

Technical report P

# Utilities and services assessment report

Cleanaway & Macquarie Capital  
**Western Sydney Energy and  
Resource Recovery Centre**  
Utilities Technical Report

WSERRC-ARU-SYD-UTUT-RPT-0001

Final | 24 August 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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## Executive summary

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The Western Sydney Energy and Resource Recovery Centre is located in Eastern Creek adjacent to Austral Bricks Road. The purpose of the proposal is to build an energy-from-waste (EfW) facility that can generate up to 58 megawatts (MW) of power by thermally treating up to 500,000 tonnes per year of residual municipal solid waste (MSW) and residual commercial and industrial (C&I) waste streams that would otherwise be sent to landfill.

This Chapter outlines the impacts of the proposal on existing public utilities and describes the proposed servicing strategy for the EfW facility.

Existing buildings and outhouses located on the site are serviced by the following:

- Water – Primarily from the farm dam present on site with a 50mm Ø connection from the Warragamba Pipeline as back-up.
- Electricity – Connection from Endeavour Energy network via conduits under the M7 to an UGOH pole on the western side of the site.
- Telecoms – No current live comms supply exists however a legacy Telstra pit with incoming conduit is present with western side of the site.
- Sewer – No formal sewer connection is present. Septic tanks serve the existing buildings and outhouses.
- Gas – No gas services are present on the site.

An existing 1050 Ø Sydney Water owned water main passes under the northern portion of the site. This water main will not be impacted by the proposed construction works which are limited to the southern portion of the site. No other Sydney Water owned assets are present within the Project Boundary.

To serve the proposed EfW facility an electrical grid connection is required to export power generated to the HV network. The EfW facility will periodically import an electrical load for the purposes of start-up.

A grid connection feasibility study has confirmed 3No potential grid connection options suitable for exporting 55MW. These are being assessed and a preferred option will be selected during detail design.

Consultation with Sydney Water, including a flow a pressure test, have confirmed that there is capacity within the water main under Roussell Road to meet the water demands of the project. To reduce peak water demands, large tanks are required to store water for firefighting purposes.

The possibility to supply the facility with recycled water to meet the process demand was considered in consultation with Sydney Water. Based on this assessment, the supply of recycled water to the site was not considered feasible due to the lack of existing recycled water infrastructure in the surrounding area.

No effluent water will be produced in the EfW process meaning that sewer flows are from amenity and welfare facilities within the administration area of the EfW facility and the visitor centre. These flows are considerably lower than the water demands.

Due to the location of the nearest Sydney Water owned sewer, a package pump station is proposed to discharge flows from the site. A gravity sewer system will convey flows from the EfW facility and visitor centre to the pump station. A pressurised rising main will connect to the gravity system located under Clay Road, in the industrial park west of the site.

The NBN has confirmed that a hard-wire fibre connection can be provided from their existing network that runs adjacent to Wallgrove Road.

The proposal is considered not to have a negative impact on the Warragamba Pipelines during construction or operation however further engagement with WaterNSW will be undertaken during detail design. This is to agree on necessary mitigation measures and establish a monitoring regime during construction.

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## Environmental assessment requirements

The below table lists the Secretary's environmental assessment requirements (SEARs) relevant to utilities and where they are addressed in this report.

Assessment Requirements	Reference in this technical paper
<b>SEARS – 17. Utilities and Services</b> Details of existing capacity and requirements of the development for sewerage, water, electricity, waste disposal, telecommunications and gas in consultation with the relevant service providers	Section 2
<b>SEARS – 17. Utilities and Services</b> A description of the staging, if any, of the infrastructure works, any infrastructure upgrades that are required off-site to facilitate the orderly and economic development of the site and a description of the arrangements that would be put in place to ensure that these upgrades are implemented in a timely manner and maintained	Section 4.6.2
<b>SEARS – 17. Utilities and Services</b> Demonstration that satisfactory arrangements have been made for drinking water, wastewater and recycled water (if required) services	Section 4.1
<b>SEARS – 17. Utilities and Services</b> A feasibility study for the preferred connection to the electricity grid	Section 4.3
<b>SEARS – 17. Utilities and Services</b> Details of measures to protect existing Sydney Water assets or easements	Section 4.6.2.4
<b>Sydney Water – Water-related Infrastructure Requirements</b> 1. The proponent of the development should determine service demands following servicing investigations and demonstrate that satisfactory arrangements for drinking water, wastewater, and recycled water (if required) services have been made.	Section 4.1.1 Section 4.2.1
<b>Sydney Water – Water-related Infrastructure Requirements</b> 2. The proponent must obtain endorsement and/or approval from Sydney Water to ensure that the proposed development does not adversely impact on any existing water, wastewater or stormwater main, or other Sydney Water asset, including any easement or property. When determining landscaping options, the proponent should take into account that certain tree species can cause cracking or blockage of Sydney Water pipes and therefore should be avoided.	Section 4.2.1 Section 4.2.2

<b>Sydney Water – Water-related Infrastructure Requirements</b> 3. Strict requirements for Sydney Water’s stormwater assets (for certain types of development) may apply to this site. The proponent should ensure that satisfactory steps/measures have been taken to protect existing stormwater assets, such as avoiding building over and/or adjacent to stormwater assets and building bridges over stormwater assets. The proponent should consider taking measures to minimise or eliminate potential flooding, degradation of water quality, and avoid adverse impacts on any heritage items, and create pipeline easements where required.	Section 4.1.5 Section 4.2.5 Section 4.6.2.4
<b>Sydney Water – Integrated Water Cycle Management</b> 4. The proponent should outline any sustainability initiatives that will minimise/reduce the demand for drinking water, including any alternative water supply and end uses of drinking and non-drinking water that may be proposed, and demonstrate water sensitive urban design principles are used, and any water conservation measures that are likely to be proposed. This will allow Sydney Water to determine the impact of the proposed development on our existing services and required system capacity to service the development.	Section 4.1
<b>WaterNSW</b> Risk assessment – an assessment of the risks to the integrity and security of the Pipelines corridor that may result from the development and the proposed measures to mitigate against those risks and impacts. Specific issues include: implications for access and vehicle movements into the development site across the Pipelines corridor, WaterNSW access into the Pipelines corridor for operation and maintenance activities, and plant explosion potential (including an assessment of synergistic potential with the adjacent Global Renewables facility)	Section 5.1.1 & Appendix A
<b>WaterNSW</b> Electricity generation – impact assessment associated with the generation of electricity. Services should not increase the risk of pipeline corrosion due to low frequency induction, and not increase the risk of earth potential rise and step and touch potentials on the metallic structures associated with the Pipeline’s corridor.	Section 4.1.6 & Appendix A
<b>Endeavour Energy</b> In order to improve the reliability performance of and to reduce the operating expenditure on the network over the long term the company as adopted the strategy of requiring new lines to be either underground cables or where overhead is permitted, to be predominantly of covered or insulated construction. Notwithstanding this strategy, bare wire	Section 4.3.4

overhead construction is appropriate and permitted in some situations as detailed below.	
<b>Endeavour Energy</b> In areas with the potential for significant overhanging foliage, CCT is used to provide increase reliability as it is less susceptible to outages from wind blown branches and debris than bare conductors. CCT must only be used in treed areas (substantial number of trees adjacent to the line) as the probability of a direct lightning strike is low. In open areas where the line is not shielded from a direct lightning strike, bare conductors must generally be used for 11kV and 22kV reticulation.	Section 4.3.4
<b>Endeavour Energy</b> In areas with the potential Non-Metallic Screened High Voltage Aerial Bundled Cable (NMSHVABC) must be used in areas which are heavily treed and where it is not practicable to maintain a tree clearing envelope around the conductors.	Not Applicable – cabling within proposal boundary it to be buried below ground.
<b>Endeavour Energy</b> Reticulation of new residential subdivisions will be underground. In areas of low bushfire consequence, new lines within existing overhead areas can be overhead, unless underground lines are cost justified or required by either environmental or local council requirements.	Not applicable – proposal is not a residential sub-division.
<b>Endeavour Energy</b> When underground reticulation is required on a feeder that supplies a mixture of industrial, commercial and/or residential loads, the standard of underground construction will apply to all types of load within that development.	Section 4.3.4
<b>Endeavour Energy</b> Where ducting is used, adequate spare ducts and easements must be provided at the outset to cover the final load requirements of the entire development plan.	Section 4.3.4
<b>Endeavour Energy</b> Extensions to the existing overhead 11kV/22kV network must generally be underground. Bare wire will be used for conductor replacements and augmentations except in treed areas where CCT or NMSHVABC must be used. Extensions to the existing overhead LV network and augmentations must either be underground or ABC. Conductor replacements greater than 100m in route length must utilise aerial bundled cable.	Section 4.3.4 & 4.6.2.1.
<b>Endeavour Energy</b> The construction of any building or structure (including fencing, signage, flag poles, hoardings etc.) whether temporary or permanent that is connected to, or in close proximity to Endeavour Energy’s electrical network is required to comply with Australian/New Zealand Standard AS/NZS 3000:2018 ‘Electrical installations’ as updated	Section 4.3.4 & Appendix A

<p>from time to time. This Standard sets out requirements for the design, construction, and verification of electrical installations, including ensuring there is adequate connection to the earth. Inadequate connection to the earth to allow a leaking/fault current to flow into the grounding system and be properly dissipated places persons, equipment connected to the network and the electricity network itself at risk from electric shock, fire and physical injury.</p>	
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## Abbreviations and glossary

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Abbreviations	
C&I	Commercial and Industrial
CEMS	Continuous Emissions Monitoring Systems
EfW	Energy from Waste
MSW	Municipal Solid Waste
MVA	Mega Volt Amp
MW	Megawatts
Proposal (the)	The purpose of the proposal is to build an energy-from-waste (EfW) facility that can generate up to 58 megawatts (MW) of power by thermally treating up to 500,000 tonnes per year of residual municipal solid waste (MSW) and residual commercial and industrial (C&I) waste streams that would otherwise be sent to landfill.
SEARs	Secretary's Environmental Assessment Requirements
UGOH	Underground to Overhead
WSERRC	Western Sydney Energy and Resource Recovery Centre

# 1 Introduction

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This Chapter introduces the proposal and applicant while describing the purpose and structure of this report.

## 1.1 Proposal description

Cleanaway and Macquarie Capital are jointly developing an energy-from-waste (EfW) facility known as the Western Sydney Energy and Resource Recovery Centre (WSERRC) (the proposal).

The proposal will be designed to thermally treat up to 500,000 tonnes per year of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste streams that would otherwise be sent to landfill. This process would generate up to 58 megawatts (MW) of base load electricity some of which would be used to power the facility itself with the remaining 55MW exported to the grid. The proposal involves the building of all onsite infrastructure needed to support the facility including site utilities, internal roads, weighbridges, parking and hardstand areas, storm water infrastructure, fencing and landscaping.

The proposal site is located at 339 Wallgrove Road in Eastern Creek, NSW (Lot 1 DP 1059698) which is in the Blacktown local government area (LGA). The site is in the Wallgrove Precinct of the Western Sydney Parklands (WSP) Plan of Management.

The 8.23ha site is divided by a small strip of land not part of the proposal site, resulting in a 2.04ha northern section and a 6.19ha southern section. This dividing strip is part of the adjacent lot and includes a right of carriageway benefitting the proposal site allowing vehicles to move between the two parts of the site. The proposal area will be fully contained in the 6.19ha portion of the site. Works to occur on the 2.04 ha northern section of the site include the clearing of weeds and exotic vegetation within the existing overland flow channel which is confined to the eastern section of this parcel of land. The northern section will also be used temporarily to support construction works. It is not currently expected that any other works will occur on the 2.04 ha northern section of the site as part of this proposal.

## 1.2 Document purpose

The purpose of this technical report is to outline the impacts of the proposal on existing public utilities within the proposal boundary and describes the proposed servicing strategy for the EfW facility. To satisfy the Secretary's Environment Assessment Requirements this report contains the following information:

- Overview of existing utility assets within the proposal boundary and necessary protection measures.
- Demand assessment for proposed services.
- Summary of consultation undertaken with the relevant service provider.
- Description of proposed servicing strategy for each service including feasibility study for the preferred connection to the electricity grid.

To serve the proposed EfW facility utility supplies from public networks outside the proposal boundary require to be conveyed to site. While these connections will be discussed within this chapter for information, works outside the proposal boundary are referred to as Related Development.

## 2 Existing environment

*This section provides information relevant to the existing public utility assets within the study area.*

Public utilities are infrastructure within the proposal boundary such as pipes, cables, tunnels, pits and structures that are used for protecting, housing or transporting chargeable consumables such as water supply, sewer, power, communications, and gas to the public.

Any assets that are understood to be impacted, take significant time and cost to design and relocate, as well as those that may be difficult to relocate due to flat grades particularly sewer and stormwater pipelines, have been identified. Only assets within the footprint of proposal boundary are discussed within this report. Works outside the proposal boundary are referred to as Related Development and are outside the scope of this EIS.

Assets that are not included under public utilities are rail/road tunnels, private buildings basements, private utilities (i.e. utility to building, building to building), Council stormwater, Sydney Water stormwater, although some comments will be made around existing stormwater adjustments.

The following utility providers have been identified (but not limited to) as known to have assets located in broader proximity to the project scope area:

Table 1 – Schedule of Utility Providers with Assets in or near Proposal Boundary

Utility Provider	Utility Type
AARNet	Communications
Endeavour Energy	Electricity
Jemena	Gas
NBN	Communications
Nextgen	Communications
Optus	Communications
Roads and Maritime Services (RMS)	Traffic signals
Superloop	Communications
Sydney Water	Water supply / sewerage / stormwater
Telstra	Communications
TPG	Communications
Westlink M7 Motorway	Power / communications

Vendor record drawing, provided by the previous landowner and showing existing service connections, is contained in Appendix B.

The following sections describe existing utilities which service the existing site, and which may be impacted by the proposal.

## 2.1 Existing electrical services

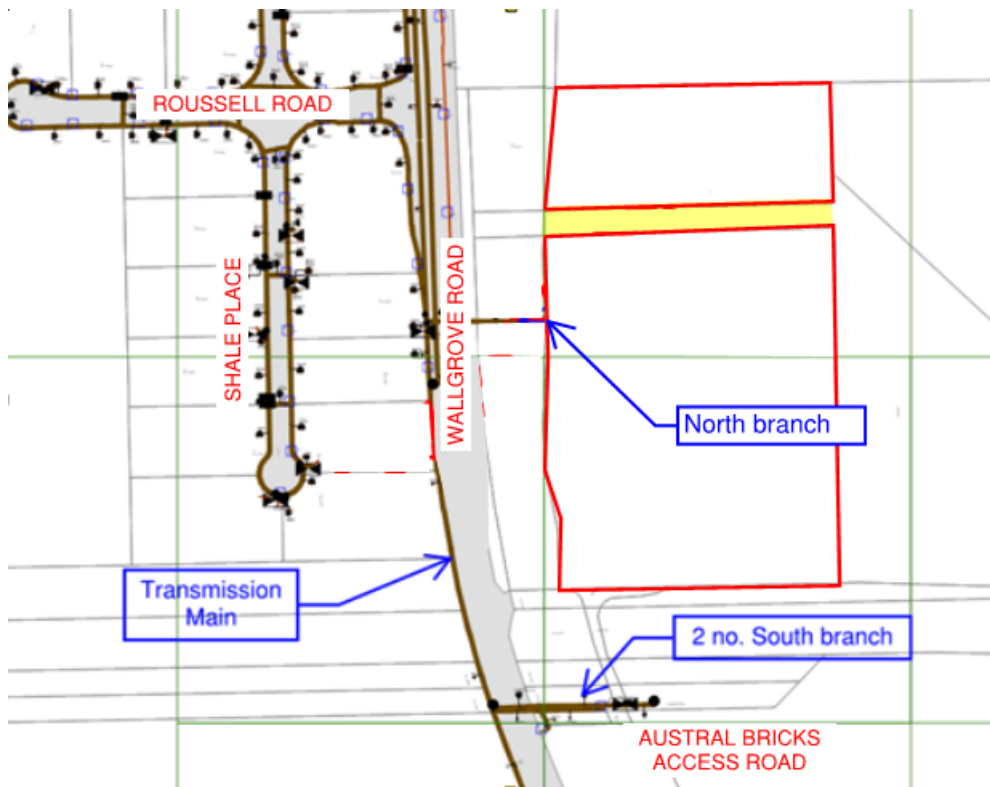


Figure 1. DBYD Search – Known Endeavour Energy Assets

Figure 1 shows the known Endeavour Energy assets located in proximity to and within the proposal boundary (site boundary shown in red and right of carriageway in yellow).

There is an overhead 33kV transmission main which runs north-south on Wallgrove Road adjacent to the proposal location. There are nine (9 no.) ducts: 2 no. x 50 mm PVC (code B) and 7 no. x 125 mm PVC (code D).

From the transmission main there are three connections which branch east towards the project site:

- The northern branch crosses underneath the Westlink M7 motorway. This duct run has six (6 no.) ducts: 2 no. x 50 mm PVC (code B) and 4 no. x 125 mm PVC (code D). Two of the 125 mm ducts are occupied, and the other ducts are empty. Power for the existing agricultural buildings is taken from this branch.
- The first southern branch also crosses underneath the Westlink M7 Motorway. This crossing has four (4 no.) ducts: 2 no. x 50 mm PVC (code B) and 2 no. x 125 mm PVC (code D). One of the 125 mm ducts is occupied. This duct run connects to a pad mount substation on the western corner of the access road to the project site (shown in Figure 2).

- The second southern branch also crosses underneath the Westlink M7 Motorway. This duct run has 2 no. x 50 mm PVC (code B) ducts. One of the 50 mm ducts is occupied. This duct run terminates at a light pole on the western corner of the access road to the project site (shown in Figure 2).



Figure 2. Endeavour Energy Light Pole, Pad Mount Substation and Switch Board

Although not shown on the Endeavour Energy record drawings, information provided by the vendor shows the presence of 3No 250mm conduits. These conduits are vacant and crosses underneath Wallgrove Road and the M7 to the western boundary of the site. These conduits are located approximately 50m south of the northern branch.

The site is currently supplied by pole substation 6592 on the 11kV feeder 8721 from Horsley Park zone substation. The feeder is located on Wallgrove Road, west of the project boundary. The cables enter the site below ground, at the western boundary, and reach an existing underground to overhead (UGOH) pole.

Within the site, existing sheds and outhouses are served from a privately owned, overhead electrical network that connect to the main feeder.

Endeavour Energy have been consulted with regards to possible electrical supply and connection for the proposed development. This is described in Section 4.3.2.

## 2.2 Existing water services

Figure 3 below shows the known Sydney Water potable water assets located in proximity to and within the project boundary (boundary shown in red and right of carriageway in yellow).

There is an existing Ø1050 steel cement lined internal bitumen lined (SCL IBL) trunk main which crosses through the north east corner of the proposal site and has an associated 7.5m wide easement. This pipe continues south east and follows the Warragamba Pipelines corridor east. No construction works or changes in level are proposed which would impact the 1050 diameter SCL IBL pipe.

An existing Ø225 PVC-U service main is located under Wallgrove Road serving the industrial park at Roussell Road.

Sydney Water have been consulted with regards to possible water supply connections. This is described in Section 4.1.2.

The Warragamba Pipelines and corridor sit immediately south of the proposal boundary and will be discussed in a separate section. Discussions with the previous landowner confirmed that the farm dam on site was the primary source of potable water. A 50mm diameter connection from the Warragamba Pipelines enters the site at the southwest corner of proposal boundary and is directed to the main shed. It is understood that this supply was effectively a back-up supply and typically only used during periods of drought.

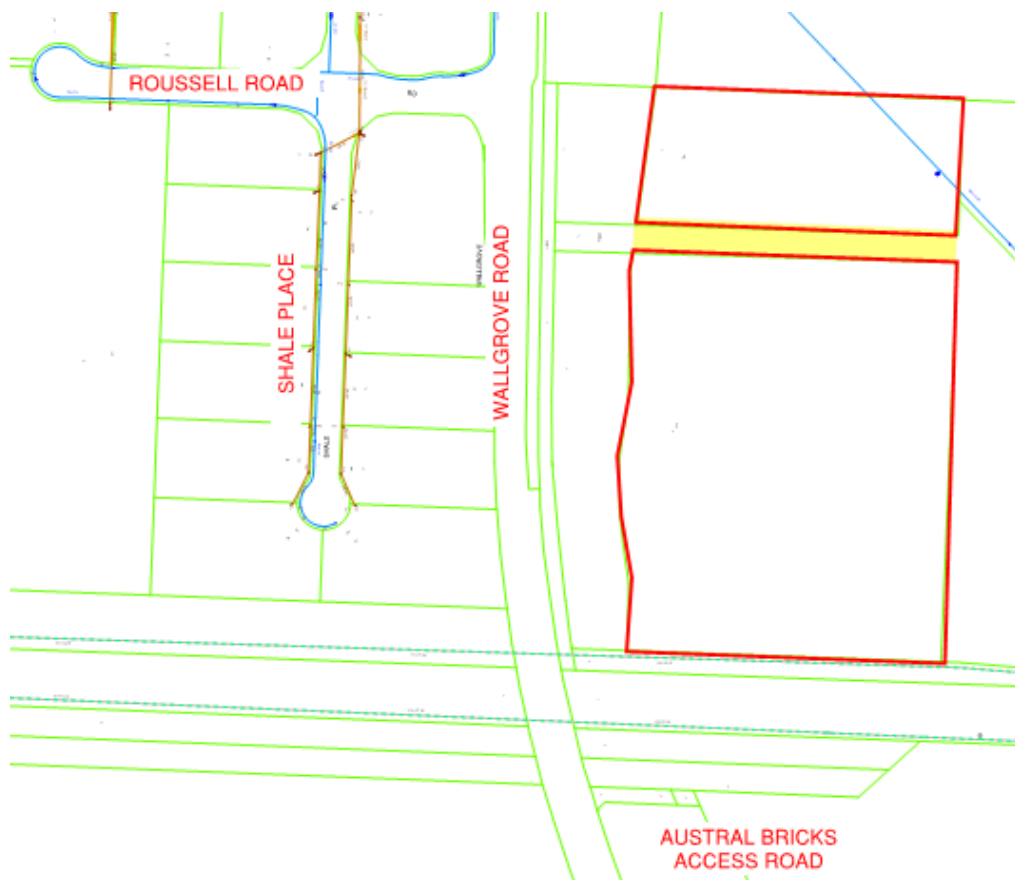


Figure 3. DBYD Search – Known Sydney Water Assets



## 2.3 Existing sewer services

Figure 3 above also shows the known Sydney Water sewer assets located in proximity to and within the proposal boundary (boundary shown in red and right of carriageway in yellow).

There is an existing Ø225 vitrified clay (VC) sewer pipe gravity sewer under Roussell Road, Clay Place and Shale Place at the industrial park. This sewer line continues to the north to a Ø300 concrete encased polypropylene (PP) sewer pipe.

Buildings on the site are served by several septic tanks that were trucked off-site periodically. There is currently no formal positive sewer outfall for the site.

Sydney Water have been consulted with regards to possible sewer (wastewater) connections. This is described in Section 4.1.2.

## 2.4 Existing communications services

AARNet, NBN, Nextgen, Optus, Superloop, and Uecomm have cable assets located under the eastern side of Wallgrove Road. No works are proposed which will impact any of these cables under Wallgrove Road. The above utility providers have not been consulted as part of the EIS process with the exception of NBN.

NBN have been consulted with regards to a possible communications connection. This is described in Section 4.4.2.

Telstra also own cable assets located under the eastern side of Wallgrove Road. There is a duct run which branches off Wallgrove Road entering the western side of the proposal site. This duct continues to a 5-pit. There are four (4 no.) 20 mm PVC ducts. From survey information, a telecommunications connection has been established from this pit to the agricultural buildings but is no longer active.

PIPE Networks (TPG) have cable duct assets located adjacent to the M7 Cycleway. No works are proposed which will impact any of these ducts. PIPE Networks have not been consulted as part of the EIS process.

## 2.5 Existing gas services

There are no existing gas services in proximity to or within the proposal boundary. The proposed development will not require gas services in the future. Jemena have therefore not been consulted as part of the EIS process.

## 2.6 Existing traffic signal services

The intersection of the access road into the project site and Wallgrove Road is not currently signalised. From Wallgrove Road, traffic currently enters via a turn off



lane from either the north or south. From the site, traffic exits to Wallgrove Road (north or south) with traffic flow controlled by stop sign. It is expected that by the time the EfW facility is operational, the intersection with the access road and Wallgrove Road will be signalised. This is discussed further in the Traffic and Transport chapter.

TfNSW (now inclusive of RMS) have been consulted with regards to increasing traffic through this intersection. This is described in the 'Traffic and Transport' chapter.

## 2.7 Warragamba Pipelines

To the south of the site is the Warragamba Pipelines Corridor. The Warragamba Pipelines Corridor is owned and managed by WaterNSW. The corridor is approximately 50 metres wide. There are two large pipelines in the corridor. The southern pipe is 2.1 metres in diameter and the northern pipe is 3.0 metres in diameter. The pipelines are above ground and are of a steel cement lined internal bitumen lined (SCL IBL) construction.

Access to the site is currently made by crossing over the Pipeline and Pipelines corridor via a bridge adjacent to the Westlink M7 Motorway. This crossing was constructed by encasing the two pipelines as part of the M7 construction.

WaterNSW have been consulted with regards to construction in proximity to and over the Warragamba Pipelines and Pipelines Corridor. This is described in Section 4 and within the specific WaterNSW Technical Paper & Risk Assessment contained in Appendix A.

## 3 Methodology

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This Chapter outlines the methodology used to define the baseline and undertake the environmental assessment of potential impacts of the proposal on the public utilities including definition of the study area used as the basis of the assessment. This Chapter also presents relevant regulation, legislation and policy governing management of public utilities as it relates to the proposal.

### 3.1 Legislative context

#### 3.1.1 Commonwealth legislation

A number of Commonwealth legislative requirements to protect public utilities are noted below:

- Telecommunications Act 1997
- Security of Critical Infrastructure Act 2018

#### 3.1.2 New South Wales legislation

A number of NSW legislative requirements to protect public utilities are noted below:

- Electricity Supply Act 1995
- Gas Supply Act 1996
- Water Management Act 2000

#### 3.1.3 Policy

- Fire and Rescue NSW (FRNSW) - Fire Safety Guidelines – Fire Safety in Waste Facilities Version 02

### 3.2 Method

To address the project SEARs and address points raised by public utility authorities the following methodology was developed:

- Collate and review available data on existing public utilities; including conducting a Dial-Before-You-Dig (DBYD) search.
- Assess proposed site layout against any existing public utility infrastructure within the proposal boundary and identify any necessary protection or diversion works required.

- Undertake demand assessment for each core utility serving the EfW facility.
- Consult with all relevant service providers.
- Define preferred point of connection or servicing strategy for the development for each service.

### 3.3 Study area

The study area for the utilities and services assessment of the proposal is shown in Figure 4. This study area relates to the known locations of existing services within the project boundary as well as locations of proposed connections to existing services.

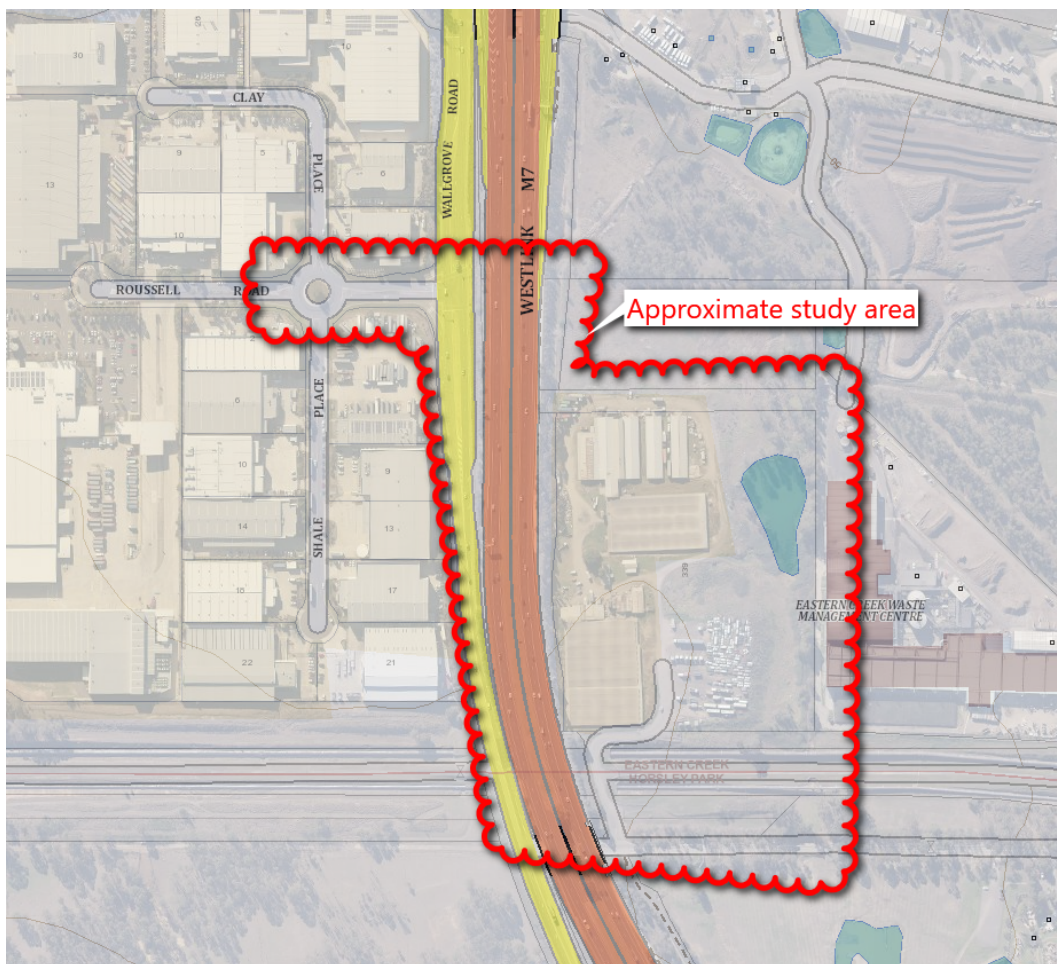


Figure 4 – Study area for site utilities and service assessment

## 4 Impact assessment

This Chapter details the proposed servicing strategy for the development and assesses the impact to existing utility infrastructure in relation to both construction and operational impacts.

### 4.1 Potable and Process Water

#### 4.1.1 Demand Estimate

Water demands for the proposal are split into 3 principle categories:

1. Potable water – Water welfare and cleaning facilities i.e. drinking water, showers etc. This includes an allowance for water used for facility washdown and cleaning.
2. Fire water – Water serving fire hydrants, water cannons and sprinkler systems.
3. Process water – Water to be fed into the boiler.

The water demands for the WSERRC are summarised in Table 2.

Table 2. Potable water Demands for WSERRC

Water Use	Average Demand (L/s)	Peak Demand (L/s)
Potable Water for Building	0.3	1.5
Fire Water	18.0*	113.1
Process Requirements**	9.0	

\* Note the peak demand constitutes a significant demand on the existing water infrastructure. To reduce the peak fire water demand, fire hydrant and fire sprinkler tanks will be provided. These tanks require to be filled within an 18-hour period to comply with fire regulation. This dictates an average flow of 18.0l/s.

\*\* The process water is a constant load of 4.5 l/s per line. The thermal treatment is proposed to operate 24 hours per day, 7 days per week. All process water would be 100% re-used within the facility, with the only losses as steam or quenching incinerator bottom ash). No effluent water will be produced in the EfW process.

2 process water tanks will be provided as part of the proposal, one each side of the building. These tanks will be sized to have a permanent supply of water to serve the facility in the event of a mains failure to allow for safe shut-down. Additional storage capacity will be provided within these tanks to store rainwater collected from the main EfW building roof which can be used as a secondary supply of process water.

### 4.1.2 Consultation

An initial meeting was held with Sydney Water on 29 January 2020 to discuss water and wastewater servicing strategies. Discussions with Sydney Water have continued via phone and email.

In consultation with Sydney Water, consideration was given to the option of supplying the site with recycled water to service the process water demand. However, this was ultimately not pursued for the following reasons:

- The nearest current supply point for recycled water was in the Parramatta area. This is approximately 10 km from the site which is too far to be economical.
- Sewer mining of a trunk sewer would require the construction of a new wastewater treatment plant in addition to rising mains to the site. Due to the up-front capital costs and spatial requirements for the plant, this option was not deemed to be feasible.

A pressure enquiry was submitted through Sydney Water Tap in to confirm that the existing potable network would be able to provide sufficient water to the WSERRC. The flow and pressure results confirm a maximum permissible flow of 120 L/s. This is in line with the design intent that the Sydney Water network can provide peak potable water demands and supply to fill all fire tanks within the site. If recycled water is not considered feasible, the potable water supply is also sufficient to serve process water requirements.

A formal response was received from Sydney Water on 29 May 2020 confirming that the proposed connection point has capacity to serve the development. A copy of this letter is included in Appendix C. Further consultation and design development will be required during detailed design to gain formal approval for the works.

### 4.1.3 Connection Strategy

#### Potable Water

It is proposed to connect the WSERRC via the existing Ø225 PVC-U service main at Roussell Road. Separate water and fire mains are proposed from this connection point to the WSERRC site.

The exact route of the potable water connection is to be confirmed at detailed design stage however the preferred route crosses underneath the Westlink M7 Motorway. The M7 motorway crossing will either use existing spare conduits (if the asset owner permits the use of their conduits) or create a new crossing by thrust boring. This is to avoid open cut trenching of the M7 Motorway which would cause significant disruption. Liaison with the owners of the M7



(NorthWestern Roads Group) and Sydney Water will be required to obtain approval to undertake these works.

Sydney Water have confirmed that other developments have previously created potable water services crossings under the Westlink M7 Motorway. These connection works outside of the proposal boundary are not part of this EIS and form part of the related development.

The proposed connection strategy for potable water is shown in Figure 5.

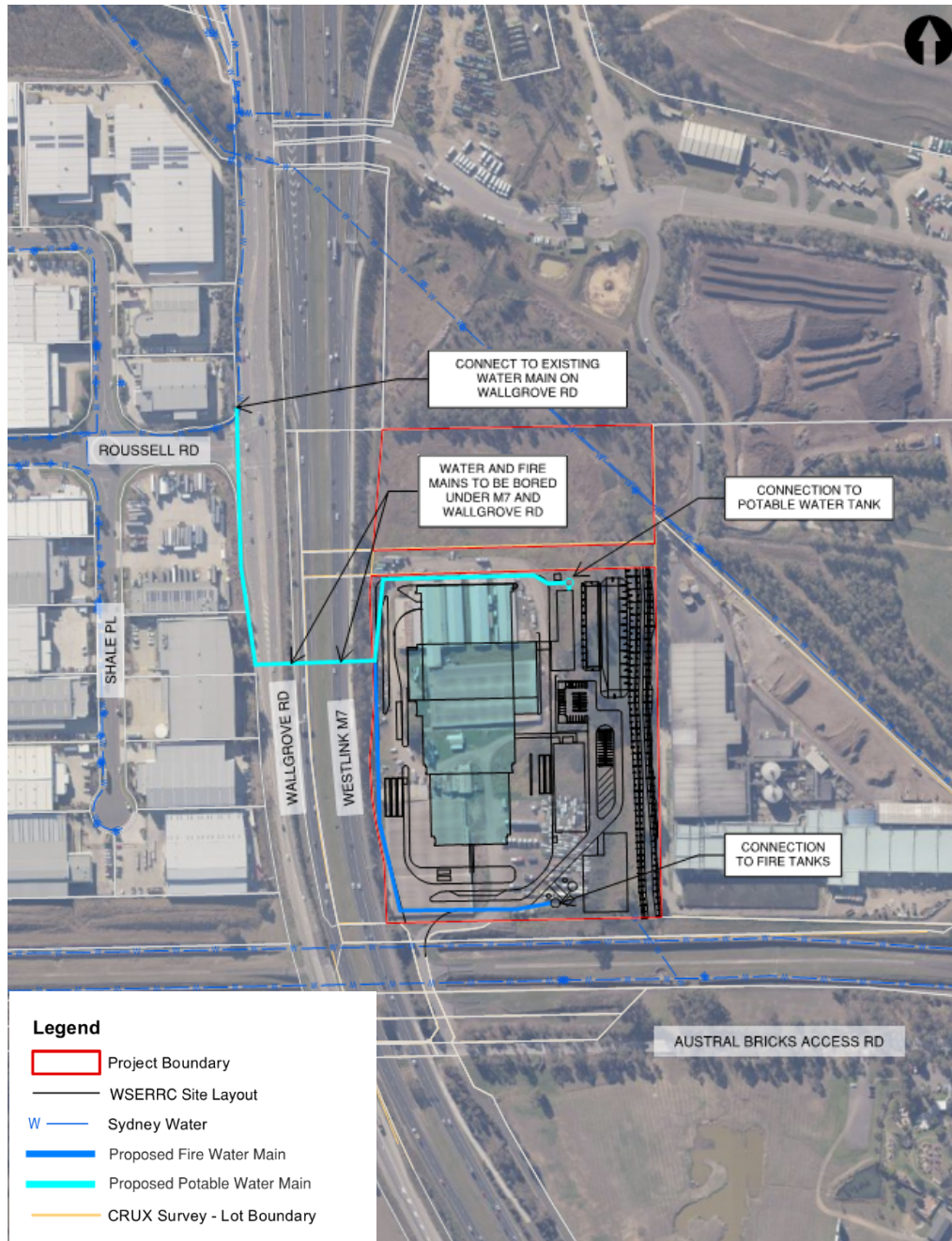


Figure 5 – Potable Water Connection Strategy

#### 4.1.4 On-Site Water Reticulation

All of the water networks described below would be private systems, owned and maintained by the applicant.

##### **Potable Water Main**

The incoming potable water main will enter the WSERRC site at the western boundary and will be directed to the water tank proposed adjacent to the visitor centre.

A potable water reticulation network will be installed, serving the visitor centre and the EfW facility, via a potable water tank and booster pump set.

##### **Fire Water Mains**

The incoming fire main will enter the WSERRC site at the western boundary and will be routed south underneath the pavement or verge towards the booster pump set near the southern boundary.

From the booster pump set the incoming fire main is split into a fire sprinkler and fire hydrant network. Both systems have associated external tanks to store the necessary volume of water as dictated by the fire regulations. Separate sprinkler and hydrant water ring-main will be installed. These ring mains will be installed around the perimeter of the EfW facility with branches off to serve specific fire-fighting systems as required.

#### 4.1.5 Impact to Existing Sydney Water Assets

There are no existing Sydney Water water assets within the southern portion of the proposal boundary. No permanent construction works or changes in level are proposed in the northern portion of the site where the existing Ø1050 is present. It is therefore considered that the proposal causes no impact to existing Sydney Water assets within the proposal boundary.

The proposed connection to the existing Sydney Water main under Wallgrove Road, outside of the proposal boundary, is covered within Related Developments.

#### 4.1.6 Impact to Existing WaterNSW Assets

The existing 50 mm connection is a legacy connection provided by WaterNSW. WaterNSW typically no longer provide a water supply directly to residential or commercial properties. This service is typically provided by Sydney Water. The existing 50 mm connection from the Warragamba Pipeline will be disconnected as part of the development to permit the construction of the EfW facility.

Disconnection details will be confirmed during detail design following agreement with WaterNSW.

Refer to Section 5.1.1 and Appendix A for the risk assessment of the impacts of the proposed development on the Warragamba Pipelines and corridor.

## 4.2 Sewer

### 4.2.1 Demand Estimate

Wastewater to be discharged to the Sydney Water networks is generated from the welfare facilities (kitchens, toilets etc) within the administration building and visitor centre and general site uses such as washdowns and cleaning. As process water is wholly consumed as steam or quenching of fly ash, no process water is discharged to sewer. Therefore, sewer discharge rates are relatively low. Flows have been determined based on the following occupancy rates and an allowance for general site uses:

- 50 No daily staff
- 100 No daily visitors
- 5000 L/day allowance for cleaning and washdown

This results in an anticipated average flow of 0.25 L/s and a peak flow of 1.5 L/s.

### 4.2.2 Consultation

An initial meeting was held with Sydney Water on 29 January 2020 to discuss water and wastewater servicing strategies.

Discussions with Sydney Water have continued via phone and email. Sydney Water's formal response, contained in Appendix C, confirm that the proposed connection point on Roussell Road has capacity to take the development flows.

### 4.2.3 Connection Strategy

A pump station is required to convey flows from the site to the existing Ø225 vitrified clay (VC) sewer pipe gravity sewer at the intersection of Clay Place and Roussell Road. The exact route is to be confirmed at detailed design stage, however, the preferred route crosses underneath the Westlink M7 Motorway. The M7 motorway crossing will either use existing spare ducts or create a new crossing by thrust boring. This is to avoid open cut trenching of the M7 Motorway which would cause significant disruption.



Sydney Water has confirmed that other developments have previously created potable water and other services crossings under the Westlink M7 Motorway.

These connection works outside of the proposal boundary are not part of this EIS and form part of the related development.

The proposed connection strategy for sewer is shown in Figure 6.

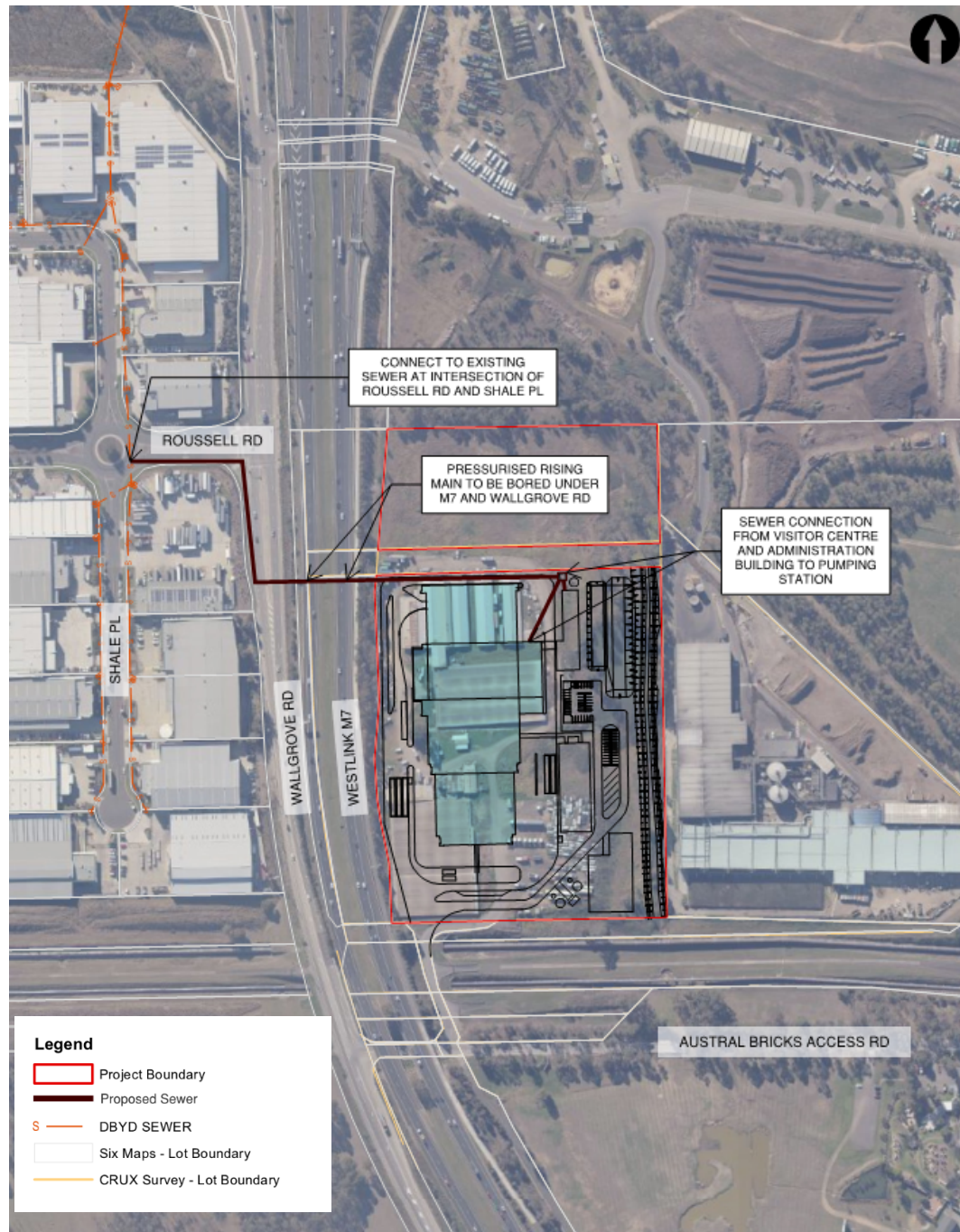


Figure 6 - Sewer Connection Strategy

#### 4.2.4 On-site Sewer Reticulation

A gravity sewer system will convey flows from the EfW facility and visitor centre to a package pump station located east of the main EfW building. The pump-station would be sized to provide a minimum 24-hour storage of effluent.

A duty and standby pump configuration would be provided to allow continued service if one pump should fail. A below ground rising main would be installed under roadways and run from the pump station to the western boundary of the site where it will cross under the M7. The pump station and rising main would be private assets and be managed and maintained by the proponent.

#### 4.2.5 Impact to Sydney Water Assets

There are no existing Sydney Water sewer assets within the extent of the project boundary therefore the proposal causes no impact.

The proposed connection to the existing Sydney Water sewer under Clay Road, outside of the proposal boundary, is covered within Related Developments.

### 4.3 Electrical

#### 4.3.1 Demand Estimate and Grid Connection

Under normal operating conditions the EfW facility will be self-sufficient and export a significant electrical load to the surround electrical network. The plant will deliver power from the turbine/generator through the unit transformer to the grid. A small proportion of the load generated will supply power to the EfW and visitor centre buildings in addition to site infrastructure such as street lighting, security systems and weighbridges.

The electrical load produced will vary depending on the throughput and calorific value of the waste. The process of thermally treating the waste would generate up to 58 megawatts (MW) of electricity on a gross basis with a proportion of the electricity generated to be used to power the facility itself and the remainder to be exported to the grid. The maximum electrical load that is to be exported to the local electrical grid is 55MW. This is a provisional assessment and will be verified with more detailed modelling by Endeavour Energy during detail design.

During start-up conditions however the EfW facility will require to import electrical load to assist with the start-up process. The exact load is to be determined during detail design however this has been conservatively estimated to be 3MW.

### 4.3.2 Consultation

A formal technical enquiry for the export of 55MW was submitted to Endeavour Energy in December 2019. An initial response was received January 2020, with a revised response issued March 2020.

A meeting was held with Endeavour Energy on 5 March 2020 to discuss the grid connections options offered in the initial technical enquiry response.

### 4.3.3 Connection Strategy

Three feasible route options to connect the WSERRC to the grid have been presented by Endeavour Energy in the revised response to the Technical Enquiry. This comprises two (2No) 33 kV options and one (1No) 132 kV option as shown in Appendix D.

All options have been deemed to be technically feasible offering a viable connection to the local transmission network. The points of connection for both 33 kV and 132 kV are west of the proposal boundary, with the 33kV connection being adjacent to Wallgrove Road.

Approval of these works outside the site boundary and up to the boundary of the site will be the responsibility of the proponent and includes responsibility to acquire easements for any assets that pass over private or public land. This works would be designed and constructed by an Accredited Service Provider (ASP) selected by the project. The ASP would submit their designs to Endeavour Energy for review and approval prior to construction. These works would be funded by the project. Further information on works outside the proposal boundary is provided in Chapter 22 'Related Development'.

The proposed electrical connection strategy is shown in Figure 7.



