This plan has been prepared only for the purpose of obtaining preliminary subdivsional approval from the local authority and is subject to that approval.

All measurements and areas are subject to the final survey.

Base image by TASMAP (www.tasmap.tas.gov.au), © State of Tasmania
Base data from the LIST (www.thelist.tas.gov.au), © State of Tasmania

SEE BELOW FOR PROPOSED SERVICES CONNECTION THROUGH 46 CHARLES STREET

CURRENT SUBDIVISION PROPOSAL
46 CHARLES STREET
CT.252719/5

existing buildings to be removed

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

#48

0m 15m 30m 45m 60m

1:600

Sewer M/H
Top 18.34
Inv 17.28

existing brick unit

CHARLES STREET

TBM R/S
17.01

RIGHT OF WAY (PRIVATE)
'C' & 'D' 3.60 WIDE and PIPELINE AND SERVICES EASEMENT VARIABLE WIDTH

p & w fence ±40yrs

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

paling fence ±20yrs 18.0

picket fence ±20yrs

existing brick unit

existing house

RIGHT OF WAY (PRIVATE)
'A' & 'B' 3.60 WIDE and PIPELINE AND SERVICES EASEMENT & DRAINAGE EASEMENT VARIABLE WIDTH

paling fence ±20yrs

paling fence ±20yrs

MARY STREET

8 730m²
7 667m²
6 1050m²
2 942m²
1 975m²
5 1018m²
4 725m²
3 731m²

proposed new access

proposed new access

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

p & w fence ±40yrs

PROSSER STREET

#38 #5 #3 #40 #44 #42 #46 #48

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

CURRENT SUBDIVISION PROPOSAL
46 CHARLES STREET
CT.252719/5

existing buildings to be removed

LANDSLIDE HAZARD AREA (LOW)

Development Standards for Subdivision

10.6.1 General Residential

A1-Lot sizes comply.

A2- a) Complies - clear of setbacks
b) Complies - no codes impacted except part of Lot 3 & 8 low risk landslide overlay
c) Complies - clear of easements and restrictions
d) Complies -
e) Complies - within 20° W and 30° North
f) Complies - A 10mx15m rectangle will fit.

A3-Internal Lots.

A4-Internal Lots.

P4- a) to e) Complies
f) Complies - access is via a 3.6m wide access strip or ROW
g) Complies
h) Complies - total of 4 access strips side by side
i) Complies
j) Complies

A5-Does not comply. P5 will comply.

THIS PROPOSAL PLAN MUST BE READ IN CONJUNCTION WITH DESIGN AND ENGINEERING PLANS PROVIDED BY OTHERS. THE BEST EFFORT HAS BEEN MADE TO PROVIDE AS MUCH DETAIL AS POSSIBLE WITHOUT OVERCOMPLICATING THIS PLAN

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B	LANDSLIDE OVERLAY	SH	15-05-20	SH
A	EASEMENTS UPDATED PER ENGINEERING DRAWINGS	SH	27-03-20	SH

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

OWNER: A.C.N. 625 477 054 PTY LTD
TITLE REFERENCE: C.T.135657/2
LOCATION: 52 CHARLES STREET ORFORD

Proposed Subdivision

Date:	Reference:
23-01-2020	BURJO01 11131-03
Scale: 1:600 (A3)	Municipality: GLAMORGAN/SPRINGBAY

Structures for removal

52 Charles Street, ORFORD.

View of both structures

52 CHARLES STREET, ORFORD

SUBDIVISION

BUSHFIRE HAZARD MANAGEMENT PLAN AND REPORT

Version:	2
Date:	26 May 2020
Author:	Jacqui Blowfield
Accreditation Number:	BFP – 102

49 Tasma Street, North Hobart, TAS 7000
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CONTENTS

1. INTRODUCTION

1.1 AUTHOR STATEMENT

I am an Accredited Person under Section 60B of the Fire Services Act 1979 (Accreditation number BFP – 102) with scope of work - 1, 2, 3A, 3B and 3C.

The assessment undertaken and opinions expressed within this Bushfire Hazard Management Plan and Report have been undertaken by the author, based on a site visit undertaken on 3 October 2018 and the additional desktop information available.

This report is a review and amendment of a previous assessment from May 2019.

1.2 LIMITATIONS

The assessments within this report have been undertaken in accordance with the provisions of *Australian Standard 3959 Construction of buildings in bushfire-prone areas,* E1.0 Bushfire-Prone Areas Code (Interim Planning Schemes as amended 1 September 2017) and the Director's Determination – Requirements for Building in Bushfire-Prone Areas (transitional) (16 March 2020).

The Bushfire Attack Level assessment detailed within the Bushfire Hazard Management Report has been undertaken, in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire-prone areas*, this Standard provides as follows:

> *"This Standard is primarily concerned with improving the ability of buildings in designated bushfire-prone areas to better withstand attack from bushfire thus giving a measure of protection to the building occupants (until the fire front passes) as well as to the building itself.*
>
> *Improving the design and construction of buildings to minimize damage from the effects of bushfire is but one of several measures available to property owners and occupiers to address damage during bushfire…*
>
> *The measures set out in this Standard to improve construction, and thus better equip a building to withstand the effects from bushfire, may also be used as a guide for those who wish to voluntarily adopt such measures in situations where regulatory compliance is not mandated.*
>
> ***...It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions…"***[1]

[1] Forward, AS3959-2018

The Bushfire Attack Level (BAL) Assessment undertaken is, in accordance with AS3959-2018[2], has utilised a Fire Danger Index (FDI) of 50. On days where the forecast Fire Danger Rating is Severe, Extreme or Catastrophic the FDI is predicted to exceed 50.

The assessment of vegetation within 100m of the site is based the qualities of the vegetation on the day of inspection and does not provide for changes in classification due to unanticipated growth or vegetation planting beyond the management areas described on the Bushfire Hazard Management Plan, or failure to maintain management areas described in a minimal fuel condition.

The Bushfire Hazard Management Plan is to be read together with the entirety of this report. Copies of this report, in its entirety, should be provided to all current and future owners of the subject land.

[2] Clause 2.2, AS3959-2018

2. BUSHFIRE HAZARD MANAGEMENT PLAN

2.1 SITE DETAILS

Address: 52 Charles Street, Orford

PID: 2041930

Title Reference: 135657/2

Lot Area: 6838m^2

The location of the subject site is described in the following figure:

Figure 1: Location Plan - Cadastre, services & topographic from www.theLIST.tas.gov.au © The State of Tasmania

For additional detail on the site and surrounds refer to the Bushfire Hazard Management Report in Part 3.

2.2 PROPOSAL DESCRIPTION

The development proposed is for a residential subdivision of the existing title in to 8 lots with areas ranging from 667m^2 to 1050m^2.

The plan detailing the proposal is included as Attachment 2.

2.3 THE PLAN

The Bushfire Hazard Management Plan is attached as Attachment 3.

3. BUSHFIRE HAZARD MANAGEMENT REPORT

3.1 PROPOSAL

The development proposed is a residential subdivision creating 8 lots between 667m^2 and 1050m^2 in area from the existing title.

3.2 SITE ANALYSIS

The following section provides a description of the characteristics of the land and adjacent land.

3.2.1 LOCALITY

The subject lot incudes an access strip with frontage to Charles street at the eastern boundary, and the body of the lot with frontage to Mary Street at the west.

The proposed subdivision locates 2 lots arranged to share the existing access strip to Charles Street and the remaining 6 lots to be accessed from Mary Street. Much of the site is surrounded with existing residential development however undeveloped areas are located generally upslope to the west as described in the following figure.

Figure 2: Site and surrounds with Cadastre, services and ESRI imagery from www.theLIST.tas.gov.au © The State of Tasmania

3.2.2 PLANNING

The subject land is within the *Glamorgan-Spring Bay Interim Planning Scheme 2015*, the land neighbouring land to the south, east and north is zoned General Residential. Land to the west on the opposite side of Mary Street is zoned Low Density Residential with land further to the west and southwest zoned Rural Resource. The following figure details these existing zones:

Figure 3: Zoning plan with Cadastre and zones from www.theLIST.tas.gov.au © The State of Tasmania

3.2.3 TOPOGRAPHY AND ORIENTATION

The land has a gentle to moderate slope from Mary street in the west down to Charles Street, with an average grade of around 9º. To the west of the site, above Mary Street the land rises more steeply to the treed range west.

The land is therefore generally oriented to overlook the existing residential development along Charles Street and further to the east to the coast.

3.2.4 VEGETATION DESCRIPTION

The site and surrounds are mapped as urban areas in the TASVAG mapping available, reflecting the existing development and past clearing of the land, beyond these areas the native community mapped to the west is DPU - *Eucalyptus pulchella* forest and woodland.

3.2.5 SITE PHOTOS

The following images further describe the site and surrounds:

Figure 4: Charles Street access to site

Figure 5: Site viewed west from end of existing Charles St access

Figure 6: Site including existing building viewed from eastern end

Figure 7: View toward adjoining land north

Figure 8: View toward adjoining land south

Figure 9: Body of the subject site viewed from the western end

Figure 10: Upslope land west of Mary Street

Figure 11: Mary Street viewed north

3.2.6 SITE ANALYSIS PLAN

The following fugure further details the assessed conditions of the site and surrounds:

Figure 12: Site analysis with base plan cadastre and aerial image from www.theLIST.tas.gov.au © The State of Tasmania

The analysis plan above describes the existing residential developed areas within the area surrounding the site as well as the bushfire prone land on the western side of Mary Street above the subject land, and some undeveloped residential lots.

The existing site in its undeveloped state forms part of contiguous vegetation in excess of 1ha in area, with the less managed potentially woodland areas of the adjoining site to the north, and the potentially grassland area of the adjoining site to the south beyond the area within cultivated gardens.

If the subject land is managed through the BHMP any remnant areas of vegetation adjoining to the north and south will no longer be contiguous (being separated from each other and from the land to the west by the road reservation) and be each less than 1ha in area.

These remnant areas will therefore no longer meet the definition as bushfire prone once the subject land is managed through the BHMP.

3.3 BUSHFIRE ATTACK LEVEL ASSESSMENT

3.3.1 TYPE OF DEVELOPMENT OR WORK ASSESSED

Subdivision of land assessed property boundaries

3.3.2 EXCLUSIONS – LOW THREAT VEGETATION AND NON-VEGETATED AREAS

In accordance with Clause 2.2.3.2 of AS 3959-2018:

The following vegetation shall be excluded from a BAL assessment:

(a) Vegetation of any type that is more than 100m from the site.

(b) Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.

(c) Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site, or each other or of other vegetation being classified vegetation.

(d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of the length and not within 20m of the site or each other, or other areas of vegetation being classified vegetation.

(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.

(f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantation, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

NOTES:

1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognisable as short-cropped grass for example, to a nominal height of 100mm).

2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

As detailed above existing residential areas as well as adjoining vegetated areas will meet the requirements to be considered as Low Threat vegetation once the subject land in managed through the BHMP.

3.3.3 ASSESSMENT TABLE

Undertaken for the building areas of the subdivision lots in accordance with the BHMP.

VEGETATION WITHIN 100m				
Vegetation classification	**North**	**South**	**East**	**West**
	Northeast	Southwest	Southeast	Northwest
Group A - Forest				
Group B - Woodland				✓
Group C - Shrubland				
Group D - Scrub				
Group E –Mallee / Mulga				
Group F - Rainforest				
Group G - Grassland				
Group H – Tussock moorland				
Exclusions (where applicable) from clause 2.2.3.2.	✓	✓	✓	
DISTANCE OF THE SITE FROM CLASSIFIED VEGETATION (see clause 2.2.4)				
Distance to classified vegetation	Distances in metres			
	>100	>100	>100	>28m
EFFECTIVE SLOPE OF LAND UNDER THE CLASSIFIED VEGETATION				
Slope under the classified vegetation	Upslope			
	Upslope/0º		Upslope/0º ✓	Upslope/0º		Upslope/0º ✓
	Downslope			
	>0 to 5º		>0 to 5º	>0 to 5º		>0 to 5º
	>5 to 10º ✓		>5 to 10º	>5 to 10º ✓		>5 to 10º
	>10 to 15º		>10 to 15º	>10 to 15º		>10 to 15º
	>15 to 20º		>15 to 20º	>15 to 20º		>15 to 20 º
BAL for each side	**LOW**		**LOW**	**LOW**		**BAL12.5**

Notes: This assessment is based on a FDI of 50, on days where fire danger is classified as Severe, Extreme or Catastrophic the exceed FDI 50.

3.3.4 SITE ASSESSED BUSHFIRE ATTACK LEVEL

The building areas within the subdivision are assessed as either **BAL 12.5** or **BAL LOW** as detailed on the BHMP.

For construction measure relevant for BAL 12.5 refer to Section 5 of AS 3959-2018.

BAL LOW classification does not require specific construction standards for compliance with AS 3959-2018, however this does not mean that there is no hazard.

3.4 BUSHFIRE-PRONE AREAS CODE

The Bushfire Prone Areas Code applies to applications relating to sensitive uses, hazardous uses and subdivision. The Code is therefore relevant to the proposal.

