIT DEPTH 2M UNLESS NOTED OTHERWISE.

0.0 5.0 10.0 15.0 20.0m
1:250 A1 1:500 A3



KEY PLAN

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT 13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	RT 21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 1

Scale at A1	Drawn	Designed	Approved
250	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-04101-3					

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ADJOINS SHEET 1

SITE BOUNDARY

NEW BUILDING
BUILDING A
FFL96.900

NEW BUILDING
HALL
FFL98.800

SPORTS COURT

Ø375
Ø225
Ø300
RW
KO
RWT

20KL RAINWATER TANK SHOWN INDICATIVELY - REFER TO HYDRAULIC PLANS FOR DETAILS. OVERFLOW TO CIVIL STORMWATER SYSTEM.

BUILDING OUTLINE EXTENT. REFER ARCHITECTURAL DOCUMENTATION (TYPICAL)

PROPOSED GRATED INLET PIT (TYPICAL)

COMBINED OSD AND BIORETENTION BASIN. OSD WITH MIN. 15m³ EFFECTIVE VOLUME AND BIORETENTION WITH MIN. 135m² TREATMENT AREA. PROVIDE PIT, HEADWALL AND RIP RAP APRON AT OUTLET.

LOCATION OF OUTLET TO BE COORDINATED WITH TREE TPZ/SRZ

IL 93.60

K&G

40
DP 8979

89
DP 8979

A
DP 411211

B
DP 411211

C
DP 411211

39B
DP 8979

39B
DP 8979

94.000
95.000
96.000
97.000
98.000
99.000
100.000
101.000
102.000
103.000
104.000

SHEET 1
SHEET 2
KEY PLAN

NOTE:

1. SUBSOIL TO BE PROVIDED BEHIND ALL RETAINING WALLS, KEBS, PAVEMENT EDGES AND WITHIN THE SPORTS FIELD. LAYOUT TO BE CONFIRMED IN DETAILED DESIGN
2. ALL INLET PITS TO BE INSTALLED WITH OCEANPROTECT OCEANGUARD OR APPROVED EQUIVALENT

NOTES

1. ALL NEW STORMWATER TO BE MIN 1% LONGITUDINAL GRADE, MIN. COVER 600MM.
2. MAXIMUM PIT DEPTH 2M UNLESS NOTED OTHERWISE.

0.0 5.0 10.0 15.0 20.0m
1:250 A1 1:500 A3

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF RT	14.01.2025
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1	FINAL DRAFT ISSUE FOR REF	SF RT	21.11.2024

Client: School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 2

Scale at A1	Drawn	Designed	Approved
250	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-04102-3					

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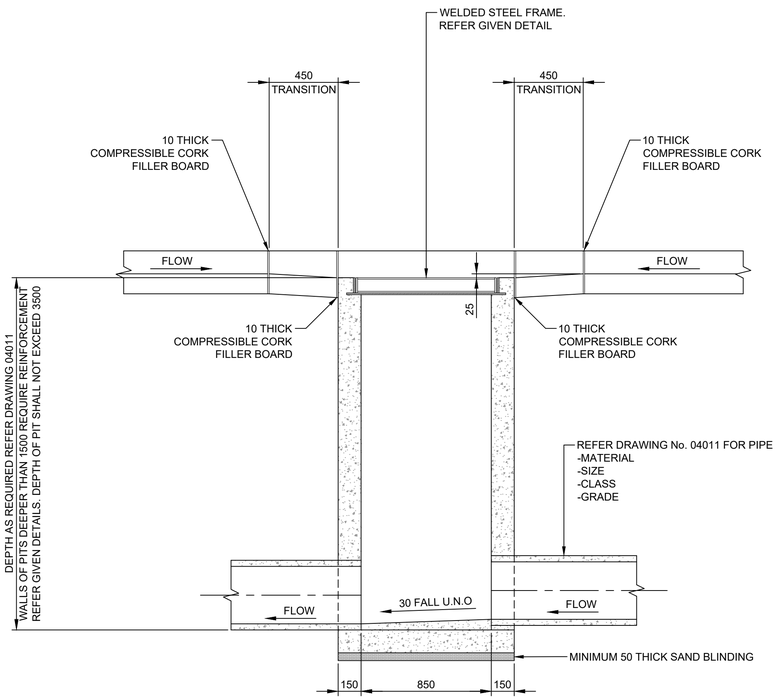
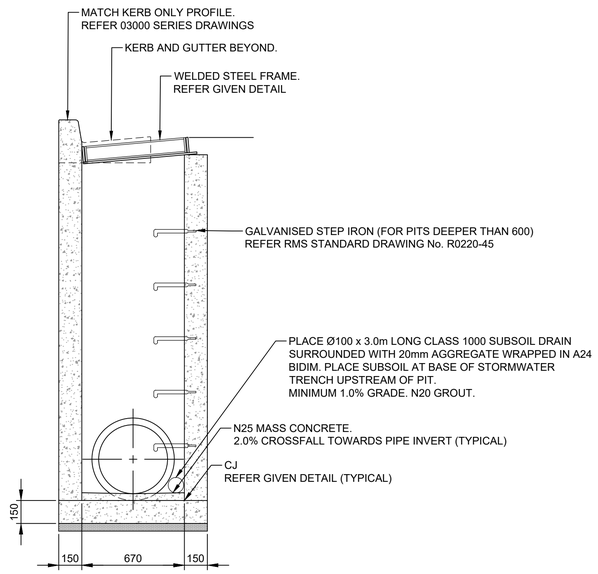
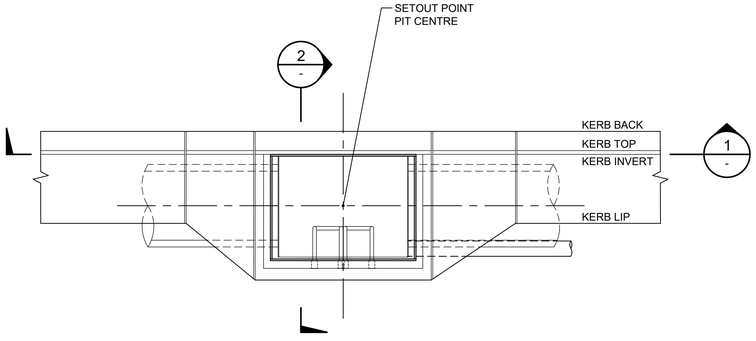
NOT FOR CONSTRUCTION



SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20



KERB GRATED INLET PIT (KGIS) FOR PIPES UP TO Ø450

SCALE 1:20

0 400 800 1200 1600mm
1:20 A1 1:40 A3

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF RT	14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF RT	13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF RT	21.11.2024

Client: School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: STORMWATER DETAILS SHEET 1

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
LHS-TTW-01-00-DR-C-04501-3					

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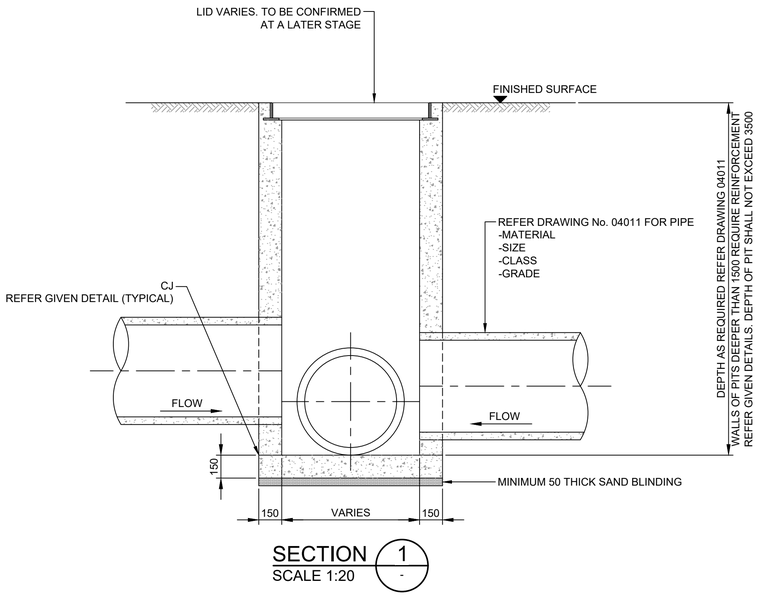
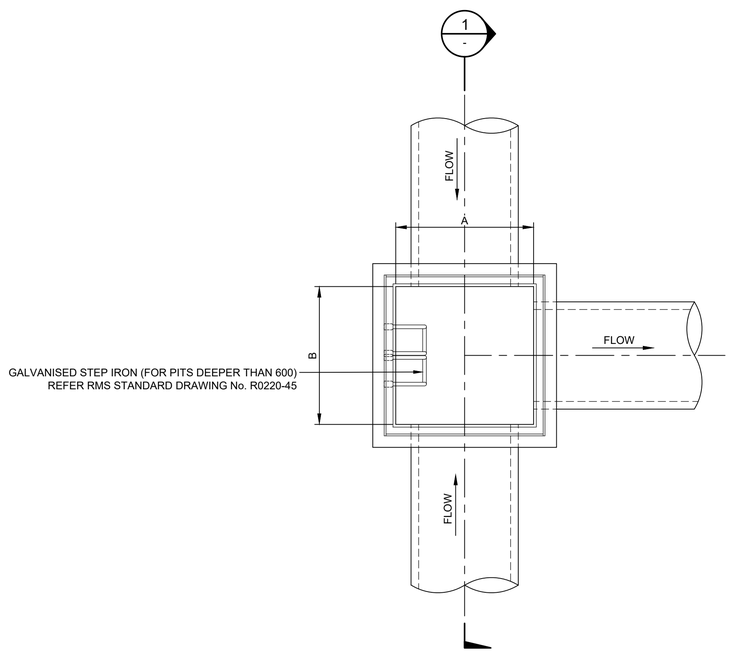


SECTION 1/-
SCALE 1:20

SIZE REQUIREMENTS	
GOVERNED BY MAXIMUM PIPE DIAMETER	
PIPE Ø	A, B
300	600
600	900
900	1200
1200	1600



JUNCTION PIT (JP)
FOR PIPES UP TO Ø900
SCALE 1:20

NOTES
1. CONCRETE STRENGTH 25MPa.
2. SIDE WALLS OF PITS DEEPER THAN 1500 ARE TO BE REINFORCED IN ACCORDANCE WITH GIVEN DETAIL.
3. STEP IRONS ARE REQUIRED WHERE PITS ARE DEEPER THAN 1200.
4. REFER DRAWING No. 00002 FOR CONCRETE NOTES

