Utility Servicing Report

New South Wales Land and Housing

Bonnyrigg Stages 12/13 Development Application

October 2022

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

Prepared by

J. Wyndham Prince
ABN: 67 002 318 621

Prepared for

New South Wales Land and Housing
Contact: Paul Parfenow
Email: paul.parfenow@facs.nsw.gov.au

Version control

Issue	Author	Reviewer	Approver	Date approved
A	CM/AWR	CM	DJ	07/10/2022
B	AWR	CM	CM	19/10/2022

TABLE OF CONTENTS

PLATES

FIGURES

TABLES

APPENDICES

1. EXECUTIVE SUMMARY

J. Wyndham Prince was engaged by NSW Land and Housing Corporation (LAHC) to prepare an infrastructure servicing strategy for the Stages 12 and 13 urban renewal Development Application of the Bonnyrigg Housing Estate located at Bonnyrigg Avenue and Tarlington Parade, Bonnyrigg, NSW.

Stages 12 and 13 is part of the broader Bonnyrigg Renewal Project approved under the Concept Plan (November 2020) and is located within the Fairfield City Council Local Government Area. The Development Application will create four super lots and two parks with internal road networks ready for the higher density development surrounding local town centres.

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

This report outlines a potential strategy for the provision of utility services required for Stages 12 and 13. Critical to this renewal project, this report outlines:

- Provision of utility reticulation schemes required to service the ultimate renewal development
- Interim arrangements to enable the provision of essential utility services to existing residents during the construction of the project
- Anticipated upgrades required to the existing utility networks

This report has reviewed the existing infrastructure services for wastewater, potable and recycled water, electricity, telecommunications, and natural gas. These assessments were carried our based upon Before You Dig Australia (BYDA) and additional communications with accredited utility designers and service providers to understand the possible new infrastructure that may be required to provide suitable service to the proposed development.

Based on the findings of this assessment and limitations detailed within, the following conclusions are made:

- Sydney Water is the main supplier of potable and wastewater infrastructure within the Bonnyrigg area. DN150mm dia potable water mains are available in both Bonnyrigg Avenue and DN100mm main in Tarlington Parade. There is an existing internal reticulation network within the site which will be reconstructed under this redevelopment. The reconstruction of the potable watermain is proposed to be staged to enable a service supply to existing dwellings.
- The site is excluded from the boundaries of the Hoxton Park recycled water scheme. Recycled water is not available to this development.
- Wastewater services are available to the site. A DN225mm main services the existing development to the north-east catchment fronting Bonnyrigg Avenue. An additional DN225mm main is located within the south-eastern side of the site and will service the remainder of the site's catchment. There is an existing internal reticulation network within the site which will be reconstructed under this redevelopment. The reconstruction of the sewer is proposed to be staged to enable a service supply to existing dwellings.
- Electrical Supply to the site is made available to the site via Endeavour Energy's system. Currently, Endeavour Energy has an existing substation supplying the neighbouring site, Bonnyrigg Plaza, with a second existing substation within the proposed stage three of the development. An additional substation will be provided within stage one.
- Telecommunications supply is available through the NBN Co. network. The point of connection is within Tarlington Parade and Bonnyrigg Ave, immediately adjoining the site.

This outcome of this assessment confirms the Stages 12, and 13 developments can be adequately serviced with all essential utility infrastructure and that the provision of services is not expected to be an impediment to development. Relevant utility specialist consultant reports for wastewater, potable water and electrical supply are appended to this report.

2. INTRODUCTION

New South Wales Land and Housing Corporation (LAHC) is lodging a Development Application for Stages 12 and 13 as part of their master planned Bonnyrigg Urban Renewal Project. The application proposes to redevelop existing social housing dwellings to create a high-quality urban space, fronted by active ground floors of the neighbouring Bonnyrigg Plaza. This development completes the construction of higher density residential developments (future DA) of up to 6 storeys surrounded by new parks and greenery to compliment the area. The development is within proximity to services, transport, and an open space amenity.

This site neighbours Bonnyrigg Town Centre and Bonnyrigg Public School to its West becoming a part of a thriving urban renewal project.

2.1. Existing Site

Bonnyrigg is located within the Fairfield City Council Local Government Area and is situated to the south of the LGA, north of Liverpool. This site sits with proximity to the surrounding industrial areas of Horsley, Bossley, and Wetherill Park with general residential housing areas further east and west of the site (Cabramatta, Edensor Park) as well as the remainder of the Bonnyrigg estate to the site's east.

The site is approximately 6.8 hectares in size with internal roads and pathways connection Bonnyrigg Plaza through to Tarlington Reserve as is indicated in plate 1.

Plate 1 – Existing Residential Site

The site terrain grades generally at 3% west to east with elevation contours in the order of 44.0 to 36.0 m AHD.

2.2. Study Objective

The objective of this study is to prepare a utility infrastructure servicing strategy to support the lodgement of Bonnyrigg Stages 12 and 13 Development Application. The study will investigate the existing services within the vicinity to Stages 12 and 13, the staged development proposed to this site, together with opportunities and constraints to determine the most efficient infrastructure servicing approach that meets the overarching objectives for service of essential services to the site.

2.3. Proposed Development

The proposed development seeks to renew the Bonnyrigg area, creating a high-quality residential area surrounded by well-maintained public and private realms that reflect the community. This renewal will provide easy access to shops, services, and public transport. The Preliminary Concept plan of the Bonnyrigg Communities Plus Project shows this area to be one of five characterised areas. Figure 2 below provides an overview of these five characteristics, we refer to 5, the Bonnyrigg Precinct.

Figure 1 – Bonnyrigg Communities Project Plus Development (AJ+C Concept Plan 2019)

The Stages 12 and 13 project objectives include:

- Creation of 4 Super lots, later to be developed into mixed housing apartment blocks
- Creation and embellishment of 2 new open spaces/parks
- Decommissioning of existing and Implementation of new infrastructure services
- Landscape embellishment of parks

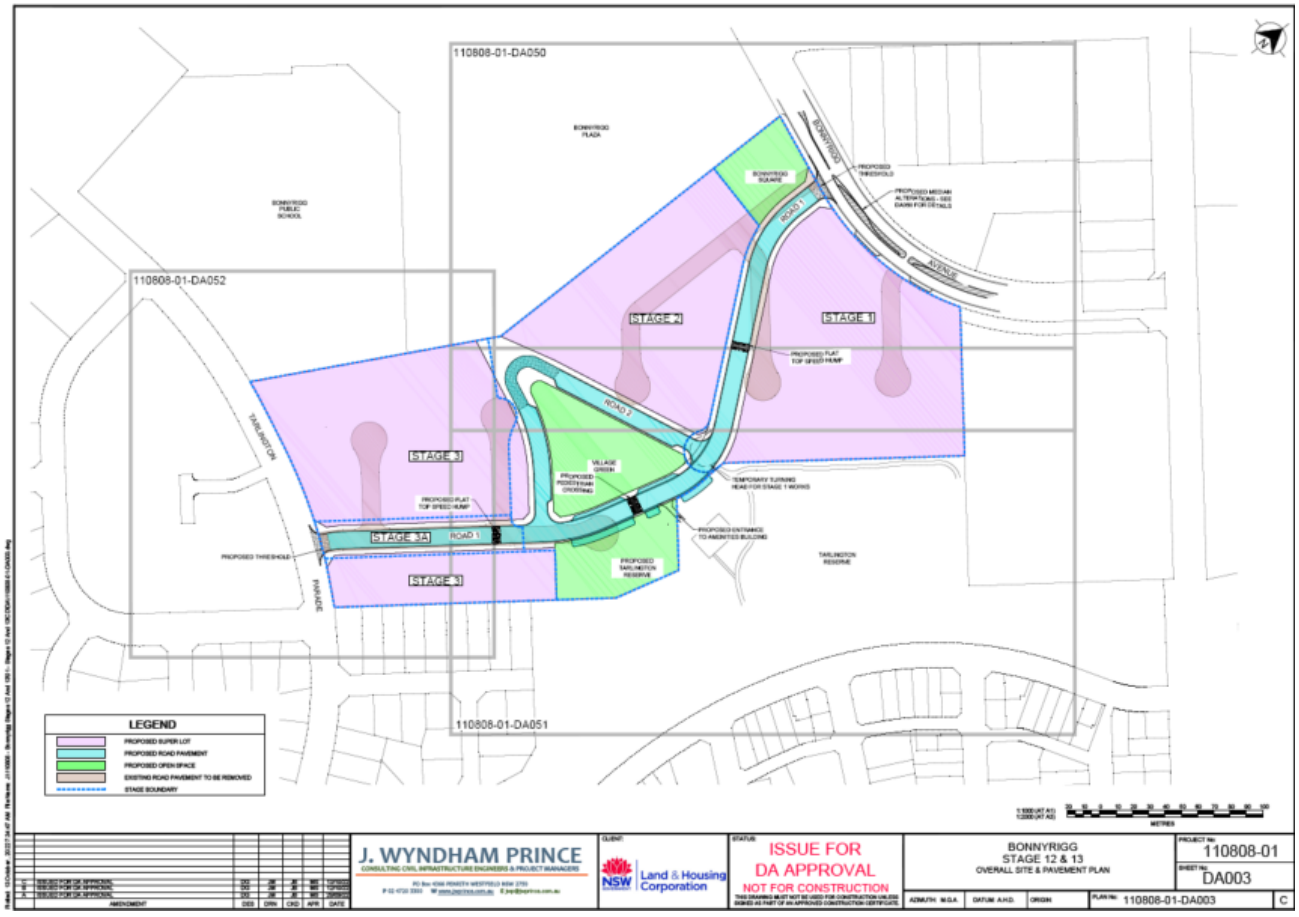


Figure 2 – Bonnyrigg Precinct – Superlot Concept Plan (Produced by J. Wyndham Prince October 2022)

The development breakdown expected from this development is provided in Table 1.

Lot reference	Stage	Area (Ha)	Approx Dwellings (subject to future DA)
Super lot 1	1	1.611	215
R1004	1	0.200	-
Super lot 2	2	1.259	199
R1005	2	0.400	-
R1006	2	0.312	-
Super lot 3	3	1.441	167
Super lot 4	3	0.442	35

Table 1 –Superlot development breakdown

3. SYDNEY WATER SERVICES

Sydney Water is the leading supplier of potable and wastewater services in the Greater Western Sydney area. The site is currently supplied by Sydney Water Potable and Wastewater assets.

Water Servicing Coordinator, Qalchek, were engaged under this strategy assessment to undertake a wastewater and potable water assessment to service the development

3.1. Potable Water Implementation

3.1.1 Existing Network

The development proposes to have access to the existing Sydney Water potable water catchment. An existing network has been confirmed under Sydney Water's Hydra system and trunk mains located within the adjoining Bonnyrigg Avenue and Tarlington Reserve which front the site. The trunk mains are confirmed as a DN150 DICL water main and is located in the southern verge of Bonnyrigg Avenue and a DN100mm DICL main in Tarlington Parade.

The site potable water supply source forms part of the Sydney Water Prospect South Water Delivery System.

3.1.2 Proposed strategy

Under Sydney Water's empirical guide for pipe sizing in the Water Standards Australia code, the development is expected to require a DN100 main connection to the existing DN100 and DN150mm DICL network mains. The reticulation of local streets and on lot development will be made via 100mm mains. Plate 2 below details the existing hydra network available to the site.

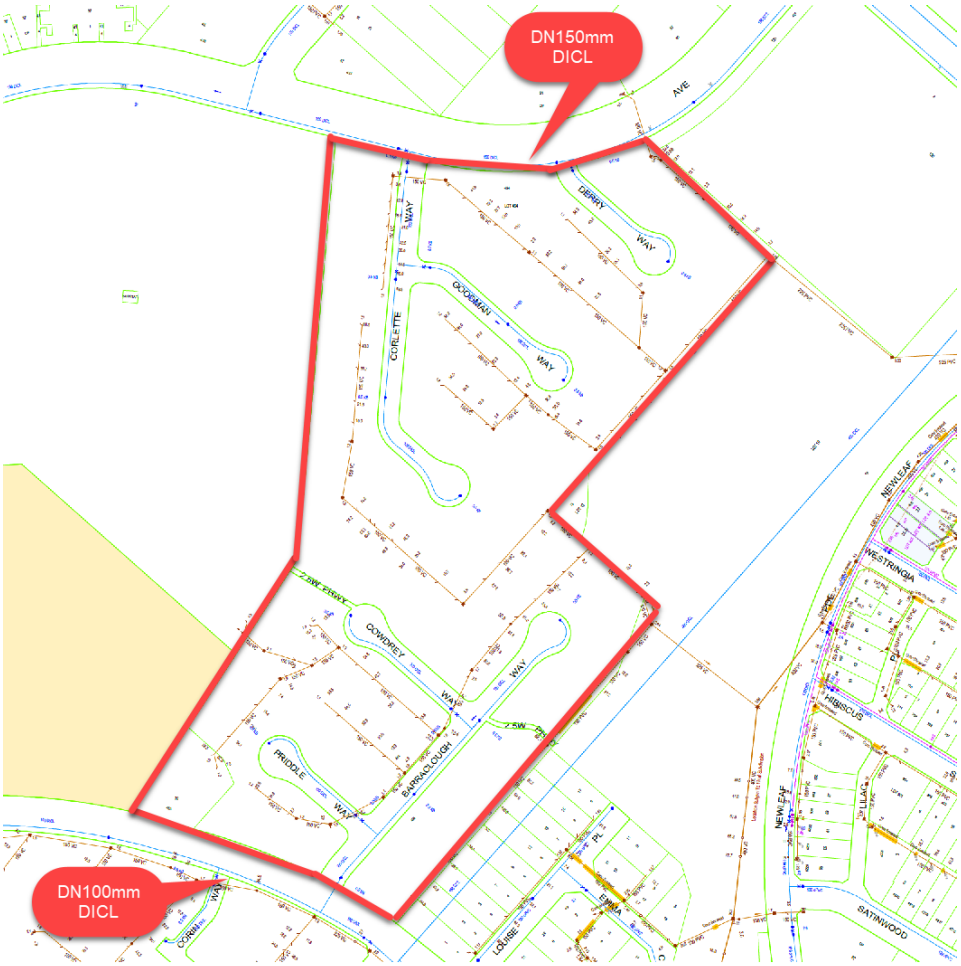


Plate 2 – Hydra network – BYDA accessed 04/03/2022

Under the empirical guidelines, it is understood that the existing trunk mains will have sufficient capacity to service the proposed development.

Details of a potential reticulation network is provided within Appendix B of this report. Consideration for the staged construction of the development has been provided to ensure existing dwellings in subsequent stages, are unaffected during the duration of construction. Temporary mains are proposed as required to provide a continuous supply.

Additional modelling will need to be completed to determine if any amplification works will be required to the existing infrastructure. Sydney Water requirements would be confirmed as consultation and S73 applications are lodged to service the site.

3.1.3 Onsite Infrastructure requirements

Potable water reticulation throughout the site will be provided within the road verge of the public road reserves

For each stage of the development, the developer will need to consult with Sydney Water during the Development Application and detailed design phases. For each development release the developer will need to engage an accredited Water Servicing Coordinator in accordance with Sydney Water's Section 73 process.

The required reticulation to service the development, will need to be installed in accordance with Sydney Water requirements and standards.

3.2. Wastewater Implementation

Sydney Water is the current supplier of wastewater within the Bonnyrigg area. Under the wastewater and potable water assessment by Qalchek, an assessment of supply options has been investigated.

3.2.1 Existing Network

The Bonnyrigg development is within Sydney Water's Malabar wastewater network system.

The Fairfield Wastewater Treatment plant is located approx. 6km east of the site. The site is anticipated to feed into this regional treatment plant.

A DN225mm main services the existing development to the north-east catchment fronting Bonnyrigg Avenue. An additional DN225mm main is located within the south-eastern side of the site within Tarlington Reserve and will service the remainder of the site's catchment.

There is an existing internal reticulation network within the site which will be reconstructed under this redevelopment.

3.2.2 Proposed strategy

The site is proposed to be serviced with the construction of gravity sewer reticulation. Access to the existing sewer network is available within the boundaries of the existing development and connection to the system will need to be suitably managed with a flow management plan approved by Sydney Water as part of the design approval.

The site is split into two catchments, each with a receiving DN 225mm diameter connection point. The ultimate development to this site would be able to utilise the two connection points and no augmentation to the existing system is anticipated based on the preliminary reticulation design.

The internal reticulation of the sewer network would be a minimum size of DN100 pipe.

The reconstruction of the sewer is proposed to be staged to enable a service supply to existing dwellings. Temporary service mains are proposed to maintain this supply continuity as an interim arrangement.

Details of a potential reticulation network is provided within Appendix B of this report. Consideration for the staged construction of the development has been provided to ensure existing dwellings in subsequent stages, are unaffected during the duration of construction. Temporary mains are proposed as required to provide a continuous supply.

Sydney Water requirements would be confirmed upon lodgement of a S73 application to service the site.

3.3. Recycled Water Servicing

Sydney Water's Hydra system confirms no recycled water is available to the frontage of Stages 12 and 13. The Hoxton Park recycled water scheme (2006) was adjusted in 2013 to reduce the serviced area from 14,000 to 9,200 dwellings. The boundaries of the current Hoxton Park recycled water scheme exclude Bonnyrigg in its entirety.

The current Hoxton Park recycled water scheme confirms there is no intention to provide recycled water to Stages 12+13 in Bonnyrigg. There would be no expectation for Sydney Water to require an extension of the recycled water to stages 12 + 13.

4. ELECTRICITY

Endeavour Energy is the predominant supplier of electricity within the Fairfield area.

An accredited Level 3 service provider, Power Solutions, were engaged to provide an assessment on the existing Endeavour Infrastructure and the capacity of the infrastructure to accommodate the proposed development. Power Solutions provided an initial concept plan on how to provide adequate electricity supply to the proposed urban renewal if the Bonnyrigg site.

Power Solutions' assessment and servicing report can be found in Appendix C.

4.1. Existing Network

Currently, the vicinity is supplied with an existing 230V/415V Low and 11KV/33KV High Voltage Network.

The current low voltage system runs through the present lot layout of the site, servicing the existing housing network. This network is to be removed and established with new interconnections from proposed substations to supply the future development demands.

Current Street Lighting connections within the site are placed along Bonnyrigg Ave, Tarlington Pde and the entrance to Barraclough Way. This connection can be removed and the existing servicing column to be removed if required to be replaced as Council directs.

The existing High Voltage 11kv network and two substations (SUB15332 & SUB15333), interconnect with adjacent networks to the north, west and south of the proposed development. Majority of this network and one of the two substations with be removed as their existing location conflicts with the proposed.

An existing transmission network (Feeder Number 522) is located to the south-east of the site, running along Tarlington Ave, Louise Pl and through Tarlington Pde.

Endeavour Energy's Connection Opportunity Heat Map 2023/2024 shown below indicates that a higher capacity is available in this area:

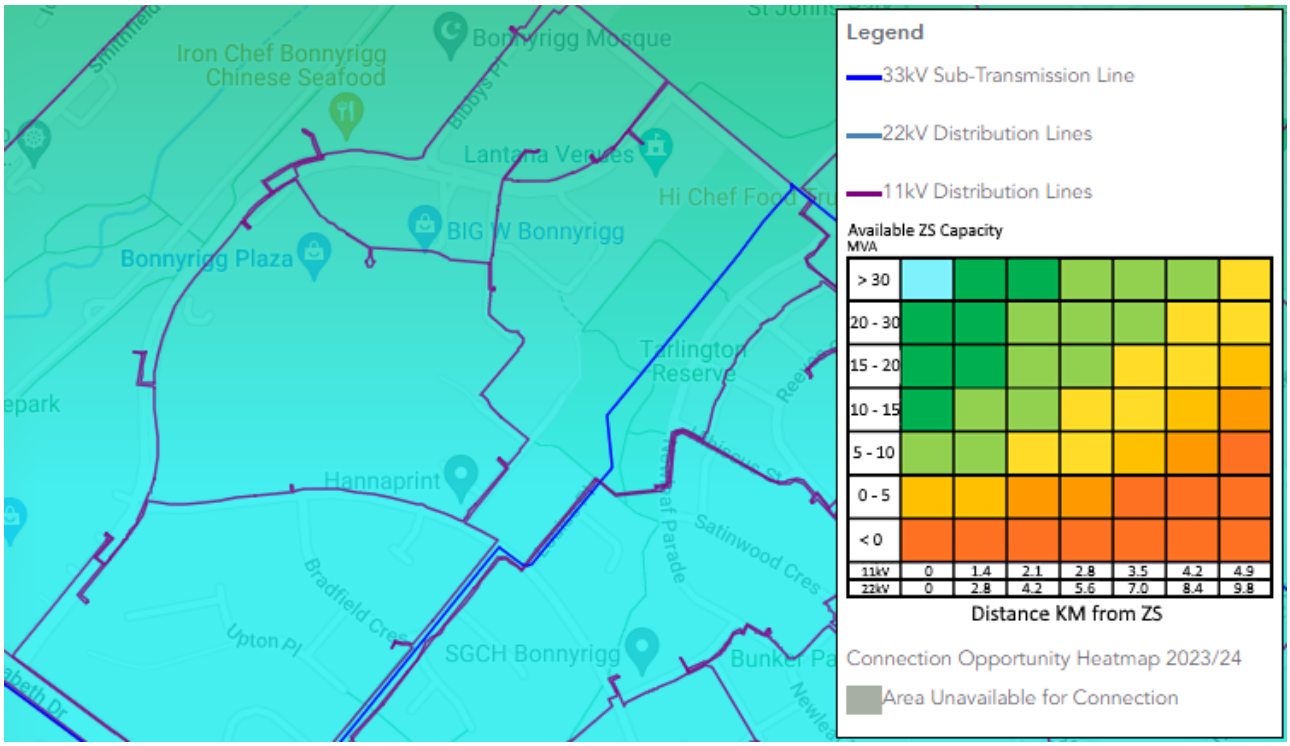


Plate 3 – Endeavour Energy's Connection Opportunity Heat Map 2023/2024

4.2. Servicing Strategy and Services Demands

As the site is part of an urban renewal initiative, the electrical servicing will take place over three stages and is detailed within Electrical Servicing report provided by Power Solutions in Appendix B.

