HOMEBUSH BAY PROPERTIES
PTY LTD

Block D, 37-39 Hill Road - Wentworth Point

Stormwater Management Development Application Report

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Approver: Andrew Tweedie

Report no: 17-477-01 **Revision:** 02 **Date:** December 2018

Document information

Level 7, 153 Walker Street, North Sydney, NSW 2060

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Finalisation signatures

The design described in this report is considered to have been finalised.

Signature		**Date**
Andrew Tweedie Civil Engineer		17/12/18
Glen James Lead Designer /Engineer (Author)		17/12/18

Notes: The finalisation signatures shown above do not provide evidence of approval to the design. Approval signatures are shown on the title sheet of the design plans.

Contents

APPENDIX

Figures

Tables

1 Introduction

This Civil Stormwater Management Report supports the proposed Stage 1/Block D development of 37-39 Hill Road in Wentworth Point. Refer to Figure 1 for location of the proposed development.

AT&L have been engaged by Homebush Bay Properties Pty Ltd to prepare a Development Application (DA) Civil Stormwater Management Report on the civil and stormwater management requirements for the proposed development.

This report is written to comply with the Auburn Council Development Control Plan (DCP) and the Homebush Bay West DCP prepared in June 2004.

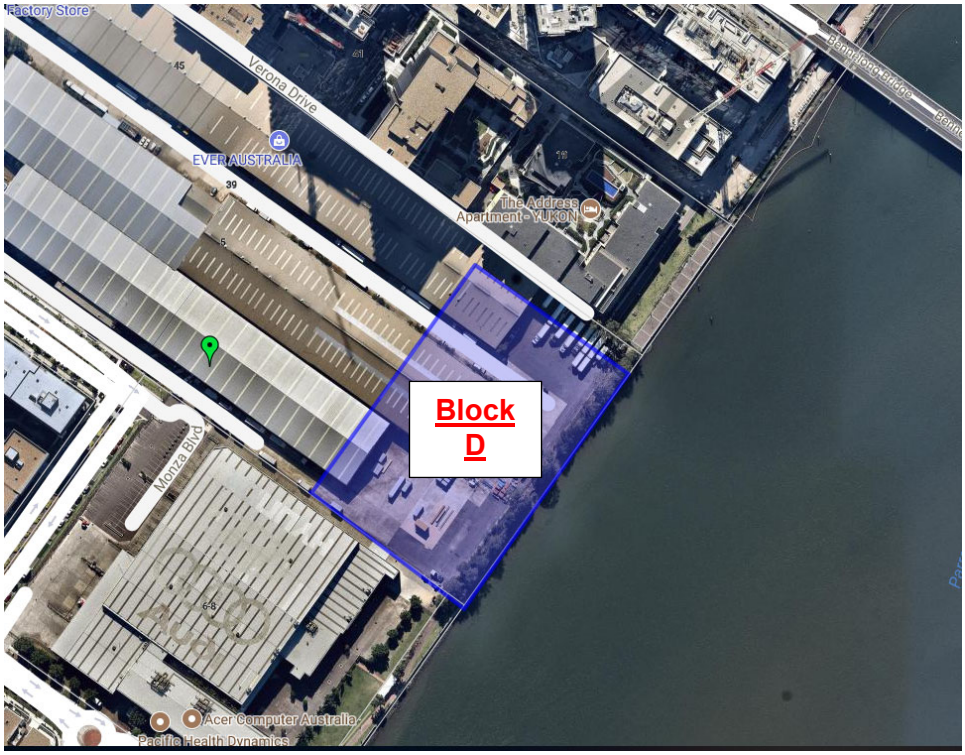


Figure 1: Locality Plan (Courtesy of Near Map)

The site is approximately 0.88 Ha in area (post-road subdivision, refer to Stage 1 DA Drawing Series 1000) and consists of extensive hardstand surface and a mixed-use warehouse structure. It is currently zoned as commercial/industrial with the majority of the site comprising of impervious surfaces. Existing site access is via Hill Road to the north west via vehicular driveway and layback.

2 Project Description

The proposed development involves the construction of a residential building structure to a maximum height of 8 storeys with one level of basement carparking and two levels of podium car parking/perimeter apartments. Refer to Figure 2 for Architectural site layout. The foreshore embellishment is included in a separate approval. Access to the development will be via Verona Drive to the north via a new driveway crossover.

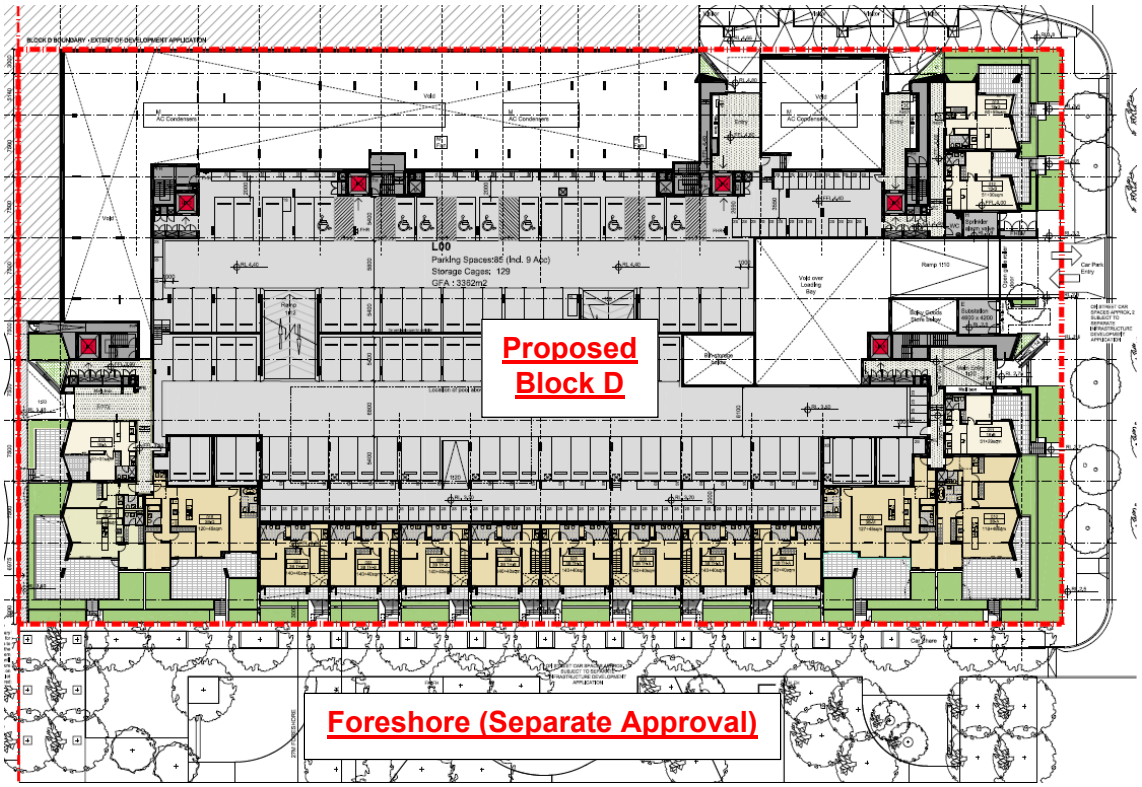


Figure 2: Proposed Architectural Layout (Courtesy of Batessmart)

The total site area is 0.88 Ha and is currently a mixed-use commercial/industrial warehouse, with associated hardstand. The site is bordered by Verona Drive to the north, future Marine Parade to the west (separate approval), foreshore embellishment (separate approval) and Parramatta River to the east and future park others to the south.

The existing site generally falls from the south-western boundary at RL 2.54 to the north-eastern boundary at RL 1.88. Refer to the survey drawings within Appendix A for all features on site along with existing contour levels.

2.1 Scope of Report

This report outlines the design criteria for the proposed stormwater infrastructure for this development and how stormwater is managed across the development.

Refer to Appendix B for the Proposed Residential Civil Development Application Civil Works Package Drawings.

This report has been prepared to satisfy the requirements and conditions of the following documents:

- Homebush Bay West Development Control Plan June 2014;
- Auburn Development Control Plan (DCP) 2010; and
- OEH's *Managing Urban Stormwater: Soils and Construction Guideline.*

It should be noted that due to Council amalgamations, which occurred in September 2016, parts of the former Holroyd and Parramatta City Councils have now merged with most of the former Auburn City Council, forming Cumberland Council. Thus, this development application is likely to be assessed against the Parramatta City Council Development Control Plan, in unison with the Auburn DCP.

It includes:

- Stormwater Management:
    - Piped and Overland Flows;
    - On Site Detention (OSD);
    - Sediment and Erosion Control;
    - Water Sensitive Urban Design (WSUD); and
    - Rainwater Harvesting.

3 Stormwater Management

3.1 Existing Stormwater Drainage

There is an existing pit and pipe network located within the site which discharges into the Parramatta River via an existing headwall at the eastern side of the property.

There is also a natural overland flow path into Parramatta River to the east.

3.2 Proposed Site Stormwater Drainage

All proposed stormwater drainage from the development will be designed in accordance with Parramatta City Council and Auburn City Council requirements (unison).

All stormwater is proposed to connect into the proposed stormwater (Separate Approval) in Verona Drive, and ultimately into Parramatta River to the east.

Refer to the Civil Drawings in Appendix B for layout and details for the proposed stormwater network across the site.

Stormwater generated within the proposed site will be treated to the Homebush Bay West DCP water treatment rates through the use of proprietary treatment devices. The proposed development will also incorporate the use of a rainwater harvest tank to assist with the water treatment and BASIX requirements.

3.3 Hydrology

- Pipe drainage shall be designed to accommodate the 20-year ARI storm event (5% AEP) in accordance with Auburn Council requirements;
- The combined piped and overland flow paths shall be designed to accommodate the 100-year ARI storm event.
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 100-year ARI storm event shall be provided. Alternatively, the pipe and inlet system may be upgraded to accommodate the 100 year ARI storm event;
- Rainfall intensities shall be as per the Intensity-Frequency-Duration table in accordance with the Auburn Council rainfall data;
- Times of concentration for each sub catchment shall be determined using the kinematic wave equation. Minimum time of concentration is 5 mins and the maximum is 20 mins. Runoff coefficients shall be calculated in accordance with AR&R. The fraction impervious shall be determined from analysis of the sub catchments;
- Runoff coefficients shall be calculated in accordance with the ARR&R. The fraction impervious shall be determined from analysis of the sub-catchments;
- Flow width in gutter shall not exceed 2.0m for the minor design storm event.

- Velocity depth ratios shall not exceed 0.4 for all storms up to and including the 100 year ARI event.
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit;
- Blockage factors of 20% and 50% shall be adopted for kerb inlet and grated pits respectively; and
- All pits deeper than 1.8m to be reinforced.
- The maximum spacing between pits shall be 60m.
- The minimum lintel size for any road drainage pit shall be 1.2m.

3.4 Hydraulics

- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design. The HGL shall be shown on all drainage long sections;
- The minimum pipe size shall be 375mm diameter RCP (external) and 150mm uPVC (internal);
- The minimum pipe grade shall be 1.0% (external) and 0.5% (internal);
- All pipes shall be Rubber Ring Jointed unless noted otherwise;
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways;
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased;
- All trafficable pipes shall be a minimum Class 3 Reinforced Concrete Pipes or Fibre Reinforced Cement equivalent;
- The pipe friction coefficients to be adopted shall be:

Materials	Mannings – n	Colebrook-White – k	Min. Pipe Class
RCP	0.012	0.3	3
FRC	0.011	0.15	3

Table 1 - Pipe Details

- All pipes classes shall be designed for the ultimate service loads and where applicable, construction loads will be designed for;
- Pipes discharging to the overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level;
- Pit Loss coefficients shall be calculated in accordance with Missouri Charts;
- A minimum 150mm freeboard shall be maintained between pit HGL and pit surface levels;

- Overland flowpaths shall maintain a minimum of 300mm freeboard to all habitable floor levels; and
- Pits deeper than 1.2m shall contain step irons at 300 mm centers.

3.5 On-Site Detention (OSD)

According to Table 3 Site Storage Requirements in the Auburn City Council Development Control Plan 2010, the site is situated within PSD Zone 8, Sydney Olympic Park Catchment.

Within this zone there is no requirement for On Site Detention given the proximity to the river. Given this and verbal confirmation from Council there is no requirement for OSD for the development of Lot 8, Wentworth Point.

3.6 Modelling Software

MUSIC modelling software has been used to evaluate pollutant loads from the developed lot. MUSIC data files and output results are attached in Appendix C.

Refer to Appendix B for stormwater drawings, for building drainage refer to hydraulics drawings for information.

3.7 Overland Flows and Flooding

Overland flow paths for the development are indicated within AT&L Drawings located within Appendix B. Refer to Infrastructure Drawing series 200 for road network overland flow parameters.

The ultimate overland flow path for the Block D development will be via Verona Drive to the north, discharging to Parramatta River. The proposed development sits outside mainstream flooding extents, in accordance with the Auburn City Council LEP maps.

All property and road drainage will be designed to the 20 year ARI storm with all overland flow paths designed to the 100 year ARI storm.

The 1% AEP flood level is RL 1.0 m AHD and the PMF level is RL 2.15 m AHD and based on the Lower Parramatta River Floodplain Risk Management Study – Flood Study Review, 2005. The site is within the Low Hazard/PMF zone on City of Parramatta Council Hydraulic Hazard Map, refer to Figure and 4 for details.

All habitable floor levels are set to a minimum 500mm higher than the 1% AEP level, the crest into the basement is set at RL 2.75, which is above both RL 1.0 m AHD and RL 2.15 m AHD. Architectural floor levels are set between RL 3.20 to RL 4.80. Refer to Appendix H for details.

Refer to Appendix G for Flood Emergency Response Plan.

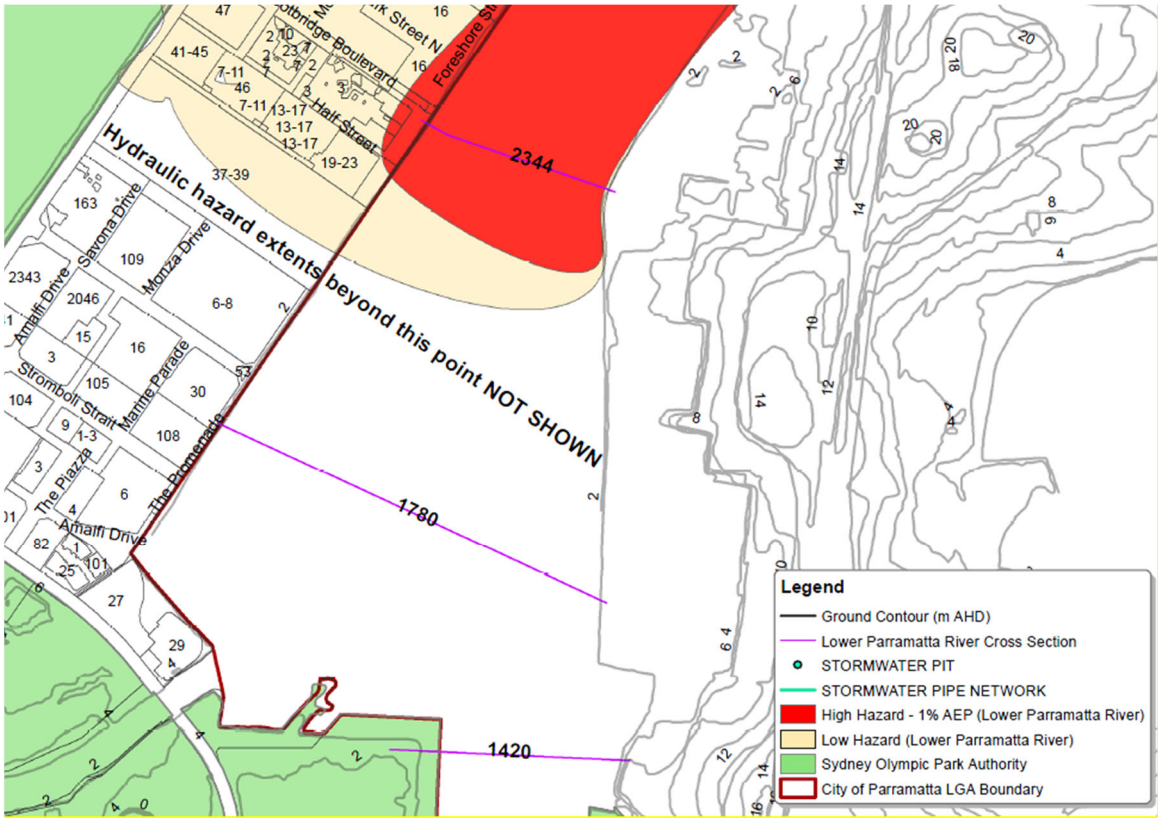


Figure 3: City of Parramatta Council Hydraulic Hazard Map

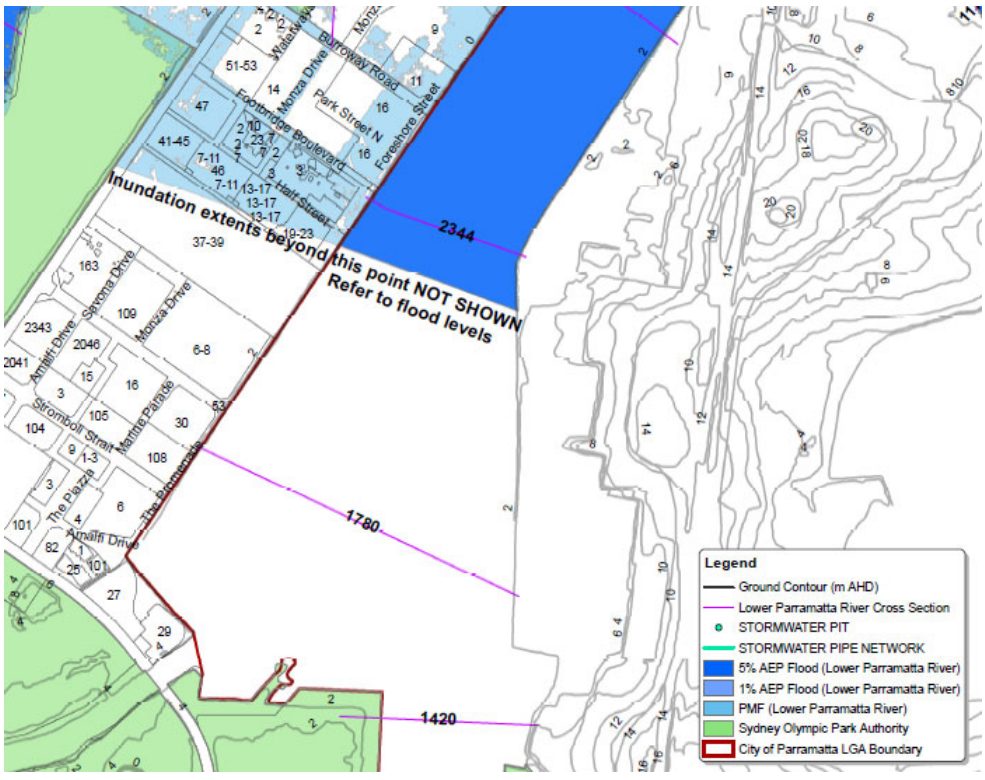


Figure 4: City of Parramatta Council Flood Map

4 Water Sensitive Urban Design

4.1 Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design (WSUD) encompasses all aspects of urban water cycle management, including water supply, wastewater and stormwater management. WSUD is intended to minimise the impacts of development upon the water cycle and to achieve more sustainable forms of urban development.

Proprietary treatment devices will treat the water to meet the required PCC treatment rates. These devices have been modelled as a Stormwater360 StormFilters water treatment tank. Permeable pavers are proposed on the eastern side of the development to align the development with Council's WSUD principles.

A summary of the required number and position of the treatment devices is indicated within the stormwater drainage plans within Appendix B. Refer also to Appendix C for a summary of the MUSIC model undertaken for the entire for the on-lot works to meet to the Homebush Bay West DCP treatment rates. Note this model assumes there will be 1 x 16 kL rainwater re-use tank installed as part of the development.

Refer to Table 4 below for final treatment rates.

4.2 WSUD Modelling - Music Model

The MUSIC Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 6.2.0) was used to evaluate pollutants loads from the site.

A conceptual view of the MUSIC model used in this report can be found in Appendix C.

4.2.1 Catchment Areas and Music Parameters

MUSIC model input parameters for this site included rainfall-runoff, base-flow concentration and storm-flow concentration parameters. The parameters used for the catchment area(s) can be seen in Table 2 and 3.

Parameter	Unit	Figure
Rainfall Threshold	mm/day	0.30
Soil Storage Capacity	mm	108.00
Initial Storage	% of Capacity	30.00
Field Capacity	mm	73.00
Infiltration Capacity Coefficient	a	250.00
Infiltration Capacity Coefficient	b	1.30
Initial Depth (Ground Water)	mm	10.00
Daily Recharge Rate	%	60.00
Daily Baseflow Rate	%	45.00
Daily Seepage Rate	%	0.00

Table 2 – Rainfall-Runoff Parameters – Roof Catchment Areas

Parameter	Unit	Figure
Rainfall Threshold	mm/day	1.00
Soil Storage Capacity	mm	170.00
Initial Storage	% of Capacity	30.00
Field Capacity	mm	70.00
Infiltration Capacity Coefficient	a	210.00
Infiltration Capacity Coefficient	b	4.7
Initial Depth (Ground Water)	mm	10.00
Daily Recharge Rate	%	50.00
Daily Baseflow Rate	%	5.00
Daily Seepage Rate	%	0.00

Table 3 – Rainfall-Runoff Parameters – Mixed Catchment Areas

4.2.2 Results

MUSIC modelling results are presented as mean annual loads at the receiving node indicate that adopted target reductions (as per the Homebush Bay West DCP) are achieved, as shown in Table 4.

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	283	40.0	85.9	85
Total Phosphorus	1.20	0.314	73.9	65
Total Nitrogen	15.30	6.72	56.2	45
Gross Pollutants	187	0	100	90

Table 4 – Pollutant Loads

4.3 BASIX

Rainwater tanks are desirable for re-use for irrigation (2,167m^2 landscape area), and other non-potable water uses. The proposed development will be catching 800m^2 of roof area (as per BASIX certificate) and 640m^2 of other roof area within one 16 kL rainwater/re-use tank, refer to Appendix C for details, this is to be confirmed by the BASIX consultant.

Rainwater tank size design is to be in accordance with the Auburn Council Stormwater Management Technical Specification and the BASIX Guidelines refer to Appendix D for details.

4.4 Alternative Stormwater Treatment

In order to have a less reliant system on end-of-line stormwater quality treatment devices, 100m^2 of Permeable Paving is proposed along the eastern boundary. Permeable pavements allow rain and stormwater to infiltrate directly into the ground, reducing stormwater runoff, and improving water quality, tree health and urban micro-climates.

Proposed permeable paving to be installed in accordance with manufacturers guidelines, refer to Figure 5 for details.

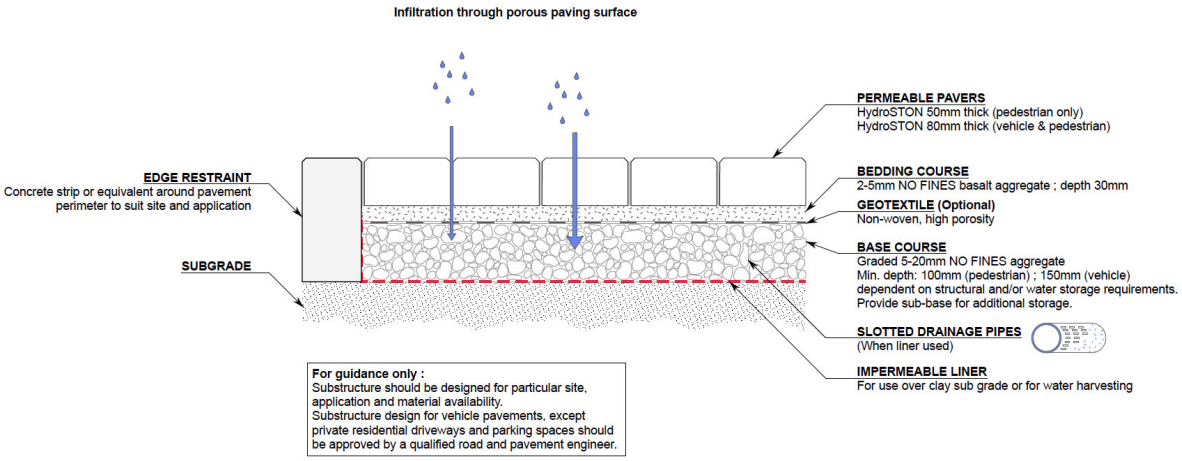


Figure 5: Typical Porous Paving Cross-Section

5 Sedimentation and Erosion Control

5.1 Sedimentation and Erosion Control (Construction)

A Soil and Water Management Plan (SWMP) has been prepared in accordance with the NSW Department of Housing Publication titled: Managing Urban Stormwater – Soils and Construction (2004) for the whole site.
The key objective of the SWMP are:

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

5.1.1 Sources of Pollution

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

- Earthworks undertaken immediately prior to rainfall periods;
- Work areas that have not been stabilised;
- Extraction of construction water from waterways during low rainfall periods;
- Clearing of vegetation and the methods adopted, particularly in advance of construction works;
- Stripping of topsoil, particularly in advance of construction works;
- Bulk earthworks and construction of pavements;
- Works within drainage paths, including depressions and waterways;

- Stockpiling of excavated materials;
- Storage and transfer of oils, fuels, fertilisers and chemicals;
- Maintenance of plant and equipment;
- Ineffective implementation of erosion and sediment control measures;
- Inadequate maintenance of environmental control measures; and
- Time taken for the rehabilitation / revegetation of disturbed areas.

5.1.2 Potential Impacts

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

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

5.2 Soil and Water Management Plan

5.2.1 Overall Strategy

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

- Diversion of “clean” water away from the disturbed areas and discharge via suitable scour protection;
- Diversion of “clean” upstream Narrabeen Creek flow away from disturbed areas
- Provision of hay bale type flow diverters to catch drainage and divert to “clean” water drains;
- Diversion of sediment-laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required);
- Provision of construction traffic shaker grids and wash-down to prevent vehicles carrying soils beyond the site;
- Provision of catch drains to carry sediment-laden water to sediment basins;
- Provision of silt fences to filter and retain sediments at source;
- Rapid stabilisation of disturbed and exposed ground surfaces with hydro-seeding areas where future construction and building works are not currently proposed;
- Temporary sediment basin located above the 100-year ARI flood extent.

Refer to AT&L Drawings DAC170 to DAC171 for Erosion and Sediment Control Plans, for all proposed control and protection measures across the site.

1.1.1. Design of Sediment and Erosion Control Measures

Suitable erosion and sediment controls shall be provided by the Contractor and maintained throughout all stages of works, including at completion of the bulk earthworks.
All design, documentation, installation and maintenance of sediment and erosion controls will be in accordance with the requirements of:

- Protection of the Environment Operations Act; and
- Office of Environment and Heritage's 'Managing Urban Stormwater: Soils and Construction. Landcom, (4th Edition) (The "Blue Book") Volume 1 and Volume 2.

Ultimately, the final temporary sediment basin locations and sizes will be provided to suit development staging requirements and will be sized and maintained in accordance with the requirements of the above-mentioned authority documents.

With the proposed site being larger than 2,500m^2 in disturbed area, a sediment basin is required. The following temporary sediment basins are to be in-place at the commencement of demolition/remediation works. Refer to drawings in Appendix B and 'Earth Basin Dry' SD6-3 for details.

Parameter	Item (Blue Book Reference)
Soil Type	Type C (Appendix C, Table C20, Blue Book)
Design Rainfall Depth (Days)	5
Design Rainfall Depth (Percentile)	85
x-day, y-percentile rainfall event	33.1 (Table 6.3a)
Rainfall Intensity: 2 year, 6-hour storm	11.10
Rainfall Erosivity (R-factor)	**2,680**

Table 5: Site Data

Parameter	Basin 1
Volumetric Runoff Coefficient, C_v (Appendix F3, Blue Book)	0.50
Contributing Area, A (ha)	0.70
$R_{(85\ \%ile,\ 5\ day)}$	33.1
Settling Zone Volume, (m^3)	69.51
Sediment Storage Zone Volume, (m^3)	35
Total Sediment Basin Volume, (m^3)	**104.265**

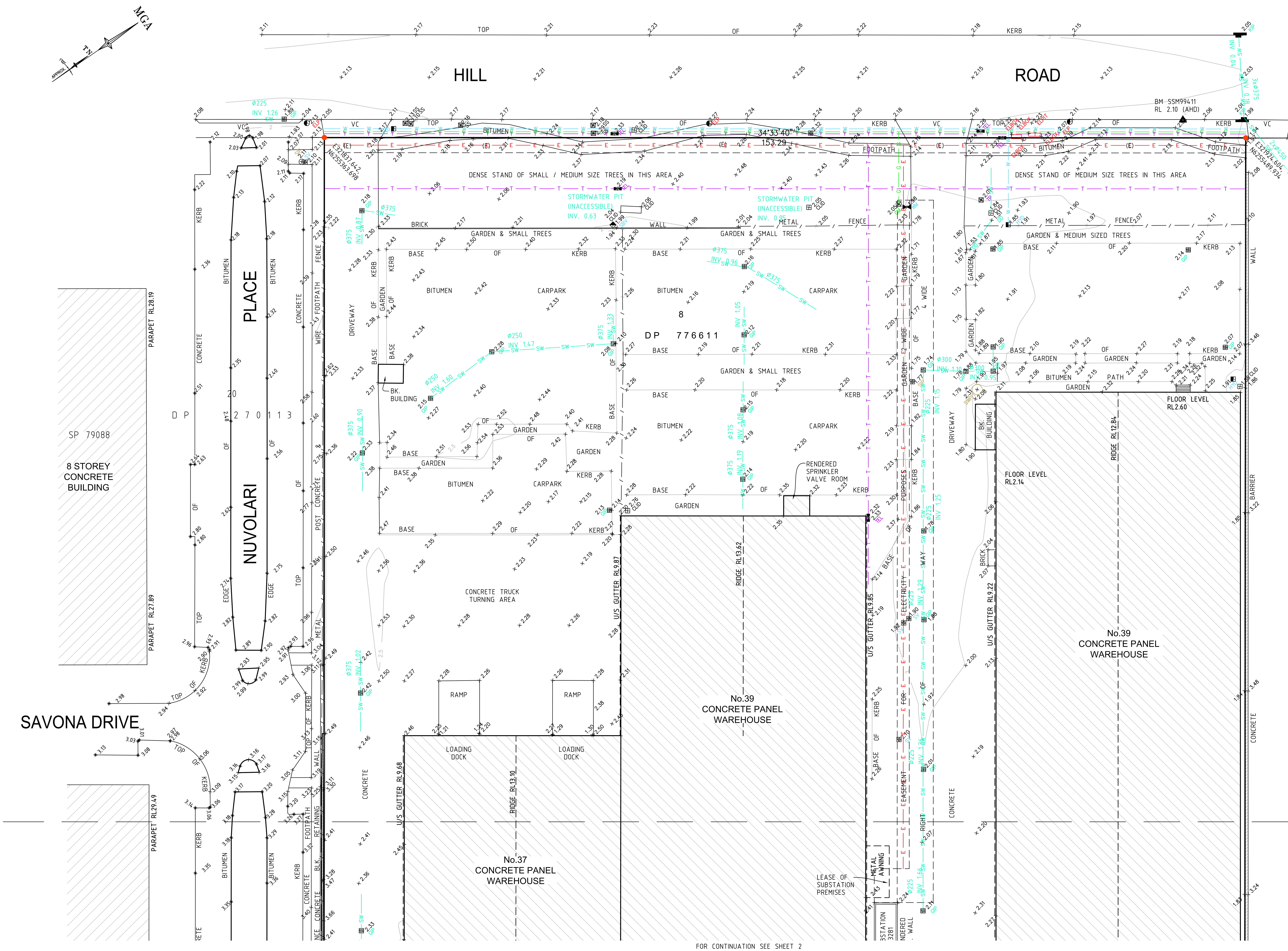
Table 6: Temporary Sediment Basins

6 Conclusion

As highlighted within this report all civil/stormwater drainage for the development of Block D Wentworth Point and has been designed in accordance with the Auburn Council/ Parramatta City Council and Homebush Bay West DCP.

Appendix A

Detailed Site Survey



LEGEND

BENCH MARK	▲
TELSTRA PIT	TEL
TELSTRA PILLAR	TP
ELECTRIC LIGHT POLE	ELP
ELECTRICITY PIT	EPIT
ELECTRICITY BOX	EL
PIT WITH CONCRETE LID	CLID
STREET SIGN	SS
GRATED INLET PIT	GIP
KERB INLET PIT	KIP
SEWER INSPECTION POINT	SIP
SEWER PIT	SWPIT
SEWER MANHOLE	SMH
SEWER LAMPHOLE	LH
STOP VALVE	SV
HYDRANT	HYD
WATER METER	WM
SPRINKLER BOOSTER VALVE	SBV
GAS METER	GM
VEHICLE CROSSING	(VC)
GAS	G
TELSTRA	T
WATER	W
STORMWATER	SW
SEWER	S
ELECTRICITY (OVERHEAD)	P
ELECTRICITY (U'GROUND)	E

NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED
2. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY THE OFFICE of LAND & PROPERTY INFORMATION (NSW) AND ARE SUBJECT TO FINAL SURVEY
3. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **SSM99411** R.L. **2.10** (A.H.D.) IN HILL ROAD
4. CONTOUR INTERVAL **0.5 m**
5. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
6. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
7. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
8. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
9. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH

(E) PROPOSED EASEMENT FOR ELECTRICITY PURPOSES 2.5 WIDE (VIDE DP1094522)

SCALE 1:300 @ A1 (0, 6, 9, 12, 18, 24, 30)

Revision	Date	Description	Reference
D	00/00/00	-	00
C	16/06/17	3D TRIANGLES ADDED	40816
B	15/05/14	ADDITIONAL KERB LINES ADDED	40816
A	04/02/14	MGA CO-ORDINATES ADDED	40653

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

....

Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.ltsl.com.au

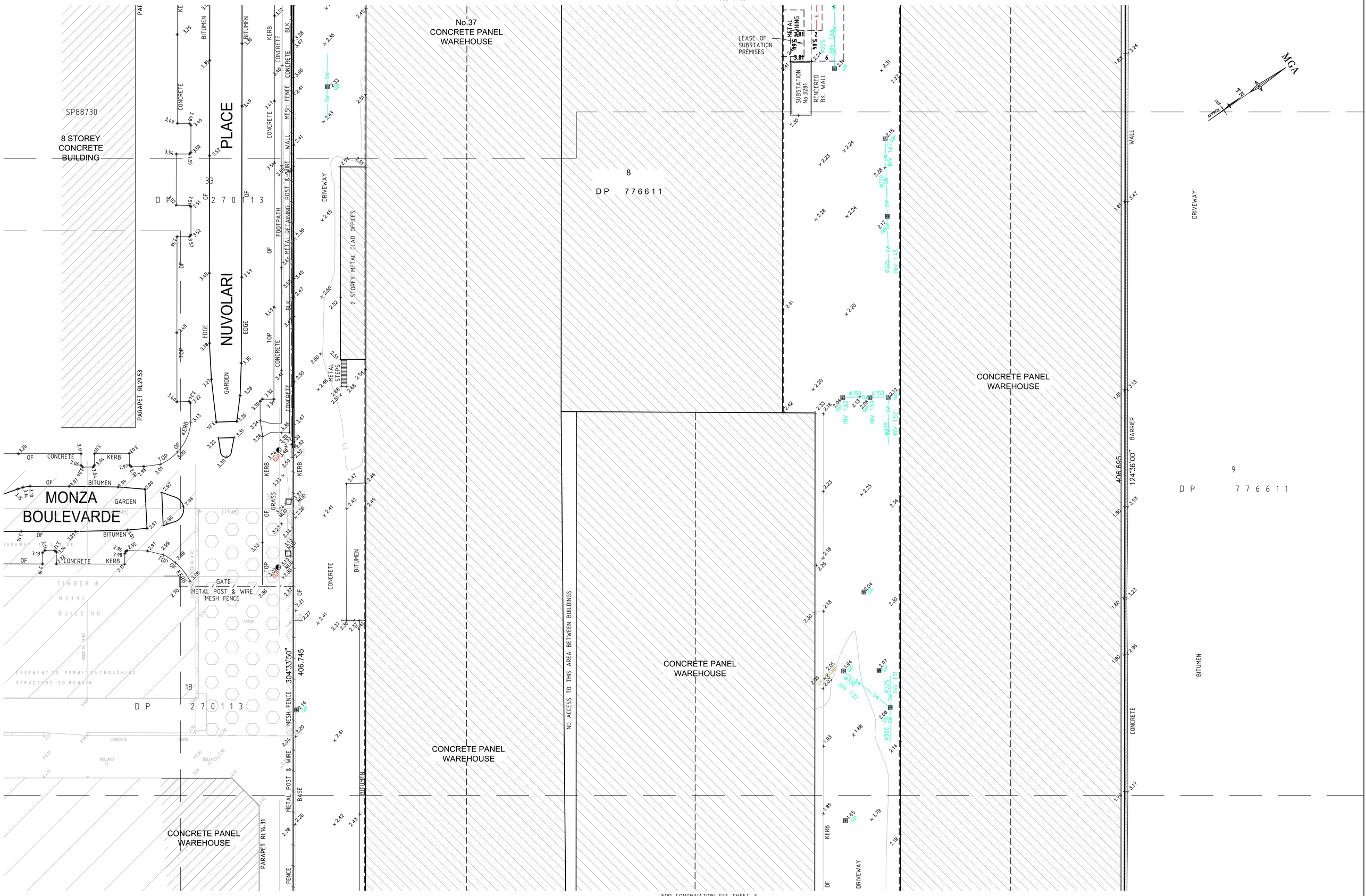
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client CITY FREEHOLD PROJECTS P/L

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT B IN DP776611 AT 37-39 HILL ROAD, WENTWORTH POINT

datum: AHD	project number: -	reference number: 40653DT
site Area: 6.229ha	scale: 1:300 @A1	date of survey: 05/03/14
LGA: AUBURN	SHEET 1 OF 4 SHEETS	

FOR CONTINUATION SEE SHEET 1



FOR CONTINUATION SEE SHEET 3

SCALE 1: 300 @ A1

SEE SHEET 1 FOR NOTES & LEGEND

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D	00/00/00	-	00
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LGA	AUBURN	date of survey	05/03/14
		SHEET OF 4 SHEETS	2

FOR CONTINUATION SEE SHEET 2

CONCRETE PANEL WAREHOUSE
CONCRETE PANEL WAREHOUSE
CONCRETE PANEL WAREHOUSE
BUILDING UNDER CONSTRUCTION
FLOOR LEVEL RL2.05
FLOOR LEVEL RL1.91
RIDGE RL12.70
RIDGE RL14.32
RIDGE RL13.08
PARAPET RL14.31
PARAPET RL14.26
PARAPET RL11.64
PARAPET RL10.60
MGA
CONCRETE
BITUMEN
BITUMEN TRUCK PARKING AREA
EDGE OF BITUMEN
BITUMEN DRIVEWAY
TOP OF KERB
METAL AWNING
DRIVEWAY
8
DP 776611
9
DP 776611
18
DP 270113
SPORTS COURT
PAVED FOOTPATH
GRASS
STONE HEADWALL
STONE SEAWALL
METAL POST & WIRE MESH FENCE
GATE
RIGHT OF WAY VARIABLE WIDTH
153.04
214°32'30"
E322172.591 N6255132.936
E322259.369 N6255258.995
HOMEBUSH BAY
SCALE 1: 300 @ A1

SEE SHEET 1 FOR NOTES & LEGEND

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reference number 40653DT
date of survey 05/03/14
SHEET 3 OF 4 SHEETS

FOR CONTINUATION SEE SHEET 2

SCALE 1: 300 @ A1

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reference number 40653DT
date of survey 05/03/14

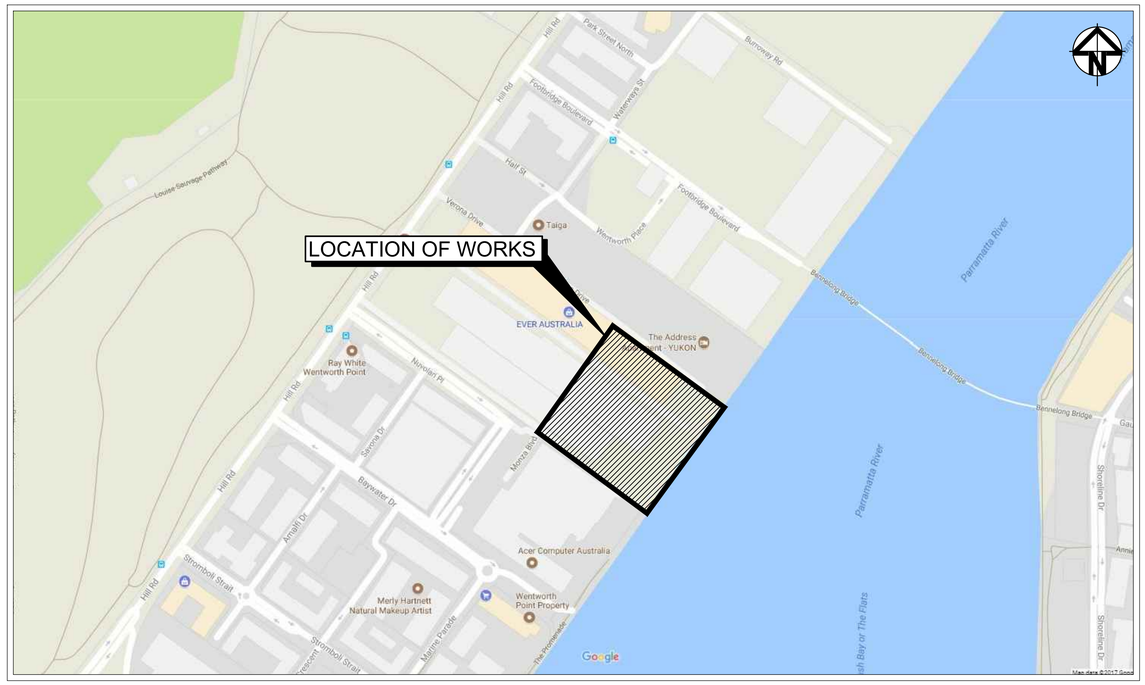
Appendix B

Civil Development Application Drawings

AT&L
ABN 96 130 882 405
REVISION 01

37-39 HILL ROAD, WENTWORTH POINT
NSW, 2127
BLOCK D - DEVELOPMENT APPLICATION
CIVIL WORKS PACKAGE

DRAWING LIST



LOCALITY PLAN
N.T.S

DIAL 1100 BEFORE YOU DIG

Issue	Description	Date
D	ISSUED FOR DA APPROVAL	14-12-18
C	ISSUED FOR DA APPROVAL	05-12-17
B	FINAL DRAFT ISSUE	25-11-17
P1	ISSUED FOR INFORMATION	19-07-17

100mm on Original

Scales

Client
HOMEBUSH BAY PROPERTIES PTY LTD

Scales N T S
Grid MGA
Height Datum AHD

Drawn ASD
Designed ASD
Checked GJ
Approved

Project
WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title
COVER SHEET AND LOCALITY PLAN

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Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Drawing No.	Project No.	Issue
DAC101	17-477	D

Date Plotted: 17 Dec 2018 - 03:17PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC101.dwg

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY LTS LOCKLEY, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. AT & L DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT AT & L.

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

1. THE BOUNDARIES HAVE NOT BEEN MARKED
2. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY THE OFFICE of LAND & PROPERTY INFORMATION (NSW) AND ARE SUBJECT TO FINAL SURVEY
3. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM SSM99411 R.L. 2.10 (A.H.D.) IN HILL ROAD
4. CONTOUR INTERVAL 0.5 m
5. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
6. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
7. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
8. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
9. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH

EXISTING UNDERGROUND SERVICES NOTES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.

AT & L CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.

CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.

CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

SITEWORKS NOTES

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

CONCRETE NOTES

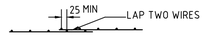
1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. CONCRETE QUALITY
   ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS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

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

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

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

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



KERBING NOTES

1. ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF25 MPa U.N.O IN REINFORCED CONCRETE NOTES.
2. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MIN. 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 95% MODIFIED DRY DENSITY (AS 1289 5.2.1).
3. EXPANSION JOINTS (E.J) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
4. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
5. BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
6. IN THE REPLACEMENT OF KERB AND GUTTER :-
   EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 900mm WIDE U.N.O.
7. EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB AND GUTTER WITH 100mm DIA HOLE.
8. EXISTING KERB AND GUTTER IS TO BE COMPLETELY REMOVED WHERE NEW KERB AND GUTTER IS SHOWN.