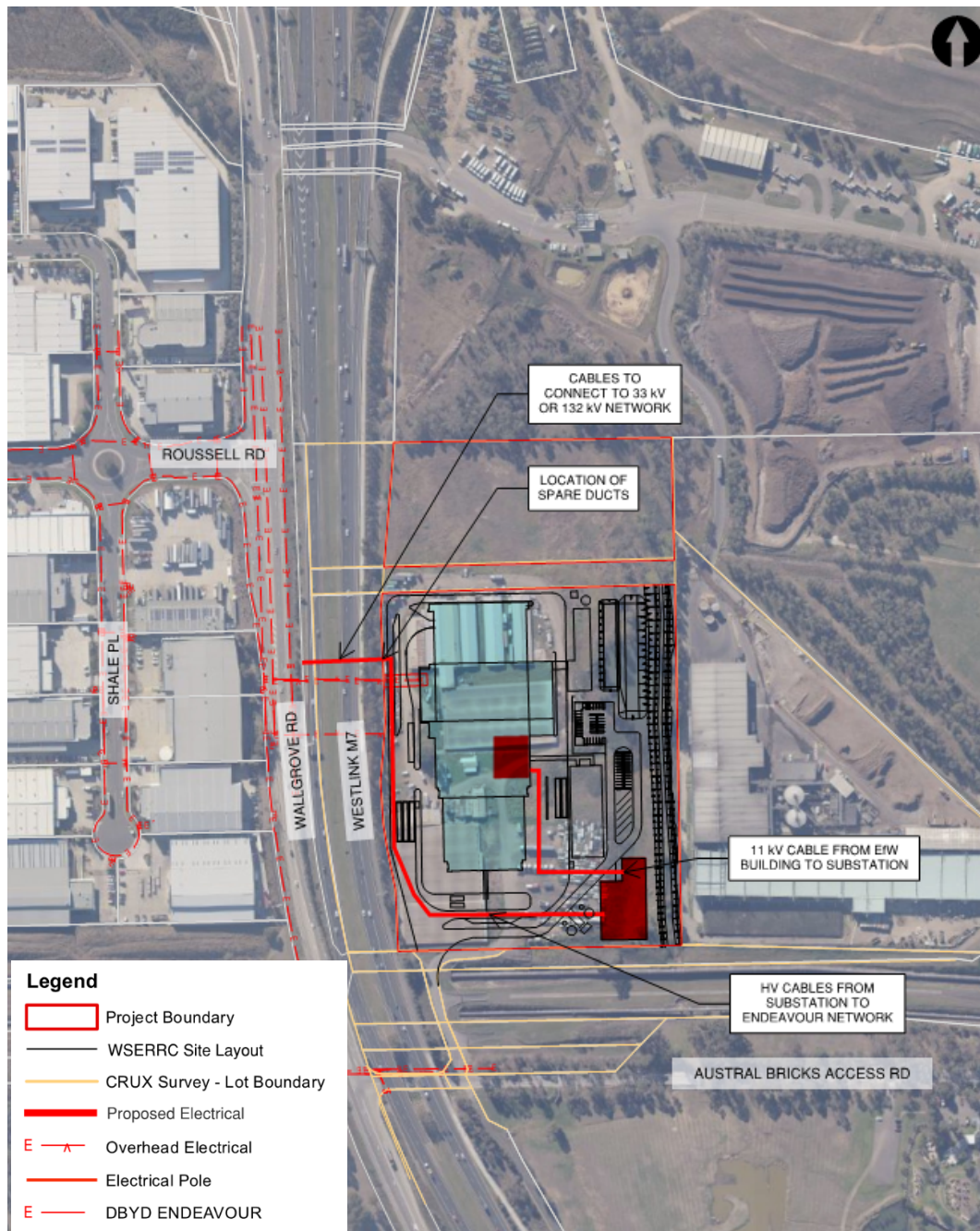


Figure 7 – Electrical Connection Strategy

#### 4.3.4 On-Site Electrical Reticulation

The incoming/outgoing HV electrical cabling, either 33 kV or 132 kV, would enter the WSERRC site along the western boundary. It is intended to use existing spare ducts owned by Endeavour Energy that pass under the M7.

This HV main would run along the western and southern perimeter of the site to the facility's switching station located at the southeast corner of the site. This switching station would accommodate the principle electrical equipment including:

- Transformers,
- Switchboards,
- Earthing,
- Isolation points and 33kV or 132kV breaker
- Busbar and
- Control Room

The unit transformer would step up the voltage rating of electricity produced from the facility's generator at 11 kV to suit the grid connection voltage (33 kV or 132 kV). HV cables will run underground from the Boiler Hall to the switching station.

In the import scenario, the same transformer will act to step-down the voltage at the switching station to reduce the voltage of the incoming power supply to suit the facility's distribution network.

Switchgear within the main facility will be located within a dedicated room. The 11kV switchboard in the main building will be the main distribution switchboard for the entire site. There will be an auxiliary 11kV/433V distribution transfer feed off the 11kV busbar that will supply the low voltage system of the facility.

Within the EfW building, cable racks will distribute cables to all equipment, administration space and lighting. Externally, a below ground LV network will serve ancillary items such as weighbridges, lighting and security systems.

#### **4.3.4.1 Earthing and Lighting Protection**

The plant will be provided with an earthing system and a lightning protection system, both of which will be in accordance with international standards. The main subgrade earthing system will include connections to the substation and will include connections to other buildings located within the site boundary.

Fuel pipelines entering the site will be earthed at the flanged connection close to or outside of the site boundary.

#### **4.3.4.2 Conduits and Cabling**

All power cabling will be installed in accordance with relevant Australian standards in terms of trench depth, arrangements of conduits, and appropriate mechanical protection to reduce the risk of accidental damage from future excavation. The earth sheaths of the power cables entering the site will be bonded in accordance with the relevant standards of electrical network operator.

The southern section of the site contains a limited number of trees which will be removed where they are close to the proposed substation. The proposed electrical conduit route will be underneath roadways and hardstanding and be positioned clear of retained or proposed trees, which are primarily located along the eastern boundary of the site.

### 4.3.5 Impact to Existing Endeavour Energy Assets

The UGOH pole that supports the existing electrical supply to the site will be disconnected and removed to facilitate construction of the main EfW facility. The timing of removal and location that cables would be disconnected will be confirmed during detail design following further dialogue with Endeavour Energy.

Proposed electrical services exiting the site will be located underground, connecting into the existing ducts near the UGOH pole.



Figure 8 – Photograph of Existing UGOH Pole

## 4.4 Telecoms

### 4.4.1 Demand Estimate

To control and monitor all processes and components, and to support automatic operation of the facility, a Continuous Emissions Monitoring System (CEMS) is required.

The CEMS would perform the dedicated control and monitoring tasks for all equipment in the plant and support plant operation staff in reporting to internal and external parties (e.g. environmental authorities). The CEMS would support

plant maintenance staff in planning and organising the maintenance of plant and enable automatic generation of environmental reports and maintenance schedules.

The operation of the CEMS requires an extensive communication network. To enable the continuous operation of the facility and to mitigate the impact of external factors, a hard-wired communications connection has been proposed.

#### **4.4.2 Consultation**

A Fibre to the Premises (FTTP) connection is proposed to provide a hard-wired service connection to the site. An enquiry was made to Telstra if they would be able to provide this connection from the existing Telstra pit on site. Telstra advised that only NBN would be able to coordinate and facilitate the construction of additional infrastructure.

An application was submitted to NBN via their Technology Choice Program. The 'Technology Choice Program' enables parties to change their NBN access network technology at their own cost.

NBN have subsequently confirmed that a FTTP connection is feasible and have provided a build quote based on connecting from the existing NBN network on Wallgrove Road to the south of the site. The build quote covers the design and construction of the FTTP connection and a copy is shown in Appendix E.

#### **4.4.3 Connection Strategy**

The exact design and construction details are confidential to NBN but generally the connection will be made from existing NBN network infrastructure on Wallgrove Road (to the south of the proposed WSERRC) and connect into the site.

These connection works outside of the proposal boundary are not part of this EIS and form part of the related development.

#### **4.4.4 On-Site Telecoms Reticulation**

A property lead-in conduit would be constructed to the Main Control Room/Unit in the EfW facility. From the Main Control Room, communication services would be distributed through the facility via data racks. It is also proposed to construct an underground ring-main conduit network around the building to serve all monitoring and security equipment.

#### **4.4.5 Impact to Existing Telecom Infrastructure**

The existing Telstra pit on site and any conduits leading out of it will be made redundant and removed to facilitate construction of the main EfW facility. A new



separate telecoms connection would be established based on the design prepared by NBN.



Figure 9 – Photograph of Existing Telstra Pit in near western site boundary

## 4.5 Gas

No gas supply is proposed to serve the EfW facility. All power supplies would be from electrical sources with auxiliary supply from diesel generators. As such no consultation with Jemena has been undertaken.

There are no existing gas services within the proposal boundary and therefore the development causes no impact to existing gas networks.

## 4.6 Construction

### 4.6.1 Demolition Impacts

All privately owned utility assets within the proposal boundary will be made redundant and removed during construction of the WSERRC. The demolition of these existing assets would first require removal of existing agricultural structures.



## 4.6.2 Construction Staging

Private, internal electrical, water and telecom networks serving the existing buildings will be disconnected prior to building demolition works commencing.

To avoid diesel generators and water tanks on site, the applicant intends to re-use existing electrical and water supplies entering the site. New conduits and pipework would be installed as required to serve construction activities i.e. temporary site compounds until permanent connections are commissioned.

These are subject to discussions and agreements with Endeavour Energy and WaterNSW respectively.

### 4.6.2.1 Endeavour Energy

Endeavour Energy have noted that similar augmentation projects have recently completed within a 6-month construction period. A large proportion of the electrical works will be off site and not within the proposal boundary.

To construct underground and/or overhead electrical wiring and other associated infrastructure to connect the WSERRC to Endeavour Energy's grid network will involve night works and shift works to minimise disturbance to existing roads.

Community and business engagement will be undertaken as appropriate to keep the local community informed of works and potential road closures of the Austral Bricks access road and Wallgrove Road which may affect them. These off-site works are not part of this EIS and are included within related developments.

The existing electrical supply will be retained to provide power for demolition and construction until the permanent electrical supply is established and operational. Further consultation with Endeavour Energy during detailed design will be required to ensure any modifications or extensions to the network are compliant with relevant standards.

The permanent electrical supply is required to be operational 9 to 12 months prior to commercial operations commencing to allow undertaking of testing and commissioning.

### 4.6.2.2 NBN

NBN have not provided any information regarding construction durations. It is expected that night works and shift works will be required to minimise disturbance to existing roads.

The permanent telecoms connection is required to be operational 9 to 12 months prior to commercial operations commencing to allow undertaking of testing and commissioning.

#### 4.6.2.3 WaterNSW

The existing WaterNSW connection serving the site may be retained during construction to service construction demands. Once the permanent potable water supply is operation, this existing Ø50 mm pipe would be disconnected and removed.

Construction in proximity to the Warragamba Pipelines must not impede WaterNSW's ability to access the Warragamba Pipelines and Pipelines corridor. WaterNSW require access to the Warragamba Pipelines and Pipelines corridor 24 hours a day, 7 days a week.

Construction works will need to be staged so that access can be made from at least one of the access ramps to the corridor at all times. WaterNSW will also be consulted prior to any works proceeding and dates for construction will need to be agreed.

Construction activities within the proposal boundary, such as piling works, have the potential to impact the Warragamba Pipeline. Assessment and mitigation measures for these activities are discussed within "Warragamba Pipeline - Technical Paper and Risk Assessment" contained in Appendix A.

Further consultation with WaterNSW is anticipated during the detail design stage to establish and agree an approvals route, including necessary monitoring regimes.

#### 4.6.2.4 Sydney Water

The construction of connections to Sydney Water infrastructure for potable water and sewerage would involve disruption of existing infrastructure which is live and in use and construction underneath the Westlink M7 Motorway.

Community engagement will be undertaken as appropriate to keep the community informed of works and potential service/supply disruptions which may affect them. These off-site works are not part of this EIS and are included within related developments.

The permanent water supply and sewer connections are required to be operational 9 to 12 months prior to commercial operations commencing to allow undertaking of testing and commissioning.

### 4.7 Operation and maintenance

The facility will be operational most of the year with the exception for planned shutdowns to complete annual inspections and maintenance tasks. This includes annual inspections of core electrical, water and sewer systems on site.

### 4.7.1 Maintenance of Critical Services

Key services and utilities needed for the EfW facility and administration centre to function are:

- Electrical equipment (transformers, switchgears, breakers)
- Electrical generator
- Electrical distribution
- Fire water supply, tanks and booster pump
- Process water supply and tanks
- Comms network and CEMS (Continuous Emissions Monitoring System)
- Potable Water
- Sewer system (including pump station & pumps)

O&M manuals would be produced by suppliers of equipment detailing inspection and maintenance requirements. The applicant will ensure that these works are undertaken as prescribed in the O&M manuals.

Replacement of faulty parts directly serving the thermal treatment and grid export would either be completed when one operational line is shut-down or the whole facility is shut-down.

## 5 Proposed mitigation measures

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This section outlines proposed mitigation and management measures that have been developed to mitigate the potential utility impacts of the proposal during construction and operation.

As an exporter of electricity, the EfW facility would not place additional demand on the electrical transmission other than during the start-up process. Indeed, the EfW will assist in the providing baseload energy to customers.

The pressure enquiry submitted through Sydney Water Tap has confirmed that the existing potable water network can provide a peak flow of 120 L/s of water which is sufficient for the WSERRC.

Fire and water tanks have also been proposed to lower the peak water demand on Sydney Water's potable water network.

To minimise excavations and mitigate disruptions to the M7 and Wallgrove Road the applicant seeks to utilise existing electrical and spare conduits that cross under the M7. The spare conduits owned by Endeavour Energy could be used for the proposed HV grid connection. Requests have been made to Endeavour Energy regarding the use of these empty ducts however they are not able to confirm until a detailed application is submitted which is to be undertaken during detail design.

The bank of 3 spare conduits south of the electrical conduits are Ø250 and could be used for incoming water or outgoing sewer rising main.

Should these spare conduits not be suitable the applicant intends to thrust bore underneath the Westlink M7 Motorway and Wallgrove Road for water and sewer connections to existing Sydney Water infrastructure networks.

Where possible, the timing of all works which require opening of roads, such as the installation of electrical conduits and telecoms conduits, will be aligned to minimise road and traffic disruption.

Private electrical reticulation networks serving the EfW facility would comprise pipe and cable racking inside the main building. Externally, services will be distributed via buried pipe and conduit networks. These works would coincide with the bulk earthworks reducing the amount of excavation and trenching required.

A provision for spare conduits will be made for electrical and telecoms networks which would permit the laying of new cables without the need to undertake further excavations.

### 5.1.1 Protection Measures

An assessment of the proposed development and existing public utilities has confirmed that no protection measures are required to existing public utilities within the proposal boundary.

No permanent construction activities or changes in level are proposed in the northern section of the site where the Ø1050 Sydney Water water main is located.

During construction, the existing electrical supply will be disconnected with the UGOH pole removed.

Appendix A contains a risk assessment detailing the risks the development poses to the Warragamba Pipelines and the mitigation and monitoring measures proposed to address these items.

## 6 Conclusions

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The Utilities assessment of the proposal has concluded the following:

- The existing electrical, water and comms utilities that serve the site are not sufficient to meet the demands of the proposed development and shall be removed as part of the construction works.
- There is no formal sewer connection for the site. Septic tanks were used with effluent trucked out periodically.
- An existing 1050 Ø Sydney Water water main that passes under the northern portion of the site will not be impacted by the permanent construction works which are limited to the southern portion of the site.
- Consultations have been held with Sydney Water, Endeavour Energy, NBN and WaterNSW as part of the assessment process. No consultation was held with Jemena as there is no existing gas services within the Proposal Boundary and no gas supply is required to serve the EfW facility.
- A grid connection feasibility study has confirmed 3No potential grid connection options suitable for exporting 55MW. These are being assessed and a preferred option will be selected during detail design.
- A switching station is proposed at the south-eastern corner of the site and will accommodate the principle electrical equipment that increases the voltage of the electrical load such that it is suitable for connection to the Endeavour Energy network.
- A pressure and flow test has been completed confirming that the Sydney Water owned, 225 Ø water main under Roussell Road has capacity to serve the potable, process and fire demands for the development.
- The possibility to supply the facility with recycled water to the site for use in the energy-for-waste was assessed in consultation with Sydney Water. Based on this assessment, the supply of recycled water to the site was not considered feasible due to the lack of existing recycled water infrastructure in the surrounding area.
- A gravity sewer is to collect foul flows from the EfW facility and visitor centre and convey to a package pump station. A pressurised pipe would convey flows outside the proposal boundary to the Sydney Water owned sewer under Clay Place.
- NBN have issued a quotation to provide a hard-wire fibre service to the site can be provided.



- The risk assessment undertaken determines that during operational periods, the proposal poses minimal risk to the Warragamba Pipeline and that the existing concrete encasement is load rated to withstand loads imposed by operational vehicles.
- Further consultation with WaterNSW will be required during design development to establish and agree an approvals route which would include establishing mitigation measures and a monitoring regime to address potential risks during construction works.

## 7 References

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NBN, 2020. Technology Choice Program

<https://www.nbnco.com.au/learn/network-technology/technology-choice-program>

Sydney Water, 2020. Sydney Water Tap in

<https://www.sydneywater.com.au/tapin/index.htm>

## Appendix A

### Warragamba Pipeline – Technical Paper and Risk Assessment

Cleanaway Operations Pty Ltd  
**Western Sydney Energy and  
Resource Recovery Centre**  
Warragamba Pipeline - Technical  
Paper & Risk Assessment

WSERRC-ARU-SYD-UTUT-RPT-0100

Final | 24 August 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 264039-00

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## Appendices

### Appendix A

Topographic Survey Drawings

## **Appendix B**

NWR Record Drawings

## **Appendix C**

WaterNSW SEARs

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Minutes of Meetings with WaterNSW

## **Appendix E**

Letter from WaterNSW - May 2020

## **Appendix F**

Presentation to WaterNSW – June 2020

## **Appendix G**

Flood Mapping from Blacktown City Council

## **Appendix H**

Preliminary Design of Proposed Upgrade Works

## **Appendix I**

Risk Assessment



# 1 Introduction

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## 1.1 Project Overview

Cleanaway and Macquarie Capital are jointly developing an energy-from-waste (EfW) facility known as the Western Sydney Energy and Resource Recovery Centre (WSERRC) (the proposal).

The proposal will be designed to thermally treat up to 500,000 tonnes per year of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste streams that would otherwise be sent to landfill. This process would generate up to 58 megawatts (MW) of base load electricity some of which would be used to power the facility itself with the remaining 55MW exported to the grid. A proportion of the electricity generated would be categorised as renewable. The proposal involves the building of all onsite infrastructure needed to support the facility including site utilities, internal roads, weighbridges, parking and hardstand areas, storm water infrastructure, fencing and landscaping.

The proposal site is located at 339 Wallgrove Road in Eastern Creek, NSW (Lot 1 DP 1059698) which is in the Blacktown local government area (LGA). The site is in the Wallgrove Precinct of the Western Sydney Parklands (WSP) Plan of Management.

The 8.23ha site is divided by a small strip of land not part of the proposal site, resulting in a 2.04ha northern section and a 6.19ha southern section. This dividing strip is part of the adjacent lot and includes a right of carriageway benefitting the proposal site allowing vehicles to move between the two parts of the site. The proposal area will be fully contained in the 6.19ha portion of the site. Works to occur on the 2.04 ha northern section of the site include the clearing of weeds and exotic vegetation within the existing overland flow channel which is confined to the eastern section of this parcel of land. The northern section will also be used temporarily to support construction works. It is not currently expected that any other works will occur on the 2.04 ha northern section of the site as part of this proposal.

## 1.2 Purpose of Technical Paper & Risk Assessment

This document has been prepared to inform WaterNSW of the access options considered to serve WSERRC and proposed works related to the proposed access scenario presented in the paper. This includes a summary of discussions with various, adjacent landowners.

Consistent with the SEARs issued by WaterNSW to DPIE 27<sup>th</sup> November 2019, this paper also includes an assessment of the risks to the integrity and security of the pipelines corridor that may result from the development and the proposed mitigation measures. This includes, but is not limited to;

- Structural Integrity of Existing Crossing;
- Traffic and access to the pipeline corridor;

- Noise and vibration;
- Hazardous and flammable materials;
- Electrical generation and pipeline corrosion;
- Groundwater flows
- Soils and Water;
- Air Quality;
- Western Sydney Parklands.

## 2 Background

---

### 2.1 Warragamba Pipeline

The Warragamba Pipeline is a set of twin water supply pipes, owned and maintained by WaterNSW. The pipelines are critical water infrastructure, conveying water from the Warragamba Dam to the Prospect Water Filtration Plant and are an integral part of the Sydney water supply (delivering 80% or more of greater Sydney's needs).

The Warragamba Pipeline resides within a corridor that varies in width between approximately 60-80m. It is understood that the primary maintenance access is located between the two pipes along the full length of the corridor.

There are two large water pipelines in the corridor. One is 2.1 metres in diameter and the other is 3.0 metres in diameter. In reference to Figure 1, the larger diameter pipe is positioned closest to the WSERRC site boundary. The pipelines are above ground and are of a steel cement lined internal bitumen lined (SCL IBL) construction.



Figure 1 – Aerial View of the Warragamba Pipeline with WSERRC Site to the right  
(Source: Newgate)



## 2.2 M7 Construction

Adjacent to the site on the western boundary is the Westlink M7 Motorway. The Westlink M7 Motorway was constructed in 2003 and is elevated above the site by approximately 4-6m. At the south-west corner of the WSERRC site, there is a blockwork retaining wall supporting the M7.

As part of the M7 construction the original access road to the WSERRC and GRL sites, which came from Wallgrove Road, was removed, with a new access, as shown in Figures 2 and 3 provided. The site is located north of the Austral Bricks Road and connects to this road via a give-way intersection. Austral Bricks Road travels east to west, passing under the M7 before connecting to Wallgrove Road at its western end. Wallgrove Road is a major distributor which connects to larger arterial routes such as the M7.

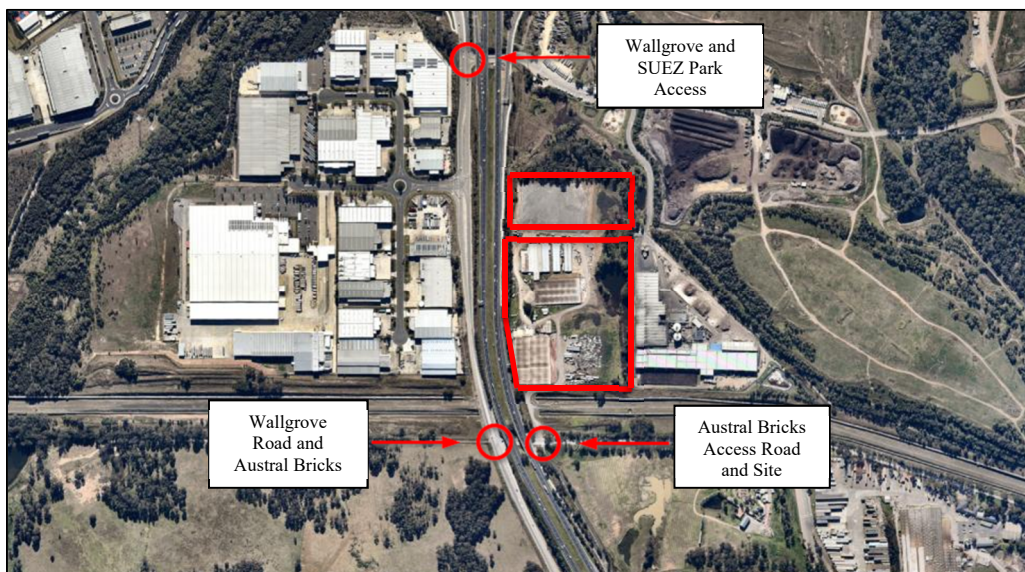


Figure 2 – Overview of Site Access



Figure 3 – Aerial view of M7 and existing site access (Source: Newgate)

## 2.3 Current Land Ownership

The land acquired for the WSERRC (Lot 1 DP1059698) is divided by an existing 20-metre wide strip of land (Lot 10 DP1048435) into north and south parcels.

The strip of land, commonly referred to as a right of carriageway, is owned by SUEZ Recycling and Recovery (NSW) Party Ltd and is a legacy of the road access to the GRL waste management facility prior to the M7 construction. The legal restrictions on this parcel of land is understood to prevent constructing over, under or on this land, which is owned by SUEZ. Cleanaway and Macquarie Capital only have a right of carriage which restricts the proposed development of the WSERRC to the southern land parcel.

Figure 4 shows the current understanding of land ownership of the site and surrounding Lots based on title searches undertaken by Ashurst.

The project team has undertaken extensive consultation with all surrounding landowners and relevant stakeholder authorities during the EIS process. Refer to Section 3 for further details of these consultations and the outcomes.

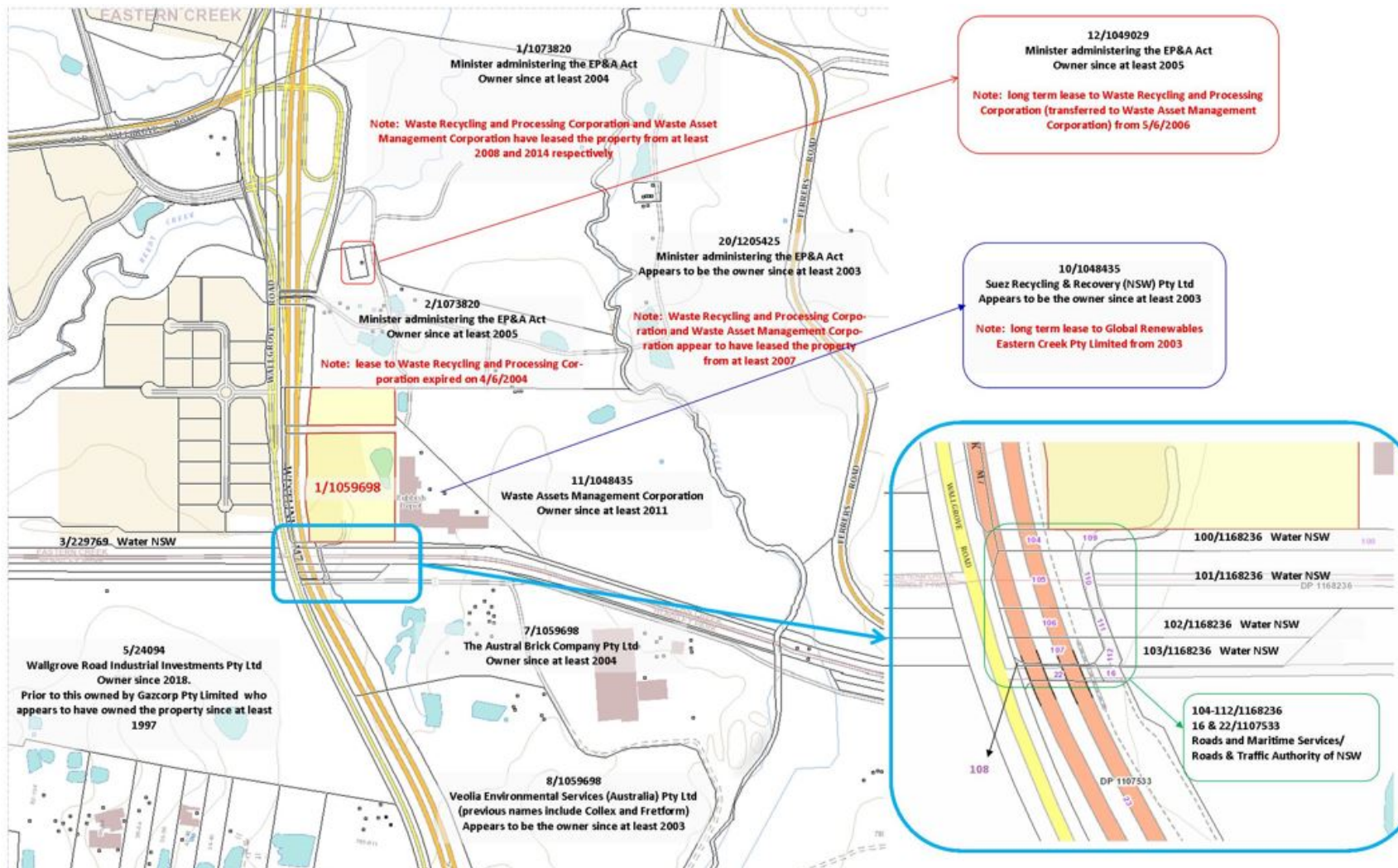


Figure 4 – Land Ownership of Surrounding Properties (Source: Ashurst, March 2020)



Land immediately north of the project boundary is undeveloped land that is owned by the Minister administering the Environmental Planning & Assessment Act 1979 which is now called the Planning Ministerial Corporation. This land is administered by the Office of Strategic Lands (DPIE) who acquires land in this area to provide to the Western Sydney Parklands (WSP).

Further north and north east sits the SUEZ Eastern Creek Waste Management Centre. This land is owned by the Minister administering the Environmental Planning & Assessment Act 1979 which is now call the Planning Ministerial Corporation and administered by the Office of Strategic Lands (DPIE). SUEZ Eastern Creek Resource Recovery Park lease the land and provide waste management services which diverts resources to landfill. Eastern Creek landfill itself is closed and abuts the Western Sydney Parklands.

Global Renewables Ltd.'s (GRL) recycling facility is located to the east of the southern parcel of the site. It is understood that the land is owned by SUEZ and leased to GRL.

Adjacent to the site on the western boundary is the Westlink M7 Motorway which is owned by TfNSW and managed by a private enterprise. The Westlink M7 motorway is elevated above the site at approximately 58 to 66 mAHD. At the south-west corner of the site, there is a blockwork retaining wall. The wall varies in height from 0.5 metres to 5.5 metres. A steep grassed batter separates the Westlink M7 Motorway and the site where there is no retaining wall.

To the south of the site is the Warragamba Pipelines Corridor. The Warragamba Pipelines Corridor (Lot 101/1168236) is owned and managed by WaterNSW and is approximately 40 metres wide.

WaterNSW also own additional lots immediately north and south of the pipeline corridor, Lots 100, 102 and 103 respectively. At the existing WSERRC site road access, the accumulative width of land owned by WaterNSW is approximately 95m.

South of the WaterNSW owned lots is Lot 7/1059698, owned by The Austral Brick Company Pty Ltd (more commonly referred to as Austral Bricks).

### **2.3.1 Ownership of Existing Road Access**

The recent construction of the M7 motorway and provision of access to 339 Wallgrove Road has somewhat complicated land ownership in this area. Title searches undertaken by the project sponsor's legal team, shown in Figure 5, confirm that Lots 109-111 are owned by RMS (now TfNSW). They are limited in depth at 61.4mAHD.

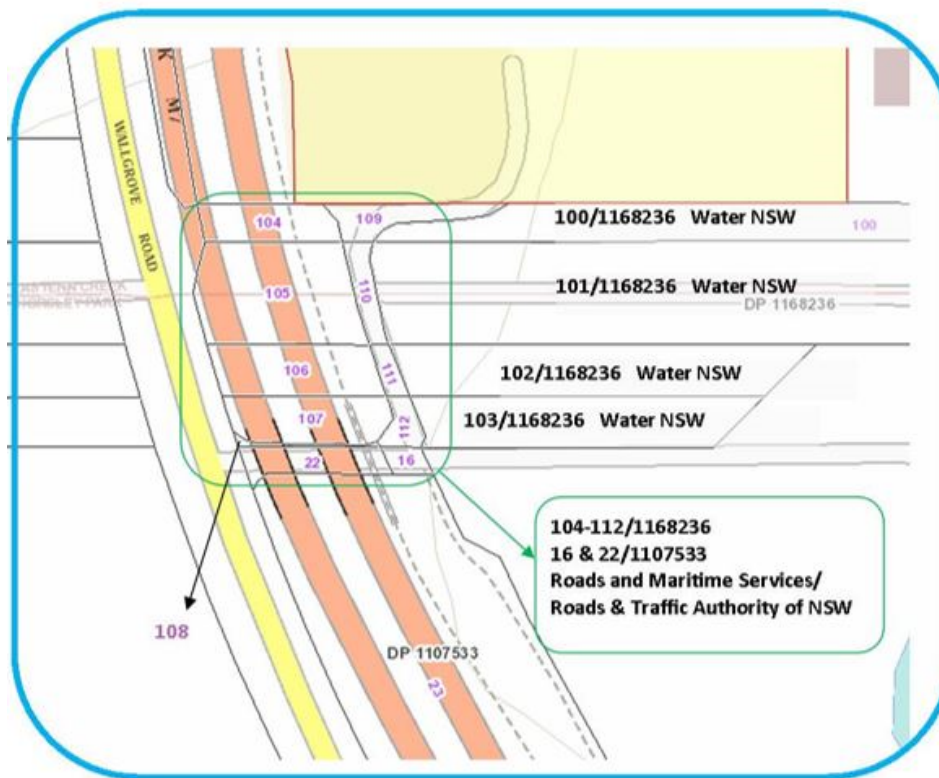


Figure 5 – Land Ownership of Existing Road Access

Below that, the title searches confirm that the WaterNSW parcels of land (lots 100-102) are substratum lots which pass below the three TfNSW lots. A fourth lot (Lot 112) is owned by TfNSW and is unlimited in depth. Topographical survey in this area confirms existing road levels vary from 62.3 mAHD to 62.6mAHD above the pipelines. Therefore, the construction build up within TfNSW land is between 0.9m to 1.2m.

Lots 109-112 effectively cover land occupied by the existing asphalt pavement and vehicle guardrails.

## 2.4 Review of Available Record Information

### 2.4.1 Surveys and Investigations

To inform the preliminary designs and the EIS a topographical survey was undertaken by Crux Surveying Australia in October 2019. Although this did not access the pipeline corridor it did record the existing access tracks that WaterNSW use to gain access to the corridor. It also recorded vehicle guardrails and the post & wire fence which sits behind existing headwalls. The fence in front of the headwall is approximately 7.5m from the front of the barriers at both crossings. Figure 5 shows an extract of the survey (formal survey drawings covering the land either side of the Warragamba Pipeline is contained in Appendix A) with Figure 6 showing a photograph taken during the survey.

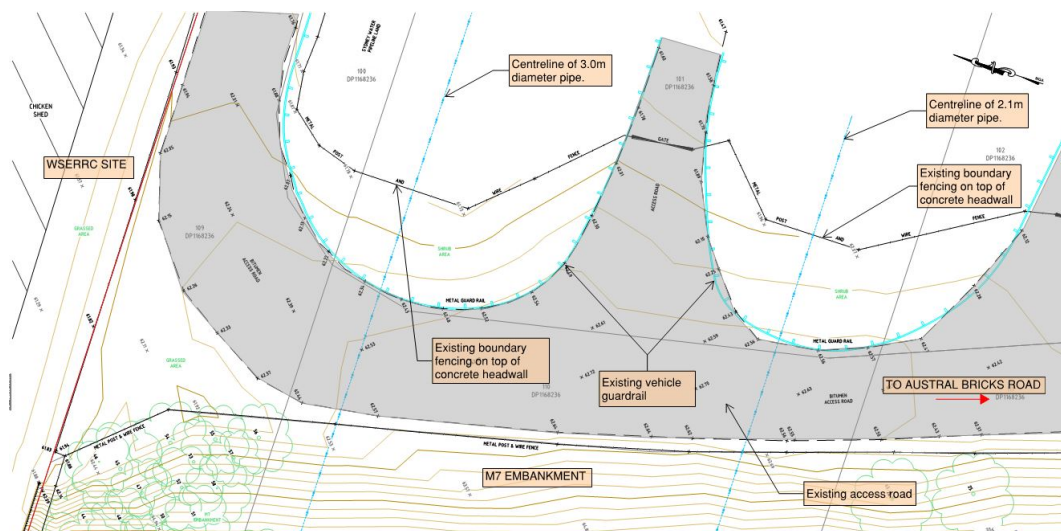


Figure 6 – Annotated plan of topographical survey



Figure 7 – Image of Existing Road Access and Pipeline Crossing (October 2019)

An application to access the pipelines corridor for the purposes of undertaking a visual inspection and a topographical survey of land owned by WaterNSW was submitted on the 13<sup>th</sup> of March 2020. Upon receipt of the letter dated 8<sup>th</sup> of May 2020 from WaterNSW (see Section 3 for further details) this application was withdrawn. As such, no inspection or survey has been completed to date in the Warragamba Pipeline corridor by the WSERRC project team.

## 2.4.2 Information Obtained

Consultation was undertaken with various stakeholders during the EIS with requests for information made to WaterNSW, RMS and TfNSW. TfNSW directed the project team to request record drawings on the M7 from NorthWestern Roads (NWR) who manage the Westlink M7. A summary of pertinent information received from WaterNSW and NWR is summarised in Tables 1 and 2 respectively. Copies of key structural drawings are contained in Appendix B.

It should be noted that receipt of record information and drawings occurred over a 3-month period and a comprehensive set was not available during earlier stakeholder engagement.

Table 1 – Summary of Record Information received from WaterNSW (02/03/2020)

File Number	File Name	Description
D916-001c	339 Wallgrove – Insites 20.10.2008	Plan showing levels over Lot 1 in DP 1059898. Plan shows “50mm water connection by license with Sydney Catchment Authority”.
D2004 10372	Report on Structumba Pipelines – September 2003 14 Page 1	Plan showing bridges and culverts along the Warragamba Pipelines Corridor (Section 5 – Ropes Creek to Ferrers Rd)
D2020 5770	Warragamba Prospect Pipeline Mapbook Jan 2020	GIS Map showing indicative location of existing air and scour valves located in the pipelines corridor south of the WSERRC site.
PL2017 851	Warragamba Pipelinion – 1026-40-1	Long Section of pipeline (dated 1968)
PL2017 851	Warragamba Pipelinion – 1026-41(2)	Long Section of pipeline (dated 1968)

Table 2 – Record Drawings received from NWR (25/05/2020)

File Number	File Name	Description
<b>Stormwater Drainage</b>		
C001-DR-254103	Drainage Plan Main Alignment STN 16.5km to 17.0km	General arrangement plan showing longitudinal and cross drainage south of the Warragamba Pipelines.
C001-DR-254104	Drainage Plan Main Alignment STN 17.0km to 17.5km	General arrangement plan showing longitudinal and cross drainage at and north of the Warragamba Pipelines.
C001-DR-254105	Drainage Plan Main Alignment STN 17.5km to 18.0km	General arrangement plan showing longitudinal and cross drainage at the northern end of the WSERRC site and at the Waste Management Services access.
C001-DR-254153	Drainage Schedules – Main Alignment – Sheet 3	Schedule confirming pipe diameter and invert levels of stormwater drainage
C001-ST-634126	Culvert C16.05 – General Arrangement	Drawing showing general arrangement and cross-section confirming geometry and invert level of culvert crossing under the M7 south of the WSERRC site.
<b>Existing Access Road and Warragamba Pipeline Crossing</b>		
C001-BR-540201	Infra 24.11 & 24.12 Protection to Existing Water Mains – Cover Sheet	Cover sheet which confirms design loading.
C001-BR-540211	Infra 24.11 & 24.12 Protection to Existing Water Mains – General Arrangement	Plan and long section showing original pipe encasement and encasement constructed as part of M7 construction.
C001-BR-540216	Sections and details 3048 dia. (120 inch) pipeline sheet 2.	Reinforcement detailing for encasement of 3048 diameter water main.
C001-BR-540217	Sections and details 3048 dia. (120 inch) pipeline sheet 3.	Reinforcement detailing for encasement of 3048 diameter water main.
C001-BR-540218	Protection Slab Details	Protection slab over existing water (note this is west of site access road)
C001-BR-540221	Headwall details	Reinforcement detailing for headwalls for both 3048 and 2134 diameter pipes.
C001-BR-540222	Embankment inlet drainage detail	Construction details for inlet pit.
C001-BR-540223	Drainage details	Construction details for stormwater drains that run parallel with the water pipelines.
C001-RD-189101	Austral Brick Company Access Rd Plan	General road layout plan of access to the chicken farm (Proposed WSERRC site)
C001-RD-189306	Austral Brick Company Access Rd Longitudinal Section Chicken Farm Access (MCF0)	Long Section of access road.
C001-PV-389101	Pavement Plan - Austral Brick Company Access Rd	Pavement plan showing finish of existing access road.



### 2.4.3 Review of Record Drawings

Pipeline drawings received from WaterNSW were as-built drawings from the original construction in the 1960's and did not detail the current configuration of pipe encasement and the M7 motorway. WaterNSW suggested to contact RMS or WestLink M7 for details of the encasement and headwall structures.

The map book did highlight the presence of an air valve and two scour valves on the 2.1m diameter water main immediately south of the WSERRC boundary. Access to these is critical and any new crossing would need to avoid these valves.

Immediately north of the scour valves is culvert BN34 (shown on document D2004 10372) which conveys water purged from the pipeline into the overland flow channel that runs through the WSERRC site. BN 34 comprises 2No 1060mm diameter concrete pipes.

No information was provided by WaterNSW on the condition of the pipelines.

NWR provided as-built drawings of the pipeline protection and access road construction which was completed during construction of the M7 detailing:

- Pipeline protection general arrangements, sections and construction details.
- Headwall details.
- Drainage details, which included confirmation that stormwater drainage was installed either side of the pipe encasement on both water mains.
- Access road layout and pavement construction.

#### 2.4.3.1 Structural Assessment

As-built drawings received from NWR detail the pipeline protection works undertaken as part of the M7 construction. These comprised a heavily reinforced concrete encasement which was staged in multiple lifts to minimise the fluid pressure on the pipes.

The concrete encasement of both pipelines extended under the M7 motorway and the access road serving this site which was designed and constructed to meet: SM1600 Design loadings; and Draft AS5100.2 Dec-02 loadings as specified on as-built drawing C001-BR-540201 Rev X1. The pipe encasement is also designed and constructed for a maximum loading with a Caterpillar 651E wheel tractor scraper used during construction works for the M7 earthworks.

As the WAE drawings detail the concrete encasement pipe protection extending the entire way to the headwalls, this confirms that the proposed widening works for WSERRC is within the extent of the current concrete encasement. See Figures 8 and 9 below with excerpt from the WAE drawings confirming the extent and type of pipe protection at this location.



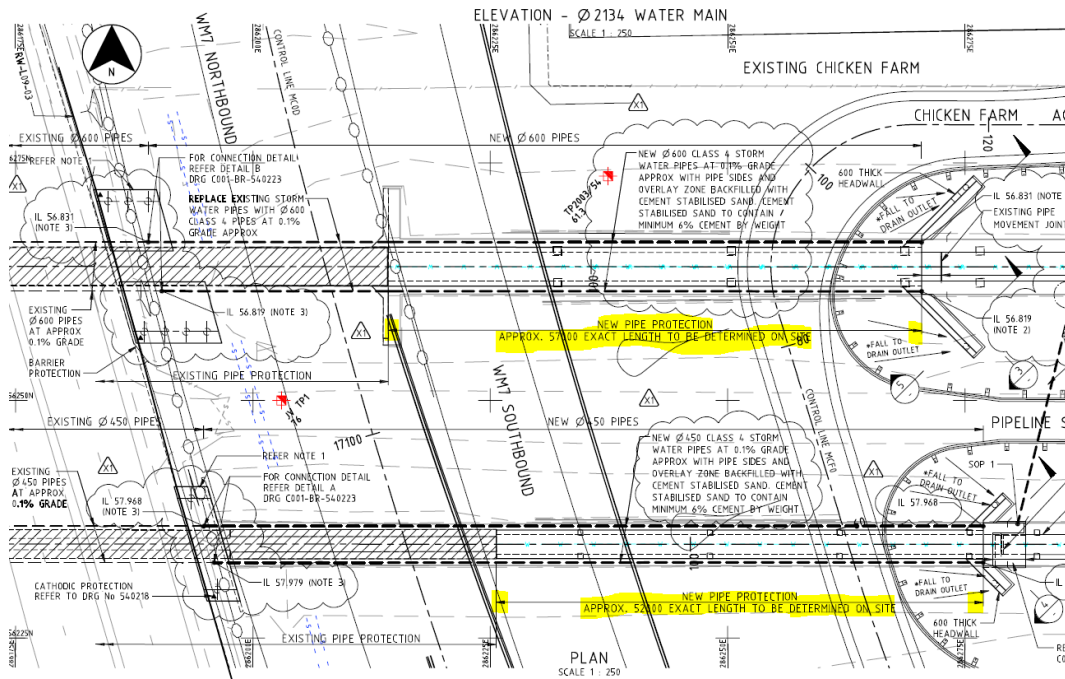


Figure 8 – Extract of drawing C001-BR-540211 Rev X1 showing plan of pipe protection.

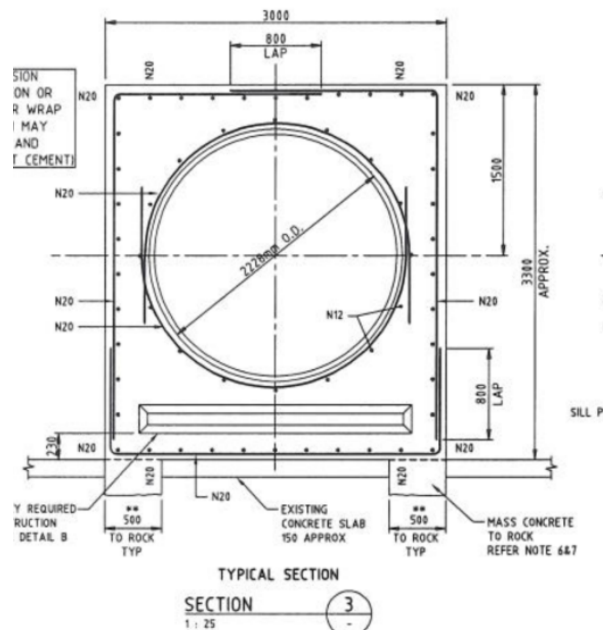


Figure 9 – Extract of drawing C001-BR-540215 showing cross-section of encasement of 2134 DIA pipe

The WAE drawings confirm that the encasement has been designed for SM1600 loading operating 2-way and one-way movement of a 615E wheel tractor scraper. The design traffic loading for the new access route is to be in the range of a 26m long B-double vehicle which is significantly less than the SM1600 loading used in the design, and for which the encasement has been constructed to withstand. See Figures 10 & 11 below for loading diagrams of SM1600 and a B-Double vehicle.

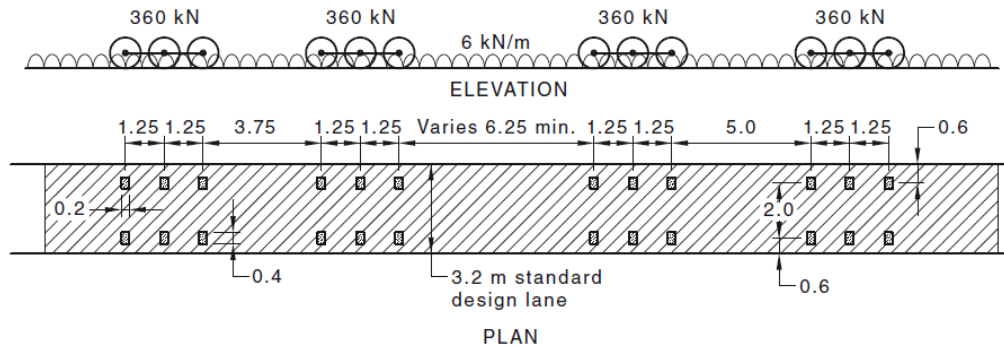


Figure 10 – M1600 loading diagram from SM1600 (as outlined in AS5100.2)

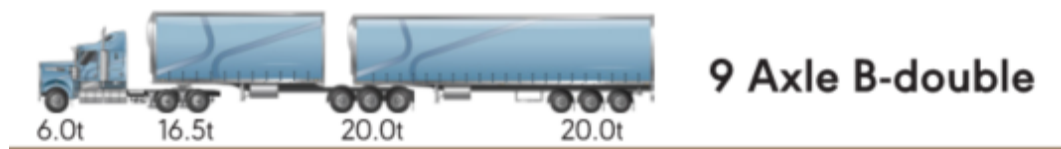


Figure 11 – Weight distribution of a 26.0m long B-Double vehicle (Note: 20t is approximately equivalent to 200kN of load)

Construction vehicles used for day to day activities such as general earth moving, or deliveries will require to be restricted such that they impose lower loads than the B-Double.