The expected servicing demands have been calculated based on ADMD per lot in addition to the expected residential and commercial building requirements following construction. The table below summaries the overall load requirements based upon these calculations:

Lots	Stage	Apartments/Units	Load (kva)	Substation size required (kva)
Lot 1	1	215 + Commercial	752.5 (1200kva)	1500
Lot 2, 1004, 1005 & 1006	2	199	696.5	1000
Lot 3	3	167	584.5	1000
Lot 4		35	122.5	*Can Utilise substation from Stage 3*
	Total	**616**	**2603.5**	**3500**

Table 2 – Proposed Subdivision Supply Load – provided by Power Solutions

Note: substation sizes required for each stage of the development are standard transformer sizes.

Decommissioning of existing and the implementation of proposed High and Low voltage cables and substations is shown within the Electrical Servicing report provided by Power Solutions (Rev. C, April 2022).

This report details the decommission and reconstruction of electrical services that will fulfil servicing requirements throughout the completion if the physical works. This servicing strategy allows Stages 1, 2 & 3 to be completed in a staged sequence as intended by NSW Land and Housing, whilst still providing sufficient electrical supply to the surrounding residents.

Please refer to Annexure B of the document to review the Electrical Servicing report provided by Power Solutions (Rev. C, April 2022).

5. TELECOMMUNICATIONS

NBN Co. is the current leading supplier for telecommunications in the Bonnyrigg Area.

A desktop study, professional advice and concept plan of the removal and implementation of telecommunications confirms an existing NBN Co. network is available within the existing development. This network with be removed and replaced to suit the proposed development requirements.

5.1. Existing Network

The existing residents of the subject site are connected to the NBN network via underground Fibre to the Node (FTTN).

Connection to the communication services is available to the subject site. NBN Co. presently undertakes the provision of telecommunication services to new residential developments as part of the National Broadband Network rollout.

Figure 3 – Existing NBN Co. Network

Consultation with NBN Co. confirms that the proposed development can be serviced for telecommunications to NBN Co guidelines. An accredited NBN Co. concept network decomission strategy and proposed reticulation layout is attached within appendix D of this report.

The developer will be required to submit a formal application for the removal and redevelopment of the network to NBN Co. to arrange the appropriate removal and installation of the system with the authority.

Telecommunication supply is confirmed as available to the site.

5.2. Services Structure Implementation Plan

Following the removal of the existing FTTN network, the implementation of a NBN Co network will be utilised to service the future apartments proposed for this site.

The implementation will be set to follow the staged decommissioning and construction of the super lot development as intended by NSW Land and Housing.

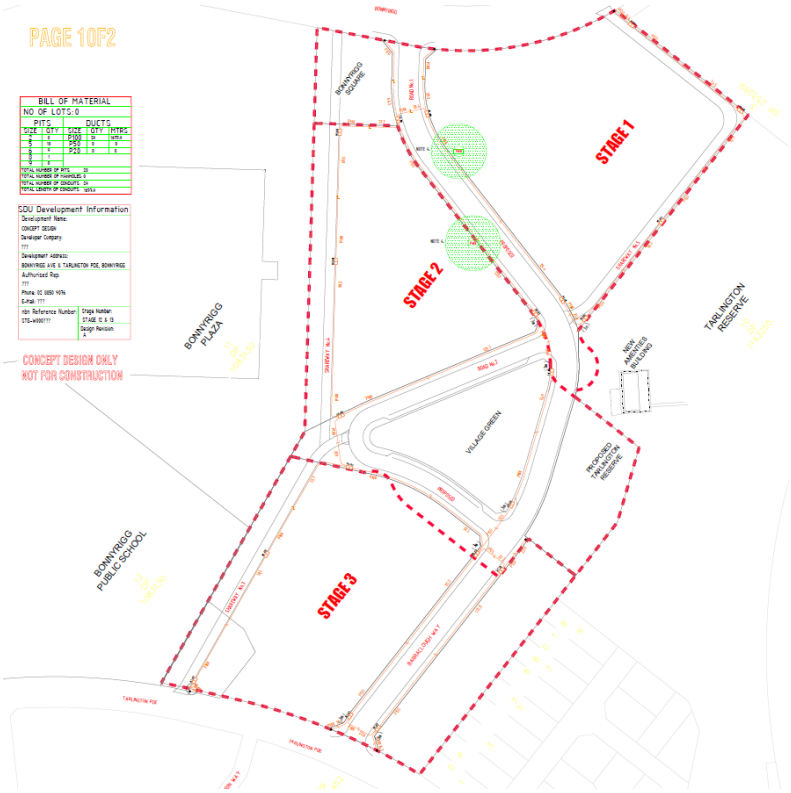


Figure 4 – NBN Co. Implementation Plan

5.3. Funding of Infrastructure

The NBN Co. may partially fund the backhaul of lead in cables. All other pit and pipe funds are to be provided by the developer of the site.

The developer will be responsible to fully fund and install fibre-ready pit and pipe infrastructure within the precinct. NBN Co. will then take possession of the infrastructure and install the fibre cables. The Developer will need to ensure that all pit and pipe infrastructure is installed in accordance with NBN Co's specifications and policies. Any defects of the work will not be accepted by NBN Co. until the network is deemed Fibre-ready.

6. NATURAL GAS

Jemena is the primary natural gas provider for the Bonnyrigg area.

A desktop study confirms the existing a Jemena natural gas network is available within the existing development. This network will be removed and could be replaced to suit the proposed development requirements, if required by NSW Land and Housing.

6.1. Existing Network

Following a desktop review, including a Before You Dig Australia (March 2022) and visit to the site, we understand there is currently natural gas infrastructure within the existing road configuration.

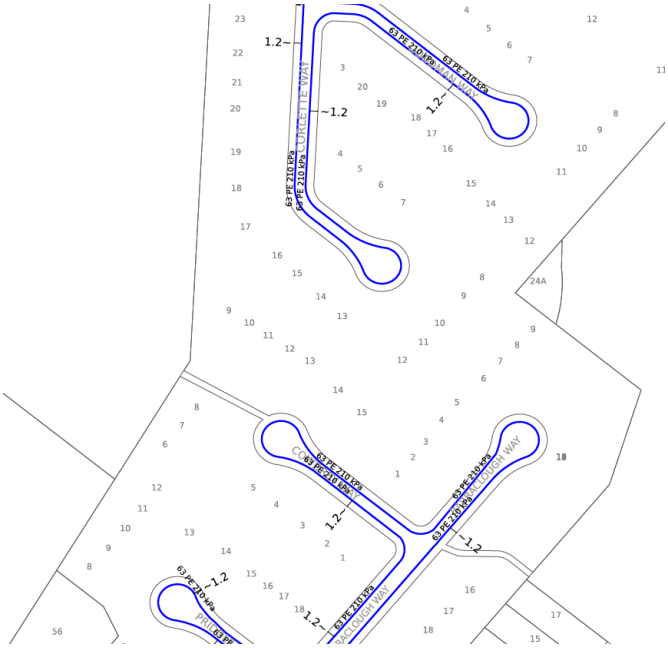


Figure 5 – Natural Gas Pipeline Configuration (Before You Dig Australia March 2022)

The existing infrastructure of a 210kPa medium pressure gas main as shown in blue within the above Figure 5, is to be removed following the structured staging program as directed by NSW Land and Housing under this development.

6.2. Services Infrastructure Implementation

Prior to the removal of the existing 210kPa Medium Pressure gas main, the asset removal is to be endorsed by Jemena. Once endorsed, the removal of the asset and reimplementation plan to be designed by Jemena, accepted by NSW Land and Housing and all fees paid before works are to be completed onsite.

Direct consultation with Jemena Natural Gas to be undertaken upon approval of the Development.

7. CONCLUSION

J. Wyndham Prince Pty have undertaken a review of the existing infrastructure in and surrounding the proposed urban renewal of the Bonnyrigg Precinct. All service reviews undertaken in this report indicate the proposed development can be serviced by essential service infrastructure to support the development of the site. In summary:

Potable Water	The development requires a DN100 water main to provide supply to the development. This supply will be via the existing DN150mm trunk main in Bonnyrigg Avenue and 100mm main in Tarlington Parade as part of the Sydney Waters Prospect South water delivery supply zone.
Recycled Water	Not an essential service and is not available to the site
Wastewater	A gravity reticulation system is proposed to connect to two existing DN225mm dia points of connection to the northeast off Bonnyrigg Avenue and East of the site in Tarlington Reserve. The system is serviced by the Fairfield Wastewater treatment catchment.
Electrical	Electrical supply is available via Endeavour Energy's system. A new high voltage connection with padmounted substations to be constructed to service the ultimate development.
Telecommunications	NBN Co. has confirmed that telecommunication services are available the area of the development. The developer will be required to submit a formal application for the development for NBN Co. to arrange the appropriate installation of Pit and Pipe conduits to service to the development.
Natural Gas	Not an essential service and connection to the existing Jemena natural gas network available

The outcomes of the investigation conclude the availability of essential infrastructure to service the development, with authority requirements for supply subject to the relevant applications being lodged during the development process.

APPENDIX A

SITE MASTER PLAN

110808-01-DA050

110808-01-DA052

110808-01-DA051

BONNYRIGG PLAZA

BONNYRIGG PUBLIC SCHOOL

BONNYRIGG

BONNYRIGG SQUARE

PROPOSED THRESHOLD

PROPOSED MEDIAN ALTERATIONS - SEE DA050 FOR DETAILS

ROAD 1

AVENUE

STAGE 2

STAGE 1

PROPOSED FLAT TOP SPEED HUMP

ROAD 2

TARLINGTON

STAGE 3

VILLAGE GREEN

PROPOSED PEDESTRIAN CROSSING

TEMPORARY TURNING HEAD FOR STAGE 1 WORKS

PROPOSED FLAT TOP SPEED HUMP

PROPOSED ENTRANCE TO AMENITIES BUILDING

STAGE 3A

ROAD 1

PROPOSED THRESHOLD

PROPOSED TARLINGTON RESERVE

TARLINGTON RESERVE

PARADE

STAGE 3

LEGEND

- PROPOSED SUPER LOT
- PROPOSED ROAD PAVEMENT
- PROPOSED OPEN SPACE
- EXISTING ROAD PAVEMENT TO BE REMOVED
- STAGE BOUNDARY

1:1000 (AT A1)
1:2000 (AT A3)

20 10 0 10 20 30 40 50 60 70 80 90 100
METRES

C	ISSUED FOR DA APPROVAL	DG	JM	JB	MS	13/10/22
B	ISSUED FOR DA APPROVAL	DG	JM	JB	MS	12/10/22
A	ISSUED FOR DA APPROVAL	DG	JM	JB	MS	29/09/22
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: NSW GOVERNMENT Land & Housing Corporation

STATUS:
ISSUE FOR DA APPROVAL
NOT FOR CONSTRUCTION
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

BONNYRIGG
STAGE 12 & 13
OVERALL SITE & PAVEMENT PLAN

PROJECT No: 110808-01
SHEET No: DA003

AZIMUTH: M.G.A. | DATUM: A.H.D. | ORIGIN: | PLAN No: 110808-01-DA003 | C

Plotted: 13 October, 2022 7:34:47 AM File Name: J:\110808 - Bonnyrigg Stages 12 And 13\01 - Stages 12 And 13\CD\DA\110808-01-DA003.dwg

C	ISSUED FOR DA APPROVAL	DG	JM	JB	MS	13/10/22
B	ISSUED FOR DA APPROVAL	DG	JM	JB	MS	12/10/22
A	ISSUED FOR DA APPROVAL	DG	JM	JB	MS	29/09/22
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: NSW GOVERNMENT Land & Housing Corporation

STATUS:
ISSUE FOR DA APPROVAL
NOT FOR CONSTRUCTION
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

BONNYRIGG
STAGE 12 & 13
STAGING PLAN

PROJECT No: 110808-01
SHEET No: DA004

AZIMUTH: M.G.A. | DATUM: A.H.D. | ORIGIN: | PLAN No: 110808-01-DA004 | C

Plotted: 13 October , 2022 7:35:47 AM File Name: J:\110808 - Bonnyrigg Stages 12 And 13\01 - Stages 12 And 13\CD\DA\110808-01-DA004.dwg

APPENDIX B

POTABLE WATER AND WASTEWATER IMPLEMENTATION CONCEPT PLANS

A1

DEVELOPER CONTRACT PLAN

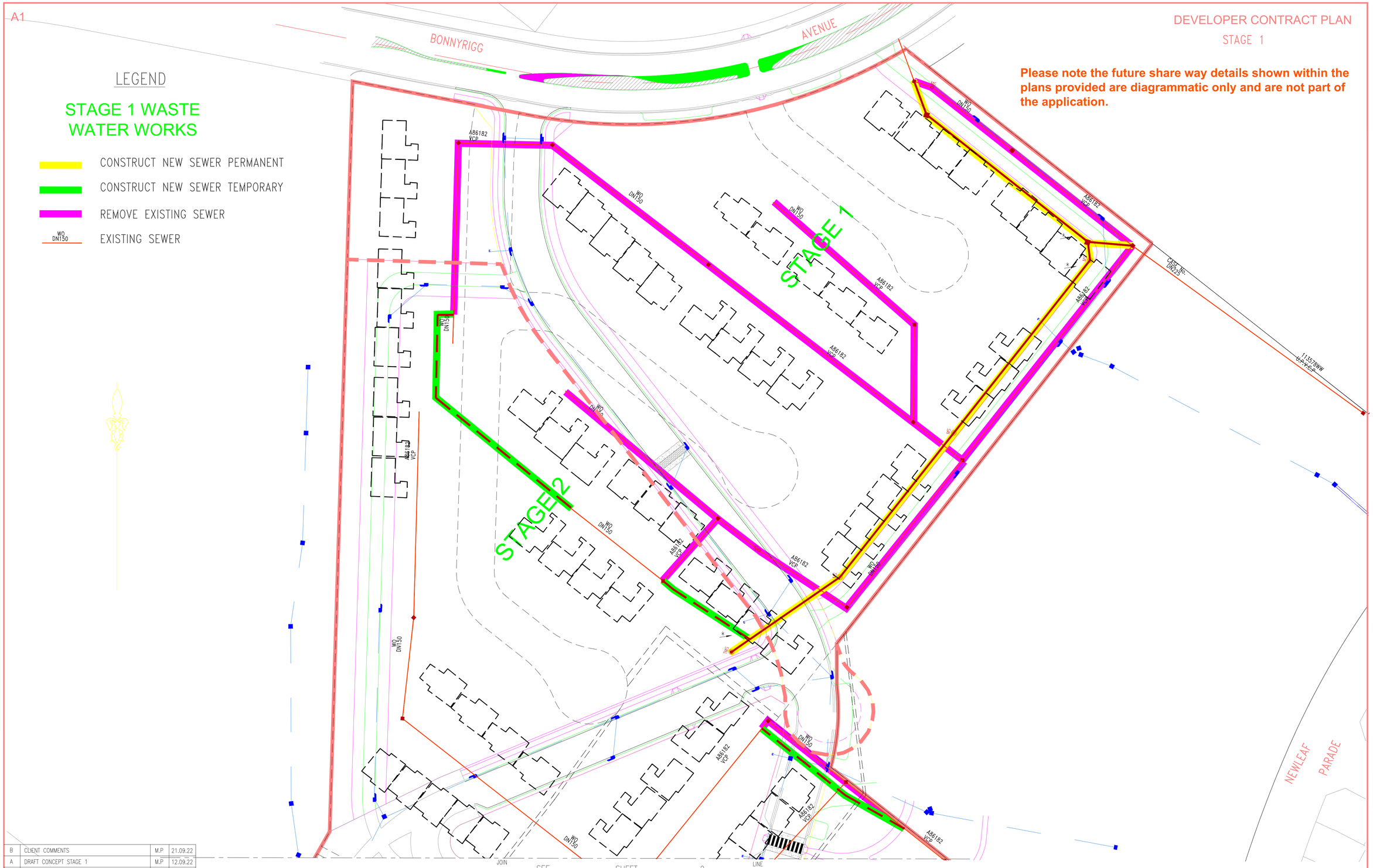
STAGE 1

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

LEGEND

STAGE 1 WASTE WATER WORKS

- CONSTRUCT NEW SEWER PERMANENT
- CONSTRUCT NEW SEWER TEMPORARY
- REMOVE EXISTING SEWER
- WQ DN150 — EXISTING SEWER



No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT CONCEPT STAGE 1	M.P	12.09.22

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-

DIAL BEFORE YOU DIG P:- 1100

ELECTRICITY: ENDEAVOUR ENERGY P:- 110033410

GAS: JEMENA P:- 1300880906

TELECOMMUNICATIONS: TELSTRA P:- 1800653935

P:-

GIVING AT LEAST 48 HOURS NOTICE.

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

WATER SERVICE CO-ORDINATOR

CONSTRUCTOR

COMPLETED W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES

DESIGN HEAD m NO BOUNDARY TRAPS REQUIRED.

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN 1:500 SECTION HOR. 1:500 VERT. 1:125

CROSS SECTIONS NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY 128 E13 (42nd Ed)

SHEET 1 OF 2 File No. N/A

SYDNEY WATER CORPORATION

Case No. CONCEPT WW

CONCEPT STAGE 1

BONNYRIGG

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 1 OF 2 SHEETS

FILE LOCATION: PM 29764WW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21-09-2022

A1F

DEVELOPER CONTRACT PLAN

STAGE 1

JOIN SEE SHEET 1 LINE

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

STAGE 3

LEGEND

STAGE 1 WASTE WATER WORKS

- CONSTRUCT NEW SEWER PERMANENT
- CONSTRUCT NEW SEWER TEMPORARY
- REMOVE EXISTING SEWER
- WQ DN150 — EXISTING SEWER
- FUTURE SEWER

WQ DN150

AB6182 VCP

SW

TARLINGTON

PARADE

NEWLEAF

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 2 OF 2 SHEETS

No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT	M.P	12.09.22

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

W.S.C.

CONSTRUCTOR

COMPLETED

W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Case No. CONCEPT WW SHT 2 OF 2 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

FILE LOCATION: PM 29764WW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21–09–2022

A1

DEVELOPER CONTRACT PLAN

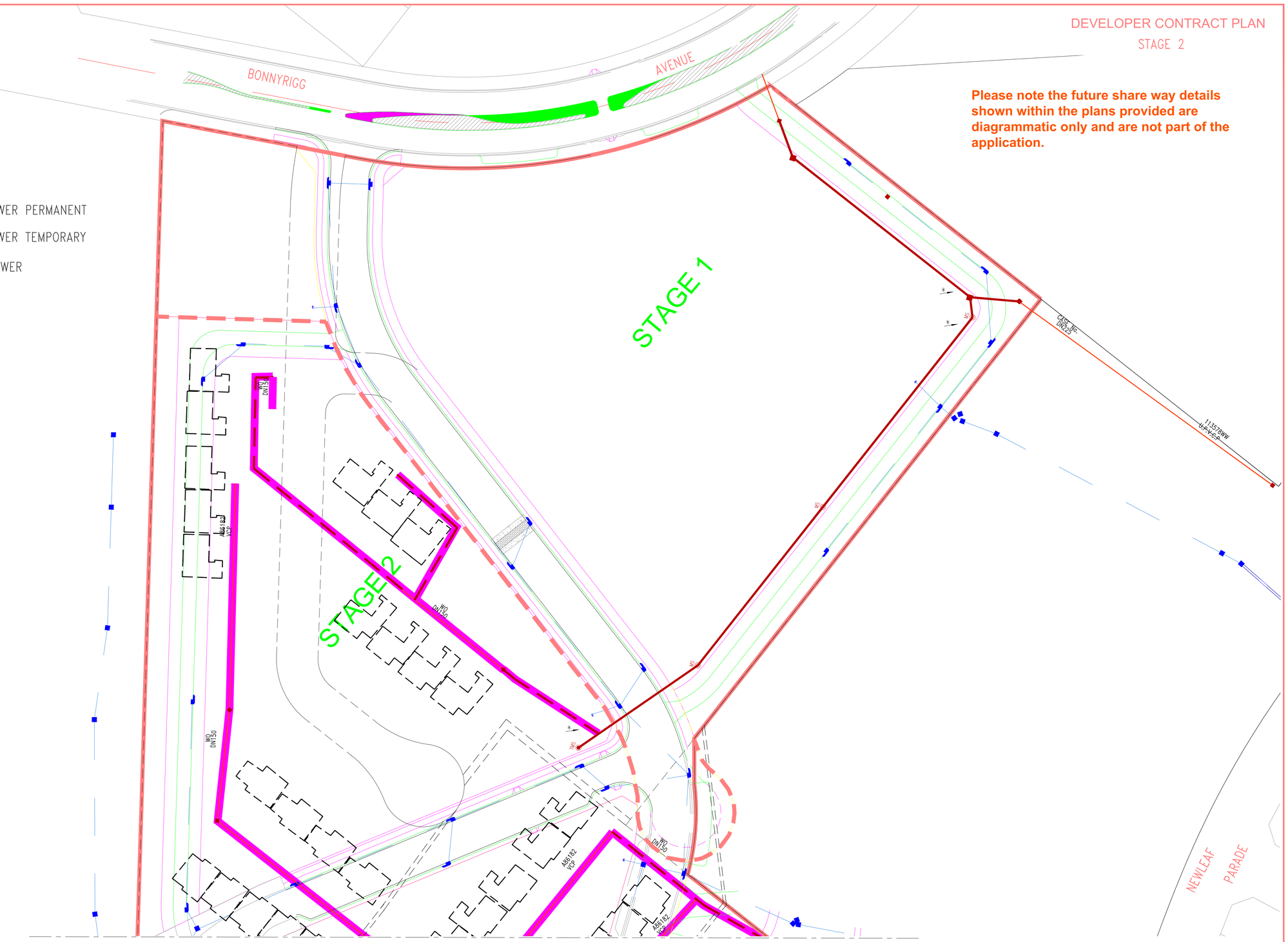
STAGE 2

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

LEGEND

STAGE 2 WASTE WATER WORKS

- CONSTRUCT NEW SEWER PERMANENT
- CONSTRUCT NEW SEWER TEMPORARY
- REMOVE EXISTING SEWER
- WO DN150 — EXISTING SEWER



No.	AMENDMENT DESCRIPTION	BY	DATE
B	DRAFT CONCEPT STAGE 2 AMENDED	M.P	12.09.22
A	DRAFT CONCEPT STAGE 2	M.P	12.09.22

JOIN SEE SHEET 2 LINE

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-

DIAL BEFORE YOU DIG P: 1100
ELECTRICITY ENDEAVOUR ENERGY P: 110033410
GAS JEMENA P: 1300880906
TELECOMMUNICATIONS TELSTRA P: 1800653935
P:

GIVING AT LEAST 48 HOURS NOTICE.

