

# Richmond Heavy Vehicle Link Road

Submission to the Parliamentary Standing  
Committee on Public Works

March 2013

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	Name	Signature	Date
Authorised by:	Shane Gregory		

# 1 Introduction

The Department of Infrastructure, Energy and Resources (DIER) is undertaking detailed project planning for the Richmond Heavy Vehicle Link Road Project (Link Road), in Richmond, Tasmania. The Link Road is proposed to skirt around the western side of the Richmond township between Middle Tea Tree Road and the Richmond Recreation Ground and aims to remove as much heavy vehicle traffic from the Richmond precinct as possible.

## 1.1 Background

Investigations into a heavy vehicle link road for Richmond began with planning in the late 1980s resulting in a detailed concept design with the alignment proclaimed as a limited access road on 26th June 1989. As a result, notification of the intended alignment is included on affected land titles. No funding was made available for construction and design was not progressed beyond proclamation.

In November 2010, several junction options were developed by DIER and presented to the Richmond community for comment. These junction options were developed after assessment of historical (European) heritage, flora and fauna, visual impact and surface aboriginal heritage investigations had been undertaken.

In May 2011 consultants were commissioned to undertake concept design. The alignment has been developed based on current engineering and design practices, community consultation and heritage considerations. As these constraints may not have been fully recognised when the original corridor was proclaimed, the current alignment does not align with the 1989 proclaimed corridor.

The design has progressed to the preliminary design phase and the alignment has been confirmed.

## 1.2 Purpose of this Submission

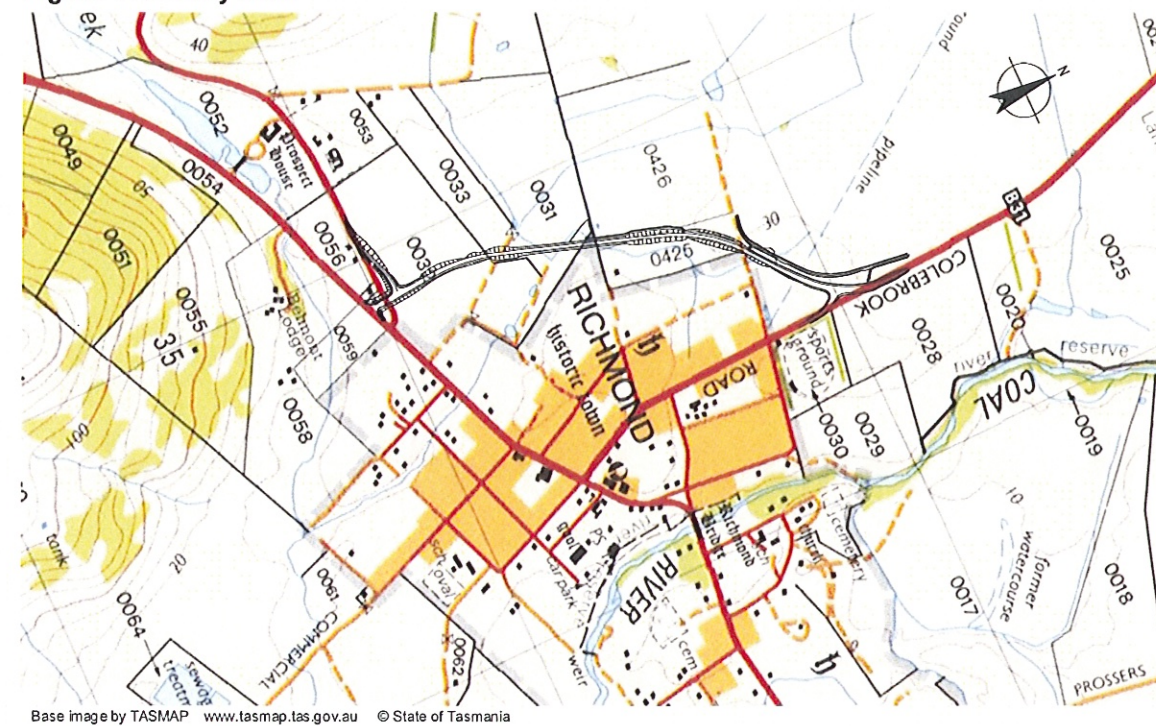
The purpose of this report is to provide evidence to the Parliamentary Standing Committee on Public Works in support of the proposed construction of the Richmond Heavy Vehicle Link Road.

## 1.3 Project Location

The proposed road to be known as the Richmond Heavy Vehicle Link Road will skirt the western edge of the Richmond township. Connections to Colebrook Main Road (A1154) are proposed east of Middle Tea Tree Road (Link 33 / 1.04) and north of Victoria Street (Link 33 / 2.19). The location of the proposed works is shown in Figure 1.



Figure 1 Locality Plan



## 1.4 Project Objectives

Once complete, the works will provide an alternative to heavy and oversized traffic travelling through Richmond which will result in the following benefits:

- Remove heavy and oversized vehicle through traffic from the Richmond township
- Remove a large amount of heavy vehicular traffic in the Richmond township
- Reduce vibration by heavy traffic damaging heritage buildings in the township
- Reduction of issues regarding turning movements at the junction of Colebrook Main Road and Bridge Street
- Increased safety of pedestrians
- Increased pedestrian amenity for the local community and tourists
- Lessen the ongoing issues with oversized vehicles coming into contact with overhead power lines at the entrance to the township directly after the existing Middle Tea Tree Road junction

## 2 Project Details

### 2.1 Existing Situation

Currently all heavy traffic including oversize vehicles travelling on the Colebrook Main Road has to travel through the historical township of Richmond. Richmond is a 19th century Georgian town rich in convict history and is a main tourist attraction in Southern Tasmania with visitors generating large numbers of pedestrian traffic.

The speed limit through Richmond is 50 km/h. Due to the high number of visitors during the peak tourist season, on street parking is fully utilised during the day.

DIER is proposing to provide a link road between Bridge Street and Colebrook Main Road to reduce the number of heavy and oversized vehicle traffic within the Richmond township.

Provision of the link road will address issues currently being experienced in the township. Those issues include:

- Vibration by heavy traffic damaging heritage buildings adjacent to the Main Road
- The junction of Colebrook Main Road and Bridge Street does not accommodate heavy vehicle turning paths and these vehicles mount the kerb and footpath to negotiate this turn
- Conflict between heavy vehicles and the high number of pedestrians
- On street parking causing limited road width within the township for heavy vehicles
- There is an ongoing issue with oversized vehicles coming into contact with overhead power lines at the entrance to the township directly after the existing Middle Tea Tree Road junction

### 3 The Project

#### 3.1 Proposed works

The proposed works is to provide a link road for heavy traffic including oversize vehicles between the southern and northern sections of Colebrook Main Road, skirting Richmond. The road is to be 1.36 km in length. The proposed speed environment of the Link Road is 80 km/h and therefore the Link Road and junctions have been designed to provide a minimum 80 km/h sight distance.

The works are shown on the drawings included as Appendix A

##### 3.1.1 Southern Junction (Middle Tea Tree Road)

The Link Road will junction onto the Colebrook Main Road just west of the existing Middle Tea Tree Road junction with a 74 degree tee. This arrangement maintains the existing road alignment into the township, preserves the historic nature of the road alignment and minimises any visual impact that would detract from approaching the historic township.

##### 3.1.2 Middle Tea Tree Road Junction

The Middle Tea Tree Road is to be realigned to allow an 86 degree tee channelised junction to be constructed onto the Link Road 80 m from the start of the link road at the southern end.

##### 3.1.3 Northern Junction

The northern junction is a channelised tee junction with priority to the Link Road. This option will encourage heavy vehicles to use the link road rather than enter the Richmond township as it allows for only one turn onto the Link Road at the southern junction. A design which requires users to make two turns (ie turn on and off the Link Road) would encourage heavy vehicles through the Richmond township as there would be only one turn to negotiate.

#### 3.2 Road Cross Section

The design incorporates the cross sectional elements shown in Table 1 for the Link Road.

Table 1 Design Elements

Element	Dimension (m)
Lane width	3.5
Shoulder width	0.5
Verge width with / without safety barrier	1.5 / 0.5
Table drain width	2.1
Fill batter slope without safety barrier	4(H) : 1(V)
Fill batter slope with safety barrier	2(H) : 1(V)
Cut batter slope	1.5(H) : 1(V)
Cut batter slope in rock	1(H) : 1(V)

#### 3.3 Speed Limit

The Link Road is to have an 80 km/h speed limit. The current 50 km/h speed limit on the southern approach to Richmond on Colebrook Main Road has been relocated as part of DIER's ongoing safety works so that the southern junction is contained within the 50 km/h zone.

3.4 Drainage

A drainage review was undertaken for the link road. The drainage of the Link Road has been design to cater for a 1 in 20 year flood event.

The construction of the Link Road will not affect the quantity of water generated by a storm event and is not considered to cause a detrimental effect on the local rainfall runoff.



## 4 Environmental and Social Implications

### 4.1 Environmental Issues

The project has been subjected to the following investigations:

#### 4.1.1 Botanical Survey

A Botanical Survey and Fauna Habitat Assessment of the project site was undertaken in November 2010.