STORMWATER DRAINAGE NOTES

1. STORMWATER DESIGN CRITERIA:
   (A) AVERAGE RECURRENCE INTERVAL:
   1:100 YEARS ROOFED AREAS TO SURCHARGE PIT
   1:20 YEARS EXTERNAL PAVEMENTS
   (B) RAINFALL INTENSITIES:
   TIME OF CONCENTRATION 5 MINUTES
   1:100 YEARS= 235 mm/hr
   1:20 YEARS= 183 mm/hr
   (C) RUNOFF COEFFICIENTS:
   EXTERNAL PAVEMENTS: C_{100} =1.0
2. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '3' LONGITUDINAL AND CLASS '4' TRANSVERSE ROAD CROSSING APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
3. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
4. EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED, SUBJECT TO THE APPROVAL OF AUBURN CITY COUNCIL.
5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
6. PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (1989) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
7. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
8. PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY AT & L.
9. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
10. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
11. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
12. GRATES AND COVERS SHALL CONFORM TO AS 3996.
13. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
14. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

BULK EARTHWORKS NOTES

1. ORIGIN OF LEVELS: REFER SURVEY NOTES
2. STRIP ALL TOPSOIL/ORGANIC MATERIAL FROM CONSTRUCTION AREA AND REMOVE FROM SITE OR STOCK PILE AS DIRECTED BY SUPERINTENDENT.
3. EXCAVATED MATERIAL TO BE USED AS STRUCTURAL FILL PROVIDED THE PLACEMENT MOISTURE CONTENT OF THE MATERIAL IS +/- 2% OF THE OPTIMUM MOISTURE CONTENT.
4. COMPACT FILL AREAS AND SUBGRADE TO NOT LESS THAN:

LOCATION	STANDARD DRY DENSITY (AS 1289 E 5.1.1.)
UNDER ROADS AND CARPARKS	98%
LANDSCAPED AREAS UNLESS NOTED OTHERWISE	98%

5. FOR NON COHESIVE MATERIAL, COMPACT TO 75% DENSITY INDEX.
6. BEFORE PLACING FILL, PROOF ROLL EXPOSED SUBGRADE WITH AN 8 TONNE (MIN) DEADWEIGHT SMOOTH DRUM VIBRATORY ROLLER TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER).
7. FREQUENCY OF COMPACTION TESTING SHALL BE NOT LESS THAN :-
   (A) 1 TEST PER 200m^2 OF FILL PLACED PER 300 LAYER OF FILL.
   (B) 3 TESTS PER VISIT
   (C) 1 TEST PER 1000m^2 OF EXPOSED SUBGRADE
   TESTING SHALL BE "LEVEL 1" TESTING IN ACCORDANCE WITH AS 3798 (1996).
8. FILLING TO BE PLACED AND COMPACTED IN MAXIMUM 150mm LAYERS
9. NO FILLING SHALL TAKE PLACE TO EXPOSE SUBGRADE UNTIL THE AREA HAS BEEN PROOF ROLLED IN THE PRESENCE OF AT & L AND APPROVAL GIVEN IN WRITING THAT FILLING CAN PROCEED.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

1. THE SITE SUPERINTENDENT/ENGINEER WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED.
2. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
   a. LOCAL AUTHORITY REQUIREMENTS
   b. EPA REQUIREMENTS
   c. NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
4. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
5. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

6. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
   (A) INSTALL A WIND FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
   (B) INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
   (C) CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
   (D) INSTALL SEDIMENT BASIN AS SHOWN ON PLAN
   (E) INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
   (F) UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

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

SEDIMENT CONTROL

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

OTHER MATTERS

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

SITEWORKS LEGEND

EXISTING

- EXISTING BOUNDARY
- 5.00 — EXISTING CONTOUR

PROPOSED

- PROPOSED BOUNDARY
- F4.35 — PROPOSED LEVEL
- 375ø — STORMWATER PIPE, SIZE AND FLOW DIRECTION
- STORMWATER LINE WITH CAP
- KERB INLET PIT (REFER PCC STD DWG DS21)
- KERB INLET PIT (SAG) (REFER PCC STD DWG DS24)
- JUNCTION PIT (REFER PCC STD DWG DS26)
- SURFACE INLET PIT (REFER PCC STD DWG DS25)

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

DIAL 1100 BEFORE YOU DIG

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Scales

Client: HOMEBUSH BAY PROPERTIES PTY LTD

Scales: N T S
Grid: MGA
Height Datum: AHD

Drawn	ASD
Designed	ASD
Checked	GJ
Approved	

Project: WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title: GENERAL NOTES AND LEGENDS

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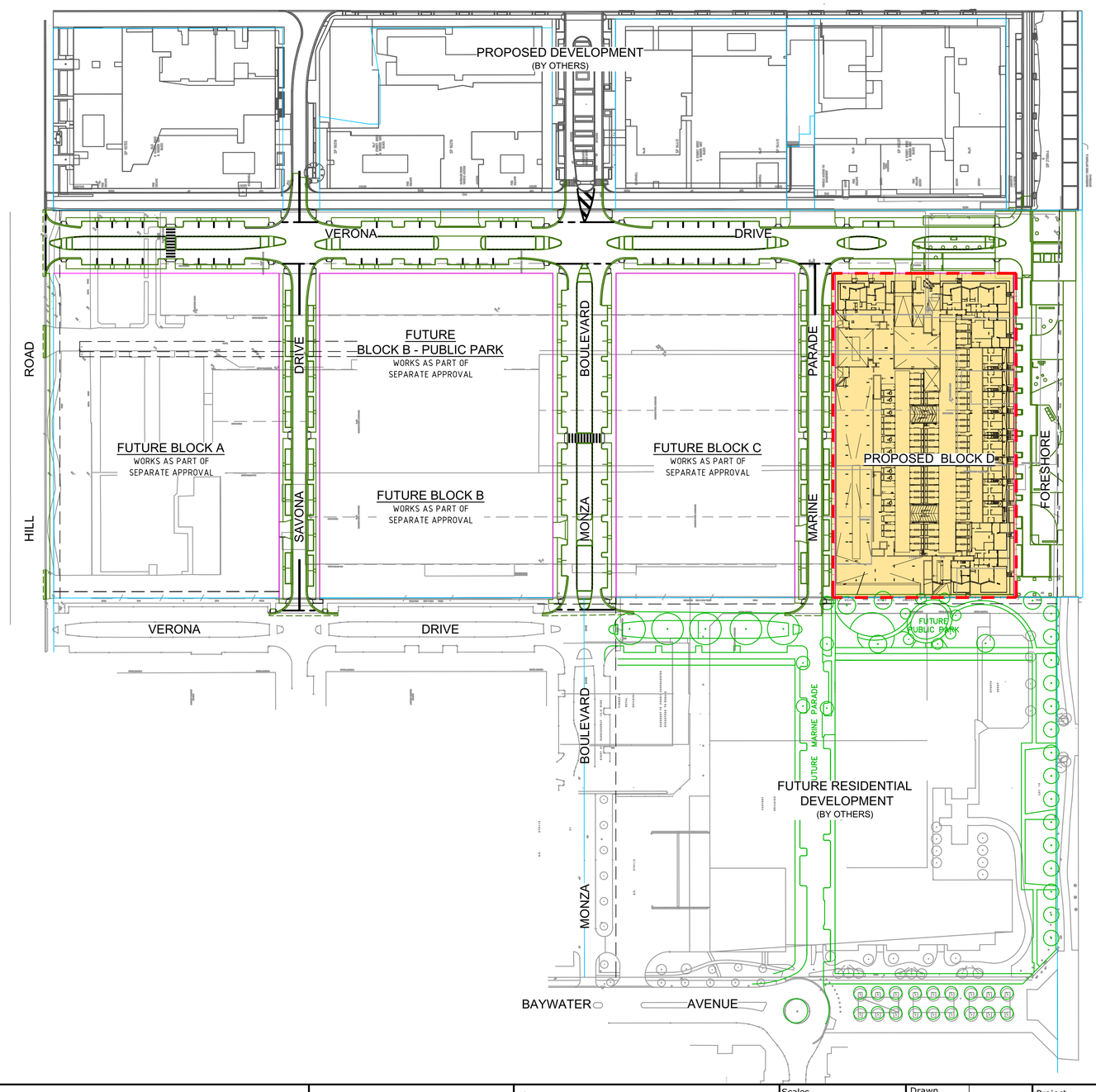
Drawing No.	Project No.	Issue
DAC102	17-477	D

100mm on Original

Date Plotted: 17 Dec 2018 - 03:17PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC102.dwg

LEGEND

- EXISTING BOUNDARY
- PROPOSED BOUNDARY. REFER TO INFRASTRUCTURE DRAWING PACKAGE DAC200 SERIES FOR DETAILS
- PROPOSED EXTENT OF WORKS
- PROPOSED ROADWORKS. REFER INFRASTRUCTURE DRAWING PACKAGE DAC200 SERIES FOR DETAILS



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100mm on Original

Scales

0 20 40 60 80 100m

1 : 1000 @ A1 1 : 2000 @ A3

Client

HOMEBUSH BAY PROPERTIES PTY LTD

Scales	1 : 1000	Drawn	ASD
		Designed	ASD
Grid	MGA	Checked	GJ
Height Datum	AHD	Approved	

Project

WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title

GENERAL ARRANGEMENT PLAN

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A1

Drawing No.	Project No.	Issue
DAC105	17-477	D

Date Plotted: 17 Dec 2018 - 03:17PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC105.dwg

MARINE PARADE

ROAD INFRASTRUCTURE
WORKS AS PART OF
SEPARATE APPROVAL

CONNECT INTO STUB R\1
REFER TO DRAWING SERIES
DAC200 FOR DETAILS

R\2

R\1

WSUD TANK
(UNDER)

UPPER GROUND
FLOOR PARKING
FFL 4.400

LOWER GROUND
FLOOR PARKING
FFL 3.500

PROPOSED BLOCK D
THIS APPROVAL

FUTURE
PUBLIC PARK

ROAD INFRASTRUCTURE
WORKS AS PART OF
SEPARATE APPROVAL

VERONA DRIVE

6.0m
BLOCK D
DRIVEWAY

F 2.96

F 2.90

200mm THICK CONCRETE
DRIVEWAY WITH SL82
MESH IN ACCORDANCE
WITH PCC STD DWG DS9

VEHICLE ACCESS TO
BASEMENT

ENTRY

FIRE
ESCAPE

BUILDING
UNDER
CONSTRUCTION

PROPOSED DEVELOPMENT
(BY OTHERS)

BITUMEN TRUCK PARKING
AREA

FORESHORE
WORKS AS PART OF
SEPARATE APPROVAL

PARRAMATTA RIVER

BOUNDARY (VIDE DP776677
DP270844)

CATCHMENT LEGEND

CATCHMENT 1: ROOF
ROOF TO WSUD TANK: 0.737 ha
INCLUDING 0.142 ha TO 8.0 kL RWT

CATCHMENT 2: BYPASS
BYPASS TO POROUS
PAVERS: 0.168 ha

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Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Client

HOMEBUSH BAY
PROPERTIES PTY LTD

Scales	1 : 250	Drawn	ASD
		Designed	ASD
Grid	MGA	Checked	GJ
Height Datum	AHD	Approved	

Project

WENTWORTH POINT
STAGE ONE DEVELOPMENT
BLOCK D

Title

SITEWORKS AND
STORMWATER DRAINAGE
PLAN

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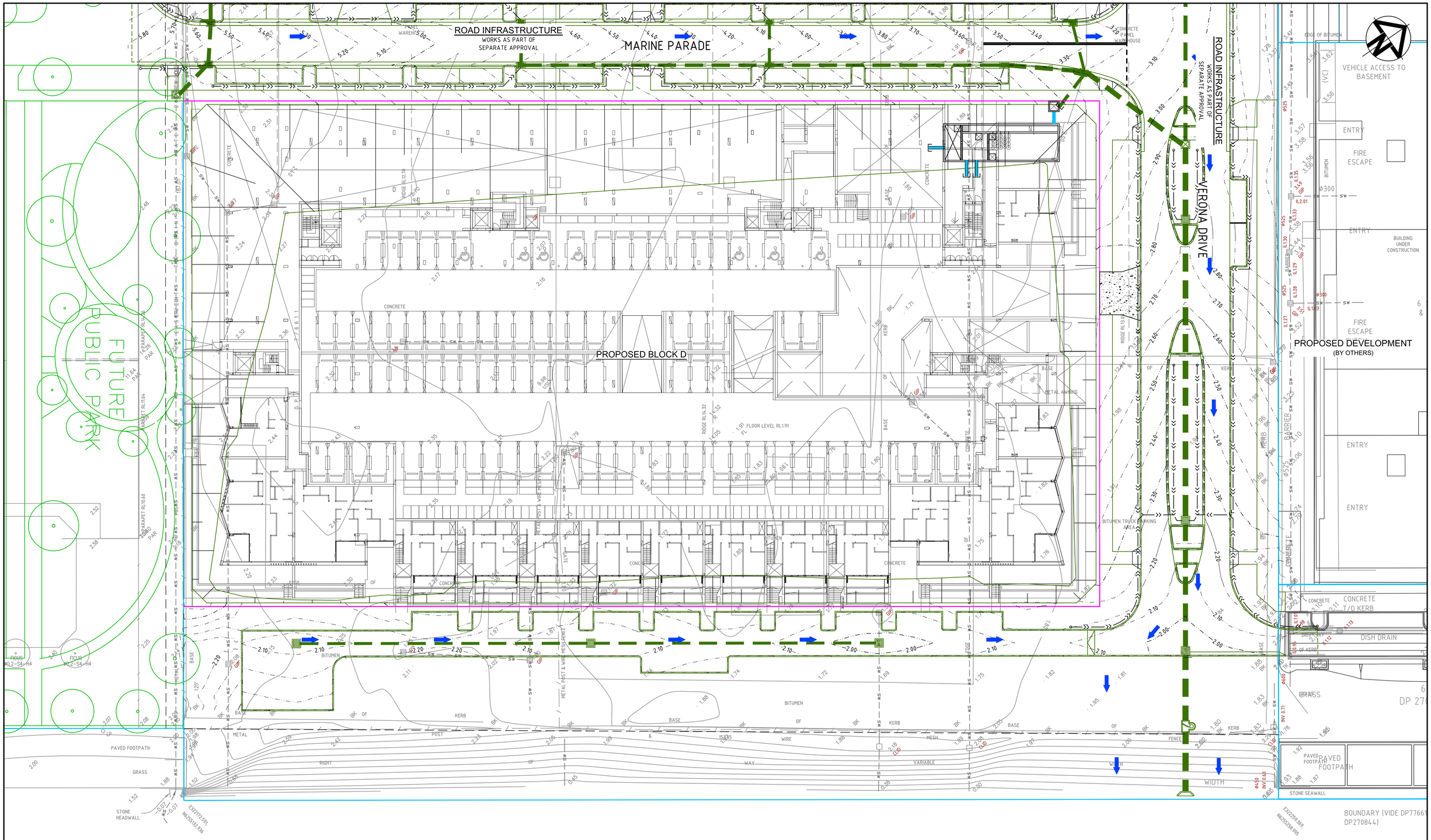
Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

Drawing No.	Project No.	Issue
DAC110	17-477	D

100mm on Original

Date Plotted: 17 Dec 2018 - 03:17PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC110.dwg



Issue	Description	Date
D	ISSUED FOR DA APPROVAL	14-12-18
C	ISSUED FOR DA APPROVAL	05-12-17
B	FINAL DRAFT ISSUE	25-11-17
P1	ISSUED FOR INFORMATION	19-07-17

100mm on Original

Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Client

HOMEBUSH BAY PROPERTIES PTY LTD

Scales 1 : 250

Grid MGA

Height Datum AHD

Drawn	ASD
Designed	ASD
Checked	GJ
Approved	

Project

WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title

PROPOSED INDICATIVE OVERLAND STORMWATER FLOW PLAN

Civil Engineers and Project Managers

at&l

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North Sydney NSW 2060
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Status: FOR INFORMATION
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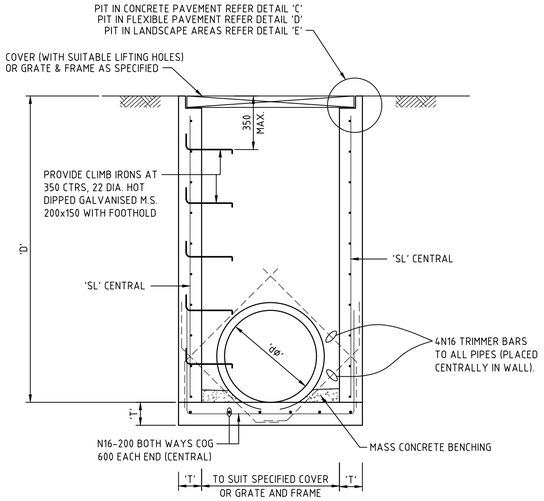
A1

Drawing No.	Project No.	Issue
DAC140	17-477	D

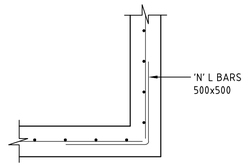
Date Plotted: 17 Dec 2018 - 03:17PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC140.dwg



PIT TYPE 'A' DETAIL
SURFACE INLET PIT
FOR PIPES UP TO 525ø

SCALE: 1:20

PIPE DIA. 'øØ'	WIDTH 'W'	DEPTH 'D'	WALL 'T'	FABRIC/COV 'SL'
375	650	800	150	SL72
	650	1200	150	SL72
	650	1600	150	SL72
	650	2000	150	SL72
	650	2400	150	SL72
450	650	800	150	SL72
	650	1200	150	SL72
	650	1600	150	SL72
	650	2000	150	SL72
	650	2400	150	SL72
525	650	800	150	SL72
	650	1200	150	SL72
	650	1600	150	SL72
	650	2000	150	SL72
	650	2400	150	SL72



TYPICAL CORNER DETAIL

SCALE 1:20

SURFACE INLET PIT

SCALE 1:100

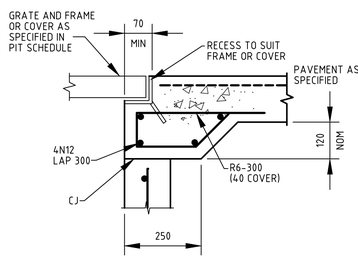
NOTE

1. FOR PIT SIZE REFER TO TABLE (900 MIN LONG).
2. REINFORCING MESH IS TO BE BENT TO LAP 300 AROUND ALL CORNERS. VERTICAL BARS ARE NOT TO BE CUT. ALTERNATELY PROVIDE N12 "L" BARS (500x500) AT 400 VERTICAL CTS.
3. COMPRESSIVE STRENGTH (F'c) FOR CAST IN SITU CONCRETE SHALL BE A MINIMUM 32 MPa AT 28 DAYS.
4. TOP OF BENCHING SHALL BE ½ OF OUTLET PIPE DIAMETER.
5. 100mm SUBSOIL DRAINAGE PIPE 3000 LONG WRAPPED IN FABRIC SOCK TO BE PROVIDE ADJACENT TO INLET PIPES.
6. ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP.
7. PIT GRATE TO BE 'WELDLOK' GULLY GRATE GG 78-50 OR APPROVED EQUIVALENT.
8. DURING INSTALLATION OF GRATE AND FRAME CONTRACTOR IS TO ENSURE CLEARANCE BETWEEN LINTEL AND OPENED GRATE (REFER TO INSTALLATION TOLERANCE).
9. PROVIDE STEP IRONS AS INDICATED FOR PITS DEEPER THAN 1200.
10. N12 AT 200 CENTRAL MAY BE USED IN LIEU OF MESH. LAP 500 AT CORNERS
11. CONCRETE STRENGTH - UNLESS NOTED OTHERWISE

ELEMENT	f'c MPa (28 DAYS)	SLUMP	MAX AGG SIZE	CEMENT TYPE
PITS	32	80mm	20mm	GP

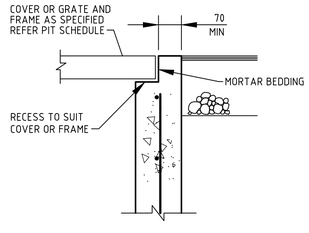
12. COVER - UNLESS NOTED OTHERWISE

ELEMENT	INTERIOR	EXTERIOR
PITS		45mm
SLAB TOP	45mm	45mm
SLAB BOTTOM	45mm	45mm
BEAM TOP		
BEAM BOTTOM		
BEAM SIDE		
COLUMNS		



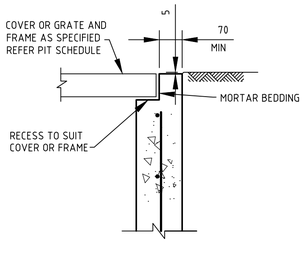
DETAIL "C"

SCALE 1:10



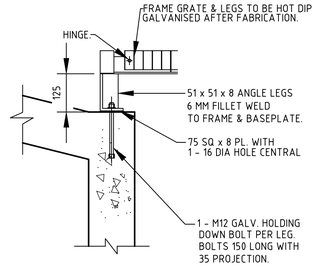
DETAIL "D"

SCALE 1:10



DETAIL "E"

SCALE 1:10



DETAIL "G"

SCALE 1:10

Issue	Description	Date
D	ISSUED FOR DA APPROVAL	14-12-18
C	ISSUED FOR DA APPROVAL	05-12-17
B	FINAL DRAFT ISSUE	25-11-17
P1	ISSUED FOR INFORMATION	19-07-17

Scales

0 100 200 400 600 800 1000mm

1 : 10 @ A1 1 : 20 @ A3

0 500 1000 1500 2000mm

1 : 20 @ A1 1 : 40 @ A3

Client: HOMEBUSH BAY PROPERTIES PTY LTD

Scales	AS SHOWN
Grid	MGA
Height Datum	AHD
Drawn	ASD
Designed	ASD
Checked	GJ
Approved	

Project: WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title: STORMWATER DETAILS

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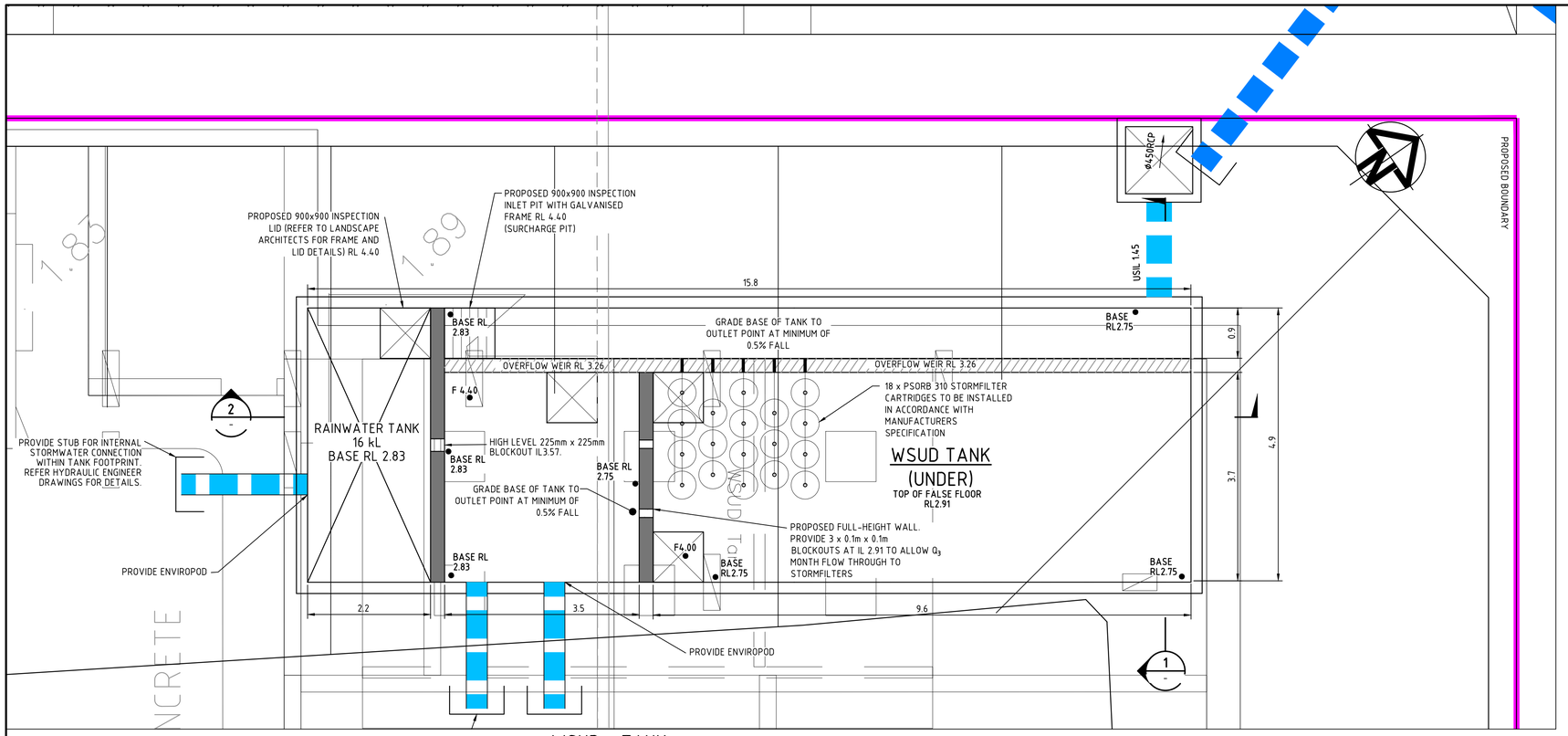
Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION

A1

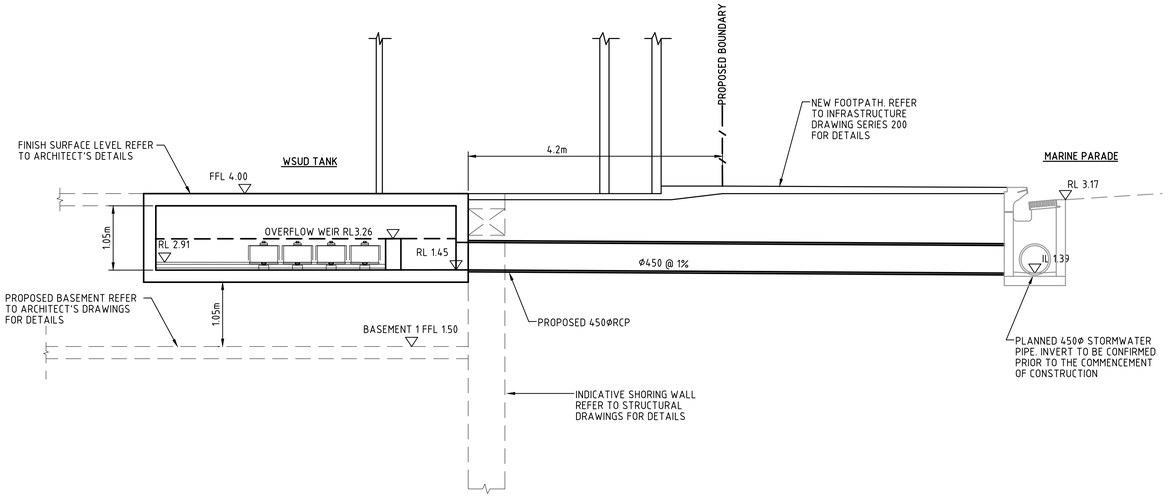
Drawing No.	Project No.	Issue
DAC145	17-477	D

100mm on Original



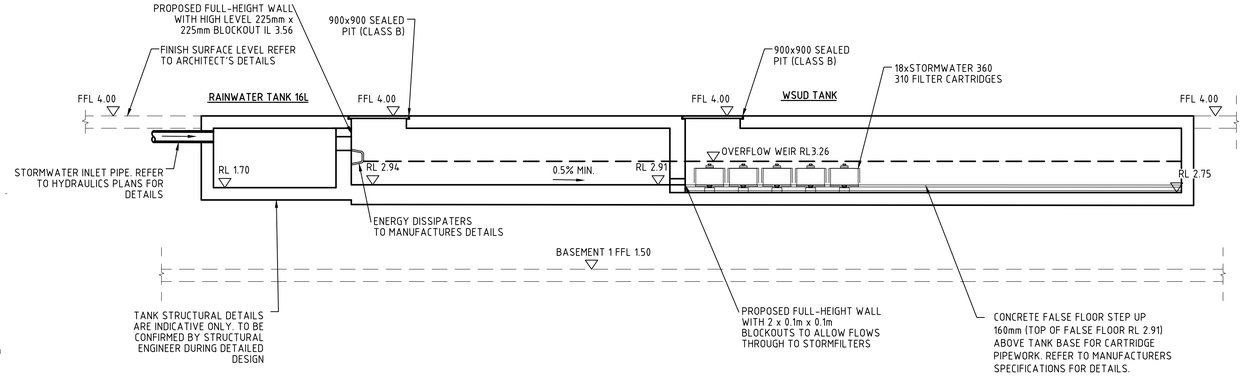
WSUD - TANK

SCALE 1: 50



SECTION 1

1 : 50



SECTION 2

1 : 50 — DAC010

WEIR CALCULATION

$Q = A \times V$

$Q_{100} = L \times W \times V$

WHERE ≤ 0.4m/s TO COMPLY WITH INDUSTRY BEST PRACTICES

$0.480 m^3/s = 3.60 \times 0.35 \times V$

$\therefore V = 0.38$ m/s

WEIR IS SUFFICIENT

$Q_{3\text{-MTH}}$ TANK 1 CALCULATION

$Q = C \times I \times A \times (1/360)$

$= 1.0 \times (86.8 \times 0.5) \times 0.739 \times (1/360)$

$= 0.08878\ m^3/s$

$= 88.78$ L/s

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	OSD SYSTEM
WATER QUALITY FLOW RATE (L/S)	7.02L/S
RETURN PERIOD OF PEAK FLOW (yrs)	88.78L/S(3mth)
# OF SW360 CARTRIDGES REQUIRED	18
CARTRIDGE HEIGHT (310, 460 or 690MM)	310
MEDIA TYPE (PERLITE, PERLITE/ZEOLITE OR ZPG)	PSORB

Issue	Description	Date
D	ISSUED FOR DA APPROVAL	14-12-18
C	ISSUED FOR DA APPROVAL	05-12-17
B	FINAL DRAFT ISSUE	25-11-17
P1	ISSUED FOR INFORMATION	19-07-17

100mm on Original

Scales

0 1 2 3 4 5m

1 : 50 @ A1 1 : 100 @ A3

Client: HOMEBUSH BAY PROPERTIES PTY LTD

Scales: AS SHOWN

Grid: MGA

Height Datum: AHD

Drawn	ASD
Designed	ASD
Checked	GJ
Approved	

Project: WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title: WSUD TANK PLAN AND DETAILS

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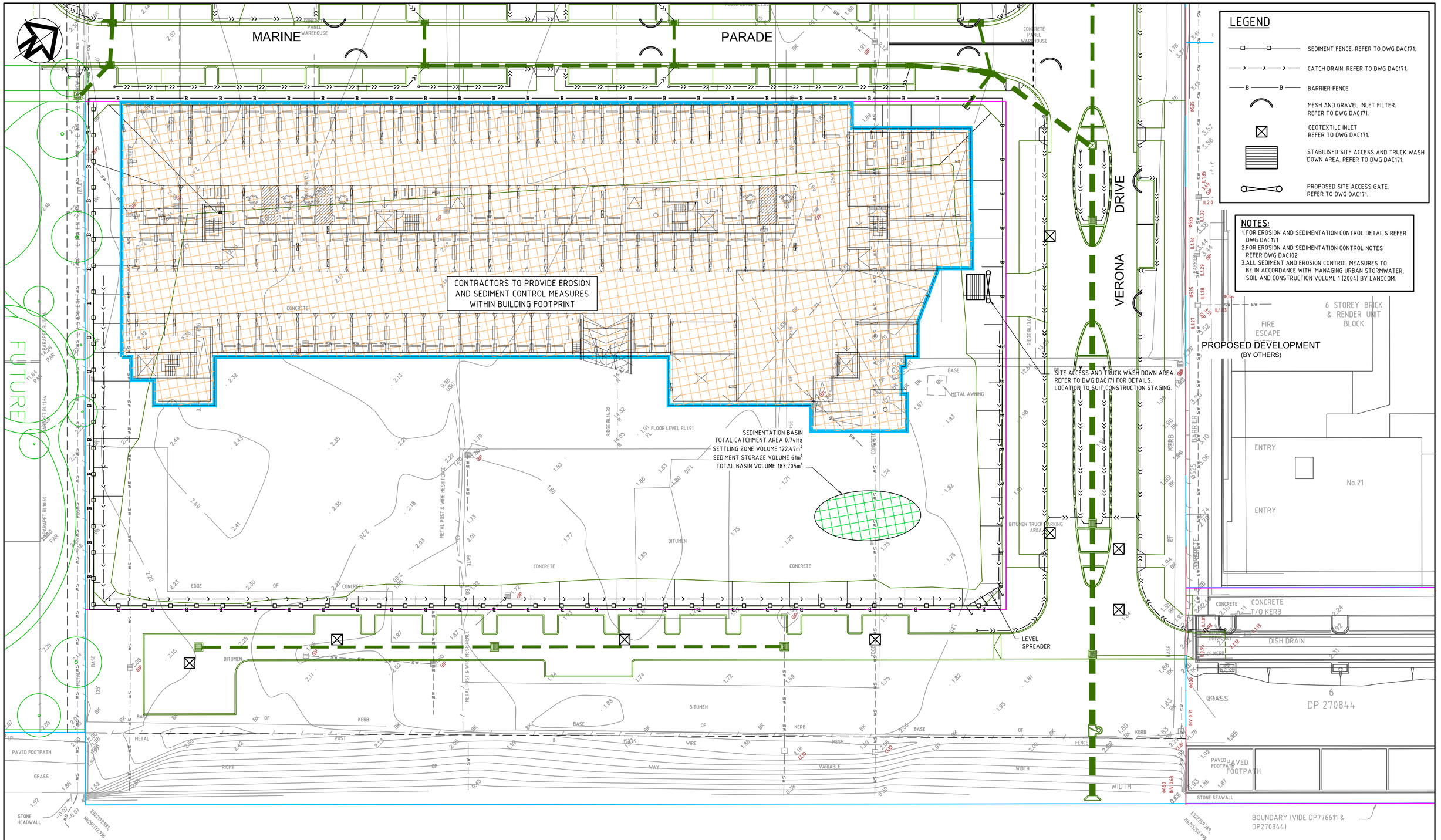
Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION

A1

Drawing No.	Project No.	Issue
DAC146	17-477	D

F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC146.dwg



LEGEND

- SEDIMENT FENCE. REFER TO DWG DAC171.
- CATCH DRAIN. REFER TO DWG DAC171.
- BARRIER FENCE
- MESH AND GRAVEL INLET FILTER. REFER TO DWG DAC171.
- GEOTEXTILE INLET REFER TO DWG DAC171.
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA. REFER TO DWG DAC171.
- PROPOSED SITE ACCESS GATE. REFER TO DWG DAC171.

NOTES:

1. FOR EROSION AND SEDIMENTATION CONTROL DETAILS REFER DWG DAC171
2. FOR EROSION AND SEDIMENTATION CONTROL NOTES REFER DWG DAC102
3. ALL SEDIMENT AND EROSION CONTROL MEASURES TO BE IN ACCORDANCE WITH 'MANAGING URBAN STORMWATER, SOIL AND CONSTRUCTION VOLUME 1 (2004) BY LANDCOM.

Issue	Description	Date
D	ISSUED FOR DA APPROVAL	14-12-18
C	ISSUED FOR DA APPROVAL	05-12-17
B	FINAL DRAFT ISSUE	25-11-17
P1	ISSUED FOR INFORMATION	19-07-17

Scales

0 5 10 15 20 25m

1 : 250 @ A1 1 : 500 @ A3

Client: HOMEBUSH BAY PROPERTIES PTY LTD

Scales: 1 : 250

Grid: MGA

Height Datum: AHD

Drawn	ASD
Designed	ASD
Checked	GJ
Approved	

Project: WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title: EROSION AND SEDIMENTATION CONTROL PLAN

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Status: FOR INFORMATION
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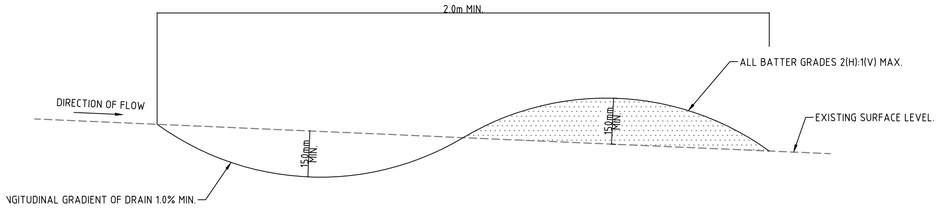
A1

Drawing No.	Project No.	Issue
DAC170	17-477	D

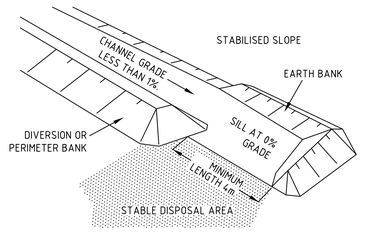
100mm on Original

Date Plotted: 17 Dec 2018 - 03:18PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC170.dwg



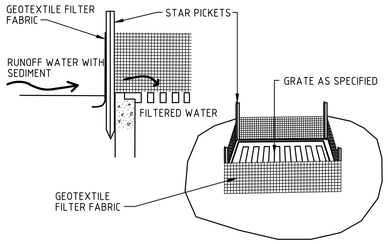
CATCH DRAIN DETAIL

SCALE 1:10



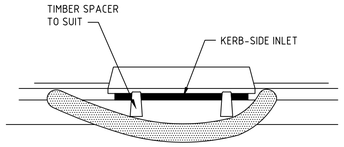
LEVEL SPREADER (OR SILL)

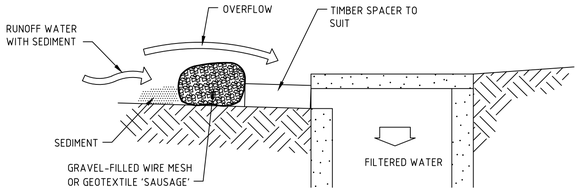
N.T.S



GEOTEXTILE FILTER PIT SURROUND

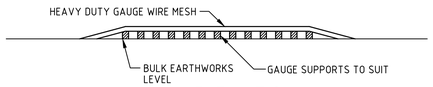
NTS



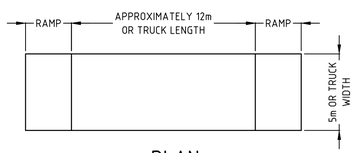


MESH AND GRAVEL INLET FILTER

NTS



ELEVATION

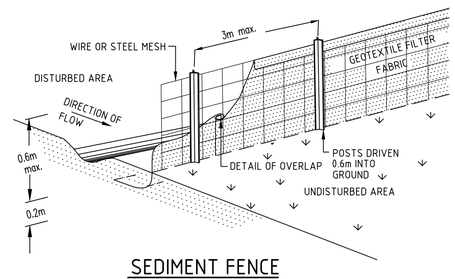


PLAN

TEMPORARY CONSTRUCTION EXIT (WASH DOWN DETAIL)

SCALE 1:200

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY.



SEDIMENT FENCE

NTS

Issue	Description	Date
D	ISSUED FOR DA APPROVAL	14-12-18
C	ISSUED FOR DA APPROVAL	05-12-17
B	FINAL DRAFT ISSUE	25-11-17
P1	ISSUED FOR INFORMATION	19-07-17

Scales

Client: HOMEBUSH BAY PROPERTIES PTY LTD

Scales: AS SHOWN

Grid: MGA

Height Datum: AHD

Drawn: ASD

Designed: ASD

Checked: GJ

Approved:

Project: WENTWORTH POINT STAGE ONE DEVELOPMENT BLOCK D

Title: EROSION AND SEDIMENTATION CONTROL DETAILS

Civil Engineers and Project Managers
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Status: FOR INFORMATION
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A1

Drawing No.	Project No.	Issue
DAC171	17-477	D

100mm on Original

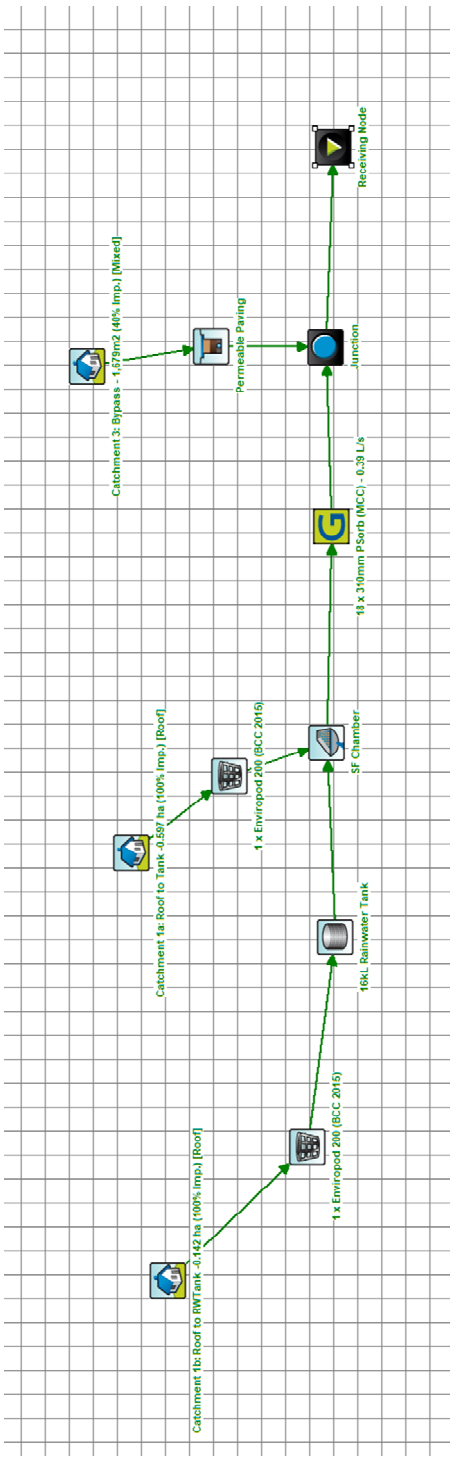
Date Plotted: 17 Dec 2018 - 03:18PM File Name: F:\17-477 37-39 Hill Road\Drgs\Civil\Final\100_Bock D Development Application\DAC171.dwg

Appendix C

MUSIC Model Results

AT&L
ABN 96 130 882 405
REVISION 01

MUSIC Model Results



AT&L
ABN 96 130 882 405
REVISION 01

Appendix D

BASIX

efficient LIVING

Thermal Comfort & BASIX Assessment

BUILDING
SUSTAINABILITY
CONSULTANTS

FRIENDLY INFORMATIVE EFFICIENT KNOWLEDGEABLE

City Freehold Projects
Proposed Residential Development

To be built at:

Block D 37-39 Hill Road,

Wentworth Point NSW 2127

Issue	File Ref	Description	Author	Date
A	17-0610	DRAFT Thermal Comfort and BASIX Assessment	HE/DG	23/11/17

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Batessmart. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our client's instructions and preferred building inclusions.

P: 02 9970 6181
www.efficientliving.com.au
admin@efficientliving.com.au

37-39 Hill Road, Wentworth Point

23 November 2017

Prepared for	City Freehold Projects Level 19 15 Castlereagh Street Sydney NSW 2000
Contact	Josh Abeleven Phone: (02) 9233 4477 Email: jabeleven@cityfreeholds.com.au
Introduction	Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 37-39 Hill road, Wentworth Point. Heating and cooling loads for the development have been determined using BERS Pro Plus 4.3 thermal comfort simulation software. The report is based on the architectural drawings provided by Batessmart. For further details, refer to the individual BASIX certificate(s) and Efficient Living's inclusions summary respectively.
Analysis	The BASIX assessment is divided into three sections, each independently measuring the efficiency of the development. These are Water, Thermal Comfort and Energy. BASIX requires a minimum target of 40% for the water section, a pass or fail is required for the thermal comfort section and a minimum required target of 25% for the energy section.
Water	The proposed development has achieved the BASIX Water target of 40%. The water usage of the development is calculated based on the number and efficiency of permanent fixtures and appliances such as taps, showerheads and toilets, the dish washer and clothes washing machine. The size of the rain tank and number of connections can have a significant impact on your water score as does the area of gardens and lawns and whether or not low water plant species are incorporated.
Thermal comfort	Thermal Comfort targets are set by the Department of Planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS Pro Plus V4.2 thermal comfort simulation software. This calculates the expected level of energy required to heat and cool each dwelling per annum, expressed in MJ (megajoules) per square meter of floor area. Each unit has individual heating and cooling caps applied. Accompanying these individual caps are average heating and cooling caps applied to the whole development. The average caps are lower, or harder to comply with, than the individual unit caps.
Energy	The proposed development has achieved the energy target of 25% to pass this section. The energy usage of the development is calculated based on the efficiency of fixed appliances that will be used. This includes the air conditioning system, hot water system, lighting, exhaust fans, cook top, oven, and clothes drying facilities.

Inclusions summary	The inclusions as outlined in the table below have been incorporated in each unit to allow them to reach their environmental sustainability targets.
Thermal comfort	Average heating loads are 8% below allowable BASIX targets Average cooling loads are 16% below allowable BASIX targets
Glazing Doors/windows	Aluminium framed single performance glazing: U-Value: 4.80 (equal to or lower than) SHGC: 0.59 (±10%) Aluminium framed double glazing as per assessor: U-Value: 4.50 (equal to or lower than) SHGC: 0.61 (±10%) Aluminium framed double glazing improved frames as per assessor: U-Value: 3.50 (equal to or lower than) SHGC: 0.64 (±10%) Given values are AFRC, total window system values (glass and frame)
Roof	Concrete roof no insulation Metal roof with a foil backed blanket (Minimum R1.2up and R1.2down) Default colour modelled
Ceiling	Plasterboard ceiling with R3.5 insulation (insulation only value), where roof or balcony above. Plasterboard ceiling, no insulation where neighbouring units are above Note: All ceiling penetrations have been modelled in accordance with NatHERS protocols, all downlights are assumed sealed LED down lights.
External wall	Brick veneer with a minimum R1.5 insulation (insulation value) Metal clad, stud framed walls with a minimum R1.5 insulation (insulation only value) R2.0 insulation where required as per assessor certificate Default colour modelled
Inter tenancy walls	75 mm Hebel power panel to walls adjacent to neighbours, no insulation required 75 mm Hebel power panel to walls adjacent to hallways with a minimum R1.2 insulation (insulation only value).