Larger, specialist deliveries of bespoke plant or equipment will require to impose lower loads than the 615E wheel tractor scraper.

### Summary

The protection measures installed were designed to withstand loading from SM1600 vehicles which is greater than the loadings from any operational vehicle. All construction vehicles will be limited such that they have lower loading levels than a SM1600 vehicle (2-way) or a 615E wheel tractor scraper (one way).

The NWR as-built drawings show the NSW Water pipeline protection is sufficient and that the proposed widening of the road will not adversely impact the existing pipes. Assuming that the condition of the current pipe protection is as per the As-Built condition or similar, it can be concluded that no strengthening or additional pipe protection is required.

## 3 Consultation

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### 3.1 WaterNSW

#### 3.1.1 SEARs

As part of the planning process, WaterNSW were consulted by DPIE following submission of the original scoping report. This correspondence requested WaterNSW's input into the preparation of SEARs for the proposed EfW facility at 339 Wallgrove Road.

WaterNSW responded to DPIE with a formal letter dated 27 November 2019 which highlighted that the critical nature of the pipeline assets. The letter outlined specific items that the EIS would require to address. These items are explored in further detail within Section 5 of this report and within specific EIS chapters.

In this letter, WaterNSW requested that they be included as a key stakeholder for this project and consulted during project design and development of the EIS. A copy of this letter is contained within Appendix C.

#### 3.1.2 Consultation during EIS Development

In line with Cleanaway and Macquarie's overall approach to stakeholder engagement, an initial meeting was set up between the project sponsors, their design team and WaterNSW.

##### Meeting No. 1

The initial meeting, held on the 11<sup>th</sup> of March 2020 in WaterNSW's office, built on the scoping report and provided an overview of the project. During this meeting, requests for information were made and confirmation of the development guidelines<sup>1</sup> to use for developing the design was given.

The site layout presented at this meeting was to re-use the existing road access which matched the layout submitted in the scoping report. WaterNSW indicated they did not believe the existing crossing was load rated to withstand the vehicle loading however did not have record drawings. The project team highlighted that requests for these drawings were also being made to TfNSW and RMS.

During this meeting WaterNSW queried if access from the north was possible and if not, discussion of why this isn't feasible should be included within the EIS.

At this meeting a new access point, east of the existing crossing, was raised. This option would align with initial feedback from TfNSW and potentially avoid any upgrade works on the existing pipeline crossing. WaterNSW did raise that any new crossing would require to consider existing scour & air values plus future

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<sup>1</sup> Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines, ver 3, February 2020, Catchment Protection, WaterNSW

pipeline upgrades which dictate a minimum 8.0m clearance from the top of the pipe to the underside of the structure.

A copy of the meeting minutes is included in Appendix D.

### **Meeting No. 2**

A follow up meeting was held with WaterNSW via telecon on the 20<sup>th</sup> of March 2020. At this meeting, the Project Team summarised investigations undertaken to date on existing land ownership, highlighting the constraints that these posed to the site layout and how it prohibited access from the north.

The design team also presented the two site layout options which included a new crossing of the Warragamba Pipeline. Options presented were based on the crossing taking the form of a pipe encasement, similar to the existing M7 crossing. It was highlighted that providing a bridge with the required 8.0m clearance would require extensive off-site road upgrades which would be disproportionately expensive, require consent from 3<sup>rd</sup> party land owners and require large deck structures to be lifted over the pipelines.

A copy of the meeting minutes is included in Appendix D.

### **Further Consultation**

A request was made for a further meeting between the various parties on the 16<sup>th</sup> of April 2020 however this request was refused.

An email was sent to WaterNSW on the 30<sup>th</sup> of April 2020 with slides summarising the land ownership issues, detailing why access from the north was not viable. Another request to meet was made to discuss these findings.

On the 11<sup>th</sup> of May 2020 a formal letter was received from WaterNSW which advised that “any option that requires access across the Pipeline’s corridor will not be allowed, as it will not meet our criteria for external development...”. A copy of the letter is contained in Appendix E.

### **Meeting No. 3**

A 3<sup>rd</sup> meeting was held on the 10<sup>th</sup> of June 2020 where the project team presented the findings of their investigations and a review of record drawings received in May 2020 from NWR.

This summarised that access from the north was not viable and that the existing concrete encasement was load rated to withstand the proposed vehicles accessing the site.

Project team clarified that based on this information the intended access strategy was to re-use the existing access road and undertake minor upgrades including carriageway widening and guardrail relocation as this is least risk solution and does not impact the existing crossing. A copy of the presentation and the relevant record drawings was sent to WaterNSW following this meeting. The presentation is contained in Appendix F with the record drawings the same as those contained in Appendix B. Email correspondence with WaterNSW following this meeting was positive and WaterNSW generally accepted the proposal to use the existing

access. A formal response was not available at the time of writing however is expected by September 2020.

### **3.2 SUEZ Recycling and Recovery (NSW) Pty Ltd**

The project sponsors have engaged with SUEZ in relation to acquiring the strip of land they own which separates the two sections of WSERRC owned property. Suez are unwilling to sell the strip of land, advising that the land has strategic value to them.

Given the project sponsors don't own the strip of land, WSERRC cannot build on it and only has a right of carriageway over the SUEZ owned land, blocking access from the north. As a result, the project is only located on the southern 6.19ha portion of the site.

Waste Assets Management Corporation also have an easement over the strip of land for utilities, further restricting its use.

SUEZ lease the land to the north of the site boundary from Planning Ministerial Corporation for their composting operations and are not willing to facilitate an access road serving the WSERRC. Without access or agreement to use this land it is not possible to connect WSERRC to the main access road that connects to Wallgrove Road.

### **3.3 Office of Strategic Lands & Western Sydney Parklands**

Discussions held between Cleanaway, Macquarie Capital with Offices of Strategic Lands (OSL) and Western Sydney Parklands (WSP) has indicated a preference to close the access road to the north of then site and for GRL to access their site via the WSERRC / Austral Bricks Road (to the south and across the Water NSW pipeline).

The OSL and WSP have long term aspirations to rehabilitate the land to the north and return to the WSP, limiting access via the existing road to WSP visitor, with no truck movements via the existing access to Suez / GRL.

### **3.4 Austral Bricks**

Cleanaway have also engaged with WSEERC's neighbour to the South, Austral Bricks. Discussions were in relation to using and upgrading a section of Austral Bricks access road to connect to a new crossing location, further east of Wallgrove Road.

Initial engagement with Austral Bricks for using their lands was positive however a commercial arrangement would require to be reached between WSERRC and Austral Bricks if a new crossing was to be developed.

### 3.5 TfNSW

Meetings were held with TfNSW on the 11<sup>th</sup> of February and the 15<sup>th</sup> of May 2020 to discuss the proposal and agree on the access strategy. In this first meeting, TfNSW confirmed that the 2021 intersection upgrade between Wallgrove Road and Austral Bricks Access Road serving the proposed Gazcorp Development had been approved and should be used as the baseline condition for the traffic modelling for WSERRC.

In the second meeting, the project team presented the proposed access strategy that is to be included within the EIS which is to retain the existing crossing.

### 3.6 Gazcorp Development

The project sponsors met with Gazcorp on the 27<sup>th</sup> of May 2020. It was confirmed that the construction of the upgraded intersection was currently scheduled to commence December 2020.

This access will serve the proposed industrial development located south of the Warragamba Pipelines and west of Wallgrove Road.

## 4 Site Selection

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This site was identified via an extensive site screening analysis and noted as the most suitable site to develop an EfW facility for various reasons including:

- The site having previously been used for industrial purposes and the industrial and commercial nature of the surrounding land uses creating the potential for synergies with surrounding industry.
- The site being an optimal size and configuration to design an EfW facility being a rectangular shaped lot.
- The site avoiding existing and planned residential areas, rural land uses and future airspace restrictions.
- The site's distance from sensitive residential and other receptor locations.

The site was preferable from an air quality perspective as its distance from sensitive residential and other receptor locations contribute to its ability to manage emissions within air quality criteria. The closest residential areas are around 1km to the south of the site with Erskine Park residential area located around 3.5 km to the west and Minchinbury located around 3 km to the north.

Horsley Park Public School is located at over 2 km south of the site and a childcare centre is located within the Eastern Creek industrial area approximately 1 km to the west of the site. The site's location next to transport infrastructure such as the M7 Motorway and Wallgrove Road was also favourable as it provides for convenient road transport access routes and minimises the possible effects on nearby receivers from site truck traffic. Furthermore, its location in Western Sydney also meant that it was close to waste generation sources reducing the economic and environmental costs of waste transportation.

Following acquisition of the site in October 2019, design development began for the proposed facility. A key aspect of the design was determining the main access for the operational vehicles.



## 5 Site Access Options Assessment

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### 5.1 Entrance Location

The eastern and western boundaries of the site are bounded by the operational Global Renewables facility and the M7 respectively making road access from these locations unfeasible.

Road design guides dictate minimum spacings between junctions, on and off ramps on such high-speed roads. Austroads Guide to Traffic Management Part 6, Section 6.6.6 stipulates for a 2-lane motorway of 2-lanes that the desirable minimum distance between an on-ramp and off-ramp is 900m. An existing on-ramp is located adjacent to the northern part of the site. The nearest location for a compliant on-ramp would be several hundred metres south of the Warragamba Pipelines.

Two options from the north were investigated during the initial design period:

1. Create new junction from Main Access serving Eastern Creek Waste Management Facility. The access road would run through undeveloped land, cross the Right of Carriageway and enter EfW facility at the NW corner of the parcel of land to be developed.
2. Access from Northeast of the site – via GRL Access Road. The site access road to branch off the GRL access road entering the northeast of WSERRC land, crossing the Right of Carriageway and enter the EfW facility at the NE corner the parcel of land to be developed.

These options were discarded due to the following reasons:

- Both options would cross the “Right of Carriageway”. WSERRC has no legal right to construct a formal access road, suitable for expected vehicle loading, on this land.
- SUEZ lease the land to the north for their composting operations etc. and are not willing to facilitate our access.
- Waste Assets Management Corporation also have an easement over the strip of land for utilities etc, further restricting its use.
- Medium to long term aspirations from Office of Strategic Lands is to close the access road to the north of then site and for GRL to access their site via the WSERRC / Austral Bricks Road (to the south and across the Water NSW pipeline. The OSL and WSP want to rehabilitate the land to the north and return to the WSP, limiting access via the existing road to WSP visitor, with no truck movements via the existing access to Suez / GRL.
- Construction and operation from this access would disrupt and complicate traffic management of the existing waste management facilities.

- Overland flow path along the eastern part of the WSERRC site and land north of the site is in flood prone land (see Figure 12). A formal copy of the flood map is contained in Appendix G.

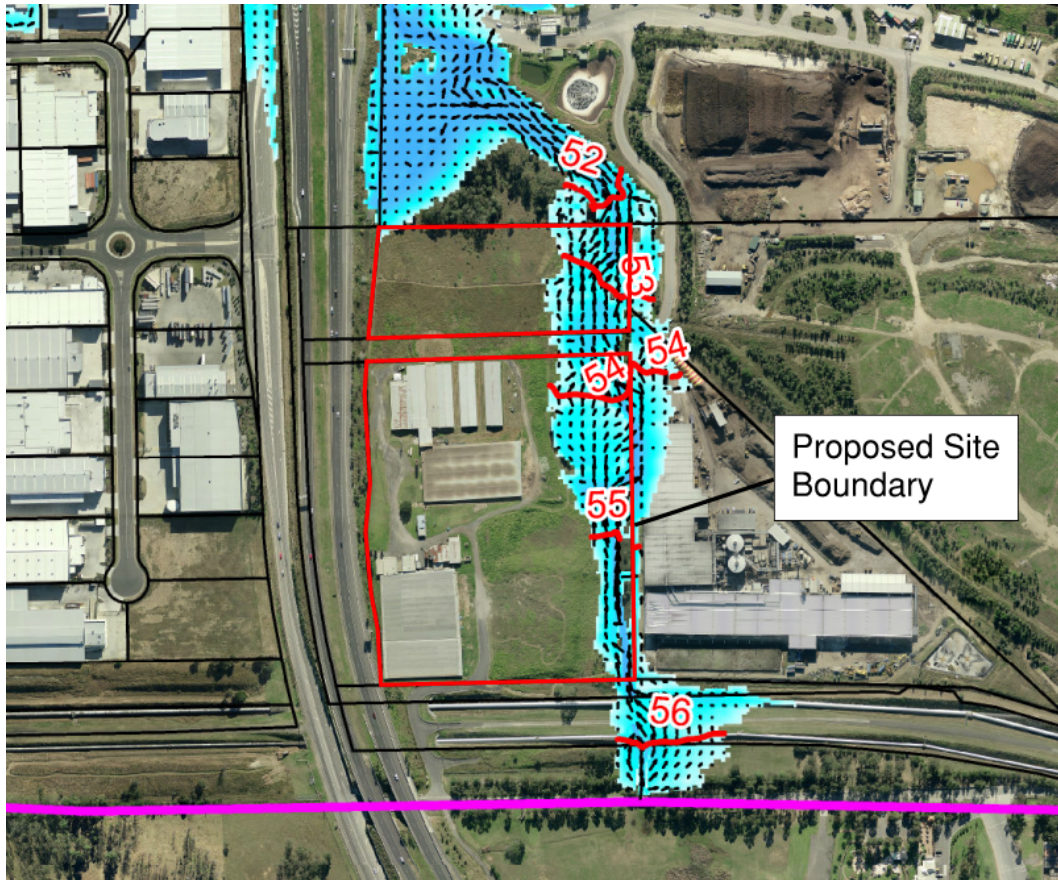


Figure 12 – Extract of Blacktown City Council preliminary 1% AEP Flood Map

For these reasons access from the north was not considered viable nor did it align with planning requirements and aspirations of several stakeholder agencies.

## 5.2 Access Configuration

With options from the west, north and east unviable, access was proposed from the south which involves crossing the Warragamba Pipeline. Two principle options from the south were considered:

1. Retain existing access road located in the southwest corner of the site and upgrade as required.
2. Provide new access road crossing the Warragamba Pipeline approximately 90m east of the existing access road. This location was selected to align with the outgoing route of waste vehicles. Two options, compliant with the Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines, ver 3 were:
  - a. Concrete encasement of the Warragamba Pipelines to provide at grade crossing.

- b. New bridge structure that provided the required 8.0m clearance between the top of the pipeline and the underside of the structural deck.

A third option (Option 2c) was investigated and this comprised a modular bridge that provided a minimum 1.0m clearance between the pipeline and bridge structure. The deck of this modular structure could be removed using mobile cranes if required to permit future upgrades of the Warragamba Pipeline.

### 5.2.1 Retain Existing Access Road

To accommodate 2-way vehicle flows of the B-Double design vehicle, swept path analysis determined that the existing paved carriageway required to be widened. Widening was primarily required on the approach and at the junction with Austral Bricks access road (Lots 102 and 103), south of the pipeline corridor.

In the pipeline corridor itself (Lot 101) widening in the order of 3.0m is required. These would necessitate re-locating the existing vehicle barriers.

Both the carriageway widening, and barrier re-location would be within the footprint of the existing, load rated concrete encasement. This option therefore poses the least risk to the existing pipelines.

Widening the existing carriageway west, such that it was closer to the M7 was investigated however this option was discarded for the following reasons:

- Junction widening would result in the entry kerb line being approximately 1.2m away from the existing structural pier of the M7 overpass. This does not leave sufficient room for the vehicle barrier and its associated working width resulting in an increased risk to NWR and TfNSW.
- Would require relocating existing Endeavour Energy electrical assets currently located within the verge.
- Would result in the need to construct additional retention structures in Lots 106 and 107 to support the M7 embankment.
- This option does not offer any additional risk reduction compared with widening towards the headwall. Works would be contained within the footprint of the existing pipeline protection.

### 5.2.2 New Pipeline Crossing

Prior to receipt of the M7 record drawings, two options for a new pipeline crossing were investigated and presented to WaterNSW during early consultation.

#### Option 2a - Concrete Encasement

With the existing Austral Bricks access road sitting at a similar level to the crown of the water pipelines, a concrete encasement is the most economic structural solution. The concrete encasement would be similar in nature to the existing encasement detail under the M7 & existing site access and used at other locations

in Western Sydney. The structural solution would include a 3rd void to future proof for potential upgrades of the Warragamba Pipeline.

### **Option 2b – Permanent Bridge**

To comply with WaterNSW guidelines an 8.0m clearance between the top of the pipes and the underside of any new structure is required. In order to achieve this, significant road upgrades are required on the existing Austral Bricks access road.

In this scenario the only available land is the grassed area south of the existing access road, owned by Austral Brick. A partial cloverleaf ramp was proposed to provide sufficient length to lift the road level, at a suitable gradient, such that when the new road crosses over both the existing Austral Bricks access road and the Warragamba Pipelines sufficient clearance is achieved.

Due to the negative impact the approach ramps would have on the development layout, the commercial impacts, and construction risk associated with piling works, this option was not selected.

### **5.2.3 Summary**

Although there is precedence of pipeline encasement, the Project Sponsors acknowledge WaterNSW's concerns that these works would, however small, would place additional risk on the overall pipeline assets.

Therefore option 1, which maintains the existing access road and provided carriageway widening within the footprint of the existing, load-rated concrete encasement was selected. This aligns with the over-arching principles of the "Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines", does not increase the risk posed to WaterNSW nor place any new restrictions on future upgrade works.

## 6 Scope of Access Works

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The proposed upgrade works required to facilitate access to WSERRC are shown on drawing ARU-SYD-CICW-DRG-1000 contained in Appendix H. Works are subject to final detail design, though generally comprise of:

- Clearing existing vegetation/trees in Lot 103, south of the pipeline corridor, to facilitate construction of the widened junction.
- Removing existing, damaged asphalt wearing course and existing vehicle barriers.
- Excavation of existing verge to form new pavement construction.
- Construction of widened carriageway to RMS specifications including asphalt concrete wearing course.
- Installation of new vehicle barriers.
- Re-profiling verge from edge of widened carriageway to back of existing headwalls.
- Re-location of security fencing including gate to access track south of the 2.1m diameter pipe (Lot 102).

No works to the existing concrete encasement or headwall structures are proposed as the road widening is contained within the footprint of the existing, load rated, encasement.

## 7 Risk Assessment

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### 7.1 Structural Integrity of Existing Crossing

As per Section 2.4.4, as-built drawings received from NWR detail the pipeline protection works under the M7 motorway and the access road serving this site were designed and constructed to meet:

- SM1600 to 3.2m lane to Draft AS5100.2 Dec-02.
- 651E wheel tractor scraper – one-way.

This design load is greater than any load generated by vehicles used during operation of the EfW facility, the largest of which will be a 9-axle B-Double. It will also set the limit, including a safety margin, for construction vehicle types. Further details on the exact construction plant used will be detailed within the Construction Management Plan that will be prepared by the Contractor.

The NWR as-built drawings show the NSW Water pipeline protection is sufficient and that the proposed widening of the road will not adversely impact the existing pipes.

Further consultation with WaterNSW will be required during design development to establish and agree an approvals route and would include the following:

- Condition assessment of existing pipe protection to confirm the assumptions made in this assessment.
- Further engagement with WaterNSW through detailed design.
- Establishing monitoring regime of the pipeline/pipe protection during construction of proposed works.
- Agreement and implementation of mitigation measures during construction e.g. Restricting traffic in area during works.

### 7.2 WaterNSW Access

WaterNSW currently access the pipelines corridors via 2 access tracks off the existing access road (Refer to Figures 1, 3 and 7).

The widening works proposed are to ensure unobstructed 2-way travel of vehicles onto Austral Bricks Access Road and then onto Wallgrove Road. The widening works include connection to the existing access tracks to allow WaterNSW to access their pipeline assets.

#### 7.2.1 Operational Assessment

Details of the proposed vehicle flows are contained within the Traffic and Transport chapter. The data indicates that the existing uses on the site are currently generating approximately 70 two-way trips daily. A large proportion of vehicle accessing the site are HGVs.



During operation 236 two-way trips would be generated by the proposal daily which includes waste deliveries, collection of consumables and staff. Comparing this to the 70 two-way trips generated by the existing uses on the site indicates the net increase would be 166 two-way trips daily. SIDRA traffic modelling shows that these additional flows have minimal impact on the proposed Wallgrove Road-Austral Bricks Access Road intersection and would not restrict WaterNSW accessing the pipeline corridor.

Measures taken to reduce the peak hourly traffic flows include:

- Managing the outflow of servicing vehicles from the site by utilising storage space within the proposal and recirculating vehicles if necessary
- Managing the inbound flow to the facility of vehicles from the Erskine Park Transfer Facility.

## 7.2.2 Construction Assessment

A Draft Construction Traffic Management Plan (CTMP) has been prepared which outlines daily construction vehicle movements for each stage of the works indicating a peak daily vehicle volume of 75, which is similar to existing traffic flows that accessed the site under previous ownership. Additional trips will be generated by construction workers however these trips will be made by cars and light vehicles which would not adversely impact the concrete encasement.

A final CTMP will be prepared by the Contractor to manage the impacts of construction vehicles on the surrounding road network. A key focus of the CTMP is to reduce the impact of construction worker traffic by adjusting shift patterns, encouraging car sharing and making workers aware of other transport options.

Construction vehicles will be limited in size and load as per requirements outlines in Section 7.1. The majority of vehicles used to import and export materials will be semi-trailers and 32T truck and dogs which impose a significantly lower load than the SM1600 design vehicle.

Construction of the widening works will require to be staged to maintain access to the pipeline corridor. Specific details will be developed during detail design.

## 7.3 Development Impact

### 7.3.1 Site Layout and Options Considered

Several site layouts were developed during the design period, depending on the location of the main access and the orientation of the building. Once the access was confirmed at the southwest corner of the site, the remainder of the site layout was established.

The lower lying eastern section of the site contains the overland flow channel and can't be used for any habitable or operable buildings or equipment further narrowing the available width of the site.



The building is approximately 200m long and 70m wide and could only be accommodated within the site in a north-south direction. Both options were investigated with the selected arrangement having the tipping hall and waste bunker in the northern section of the plot for the principle reasons of:

1. Maximising queuing length for incoming waste delivery vehicles within the private site to reduce off-site impacts.
2. Maximising the distance from the waste bunker to the Warragamba Pipelines.
3. Alignment of incoming operational vehicle route with the existing access road.

The waste bunker is the only area where mass excavation of the shale rock will be undertaken. In the proposed configuration the edge of the bunker excavation is over 150m from the site boundary, minimising the risk of vibration impacts on the pipelines. It also results in any groundwater intersection being further away from the Warragamba Pipeline.

Staff and visitor access road, water tanks and the electrical substation are proposed along the southern boundary of the site. The 80m high stack is located approximately 35m from the WSERRC lot boundary and 55m from the 3.0m diameter pipeline.

### 7.3.2 Structural Design

In general, the main EfW building will comprise ground bearing slab with perimeter strip footings. In areas of where higher loads are generated from structural cores or from process equipment, piles and piled raft foundations will be used.

Piled raft foundations will also be used to support the stack, substation and the larger water tanks. Piles will be sized on ULS design loads with safety factors applied as per relevant Australian Standards codes. Multiple piles will be provided under the raft with the design allowing for structure to comply with the code in the event of one pile failing.

An extremely low risk exists that if the stack was to collapse, in a certain direction, that it could impact the Warragamba Pipeline. The redundancy provided in the structural design addresses this risk.

### 7.3.3 Noise and Vibration

A full assessment of noise and vibration issues is contained within the Noise and Vibration EIS chapter. WaterNSW 'Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines', outlines that the pipeline is fragile due to its inner concrete lining, footings and expansion joints. In the absence of an Australian Standard, WaterNSW accepts Line 3 of Table 1 from DIN4150-3 2016. Assessments have been undertaken for both operational and construction stages of the proposal.

### 7.3.3.1 Operational Assessment

Several vibration generating items will be installed on site such as the turbine and the ACCs. The turbine hall is located over 100m and the ACC 60m from the southern boundary of the site.

While specific details regarding the items is not yet known, mitigation measures through appropriate construction to limit vibration transmission through ground will be put in place.

Mitigation measures will include assessment of natural frequencies of footings to ensure resonant response does not occur during ramp up, operation and ramp down of the generator turbine. The turbine will be founded on a piled raft which will incorporate a spring damper system to reduce the vibration effect of the equipment. The turbine and ACCs are to be founded on piles with loads transferred to the underlying shale rock well below the level of Warragamba Pipelines.

Operational vibration impacts at surrounding receivers and sensitive structures (such as the Water NSW Warragamba Pipeline) are therefore expected to be negligible.

### 7.3.3.2 Construction Assessment

Recommended minimum working distances for vibration intensive plant, which are based on international standards and guidance and reproduced in Table 3 for reference. Note that minimum working distance in accordance to the DIN criteria (for sensitive structure) which is applicable to the WaterNSW Warragamba Pipeline.

Table 3 - Recommended minimum working distances for vibration intensive plant

Plant Item	Rating / Description	Minimum working distance		
		Cosmetic damage (BS 7385)	Cosmetic damage (3mm/s ppv – DIN 4150-3 sensitive structure)*	Human response (OH&E Vibration Guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	11 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	13 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	15 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	31 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	40 m	100 m
	> 300 kN (> 18 tonnes)	25 m	50 m	100 m

Plant Item	Rating / Description	Minimum working distance		
		Cosmetic damage (BS 7385)	Cosmetic damage (3mm/s ppv – DIN 4150-3 sensitive structure)*	Human response (OH&E Vibration Guideline)
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	5 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	15 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	5 m	N/A
Jackhammer	Hand held	1 m (nominal)	3 m	Avoid contact with structure

Note \*: Applies to the WaterNSW Warragamba Pipeline

The minimum working distances are indicative only and will vary depending on the item of plant and local geotechnical conditions.

With regard to the WaterNSW Warragamba Pipeline it is located approximately 18 m of the proposed site boundary. Plant and equipment to be used for construction of the project will be chosen carefully to minimise potential vibrations impact in accordance with WaterNSW requirements.

To that effect low vibration generating items of excavation plant and equipment shall be selected, such as use of smaller excavator hammers and lower rated vibratory rollers in southern parts of the site. To minimise risks posed by vibration, driven piles will be prohibited with bored or augured piles used. Augured piles have been successfully used near other sensitive structures such as railways.

Furthermore, attended vibration monitoring will be conducted at the beginning of any vibration generating activities to confirm minimum working distances. Monitoring for the establishment of minimum working distances shall commence with plant operating well outside the anticipated minimum working distances. If vibration monitoring has established risk of exceedances of the criteria defined in DIN 4150-3:2016, extended monitoring will be carried out and equipment selection and/or method of construction will potentially be reviewed.

For all construction works, the contractor shall prepare a detailed Construction Noise and Vibration Management Plan (CNVMP). This plan should include, but not be limited to the following:

- Roles and responsibilities
- Noise sensitive receiver locations

- Areas of potential impact
- Mitigation strategy
- Monitoring methodology
- Community engagement strategy.

### 7.3.4 Hazardous & Flammable Materials

To serve the EfW facility a variety of flammable and hazardous materials will be stored on site. The majority of these materials, such as activated carbon and hydrochloric acid will be stored inside the main EfW building. Materials stored externally include diesel, sodium hydroxide and ammonium hydroxide.

A Multi-Level Risk Assessment was undertaken which is detailed within the Hazards and Risk Chapter.

Based on the HAZID it was identified that the major offsite risks posed by the facility primarily relate to adverse events related to air quality, environment, and transport. While there are a variety of dangerous goods stored onsite which could be subject to fire, explosion, or toxic release, each of the chemicals being stored are well understood materials that are present in a variety of industrial processes. As such specific guidance is available for the appropriate protection of these chemicals from sources such as Australian Standards, International Standards, or insurers guidance.

The large volume of movements of waste within the tipping hall generates dust that can induce a risk of a dust explosion if it is not managed properly. Mitigation measures, such as minimising horizontal surfaces in the design and undertaking regular cleaning during operation are considered sufficient to reduce the risk of a dust explosion in the tipping hall and prevent offsite impacts.

### 7.3.5 Electrical Generation and Pipeline Corrosion

#### Transformer

As an energy site, the site will include a significant oil-filled transformer which could potentially pose a fire or explosion risk. Transformers are common equipment across many sites with well-defined standards of design. It is considered that complying with the relevant design standards is sufficient to mitigate the risk posed by transformers.

#### Pipeline Corrosion

The proposed HV cables will be buried underground at depths in accordance with relevant standards. The buried cables will be located underneath one of the access roads, a minimum 20m from the pipeline corridor (Lot 101). The proposed cable installation will therefore not result in any negative impact on the Warragamba pipeline and will not require any further mitigation measures.

## Step and Touch Potential

The earthing system will be the aspect of the substation that has a potential impact on the Warragamba pipeline. These impacts will be addressed through design of the substation and associated earthing system, which is required to meet the following requirements:

1. The design of the earthing system is to meet the required safety criteria as established in relevant current version of Australian Standards and Industry Associations Standards and Guidelines, including AS/NZS1768, AS2067, AS/NZS3835, AS/NZS4853, IEEE 80 – IEEE Std 80-2000, ENA Doc 001, ENA EG(0) and ENA EG-1;
2. The design of the earthing system is to demonstrate that no hazardous potential differences will be present on the Warragamba pipeline assets, including touch voltages (hand to foot), step voltages (foot to foot) and hand to hand voltages to which personnel or members of the public may be exposed will result. Touch voltages include transferred touch voltages; and
3. That testing of the earthing system be completed after works are completed to demonstrate compliance to the design and the required safety criteria.

### 7.3.6 Groundwater Flows

Groundwater flows and quality have been assessed and are detailed within the Soils and Water chapter within the EIS. This assessment has found the proposed development will only have low and temporary potential impacts to the groundwater and related environments during the construction phase of the development. In addition, are no known groundwater users or developments within the study area which may be affected, as such the cumulative impacts of the proposal is considered negligible.

### 7.3.7 Stormwater & Flooding

#### 7.3.7.1 Existing Condition

An existing overland flow path runs from south to north along the eastern boundary of the site. This flow path enters the site via twin culverts from the Water NSW land to the south. The flow path enters the GRL site for approximately 50m before flowing back into the proposal site. Based on a site inspection the overland flow path appears to be separate from the farm dam, however, there is likely to be some mixing of flows during major events. The overland flow path eventually discharges to Reedy Creek approximately 400m north of the site.

Levels along the overland flow path through the southern section of the site range from approximately 54.5mAHD at the south-eastern corner of the site to 52.5mAHD at the north-eastern corner of site. The overland flow path is

overgrown with invasive vegetation. An indicative upstream catchment area of the overland flow path is shown in Figure 13.

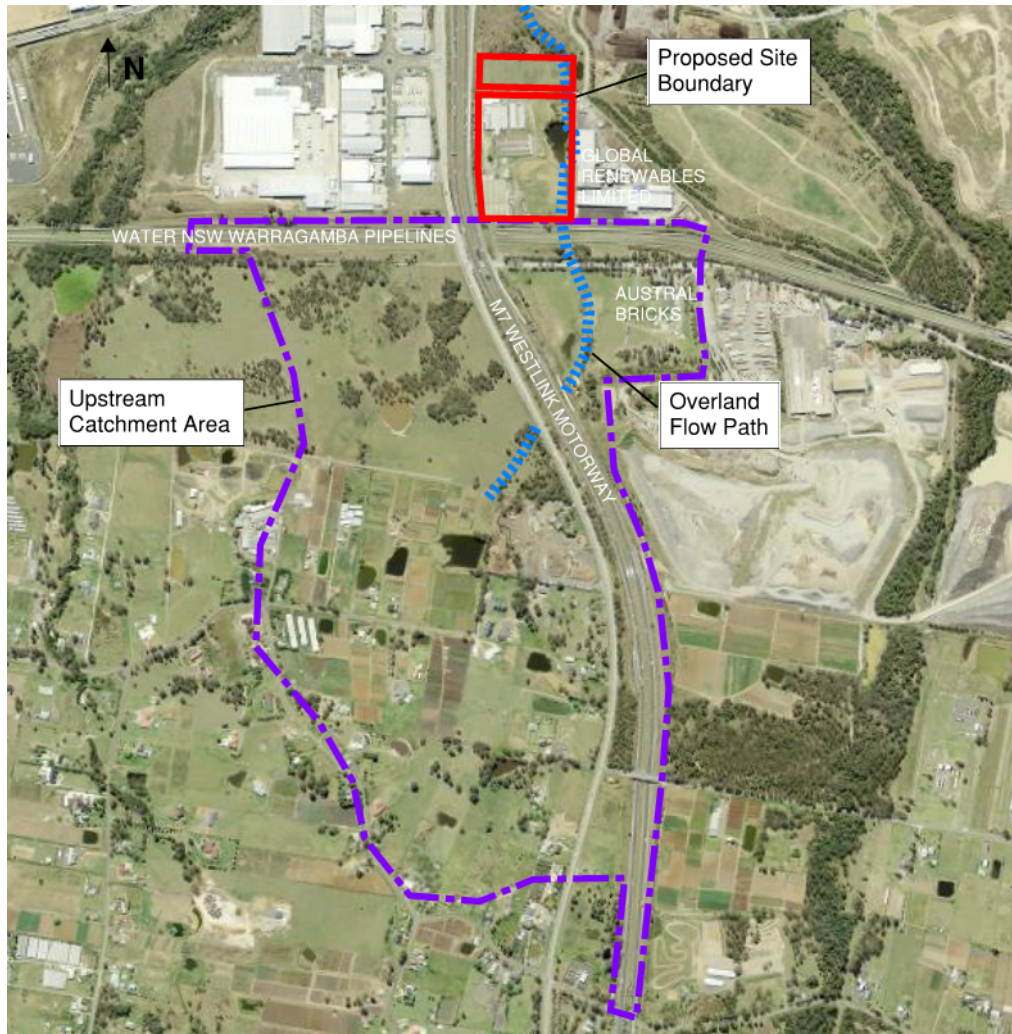


Figure 13 – Overland Flow Path Upstream Catchment Area

Flooding modelling was undertaken to ascertain the existing flood condition and assess the impact of the development. Full details can be seen in the Hydrology and Flooding Chapter.

In the pre-development 1% AEP flood event flood depths at the site are generally less than 720mm (see Figure 14). The exception is at a localised depression where depth reaches 1.42m where water spills into the neighbouring GRL site. The estimated peak flood level at the upstream (southern) site boundary is 55.5mAHD, and 53.1mAHD at the downstream (northern) boundary of the southern portion of the site.





Figure 14 – Extract of 1% AEP Existing Conditions Flood Level Map

As part of the proposed development the following design items have been proposed:

- Removal of existing farm dam;
- Widening and formalising of existing overland flow channel, maintaining the whole channel within the WSERRC site.
- Inclusion of bio-retention and On-Site Detention basin in accordance with Blacktown City Council's requirements.

In the 1% AEP flood event flood depths at the site are generally less than 1m. Flooding at the site is contained to the realigned overland flow channel through the site. Site stormwater runoff is managed in the OSD basin. The estimated peak flood level at the upstream (southern) site boundary is 55.5mAHD, and 53.1mAHD at the downstream (northern) site boundary, as per existing conditions.

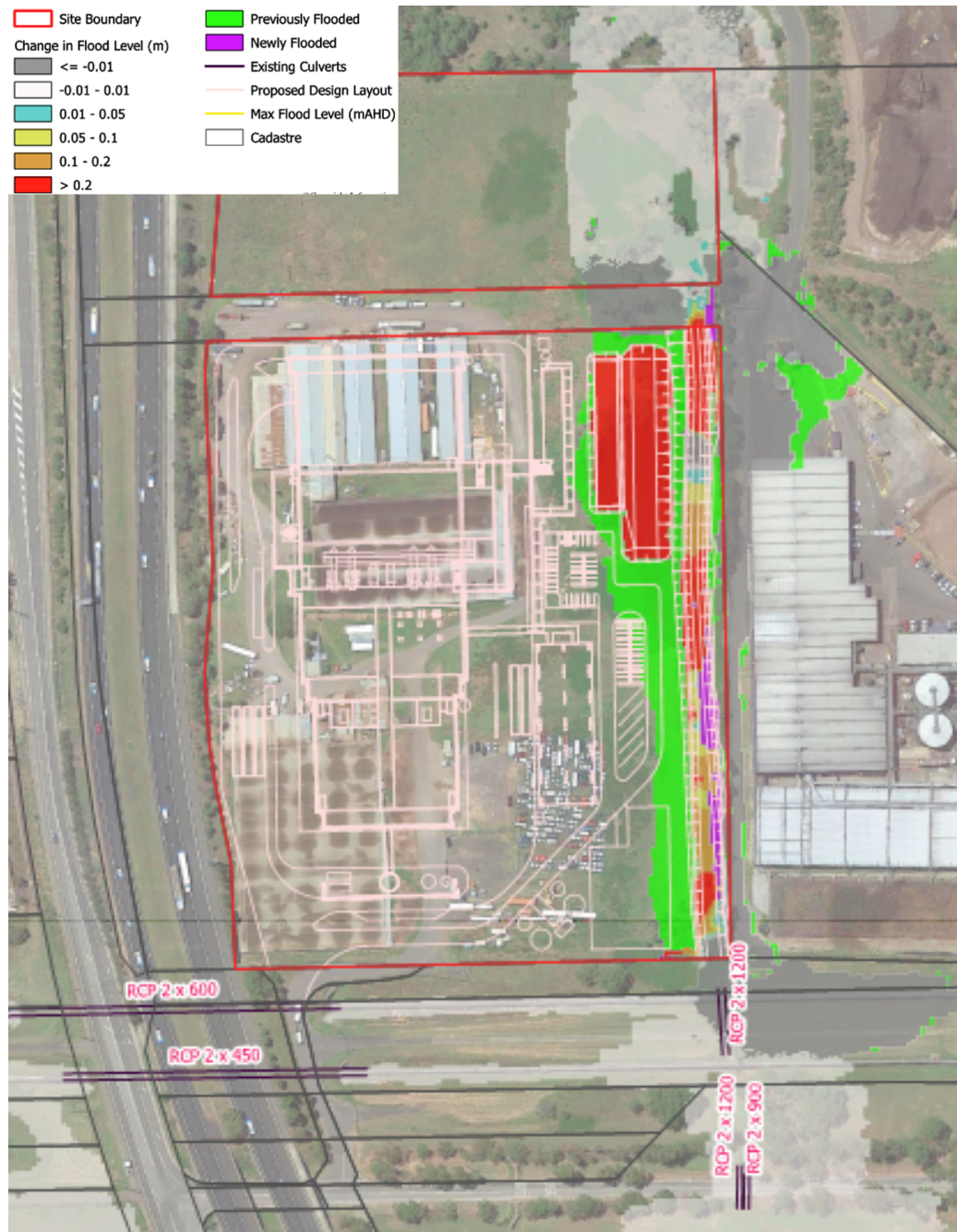


Figure 15 – Extract of change in flood level 1% AEP map

The flood modelling demonstrates that post development flows are equal or less than the pre-development flows up to and including the 1% AEP event within the pipelines corridor.



### 7.3.8 Sydney Water Drinking Catchment

Under the State Environmental Planning Policy (Western Sydney Parklands) 2009, for consent to be granted the proposal must have “a neutral or beneficial impact” on the quality of the water in the bulk water supply infrastructure shown on the Bulk Water Supply Infrastructure Map. These maps include Prospect Reservoir.

Stormwater discharge from the site drains to the north with the overland flow path meeting with Reedy Creek which subsequently drains into Eastern Creek, this flow path is illustrated in Figure 16. Eastern Creek ultimately drains to South Creek then via the Nepean and Hawkesbury rivers to sea.

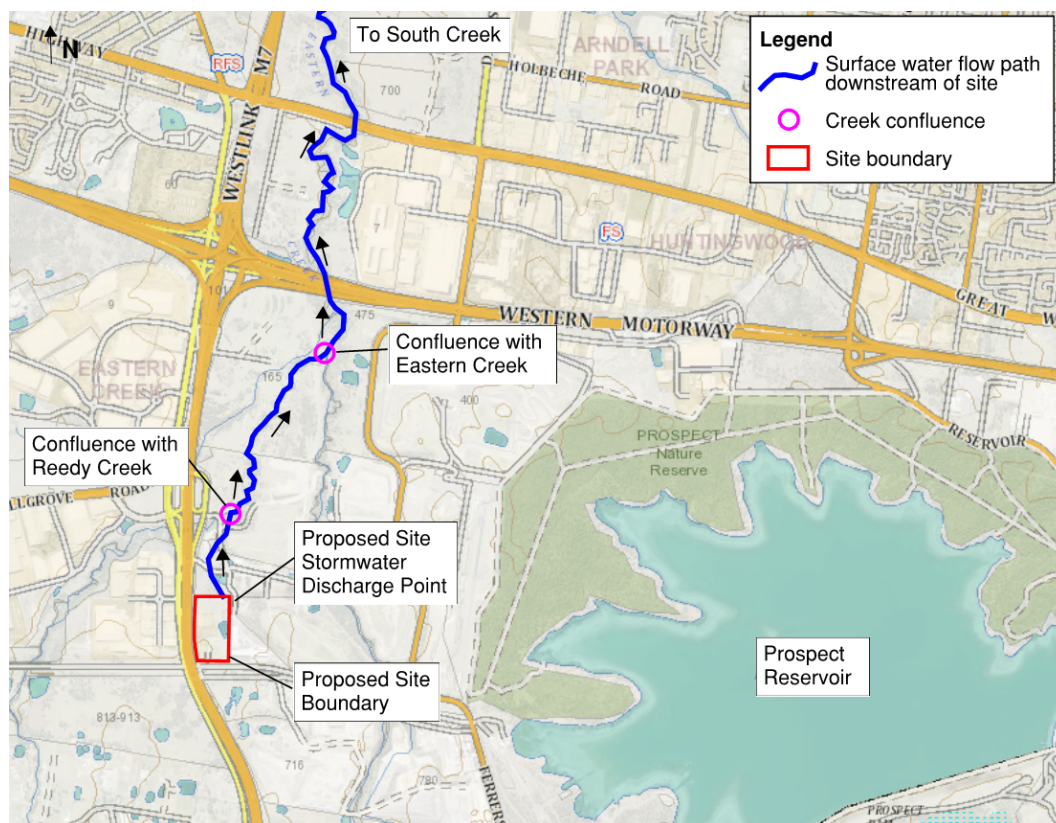


Figure 16 – Downstream flow path for surface water discharge from proposal site

As the proposal is not located within the surface water catchment area for Prospect Reservoir, there is no pathway for site runoff to have any impact on water quality in the reservoir or other bulk water supply infrastructure.

### 7.3.9 Air Quality

The Human Health Risk Assessment Technical Report looks at the impact that the development will have and specifically considers deposition onto the surface of Prospect Reservoir and use of water for drinking as an exposure pathway.

This report concludes that in the operational scenario, the estimated concentrations of pollutants are at least 5000 times lower than the individual drinking water guidelines that apply to each pollutant. When risk quotients are

summed the combination of these concentrations results in a risk that is 3000-fold lower than the guidance issued by health authorities as acceptable.

Therefore, there is no unacceptable risk for relevant exposure scenarios for Prospect Reservoir as a result of the proposal.

## 7.4 Western Sydney Parklands

Chapters 2 (Strategic Context) and 4 (Statutory Context) detail how the development meets with the following planning policies:

- State Environmental Planning Policy (Western Sydney Parklands) 2009 (WSP SEPP, NSW Government, 2009).
- Western Sydney Parklands (WSP) Plan of Management 2030 (Western Sydney Parklands Trust, 2018).

As noted in section 3.3. WSP has indicated a preference to close the access road to the north of the site and for GRL to access their site via the WSERRC / Austral Bricks Road (to the south and across the Water NSW pipeline). The OSL and WSP want to rehabilitate the land to the north and return to the WSP, limiting access via the existing road to WSP visitor, with no truck movements via the existing access serving the Eastern Creek Waste Management Facility.

Maintaining the existing point of access to serve WSERRC aligns with OSL's and WSP's ambitions.

## 7.5 Risk Assessment Summary

A summary of the risk items identified and mitigation measures is contained with Appendix I.

## 8 Summary and Conclusions

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Record drawings confirm that the existing site access, formed during construction of the M7 motorway, comprises of heavy-duty concrete encasement designed to withstand loading from a SM1600 vehicle on a 3.2m wide lane and a construction load from a 651E wheel tractor scraper.

This encasement extends under the M7 to the headwalls located approximately 8.0m beyond the edge of the existing carriageway.

The site for the EfW facility was identified via an extensive site screening analysis and noted as the most suitable site to develop an EfW facility based on the industrial and commercial nature of the surrounding land uses and the distance from sensitive residential receptors. It is also clear of future airspace restrictions.

A thorough, options assessment was undertaken to confirm the preferred site access location. A combination of adjacent land uses, land ownership constraints, flood routes and aspirations of Western Sydney Parklands resulted in the only viable access route coming from the south. Access from the north is unable to be facilitated on any route.

The proposed access strategy maintains and re-uses the existing access road which sits above the load rated, concrete encasement. This option was selected over a new crossing which would increase the risk to the Warragamba Pipelines and place an additional constraint on future upgrade works.

Upgrades works to serve the EfW facility include pavement widening (max 3.0m), minor earthworks to tie-in to the existing headwalls and the re-location of guardrails and security fencing. No works to the existing pipe encasement or headwalls is proposed.

A risk assessment has been undertaken to address the points raised in the original SEARs and the Letter received 11 May 2020, refer Appendix I.

The proposal is not located within the surface water catchment area for Prospect Reservoir, there is no pathway for site runoff to have any impact on water quality in the reservoir or other bulk water supply infrastructure.

There is no unacceptable risk to the water quality of Prospect Reservoir for relevant exposure scenarios as a result of the proposal.

Further consultation with WaterNSW is proposed during design development to establish and agree an approvals route and would likely include the following:

- Condition assessment of existing pipe protection to confirm the assumptions made in this assessment.
- Further engagement with WaterNSW through detailed design.
- Establishing monitoring regime of the pipeline/pipe protection during construction of proposed works.

- Agreement and implementation of mitigation measures during construction e.g. Restricting traffic in area during works, to ensure WaterNSW retain access to the pipeline corridor to allow them to undertake their activities to maintain the function of this critical asset.