Key findings of the survey included:

- One rare flora species, *Juncus amabilis* (gentle rush), is present within the area
- Two declared weed species, *Lycium ferocissimum* (African boxthorn) and *Marrubium vulgare* (horehound), are present as small localised patches
- Seven vegetation communities were recorded, three of which are native communities. The study site is dominated by agricultural land (TASVEG code FAG)
- Two of the native vegetation communities are listed as threatened under the *Tasmanian Nature Conservation Act 2002*. These are small areas of *Eucalyptus ovata* forest and woodland (TASVEG code DOV) (0.02 ha) and freshwater aquatic sedgeland and rushland (TASVEG code ASF) (0.08 ha)
- The study site contains potential habitat for several threatened fauna species, in particular the green and gold frog (*Litoria raniformis*)

In February 2013 a site inspection and survey was undertaken to confirm the findings of the 2010 survey within the extent of the wetlands based on the finalised alignment. In addition to confirming the current extent of the *Juncus amabilis*, a localised population of the threatened *Rytidosperma popinensis* (Roadside or Blue Wallaby Grass) was detected. The extent of the *Rytidosperma popinensis* was confirmed by a subsequent survey by North Barker. An additional rare flora species, *Austrostipa nodosa* (knotty spear grass), also identified (State Listed).

A Permit to Take has been obtained from DPIPWE for the *Juncus amabilis*.

After undertaking a sensitivity analysis in conjunction with North Barker, DIER determined that an EPBC referral was not necessary for the *Rytidosperma popinensis*. DPIPWE has accepted this approach and a state Permit to Take has been submitted for both *Rytidosperma popinensis* and *Austrostipa nodosa*.

#### 4.1.2 Fauna Habitat Assessment

A Green and Gold Frog Survey was undertaken in January 2011. Key findings of the survey were:

- No Green and Gold Frogs were detected during the survey. There was no response by this species to call playback, and no individuals were encountered during active searching around the water bodies on site
- The water bodies within the study site and associated drainage lines provide good habitat for frogs, with four different common frog species being recorded on site

Given the time that has passed since the 2011 survey, and with the knowledge that the green and gold frog can be a highly dispersive species under suitable conditions, a follow up survey was required to update the original findings. This survey met the requirements of the yet to be released DPIPWE survey guidelines for green and gold frog in Tasmania.

The survey did not identify any green and gold frogs, despite numerous frogs of other species being recorded. Neither water body appears to be supporting a population of green and gold frogs currently.

Based on the results of this survey and the earlier survey completed in 2011, approval under the Tasmanian TSPA or Federal EPBCA, for disturbance of the green and gold frog is not anticipated to be required for this project.

#### 4.1.3 Aboriginal Heritage Assessment

An adaptive archaeological investigation of Aboriginal heritage values has been undertaken over the past 2 years and has established that 3 sites of low to medium significance are located within the route corridor. All three sites are classified as artefact scatters which have been subject to moderate to high levels of disturbance through past land use activities. No other features were found in association with these features.

The proposed alignment has been modified significantly to ensure that impacts on the heritage values have been minimised. However, two sites that remain either wholly or partially within the route corridor will be impacted.

Archaeological investigations have clearly demonstrated that apart from the identified Aboriginal site areas described above, the remainder of the proposed Richmond Heavy Vehicle Link Road alignment traverses terrain that is of very low archaeological sensitivity. No Aboriginal sites have been identified along the remainder of the route and the possibility of impacting on unidentified Aboriginal heritage resources is very low.

As a result of the findings of the field survey DIER has lodged an Application for a Permit under Section 14 of the Aboriginal Relics Act 1975 to undertake the proposed road works. The permit was approved on 5 March 2013.

An additional artefact was located in close proximity to the proposed works area during the Flora and Fauna survey conducted to identify the extent of Green and Gold Frog habitat. Advice has been sought from Aboriginal Heritage Tasmania in February 2013. The newly identified artefact will be subject to an exclusion zone and will not require a permit.

#### 4.1.4 Historic Heritage Assessment

A Historic Heritage Assessment was undertaken in July 2011. The assessment concluded:

*"The study area is located in a historically significant area. Located in the traditional lands of the Moomairremener band of the Oyster Bay tribe, the Coal River Valley and Pittwater areas were the locations of important events in Tasmania's contact history. This contact began soon after British settlement in 1803, and by the 1810s large land grants had been issued in the study area. Developed for agricultural pursuits, the Coal River Valley became a major grain production area at an early date. To the east of the study area, the Richmond Township also developed at an early date, emerging as an important population, commercial and administrative centre.*

*Planning for the proposed Link Road has been underway for a considerable time. Although the study area has an important historical context, the field investigations located relatively few places of historic cultural significance. The exception however was on the fringes of the study area, notably the built development in Richmond and important historic plantings. Management of these sites will require careful consideration."*

The proposed alignment of the Link Road will have minimal visual impact on the existing built development. Although there is some tree removal required to construct the road the trees to be removed are not of any historical significance

#### 4.1.5 Landscape and Visual Assessment

A landscape and visual assessment was undertaken in November 2010.

The report provides an assessment of the cultural landscape of the Richmond area and its connection to the township of Richmond, in particular the heritage values of the township. The report also assesses the potential visual impact of the proposed Link Road on the surrounding cultural landscape and on the township's heritage values.

The Report concluded that:

- From the focal heritage areas of Richmond, the Richmond Bridge and the central section of Bridge Street, the proposed Link Road would not be visible and would not detract from the heritage experience of these places.
- The proposed Link Road will be visible from the northern ends of Percy Street and Franklin Street. Only small sections of these streets will be affected. These streets do not have significant heritage value compared to Bridge Street.
- The proposed Link Road will also be visible from several private residences in Percy Street, Franklin Street and Victoria Street.
- The major visual impacts of the proposed Link Road will arise from the junctions at either end of the Link Road. These junctions occur on the streets (Bridge Street and Franklin Street) which carry most traffic, especially tourist traffic. The junction with Bridge Street will have a significant impact on the character of the entry experience to the township and the cultural landscape surrounding the north western edge of the township.
- The junction with Franklin Street will have a major visual impact on the cultural landscape at the northern end of township and is likely to affect the health of the mature cypress hedge which is a landmark element at this northern entry to the township.
- Existing road junctions in Richmond are slow speed and low key. They are right angled intersections without slip lanes, medians, barriers and large signs. It is unlikely that the junctions for the proposed Link Road will be consistent with the existing junctions. They are likely to have high visual impact with large signs, guard rails, slip lanes and road markings.

Design of the junctions in particular has taken into consideration the visual impact recommendations noted above with a view to minimising visual impacts and maintaining the existing 'low key' appearance of the junctions.

#### 4.1.6 Traffic Noise Impact Assessment

A Traffic Noise Impact Assessment was undertaken in August 2012.

The focus of this assessment has been on the potential traffic noise impact at identified sensitive noise receivers along the proposed alignment. Noise modelling was conducted for the 10-year (2022) predicted traffic conditions.

The following conclusions were made:

- The development of the proposed Link Road will result in a significant reduction to the number of sensitive receivers impacted from road traffic noise as it takes traffic away from the centre of the Richmond township.
- The predicted noise levels indicate that the road traffic noise goal of L10 (18 hour) 63 dB(A) is expected to be met at all receivers under all modelled scenarios, except near the southern junction of the Link Road and Colebrook Road.

- Year 2022 traffic volumes are predicted to generate an increase of up to 2 dB(A) over existing conditions near the southern junction. Analysis of modelled results show that the dominant noise source at these receivers to be traffic on Colebrook Road rather than the proposed Link Road or Link Road junction. Therefore, it is expected that road traffic noise levels near the southern junction would increase to above the adopted noise goal irrespective of the proposed development.
- Modelling results indicate that road traffic noise along Colebrook Road, through the Richmond township is expected to decrease slightly under 'project opening' conditions with the removal of a large portion of heavy vehicles from this road.
- Ambient noise levels at sensitive receivers near the proposed Link Road alignment, which are currently not exposed to high levels of road traffic noise, are expected to increase due to the proposed development. Predicted noise levels indicate that the trigger level of a 15 dB(A) increase between the existing LAeq (16 hour) and predicted LA10 (18 hour) is met at all applicable receivers. Therefore, although ambient noise levels at these receivers are likely to increase due to the proposed Link Road, the increase is considered acceptable with consideration to the DIER criteria.
- The LAeq (8 hour) trigger criterion of 45 dB(A) for night-time sleep disturbance from heavy vehicles is predicted to be met at all receivers, provided that 30% or less of daily heavy vehicle traffic movements occurring during the night-time (10 pm to 6 am) period.
- There is potential for sleep awakening to occur at sensitive receivers located within close proximity to the southern junction of the proposed Link Road due to engine and exhaust braking noise. Recommendations have been made for noise control measures to minimise potential impacts.

#### 4.1.7 Assessment of Land Capability and Agricultural Potential

An Assessment of Land Capability and Agricultural Potential was undertaken in July 2011.

The assessment concluded that:

*"The survey area has low agricultural potential and there is no conflict of the principles outlined in the PAL Policy. It is therefore expected that the construction of the Richmond Link Road will not adversely affect the agricultural potential of the surrounding area, providing appropriate soil conservation techniques are used during its construction and impact on drainage of the surrounding agricultural areas is addressed."*

## 4.2 Property Acquisition

### 4.2.1 Acquisition

Property acquisition will be required from nine properties.

The total acquisition and demolition of 3 Middle Tea Tree Road is required. Following acquisition, the owner may be permitted to remain in the subject property to assist with their purchase of a replacement property.

The earthworks and acquisition at the southern junction impacts water and septic services at Telstra's Richmond Exchange (7 Middle Tea Tree Road). At the time of preparing the Parliamentary Standing Committee on Public Works submission, permits are being sought for modification to these services from Southern Water and Clarence City Council.

An initial discussion with affected landowners was held in November 2012 to discuss the intended areas of acquisition and to explain the acquisition process. At the time of preparing the Parliamentary Standing Committee on Public Works submission the acquisition survey and title plans are being undertaken after which the Office of the Valuer-General will commence valuations and negotiations with affected landowners.



### 4.3 Property Access

Several property titles and future road reserves are affected by the Link Road. A review of property access requirements for the affected property titles indicates that it is feasible for all properties to have access off existing roads, eliminating the need for direct accesses onto the link road. There will be no private accesses provided onto the Link Road.