3.4.1 RELEVANT DEFINITIONS

Bushfire Prone Areas Code includes the following definitions specifically relevant to the following assessment:

bushfire attack level (BAL)	*means the bushfire attack level as defined in AS3959-2009 Construction of buildings in bushfire-prone areas.*
bushfire protection measures	*means the measures that might be used to reduce the risk of bushfire attack and the threat to life and property in the event of bushfire.*
bushfire-prone area	*means:* *(a) land that is within the boundary of a bushfire-prone area shown on an overlay on a planning scheme map; or* *(b) where there is no overlay on a planning scheme map, land that is within 100m of an area of bushfire-prone vegetation equal to or greater than 1ha.*
bushfire-prone vegetation	*means contiguous vegetation including grasses and shrubs but not including maintained lawns, parks and gardens, nature strips, plant nurseries, golf courses, vineyards, orchards or vegetation on land that is used for horticultural purposes.*
carriageway	*means the section of road formation which is used by traffic, and includes all the area of the traffic lane pavement together with the formed shoulders.*
contiguous	*means separated by less than 20m.*
fire fighting water point	*means the point where a fire appliance is able to connect to a water supply for fire fighting purposes. This includes a coupling in the case of a fire hydrant, offtake or outlet, or the minimum water level in the case of a static water body.*
fire hydrant	*means as defined in Australian Standard AS 2419.1-2005 Fire hydrant installations, Part 1: System design, installation and commissioning.*
hardstand	*means as defined in Australian Standard AS 2419.1-2005 Fire hydrant installations, Part 1: System design, installation and commissioning.*
hazard management area	*means the area, between a habitable building or building area and bushfire-prone vegetation, which provides access to a fire front for fire fighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire.*
hose lay	*means the distance between two points established by a fire hose laid out on the ground, inclusive of obstructions.*
property access	*means the carriageway which provides vehicular access from the carriageway of a road onto land, measured along the centre line of the carriageway, from the edge of the road carriageway to the nearest point of the building area.*

3.4.2 USE OR DEVELOPMENT EXEMPT FROM THIS CODE (E1.4)

The following development is exempt from this Code:

USE OR DEVELOPMENT EXEMPT
(a) any use or development that the TFS or an accredited person, having regard to the objective of all applicable standards in this code, certifies there is an insufficient increase in risk to the use or development from bushfire to warrant any specific bushfire protection measures; and
(b) adjustment of a boundary in accordance with clause 9.3 of this planning scheme.

The development proposed is not exempt.

3.4.3 USE STANDARDS FOR VULNERABLE USES (E1.5.1)

The proposal is not for a vulnerable use.

3.4.4 USE STANDARDS FOR HAZARDOUS USES (E1.5.2)

The proposal is not for a hazardous use.

3.4.5 DEVELOPMENT STANDARDS SUBDIVISION: PROVISION OF HAZARD MANAGEMENT AREAS (E1.6.1)

***Objective**: Subdivision provides for hazard management areas that:*

(a) facilitate an integrated approach between subdivision and subsequent building on a lot;

(b) provide for sufficient separation of building areas from bushfire-prone vegetation to reduce the radiant heat levels, direct flame attack and ember attack at the building area; and

(c) provide protection for lots at any stage of a staged subdivision.

CODE STANDARD	DEVELOPMENT RESPONSE
A1 *(a) TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant the provision of hazard management areas as part of a subdivision; or* *(b) The proposed plan of subdivision:* *(i) shows all lots that are within or partly within a bushfire-prone area, including those developed at each stage of a staged subdivision;* *(ii) shows the building area for each lot;* *(iii) shows hazard management areas between bushfire-prone vegetation and each building area that have dimensions equal to, or greater than, the separation distances required for BAL 19 in Table 2.4.4 of Australian Standard AS 3959 – 2009 Construction of buildings in bushfire-prone areas; and* *(iv) is accompanied by a bushfire hazard management plan that addresses all the individual lots*	The BHMP requires the entire area of the subdivision be managed as low threat vegetation. Building areas extend to lot boundaries but remain separated from bushfire prone vegetation by separation in excess of the requirements for BAL 19 and therefore meet the requirements of A1(b). There is no requirements for an HMA external to the land in accordance with A1(c).

and that is certified by the TFS or accredited person, showing hazard management areas equal to, or greater than, the separation distances required for BAL 19 in Table 2.4.4 of Australian Standard AS 3959 – 2009 Construction of buildings in bushfire-prone areas; and *(c) If hazard management areas are to be located on land external to the proposed subdivision the application is accompanied by the written consent of the owner of that land to enter into an agreement under section 71 of the Act that will be registered on the title of the neighbouring property providing for the affected land to be managed in accordance with the bushfire hazard management plan.*	

3.4.6 DEVELOPMENT STANDARDS SUBDIVISION: PUBLIC AND FIRE FIGHTING ACCESS (E1.6.2)

***Objective**: Access roads to, and the layout of roads, tracks and trails, in a subdivision:* *(a) allow safe access for residents, fire fighters and emergency service personnel;* *(b) provide access to the bushfire-prone vegetation that enables both property to be defended when under attack and for hazard management works to be undertaken;* *(c) are designed and constructed to allow for fire fighting appliances to be manoeuvred;* *(d) provide access to water supplies for fire appliances; and* *(e) are designed to allow connectivity, and where needed, offering multiple evacuation points.*	
CODE STANDARD	**DEVELOPMENT RESPONSE**
A1 *(a) TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant specific measures for public access in the subdivision for the purposes of fire fighting; or* *(b) A proposed plan of subdivision showing the layout of roads, fire trails and the location of property access to building areas is included in a bushfire hazard management plan that:* *(i) demonstrates proposed roads will comply with Table E1, proposed private accesses will comply with Table E2 and proposed fire trails will comply with Table E3; and* *(ii) is certified by the TFS or an accredited person.*	Lots 1 and 2 including their accesses are outside of the bushfire prone area and therefore they meet the requirements of A1(a) in that there is no increased risk related to the access to these lots. Accesses to lots 3 and 8 in the subdivision are less than 30m in length and therefore do not require any specific design and construction requirements to meet Table E2 and comply with A1(b). Accesses to lots 4, 5, 6 and 7, in accordance with the BHMP are to be provided with access which meets Table E2, although no passing bay is required given the length is less than 100m, access with therefor meet A1(b).

Table E2 Standards for property access

ELEMENT		REQUIREMENT
A	*Property access length is less than 30m; or access is not required for a fire appliance to access a firefighting water point.*	*There are no specified design and construction requirements.*
B	*Property access length is 30m or greater; or access is required for a fire appliance to a fire fighting water point.*	*The following design and construction requirements apply to property access:* *(a) all-weather construction;* *(b) load capacity of at least 20t, including for bridges and culverts;* *(c) minimum carriageway width of 4m;* *(d) minimum vertical clearance of 4m;* *(e) minimum horizontal clearance of 0.5m from the edge of the carriageway;* *(f) cross falls of less than 3 degrees (1:20 or 5%);* *(g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;* *(h) curves with a minimum inner radius of 10m;* *(i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and* *(j) terminate with a turning area for fire appliances provided by one of the following:* *(i) a turning circle with a minimum outer radius of 10m; or* *(ii) a property access encircling the building; or* *(iii) a hammerhead 'T' or 'Y' turning head 4m wide and 8m long.*
D	*Property access length is greater than 30m, and access is provided to 3 or more properties.*	*The following design and construction requirements apply to property access:* *(a) complies with Requirements for B above; and* *(a) passing bays of 2m additional carriageway width and 20m length must be provided every 100m.*

3.4.7 DEVELOPMENT STANDARDS SUBDIVISION: PROVISION OF WATER SUPPLY FOR FIRE FIGHTING PURPOSES (E1.6.3)

***Objective**: Adequate, accessible and reliable water supply for the purposes of fire fighting can be demonstrated at the subdivision stage and allow for the protection of life and property associated with the subsequent use and development of bushfire-prone areas.*	
CODE STANDARD	**DEVELOPMENT RESPONSE**
A1 *In areas serviced with reticulated water by the water corporation:* *(a) TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant the*	While the building areas of Lots 1 and 2 are beyond 120m of one of the existing hydrants in Charles Street, they are wholly outside the bushfire prone area and therefore do not trigger a requirement for bushfire purposes, being in accordance withA1(a). The lots with BAL 12.5 building areas

provision of a water supply for fire fighting purposes; *(b) A proposed plan of subdivision showing the layout of fire hydrants, and building areas, is included in a bushfire hazard management plan approved by the TFS or accredited person as being compliant with Table E4; or* *(c) A bushfire hazard management plan certified by the TFS or an accredited person demonstrates that the provision of water supply for fire fighting purposes is sufficient to manage the risks to property and lives in the event of a bushfire.*	requiring protection, are located within 120m of the frontage of the site to Mary Street, although there is currently no existing hydrant in close proximity to the frontage of the site in Mary Street and the full extent of the building areas are therefore not within 120m of existing infrastructure. New water infrastructure for the subdivision will require a hydrant to be suitably located to meet TasWater requirements and as required on the BHMP. The proposal in relation to the Mary Street lots will therefore, with the inclusion of a hydrant as required in the BHMP, meet A1(b).
A2 *In areas that are not serviced by reticulated water by the water corporation…*	The standard is not relevant to the proposal.

Table E4 Reticulated water supply for fire fighting

ELEMENT		REQUIREMENT
A	*Distance between building area to be protected and water supply.*	*The following requirements apply:* *(a) the building area to be protected must be located within 120m of a fire hydrant; and* *(b) the distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.*
B	*Design criteria for fire hydrants*	*The following requirements apply:* *(a) fire hydrant system must be designed and constructed in accordance with TasWater Supplement to Water Supply Code of Australia WSA 03 – 2011-3.1 MRWA Edition 2.0; and* *(b) fire hydrants are not installed in parking areas.*
C	*Hardstand*	*A hardstand area for fire appliances must be provided:* *(a) no more than 3m from the hydrant, measured as a hose lay;* *(b) no closer than 6m from the building area to be protected;* *(c) With a minimum width of 3m constructed to the same standard as the carriageway; and* *(d) Connected to the property access by a carriageway equivalent to the standard of the property access.*

3.5 BUILDING ACT 2000

The proposal does not include new habitable buildings and therefore the requirements of the Building Act are not relevant.

ATTACHMENTS

BUSHFIRE PLANNING CERTIFICATE: (ATTACHMENT 1)

SUBDIVISION PLAN: (ATTACHMENT 2)

BHMP: (ATTACHMENT 3)

CODE E1 – BUSHFIRE-PRONE AREAS CODE

CERTIFICATE[3] UNDER S51(2)(d) *LAND USE PLANNING AND APPROVALS ACT 1993*

1. Land to which certificate applies[4]

Land that <u>is</u> the Use or Development Site that is relied upon for bushfire hazard management or protection.

Name of planning scheme or instrument:	*Glamorgan-Spring Bay Interim Planning Scheme 2015* (The Scheme)
Street address:	52 Charles Street Orford
Certificate of Title / PID	135657/2 / 2041930

Land that <u>is not</u> the Use or Development Site relied upon for bushfire hazard management or protection

Street address:	N/A
Certificate of Title / PID	N/A

2. Proposed Use or Development

Description of the Use or Development:

(Provide a brief description of the proposed use or development; including details of scale, siting and context.)

Subdivision for 8 residential lots

Code Clauses[5]: Use ✖

- ❑ **E1.4 Exempt Development**
- ❑ **E1.5.1 Vulnerable Use**
- ❑ **E1.5.2 Hazardous Use**
- ✖ **E1.6.1 Subdivision**

[3] This document is the approved form of certification for this purpose, and must not be altered from its original form.

[4] If the certificate relates to bushfire management or protection measures that rely on land that is not in the same lot as the site for the use or development described, the details of all of the applicable land must be provided.

[5] Indicate by placing X in the corresponding ❑for the relevant clauses of E1.0 Bushfire-prone Areas Code.

3. Documents relied upon[6]

Documents, Plans and/or Specifications

Title:	Subdivision Plan - BURJO01 11131-03		
Author:	Rogerson & Birch Surveyors		
Date:	15 May 2020	**Version:**	B

Bushfire Report

Title:	52 Charles Street, Orford – Bushfire Hazard Management Plan and Report		
Author:	J Blowfield – Ireneinc Planning & Urban Design		
Date:	25 May 2020	**Version:**	2

Bushfire Hazard Management Plan

Title:	52 Charles Street, Orford – Bushfire Hazard Management Plan and Report		
Author:	J Blowfield – Ireneinc Planning & Urban Design		
Date:	25 May 2020	**Version:**	2

Other Documents

Title:			
Author:			
Date:		**Version:**	

[6] List each document that is provided or relied upon to describe the use or development, or to assess and manage risk from bushfire. Each document must be identified by reference to title, author, date and version.

4. Nature of Certificate[7]

❑	**E1.4 – Use or development exempt from this code**		
	Assessment Criteria	**Compliance Requirement**	**Reference to Applicable Document(s)**
❑	E1.4 (a)	Insufficient increase in risk	

❑	**E1.5.1 – Vulnerable Uses**		
	E1.5.1.1 Standards for vulnerable use		
	Assessment Criteria	**Compliance Requirement**	**Reference to Applicable Document(s)**
❑	E1.5.1.1 P1	Risk is mitigated	
❑	E1.5.1.1 A2	BHMP	
❑	E1.5.1.1 A3	Emergency Plan	

❑	**E1.5.2 – Hazardous Uses**		
	E1.5.2.1 Standards for hazardous use		
	Assessment Criteria	**Compliance Requirement**	**Reference to Applicable Document(s)**
❑	E1.5.2.1 P1	Risk is mitigated	
❑	E1.5.2.1 A2	BHMP	
❑	E1.5.2.1 A3	Emergency Plan	

✖	**E1.6.1 – Development standards for subdivision**		
	E1.6.1.1 Subdivision: Provision of hazard management areas		
	Assessment Criteria	**Compliance Requirement**	**Reference to Applicable Document(s)**
❑	E1.6.1.1 P1	Hazard Management Areas are sufficient to mitigate risk	

[7] The certificate must indicate by placing X in the corresponding □ for each applicable standard and the corresponding compliance test within each standard that is relied upon to demonstrate compliance to Code E1

❑	E1.6.1.1 A1. (a)	Insufficient increase in risk	
✖	E1.6.1.1 A1. (b)	Provides BAL 19 for all lots	Lots in accordance with the BHMP meet BAL 12.5 or BAL LOW
❑	E1.6.1.1 A1. (c)	Consent for Part 5 Agreement	

	E1.6.1.2 Subdivision: Public and fire fighting access		
	Assessment Criteria	**Compliance Requirement**	**Reference to Applicable Document(s)**
❑	E1.6.1.2 P1	Access is sufficient to mitigate risk	
✖	E1.6.1.2 A1. (a)	Insufficient increase in risk	Lots 1 & 2 are outside of the bushfire prone area
✖	E1.6.1.2 A1. (b)	Access complies with Tables E1, E2 & E3	Relevant lots in accordance with the BHMP meet requirements of table E2