	Minimum 150mm concrete with furring channel and plasterboard lining to all walls adjacent to lift shafts and fire stairs, with a minimum R1.2 insulation (insulation only value).
Walls with-in dwellings	Plasterboard on studs – no insulation
Floors	Concrete, no insulation required to units with garage below Concrete, with a minimum R0.9 insulation (insulation only value) required where open sub-floor is below Concrete between levels no insulation required
Floor coverings	Default floor coverings modelled
BASIX water inclusions	Score 40/40
Fixtures within units	Showerheads: Mid flow (>6L but <=7.5 L/min) Toilets: 4.0 star Kitchen taps: 5.0 star Bathroom vanity taps: 5.0 star
Appliances within units	Dishwashers: 3.5 star
Central rainwater storage	Tank size 8,000L Collecting from 800m^2 roof area Connected to outdoor tap for irrigation of landscaping common and private
Fire sprinkler test water	Fire sprinkler test water must be contained in a closed loop system
Common area swimming pools and spas	103LK to be confirmed
BASIX energy inclusions	Score 25/25
Hot water system	Central instantaneous with R0.6 (~25mm) insulation to ring main and supply risers
Lift motors	All lifts to have gearless traction with VVVF motor
Appliances & other efficiency measures within units	Gas cooktop & electric oven Dishwashers: 3.0 star

	Clothes dryers: 2.0 star Well ventilated fridge space
Heating & cooling within units	All units to have individual, single phase, reverse cycle air conditioning to living areas and at least 1 bedroom. A minimum efficiency of 2 stars is required for cooling; and A minimum efficiency of 2.5 stars is required for heating. Day/Night zoning is also required
Artificial lighting within units	At least 80% of all light fittings with-in each room are to have fluorescent or LED globes.
Ventilation within units	Bathroom – Individual fan, ducted to roof or façade – manual on / manual off switch Laundry – Individual fan, ducted to roof or façade – manual on / manual off switch Kitchen range hood – Individual fan, not ducted – manual on / manual off switch
Ventilation to common areas	Car park area – supply & exhaust air with a carbon monoxide monitor & VSD fan Garbage rooms – Exhaust air, running continuously Comms room – Exhaust air, interlocked to light WC – Exhaust air, interlocked to light AC condensers – Exhaust air, running continuously Substation – Exhaust air, interlocked to light Pool plant – Exhaust air, interlocked to light Sprinkle alarm room – Exhaust air, interlocked to light Ground floor lobbies – Naturally ventilated Hallways – Naturally ventilated Hallways enclosed – Ventilation supply only
Artificial lighting to common areas	Car park area – Fluorescent lights with zoned switching and motion sensors Lifts – LED lights connected to lift call button Garbage rooms – Fluorescent lights with motion sensor Comms room – Fluorescent lights, manual on manual off WC – Fluorescent lights, manual on manual off

	AC condensers – Fluorescent lights, manual on manual off Substation – Fluorescent lights, manual on manual off Pool plant – Fluorescent lights, manual on manual off Sprinkle alarm room – Fluorescent lights, manual on manual off Ground floor lobbies – LED no restriction Hallways – LED no restriction Hallways enclosed – LED no restriction
Alternative energy	14kW photovoltaic system
Common area swimming pools and spas	Electric heat pump to be confirmed
Documentation	This report is based upon the following plans prepared by Batessmart
Report Contact	Haylea Edwards Phone: (02) 9970 6181 Email: haylea@efficientliving.com.au

Thermal Comfort Results

Proposed Residential Development

Block D
37 - 39 Hill Road,
Wentworth Point

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0000------- **Accreditation # VIC/BDAV/12/1473**

Thermal performance specifications

Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads (MJ/M²/y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
001	3	131	0	45	28	4.6	R2.0 external wall insulation
002	3	131	0	41	28	4.8	None
003	3	131	0	41	28	4.8	None
004	3	131	0	41	28	4.8	None
005	3	131	0	40	29	4.9	None
006	3	131	0	43	27	4.9	None
007	3	131	0	42	27	4.9	None
008	3	131	0	44	28	4.7	R2.0 external wall insulation
009	3	123	0	30	21	6.0	None
010	3	113	0	19	37	5.7	None
011	1	50	0	25	25	6.1	None
012	1	50	0	32	25	5.6	None
013	1	59	0	25	71	3.8	None
014	3	113	0	38	25	5.3	None
015	3	123	0	29	22	6.1	None
016	1	59	0	37	15	5.9	None
101	3	123	0	25	24	6.3	None
102	3	90	0	40	26	5	None
103	2	82	0	28	18	6.4	None
104	2	75	0	16	43	5.4	None
105	2	82	0	30	25	5.8	None
106	2	79	0	33	28	5.4	None
107	1	52	0	26	27	5.9	None
108	1	54	0	18	24	6.7	None
109	1	54	0	31	20	6.1	None
110	1	54	0	33	20	5.9	None
111	1	54	0	32	20	5.9	None
112	3	113	0	40	28	4.9	None
113	3	123	0	21	24	6.4	None
114	1	54	0	30	20	6.2	None
115	1	54	0	33	19	5.9	None
116	1	54	0	24	18	6.7	None
117	1	54	0	25	20	6.4	None
118	2	87	0	33	29	5.3	R2.0 external wall insulation
119	1	50	0	44	20	5.2	None
120	2	77	0	35	16	5.9	None

Efficient Living
Sustainable Building Consultants
Phone: (02) 9970 6181 Email: admin@efficientliving.com.au Web: www.efficientliving.com.au

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Thermal performance specifications

Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads (MJ/M^2/y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
121	1	59	0	33	20	5.9	None
201	3	113	0	39	28	4.9	None
202	3	113	0	22	38	5.4	None
203	2	82	0	30	18	6.3	None
204	2	75	0	37	20	5.6	None
205	2	82	0	27	18	6.5	None
206	2	79	0	30	29	5.4	None
207	1	52	0	20	28	6.4	None
208	2	92	0	30	20	6.2	None
209	2	79	0	32	26	5.6	None
210	2	80	0	32	26	5.5	None
211	2	82	0	24	24	6.3	None
212	2	92	0	45	22	4.9	None
213	2	92	0	43	16	5.4	None
214	2		0	57	15	4.5	None
215	1	59	0	34	20	5.9	None
216	3	113	0	40	27	4.9	None
217	3	113	0	23	38	5.4	None
218	2	82	0	27	16	6.7	None
219	2	82	0	29	16	6.6	None
220	2	92	0	45	15	5.4	None
221	2	92	0	39	27	5.1	None
222	2	82	0	25	24	6.3	None
223	2	80	0	36	22	5.6	None
224	2	79	0	29	23	5.9	None
225	2	92	0	28	17	6.6	None
226	1	52	0	19	29	6.3	None
227	2	82	0	45	29	4.5	R2.0 external wall insulation
228	1	50	0	35	23	5.6	None
229	2	82	0	45	19	5.2	None
230	1	59	0	34	20	5.9	None
301	3	113	0	41	26	4.9	None
302	3	113	0	40	26	5	None
303	2	82	0	31	17	6.3	None
304	2	87	0	31	28	5.4	None
305	2	82	0	40	25	5.1	None

Thermal Comfort Results

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Thermal performance specifications

Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads (MJ/M^2/y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
306	2	82	0	28	17	6.5	None
307	2	79	0	36	29	5.1	None
308	1	52	0	21	27	6.4	None
309	2	92	0	31	20	6.1	None
310	2	79	0	32	25	5.6	None
311	2	80	0	42	28	4.8	None
312	2	82	0	41	25	4.9	None
313	2	92	0	43	20	5.2	None
314	2	92	0	38	15	5.9	None
315	1	59	0	35	19	5.9	None
316	3	113	0	41	26	4.9	None
317	3	113	0	29	47	4.4	None
318	2	82	0	31	17	6.3	None
319	2	87	0	31	28	5.4	None
320	2	82	0	27	22	6.2	None
321	2	92	0	42	14	5.7	None
322	2	92	0	39	25	5.2	None
323	2	82	0	41	27	4.9	None
324	2	80	0	42	21	5.2	None
325	2	79	0	29	23	5.9	None
326	2	92	0	29	16	6.4	None
327	1	52	0	20	29	6.2	None
328	2	79	0	45	27	4.8	R2.0 external wall insulation
329	2	82	0	42	19	5.4	None
330	1	59	0	36	19	5.9	None
401	3	127	0	40	22	5.3	None
402	3	112	0	28	23	5.9	None
403	1	50	0	20	16	7.2	None
404	2	87	0	32	22	5.8	None
405	2	82	0	44	21	5.1	None
406	2	82	0	31	12	6.7	None
407	2	79	0	41	20	5.4	None
408	1	52	0	24	18	6.8	None
409	2	92	0	34	17	5.9	None
410	2	79	0	36	18	5.9	None

Thermal Comfort Results

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Thermal performance specifications

Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads (MJ/M^2/y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
411	2	80	0	35	22	5.7	None
412	2	82	0	40	22	5.3	None
413	2	92	0	45	17	5.3	None
414	2	92	0	41	12	5.9	None
415	3	127	0	40	22	5.3	None
416	3	112	0	28	23	5.9	None
417	1	50	0	20	16	7.2	None
418	2	87	0	33	22	5.8	None
419	2	82	0	33	19	5.9	None
420	2	92	0	45	12	5.6	None
421	2	92	0	42	18	5.4	None
422	2		0	40	22	5.3	None
423	2	80	0	40	16	5.7	None
424	2	79	0	33	18	6.1	None
425	2	92	0	32	13	6.4	None
426	1	90	0	40	26	5	None
427	2	90	0	40	26	5	R2.0 external wall insulation
428	2	82	0	45	14	5.4	None
501	2	82	0	45	21	5.1	None
502	3	117	0	30	24	5.9	None
503	2	92	0	20	13	7.4	None
504	2	84	0	34	19	5.9	None
505	1	90	0	40	26	5	None
506	2	79	0	42	19	5.4	None
507	1	52	0	25	18	6.8	None
508	2	92	0	35	17	5.9	None
509	2	79	0	36	17	5.9	None
510	2	80	0	35	20	5.7	None
511	2	82	0	40	21	5.4	None
512	2	92	0	45	16	5.4	None
513	2	92	0	42	12	5.9	None
514	2	82	0	45	21	5.1	None
515	3	117	0	30	24	5.9	None
516	2	92	0	21	13	7.4	None
517	2	84	0	34	19	5.6	None
518	2	92	0	45	11	5.6	None

Thermal Comfort Results

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Thermal performance specifications

Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads (MJ/M²/y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
519	2	92	0	40	18	5.4	None
520	2	82	0	40	22	5.3	None
521	2	80	0	36	15	5.9	None
522	2	79	0	33	18	6.0	None
523	2	92	0	33	13	6.4	None
524	1	90	0	40	26	5	None
525	2	90	0	40	26	5	R2.0 external wall insulation
526	2	90	0	40	26	5	None
601	2	81	0	43	13	5.7	None
602	3	109	0	34	29	5.2	None
603	2	81	0	25	12	7.2	None
604	1	90	0	40	26	5	None
605	2	79	0	42	19	5.3	None
606	1	52	0	25	18	6.8	None
607	2	90	0	40	26	5	None
608	2	79	0	37	17	5.9	None
609	2	80	0	36	20	5.7	None
610	2	82	0	41	20	5.4	None
611	2	92	0	45	16	5.3	None
612	2	92	0	40	14	5.9	None
613	3	109	0	42	28	4.8	None
614	2	81	0	25	12	7.2	None
615	2	92	0	45	11	5.7	None
616	2	92	0	39	18	5.7	None
617	2	82	0	40	22	5.3	None
618	2	80	0	36	15	5.9	None
619	2	79	0	34	18	5.9	None
620	2	92	0	33	13	6.4	None
621	1	90	0	40	26	5	None
622	2	90	0	40	26	5	R2.0 external wall insulation
623	1	90	0	40	26	5	None
624	2	81	0	43	13	5.7	None
701	3	90	0	39	27	4.9	None
702	3	119	0	21	28	6.2	None
703	3	107	0	40	19	5.4	None
704	1	90	0	40	26	5	None

Thermal Comfort Results

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Thermal performance specifications

Unit number	Number of Bedrooms	Floor area (M^2)		Predict. loads (MJ/M^2/y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
705	2	92	0	36	17	5.9	None
706	2	79	0	39	18	5.7	None
707	2	80	0	37	20	5.7	None
708	2	82	0	41	20	5.3	None
709	2	90	0	40	26	5	R2.0 external walls and double glazing
710	2	92	0	37	12	6.2	None
711	3	119	0	35	26	5.4	None
712	3	113	0	26	29	5.7	None
713	2	92	0	45	11	5.7	R2.0 external wall insulation
714	2	92	0	39	18	5.6	None
715	2	82	0	41	22	5.3	None
716	2	80	0	38	14	5.9	None
717	2	79	0	36	17	5.9	None
718	2	92	0	32	13	6.4	None
719	1	90	0	40	26	5	None
720	3	107	0	45	17	5.4	R2.0 external wall insulation and double glazing to living and dining area
801	3	131	0	45	16	5.4	R2.0 external wall insulation
802	3	121	0	45	23	4.9	Double glazing throughou and R2.0 external wall insulation
803	3	136	0	44	15	5.4	None
804	3	110	0	39	20	5.4	None
805	3	106	0	45	15	5.4	R2.0 external wall insulation and double glazing throughout
806	3	99	0	45	16	5.4	R2.0 external wall insulation and double glazing throughout
807	3	131	0	45	18	5.2	R2.0 external wall insulation and double glazing to living and dining area
808	3	99	0	31	17	6.3	R3.5 ceiling ins
809	3	106	0	45	21	5.1	R2.0 external wall insulation and double glazing throughout
810	3	110	0	41	16	5.7	R3.5 roof insulation
811	3	136	0	37	14	6.1	R3.5 roof insulation
812	3	121	0	44	28	4.7	R2.0 external wall insulation anddouble glazing with improved frames throughout

BASIX® Report

Building Sustainability Index www.basix.nsw.gov.au

Project summary		
Project name	37-39 Hill Road, Wentworth Point	
Street address	37-39 Hill Road Wentworth Point 2127	
Local Government Area	Parramatta City Council	
Plan type and plan number	deposited 776611	
Lot no.	8	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	207	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	40	Target 40
Thermal Comfort	Pass	Target Pass
Energy	25	Target 25

Description of project

Project address	
Project name	37-39 Hill Road, Wentworth Point
Street address	37-39 Hill Road Wentworth Point 2127
Local Government Area	Parramatta City Council
Plan type and plan number	deposited 776611
Lot no.	8
Section no.	-

Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	207
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details	
Site area (m²)	9156
Roof area (m²)	3340.4
Non-residential floor area (m²)	0.0
Residential car spaces	286
Non-residential car spaces	0

Common area landscape	
Common area lawn (m²)	165.0
Common area garden (m²)	2002.0
Area of indigenous or low water use species (m²)	0.0

Assessor details	
Assessor number	BDAV12/1473
Certificate number	0000245454
Climate zone	56

Project score		
Water	40	Target 40
Thermal Comfort	Pass	Target Pass
Energy	25	Target 25

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - Building1, 207 dwellings, 9 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
001	3	131.0	0.0	0.0	0.0
005	3	131.0	0.0	0.0	0.0
009	3	123.0	0.0	0.0	0.0
013	1	59.0	0.0	0.0	0.0
101	3	123.0	0.0	0.0	0.0
105	2	82.0	0.0	0.0	0.0
109	1	54.0	0.0	0.0	0.0
113	3	123.0	0.0	0.0	0.0
117	1	54.0	0.0	0.0	0.0
121	1	59.0	0.0	0.0	0.0
204	2	75.0	0.0	0.0	0.0
208	2	92.0	0.0	0.0	0.0
212	2	92.0	0.0	0.0	0.0
216	3	113.0	0.0	0.0	0.0
220	2	92.0	0.0	0.0	0.0
224	2	79.0	0.0	0.0	0.0
228	1	50.0	0.0	0.0	0.0
302	3	113.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
002	3	131.0	0.0	0.0	0.0
006	3	131.0	0.0	0.0	0.0
010	3	113.0	0.0	0.0	0.0
014	3	113.0	0.0	0.0	0.0
102	3	90.0	0.0	0.0	0.0
106	2	79.0	0.0	0.0	0.0
110	1	54.0	0.0	0.0	0.0
114	1	54.0	0.0	0.0	0.0
118	2	87.0	0.0	0.0	0.0
201	3	113.0	0.0	0.0	0.0
205	2	82.0	0.0	0.0	0.0
209	2	79.0	0.0	0.0	0.0
213	2	90.0	0.0	0.0	0.0
217	3	113.0	0.0	0.0	0.0
221	2	92.0	0.0	0.0	0.0
225	2	92.0	0.0	0.0	0.0
229	2	82.0	0.0	0.0	0.0
303	2	82.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
003	3	131.0	0.0	0.0	0.0
007	3	131.0	0.0	0.0	0.0
011	1	50.0	0.0	0.0	0.0
015	3	123.0	0.0	0.0	0.0
103	2	82.0	0.0	0.0	0.0
107	1	52.0	0.0	0.0	0.0
111	1	54.0	0.0	0.0	0.0
115	1	54.0	0.0	0.0	0.0
119	1	50.0	0.0	0.0	0.0
202	3	113.0	0.0	0.0	0.0
206	2	79.0	0.0	0.0	0.0
210	2	80.0	0.0	0.0	0.0
214	2	90.0	0.0	0.0	0.0
218	2	82.0	0.0	0.0	0.0
222	2	82.0	0.0	0.0	0.0
226	1	52.0	0.0	0.0	0.0
230	1	59.0	0.0	0.0	0.0
304	2	87.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
004	3	131.0	0.0	0.0	0.0
008	3	131.0	0.0	0.0	0.0
012	1	50.0	0.0	0.0	0.0
016	1	59.0	0.0	0.0	0.0
104	2	75.0	0.0	0.0	0.0
108	1	54.0	0.0	0.0	0.0
112	3	113.0	0.0	0.0	0.0
116	1	54.0	0.0	0.0	0.0
120	2	77.0	0.0	0.0	0.0
203	2	82.0	0.0	0.0	0.0
207	1	52.0	0.0	0.0	0.0
211	2	82.0	0.0	0.0	0.0
215	1	59.0	0.0	0.0	0.0
219	2	82.0	0.0	0.0	0.0
223	2	80.0	0.0	0.0	0.0
227	2	82.0	0.0	0.0	0.0
301	3	113.0	0.0	0.0	0.0
305	2	82.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
306	2	82.0	0.0	0.0	0.0
310	2	79.0	0.0	0.0	0.0
314	2	92.0	0.0	0.0	0.0
318	2	82.0	0.0	0.0	0.0
322	2	92.0	0.0	0.0	0.0
326	2	92.0	0.0	0.0	0.0
330	1	59.0	0.0	0.0	0.0
404	2	90.0	0.0	0.0	0.0
408	1	90.0	0.0	0.0	0.0
412	2	82.0	0.0	0.0	0.0
416	3	112.0	0.0	0.0	0.0
420	2	92.0	0.0	0.0	0.0
424	2	79.0	0.0	0.0	0.0
428	2	82.0	0.0	0.0	0.0
504	2	84.0	0.0	0.0	0.0
508	2	92.0	0.0	0.0	0.0
512	2	92.0	0.0	0.0	0.0
516	2	92.0	0.0	0.0	0.0
520	2	82.0	0.0	0.0	0.0
524	1	90.0	0.0	0.0	0.0
602	3	109.0	0.0	0.0	0.0
606	1	90.0	0.0	0.0	0.0
610	2	82.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
307	2	79.0	0.0	0.0	0.0
311	2	80.0	0.0	0.0	0.0
315	1	59.0	0.0	0.0	0.0
319	2	87.0	0.0	0.0	0.0
323	2	82.0	0.0	0.0	0.0
327	1	52.0	0.0	0.0	0.0
401	3	127.0	0.0	0.0	0.0
405	2	90.0	0.0	0.0	0.0
409	2	92.0	0.0	0.0	0.0
413	2	92.0	0.0	0.0	0.0
417	1	90.0	0.0	0.0	0.0
421	2	92.0	0.0	0.0	0.0
425	2	92.0	0.0	0.0	0.0
501	2	82.0	0.0	0.0	0.0
505	1	90.0	0.0	0.0	0.0
509	2	79.0	0.0	0.0	0.0
513	2	92.0	0.0	0.0	0.0
517	2	84.0	0.0	0.0	0.0
521	2	80.0	0.0	0.0	0.0
525	2	90.0	0.0	0.0	0.0
603	2	81.0	0.0	0.0	0.0
607	2	90.0	0.0	0.0	0.0
611	2	92.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
308	1	52.0	0.0	0.0	0.0
312	2	82.0	0.0	0.0	0.0
316	3	113.0	0.0	0.0	0.0
320	2	82.0	0.0	0.0	0.0
324	2	80.0	0.0	0.0	0.0
328	2	79.0	0.0	0.0	0.0
402	3	112.0	0.0	0.0	0.0
406	2	82.0	0.0	0.0	0.0
410	2	79.0	0.0	0.0	0.0
414	2	92.0	0.0	0.0	0.0
418	2	90.0	0.0	0.0	0.0
422	2	90.0	0.0	0.0	0.0
426	1	90.0	0.0	0.0	0.0
502	3	117.0	0.0	0.0	0.0
506	2	90.0	0.0	0.0	0.0
510	2	80.0	0.0	0.0	0.0
514	2	82.0	0.0	0.0	0.0
518	2	92.0	0.0	0.0	0.0
522	2	79.0	0.0	0.0	0.0
526	2	90.0	0.0	0.0	0.0
604	1	90.0	0.0	0.0	0.0
608	2	79.0	0.0	0.0	0.0
612	2	92.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
309	2	92.0	0.0	0.0	0.0
313	2	92.0	0.0	0.0	0.0
317	3	113.0	0.0	0.0	0.0
321	2	92.0	0.0	0.0	0.0
325	2	79.0	0.0	0.0	0.0
329	2	82.0	0.0	0.0	0.0
403	1	90.0	0.0	0.0	0.0
407	2	90.0	0.0	0.0	0.0
411	2	80.0	0.0	0.0	0.0
415	3	127.0	0.0	0.0	0.0
419	2	90.0	0.0	0.0	0.0
423	2	80.0	0.0	0.0	0.0
427	2	90.0	0.0	0.0	0.0
503	2	92.0	0.0	0.0	0.0
507	1	90.0	0.0	0.0	0.0
511	2	82.0	0.0	0.0	0.0
515	3	117.0	0.0	0.0	0.0
519	2	92.0	0.0	0.0	0.0
523	2	92.0	0.0	0.0	0.0
601	2	81.0	0.0	0.0	0.0
605	2	90.0	0.0	0.0	0.0
609	2	80.0	0.0	0.0	0.0
613	3	109.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
614	2	81.0	0.0	0.0	0.0
618	2	80.0	0.0	0.0	0.0
622	2	90.0	0.0	0.0	0.0
702	3	119.0	0.0	0.0	0.0
706	2	79.0	0.0	0.0	0.0
710	2	92.0	0.0	0.0	0.0
714	2	92.0	0.0	0.0	0.0
718	2	92.0	0.0	0.0	0.0
802	3	121.0	0.0	0.0	0.0
806	3	99.0	0.0	0.0	0.0
810	3	110.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
615	2	92.0	0.0	0.0	0.0
619	2	79.0	0.0	0.0	0.0
623	1	90.0	0.0	0.0	0.0
703	3	107.0	0.0	0.0	0.0
707	2	80.0	0.0	0.0	0.0
711	3	119.0	0.0	0.0	0.0
715	2	82.0	0.0	0.0	0.0
719	1	90.0	0.0	0.0	0.0
803	3	136.0	0.0	0.0	0.0
807	3	131.0	0.0	0.0	0.0
811	3	136.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
616	2	92.0	0.0	0.0	0.0
620	2	92.0	0.0	0.0	0.0
624	2	81.0	0.0	0.0	0.0
704	1	90.0	0.0	0.0	0.0
708	2	82.0	0.0	0.0	0.0
712	3	113.0	0.0	0.0	0.0
716	2	80.0	0.0	0.0	0.0
720	3	107.0	0.0	0.0	0.0
804	3	110.0	0.0	0.0	0.0
808	3	99.0	0.0	0.0	0.0
812	3	121.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
617	2	82.0	0.0	0.0	0.0
621	1	90.0	0.0	0.0	0.0
701	3	90.0	0.0	0.0	0.0
705	2	92.0	0.0	0.0	0.0
709	2	92.0	0.0	0.0	0.0
713	2	92.0	0.0	0.0	0.0
717	2	79.0	0.0	0.0	0.0
801	3	131.0	0.0	0.0	0.0
805	3	1060.0	0.0	0.0	0.0
809	3	106.0	0.0	0.0	0.0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building1

Common area	Floor area (m²)
Lift car (No.1)	-
Lift car (No.4)	-
Entry/lobby	274.68

Common area	Floor area (m²)
Lift car (No.2)	-
Lift car (No.5)	-
Hallways	1281.4

Common area	Floor area (m²)
Lift car (No.3)	-
Lift car (No.6)	-
Hallways enclosed	208.25

Common areas of the development (non-building specific)

Common area	Floor area (m²)
Car park area	10092.0
Comms room	13.24
Substation	18.59

Common area	Floor area (m²)
Fire pump	33.03
WC	5.73
Pool Plant	32.23

Common area	Floor area (m²)
Garbage room	274.5
AC condensors	1509.0
Sprinkler alarm room	11.6

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building1
    (a) Dwellings
        (i) Water
        (ii) Energy
        (iii) Thermal Comfort
    (b) Common areas and central systems/facilities
        (i) Water
        (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

4. Commitments for common areas and central systems/facilities for the development (non-building specific)
        (i) Water
        (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - Building1

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	-	3.5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔ ✔	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔ ✔ ✔	✔
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All dwellings	1-phase airconditioning 2 Star (zoned)	1-phase airconditioning 2 Star (zoned)	1-phase airconditioning 2.5 Star (zoned)	1-phase airconditioning 2.5 Star (zoned)	2	1	yes	yes	yes	yes	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
001	45.0	28.0
005	40.0	29.0
006	43.0	27.0
007	42.0	27.0
009	30.0	21.0
010	19.0	26.0
011	25.0	25.0
013	25.0	26.0
014	38.0	25.0
015	29.0	22.0
016	37.0	15.0
103	28.0	18.0
104	16.0	26.0
105	30.0	25.0
106	33.0	28.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
107	26.0	27.0
108	18.0	24.0
111	32.0	20.0
112	40.0	28.0
113	21.0	24.0
115	33.0	19.0
116	24.0	18.0
117	25.0	20.0
118	33.0	29.0
119	44.0	20.0
120	35.0	16.0
201	39.0	28.0
202	22.0	26.0
203	30.0	18.0
205	27.0	18.0
206	30.0	29.0
207	20.0	28.0
211	24.0	24.0
212	45.0	22.0
214	40.0	15.0
216	40.0	27.0
217	23.0	26.0
218	27.0	16.0
223	36.0	22.0
226	19.0	29.0
227	45.0	29.0
228	35.0	23.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
229	45.0	19.0
305	40.0	25.0
307	36.0	29.0
308	21.0	27.0
312	41.0	25.0
313	43.0	20.0
314	38.0	15.0
315	35.0	19.0
317	29.0	26.0
320	27.0	22.0
321	42.0	14.0
322	39.0	25.0
323	41.0	27.0
324	42.0	21.0
327	20.0	29.0
328	45.0	27.0
329	42.0	19.0
330	36.0	19.0
406	31.0	12.0
409	34.0	17.0
410	36.0	18.0
411	35.0	22.0
414	41.0	12.0
420	45.0	12.0
421	42.0	18.0
423	40.0	16.0
428	45.0	14.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
503	20.0	13.0
508	35.0	17.0
510	35.0	20.0
511	40.0	21.0
513	42.0	12.0
516	21.0	13.0
519	40.0	18.0
602	34.0	29.0
608	37.0	17.0
609	36.0	20.0
612	40.0	14.0
619	34.0	18.0
702	21.0	28.0
703	40.0	19.0
710	37.0	12.0
711	35.0	26.0
712	26.0	29.0
715	41.0	22.0
716	38.0	14.0
802	45.0	23.0
803	44.0	15.0
804	39.0	20.0
807	45.0	18.0
810	41.0	16.0
811	37.0	14.0
008, 812	44.0	28.0
012, 310	32.0	25.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
101, 222	25.0	24.0
109, 309	31.0	20.0
110, 121	33.0	20.0
114, 208	30.0	20.0
204, 707	37.0	20.0
209, 210	32.0	26.0
215, 230	34.0	20.0
219, 326	29.0	16.0
220, 805	45.0	15.0
221, 701	39.0	27.0
224, 325	29.0	23.0
225, 306	28.0	17.0
301, 316	41.0	26.0
304, 319	31.0	28.0
311, 613	42.0	28.0
402, 416	28.0	23.0
413, 720	45.0	17.0
424, 522	33.0	18.0
425, 718	32.0	13.0
502, 515	30.0	24.0
504, 517	34.0	19.0
521, 618	36.0	15.0
523, 620	33.0	13.0
601, 624	43.0	13.0
603, 614	25.0	12.0
610, 708	41.0	20.0
002, 003, 004	41.0	28.0

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
303, 318, 808	31.0	17.0
501, 514, 809	45.0	21.0
509, 705, 717	36.0	17.0
518, 615, 713	45.0	11.0
616, 706, 714	39.0	18.0
512, 611, 801, 806	45.0	16.0
401, 412, 415, 422, 520, 617	40.0	22.0
All other dwellings	40.0	26.0

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Pool (No. 1)	Volume: 103.0 kLs	Location: Building1 Pool shaded: no	-
Fire sprinkler system (No. 2)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.3)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.4)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.5)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.6)	-	-	light-emitting diode	connected to lift call button	No
Entry/lobby	no mechanical ventilation	-	light-emitting diode	none	No
Hallways	no mechanical ventilation	-	light-emitting diode	none	No
Hallways enclosed	ventilation supply only	none ie. continuous	light-emitting diode	none	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 7
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 9

Central energy systems	Type	Specification
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 9
Pool (No. 1)	Heating source: electric heat pump	Pump controlled by timer: yes

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	8000.0	To collect run-off from at least: - 800.0 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 2167.0 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Fire pump	ventilation supply only	interlocked to light	fluorescent	manual on / manual off	No
Garbage room	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Comms room	ventilation supply only	interlocked to light	fluorescent	manual on / manual off	No
WC	ventilation exhaust only	interlocked to light	light-emitting diode	manual on / manual off	No
AC condensors	ventilation exhaust only	none ie. continuous	fluorescent	manual on / manual off	No
Substation	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Pool Plant	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Sprinkler alarm room	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas instantaneous	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 14.0 peak kW

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

Appendix E

Dial Before you Dig (DBYD)

Working near nbn™ cables

nbn has partnered with Dial Before You Dig to give you a single point of contact to get information about **nbn** underground services owned by **nbn** and other utility/service provider in your area including communications, electricity, gas and other services. Contact with underground power cables and gas services can result in serious injury to the worker, and damage and costly repairs. You must familiarise yourself with all of the Referral Conditions (meaning the referral conditions referred to in the DBYD Notice provided by **nbn**).

Practice safe work habits

Once the DBYD plans are reviewed, the Four P's of Excavation should be adopted in conjunction with your safe work practices (which must be compliant with the relevant state Electrical Safety Act and Safe Work Australia "Excavation Work Code of Practice", as a minimum) to ensure the risk of any contact with underground **nbn** assets are minimised.

Plan: Plan your job ensuring the plans received are current and apply to the work to be performed. Also check for any visual cues that may indicate the presence of services not covered in the DBYD plans.

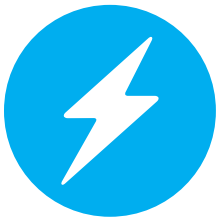
Pothole: Non-destructive potholing (i.e. hand digging or hydro excavation) should be used to positively locate **nbn** underground assets with minimal risk of contact and service damage.

Protect: Protecting and supporting the exposed **nbn** underground asset is the responsibility of the worker. Exclusion zones for **nbn** assets are clearly stated in the plan and appropriate controls must be implemented to ensure that encroachment into the exclusion zone by machinery or activities with the potential to damage the asset is prevented.

Proceed: Proceed only when the appropriate planning, potholing and protective measures are in place.

Working near **nbn**™ cables

Australia's broadband network



Identify all electrical hazards, assess the risks and establish control measures.

When using excavators and other machinery, also check the location of overhead power lines.

Workers and equipment must maintain safety exclusion zones around power lines.

Once all work is completed, the excavation should be re-instated with the same type of excavated material unless specified by **nbn**. Please note:

- Construction Partners of **nbn** may require additional controls to be in place when performing excavation activities.
- The information contained within this pamphlet must be used in conjunction with other material supplied as part of this request for information to adequately control the risk of potential asset damage.

Contact

In the event of the **nbn**™ network facility damage please call 1800 626 329

DIAL BEFORE YOU DIG® www.1100.com.au

Job No 12496325

Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr Jack Mort	**Caller Id:**	1712632	**Phone:**	0294391777
Company:	AT&L	**Mobile:**	Not Supplied	**Fax:**	Not Supplied
Address:	Level 7 153 Walker Street North Sydney NSW 2060	**Email:**	jackm@atl.net.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: 17-477 37-39 Hill Rd
Working on Behalf of:
Other

Enquiry Date:	Start Date:	End Date:
19/06/2017	22/06/2017	29/06/2017

Address:
37-39 Hill Road
Wentworth Point NSW 2127

Job Purpose: Excavation
Onsite Activity: Manual Excavation
Location of Workplace: Both
Location in Road: CarriageWay,Footpath,Nature Strip

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Not Supplied

Your Responsibilities and Duty of Care

- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
62064282	Auburn	0297351222	NOTIFIED
62064284	Ausgrid	0249510899	NOTIFIED
62064283	Freyssinet Australia Pty Ltd	0294917177	NOTIFIED
62064289	Jemena Gas South	1300880906	NOTIFIED
62064292	NBN Co, NswAct	1800626762	NOTIFIED
62064291	Sydney Water	132092	NOTIFIED
62064287	Telstra NSW, Central	1800653935	NOTIFIED

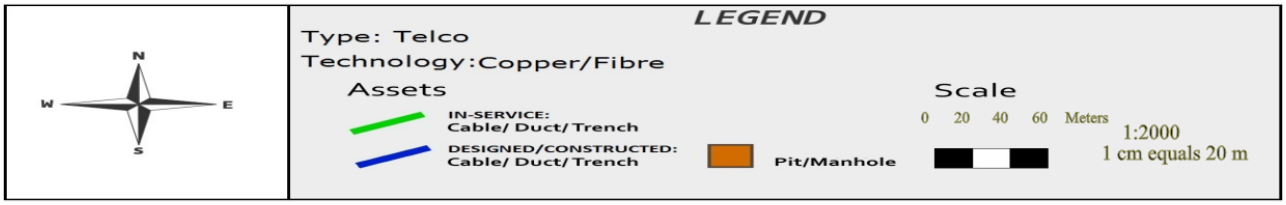
END OF UTILITIES LIST

Indicative Plans

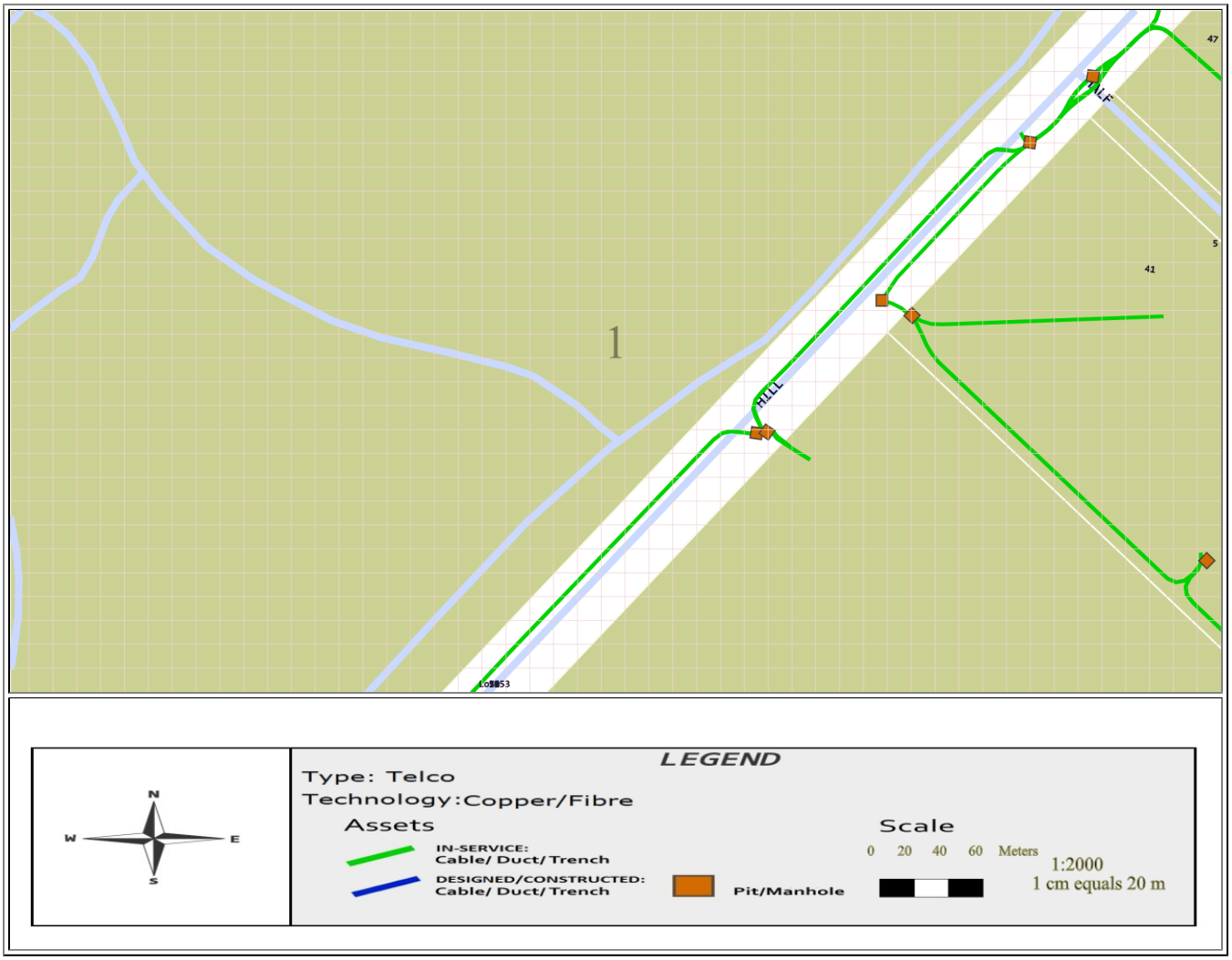
Issue Date:	19/06/2017
Location:	37-39 Hill Road,Wentworth Point,NSW-2127