Two properties (CT 147817/1 – Shepherd and CT 43462/1 – Ryan) with current access off Bridge Street will have their accesses relocated to the access road to the “Daisy Banks” farm off Middle Tea Tree Road. DIER has offered to provide minor upgrading works to the existing road to provide landowners a maintained road at completion of the works as well as providing better drainage adjacent the road to assist in future maintenance.

DIER has been advised of the intention to construct a house at the north eastern corner of CT 149214/1 (Jones). The existing access would be from the end of Victoria Street which is now severed by the Link Road. As no private accesses will be provided directly onto the Link Road, a 480 m unsealed access road will be provided as part of the works adjacent the Link Road to access this title. Access will be off Colebrook Main Road and share the access junction with Houston’s farm.

Access to the Telstra Richmond Exchange will remain off Middle Tea Tree Road utilising the existing sealed road with a reduced width.

### 4.4 Stakeholder Engagement

DIER has held two Community Information Days during the development of the link road design. Feedback from both days was positive and the majority of the Richmond community support the project.

Landowners adjacent to the proposed Link Road have been consulted throughout the project and ongoing communication with these landowners has been occurring as the need arises.

The Richmond Business Group, the Richmond Advisory Committee and business operators have been contacted and meetings arranged to discuss the proposed works and to gain an understanding of business operator concerns.

Community concerns included:

- Negative impact on visitation to Richmond
- The new link road will become a ‘race track’ for hoons
- Funding may not be guaranteed given the government’s financial situation
- Funds could be better spent upgrading the existing road between Cambridge and Richmond
- Tourist signage
- Importance of an appropriate road design sympathetic to the heritage character of the township
- Noise levels generated by the link road
- Junction layouts

The above concerns have been accommodated within the design where possible and the local community has been advised of how these have been addressed.

#### **4.4.1 Council Approval**

The proposed Richmond Link Road is located within the Clarence City Council Municipality. Advice from Council in September 2012 is that the development would meet the exemption criteria under Section 5.1.2 of the Clarence Council Planning Scheme 2007 and would therefore not require planning approval.

### **4.5 Service Authorities**

Several service authorities' infrastructure is impacted by the Link Road.

#### **4.5.1 Telstra**

Telstra infrastructure is impacted at both the southern and northern junctions. Telstra provided a scope of works and quotation for relocation of the impacted infrastructure in October 2012. The construction contractor will undertake all trenching and backfilling for the relocation with Telstra subcontractors undertaking installation and connection of the cables and pits.

#### **4.5.2 Aurora Energy**

There are two aurora poles requiring relocation. Aurora provided a scope of works and quotation for relocation of the impacted infrastructure in October 2012 and has advised that that the work has been authorised for construction.

#### **4.5.3 Southern Water**

Southern Water infrastructure is impacted at the northern junction. The infrastructure is two Asbestos Cement water mains that provide water to the township. One main will have a section replaced with Ductile Iron (DICI) where it is under the Link Road. This will be undertaken by Southern Water. The other main requires a deviation which will be undertaken by the construction contractor with connection to existing main being undertaken by Southern Water. Engineering design approval has been received by Southern Water in November 2012.

At the time of preparing the Parliamentary Standing Committee on Public Works submission DIER is awaiting approval for connection works and a quotation from Southern Water.

Impacts on water services at the southern junction relate to private connections only. The water supply is to be terminated to 3 Middle Tea Tree Road as it is to be demolished. Due to the extent of earthworks, the off take to 7 Middle Tea Tree Road (Telstra Richmond Exchange) is to be re-laid after bulk earthworks is completed and the existing stop valve relocated to within the new title boundary.

At the time of preparing the Parliamentary Standing Committee on Public Works submission DIER is awaiting approval of a certificate for certifiable work from Southern Water after which DIER will apply for connection works and a quotation.

#### **4.5.4 Other Services**

Dial Before You Dig (DBYD) did not include TasGas or NBN in the list of service providers contacted as they do not have any infrastructure located within the vicinity of the Link Road.

**4.5.5 Clarence City Council**

Whilst no Council owned infrastructure is impacted by the Link Road, the works do impact the septic absorption trench at 7 Middle Tea Tree Road which will need to be amended to be contained within the new title boundary. Council is the approval body for this work and it will be undertaken by the construction contractor.

A building permit is required for the demolition of 3 Middle Tea Tree Road. Once the appropriate approvals have been received from Southern Water as mentioned above, a building surveyor will be engaged and the permit submitted to Council for approval.

## 5 Construction Program and Costs

### 5.1 Construction Program

Advertising tenders is targeted for February 2013. This will allow the physical works on site to commence September/October 2013. A warm dry summer may allow the majority of the works to be completed over the 2013/14 construction season but construction is expected to be undertaken over 2 construction periods.

### 5.2 Costs

The project is funded under the Tasmanian Community Roads Program.

The cost of the works has been estimated based on historical rates for similar works delivered by DIER. The main components of the base estimate are shown below. Note that the below estimate is as at the completion of the Preliminary Design Phase and will vary to the final Pre-Tender estimate.

**Table 2 Base Estimate**

Item	Estimated Cost
Project Specific	\$236,375
Earthworks	\$1,354,990
Drainage	\$249,147
Pavement	\$784,430
Bitumen Surfacing	\$263,380
Traffic Facilities	\$222,319
Landscaping	\$140,563
Miscellaneous	\$201,450
SUBTOTAL	\$3,452,654
Additional Items (e.g. acquisition)	\$1,130,000
Professional Fees	\$676,500
DIER Internal Overheads and Fees	\$377,500
DIER Supplied Materials or Services	\$178,118
TOTAL BASE ESTIMATE	\$5,814,771
P50 Estimate	\$6,524,000
P90 Estimate	\$7,045,000

The base estimate has subsequently been stochastically modelled and P50 and P90 estimates obtained. The P50 estimate notionally represents the project budget that will not be exceeded 50% of the time and the P90 estimate similarly represents the project budget that will not be exceeded 90% of the time.

It should be noted that as the base estimate is derived from historic rates, the P50 and P90 estimates by their nature already incorporate some allowance for risk and presume a stable market.

## 6 Conclusions and Recommendations

The design for the proposed Richmond Heavy Vehicle Link Road has been carried out in accordance with the appropriate design standards and guidelines. The requirements of adjacent landowners and public utility owners have been considered and incorporated as appropriate. The design of the proposed work has been reviewed and modified taking into account the issues raised by landowners and investigations during the development of the project. The safety improvements have not been compromised by accommodation of these concerns.

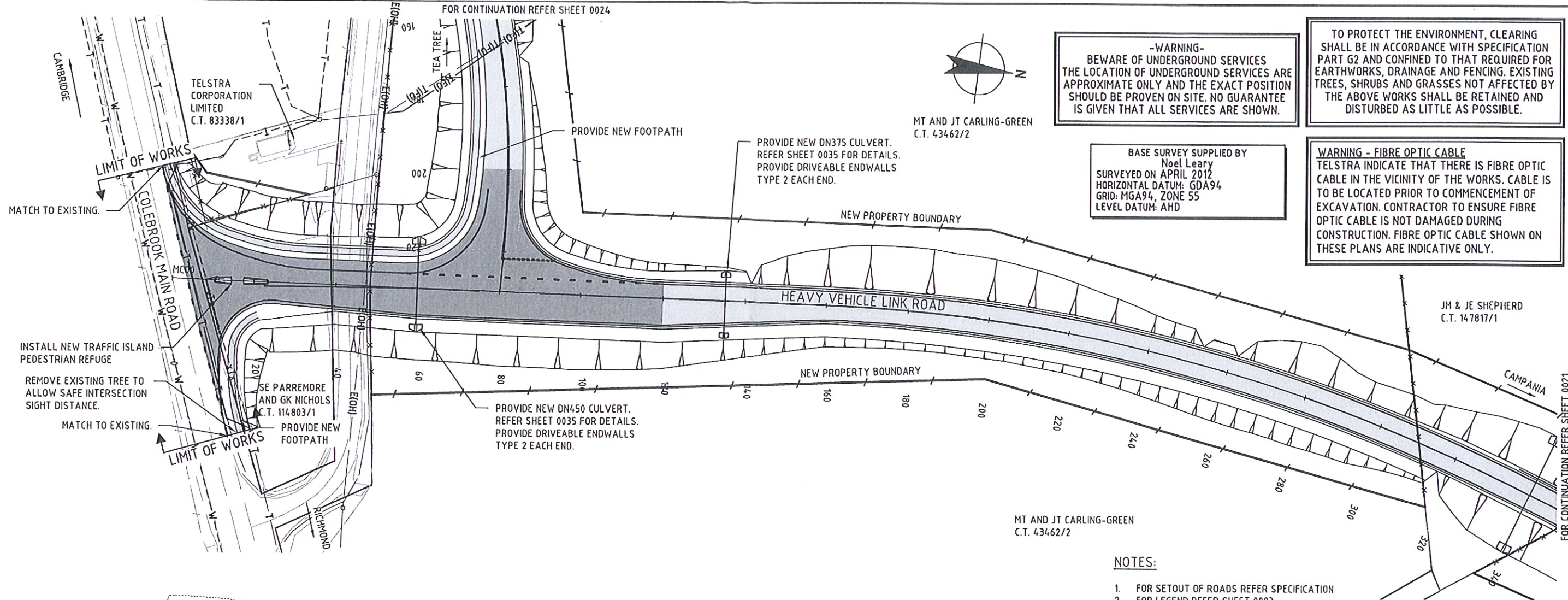
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- Remove heavy and oversized vehicle through traffic from the Richmond township
- Remove a large amount of heavy vehicular traffic in the Richmond township
- Reduce vibration by heavy traffic damaging heritage buildings in the township
- Reduction of issues regarding turning movements at the junction of Colebrook Main Road and Bridge Street
- Increased safety of pedestrians
- Increased pedestrian amenity for the local community and tourists
- Lessen the ongoing issues with oversized vehicles coming into contact with overhead power lines at the entrance to the township directly after the existing Middle Tea Tree Road junction

It is recommended that the project be approved.