0 400 800 1200 1600mm
1:20 A1 1:40 A3

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF RT	14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF RT	13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF RT	21.11.2024

Client: School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: STORMWATER DETAILS SHEET 2

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

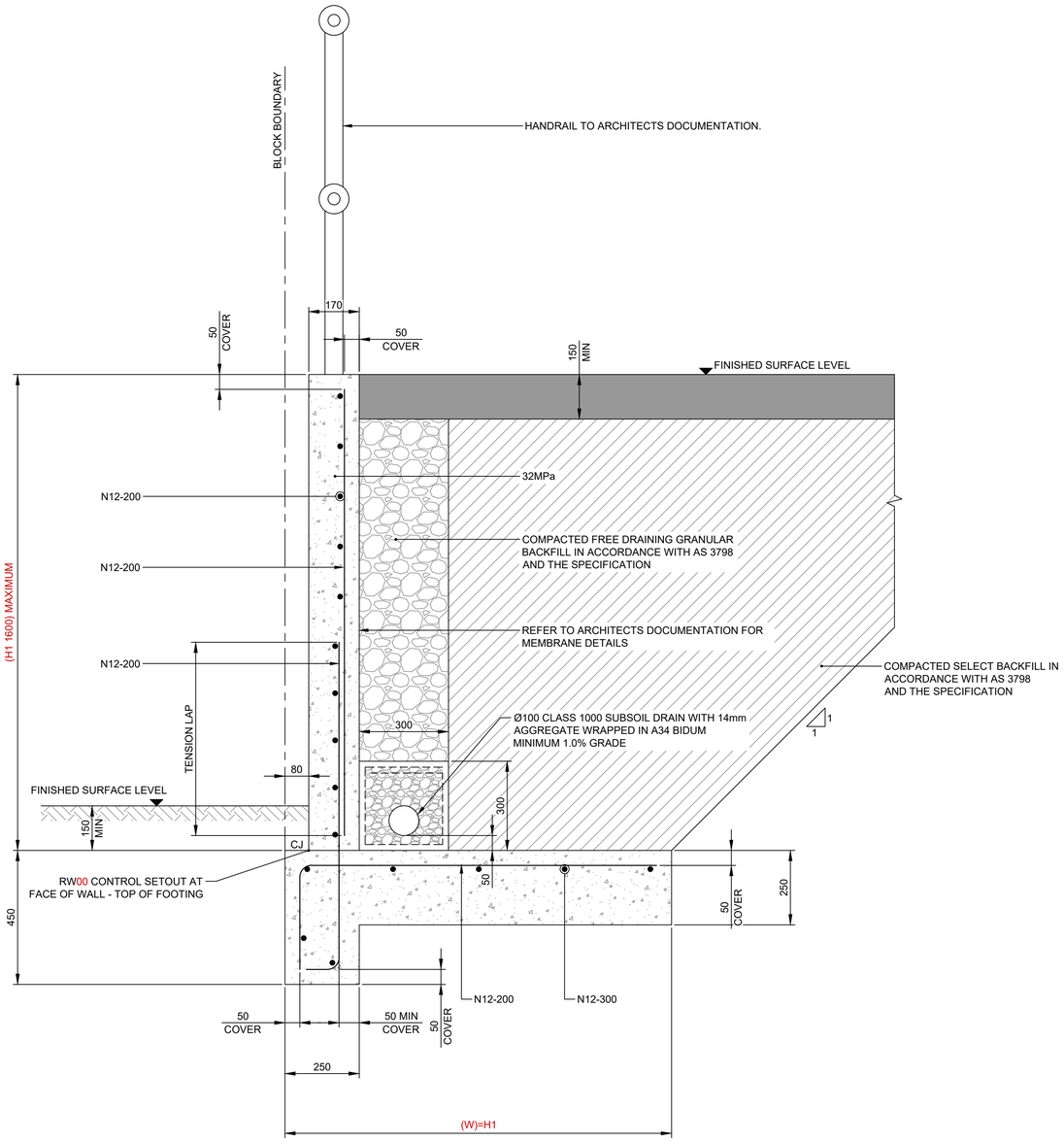
Project No | Originator | Type | Role | Sheet No. | Rev
LHS-TTW-01-00-DR-C-04502-3
14.01.2025 4:34 PM