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER
WATER SERVICE CO-ORDINATOR
CONSTRUCTOR
COMPLETED W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES

DESIGN HEAD m

NO BOUNDARY TRAPS REQUIRED.

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN 1:500 SECTION HOR. 1:500 VERT. 1:125

CROSS SECTIONS NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES.

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY 128 E13 (42nd Ed)

SHEET 1 OF 2 File No. N/A

SYDNEY WATER CORPORATION

Case No. CONCEPT WW

CONCEPT STAGE 2

BONNYRIGG

PLAN DRAWN DATE: 12-09-2022 VERSION: B SHEET 1 OF 2 SHEETS

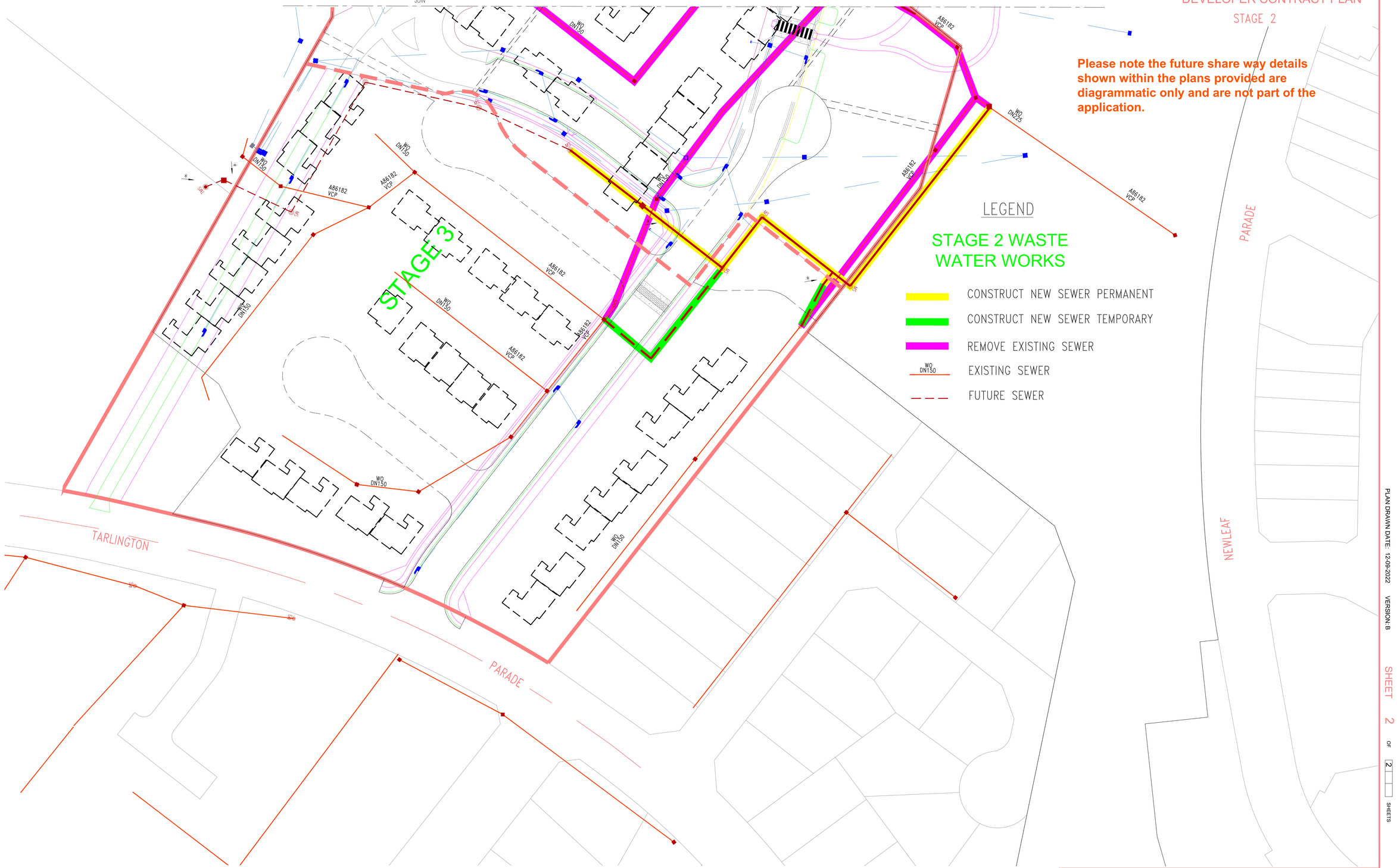
FILE LOCATION: PM 29764WW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 12-08-2022

A1F

DEVELOPER CONTRACT PLAN

STAGE 2

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



No.	AMENDMENT DESCRIPTION	BY	DATE
B	DRAFT CONCEPT STAGE 2 AMENDED	M.P	12.09.22
A	DRAFT CONCEPT STAGE 2	M.P	12.09.22

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

W.S.C.

CONSTRUCTOR

COMPLETED

W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Sydney WATER

Case No. CONCEPT WSH SHT 2 OF 2 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 12-09-2022 VERSION: B

SHEET 2 OF 2 SHEETS

FILE LOCATION: PM 29764WW – B *DESIGNED:* M.P *DRAFTED:* M.P *VERIFIED:* M.P *REVIEWED:* D.L *APPROVED:* D.L *ISSUED:* 12-09-2022

A1

DEVELOPER CONTRACT PLAN

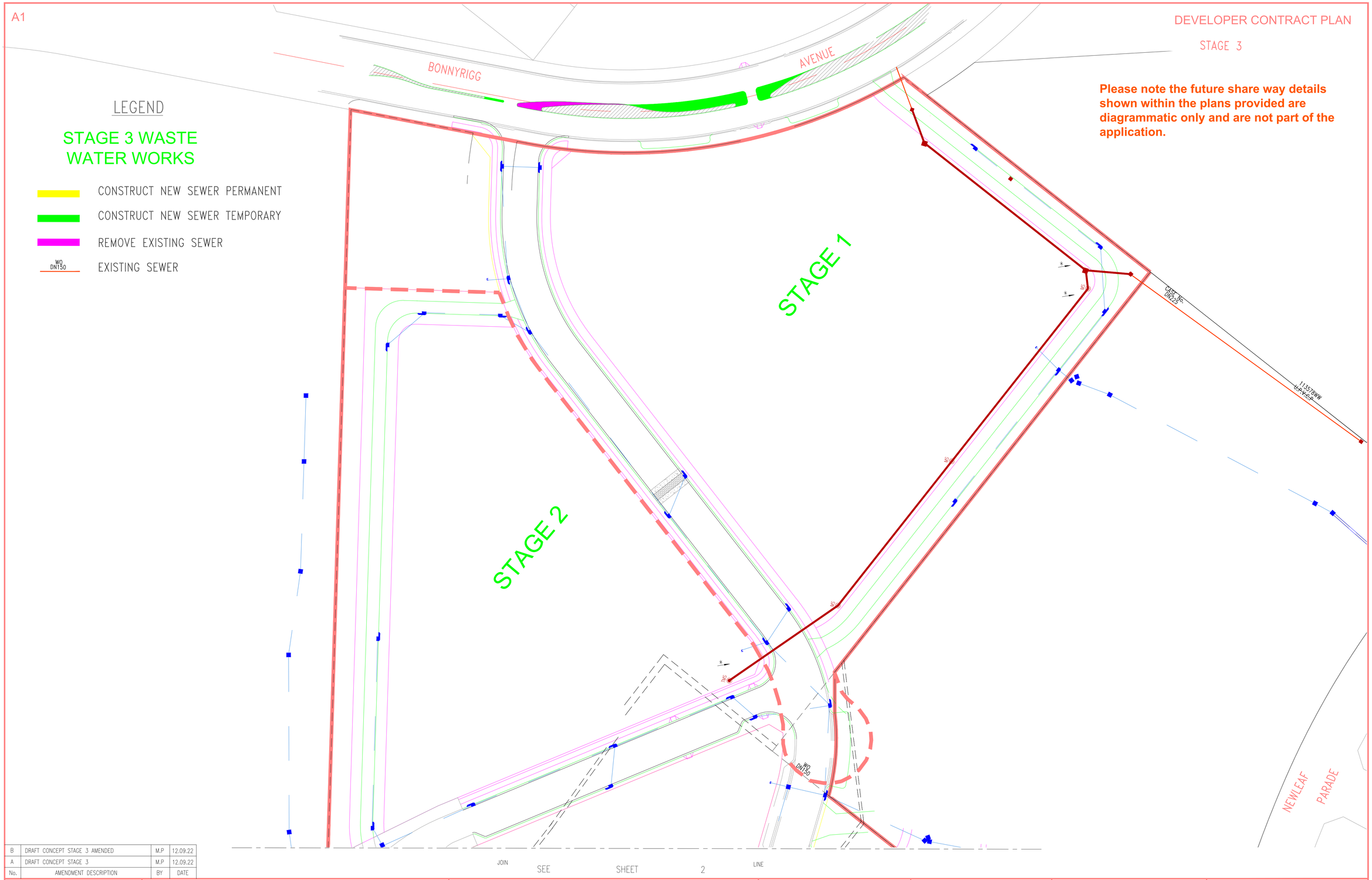
STAGE 3

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

LEGEND

STAGE 3 WASTE WATER WORKS

- CONSTRUCT NEW SEWER PERMANENT
- CONSTRUCT NEW SEWER TEMPORARY
- REMOVE EXISTING SEWER
- WQ DN150 — EXISTING SEWER



No.	AMENDMENT DESCRIPTION	BY	DATE
B	DRAFT CONCEPT STAGE 3 AMENDED	M.P	12.09.22
A	DRAFT CONCEPT STAGE 3	M.P	12.09.22

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-

DIAL BEFORE YOU DIG P:. 1100
ELECTRICITY ENDEAVOUR ENERGY P:. 110033410
GAS JEMENA P:. 1300880906
TELECOMMUNICATIONS TELSTRA P:. 1800653935
P:.

GIVING AT LEAST 48 HOURS NOTICE

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER
WATER SERVICE CO-ORDINATOR
CONSTRUCTOR
COMPLETED W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES

DESIGN HEAD m

NO BOUNDARY TRAPS REQUIRED.

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN 1:500 SECTION HOR. 1:500 VERT. 1:125

CROSS SECTIONS NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY 128 E13 (42nd Ed)

SHEET 1 OF 2 File No. N/A

SYDNEY WATER CORPORATION

Case No. CONCEPT WW

CONCEPT STAGE 3

BONNYRIGG

PLAN DRAWN DATE: 12-09-2022 VERSION: A

SHEET 1 OF 2 SHEETS

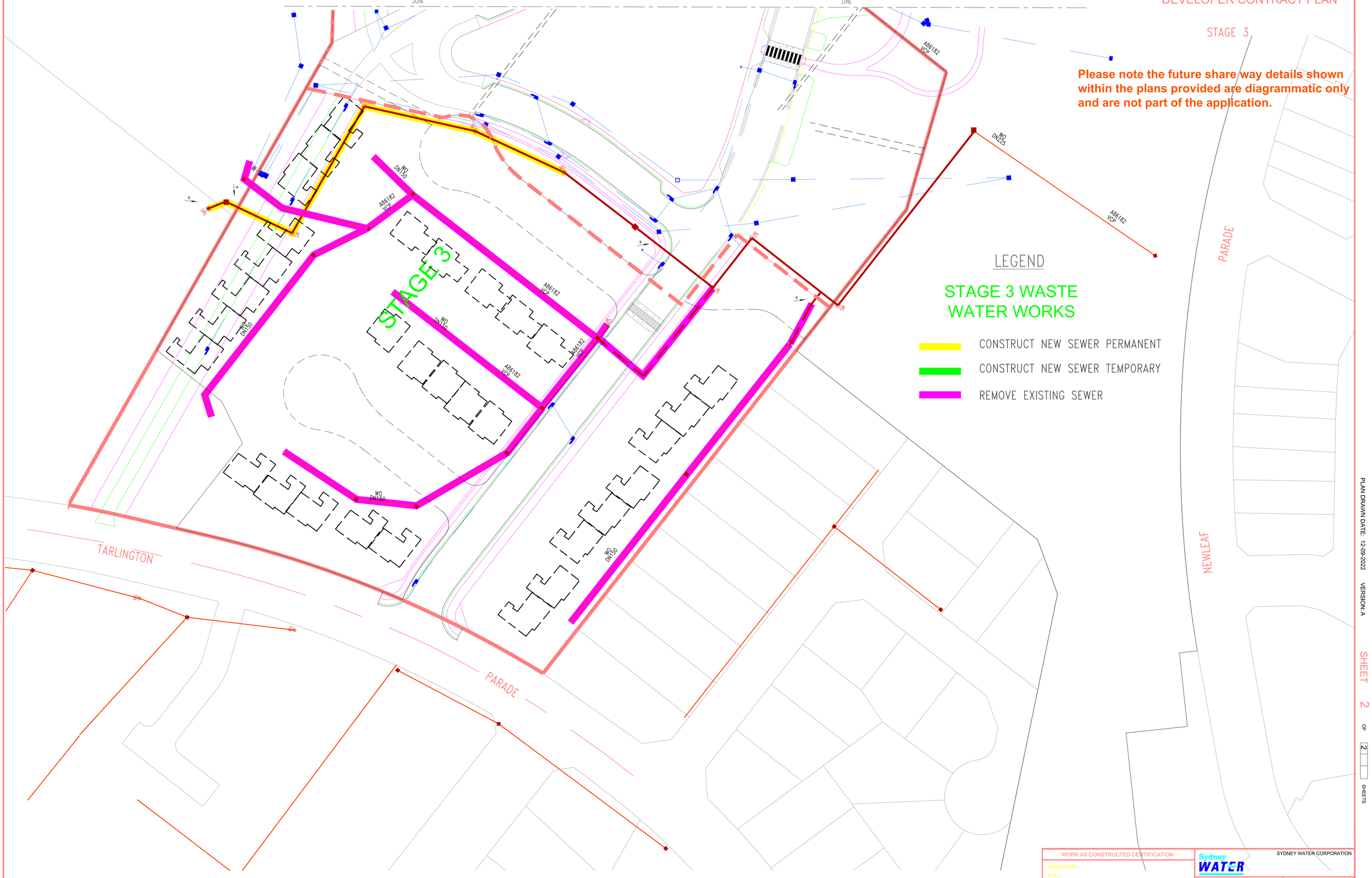
FILE LOCATION: PM 29764WW – A DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 12–08–2022

A1F

DEVELOPER CONTRACT PLAN

STAGE 3

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



No.	AMENDMENT DESCRIPTION	BY	DATE
B	DRAFT CONCEPT STAGE 3 AMENDED	M.P	12.09.22
A	DRAFT	M.P	12.09.22

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

W.S.C.

CONSTRUCTOR

COMPLETED

W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Case No. CONCEPT WSH

SHT 2 OF 2 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 12-09-2022 VERSION: A

SHEET 2 OF 2 SHEETS

FILE LOCATION: PM 29764WW – A *DESIGNED:* M.P *DRAFTED:* M.P *VERIFIED:* M.P *REVIEWED:* D.L *APPROVED:* D.L *ISSUED:* 12–09–2022

A1

DEVELOPER CONTRACT PLAN

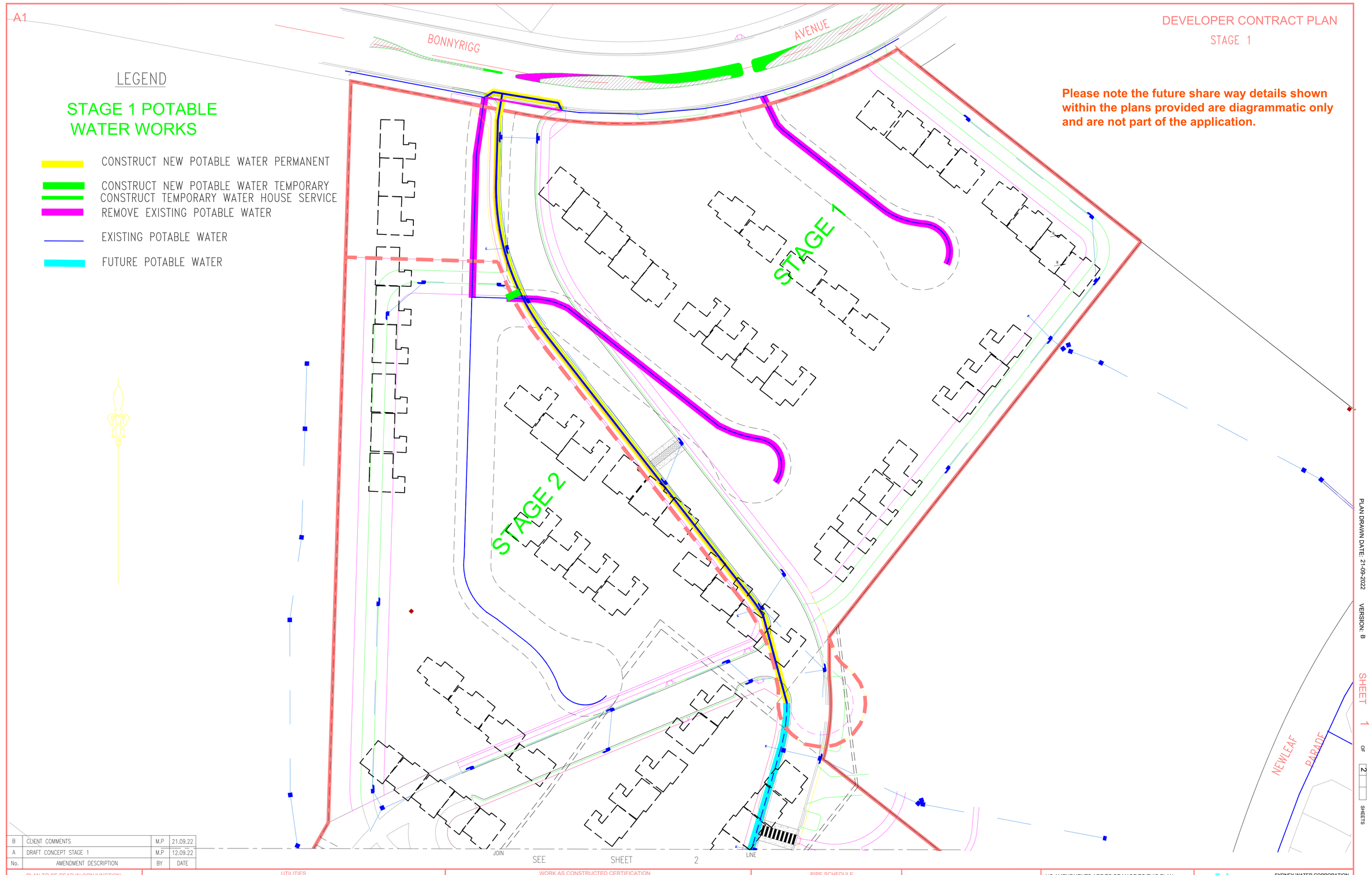
STAGE 1

LEGEND

STAGE 1 POTABLE WATER WORKS

- CONSTRUCT NEW POTABLE WATER PERMANENT
- CONSTRUCT NEW POTABLE WATER TEMPORARY
- CONSTRUCT TEMPORARY WATER HOUSE SERVICE
- REMOVE EXISTING POTABLE WATER
- EXISTING POTABLE WATER
- FUTURE POTABLE WATER

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT CONCEPT STAGE 1	M.P	12.09.22

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT –

DIAL BEFORE YOU DIG P:. 1100
ELECTRICITY ENDEAVOUR ENERGY P:. 110033410
GAS JEMENA P:. 1300880906
TELECOMMUNICATIONS TELSTRA P:. 1800653935
P:.

GIVING AT LEAST 48 HOURS NOTICE

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER
WATER SERVICE CO-ORDINATOR
CONSTRUCTOR
COMPLETED W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES

DESIGN HEAD m

NO BOUNDARY TRAPS REQUIRED.