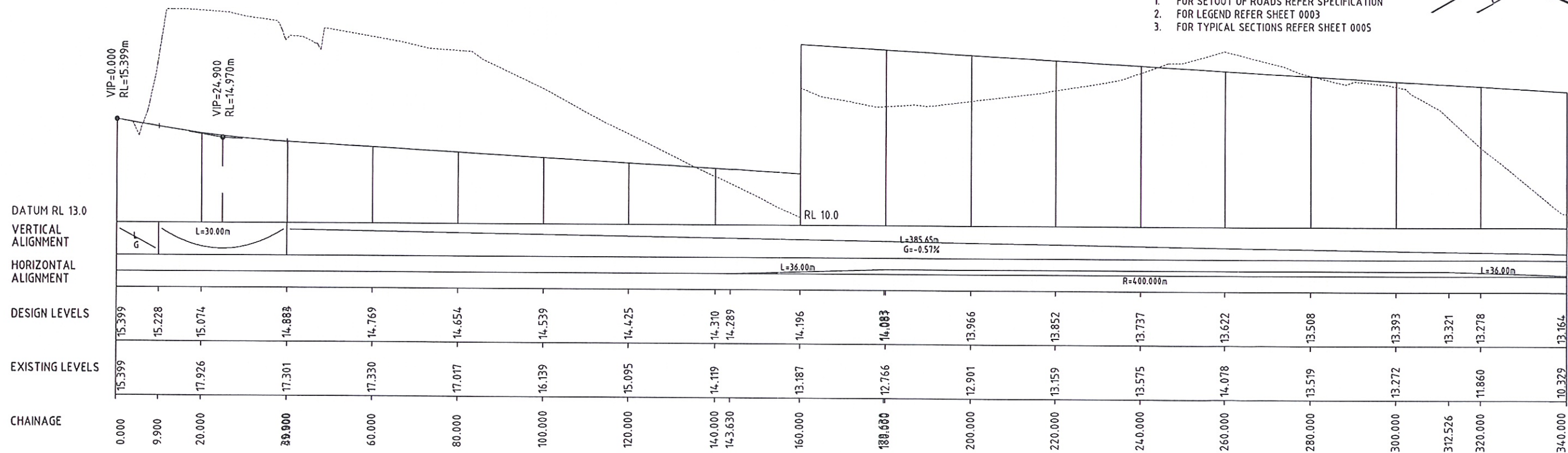
# Appendix A: Drawings





#### NOTES:

1. FOR SETOUT OF ROADS REFER SPECIFICATION
2. FOR LEGEND REFER SHEET 0003
3. FOR TYPICAL SECTIONS REFER SHEET 0005



LONGITUDINAL SECTION - MC00



PRELIMINARY

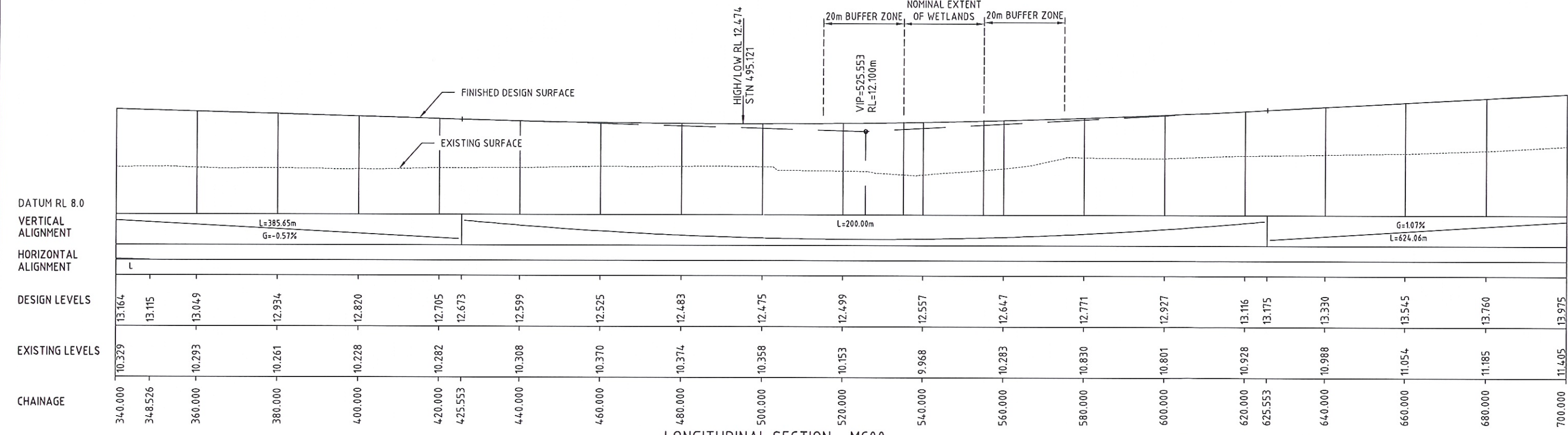
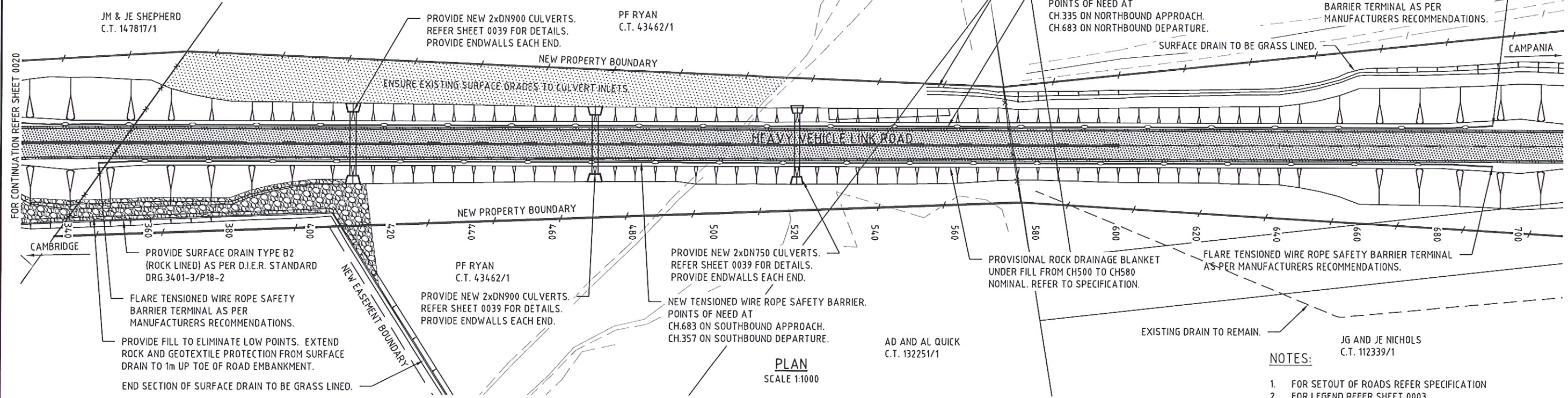
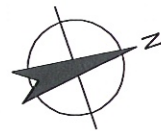
<b>Infrastructure Energy and Resources</b> COLEBROOK MAIN ROAD (A1154) RICHMOND HEAVY VEHICLE LINK ROAD FINAL CONCEPT DESIGN HEAVY VEHICLE LINK ROAD GENERAL ARRANGEMENT & LONGITUDINAL SECTION - CH.00 TO CH.340				CONTRACT No. 32-15849-C020_C024.dwg DRAWING PRINTED DATE 14-Sep-12, 4:56 PM REGISTRATION NUMBER <b>A1154.001</b>		SHEET No. <b>0020</b> REVISION A
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-WARNING-  
BEWARE OF UNDERGROUND SERVICES  
THE LOCATION OF UNDERGROUND SERVICES ARE  
APPROXIMATE ONLY AND THE EXACT POSITION  
SHOULD BE PROVEN ON SITE. NO GUARANTEE  
IS GIVEN THAT ALL SERVICES ARE SHOWN.

TO PROTECT THE ENVIRONMENT, CLEARING  
SHALL BE IN ACCORDANCE WITH SPECIFICATION  
PART G2 AND CONFINED TO THAT REQUIRED FOR  
EARTHWORKS, DRAINAGE AND FENCING. EXISTING  
TREES, SHRUBS AND GRASSES NOT AFFECTED BY  
THE ABOVE WORKS SHALL BE RETAINED AND  
DISTURBED AS LITTLE AS POSSIBLE.

BASE SURVEY SUPPLIED BY  
Noel Leary  
SURVEYED ON APRIL 2012  
HORIZONTAL DATUM: GDA94  
GRID: MGA94, ZONE 55  
LEVEL DATUM: AHD



LONGITUDINAL SECTION - MC00

SCALE H 1:1000  
V 1:200



PRELIMINARY

D	WETLANDS AREA REVISED	M.A.K.*	20.03.13
C	ISSUED FOR PERMIT TO TAKE	M.A.K.*	24.01.13
B	ISSUED FOR FINAL DIER APPROVAL	M.A.K.*	20.12.12
A	ISSUED FOR CONSTRUCTABILITY REVIEW	M.A.K.*	17.09.12
No.	Amendment Description	Initials	Date
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SCALES	
VERTICAL SCALE 1:200 AT ORIGINAL SIZE	0 2 4 6m
HORIZONTAL SCALE 1:1000 AT ORIGINAL SIZE	0 10 20 30m
Co-ordinate System: MGA Zone 55	Height Datum: A.H.D.