DIAL BEFORE YOU DIG www.1100.com.au

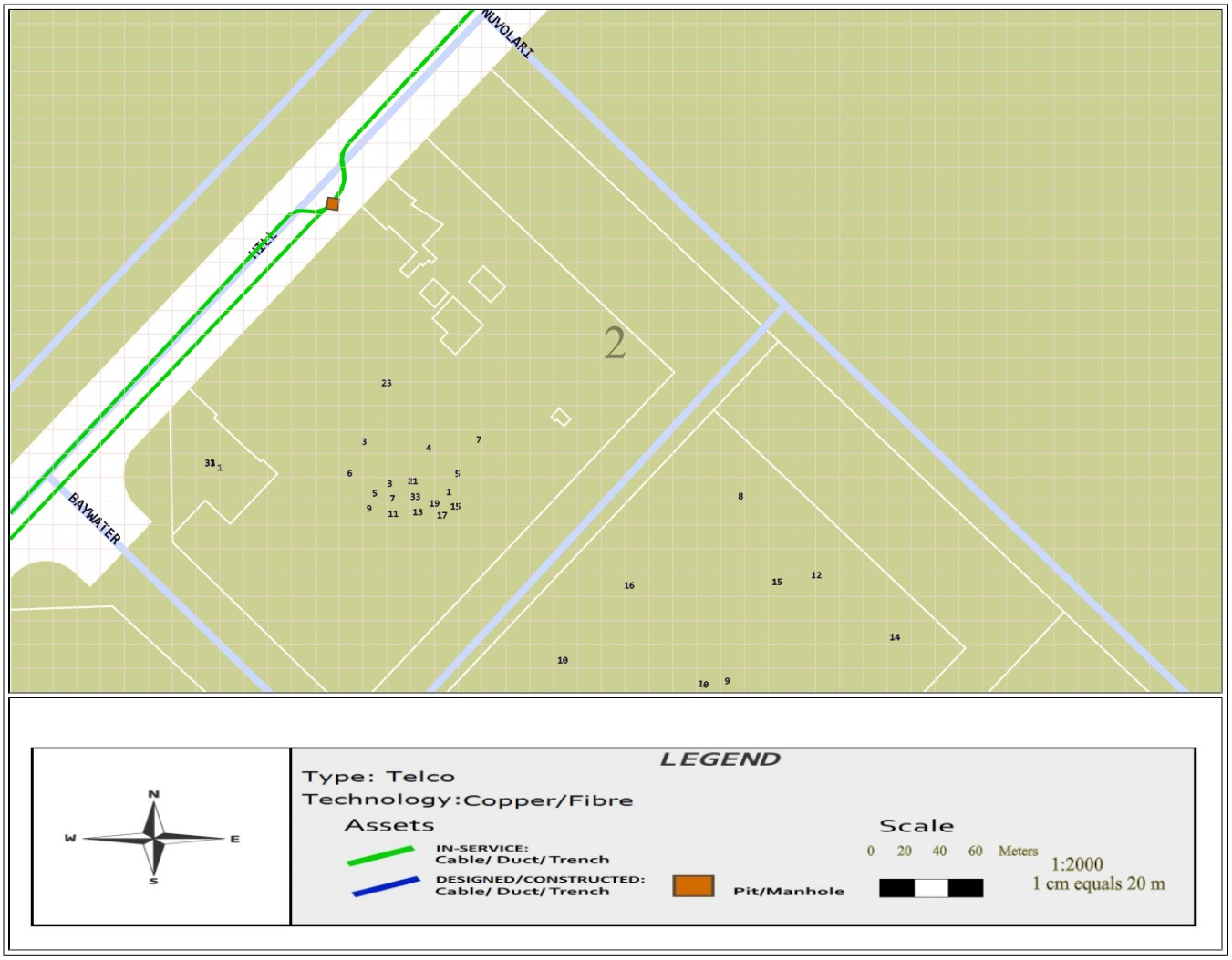
1	4
2	5
3	6

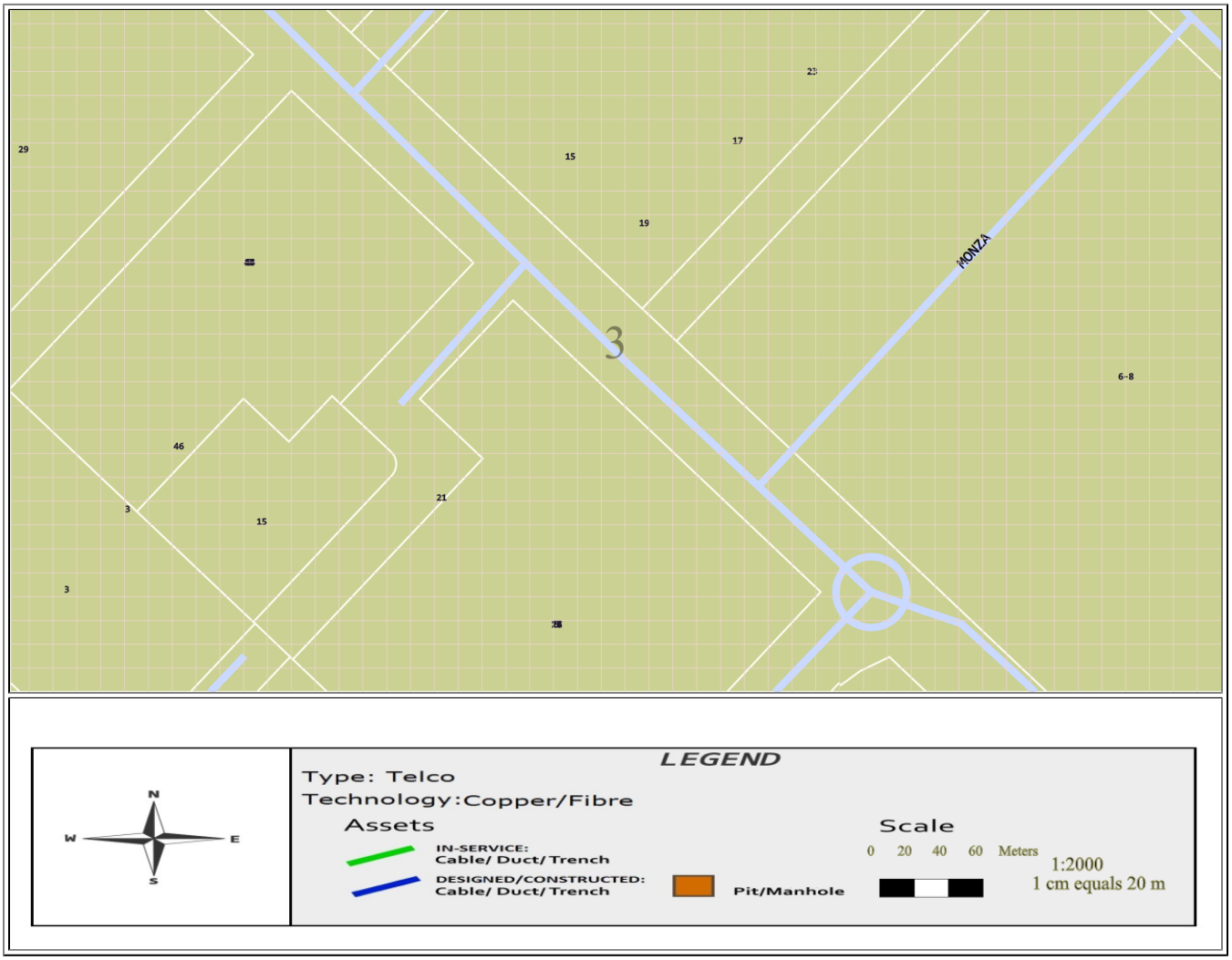


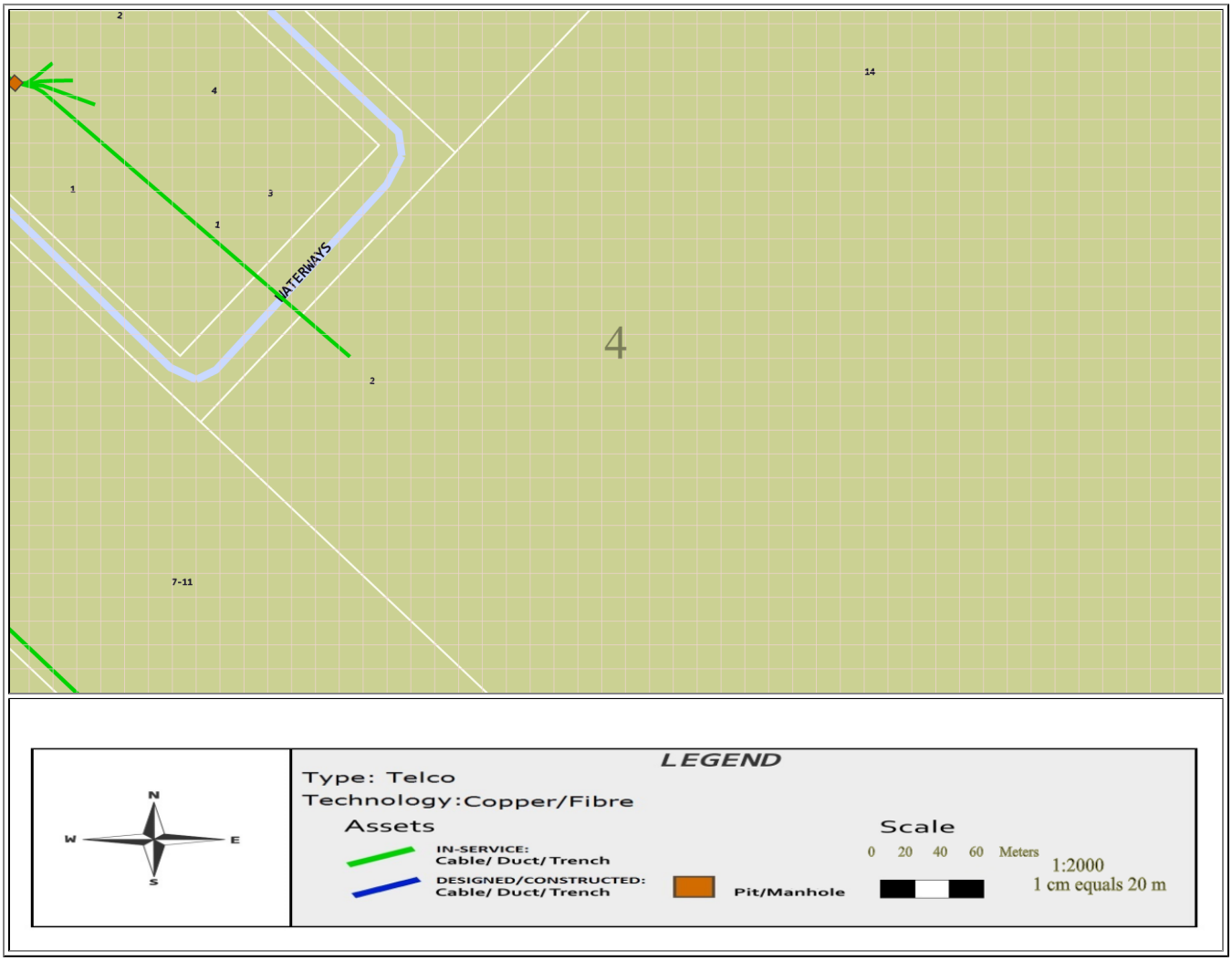
Email info@nbn.com.au Web nbn.com.au

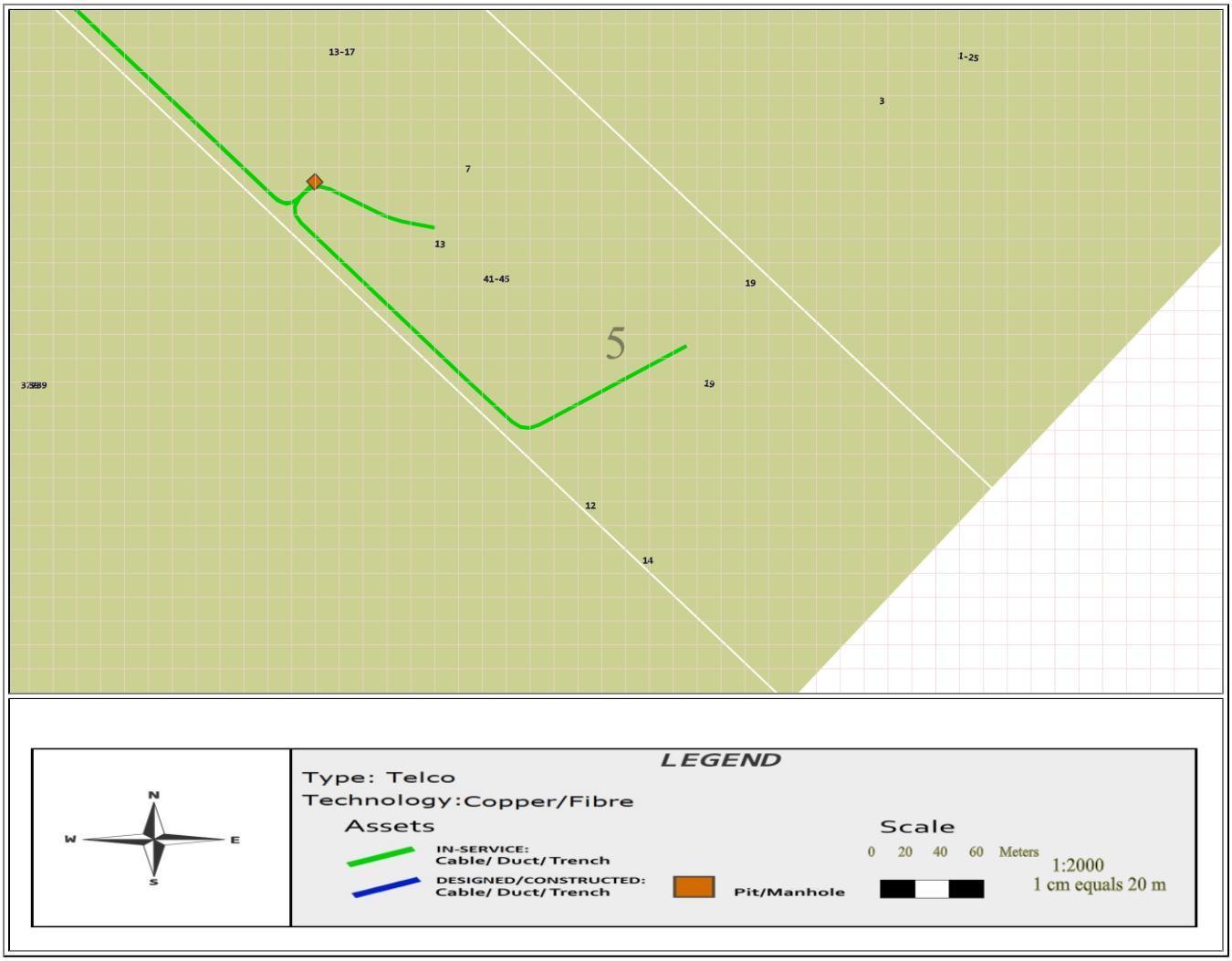


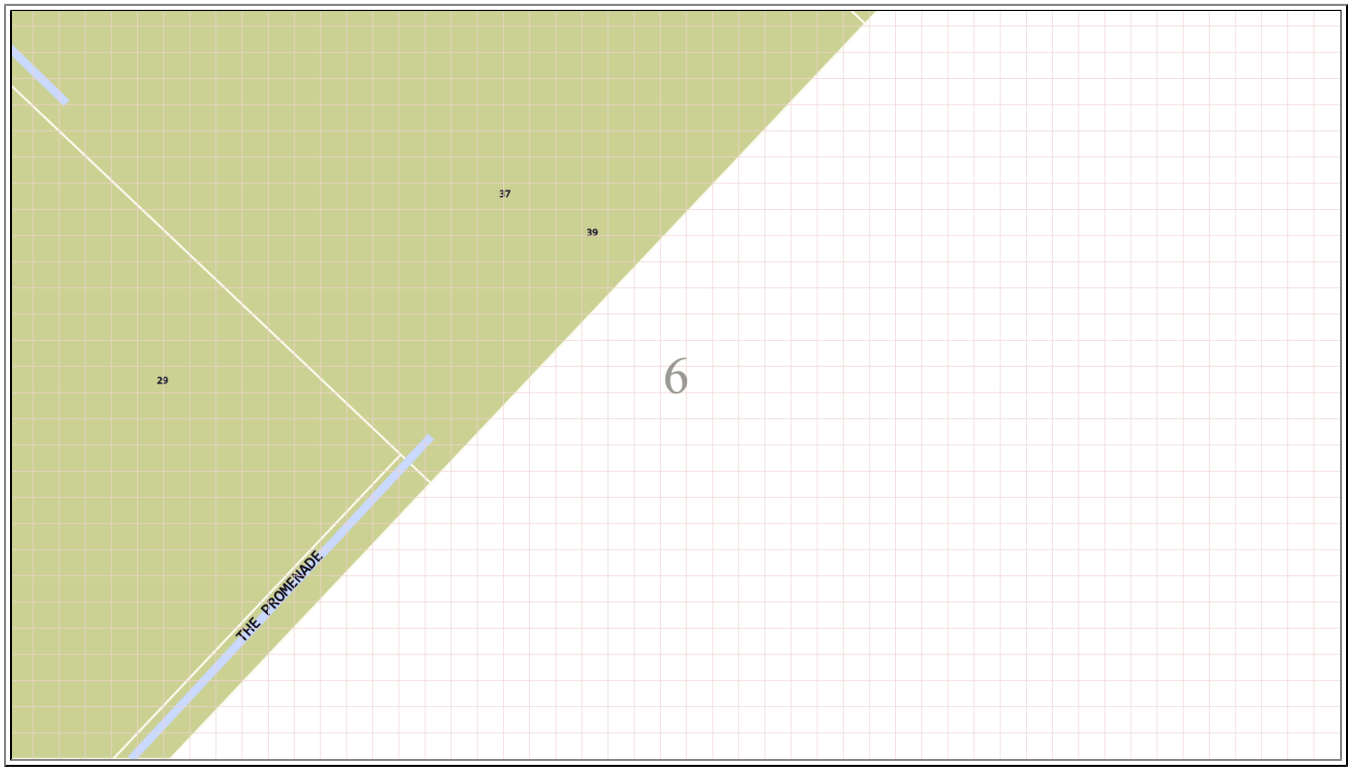
Email info@nbn.com.au Web nbn.com.au











Emergency Contacts

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

Indicative Plans

Issue Date:	19/06/2017
Location:	37-39 Hill Road,Wentworth Point,NSW-2127

DIAL BEFORE YOU DIG www.1100.com.au

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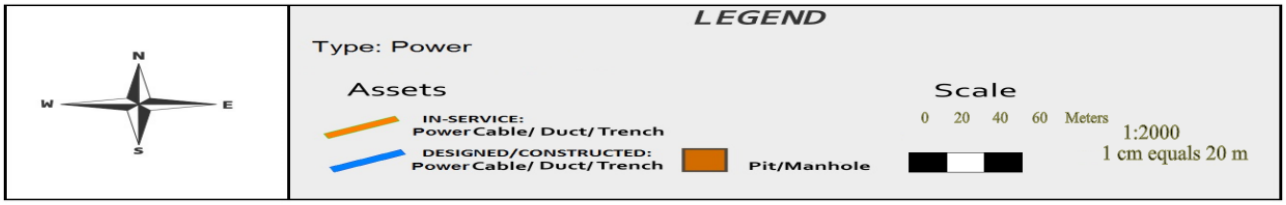
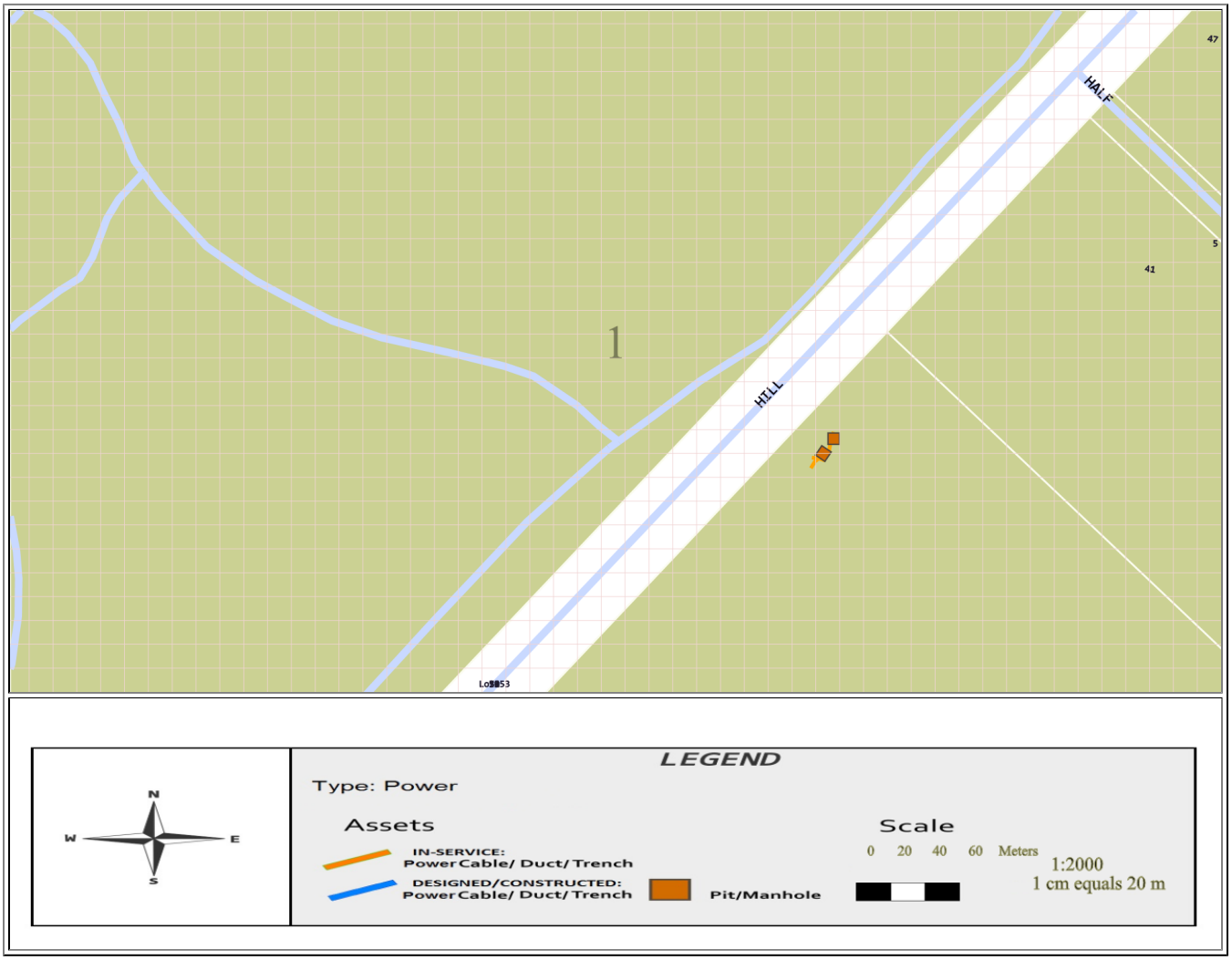
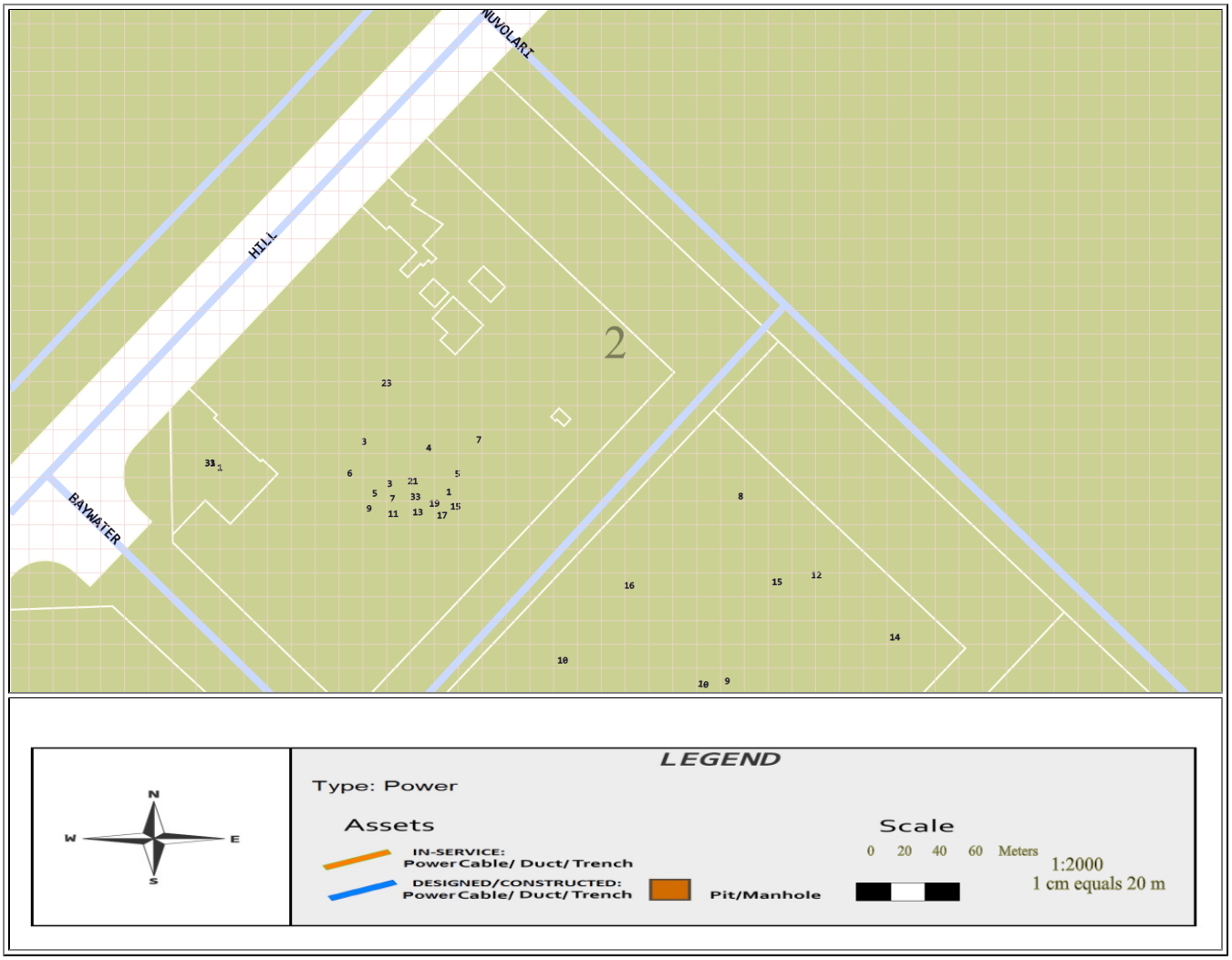
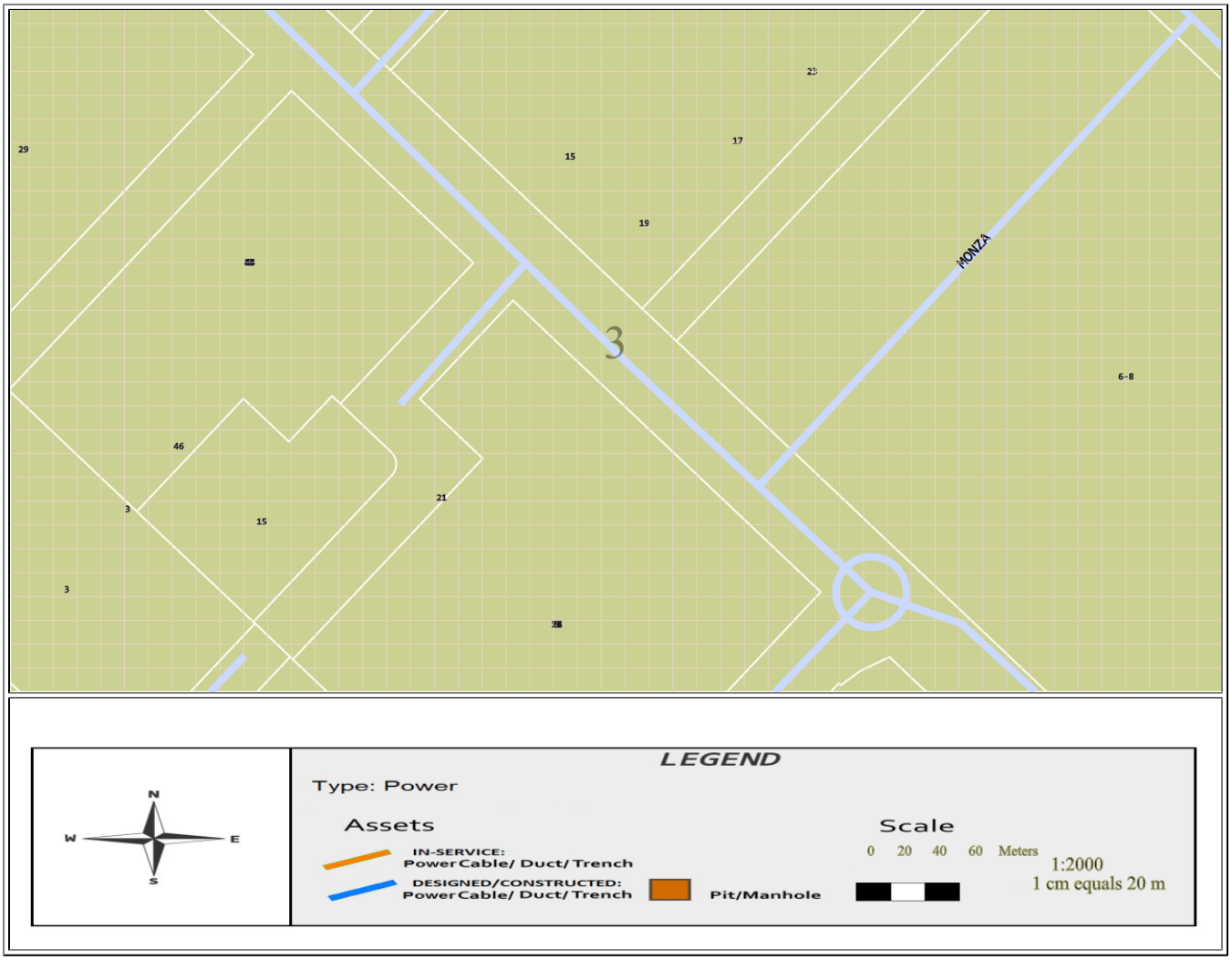
2	5
3	6

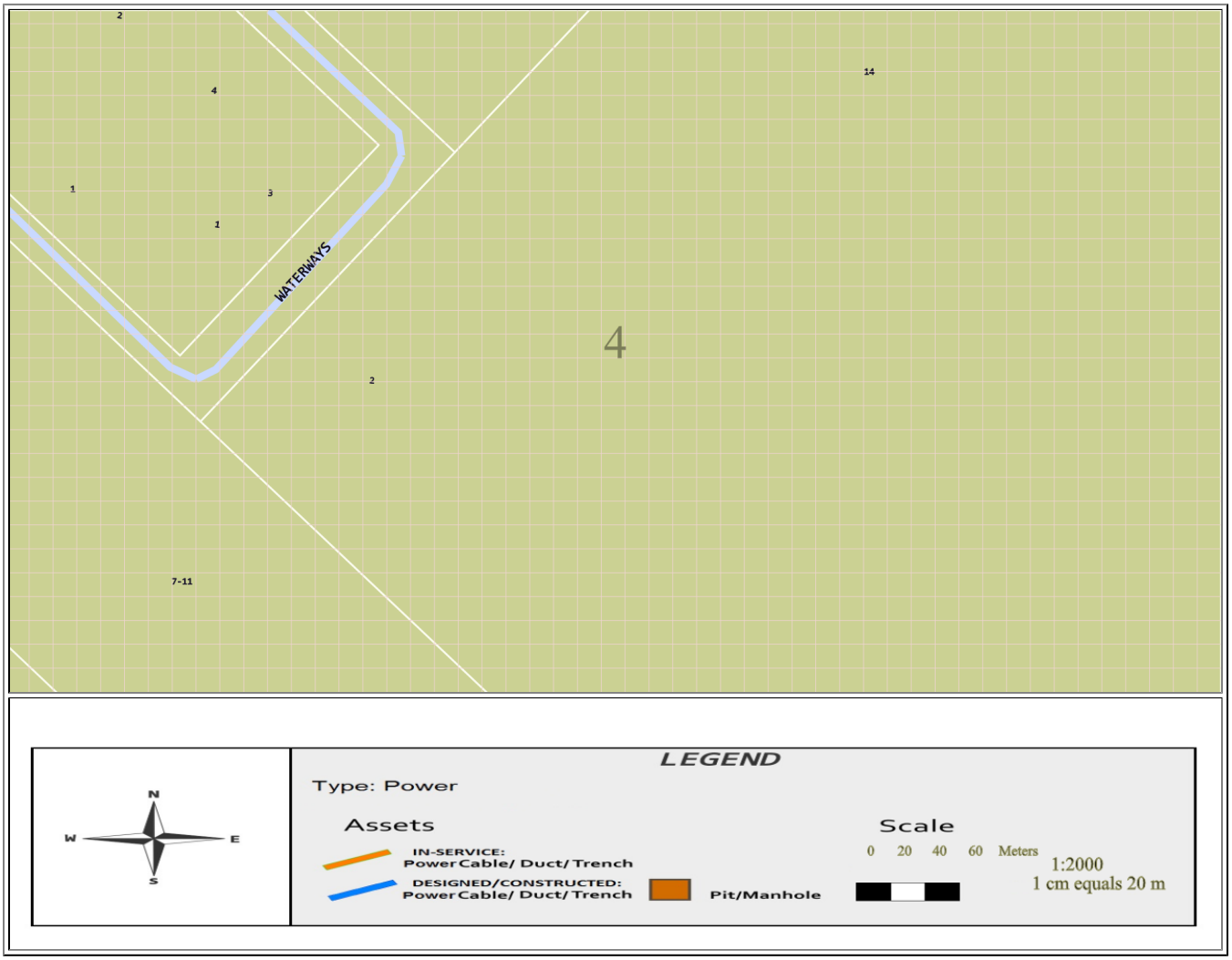




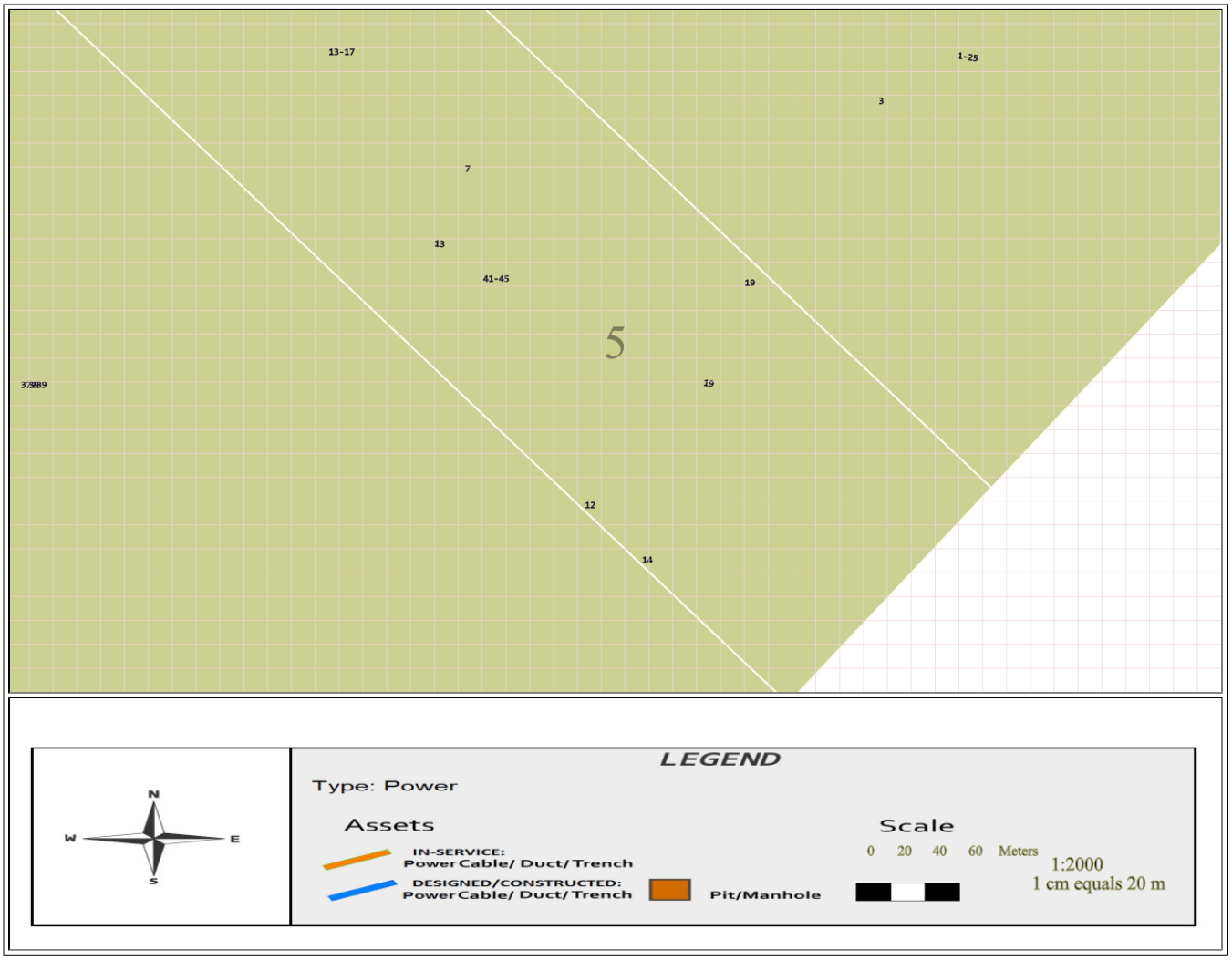


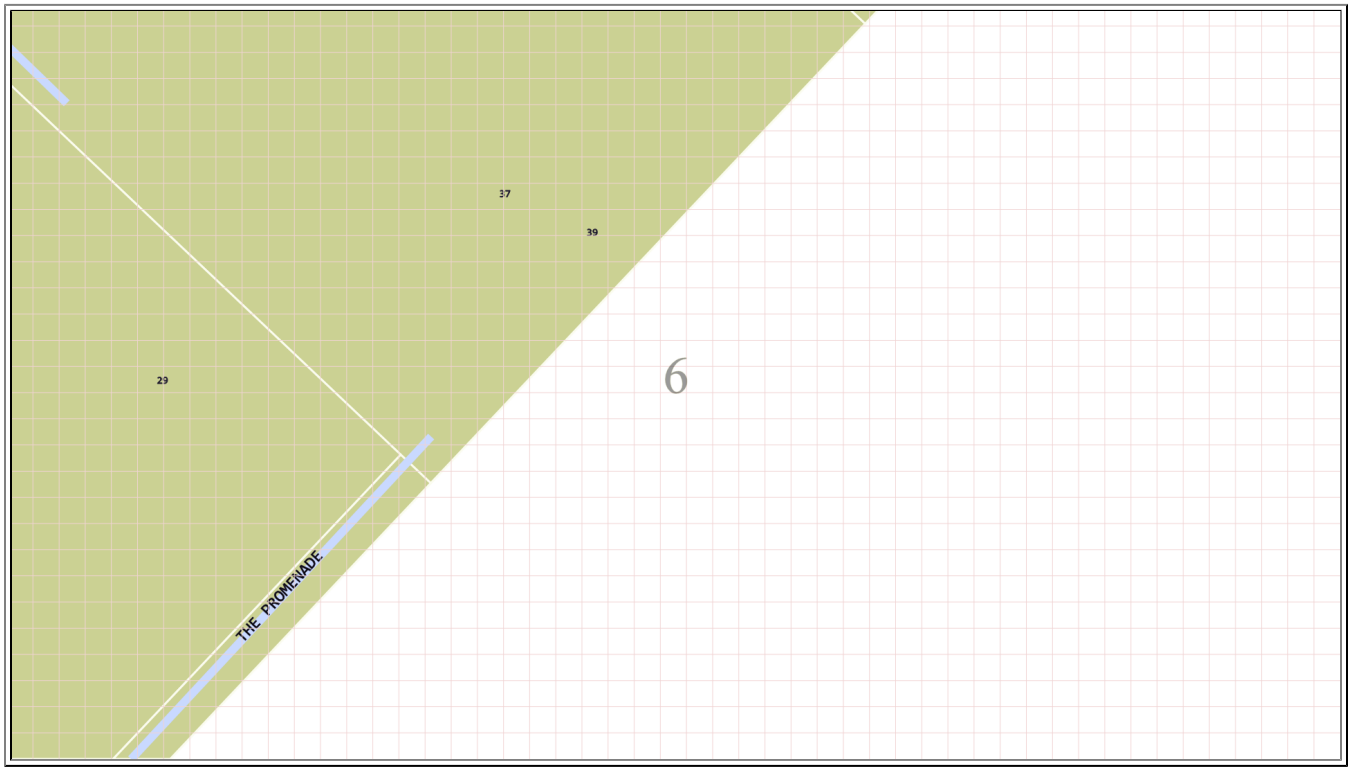
Email info@nbn.com.au Web nbn.com.au





Email info@nbn.com.au Web nbn.com.au





Emergency Contacts

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

Sequence No 62064283

Phone: 1100
www.1100.com.au

Utility Details

Please be advised the person below has requested information about underground assets in your jurisdiction. You are required to respond within 2 working days and reference the Job Number, Sequence Number and the User Reference (where supplied).

To:	Victor Mclean	**Enquiry Date:**	19/06/2017
Utility ID:	30202	**Priority Type:**	Normal
Utility Name:	Freyssinet Australia Pty Ltd	**Enquiry Medium:**	Web
Email:	gfelix@freyssinet.com.au		

Caller Details

Caller Id:	1712632	**Phone:**	0294391777
Contact:	Mr Jack Mort	**Mobile:**	Not Supplied
Company:	AT&L	**Fax:**	Not Supplied
Address:	Level 7 153 Walker Street North Sydney NSW 2060	**Email:**	jackm@atl.net.au

Dig Site and Enquiry Details

Map Ref:

UbdSyd 212P8,212Q7,212Q8,212Q9,213A8,213A9

Additional Work Site Notes:

Not Supplied

WARNING: The adjacent map displays the extent of the proposed dig site as specified and confirmed by the DBYD customer.

User Reference:

17-477 37-39 Hill Rd

Working on Behalf of:

Other

Start Date: 22/06/2017

End Date: 29/06/2017

Address:

37-39 Hill Road
Wentworth Point NSW 2127

Nature of Works:

Manual Excavation

Job Purpose: Excavation

Large Scale: No

Workplace Location:

Both

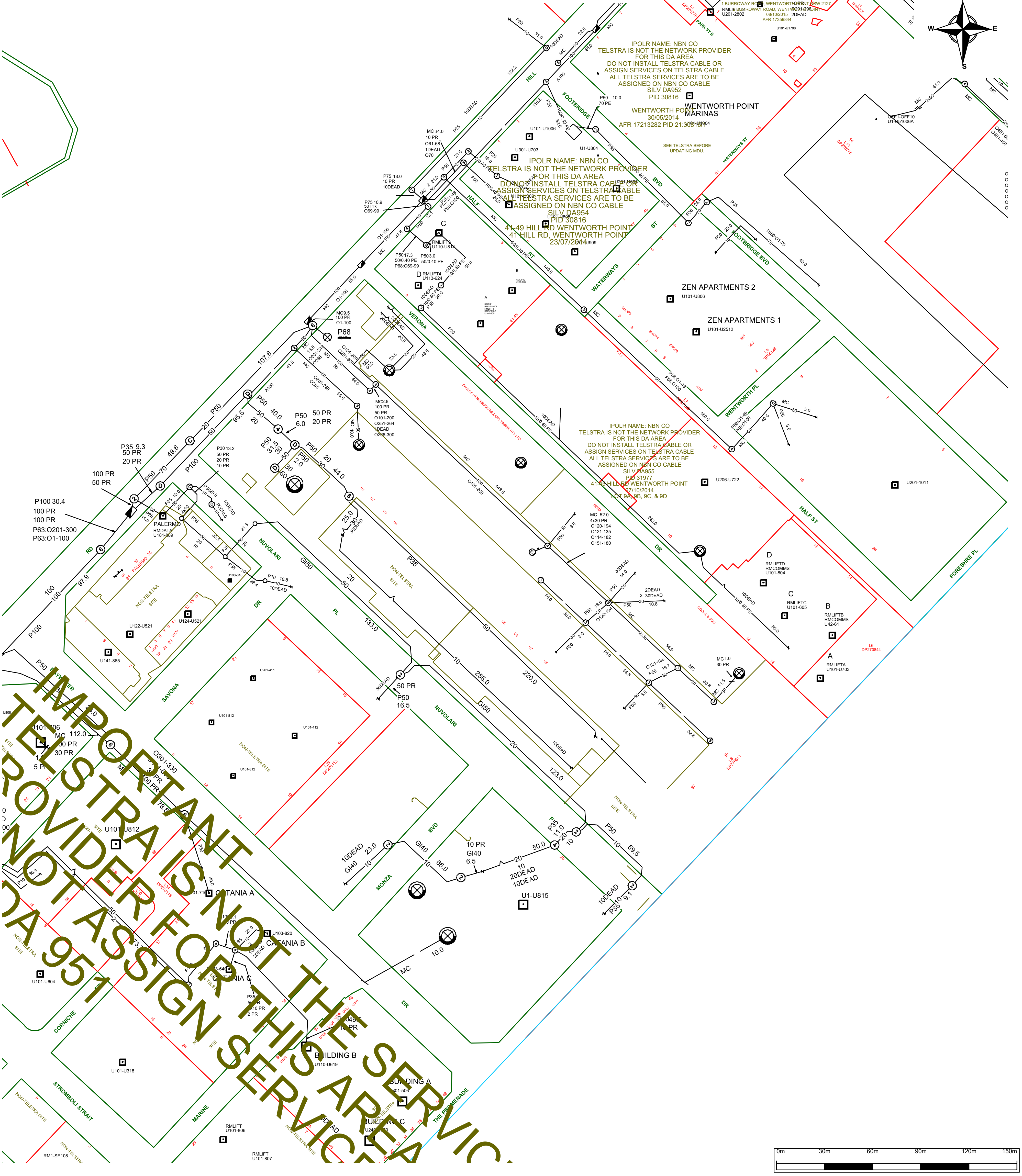
Location in Road:

CarriageWay,Footpath,Nature Strip

END OF TRANSMISSION – V3.06

Job No 12496325

Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 19/06/2017 10:30:42

Sequence Number: 62064287

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

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

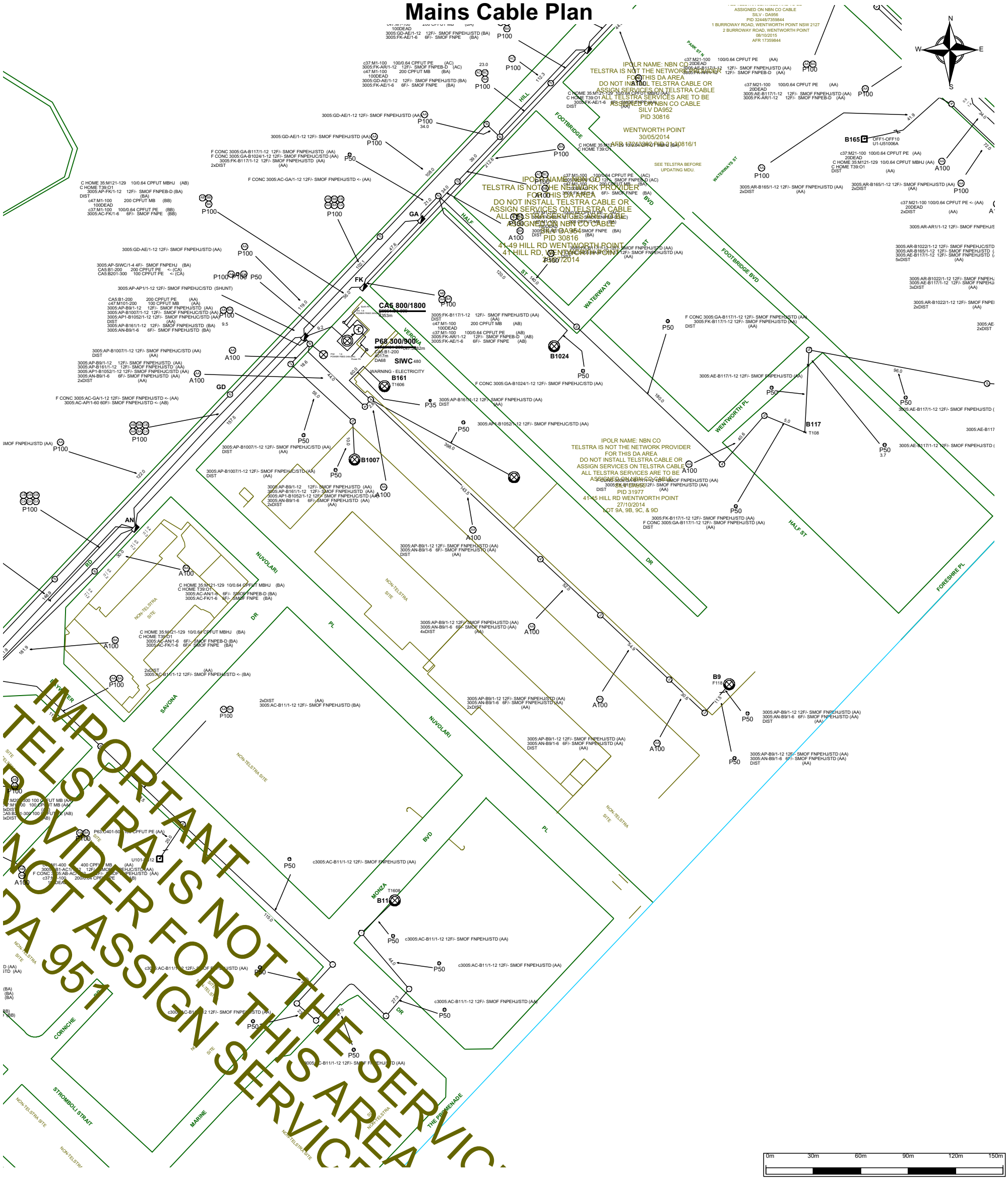
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 19/06/2017 10:30:56

Sequence Number: 62064287

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

f further information is re uired, please contact
usgrid Y
Phone 02 9 1 0899
a 02 9 1 0729

Emergency P one umber

ear ustomer,

You may ha e recei ed a plan with Prpsl in their file name. hese plans contain proposal co erages that may re uire further information. his information will be sourced and emailed to you if necessary.

Proposal co erages are areas where underground work may ha e been issued for construction by usgrid, but details are not yet completely displayed on usgrid plans. n such cases a shaded “proposal area” is displayed on the Ausgrid plan. Please refer to the attached document “How to Read Ausgrid Plans” page 2, Ref 7 for further information.

Should you ha e any en uiries please contact us by email at dbyd.ops ausgrid.com.au or by phone on 02 9 10899

Regards,
usgrid
ial efore You ig
ata aintenance

To:	Mr Jack Mort
Phone:	0294391777
Fax:	Not Supplied
Email:	jackm@atl.net.au

Dial before you dig Job #:	12496325	
Sequence #	62064292	
Issue Date:	19/06/2017	
Location:	37-39 Hill Road,Wentworth Point,NSW-2127	

Information

The area of interest requested by you contains one or more assets.

nbn Assets	Search Results
Communications	Asset identified
Electricity	Asset identified

In this notice **NBN Facilities** means *underground fibre optic, telecommunications and/or power facilities, including but not limited to cables, owned and controlled by* ***nbn***

Location of Underground Power Facilities

We thank you for your enquiry. In relation to your enquiry at the above address:

- **nbn's** records indicate that there **ARE nbn** Facilities in the vicinity of the location identified above ("Location").
- **nbn** indicative plan/s are attached with this notice ("Indicative Plans").

- The Indicative Plan/s show general depth and alignment information only and are not an exact, scale or accurate depiction of the location, depth and alignment of **nbn** Facilities shown on the Plan/s.
- In particular, the fact that the Indicative Plans show that a facility is installed in a straight line, or at uniform depth along its length cannot be relied upon as evidence that the facility is, in fact, installed in a straight line or at uniform depth.
- You should read the Indicative Plans in conjunction with this notice and in particular, the notes below.
- You should note that, at the present time, the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables. As such, consistent with the notes below, particular care must be taken by you to make your own enquiries and investigations to precisely locate any power cables and manage the risk arising from such cables accordingly.
- The information contained in the Indicative Plan/s is valid for 28 days from the date of issue set out above.You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators at your cost to locate **nbn** Facilities during any activities you carry out on site).