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN 1:500 SECTION HOR. 1:500 VERT. 1:125

CROSS SECTIONS NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY 128 E13 (42nd Ed)

SHEET 1 OF 2 File No. N/A

SYDNEY WATER CORPORATION

Case No. CONCEPT PW

CONCEPT STAGE 1

BONNYRIGG

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 1 OF 2 SHEETS

FILE LOCATION: PM 29764WW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21–09–2022

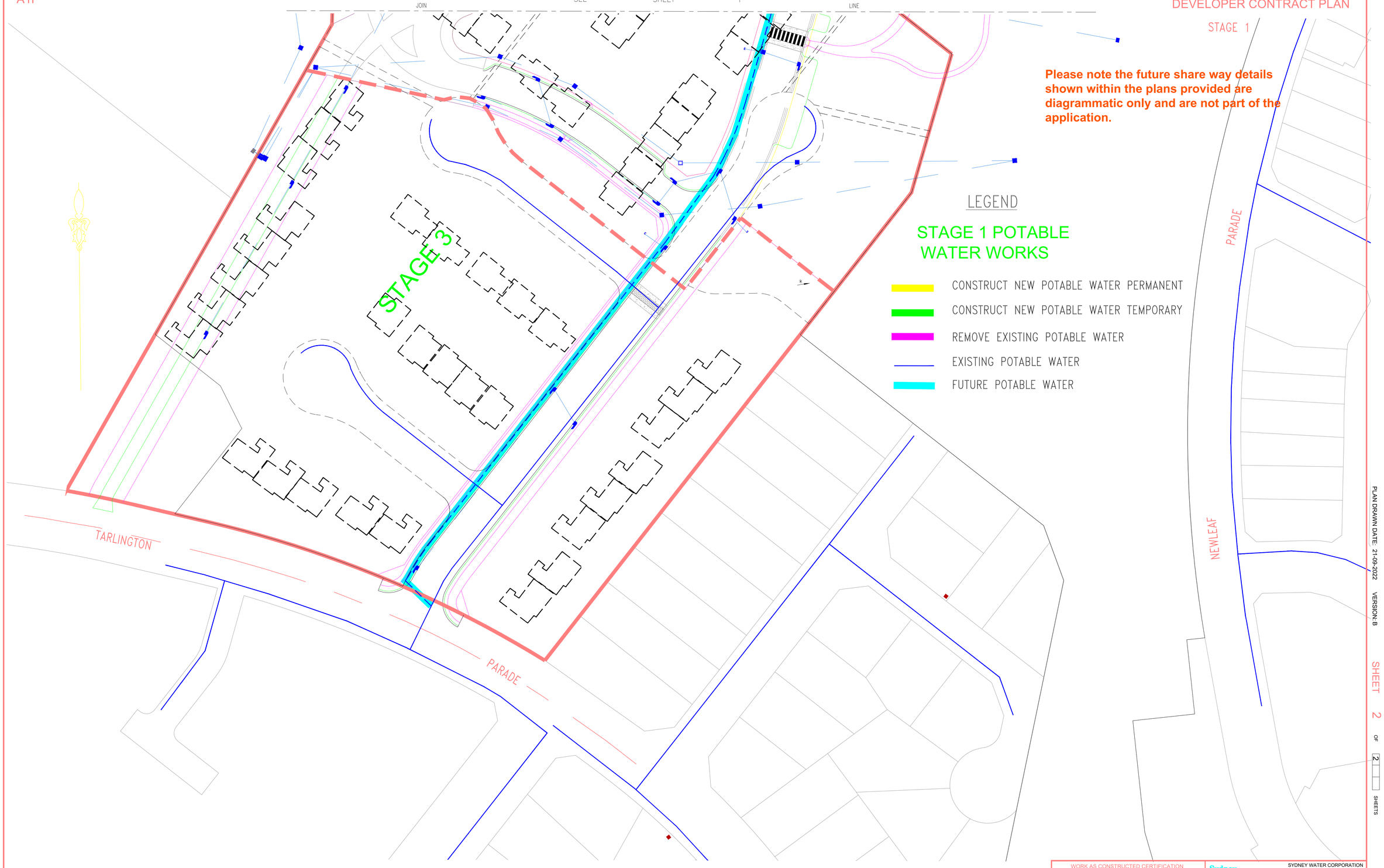
A1F

DEVELOPER CONTRACT PLAN

STAGE 1

JOIN SEE SHEET 1 LINE

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



LEGEND

STAGE 1 POTABLE WATER WORKS

- CONSTRUCT NEW POTABLE WATER PERMANENT
- CONSTRUCT NEW POTABLE WATER TEMPORARY
- REMOVE EXISTING POTABLE WATER
- EXISTING POTABLE WATER
- FUTURE POTABLE WATER

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 2 OF 2 SHEETS

No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT	M.P	12.09.22

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

W.S.C.

CONSTRUCTOR

COMPLETED

W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Case No. CONCEPT PLAN SHT 2 OF 2 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

FILE LOCATION: PM 29764WW – B *DESIGNED:* M.P *DRAFTED:* M.P *VERIFIED:* M.P *REVIEWED:* D.L *APPROVED:* D.L *ISSUED:* 21–09–2022

A1

DEVELOPER CONTRACT PLAN

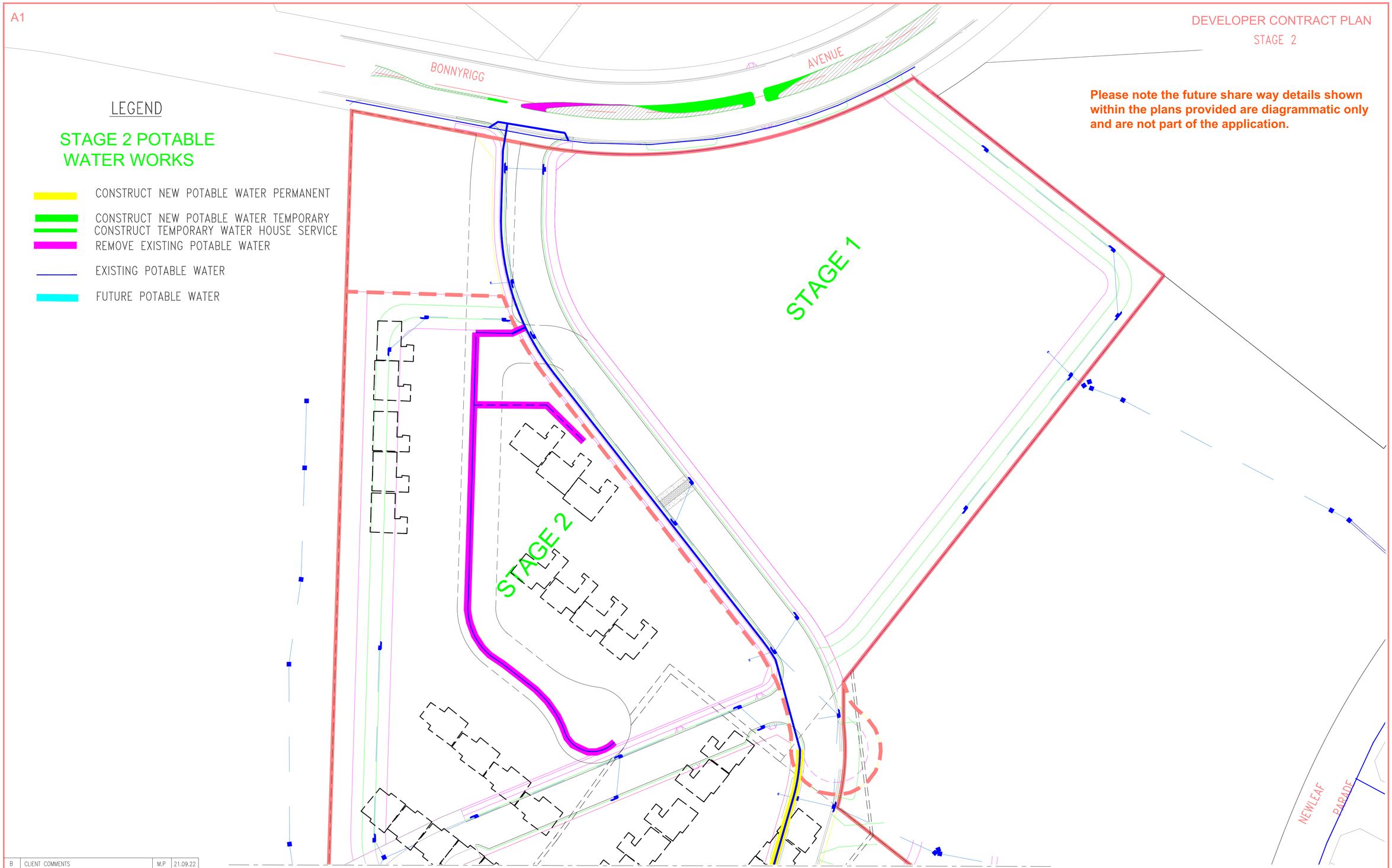
STAGE 2

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

LEGEND

STAGE 2 POTABLE WATER WORKS

- CONSTRUCT NEW POTABLE WATER PERMANENT
- CONSTRUCT NEW POTABLE WATER TEMPORARY
- CONSTRUCT TEMPORARY WATER HOUSE SERVICE
- REMOVE EXISTING POTABLE WATER
- EXISTING POTABLE WATER
- FUTURE POTABLE WATER



No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT CONCEPT STAGE 1	M.P	12.09.22

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-

DIAL BEFORE YOU DIG P:- 1100
ELECTRICITY ENDEAVOUR ENERGY P:- 110033410
GAS JEMENA P:- 1300880906
TELECOMMUNICATIONS TELSTRA P:- 1800653935
P:-
GIVING AT LEAST 48 HOURS NOTICE

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

WATER SERVICE CO-ORDINATOR

CONSTRUCTOR

COMPLETED W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES

DESIGN HEAD m

NO BOUNDARY TRAPS REQUIRED.

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN 1:500 SECTION HOR. 1:500 VERT. 1:125

CROSS SECTIONS NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY 128 E13 (42nd Ed)

SHEET 1 OF 2 File No. N/A

SYDNEY WATER CORPORATION

Case No. CONCEPT PW

CONCEPT STAGE 2

BONNYRIGG

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 1 OF 2 SHEETS

FILE LOCATION: PM 29764PW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21–09–2022

A1F

DEVELOPER CONTRACT PLAN

STAGE 2

JOIN SEE SHEET 1

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

STAGE 3

LEGEND

STAGE 2 POTABLE WATER WORKS

- CONSTRUCT NEW POTABLE WATER PERMANENT
- CONSTRUCT NEW POTABLE WATER TEMPORARY
- REMOVE EXISTING POTABLE WATER
- EXISTING POTABLE WATER
- FUTURE POTABLE WATER

TARLINGTON

PARADE

PARADE

NEWLEAF

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 2 OF 2 SHEETS

No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT	M.P	12.09.22

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

W.S.C.

CONSTRUCTOR

COMPLETED

W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

Sydney WATER

SYDNEY WATER CORPORATION

Case No. CONCEPT PLAN SHT 2 OF 2 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

FILE LOCATION: PM 29764PW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21-09-2022

A1

DEVELOPER CONTRACT PLAN

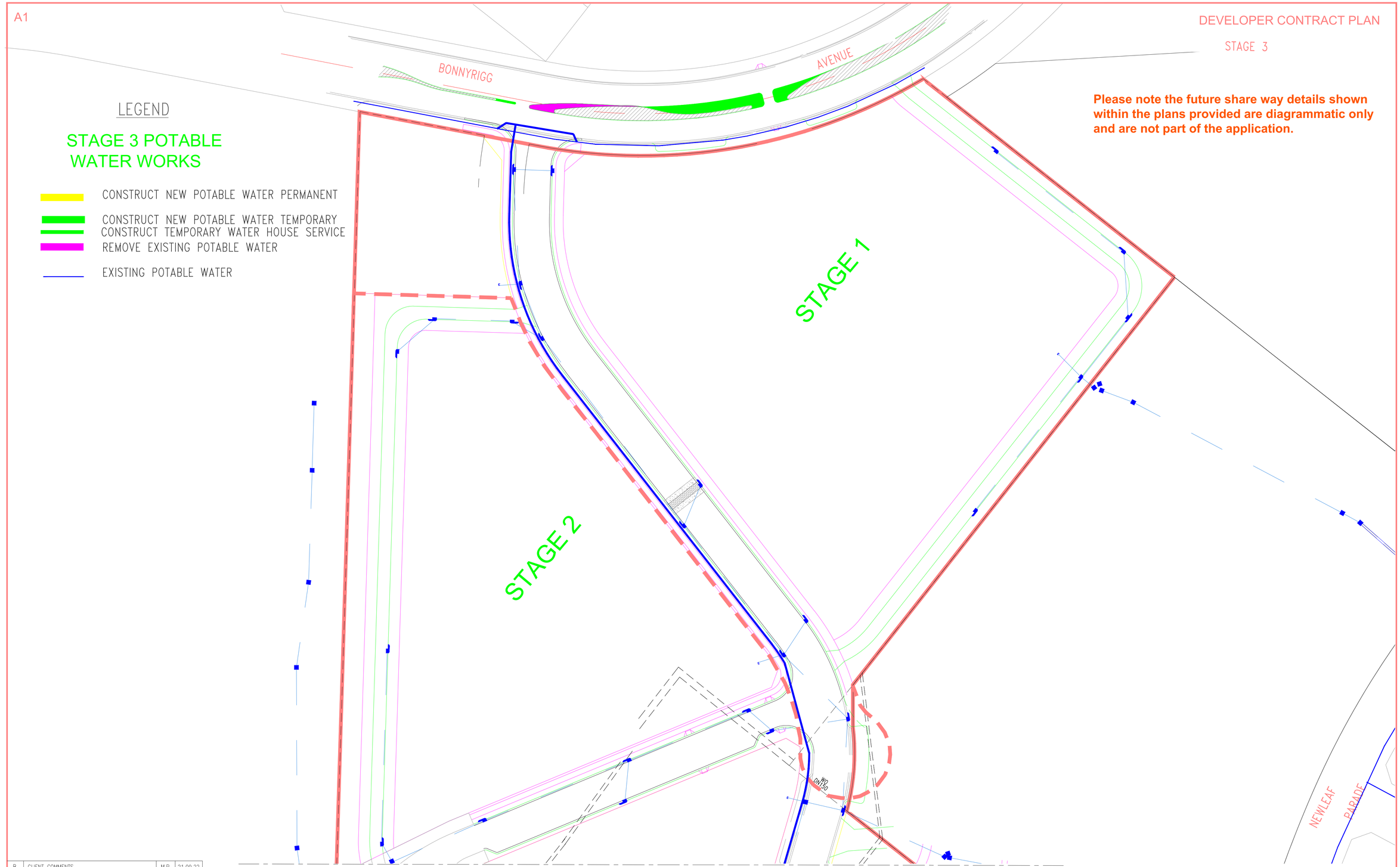
STAGE 3

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

LEGEND

STAGE 3 POTABLE WATER WORKS

- CONSTRUCT NEW POTABLE WATER PERMANENT
- CONSTRUCT NEW POTABLE WATER TEMPORARY
- CONSTRUCT TEMPORARY WATER HOUSE SERVICE
- REMOVE EXISTING POTABLE WATER
- EXISTING POTABLE WATER



No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT CONCEPT STAGE 3	M.P	12.09.22

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-

DIAL BEFORE YOU DIG P:: 1100
ELECTRICITY: ENDEAVOUR ENERGY P:: 110033410
GAS: JEMENA P:: 1300880906
TELECOMMUNICATIONS: TELSTRA P:: 1800653935
P::

GIVING AT LEAST 48 HOURS NOTICE.

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER

WATER SERVICE CO-ORDINATOR

CONSTRUCTOR

COMPLETED W.A.C. PREPARED

DESIGNER

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES

DESIGN HEAD m

NO. BOUNDARY TRAPS REQUIRED.

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN 1:500 SECTION HOR. 1:500 VERT. 1:125

CROSS SECTIONS NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES.

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY 128 E13 (42nd Ed)

SHEET 1 OF 2 File No. N/A

SYDNEY WATER CORPORATION

Case No. CONCEPT PW

CONCEPT STAGE 3

BONNYRIGG

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 1 OF 2 SHEETS

FILE LOCATION: PM 29764PW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21.09.22

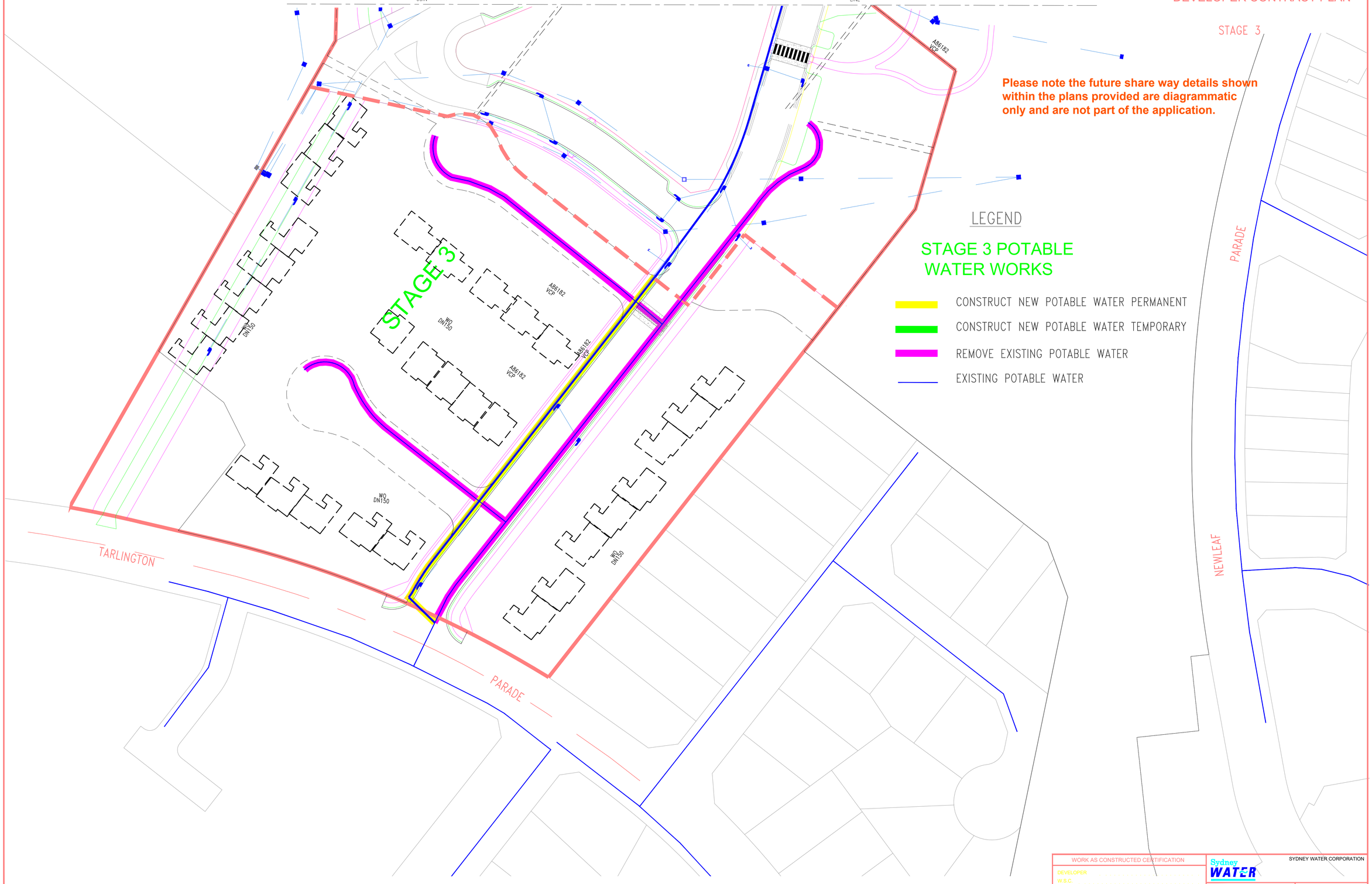
A1F

DEVELOPER CONTRACT PLAN

JOIN SEE SHEET 1 LINE

STAGE 3

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



LEGEND

STAGE 3 POTABLE WATER WORKS

- CONSTRUCT NEW POTABLE WATER PERMANENT
- CONSTRUCT NEW POTABLE WATER TEMPORARY
- REMOVE EXISTING POTABLE WATER
- EXISTING POTABLE WATER

PLAN DRAWN DATE: 21-09-2022 VERSION: B

SHEET 2 OF 2 SHEETS

No.	AMENDMENT DESCRIPTION	BY	DATE
B	CLIENT COMMENTS	M.P	21.09.22
A	DRAFT	M.P	12.09.22

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER
W.S.C.
CONSTRUCTOR
COMPLETED
W.A.C. PREPARED

DESIGNER
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Case No. CONCEPT PLAN SHT 2 OF 2 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

FILE LOCATION: PM 29764PW – B DESIGNED: M.P DRAFTED: M.P VERIFIED: M.P REVIEWED: D.L APPROVED: D.L ISSUED: 21–09–2022

APPENDIX C

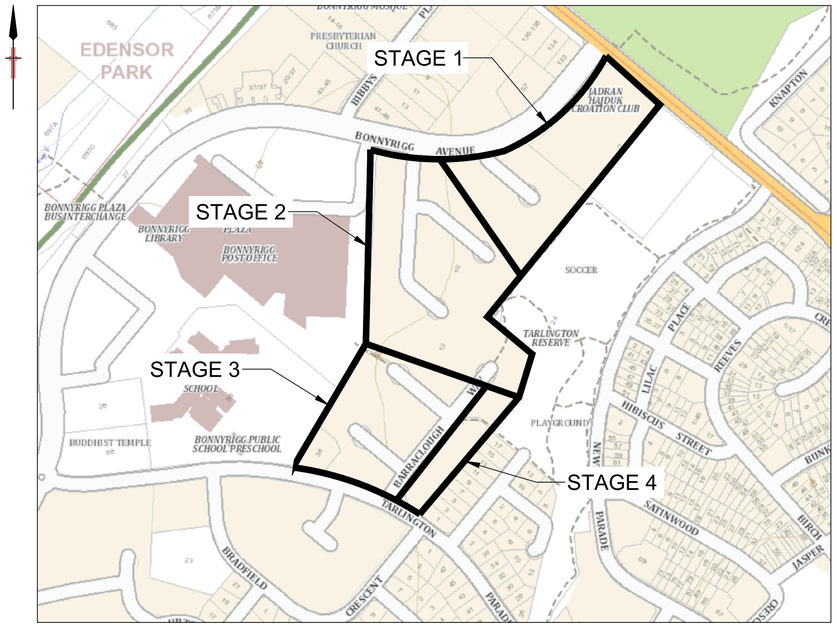
ELECTRICAL SUPPLY ASSESSMENT AND CONCEPT PLAN

LEGEND	PROPOSED	EXISTING
HV OVERHEAD		
HV UNDERGROUND		
LV OVERHEAD		
LV UNDERGROUND		
SL OVERHEAD		
SL UNDERGROUND		
KIOSK SUBSTATION		
HV CABLE JOINT		
PILLAR		
SWITCH/ LINK PILLAR		
LV CABLE JOINT		
POLE		
STREET LIGHT		

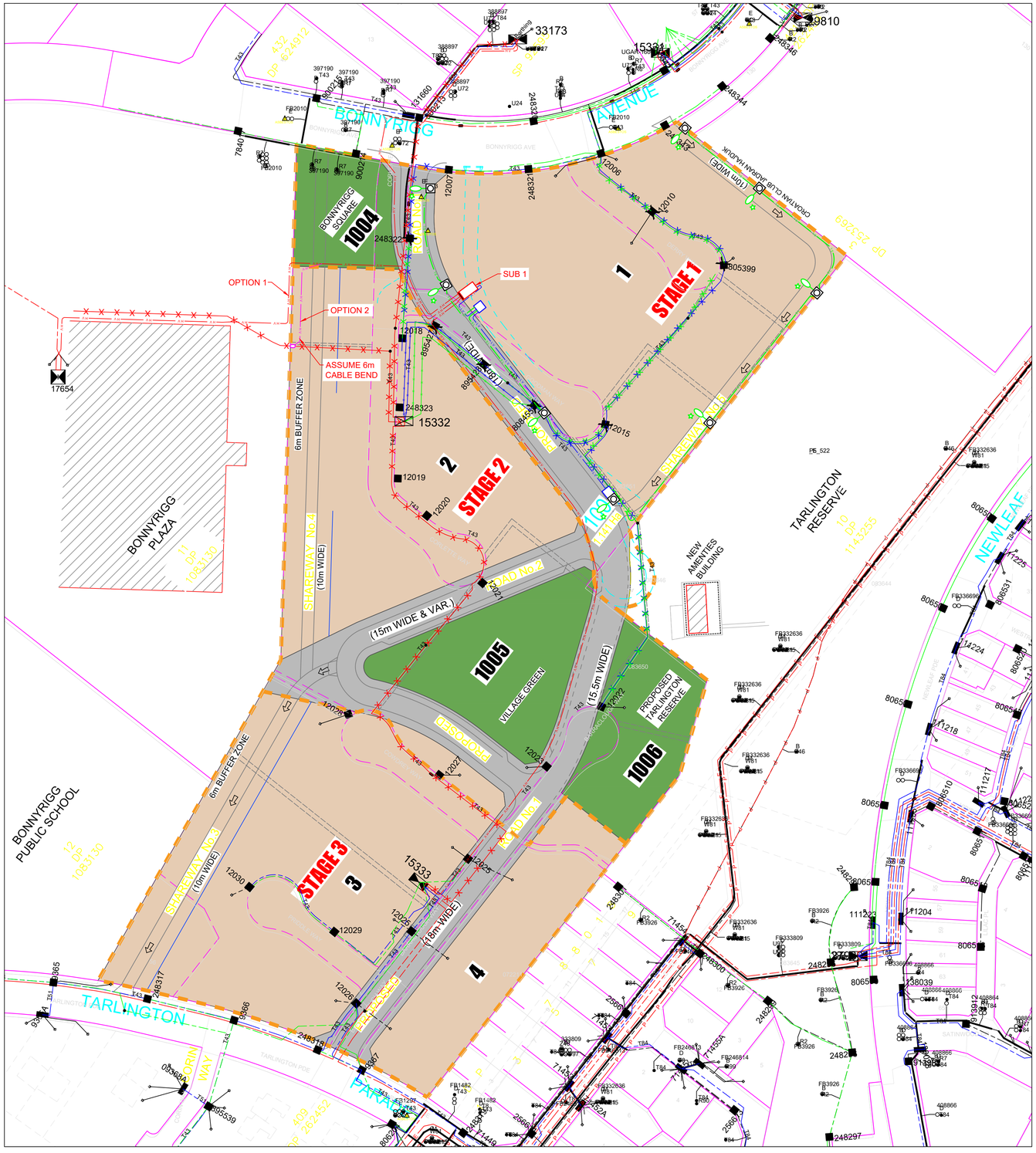
SUMMARY OF WORKS

- LV EXTENSION FOR URD SUBDIVISION
- STREETLIGHTING TO AS/NZS 1158.3.1:2020 - CAT PR5 & BASED ON SPACING TABLES FOR ALDRIDGE TRAFFIC SYSTEMS 17W LUMINAIRE
- LV CABLES - 240 AL4 Z/SAC OR 300 AL4 Z/SAC FOR ROADWAYS
- LV CABLES TO HAVE MINIMUM 1 SPARE CONDUIT
- HV CABLES TO HAVE MINIMUM 1 SPARE CONDUIT

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



LOCALITY SKETCH
N.T.S.