DESIGNED	A. JUDD
REVIEWED	

Infrastructure Energy and Resources  
COLEBROOK MAIN ROAD (A1154)  
RICHMOND HEAVY VEHICLE LINK ROAD  
HEAVY VEHICLE LINK ROAD  
GENERAL ARRANGEMENT & LONGITUDINAL SECTION - CH.340 TO CH.700

CONTRACT No. 2160	DRAWING 32-15849-C020_C024.dwg	PRINTED DATE 20-Mar-13, 3:29 PM	SHEET No. 0021
REGISTRATION NUMBER A1154.001			REVISION D

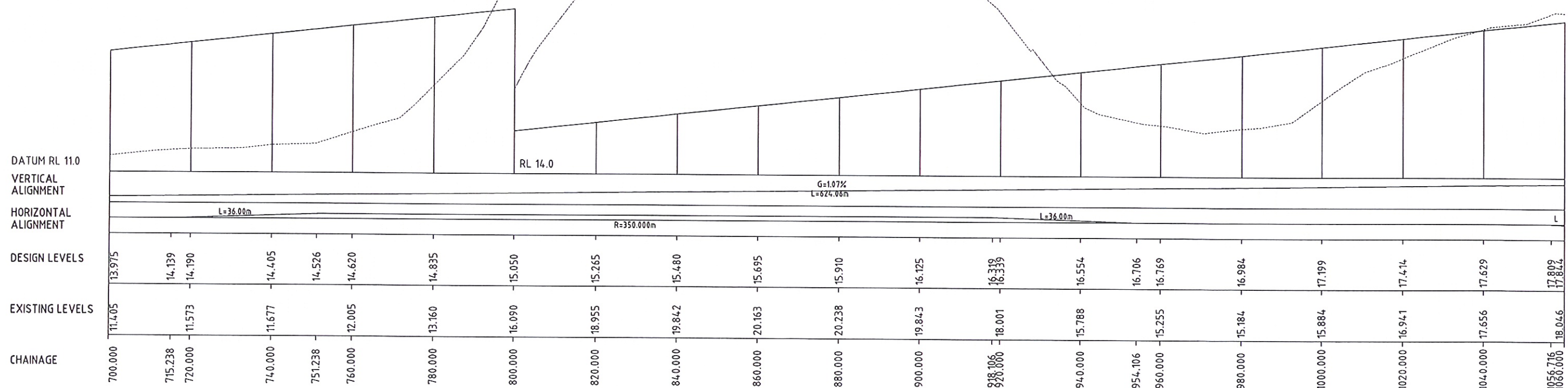
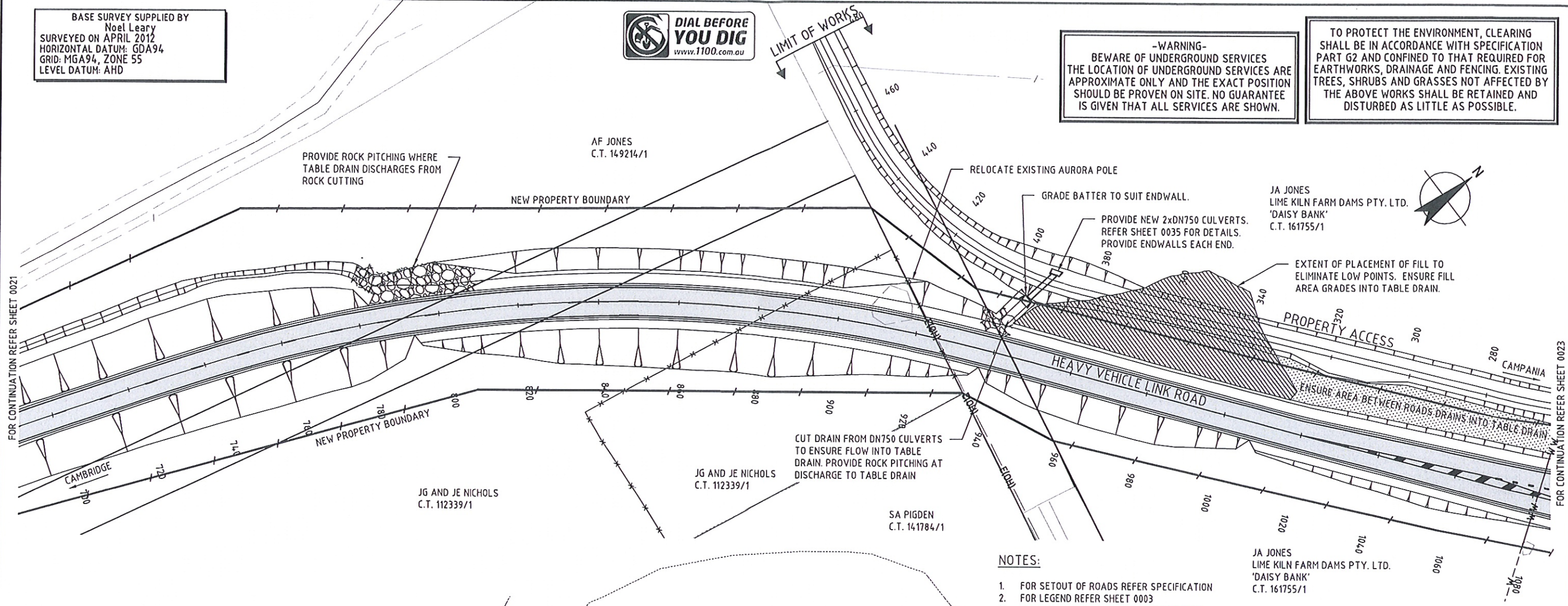


BASE SURVEY SUPPLIED BY  
Noel Leary  
SURVEYED ON APRIL 2012  
HORIZONTAL DATUM: GDA94  
GRID: MGA94, ZONE 55  
LEVEL DATUM: AHD



**-WARNING-**  
BEWARE OF UNDERGROUND SERVICES  
THE LOCATION OF UNDERGROUND SERVICES ARE  
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PART G2 AND CONFINED TO THAT REQUIRED FOR  
EARTHWORKS, DRAINAGE AND FENCING. EXISTING  
TREES, SHRUBS AND GRASSES NOT AFFECTED BY  
THE ABOVE WORKS SHALL BE RETAINED AND  
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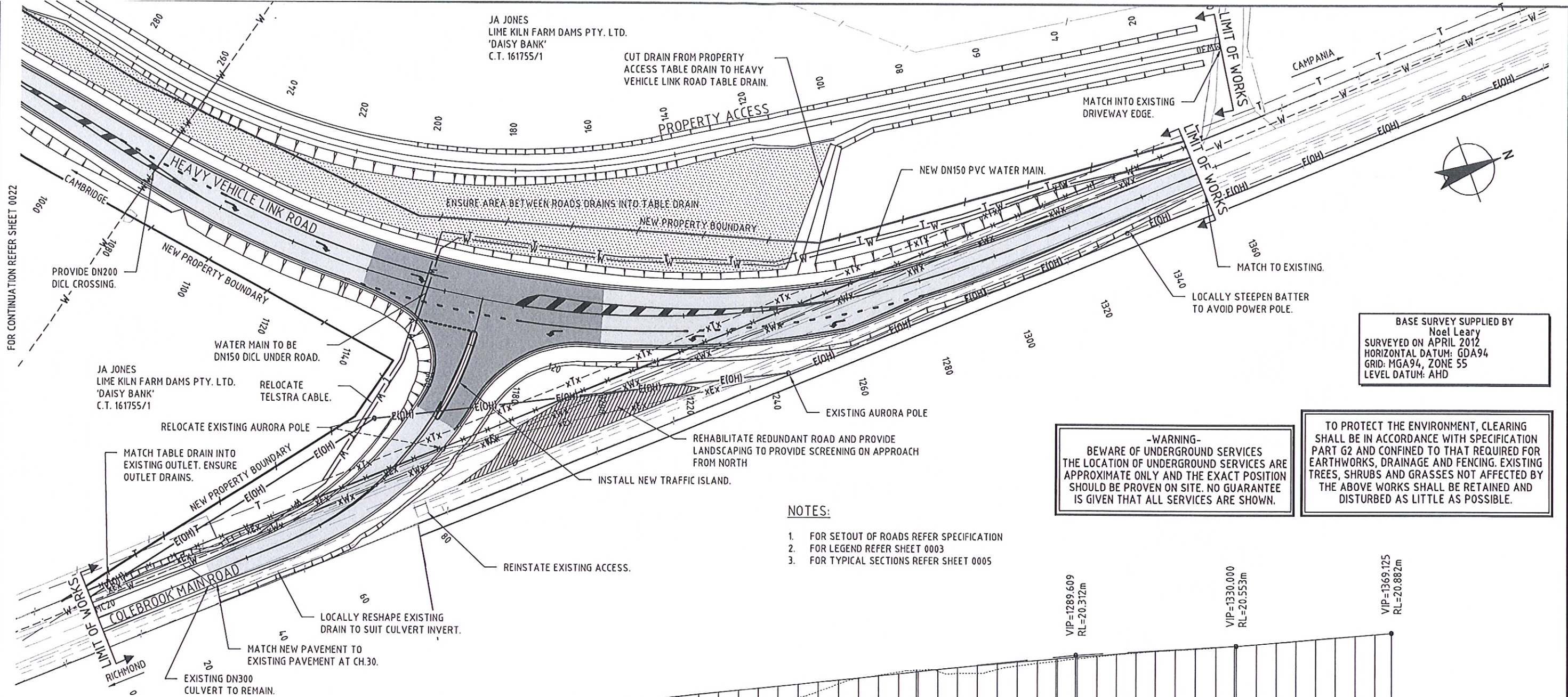