## Appendix A

### Topographic Survey Drawings

# No.339 WALLGROVE ROAD

## EASTERN CREEK

### TOPOGRAPHICAL SURVEY

#### SERVICE LOCATING SYMBOL LEGEND:

ELECTRICAL			GAS		
	DENOTES	ELEC PIT		DENOTES	GAS PIT
	DENOTES	ELEC MANHOLE		DENOTES	STOP VALVE [GAS]
	DENOTES	ELEC POLE		DENOTES	GAS METER
	DENOTES	ELEC LIGHT POLE		DENOTES	GAS MARKER
	DENOTES	FLOOD LIGHT			
	DENOTES	GROUND LIGHT			
	DENOTES	ELEC POLE WITH LIGHT			
	DENOTES	ELEC PILLAR			
	DENOTES	ELEC CABLE OVERHEAD			
	DENOTES	FUSE BOX			
	DENOTES	EARTHING STAKE			
DRAINAGE			UNIDENTIFIED		
	DENOTES	GRATED DRAINAGE PIT		DENOTES	UNIDENTIFIED PIT
	DENOTES	DRAINAGE PIT		DENOTES	UNIDENTIFIED MANHOLE
	DENOTES	DRAINAGE MANHOLE		DENOTES	UNIDENTIFIED VENT
	DENOTES	DOWNPIPE		DENOTES	STOP VALVE [UNIDENTIFIED]
	DENOTES	KERB OUTLET		DENOTES	UNIDENTIFIED INSPECTION OPENING
	DENOTES	HEADWALL			
COMMUNICATIONS			TRAFFIC		
	DENOTES	TELSTRA PIT		DENOTES	TRAFFIC PIT
	DENOTES	COMMS PIT		DENOTES	TRAFFIC PIT
	DENOTES	OPTUS PIT		DENOTES	TRAFFIC LIGHT
	DENOTES	COMMS MANHOLE		DENOTES	MISCELLANEOUS TRAFFIC STRUCTURE
	DENOTES	COMMS SERVICE OVERHEAD			
	DENOTES	COMMS PILLAR			
	DENOTES	COMMS POLE			
SEWER			WATER		
	DENOTES	SEWER PIT		DENOTES	WATER PIT
	DENOTES	SEWER MANHOLE		DENOTES	FRESH WATER PIT
	DENOTES	SEWER INSPECTION OPENING		DENOTES	SALT WATER PIT
	DENOTES	STOP VALVE [SEWER]		DENOTES	DOMESTIC WATER PIT
	DENOTES	SEWER VENT		DENOTES	OILY WATER PIT
				DENOTES	POTABLE WATER PIT
				DENOTES	WATER MANHOLE
				DENOTES	HYDRANT
				DENOTES	HYDRANT BOOSTER
				DENOTES	TAP
				DENOTES	WATER METER
				DENOTES	STOP VALVE [WATER]
				DENOTES	STOP COCK [WATER]

#### SURVEY SYMBOL LEGEND:

	DENOTES	SURVEYED POINT
	DENOTES	TREE ID - SEE TREE SCHEDULE
	DENOTES	SHRUB
	DENOTES	GARDEN BED
	DENOTES	GRASSED AREA
	DENOTES	BOLLARD
	DENOTES	BARBEQUE
	DENOTES	COLUMN
	DENOTES	CLOTHES LINE
	DENOTES	GATE
	DENOTES	FLAG POLE
	DENOTES	MAILBOX
	DENOTES	FENCELINE

#### SURVEY ABBREVIATIONS

RL	DENOTES	REDUCED LEVEL
TW	DENOTES	TOP OF WALL
BW	DENOTES	BOTTOM OF WALL
RTW	DENOTES	RETAINING WALL
TK	DENOTES	TOP OF KERB
BK	DENOTES	BACK OF KERB
IK	DENOTES	INVERT OF KERB
PR	DENOTES	PRAM RAMP
CONC	DENOTES	CONCRETE
FL	DENOTES	FLOOR LEVEL

#### SERVICE LOCATING ABBREVIATIONS

IL	DENOTES	INVERT LEVEL
Ø	DENOTES	DIAMETER
OBV	DENOTES	OBVERT LEVEL
UTL	DENOTES	UNABLE TO LOCATE
UTO	DENOTES	UNABLE TO OPEN
EOT	DENOTES	END OF TRACE
UGOH	DENOTES	UNDERGROUND TO OVERHEAD SERVICE
(A)	DENOTES	QUALITY LEVEL A
(B)	DENOTES	QUALITY LEVEL B
(C)	DENOTES	QUALITY LEVEL C
(D)	DENOTES	QUALITY LEVEL D
DBYD	DENOTES	DIAL BEFORE YOU DIG

#### SURVEY NOTES :

- ORIGIN OF LEVELS : SSM17361 , RL 62.437 (A.H.D.)  
EASTING: 301194.329  
NORTHING: 6255570.227
- BEARINGS ARE ON MGA NORTH. AZIMUTH SSM17361 TO PM53659. MGA INFORMATION SUPPLIED BY S.C.I.M.S. DATED 26/09/2019
- NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN. BEARINGS & DISTANCES HAVE BEEN COMPILED FROM TITLE INFORMATION SUPPLIED BY LAND AND PROPERTY INFORMATION NSW (LPI NSW) AND ORIENTATED TO MGA NORTH.
- RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
- CONTOURS ARE AN INDICATION OF THE TOPOGRAPHY ONLY. SPOT LEVELS SHOULD BE USED IF DETAILED DESIGN IS TO BE UNDERTAKEN.  
CONTOUR INTERVAL : MINOR - 0.1m  
MAJOR - 1m
- TREES ARE NOT DRAWN TO SCALE. THE SPREAD & HEIGHT OF EACH TREE IS INDICATIVE ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
- THE MGA NORTH POINT SHOWN IS APPROXIMATE ONLY.

THESE NOTES FORM AN INTEGRAL PART OF THE PLAN AND SHOULD ALWAYS BE SHOWN

#### LOCALITY SKETCH NTS

#### NOTE:

SEE TREE SCHEDULE DOCUMENT FOR TREE SPREAD, HEIGHT AND TRUNK DIAMETER DETAILS

122181-SU-TS-001 [A].pdf

#### SERVICE LOCATING LIFESTYLE NOTES & LEGEND:

SUBSURFACE UTILITY INFORMATION (SUI) AS5488 LOCATION CLASS Labelling utility information by a classification code allows the user of this information to understand clearly how the information was collected and then place an appropriate amount of reliance on it.

Project risks related to underground utilities can then be properly managed.

**QL-A:** Information is the highest possible level of accuracy and is obtained by exposing the underground utility using a non-destructive excavation (pot holing) technique. The vertical information for this locating method is to the top or shallowest part of the located service. The 3D location is recorded by survey as an X, Y, Z coordinate.

**QL-B:** Information is collected by designating the horizontal and vertical location of underground utilities by using electromagnetic pipe and cable locators, sondes or flexi-trace, ground penetrating radar and acoustic pulse equipment. This is the most common form of utility locating and although an X, Y and Z axis can be established it is not always entirely accurate due to differing electromagnetic fields, soil conditions and multiple banks of cables affecting the locating signal.

**QL-C:** Information is collected by correlating the survey of visible utility surface features such as marker plates or water hydrants and acquired Dial-Before-You-Dig plans to "draw" a string which shows the approximate position of services. This method does not usually show multiple banks of cables and does not always show three dimensional information. Electronically traced locate marks with poor scratchy signals are represented as QL-C.

**QL-D:** Information is the most basic level of utility locations using only information based on existing Dial-Before-You-Dig plans and by measuring boundary offsets etc. This method of utility locations should always be treated as an indication of the presence of a service only and should not be used for design. GPR scans are also represented as QL-D as the GPR image cannot be confirmed to it's origin point. Depths on GPR scan must be treated as indicative only.

	ELECTRICAL	ELECTRICAL [HIGH VOLTAGE]	ELECTRICAL [LOW VOLTAGE]	FUEL
QL-A	--- E-(A) ---	--- E[HV]-(A) ---	--- E[LV]-(A) ---	--- FU-(A) ---
QL-B	--- E-(B) ---	--- E[HV]-(B) ---	--- E[LV]-(B) ---	--- FU-(B) ---
QL-C	--- E-(C) ---	--- E[HV]-(C) ---	--- E[LV]-(C) ---	--- FU-(C) ---
QL-D	--- E-(D) ---	--- E[HV]-(D) ---	--- E[LV]-(D) ---	--- FU-(D) ---

	COMMUNICATIONS	COMMUNICATIONS [TELSTRA]	COMMUNICATIONS [OPTIC FIBRE]	SEWER
QL-A	--- C-(A) ---	--- T-(A) ---	--- OF-(A) ---	--- S-(A) ---
QL-B	--- C-(B) ---	--- T-(B) ---	--- OF-(B) ---	--- S-(B) ---
QL-C	--- C-(C) ---	--- T-(C) ---	--- OF-(C) ---	--- S-(C) ---
QL-D	--- C-(D) ---	--- T-(D) ---	--- OF-(D) ---	--- S-(D) ---

	DRAINAGE	DRAINAGE [SUBSOIL]	GAS	GAS [OXYGEN]
QL-A	--- D-(A) ---	--- SS-(A) ---	--- G-(A) ---	--- OX-(A) ---
QL-B	--- D-(B) ---	--- SS-(B) ---	--- G-(B) ---	--- OX-(B) ---
QL-C	--- D-(C) ---	--- SS-(C) ---	--- G-(C) ---	--- OX-(C) ---
QL-D	--- D-(D) ---	--- SS-(D) ---	--- G-(D) ---	--- OX-(D) ---

	WATER	WATER [IRRIGATION]	WATER [FIRE]	UNIDENTIFIED
QL-A	--- W-(A) ---	--- W[IR]-(A) ---	--- W[FIR]-(A) ---	--- UN-(A) ---
QL-B	--- W-(B) ---	--- W[IR]-(B) ---	--- W[FIR]-(B) ---	--- UN-(B) ---
QL-C	--- W-(C) ---	--- W[IR]-(C) ---	--- W[FIR]-(C) ---	--- UN-(C) ---
QL-D	--- W-(D) ---	--- W[IR]-(D) ---	--- W[FIR]-(D) ---	--- UN-(D) ---

	TRAFFIC
QL-A	--- TR-(A) ---
QL-B	--- TR-(B) ---
QL-C	--- TR-(C) ---
QL-D	--- TR-(D) ---

#### SERVICE LOCATING NOTES:

CRUX SURVEYING AUSTRALIA HAVE MARKED AND SURVEYED UTILITIES WITHIN THE AREA SPECIFIED BY THE CLIENT. FOUND UTILITIES HAVE BEEN REFERENCED TO THE RELATIVE UTILITY OWNERS DIAGRAMS. HOWEVER UTILITIES MAY EXIST IN THE AREA THAT ARE NOT SHOWN ON THESE PLANS.

UTILITY LINES SHOWN ON THESE PLANS ARE INTERPOLATED BETWEEN POINTS THAT HAVE BEEN LOCATED BY UTILITY DETECTION METHODS AND SURVEYED ON SITE BY CRUX.

LINES ARE MARKED TO THE AUSTRALIAN STANDARD OF UTILITY CLASSIFICATION.

UTILITY INFORMATION HAS BEEN LABELED FROM MEASURABLE / VISIBLE SERVICES AT QUALITY LEVEL A POINTS (MANHOLES OR POTHOLED/TRENCHED AREAS). WHERE NECESSARY INFORMATION HAS BEEN OBTAINED FROM DIAGRAMMATIC RECORDS.

ONLY MANHOLE CONFIRMATION AND POTHOLED/TRENCHED SERVICES DEPTHS ARE SHOWN TO QUALITY LEVEL A. ALL OTHER UTILITY DEPTH INFORMATION HAS BEEN INTERPOLATED TO QUALITY LEVEL B USING A VARIETY OF LOCATING METHODS INCLUDING EMI AND GPR.

ELECTRONIC DETECTION MUST NOT BE THE SOLE METHOD USED TO DETERMINE UTILITY LOCATIONS FOR CONSTRUCTION PURPOSES. THE ELECTRONIC SUB-SURFACE MEASUREMENTS ARE INDICATIVE ONLY AND MUST BE PROVEN BY PHYSICALLY SIGHTING THE ASSET.

POT-HOLING NOT BEEN UNDERTAKEN.

IT IS RECOMMENDED TO POT-HOLE USING HAND HELD TOOLS OR NON DESTRUCTIVE EXCAVATION METHODS BEFORE ANY MECHANICAL MEANS OF EXCAVATION ARE USED TO DETERMINE THE PRECISE LOCATION AND EXTENT OF UNDERGROUND UTILITIES.

ELECTROMAGNETIC LOCATING METHODS WILL DETECT MOST BURIED CONDUCTORS BUT THERE ARE SOME OBJECTS THAT DO NOT RADIATE ANY DETECTABLE SIGNAL.

THESE PLANS DO NOT INDICATE APPROVAL TO DIG. PERMITS AND APPROVALS MUST BE SOUGHT AND OBTAINED FROM THE RELEVANT AUTHORITIES BEFORE COMMENCING EXCAVATION WORK.

THIS PLAN MUST BE PRINTED IN COLOUR.

THESE NOTES FORM AN INTEGRAL PART OF THE PLAN AND SHOULD ALWAYS BE SHOWN

SCALES				
A	SRA	04/11/2019	DRAFT ONLY	SRA
REV.	BY	DATE	DESCRIPTION	APPD.
A1	Original		Co-ordinate System: MGA Zone 56	
			Height Datum: A.H.D.	
This sheet may be prepared using colour and may be incomplete if copied				

CLIENT

ARUP

REGISTERED SURVEYORS	
SURVEYED	SCOTT ALLISON
DRAWN	BEN PARKINSON
SURVEY CHECK	SCOTT ALLISON
DRAWING CHECK	SCOTT ALLISON
APPROVED	SCOTT ALLISON
	04/11/2019



No.339 WALLGROVE ROAD

EASTERN CREEK  
TOPOGRAPHIC AND UTILITY SURVEY  
COVER SHEET

STATUS: DRAFT ONLY	SHEET 2 OF 42	©
CRUX Dig No. 122181-SU-DT-001		REV. A



Cad File: T:122181 339 Wallgrove Rd Eastern Creek - ARUPDrawings\OutDetail\122181-SU-DT-001 [A].dwg

Plot Date: 04/11/19 - 12:46 100mm AT FULL SIZE

122181



A	SRA	04/11/2019	FOR INFORMATION		SRA
REV.	BY	DATE	DESCRIPTION		APPD.
A1 Original			Co-ordinate System: MGA Zone 56	Height Datum: A.H.D.	This sheet may be prepared using colour and may be incomplete if copied

SCALES

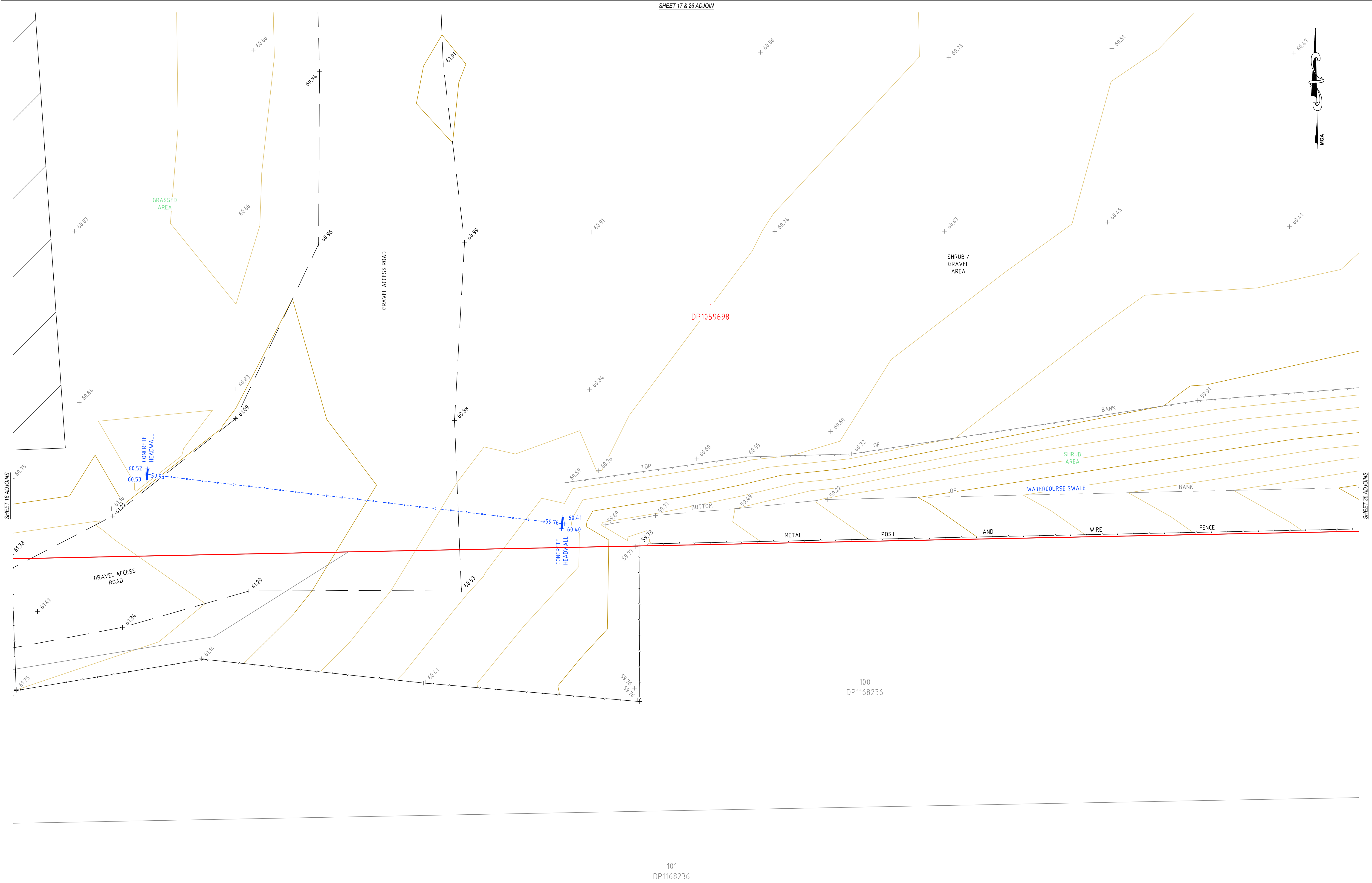
NOTES
1. FOR DETAIL NOTES AND LEGEND SEE SHEET 1
2. FOR UTILITY LOCATING NOTES AND LEGEND SEE SHEET 1
THIS NOTICE MUST NOT BE REMOVED

CLIENT
ARUP

REGISTERED SURVEYORS
SURVEYED SCOTT ALLISON
DRAWN BEN PARKINSON
SURVEY CHECK SCOTT ALLISON
DRAWING CHECK SCOTT ALLISON
APPROVED SCOTT ALLISON 04/11/2019

No.339 WALLGROVE ROAD		
EASTERN CREEK TOPOGRAPHIC AND UTILITY SURVEY PLAN SHOWING DETAIL, LEVELS & EXISTING ROADS OVER LOT 1 IN DP1059698		
STATUS: FOR INFORMATION	SHEET 18 OF 42	©
CRUX Drg No. 122181-SU-DT-001	REV.	A

Cad File: T:\122181- 339 Wallgrove Rd Eastern Creek - ARUP\Drawings\OutDetail\122181-SU-DT-001 [A].dwg  
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REV.	BY	DATE	DESCRIPTION		APPD.
A1	Original		Co-ordinate System: MGA Zone 56	Height Datum: A.H.D.	This sheet may be prepared using colour and may be incomplete if copied

NOTES

1. FOR DETAIL NOTES AND LEGEND SEE SHEET 1

2. FOR UTILITY LOCATING NOTES AND LEGEND SEE SHEET 1

THIS NOTICE MUST NOT BE REMOVED

CLIENT

ARUP

The information shown on this drawing is for the purposes of this Project only. No warranty is given or implied as to its suitability for any other purpose. The Service Providers accept no liability arising from the use of this drawing and the information shown thereon for any purpose other than this Project.

REGISTERED SURVEYORS

CRUX

SURVEYING PTY LTD

AUSTRALIA

CONSTRUCTORS-CIVIL-ROADS-UTL  
SURVEYING-PROPERTY-ENGINEERING

SURVEYED

DRAWN

SURVEY CHECK

DRAWING CHECK

APPROVED

SCOTT ALLISON

BEN PARKINSON

SCOTT ALLISON

SCOTT ALLISON

SCOTT ALLISON

04/11/2019

No.339 WALLGROVE ROAD

EASTERN CREEK  
TOPOGRAPHIC AND UTILITY SURVEY  
PLAN SHOWING DETAIL, LEVELS & EXISTING ROADS  
OVER LOT 1 IN DP1059698

STATUS: FOR INFORMATION

SHEET 27 OF 42

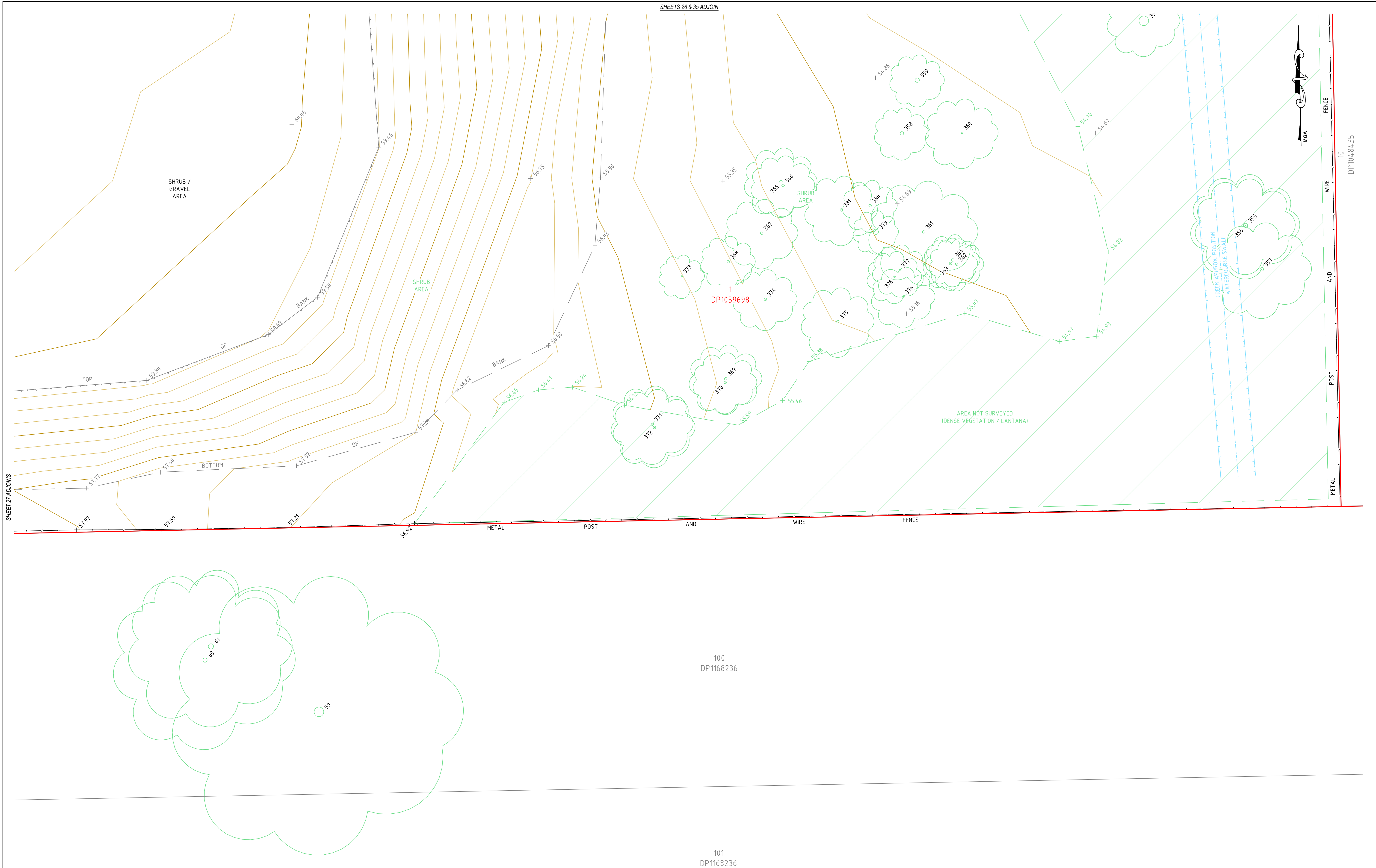
©

CRUX Orig No. 122181-SU-DT-001

REV.

A





<div>NOTES</div> <div>1. FOR DETAIL NOTES AND LEGEND SEE SHEET 1</div> <div>2. FOR UTILITY LOCATING NOTES AND LEGEND SEE SHEET 1</div> <div>THIS NOTICE MUST NOT BE REMOVED</div>	<div>CLIENT</div> <div>ARUP</div>	<div>The information shown on this drawing is for the purposes of this Project only. No warranty is given or implied as to its suitability for any purpose other than this Project.</div>	No.339 WALLGROVE ROAD			
		REGISTERED SURVEYORS	<div>SURVEYEDSCOTT ALLISON</div> <div>DRAWNBEN PARKINSON</div> <div>SURVEY CHECKSCOTT ALLISON</div> <div>DRAWING CHECKSCOTT ALLISON</div> <div>APPROVEDSCOTT ALLISON04/11/2019</div>	<div>EASTERN CREEK</div> <div>TOPOGRAPHIC AND UTILITY SURVEY</div> <div>PLAN SHOWING DETAIL, LEVELS &amp; EXISTING ROADS</div> <div>OVER LOT 1 IN DP1059698</div>		
			STATUS: FOR INFORMATION		SHEET 36 OF 42	©
			CRUX Drg No. 122181-SU-DT-001		REV.	A





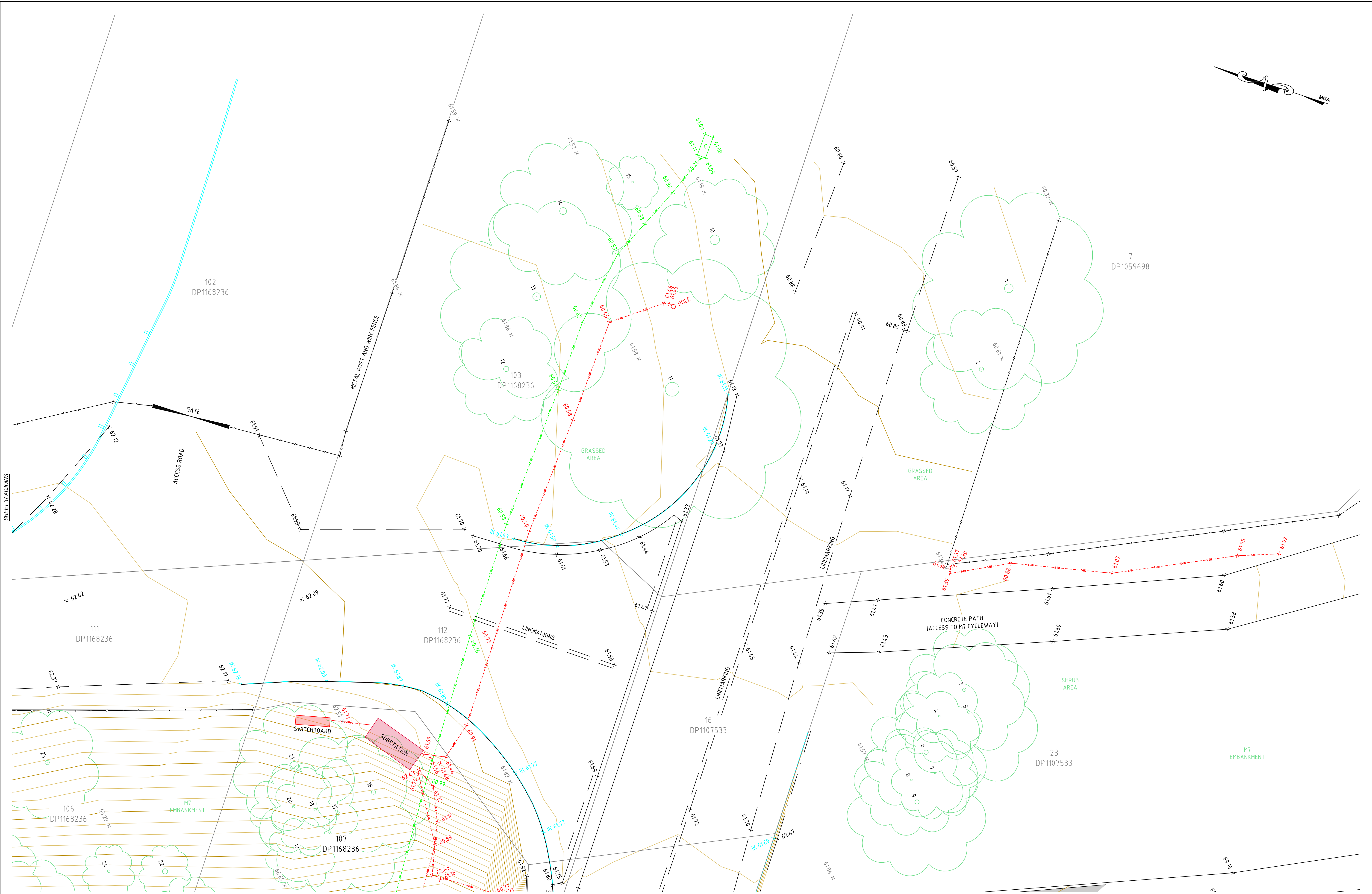


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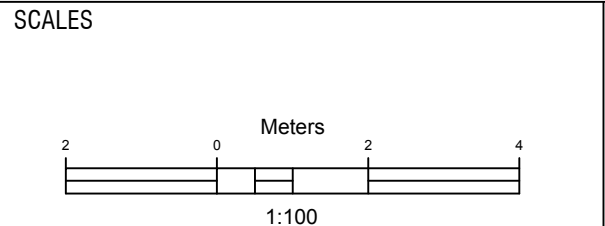
Plot Date: 04/11/19 - 12:48

100mm AT FULL SIZE

100mm AT FULL SIZE



A	SRA	04/11/2019	FOR INFORMATION		SRA
REV.	BY	DATE	DESCRIPTION		APPD.
A1 Original			Co-ordinate System: MGA Zone 56	Height Datum: A.H.D.	This sheet may be prepared using colour and may be incomplete if copied



- NOTES**
- FOR DETAIL NOTES AND LEGEND SEE SHEET 1
  - FOR UTILITY LOCATING NOTES AND LEGEND SEE SHEET 1
- THIS NOTICE MUST NOT BE REMOVED

CLIENT

ARUP

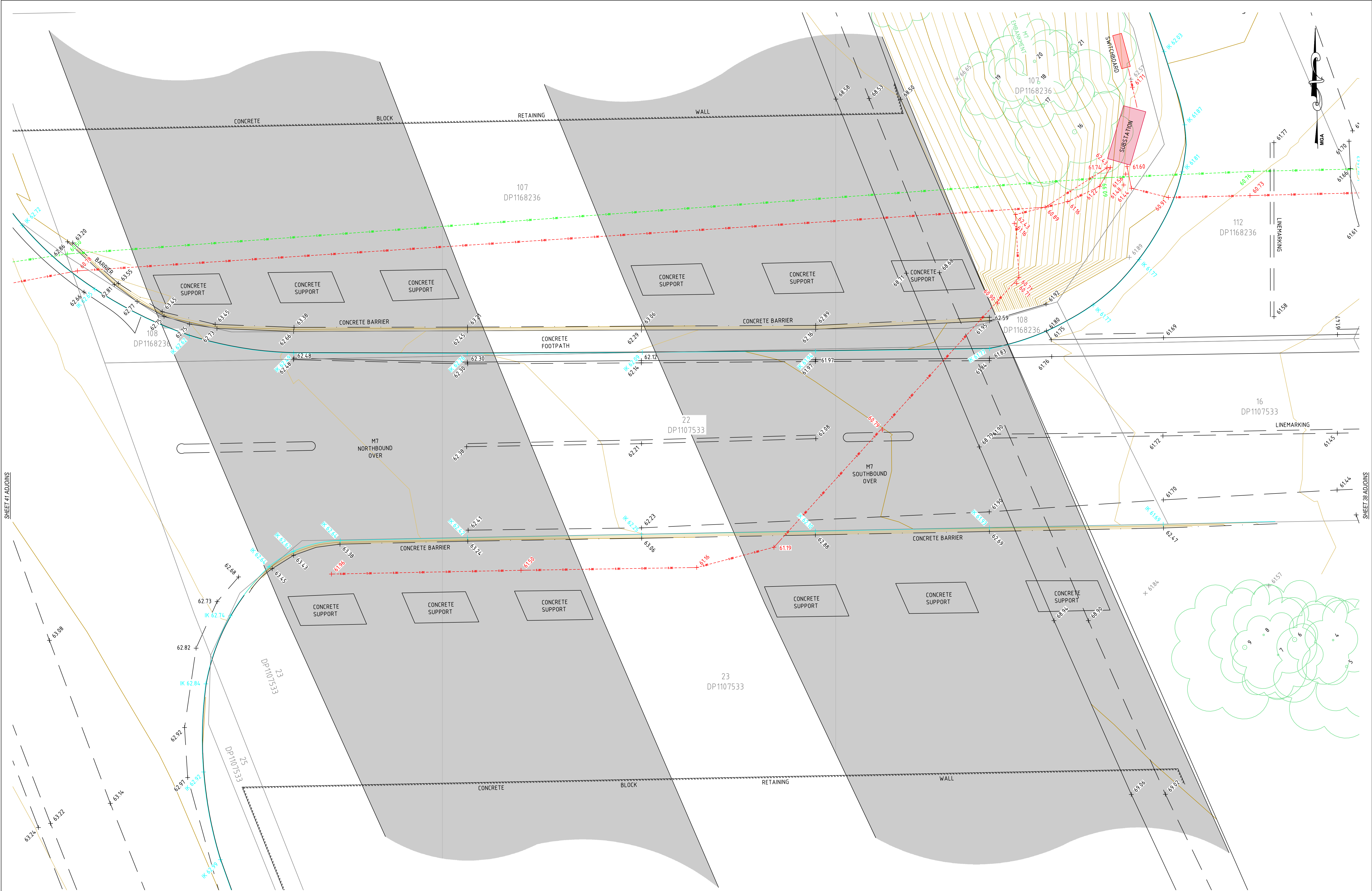
REGISTERED SURVEYORS	
SURVEYED	SCOTT ALLISON
DRAWN	BEN PARKINSON
SURVEY CHECK	SCOTT ALLISON
DRAWING CHECK	SCOTT ALLISON
APPROVED	SCOTT ALLISON
04/11/2019	

## No.339 WALLGROVE ROAD

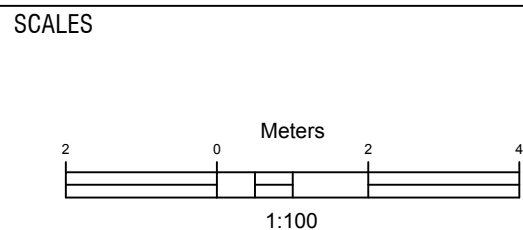
EASTERN CREEK  
TOPOGRAPHIC AND UTILITY SURVEY  
PLAN SHOWING DETAIL, LEVELS & EXISTING ROADS  
OVER LOT 1 IN DP1059698

STATUS: FOR INFORMATION	SHEET 38 OF 42	©
CRUX Drg No. 122181-SU-DT-001	REV.	A





REV.	BY	DATE	DESCRIPTION	APPD.
A	SRA	04/11/2019	FOR INFORMATION	SRA
A1 Original	Co-ordinate System: MGA Zone 56	Height Datum: A.H.D.	This sheet may be prepared using colour and may be incomplete if copied	



**NOTES**

1. FOR DETAIL NOTES AND LEGEND SEE SHEET 1

2. FOR UTILITY LOCATING NOTES AND LEGEND SEE SHEET 1

THIS NOTICE MUST NOT BE REMOVED

CLIENT

ARUP

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REGISTERED SURVEYORS	
SURVEYED	SCOTT ALLISON
DRAWN	BEN PARKINSON
SURVEY CHECK	SCOTT ALLISON
DRAWING CHECK	SCOTT ALLISON
APPROVED	SCOTT ALLISON

## No.339 WALLGROVE ROAD

EASTERN CREEK  
TOPOGRAPHIC AND UTILITY SURVEY  
PLAN SHOWING DETAIL, LEVELS & EXISTING ROADS  
OVER LOT 1 IN DP1059698

STATUS: FOR INFORMATION	SHEET 39 OF 42	©
CRUX Drg No. 122181-SU-DT-001	REV.	A

## Appendix B

### NWR Record Drawings



Last saved: Feb 28, 2005 - 5:35pm

Cad/Dwg name: K:\DESIGN\CAD\DETAILED DESIGN\DWG\SECTION\_04\10\_BR\_BRIDGES\INFRA\_24.11-24.12\C001-BR-540201X1.dwg



# WESTLINK M7 INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS

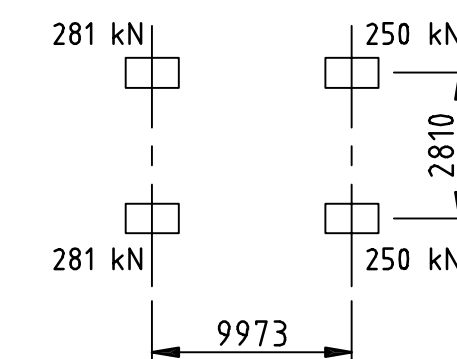
## WORK AS EXECUTED

### SCHEDULE OF DRAWINGS

C001-BR-540201	COVER SHEET & DRAWING LIST
C001-BR-540211	GENERAL ARRANGEMENT
C001-BR-540215	SECTIONS AND DETAILS 2134 DIA (84 INCH) PIPELINE SHEET 1
C001-BR-540216	SECTIONS AND DETAILS 3048 DIA (120 INCH) PIPELINE SHEET 2
C001-BR-540217	SECTIONS AND DETAILS 3048 DIA (120 INCH) PIPELINE SHEET 3
C001-BR-540218	PROTECTION SLAB DETAILS
C001-BR-540221	HEADWALL DETAILS
C001-BR-540222	EMBANKMENT INLET DRAINAGE DETAIL
C001-BR-540223	DRAINAGE DETAILS

DESIGN LOADING  
SM1600 TO, 3.2m LANE  
DRAFT AS5100.2 DEC-02

### CONSTRUCTION LOADING



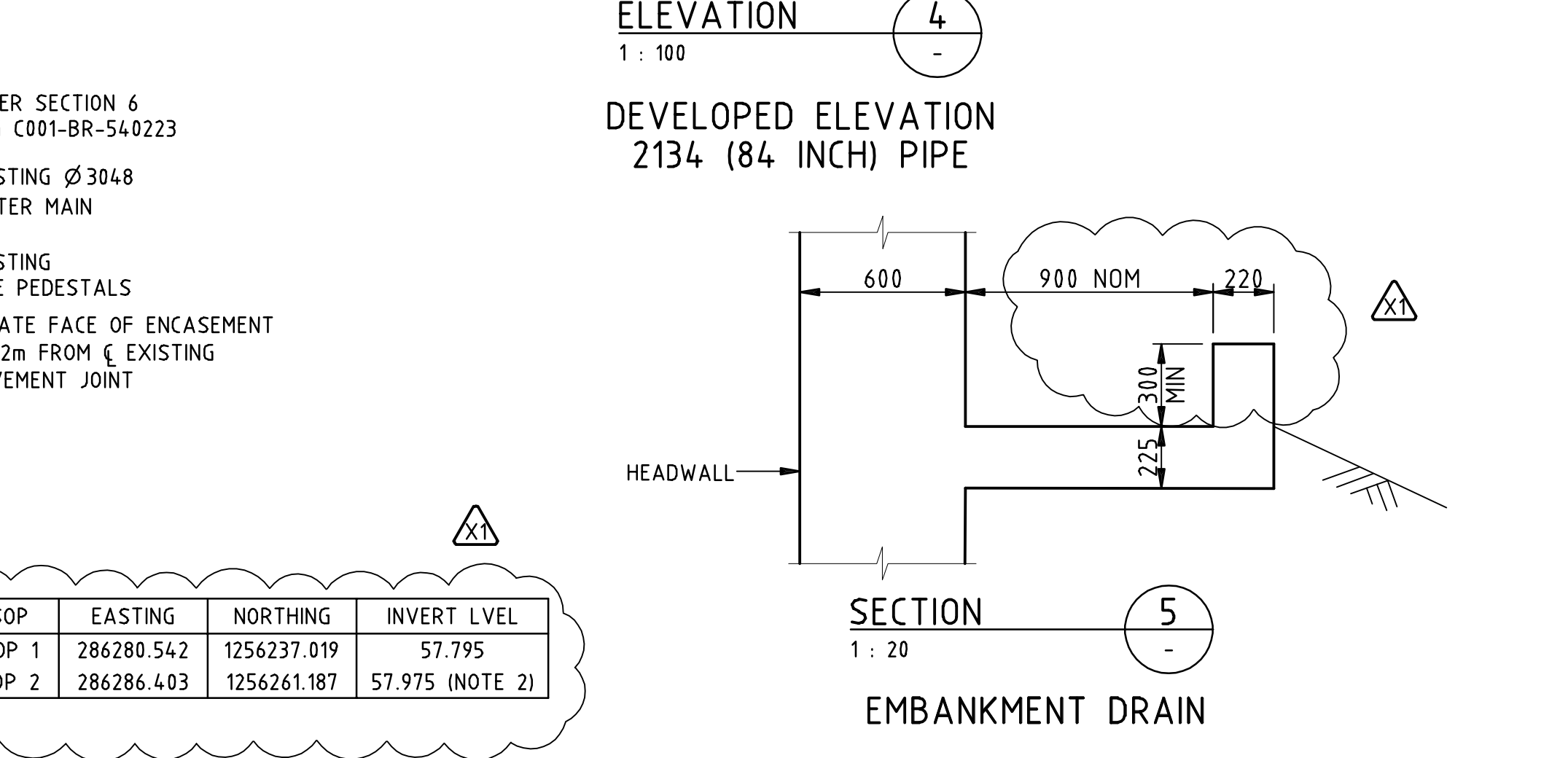
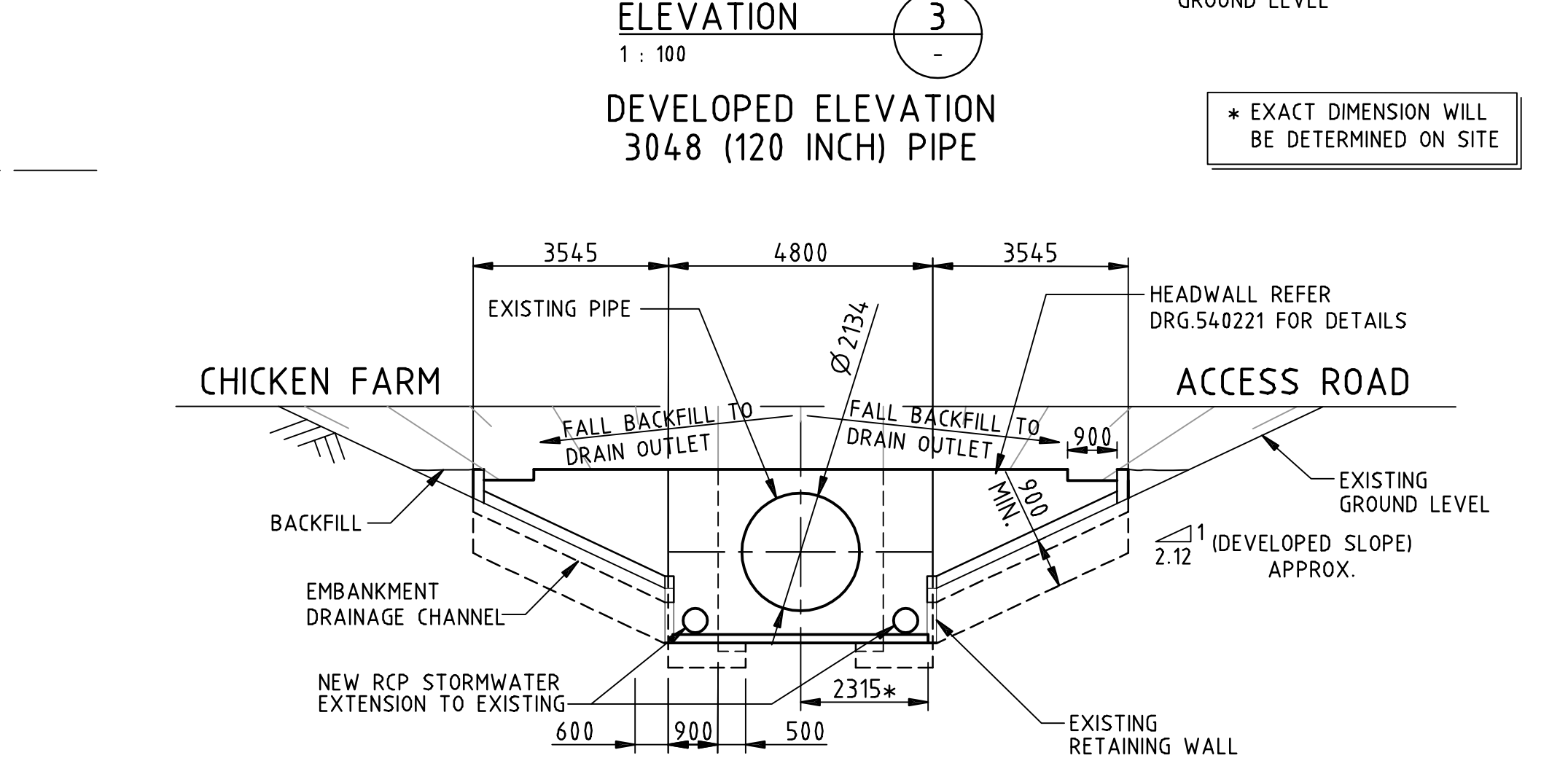
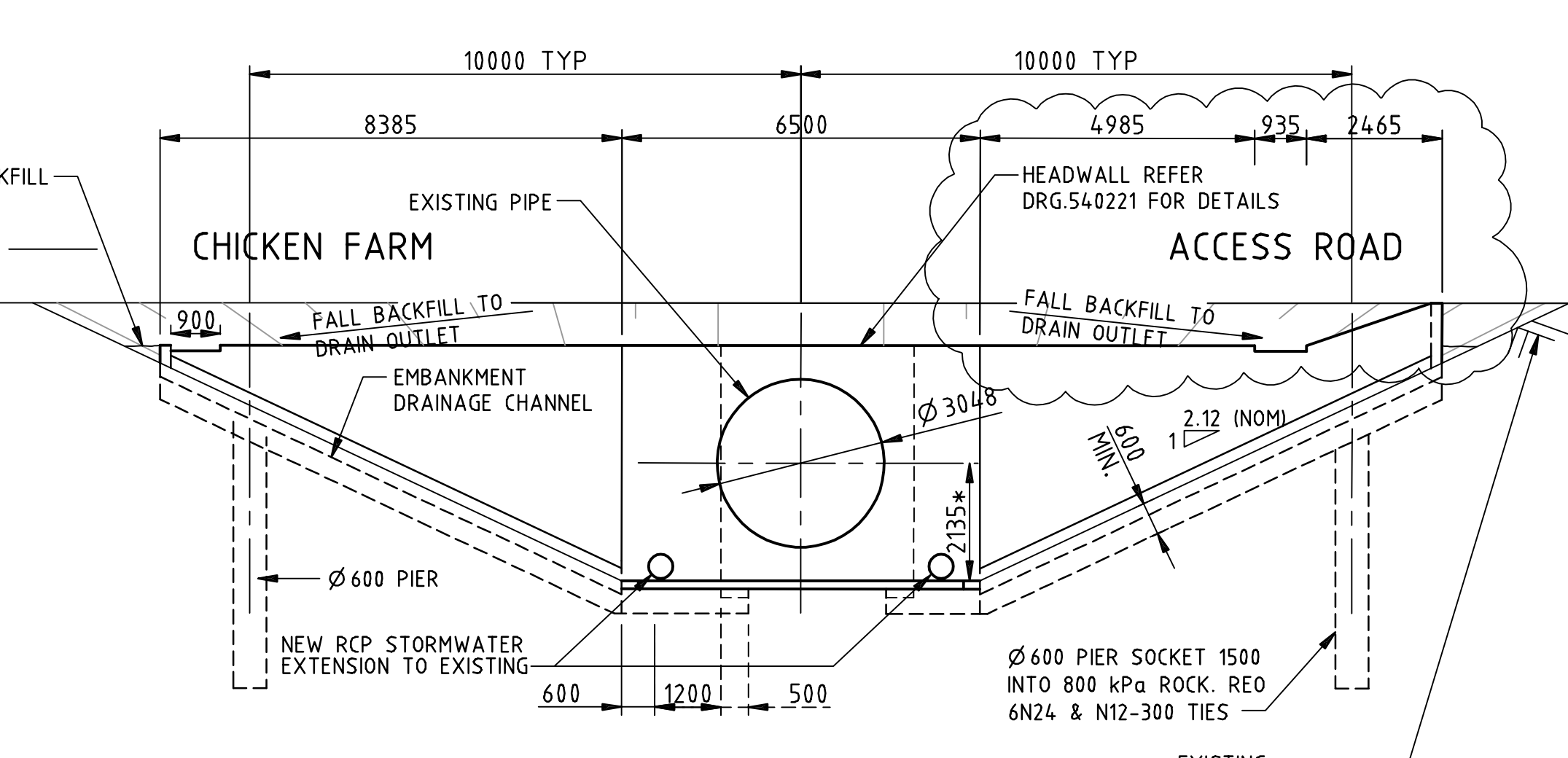
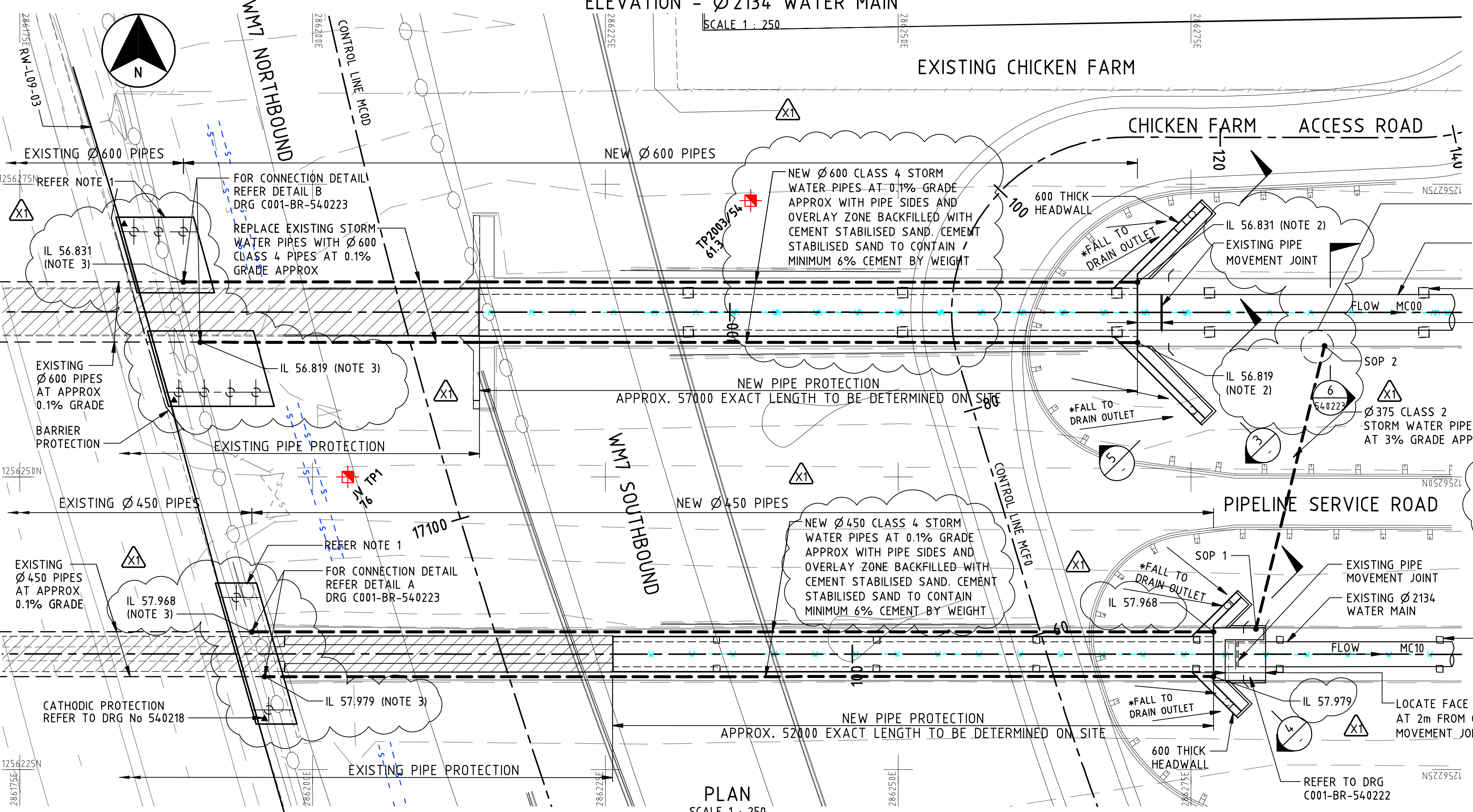
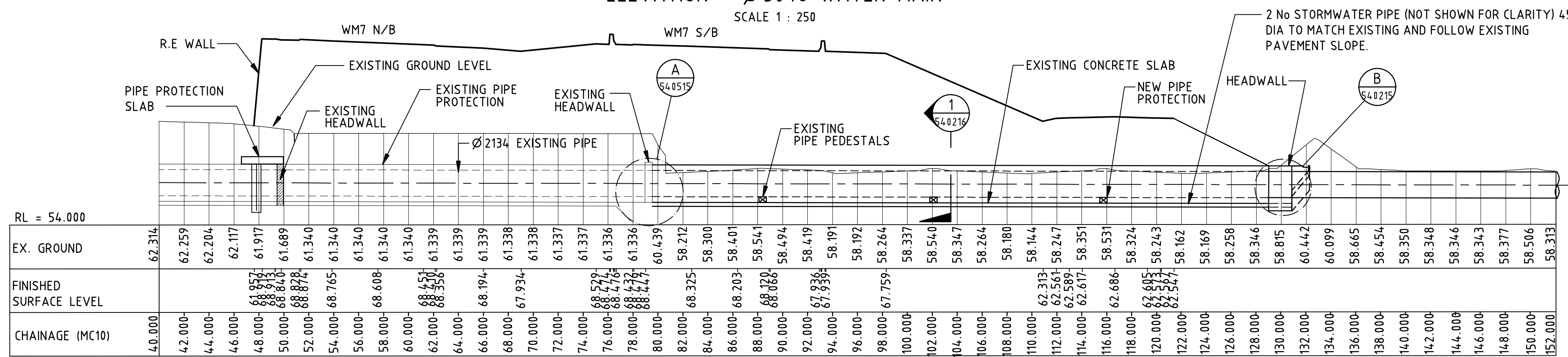
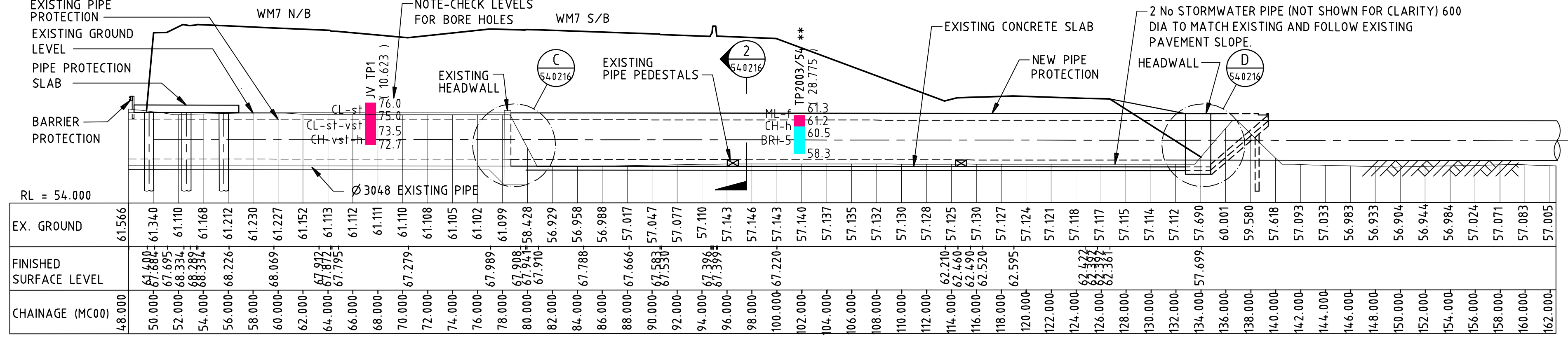
651E WHEEL TRACTOR SCRAPER  
MAX WHEEL LOADS