	E1.6.1.1 Subdivision: Provision of water supply for fire fighting purposes		
	Assessment Criteria	**Compliance Requirement**	**Reference to Applicable Document(s)**
✖	E1.6.1.3 A1. (a)	Insufficient increase in risk	Lots 1 & 2 are outside of the bushfire prone area
✖	E1.6.1.3 A1. (b)	Reticulated water supply complies with Table E4	BAL 12.5 lots in accordance with the BHMP
❑	E1.6.3.1 A1. (c)	Water supply consistent with the objective	
❑	E1.6.1.3 A2. (a)	Insufficient increase in risk	
❑	E1.6.1.3 A2. (b)	Static water supply complies with Table E5	
❑	E1.6.1.3 A2. (c)	Static water supply is consistent with the objective	

5. Bushfire Hazard Practitioner[8]

Name:	Jacqui Blowfield	**Phone No:**	03 6234 9281
Address:	Ireneinc Planning & Urban Design	**Fax No:**	03 6231 4727
	49 Tasma Street	**Email Address:**	jacqui@ireneinc.com.au
	NORTH HOBART **7000**		
Accreditation No:	BFP - 102	**Scope:**	1, 2, 3A, 3B and 3C

6. Certification[9]

I, certify that in accordance with the authority given under the Part 4A of the Fire Service Act 1979 –

The use or development described in this certificate is exempt from application of Code E1 – Bushfire-Prone Areas in accordance with Clause E1.4 (a) because there is an insufficient increase in risk to the use or development from bushfire to warrant any specific bushfire protection measure in order to be consistent with the objectives for all the applicable standards identified in Section 4 of this Certificate.	❑

or

There is an insufficient increase in risk from bushfire to warrant the provision of specific measures for bushfire hazard management and/or bushfire protection in order for the use or development described to be consistent with the objective for each of the applicable standards identified in Section 4 of this Certificate.	❑

and/or

The Bushfire Hazard Management Plan/s identified in Section 3 of this certificate is/are in accordance with the Chief Officer's requirements and can deliver an outcome for the use or development described that is consistent with the objective and the relevant compliance test for each of the applicable standards identified in Section 4 of this Certificate.	✖

Signed: *certifier*

Date: **26 May 2020** **Certificate No:** **2020 001**

[8] A Bushfire Hazard Practitioner is a person accredited by the Chief Officer of the Tasmanian Fire Service under Part IVA of *Fire Service Act 1979*. The list of practitioners and scope of work is found at www.fire.tas.gov.au

[9] The relevant certification must be indicated by placing X in the corresponding ❑.

ATTACHMENT 2: SUBDIVISION PLAN

This plan has been prepared only for the purpose of obtaining preliminary subdivsional approval from the local authority and is subject to that approval.

All measurements and areas are subject to the final survey.

Base image by TASMAP (www.tasmap.tas.gov.au), © State of Tasmania
Base data from the LIST (www.thelist.tas.gov.au), © State of Tasmania

SEE BELOW FOR PROPOSED SERVICES CONNECTION THROUGH 46 CHARLES STREET

0m 15m 30m 45m 60m
1:600

CURRENT SUBDIVISION PROPOSAL
46 CHARLES STREET
CT.252719/5

existing buildings to be removed

PROPOSED PIPELINE & SERVICES AND DRAINAGE EASEMENT 3.00m WIDE

Sewer M/H
Top 18.34
Inv 17.28

existing brick unit

existing house

CHARLES STREET

TBM R/S
17.01

RIGHT OF WAY (PRIVATE)
'C' & 'D' 3.60 WIDE and PIPELINE AND SERVICES EASEMENT VARIABLE WIDTH

RIGHT OF WAY (PRIVATE)
'A' & 'B' 3.60 WIDE and PIPELINE AND SERVICES EASEMENT & DRAINAGE EASEMENT VARIABLE WIDTH

MARY STREET

8 730m²
7 667m²
6 1050m²
2 942m²
1 975m²
5 1018m²
4 725m²
3 731m²

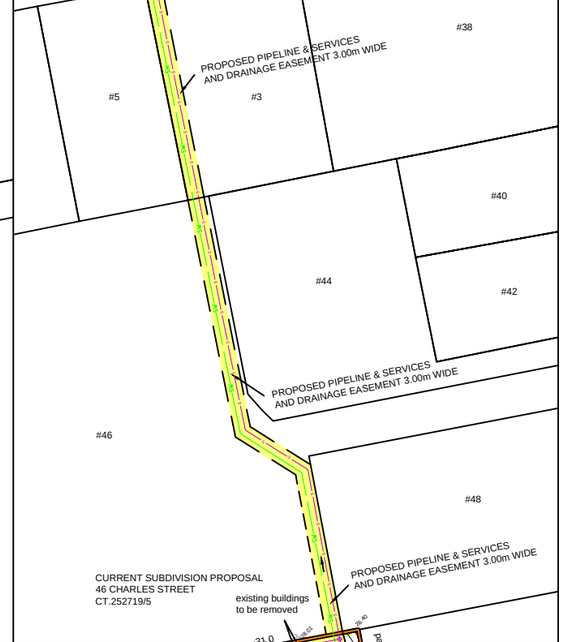
proposed new access

p & w fence ±40yrs

paling fence ±20yrs

picket fence ±20yrs

PROSSER STREET



LANDSLIDE HAZARD AREA (LOW)

Development Standards for Subdivision

10.6.1 General Residential

A1-Lot sizes comply.

A2- a) Complies - clear of setbacks
b) Complies - no codes impacted except part of Lot 3 & 8 low risk landslide overlay
c) Complies - clear of easements and restrictions
d) Complies -
e) Complies - within 20° W and 30° North
f) Complies - A 10mx15m rectangle will fit.

A3-Internal Lots.

A4-Internal Lots.

P4- a) to e) Complies
f) Complies - access is via a 3.6m wide access strip or ROW
g) Complies
h) Complies - total of 4 access strips side by side
i) Complies
j) Complies

A5-Does not comply. P5 will comply.

THIS PROPOSAL PLAN MUST BE READ IN CONJUNCTION WITH DESIGN AND ENGINEERING PLANS PROVIDED BY OTHERS. THE BEST EFFORT HAS BEEN MADE TO PROVIDE AS MUCH DETAIL AS POSSIBLE WITHOUT OVERCOMPLICATING THIS PLAN

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B	LANDSLIDE OVERLAY	SH	15-05-20	SH
A	EASEMENTS UPDATED PER ENGINEERING DRAWINGS	SH	27-03-20	SH

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

OWNER: A.C.N. 625 477 054 PTY LTD
TITLE REFERENCE: C.T.135657/2
LOCATION: 52 CHARLES STREET ORFORD

Proposed Subdivision

Date: 23-01-2020
Reference: BURJO01 11131-03
Scale: 1:600 (A3)
Municipality: GLAMORGAN/SPRINGBAY

ATTACHMENT 3: BHMP

CONDITIONS:

CONSTRUCTION REQUIREMENTS

1. Buildings within or partially within the BAL 12.5 Building Area are to be constructed in accordance with the requirements of Australian Standard 3959-2018 Construction of buildings in bushfire-prone areas.

REQUIREMENT FOR PROPERTY ACCESS

2. The property accesses to Lots 4, 5, 6 & 7 from Mary Street is to be:
   - Designed for a load capacity of at least 20 tonnes, including any bridges and culverts;
   - Minimum carriageway (area of the traffic lane pavement together with the formed shoulders) width of 4m;
   - Minimum vertical clearance of 4m;
   - Minimum horizontal clearance of 0.5m from the edge of the carriageway;
   - Cross falls of less than 3°;
   - Dips less than 7° entry and exit angle;
   - Curves with a minimum inner radius of 10m;
   - Maximum gradient of 15° for sealed roads; and
   - Terminating access points are to be provided with either, a turning area for fire appliances with a hammerhead "T" or "Y" turning head 4m wide and 8m long, or a turning circle with a minimum outer radius of 10m;

WATER SUPPLY FOR FIRE FIGHTING (RETICULATED WATER SUPPLY)

3. Fire hydrant system must be designed and constructed in accordance with TasWater Supplement to Water Supply Code of Australia WSA 03 – 2011-3.1 MRWA Edition 2.0 and must be located within a 120m hoselay of all parts of the building areas of Lots 3, 4, 5, 6, 7 & 8.

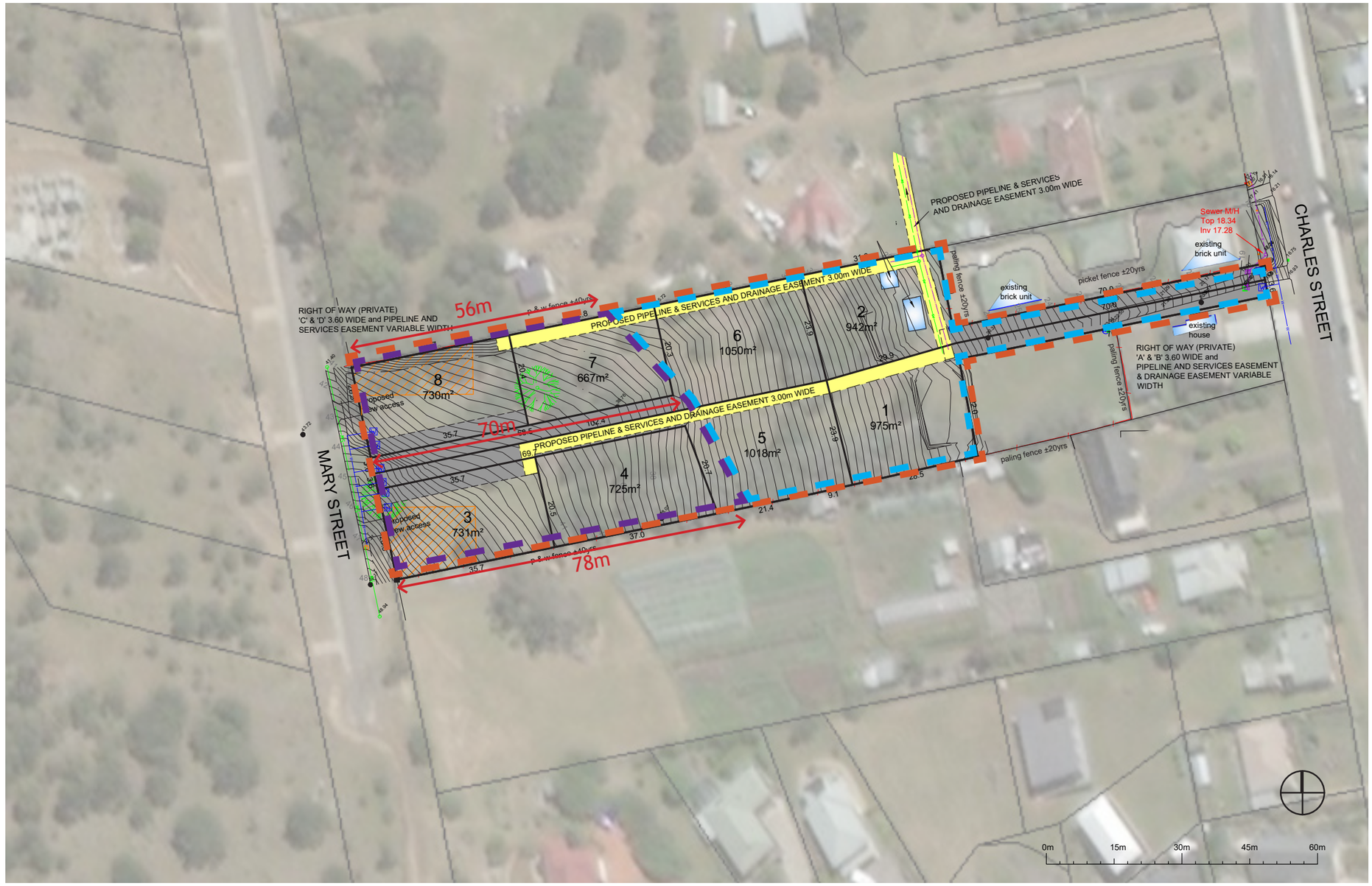
HAZARD MANAGEMENT AREAS

4. The Hazard Management Area covers all lots on the plan and are to be maintained as low threat vegetation, as grassland managed in a minimal fuel condition, maintained lawns or cultivated gardens.

   NOTE: Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognisable as short-cropped grass for example, to a nominal height of 100mm).

MAINTENANCE SCHEDULE

5. Maintenance of all lots with the Bushfire Hazard Management Plan should include:
   - Property accesses are maintained including required vegetation clearances;
   - Vegetation must be maintained to retain clearance for a height of 4m, above all access carriageways, and 0.5m each side of the carriageway;
   - Within the Hazard Management Area:
     - Prune larger trees to establish and maintain horizontal and vertical canopy separation;
     - Prune low hanging trees to ensure separation from ground litter;
     - Removal of fallen limbs, leaf & bark litter;
     - Remove fallen limbs, leaf & bark litter from roofs, gutters and around the building;
     - Cut lawns and grass areas short (less than 100mm) and maintain;
     - Remove or minimise areas of pine bark and other flammable garden mulch; and
     - Minimise storage of petroleum fuels.



BUSHFIRE HAZARD MANAGEMENT PLAN
52 CHARLES STREET, ORFORD
DATE: 26/05/2020
PAGE: 1 OF 1
SCALE: 1:1000

ireneinc
PLANNING & URBAN DESIGN

BHMP NOTES:

THIS PLAN SHOULD BE READ IN CONJUNCTION WITH THE REPORT TITLED: *52 CHARLES STREET, ORFORD - SUBDIVISION - BUSHFIRE HAZARD MANAGEMENT PLAN AND REPORT*, J. BLOWFIELD (IRENEINC PLANNING & URBAN DESIGN) ACCREDITATION NO. BFP-102, 26 MAY 2020.

PLAN USES BASE PLAN PREPARED BY ROGERSON & BIRCH SURVEYORS, AND AERIAL IMAGERY FROM THE LIST www.thelist.tas.gov.au CADASTRE. ESRI IMAGERY (c) STATE OF TASMANIA

BAL 12.5 BUILDING AREA

BAL LOW

HAZARD MANAGEMENT AREA

JSA CONSULTING ENGINEERS

Glamorgan Spring Bay Council
9 Melbourne Street
PO Box 6
Triabunna TAS 7190

7 December 2018
JSA Reference: 18R99-126-1

RE: 46 & 52 Charles Street, Orford

STORMWATER INFRASTRUCTURE – DRAINAGE REPORT

JSA Consulting Engineers have prepared a design of the stormwater system servicing the proposed twelve & eight lot subdivisions at 46 & 52 Charles Street, Orford.