LONGITUDINAL SECTION - MC00

**PRELIMINARY**

<p>ISSUED FOR CONSTRUCTABILITY REVIEW</p> <p>No. 17/9/12</p> <p>Amendment Description</p> <p>A3 original This sheet may be prepared using colour and may be incomplete if copied</p>				<p>VERTICAL SCALE 1:100 AT ORIGINAL SIZE</p> <p>HORIZONTAL SCALE 1:1000 AT ORIGINAL SIZE</p> <p>Co-ordinate System: MGA Zone 55</p> <p>Height Datum: A.H.D.</p>		<p>DESIGNED A. JUD</p> <p>REVIEWED</p>		<p>Infrastructure Energy and Resources</p> <p>COLEBROOK MAIN ROAD (A1154)</p> <p>RICHMOND HEAVY VEHICLE LINK ROAD</p> <p>FINAL CONCEPT DESIGN</p> <p>HEAVY VEHICLE LINK ROAD</p> <p>GENERAL ARRANGEMENT &amp; LONGITUDINAL SECTION - CH.700 TO CH.1060</p>		<p>CONTRACT No.</p> <p>32-15849-C020_C024.dwg</p>	<p>DRAWING</p> <p>32-15849-C020_C024.dwg</p>	<p>PRINTED DATE</p> <p>14-Sep-12, 4:56 PM</p>	<p>SHEET No.</p> <p>0022</p> <p>REVISION A</p>
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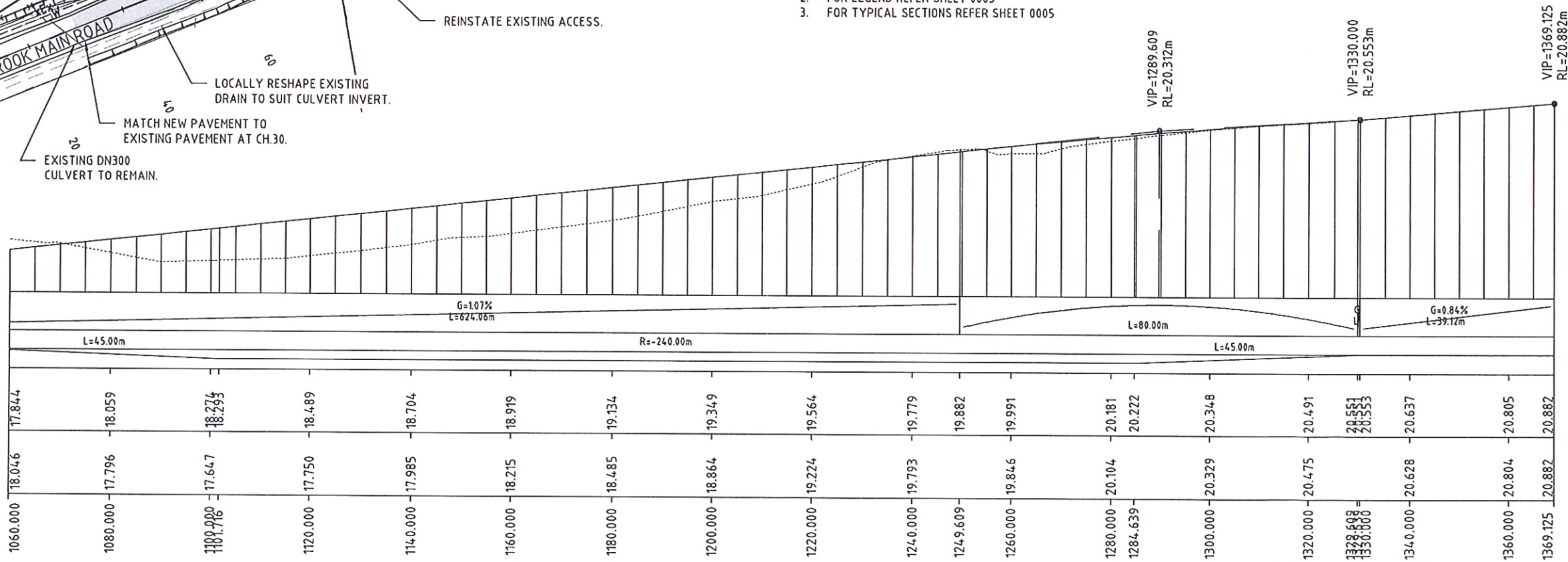


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GRID: MGA94, ZONE 55  
LEVEL DATUM: AHD

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- NOTES:**
1. FOR SETOUT OF ROADS REFER SPECIFICATION
  2. FOR LEGEND REFER SHEET 0003
  3. FOR TYPICAL SECTIONS REFER SHEET 0005



LONGITUDINAL SECTION - MC00



**PRELIMINARY**

<b>ISSUED FOR CONSTRUCTABILITY REVIEW</b> No. _____ Amendment Description _____ Initials _____ Date 17/9/12		VERTICAL SCALE 1:100 AT ORIGINAL SIZE HORIZONTAL SCALE 1:1000 AT ORIGINAL SIZE	SCALES 0 1 2 3m 0 10 20 30m	GHD Tasmanian Engineering & Construction	DESIGNED A. JUDD REVIEWED _____	Infrastructure Energy and Resources COLEBROOK MAIN ROAD (A1154) RICHMOND HEAVY VEHICLE LINK ROAD FINAL CONCEPT DESIGN HEAVY VEHICLE LINK ROAD GENERAL ARRANGEMENT & LONGITUDINAL SECTION - CH.1060 TO CH.1369	CONTRACT No. _____ DRAWING 32-15849-C020_C024.dwg PRINTED DATE 14-Sep-12, 4:56 PM SHEET No. 0023	REGISTRATION NUMBER <b>A1154.001</b>	REVISION A
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Co-ordinate System: MGA Zone 55 Height Datum: A.H.D.

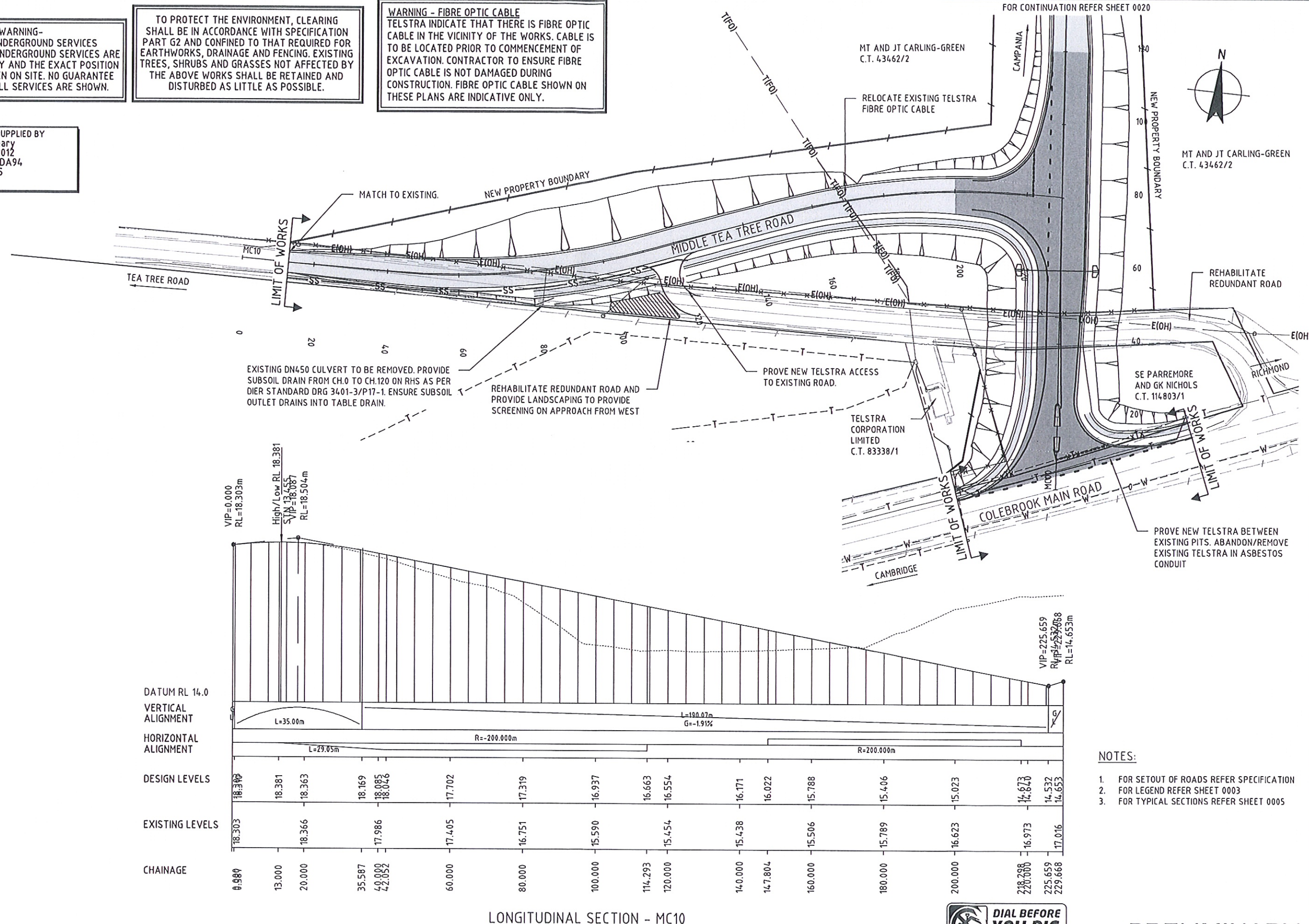


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WARNING - FIBRE OPTIC CABLE  
TELSTRA INDICATE THAT THERE IS FIBRE OPTIC  
CABLE IN THE VICINITY OF THE WORKS. CABLE IS  
TO BE LOCATED PRIOR TO COMMENCEMENT OF  
EXCAVATION. CONTRACTOR TO ENSURE FIBRE  
OPTIC CABLE IS NOT DAMAGED DURING  
CONSTRUCTION. FIBRE OPTIC CABLE SHOWN ON  
THESE PLANS ARE INDICATIVE ONLY.