1. THE ABOVE WHEEL LOADS DO NOT INCLUDE DESIGN DYNAMIC LOAD FACTOR.
2. PROVISION OF CONSTRUCTION LOADING IS RESTRICTED TO ONE VEHICLE AT ANY TIME.
3. VEHICLE'S SPEED IS RESTRICTED TO 10km/h ON THE BRIDGE.
4. NO CONSTRUCTION LOADING TO TRAVERSE PIPE PRIOR TO CONSTRUCTION OF PROTECTION SLAB AND PLACEMENT OF 1000mm OF COMPACTED FILL ON TOP OF PROTECTION SLAB.

### WORK AS EXECUTED

REV.	DATE	AMENDMENT / ISSUE DESCRIPTION	WVR No.	APPROV.	DESIGNERS SITE NOTE	SCALES AT A1 SIZE DRAWING	CONSORTIUM	CONTRACTOR	DESIGNER	PROJECT TITLE	SECTION	DRAWING No.	REVISION	PHASE
X1	28.02.05	WORK AS EXECUTED	3594	DB			westlink M7	ABIGROUP LEIGHTON JOINT VENTURE	Maunsell JV SMEC MAUNSELL AUSTRALIA PTY LTD MAUNSELL SMEC JOINT VENTURE ABN 20 093 846 925	WESTLINK M7 INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS COVER SHEET	04	C001-BR-540201	X1	WE





LEGEND

- TEST PIT
- MH - '#' (ORGANIC CLAYS - HIGH PLASTICITY)
- CH - '#' (INORGANIC CLAYS - HIGH PLASTICITY)
- OH - '#' (ORGANIC CLAYS - HIGH PLASTICITY)
- BRI - '#' (BRINGELLY SHALE)

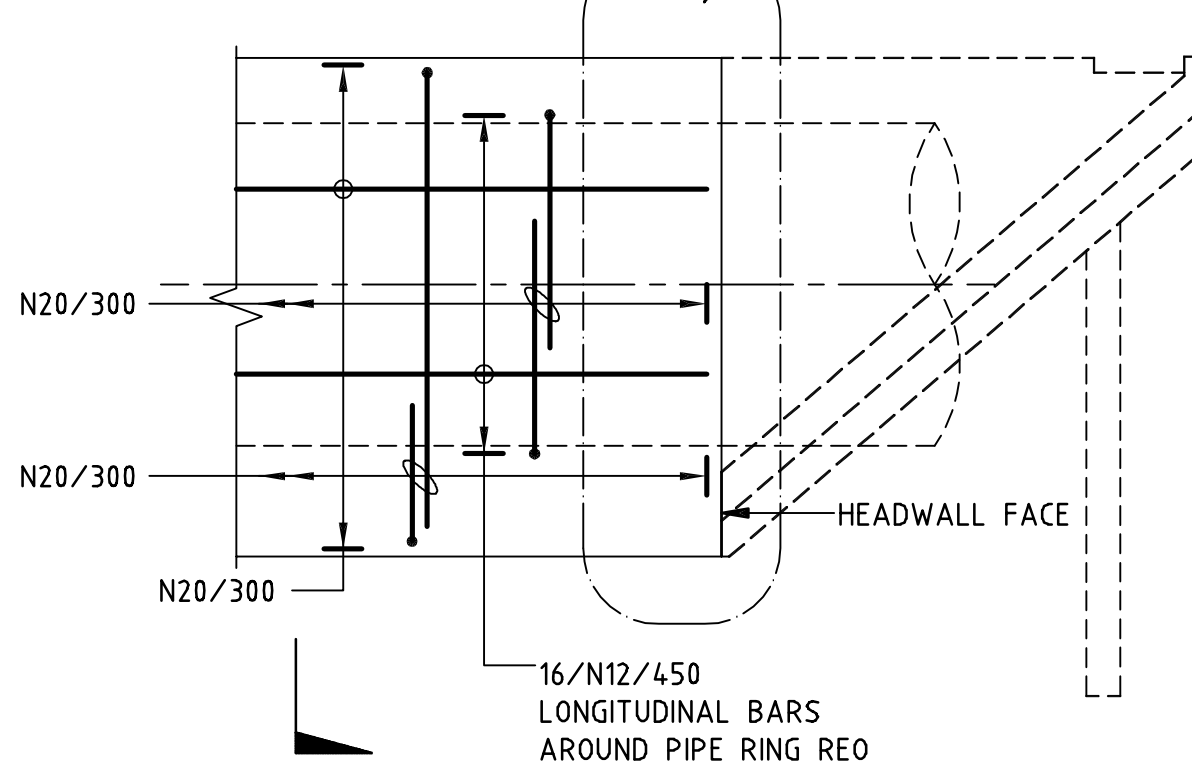
NOTES:

- PROTECTION SLAB TO EXISTING PIPES REFER DRG C001-BR-540218.
- CONFIRM THAT PIPE INVERT IS ABOVE EXISTING DOWNSTREAM GROUND LEVELS BEFORE INSTALLING PIPE.
- EXISTING LEVEL TO BE CONFIRMED ON SITE PRIOR TO LAYING NEW PIPES.

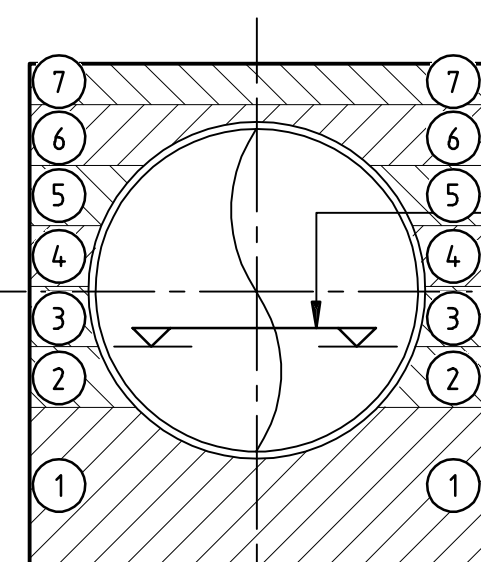
REV.	DATE	AMENDMENT / ISSUE DESCRIPTION	WVR No.	APPROV.	DESIGNERS SITE NOTE	SCALES AT A1 SIZE DRAWING	CONSORTIUM	CONTRACTOR	DESIGNER	PROJECT TITLE	SECTION	DRAWING No.	REVISION	PHASE
X1	28.02.05	WORK AS EXECUTED	3594	DB			westlink M7	ABIGROUP LEIGHTON JOINT VENTURE	Maunsell JV SMEC	WESTLINK M7 INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS GENERAL ARRANGEMENT	04	C001-BR-540211	X1	WE



- HEADWALL REINFORCEMENT  
DETAILS, SEE DRG. 540221

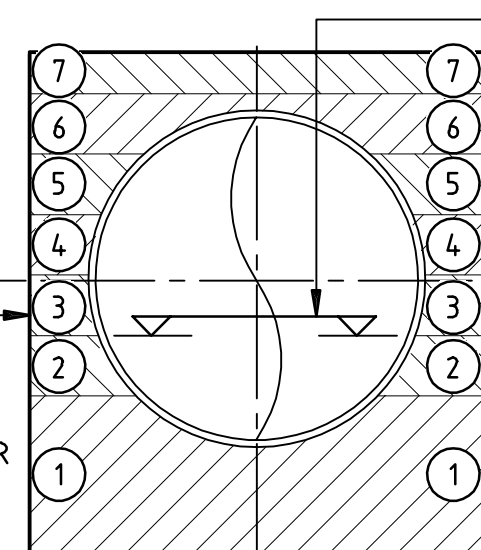


В  
540211



PIPE UNDERSIDE

SCALE 1 : 50



ULL)

SCALE 1 : 50

FITTINGS IN THE PROPOSED AREA OF CONCRETE ENCASUREMENT. ANY ITEMS FOUND MUST BE NOTIFIED TO THE DESIGNER/SCA AND INSTRUCTION GAINED PRIOR TO CONTINUATION OF THE WORK.

PROJECT TITLE WESTLINK M7  
INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS  
SECTIONS AND DETAILS  
2134 DIA. (84 INCH) PIPELINE  
SHEET 1

PROJECT TITLE		WESTLINK M7	
INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS			
SECTIONS AND DETAILS			
2134 DIA. (84 INCH) PIPELINE			
SHEET 1			
SECTION	DRAWING No.	REVISION	PHASE
04	C001-BR-54.0215	X1	WE

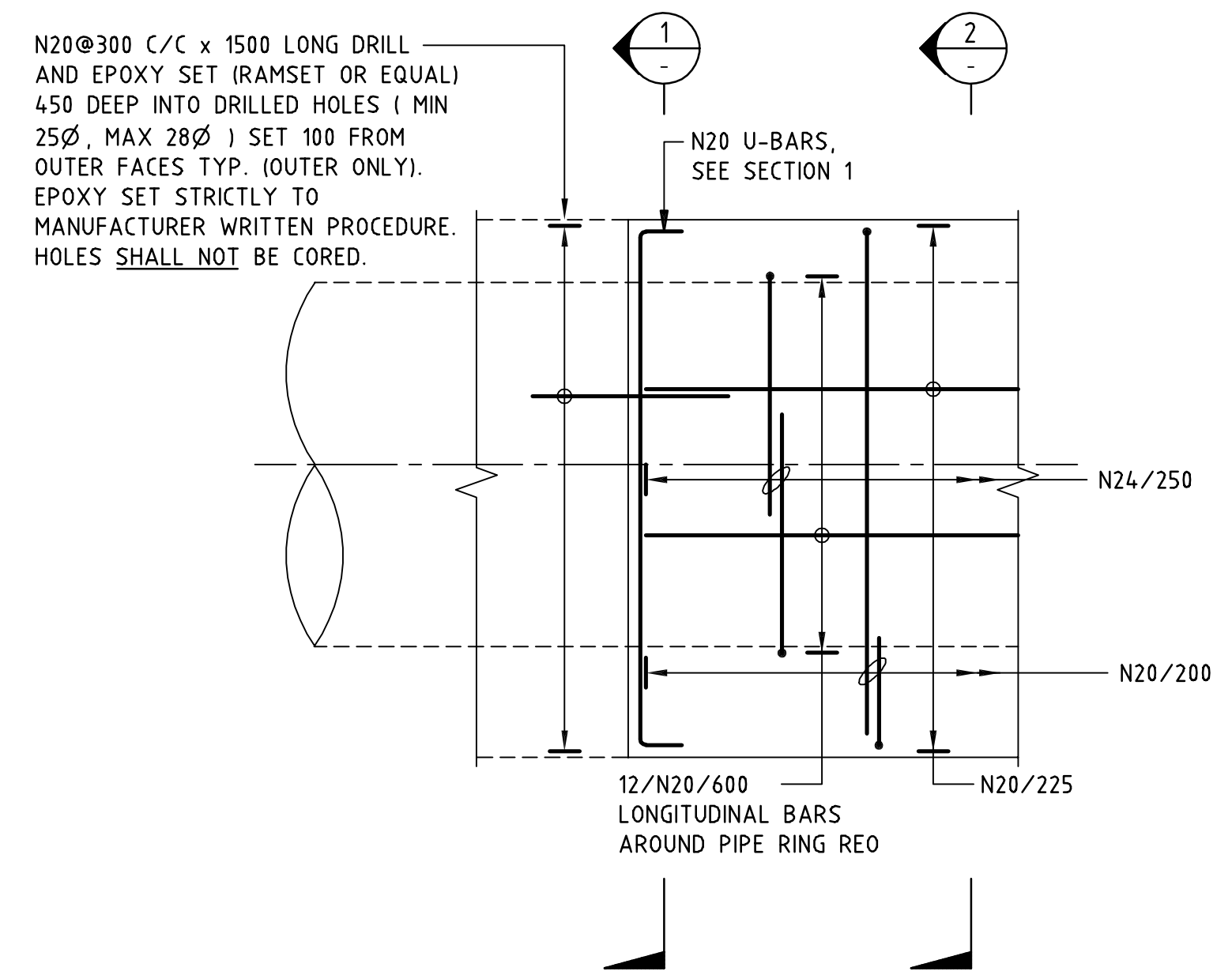


150 mm ON ORIGINAL

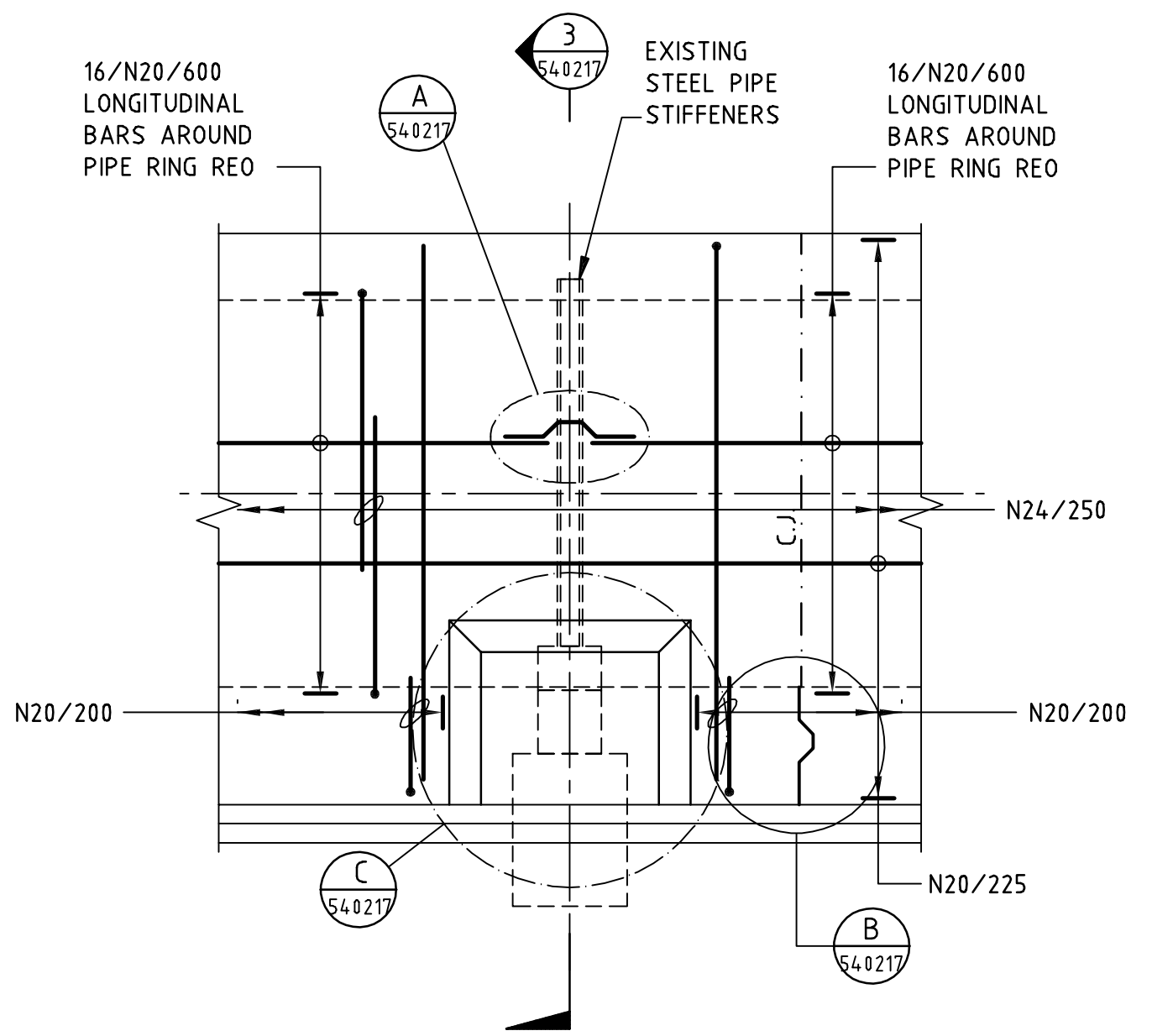
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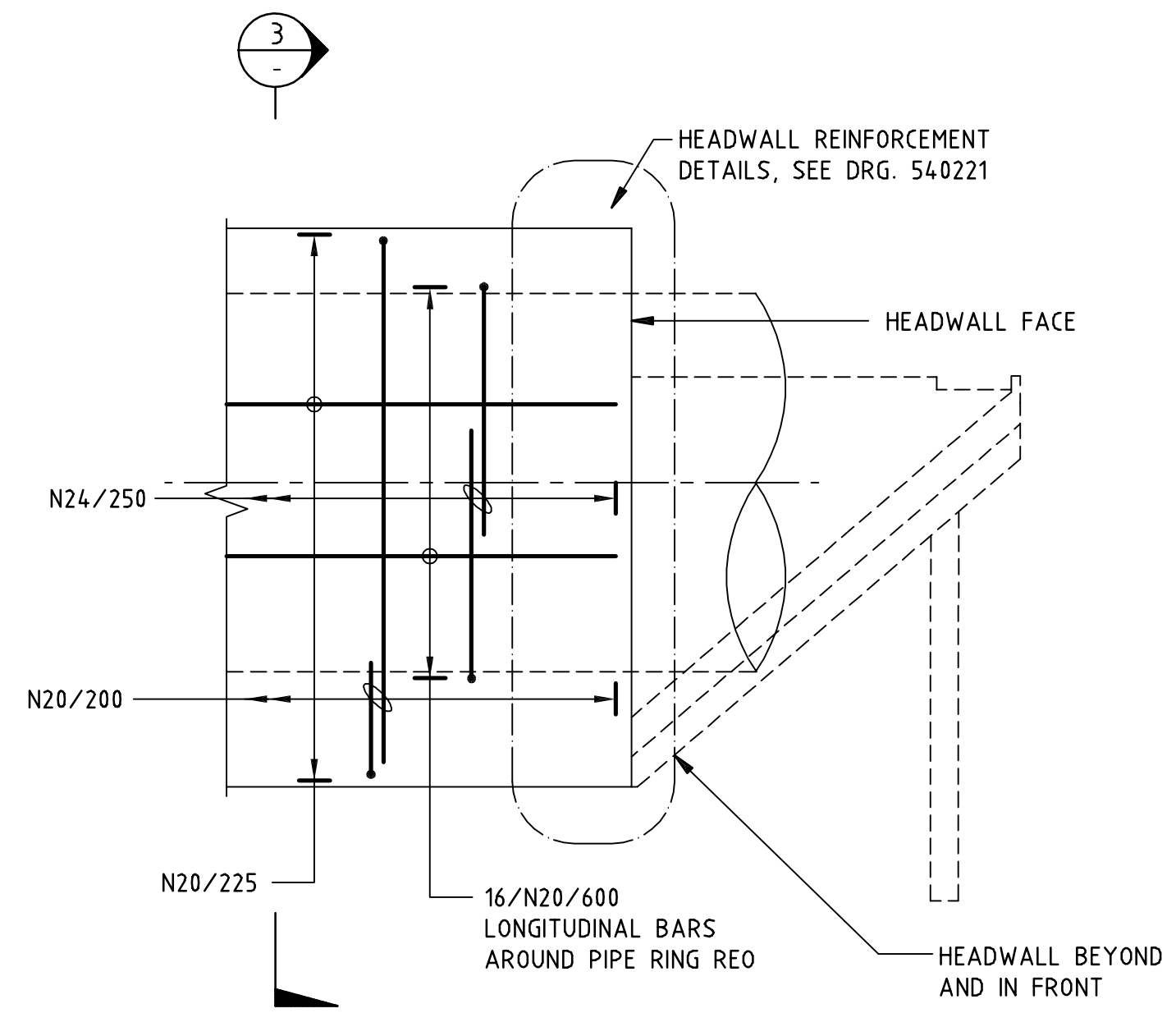
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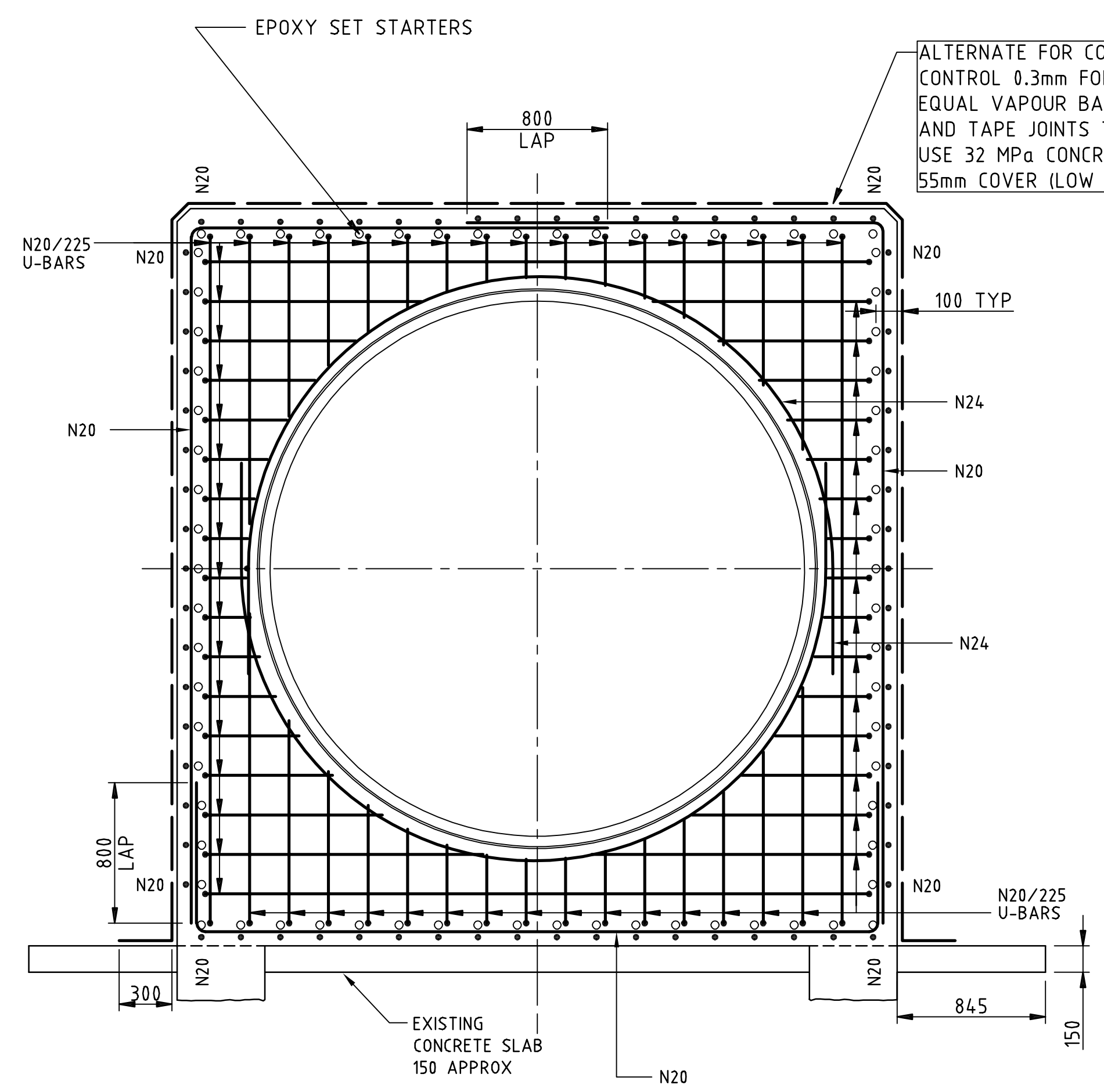
DETAIL C 1:50 540211



SECTION 2 1:50 540211

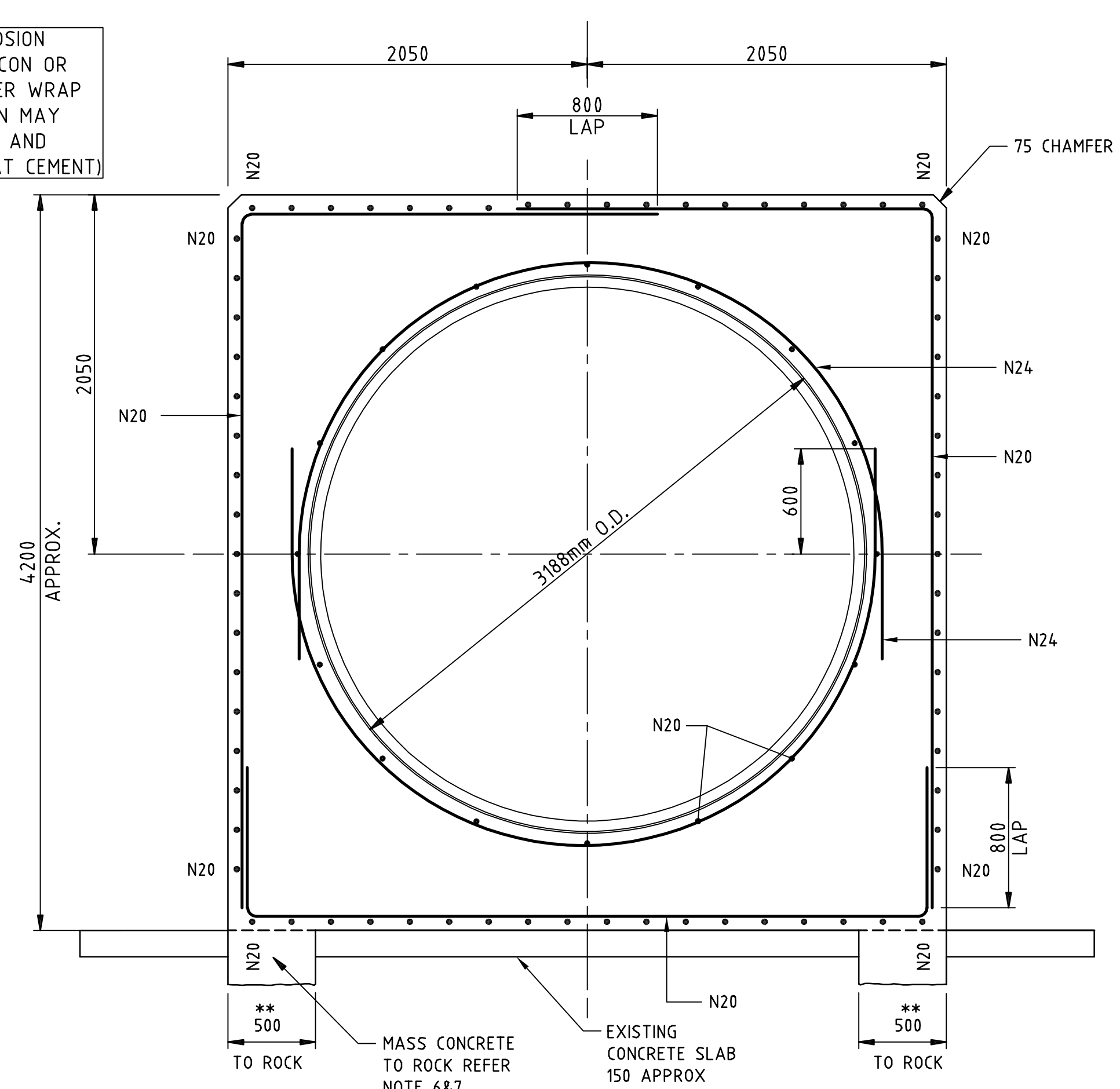


DETAIL D 1:50 540211



SECTION IN NEW ENCASEMENT NEAR END OF EXISTING SURROUND

SECTION 1 1:25 540211



TYPICAL SECTION

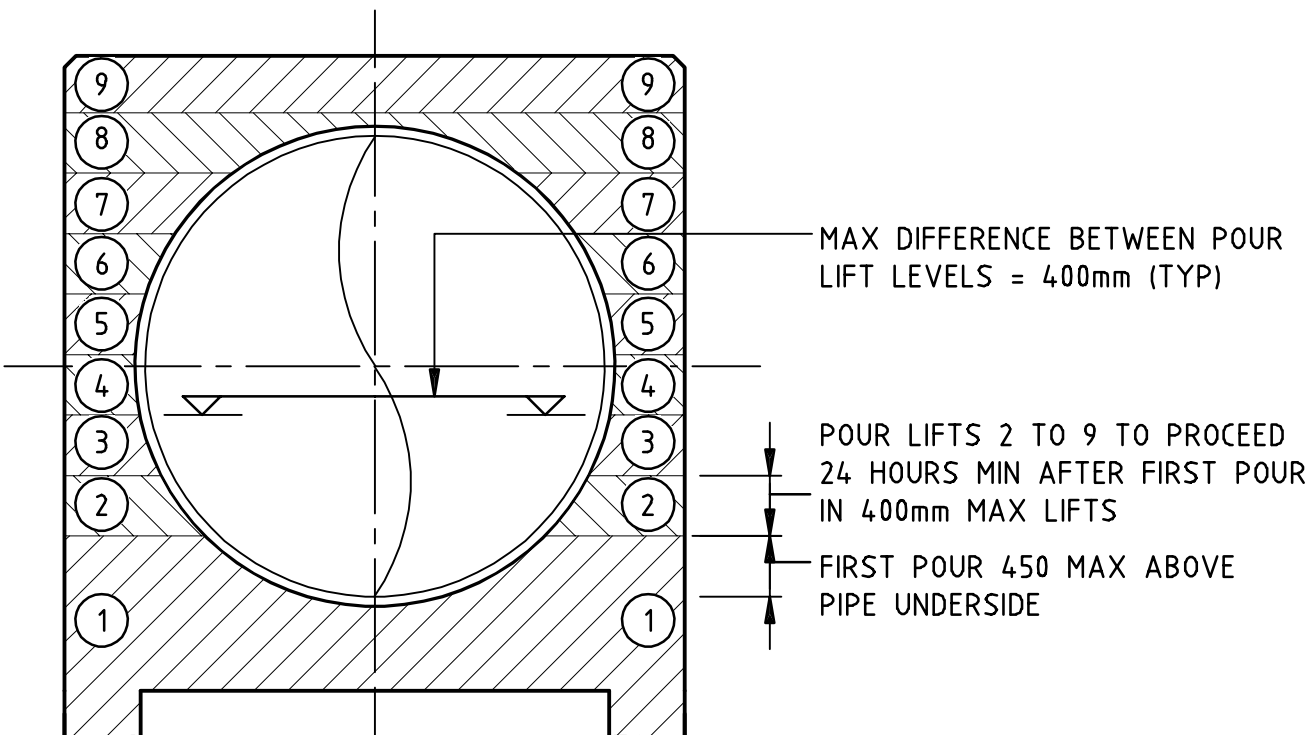
SECTION 3 1:25 540211

8. PRIOR TO COMMENCING CONSTRUCTION, AN INSPECTION IS TO BE UNDERTAKEN TO CONFIRM THAT THERE ARE NO TAPPINGS, PLUGS, BRANCHES OR ANCILLARY PIPE FITTINGS IN THE PROPOSED AREA OF CONCRETE ENCASEMENT. ANY ITEMS FOUND MUST BE NOTIFIED TO THE DESIGNER/SCA AND INSTRUCTION GAINED PRIOR TO CONTINUATION OF THE WORK.

\*\* SAW CUT AND REMOVE CONCRETE PAVEMENT 500 WIDE. EXCAVATE AND CONCRETE DOWN TO 700 kPa ROCK OR BETTER.

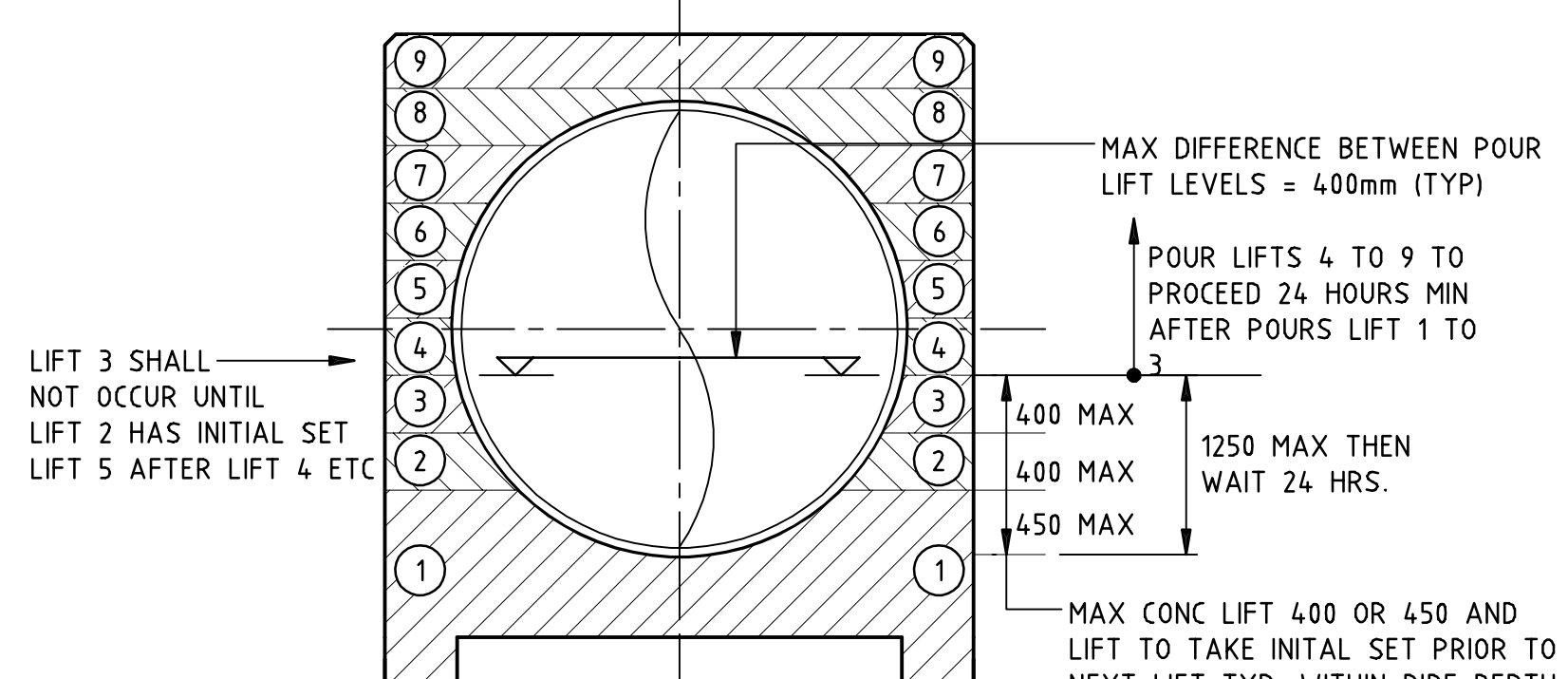
## CONCRETING NOTES FOR FLOTATION PREVENTION

- FOR A CONCRETE POUR WHEN THE PIPE IS EMPTY THE FIRST CONCRETE POUR SHALL NOT PROCEED MORE THAN 450mm ABOVE UNDERSIDE OF THE PIPE AND NOTES 3 TO 5 SHALL BE STRICTLY ADHERED TO.
- FOR A CONCRETE POUR WHEN THE WATER PIPE IS FULL THE FIRST POUR SHALL NOT PROCEED MORE THAN 1250 ABOVE THE UNDERSIDE OF PIPE AND NOTES 4 AND 5 SHALL BE STRICTLY ADHERED TO.
- THE FIRST POUR SHALL BE 24 HOURS OLD PRIOR TO THE SUBSEQUENT POUR.
- TO MINIMISE CONCRETE FLUID PRESSURE ON THE PIPE THE POUR LIFTS AROUND THE PIPE SHALL PROCEED IN MAX. 400mm DEEP LIFTS PLACED TO MAINTAIN A MAXIMUM HEIGHT DIFFERENCE OF 400mm BETWEEN THE CONCRETE SURFACE ON EACH SIDE OF THE PIPE.
- EACH 400mm LIFT SHALL BE ALLOWED TO TAKE ITS INITIAL SET BEFORE THE NEXT LIFT IS POURED AND THOROUGHLY VIBRATED TO ACHIEVE CONCRETE BOND WITH THE PREVIOUS LIFT.



FLOTATION CONTROL (WATER PIPE EMPTY) POUR DIAGRAM

SCALE 1:50



FLOTATION CONTROL (WATER PIPE FULL) POUR DIAGRAM

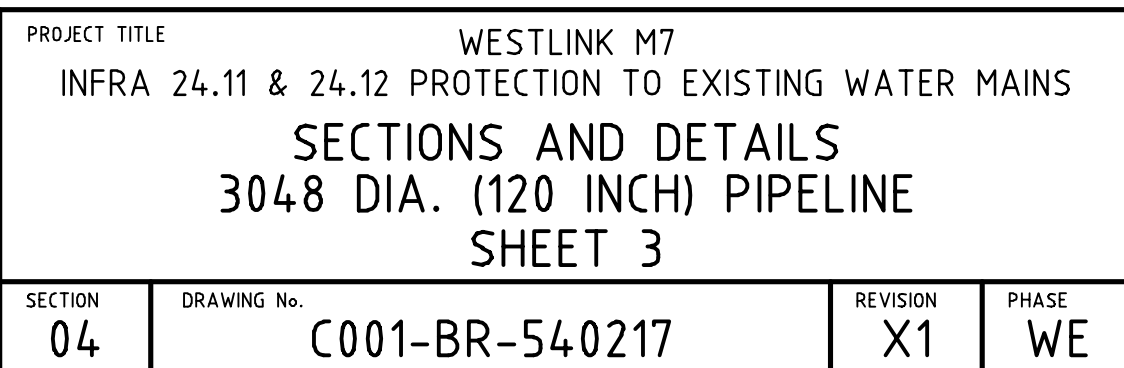
SCALE 1:50

## NOTES

- CONCRETE TO BE 50 MPa WITH LOW HEAT CEMENT. MIN COVER 55mm SLUMP 65mm ALT. 32 MPa WITH LOW HEAT CEMENT MIN COVER 55 IF PVC WRAPPING USED. OTHERWISE IN ACCORDANCE WITH RTA B80 SPECIFICATION
- ALL CORNERS OF SURROUND ABOVE GROUND LEVEL TO HAVE 75x75 CHAMFERS.
- TRANSVERSE CONSTRUCTION JOINTS TO BE APPROVED BY WSO DJV.
- ALL LONGITUDINAL LAPS IN REINFORCEMENT TO BE 800mm LONG.
- REMOVE ALL PAINT AND RUST AND SCALE PRIOR TO WELDING BARS TO PEDESTALS.
- SAW CUTTING AND REMOVAL OF PAVEMENT SHALL NOT PROCEED BEYOND LENGTH OF A POUR. EXCAVATION TO ROCK SHALL BE CARRIED OUT WITH GREAT CARE BY SMALL MACHINERY OR BY HAND AND ALL EFFORTS MADE TO NOT DAMAGE WATER PIPE.
- ROCK AND BEARING CAPACITY OF 700 kPa SHALL BE CERTIFIED AND APPROVED BY A QUALIFIED PRACTISING GEOTECH ENGINEER.