CONCEPT ONLY
2-Jun-22 - 3:11 PM

REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
C	02/06/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

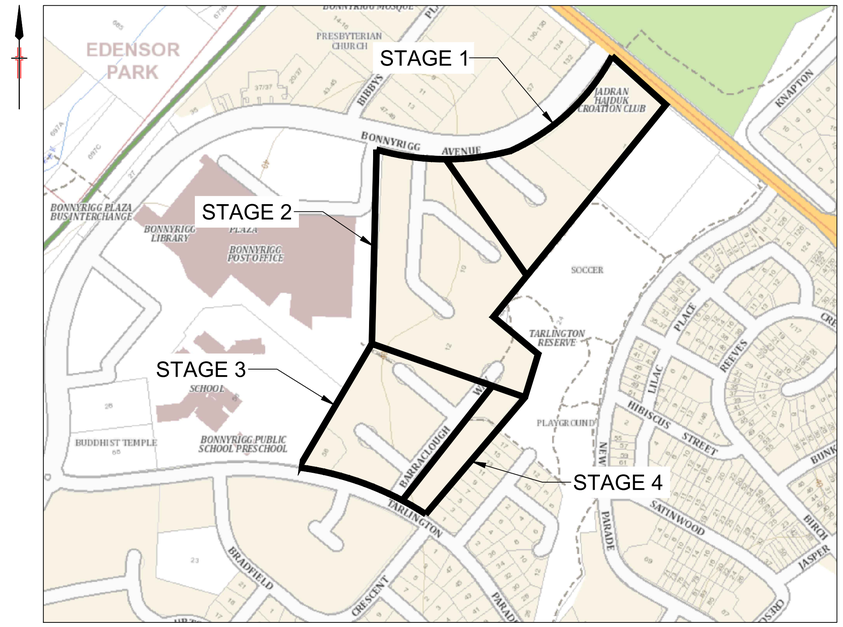
power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY	R.SHARIAR	DATE	02/06/2022
DRAWN	K.COOPER	DATE	02/06/2022
APPROVED	R.SHARIAR	DATE	02/06/2022

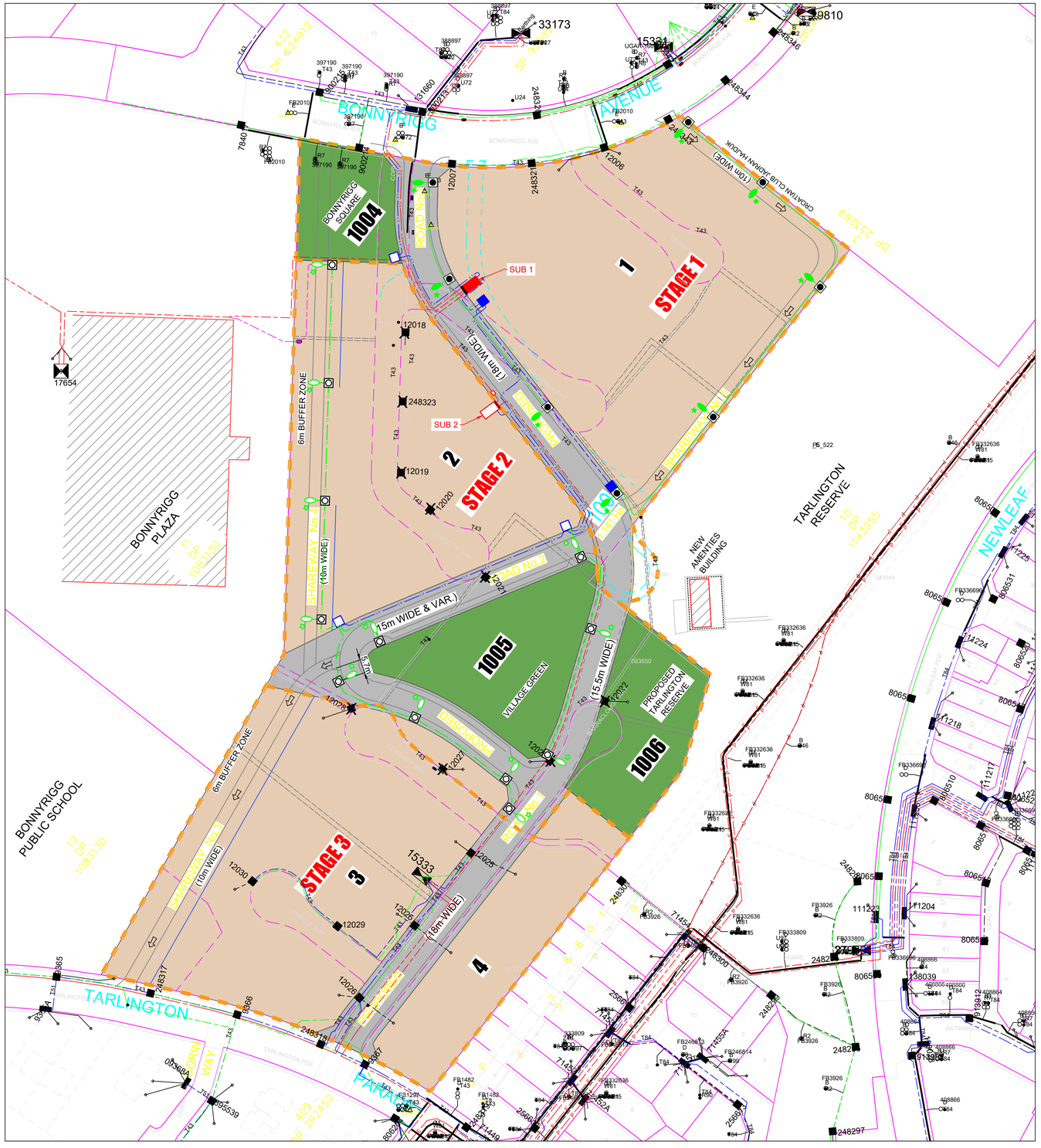
TITLE
TARLINGTON PDE & BONNYRIGG AVE
BONNYRIGG
LOT 454 DP 839627
COMMUNITIES PLUS PROJECT
STAGES 12 & 13

CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.	SHEET	REV NO.
5076	5076	A1	NTS	5076	1 of 4	C

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



LOCALITY SKETCH
N.T.S.

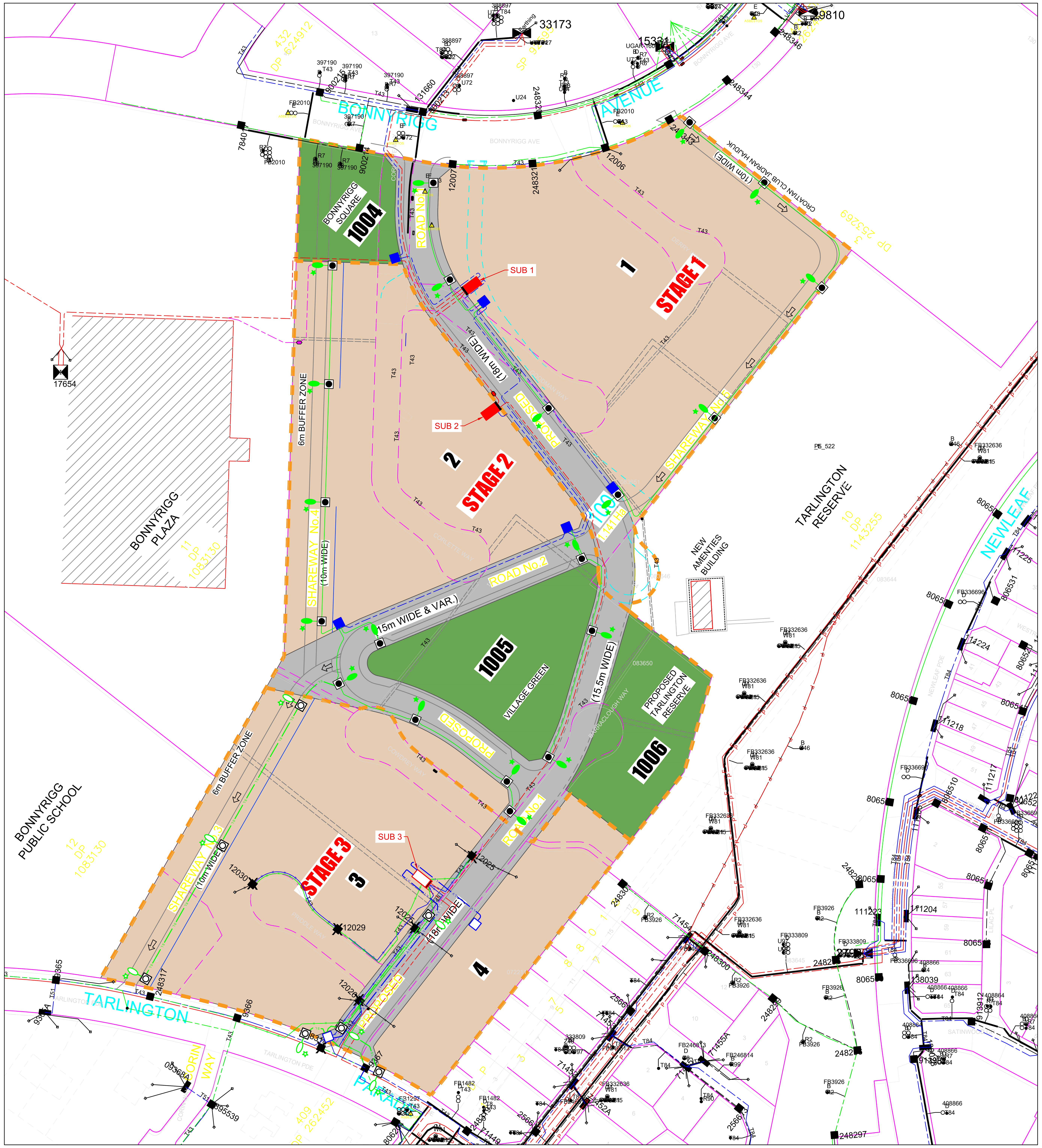


CONCEPT ONLY
2-Jun-22 - 3:11 PM

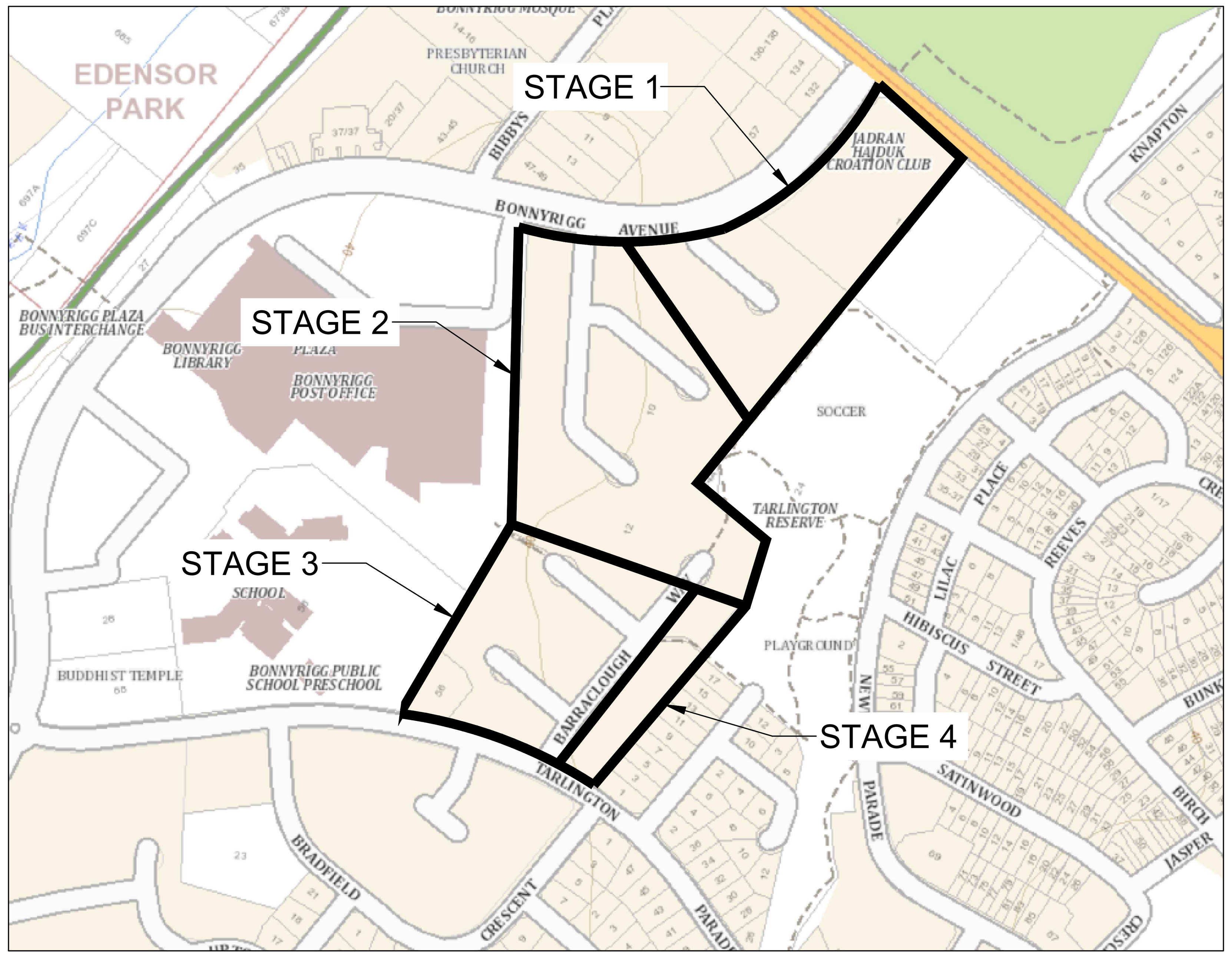
REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
C	02/06/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY R.SHARIAR	DATE 02/06/2022	TITLE	
DRAWN K.COOPER	DATE 02/06/2022	TARLINGTON PDE & BONNYRIGG AVE BONNYRIGG LOT 454 DP 839627 COMMUNITIES PLUS PROJECT STAGES 12 & 13	
APPROVED R.SHARIAR	DATE 02/06/2022		
CAD FILE NAME 5076	JOB No. 5076	SIZE A1	SCALE NTS
DRG NO. 5076	SHEET 2 of 4	REV NO. C	



Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



LOCALITY SKETCH
N.T.S.

REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
C	02/06/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

CONCEPT ONLY
2-Jun-22 - 3:11 PM

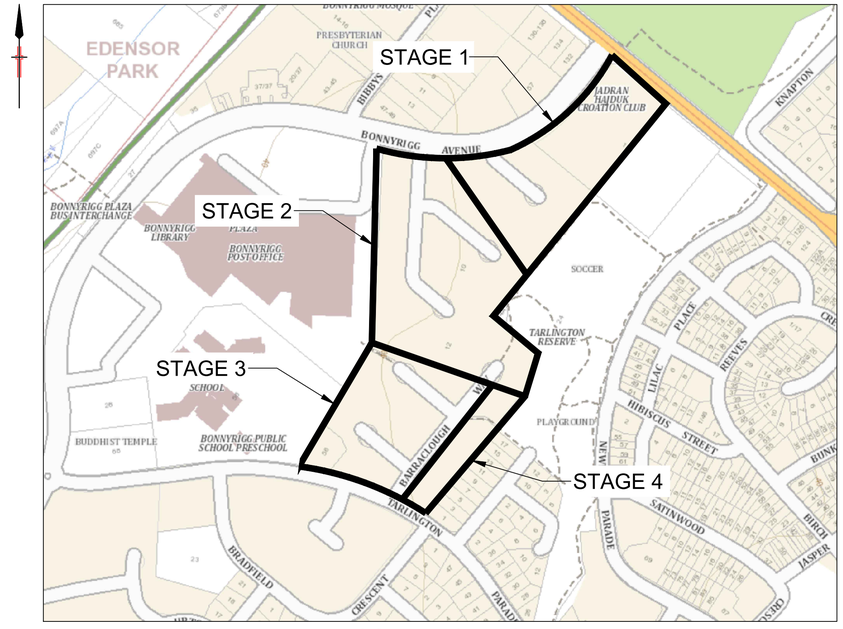
power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY	DATE	DRAWN	DATE	APPROVED	DATE
R.SHARIAR	02/06/2022	K.COOPER	02/06/2022	R.SHARIAR	02/06/2022

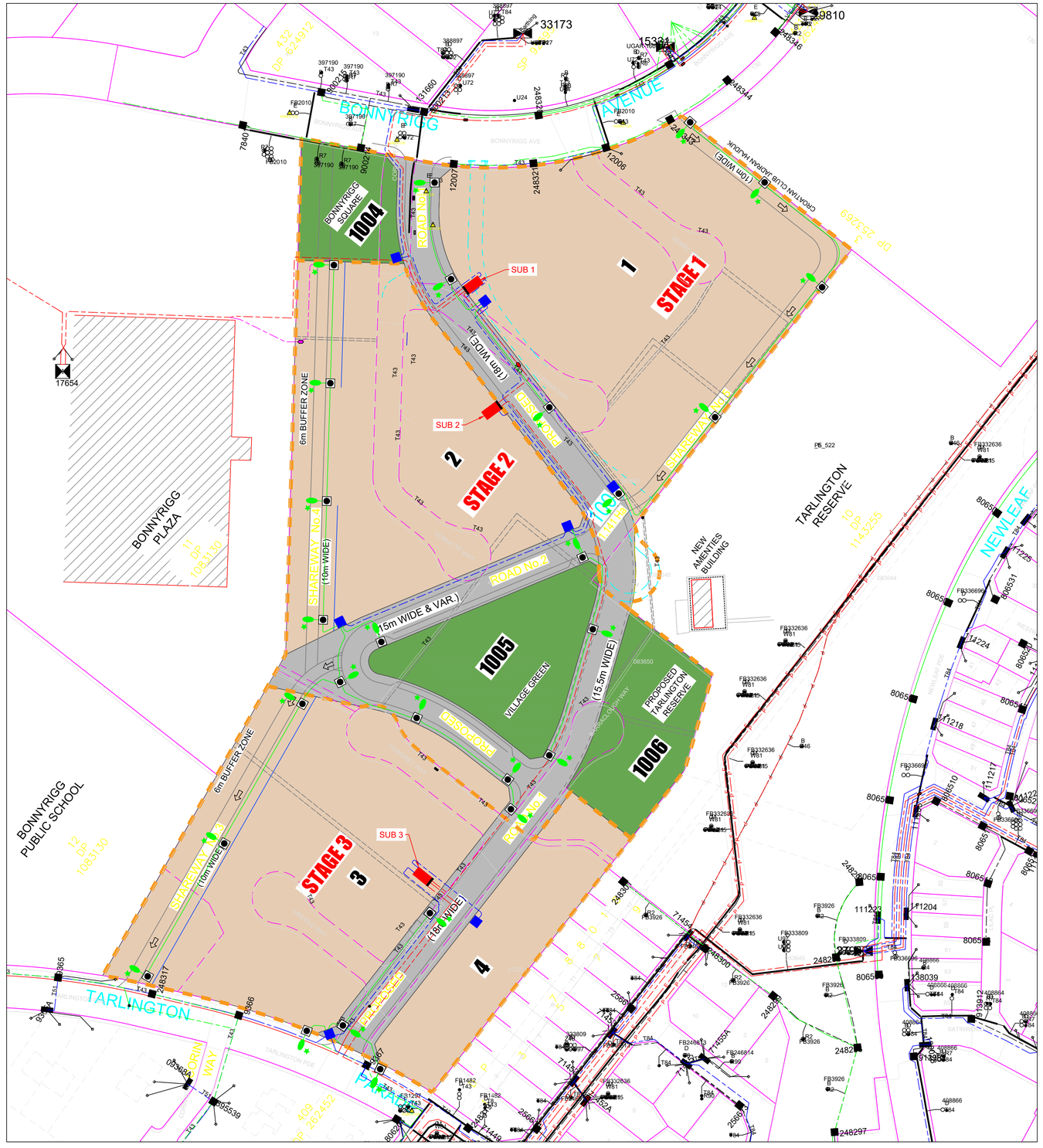
TITLE
TARLINGTON PDE & BONNYRIGG AVE
BONNYRIGG
LOT 454 DP 839627
COMMUNITIES PLUS PROJECT
STAGES 12 & 13

CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.	SHEET	REV NO.
5076	5076	A1	NTS	5076	3 of 4	C

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.