NOTE: RETAINING WALLS ARE SHOWN INDICATIVELY AND ARE SUBJECT TO DETAILED DESIGN

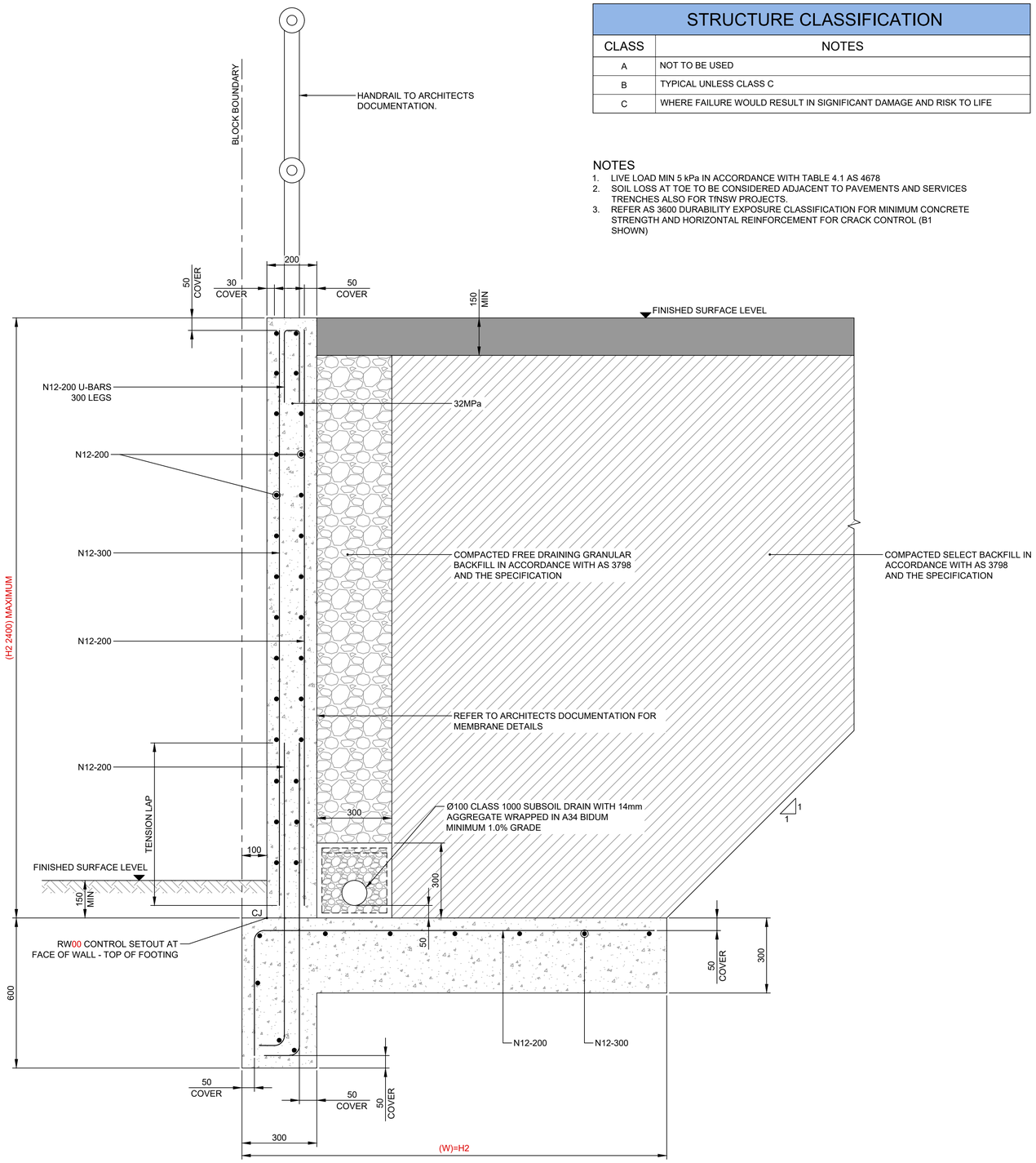
NOT FOR CONSTRUCTION

STRUCTURE CLASSIFICATION	
CLASS	NOTES
A	NOT TO BE USED
B	TYPICAL UNLESS CLASS C
C	WHERE FAILURE WOULD RESULT IN SIGNIFICANT DAMAGE AND RISK TO LIFE

NOTES
1. LIVE LOAD MIN 5 kPa IN ACCORDANCE WITH TABLE 4.1 AS 4678
2. SOIL LOSS AT TOE TO BE CONSIDERED ADJACENT TO PAVEMENTS AND SERVICES TRENCHES ALSO FOR TfNSW PROJECTS.
3. REFER AS 3600 DURABILITY EXPOSURE CLASSIFICATION FOR MINIMUM CONCRETE STRENGTH AND HORIZONTAL REINFORCEMENT FOR CRACK CONTROL (B1 SHOWN)



RETAINING WALL TYPE - 1
170 THICK REINFORCED CONCRETE
SCALE 1:10



RETAINING WALL TYPE - 2
200 THICK REINFORCED CONCRETE
SCALE 1:10

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
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Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: RETAINING WALLS DETAILS

Scale at A1	Drawn	Designed	Approved
10	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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14.01.2025 4:34 PM