## WORK AS EXECUTED

REV.	DATE	AMENDMENT / ISSUE DESCRIPTION	WVR No.	APPROV.	DESIGNERS SITE NOTE	SCALES AT A1 SIZE DRAWING	CONSORTIUM	CONTRACTOR	DESIGNER	PROJECT TITLE	SECTION	DRAWING No.	REVISION	PHASE
X1	28.02.05	WORK AS EXECUTED	3594	DB		SCALE 1:25 0 0.25 0.50 1.00 SCALE 1:50 0 0.5 1 2	westlink M7	ABIGROUP LEIGHTON JOINT VENTURE	Maunsell JV SMEC MAUNSELL AUSTRALIA PTY LTD SMEC AUSTRALIA PTY LTD MAUNSELL SMEC JOINT VENTURE ABN 20 093 846 925	WESTLINK M7 INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS SECTIONS AND DETAILS 3048 DIA. (120 INCH) PIPELINE SHEET 2	04	C001-BR-540216	X1	WE





150 mm ON ORIGINAL  
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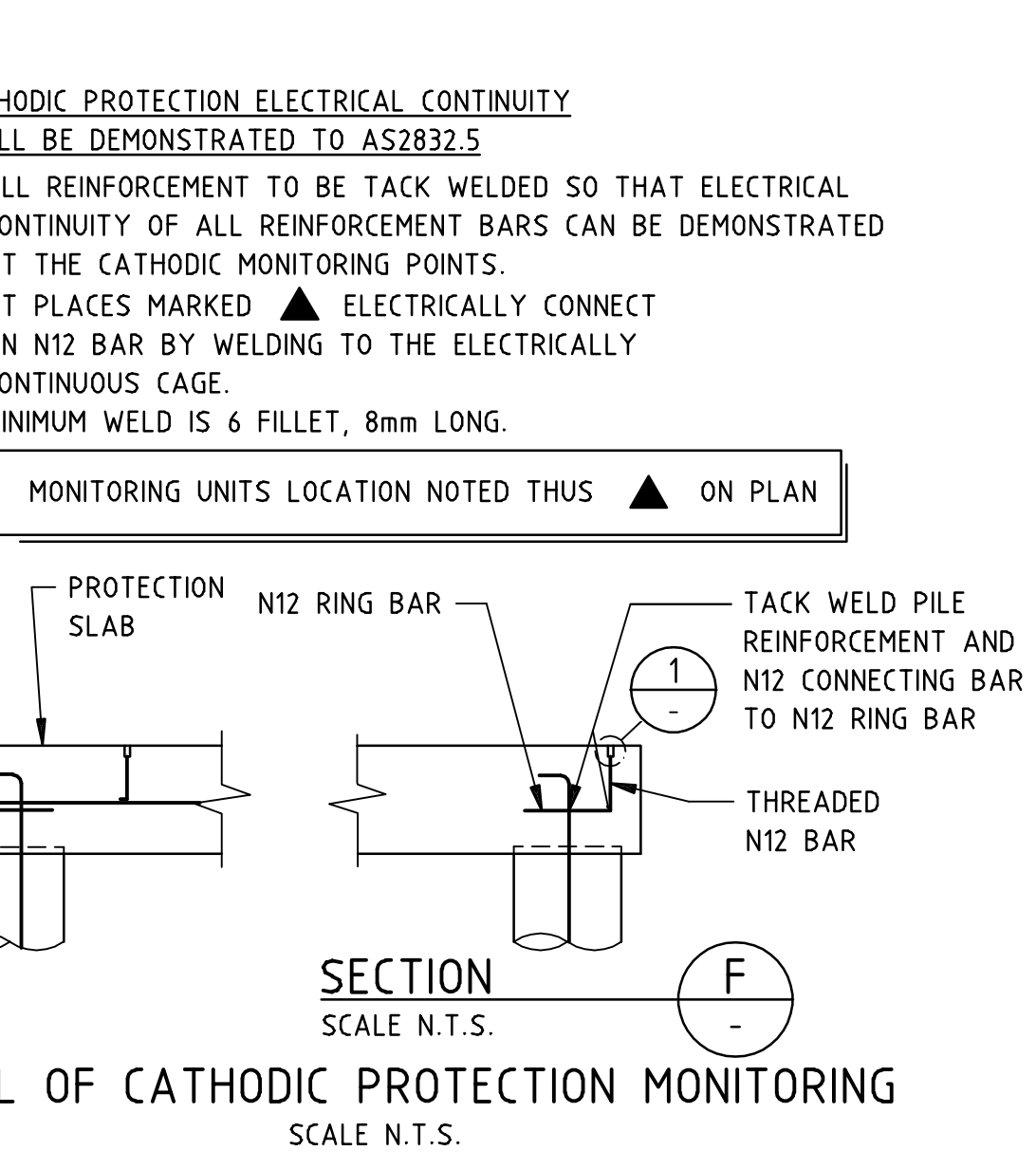
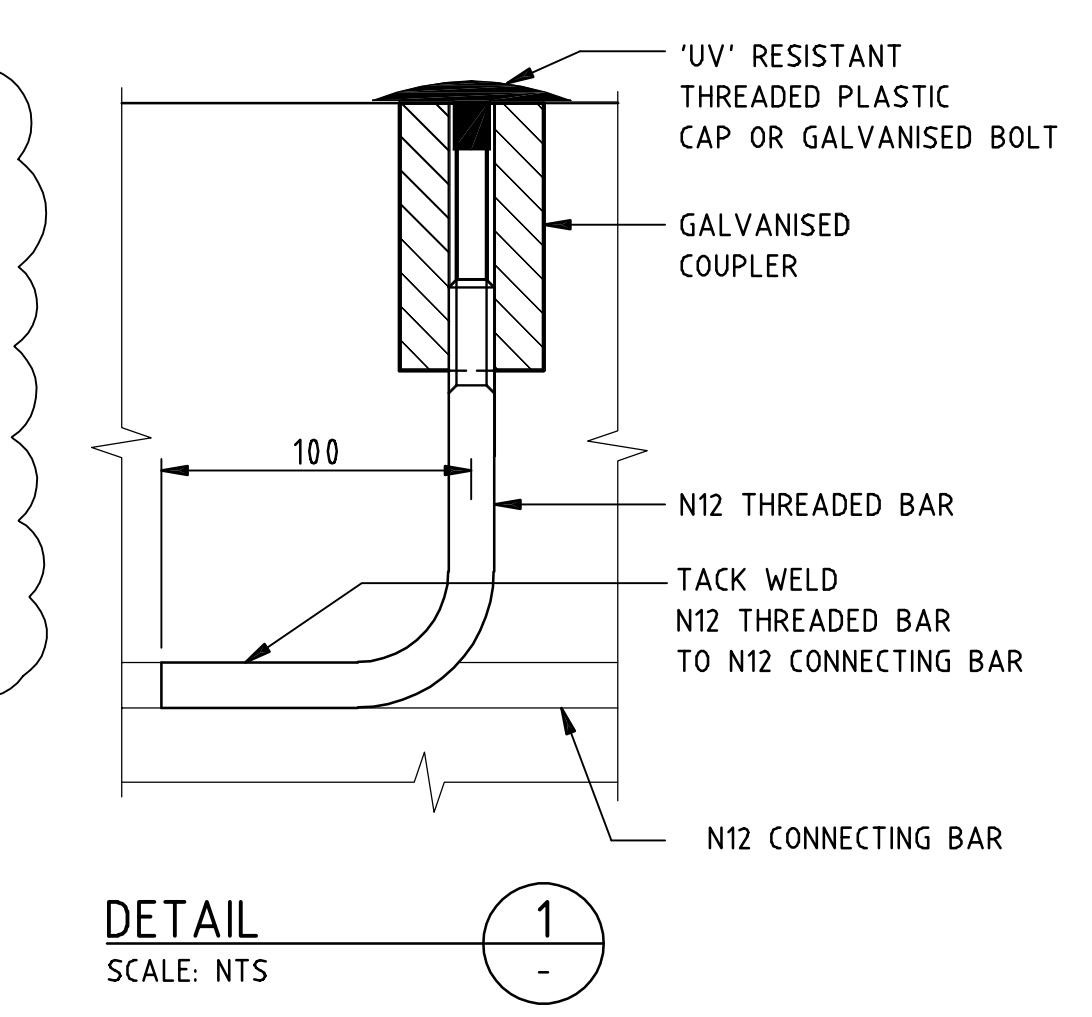
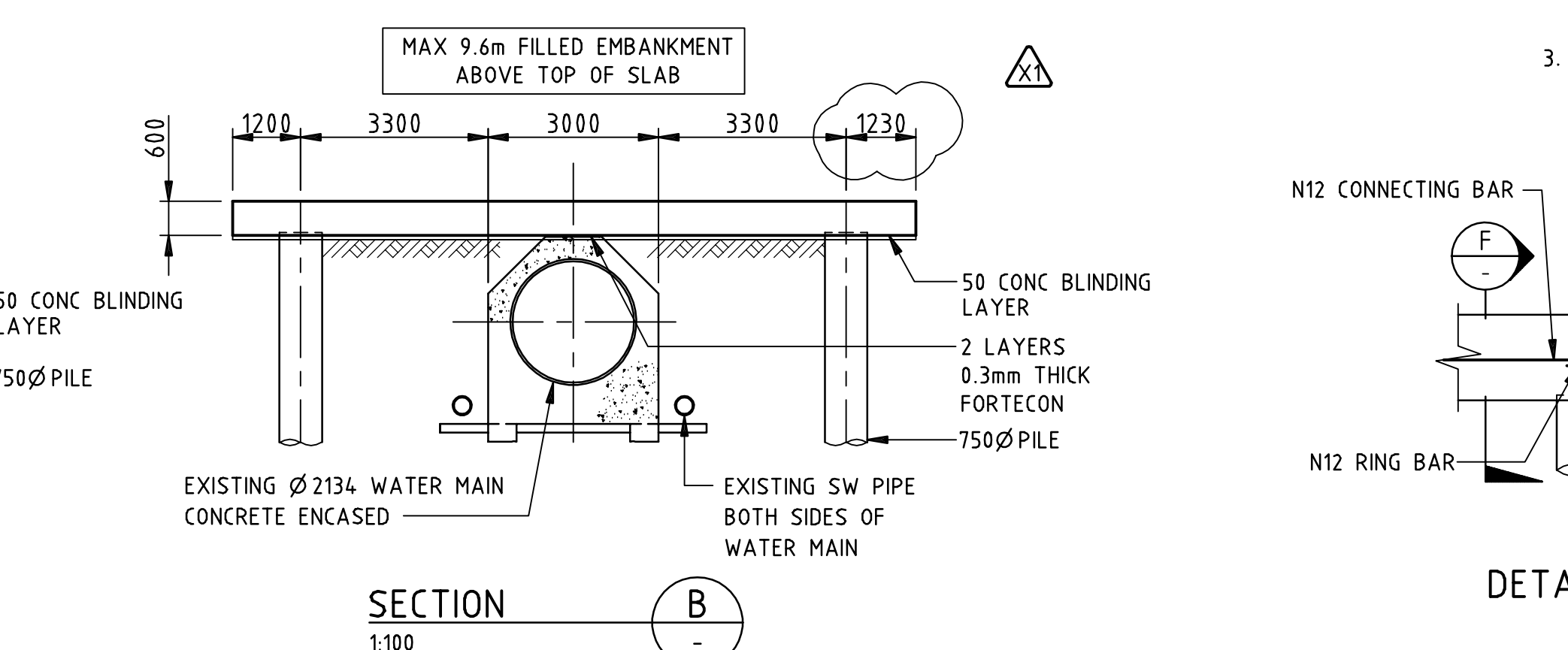
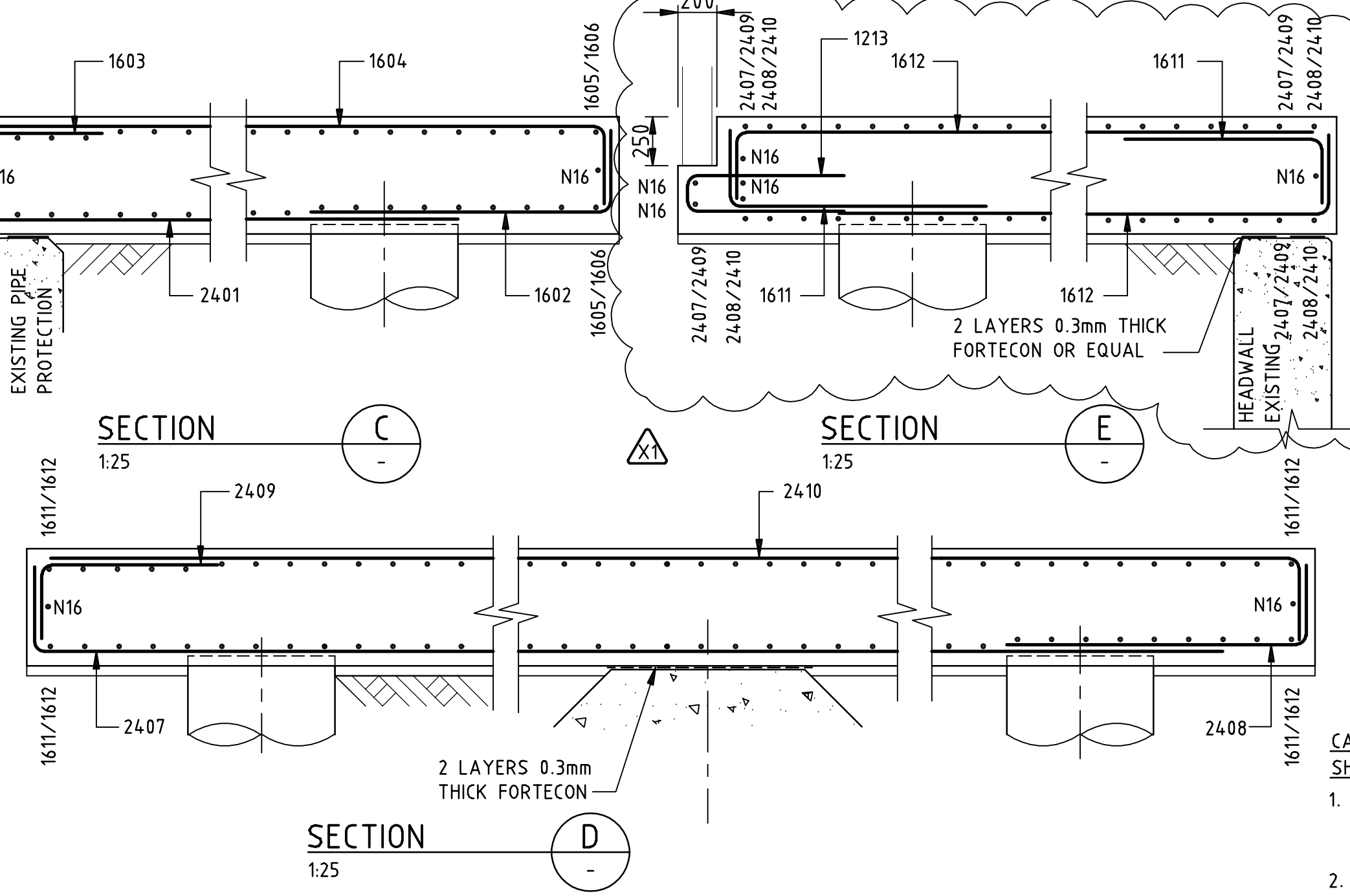
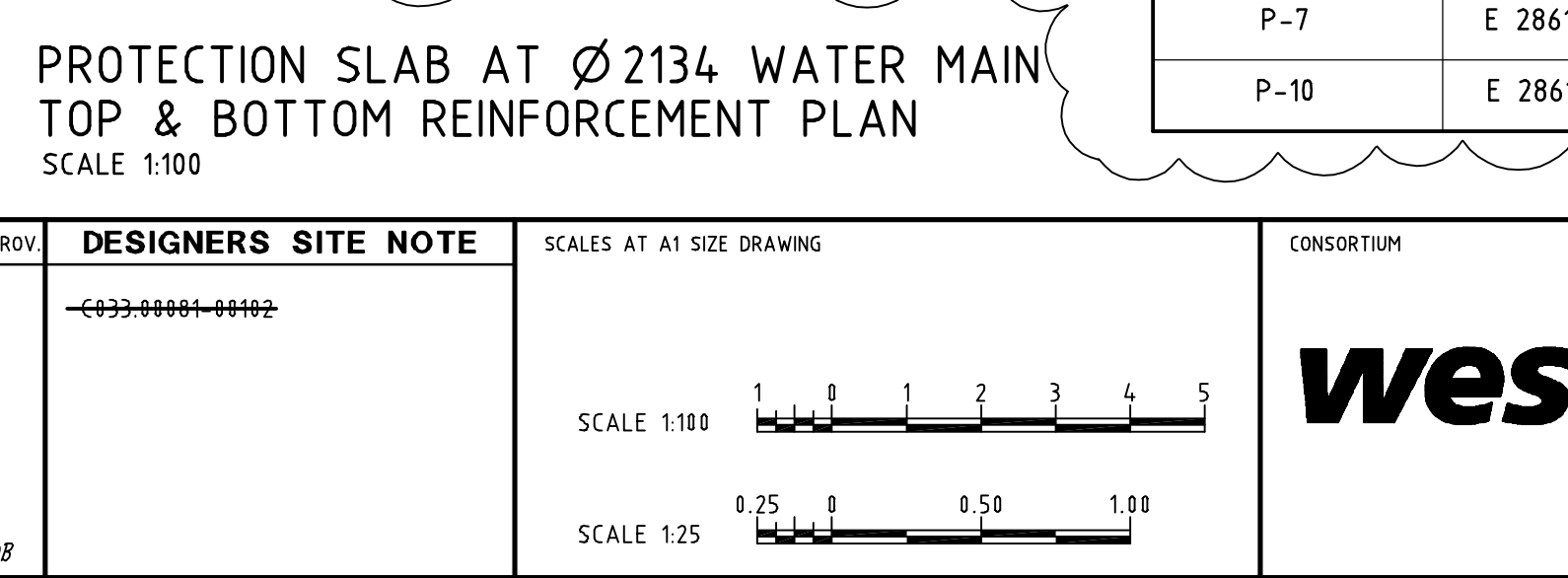
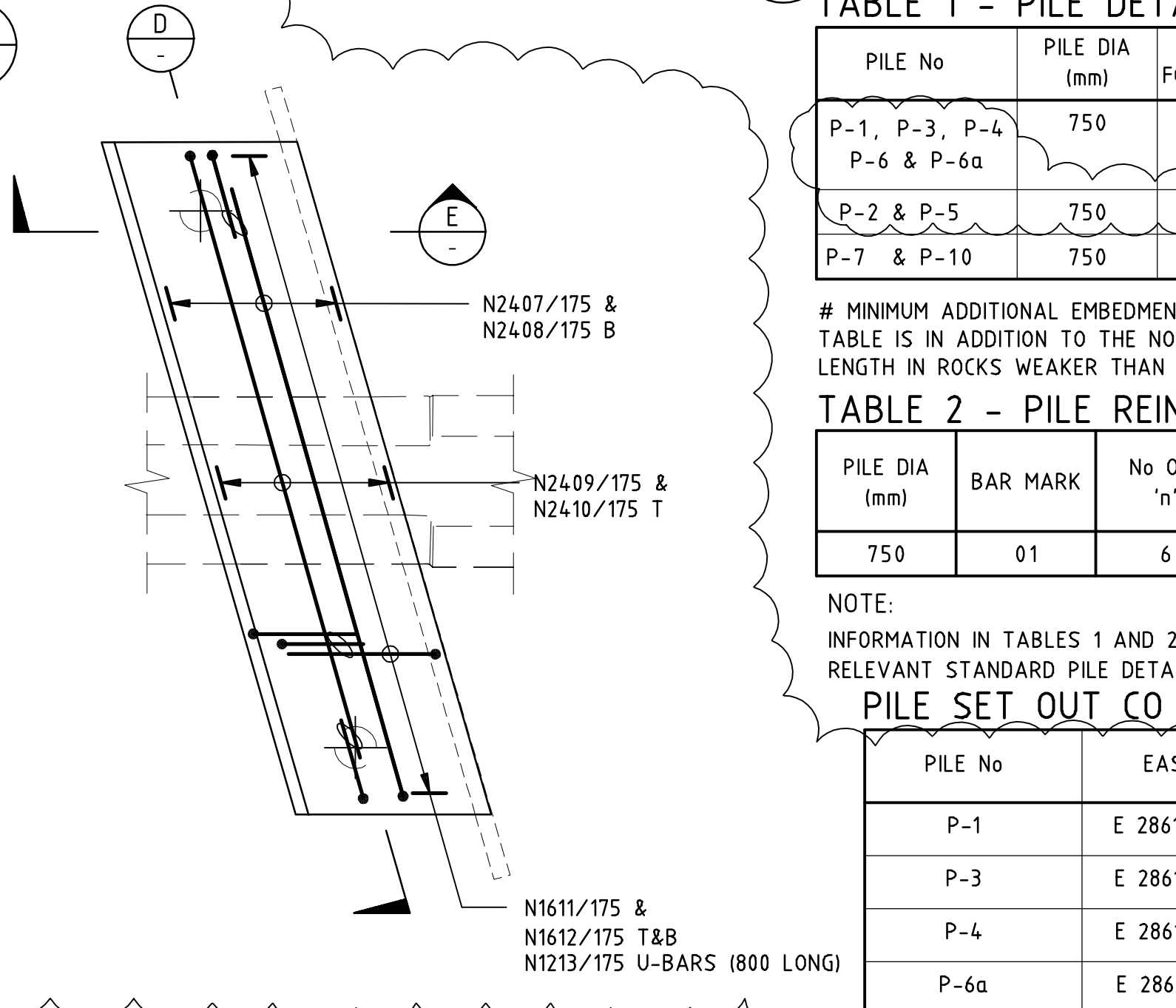
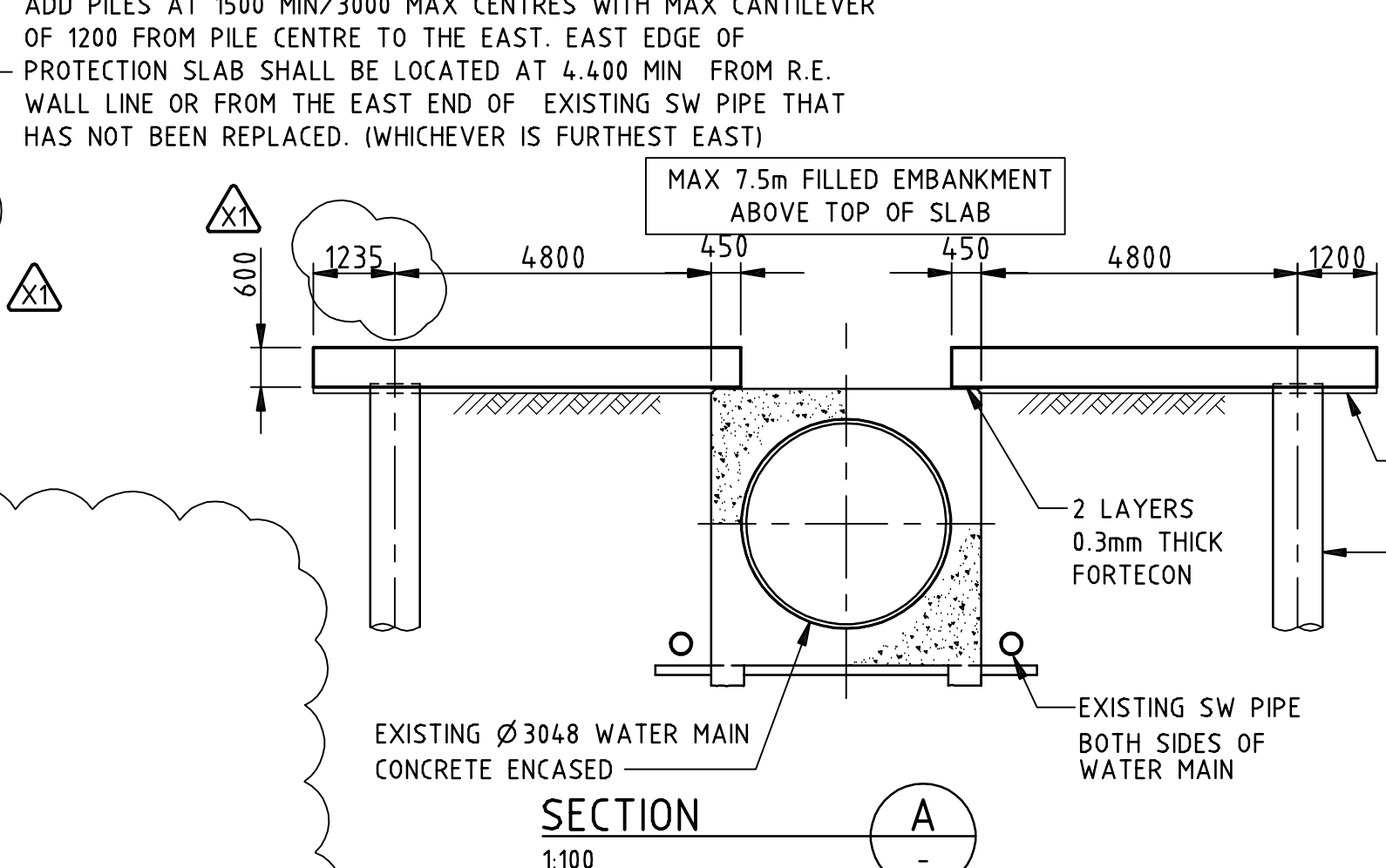
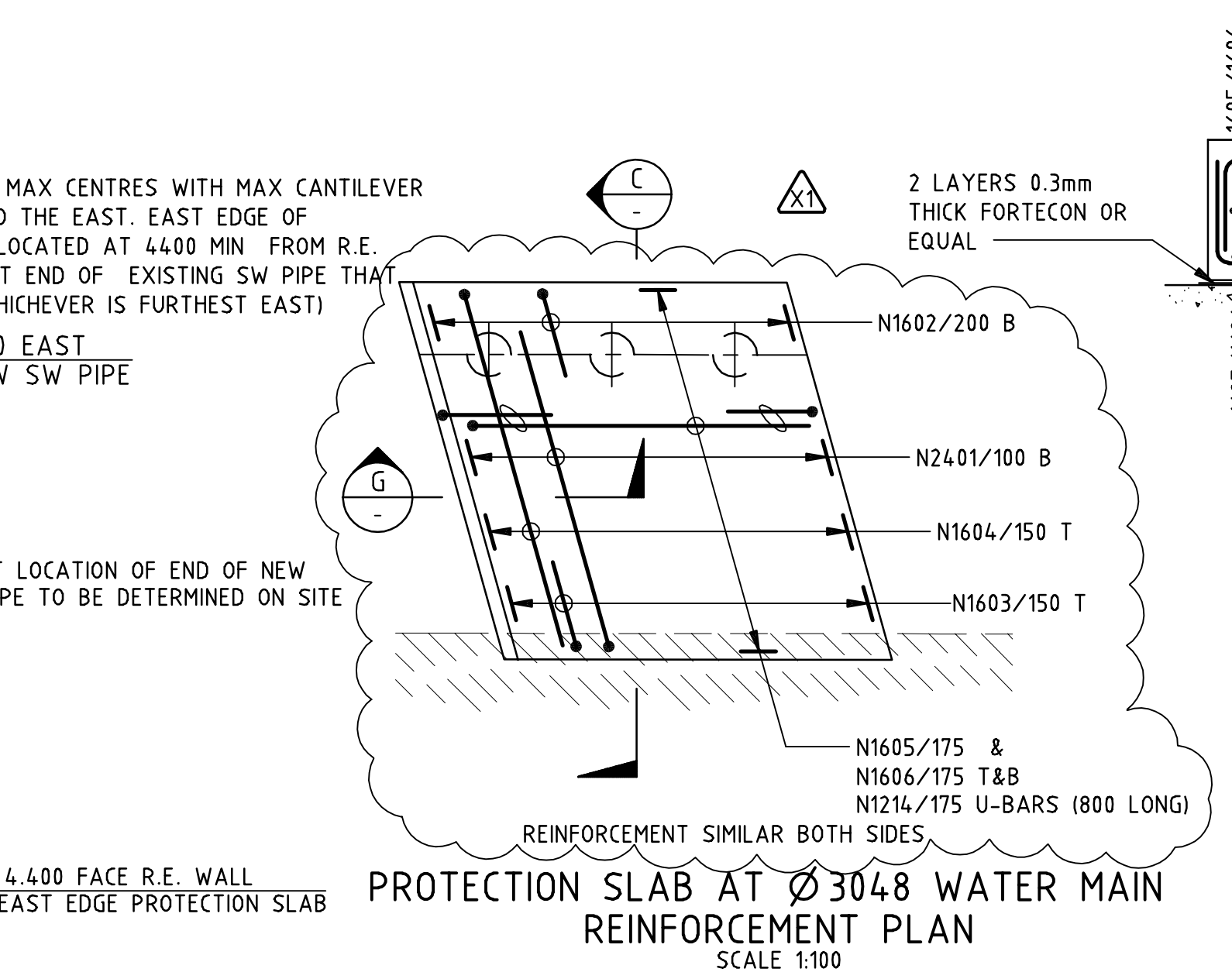
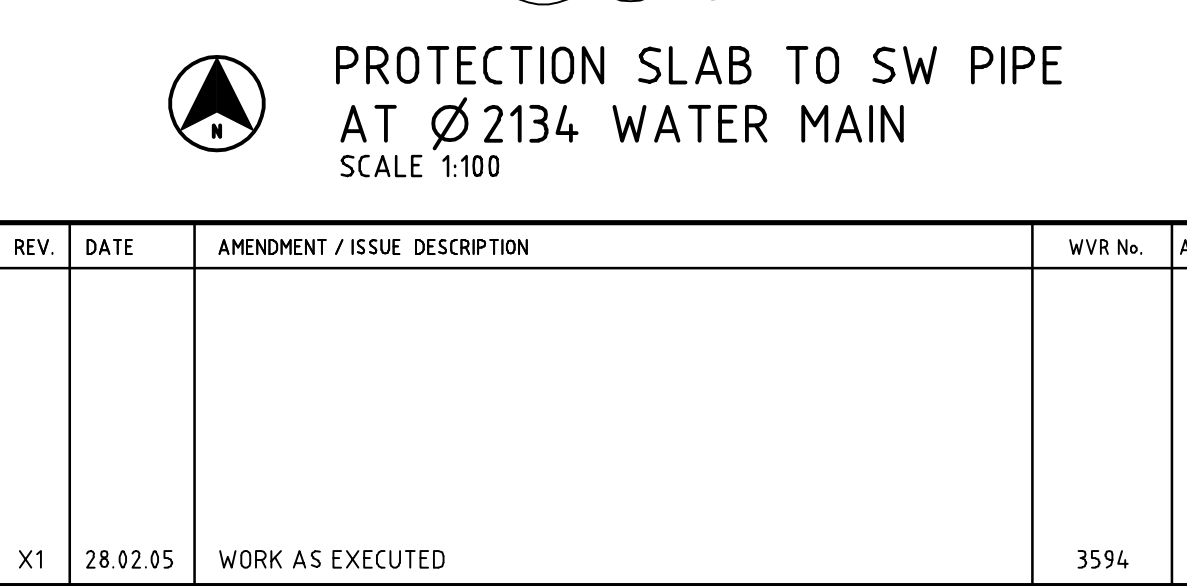
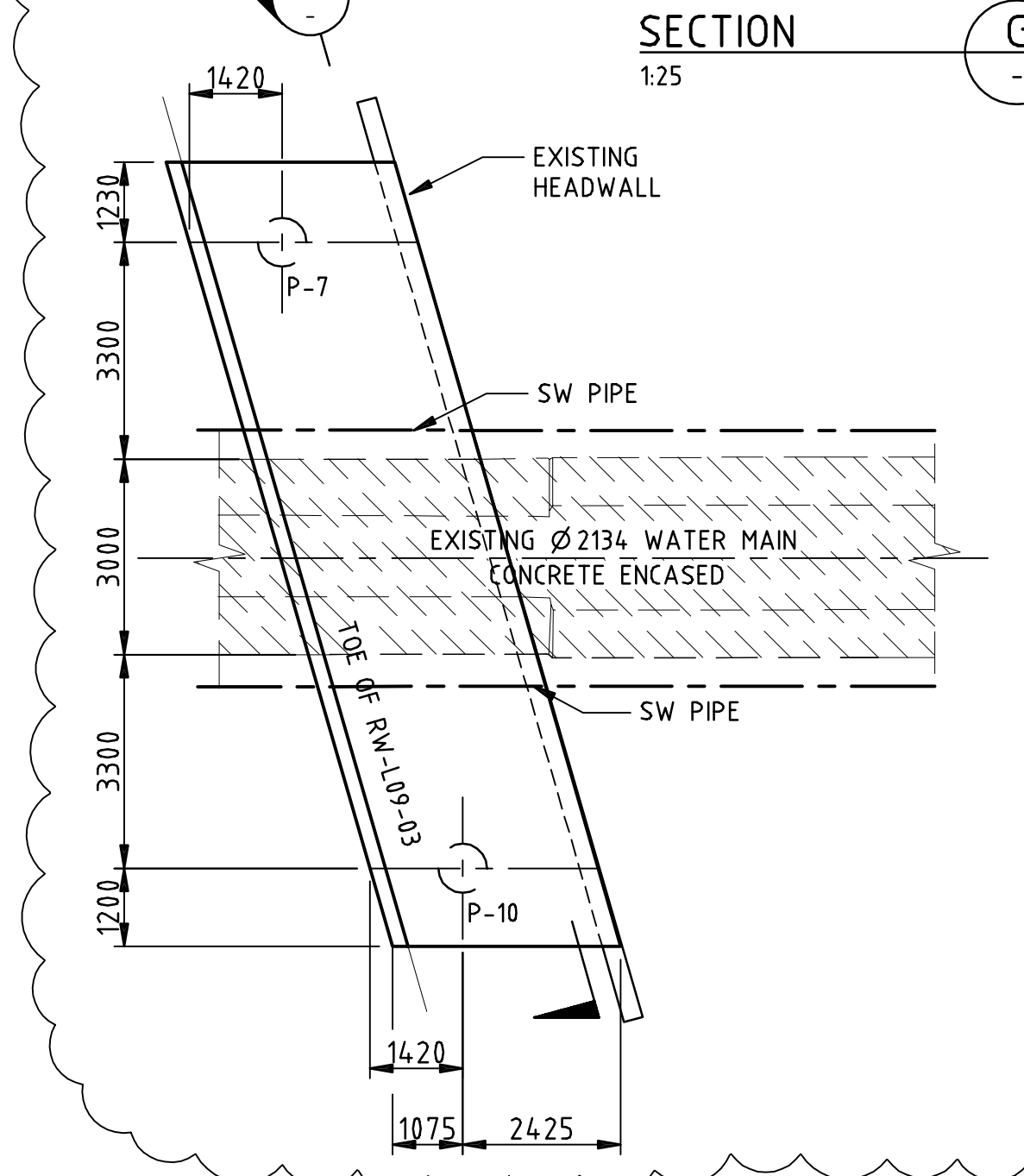
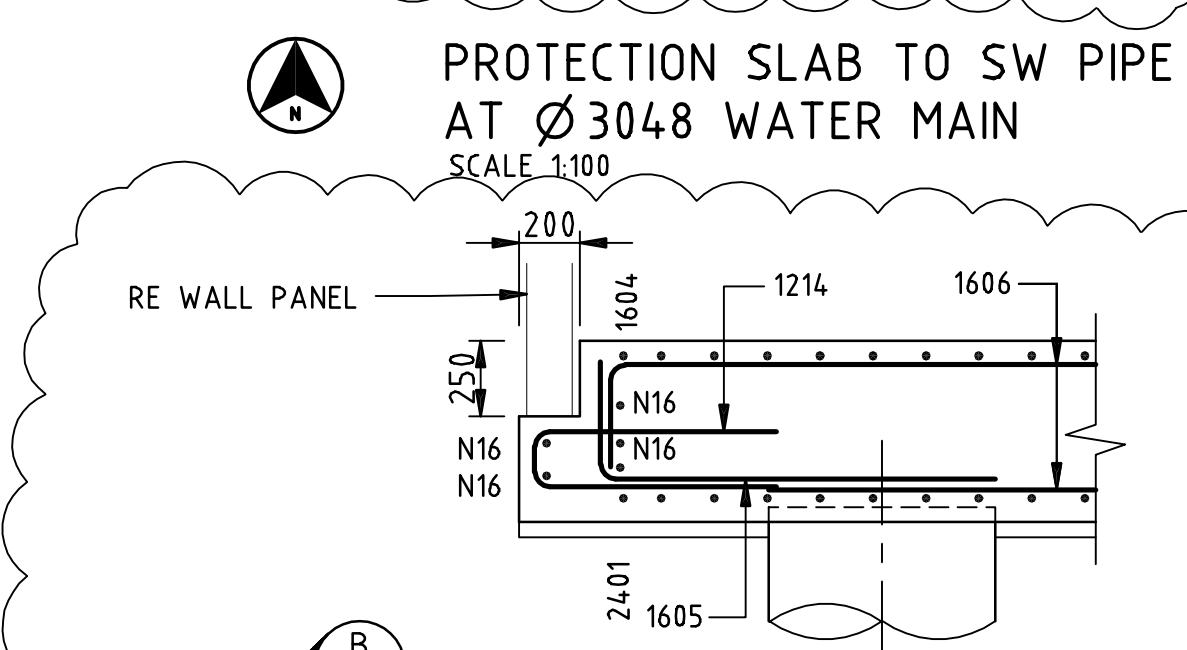
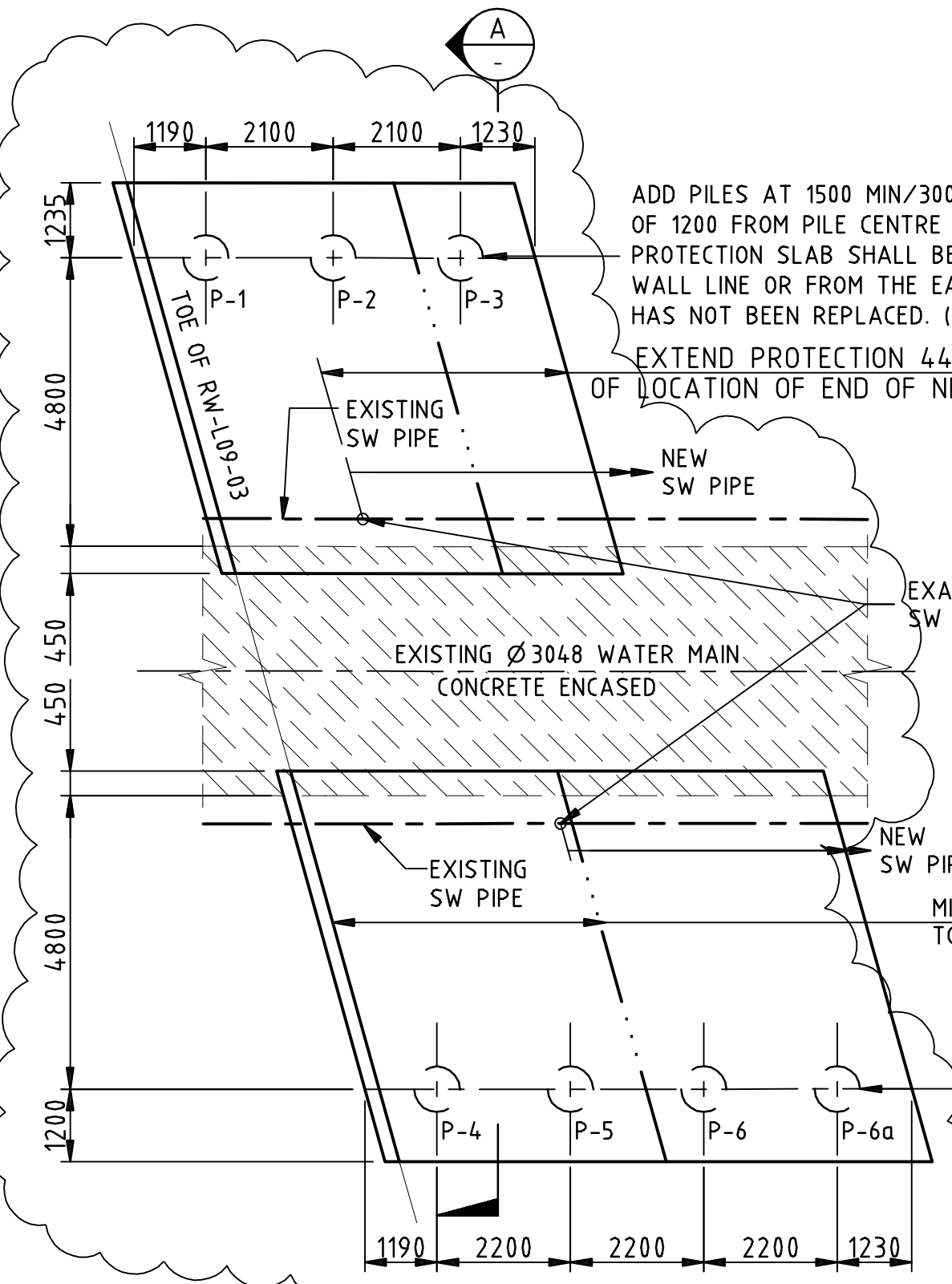


TABLE 1 - PILE DETAILS

PILE No	PILE DIA (mm)	MIN SOCKET IN FOUNDING MATERIAL (mm)	FOUNDING MATERIAL	MINIMUM ADDITIONAL EMBEDMENT (mm) #	ULS PILE LOADS		ESTIMATED FOUNDING LEVEL
					AXIAL (kN)	MOMENT (kNm)	
P-1, P-3, P-4 P-6 & P-6a	750	3300	BRI-3	BRI-5 500	2700	150	55.0
P-2 & P-5	750	3300	BRI-3	BRI-5 500	2700	150	52.7
P-7 & P-10	750	3300	BRI-3	BRI-5 500	2800	150	55.0

# MINIMUM ADDITIONAL EMBEDMENT REFERRED TO IN THIS TABLE IS IN ADDITION TO THE NOMINATED MINIMUM SOCKET LENGTH IN ROCKS WEAKER THAN BRI-3 CLASSIFICATION

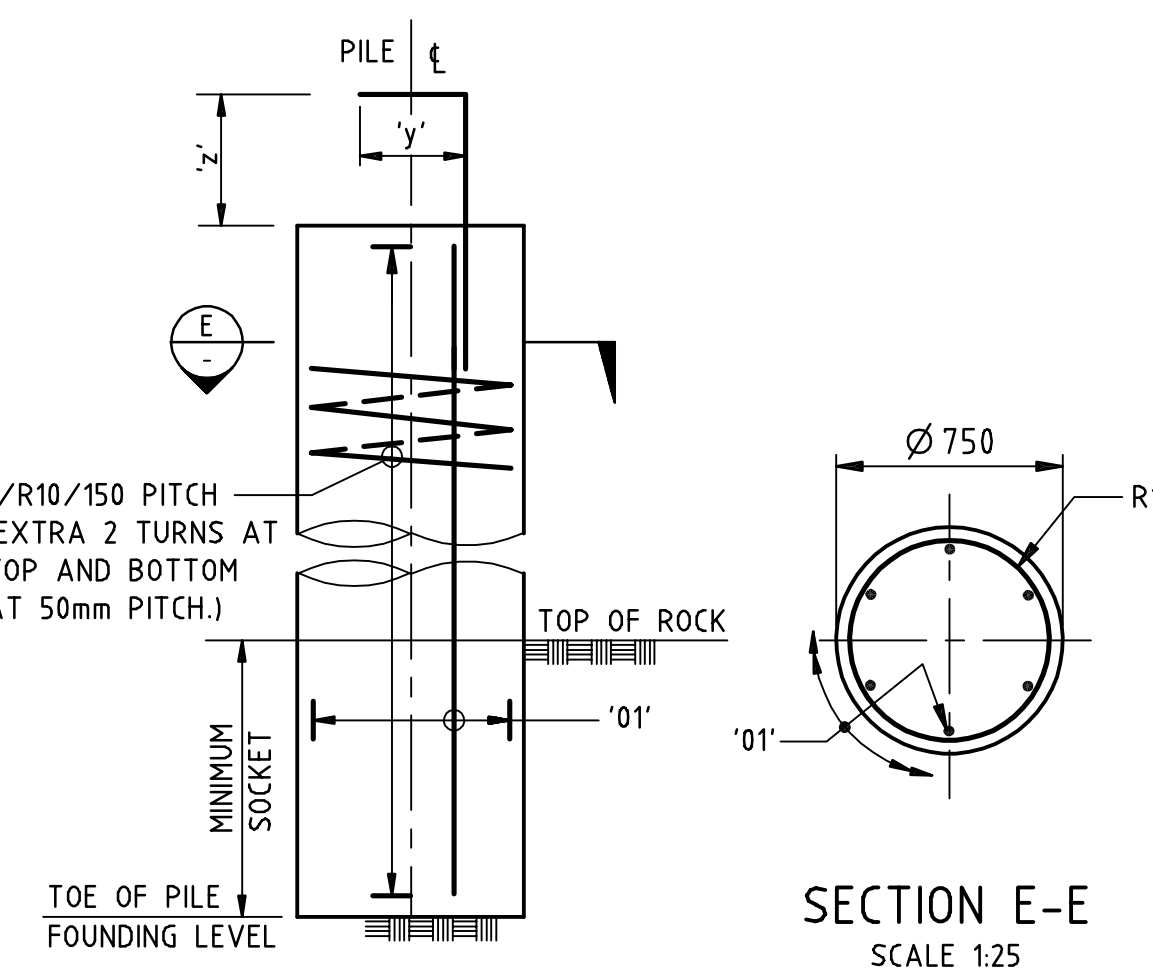
TABLE 2 - PILE REINFORCEMENT

PILE DIA (mm)	BAR MARK	No OFF 'n'	BAR DIAMETER 'd' (mm)	PROJECTION TYPE B 'z' (mm)	COG 'y' (mm)
750	01	6	24	450	350

NOTE: INFORMATION IN TABLES 1 AND 2 SHALL BE READ IN CONJUNCTION WITH THE RELEVANT STANDARD PILE DETAILS DRAWINGS: DRG. No 500020

PILE SET OUT CO ORDINATES

PILE No	EASTING	NORTHING
P-1	E 286184.748	N 1256270.938
P-3	E 286188.948	N 1256270.933
P-4	E 286188.562	N 1256257.225
P-6a	E 286195.162	N 1256257.227
P-7	E 286193.484	N 1256239.698
P-10	E 286196.253	N 1256230.099



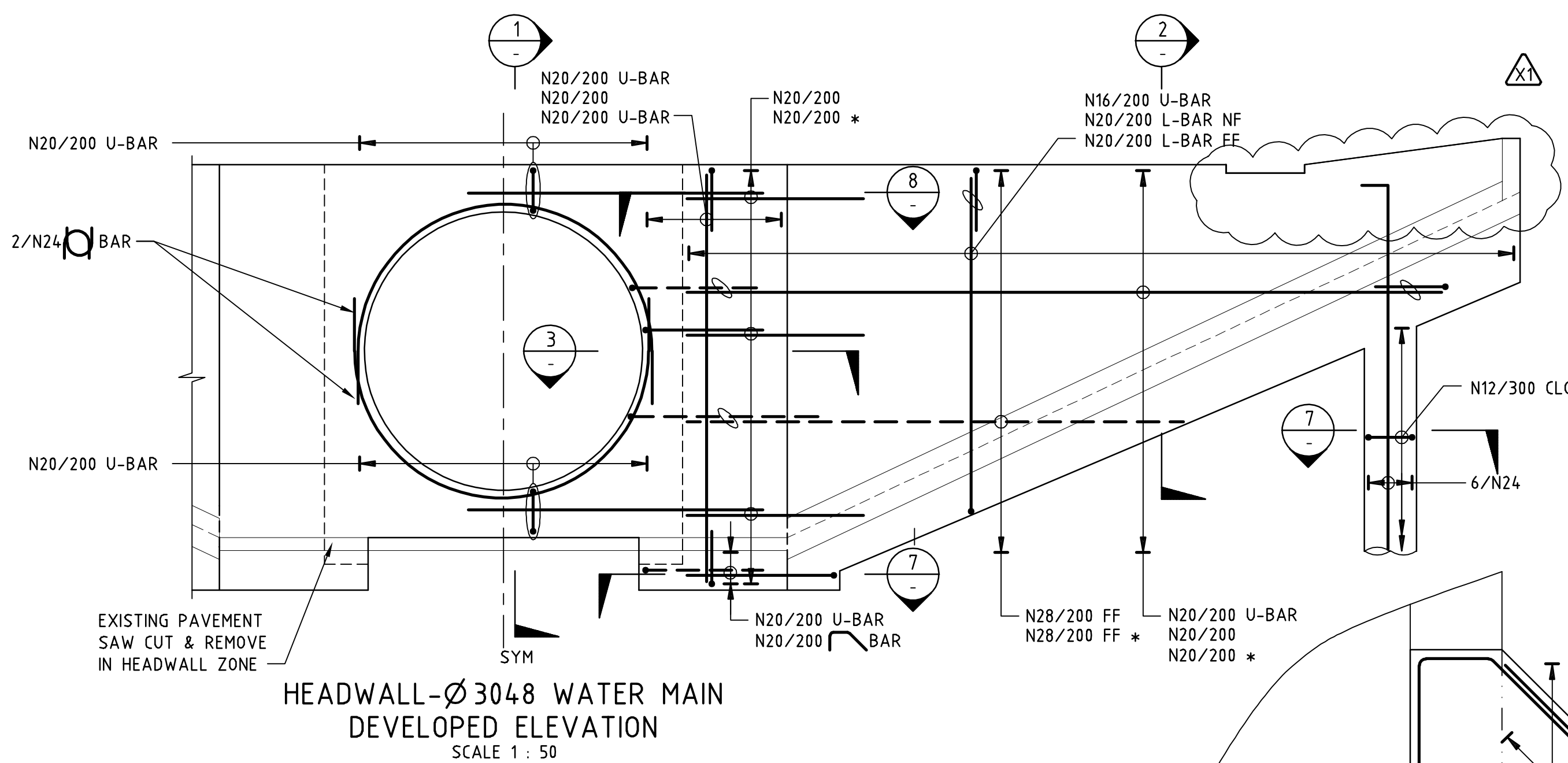
NOTES

- DRAWING TO BE READ IN CONJUNCTION WITH THE RELEVANT DESIGN REPORT.
  - FOR GENERAL NOTES REFER TO DRG. No. C001-BR-500005.
  - MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 50MPa.
  - CONCRETE EXPOSURE CLASSIFICATION: U.
  - CLEAR COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 60mm FOR SLABS AND 100mm FOR PILES.
  - LONGITUDINAL BARS SHALL BE DEFORMED BARS TO AS/NZS 3679:1.1996 (GRADE 500N). SPIRAL SHALL BE GRADE 250(R).
  - SPLICING OF SPIRAL SHALL BE WELDED, USING 6 CFW x 150 LONG.
  - LAPS SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION.
  - UNLESS NOTED OTHERWISE, THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:
- | BAR SIZE:  | N12 | N16 | N20 | N24  | N28  |
|--|-----|-----|-----|------|------|
| a) HORIZONTAL BARS WITH > 300mm OF CONCRETE CAST BELOW THE BAR | 375 | 600 | 900 | 1200 | 1550 |
| b) OTHER BARS  | 300 | 500 | 700 | 950  | 1250 |
- DESIGN LIFE OF STRUCTURE IS 100 YEARS.
  - IN ACCORDANCE WITH THE SWTC, THE RELEVANT UTILITY AUTHORITY IS TO APPROVE THE DESIGN DETAILS ON THIS DRAWING. THE UTILITY AUTHORITY MAYBE REQUIRED TO INSPECT THE CONSTRUCTION WORKS IN ACCORDANCE WITH THEIR STANDARD PROCEDURES. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE RELEVANT UTILITY AUTHORITY PROTECTION REGIME.
  - ESTIMATED FOUNDING LEVELS GIVEN IN TABLE 1 ARE INDICATIVE ONLY. BASED ON INTERPRETATION OF LIMITED BORE LOG DATA. THE TRUE FOUNDING LEVEL MAY VARY ON SITE AND SHALL BE ESTABLISHED BY AN EXPERIENCED GEOTECHNICAL ENGINEER AND SATISFY APPROPRIATE FOUNDING MATERIAL AND THE MINIMUM SOCKET LENGTH.