STORMWATER DESIGN

The runoff flow rates for the catchments are calculated using the rational method, based on runoff coefficients as specified by AS3500, an ARI of 1 in 20 years and events of 5 minutes duration. The inundation rate for this rainfall event is determined from Bureau of Meteorology data for Hobart to be 101mm/hr. Calculation sheets included in Appendix 1 support the proposed design summarised in this report and JSA stormwater hydraulic plan H01-H04.

Runoff was calculated for two scenarios:

- Scenario A – runoff from proposed subdivision of 46 and 52 Charles St
- Scenario B – runoff from proposed subdivision of 46 and 52 Charles St in addition to runoff from surrounding properties assuming they were all to connect to proposed pipes.

It is assumed that lot areas are 50% impervious, as per consultation with Council Officer Leigh Wighton. This is assumed for all lots, to account for future development on these lots.

Impervious areas are assumed to have a runoff coefficient C = 0.9 and pervious areas are assumed to have a runoff coefficient C = 0.2.

The catchment areas are separated into eight regions, as summarised in Table 1. These areas are approximated from LISTmap.

Table 1: Catchment areas

Area	Description	Area (m^2)
A1	46 Charles Street, this is proposed to be subdivided into twelve lots	10900
A2	52 Charles Street, this is proposed to be subdivided into eight lots	6880
A3	Road reserve area, this is the area of road reserve which is currently directed from side entry pit into Council's existing DN300 concrete pipe crossing Charles Street (P4)	2330
A4	60 Charles Street	7670
A5	38 Charles Street	2260
A6	40, 42 & 44 Charles Street	3470
A7	48 & 50 Charles Street	3610
A8	54 Charles Street	1450

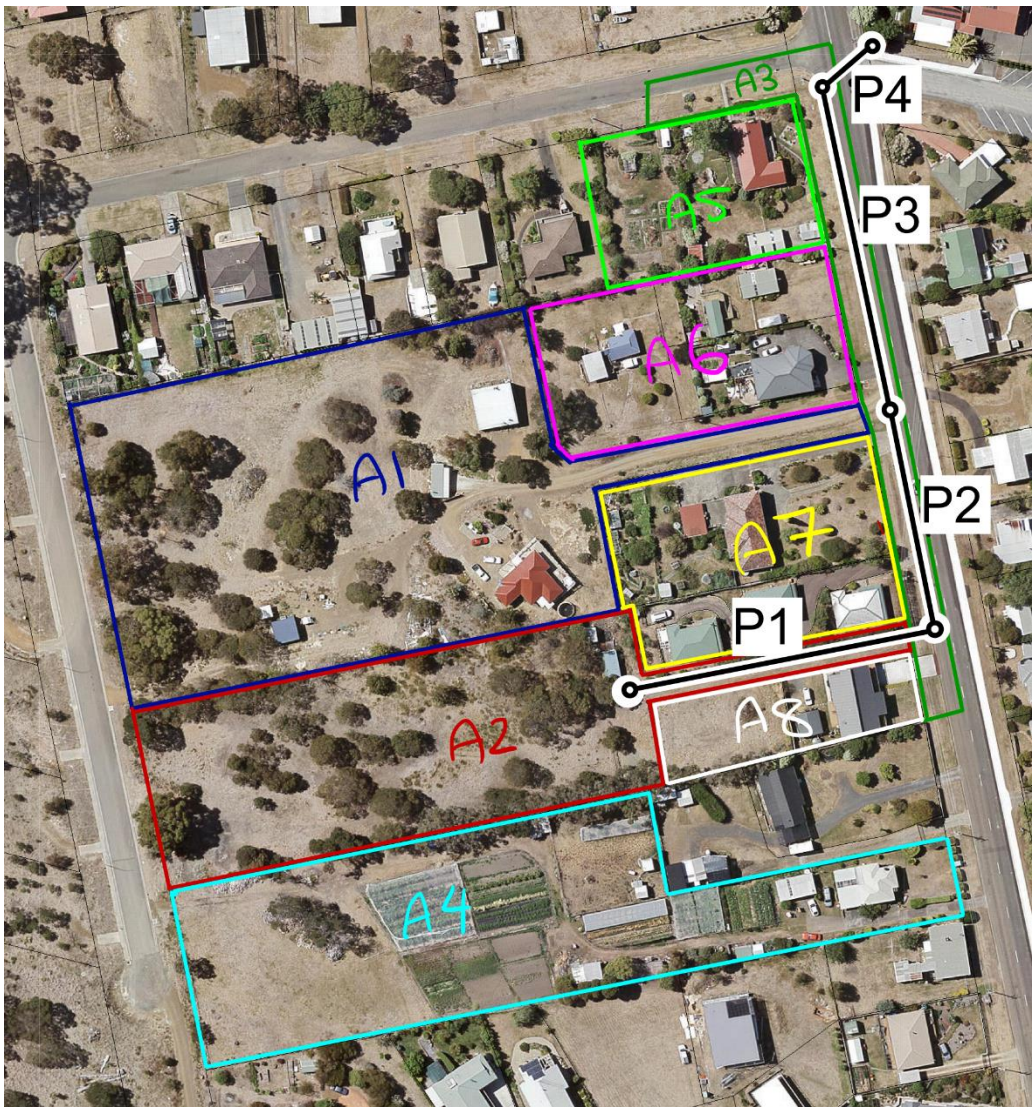


Figure 1: Proposed catchments and pipes

It is proposed that all stormwater from the proposed subdivisions of 46 and 52 Charles Street will be collected via gravity flow to new public pipes within the road reserve, with Pipe 1 and 2 conveying runoff from 52 Charles St, and runoff from 46 Charles St entering the system at the manhole between Pipe 2 and 3. Pipe 3 is proposed to connect to the existing Council stormwater system via new manhole at the existing DN300 concrete pipe (P4) which is also required to be upgraded to service the proposed development. A summary of catchments serviced by each pipe in each scenario as described above is provided in Table 2. A summary of required pipe sizes for each scenario is provided in Table 3.

Table 2: Catchments directed to each proposed pipe

Pipe	Reference in H01-H07	Catchment			
		Scenario A		Scenario B	
P1	SW1/4-SW3/1	52 Charles St	A2	52, 54 & 60 Charles St	A2 + A4 + A8
P2	SW1/3-SW1/4	52 Charles St	A2	48, 50, 52, 54 & 60 Charles St	A2 + A4 + A7 + A8
P3	SW1/2-SW1/3	46 & 52 Charles St	A1 + A2	40, 42, 44, 46, 48, 50, 52 & 60 Charles St	A1 + A2 + A4 + A6 + A7 + A8
P4	SW1/1-SW1/2	46 & 52 Charles St + road reserve	A1 + A2 + A3	38, 40, 42, 44, 46, 48, 50, 52 & 60 Charles St + road reserve	A1 + A2 + A3 + A4 + A5 + A6 + A7 + A8

Table 3: Pipe sizes required for each scenario

		Proposed development (Scenario A)		Future development (Scenario B)	
Pipe	**Grade**	**Runoff**	**Required pipe size**	**Runoff**	**Required pipe size**
	%	**L/s**	**DN**	**L/s**	**DN**
P1	12.9	106	225	247	225
P2	5.8	106	225	303	300
P3	2.4	274	375	524	450
P4	3.5	319	375	604	450

CONCLUSIONS

This document has outlined the stormwater drainage infrastructure to service the proposed subdivisions of 46 and 52 Charles Street into twelve and eight lots, respectively.

The pipework to service the development is proposed to run in the road reserve and connect to Council's infrastructure via new manhole at the intersection of Charles and Prosser Streets.

Two scenarios have been calculated, runoff from proposed development, and runoff from surrounding lots assuming future development, to determine the required pipe sizes.

Please contact Rachel Horner on 6224 5625 or rachel@jsa.com.au if you require any further information.

Yours sincerely

Rachel Horner

Graduate Civil / Environmental Engineer

APPENDIX 1: Calculation Sheets

JSA CONSULTING ENGINEERS	**52 Charles Street, Orford** AS3500 runoff calculation ARI 1 in 20 year, 5 minute duration	PROJECT No: 18E99-126 BY: RH DATE: 6/12/2018 SHEET No: 1

ARI	**1:20**	years	CCC
Duration	**5**	minutes	
Inundation, I	**101**	mm/hr	BOM

Flow rates calculated using rational method:

Q = (C I A) / 3600 L/s

C= runoff coefficient (AS3500 5.4.6)

I = inundation mm/hr

A = plan area m2

Coefficient, C: AS 3500.3 section 5.4.6

Surface	**C**
Impervious area	0.9
Permeable area	0.2

Fraction impervious area when fully developed

	Impervious	**Permeable**
Lot area	0.5	0.5
Road area	0.7	0.3

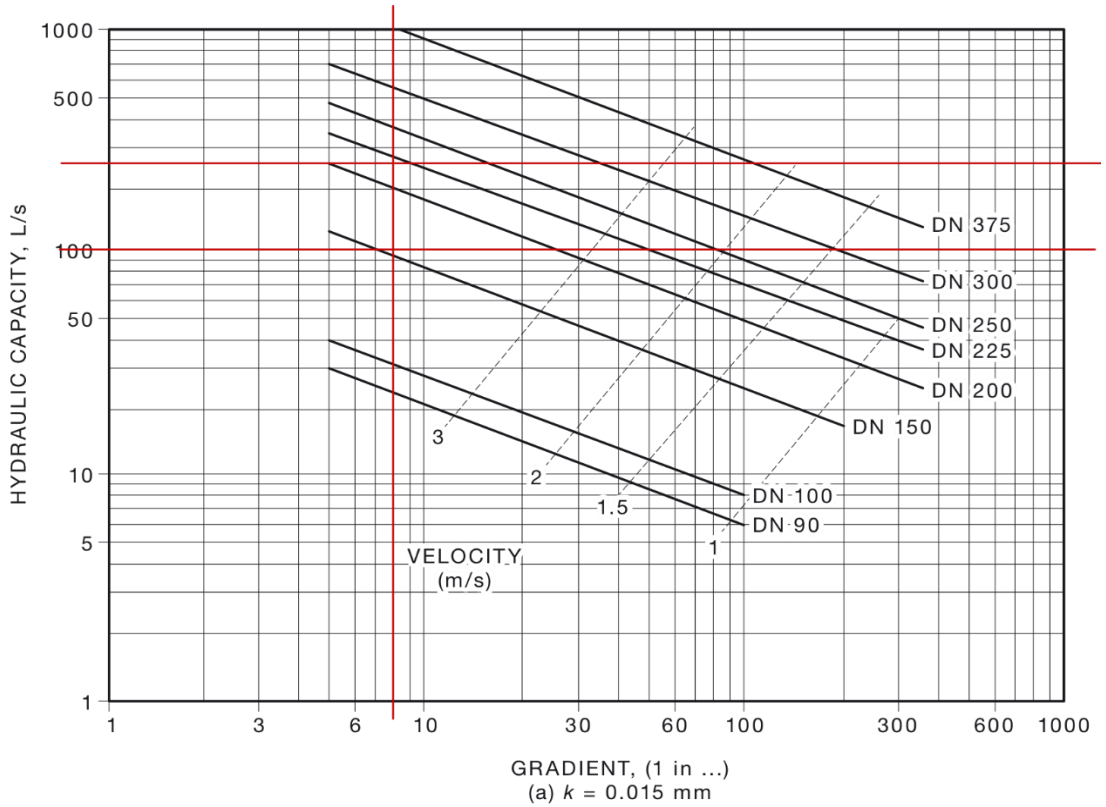
Proposed development areas

46 Charles Street	A1	10900	m2
52 Charles Street	A2	6880	m2
Road reserve area	A3	2330	m2
60 Charles Street	A4	7670	m2
38 Charles Street	A5	2260	m2
40, 42 & 44 Charles Street	A6	3470	m2
48 & 50 Charles Street	A7	3610	m2
54 Charles Street	A8	1450	m2

Proposed development runoff

Runoff from 46 Charles Street	Q1	168	L/s
Runoff from 52 Charles Street	Q2	106	L/s
Runoff from road reserve area	Q3	45	L/s
Runoff from 60 Charles Street	Q4	118	L/s
Runoff from 38 Charles Street	Q5	35	L/s
Runoff from 40, 42 & 44 Charles Street	Q6	54	L/s
Runoff from 48 & 50 Charles Street	Q7	56	L/s
Runoff from 54 Charles Street	Q8	22	L/s

JSA CONSULTING ENGINEERS	**52 Charles Street, Orford** ARI 1 in 20 years Pipe size - pipe 1 (12.9% grade)	PROJECT No: 18E99-126 BY: RH DATE: 6/12/2018 SHEET No: 2