BASE SURVEY SUPPLIED BY  
Noel Leary  
SURVEYED ON APRIL 2012  
HORIZONTAL DATUM: GDA94  
GRID: MGA94, ZONE 55  
LEVEL DATUM: AHD



NOTES:

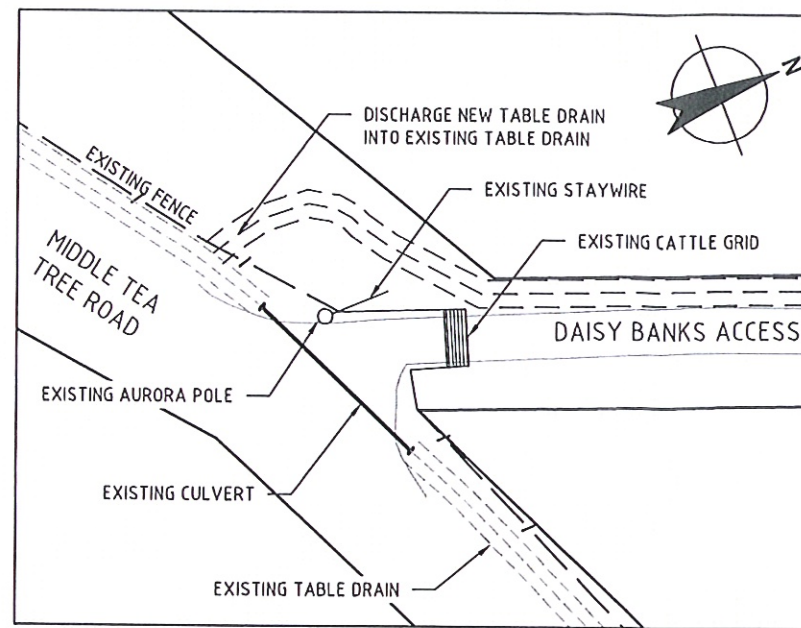
1. FOR SETOUT OF ROADS REFER SPECIFICATION
2. FOR LEGEND REFER SHEET 0003
3. FOR TYPICAL SECTIONS REFER SHEET 0005



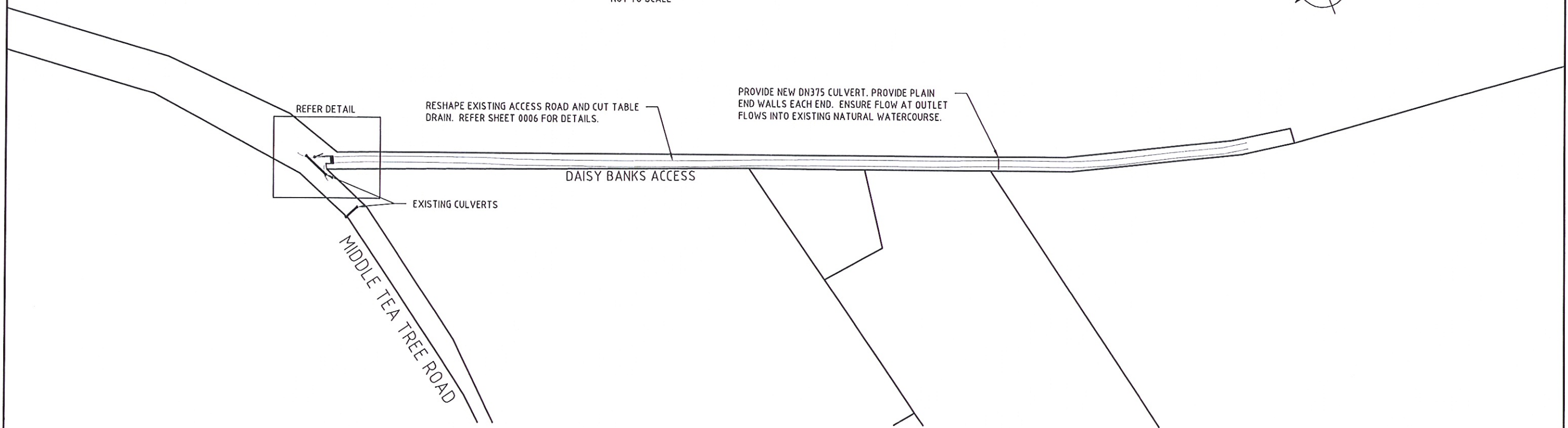
PRELIMINARY

Infrastructure Energy and Resources				CONTRACT No.		DRAWING		PRINTED DATE		SHEET No.	
COLEBROOK MAIN ROAD (A1154)						32-15849-C020_C024.dwg		14-Sep-12, 4:56 PM		0024	
RICHMOND HEAVY VEHICLE LINK ROAD											
FINAL CONCEPT DESIGN											
MIDDLE TEA TREE ROAD											
GENERAL ARRANGEMENT & LONGITUDINAL SECTION											
DESIGNED A. JUDD											
REVIEWED											
A3 original This sheet may be prepared using colour and may be incomplete if copied											
Co-ordinate System: MGA Zone 55											
Height Datum: A.H.D.											
Vertical Scale 1:100 AT ORIGINAL SIZE											
Horizontal Scale 1:1000 AT ORIGINAL SIZE											
Scales 0 1 2 3m											
Scales 0 10 20 30m											
GHD											
Tasmania											
Exploring the possibilities											
REGISTRATION NUMBER											
A1154.001											
REVISION A											





**DETAIL**  
NOT TO SCALE



**PLAN**  
SCALE 1:200



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**PRELIMINARY**

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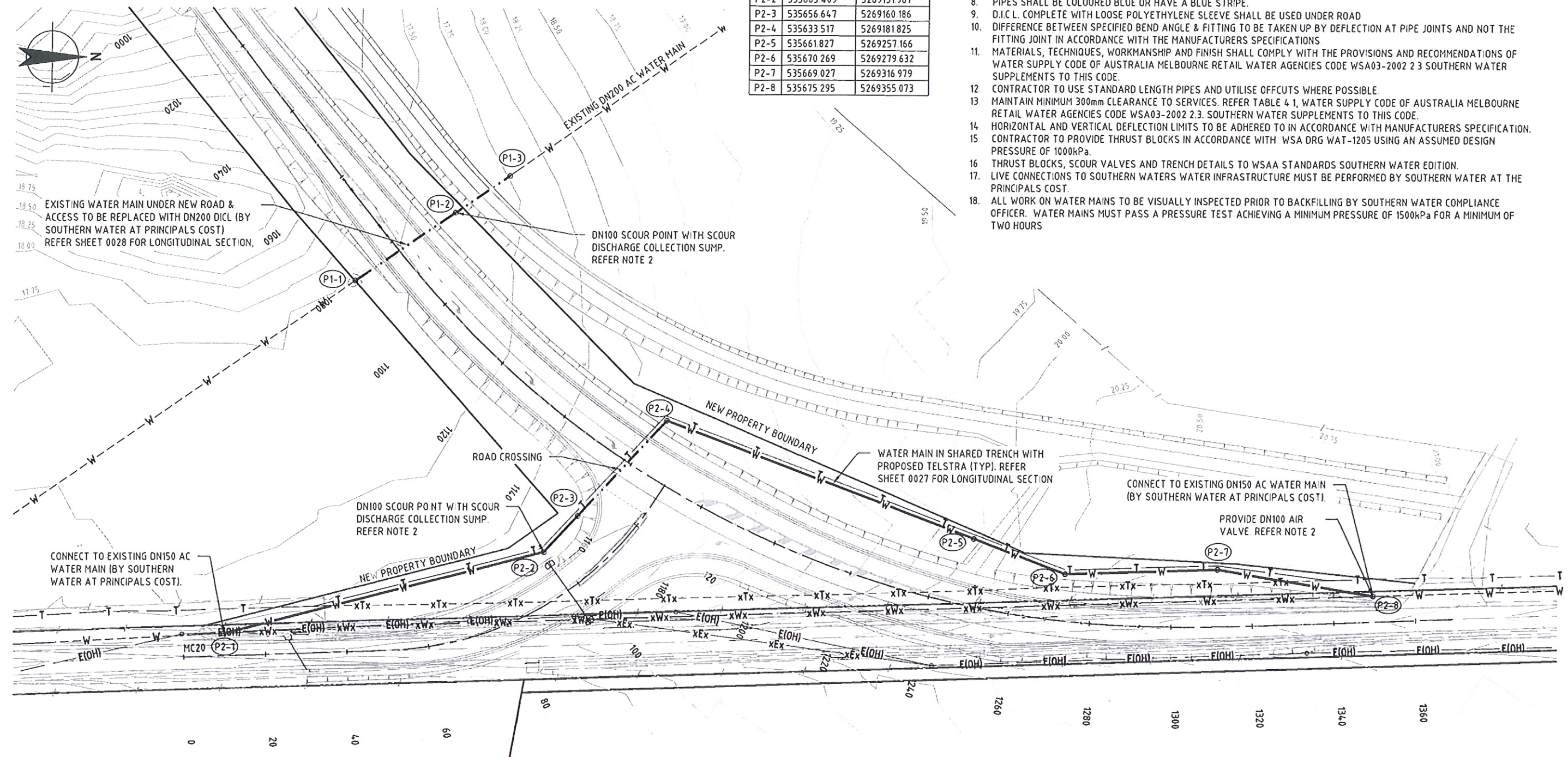