We thank you for your enquiry and appreciate your continued use of the Dial Before You Dig Service.If you are planning to excavate and require further information, please contact **nbn** on 1800 626 329. For any enquiries related to moving assets or Planning and Design activities, please email the **nbn** at relocationWorks@nbnco.com.au.

Notes:

1. You are now aware that there are **nbn** Facilities in the vicinity of the above property that could be damaged as a result activities carried out (or proposed to be carried out) by you in the vicinity of the Location.
2. You should have regard to section 474.6 and 474.7 of the *Criminal Code Act 1995* (CoA) which deals with the consequences of interfering or tampering with a telecommunications facility. Only persons authorised by **nbn** can interact with **nbn's** network facilities.
3. Any information provided is valid only for **28 days** from the date of issue set out above.

Referral Conditions

The following are conditions on which **nbn** provides you with the Indicative Plans. By accepting the plans,you are agreeing to these conditions. These conditions are in addition, and not in replacement of, any duties and obligations you have under applicable law.

1. **nbn** does not accept any responsibility for any inaccuracies of its plans including the Indicative Plans. You are expected to make your own inquiries and perform your own

investigations (including engaging appropriately qualified plant locators at your expense to locate **nbn** Facilities during any activities you carry out on site).

2. You acknowledge that **nbn** has specifically notified you above that the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables.
3. You should not assume that **nbn** Facilities follow straight lines or are installed at uniformed depths along their lengths, even if they are indicated on plans provided to you. Careful onsite investigations are essential to locate the exact position of cables.
4. In carrying out any works in the vicinity of **nbn** Facilities, you must maintain the following minimum clearances:
    - 300mm when laying assets inline, horizontally or vertically.
    - 500mm when operating vibrating equipment, for example: jackhammers or vibrating plates.
    - 1000mm when operating mechanical excavators.
    - Adherence to clearances as directed by other asset owner's instructions and take into account any uncertainty for power cables.
5. You are aware that there are inherent risks and dangers associated with carrying out work in the vicinity of underground facilities (such as **nbn** fibre optic,copper and coaxial cables,and power cable feed to **nbn** assets).Damage to underground electric cables may result in:
    - Injury from electric shock or severe burns, with the possibility of death.
    - Interruption of the electricity supply to wide areas of the city.
    - Damage to your excavating plant.
    - Responsibility for the cost of repairs.
6. You must take all reasonable precautions to avoid damaging **nbn** Facilities. These precautions may include but not limited to the following:
    - All excavation sites should be examined for underground cables by careful hand excavation. Cable cover slabs if present must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the likelihood of damage to the cable, for example: the blades of hand equipment should be aligned parallel to the line of the cable rather than digging across the cable.
    - If any undisclosed underground cables are located, notify **nbn** immediately.
    - All personnel must be properly briefed, particularly those associated with the use of earth-moving equipment, trenching, boring and pneumatic equipment.
    - The safety of the public and other workers must be ensured.
    - All excavations must be undertaken in accordance with all relevant legislation and regulations.
7. You will be responsible for all damage to **nbn** Facilities that are connected whether directly, or indirectly with work you carry out (or work that is carried out for you or on your behalf) at the Location. This will include, without limitation, all losses expenses incurred by **nbn** as a result of any such damage.
8. You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

9. Except to the extent that liability may not be capable of lawful exclusion, **nbn** and its servants and agents and the related bodies corporate of **nbn** and their servants and agents shall be under no liability whatsoever to any person for any loss or damage (including indirect or consequential loss or damage) however caused (including, without limitation, breach of contract negligence and/or breach of statute) which may be suffered or incurred from or in connection with this information sheet or any plans(including Indicative Plans) attached hereto. Except as expressly provided to the contrary in this information sheet or the attached plans(including Indicative Plans), all terms, conditions, warranties, undertakings or representations (whether expressed or implied) are excluded to the fullest extent permitted by law.

All works undertaken shall be in accordance with all relevant legislations, acts and regulations applicable to the particular state or territory of the Location. The following table lists all relevant documents that shall be considered and adhered to.

State/Territory	Documents
National	Work Health and Safety Act 2011
	Work Health and Safety Regulations 2011
	Safe Work Australia - Working in the Vicinity of Overhead and Underground Electric Lines (Draft)
	Occupational Health and Safety Act 1991
NSW	Electricity Supply Act 1995
	Work Cover NSW - Work Near Underground Assets Guide
	Work Cover NSW - Excavation Work: Code of Practice
VIC	Electricity Safety Act 1998
	Electricity Safety (Network Asset) Regulations 1999
QLD	Electrical Safety Act 2002
	Code of Practice for Working Near Exposed Live Parts
SA	Electricity Act 1996
TAS	Tasmanian Electricity Supply Industry Act 1995
WA	Electricity Act 1945
	Electricity Regulations 1947
NT	Electricity Reform Act 2005
	Electricity Reform (Safety and Technical) Regulations 2005
ACT	Electricity Act 1971

Thank You,

Network Operations Centre - Assurance

Date: 19/06/2017

Guide to reading Sydney Water DBYD Plans

February 2015

Asset Information

Legend

Sewer

Sewer Main (with flow arrow & size type text) — 225 PVC
Disused Main
Rising Main
Maintenance Hole (with upstream depth to invert) — 1.7
Sub-surface chamber
Maintenance Hole with Overflow chamber
Ventshalft EDUCT — VSE
Ventshaft INDUCT — VS
Property Connection Point (with chainage to downstream MH) — 10.5
Concrete Encased Section — Concrete Encased
Terminal Maintenance Shaft — TMS
Maintenance Shaft — MS
Rodding Point — RP
Lamphole
Vertical — VERT
Pumping Station — SP0882
Sewer Rehabilitation

Pressure Sewer

Pressure Sewer Main
Pump Unit (Alarm, Electrical Cable, Pump Unit) — A
Property Valve Boundary Assembly
Stop Valve
Reducer / Taper
Flushing Point — FP

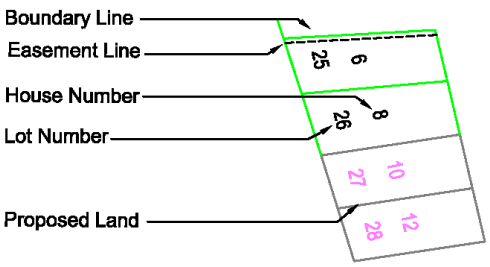
Vacuum Sewer

Pressure Sewer Main
Division Valve
Vacuum Chamber
Clean Out Point

Stormwater

Stormwater Pipe
Stormwater Channel
Stormwater Gully
Stormwater Maintenance Hole

Property Details



Sydney Water Heritage Site (please call **132 092** and ask for the **Heritage Unit**)

Water

WaterMain - Potable (with size type text) — 200 PVC
Disconnected Main - Potable
Proposed Main - Potable
Water Main - Recycled
Special Supply Conditions - Potable
Special Supply Conditions - Recycled
Restrained Joints - Potable
Restrained Joints - Recycled
Hydrant
Maintenance Hole
Stop Valve
Stop Vale with By-pass
Stop Valve with Tapers
Closed Stop Valve
Air Valve
Valve
Scour
Reducer / Taper
Vertical Bends
Reservoir
Recycled Water is shown as per Potable above. Colour as indicated

Private Mains

Potable Water Main
Recycled Water Main
Sewer Main
Symbols for Private Mains shown grey

Pipe Types

ABS	Acrylonitrile Butadiene Styrene	**AC**	Asbestos Cement
BRICK	Brick	**CI**	Cast Iron
CICL	Cast Iron Cement Lined	**CONC**	Concrete
COPPER	Copper	**DI**	Ductile Iron
DICL	Ductile Iron Cement (mortar) Lined	**DIPL**	Ductile Iron Polymeric Lined
EW	Earthenware	**FIBG**	Fibreglass
FL BAR	Forged Locking Bar	**GI**	Galvanised Iron
GRP	Glass Reinforced Plastics	**HDPE**	High Density Polyethylene
MS	Mild Steel	**MSCL**	Mild Steel Cement Lined
PE	Polyethylene	**PC**	Polymer Concrete
PP	Polypropylene	**PVC**	Polyvinylchloride
PVC - M	Polyvinylchloride, Modified	**PVC - O**	Polyvinylchloride, Oriented
PVC - U	Polyvinylchloride, Unplasticised	**RC**	Reinforced Concrete
RC-PL	Reinforced Concrete Plastics Lined	**S**	Steel
SCL	Steel Cement (mortar) Lined	**SCL IBL**	Steel Cement Lined Internal Bitumen Lined
SGW	Salt Glazed Ware	**SPL**	Steel Polymeric Lined
SS	Stainless Steel	**STONE**	Stone
VC	Vitrified Clay	**WI**	Wrought Iron
WS	Woodstave		

Further Information

Please consult the Dial Before You Dig enquiries page on the Sydney Water website

For general enquiries please call the Customer Contact Centre on **132 092**

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

Network Protection

High Pressure - Assets Affected

In reply to your enquiry, there are **High Pressure Gas Mains** in the vicinity of your intended work, as generally illustrated on the attached map. There may also be other mains or services at the location, as discussed in the warning below. For an explanation of the map, please see the key below.
The following excavations guidelines apply:

Excavation Guidelines:

Prior to **any** excavations in this area, you ***must*** contact the High Pressure Response Coordinator on **1300 665 380**. ***(Appointments will be coordinated with availability of a Jemena Representative*** to arrange a survey. For all works in the vicinity of High Pressure Gas Mains you must arrange for a Jemena representative to attend and supervise all excavations. Charges apply for attendance of any works outside the hours of 7am to 4pm, Monday to Friday ("**Standard Business Hours**") and for any attendance during Standard Business Hours that is longer than 2 hours.

In accordance with clause 34(5) of the Gas Supply (Safety and Network Management) Regulation 2013 (NSW), you should be informed that all excavation (including pot-holing by hand to confirm the location of pipes) should be performed in accordance with "***Working Near Underground Assets Guideline"*** *published in 2007 by the Work Cover Authority.*

A copy of this Guideline is available at: www.workcover.nsw.gov.au

	MAXIMUM ALLOWABLE OPERATING PRESSURE
TRUNK PIPELINE	7000 kPa
PRIMARY MAIN	3500 kPa
S — SECONDARY MAIN	1050 kPa
400 — NETWORK MAIN	400 kPa
NETWORK MAIN	300 kPa
NETWORK MAIN	210 kPa
100 — NETWORK MAIN	100 kPa
30 — NETWORK MAIN	30 kPa
NETWORK MAIN	7 kPa
NETWORK MAIN	2 kPa
PROPOSED MAINS	

	VALVE
	SYSTEM PRESSURE REGULATOR
S	SIPHON
123	NETWORK NODE
123S	NETWORK VALVE NODE
1298	VALVE NUMBER
6NB	6 INCH CAST IRON MAIN
150MM	150MM STEEL MAIN
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN
6 NB 50MM NY	50MM NYLON INSERTED INTO 6NB CAST IRON MAIN
1.2MBL	DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE
1957	YEAR LAID
123	HOUSE NUMBER
P	PRESSURE MONITORING STATION
	MUNICIPALITY BOUNDARY
	NETWORK BOUNDARY
PP 11-2-3	STEEL MAIN PROJECT NUMBER

Warning: The enclosed plans show the position of Jemena Gas Networks (NSW) Ltd's underground gas mains and installations in public gazetted roads only. **Individual customers' services and services belonging to other third parties are not included** on these plans. These plans have been prepared solely for the use of Jemena Gas Networks (NSW) Ltd and Jemena Asset Management (3) Pty Ltd (together "**Jemena**") and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of underground mains and installations relative to fences, buildings etc., as they existed at the time the mains etc were installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared. Jemena makes no warranty as to the accuracy or completeness of the enclosed plans and does not accept any duty of care to you. Jemena accepts no responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. Jemena does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of Jemena, its employees, agents, officers or contractors). The recipient of these plans must use their own care and diligence in carrying out their work and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to Jemena's underground mains and equipment. Jemena advises that you may be required to carry out potholing by hand if required by a Jemena Representative to confirm the location of Jemena's main and installations. This must also be performed by you under the supervision of a Jemena Representative and be carried out in accordance with the Working Near Underground Assets Guideline published in 2007 by Work Cover Authority

In case of Emergency Phone 131 909 (24 hours)

Admin
1300 880 906

Reading Ausgrid Plans

COMN0119

Property Lines

“property line” (PL) sometimes referred to as **“building line” (BL)** is the standard dimensioning reference point on all Ausgrid plans and represents property boundaries.

Typically the PL is the boundary between private property and local council’s footpath area or nature reserve. Most residential fences and office blocks are erected along the PL.

“kerb line” (KL) is less frequently referred to on Ausgrid plans, and where used will be identified clearly as KL.

Numbers listed within property boundaries should correspond to recognised “street numbers”. (refer to figure 1)

Figure 1

Datum References

“datum references” identify distances in metres from significant features such as corners of property boundaries to reference points such as Ausgrid assets **eg: “conduits”, “cables”, “joints”** refer to figure 2

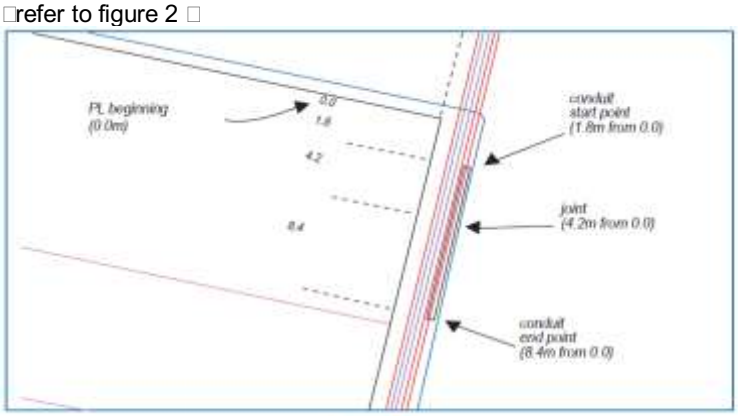


Figure 2

Cross Sections

“cross sections” displayed on Ausgrid plans detail information relating to the relative position ie distance from the **“property line”** and the depth of **“cover”** of Ausgrid assets.

“cover” is a term used to refer to the depth of cables underground.

A “cross section” leader line will be drawn indicating the location of the displayed **“cable”** or **“conduit”** information on Ausgrid plans.

The distance from **“property line”** in metres and depth of **“cover”** in metres references are displayed as ie 0.6 metres from PL and 0.9 metres underground.

Where distance and cover are not recorded, they will be clearly marked as **“NR”**

Note: distance and cover where indicated may be different to the actual position of the cables eg fill may have been placed at site that has changed the ground level.

“PL” distance shown in cross sections is an indicative measure to the centre of the trench allocation from the adjacent property line.

On some plans the “cross sections” may also be shown with a specific number eg HR1. This number will match with a cross-section detail found in the border of the plot or on a separate plot page. refer to figures 3 and 4

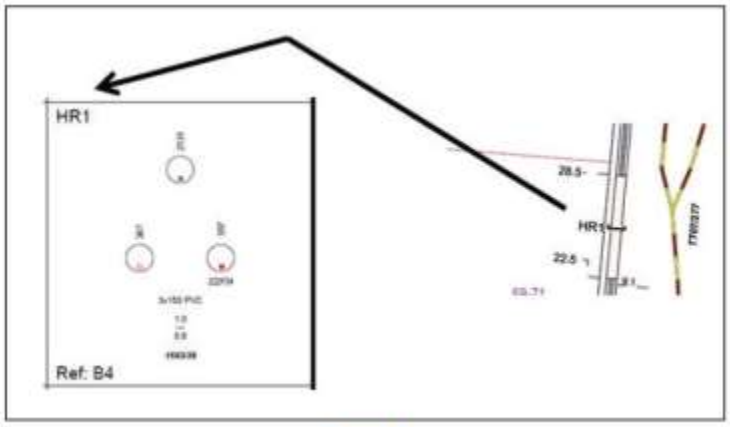


Figure 3

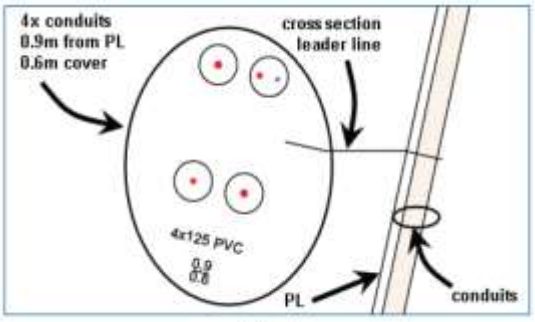


Figure 4

Ausgrid

ausgrid.com.au

Cable oints and oint e orts

“cable joints” numbered indi idually and **“joint reports”** attached to usgrid plans can pro ide information relating to the relative position of Ausgrid assets, distance from the “property line” (in metres), and the depth of “cover” (in metres). (refer to figures and 6

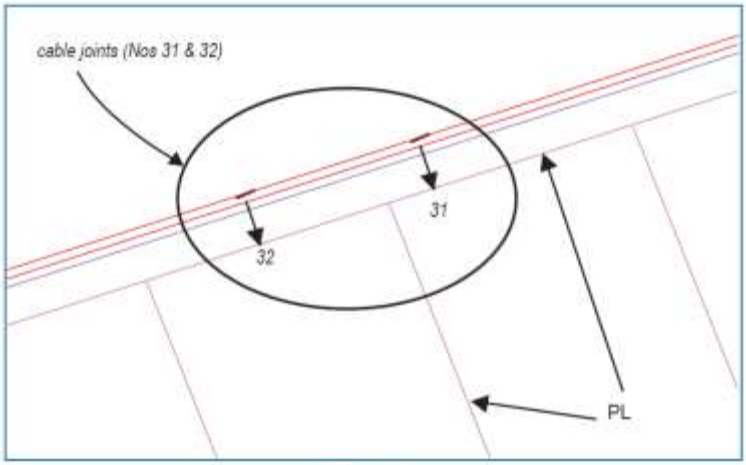


Figure 5

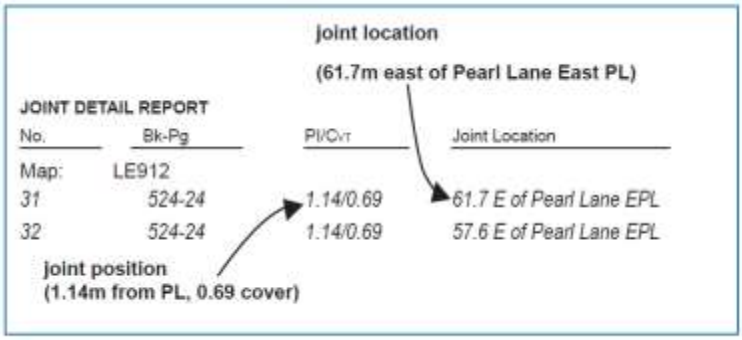


Figure 6

Cross ection Detail o es

“cross section” detail bo es on the sides of an usgrid plan are used when there is insufficient room to display **“cable”** and/or “conduit” information on the Ausgrid plan.
usgrid plans refer to figure 7 are bordered by numeric identifiers along the top and bottom borders and alpha identifiers along the side borders.

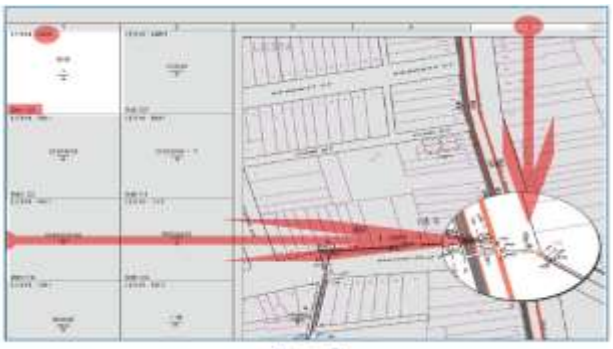
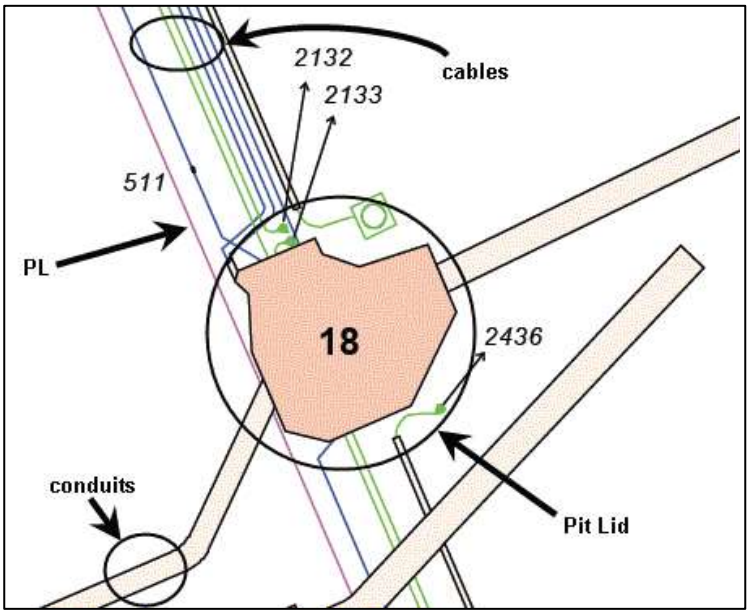


Figure 7

“cross section” leader line and annotation is drawn on the usgrid plan for a reference to **“cable”** and/or **“conduit”** information in the **“cross section”** detail bo es.

Pits

nderground **“pits”** are numbered on usgrid plans, positioned relati e to the **“property line” (PL)**, and can be found on either the footpath nature strip or the road see figure 8.

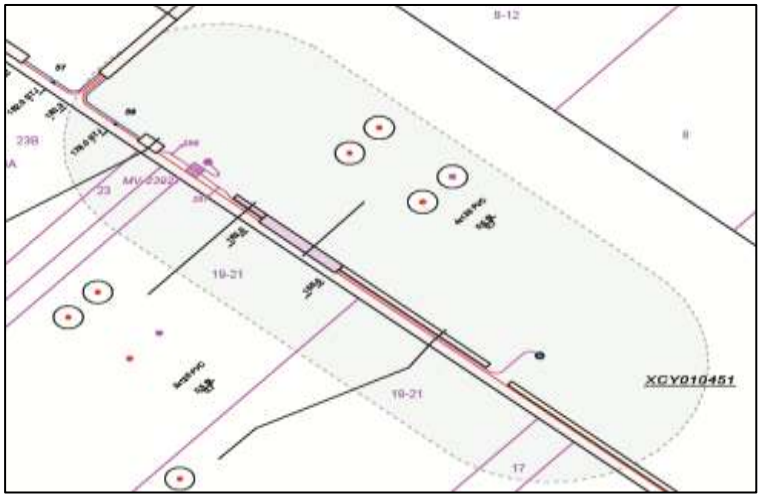


igure

Pro osal reas

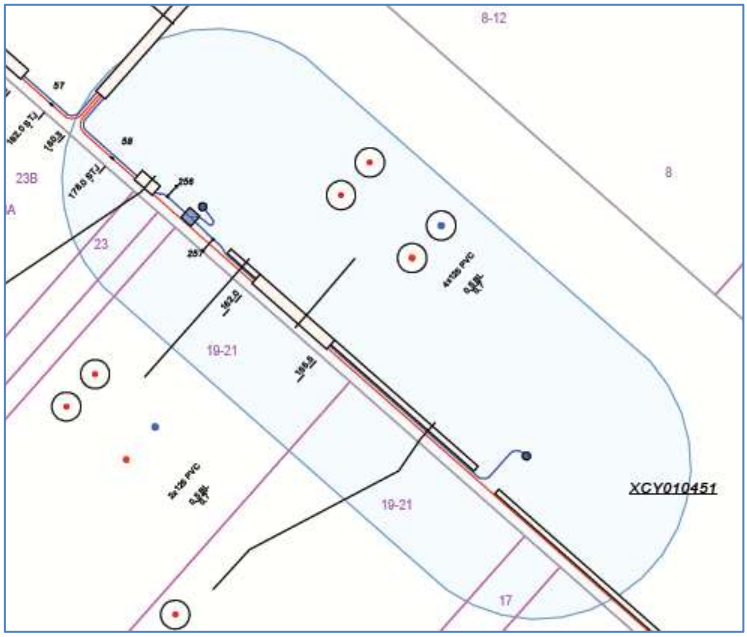
here are areas where underground work may ha e been issued for construction by usgrid, but details are not yet completely displayed on usgrid plans. n such cases a shaded **“proposal area”** is displayed on the usgrid plan, indicating underground work may ha e commenced in the icinity but is not yet complete.

n some instances cables and other assets within the shaded **“proposal area”** will be shown in a **brig t magenta** colour, indicating that the proposed new work displayed within the shaded area is based on initial planning documentation. refer to figure 9



igure

In other instances the shaded **"proposal area"** itself may be shown as a blue colour, indicating that the new work displayed within the shaded area on the Ausgrid plan is yet to include details regarding final depths and dimensioning. Refer to figure 10



igure

E: In cases where these shaded **"proposal areas"** are displayed on Ausgrid plans.

"Ausgrid's design plans showing the proposed position of its underground cables, overhead lines and structures have been prepared solely for Ausgrid's own planning use. They show the proposed position of such underground cables, overhead lines and structures as proposed at the time of planning and have not necessarily been corrected to take into account any changes to road widths, road levels, fences and buildings subsequent to proposed installation.

Actual installations may vary from proposed installations as it may be necessary to take account of unforeseen above ground or subterranean constructions. Therefore, Ausgrid does not hold out that the design plans show more than the proposed presence or absence of its underground cables, overhead lines and structures in the street and will accept no liability for inaccuracies in the information shown on such design plans from any cause whatsoever."

Any further information regarding information displayed for "proposal areas" can be obtained by contacting the Ausgrid DY office at the number indicated on the response to your DY enquiry for further information.

Ausgrid Plan Grid

The pale grey line indicates the extent of **Ausgrid Plan map grid** border.
The pale grey annotation located in the corners of the Ausgrid plan window, indicates the 1:1000 Ausgrid MGA map grid reference.

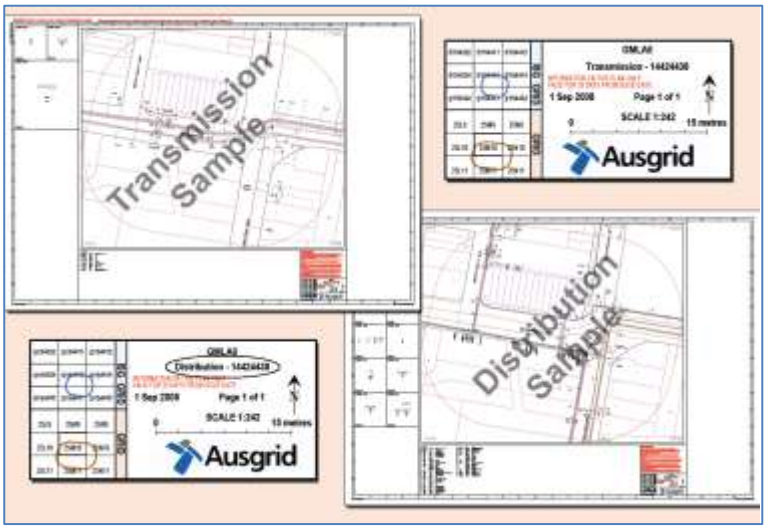
The extent of **Ausgrid Plan map grid** border and reference on Ausgrid plans should be used when reading the **"joint report"** (see part of this document for more detail) to accurately locate underground cables.

The buffer area shown on the plan should relate to the area requested on the original dial before you dig request.

The **grid index box** can be used for reference where necessary (located in the bottom right corner of the Ausgrid plans), and will also indicate the buffer area shown on the plan.

Ausgrid "Distribution" and "Transmission" Plans

The Ausgrid plans supplied may identify both **"distribution"** and **"transmission"** voltage assets for the area defined in the DY request. Refer to figure 11



igure

In the Sydney region, the Ausgrid plans are separately labelled as "**Distribution – nnnnnnn"** and **"Transmission – nnnnnnn"**, where **"nnnnnnn"** refers to the DY sequence number quoted.

In the Hunter region, the Ausgrid plans show combined **"distribution"** and **"transmission"** voltage assets, and are clearly labelled as **"Distr + Trans – nnnnnnn"** where **"nnnnnnn"** refers to the DY sequence number.

In the Hunter region, some DY requests are covered by PN DN grid references. In such cases, the Ausgrid Plans show the grid quoted with a cross-reference to a corresponding Ausgrid MGA map grid (eg PN DN 136 3 – P711, where P711 is the Ausgrid MGA grid to optimise the legibility of plans due to PN DN grid scale.

Some Hunter plans may have transmission cables in the area, when these cables are present there will be a warning printed at the top of the plan supplied

Note: Where there is work in the vicinity of transmission cables Ausgrid must be contacted at least two weeks before the work is due to commence

"Shifting Land Base" on Ausgrid Distribution and Transmission Plans

In some instances, the plans supplied may indicate road or property outlines that appear to have shifted in relation to the Ausgrid assets displayed. Refer to figure 12.

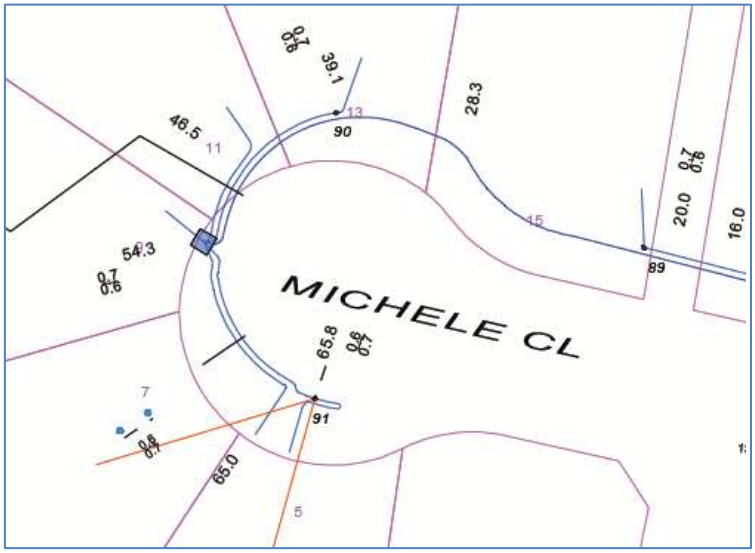


Figure 12

In such instances, always refer to the **"property line"** in metres and depth of **"cover"** in metres references displayed on the nearest relevant **"cross sections"** to obtain Ausgrid asset location information (see Reading Ausgrid Plans, clause 3, Cross Sections for more detail).

"Underground Earthing Infrastructure"

In some instances, the plans supplied may also indicate the presence of underground earthing infrastructure associated with underground and/or overhead Ausgrid assets.

The "Earth Point" symbol (refer to figure 13) will be shown on plans to minimise risk of disturbance or damage to any Ausgrid underground earthing infrastructure in the vicinity.

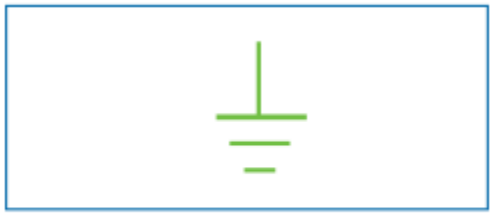


Figure 13

Aluminium Single Core Cables – Specific Excavation Hazard

Certain cables specifically illustrated in figures 14 & 15 below are susceptible to deterioration that may pose a risk of electric shock when working near them, particularly in damp ground.

For all work on or near Ausgrid's network (where workers have been trained in Ausgrid's "Work Near Underground Power Lines" course) the work practices outlined in NUS199 "Safe Electrical Working on Low Voltage Assets" section 8 for work near low voltage aluminium single core cable must be adhered to. Further information is also available to Accredited Service Providers in Safety Alert S_06_1 issued May 2011.

All other persons must contact Ausgrid before excavating near these cables to arrange for appropriate precautions to be applied.

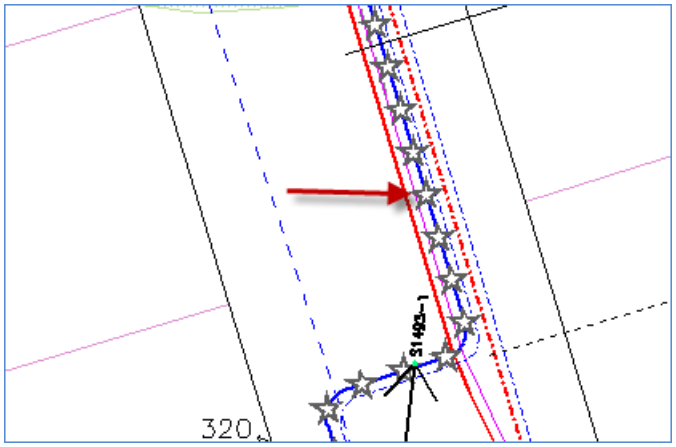


Figure 14

The "star" symbols over the cable indicate that it is susceptible to this deterioration.

Cables that are in duct lines have this symbology covered so an at-risk cable is indicated only within a cross section by a "#" appended to its cable code as illustrated below.

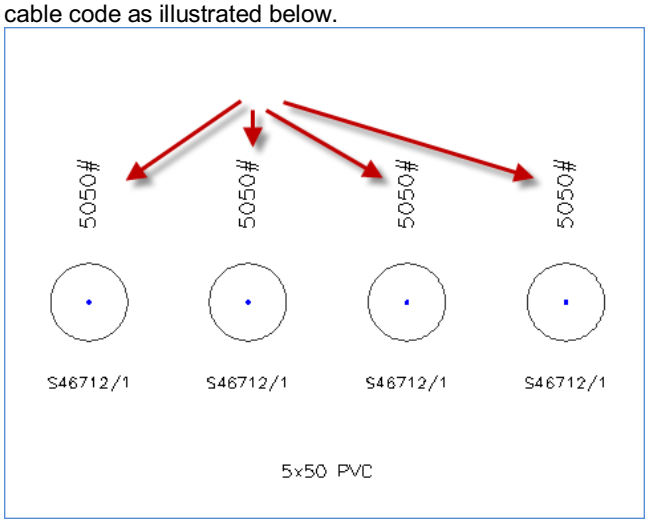


Figure 15

Ausgrid

Emergency Phone Number 131388

IMPORTANT INFORMATION

YOU MUST BE AWARE THAT:

1. There may be underground cables owned by other utilities, in the vicinity of your work, about which Ausgrid has no information.

2. Ausgrid does not usually keep plans of privately owned underground cables or its underground service cables on private property. (Refer NS 156 for further information.)

YOU MUST MAKE YOUR OWN ENQUIRIES IN RESPECT OF THESE CABLES.

YOU MUST UNDERSTAND THAT:

1. Ausgrid takes all reasonable care in providing details of its underground cables. However, owing to changes in road and footway alignments and levels, and the age and incompleteness of some records, it is not possible to conclusively specify the location of all of Ausgrid's underground cables. The accuracy and completeness of the information provided to you cannot be guaranteed. It is intended to be indicative only. It must not be **solely** relied upon when undertaking underground works.

2. Except to the extent that liability may not be capable of lawful exclusion, Ausgrid, its servants and agents will be under no liability whatsoever to any person for loss or damage (including indirect or consequential loss or damage) however caused (including without limitation, for breach of contract, negligence and breach of statute) which may be suffered or incurred from or in connection with the advice provided.

3. Due to the inherent dangers associated with excavation in the vicinity of underground cables, precautions must always be taken when undertaking any underground works. Ausgrid's Network Standard NS 156 specifies standards for working in the vicinity of underground cables. It is deemed to be part of this Advice, and it must be read by you.

YOU MUST READ NETWORK STANDARD NS 156, *WORKING NEAR OR AROUND UNDERGROUND CABLES.* IT IS PART OF THIS ADVICE.

IMPORTANT INFORMATION - DIAL BEFORE YOU DIG

Attention: You must read the information below

The material provided or made available to you by Sydney Water (including on the Sydney Water website) in relation to your Dial Before You Dig enquiry (**Information**) is provided on each of the following conditions, which you are taken to have accepted by using the Information:

1 The Information has been generated by an automated system based on the area highlighted in the "Locality Indication Only" window on your Caller Confirmation. It is your responsibility to ensure that the dig site is properly defined when submitting your Dial Before You Dig enquiry and, if the Information does not match the dig site, to resubmit your enquiry for the correct dig site.

2 Neither Sydney Water nor Dial Before You Dig make any representation or give any guarantee, warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information. The Information, including Sydney Water plans and work-as-executed diagrams, amongst other things:

(a) may not show all existing structures, including Sydney Water's pipelines, particularly in relation to newer developments and in relation to structures owned by parties who do not participate in the Dial Before You Dig service;

(b) may be out of date and not show changes to surface levels, road alignments, fences, buildings and the like;

(c) is approximate only and is therefore not suitable for scaling purposes; and

(d) does not show locations of property services (often called house service lines) belonging to or servicing individual customers, which are usually connected to Sydney Water's structures.

3 You are responsible for, amongst other things:

(a) exposing underground structures, including Sydney Water's pipelines, by pot-holing using hand-held tools or vacuum techniques so as to determine the precise location and extent of structures before any mechanical means of excavation are used;

(b) the safe and proper excavation of and for underground works and structures, including having regard to the fact that asbestos cement pipelines, which can pose a risk to health, may form part of Sydney Water's water and sewerage reticulation systems;

(c) protecting underground structures, including Sydney Water's pipelines, from damage and interference;

(d) maintaining minimum clearances between Sydney Water's structures and structures belonging to others;

(e) ensuring that backfilling of excavation work in the vicinity of Sydney Water's structures complies with Sydney Water's standards contained on its website or otherwise communicated to you;

(f) notifying Sydney Water immediately of any damage caused or threat of damage to Sydney Water's structures;

(g) ensuring that plans are approved by Sydney Water (usually signified by stamping) prior to landscaping or building over or in the vicinity of any Sydney Water structure; and

(h) ensuring that the Information is used only for the purposes for which Sydney Water and Dial Before You Dig intended.

4 You acknowledge that you use the Information at your own risk. In consideration for the provision of the Dial Before You Dig service and the Information by Sydney Water and Dial Before You Dig, to the fullest extent permitted by law:

(a) all conditions and guarantees concerning the Information (whether as to quality, outcome, fitness, care, skill or otherwise) expressed or implied by statute, common law, equity, trade, custom or usage or otherwise are expressly excluded and to the extent that those statutory guarantees cannot be excluded, the liability of Sydney Water and Dial Before You Dig to you is limited to either of the following as nominated by Sydney Water in its discretion, which you agree is your only remedy:

(i) the supplying of the Information again; or

(ii) payment of the cost of having the Information supplied again;

(b) in no event will Sydney Water or Dial Before You Dig be liable for, and you release Sydney Water and Dial Before You Dig from, any Loss arising from or in connection with the Information, including the use of or inability to use the Information and delay in the provision of the Information:

(i) whether arising under statute or in contract, tort or any other legal doctrine, including any negligent act, omission or default (including wilful default) by Sydney Water or Dial Before You Dig; and

(ii) regardless of whether Sydney Water or Dial Before You Dig are or ought to have been aware of, or advised of, the possibility of such loss, costs or damages;

(c) you will indemnify Sydney Water and Dial Before You Dig against any Loss arising from or in connection with Sydney Water providing incorrect or incomplete information to you in connection with the Dial Before You Dig service; and

(d) you assume all risks associated with the use of the Dial Before You Dig and Sydney Water websites, including risk to your computer, software or data being damaged by any virus, and you release and discharge Sydney Water and Dial Before You Dig from all Loss which might arise in respect of your use of the websites.

5 "**Sydney Water**" means Sydney Water Corporation and its employees, agents, representatives and contractors. "**Dial Before You Dig**" means Dial Before You Dig Incorporated and its employees, agents, representatives and contractors. References to "**you**" include references to your employees, agents, representatives, contractors and anyone else using the Information. References to "**Loss**" include any loss, cost, expense, claim, liability or damage (including arising in connection with personal injury, death or any damage to or loss of property and economic or consequential loss, lost profits, loss of revenue, loss of management time, opportunity costs or special damages). To the extent of any inconsistency, the conditions in this document will prevail over any other information provided to you by Sydney Water and Dial Before You Dig.

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

Further information and guidance is available in the Building Development and Plumbing section of Sydney Water's website at www.sydneywater.com.au, where you will find the following documents under 'Dial Before You Dig':

- Avoid Damaging Water and Sewer Pipelines
- Water Main Symbols
- Depths of Mains
- Guidelines for Building Over/Adjacent to Sydney Water Assets
- Clearances Between Underground Services

Or call **13 20 92** for Customer Enquires.

Note: The lodging of enquiries via **www.1100.com.au** will enable you to receive colour plans in PDF format 24 hours a day, 7 days a week via email.