Ref: AS3500.3:2015 Figure 5.4.11.2

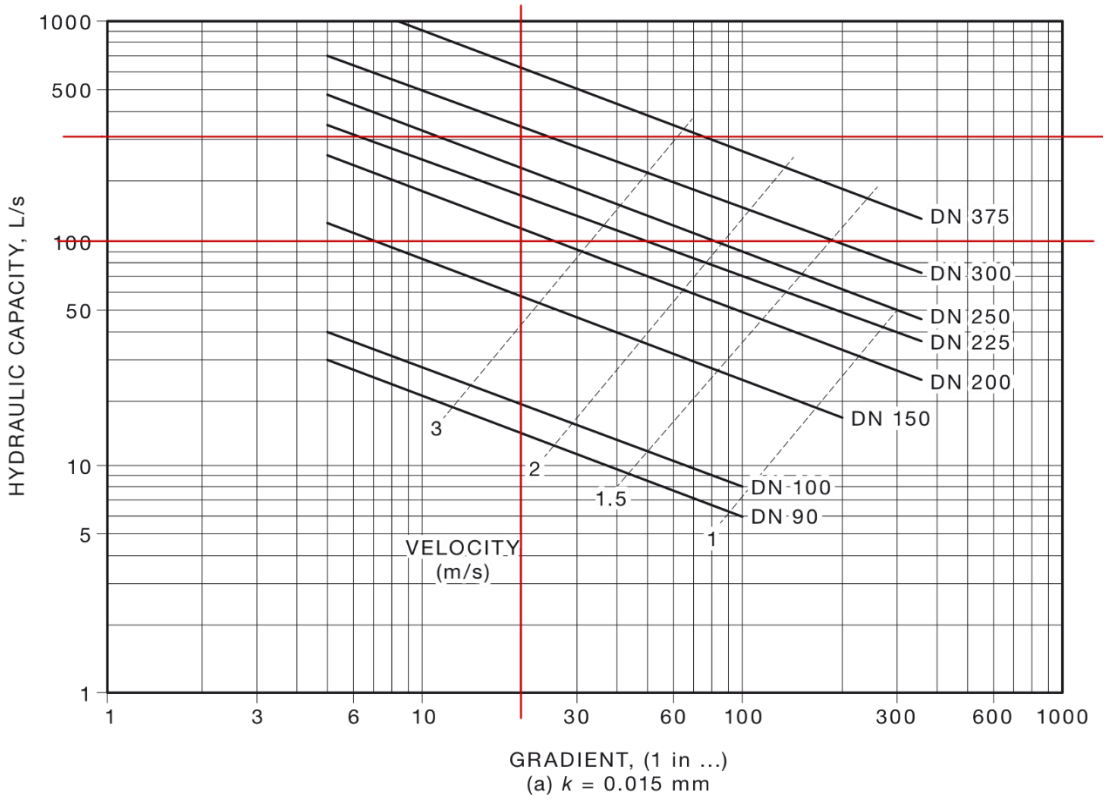
Proposed development runoff

Runoff from 46 Charles Street	Q1	168 L/s
Runoff from 52 Charles Street	Q2	106 L/s
Runoff from road reserve area	Q3	45 L/s
Runoff from 60 Charles Street	Q4	118 L/s
Runoff from 38 Charles Street	Q5	35 L/s
Runoff from 40, 42 & 44 Charles Street	Q6	54 L/s
Runoff from 48 & 50 Charles Street	Q7	56 L/s
Runoff from 54 Charles Street	Q8	22 L/s

Runoff from 52 Charles Street	=	Q2	106 L/s
Flow in Pipe 1 from proposed development	**=**	**P1-A**	**106 L/s**
Runoff from 60 Charles Street	+	Q4	118 L/s
Runoff from 54 Charles Street	+	Q8	22 L/s
Flow in Pipe 1 from future projected development	**=**	**P1-B**	**247 L/s**

Required pipe size is DN225 for proposed development and DN225 for future development

JSA CONSULTING ENGINEERS	**52 Charles Street, Orford** ARI 1 in 20 years Pipe size - pipe 2 (5.8% grade)	PROJECT No: 18E99-126 BY: RH DATE: 6/12/2018 SHEET No: 3



Ref: AS3500.3:2015 Figure 5.4.11.2

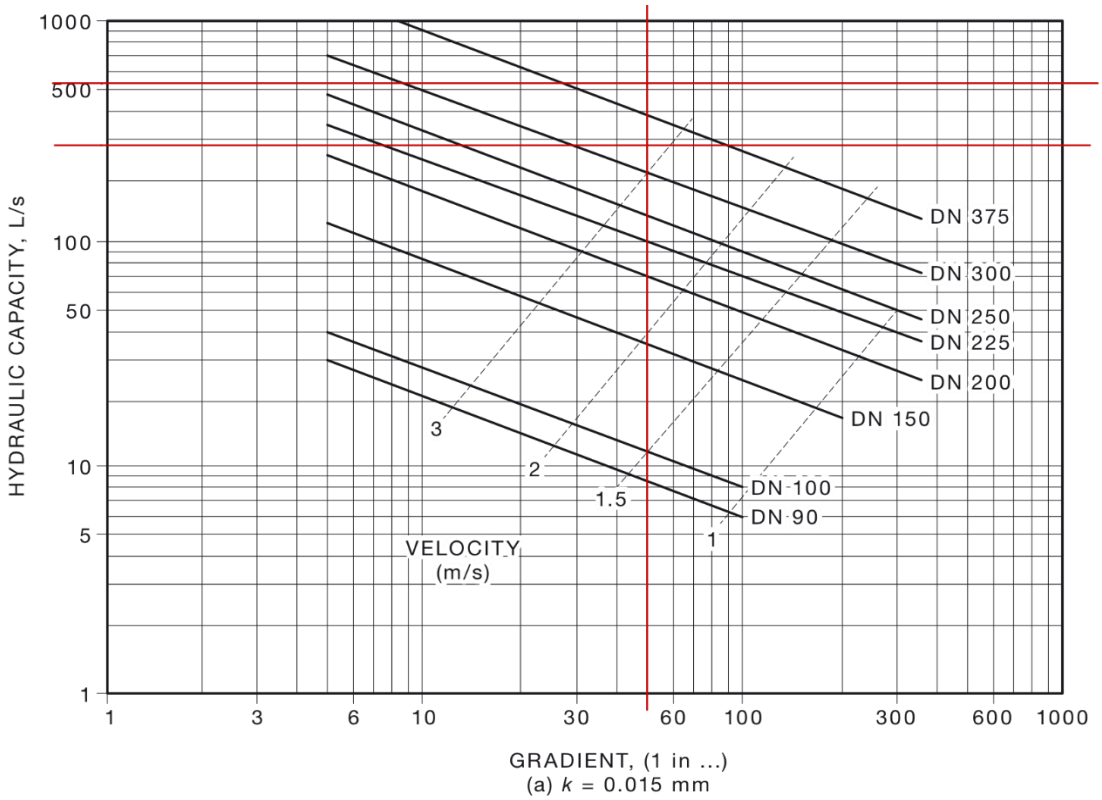
Proposed development runoff

Runoff from 46 Charles Street	Q1	168 L/s
Runoff from 52 Charles Street	Q2	106 L/s
Runoff from road reserve area	Q3	45 L/s
Runoff from 60 Charles Street	Q4	118 L/s
Runoff from 38 Charles Street	Q5	35 L/s
Runoff from 40, 42 & 44 Charles Street	Q6	54 L/s
Runoff from 48 & 50 Charles Street	Q7	56 L/s
Runoff from 54 Charles Street	Q8	22 L/s

Flow in Pipe 1 from proposed development	=	P1-A	106 L/s
Flow in Pipe 2 from proposed development	**=**	**P2-A**	**106 L/s**
Flow in Pipe 1 from future projected development	=	P1-B	247 L/s
Runoff from 48 & 50 Charles Street	+	Q7	56 L/s
Flow in Pipe 2 from future projected development	**=**	**P2-B**	**303 L/s**

Required pipe size is DN225 for proposed development and DN300 for future development

JSA CONSULTING ENGINEERS	**52 Charles Street, Orford** ARI 1 in 20 years Pipe size - pipe 3 (2.4% grade)	PROJECT No: 18E99-126 BY: RH DATE: 6/12/2018 SHEET No: 4



Ref: AS3500.3:2015 Figure 5.4.11.2

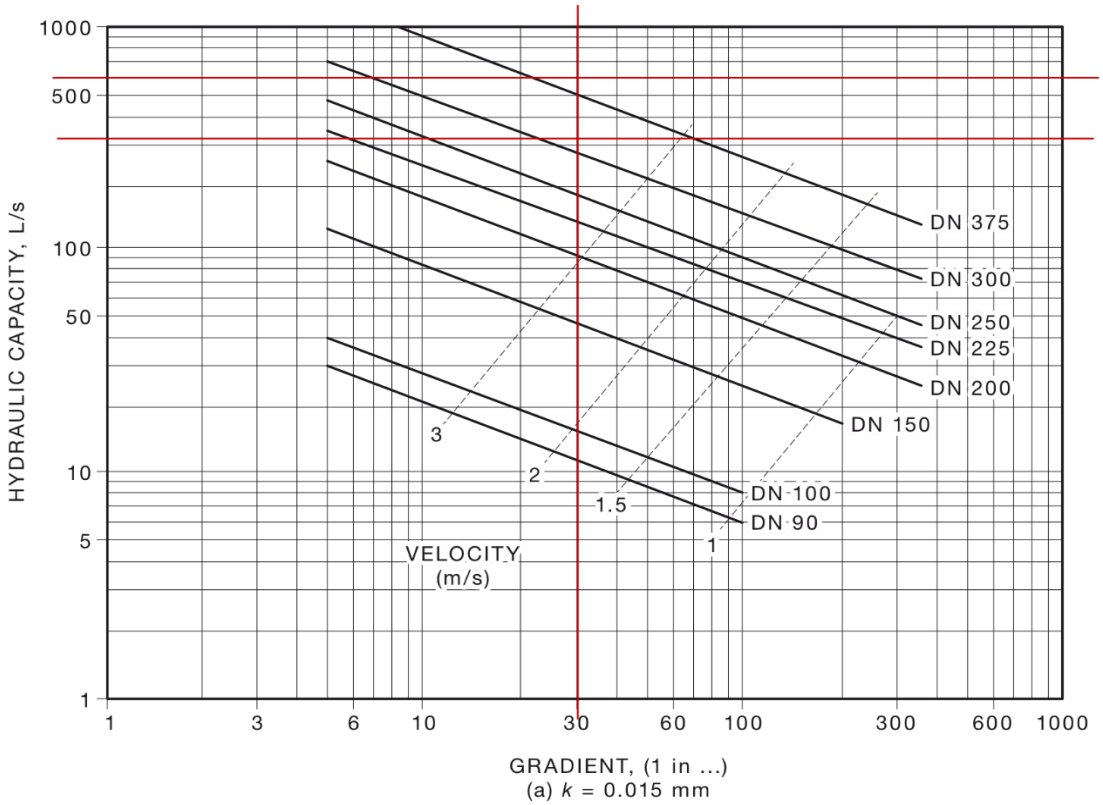
Proposed development runoff

Runoff from 46 Charles Street	Q1	168 L/s
Runoff from 52 Charles Street	Q2	106 L/s
Runoff from road reserve area	Q3	45 L/s
Runoff from 60 Charles Street	Q4	118 L/s
Runoff from 38 Charles Street	Q5	35 L/s
Runoff from 40, 42 & 44 Charles Street	Q6	54 L/s
Runoff from 48 & 50 Charles Street	Q7	56 L/s
Runoff from 54 Charles Street	Q8	22 L/s

Flow in Pipe 2 from proposed development	=	P2-A	106 L/s
Runoff from 46 Charles Street	+	Q1	168 L/s
Flow in Pipe 3 from proposed development	**=**	**P3-A**	**274 L/s**
Flow in Pipe 2 from future projected development	=	P2-B	303 L/s
Runoff from 46 Charles Street	+	Q1	168 L/s
Runoff from 40, 42 & 44 Charles Street	+	Q6	54 L/s
Flow in Pipe 3 from future projected development	**=**	**P3-B**	**524 L/s**

Required pipe size is DN375 for proposed development and DN450 for future development

JSA CONSULTING ENGINEERS	**52 Charles Street, Orford** ARI 1 in 20 years Pipe size - pipe 4 (3.5% grade)	PROJECT No: 18E99-126 BY: RH DATE: 6/12/2018 SHEET No: 5



Ref: AS3500.3:2015 Figure 5.4.11.2

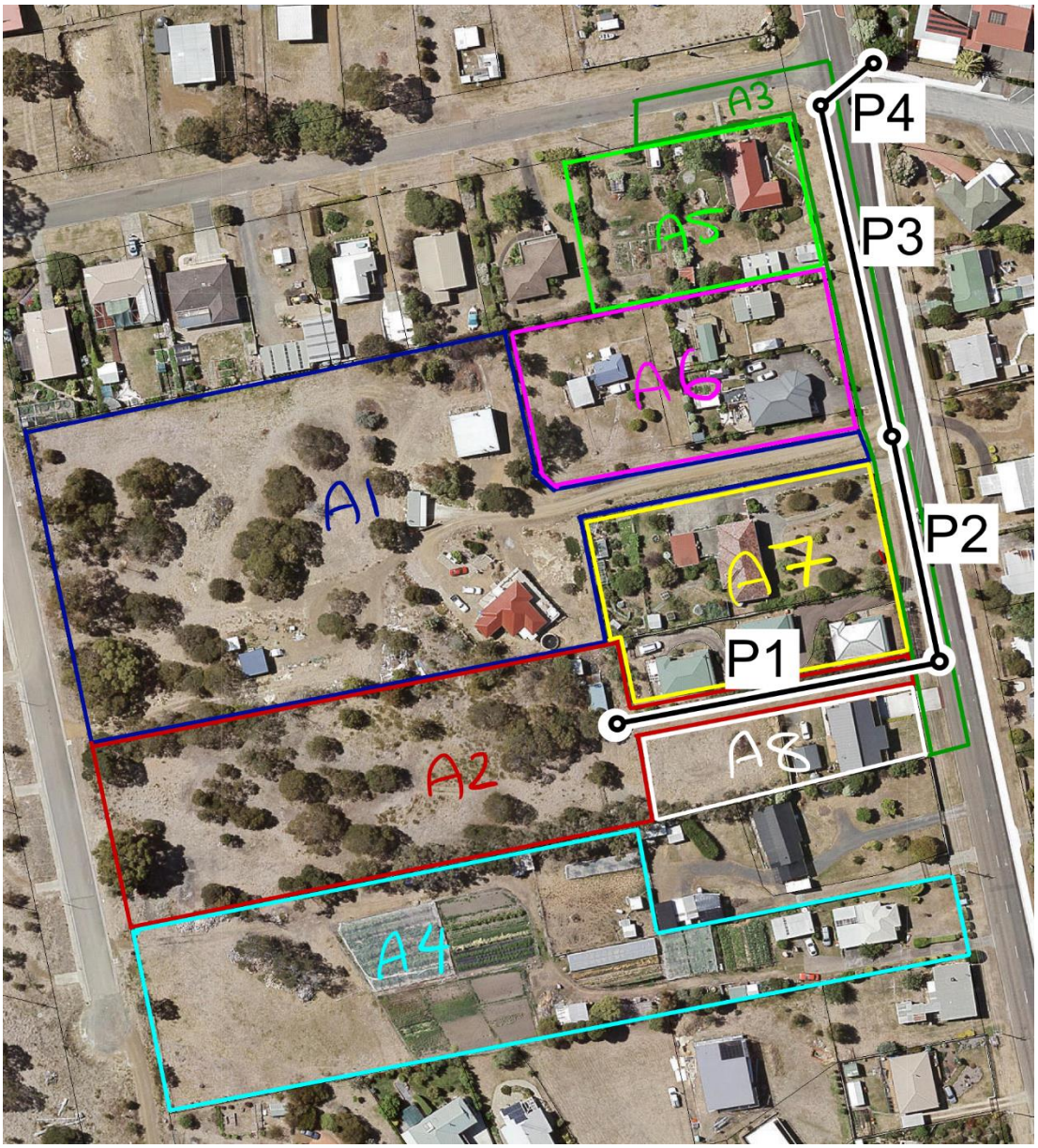
Proposed development runoff

Runoff from 46 Charles Street	Q1	168 L/s
Runoff from 52 Charles Street	Q2	106 L/s
Runoff from road reserve area	Q3	45 L/s
Runoff from 60 Charles Street	Q4	118 L/s
Runoff from 38 Charles Street	Q5	35 L/s
Runoff from 40, 42 & 44 Charles Street	Q6	54 L/s
Runoff from 48 & 50 Charles Street	Q7	56 L/s
Runoff from 54 Charles Street	Q8	22 L/s