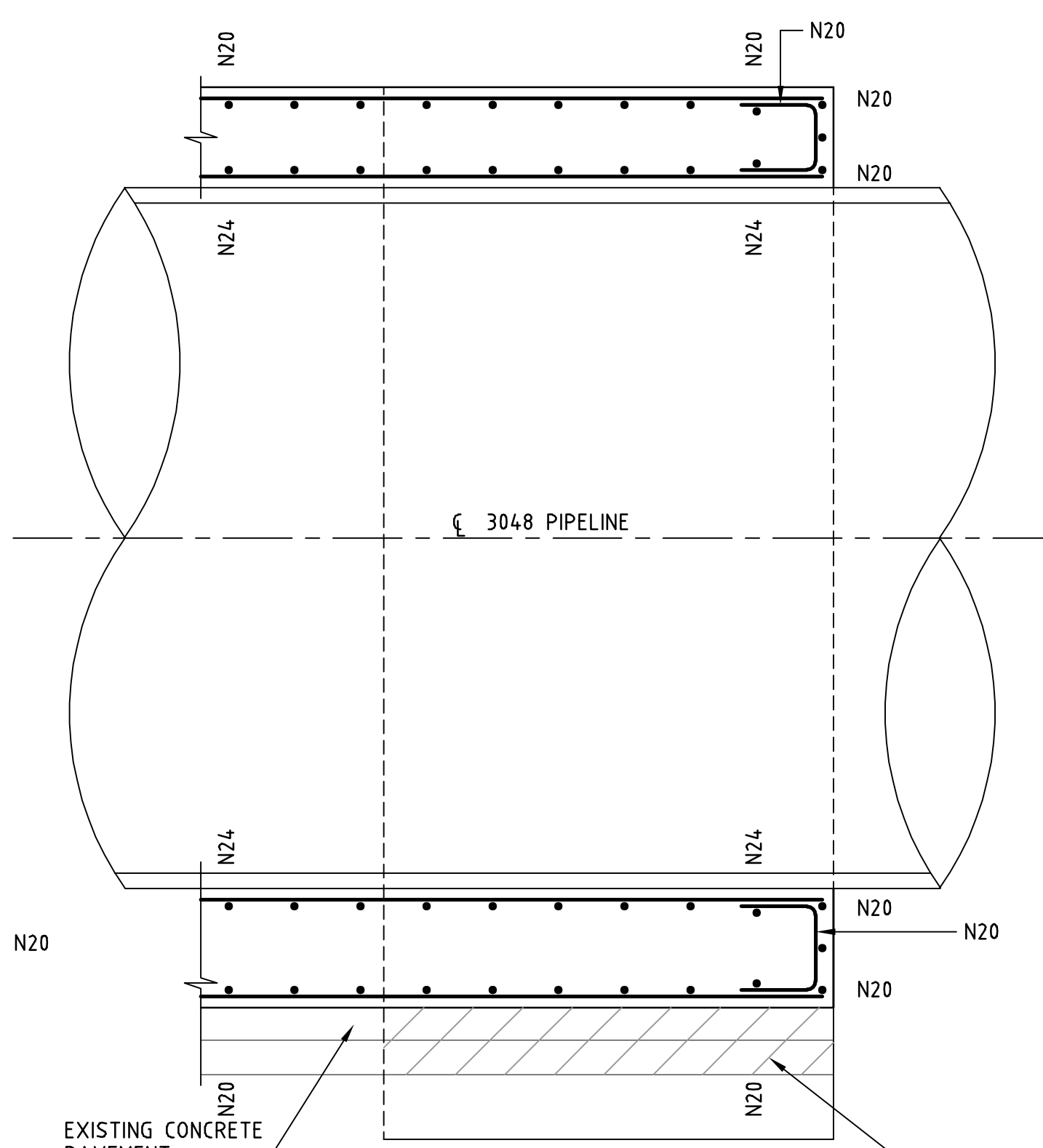
WORK AS EXECUTED

REV.	DATE	AMENDMENT / ISSUE DESCRIPTION	WVR No.	APPROV.	DESIGNERS SITE NOTE	SCALES AT A1 SIZE DRAWING	CONSORTIUM	CONTRACTOR	DESIGNER	PROJECT TITLE	SECTION	DRAWING No.	REVISION	PHASE
X1	28.02.05	WORK AS EXECUTED	3594	DB	C001-BR-540218	SCALES AT A1 SIZE DRAWING SCALE 1:100 SCALE 1:25	westlink M7	ABIGROUP LEIGHTON JOINT VENTURE	Maunsell JV SMEC MAUNSELL AUSTRALIA PTY LTD MAUNSELL SMEC JOINT VENTURE ABN 20 093 846 925	WESTLINK M7 INFRA 24.11 & 24.12 PROTECTION TO EXISTING WATER MAINS PROTECTION SLAB DETAILS	04	C001-BR-540218	X1	WE

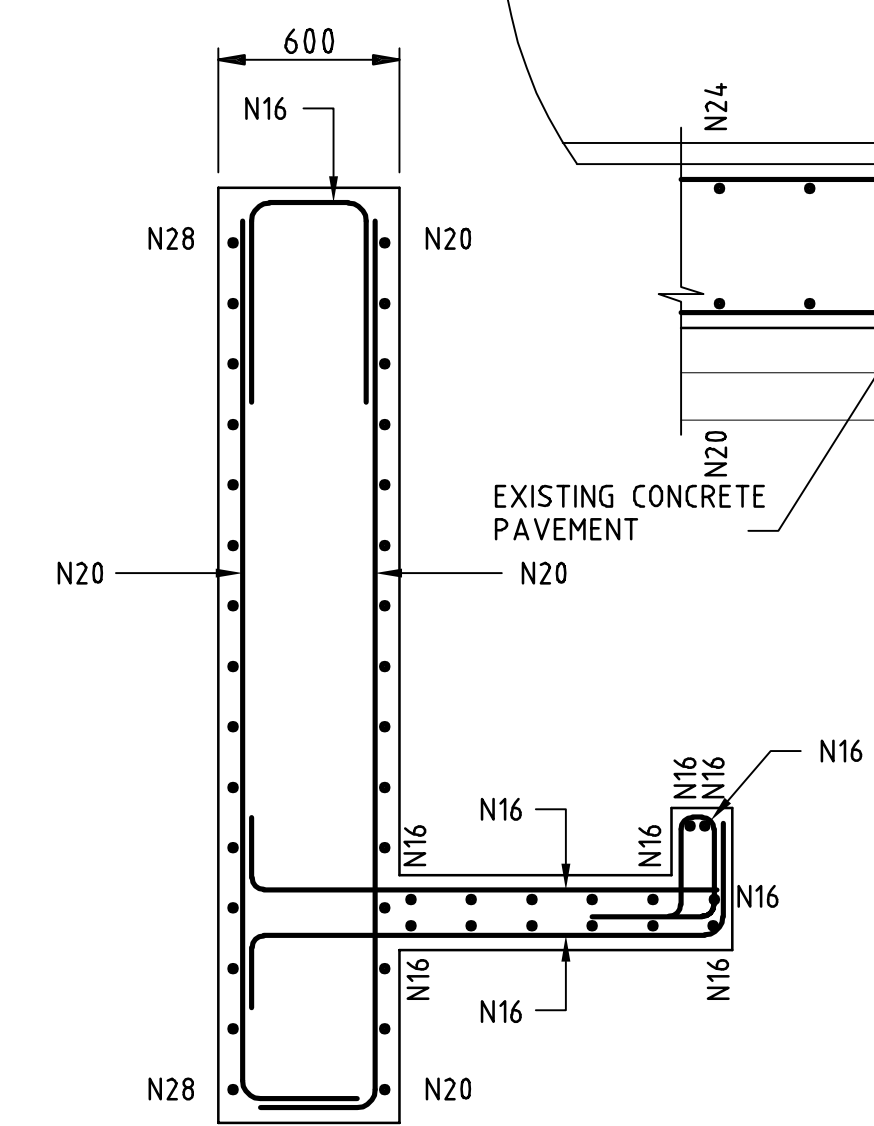




HEADWALL-Ø3048 WATER MAIN  
DEVELOPED ELEVATION  
SCALE 1:50

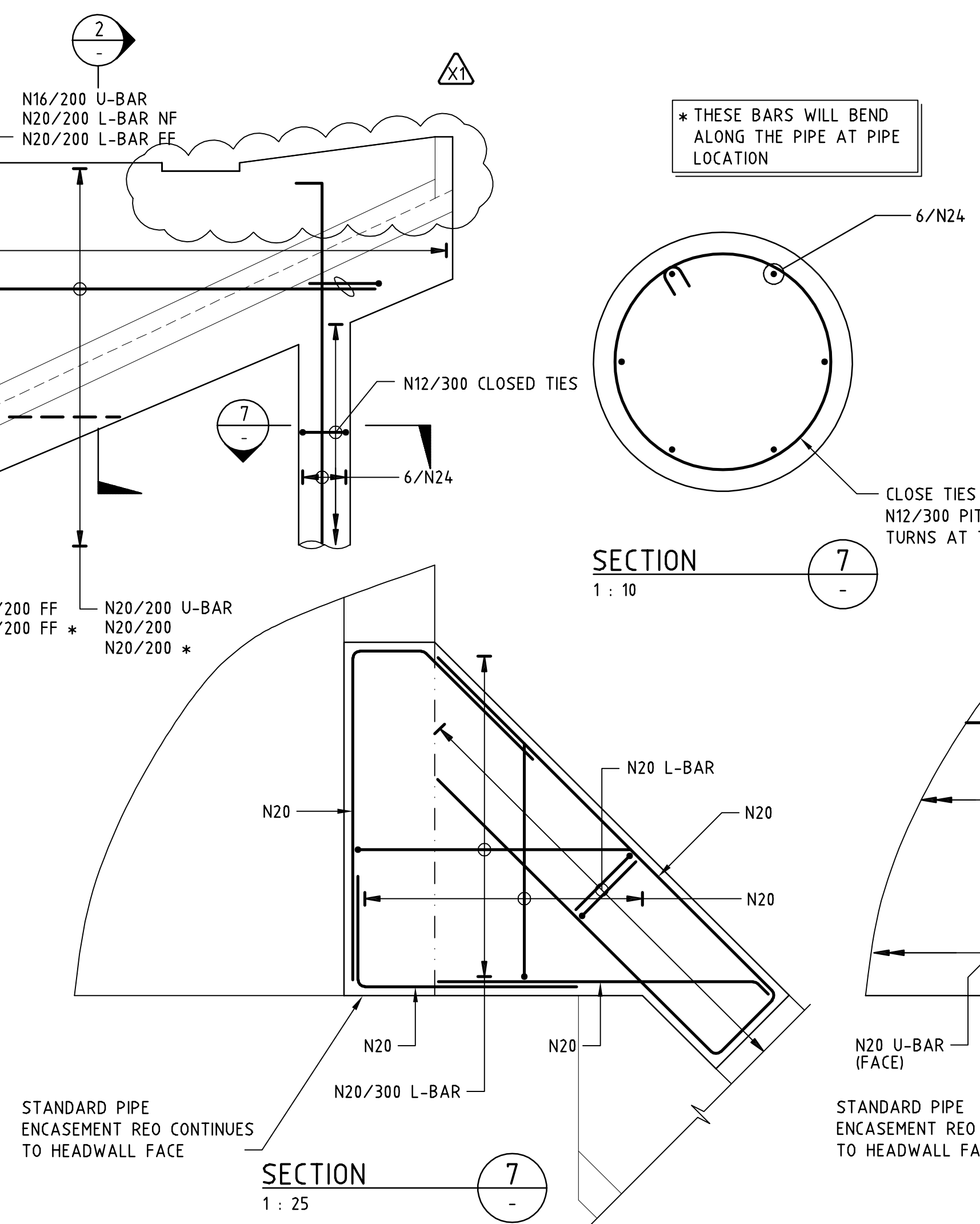


SECTION 1  
1:25

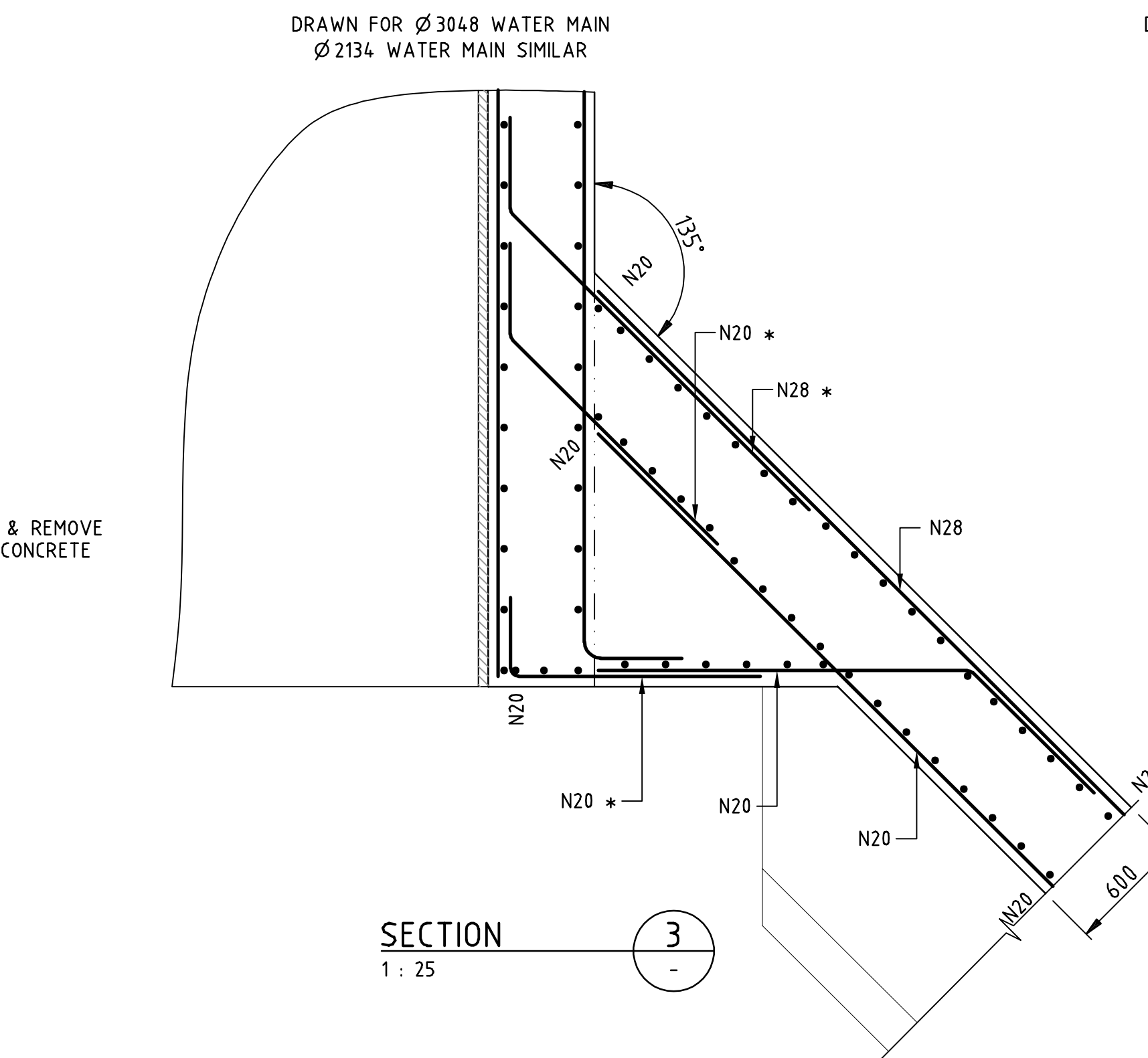


SECTION 2  
1:25

SECTION 5 SIMILAR

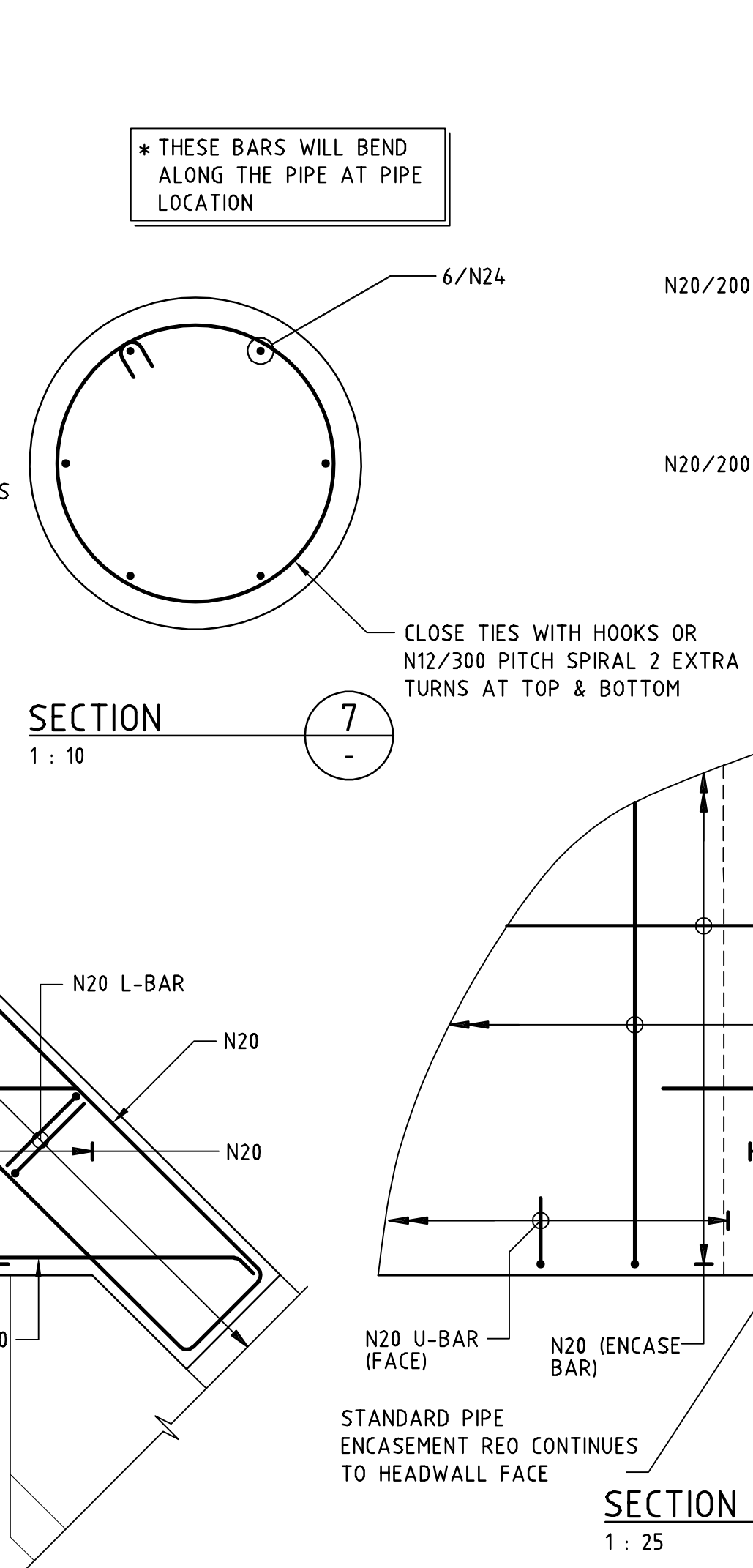


SECTION 7  
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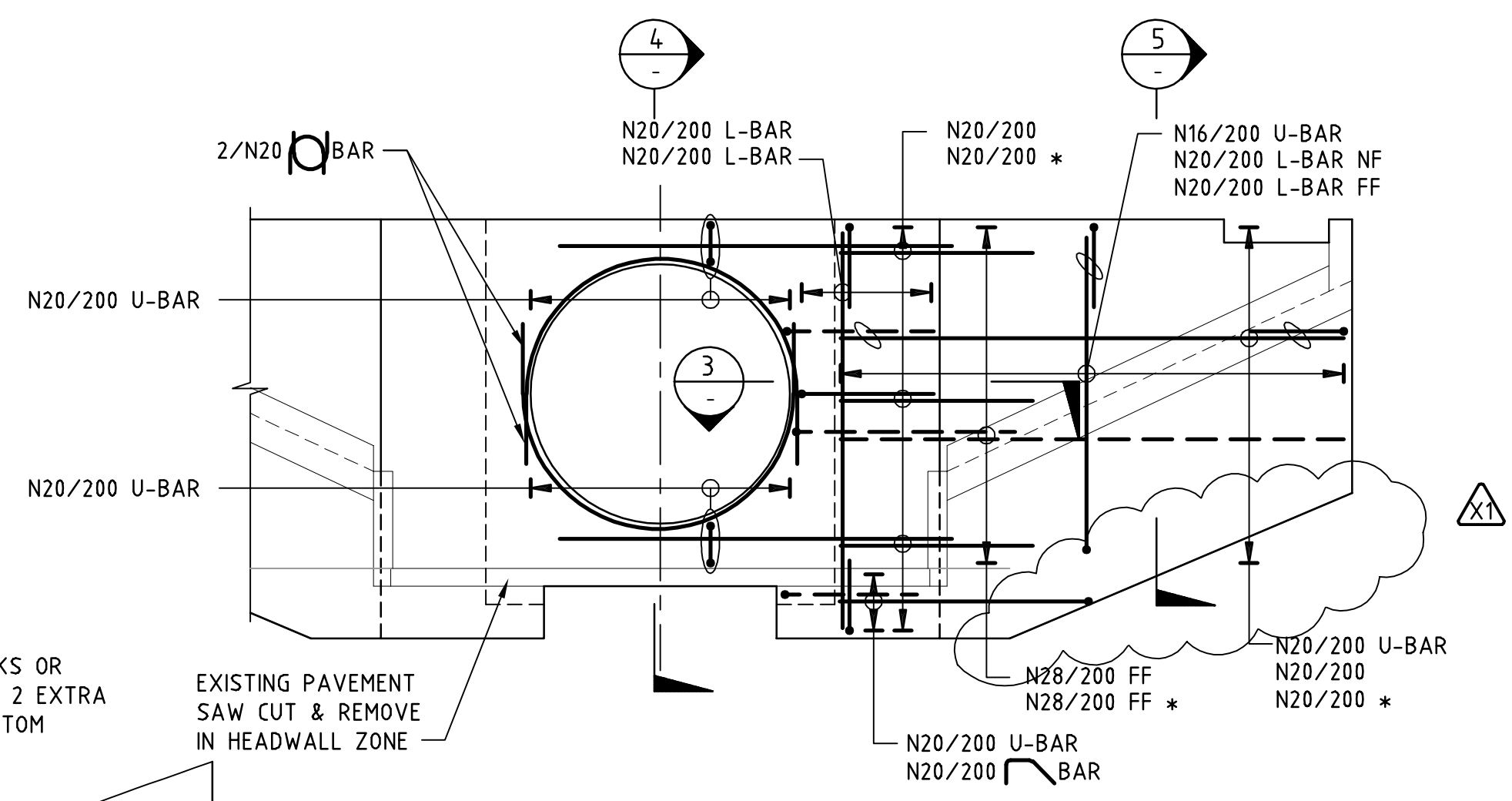
SECTION 3  
1:25

DRAWN FOR Ø3048 WATER MAIN  
Ø2134 WATER MAIN SIMILAR

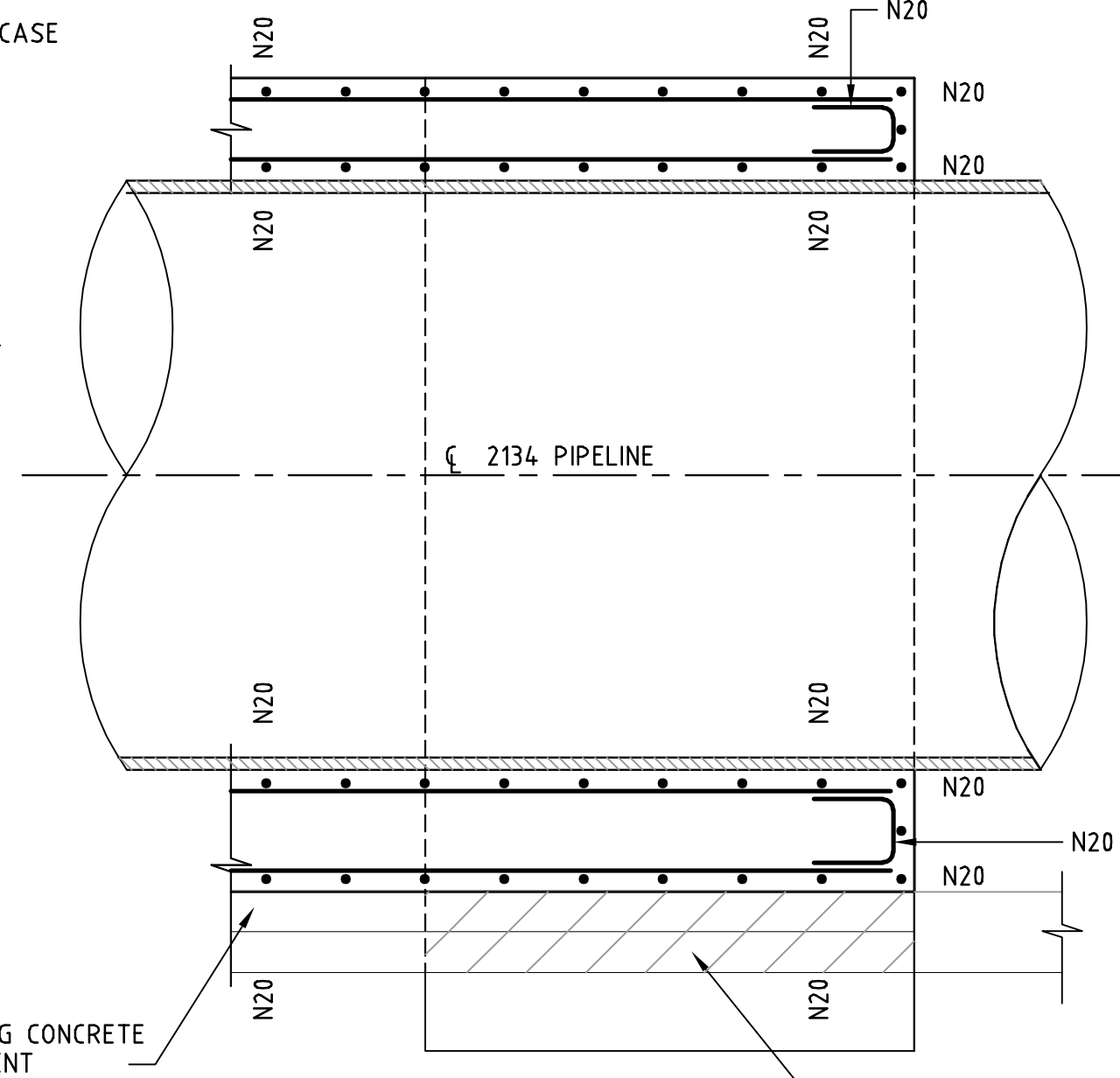


SECTION 8  
1:25

DRAWN FOR Ø3048 WATER MAIN  
Ø2134 WATER MAIN SIMILAR



HEADWALL-Ø2134 WATER MAIN  
DEVELOPED ELEVATION  
SCALE 1:50



SECTION 4  
1:25

WORK AS EXECUTED

REV.	DATE	AMENDMENT / ISSUE DESCRIPTION	WVR No.	APPROV.	DESIGNERS SITE NOTE	SCALES AT A1 SIZE DRAWING	CONSORTIUM	CONTRACTOR	DESIGNER	PROJECT TITLE	SECTION	DRAWING No.	REVISION	PHASE
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## Appendix C

WaterNSW SEARs

27 November 2019

Contact: *Justine Clarke*  
Telephone: *02 9865 2402*  
Our ref: *D2019/139040*

Sally Munk  
Industry Assessments  
Department of Planning, Industry & Environment  
320 Pitt Street  
SYDNEY NSW 2001

Dear Ms Munk

**Western Sydney Energy and Resource Recovery Centre - Request for SEARs (SSD 10395)**

Thank you for your email dated 15 November 2019 requesting WaterNSW's input into the preparation of SEARs for SSD 10395, for a proposed energy and resource recovery centre at 339 Wallgrove Road, Eastern Creek (Lot 1 DP 1059698).

WaterNSW owns and manages the Warragamba to Prospect Pipelines corridor, which is located directly adjacent to the development site along its southern boundary. WaterNSW notes that the current access into the development site is via a road over the Pipelines corridor. The Warragamba Pipelines are a critical component of the Sydney drinking water supply system and it is essential this water supply infrastructure is protected from the potential impacts of development on adjoining land.

WaterNSW requests the proponent address WaterNSW's 'Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines' in the Environmental Impact Statement (EIS) to protect Sydney's critical water supply infrastructure, and in particular:

- Risk assessment – an assessment of the risks to the integrity and security of the Pipelines corridor that may result from the development and the proposed measures to mitigate against those risks and impacts. Specific issues include: implications for access and vehicle movements into the development site across the Pipelines corridor, WaterNSW access into the Pipelines corridor for operation and maintenance activities, and plant explosion potential (including an assessment of synergistic potential with the adjacent Global Renewables facility).
- Vibration – an assessment of the construction and operation vibration impacts of the development on the Pipelines corridor and the proposed measures to mitigate those risks and impacts.
- Soils and Water – an assessment of the impacts of the proposed development on drainage paths and on the Pipelines corridor. The EIS should model pre- and post-development flows that enter or are conveyed across the Pipelines corridor. WaterNSW require that post-development flows be equal to or less than the pre-development flows for each storm event up to and including 1% AEP event. Additional surface and groundwater entering the Pipeline corridor should be prevented.
- Electricity generation – impact assessment associated with the generation of electricity. Services should not increase the risk of Pipeline corrosion due to low frequency induction, and not increase the risk of earth potential rise and step and touch potentials on the metallic structures associated with the Pipeline's corridor.



- Air quality– Prospect Reservoir lies approximately 1.9km from the site. Assessment of the potential dust/ash and air quality impacts on this sensitive receiver should be assessed.
- Western Sydney Parklands – the EIS should demonstrate how the development meets the provisions within State Environmental Planning Policy (Western Sydney Parklands) 2009 specifically clauses 12 and 13.
- Traffic - WaterNSW expect that the current Pipeline configuration will require augmentation to cater for the increasing demand for Sydney's drinking water supply, and that the Pipelines adjacent to this property (and along the length of the corridor) will eventually be replaced. No timeframes can be provided. This could cause access difficulties into the subject site for a significant length of time that would need to be carefully considered. In addition, the current access road into the property is not rated for heavy vehicles. A detailed traffic impact assessment should be included in the EIS.

WaterNSW request we are included as a key stakeholder for this project and consulted during project design and development of the EIS, specifically, any discussions regarding road access/upgrade for the portion that crosses the Pipelines corridor.

WaterNSW would appreciate being advised when the EIS is exhibited for further review, and requests the Department continues to consult with us on any development that may impact on our assets, infrastructure or land, using the email address

[Environmental.Assessments@waternsw.com.au](mailto:Environmental.Assessments@waternsw.com.au)

If you have any questions regarding this letter, please contact Justine Clarke at

[justine.clarke@waternsw.com.au](mailto:justine.clarke@waternsw.com.au).

Yours sincerely



**FIONA SMITH**  
**Executive Manager Water & Catchment Protection**

## Appendix D

### Minutes of Meetings with WaterNSW

Project title	WSERRC	Job number 264039-00
Meeting name and number	WaterNSW Meeting 001/20	File reference
Location	169 Macquarie Street Parramatta	Time and date 3pm AEST 11 February 2020
Purpose of meeting	Discuss Interaction with Warragamba Pipelines	
Present	Justine Clarke (WaterNSW - Catchment Protection Planning) Alison Kniha - Manager Catchment Protection Planning Paul Hammond - Asset Strategy Paul Johnston - Asset Maintenance Jimmy Tran - Asset Specialist Pater Beard - Property Services Mikaela Orme (Cleanaway) Euan Mitchell & Henry Lam(Arup)	
Apologies		
Circulation	Those present James O'Reilly (Arup) Nick Entsch & Jeremy Huynh (Macquarie) Nick Schutt (Cleanaway) Geert Stryg (Ramboll)	

		Action
<b>1.1</b>	<b>Introductions</b>	
	<ul style="list-style-type: none"> <li>Arup gave high level introduction of the project sponsors and the project itself; outlining the Waste to Energy process, the principles of the site configuration and approximate timeline of approvals and construction.</li> </ul>	Note
<b>2.</b>	<b>Vibration Limits</b>	
	<ul style="list-style-type: none"> <li>WaterNSW confirmed that the vibration velocity levels are to be as defined within the German Standard DIN 4150-3:1999 'Structural Vibration Part 3: Effects of Vibration in Structures'.</li> </ul>	Note

*Post-meeting note: Most recent version available is 2016.*

Prepared by	Euan Mitchell
Date of circulation	13/02/2020
Date of next meeting	TBC

# Minutes

Project title	Job number	Date of Meeting
WSERRC	264039-00	11 February 2020

Action

- WaterNSW indicated new guidance around vibration limits was being prepared in 2020.

## 3. Electrical Infrastructure

- New electrical infrastructure (i.e. substation) is to consider risk of low frequency corrosion of existing pipes and, step and touch potential. EIS to address all earthing issues associated with the development's electrical supply and export.
- WaterNSW noted that the Warragamba Pipelines were metal and connected to high voltage pumping stations. WaterNSW raised concern around proximity of substation at boundary of site closest of the Pipelines.

Arup

## 4. Proposed Site Access

- Existing bridge was owned by WaterNSW but ownership was transferred to RMS when the M7 Motorway was being constructed. Pipes beneath this bridge are concrete encased.
- WaterNSW queried if access from the north was possible via private land owned by Suez. Discussion regarding discounting of this option to be included in the EIS.
- New crossing point is preferred further east away from Wallgrove Road. WaterNSW stated requirement for 8 m clearance from top of pipe to underside of structure to allow for future pipeline upgrades. No date for the upgrades is currently available however it was noted that any upgrade would likely involve a 3<sup>rd</sup> pipeline being constructed.
- 8m clearance was deemed not to be feasible due to the ground levels either side of the pipeline corridor and concrete encasement was recommended by WaterNSW as an alternative. The encasement is to consider locations of existing scour valves, air valves and expansion joints. WaterNSW do not have records of this information.
- The existing pipeline corridor access would need to be retained during construction and operation of the EfW facility.
- If a new crossing point is provided, WaterNSW will sell the land above the pipelines to Cleanaway. WaterNSW to retain ownership of land below a nominated level (i.e. from underside of bridge structure). Exact details to be confirmed as the design develops.

Note

Arup

Note

Arup

Note

Note

## 5. Access to Warragamba Pipelines Corridor

- If access is required, contractors to apply for access via WaterNSW web portal. Contractor to outline activities undertaken and provide Safe Work

Note

# Minutes

Project title	Job number	Date of Meeting
WSERRC	264039-00	11 February 2020

Action

Method Statement (SWMS). WaterNSW noted it could take up to 28 days for approval after receipt of application.

- To survey the locations of scour valves and air valves, and existing bridge structure, access will be required to the Pipelines corridor.

Note

## 6. Risk Assessment

- The risk assessment is to cover the risks identified in WaterNSW's response and others as they are identified.
- No specific format exists but standard hierarchy of controls for risk management to be applied i.e. eliminate, substitute, engineering controls, administrative controls, PPE.

Arup

## 7. Actions and Next Steps

- A list of questions/requests raised at the meeting is provided below:
  - Record information for the existing bridge.
  - Record information of any pipes/culverts crossing the Pipelines corridor.
- Justine Clarke to be contacted directly with regards to addressing the points raised in WaterNSW's input to the SEARS.

Arup

Project title	WSERRC	Job number 264039-00
Meeting name and number	WaterNSW Meeting 002/20	File reference
Location	Skype Meeting	Time and date 11am AEST 20 March 2020
Purpose of meeting	Follow Up Discuss on WSERRC Interaction with Warragamba Pipelines	
Present	Justine Clarke (WaterNSW - Catchment Protection Planning) Alison Kniha - Manager Catchment Protection Planning Paul Hammond - Asset Strategy Paul Johnston - Asset Maintenance Jimmy Tran - Asset Specialist Pater Beard - Property Services Nick Schutt (Cleanaway) Jeremy Huynh (Macquarie) Euan Mitchell (Arup)	
Apologies		
Circulation	Those present James O'Reilly (Arup) Nick Entsch (Macquarie) Geert Stryg (Ramboll)	

Action

## 1. Introductions

- Arup gave high level introduction of the project sponsors and the project itself; outlining the Waste to Energy process, the principles of the site configuration and approximate timeline of approvals and construction.

Note

## 2. Existing Land Ownership

- Sponsor's legal advisor's summary of existing land ownership included in the presentation. This confirms ownership by Minister Administering the EP&A Act leased to several parties.
- Another major constraint is the 20m wide existing Right of Carriageway owned by a 3<sup>rd</sup> party (SUEZ Recycling and Recovery (NSW) Pty Ltd). WSERRC do not own this land and can't legally build over, under or on

Note

Note

Prepared by Euan Mitchell  
 Date of circulation 20/03/2020  
 Date of next meeting TBC



# Minutes

Project title	Job number	Date of Meeting
WSERRC	264039-00	20 March 2020

		Action
	top of this land i.e. no opportunity to construct a suitable road capable of withstanding the construction and operational loads.	
<b>3. Site Layouts</b>		
<ul style="list-style-type: none"> <li>With access from the south being confirmed as the only feasible and realistic option, Arup presented 2 options; On-site and Off-Site vehicular segregation.</li> </ul>		Note
<ul style="list-style-type: none"> <li>WSERRC acknowledged WaterNSW's previous concerns with re-using the existing crossing and maintaining access to the pipeline corridor. This aligned with comments received from TfNSW. Both options presented had crossing points further east and require agreement with Austral Bricks in sharing land and possible improvements to the existing carriageway.</li> </ul>		Note
<ul style="list-style-type: none"> <li>WaterNSW noted that the options presented did not demonstrate how risks were being mitigated. Arup noted that the 2-D plan layouts presented were not intended to address the risk mitigation measures proposed but were to reach a preferred access option.</li> </ul>		Note
<ul style="list-style-type: none"> <li>Arup confirmed that the options presented were on the basis of pipe encasement (similar to what was used on the M7) and would include:               <ul style="list-style-type: none"> <li>Ramps to access the pipeline corridor in line with WaterNSW development guidelines.</li> <li>A 3<sup>rd</sup> void/culvert through the concrete encasement to allow for future expansion of the Warragamba Pipelines. The exact size of all 3 culverts would be discussed and agreed during the detail design process.</li> </ul> </li> </ul>		Note
<ul style="list-style-type: none"> <li>Arup noted that for the option with 2No crossings, the centreline on the crossings shown are 50m apart meaning ~40m distance between each encasement. WaterNSW noted in this instance they would seek for the entire length to be encased. Arup observed that to do so would clash with existing valves which the separate structures intended to avoid.</li> </ul>		Note
<ul style="list-style-type: none"> <li>WaterNSW again queried why access could not be provided from north of the site. WSERRC team reiterated that they project team does not own the land north of the site or the right of carriageway and while initial contact had been made with SUEZ there was no obligation for them to sell.</li> </ul>		Note
<ul style="list-style-type: none"> <li>WaterNSW noted that a new pipeline crossing, whilst representing an incremental increase in risk, would be difficult to them to justify.</li> </ul>		Note
<ul style="list-style-type: none"> <li>WaterNSW asked if a bridge crossing had been considered. Arup noted that it would not be feasible to provide a bridge from Austral Bricks access road that achieves the 8.0m clearance WaterNSW require. To achieve the 8.0m clearance significant approach works would be required on Austral</li> </ul>		Note

# Minutes

Project title	Job number	Date of Meeting
WSERRC	264039-00	20 March 2020

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Action

Bricks land and the approach from the WSEERC side would be difficult to accommodate within the footprint of the site.

## 4. Access to Warragamba Pipelines Corridor

- Initial application made 13<sup>th</sup> March to undertake topographical and visual survey. WaterNSW requested additional information on the 14<sup>th</sup> of March. Arup will provide this information today. Note
- Survey works including the locations of scour valves and air valves, culverts and pipe joints. The visual inspection will include the existing crossing structure and pipeline. Note

## 5. Actions and Next Steps

- WSERRC team to further investigations potential options which mitigate risks to the Warragamba Pipeline. Note

## Appendix E

Letter from WaterNSW - May  
2020

8 May 2020

Contact: *Justine Clarke*

Telephone: *02 9865 2402*

Our ref: *D2020/38386*

Euan Mitchell  
Senior Engineer  
Arup  
Barrack Place, 151 Clarence Street  
SYDNEY NSW 2000

Dear Mr Mitchell

**Western Sydney Energy and Resource Recovery Centre - Request for access across Warragamba Pipelines Corridor (SSD 10395)**

Thank you for your ongoing consultation with WaterNSW, regarding the above project (SSD 10395) at 339 Wallgrove Road, Eastern Creek (Lot 1 DP 1059698).

WaterNSW owns and manages the Warragamba to Prospect Pipelines corridor (Pipelines corridor), which forms the southern boundary of the site. The Pipelines are critical water supply infrastructure, conveying water from Warragamba Dam to the Prospect Water Filtration Plant, and are an integral component of the Sydney drinking water supply system (delivering 80% or more of Greater Sydney's water needs). It is essential this water supply infrastructure is protected from the potential impacts of development on adjoining land.

WaterNSW, Arup and the proponent have met on a number of occasions to discuss the potential impacts to WaterNSW lands, assets and infrastructure from the project and site across the Pipelines corridor. On each occasion, it was strongly advised that WaterNSW's preference is for vehicles to enter and exit the site from the North and not to cross over the Pipelines corridor. This advice was provided based on the intensification of risk applied to State critical infrastructure and the low risk of accessing from the North.

After careful consideration, WaterNSW can now advise that any option that requires access across the Pipeline's corridor will not be allowed, as it will not meet our criteria for external developments, being:

1. the activity cannot be carried out elsewhere
2. the activity or purpose will benefit WaterNSW's management of the Special and Controlled Areas, or provide a broader public benefit
3. the activity will not:
  - a. compromise the integrity, operation or management of any WaterNSW infrastructure or catchment areas, and/or
  - b. lower the quantity of water in the water storages or catchments, and/or
  - c. lower the quality of surface and groundwater inflows to water storages or catchments, and/or
  - d. have a negative impact on the ecological integrity of the Special Areas.

Any structure will hinder WaterNSW's operation and management activities and restrict future augmentation options, compromising WaterNSW's ability to deliver on our functions and responsibilities as a State corporation.

If you have any questions regarding this letter, please contact Justine Clarke at [justine.clarke@waternsw.com.au](mailto:justine.clarke@waternsw.com.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'Fiona Smith', with a stylized flourish at the end.