A3

DBYD Address:
37-39 Hill Road
Wentworth Point NSW 2127

DBYD Job No: 12496325

DBYD Sequence No: 62064291

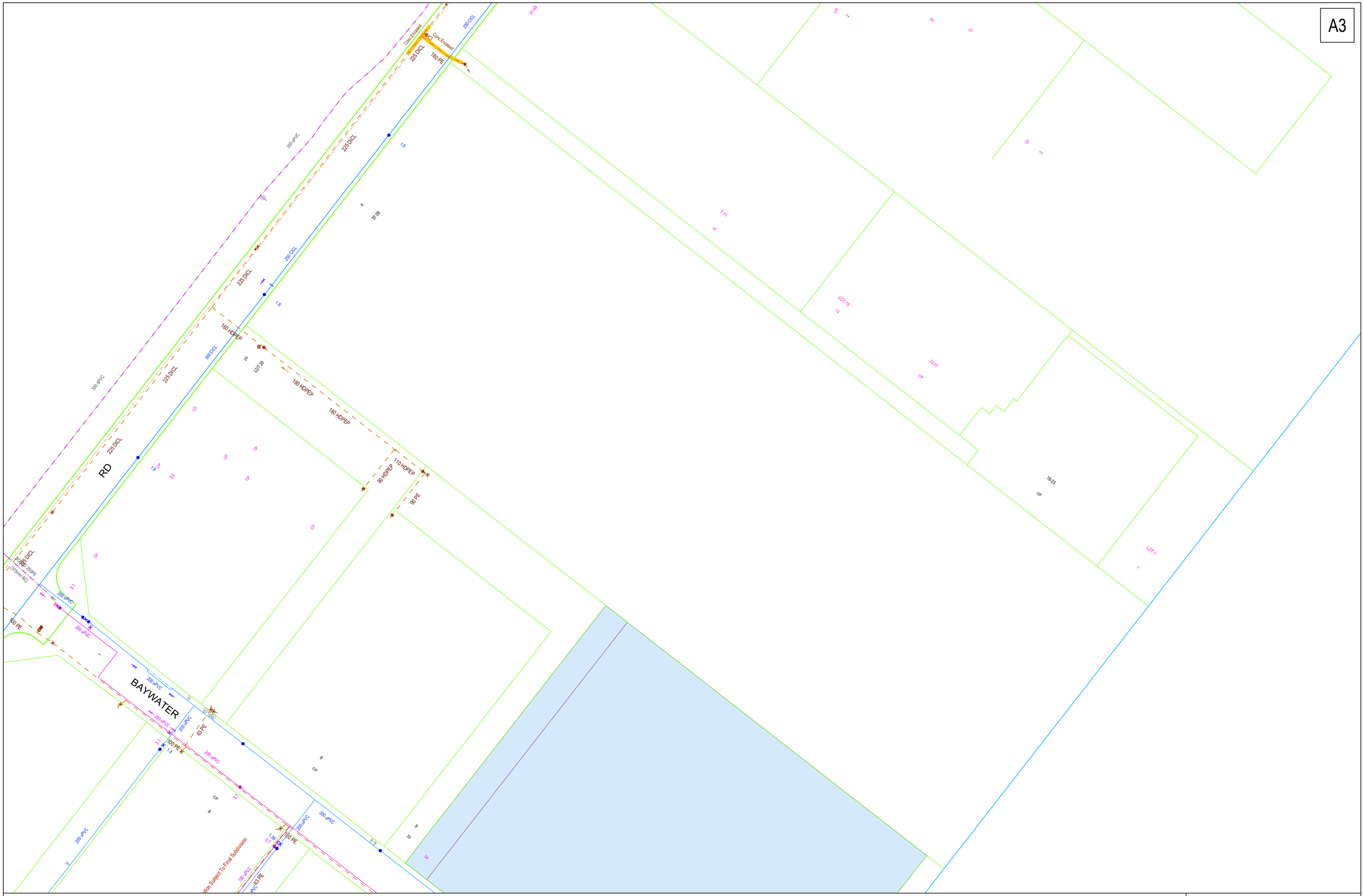
Scale: 1:1500

Date of Production: 19/06/2017

N

0m 9m 18m 27m 36m

A3



DBYD Address:
37-39 Hill Road
Wentworth Point NSW 2127

DBYD Job No: 12496325

DBYD Sequence No: 62064291

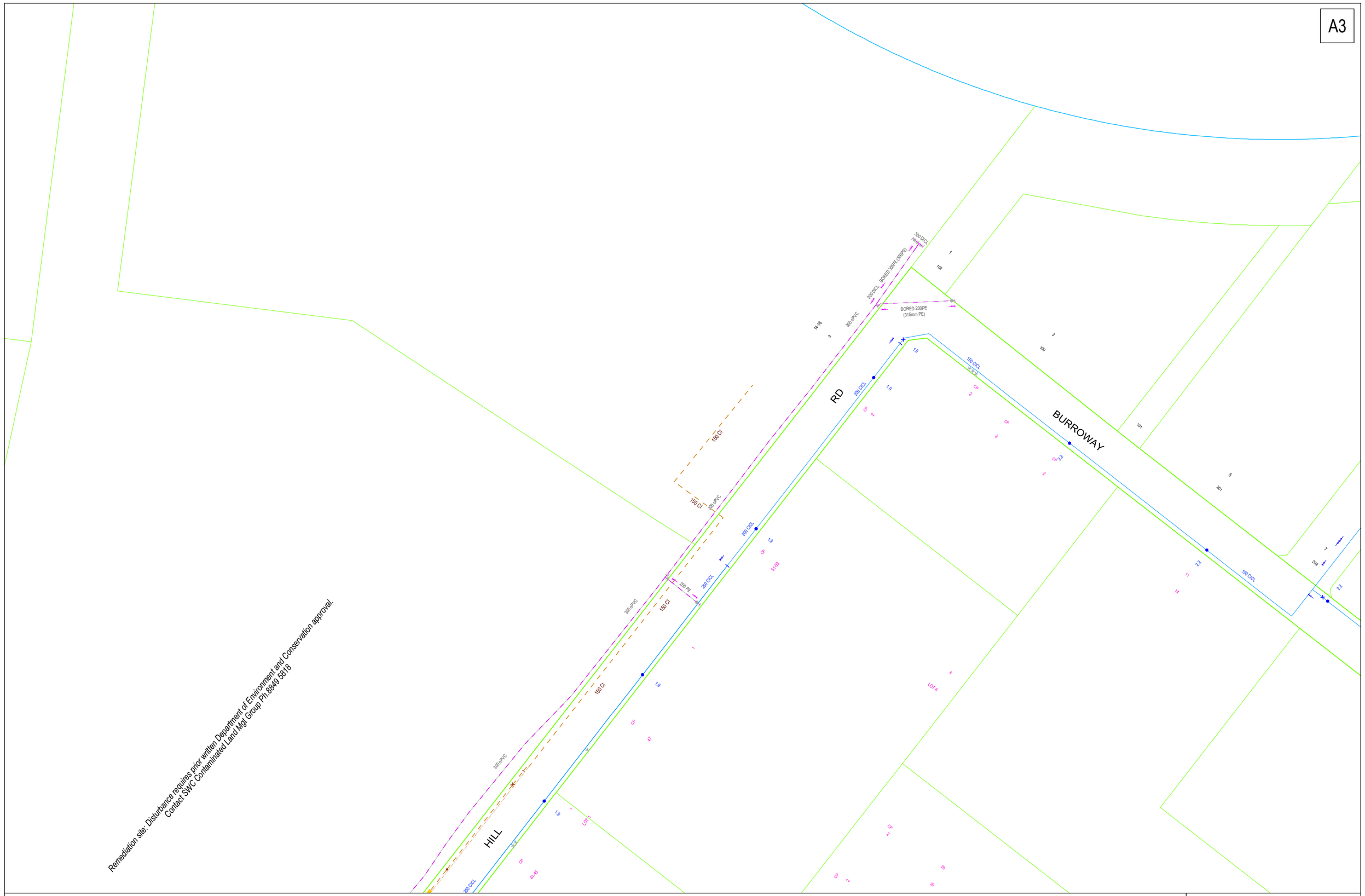
Scale: 1:1500

Date of Production: 19/06/2017

N

0m 9m 18m 27m 36m

A3



DBYD Address:
37-39 Hill Road
Wentworth Point NSW 2127

DBYD Job No: 12496325

DBYD Sequence No: 62064291

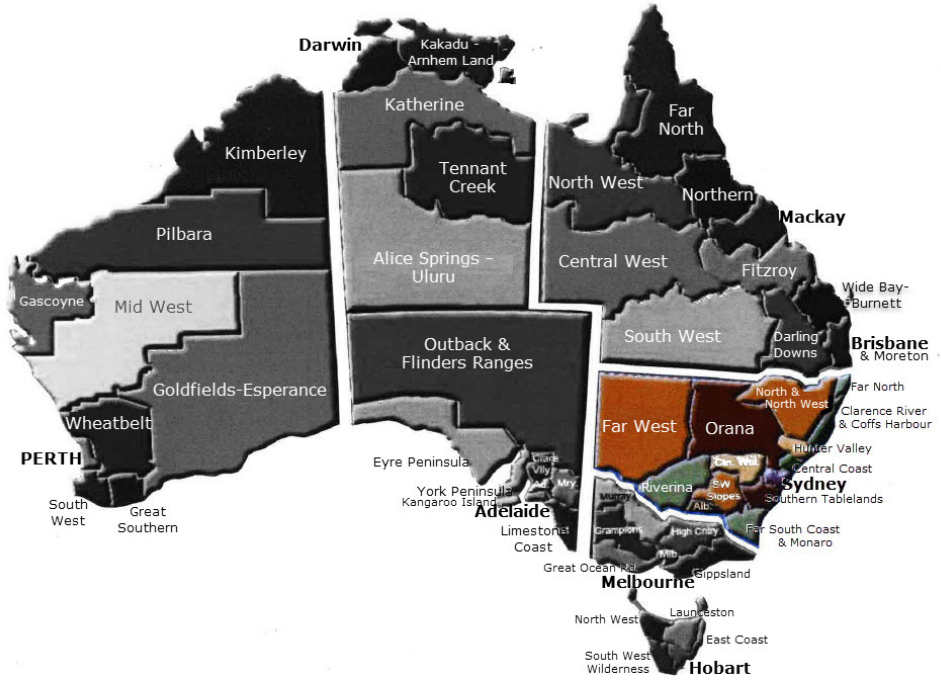
Scale: 1:1500

Date of Production: 19/06/2017

Plan 3 of 3

N

0m 9m 18m 27m 36m



TELSTRA ACCREDITED PLANT LOCATORS – NEW SOUTH WALES. CENTRAL REGION

Region NSW Central

Telstra plans are intended to be indicative only. A plant location service (Telstra accredited) is required to identify the exact location of the plant and ensure that the asset is protected during construction work. It is your responsibility as part of your "Duty of Care" to engage an Accredited Plant Locator.

***Optic fibre cable locations** must be performed by a locator with Telstra optic fibre location accreditation.

Locators with Telstra optic fibre cable location accreditation are indicated by either a 'yes' in the 'Fibre' column or the DBYD Certified Locator Symbol.

DIAL BEFORE YOU DIG CERTIFIED LOCATOR

Please contact a Telstra accredited locator from the pages following (fees apply).

Telstra Accredited Plant Locators – New South Wales. CENTRAL

NSW Central.

Company Name & service areas	*Fibre	Contact	
1 300 B4UDIG All areas		1300 248 344 admin@1300b4udig.com.au www.133b4udig.com.au	Phone Mobile Fax Email Web
Abitek Pty Ltd		02 4580 9883 0413 327 243 02 4580 9884 abitek@bigpond.com	Phone Mobile Fax Email Web
Action Locating Sydney, Newcastle, Wollongong		02 9671 5600 0415 228 466 info@actionlocating.com.au	Phone Mobile Fax Email Web
Advanced Ground Locations Newcastle, Hunter Valley, Central Coast		02 4930 3195 0412 497 488 02 4930 3222 steve_agl@hotmail.com www.advancedgroundlocations.com	Phone Mobile Fax Email Web
All About Pipes All of NSW		1300 634 200 0408 790 010 02 9606 2325 work@allaboutpipes.com.au www.allaboutpipes.com.au	Phone Mobile Fax Email Web
Aquabend Utility Detection Central Coast, Upper Hunter, Hunter Valley, Mid North Coast and surrounding areas.		0488 925 432 aquabend@hotmail.com	Phone Mobile Fax Email Web
Australian Locating Services Pty Ltd All of ACT & NSW		1300 761 545 0412 227 434 02 9531 2169 admin@locating.com.au www.locating.com.au	Phone Mobile Fax Email Web
Australian Subsurface Pty Ltd All of ACT & NSW		0427 879 600 admin@australiansubsurface.com www.australiansubsurface.com	Phone Mobile Fax Email Web
Australian Underground Utility Locations Eurobodalla Shire, Bega Valley Shire, Snowy River Shire, Batemans Bay to Vic border, Far South Coast NSW		0418 329 370 moceanfabrications@gmail.com www.auul.com.au	Phone Mobile Fax Email Web
Australian Utilities Management Pty Ltd		0424 537 952 bookings@ausutilities.net.au www.ausutilities.net.au	Phone Mobile Fax Email Web
Bradmac Locating Services Pty Ltd Sydney Metro, Bathurst, Lithgow, Mudgee, Mittagong, Campbeltown		0434 157 409 brad.mac@bigpond.com	Phone Mobile Fax Email Web
Brandon Construction Services Pty Ltd Sydney metro & surrounding districts, other country NSW areas on request		0438 044 008 liam.bolger@hotmail.com	Phone Mobile Fax Email Web
Chris Bates & Associates Mid North Coast, Newcastle, Hunter Valley and Central Coast		02 4928 1519 0408 427 391 chrisbatesandassociates@yahoo.com.au	Phone Mobile Fax Email

Telstra Accredited Plant Locators – New South Wales. CENTRAL

Civilscan Sydney – Central Coast – Newcastle – Wollongong – Hunter Valley – Blue Mountains.		0416 068 060 civilscan@bigpond.com www.civilscan.com.au	Phone Mobile Fax Email Web
Coastal Cable Locators Pty Ltd Bawley Point, Wollongong to Eden, Braidwood, Bungendore, Goulburn		02 4457 1258 0427 975 777 02 4457 1258 skomalley@bigpond.com	Phone Mobile Fax Email Web
Construction Sciences Pty Ltd All areas		02 4577 4605 0400 546 515 utilities@constructionsciences.net www.constructionsciences.net	Phone Mobile Fax Email Web
DATATEKS Pty Ltd All regional areas		02 6971 7777 0408 693 660 gilbertcook@datateks.com.au www.datateks.com.au	Phone Mobile Fax Email Web
Dowds Pipe & Cable Locating Wollongong, South Coast and the Highlands areas.		0434 635 134 accounts@pipeandcable.com www.pipeandcable.com.au	Phone Mobile Fax Email Web
Down Under Detection Services		02 9371 7744 downunderdetections@bigpond.com	Phone Mobile Fax Email
Down Under Pipeline Surveys Pty Ltd Orangeville and surrounding districts		02 4653 1286 0418 675 374 02 4653 1747 office@dups.com.au www.dups.com.au	Phone Mobile Fax Email Web
Durkin Construction Pty Ltd All Areas		02 9712 0308 0452 202 212 02 9647 1984 info@durkinconstruction.com.au www.durkinconstruction.com.au	Phone Mobile Fax Email Web
Dynamic Excavations Brisbane, Gold Coast, Toowoomba, Sunshine Coast, Northern NSW, Ballina, Sydney and surrounding districts		07 5564 8142 0418 596 066 marco@dynamicexcavation.com.au www.dynamicexcavations.com.au	Phone Mobile Fax Email Web
Electrostar NSW North West including Tablelands (Armidale, Glenn Innes) Hunter Valley, Newcastle to Grafton		0429 620 999 0428 658 707 02 6762 0213 admin@electrostar.com.au www.electrostar.com.au	Phone Mobile Fax Email Web
Epoca Environmental Pty Ltd All of NSW & ACT		02 4739 2465 0430 606 948 evelyn@epocaenvironmental.com.au www.epocaenvironmental.com.au	Phone Mobile Fax Email Web
G MAC LOCATING Dubbo, Young, Wagga, Yass, Goulburn, Bathurst, Orange, Temora, West Wyalong & most NSW country regions		0488 520 482 0408 822 428 enquiries@gmaclocating.com.au	Phone Mobile Fax Email Web
Geoscope Utility Detection Services Pty Ltd Sydney areas and parts of NSW		1300 750 350 0432 296 323 info@geoscopelocating.com.au www.geoscopelocating.com.au	Phone Mobile Fax Email Web
Geotrace Pty Ltd All Areas, Hills District, Sydney, Wollongong, Newcastle, ACT, Sutherland, Bankstown, Richmond, Burwood, Rose Bay, Balmain		02 8824 6654 0417 147 945 02 8824 5637 info@geotrace.com.au www.geotrace.com.au	Phone Mobile Fax Email Web

Telstra Accredited Plant Locators – New South Wales. CENTRAL

Ground Scan Locating Cenral West and surrounding districts		0414 640 640 02 6332 2599 gscan1@bigpond.com	Phone Mobile Fax Email Web
Hunter Ground Search Central Coast, Newcastle, Hunter Valley, Mid North Coast and west to Tamworth, Liverpool Plains and Dubbo.		02 4953 1244 0418 684 819 02 4953 1233 huntergroundsearch@bigpond.com	Phone Mobile Fax Email Web
Hunter Smith Management Pty Ltd All of NSW & ACT, other regions e.g. Victoria as requested		02 8090 2695 0422 224 761 huntersmith@iprimus.com.au www.hsmlocating.com.au	Phone Mobile Fax Email Web
Hydro Digga All of NSW, ACT & South East Qld.		0447 774 000 locator@hydrodigga.com	Phone Mobile Fax Email Web
Landmark Surveys Pty Ltd Southern NSW and ACT areas		02 6280 9608 0413 832 038 phil@landmarksurveys.com.au www.landmarksurveys.com.au	Phone Mobile Fax Email Web
Laneyrie Electrical Pty Ltd Helensburgh to Ulladulla, Southern Highlands		02 4237 9865 0412 079 079 02 4237 9939 bindy@laneyrieelectrical.com.au www.laneyrieelectrical.com.au	Phone Mobile Fax Email Web
Locate & Map Pty Ltd Sydney, Wollongong and the Central Coast		0431 191 669 tim@locateandmap.com.au www.locateandmap.com.au	Phone Mobile Fax Email Web
Locaters Pty Ltd Sydney, Penrith, Richmond, Macarthur, Wollongong		02 8214 8911 info@locaters.com.au www.locaters.com.au	Phone Mobile Fax Email Web
Locating Services Pty Ltd Hawesbury, Canberra and all of NSW.		0403 065 510 sam.romano1@outlook.com	Phone Mobile Fax Email Web
Lower Mountains Electrical Blue Mountains, Penrith, Hawksbury, Lithgow and surrounding areas	NO	0414 446 422 info@lowermountainselectrical.com.au	Phone Mobile Fax Email
Lyntet Communications (Lynco Pty Ltd) Dubbo depot, covering Forbes, Grenfell, Parkes, Bourke, Bourke North, Nyngan, Coonabarabran, Coonamble, Mudgee, Narromine, Wellington, Orange, Molong, Yeoval, Coolah, Dunedoo, Gilgandra, Mendooran		0409 811 673 lyntet@bigpond.com.au	Phone Mobile Fax Email Web
Meek Design & Construction Pty Ltd Bathurst, Orange, Lithgow, Oberon, Mudgee and surrounding areas		0419 633 483 ron@meekdesign.com.au	Phone Mobile Fax Email Web
Mr Mac Group Bathurst, Orange, Yass and Goulburn.		0447 818 260 locatemrmac@gmail.com	Phone Mobile Fax Email Web
Newcastle Locating Services Newcastle, Hunter Valley, Upper Hunter Valley, Port Stephens		02 4933 5160 0410 698 599 02 4933 5150 afarcas@bigpond.com	Phone Mobile Fax Email Web

Telstra Accredited Plant Locators – New South Wales. CENTRAL

On Point Utility Locating Pty Ltd Sydney, Parramatta, Penrith, Wollongong, Central Coast, Highlands, Goulburn, Blue Mountains		1300 ON POINT 0405 149 529 info@onpointlocating.com.au www.onpointlocating.com.au	Phone Mobile Fax Email Web
Online Pipe & Cable Locating Pty Ltd Sydney, Newcastle, Canberra, Central Coast, Wollongong, Blue Mountains and Port Macquarie		1300 665 384 0418 402 234 02 9676 6127 office@onlinepipe.com.au	Phone Mobile Fax Email Web
Pipesure Australia Pty Ltd Sydney and surrounding areas		02 9625 9222 02 9625 9200 info@pipesure.com.au	Phone Mobile Fax Email Web
Riteway Traffic Control Pty Ltd Central Coast – Newcastle/Hunter		0419 212 969 kbrowne@ritewaytc.com.au	Phone Mobile Fax Email Web
Riverina Cable Location Pty Ltd Wagga Wagga and surrounding areas	YES	02 6931 6565 0428 958 632 desdammefencing@msn.com	Phone Mobile Fax Email Web
RPS Australia East Pty Ltd Sydney regions and surrounding areas		02 8270 8300 0437 348 346 02 9248 9810 stanley.tan@rpsgroup.com.au	Phone Mobile Fax Email Web
Rubicof Pty Ltd Gosford, Newcastle, Taree		02 4990 5718 0418 683 451 02 4991 2600 rubicof@optusnet.com.au	Phone Mobile Fax Email Web
Rutherford Electrical Engineering Services		02 4932 7344 02 4932 5219 kmurphy@ruthelect.com.au	Phone Mobile Fax Email Web
SEEK LOCATIONS (Zane Pye) Foster, Glouster, Taree, Port Macquarie, Karuah, Kempsey		0407 256 858 seek@seeklocations.com.au www.seeklocations.com.au	Phone Mobile Fax Email Web
Signal Support Services Pty Ltd Goulburn, Southern Highlands, Canberra.		02 4821 8334 0418 237 668 ted@signalsupport.com.au	Phone Mobile Fax Email Web
Steger & Associates Registered Land Surveyors NSW & ACT		02 6296 4089 02 6296 4090 enquiries@leachsteger.com.au	Phone Mobile Fax Email Web
SureSearch NSW = Sydney, Penrith, Richmond, Wollongong, Katoomba, Macarthur, Central Coast, Newcastle Maitland, Hunter Valley, Port Macquarie		1300 884 520 0408 221 046 info@suresearch.com.au www.suresearch.com.au	Phone Mobile Fax Email Web
Utility I.D. – Underground Service & Cable Locators All areas Queensland and New South Wales		0401 202 515 info@utilityid.com.au www.utilityid.com.au	Phone Mobile Fax Email Web
Utility Locating Services		0404 087 555	Phone Mobile Fax Email Web

Telstra Accredited Plant Locators – New South Wales. CENTRAL

Utility Mapping (Aust) Pty Ltd Sydney and surrounding areas		1300 MAPPING sydney@utilitymapping.com.au www.utilitymapping.com.au	Phone Mobile Fax Email Web
Vac Group Operations Pty Ltd t/as Earthspy		1300 822 834 0447 466 331 www.vacgroup.com.au	Phone Mobile Fax Email Web
Vertex Power & Process NSW areas – Broken Hill, Menindee, Wilcannia, Ivanhoe & surrounding areas. SA areas – Eastern regions of SA including Olary Mingary & Cockburn.		08 8088 4301 0428 154 450 08 8087 5729 admin@vertexpp.com.au www.vertexpp.com.au	Phone Mobile Fax Email Web

PARRAMATTA 6C

SCALE 1:2000

50 0 50 100 150 200

THIS MAP UPDATED ON 07/06/2017
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

P5B	P6A	P6B
P5D	P6C	P6D
P8B	P9A	P9B

ADJOINING MAPS

NETWORK AREA

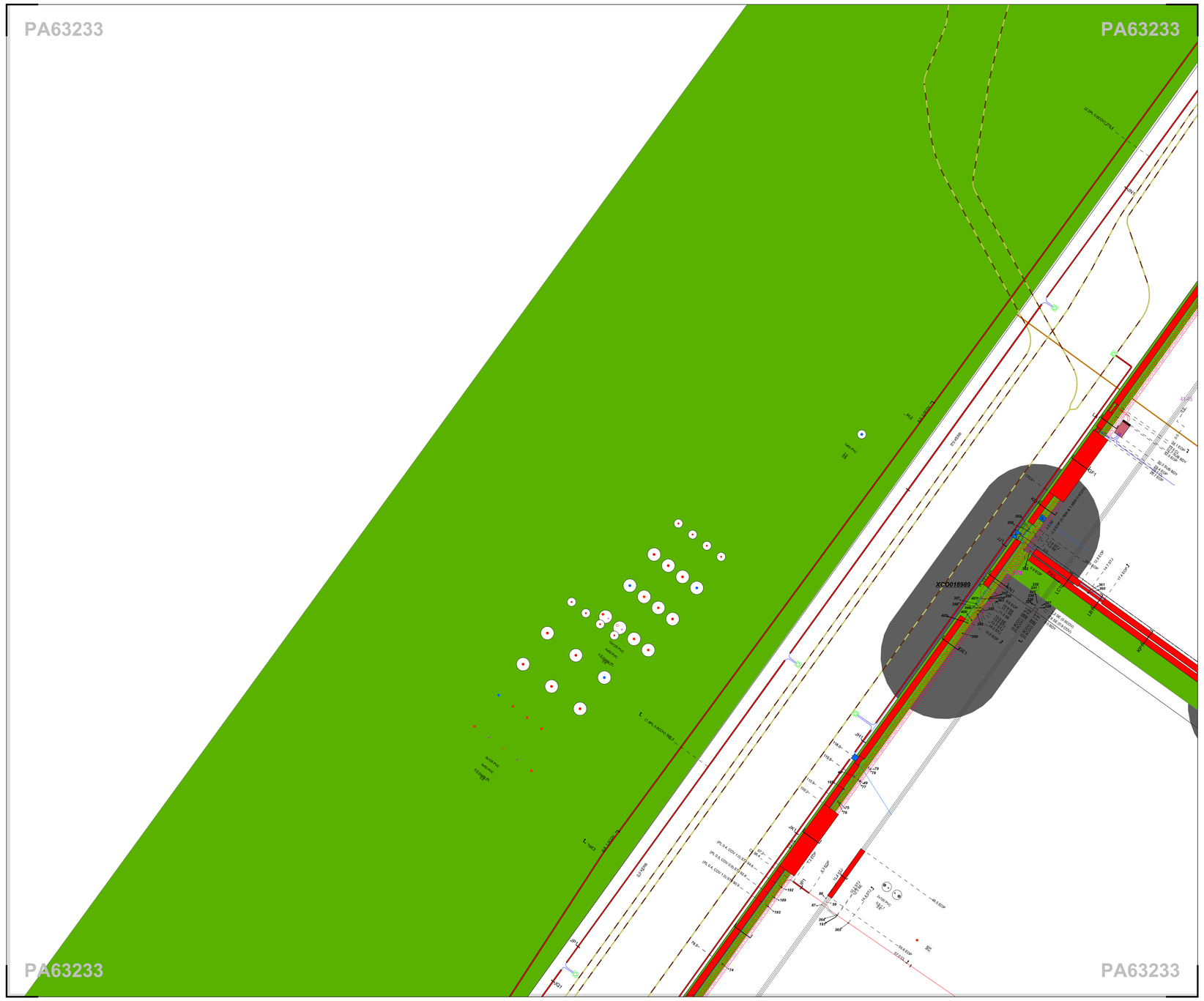
MUNICIPALITY AREA

Jemena

KEY

		MAX ALLOWABLE OPERATING PRESSURE
T	TRUNK PIPELINE	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
400	NETWORK MAIN	400 kPa
	NETWORK MAIN	300 kPa
	NETWORK MAIN	210 kPa
100	NETWORK MAIN	100 kPa
30	NETWORK MAIN	30 kPa
	NETWORK MAIN	7 kPa
	NETWORK MAIN	2 kPa
	NETWORK MAIN WITH MAIN STUBS	
	PROPOSED MAINS	
PR 11-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODE	
123S	NETWORK VALVE NODE	
298	VALVE NUMBER	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
123	HOUSE NUMBER	

PARRAMATTA 6C



PA632 - FK1

Ref: D9

PA632 - GE1

Ref: E9

PA632 - GF1

Ref: D10

PA632 - IP1

Ref: F8

PA632 - JH1

Ref: E8

PA632 - JJ1

Ref: D9

PA632 - JK1

Ref: F8

PA632 - JP1

Ref: G6

PA632 - JQ1

Ref: G6

PA632 - KN1

Ref: D9

PA632 - KO1

Ref: D9

PA632 - KP1

Ref: E10

PA632 - LA1

Ref: C10

PA632 - LB1

Ref: E10

PA632 - LC1

Ref: D9

JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PA632			
48	2339-125	0.40/0.80	0.4 inside PL
49	2339-125	0.90/0.80	0.9 inside PL
59	990-014	0.60/0.60	0.6 BL 105.0 N OF KIOSK NBL
74	2339-171	/0.70	1.3 inside PL. 9.2 from property boundary
75	2339-125	0.80/0.80	0.8 inside PL
76	2339-125	0.50/0.80	0.5 inside PL
77	2339-125	0.50/0.80	0.5 inside PL
78	2339-125	0.50/0.80	0.5 inside PL
79	2339-125	0.80/	0.8 inside PL
86	1189-002	1.22/0.60	105.76 N OF SUB 2590
87	1189-002	/0.60	107.8 N OF KIOSK NBL
169	2350-047	1.00/0.90	1.0 inside PL
189	BT05-451	0.50/0.90	25.7 S OF PILLAR PA 6437
191	BT05-384	/1.00	12.3 SE FROM HILL RD SEPL
192	BT05-451	0.40/1.00	23.7 S OF PILLAR PA 6437
193	BT05-451	/1.00	27.4 S OF PILLAR PA 6437
325	BT13-0455	6.70/0.90	1.2 N OF 41-45 HILL RD S BDY
326	BT13-0455	6.70/0.90	0.8 N OF 41-45 HILL RD S BDY
327	BT13-0455	7.30/0.90	1.2 N OF 41-45 HILL RD S BDY
328	BT13-0455	7.30/0.90	0.8 N OF 41-45 HILL RD S BDY
329	BT13-0455	6.90/0.90	0.8 N OF 41-45 HILL RD S BDY
330	BT13-0455	7.10/0.90	0.8 N OF 41-45 HILL RD S BDY
331	BT13-0455	6.90/0.90	1.2 N OF 41-45 HILL RD S BDY
332	BT13-0455	7.10/0.90	1.2 N OF 41-45 HILL RD S BDY
348	BT15-0160	1.30/1.10	14.2 S OF VERONA DR NPL
350	BT14-0454	1.00/1.00	11.3 S OF PRIVATE RD NPL
351	BT14-0454	1.10/1.00	10.9 S OF PRIVATE RD NPL
352	BT14-0466	1.10/0.70	10.0 NE OF PRIVATE RD S STEEL FENCE
355	BT14-0454	0.90/1.00	13.7 S OF VERONA DR NPL
356	BT14-0466	1.30/0.80	5.0 SW OF PRIVATE RD S STEEL FENCE
357	BT14-0466	1.40/0.80	4.5 SW OF PRIVATE RD S STEEL FENCE
358	BT14-0466	1.10/0.70	9.7 NE OF PRIVATE RD S STEEL FENCE
360	BT15-0160	0.70/0.80	14.7 E OF HILL RD SE PL
361	BT15-0160	0.40/0.80	14.7 E OF HILL RD SEPL
362	BT15-0160	1.10/0.70	2.2 E OF HILL RD SE PL
363	BT15-0160	1.50/1.10	
364	BT15-0170	12.20/0.80	12.2 SE OF HILL RD E PL
365	BT15-0170	14.40/0.80	14.4 SE OF HILL RD E PL
370			
398			
399			
400			
401			
402			

WARNING

Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street.

Persons working near electricity networks must exercise care and will be held responsible for any damage caused.

You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.

Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in WorkCover Code of Practice for Excavation and WorkCover Guide for Work Near Underground Assets
as well as recommendations of Ausgrid's Network Standard NS156.

Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by Ausgrid. Cables or earth conductors may be present close to substations, poles or towers.

Workers must maintain safe approach distances and follow applicable WorkCover Codes of Practice.

NOTE: 1. You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret the plans. 2. This information includes data from the NSW Digital Cadastral Database by Land and Property Information (c) 2016, used under Creative Commons licence version 4.0.

PA6314	PA6323	PA6324	ISG GRID
PA6332	PA6341	PA6342	
PA6334	PA6343	PA6344	
212P6	212Q6	213A6	GRID
212P7	212Q7	213A7	
212P8	212Q8	213A8	

PA63233GMLA0

Distribution - 62064284

INFORMATION ON THIS PLAN ONLY VALID
FOR 30 DAYS FROM ISSUE DATE

Page 1 of 1

19 Jun 2017

1:251

0 **15 metres**

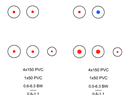
N

Ausgrid

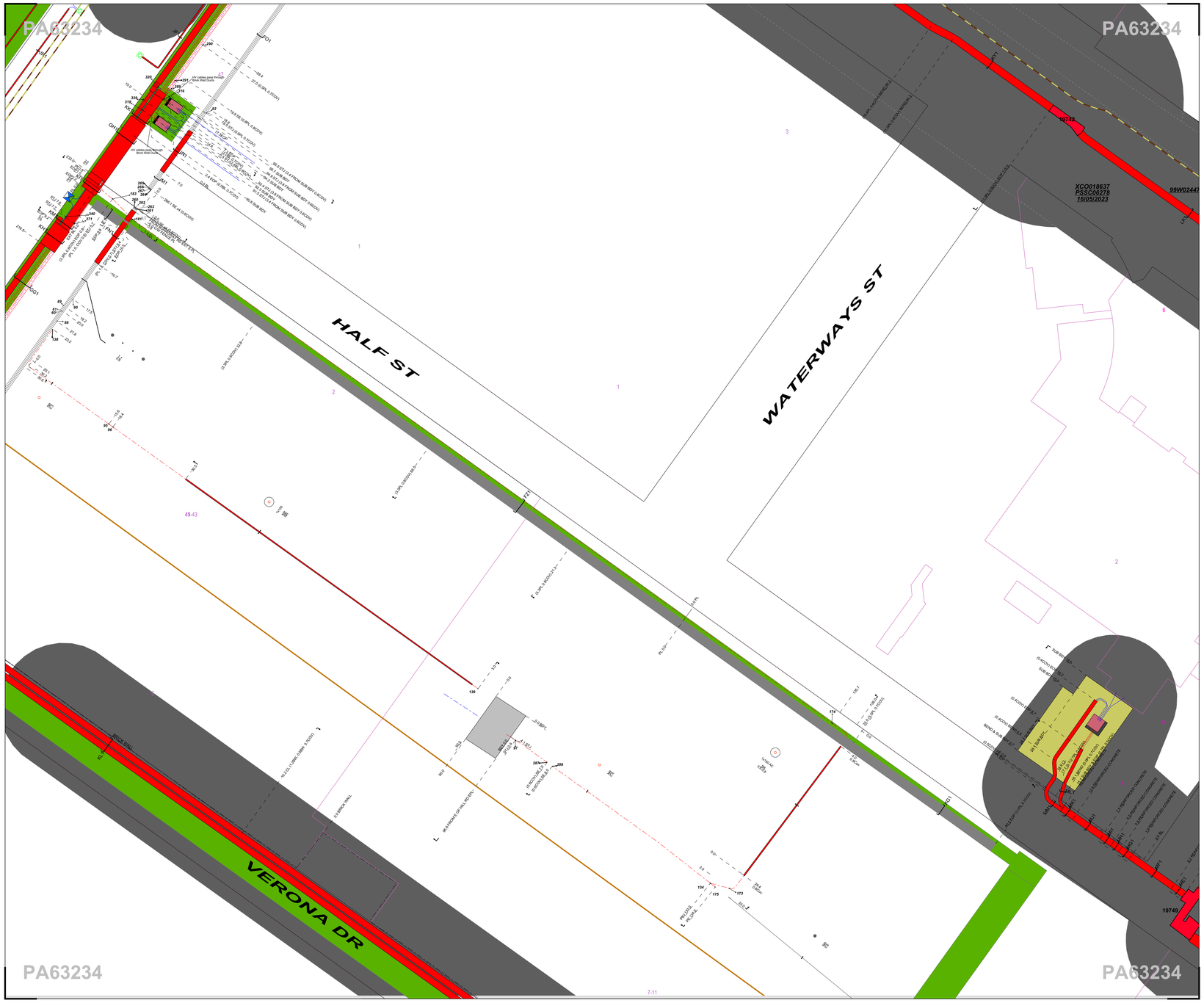
A0 MOCS_std_plot

S_62064284_PA63233GMLA0_1.hpgl2

PA632 - KL1



Ref: E3



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as well as recommendations of Ausgrid's Network Standard NS156.
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PA6314	PA6323	PA6324
PA6332	PA6341	PA6342
PA6334	PA6343	PA6344
2126	2128	2146
2127	2127	2147
2128	2128	2148

ISD GRID
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Distribution - 62064284
INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE
19 Jun 2017
Page 1 of 1
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Ausgrid

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PA634 - CC1

Ref: D5

PA634 - CI1

Ref: B6

PA634 - CJ1

Ref: C5

PA634 - DG1

Ref: A7

PA634 - DI1

Ref: A6

JOINT DETAIL REPORT

Map: PA634

No.	Bk-Pg	Pl/Cvr	Joint Location
11	1944-054	1.22/0.50	14.3 S OF CW FENCE
12	791-089	0.90/1.02	11.2 S OF CW FENCE
13	2350-010	9.60/0.70	0.9 from brick wall on old boundary
14	791-089	1.20/1.12	8.8 S OF CW FENCE
15	1350-047	/0.41	9.4 S OF CW FENCE
16	1944-054	1.22/0.50	12.3 N OF CW FENCE
17	1944-040	1.40/0.51	1.9 E OF SUB W WALL
18	1944-040	1.40/0.51	2.8 E OF SUB W WALL
26	1350-047	/0.41	9.7 S OF CW FENCE
27	2339-172	1.50/0.80	NA
28	2339-172	1.40/0.80	NA
29	2339-172	1.30/0.80	NA
31	2350-010	9.60/0.70	0.9 from brick wall on old boundary
42	1944-054	9.70/0.50	14.3 S OF CW FENCE
43	2339-172	1.20/0.80	NA
46	BT05-385		
47	BT05-385		
48	BT05-385	0.30/1.10	16.0 SW 7 HILL RD C/W FENCE SWPL
49	1944-058	1.40/0.50	2.7 E OF SUB W WALL
66	BT05-385	9.30/0.60	8.4 FROM SPL C/W FENCE
67	BT05-385	9.30/0.60	8.4 S FROM EXT'D C/W FENCE WPL
68	BT07-210		26.5 N OF PILLAR PA-6436 & 3.5 BOK

WARNING

Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street.
Persons working near electricity networks must exercise care and will be held responsible for any damage caused.
You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.
Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in WorkCover Code of Practice for Excavation and WorkCover Guide for Work Near Underground Assets
as well as recommendations of Ausgrid's Network Standard NS156.
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ISG GRID

PA6314	PA6323	PA6324
PA6332	PA6341	PA6342
PA6334	PA6343	PA6344

GRID

212P7	212Q7	213A7
212P8	212Q8	213A8
212P9	212Q9	213A9

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Distribution - 62064284

INFORMATION ON THIS PLAN ONLY VALID
FOR 30 DAYS FROM ISSUE DATE

19 Jun 2017

Page 1 of 1

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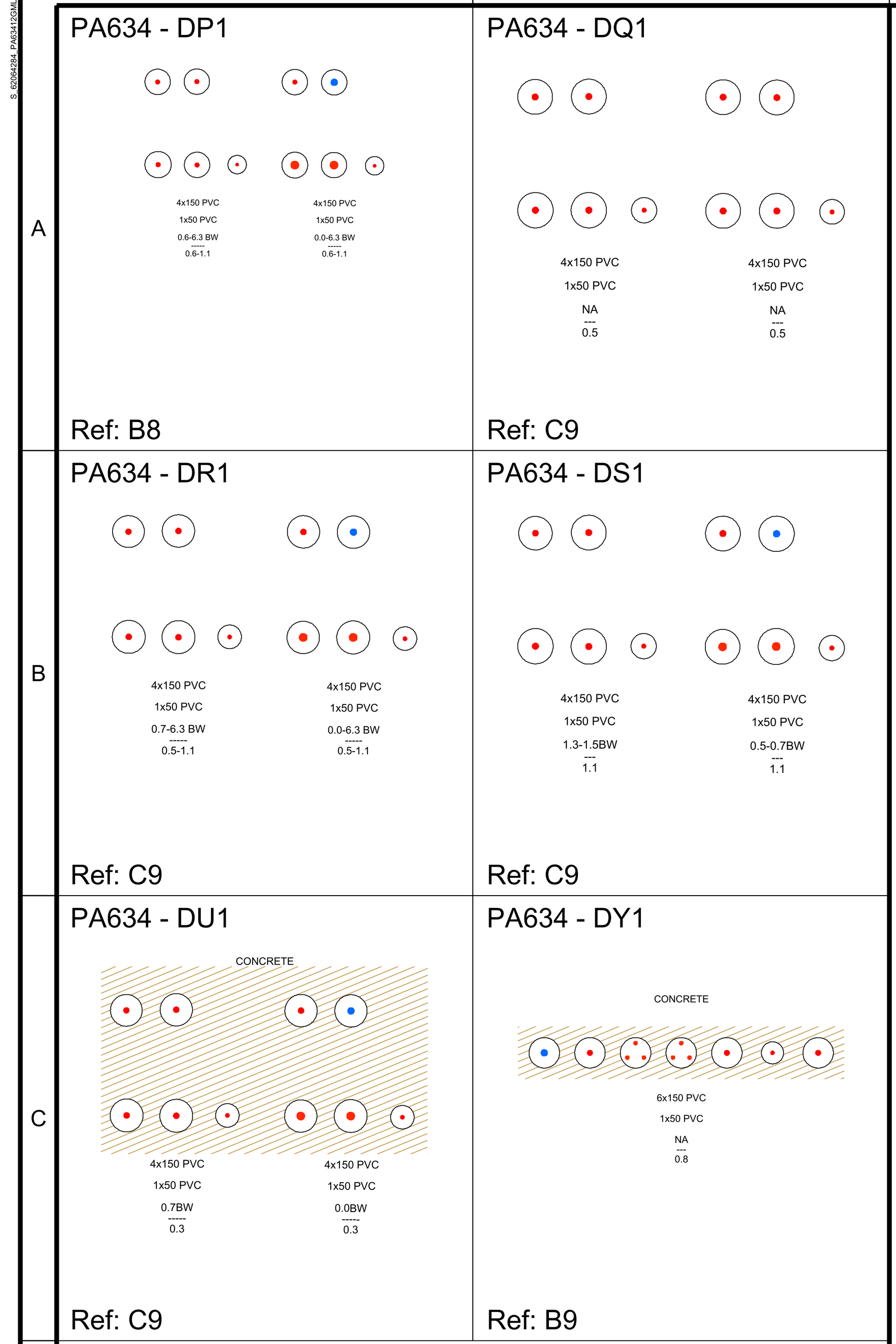
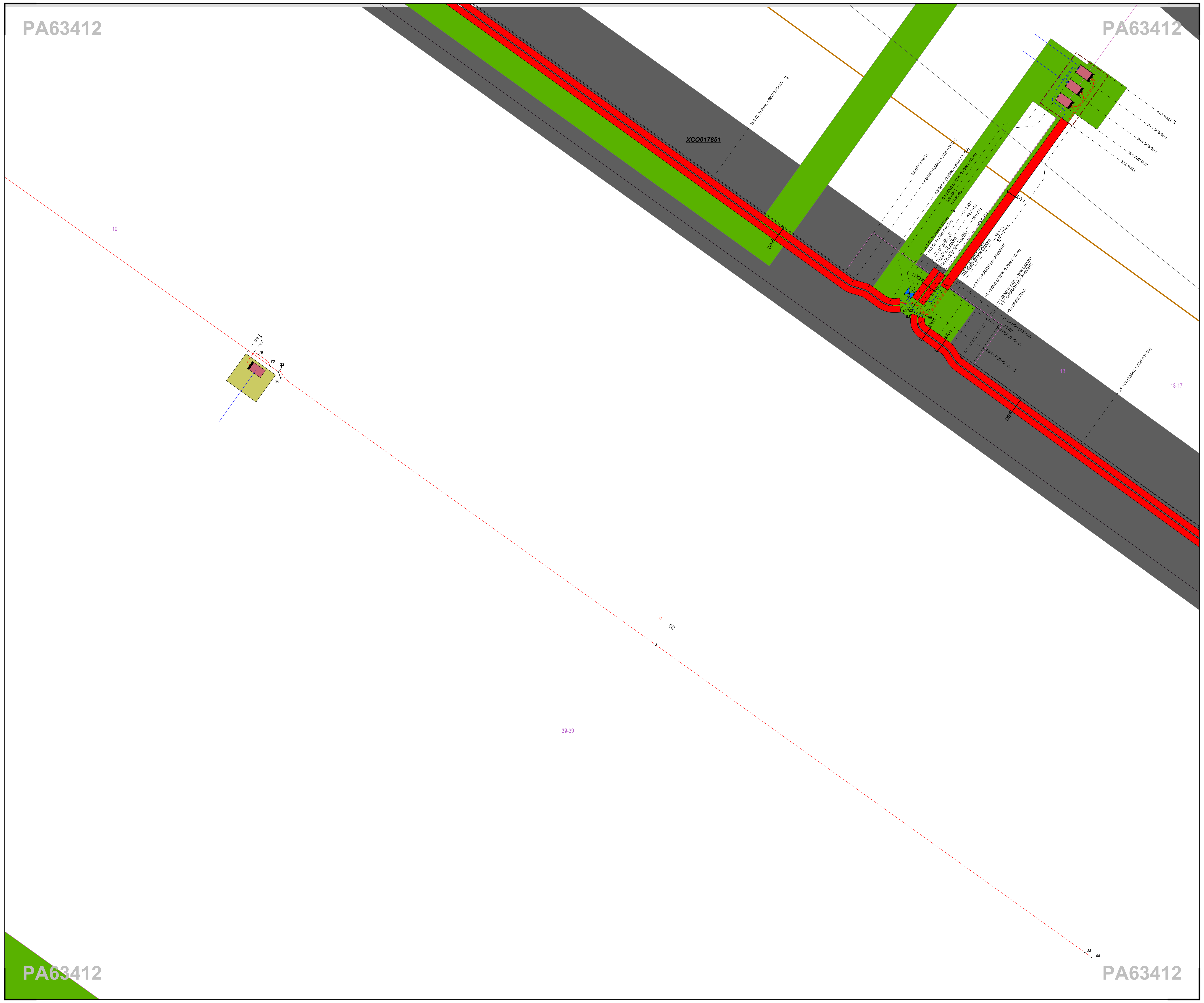
Ausgrid





JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PA634			
19	773-017	1.10/0.45	1.8 E OF SUB WBL
20	762-045	0.70/0.90	4.4 E OF SUB WBL
25	448-029	1.40/0.45	1.5 S of Sub N face
30	1413-076	0.60/0.70	0.1 E of Sub E face
32	1413-076	0.86/0.70	0.1 E of Sub E Face
44			
93	BT15-0365	5.80/1.30	12.0 E OF 7-11 VERONA DRIVE EBDY 5.8 S OF BRICK WALL
98	BT15-0366	7.00/1.00	12.6 E OF 7-11 VERONA DRIVE EBDY 7.0 S OF BRICK WALL
99	BT15-0365	5.60/1.10	13.6 E OF 7-11 VERONA DRIVE EBDY 5.6 S OF BRICK WALL
100	BT15-0366	6.70/1.10	11.5 E OF 7-11 VERONA DRIVE E BDY 6.7 S OF BRICK WALL

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PA6314	PA6323	PA6324	ISG GRID
PA6332	PA6341	PA6342	
PA6334	PA6343	PA6344	
212P7	212Q7	213A7	GRID
212P8	212Q8	213A8	
212P9	212Q9	213A9	

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Distribution - 62064284

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

19 Jun 2017

Page 1 of 1

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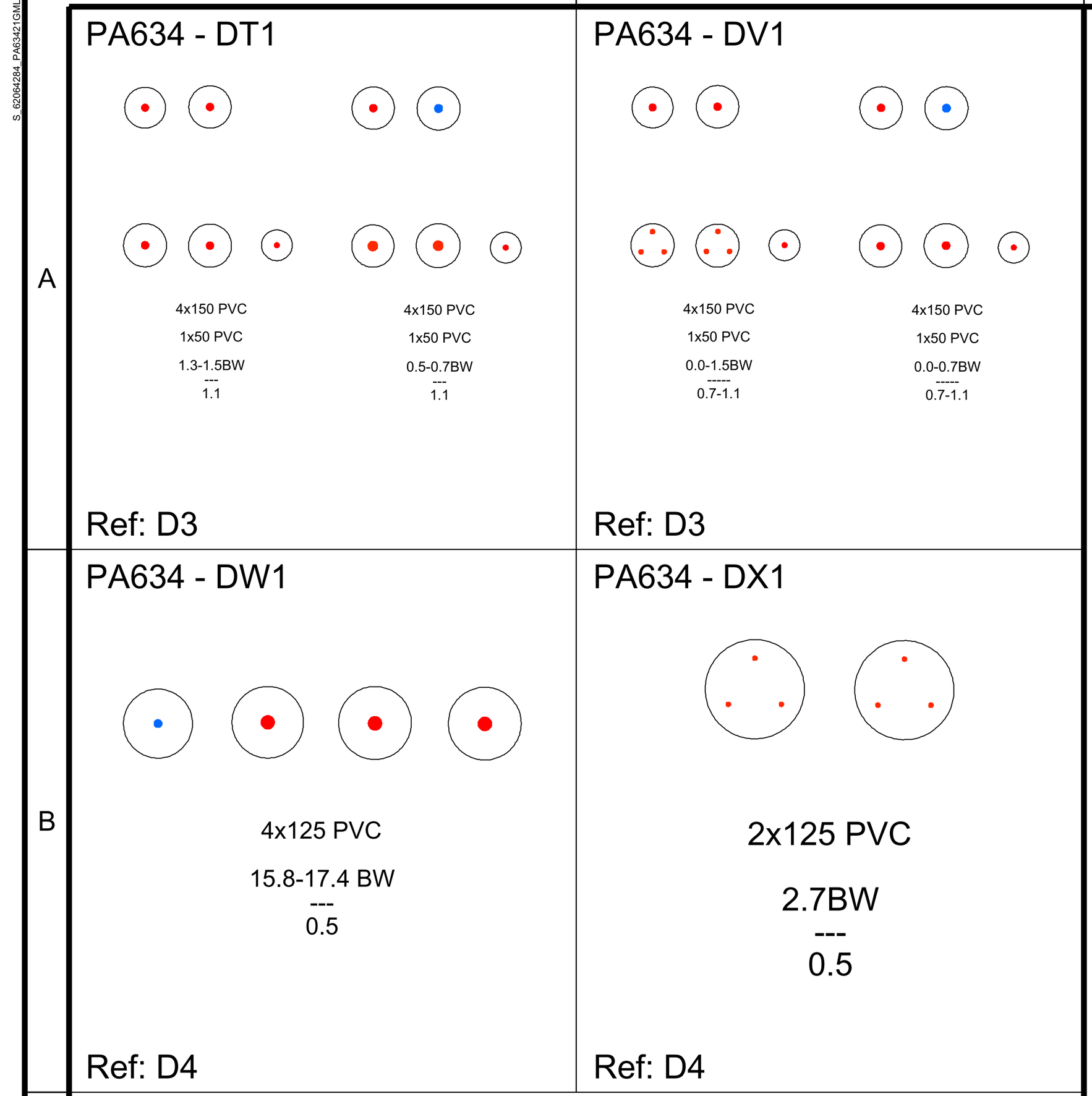
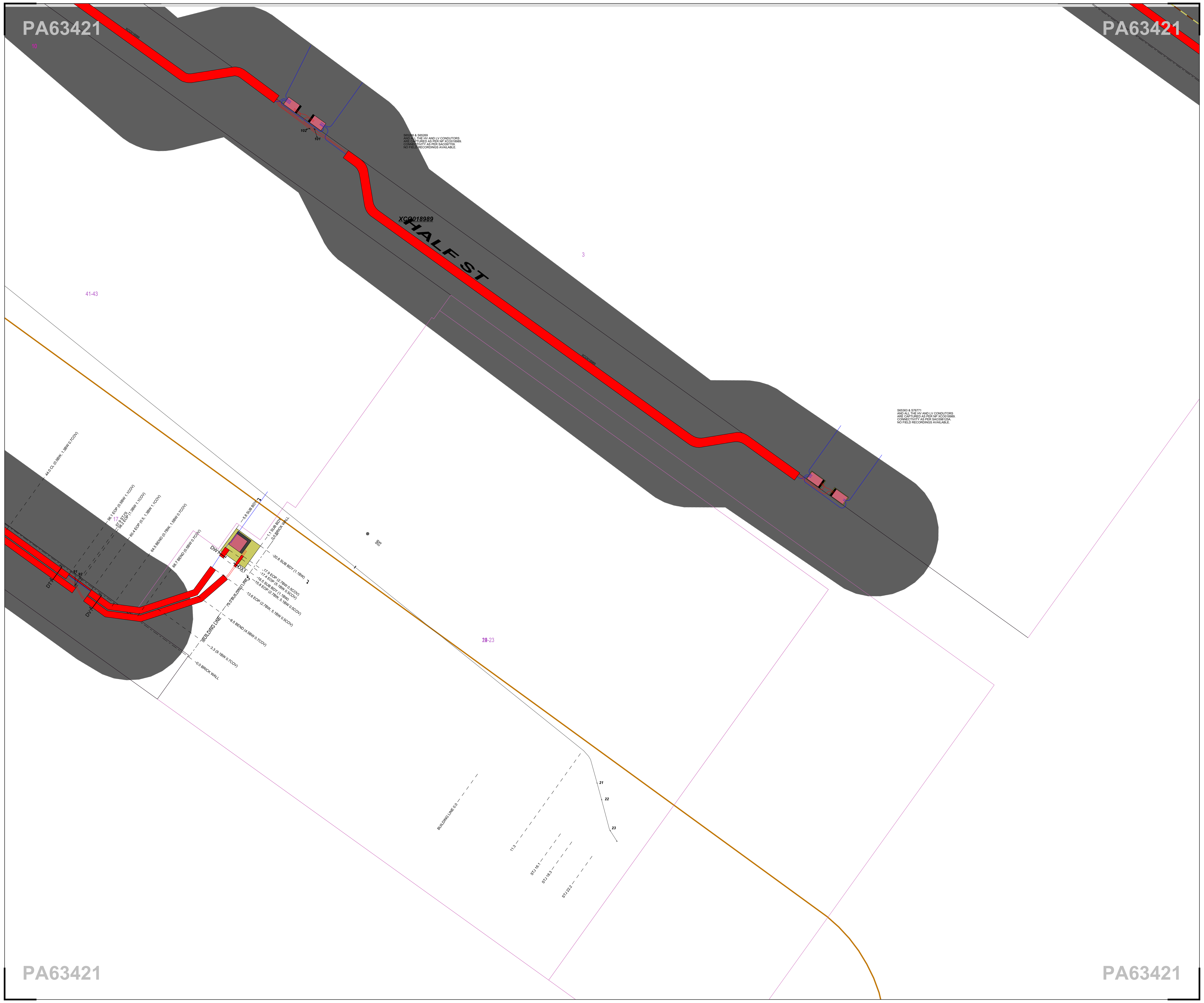
Ausgrid





JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PA634			
21	651-078	/0.45	9.3 N OF BLDG N WALL
22	651-078	/0.45	7.8 N OF BLDG N WALL
23	446-046	/0.61	4.4 N OF BLDG N WALL
91	BT14-0400	/1.40	15.3 W OF S.63487 WEST BDY 1.1 BW
92	BT14-0400	/1.40	15.3 W OF S.63487 WEST BDY 1.0 BW

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ISG GRID		
PA6314	PA6323	PA6324
PA6332	PA6341	PA6342
PA6334	PA6343	PA6344

GRID		
212Q7	213A7	213B7
212Q8	213A8	213B8
212Q9	213A9	213B9

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Distribution - 62064284

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

19 Jun 2017

Page 1 of 1

1:251

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Ausgrid

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IT'S HOW WE CONNECT

DUTY OF CARE

TELSTRA CORPORATON ACN 051 775 556

IMPORTANT:

When working in the vicinity of telecommunications plant you have a "Duty of Care" that must be observed. Please read and understand all the information and disclaimers provided below.