Flow in Pipe 3 from proposed development	=	P3-A	274 L/s
Runoff from road reserve area	+	Q3	45 L/s
Flow in Pipe 4 from proposed development	**=**	**P4-A**	**319 L/s**
Flow in Pipe 3 from future projected development	=	P3-B	524 L/s
Runoff from road reserve area	+	Q3	45 L/s
Runoff from 38 Charles Street	=	Q5	35 L/s
Flow in Pipe 4 from future projected development	**=**	**P4-B**	**604 L/s**

Required pipe size is DN375 for proposed development and DN450 for future development

JSA CONSULTING ENGINEERS	**52 Charles Street, Orford** AS3500 runoff calculation Summary	PROJECT No: 18E99-126 BY: RH DATE: 6/12/2018 SHEET No: 6



Summary

		Proposed development (A)		Future development (B)	
Pipe	Grade	Runoff	Required pipe size	Runoff	Required pipe size
	%	L/s	DN	L/s	DN
P1	12.9	106	225	247	225
P2	5.8	106	225	303	300
P3	2.4	274	375	524	450
P4	3.5	319	375	604	450

PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190,
TASMANIA

INDEX

NOT FOR CONSTRUCTION

LOCALITY PLAN
SCALE: N.T.S.

N

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE
PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1
CIVIL ENGINEER: E. TONG	HYDRAULIC ENGINEER: R. HORNER	
STATUS: **PLANNING APPROVAL**		

PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190

DRAWING TITLE: INDEX & COVER SHEET

PROJECT NO	DWG NO	REV
18E99-126	**C00**	**D**

20/09/2018 9:14:26 AM

NOT FOR CONSTRUCTION

CIVIL AND HYDRAULIC NOTES

GENERAL NOTES

1. THE MAIN CONTRACTOR AND ALL SUB CONTRACTORS SHALL COMPLY WITH THE STATE WORK HEALTH AND SAFETY ACT AND ALL RELEVANT CODES OF PRACTICE.
2. ALL HYDRAULICS WORKS TO BE CARRIED OUT IN ACCORDANCE WITH IPWEA STANDARD DRAWINGS AND SPECIFICATIONS, (WSAA SEWERAGE CODE OF AUSTRALIA & WATER SUPPLY CODE OF AUSTRALIA) AND TO THE SATISFACTION OF COUNCIL'S DEVELOPMENT ENGINEER.
3. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING TASNETWORKS TO APPLY FOR NEW CONNECTIONS AND/OR ADDITIONAL SUPPLY. SUFFICIENT TIME FOR TASNETWORKS DESIGN AND REVIEW PROCESSES SHOULD BE ALLOWED FOR.
4. NO TOP SOIL SHALL BE REMOVED FROM THE SITE WITHOUT THE CONSENT OF COUNCIL. TOP SOIL DISTURBED OR REMOVED AS A RESULT OF WORKS SHALL BE STOCK-PILED ON SITE AND LATER USED FOR REDRESSING ANY DISTURBED SURFACES.
5. ALL DISTURBED SURFACES ON SITE, EXCEPT THOSE SET ASIDE FOR ROADWAYS AND FOOTPATHS SHALL BE DRESSED WITH IMPORTED FILL AND REVEGETATED TO THE SATISFACTION OF THE COUNCIL'S DEVELOPMENT ENGINEER.
6. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
7. ALL LEVELS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
8. ALL CONNECTIONS TO EXISTING STORMWATER MAINS TO BE CARRIED OUT BY COUNCIL AT DEVELOPERS COST UNLESS APPROVED OTHERWISE, ALL CONNECTIONS TO SEWER/WATER MAINS TO BE CARRIED OUT BY TASWATER AT DEVELOPERS COST UNLESS APPROVED OTHERWISE
9. GENERAL MATERIALS, INSTALLATION AND TESTING SHALL COMPLY WITH TASMANIAN MUNICIPAL STANDARDS PART 4.
10. EXCAVATED AND IMPORTED MATERIAL USED AS FILL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
11. ANY DEPARTURES FROM THE DESIGN DRAWINGS ARE TO BE AT THE WRITTEN APPROVAL OF THE ENGINEER AND APPROVAL FROM THE AUTHORITY. CHANGES INCLUDES CONFLICTS WITH EXISTING SERVICES.
12. UNLESS NOTED OTHERWISE, THESE NOTES SHALL APPLY TO ALL DRAWINGS IN THE SET
13. BATTERS:

MAX EMBANKMENT SLOPE	1:3.0
MAX CUTTING SLOPE	1:2.0 (LOOSE ROCK)
	1:3.0 (SOIL)

APPROVALS:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT A VALID BUILDING AND PLUMBING PERMIT IS IN PLACE FOR THE WORK AND THAT THE BUILDING SURVEYOR IS NOTIFIED OF ALL SITE INSPECTION REQUESTS.
2. THE APPLICANT SHALL NOT COMMENCE CIVIL CONSTRUCTION WORKS WITHIN A ROAD RESERVE UNTIL THE FOLLOWING REQUIREMENTS ARE MET:
3. A 'PERMIT TO CARRY OUT WORKS WITHIN A COUNCIL ROAD RESERVATION' HAS BEEN ISSUED BY THE COUNCIL AND THE ASSOCIATED FEE PAYMENT MADE
4. TRAFFIC MANAGEMENT AND PEDESTRIAN PLAN HAS BEEN PRODUCED AND FOLLOWED IN ACCORDANCE WITH DEPARTMENT OF INFRASTRUCTURE, ENERGY AND RESOURCES 'TRAFFIC CONTROL AT WORK SITES' CODE OF PRACTICE.

GENERAL HYDRAULICS NOTES:

1. DURING CONSTRUCTION ANY OPEN PIPES TO BE SEALED TEMPORARILY DURING WORKS TO PREVENT ENTRY OF FOREIGN MATTER
2. CONCEAL ALL PIPEWORK IN DUCTS, CEILING SPACES, WALL CAVITIES UNLESS OTHERWISE NOTED
3. CONFIRM ALL INVERT LEVELS PRIOR TO EXCAVATION.
4. THE LOCATION OF EXISTING SERVICES SHOULD BE CONFIRMED ONSITE INCLUDING: MAINS WATER, GAS, TELECOMMUNICATIONS, POWER, SEWER STORMWATER.
5. ALL PIPEWORK UNDER TRAFFICABLE AREAS TO BE BACKFILLED TO FULL DEPTH WITH DIER CLASS A 19MM FCR COMPACTED TO AS3798.
6. FOR CLASS H AND E SITES, JOINTS IN PLUMBING SHALL BE ARTICULATED WITHIN 3M OF THE BUILDING UNDER CONSTRUCTION TO ACCOMMODATE GROUND MOVEMENT WITHOUT LEAKAGE.
7. ALL PIPEWORK SHALL BE ADEQUATELY SUPPORTED. SUPPORT SHALL ALLOW FOR EXPANSION AND BE FITTED AT THE TIME OF PIPE INSTALLATION
8. WHERE PIPEWORK PENETRATES FIRE RATED WALL OR FLOORS A FIRE STOP COLLAR SHALL BE INSTALLED

SEWER NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH WSAA SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2.0, TASWATERS SUPPLEMENT TO THIS CODE, AS3500.2:2018 AND TO THE SATISFACTION OF TASWATER'S DEVELOPMENT ENGINEER.
2. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
3. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY TASWATER'S APPROVED CONTRACTOR AT DEVELOPERS COST UNLESS APPROVED OTHERWISE.
4. GENERAL MATERIALS, INSTALLATION & TESTING SHALL COMPLY WITH WSAA SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2.0, TASWATERS SUPPLEMENT TO THIS CODE, AS3500.2:2018 AND TO THE SATISFACTION OF TASWATER'S DEVELOPMENT ENGINEER.
5. ALL DROPS MUST BE INTERNAL AND IN ACCORDANCE WITH MRWA S-311.
6. ALL PIPE WORK UNDER TRAFFICABLE AREAS, INCLUDING DRIVEWAYS, IS TO BE BACKFILLED WITH FCR.
7. LOT CONNECTIONS SHALL BE DN100 UPVC U.N.O. AS PER MRWA S-302 AND BRING INSPECTION OPENING TO SURFACE INSIDE LOT BOUNDARY.
8. ALL SEWER MAINS TO BE PIPE CLASS SN8.
9. PIPEWORK SHALL BE PRESSURE TESTED PROGRESSIVELY DURING INSTALLATION TO ENSURE ABSENCE OF LEAKS.
10. ALL PIPEWORK SHALL BE INSTALLED AS CLOSE AS PRACTICABLE TO THE UNDERSIDE OF FLOORS.

STORMWATER NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL MUNICIPAL STANDARDS, AS3500 AND IPWEA (TAS) MUNICIPAL STANDARD DRAWINGS AND SPECIFICATIONS WHERE APPLICABLE AND TO THE SATISFACTION OF COUNCIL'S MUNICIPAL ENGINEER
2. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY COUNCIL AT DEVELOPERS COST UNLESS APPROVED OTHERWISE.
3. GENERAL MATERIALS, INSTALLATION & TESTING SHALL COMPLY WITH TASMANIAN MUNICIPAL STANDARDS PART 4. PROVIDE 600mm MIN COVER TO ALL SERVICES.
4. ALL PIPE WORK UNDER TRAFFICABLE AREAS INCLUDING DRIVEWAYS IS TO BE FILLED WITH FCR.
5. LOT CONNECTIONS SHALL BE DN150 UPVC UNO MINIMUM PIPE CLASS TO BE CLASS SN4, PIPE UNDER ROADS TO BE CLASS SN8.
6. ALL MAINTENANCE HOLES DEEPER THAN 1m FROM FINISHED SURFACE LEVEL TO MAINTENANCE HOLE BASE TO BE FITTED WITH APPROVED STEP IRONS.
7. IPWEA STANDARD DRAWINGS REFERENCED ARE THE MOST RECENT DRAWING SET UNO.

WATER NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH WSAA WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2.0, TASWATERS SUPPLEMENT TO THIS CODE AND TO THE SATISFACTION OF TASWATERS DEVELOPMENT ENGINEER.
2. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORK.
3. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY TASWATER AT DEVELOPERS COST UNLESS APPROVED OTHERWISE.
4. GENERAL MATERIALS INSTALLATION AND TESTING SHALL COMPLY WITH WSA 03-2011-3.1 AND TASWATER APPROVED PRODUCTS CATALOGUE.
5. WATER MAIN TO BE oPVC SERIES 2 CLASS 16 OR APPROVED EQUIVALENT, WITH RODS AND CONNECTIONS BEING POLY PN16 PE100.
6. THRUST BLOCKS SHALL BE INSTALLED AT ALL TEES, BLANK ENDS, VALVES, FIRE HYDRANTS, REDUCERS AND BENDS GREATER THAN 5°.
7. INDIVIDUAL LOT CONNECTIONS TO BE MIN DN25 ID20 PN16 POLY UNO.
8. DEVELOPER TO MAKE APPLICATION TO TASWATER FOR THE SUPPLY OF 20mm WATER METER AND BOX, PRIOR TO COMMENCEMENT OF WORKS ONSITE. METER TO BE INSTALLED BY PLUMBING CONTRACTOR.
9. ALL ISOLATION VALVES SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS. VALVES LOCATED IN WALLS OR DUCTS SHALL BE FITTED WITH APPROVED ACCESS COVERS.
10. INTERNAL PLUMBING SHALL BE CONSTRUCTED IN ACCORDANCE WITH AS3500 PARTS 1, 2 & 3 AND THE TASMANIAN PLUMBING CODE
11. THE PLUMBER SHALL ARRANGE FOR ALL INSPECTIONS AND PRESSURE TESTING REQUIRED BY TASWATER OR THE LOCAL AUTHORITY PRIOR TO CONCEALMENT.
12. ALL STOP VALVES TO BE CLOCKWISE CLOSING.
13. PROVIDE C.I. VALVE BOX COVERS TO ALL VALVES AND FIRE PLUG.
14. STOP VALVES AND FIRE PLUGS SHALL BE MARKED IN ACCORDANCE WITH THE IPWEA FIRE HYDRANT GUIDELINES: TASMANIA DIVISION.
15. FIRE PLUGS AND VALVE POSITIONS TO BE MARKED ON KERB BACKS WITH HIMARK CONCRETE PAINT.
16. PROVIDE ELECTROMAGNETIC, METAL IMPREGNATED TAPE IN ALL NON METALLIC PIPE TRENCHES. ENSURE TAPE TERMINATIONS ARE ACCESSIBLE.
17. ALL PROPERTY CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MRWA-W-110 AND MRWA-W-111 AND TASWATER STANDARD DRAWING TW-SD-W-20 SERIES. THEY SHALL BE DN25 (ID20) HDPE PE100 SDR11 PN16 PIPE
18. ALL FITTINGS TO BE F.B.E.
19. FIRE PLUGS TO HAVE 100mm RISERS WITH SPRING TYPE PLUGS.
20. TASWATER TO WITNESS PRESSURE TEST TO 1200kPA PRIOR TO BACKFILL AT JOINTS.
21. MAIN TO BE DISINFECTED PRIOR TO CONNECTION TO THE RETICULATION NETWORK. REFER TO WSA CODE FOR DETAILS.
22. PLACEMENT OF WATER MAINS IN FILL REQUIRES THE CONTRACTOR TO PROVIDE DOCUMENTARY EVIDENCE INCLUDING; THE COMPOSITION OF FILL MATERIAL, VERIFYING THAT IT CONTAINS NO ORGANIC OR OTHER MATERIALS THAT DECOMPOSE OR OTHERWISE LEAD TO LONG TERM SETTLEMENT.