NOT FOR CONSTRUCTION

CONCRETE

1. PLACE CONCRETE OF THE FOLLOWING CHARACTERISTIC COMPRESSIVE STRENGTH f'c IN ACCORDANCE WITH AS 1379.
2.

LOCATION	f'c MPa (28 DAYS)	SPECIFIED SLUMP	NOMINAL AGG. SIZE
KERBS	S20	80	20
RETAINING WALL FOOTINGS	S40	80	20

3. USE TYPE 'GP' CEMENT, UNLESS OTHERWISE SPECIFIED.
4. ALL CONCRETE SHALL BE SUBJECT TO PROJECT ASSESSMENT AND TESTING TO AS 1379.
5. CONSOLIDATE BY MECHANICAL VIBRATION. CURE ALL CONCRETE SURFACES AS DIRECTED IN THE SPECIFICATION.
6. FOR ALL FALLS IN SLAB, DRIP GROOVES, REGLETS, CHAMFERS ETC. REFER TO ARCHITECTS DRAWINGS AND SPECIFICATIONS.
7. UNLESS SHOWN ON THE DRAWINGS, THE LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
8. NO HOLES OR CHASES SHALL BE MADE IN THE SLAB WITHOUT THE APPROVAL OF THE ENGINEER.
9. CONDUITS AND PIPES ARE TO BE FIXED TO THE UNDERSIDE OF THE TOP REINFORCEMENT LAYER.
10. SLURRY USED TO LUBRICATE CONCRETE PUMP LINES IS NOT TO BE USED IN ANY STRUCTURAL MEMBERS.
11. ALL SLABS CAST ON GROUND REQUIRE SAND BLINDING WITH A CONCRETE UNDERLAY

CONCRETE FINISHING

1. ALL EXPOSED CONCRETE PAVEMENTS ARE TO BE BROOMED FINISHED.
2. ALL EDGES OF THE CONCRETE PAVEMENT INCLUDING KEYED AND DOWELLED JOINTS ARE TO BE FINISHED WITH AN EDGING TOOL.
3. CONCRETE PAVEMENTS WITH GRADES GREATER THAN 10 % SHALL BE HEAVILY BROOMED FINISHED.
4. CARBORUNDUM TO BE ADDED TO ALL STAIR TREADS AND RAMPED CROSSINGS U.N.O.

FORMWORK

1. THE DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF THE FORMWORK, FALSEWORK AND BACKPROPPING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PROPOSED METHOD OF INSTALLATION AND REMOVAL OF FORMWORK IS TO BE SUBMITTED TO THE SUPERINTENDENT FOR COMMENT PRIOR TO WORK BEING CARRIED OUT.

PAVEMENT LEGEND

PT1 — CONCRETE BLEACHERS

PT2 — HARDSTANDING - PEDESTRIAN PAVEMENT
125MM THICK 32MPA CONCRETE (COLOUR OXIDE TO LANDSCAPE SPECIFICATION) SL72 ON,
150MM THICK COMPACTED FINE CRUSHED ROCK (DGB20) ON,
COMPACTED SUBGRADE

CARPARK AND DELIVERY ZONE

PT3 — 40mm COMPACTED THICKNESS AC14 WEARING COURSE ON
150mm COMPACTED THICKNESS DGB20 CLASS 1 BASE TO 98% MMDD AT ±2% OMC ON
175mm COMPACTED THICKNESS DGS20 SUBBASE TO 98% MMDD AT ±2% OMC ON
SUBGRADE MIN. CBR 4% COMPACTED TO 98% SMDD AT ±2% OMC

PT4 — MULTI SPORTS COURTS
TO LANDSCAPE ARCHITECT'S DOCUMENTATION

PT5 — SPORTS FIELD
TO LANDSCAPE ARCHITECT'S DOCUMENTATION

PT6 — HARDSTANDING - PEDESTRIAN PAVEMENT
125MM THICK 32MPA CONCRETE (COLOUR OXIDE TO LANDSCAPE SPECIFICATION) SL72 ON,
150MM THICK COMPACTED FINE CRUSHED ROCK (DGB20) ON,
COMPACTED SUBGRADE

PT8 — RIGID PAVEMENT - LOADING DOCK AND WASTE
170MM THICK FC 32MPA WITH F82 MESH
100MM THICK COMPACTED FINE CRUSHED ROCK (DGB20) ON,
COMPACTED SUBGRADE

LANDSCAPING
REFER TO LANDSCAPE ARCHITECT'S DOCUMENTATION

NOTES:
1. PAVEMENT BUILDUPS ARE INDICATIVE AND TO BE DEVELOPED IN DETAILED DESIGN.
2. ADOPTED DESIGN PARAMETERS:
DESIGN TRAFFIC 5x10^5 ESA, SUBGRADE 4% CBR MIN.

CONCRETE REINFORCEMENT

1. FIX REINFORCEMENT AS SHOWN ON DRAWINGS. THE TYPE AND GRADE IS INDICATED BY A SYMBOL AS SHOWN BELOW. ON THE DRAWINGS THIS IS FOLLOWED BY A NUMERAL WHICH INDICATES THE SIZE IN MILLIMETRES OF THE REINFORCEMENT.

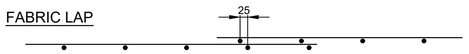
SYMBOL	TYPE	GRADE
N	HOT ROLLED RIBBED BAR	DN500N
R	PLAIN ROUND BAR	R250N
SL	SQUARE MESH	500L
RL	RECTANGULAR MESH	500L

2. PROVIDE BAR SUPPORTS OR SPACERS TO GIVE THE FOLLOWING CONCRETE COVER TO ALL REINFORCEMENT UNLESS OTHERWISE NOTED ON DRAWINGS.