Telstra network is complex and requires expert knowledge to interpret information, to identify and locate components, to pothole underground assets for validation and to safely work around assets without causing damage. If you are not an expert and/or qualified in these areas then you should not be attempting these activities. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

The 4 essential steps that must be undertaken to prevent damage to Telstra assets are listed below. Construction activities must not commence without first undertaking these 4 steps. If your project is dependent on the position of the underground network then it is recommended you validate the position of the network prior to finalising your design.

(The following pages contain more detail on each step below and the contact details to seek further advice. AS5488-2013 is the Australian Standard for the Classification of Subsurface Utility Information.)

1 Dial Before You Dig -Telstra Plans :

The essential first step in preventing damage -

You must have current Telstra plans via the DBYD process. Telstra advises that the accuracy of the information provided by Telstra conforms to Quality Level D as defined in AS5488-2013. This means the information is indicative only, not a precise location. **The actual location may differ substantially from that shown on the plans** - refer to steps 2 & 3 to determine actual location prior to commencing construction.

2 Telstra Accredited Plant Locator :

The essential second step in preventing damage -

To be able to trace and identify individual subsurface cables and ducts requires access to Telstra pits and manholes. Only a Telstra Accredited Plant Locator (TAPL) is authorised to access Telstra network for locating purposes. A TAPL can interpret plans, validate visible assets and access pits and manholes to undertake electronic detection of underground assets prior to further validation. All Telstra assets must be located, validated and protected prior to commencing construction. If you are not authorised to do so by Telstra, you should not be accessing Telstra network or locating Telstra network.

3 Validation :

The essential third step in preventing damage -

All Telstra assets must be positively identified (i.e. validated), by physically sighting them. For underground assets this can be done by potholing by hand or using non-destructive vacuum extraction methods (Refer to 'validation' as defined in AS5488-2013 QL-A). **Underground assets located by electronic detection alone (step 2), are not deemed to be 'validated' and should not be used for construction purposes.** Some TAPL's can assist with non-destructive potholing for validation purposes. **If you cannot validate the Telstra network you should not proceed with construction**. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

4 Protection :

The essential fourth step in preventing damage -

Telstra assets must be protected to avoid damage from construction activities. Minimum working distances around Telstra network must be maintained. These distances are provided in this document. Telstra can also provide advice and assistance in regards to protection – refer to the following pages.

STEP 1 – Dial Before You Dig -Telstra Plans:

The actual location of Telstra assets may differ substantially from that shown on the plans. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for the accuracy shown on the plans. Steps 2 and 3 must also be undertaken to determine actual location of network.

- Telstra DBYD plans are not suitable for displaying Telstra network within a Telstra exchange site. For advice on Telstra network within a Telstra exchange site contact Telstra Plan Services.
- Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose.
- Telstra plans or other details are provided only for the use of the applicant, its servants, agents or Telstra Accredited Plant Locators. The applicant may not give the plans or details to any parties other than these, and may not generate profit from commercialising the plans or details.
- Please contact Telstra Plan Services immediately should you locate Telstra assets not indicated on these plans.
- Telstra, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Telstra against any claim or demand for any such loss or damage.
- Please ensure Telstra plans and information provided remains on-site at all times throughout the inspection, location and construction phase of any works.
- Telstra plans are valid for 60 days after issue and should be replaced if required after the 60 days.

- **Emergency situations - receiving Telstra plans** Telstra's automated mapping system (TAMS) will provide a fast response for emergency situations (faster than an operator can provide manually via a phone call - see below for fast response requirements). Automated responses are normally available 24/7.

  To receive a fast automated response from Telstra your request must **-**

  - Be a web request lodged at DBYD (**www.1100.com.au**). The request will be then forwarded to Telstra.
  - Contain your current email address so you can receive the automated email response.
  - Be for the purposes of 'mechanical excavation' or other ground breaking DBYD activity. (Requests with activity types such as conveyancing, planning & design or other non-digging activities may not be responded to until the next business day).
  - Be for an area less than 350 metres in size to obtain a PDF map (over 350 metres will default to DWF due to size) this does not include congested CBD areas where only DWF may be supplied.
  - Be for an area less than 2500 metres in size to obtain a DWF map (CBD's less)

- **Data Extraction Fees.** In some instances a data extraction fee may be applicable for the supply of Telstra information. Typically a data extraction fee may apply to large projects or requests to be supplied in non-standard formats. For further details contact Telstra Plan Services.

- **Electronic plans - PDF and DWF maps** If you have received Telstra maps via email you will have received the maps as either a PDF file (for smaller areas) or DWF file (for larger area requests). All requests over approximately *350m or in congested CBD areas can only be supplied in DWF format. There are size limits on what can be provided. (* actual size depends on geographic location of requested area). If you are unable to launch any one of the softcopy files for viewing and printing, you may need to download and install one or more of the free viewing and printing products such as Adobe Acrobat Reader (for PDF files) or Autodesk Design Review (for DWF files) available from the internet

  - **Pdf files -** PDF is the default softcopy format for all requests for areas up to approx *350m in length. (*depends on geographic location of request). The PDF file is nominally formatted to A3 portrait sheet however it can be printed on any size sheet that your printer supports, e.g. either as the full sheet or selected areas to suit needs and legibility. (to print a selected area zoom up and print 'current view') If there are multiple layers of Telstra network you may receive up to 2 sheets in the single PDF file attachment supplied. There are three types or layers of network normally recorded - local network, mains cables or a combined layer of local and mains (usually displayed for rural or semi-rural areas). If mains cable network is present in addition to local cables (i.e. as separate layer in a particular area), the mains will be shown on a separate sheet. The mains cable information should be read in conjunction with the local cable information.

  - **DWF files** – DWF is the default softcopy format for all requests for areas that are over 350m in length. Maximum length for a DWF automated response is approx 2500m - depending on geographic

location of request (manually-processed plans may provide larger coverage). The DWF files differ from PDF in that DWF are vector files made up of layers that can be turned on or off and are not formatted to a specific sheet size. This makes them ideal for larger areas and for transmitting electronically.

- ***How to view Telstra DWF files –***
  Telstra DWF files come with all layers turned on. You may need to turn individual layers on or off for viewing and printing clarity. Individual layer names are CC (main cable/conduit), DA (distribution area network) and sometimes a combined layer - CAC. Layer details can be viewed by either picking off the side menu or by selecting 'window' then 'layers' off the top menu bar. Use 'layers' to turn individual layers off or on (double click or right click on layer icon).
- ***How to print Telstra DWF files –***
  DWF files can be printed on any size sheet – either their entirety or by selected areas of interest. Some DWF coverage areas are large and are not suited to printing legibly on a single A4 sheet - you may need several prints if you only have an A4 printer. Alternatively, an A3, A1 or larger printer could be used. To print, zoom in or out and then, by changing the 'print range' settings, you can print what is displayed on your screen to suit your paper size. If you only have a small printer, e.g. A4, you may need to zoom until the text is legible for printing (which is why you may need several prints). To print what is displayed on your screen the 'view' setting should be changed from 'full page' to 'current view'. The 'current sheet' setting should also be selected. You may need to print layers separately for clarity and legibility. (Details above on how to turn layers on or off)
- ***How to change the background colour from white to black (when viewing) Telstra DWF files –***
  If using Autodesk Design Review the background colour can be changed by selecting 'Tools' then 'options' then 'sheet'. Tick the box 'override published paper colours' and select the colour required using the tab provided.

STEP 2 - Telstra Accredited Plant Locator (TAPL):

Utilising a TAPL is an essential part of the process to identify network and to trace subsurface network prior to validating. A TAPL can provide plan interpretation, identification and electronic detection. This will assist in determining the position of subsurface assets prior to potholing (validating). Some TAPL's can also assist in validating underground detected network. Electronic detection is only an indication of the existence of underground network and can be subject to interference from other services and local conditions. Electronic detection should not be used solely to determine location for construction purposes. The electronic (indicative) subsurface measurements must be proven by physically sighting the asset (see step 3 - Validation).

- All TAPL's locating Telstra network must be able to produce a current photo ID card issued by Telstra. A list of TAPL's is provided with the Telstra Dial Before You Dig plans.
- Telstra does not permit external parties (non-Telstra) to access or conduct work on our network. Only Telstra staff, Telstra contractors or locators whom are correctly accredited are authorised to work on or access our manholes, pits, ducts, cables etc. This is for safety as well as for legal reasons.

  It is a criminal offence under the *Criminal Code Act 1995* (Cth) to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by Telstra as a result of any such unauthorised works may be claimed against you.

- Optic fibre cable locations must be performed by a locator with Telstra optic fibre cable location accreditation. The locators with optic fibre cable location accreditation are indicated by a 'yes' in the column headed 'Fibre' in the lists of locators that are published with the Telstra DBYD plans. Telstra Accredited Plant Locators that are DBYD Certified Locators are also fibre accredited. Inspection of photo ID cards will confirm whether locators are just copper accredited or copper + fibre accredited.
- The details of any contract, agreement or retainer for site assistance to locate telecommunications plant shall be for you to decide and agree with the Telstra Accredited Plant Locator engaged. Telstra is not a party to any contract entered into between you and a Telstra Accredited Plant Locator.
- Payment for the site assistance will be your responsibility and payment details should be agreed before the engagement is confirmed.

- Telstra does not accept any liability or responsibility for the performance of or advice given by a Telstra Accredited Plant Locator. Accreditation is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.
- Neither the Telstra Accredited Plant Locator nor any of its employees are an employee or agent for Telstra. Telstra is not liable for any damage or loss caused by the Telstra Accredited Plant Locator or its employees.

- **Electronically derived subsurface measurements (e.g. depths/alignments by locating devices)**

  All locator provided measurements for Telstra assets must have the AS5488-2013 quality level specified - (e.g. QL-A, B, C or D). These quality levels define the accuracy of subsurface information and are critical for determining how the information is later used – for example if suitable for excavation purposes.

  1) ***An example of a subsurface measurement with no quality level specified – (i.e. not to be used)***

     Telstra cover - **0.9m**

     The measurement above has no AS5488-2013 quality level specified and ***should not*** *be provided by a locator or used for design or construction. This is because it is not known whether the measurement is actual or derived (where 'actual' means validated and 'derived' means assumed and not validated, e.g. electronic or other). Typically damages occur by constructors incorrectly using unvalidated measurements as actual measurements.*

  2) ***An example of a subsurface measurement with quality level B specified –***

     Telstra cover - **0.9m** (QL-B)

     Where (QL-B) complies with AS5488-2013 QL-B (for example an electronic location that complies with QL-B)

     (Note QL-B means it has not been validated and should not be used for construction purposes around Telstra network, however it would assist further investigation to determine the actual location)

  3) ***An example of a subsurface measurement with the quality level A specified –***

     Telstra cover - **0.6m** (QL-A)

     Where (QL-A) complies with AS5488-2013 QL-A (and is deemed suitable for excavation purposes). *In this example the asset has been electronically located first, (QL-B) and then physically exposed (QL-A).*

     Note -Telstra will seek compensation for damages caused to it its property and losses caused to Telstra and its customers if unvalidated subsurface measurements are used for construction and subsequently result in damage to Telstra assets. Only measurements conforming to AS5488-2013 (QL-A) are deemed by Telstra to be validated measurements.

- **Rural landowners** Where Telstra-owned cable crosses agricultural land, Telstra may provide on-site assistance with cable location. **You must contact Telstra Plan Services to determine eligibility and to request the service**.

  Please note the following –

  - If eligible, the location assistance must be approved and organised by Telstra. Telstra will not pay for a location that has not been approved and facilitated by Telstra (Telstra is not responsible for payment assistance when a customer engages a locator directly).
  - The exact location, including depth of cables, must be validated by potholing, which may not be covered by this service.
  - This service is nominally only available to assist private rural land owners.
  - This service nominally covers one hour on-site only, private lead-in locations are for lead-ins 100m or longer. Any time required in addition to Telstra-funded time can be purchased directly from the assigned Telstra Accredited Plant Locator.
  - This service does not apply to previously located network at the same location (i.e. it is a once off).
  - This service does not apply to other carriers' cables (marked as 'OC' on Telstra plans).

STEP 3 – *Validation:

After utilising a Telstra Accredited Plant Locator and prior to commencing construction, any electronically detected underground network must be positively identified (validated) by physically sighting it. This can be done by careful hand digging or using non-destructive water jet methods to expose the network.

*Validation as defined in AS5488-2013 (QL-A).

Manual potholing needs to be undertaken with extreme care and by employing techniques least likely to damage cables. For example, align shovel blades and trowels parallel to the cable rather than digging across the cable. Some Telstra Accredited Plant Locators are able to provide or assist with non-destructive potholing methods to enable validation of underground cables and ducts.

If you cannot validate the underground network then you should not proceed with construction. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

Important note: *The construction of Telstra's network dates back over many years. Some of Telstra's pits and ducts were manufactured from asbestos-containing cement. You must take care in conducting any works in the vicinity of Telstra's pits and ducts. You must refrain from in any way disturbing or damaging Telstra's network infrastructure when conducting your works. We recommend that before you conduct any works in the vicinity of Telstra infrastructure that you ensure your processes and procedures eliminate any possibility of disturbing, damaging or interfering in any way with Telstra's infrastructure. Your processes and procedures should incorporate appropriate measures having regard to the nature of this risk. For further information -*

http://ucm.in.telstra.com.au/about/media/emergencies-incidents/asbestos/index.htm?ssSourceSiteId=consumer-advice

STEP 4 – Protection:

You must maintain the following minimum clearance distances between construction activity and the validated position of Telstra plant.

Jackhammers/Pneumatic Breakers	*Not within 1.0m of **actual validated location.***
Vibrating Plate or Wacker Packer Compactor	*Not within 0.5m of **actual validated location** of Telstra ducts.* *300mm compact clearance cover before compactor can be used across Telstra ducts.*
Boring Equipment (in-line, horizontal and vertical)	*Not within 2.0m of **actual validated location**.* *Constructor to hand dig or use non-destructive water jet method (pothole) and expose plant.*
Heavy Vehicle Traffic (over 3 tonnes)	*Not to be driven across Telstra ducts (or plant) with less than 600mm cover.* *Constructor to check actual depth via hand digging.*
Mechanical Excavators, Farm ploughing and Tree Removal	*Not within 1.0m of **actual validated location.*** *Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.*

- For blasting or controlled fire burning please contact Telstra Plan Services for advice.
- If conducting roadworks all existing Telstra pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work.
- After the completion of any ground work in footways or roadway whereby the existing levels are being changed the depth of cover of the existing Telstra asset at the completion of work must not be less than the existing level before work commenced or of that of the recommendations of the '*Road Opening Conference*',

whichever the least. Regardless of whether the surface is being raised or lowered, any work impacting the depth of cover of Telstra underground assets should not commence before consultation with Telstra Network Integrity representatives, to discuss the possibility of '*protection*' or relocation (including lowering of the asset)".

- For clearance distances relating to Telstra pillars, cabinets and RIMs/RCMs please contact Telstra Plan Services.

- If Telstra plant is situated wholly or partly where you plan to work (i.e. in conflict), then Telstra's Network Integrity Group must be contacted to discuss possible engineering solutions.
  Please phone **1800 810 443** or email NetworkIntegrity@team.telstra.com

- You are not permitted to relocate or alter or repair any Telstra assets or network under any circumstances.

  It is a criminal offence under the *Criminal Code Act 1995* (Cth) to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by Telstra as a result of any such unauthorised works may be claimed against you.

  Only Telstra and its contractors may access and conduct works on Telstra's network (including its plant and assets). This requirement is to ensure that Telstra can protect the integrity of its network, avoid disruption to services and ensure that the relocation meets Telstra's requirements.

- If Telstra relocation or protection works are part of the agreed solution, then payment to Telstra for the cost of this work shall be the responsibility of the principal developer, constructor or person for whom the work is performed. The principal developer or constructor will be required to provide Telstra with the details of their proposed work showing how Telstra's plant is to be accommodated and these details must be approved by the Regional Network Integrity Manager prior to the commencement of site works.
  Please phone 1800 810 443 or email NetworkIntegrity@team.telstra.com
  Further information -
  https://www.telstra.com.au/consumer-advice/digging-construction/relocating-network-assets

  ### Damage to Telstra's network must be reported immediately -
  https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment

- You will be held responsible for all plant damage that occurs or any impacts to Telstra's network as a result of your construction activities. This includes interfering with plant, conducting unauthorised modification works and interfering with Telstra's assets in a way that prevents Telstra from accessing or using its assets in the future.

- Telstra reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses.

FURTHER INFORMATION:

NATURAL DISASTERS

Natural Disasters include (amongst other things) earthquakes, cyclones, floods and tsunamis.
In the case of such events, urgent requests for plans or information relating to the location of Telstra network can be made directly to Telstra Network Integrity Team Managers as follows:

NSW – John McInerney 0419 485 795

QLD – Glenn Swift 0419 660 147

VIC/TAS - David Povazan 0417 300 947

SA/NT - Mick Weaver 0419 828 703

WA - Angus Beresford-Peirse 0419 123 589

TELSTRA PLAN SERVICES **-** for all Telstra Dial Before You Dig related enquiries

Email - **Telstra.Plans@team.telstra.com**

Phone - 1800 653 935 (general enquiries, business hours only)

*Telstra DBYD plan information -	Shalin	07 3455 2997
	Anthony	07 3455 2365
Advice on preventing damage -	Glen	07 3455 1011
	Lachlan	07 3455 3132
Accredited plant locator enquiries -	Mike	0477 377 036
	Taylor	0477 365 666
Road closures -	Megan	07 3455 0834
	Lachlan	07 3455 3132
Telstra easements -	Glen	07 3455 1011

**Please note* - *to make a Telstra plan enquiry the plans must be current (within 60 days of issue). If your plans have expired you will need to submit a new request via DBYD prior to contacting Telstra Plan Services.*

Information for new developments (developers, builders, home owners)
Telstra Smart Communities - https://www.telstra.com.au/smart-community

Asset relocations
Please phone 1800 810 443 or email NetworkIntegrity@team.telstra.com

https://www.telstra.com.au/consumer-advice/digging-construction/relocating-network-assets

Telstra offers free Cable Awareness Presentations, if you believe you or your company would benefit from this offer please contact Network Integrity on 1800 810 443 or NetworkIntegrity@team.telstra.com

PRIVACY NOTE

Your information has been provided to Telstra by DBYD to enable Telstra to respond to your DBYD request. Telstra keeps your information in accordance with its privacy statement entitled "Protecting Your Privacy" which can be obtained from Telstra either by calling 1800 039 059 or visiting our website at www.telstra.com.au/privacy

LEGEND

IT'S HOW WE CONNECT

For more info contact a Telstra Accredited Locater or Telstra Plan Services 1800 653 935

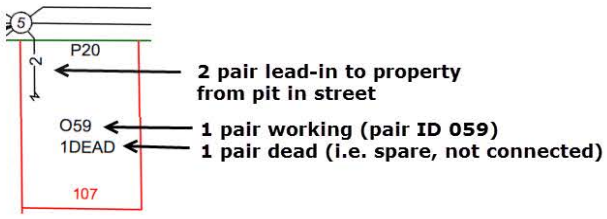
Exchange
(major cable present)

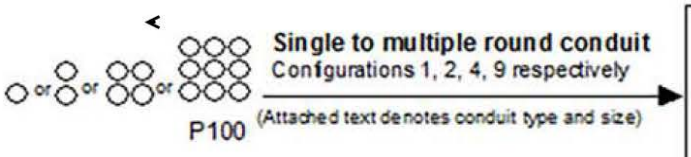
Footway access chamber
(can vary from 1-lid to 12-lid)

or **Pillar/cabinet**
(above the ground / free standing)

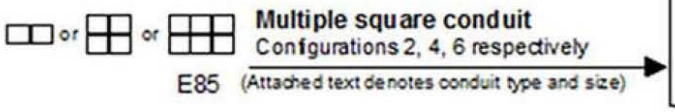
Above ground complex equipment housing (eg RIM)
Please Note: This equipment is powered by 240V electricity.

OC **other carrier**





Single to multiple round conduit
Configurations 1, 2, 4, 9 respectively
(Attached text denotes conduit type and size)



Multiple square conduit
Configurations 2, 4, 6 respectively
(Attached text denotes conduit type and size)

Some examples of conduit type and size:
A - Asbestos cement, P - PVC / plastic, C - Concrete, GI - Galvanised iron, E - Earthenware.
Conduit sizes *nominally* range from 20mm to 100mm.

P50	50mm PVC conduit
P100	100mm PVC conduit
A100	100mm asbestos cement conduit
E 85	85mm square earthenware conduit

Cable jointing pit
(number indicating pit type)

Elevated cable joint
(above ground joint on buried cable)

Telstra Plant in shared utility trench

Aerial Cable
(above ground)

Aerial Cable
(attached to joint use pole e.g. power)

Direct buried cable

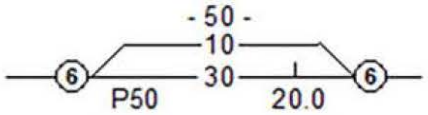
M **Marker post installed**

TR **Buried transponder**

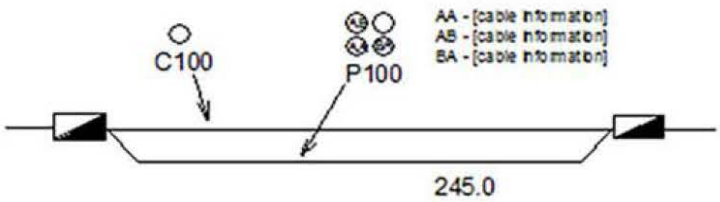
MT **Marker, transponder**

SMOF **Optical fibre cable direct buried**

Some examples of how to read Telstra plans:



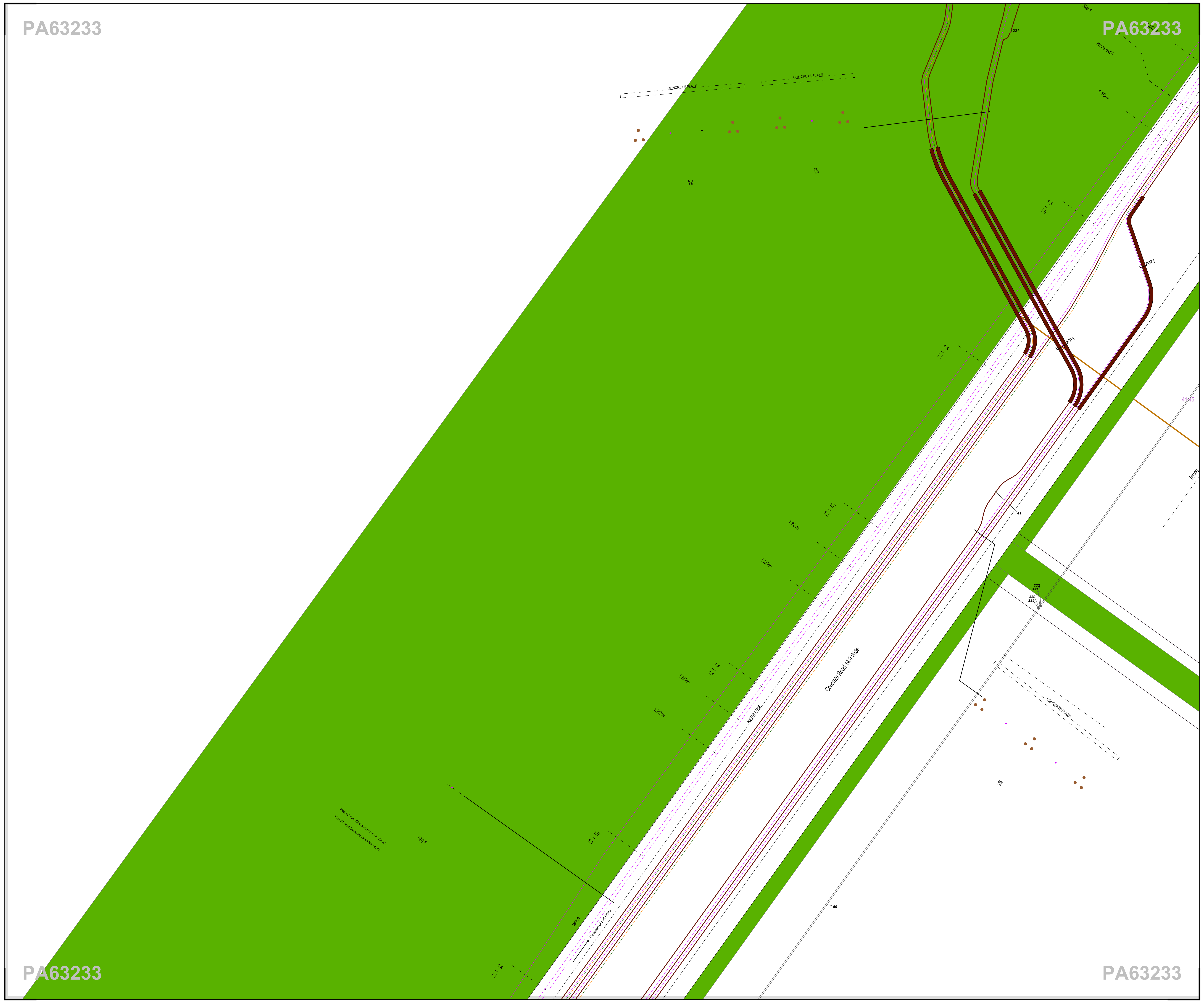
One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



Two separate conduit runs between two footway access chambers (manholes) 245m apart. A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along the same route.

WARNING: Telstra plans and location information conform to Quality Level 'D' of the Australian Standard AS 5488 - Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK. A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works. The exact position of Telstra assets can only be validated by physically exposing it. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

You are working near Transmission Cables. You must contact Ausgrid on (02) 4951 9200 at least two weeks before work commences. See Ausgrid Network Standard NS156.



JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PA632			
41	5-146		white phase STJ PHASE B

WARNING

Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street.
Persons working near electricity networks must exercise care and will be held responsible for any damage caused.
You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.
Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in WorkCover Code of Practice for Excavation and WorkCover Guide for Work Near Underground Assets
as well as recommendations of Ausgrid's Network Standard NS156.
Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by Ausgrid. Cables or earth conductors may be present close to substations, poles or towers.
Workers must maintain safe approach distances and follow applicable WorkCover Codes of Practice.
NOTE: 1. You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret the plans. 2. This information includes data from the NSW Digital Cadastral Database by Land and Property Information (c) 2016, used under Creative Commons licence version 4.0.

ISG GRID

PA6314	PA6323	PA6324
PA6332	PA6341	PA6342
PA6334	PA6343	PA6344

GRID

212P6	212Q6	213A6
212P7	212Q7	213A7
212P8	212Q8	213A8

PA63233GMLA0

Transmission - 62064284

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

19 Jun 2017

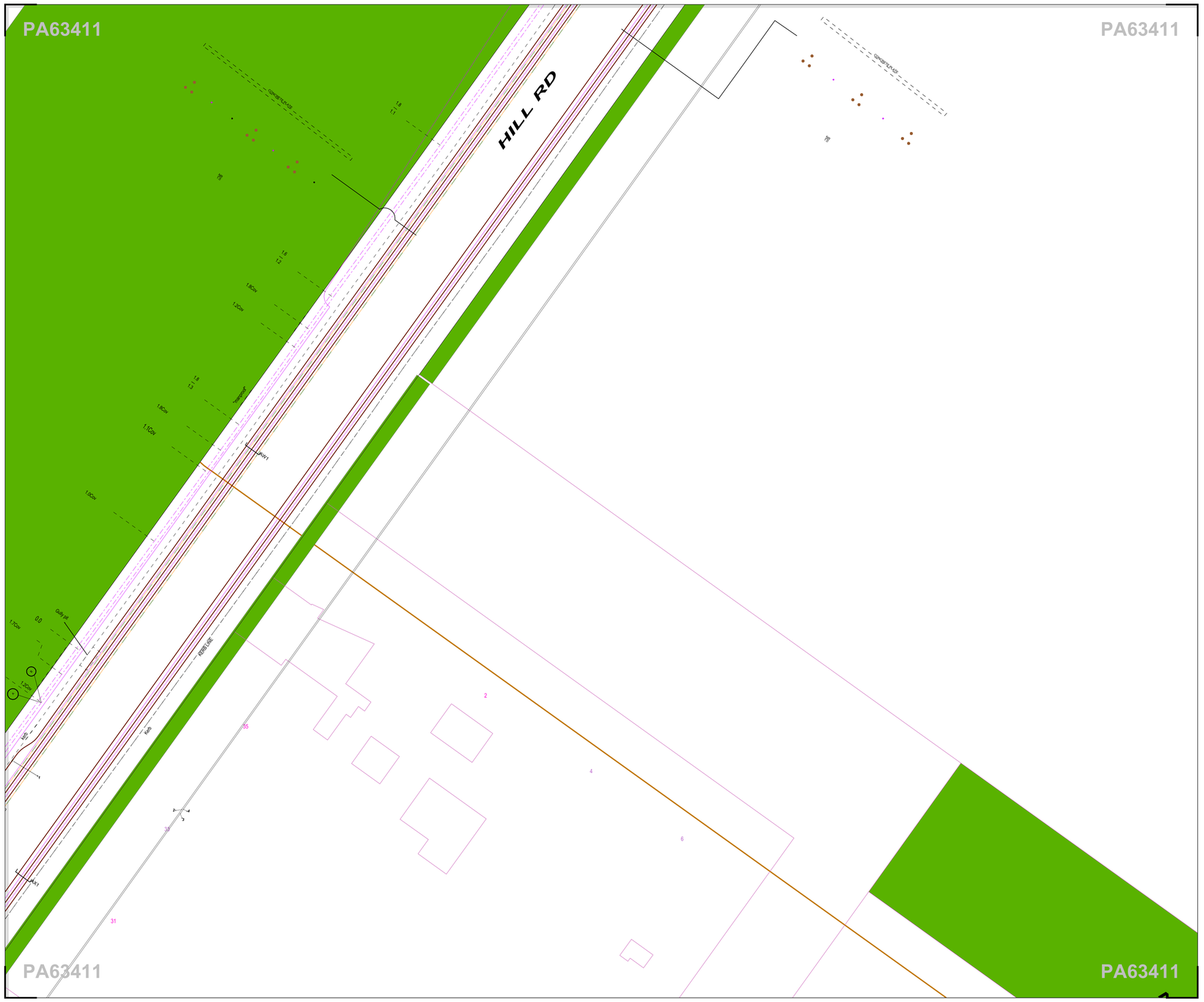
Page 1 of 1

1:251

0 — 15 metres

N

Ausgrid



You are working near Transmission Cables. You must contact Ausgrid on (02) 4951 9200 at least two weeks before work commences. See Ausgrid Network Standard NS156.

PA634 - AW1

Ref: C4

WARNING

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ISG GRID

PA6314	PA6323	PA6324
PA6332	PA6341	PA6342
PA6334	PA6343	PA6344

GRID

212P7	212Q7	213A7
212P8	212Q8	213A8
212P9	212Q9	213A9

PA63411GMLA0

Transmission - 62064284

INFORMATION ON THIS PLAN ONLY VALID
FOR 30 DAYS FROM ISSUE DATE

19 Jun 2017

Page 1 of 1

N

1:251

0 **15 metres**

Ausgrid

f further information is re uired, please contact
usgrid Y
Phone 02 9 1 0899
a 02 9 1 0729

Emergency P one umber

Underground Cable Location Search Advice

-- Ausgrid Assets Affected including TRANSMISSION --

f you are working within 2 metres of cables you are re uired to ha e an usgrid Super isor on site. he number to call to organise this is and can also be found at the top of the supplied ransmission plan s in ED. *Note:* he ransmission eam re uires ee s notice if re uired on site.

o	Mr Jack Mort AT&L Level 7 153 Walker Street North Sydney NSW 2060		
		Phone No	0294391777
		ssue ate	19/06/2017

n response to your en uiry, Se uence No 62064284 the records of usgrid disclose that there **are** usgrid underground cables in the defined search location and rele ant usgrid plans ha e been pro ided.

his search is based on the geographical position of the dig site as denoted in the ial efore You ig caller confirmation sheet and an o er iew is pro ided

ddress	37-39 Hill Road Wentworth Point NSW 2127
ob	12496325

Im ortant

- ll information pro ided to you is L LID D from the date of issue
- You must keep usgrid plans on site during e ca ation works. f the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret plans.
- f you re uire a full si e print of 0 plans and don t ha e the resources to do so please contact our office on 9 10899 to re uest a hard copy to be posted. **Please allo or ing days or delivery**
- Please note you will N Y recei e portions of your search area that contain usgrid nderground ssets

E D D DE D E *SUPPLEMENTARY MATERIAL* C I ED I I D ICE E E P CEEDI I E P

ummary o u lementary In ormation:

aterial	Pur ose	Location
E E LE	Safety precautions when working on or near low oltage stranded aluminium cable	Web ink Clic ere
mportant nformation.pdf	etails important information	ttached
Working near usgrid ables.pdf	Summary of NS1 6	ttached
N0119 How o Read usgrid Plans.pdf	etails how to read usgrid plans	ttached
Work o er NSW *"Work near underground assets: Guide"*	o assist you in deciding appropriate measures to eliminate or control risks when working near underground assets.	Web ink lick Here
usgrid s Network Standard NS1 6	or important information for work near or around underground cables	Web ink lick Here

Working near
Ausgrid cables

Finding out what's below the surface can save your life.

Call Dial Before You Dig on **1100** or visit **1100.com.au**

Ausgrid

Changes in the Law.

NSW legislation now requires people who are planning to do excavation work to obtain copies of underground electricity cable plans through Dial Before you Dig (Phone 1100) and to make sure that the plans are no more than 30 days old when excavation commences.

The aim of the legislation is to ensure that when workers dig near electricity cables, they will establish the exact location of the cables and thus avoid coming into contact with them or damaging them. This will ensure worker safety and also prevent disruption to Ausgrid's electricity network.

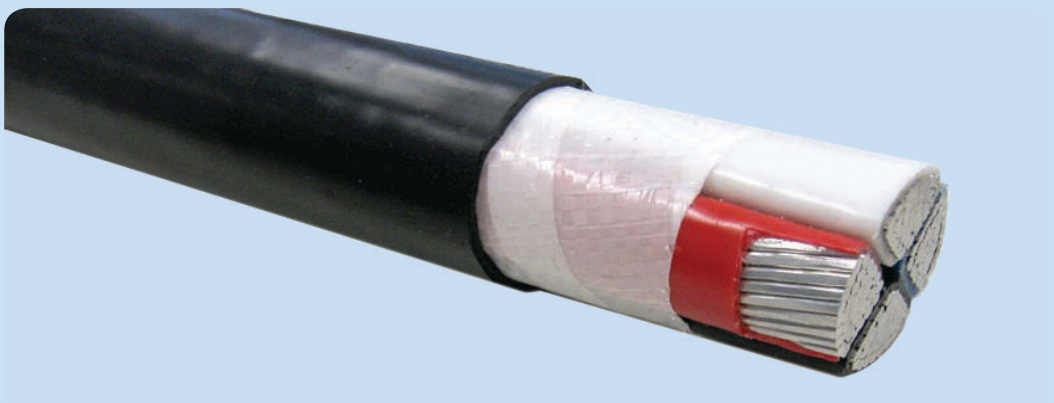
This brochure gives you a brief overview of how to prepare for excavation works near or around electricity cables. It is important that you also consult our guide How to Read Ausgrid Plans and make sure that workers engaged in excavation works fully understand how to read the plan. If the people actually doing the digging can't read the plans, it is essential that the work is directed by a person who has been trained to read Ausgrid's plans.

You must also consult Ausgrid's Network Standard NS156, which contains comprehensive information concerning all the issues that arise when excavating near underground cables (such as safety hazards from asbestos conduits and organochlorine pesticides).

Excavating near transmission cables.

If any cable plan you receive says "You are working near transmission cables" it is compulsory to notify Ausgrid two weeks before work is scheduled to begin. Ausgrid will then arrange for an Ausgrid representative to attend the site during excavation work.

Phone the Ausgrid Transmission enquiries line on (02) 4951 9200 to arrange for an Ausgrid representative in your region.



Be prepared. Wise words for safety at work.

Here are some simple precautions you and your workers need to follow in order to be as safe as possible.

- Make sure that your Dial Before You Dig (DBYD) plan is less than 30 days old
- Keep a copy of the cable plan on site at all times
- Make sure the excavation work is conducted or directed by staff who are trained to read the plan
- Hand dig until the exact location of the cable has been established
- Have on site at all times a first aid kit and a person trained in resuscitation
- Wear protective clothing, including safety footwear and safety helmet
- Have emergency contact numbers on site
- Set up safety barriers, witches hats and warning lights to reduce the risk of injury to the general public
- Comply with all WorkCover requirements and codes.

See also:

- **WorkCover Guidelines: Work Near Underground Assets**
- **WorkCover Code of Practice: Excavation Work**
- **WorkCover Code of Practice: Work Near Overhead Powerlines (if applicable).**

Before you start. Complete the checklist. Stop and look around.

Before you start excavating, consult the flow chart and fill in the checklist at the end of this brochure.

Then, be sure to look for clues where cables might be located on the site: for example pits, distribution pillars (green and other colours), cables attached to the side of poles, street lights without overhead wires.

Do all power cables look the same?

No. Power cables come in different sizes, colours and coverings. They may be covered in black plastic sheath, steel wires in a sticky bitument like material, or even a simple lead or steel wire/tape sheath.

What else should I look for below ground level?

Cables may also be buried in orange PVC or PE conduits or even in earthenware or steel pipes. A bank of cables may be covered with electrical bricks, plastic warning markers or protective covers, or they may not be covered at all. If they have been buried close to the surface, they may be covered by concrete slabs or steel plates.

When in doubt, ask Ausgrid.

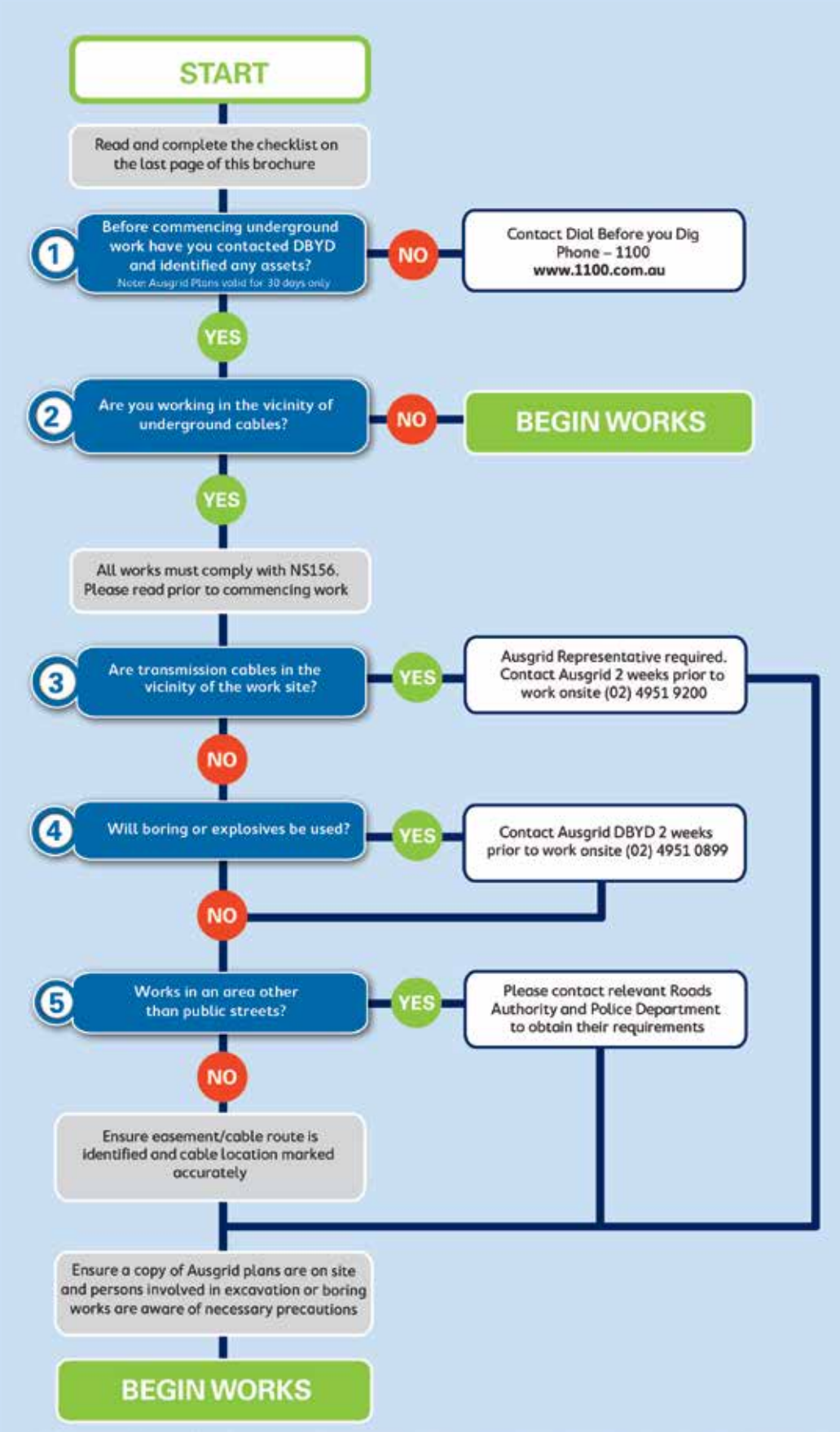
If you have any questions about excavating near Ausgrid cables, read **NS156** (available at ausgrid.com.au).
For further information call 13 13 65.