ROAD NOTES:

1. MINIMUM SUB BASE THICKNESS TO BE 200mm.
2. PRIOR TO PLACEMENT OF SUB BASE COURSE, PAVEMENT CUT IS TO BE ROLLED AND TESTED FOR CBR VALUES BY METHOD APPROVED BY THE SUPERINTENDENT. WHERE THE CBR VALUES ARE LESS THAN 5 WITHIN THE FIRST 200mm THEN ADDITIONAL TESTS WILL BE REQUIRED TO ALLOW SUFFICIENT DESIGN ALTERATIONS TO THE SUB BASE.
3. PAVEMENT DESIGN BASED ON A CBR VALUE OF 3-4%.
4. ROAD MARKINGS AND SIGNS AS PER AS1742
5. IF THE CBR VALUE IS LESS THAN 2 AT ANY DEPTH GREATER THAN 200mm THEN THE SUB BASE IS TO BE INCREASED GENERALLY ACCORDING TO THE FOLLOWING TABLE & CONSULT ENGINEER:

CBR VALUES:	DESIGN:
3-4	AS PER PAVEMENT DETAIL
~2	ADVISE & CONSULT ENGINEER. TYPICALLY INCREASE SUB BASE TO 400mm THICK (SUBGRADE REPLACEMENT)
<1	ADVISE & CONSULT ENGINEER. SPECIAL PAVEMENT DESIGN TO BE SPECIFIED.

DRIVEWAY NOTES:

1. EXCAVATED AND IMPORTED MATERIAL USED AS FILL IS TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
2. FILL MATERIAL SHALL BE WELL GRADED AND FREE OF BOULDERS OR COBBLES EXCEEDING 150mm IN DIAMETER UNLESS APPROVED OTHERWISE.
3. FILL REQUIRED TO SUPPORT DRIVEWAYS INCLUDING FILL IN EMBANKMENTS THAT SUPPORT DRIVEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
4. TOP SOIL AND ORGANIC MATTER SHALL BE STRIPPED TO A MINIMUM OF 100mm.
5. THE SUB GRADE SHALL BE CHECKED FOR A MINIMUM BEARING CAPACITY OF 50 kPa.
6. FILL IN EMBANKMENTS SHALL BE KEYED 150mm INTO NATURAL GROUND.
7. THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 200mm.
8. EACH LAYER SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95%, IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS IS ACHIEVED.
9. WHERE THE ABOVE REQUIREMENTS CANNOT BE ACHIEVED THE ENGINEER SHALL BE CONSULTED AND THE FORMATION SHALL BE PROOF ROLLED (UNDER SUPERVISION OF THE ENGINEER) TO DEMONSTRATE COMPACTION PRIOR TO THE PLACEMENT OF BASE OR SUB-BASE COURSES.
10. UNREINFORCED CONCRETE KERBS AND CHANNELS SHALL HAVE TROWELLED JOINTS AT NOT MORE THAN 3.0m CRS

CONTROLLED FILL:

1. CONTROLLED FILL SHALL BE LAID IN STRICT ACCORDANCE WITH AS2870 AND AS3798 REQUIREMENTS. THE FOLLOWING METHOD IS APPROVED:
2. FILL MATERIAL SHALL BE WELL GRADED FCR OR SITE ROCK REVIEWED DURING EXCAVATION.
3. THE SUB GRADE SHALL BE CHECKED FOR BEARING CAPACITY WHICH IS A MINIMUM OF 50kPa FOR SLABS AND A MINIMUM OF 100kPa FOR FOOTINGS.
4. THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 150mm
5. THE FILL SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95% FOR RESIDENTIAL APPLICATIONS. IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS LEVEL OF COMPACTION IS ACHIEVED. IMPORTED MATERIAL, CONTRARY TO THE ABOVE SPECIFICATION, INTENDED FOR USE AS STRUCTURAL FILL SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO USE.

CONCRETE:

1. CONCRETE SHALL BE NOT LESS THAN N25 GRADE, WITH 20mm NOMINAL MAXIMUM AGGREGATE SIZE, SLUMP SHALL BE SELECTED TO SUIT THE CONSTRUCTION CONDITIONS. UNLESS NOTED OTHERWISE THE MINIMUM APPROPRIATE SPECIFICATIONS FROM AS3600 AND AS2870 SHALL BE ADOPTED.
2. SAWN CONTROL JOINTS SHALL BE CONSTRUCTED AS SOON AS POSSIBLE WITHOUT RAVELING THE JOINT, GENERALLY THIS SHALL BE WITHIN 24 HOURS.
3. CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS USING CURRENT BEST PRACTICE METHODS. SPRAY APPLIED CURING COMPOUNDS ARE GENERALLY NOT DEEMED SATISFACTORY AS SOLE CURING METHOD.
4. CONCRETE SHALL BE MECHANICALLY VIBRATED U.N.O.
5. ADDITIONAL WATER SHALL NOT BE ADDED TO THE CONCRETE ON SITE UNLESS SIGNED BY THE DRIVER AND APPROVED BY THE SUPPLIER.

DISCLAIMER
ENGINEERING NOTES ARE INTENDED FOR USE AS A GUIDE TO RELEVANT CODES, REGULATIONS AND STANDARDS FOR THE BUILDER OR CONTRACTOR DURING THE CONSTRUCTION PROCESS, THEY SHALL NOT REPLACE THEM IN ANY WAY. THESE NOTES ARE NOT SITE SPECIFIC AND SHALL NOT BE USED TO CONTRAVENE APPROVED PLANS OR TO SPECIFY ANY UNAPPROVED WORKS.

REV	DESCRIPTION	BY	CHK	DATE
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REV DATE: 30/10/18

IMPORTANT
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Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED	M. HORSHAM CC5865 I	SCALE	AS SHOWN
SIZE	A1		
CIVIL ENGINEER	E. TONG	HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL		

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
CIVIL & HYDRAULIC NOTES

PROJECT NO	DWG NO	REV
18E99-126	N01	D

9/20/2018 9:43:19 AM

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PIPE LEGEND

MARK	DESCRIPTION
AG	SLOTTED HDPE SN8 DRAINAGE PIPE
SW	PROPOSED STORMWATER PIPE
S	PROPOSED SEWER PIPE
RSM	PROPOSED RISING SEWER MAIN
W	PROPOSED PE PN16 WATER SUPPLY
	PROPOSED PUBLIC STORMWATER MAIN
	PROPOSED PUBLIC SEWER MAIN
	PROPOSED PUBLIC WATER MAIN
P	POWER CIRCUIT
T	COMMUNICATIONS
FS	DN100 PVC-M PN16 PVC
EX AG	EXISTING SLOTTED AG DRAINAGE PIPE.
EX W	EXISTING WATER SUPPLY
EX S	EXISTING SEWER PIPE
EX RSM	EXISTING RISING SEWER MAIN
EX SW	EXISTING STORMWATER
EX P	EXISTING POWER
EX SW	EXISTING PUBLIC STORMWATER MAIN
EX SEWER	EXISTING PUBLIC SEWER MAIN
EX WATER	EXISTING PUBLIC WATER MAIN
MW	DEMOLISHED MAIN WATER
SW	DEMOLISHED STORMWATER
S	DEMOLISHED SEWER
W	DEMOLISHED WATER
> >	SWALE DRAIN

LINE LEGEND

MARK	DESCRIPTION
	PROPERTY BOUNDARY
	SURROUNDING PROPERTY BOUNDARY
	PROPOSED PROPERTY BOUNDARY
	EXISTING EASEMENT
	PROPOSED EASEMENT
	NATURAL SURFACE CONTOUR (MAJOR)
	NATURAL SURFACE CONTOUR (MINOR)
	BANK TOP
	BANK BOTTOM
	EXISTING BUILDING OUTLINE
	PROPOSED BUILDING OUTLINE
	PROPOSED ROAD CENTRELINE
	PROPOSED ROAD
	EXISTING ROAD
	EXISTING KERB
	PROPOSED BARRIER FENCE

SYMBOL LEGEND

MARK	DESCRIPTION
M	DN25 ID 20 WATER CONNECTION + METER AS PER TW-SD-W-20 SERIES
	450 x 450 x 600 DEEP PIT WITH GRATED LID
	'ACO' K300 CHANNEL DRAIN & INCLINE PIT WITH CLASS 'B' TRAFFICABLE GRATE
SW	STORMWATER MANHOLE AS PER LGAT STANDARD DRAWING TSD-SW02-v1
S	SEWER MAINTENANCE HOLE TYPE P2 AS PER MRWA-S300 SERIES
	DN150 STORMWATER LOT CONNECTION AS PER LGAT STANDARD DRAWINGS TSD-SW25-v1
H	DN100 SEWER LOT CONNECTION AS PER MRWA-S300 SERIES
FH	FIRE HYDRANT AS PER MRWA-W-302
	ISOLATING VALVE AS PER MRWA-W-302
	THRUST BLOCK (CONCRETE) AS PER MRWA-W-205A
	CONCRETE HEADWALL
	SIDE ENTRY PIT TYPE 5 AS PER TSD-SW12-v1
	SIDE ENTRY PIT TYPE 3 AS PER TSD-SW09-v1
PS-1	POWER SUBSTATION
	POWER TURRET
P5	NBN PIT
	STREETLIGHT

HATCH LEGEND

MARK	DESCRIPTION
	EXISTING CONCRETE SLABS, DRIVEWAY ETC
	EASEMENT
	RIGHT OF WAY

SURFACE LEGEND

MARK	DESCRIPTION
FSL XX.XX	PROPOSED FINISHED SURFACE LEVEL
Δ XX.XX	HEIGHT OF PROPOSED SURFACE RELATIVE TO NATURAL SURFACE (FILL REQUIRED)
Δ -XX.XX	HEIGHT OF PROPOSED SURFACE RELATIVE TO NATURAL SURFACE (CUT REQUIRED)

REV	DESCRIPTION	BY	CHK	DATE
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A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
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JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: E. TONG
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

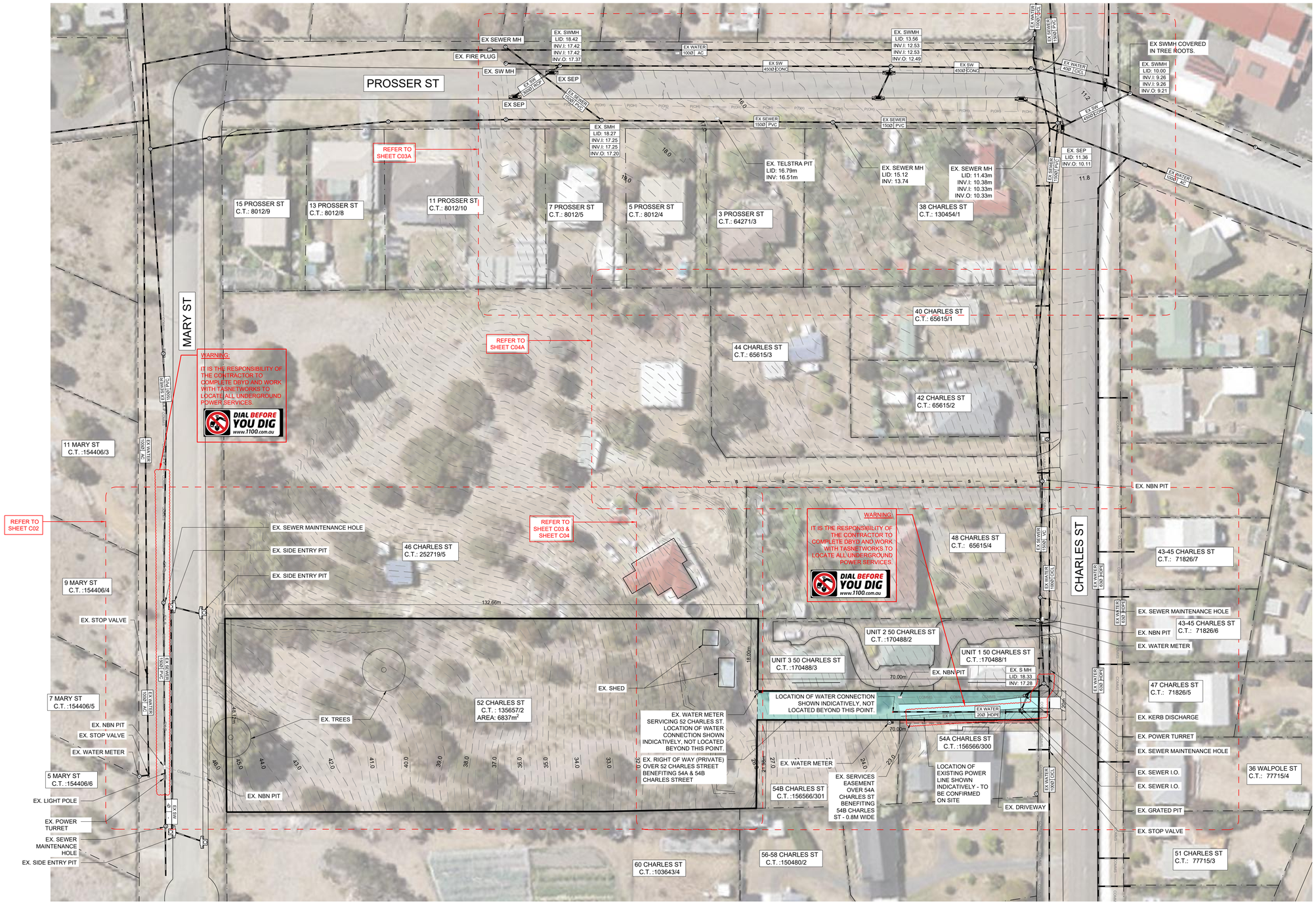
DRAWING TITLE
SYMBOLS & LINE LEGENDS

PROJECT NO: **18E99-126**
DWG NO: **N02**
REV: **D**

9/20/2018 9:44:12 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

NOT FOR CONSTRUCTION



EXISTING SITE PLAN
SCALE: 1:500

N

REV	DESCRIPTION	BY	CHK	DATE
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SCALE	AS SHOWN
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CIVIL ENGINEER	E. TONG
HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
EXISTING SITE PLAN

PROJECT NO	DWG NO	REV
18E99-126	C01	D

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

WARNING:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH TASNETWORKS TO LOCATE ALL UNDERGROUND POWER SERVICES.