LOCATION	COVER (MM)
FOOTINGS	50
WALLS	30

3. COVER TO REINFORCEMENT ENDS TO BE 50 mm U.N.O.
4. PROVIDE N12-450 SUPPORT BARS TO TOP REINFORCEMENT AS REQUIRED, LAP 500 U.N.O.
5. MAINTAIN COVER TO ALL PIPES, CONDUITS, REGLETS, DRIP GROOVES ETC
6. ALL COGS TO BE STANDARD COGS UNLESS NOTED OTHERWISE.
7. FABRIC END AND SIDE LAPS ARE TO BE PLACED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS TO ACHIEVE A FULL TENSILE LAP. FABRIC SHALL BE LAID SO THAT THERE IS A MAXIMUM OF 3 LAYERS AT ANY LOCATION.

FABRIC LAP



8. LAPS IN REINFORCEMENT SHALL BE MADE ONLY WHERE SHOWN ON THE DRAWINGS UNLESS OTHERWISE APPROVED. LAP LENGTHS AS PER TABLE BELOW.

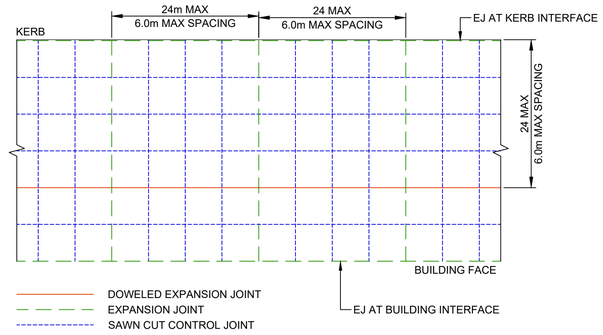
TENSION LAPS		
BAR SIZE	TOP BARS IN BANDS AND BEAMS	ALL OTHER BARS
N12	570	480
N16	800	700
N20	1150	950
N24	1500	1250
N28	1850	1500
N32	2250	1800
N36	2700	2100

COMPRESSION LAPS	
BAR SIZE	
N16	640
N20	800
N24	960
N28	1120
N32	1280
N36	1440

ASSUMPTIONS:
1. TOP BARS IN BANDS AND BEAMS:
MORE THAN 300mm OF CONCRETE BELOW THE BAR.
2. MINIMUM COVER OF 25mm AND MINIMUM STIRRUP SIZE OF N12 GIVING Cd=37mm; THEREFORE MINIMUM CLEAR SPACING BETWEEN BARS = 2 X Cd = 74mm. MINIMUM COVER IS BASED ON THE NEW A2 EXPOSURE CLASSIFICATION FOR INTERIOR, NON-RESIDENTIAL WHICH REQUIRES 25mm COVER FOR 32Mpa CONCRETE,
3. f'c = 32Mpa
ALL OTHER BARS:
1. LESS THAN 300mm OF CONCRETE BELOW THE BAR.
2. MINIMUM COVER OF 25mm GIVING Cd = 25mm; THEREFORE MINIMUM CLEAR SPACING BETWEEN BARS = 2 X Cd = 50mm.
3. f'c = 32Mpa.
COLUMNS:
1. COVER TO COLUMNS = 40mm (30+10)k7 = 1.25
2. COVERS FOR FIRE RATING ARE TO BE DESIGNED BY THE ENGINEER.

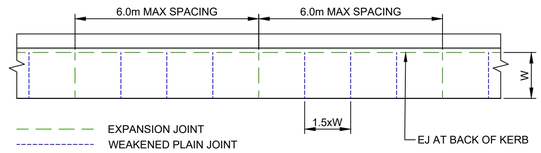
VEHICULAR PAVEMENT JOINTING (03000 SERIES DRAWINGS)

1. ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.
2. DOWEL BARS ARE TO BE IN ACCORDANCE WITH GIVEN DETAIL. REFER 03000 SERIES DRAWINGS.
3. DOWELED EXPANSION JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 24.0M CENTRES.
4. SAWN JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6.0M CENTRES OR 1.5 X THE SPACING OF PERPENDICULAR SAWN JOINTS.
5. PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS BETWEEN BUILDINGS/STRUCTURES AND ALL CONCRETE OR UNIT PAVERS.
6. THE TIMING OF THE SAW CUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED. REFER TO THE SPECIFICATION FOR WEATHER CONDITIONS AND TEMPERATURES REQUIRED.
7. VEHICULAR PAVEMENT JOINTING AS FOLLOWS.



PEDESTRIAN PATH JOINTING (03000 SERIES DRAWINGS)

1. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 6.0M CENTRES.
2. WEAKENED PLANE JOINTS ARE TO BE LOCATED AT A MAX 1.5 X WIDTH OF THE PAVEMENT.
3. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.
4. ALL PEDESTRIAN FOOTPATH JOINTING AS FOLLOWS (UNO).



KERBING

INCLUDES ALL KERBS, GUTTERS, DISH DRAINS, CROSSINGS AND EDGES.

1. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MINIMUM 75mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
2. EXPANSION JOINTS (EJ) 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 12M CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN SLABS.
3. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3M CENTRES EXCEPT FOR INTEGRAL KERBS WHERE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN SLABS.
4. BROOMED FINISHED TO ALL RAMPED AND VEHICULAR CROSSINGS, ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
5. IN THE REPLACEMENT OF KERBS - EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm FROM LIP OF GUTTER. UPON COMPLETION OF NEW KERBS, NEW BASE COURSE AND SURFACE IS TO BE LAID 900mm WIDE TO MATCH EXISTING MATERIALS AND THICKNESSES. EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB WITH A 100mm DIA HOLE. EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
2	SCHEMATIC DESIGN FOR REF	SF	RT 13.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	RT 21.11.2024

Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: PAVEMENT NOTES AND LEGEND

Scale at A1	Drawn	Designed	Approved
	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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0.0 5.0 10.0 15.0 20.0m
1:250 A1 1:500 A3

RICKARD ROAD

MATCH NEW AC PAVEMENT SMOOTHLY TO EXISTING TRAFFIC LANE LEVELS AND ROAD CROSSFALLS

PROPOSED ENTRY/EXIT TO BE IN ACCORDANCE WITH CAMDEN COUNCIL SPECIFICATIONS. EXTEND AC PAVEMENT TO SUIT NEW ACCESS WIDTH

PROPOSED SOFT LANDSCAPING ZONE (TYPICAL)

SITE BOUNDARY

A
DP 411211

B
DP 411211

PROPOSED RICKARD ROAD WIDENING

FUTURE SITE BOUNDARY

NEW BUILDING
BUILDING C
FFL96.900

NEW BUILDING
BUILDING B
FFL96.900

NEW BUILDING
BUILDING A
FFL96.900

SPORTS COURT

SPORTS COURT

PT2 PT3 PT4 PT5 PT6 PT8 KO RW

SITE BOUNDARY

SHEET 1

SHEET 2

KEY PLAN

40
DP 8979

39B
DP 8979

ADJOINS SHEET 2

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Rev	Description	Eng Draft	Date
3	REF SUBMISSION	SF	RT 14.01.2025
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Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: PAVEMENT PLAN SHEET 1

Scale at A1	Drawn	Designed	Approved
250	RT	AW	CR

Project No | Originator | Type | Role | Sheet No. | Rev
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ADJOINS SHEET 1

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SITE BOUNDARY

NEW BUILDING
BUILDING A
FFL96.900

NEW BUILDING
HALL
FFL98.800

SPORTS COURT

PT2
PT3
PT4
PT5
PT6
PT8
RW
KO
K&G

PROPOSED SOFT LANDSCAPING ZONE (TYPICAL)

40
DP 8979

89
DP 8979

A
DP 411211

B
DP 411211

C
DP 411211

39B
DP 8979

SHEET 1

SHEET 2

KEY PLAN

0.0 5.0 10.0 15.0 20.0m
1:250 A1 1:500 A3

SITE BOUNDARY

SITE BOUNDARY

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Client: School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: PAVEMENT PLAN SHEET 2

Scale at A1	Drawn	Designed	Approved
250	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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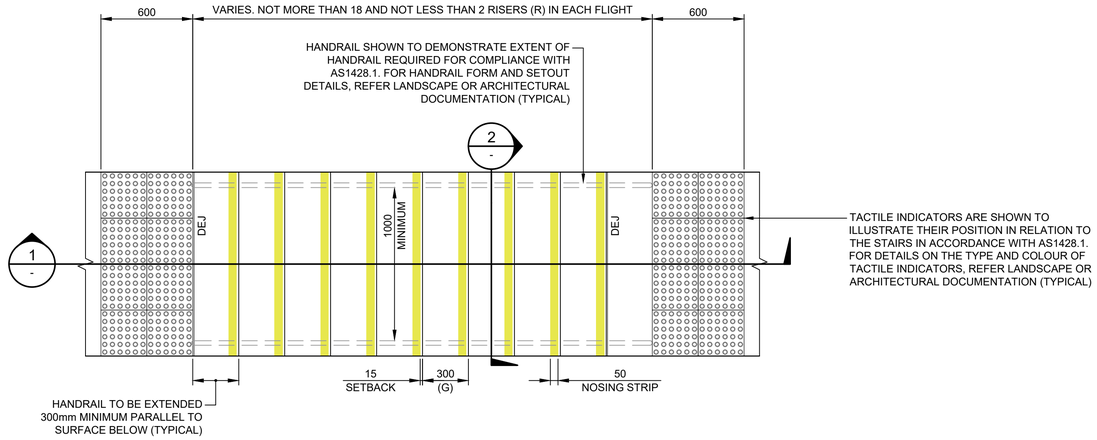
RISER AND GOING DIMENSIONS						
STAIR TYPE	RISER (R)		GOING (G)		SLOPE RELATIONSHIP (2R+G)	
	MAX	MIN	MAX	MIN	MAX	MIN
STAIRS (OTHER THAN SPRIAL)	190	115	355	240	700	550
SPIRAL	220	140	370	210	680	590

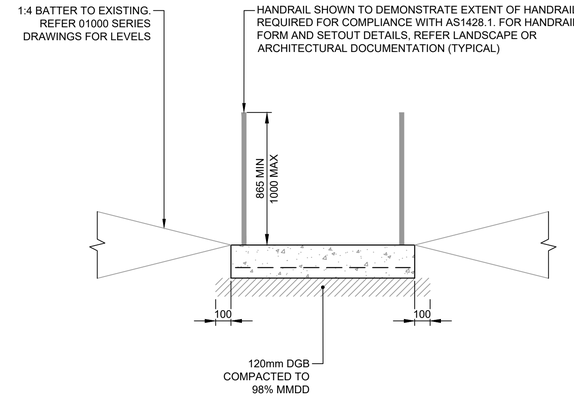
NOTES

1. CONCRETE STRENGTH TO BE 32MPa
2. REFER SITE PLANS FOR SETOUT, LEVELS AND GEOMETRY
3. FOR MINIMUM SLIP RESISTANCE OF STAIR TREADS AND LANDINGS REFER LANDSCAPE OR ARCHITECTURAL DOCUMENTATION