LOCALITY SKETCH
N.T.S.



CONCEPT ONLY
2-Jun-22 - 3:11 PM

REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
C	02/06/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY	R.SHARIAR	DATE	02/06/2022
DRAWN	K.COOPER	DATE	02/06/2022
APPROVED	R.SHARIAR	DATE	02/06/2022

TITLE
TARLINGTON PDE & BONNYRIGG AVE
BONNYRIGG
LOT 454 DP 839627
COMMUNITIES PLUS PROJECT
STAGES 12 & 13

CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.	SHEET	REV NO.
5076	5076	A1	NTS	5076	4 of 4	C

Please note the future share way details shown within the plans provided are diagrammatic only and are not part of the application.

ELECTRICAL SERVCING – BONNYRIGG COMMUNITIES PLUS PRO ECT – TARLINGTON PARADE BONNYRIGG AVENUE BONNYRIGG

APRIL 2022

power solutions

Suite C106 The Landmark
215 Pacific Hwy CHARLESTOWN NSW
PO BOX 278 CHARLESTOWN NSW 2290
1300 732 2 3
projects@powersol.com.au

Document: 5076 – Tarlington Parade & Bonnyrigg Avenue, Bonnyrigg
Author: Raiyan Shariar
Printed: 2/06/2022 - Amended by JWP 19/10/2022

DOCUMENT CONTROL

Version	Date	Author	Reviewer	Revision Details
A	22/04/2022	Raiyan Shariar	Chris Lever and Robin uo	Initial Issue.
B	23/05/2022	Raiyan Shariar	Chris Lever	Update to works required for stage 1.
C	02/06/2022	Raiyan Shariar		Update to report and concept drawing.

TABLE OF CONTENTS

SCOPE

This report has been prepared by Power Solutions as part of an electrical servicing strategy for the proposed site. The review was commissioned by Ashley Wright of J.Wyndham Prince. The intention of this report is to

- Review Endeavour Energy's WebGIS system and Google Streetview records to identify existing electrical infrastructure within vicinity the proposed development.
- Provide summary report outlining findings inclusive of Endeavour Energy's expected servicing requirements, concept design & possible lead in requirements.

1. BAC GROUND

The concept development layout consists of proposed residential subdivision on the area located in Lot 454 DP839627. The proposed development is for four apartment sites.

Refer to Appendix A for the existing electrical infrastructure.

2. EXISTING ELECTRICAL NETWOR

See Appendix A for a sketch of the existing electrical infrastructure in and around the site.

230V/415V - Low Voltage Network

Existing LV and SL network exists within the current lot layout.

All the LV networks will need to be removed as part of the proposed development with new interconnections to be established from proposed substations recommended in order to get compliant earthing through the MEN.

Existing SL located along Bonnyrigg Ave, Tarlington Pde and entrance to Barraclough Way can be stay in place if desired. All SL can be removed if the existing column style require to be replaced as per Council feedback.

11kV – High Voltage Network

There is existing HV network located within the subdivision area with two substations supplying the residential lots which is interconnected with the adjacent network through connections to the north, west and south of the proposed construction site.

Existing Substation	Capacity (kVA)
Sub 15332	300
Sub 15333	500

Table 1: Existing supply load (From GIS)

Most of the existing HV network and assets will need to be removed as it conflicts with the proposed new road and lot layouts.

33kV – Transmission Network

There is a 33kV underground cable (Feeder Number 522) located to the south and east of the site, running along Tarlington Ave, Louise Pl and through Tarlington Parade.

3. DEVELOPMENT DEMAND RE UIREMENTS

Maximum demand based on ADMD per lot

The development for the site will take over place 3 stages with each stages requiring the construction of apartments. Each apartment will have a load of 3.5kVA as per Endeavour Energy document MDI0030. Stage 1 has proposed commercial loads (shops, restaurants etc) like the arrangement across the street from the development. Since the final quantity and characteristic of the commercial load is unknown, it is assumed that a 1500kVA substation will be required. If more load is required once the final maximum demand is known, then a dual substation installation for stage 1 will need to be considered.

Table 2 below summarises the overall load requirements.

Lots	Stage	Apartments/units	Load (kVA)	Substation size required
Lot 1	1	215 + commercial	752.5 (1200kVA)	1500
Lots 2, 1004, 1005 & 1006	2	199	696.5	1000
Lot 3	3	167	584.5	1000
Lot 4		35	122.5	*Can utilise substation from stage 3*
Total		616	2603.5	3500

Table 2: Proposed subdivision supply load

Extra 2700kVA of capacity will be added to the Endeavour Energy network as part of the proposed work. Endeavour Energy will need to be engaged to do a Technical Review in order to confirm proposed HV feeder upgrade or configuration change.

4. DEVELOPMENT SERVICING STRATEGY

Proposed Network

Looking at the layout of the proposed subdivision and the Endeavour Energy network in the area, the following HV network works required for the proposed subdivision. The required substation for the subdivision is proposed to be located in an easement minimum size of 5.5m x 2.75m.

The following works are required for the three different construction stages.

Stage 1 - Lot 1 (page 11)

HV network

- Remove existing cable between Sub 15333 and Sub 15332.
- Remove existing cable between Sub 33173 and Sub 15332.
- Remove existing cable between Sub 17654 and Sub 15332.

  DBYD and Endeavour Energy GIS does not indicate cable in conduits. This report assumes that new joint will not be required.
- Remove existing Sub 15332.
- Install new Sub 1 (1500kVA) as shown. Please note this is an indicative location assumed for this feasibility report. Assumed a single substation installation will be sufficient.
- Install new cable from existing substation 17654 to Sub 1.
    - Second cable route option added to concept design should there be no spare conduits available in the parking to install new cable. This will require the use of a straight joint for the HV cable. **This option is preferable.**
- Install new cable between Sub 1 and existing substation 33173 utilising spare ducts where possible.
- Install new cable from Sub 1 to existing substation 15333.

LV network

- Remove existing LV pillars and LV cables located within stage 1 boundary.

- Remove existing SL columns and SL cables located within stage 1 boundary.
- Remove existing LV customer services.
- Install new pillar for and SL supply.
- Install new SL columns. Locations shown are indicative.

Stage 2 - Lot 2 Lot 1004 Lot 1005 and Lot 1006

HV network

- Cut existing cable between Sub 1 and Sub 15333 near vicinity shown and install new straight joint.
- Install new Sub 2 (1000kVA) as shown. Please note this is an indicative location assumed for this feasibility report.
- Install new cable from joint location to new substation. Turn existing cable into new Sub 2.

LV network

- Remove existing LV pillars and LV conductors located within stage 2 boundary.
- Remove existing SL columns and SL cables located within stage 2 boundary.
- Remove existing LV customer services.
- Install new pillar (including interconnection) and SL supply.
- Install nee SL columns. Locations shown are indicative.

Stage 3 – Lot 3 and Lot 4

HV network

- Remove existing substation 15333 and install new Sub 3 (1000kVA).
- Terminate existing HV cables into new Sub 3.

LV network

- Remove existing LV pillars and LV conductors located within stage 3 boundary.
- Remove existing SL columns and SL cables located within stage 3 boundary.
- Remove existing LV customer services.
- Install new pillar for interconnection to existing LV network and SL supply.
- Install new commercial pillar for supply to Lot 4.
- Install nee SL columns. Locations shown are indicative.

5. CONCLUSION

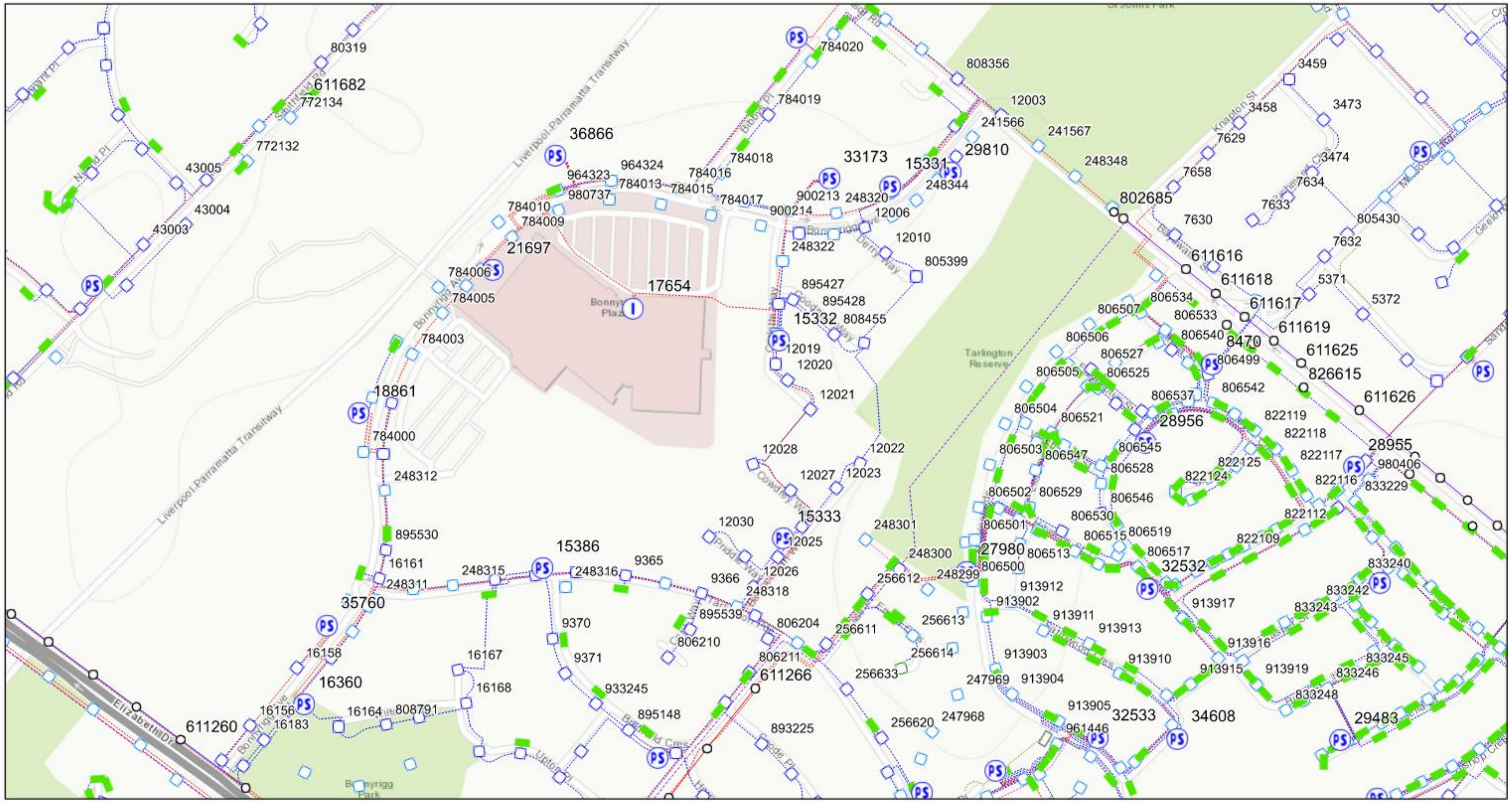
A. Removal of 800kVA load to be replaced with new 3500kVA load. Net gain of 2700kVA load capacity to network.

B. Spare conduit availability withing Bonnyrigg Plaza to be determined during detail design process.

C. Existing transmission cables in area not effected by proposed development.

D. It is recommended to submit either a Preliminary Enquiry Application or a Connection Application to Endeavour Energy to get official response to determine if there is enough capacity in network for development or what work is required to make capacity available.

APPENDIX A – EXISTING ELECTRICAL INFRASTRUCTURE



20/04/2022, 1:54:55 pm

1:4,514

0	0.04	0.09	0.18 mi
0	0.07	0.15	0.3 km

Pillar
- Pillar-Inservice
- Pillar-OutOfService

Column
- Col-Ins-LV Only
- Col-Ins-SL Only
- Col-Ins-NotEE-LVSL
- Col-OS

Distribution Substation
- SUB-Indoor-Ins-LV
- SUB-PadHVSwitchgear-Ins-LV

Pole
- Pole-Ins
- Pole-Ins-NotEE

TR Conductor
- Cond-OH-Ins-33kV-3PH
- Cond-UG-Ins-33kV-3PH

HV Conductor
- Cond-OH-Ins-11kV-3PH
- Cond-UG-Ins-11kV-3PH
- Cond-UG-Pro

LV Conductor
- Cond-OH-Ins-LV-1PH
- Cond-UG-Ins-LV-1PH
- Cond-UG-Ins-LV-3PH
- Cond-UG-OS
- Cond-UG-PRR
- Cond-UG-Pro

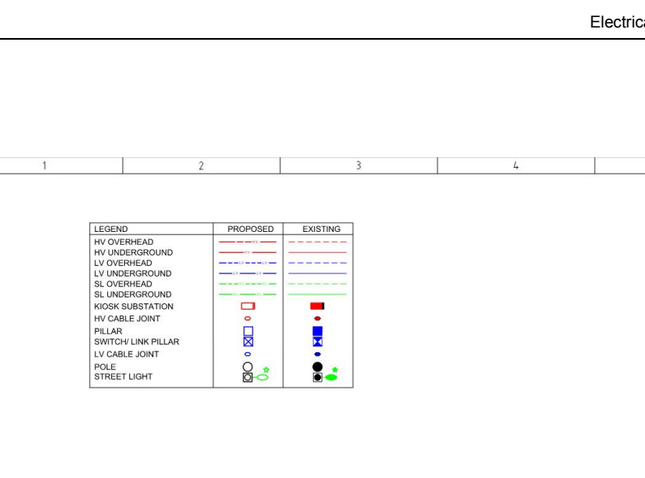
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

APPENDIX B – PROPOSED STAGING CONSTRUCTION

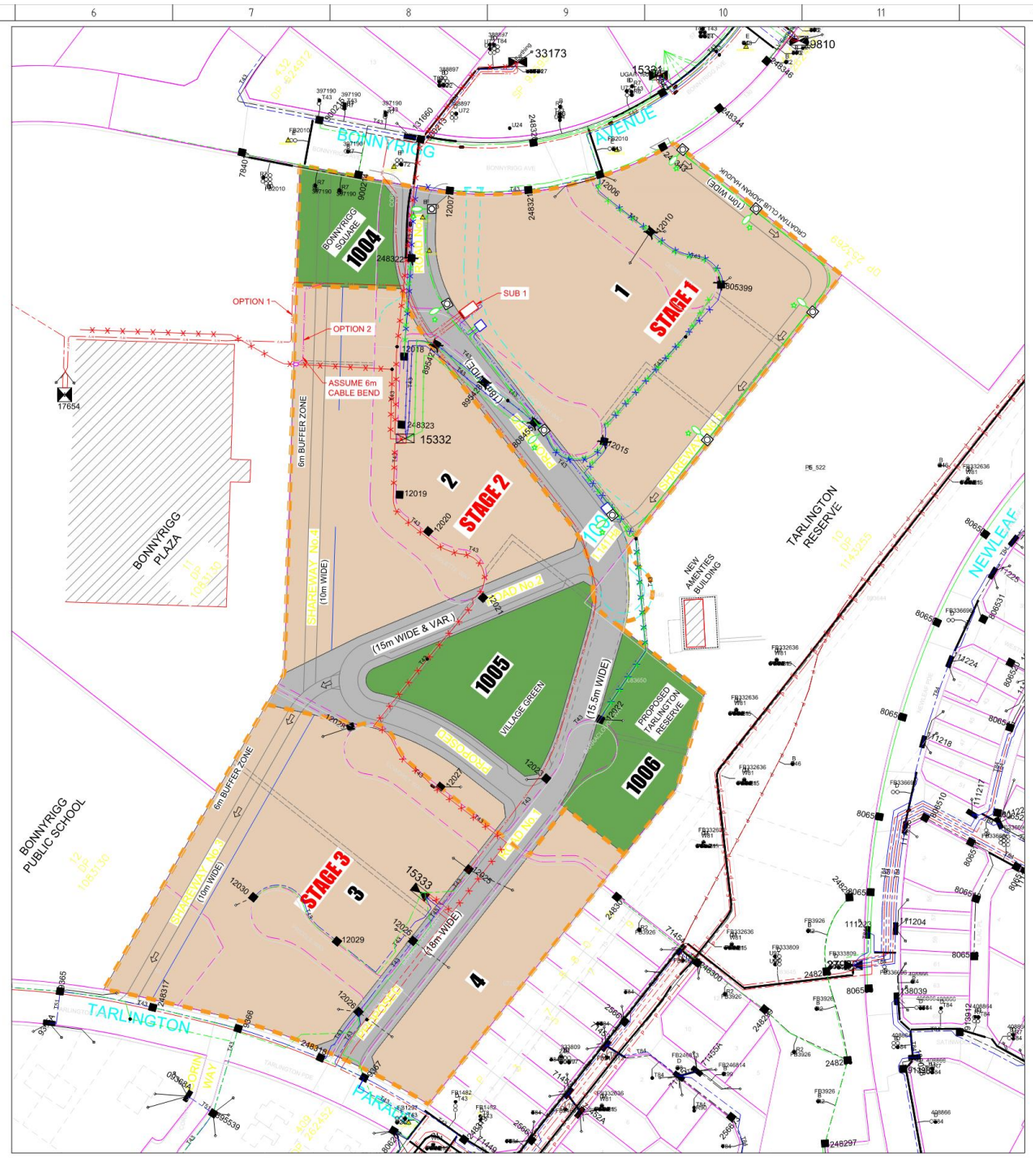
LEGEND	PROPOSED	EXISTING
HV OVERHEAD		
HV UNDERGROUND		
LV OVERHEAD		
LV UNDERGROUND		
SL OVERHEAD		
SL UNDERGROUND		
KIOSK SUBSTATION		
HV CABLE JOINT		
PILLAR		
SWITCH/ LINK PILLAR		
LV CABLE JOINT		
POLE		
STREET LIGHT		

SUMMARY OF WORKS

- LV EXTENSION FOR URD SUBDIVISION
- STREETLIGHTING TO AS/NZS 1158.3.1:2020 - CAT PR5 & BASED ON SPACING TABLES FOR ALDRIDGE TRAFFIC SYSTEMS 17W LUMINAIRE
- LV CABLES - 240 AL4 Z/SAC OR 300 AL4 Z/SAC FOR ROADWAYS
- LV CABLES TO HAVE MINIMUM 1 SPARE CONDUIT
- HV CABLES TO HAVE MINIMUM 1 SPARE CONDUIT



LOCALITY SKETCH
N.T.S.