You've taken every precaution but accidents still happen. What now?

If you damage an electricity cable, it is compulsory to notify Ausgrid on **13 13 88**.

Striking power cables can cause serious damage to the cables and endanger the lives of anyone who comes in contact with them. Machinery and hand operated plant such as jack hammers can become alive if it is in contact with electrical cables or equipment. Keep people well away from machinery and the work site if contact is made with a cable.

Flow Chart for work near Ausgrid Cables



Ausgrid Checklist for work near or around underground cables

It is the responsibility of the Constructor to ensure that underground pits, ducts and cables are not damaged as a result of construction work. It is also your duty to protect your workers from harm or injury. This Checklist is intended to be used as a guide to what Constructors should do to make sure they have satisfied the minimum requirements to minimise damage to underground networks.

PLANS, LOCATION and NOTIFICATIONS	Completed
All relevant utilities plans obtained from Dial Before You Dig? (call 1100 – allow at least 5 working days for plans).	
Checked issue date on all the above plans to ensure issue was within the last 30 days?	
Examined plans and assessed all possible impacts on Ausgrid's network?	
Do you have both Underground Distribution and Transmission Plans (if applicable), on site at all times?	
All cables and conduits shown on the Ausgrid plans been located and marked on the ground?	
If you are planning to use a bore, have you ensured that the equipment is calibrated?	
Have you read and understood the requirements of NS 156? (for copies of NS 156 visit Ausgrid's Website or phone Ausgrid DBYD Office (02) 4951 0899) www.ausgrid.com.au	
Have you notified Ausgrid as specified by NS 0156 and complied with requirements? Where an Ausgrid representative is required, two weeks notice is required before work commencing on site. Contact phone number for Transmission cable enquiries is (02) 4951 9200. For all other cases contact Ausgrid DBYD Office: (02) 4951 0899.	
INSPECTION OF WORK BY Ausgrid's REPRESENTATIVE	
Is the Ausgrid representative on site for any work near or around* any transmission cable before you start? (*Refer to NS 156.)	
For proposed work near or around* cables other than transmission and/or conduits, are any requirements specified by Ausgrid's representative clearly understood and ready to be applied before you start the work? (*Refer to NS 156.)	
PROTECTION	
Check that all people on-site have been made aware of the presence and location of ALL Ausgrid underground cables and/or conduits; especially boring, drilling and trenching machine operators?	
Is there any asbestos or asbestos containing material in Ausgrid's underground network assets?	
Have you checked for the presence of any Organo-Chloride Pesticides (OCP) in transmission trenches?	
Is the site supervisor monitoring all machine operators working near or around Ausgrid's underground cables and/or conduits?	
Are the requirements specified by Ausgrid's representative being followed?	
Are Ausgrid's requirements in place for any exposed cables and/or conduits to be supported and protected?	
Have you marked all exposed underground cables and/or conduits with flags that are clearly visible from within all machinery used on-site?	
Have safety barriers, fencing or para-webbing been erected to protect staff and the public as well underground cables and/or conduits in areas that are at risk?	
Have safety barriers, fencing or para-webbing been erected to protect staff and the public as well underground cables and/ conduits in areas that are at risk?	

In the event of DAMAGE to Ausgrid's cable or conduits, call 13 13 88 immediately.
PROCEED with CAUTION

It is your responsibility to protect Ausgrid's cables and conduits from damage and your Duty of Care to protect your workers from harm or injury.

Signed: _____ **Date:** _____ / _____ / _____

Responsible person on site

For more information call 13 13 65 or visit www.ausgrid.com.au

Appendix F

Stormwater360 Maintenance Program

AT&L
ABN 96 130 882 405
REVISION 01

Our Waterways. Our future.

Periodic Maintenance Procedures – Stormwater Treatment Device

PROJECT: **06712 - 224-240 Pitt St & 4 Terminal Place, Merrylands** Prepared on: 12/03/2016

The procedures as listed below are set out as a guide only and do not take precedence over the manufactures' maintenance warranty procedures and Authority requirements

ENVIROPOD PIT INSERTS

Item	Period	Responsibility	Maintenance Procedure
Inspection	Monthly and after Major Storms	Owner	Follow procedure set out in the EnviroPod Operations Manual
Major Maintenance	4 months or as required	Maintenance Contractor	Follow procedure set out in the EnviroPod Operations Manual
Emergency Maintenance	As required	Maintenance Contractor	Follow procedure set out in the EnviroPod Operations Manual

STORMFILTER

Item	Period	Responsibility	Maintenance Procedure
Inspection – Minor Maintenance	12 monthly and after major storms	Maintenance Contractor	Follow procedure set out in StormFilter Operations Manual
Inspection – Major Maintenance	12 monthly and after major storms	Maintenance Contractor	Follow procedure set out in StormFilter Operations Manual
Major Maintenance Sediment Removal	12 months or as required	Maintenance Contractor	Follow procedure set out in StormFilter Operations Manual
Major Maintenance Cartridge Replacement	12 months or as required	Maintenance Contractor	Follow procedure set out in StormFilter Operations Manual

Harout Tcherkezian

Stormwater 360

NSW Office
PO Box 792, Botany, NSW 1455
Tel: 1300 354 722
Fax: 1300 971 566

QLD Office
PO Box 4471 Forest Lake QLD 4078
Tel: 1300 354 722
Fax: 1300 971 566

Email: enquiries@stormwater360.com.au
IES Stormwater P/L trading as Stormwater 360
ABN: 79 101 258 182
www.stormwater360.com.au

Appendix G

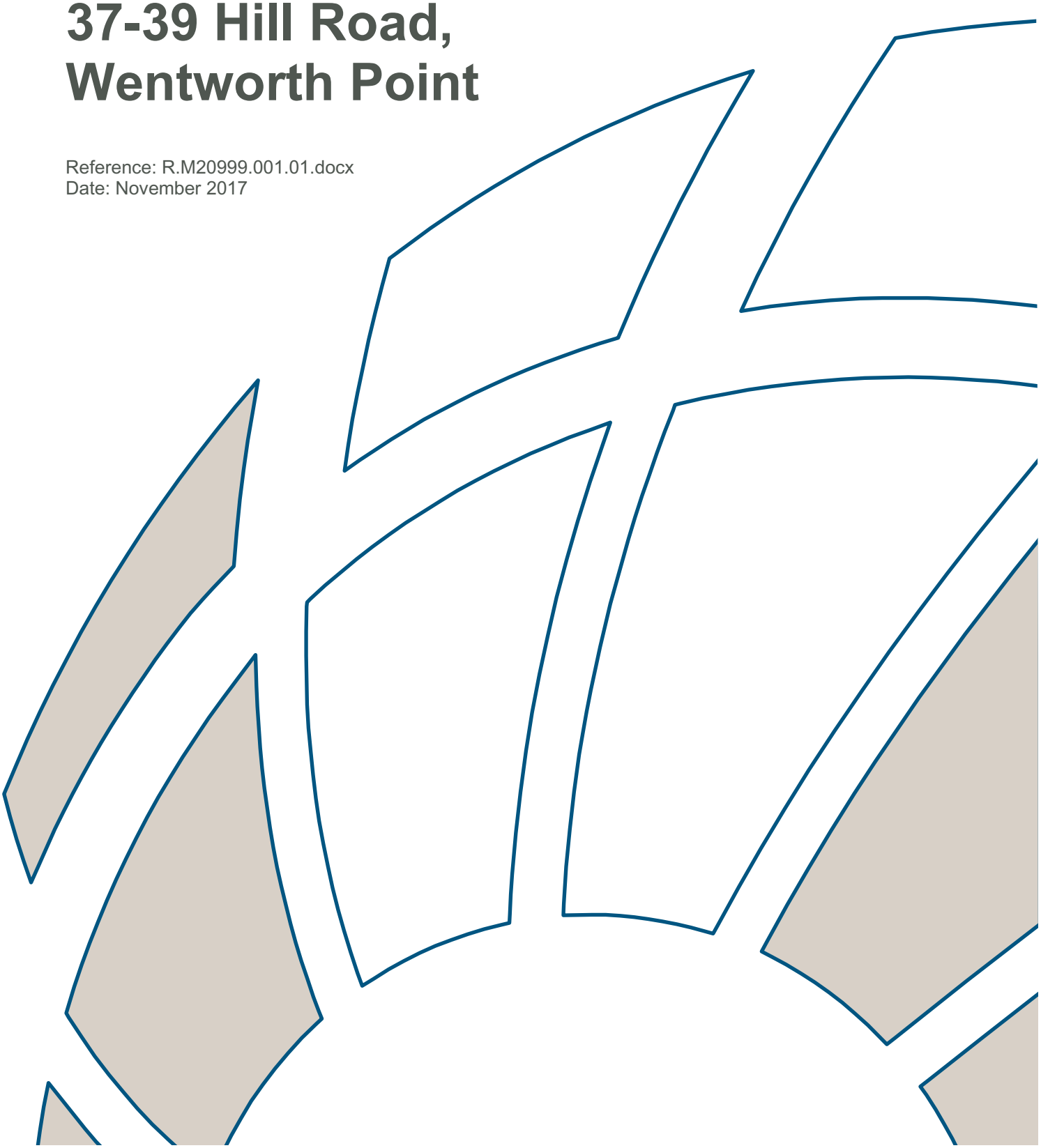
Flood Emergency Response Plan

AT&L
ABN 96 130 882 405
REVISION 01

BMT WBM

Flood Emergency Response Plan – 37-39 Hill Road, Wentworth Point

Reference: R.M20999.001.01.docx
Date: November 2017



Flood Emergency Response Plan – 37-39 Hill Road, Wentworth Point

Prepared for:	at&l
Prepared by:	BMT WBM Pty Ltd (Member of the BMT group of companies)

Offices

Brisbane
Denver
London
Mackay
Melbourne
Newcastle
Perth
Sydney
Vancouver

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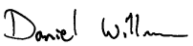
ABN 54 010 830 421

www.bmtwbm.com.au

Document:	R.M20999.001.01.docx
Title:	Flood Emergency Response Plan – 37-39 Hill Road, Wentworth Point
Project Manager:	Joel Leister
Author:	Joel Leister
Client:	at&I
Client Contact:	Glen James
Client Reference:	

Synopsis: **This document outlines a Flood Emergency Response Plan for 37-39 Hill Road Wentworth Point – Block D.**

REVISION/CHECKING HISTORY

Revision Number	Date	Checked by		Issued by	
0	15 Nov 17	D. Williams		J. Leister	
1	20 Nov 17	D. Williams		J. Leister	

DISTRIBUTION

Destination	Revision										
	0	1	2	3	4	5	6	7	8	9	10
at&I	PDF	PDF									
BMT WBM File	PDF	PDF									
BMT WBM Library	PDF	PDF									

Foreword

BMT WBM was engaged by at&l to prepare a Flood Emergency Response Plan (FERP) for the residential development at 37-39 Hill Road, Wentworth Point. This document describes a FERP for the Site (37-39 Hill Road, Wentworth Point) as a whole and assists owners with the preparation of an SES Home Emergency Plan for their individual residential unit. This approach was adopted due to the need for the unit specific plans to include personal information such as key emergency contacts and any occupant specific requirements (e.g. medical needs), which cannot be fully captured by this Plan.

Contents

List of Figures

List of Tables

1 Introduction

It is important to be prepared in the event of a flood. A Flood Emergency Response Plan (FERP) is required to ensure residents are suitably informed of the property specific flood risk, and what to do to prepare for a flood, and what to do during a flood.

This document details a FERP for the Site and assists owners with the preparation of an SES Home Emergency Plan for their individual residential unit. This approach was adopted due to the need for the unit specific plans to include personal information such as key emergency contacts and any occupant specific requirements (e.g. number of residents, medical needs, children and pets). It is recommended that each individual unit owner/occupant prepares a SES Home Emergency Plan (http://www.seshomeemergencyplan.com.au/index.php).

Being prepared for a flood event will help residents respond better and recover faster if a major flood event was to occur.

1.1 Glossary of Terms

Terms and expressions often referred to when discussing flooding behaviour, flood risk or floodplain management at a site are provided below.

Australia Height Datum (AHD)	National survey datum corresponding approximately to mean sea level.
annual exceedance probability (AEP)	The chance of a flood of a given size (or larger) occurring in any one year, usually expressed as a percentage. For example, if a peak flood discharge of 500 m^3/s has an AEP of 5%, it means that there is a 5% chance (i.e. a 1 in 20 chance) of a peak discharge of 500 m^3/s (or larger) occurring in any one year. (see also average recurrence interval)
average recurrence Interval (ARI)	The long-term average number of years between the occurrence of a flood as big as (or larger than) the selected event. For example, floods with a discharge as great as (or greater than) the 20yr ARI design flood will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event. (see also annual exceedance probability).
catchment	The catchment at a particular location is the area of land that drains to that point.
design flood event	A hypothetical flood representing a specific likelihood of occurrence (for example the 100yr ARI or 1% AEP flood).
development	Existing or proposed works that may or may not impact upon flooding. Typical works are filling of land, and the construction of roads, floodways and buildings.
flood	Relatively high river or creek flows, which overtop the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and inundate floodplains and/or local overland flooding associated with major drainage before entering a watercourse and/or coastal inundation resulting from super elevated sea levels and/or waves overtopping coastline defences.
flood hazard	The potential risk to life and limb and potential damage to property

	resulting from flooding. The degree of flood hazard varies with circumstances across the full range of floods.
flood level	The height or elevation of floodwaters relative to a datum (typically the Australian Height Datum). Also referred to as “stage”.
floodplain	Land adjacent to a river or creek that is periodically inundated due to floods. The floodplain includes all land that is susceptible to inundation by the probable maximum flood (PMF) event.
flood planning level (FPLs)	Flood Planning Levels selected for planning purposes are derived from a combination of the adopted flood level plus freeboard, as determined in floodplain management studies and incorporated in floodplain risk management plans. Selection should be based on an understanding of the full range of flood behaviour and the associated flood risk. It should also consider the social, economic and ecological consequences associated with floods of different severities. Different FPLs may be appropriate for different categories of land use and for different flood plans. The concept of FPLs supersedes the “standard flood event”. As FPLs do not necessarily extend to the limits of flood prone land, floodplain risk management plans may apply to flood prone land beyond that defined by the FPLs.
flood prone land	Land susceptible to inundation by the probable maximum flood (PMF) event. Under the merit policy, the flood prone definition should not be seen as necessarily precluding development.
floodplain management	The co-ordinated management of activities that occur on the floodplain.
floodplain risk management	A document outlining a range of actions aimed at improving floodplain management. The plan is the principal means of managing the risks associated with the use of the floodplain. A floodplain risk management plan needs to be developed in accordance with the principles and guidelines contained in the NSW Floodplain Management Manual. The plan usually contains both written and diagrammatic information describing how particular areas of the floodplain are to be used and managed to achieve defined objectives.
flood storage	Floodplain areas where floodwaters accumulate before being conveyed downstream. These areas are important for detention and attenuation of flood peaks.
floodway	Areas and flowpaths where a significant proportion of floodwaters are conveyed during a flood (including all bank-to-bank creek sections).
freeboard	A factor of safety usually expressed as a height above the adopted flood level thus determining the flood planning level. Freeboard tends to compensate for factors such as wave action, localised hydraulic effects and uncertainties in the design flood levels.
overland flow	Overland flow is surface run off before it enters a waterway. It is caused by rainfall which flows downhill along low points concentrating in gullies, channels, surface depressions and stormwater systems.
peak flood level, flow or velocity	The maximum flood level, flow or velocity that occurs during a flood event.

probable maximum flood (PMF)	An extreme flood deemed to be the maximum flood likely to occur.
runoff	The amount of rainfall from a catchment that ends up as flowing water in the river or creek.
velocity	The speed at which the floodwaters are moving. A flood velocity predicted by a 2D computer flood model is quoted as the depth averaged velocity, i.e. the average velocity throughout the depth of the water column. A flood velocity predicted by a 1D or quasi-2D computer flood model is quoted as the depth and width averaged velocity, i.e. the average velocity across the whole river or creek section.
water level	See flood level.

1.2 SES Home Emergency Plan

The NSW SES has developed an interactive online tool that residential property owners can use to prepare property (i.e. house/unit) specific Home Emergency Plans. Information on the interactive online tool can be found at the following locations:

http://www.floodsafe.com.au/make-an-emergency-plan/home-emergency-plan

http://www.seshomeemergencyplan.com.au

The interactive online tool asks the user a series of questions. Based on the responses to the questions, actions are listed for what to do before, during and after a flood event. Once all questions have been answered, the online tool produces an editable version of the Home Emergency Plan that can then be filled out by the occupant and used in the event of a flood emergency.

The SES Home Emergency Plan includes the following information:

- Local flood behaviour specific to the site
- Description of trigger levels linked to site evacuation
- List of people/animals to be included in the plan (i.e. list of people/animals that the homeowner is responsible for in the event of an emergency)
- Requirements and specific actions for elderly, disabled, vulnerable persons and young children
- Evacuation route to be followed in the event of a flood
- Contents of an emergency kit to be used in the event of a flood emergency
- What needs to be done to prepare your home in the event of a flood
- Information about what to do in the event of an evacuation warning
- Who to contact in the event of a flood emergency
- Actions to be followed immediately after and during the recovery phase of a flood event.

Most of the above information can be readily entered by the homeowner/occupant, or is automatically generated as part of the SES interactive online tool. However, some of the above information is not readily available. This document provides the information that is not readily available to an occupant, but can be added to an SES Home Emergency Plan at a later stage. The information contained in this document includes:

- Description of the local flood behaviour (including design flood event mapping) (to be used to complete the “Know Your Risk” section of the SES Home Emergency Plan)
- Evacuation considerations (to be used to complete the “Know where to go” and “Evacuating” sections of the SES Home Emergency Plan)
- List of key flood safety measures (to aid in the completion of the several sections of the SES Home Emergency Plan).

2 Development Description

The Site is located adjacent to the Parramatta River (Homebush Bay) and the finished surface levels are elevated from 2.0 through to 5.4 m AHD (Australian Height Datum), which varys from 0.1 to 1.5 metres higher than the existing surface.

The Site includes two stepped buildings ranging from 4-8 storeys which will accommodate approximately 207 apartments and townhouses, including carparking facilities, loading and waste management facilities.

The City of Parramatta has mandated that the minimum floor level for the development is 1.5 m AHD. This level is the Flood Planning Level (FPL), which is based on the 1% AEP peak flood level with an additional freeboard of 0.5 metres. Each apartment/townhouse has been designed and is structurally certified to be suitable for a H2 hazard rating (refer Figure 3-3 and Table 3-1) and to withstand the flood flows from a PMF event, including debris movement on site.

The development includes the construction of three split levels of carparks, one basement level, one partially above ground and one above ground. The entrance to the carpark is elevated at 3.0 m AHD[1]. The three bedroom townhouses located on the lowest level of the development along the Parramatta River frontage have a minimum floor level of 3.2 to 3.5 m AHD[1].

[1] Finished levels based on the drawings provided by at&l (ref: s12088_WentworthPt_BlockD_Plans_170707.pdf)

3 Local Flood Behaviour

The Site is potentially at risk from the following flooding mechanisms:

- Parramatta River flooding
- Local catchment overland flow flooding.

Each of the above flood mechanisms are discussed further below.

3.1 Parramatta River Flooding

The City of Parramatta commissioned the Lower Parramatta River Flood Management Study and Plan (LPRFMSP) (completed by SKM in 2005). This study reviewed and revised the previous flood study for the Lower Parramatta River (completed by Willing and Partners in 1986). The LPRFMSP included revised flood levels for the Parramatta River and its tributaries.

at&l submitted a flood enquiry application to the City of Parramatta. Based on the advice received, the key flood levels at the Site include:

- A 1% AEP flood level of 1.0 metres AHD
- A PMF level of 2.15 metres AHD.

Based on the above levels and the minimum floor level of 1.5 metres AHD, all residential units will be free of inundation during events up to and including the 1% AEP Parramatta River flooding design event. The lower levels of the development, including the entrance to the carpark will also remain flood free during the PMF event.

The information provided by the City of Parramatta indicates that the property is not likely to be affected by overland stormwater runoff from the local catchment.

3.2 Flood Hazard Mapping

To provide a better understanding of the flood risk near the Site, flood hazard mapping results are presented below. The LPRFMSP determined flood hazard based on the Floodplain Development Manual (NSW Government, 2005). The Floodplain Development Manual recommends defining the floodplain in two hazard categories (high hazard and low hazard, as shown in Figure 3-1). Figure 3-1 is reproduced from the LPRFMSP and is a slightly modified version of Figure L2 or the Floodplain Development Manual.

Based on the information provided by the City of Parramatta, the site has been categorised as being of low hazard.

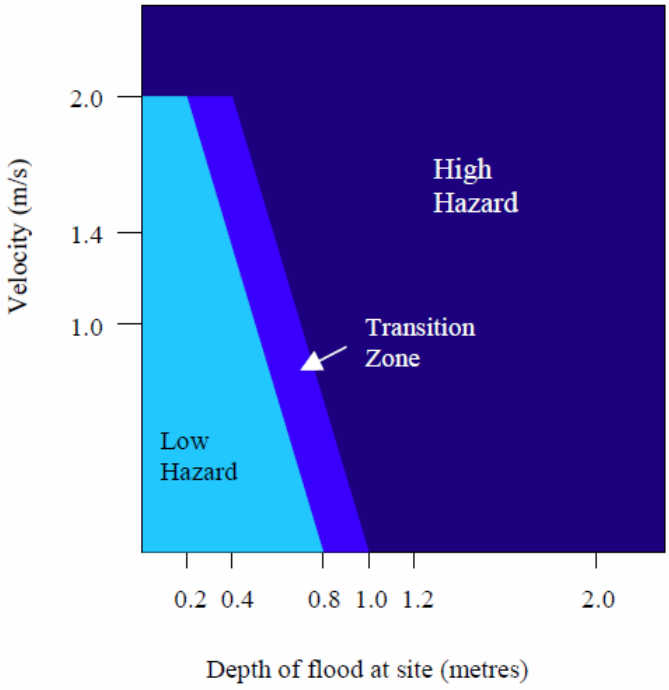


Figure 3-1 Provisional Hydraulic Hazard Categories

The floodplain development manual also requires consideration of the PMF, as well as the flood planning level, and so the hazard mapping needs to account for the increased flood hazards likely to occur during events larger than the 1% AEP flood event. Under this flood hazard classification, areas designated as being low hazard in the 1% AEP flood event would be defined as 'Medium Hazard' to account for the deeper and faster flowing water in these areas during larger flood events. The 'Low Hazard' area is defined as the difference between the 1% AEP flood events and the PMF extent. The LPRFMSP includes a hazard map detailing these three hazard categories (Figure 3-4 in LPRFMSP), and the site is still shown to be of a low hazard.

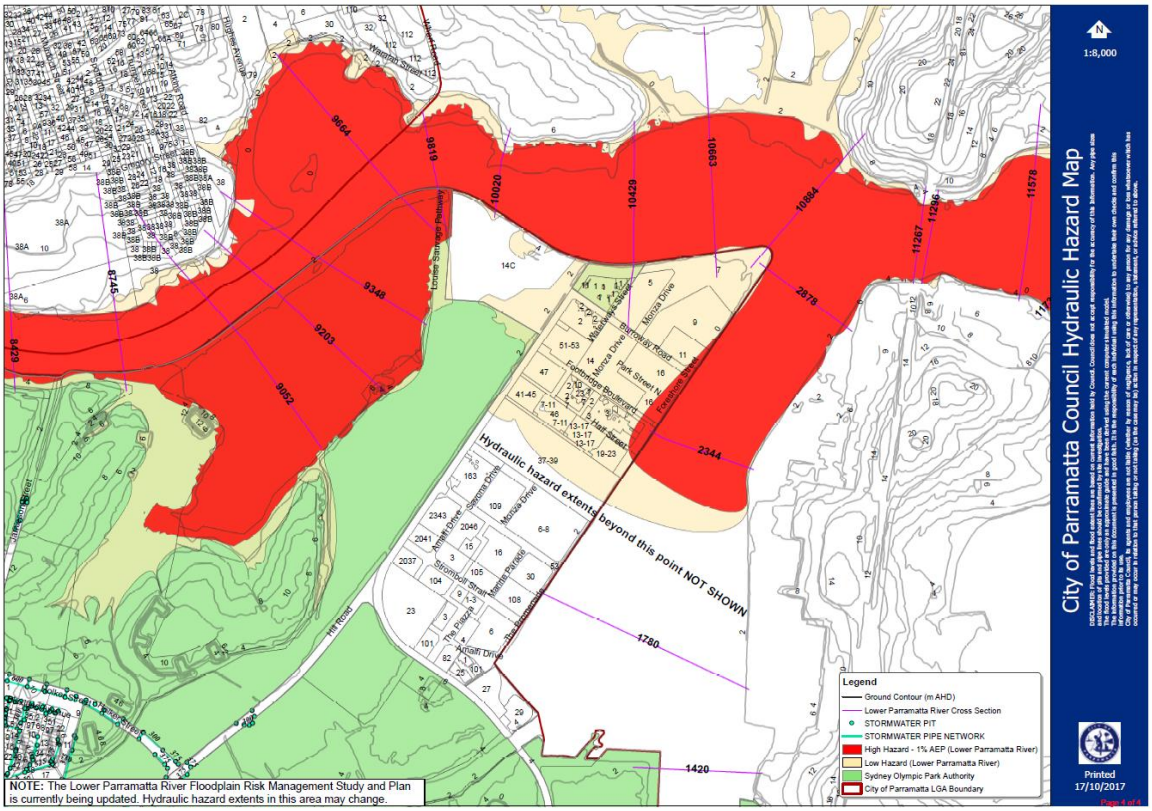


Figure 3-2 City of Parramatta Council Hydraulic Hazard Map

Since the development of the LPRFMSP, the Best Practice Flood Risk Management approach to flood hazard mapping (McLuckie et. al., 2014) has been developed which classifies the floodplain into six distinct hazard zones (H1 to H6) as shown in Figure 3-3, based on important thresholds of flood depth, velocity and depth-velocity product. The adopted thresholds identify when modelled flood conditions would present a risk to people, vehicles and building constructions. A description of each hazard threshold is provided in Table 3-1.

Table 3-1 Flood Hazard Classification Thresholds

Hazard Classification	Description
H1	Relatively benign flow conditions. No vulnerability constraints.
H2	Unsafe for small vehicles.
H3	Unsafe for all vehicles, children and the elderly.
H4	Unsafe for all people and vehicles.
H5	Unsafe for all people and vehicles. Buildings require engineering design and construction.
H6	Unconditionally dangerous. Not suitable for any type of development or evacuation access. All building types considered vulnerable to failure.

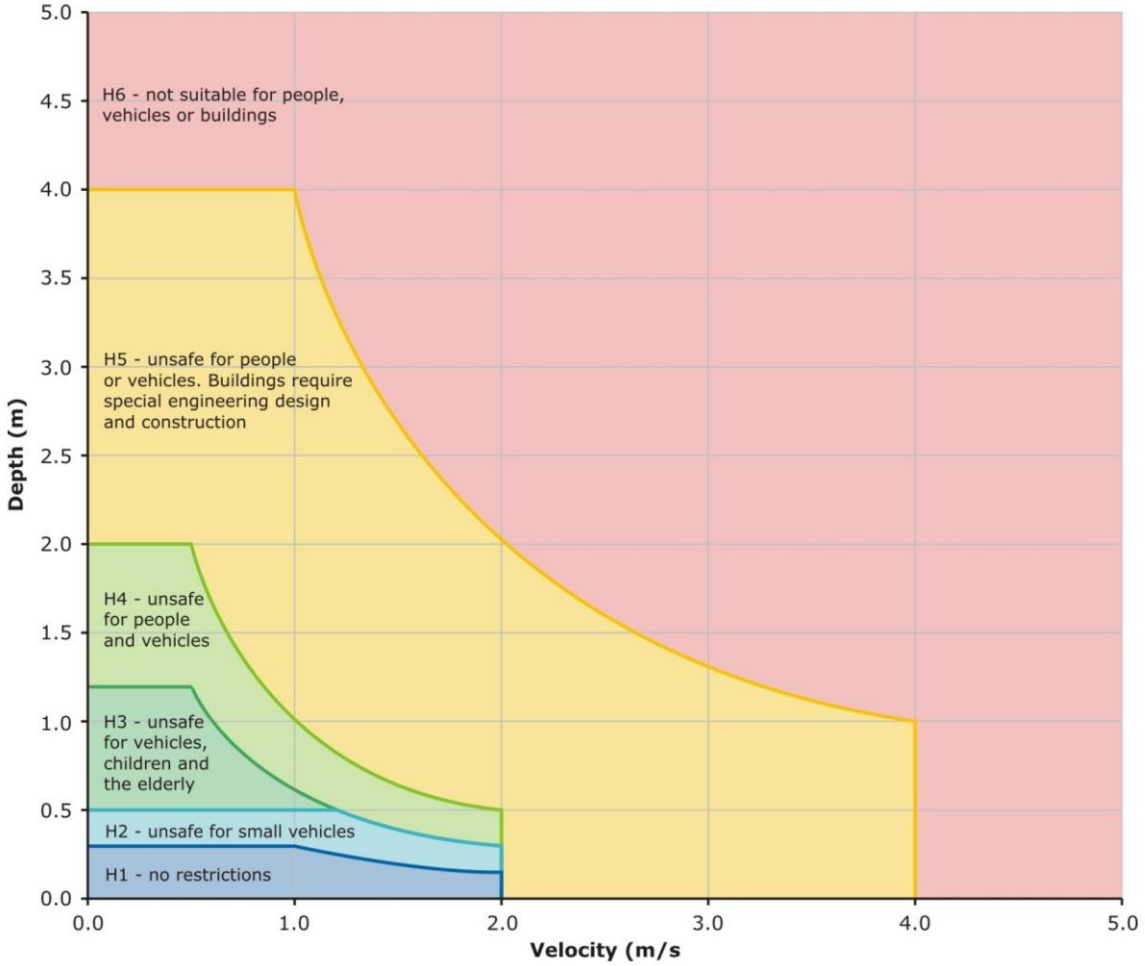


Figure 3-3 Flood Hazard Curves

Based on the flood hazard mapping from LPRFMSP, it can be assumed that the peak flood velocities are less than 2 m/s (flood velocities greater than 2 m/s would have resulted in the site being classified as a high hazard).

Based on the provided flood levels for the Site (1.0 m AHD for the 1% AEP flood event and 2.15 m AHD for the PMF event), and the provided design surface levels (171102 Tins WWP.DXF, provided by at&l on 3/11/2017), the expected flood depths can be determined. The flood depths have been determined based on the finished surface levels for the riverfront access to the proposed apartments. Whilst these apartments have a finished flood level varying between 3.2 to 3.5 m AHD, their primary access is via a public area with a finished level of 2.0 m AHD. Along this access point to the development, there is no 1% AEP flood hazard (the level is above the 1% AEP flood level) and the expected flood depth during the PMF is approximately 0.15 metres. Assuming a peak flood velocity of less than 2 m/s, this would result in the flood hazard being categorised as either H1 or H2. These apartments also have a secondary access via the carpark and internal corridors from the entrance lobbies of the building, which are set above the PMF level.

4 Evacuation Procedure

The LPRFMSP notes that the SES have advised the floods in the Parramatta River have been defined as being of 'flash flood' in nature. Flash floods are defined by the Bureau of Meteorology (BoM) as having a flood warning time of less than 6 hours. Whilst the BoM will issue warnings of heavy rainfall and hail, they will only issue a generalised flood warning for the Parramatta River. This warning will contain generalised statements advising that flooding is expected and may include a forecast trend (rising or falling river levels), however, these warnings will not include a height prediction.

Based on the flood behaviour near the Site during major flood events (see Section 3), there will be reasonable warning time available for safe evacuation. Floodwaters would likely begin inundating the Parramatta River frontage of the Site within an hour of the onset of flood producing rainfall. Floodwaters would then likely remain elevated for several hours until the levels within the Parramatta River begin to recede, allowing the ponded floodwaters across the low-lying floodplain area to the south to drain away.

The lower floor of each unit, and the carpark entrance will remain free from inundation during events up to and including the PMF design event. For the apartments along the river front with access to the Parramatta River frontage, if the flood event was substantial enough to result in some inundation of the common area (flood level greater than 2.0 m AHD), there is an alternative flood free egress path via the second-floor entrance to the carpark and then through the carpark to any one of the entry lobbies to the street (the lowest of which is set at 2.75 m AHD, a level above the PMF event).

Therefore, taking in to account the relatively short duration of floodwaters blocking one of two exits for 13 (out of 207) apartments and townhouses via the common area to the south of Block D and located along the Parramatta River, there would be no need to evacuate the Site or seek an on-site refuge location above the lowest habitable floor level during events up to and including the equivalent of the PMF event. However, if required, safe evacuation is possible for all apartments and townhouses their secondary access points, via the carpark and entry lobbies, which remains flood free for all events up to and including the PMF event.

5 Before a Flood

Outlined below are several flood safety measures to be followed before a flood. Guidance on how to address each measure is included in the NSW SES interactive online tool, with supporting information provided in this document.

- Using the information contained in this document, in conjunction with property specific information such as resident details and key contact person/s, prepare a NSW SES Home Emergency Plan (http://www.seshomeemergencyplan.com.au)
- Prepare an Emergency Flood Kit (i.e. first aid kit, torches, batteries, bottled water, non-perishable food items, important documents, medication; blankets and spare clothes) as detailed in the NSW SES Home Emergency Plan
- In case of a night time flood event, locate your NSW SES Home Emergency Plan and Emergency Flood Kit in an accessible location and utilise torches and other emergency lighting as required
- Identify the needs of any vulnerable persons likely to be on-site in the event of a flood emergency (i.e. elderly, disabled, young children) and include instructions in the NSW SES Home Emergency Plan to address these needs (e.g. identify a care support person to provide assistance in the event of a flood etc.)
- Inspect the property for available elevated areas where animals, hazardous substances, furniture, equipment and belongings can be relocated to.
- Locate utilities such as gas, water, and electricity and note their elevations in relation to the premises and surroundings in the NSW SES Home Emergency Plan
- It is recommended that multiple communication media are maintained on Site (e.g. internet, mobile phone, landline phone, radio, satellite phone etc.) so that if one communication platform fails there is a redundancy in place to maintain effective communication with emergency services during a flood event
- Communicate to all family members and/or occupants of the premises the NSW SES Home Emergency Plan, location of the Emergency Flood Kit, and discuss the risk of flooding to the site, contact/communication methods, and actions to take before, during and after a flood event.

6 During a Flood

Outlined below are a few key flood safety measures to be followed during a flood. Guidance on how to address each measure is included in the NSW SES interactive online tool, with supporting information provided in this document.

- During storm events monitor the BoM website for warnings, ABC radio broadcasts, local emergency services social media pages, and local news outlets
- Follow the procedures outlined in this document and details contained in the developed NSW SES Home Emergency Plan and locate the Emergency Flood Kit
- Follow all advice and instructions given to you by emergency services
- Ensure all occupants on-site are informed and in agreeance on the shelter in place approach, and that the Emergency Flood Kit has been collected
- Turn off all utilities possible and relocate belongings to higher ground above the predicted flood level if possible (i.e. second floor of unit).

7 References

McLuckie et. al (2014). *Updating National Guidance on Best Practice Flood Risk Management*

NSW Government (2005). *Floodplain Development Manual*

NSW SES (2017). *NSW SES Home Emergency Plan*. http://www.seshomeemergencyplan.com.au.

SKM (2005). *Lower Paramatta River Flood Management Study and Plan*

Appendix A SES Home Emergency Plan

The NSW SES has developed an interactive online tool that households can use to prepare site specific Home Emergency Plans. Information on the interactive online tool can be found at the following web address:

http://www.seshomeemergencyplan.com.au/index.php

Outlined below is an overview of what you will need to complete your plan, and the steps involved in developing your plan (content taken from the above web address).

SES Home Emergency Plan Checklist (What you will need to complete your plan)

- Your postcode
- Knowledge of the geographical location of where you live e.g. city/suburb/country/rural, coastal near rivers, tropical etc.
- The type of residence you live in
- Who lives with you
- Who else you care for outside of your household
- A list of all pets, companion animals and assistance animals living in your household
- A list of all animals you own not living on your property
- Contact numbers of family, friends and emergency services
- Contact numbers of your service providers (electricity, gas and water)
- Your email address
- A willingness to put the plan into action and practice
- A waterproof document holder.

How to make your SES Home Emergency Plan

- The Home Emergency Plan will ask you a few questions about where you live
- These questions will help build a framework for your Home Emergency Plan
- You can move backwards or forwards through the builder by clicking on the arrows at the right or left of the main image
- Select the appropriate response and move through the Steps to develop your Home Emergency Plan
- There are information icons throughout the steps to help you complete your plan
- At the end you can email your plan or download a PDF or word version. By downloading a word version, you can customise and edit your plan to suit your home situation

- Although the focus of the Home Emergency Plan is on preparing for, responding to and recovering from flood, storm and tsunami, there are referrals throughout the plan to fire related services where you can supplement this plan with fire related plans for your home.

BMT WBM Bangalow
6/20 Byron Street, Bangalow 2479
Tel +61 2 6687 0466 Fax +61 2 66870422
Email bmtwbm@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Brisbane
Level 8, 200 Creek Street, Brisbane 4000
PO Box 203, Spring Hill QLD 4004
Tel +61 7 3831 6744 Fax +61 7 3832 3627
Email bmtwbm@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Denver
8200 S. Akron Street, #B120
Centennial, Denver Colorado 80112 USA
Tel +1 303 792 9814 Fax +1 303 792 9742
Email denver@bmtwbm.com
Web www.bmtwbm.com

BMT WBM London
International House, 1st Floor
St Katharine's Way, London E1W 1AY
Email london@bmtwbm.co.uk
Web www.bmtwbm.com

BMT WBM Mackay
PO Box 4447, Mackay QLD 4740
Tel +61 7 4953 5144 Fax +61 7 4953 5132
Email mackay@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Melbourne
Level 5, 99 King Street, Melbourne 3000
PO Box 604, Collins Street West VIC 8007
Tel +61 3 8620 6100 Fax +61 3 8620 6105
Email melbourne@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Newcastle
126 Belford Street, Broadmeadow 2292
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Email newcastle@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Perth
Level 3, 20 Parkland Road, Osborne, WA 6017
PO Box 1027, Innaloo WA 6918
Tel +61 8 9328 2029 Fax +61 8 9486 7588
Email perth@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Sydney
Suite G2, 13-15 Smail Street, Ultimo, Sydney 2007
Tel +61 2 8960 7755 Fax +61 2 8960 7745
Email sydney@bmtwbm.com.au
Web www.bmtwbm.com.au

BMT WBM Vancouver
Suite 401, 611 Alexander Street
Vancouver British Columbia V6A 1E1 Canada
Tel +1 604 683 5777 Fax +1 604 608 3232
Email vancouver@bmtwbm.com
Web www.bmtwbm.com

Appendix H

PCC Flood Results

AT&L
ABN 96 130 882 405
REVISION 01

Our Reference: FL/146/2017
Contact: Peter Sirianni
Telephone: 02 9806 8250
Fax: 02 9806 5906

Glen James
AT & L
Level 7, 153 Walker Street
NORTH SYDNEY NSW 2060

4 October 2017

FLOOD ENQUIRY APPLICATION

Property Details

Address	37-39 Hill Road, WENTWORTH POINT NSW 2127
	This form applies for up to three adjoining sites relating to the same development. A separate Flood Enquiry form and fee will be required for more than 3 or separate lots.

Delivery Preference

glen@atl.net.au

Reason for Enquiry

Proposed Re-development

Property Type

***** GST not applicable from 1 July 2013*****

Flooding Application - Development Duplex	$275.00

Disclaimer: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
The flood levels shown on the back of this form are only an approximate guide and have been derived using the current computer simulated model.
The information provided in this document is presented in good faith to assist the public in understanding Council's drainage requirements that apply within the Parramatta Local Government Area. It is the responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use.
City of Parramatta Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Refer to back of this form for level information issued

Flood Enquiry Information Issued - 17 October 2017

Mainstream Flooding

Is this property affected by mainstream flooding? **37-39 Hill Road, Wentworth Point**			☒ Yes ☐ No
Flood Levels	Closest Cross Sections: *(Please refer to Flood Study):* **Refer to Flood Map**		
☒ 5% AEP	RL 0.9	m AHD	**Comments**: **See Note on Flood/Hazard Map**
☒ 1% AEP	RL 1	m AHD	
☒ PMF	RL 2.15	m AHD	
☒ Refer to flood maps provided for detailed flood levels.			
Flood information is obtained from the following flood study report: **Lower Parramatta River Floodplain Risk Management Study – Flood Study Review, 2005 (SKM)**			

Note: Flood inundation can be verified by detail survey to AHD undertaken by a Registered Surveyor.

Local Flooding

Is the property located within a Hatched Grey Area? *Properties located within a **Hatched Grey Area** are subjected to flooding from the local catchment.*	☐ Yes ☒ No
Is the property located within a Grey Area? *Properties located within a **Grey Area** are subjected to additional site drainage controls to manage flooding in the local catchment.*	☐ Yes ☒ No
Is the property likely to be affected by overland stormwater run-off from the local catchment? ***Note:** No site inspection conducted for this assessment. Based solely on the information supplied for this flood enquiry application.*	☐ Yes ☒ No
***Note:** You are required to contact Council's Development Service Engineer for any details and requirements relating to development that is affected by local flooding.*	

Additional Recommended Actions

☒	The Applicant needs to discuss the proposal to re-develop this site with Council's Town Planner and Development Services Engineer.
☒	The Applicant needs to contact Council's Town Planner and organise a pre-lodgement meeting to discuss any proposal to redevelop this property.
☒	The Applicant needs to refer to Council's Local Floodplain Risk Management policy for details relating to developing a land affected by flooding.

Definitions: (As per NSW Floodplain Development Manual dated April 2005)

1. **AHD** – a common national surface level datum approximately corresponding to mean sea level.
2. **ARI** – the long term average number of years between the occurrences of a flood as big as or larger than, the selected event.
3. **PMF** – is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation.
4. **AEP** – Annual Exceedance Probability is the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage.

City of Parramatta ABN 49 907 174 773
126 Church Street, Parramatta PO Box 32, Parramatta NSW 2124
P 02 9806 5050 F 02 9806 5917 www.parracity.nsw.gov.au

Chainage	Flood Level (metre AHD)		
	5% AEP	1% AEP	PMF
1420	0.91	1.01	2.20
1780	0.91	1.0	2.17
2344	0.91	0.99	2.13
2878	0.91	0.99	2.14
9052	1.39	1.67	3.42
9203	1.28	1.54	3.28
9348	1.20	1.42	3.00
9644	1.22	1.44	3.07
9.819	1.13	1.31	2.79
10020	1	1.13	2.42
10429	0.99	1.12	2.41
10.663	0.95	1.05	2.3
10884	0.9	0.98	2.16

NOTE: The Lower Parramatta River Floodplain Risk Management Study and Plan is currently being updated. Flood levels in this area may change.

Inundation extents beyond this point NOT SHOWN
Refer to flood levels

Legend
- Ground Contour (m AHD)
- Lower Parramatta River Cross Section
- STORMWATER PIT
- STORMWATER PIPE NETWORK
- 5% AEP Flood (Lower Parramatta River)
- 1% AEP Flood (Lower Parramatta River)
- PMF (Lower Parramatta River)
- Sydney Olympic Park Authority
- City of Parramatta LGA Boundary

N
1:8,000

City of Parramatta Council Flood Map

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this Information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
The flood levels provided are only an approximate guide and have been derived using the current computer simulated model.
The information provided on this document is presented in good faith. It is the responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use.
City of Parramatta Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Printed
17/10/2017

City of Parramatta Council Hydraulic Hazard Map

N

1:8,000

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this Information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
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Hydraulic hazard extents beyond this point NOT SHOWN

NOTE: The Lower Parramatta River Floodplain Risk Management Study and Plan is currently being updated. Hydraulic hazard extents in this area may change.

Legend

- Ground Contour (m AHD)
- Lower Parramatta River Cross Section
- STORMWATER PIT
- STORMWATER PIPE NETWORK
- High Hazard - 1% AEP (Lower Parramatta River)
- Low Hazard (Lower Parramatta River)
- Sydney Olympic Park Authority
- City of Parramatta LGA Boundary

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