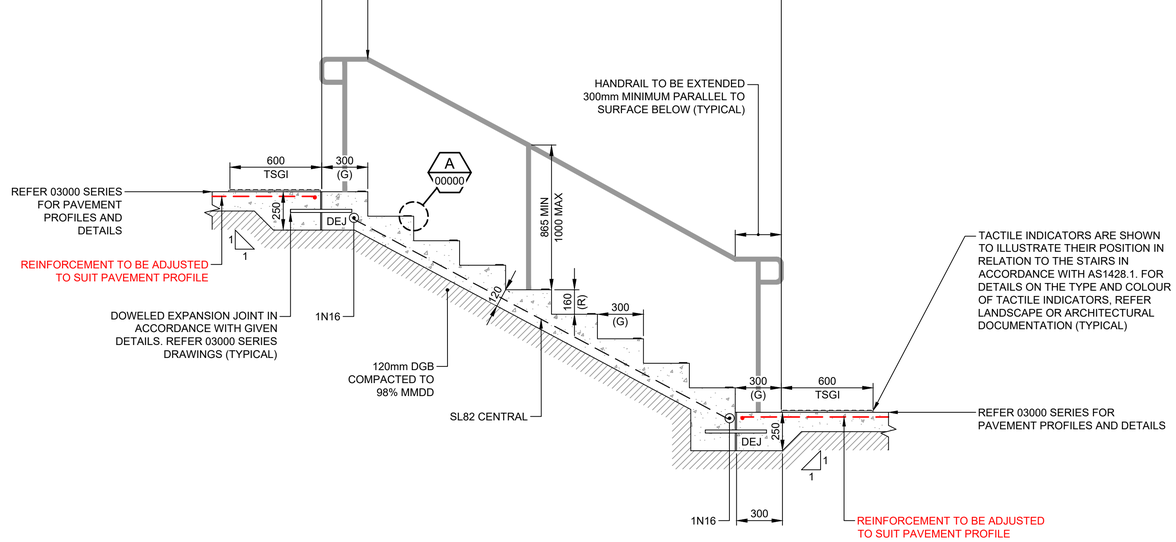
TYPICAL STAIR ON GRADE

SCALE 1:20



SECTION 2 / -

SCALE 1:20



SECTION 1 / -

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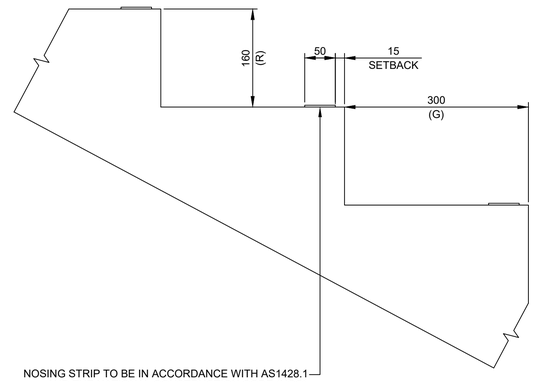

DETAIL A / 00000

SCALE 1:5

0 400 800 1200 1600mm
1:20 A1 1:40 A3

0 100 200 300 400mm
1:5 A1 1:10 A3

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Client: NSW GOVERNMENT School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: PAVEMENT DETAILS

Scale at A1	Drawn	Designed	Approved
20	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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0.0 10.0 20.0 30.0 40.0m
1:500 A1 1:1000 A3

SOLAR POWERED 40 SCHOOL ZONE SIGN RELOCATED TO THIS LOCATION

SHARK TEETH ROAD MARKING

NO STOPPING

KEEP LEFT

CENTRAL MEDIAN BACK TO BACK, MOUNTABLE KERB 0.6m WIDE 20m LONG

EXISTING SCHOOL ZONE 40 Km/h SIGN TO BE RELOCATED

EXISTING 40 SPEED ROAD MARKING TO BE REMOVED

PROPOSED NEW LOCATION FOR BUS STOP. LINE MARKING AND SIGNAGE IN ACCORDANCE WITH CAMDEN CITY COUNCIL SPECIFICATION.

RICKARD ROAD

57.0m

SITE BOUNDARY

SPEED MARKING

FUTURE SITE BOUNDA

NO STOPPING

BUS ZONE

LOADING ZONE

8:30-9:30 2:30-4:

SCHOOL DAYS

KISS & RIDE AREA

EXISTING SIGN TO REMAIN

SITE BOUNDARY

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Client: School Infrastructure NSW

Engineer: TTW www.ttwengineers.com

Project: NEW HIGH SCHOOL FOR LEPPINGTON AND DENHAM COURT LEPPINGTON, NSW 2179

Drawing Title: SIGNAGE AND LINEMARKING PLAN

Scale at A1	Drawn	Designed	Approved
NTS	RT	AW	CR

Project No	Originator	Type	Role	Sheet No.	Rev
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