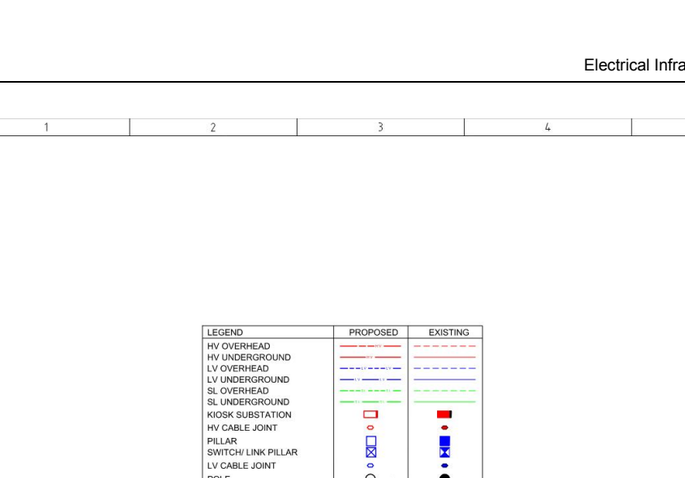


REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

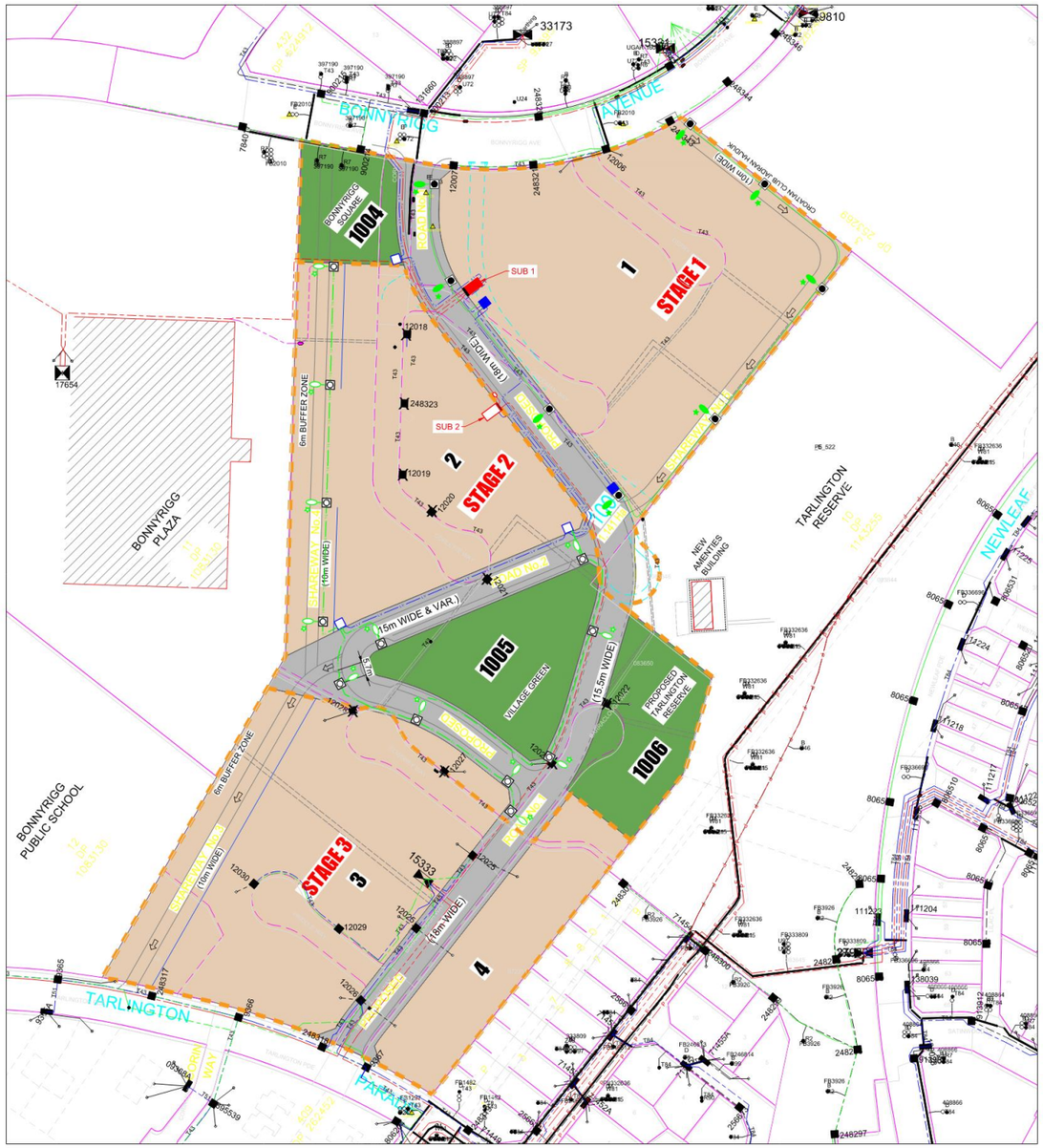
power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY: R.SHARIAR	DATE: 23/05/2022	TITLE: TARLINGTON PDE & BONNYRIGG AVE BONNYRIGG LOT 454 DP 839627 COMMUNITIES PLUS PROJECT STAGES 12 & 13	
DRAWN: K.COOPER	DATE: 23/05/2022		
APPROVED: R.SHARIAR	DATE: 23/05/2022		
CAD FILE NAME: 5076	JOB No.: 5076	SIZE: A1 / SCALE: NTS / DRG NO.: 5076 / SHEET: 1 of 4 / REV NO.: B	

LEGEND	PROPOSED	EXISTING
HV OVERHEAD		
HV UNDERGROUND		
LV OVERHEAD		
LV UNDERGROUND		
SL OVERHEAD		
SL UNDERGROUND		
KIOSK SUBSTATION		
HV CABLE JOINT		
PILLAR		
SWITCH/ LINK PILLAR		
LV CABLE JOINT		
POLE		
STREET LIGHT		



LOCALITY SKETCH
N.T.S.



CONCEPT ONLY
31-May-22 - 9:29 AM

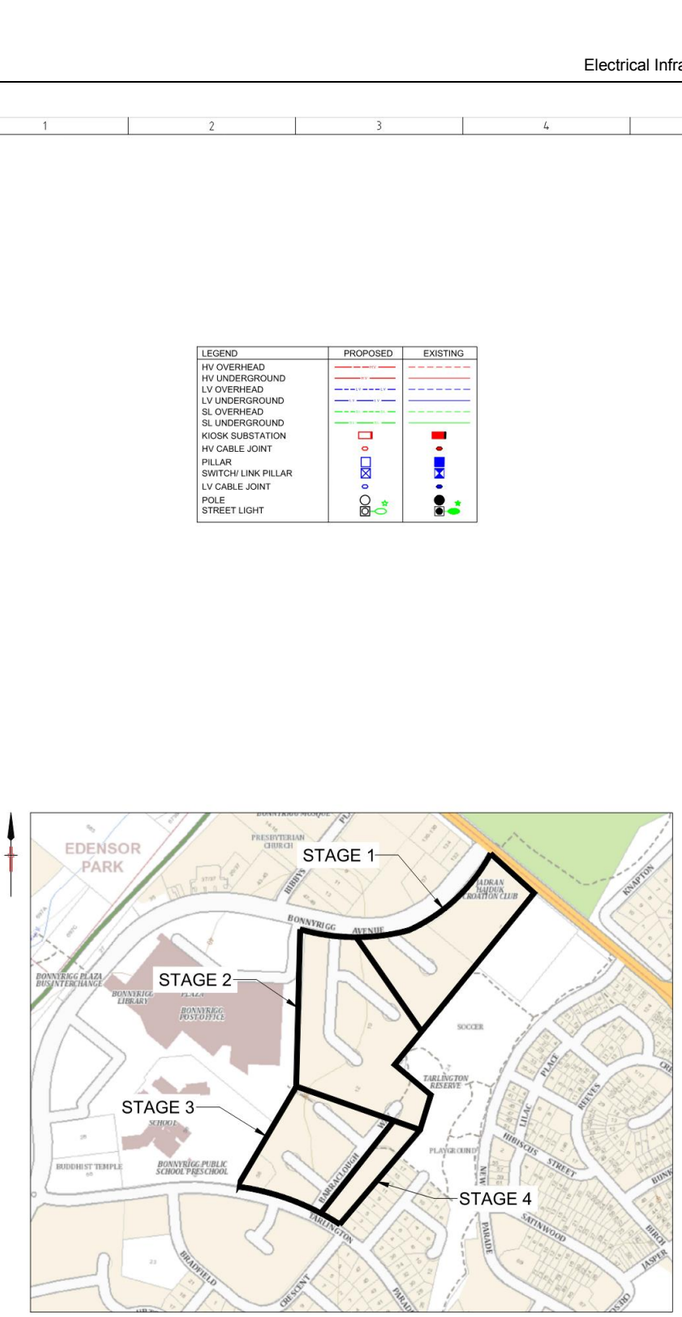
REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

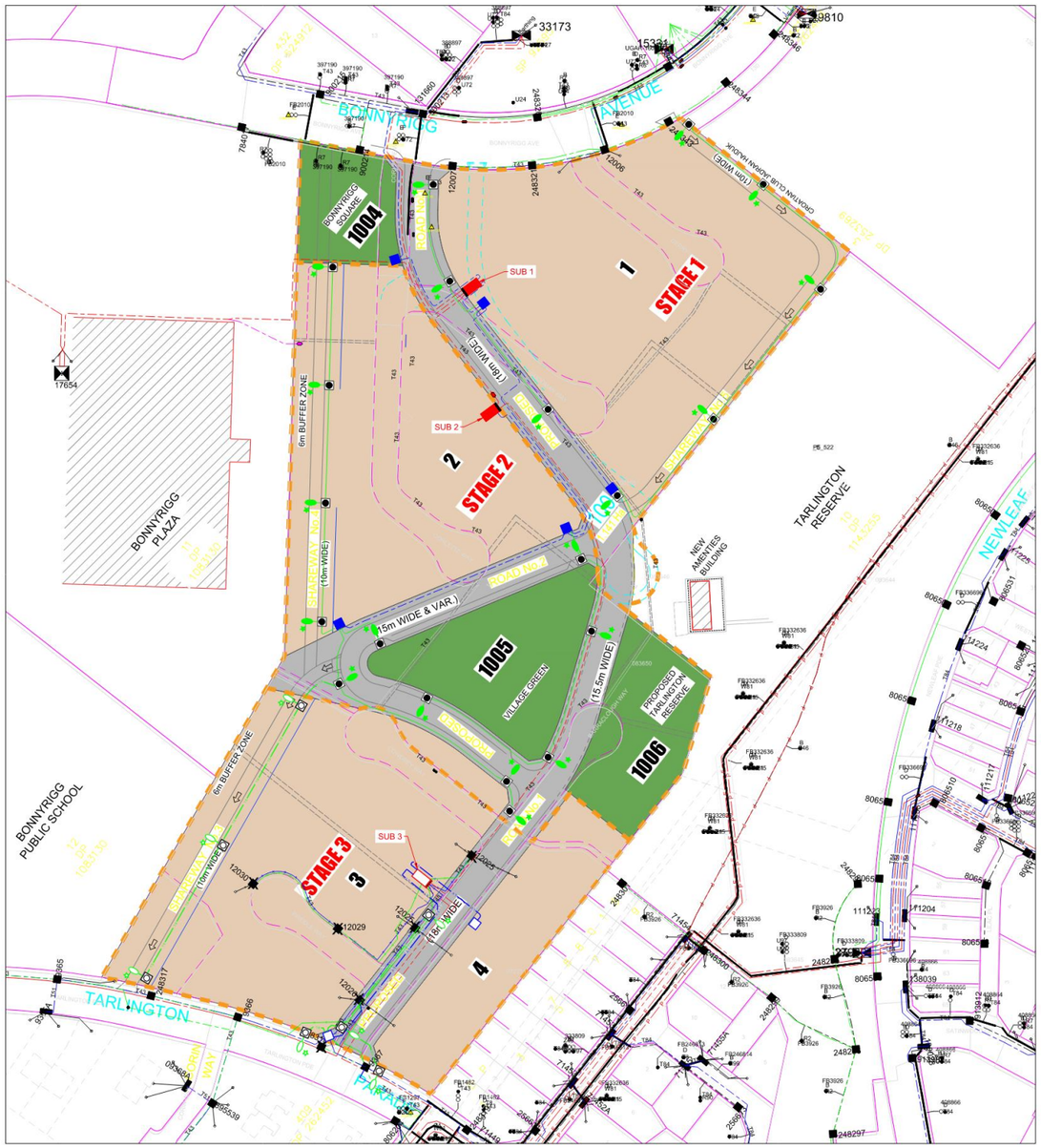
DESIGN BY	R.SHARIAR	DATE	23/05/2022
DRAWN	K.COOPER	DATE	23/05/2022
APPROVED	R.SHARIAR	DATE	23/05/2022
CAD FILE NAME	5076	JOB No.	5076
SIZE	A1	SCALE	NTS
DRG NO.	5076	SHEET	2 of 4
REV NO.	B		

TITLE
TARLINGTON PDE & BONNYRIGG AVE
BONNYRIGG
LOT 454 DP 839627
COMMUNITIES PLUS PROJECT
STAGES 12 & 13

LEGEND	PROPOSED	EXISTING
HV OVERHEAD		
HV UNDERGROUND		
LV OVERHEAD		
LV UNDERGROUND		
SL OVERHEAD		
SL UNDERGROUND		
KIOSK SUBSTATION		
HV CABLE JOINT		
PILLAR		
SWITCH/ LINK PILLAR		
LV CABLE JOINT		
POLE		
STREET LIGHT		



LOCALITY SKETCH
N.T.S.



REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

CONCEPT ONLY
31-May-22 - 9:29 AM

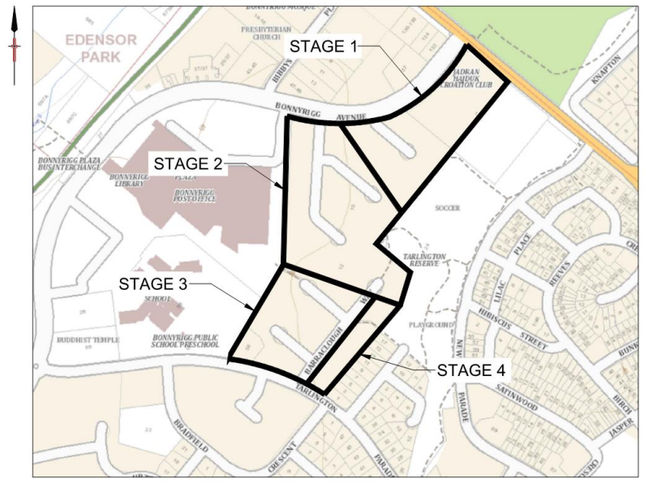
power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY	R.SHARIAR	DATE	23/05/2022
DRAWN	K.COOPER	DATE	23/05/2022
APPROVED	R.SHARIAR	DATE	23/05/2022

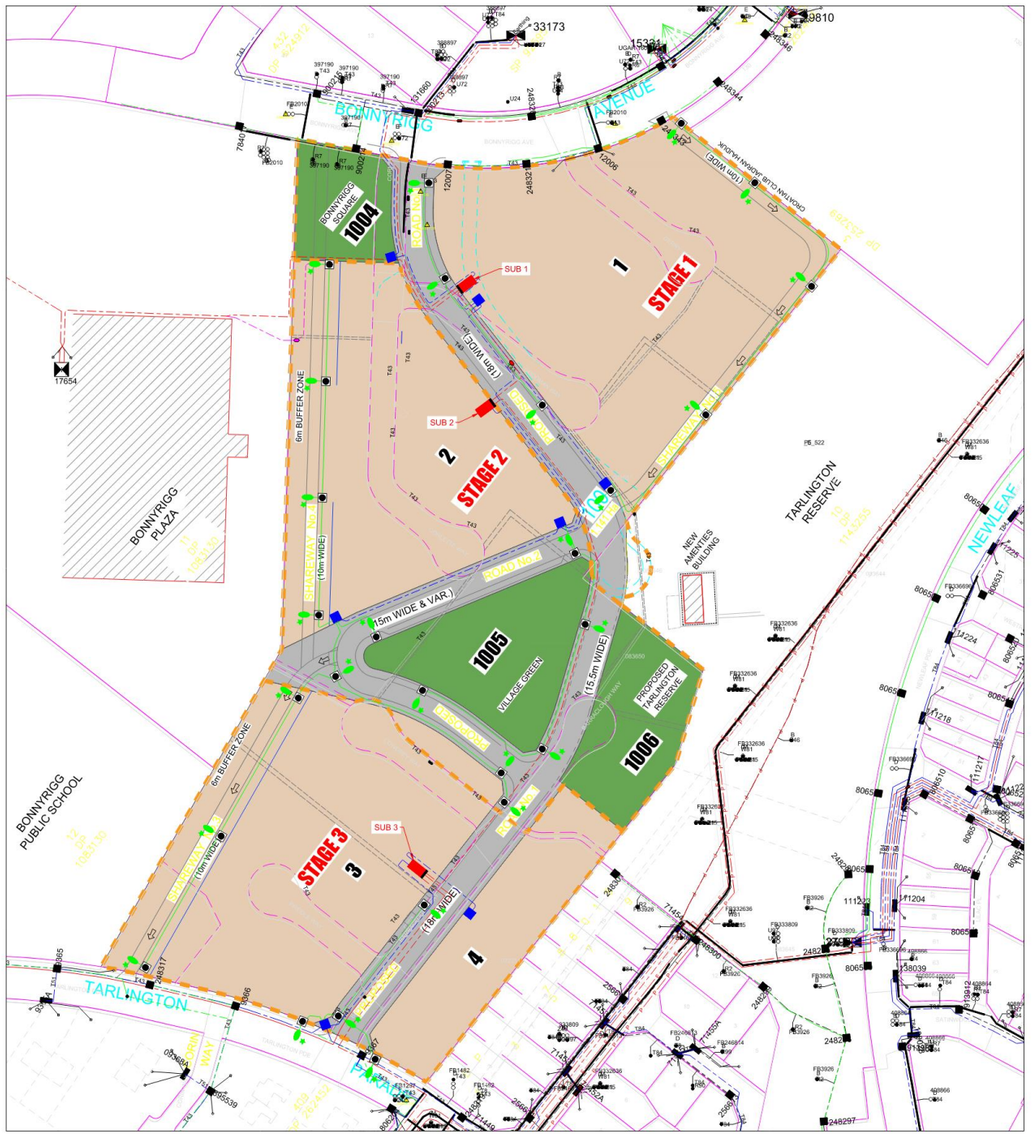
TITLE: TARLINGTON PDE & BONNYRIGG AVE
BONNYRIGG
LOT 454 DP 839627
COMMUNITIES PLUS PROJECT
STAGES 12 & 13

CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.	SHEET	REV NO.
5076	5076	A1	NTS	5076	3 of 4	B

LEGEND	PROPOSED	EXISTING
HV OVERHEAD		
HV UNDERGROUND		
LV OVERHEAD		
LV UNDERGROUND		
SL OVERHEAD		
SL UNDERGROUND		
KIOSK SUBSTATION		
HV CABLE JOINT		
PILLAR SWITCH/ LINK PILLAR		
LV CABLE JOINT		
POLE STREET LIGHT		



LOCALITY SKETCH
N.T.S.



CONCEPT ONLY
31-May-22 - 9:29 AM

REV	DATE	REVISION DESCRIPTION	BY	DRAWN	APPR'D
B	23/05/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.
A	24/04/2022	CONCEPT DESIGN	R.S.	K.C.	R.S.

power solutions
Sydney | Newcastle
1300 732 293 | projects@powersol.com.au
PO Box 278,
CHARLESTOWN NSW 2290

DESIGN BY: R.SHARIAR	DATE: 23/05/2022	TITLE: TARLINGTON PDE & BONNYRIGG AVE BONNYRIGG LOT 454 DP 839627 COMMUNITIES PLUS PROJECT STAGES 12 & 13	
DRAWN: K.COOPER	DATE: 23/05/2022		
APPROVED: R.SHARIAR	DATE: 23/05/2022		
CAD FILE NAME: 5076	JOB No.: 5076	SIZE: A1	SCALE: NTS
DRG NO.: 5076	SHEET: 4 of 4	REV NO.: B	

APPENDIX D

TELECOMMUNICATIONS REMOVAL AND RENEWAL CONCEPT PLAN

POP — PRIVATELY OPERATED PAYPHONES

APS — ASSISTANCE TELEPHONES (EG ELEVATOR AND ROADSIDE PHONES)

MET — APPLY TO OTHER TYPE OF METERING POINT (any service)

ATM — ATM

PRK — BANDSTAND / ROTUNDA / SPORTS FIELD STANDS / OTHER PARK BUILDING

PSD — POINT OF SALE DEVICE (vending machine, ticket machine)

TRF — Traffic Lights / Traffic Light Controller / Variable Speed Sign / Traffic Signal

PBT — Public Transport (bus stop, tram stop, railway station, taxi rank, ferry wharf)

SWT — Links / Link Pole / MV / HV Links / ABC Links / Dynamic Switch / Airbrake Switch / Isolator

WAT — Water Infrastructure (storage, pumps, valves water supply, waste water, sewerage stations)

GAS — Natural Gas Infrastructure

CAM — Camera (security / traffic)

CTL — Bridge control, swing bridge, traffic control gates, railway boom gates)

MOB — Mobile Phone Tower / radio antenna

LIT — Street Lighting Pole / street light controller

CAR — Unmanned (council) car park

PWR — Transformer / Kiosk / Pad Mount Sub-station / Pole Mount Transformer

NAP-ID — Network Access Point (NAP)

MPT-ID — Multiport (MPT)
n is the number of ports (eg 4,6,8,12)

Penetration

CABLE TRAY:

STAFF WORKING ON THIS ESTIMATE PLEASE NOTE: The location of other authorities services which may affect this work have not been obtained by the estimator. Constructor to obtain service information before commencing.

DANGER
LASER BEAM
EYE PROTECTION MUST BE WORN

SAFETY FIRST
SAFETY STARTS WITH YOU

TJL-ID — Splice Joint on a Transit Cable (TJL)

DJL-ID — Splice Joint on a Distribution Cable (DJL)

LJL-ID — Splice Joint on a Local Cable (LJL)

MJL-ID — Splice Joint on a Tether Cable (MJL)

AJL-ID — Zone Terminal / Splice Joint (AJL)

FDH-ID — Fibre Distribution Hub-FDH Cabinet with Cabinet ID shown

PIT-ID 2 — Service Drop Access Pit (650mmX280mmX565mm)

PIT-ID 5 — Network Boundary/Local Network Pit (Single Lid) (700mmX450mmX650mm)

PIT-ID 6 — Distribution/Local Network Connection Pit (Dual Lid) (1360mmX555mmX650mm)

PIT-ID 8 — Distribution/Local Network Connection Pit (1360mmX555mmX860mm)

PIT-ID 9 — Fibre Distribution Hub (FDH) Pit (2000mmX555mmX900mm)

Shared Trench

NTD — nbn NTD

OBBU — NBN Optional Battery Backup Unit

PDH — nbn Premises Distribution Hub

CTL — nbn Cable Transition Location

FDT — nbn Fibre Distribution Terminal

FIP — nbn NTD Fire Indicator Panel

Riser — Riser

LIFT — nbn NTD LIFT

AP — Access Panel

SEC — nbn NTD Security

CET — nbn Communications Earth Terminal

DES / QTY — Example of descriptor box that will show the type of work and the quantity involved

nbn manhole

Existing Telstra manhole

FAN AAAA — Fan Access Node site (FAN)

138A RX CX — Multi Dwelling Unit (MDU)

NBN.CO

DEPTH —- / ALIGN —- — DEPTH OVER ALIGNMENT SYMBOL TO BE USED WITH EVERY MARKER POST

Symbol to be used when replacing/removing existing network

PCD — Premise Connection Device (PCD)

POLE-ID — Pole (showing pole identity)

5 — Existing Telstra Pit (2,3,4,5,6,7,8,9)
Telstra exchange

Example of Telstra Major Conduit Layout with Proposed duct marked to be used by NBN

M < _ > — NBN MARKER POST
MARKER POST TO BE NUMBERED

CONDUIT CONFIGURATION

CONDUITS AND DUCTS ARE IN LAYER :
< L460 NBN Support - Underground >
AND TERMINOLOGY CATEGORIZED INTO TWO GROUPS IN THE DRAWING AS PER BELOW:
1- DUCT USED WITH LOCAL NETWORK

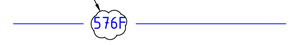
2-CONDUIT USED WITH LEAD-IN DROPS
ATTRIBUTES ATTACHED ARE AS SHOWN

CABLE CONFIGURATION

CABLE TYPE:
CABLES DIVIDE INTO FOLLOWING CATEGORIES AND ARE COLOUR CODED:

TRANSIT CABLES	COLOUR NO: 1	312F
DISTRIBUTION CABLES	COLOUR NO: 190	288F
LOCAL CABLES	COLOUR NO: 4	144F
TETHER CABLES	COLOUR NO: 3	12F
LEAD IN (DROP) CABLES	COLOUR NO: 5	1F

CABLE SIZE:
CABLE SIZE IS THE TOTAL NUMBER OF OPTIC FIBRES IN THE CABLE AND IS DETERMINED BY A NUMBER FOLLOWED BY F (FIBRE) OR R (RIBBON) IN THE MIDDLE OF THE LINE TYPE



CABLE LOCATION:
CABLE LOCATIONS DETERMINES WHERE THE CABLE IS USED AS PER BELOW:

IN-CONDUIT	288F
AERIAL	144F
BURIED	96F

LINE TYPES ARE CATEGORIZED INTO 3 TYPES:
1- IN-CONDUIT: (XXXF) 312F , ...
2- AERIAL: (XXXF_A) 144_A , ...
3- BURIED: (XXXF_B) 12_B , ...