**FIONA SMITH**  
**Executive Manager Water and Catchment Protection**

## **Appendix F**

**Presentation to WaterNSW –  
June 2020**



# *WSERRC Access Water NSW Presentation*

*10 June 2020*

# AGENDA

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- 1. Project status*
- 2. Access Options – update*
- 3. Existing Access to site*
- 4. Assessment for Access / Proposal*
- 5. Questions*

# *1. Project status*

# Project Status – June 2020



- ✓ FEED Complete
- ✓ Technology Selection Complete
- ✓ Utilities review complete
- ✓ Site prelim. civil design complete
- ✓ Site investigations complete
- ✓ Architecture concept complete



# Project Timeline – June 2020

*Considering project approvals and construction, first power generation is expected in 2024 when the plant commences hot commissioning*



## *2. Access Options – update*



# Existing Land Ownership

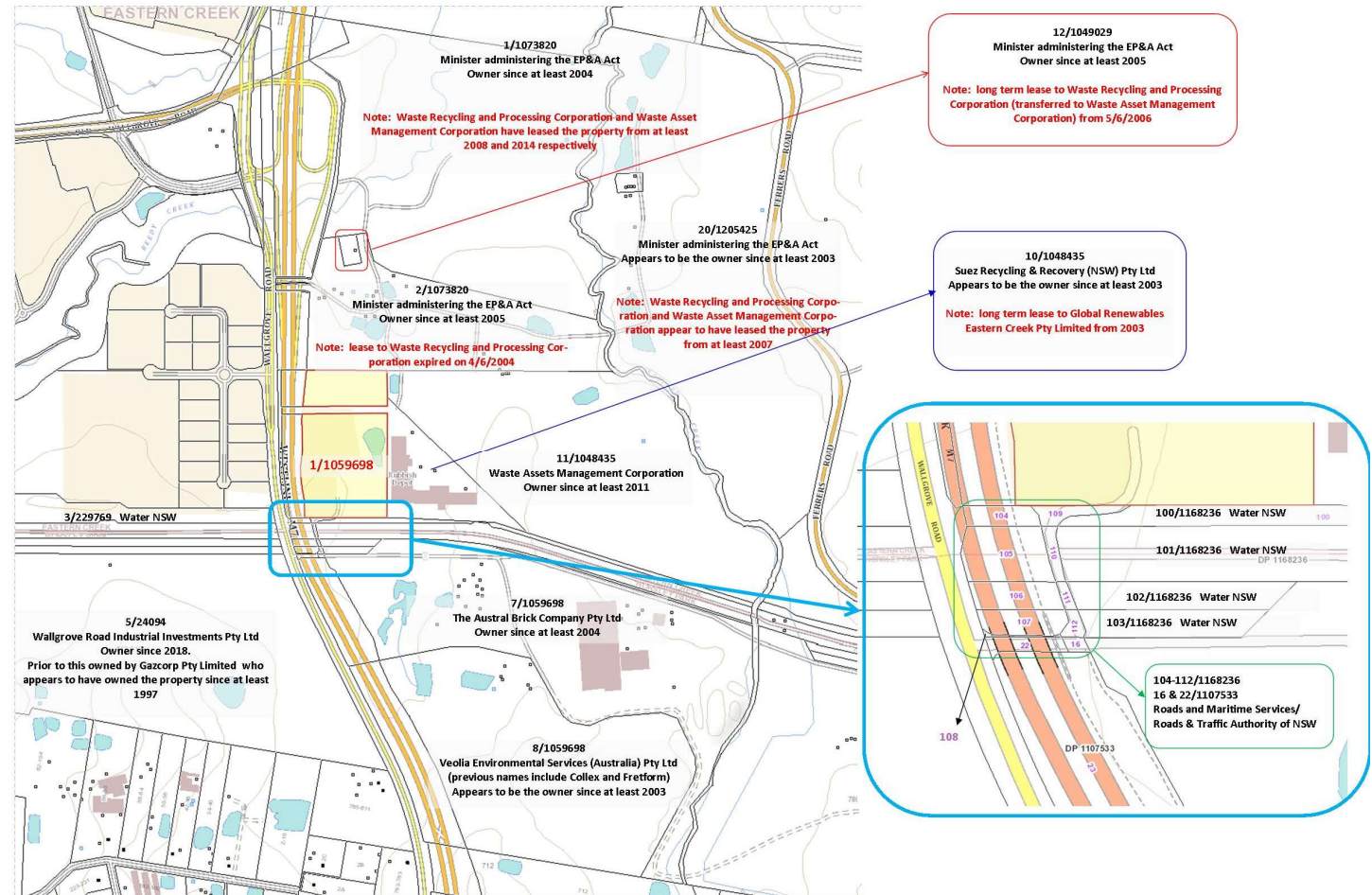




# Northern Land Access

The land to the north of the WSERRC site is owned by the Minister administering the Environmental Planning & Assessment Act 1979 which is now called the Planning Ministerial Corporation.

This land is administered by the Office of Strategic Lands (DPIE) who acquires land in this area to provide to the Western Sydney Parklands (WSP).



# Existing Land Ownership

---

## Planning considerations

Following discussions with all the landowners, lessees and administrators of land that surround the project site - access to the project site is only available via Austral Bricks road. Access can not be made elsewhere

### Feedback from Office of Strategic Lands / Western Sydney Parklands Trust (WSPT) – access from north

- WSPT and OSL preference is to close the access road to the north of the site
- OSL and WSPT want to rehabilitate the land to the north and return to the WSP, limiting access via the existing road to WSP visitors
- No truck movements via the existing access to Suez / GRL.
- Preference for GRL to access their site via the WSERRC / Austral Bricks Road (south across the WaterNSW pipeline).

### Suez “strip” through WSERRC site

- WSERRC cannot build on the strip - right of carriageway over the SUEZ owned land only
- Access is blocked from the North with this constraint
- Waste Assets Management Corporation → easement over the strip of land for utilities → further restrictions

# Existing Land Ownership

## Planning considerations

### Suez Composting (North of WSERRC site)

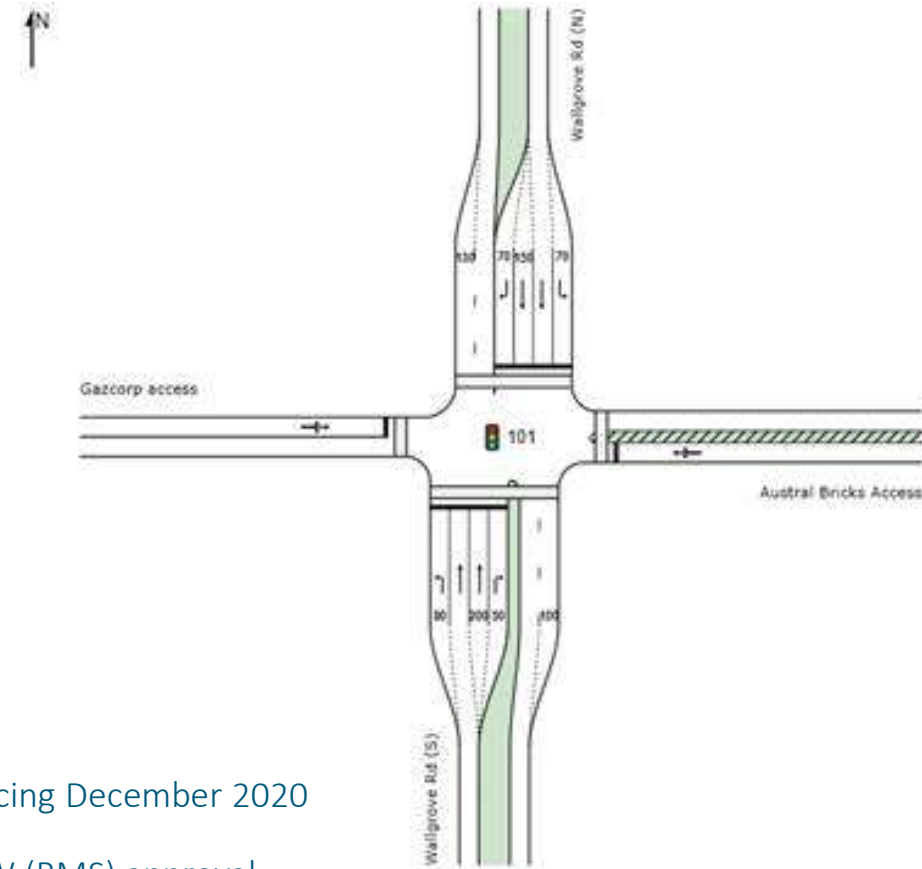
- SUEZ lease the land from OSL beyond the WSERRC to the north
- Existing composting operations etc.

### Austral Bricks (South)

- Positive engagement
- Access able to be facilitated and utilized

### GAZCORP (South West)

- Positive engagement
- New intersection being constructed on Wallgrove Road – commencing December 2020
- To service GAZCORP Land, and Austral Bricks Access Road → TfNSW (RMS) approval



# *3. Existing Access to site*







# *4. Assessment for Access / Proposal*

# Proposal for access

## *Suggested way forward*

- WaterNSW consider documents / information
- Proponent to provide risk assessment / technical paper document
- Risk is minimal – very heavy concrete protection already in place
- Work staging to provide uninterrupted access to corridor for WaterNSW
- Condition assessment of existing pipe protection
- Engagement with WaterNSW through design
- Monitoring during construction of proposed works



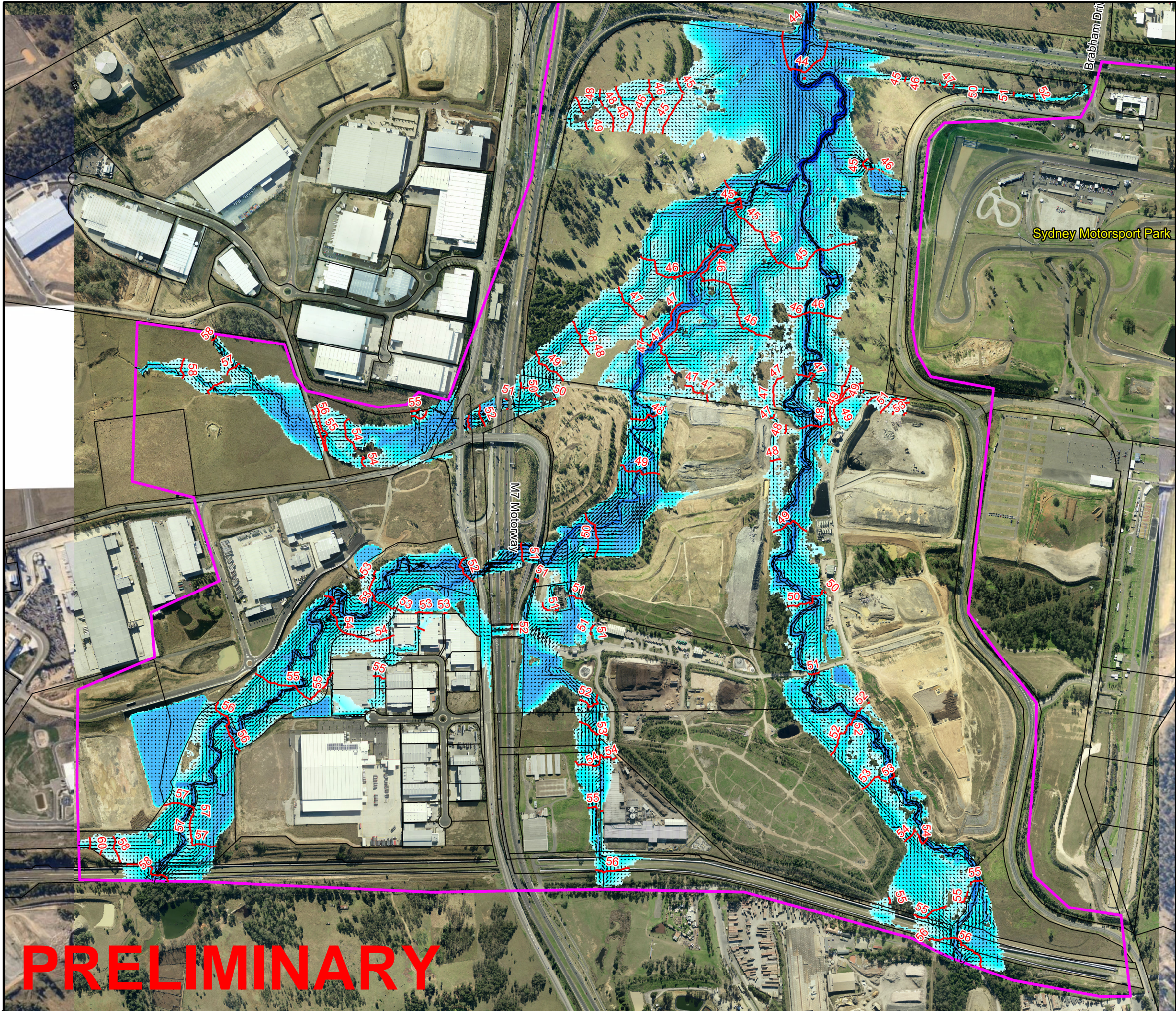


# *5. Questions?*

## Appendix G

Flood Mapping from Blacktown  
City Council





### LEGEND

TUFLOW Model Boundary

60 Peak Water Level Contour (mAHD)

Depths (m)	Velocity Vectors
0.0 to 0.01	0.5 m/s
0.01 to 0.5	1 m/s
0.5 to 1.0	2 m/s
1.0 to 2.0	4 m/s
2.0 to 3.0	
3.0 to 4.0	
4.0 to 5.0	
5.0 to 6.0	
> 6.0	

Notes:

Area potentially at risk of overland flooding. However, model scale does not allow a detailed assessment of overland flooding to be quantified.

Scale 1:10,000 (at A3)

Km

## Figure 7.1: 1% AEP Floodwater Depths, Velocities and Levels

Prepared By:  
 Catchment Simulation Solutions

Suite 2.01, 210 George St  
Sydney, NSW 2000

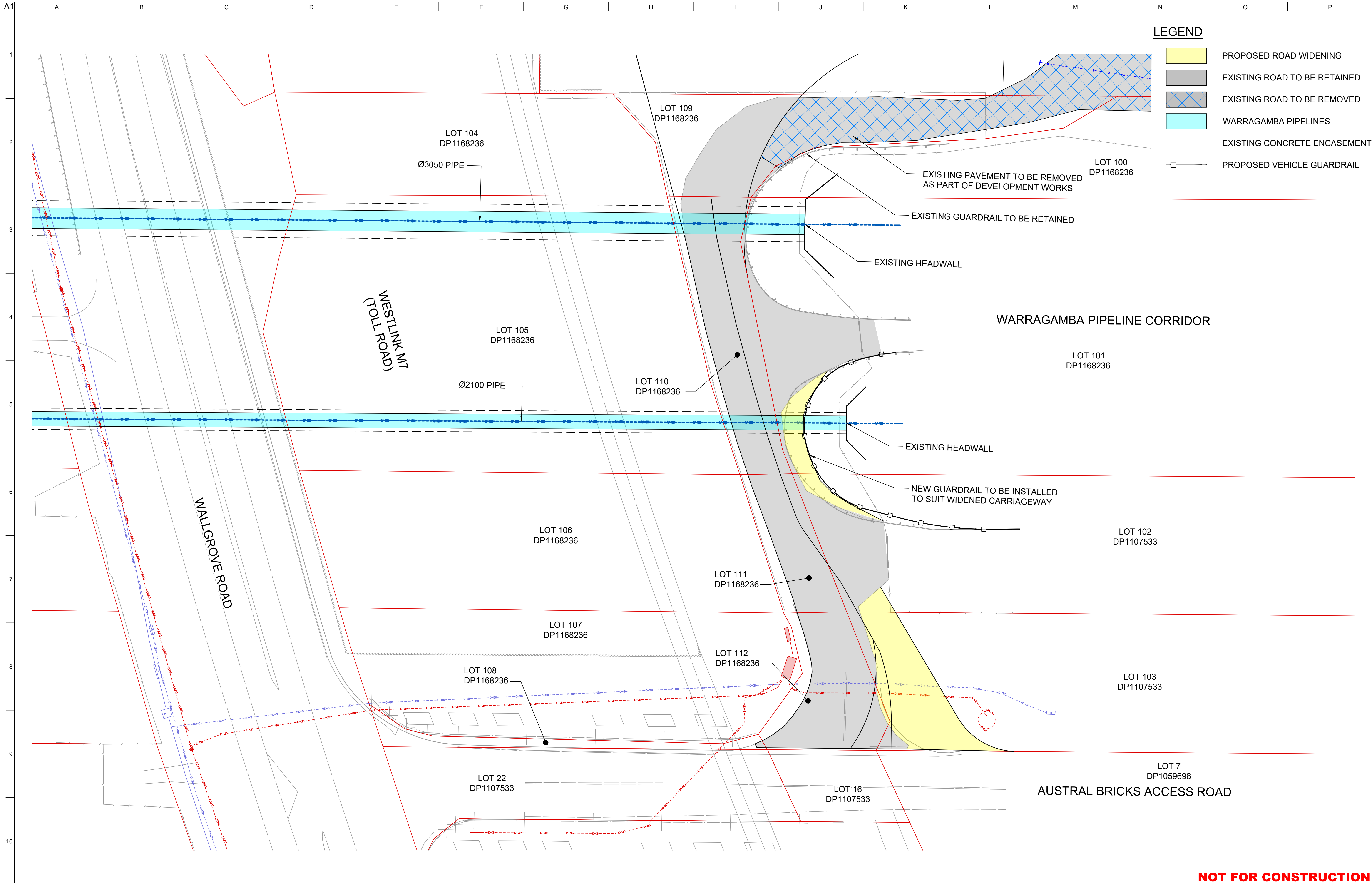
File Name: Fig 7\_1 1 % AEP Depths  
Velocities and Levels.wor

PRELIMINARY



## Appendix H

### Preliminary Design of Proposed Upgrade Works



- LEGEND**
- PROPOSED ROAD WIDENING
  - EXISTING ROAD TO BE RETAINED
  - EXISTING ROAD TO BE REMOVED
  - WARRAGAMBA PIPELINES
  - EXISTING CONCRETE ENCASEMENT
  - PROPOSED VEHICLE GUARDRAIL

**NOT FOR CONSTRUCTION**

Scales

Filename (Full Drawing No)  
WSERRC-ARU-SYD-CICW-DRG-1000  
Design Model Version

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Issue	Date	By	Chkd	Appd

Client

**CLEANAWAY**  
Holding a sustainable future possible

**MACQUARIE**

Engineering Certification (CEng)  
Name: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Job Title  
WESTERN SYDNEY ENERGY  
RESOURCE RECOVERY CENTRE

Scale at A1  
1:500m

Discipline

**ARUP**

Anup, Level 5, 151 Clarence St  
Sydney, NSW, 2000  
Tel +61 (02) 9320 9320 Fax +61 (02) 9320 9321  
www.arup.com

**CONSULT AUSTRALIA**  
Member Firm  
Anup Pty Ltd  
ABN 18 000 988 165

Drawing Title  
CIVIL WORKS  
SITE ACCESS

Drawing Status  
**Preliminary Issue**

Job No <b>264039-00</b>	Drawing No <b>ARU-SYD-CICW-DRG-1000</b>	Issue
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**DRAWING COLOUR CODED - PRINT ALL COPIES IN COLOUR**



## Appendix I

### Risk Assessment

<b>Project Title:</b>	<b>Western Sydney Energy and Resource Recovery Centre</b>	<b>Warragamba Pipeline - Risk Assessment</b>
<b>Document No:</b>	<b>WSERRC-ARU-SYD-PMMA-REG-0018</b>	
<b>Date</b>	<b>12/06/2020</b>	
<b>Version</b>	<b>1.0</b>	



ID	Discipline	Area	Item Description	Likelihood	Consequence	Rating	Mitigation / Action	Status	Action Owner	Comments/References/Further Action	Residual Likelihood	Residual Significance	Residual Rating
1	Civil-Structures	Existing Site Access	The existing pipeline crossing structure from Wallgrove Road into the WSERRC site is not suitably load rated to serve the proposed construction or operation vehicles of the facility.	3 - Possible	4 - Major	Extreme	As-Executed record drawings have been obtained from NWR demonstrating that the encasement is heavy duty and was designed to withstand loading from SM1600 vehicles in 2No 3.2m lanes and a 651 wheel tractor scraper.  These design loads are greater than the loads imposed by the largest operational vehicle. Construction vehicles will be selected such that they are below this limit. As a result, it is considered that this development poses no additional risk to the integrity of the existing pipe protection.	Open	WSERRC	Condition Assessment to be undertaken during detailed design.  Engagement with WaterNSW through detail design of the proposed access configuration.  Monitoring regime to be developed and agreed with WaterNSW in advance of construction.	1 - None	4 - Major	High
2	Civil	Existing Site Access - Pipeline Corridor Access	The existing pipeline crossing structure from Austral Bricks Access Road into the WSERRC site is used by WaterNSW to access the pipelines corridor. There is a risk that the WSERRC development could potentially impede WaterNSW's access.	3 - Possible	3 - Moderate	High	Proposed widening works will include connection and retention to the pipeline corridor access tracks. The widening works will permit 2-way traffic flows for WSERRC and not prevent WaterNSW accessing their assets.  Traffic flows during both construction and operational flows have been assessed and whilst they are higher than existing flows, measures have been implemented to reduce the peak hour flows during operation which include the use of Erskine Park Waste Transfer Station.	Open	WSERRC	Traffic Modelling presented within EIS Traffic and Transport Chapter.  Construction Traffic Management Plan (CTMP) to be prepared by Contractor to confirm vehicle types and restrict traffic at certain times. Works may be staged to provide uninterrupted access for WaterNSW.  Alternative means of access to the Pipelines Corridor is feasible from Ferrers Road.	2 - Unlikely	2 - Minor	Low
3	Electrical	Warragamba Pipeline	Generation of electricity by WSERRC has the potential to cause corrosion of the pipelines by low frequency induction.	3 - Possible	2 - Minor	M	This proposed HV cables will be buried underground in accordance with Service and Installation Rules of NSW and Endeavour Energy requirements. The cable routes will be positioned a minimum 20m from the pipeline corridor (Lot 101). Suitable clearance is provided from the pipeline corridor, a minimum of 20m, to ensure there is no risk.	Closed			1 - None	1 - Minimal	Low
4	Electrical	Warragamba Pipeline	Generation of electricity by WSERRC has the potential to increase the risk of earth potential rise, and step and touch potentials on the metallic structures in the Pipelines Corridor.	3 - Possible	3 - Moderate	High	These potential risk of step and touch will be addressed through design of the substation and associated earthing system, which is required to meet the a variety of Australian Standards and Industry Association standards and guidelines.	Open	WSERRC	The substation itself shall be a minimum 20m from Pipeline Corridor (Lot 101). Detailed design of the earthing system is to demonstrate that no hazardous potential differences will be present on the Warragamba pipeline assets, including touch voltages (hand to foot), step voltages (foot to foot) and hand to hand voltages to which personnel or members of the public may be exposed will result.  The earthing system shall be tested following completion of the works to demonstrate compliance to the design and the required safety criteria.	3 - Possible	2 - Minor	M
5	Structures	Southern Part of Site/Warragamba Pipeline	The height and location of the stack means that if the stack were to collapse in a certain direction, there is a risk that the stack would impact the Pipelines Corridor.	2 - Unlikely	5 - Catastrophe	Extreme	Piled raft foundations will also be used to support the stack with piles sized on ULS design loads with safety factors applied as per relevant Australian Standards codes. Multiple piles will be provided under the raft with the design allowing for structure to comply with the code in the event of one pile failing.	Closed	WSERRC	Detail design of the foundations to be completed at a later stage of the project.  Redundancy in the design would provide time to implement additional mitigation measures should a pile fail during operation.	1 - None	1 - Minimal	Low
6	Structures	Site Layout	Mass excavation of rock may result in noise and vibration impacts to the Warragamba Pipeline.	3 - Possible	3 - Moderate	High	The site has been configured such that the waste bunker is located near the northern end of the developed site, over 150m away from Pipeline Corridor. At this distance the risk is extremely low however monitoring will be undertaken during these works.  By demolishing the chicken sheds the proposed road layout removes the 90 degree bend that currently in position immediately beyond the pipeline crossing.	Open		Site layout has been developed in accordance with WaterNSW Guidelines, seeking to minimise interface impacts where possible.	2 - Unlikely	1 - Minimal	Low
7	Construction	Site/Warragamba Pipeline	Construction works of WSERRC may produce vibrations which will impact on the Warragamba Pipelines.	3 - Possible	3 - Moderate	High	Low vibration generating items of excavation plant and equipment shall be selected in the southern part of the site. To minimise risks posed by vibration, driven piles will be prohibited with bored or augured piles used.  Attended vibration monitoring will be conducted at the beginning of any vibration generating activities to confirm minimum working distances.	Open	WSERRC	Assessment of vibration impacts during operation can be seen in the EIS Noise and Vibration chapter.  A construction noise and vibration management plan shall be prepared by the Contractor, and agreed by WaterNSW, that details the monitoring methodology and measures.  Construction Management Plan to be developed prior to commencement of works to define construction methodologies.	2 - Unlikely	2 - Minor	M



ID	Discipline	Area	Item Description	Likelihood	Consequence	Rating	Mitigation / Action	Status	Action Owner	Comments/References/Further Action	Residual Likelihood	Residual Significance	Residual Rating
8	Operation	Southern Part of Site/Warragamba Pipeline	Operation of the WSERRC may produce vibrations which will impact the Warragamba Pipelines.	3 - Possible	3 - Moderate	High	Items that generate vibration have been located >50m away from the pipeline corridor.  The turbine, which creates the most vibration, is located >100m from the pipeline corridor and will be founded on a piled raft which will incorporate a spring damper system to reduce the vibration effect of the equipment.	Open	WSERRC	Assessment of vibration impacts during operation can be seen in the EIS Noise and Vibration chapter.  Detail design of the foundations to be completed at a later stage of the project.	1 - None	1 - Minimal	Low
9	Operation	WSERRC Site	Risk of explosion from materials stored on site.	3 - Possible	4 - Major	Extreme	Majority of hazardous materials are being stored within the EfW building and are well clear of the pipeline corridor.  The materials stored are well understoof and specific guidance is available for the appropriate protection of these chemicals from sources such as Australian Standards.  Items stored externally will be banded and secured in accordance with Australian Standards.	Open	WSERRC	Refer to EIS Hazards and Risk Chapter for detailed assessment on explosion risks.  Recommended storage and security measures to be incorporated into detail design.	2 - Unlikely	2 - Minor	Low
10	Civil	Warragamba Pipeline	Risk that WSERRC development increases flood risk in the Warragamba Pipeline Corridor.	3 - Possible	3 - Moderate	High	The Warragamba Pipeline currently experiences flooding during higher periods of rainfall.  Measures included within the WSERRC design include widening and formalising the existing overland flow channel that runs along the eastern side of the site. No changes to the upstream or downstream culverts on this overland flow route are proposed.	Closed	WSERRC	The flood risk assessment contained within the Hydrology and Flooding Chapter demonstrates that post development flows are equal or less than the pre-development flows within the pipeline corridor up to and including the 1% AEP event.	1 - None	1 - Minimal	Low
11	Civil	Warragamba Pipeline	Risk that WSERRC development increases groundwater flows in the Warragamba Pipeline Corridor.	3 - Possible	2 - Minor	M	Site layout configured such that the waste bunker, which is the only major excavation that will potentially interface with the groundwater is positioned >150m away from the pipelines corridor.	Open	WSERRC	Groundwater flows and quality have been assessed and are detailed within the Soils and Water chapter within the EIS. This assessment has found the proposed development will only have low and temporary potential impacts to the groundwater and related environments during the construction phase of the development.	2 - Unlikely	1 - Minimal	Low
12	Environmental	Sydney Water Catchment	Development has negative impact on the water quality of the reservoir or bulk water supply infrastructure.	1 - None	1 - Minimal	Low	The proposal is not located within the surface water catchment area for Prospect Reservoir, there is no pathway for site runoff to have any impact on water quality in the reservoir or other bulk water supply infrastructure.	Closed		N/A			
13	Environmental	Prospect Reservoir	Risk that development will cause deposition of contaminated particulates onto the surface of Prospect Reservoir and use of water for drinking as an exposure pathway	2 - Unlikely	4 - Major	High	The stack height has been determined to minimise the concentrations of air emissions, which of course are cleaned to low levels by the Flue Gas Treatment equipment contained within the facility before discharged to the air.	Closed		Modelling presented in the Human Health Risk Assessment he estimated concentrations of pollutants are at least 5000 times lower than the individual drinking water guidelines that apply to each pollutant.  The assessment concludes that there is no unacceptable risk for relevant exposure scenarios for Prospect Reservoir as a result of the proposal.	1 - None	1 - Minimal	Low
16													
17													
18													
19													
20													

## Appendix B

### Vendor Record Drawing







## Appendix C

### Sydney Water Advice Letter

Your Ref: 264039-00

29 May 2020

Western Sydney Energy Resource and Recovery Centre  
339 Wallgrove Road, Eastern Creek

### ADVICE LETTER

<b>Developer:</b>	<b>Cleanaway</b>
<b>Your reference:</b>	<b>SSD 10395 Letter Ref: 264039-00</b>
<b>Development:</b>	<b>Western Sydney Energy Resource and Recovery Centre (WSERRC)</b>
<b>Development Location:</b>	<b>339 Wallgrove Road, Eastern Creek 2766</b>
<b>Your letter date:</b>	<b>27 March 2020</b>

Dear Euan,

This Feasibility Letter (Letter) is a guide only. It provides general information about what Sydney Water's requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. **The information is accurate at today's date only.**

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (Coordinator).

Sydney Water will then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed) or
- Certificate.

These documents will be the definitive statement of Sydney Water's requirements.

There may be changes in Sydney Water's requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development eg the development description or the plan/site layout, after today, the requirements in this Letter could change when you submit your new application; and
- if you decide to do your development in stages then you must submit a new application (and pay another application fee) for each stage.

**No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from Sydney Water and to the extent that it is able, Sydney Water limits its liability to the reissue of this Letter. You should rely on your own independent professional advice.**

### **Drinking/Potable Water**

WSERRC is proposed to connect to the DN250 main on Wallgrove Rd (asset no 9226142). The development has an average demand of 0.3 l/s and peak demand of 1.51 l/s. The DN250 main on Wallgrove Rd has capacity to supply the proposed demands to the development.

All works to connect to DN250 need to comply with WSA code.

### **Recycled Water**

WSERCC is proposed to source the demand (constant 9.0 l/s flow) required to serve the process requirements of the EfW facility from recycled water. Until the time when recycled water is available to the development, this constant flow of 9.0 l/s can be drawn from the same DN250 main as the Drinking/Potable Water supply.

Any increase in this demand must be consulted with Sydney Water. When there is recycled water available, the demand must be sourced from recycled water.

All works to connect to DN250 need to comply with WSA code.

### **Wastewater**

WSERRC is proposed to discharge average flow of 0.25 l/sec and peak flow of 1.51 l/s via a private pump and rising main to an existing DN225 main on Roussell Rd (asset no 9120871).

The existing DN225 main on Roussell Rd has capacity to take the additional average flow of 0.25 l/sec and peak flow of 1.51 l/s. Any increase in the discharge flow must be consulted with Sydney Water prior to discharge.

The design and construction of the pump and rising main must comply with WSA code.

**No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from Sydney Water and to the extent that it is able, Sydney Water limits its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.**

---

**END**

## Appendix D

### Endeavour Energy Response to Technical Enquiry



30 March 2020

**Endeavour Energy Ref: ENL3597**

Arup  
Level 5, 151 Clarence Street  
Sydney NSW 2000

**Attention: Euan Mitchell**

**ENL3597 – Proposed Waste to Energy facility, 339 Wallgrove Rd, Eastern Creek**

Thank you for your application providing information of the proposed development at the above location. Your application has been registered under the above reference number. Please quote this reference number on all future correspondence.

Customer has proposed to establish a Waste to Energy facility at Wallgrove Rd which is expected to have a generation capacity of 55MVA. Endeavour Energy has carried out a desktop assessment of the network and advise that there are options to connect on to the network either at 33kV or at 132kV. This response provides a high-level analysis and is subject to change once a formal application is submitted.

**Connecting at 33kV:**

Currently, 33kV feeders 48C and 489 run along Wallgrove road where feeder 48C runs from switching station 9724 to Horsley Park Zone Substation and feeder 489 runs from switching station 9724 to Mount Druitt Transmission Substation. There are two ways to connecting onto the 33kV network and both these options will require a new 33kV Substation at the facility which will be funded, owned and operated by the customer.

**Option 1 (Appendix A)**

The facility can be connected onto the 33kV network via switching station 9724. Major works that may be required, but not limited to, are;

- Run approximately 0.5km of new 33kV cable from the facility to the switching station 9724.
- Install new 33kV panel in 9724, for termination of the new cable from the facility.
- Upgrade approximately 1.67km of underground cable on feeder 489.
- Upgrade approximately 8.56km of overhead wiring on feeder 489.

**Option 2 (Appendix B)**

Another option to connect on to the 33kV network is via a TEE connection from feeder 48C. Major works that may be required, but not limited to, are;

- Establish new TEE on 48C either on an existing or proposed pole.
- Upgrade approximately 0.5km of underground cable on feeder 48C.
- Upgrade approximately 1.67km of underground cable on feeder 489.
- Upgrade approximately 8.56km of overhead wiring on feeder 489.

**Connecting at 132kV (Appendix C)**

Endeavour Energy have investigated connecting on to the 132kV network and advise that the facility can be connected on to the busbar of Eastern Creek Zone Substation. Major works that may be required, but not limited to are;

- run approximately 2.6km of new appropriately rated 132kV cables from the facility to Eastern Creek Zone Substation (subject to final route selection).

- necessary modifications to the switchyard of Eastern Creek Zone substation to enable connection of the new feeder.

**Note:** Capacity on the network is not reserved unless a formal application is submitted to [cwadmin@endeavourenergy.com.au](mailto:cwadmin@endeavourenergy.com.au) . The above is a preliminary advice only and is subject to change based on network conditions at the time of application submission.

Should you have any enquiries regarding your application please contact the undersigned.

Yours faithfully,



**Ayman Shahalam**

Contestable Works Project Manager

Network Connections

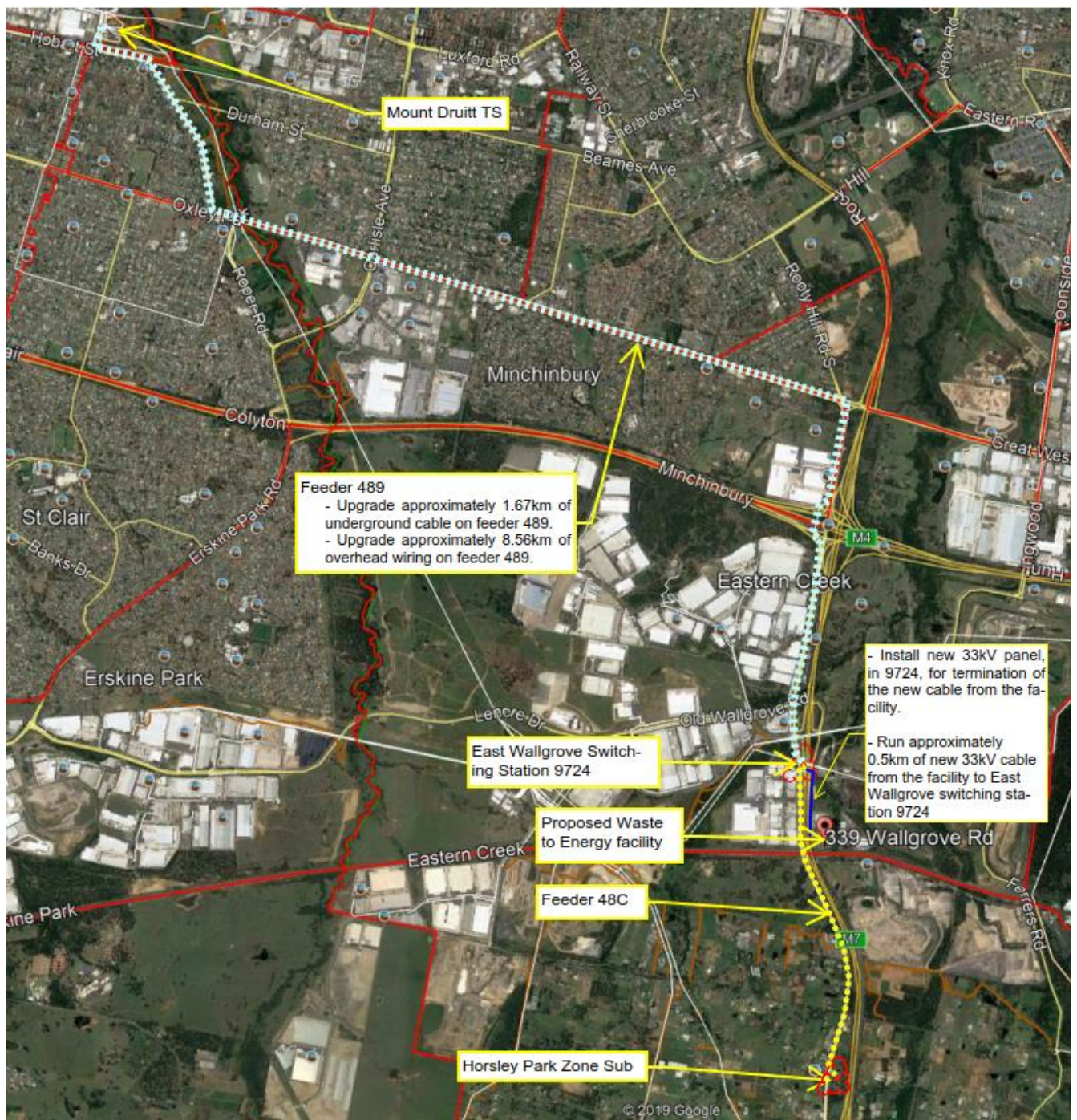
T : 02 9853 7803

M: 0439 351 215

490 Hoxton Park Rd, Hoxton Park

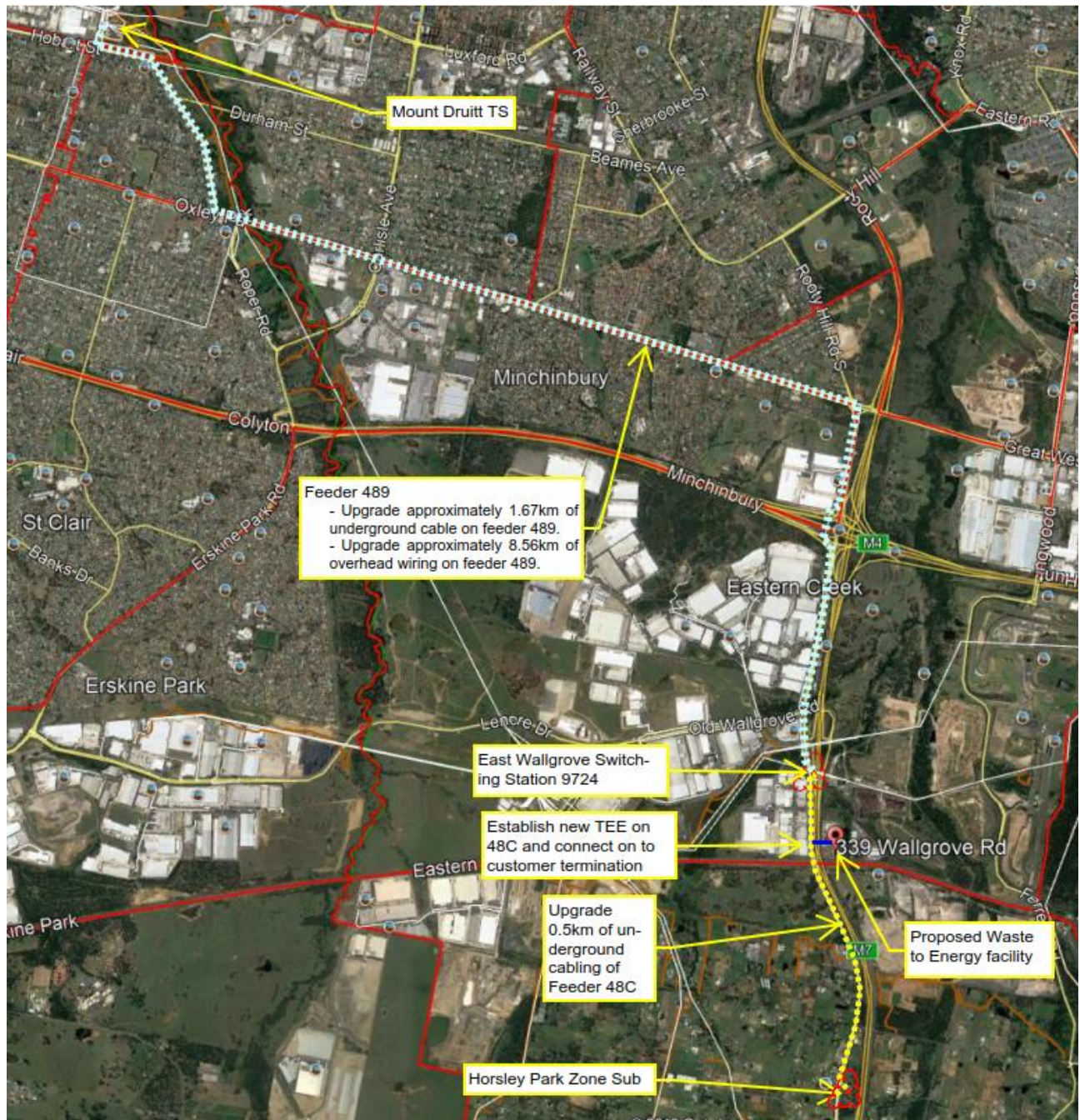
<http://www.endeavourenergy.com.au>

## Appendix A



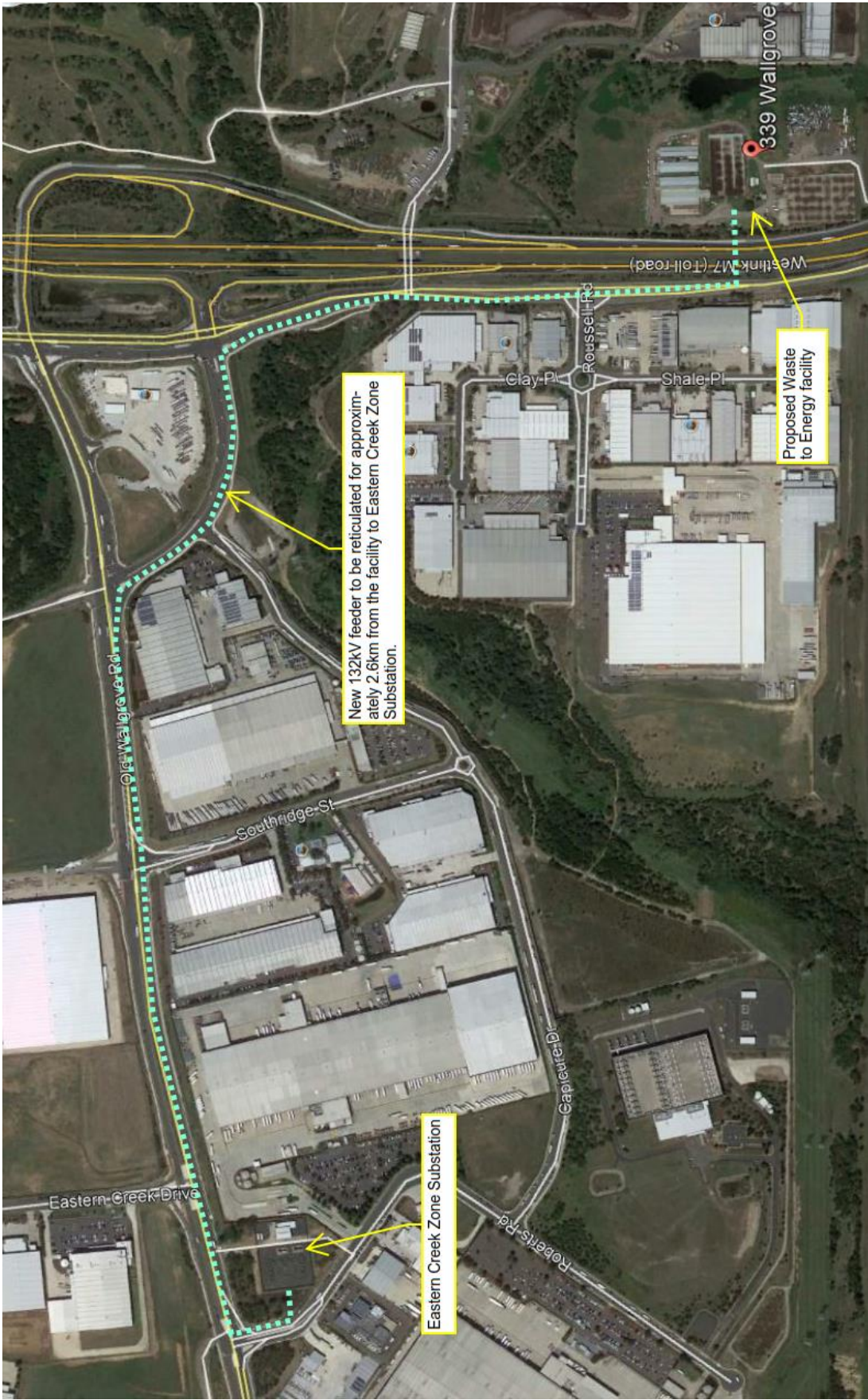


## Appendix B





Appendix C



## Appendix E

### NBN Build Quote



nbn-Confidential: Commercial

18<sup>th</sup> March 2020

Henry Lam  
ARUP PTY LIMITED  
339 Wallgrove Road  
Eastern Creek NSW 2766

Dear Henry,

**Quote for a technology switch, [TC-000002838] 339 Wallgrove Road Eastern Creek NSW 2766  
(the "Premises")**

Thank you for your request to switch your **nbn**<sup>™</sup> technology to fibre to the premises, we are excited at the prospect of working with you.

**Next steps**

Set out below are the required steps to proceed with the technology switch:

1. Please read this letter (incorporating the Build Quote) and attached Terms and Conditions carefully and ensure you understand these documents prior to signing below.
2. Sign this Build Quote below (along with the signature of a witness).
3. Scan and return the signed documents to your relationship manager:  
**Kim Thompson**  
E [kimthompson@nbnco.com.au](mailto:kimthompson@nbnco.com.au).
4. Once the signed documents are received **nbn** will issue you with an invoice for payment of the Build Quote.
5. Once payment has been received, **nbn** will commence the design and construction activities to switch the access technology at your premises

**Build Quote**

To switch the premises from Satellite to fibre to the premises at 339 Wallgrove Road Eastern Creek NSW 2766 for 1 premise.

Build Quote	Quote Fee	Total Remaining
\$19,500 ex GST (\$21,450 inc GST)	\$330 inc GST	\$21,120 inc GST

**Please note this quote is valid until 18<sup>th</sup> April 2020**

**Indicative Scope of Works**

Without limiting clause 4.1 of the Terms and Conditions, an indicative summary of the works that **nbn** may be required to carry out in respect of the switch are set out below:

- all relevant designs for the proposed works required to connect the contracted premise to the **nbn**<sup>™</sup> broadband access network;
- all relevant civil works required to connect to the premises to the **nbn**<sup>™</sup> access network;
- any relevant contractor mobilisations; and



- any relevant approvals / access arrangements for civil works that are required outside of the property boundary necessary to connect the premises to the **nbn**<sup>™</sup> access network.

**nbn** will maintain ownership of any **nbn**<sup>™</sup> infrastructure and associated equipment installed as part of the Switch.

#### Out of Scope Works

Please be aware that **nbn** will not be responsible for the following:

- the construction or rectification of any property lead-in conduit/internal pathways that is required at the premise. If the existing lead-in conduit is damaged, missing or not fit for purpose, rectification is the responsibility of the applicant. **nbn** can separately provide a quote to remediate a lead-in conduit;
- the means to supply power for the network terminating device (such as the installation of a General Purpose Outlet (GPO));
- any site management and/or access approvals, which will be the responsibility of the applicant;
- battery backup for powering equipment. To request a battery backup, please contact your Retail Service Provider once the technology switch is complete; and
- relevant services to your home, such as landline phone and broadband, which must be provided by a Retail Service Providers (and not by **nbn** directly). For more information on connecting your home visit [nbn.com.au/getting-connected](http://nbn.com.au/getting-connected).

**By signing below, you are accepting the Build Quote and agree to be bound by the attached Terms and Conditions:**

<u>Applicant</u>	Witness
Applicant/Company Name: .....	Full name: .....
Registered ACN/ABN: .....	Signature: .....
Signature: .....	Date: .....
Date: .....	

If you have any questions regarding the Build Quote, the Terms and Conditions or the technology switch in general, please do not hesitate to contact us.

Thank you again for the opportunity to provide you with a Build Quote and we look forward to working with you.

Yours sincerely,

Richard Milloy

**Technology Choice Program Manager, Demand Programs, nbn**