PT	EASTING	NORTHING
P1-1	535599.866	5269105.491
P1-2	535583.383	5269129.841
P1-3	535574.414	5269143.092

PT	EASTING	NORTHING
P2-1	535685.322	5269073.845
P2-2	535665.409	5269151.987
P2-3	535656.647	5269160.186
P2-4	535633.517	5269181.825
P2-5	535661.827	5269257.166
P2-6	535670.269	5269279.632
P2-7	535669.027	5269316.979
P2-8	535675.295	5269355.073

# NOTES

1. CONTRACTOR TO CONFIRM LEVELS AND COVER ON SITE PRIOR TO CONSTRUCTION
2. REFER STANDARD DRAWINGS WSA WAT-1100 SERIES, WAT-1200 SERIES, AND WAT-1300 SERIES SOUTHERN WATER AMENDMENTS EDITION FOR TYPICAL DETAILS.
3. IL'S GIVEN ARE APPROXIMATE ONLY.
4. WATER MAIN TO BE CONSTRUCTED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS, WITH MIN 600mm COVER, MIN 900mm UNDER SEALED AREAS
5. ENSURE WATER MAIN GRADES CONTINUOUSLY TO SCOUR POINT AT MIN GRADE 1:500.
6. ALL FLANGES AND FITTINGS TO MATCH PIPE CLASS.
7. ALL WATER MAINS SHALL BE RUBBER RING JOINTED oPVC PN16 (DUCTILE IRON COMPATIBLE) UNO
8. PIPES SHALL BE COLOURED BLUE OR HAVE A BLUE STRIPE.
9. D.I.C.L. COMPLETE WITH LOOSE POLYETHYLENE SLEEVE SHALL BE USED UNDER ROAD
10. DIFFERENCE BETWEEN SPECIFIED BEND ANGLE & FITTING TO BE TAKEN UP BY DEFLECTION AT PIPE JOINTS AND NOT THE FITTING JOINT IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS
11. MATERIALS, TECHNIQUES, WORKMANSHIP AND FINISH SHALL COMPLY WITH THE PROVISIONS AND RECOMMENDATIONS OF WATER SUPPLY CODE OF AUSTRALIA MELBOURNE RETAIL WATER AGENCIES CODE WSA03-2002 2.3 SOUTHERN WATER SUPPLEMENTS TO THIS CODE.
12. CONTRACTOR TO USE STANDARD LENGTH PIPES AND UTILISE OFFCUTS WHERE POSSIBLE.
13. MAINTAIN MINIMUM 300mm CLEARANCE TO SERVICES. REFER TABLE 4.1, WATER SUPPLY CODE OF AUSTRALIA MELBOURNE RETAIL WATER AGENCIES CODE WSA03-2002 2.3. SOUTHERN WATER SUPPLEMENTS TO THIS CODE.
14. HORIZONTAL AND VERTICAL DEFLECTION LIMITS TO BE ADHERED TO IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION.
15. CONTRACTOR TO PROVIDE THRUST BLOCKS IN ACCORDANCE WITH WSA DRG WAT-1205 USING AN ASSUMED DESIGN PRESSURE OF 1000kPa.
16. THRUST BLOCKS, SCOUR VALVES AND TRENCH DETAILS TO WSA STANDARDS SOUTHERN WATER EDITION.
17. LIVE CONNECTIONS TO SOUTHERN WATERS WATER INFRASTRUCTURE MUST BE PERFORMED BY SOUTHERN WATER AT THE PRINCIPALS COST.
18. ALL WORK ON WATER MAINS TO BE VISUALLY INSPECTED PRIOR TO BACKFILLING BY SOUTHERN WATER COMPLIANCE OFFICER. WATER MAINS MUST PASS A PRESSURE TEST ACHIEVING A MINIMUM PRESSURE OF 1500kPa FOR A MINIMUM OF TWO HOURS



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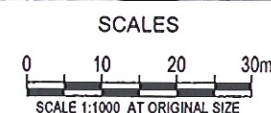
BASE SURVEY SUPPLIED BY  
Noel Leary  
SURVEYED ON APRIL 2012  
HORIZONTAL DATUM: GDA94  
GRID: MGA94, ZONE 55  
LEVEL DATUM: AHD

NOTE: EXISTING CONTOURS SHOWN

## LEGEND

- W--- EXISTING WATER MAIN (GIS)
- xWx- REDUNDANT WATER MAIN TO BE REMOVED
- W- PROPOSED WATER MAIN
- ...- PROPOSED WATER MAIN UNDER ROAD

0	ISSUED FOR TENDER	16/11/12
No.	Amendment Description	Initials Date
A3 original	This sheet may be prepared using colour and may be incomplete if copied	



DESIGNED A. JUDD

REVIEWED K. BROWN

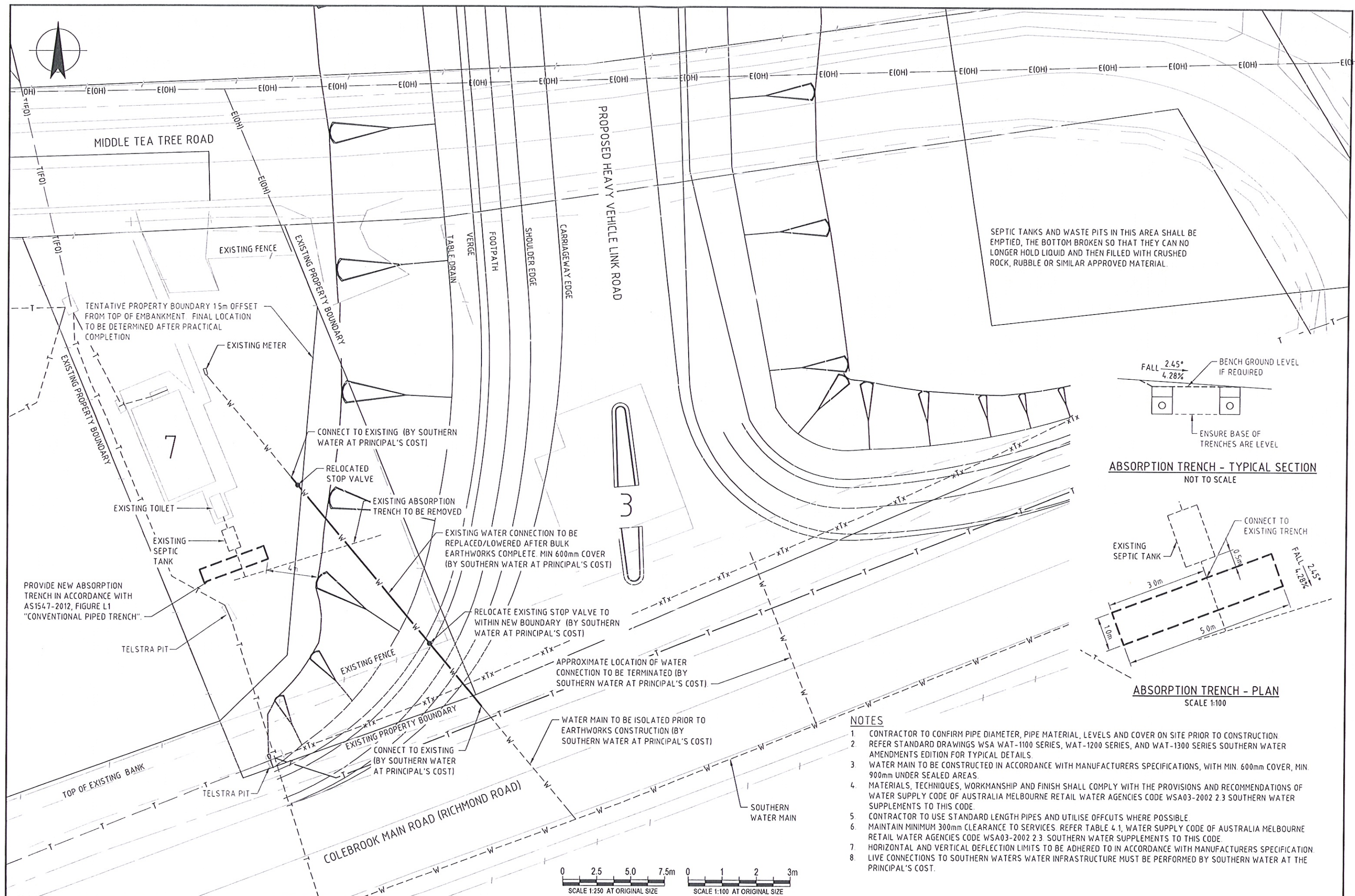
Infrastructure Energy and Resources



COLEBROOK MAIN ROAD (A1154)  
RICHMOND HEAVY VEHICLE LINK ROAD

WATER MAIN RELOCATION  
DETAIL PLAN

CONTRACT No. 2160	DRAWING 32-15849-C026.dwg	PRINTED DATE 22-Nov-12, 1:17 PM	SHEET No. 0026
REGISTRATION NUMBER A1154.001			REVISION 0





				SCALES AS SHOWN		 		Infrastructure Energy and Resources		CONTRACT No. 2160	DRAWING 32-15849-C029.dwg	PRINTED DATE 27-Nov-12, 10:44 AM	SHEET No.
								COLEBROOK MAIN ROAD (A1154) RICHMOND HEAVY VEHICLE LINK ROAD					0029
										REGISTRATION NUMBER A1154.001			
0	ISSUED FOR TENDER			27/11/12		DESIGNED L. BLACK							REVISION 0
No.	Amendment Description			Initials Date		REVIEWED K. Bowne		3 & 7 MIDDLE TEA TREE ROAD - SERVICES ALTERATIONS					
A3 original		This sheet may be prepared using colour and may be incomplete if copied			Co-ordinate System: MGA Zone 55		Height Datum: A.H.D.						