EXAMPLE:

144 FIBRE AERIAL LOCAL CABLE	144F
1 FIBRE BURIED DROP CABLE	1F 1F
432 FIBRE IN-CONDUIT TRANSIT CABLE	48F

FSA Boundary
FSAM Boundary
FDA Boundary

PRELIMINARY

DIAL BEFORE YOU DIG
www.1100.com.au

REV	DATE	DRAFTER	DESCRIPTION	APPROVED
-				
-				
-				
-				
-				
-				
-				
.A.01	04/07/2022	CIPRIAN PASCU	PRELIMINARY	NAME

STRICTLY CONFIDENTIAL

NBNCO APPROVAL RECORD:

	SIGNATURE	DATE
DD		
WD		
AB		

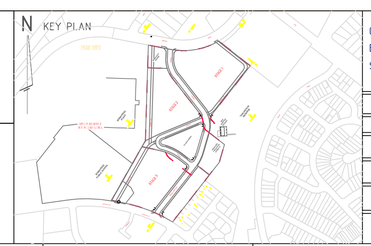
QUALITY RECORD :

NBNCO DISCLAIMER
THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR THE USE OF NBNCO LIMITED (ABN 86 136 533 741) FOR USE IN MAINTAINING NBNCO FACILITIES. IT HAS NOT BEEN CREATED FOR ANY OTHER USE. IT SHOULD NOT BE SCALED TO LOCATE NBNCO ASSETS. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE.

Australia's broadband network

DESIGN IT TELCO PTY . LTD

N KEY PLAN



DRAWING TITLE:
CONCEPT DESIGN - PIT & PIPE PROJECT
BONNYRIGG AVE & TARLINGTON PDE, BONNYRIGG
STAGE 12 & 13

ENABLE#:		
STATE: NSW	REGION:	
FSA:	SAM:	ADA:
PROJECT No:	STG-W000???	
CADREF No:	PN 36420	
SCALE N/A	SHEET No. OF	REV. A

NOTES:

1. ALL PIT & PIPE INFRASTRUCTURE IS TO BE INSTALLED ACCORDING TO NBN Co's CONDUIT AND PIT NETWORK GUIDELINES (DOCUMENT NUMBER NBN-TE-CTO-194 VERSION 7.0 OR LATER).

2. —+— DENOTES SHARED TRENCHES

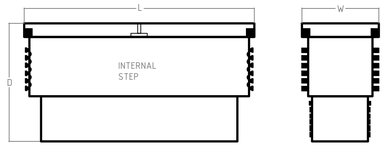
3. CONDUITS TO BE INSTALLED IN SHARED TRENCHES, BUT NOT VERTICALLY ABOVE OR BELOW OTHER UTILITIES.
CONDUITS MAY BE INSTALLED WITHIN THE ENDEAVOUR ENERGY ASSET ALLOCATION SPACE IF MANDATORY RADIAL SEPARATION FROM OTHER SERVICES IS MAINTAINED AT ALL TIMES.
MINIMUM SEPARATIONS ARE:
- GAS MAIN (≤Ø75mm) - 150mm
- GAS MAIN (≥Ø110mm) - 300mm
- LV CABLES - 100mm
- HV CABLES - 300mm
REFER TYPICAL CROSS SECTION DIAGRAM.

4. NO PITS TO BE INSTALLED WITHIN 15m FROM ANY PAD MOUNTED TRANSFORMER. i.e. NO PITS TO BE INSTALLED WITHIN THE EPR (Earth Potential Rise) ZONE.

5. PITS TO BE INSTALLED CLEAR OF PROPOSED DRIVEWAYS

6. EXCLUSIVE ROAD CROSSING

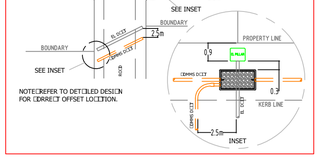
7. FOR REMOVAL/RELOCATION OF EXISTING COMMS POLES & OVERHEAD NETWORK - DEVELOPER AND/OR PROJECT MANAGER IS TO LIAISE WITH:
* TELSTRA - NETWORK INTEGRITY SERVICES
PH. 1800 810 443 - NetworkIntegrity@team.telstra.com
* NBN RELOCATION WORKS GROUP
RelocationWorks@nbnco.com.au

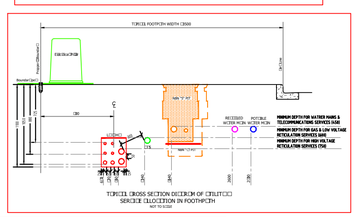


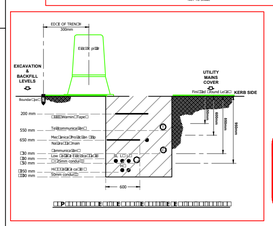
NBN NOMINAL DIMENSIONS (mm)			
PIT TYPE	L	W	D
Local Networ□ Pit/Networ□ Bo□ndary Pit	700	450	650
Local Networ□ Connection Pit	1360	555	860
Distrib□tion Pit	1360	555	860
FDH PIT	2000	555	900

TYPICAL ROAD CROSSING CONFIGURATION

OFFSET FROM ELECTRICAL DUCTS TO ALLOW FOR SIDE ENTRY INTO PIT & CORRECT PIT PLACEMENT ON BOUNDARY.





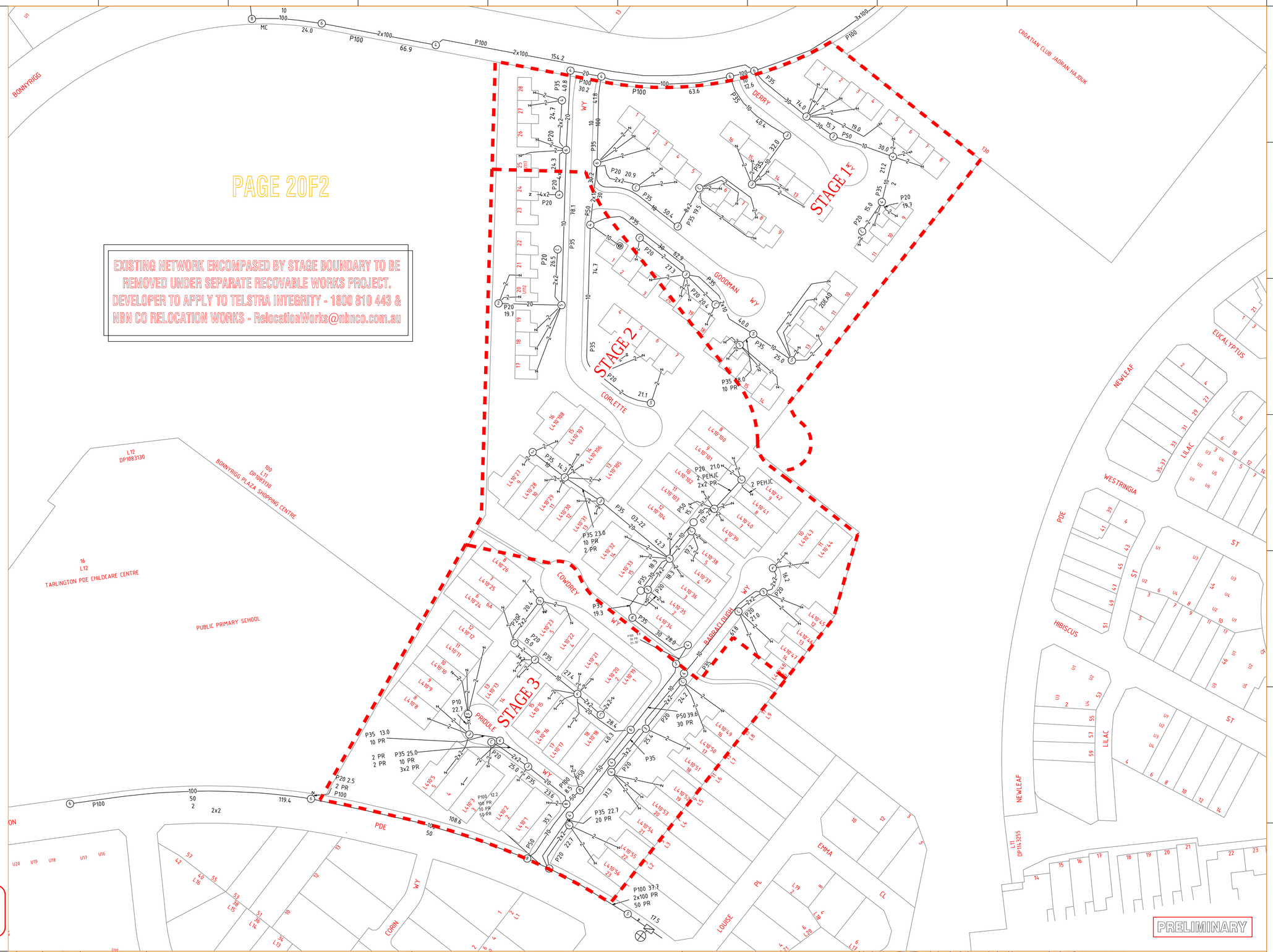


DESIGN & CONSTRUCTION AS PER NBN GUIDELINES DOCUMENT.
* INSTALLING PIT AND CONDUIT INFRASTRUCTURE - GUIDELINES FOR DEVELOPERS * - 08/07/2013

CIVIL CONTRACTORS ARE NOT TO LINK INTO EXISTING TELSTRA OR OTHER SERVICE PROVIDER NETWORK. NEW NETWORK WILL BE LINKED UNDER FUTURE PROJECT.
PIT AND PIPE ONLY WITH-IN THE DEVELOPMENT

PAGE 20F2

EXISTING NETWORK ENCOMPASED BY STAGE BOUNDARY TO BE REMOVED UNDER SEPARATE RECOVABLE WORKS PROJECT.
DEVELOPER TO APPLY TO TELSTRA INTEGRITY - 1800 810 443 & NBN CO RELOCATION WORKS - RelocationWorks@nbnco.com.au



REV	DATE	DRAFTER	DESCRIPTION	APPROVED
-				
-				
-				
-				
-				
-				
-				
-A.01	04/07/2022	CIPRIAN PASCU	PRELIMINARY	NAME

DIAL BEFORE YOU DIG
www.1100.com.au

STRICTLY CONFIDENTIAL

NBNCO APPROVAL RECORD:

	SIGNATURE	DATE
☐ DD		
☐ WD		
☐ AB		

QUALITY RECORD :

NBNCO DISCLAIMER

THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR THE USE OF NBNCO LIMITED (ABN 86 136 533 741) FOR USE IN MAINTAINING NBNCO FACILITIES. IT HAS NOT BEEN CREATED FOR ANY OTHER USE. IT SHOULD NOT BE SCALED TO LOCATE NBNCO ASSETS. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE.

Australia's broadband network

DESIGN IT TELCO PTY . LTD

KEY PLAN

DRAWING TITLE:
NETWORK REMOVAL - PIT & PIPE PROJECT
BONNYRIGG AVE & TARLINGTON PDE, BONNYRIGG
STAGE 12 & 13

ENABLE#:

STATE: NSW	REGION:	
FSA:	SAM:	ADA:
PROJECT No: STG-W000???		
CADREF No: PN 36420		
SCALE N/A	SHEET No. 2 OF 2	REV. A

NOTES:

1. ALL PIT & PIPE INFRASTRUCTURE IS TO BE INSTALLED ACCORDING TO NBN Co's CONDUIT AND PIT NETWORK GUIDELINES (DOCUMENT NUMBER NBN-TE-CTO-194 VERSION 7.0 OR LATER).

2. —|— DENOTES SHARED TRENCHES

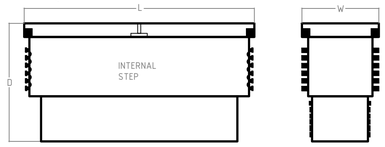
3. CONDUITS TO BE INSTALLED IN SHARED TRENCHES, BUT NOT VERTICALLY ABOVE OR BELOW OTHER UTILITIES.
CONDUITS MAY BE INSTALLED WITHIN THE ENDEAVOUR ENERGY ASSET ALLOCATION SPACE IF MANDATORY RADIAL SEPARATION FROM OTHER SERVICES IS MAINTAINED AT ALL TIMES.
MINIMUM SEPARATIONS ARE:
- GAS MAIN (≤Ø75mm) - 150mm
- GAS MAIN (≥Ø110mm) - 300mm
- LV CABLES - 100mm
- HV CABLES - 300mm
REFER TYPICAL CROSS SECTION DIAGRAM.

4. NO PITS TO BE INSTALLED WITHIN 15m FROM ANY PAD MOUNTED TRANSFORMER. i.e. NO PITS TO BE INSTALLED WITHIN THE EPR (Earth Potential Rise) ZONE.

5. PITS TO BE INSTALLED CLEAR OF PROPOSED DRIVEWAYS

6. EXCLUSIVE ROAD CROSSING

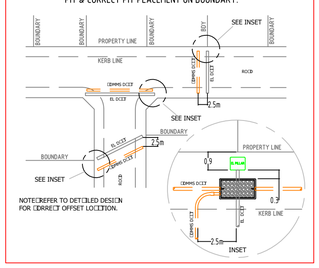
7. FOR REMOVAL/RELOCATION OF EXISTING COMMS POLES & OVERHEAD NETWORK - DEVELOPER AND/OR PROJECT MANAGER IS TO LIAISE WITH:
* TELSTRA - NETWORK INTEGRITY SERVICES
PH. 1800 810 443 - NetworkIntegrity@team.telstra.com
* NBN RELOCATION WORKS GROUP
RelocationWorks@nbnco.com.au



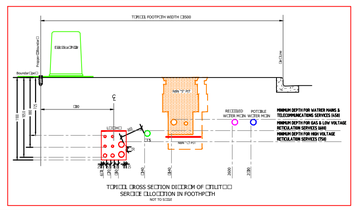
NBN NOMINAL DIMENSIONS (mm)			
PIT TYPE	L	W	D
Local Networ□ Pit/Networ□ Bo□ndary Pit	700	450	650
Local Networ□ Connection Pit	1360	555	860
Distrib□tion Pit	1360	555	860
FDH PIT	2000	555	900

TYPICAL ROAD CROSSING CONFIGURATION

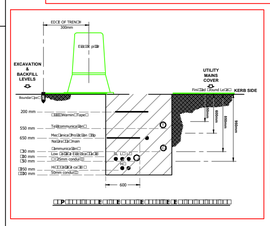
OFFSET FROM ELECTRICAL DUCTS TO ALLOW FOR SIDE ENTRY INTO PIT & CORRECT PIT PLACEMENT ON BOUNDARY.



NOTE:REFER TO DETCTILED DESIGN FOR CORRECT OFFSET LOCATION.



TYPICAL CROSS SECTION DECIRON OF UTILITIES SERVICE ALLOCATION IN FOOTPATH
NOT TO SCALE



DESIGN & CONSTRUCTION AS PER NBN GUIDELINES DOCUMENT.
" INSTALLING PIT AND CONDUIT INFRASTRUCTURE - GUIDELINES FOR DEVELOPERS " - 08/07/2013

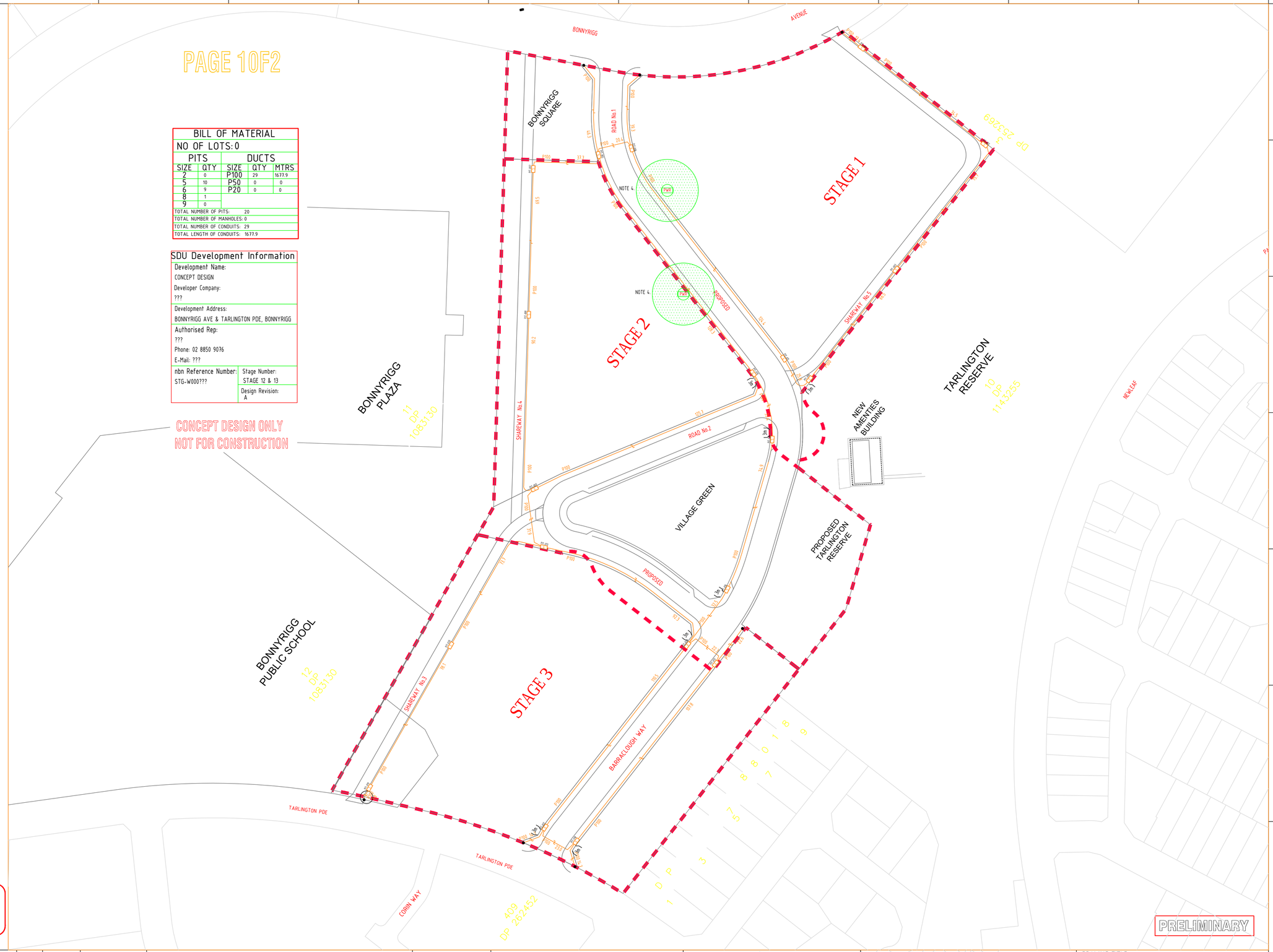
CIVIL CONTRACTORS ARE NOT TO LINK INTO EXISTING TELSTRA OR OTHER SERVICE PROVIDER NETWORK. NEW NETWORK WILL BE LINKED UNDER FUTURE PROJECT. PIT AND PIPE ONLY WITH-IN THE DEVELOPMENT

PAGE 10F2

BILL OF MATERIAL				
NO OF LOTS: 0				
PITS		DUCTS		
SIZE	QTY	SIZE	QTY	MTRS
2	0	P100	29	1677.9
5	10	P50	0	0
6	9	P20	0	0
8	1			
9	0			
TOTAL NUMBER OF PITS: 20				
TOTAL NUMBER OF MANHOLES: 0				
TOTAL NUMBER OF CONDUITS: 29				
TOTAL LENGTH OF CONDUITS: 1677.9				

SDU Development Information	
Development Name: CONCEPT DESIGN	
Developer Company: ???	
Development Address: BONNYRIGG AVE & TARLINGTON PDE, BONNYRIGG	
Authorised Rep: ??? Phone: 02 8850 9076 E-Mail: ???	
nbn Reference Number: STG-W000???	Stage Number: STAGE 12 & 13
	Design Revision: A

CONCEPT DESIGN ONLY
NOT FOR CONSTRUCTION



PRELIMINARY

DIAL BEFORE YOU DIG
www.1100.com.au

REV	DATE	DRAFTER	DESCRIPTION	APPROVED
-				
-				
-				
-				
-				
-				
-				
-A.01	04/07/2022	CIPRIAN PASCU	PRELIMINARY	NAME

STRICTLY CONFIDENTIAL

NBNCO APPROVAL RECORD:

	SIGNATURE	DATE
☐ DD		
☐ WD		
☐ AB		

QUALITY RECORD :

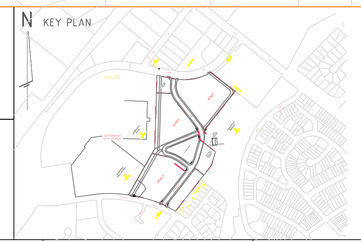
NBNCO DISCLAIMER

THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR THE USE OF NBNCO LIMITED (ABN 86 136 533 741) FOR USE IN MAINTAINING NBNCO FACILITIES. IT HAS NOT BEEN CREATED FOR ANY OTHER USE. IT SHOULD NOT BE SCALED TO LOCATE NBNCO ASSETS. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE.

Australia's broadband network

DESIGN IT TELCO PTY . LTD

N KEY PLAN



DRAWING TITLE:
CONCEPT DESIGN - PIT & PIPE PROJECT
BONNYRIGG AVE & TARLINGTON PDE, BONNYRIGG
STAGE 12 & 13

ENABLE#:		
STATE: NSW	REGION:	
FSA:	SAM:	ADA:
PROJECT No: STG-W000???		
CADREF No: PN 36420		
SCALE N/A	SHEET No. 1 OF 2	REV. A