DIAL BEFORE YOU DIG www.1100.com.au

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01 / C01 EXISTING SITE PLAN CALLOUT - 1
SCALE: 1:200

0 10 20 30 40 50m
SCALE 1:200 AT A1 SHEET

N

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
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STATUS: PLANNING APPROVAL

PROJECT: PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE: EXISTING SITE PLAN CALLOUT - 1
PROJECT NO: 18E99-126
DWG NO: C02
REV: D

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

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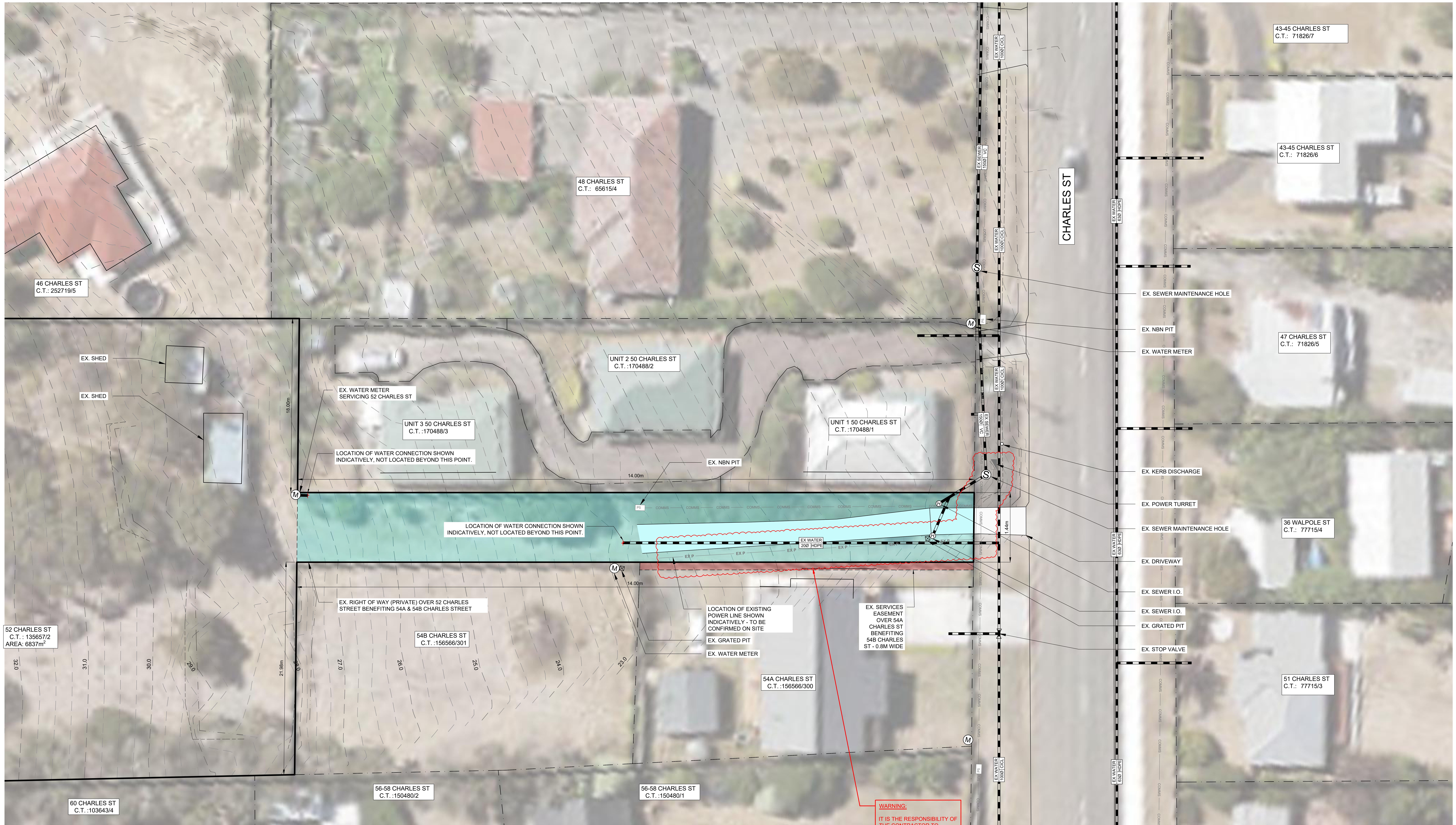

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

02 / C01 EXISTING SITE PLAN CALLOUT - 2
SCALE: 1:200

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20					
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SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: E. TONG
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**
PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
DRAWING TITLE: EXISTING SITE PLAN CALLOUT - 2
PROJECT NO: 18E99-126
DWG NO: C03
REV: D

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

NOT FOR CONSTRUCTION

03A / C01 EXISTING SITE PLAN CALLOUT - 3
SCALE: 1:200

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

N

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: E. TONG
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**

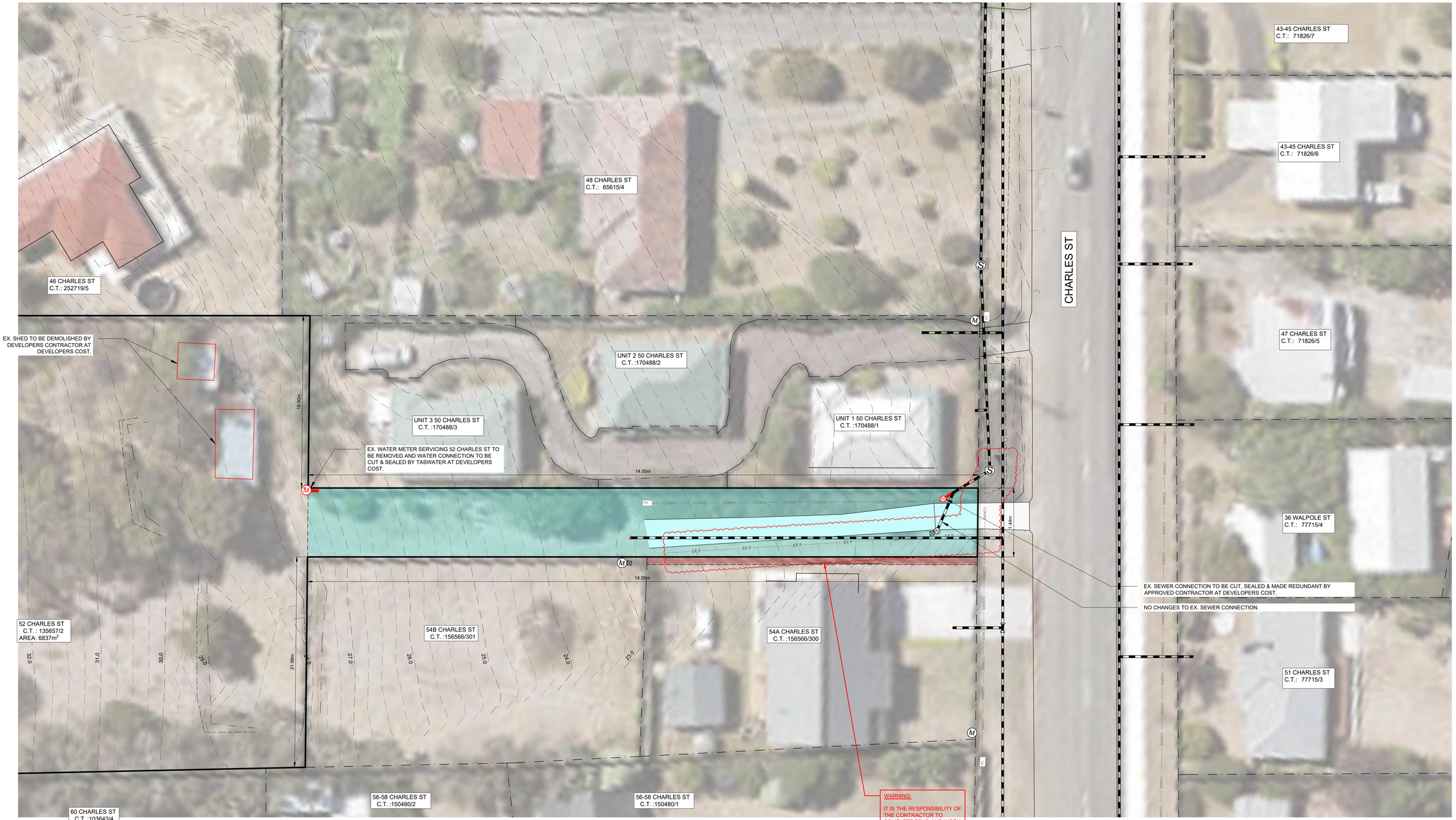
PROJECT: PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE: EXISTING SITE PLAN CALLOUT - 3
PROJECT NO: **18E99-126**
DWG NO: **C03A**
REV: **D**

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

NOT FOR CONSTRUCTION



03 / C01 DEMOLITION PLAN CALLOUT - 1
SCALE: 1:200

SCALE 1:200 AT A1 SHEET

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
CIVIL ENGINEER: E. TONG	HYDRAULIC ENGINEER: R. HORNER		DRAWING TITLE: DEMOLITION PLAN CALLOUT - 1
STATUS: **PLANNING APPROVAL**			PROJECT NO: **18E99-126** / DWG NO: **C04** / REV: **D**

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

NOT FOR CONSTRUCTION

04A / C01 DEMOLITION PLAN CALLOUT - 2
SCALE: 1:200

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

N

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: E. TONG
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**

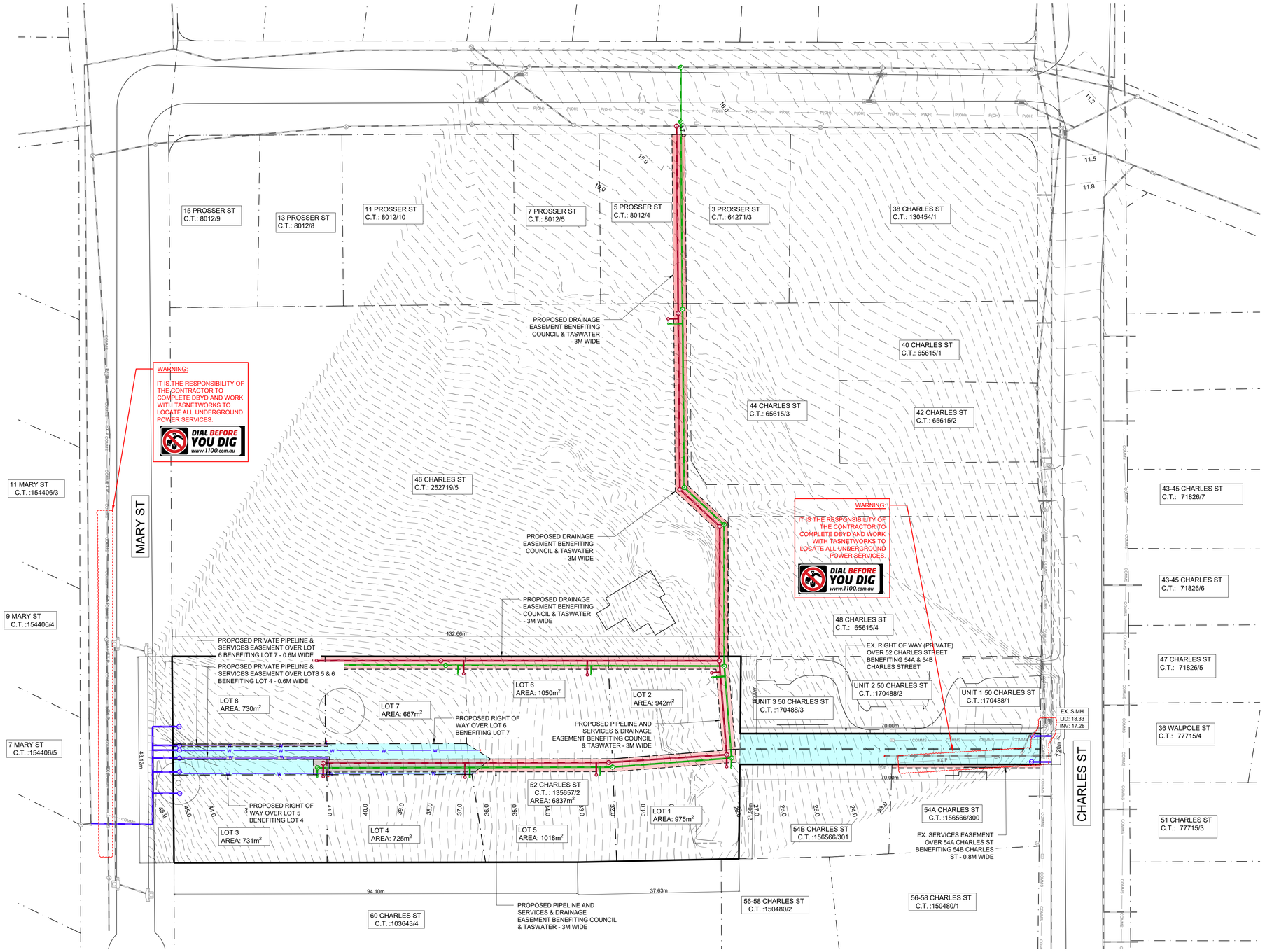
PROJECT: PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE: DEMOLITION PLAN CALLOUT - 2
PROJECT NO: **18E99-126**
DWG NO: **C04A**
REV: **D**

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.

NOT FOR CONSTRUCTION



PROPOSED SITE PLAN
SCALE: 1:500

N

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED	M. HORSHAM CC5865 I
SCALE	AS SHOWN
SIZE	A1
CIVIL ENGINEER	E. TONG
HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

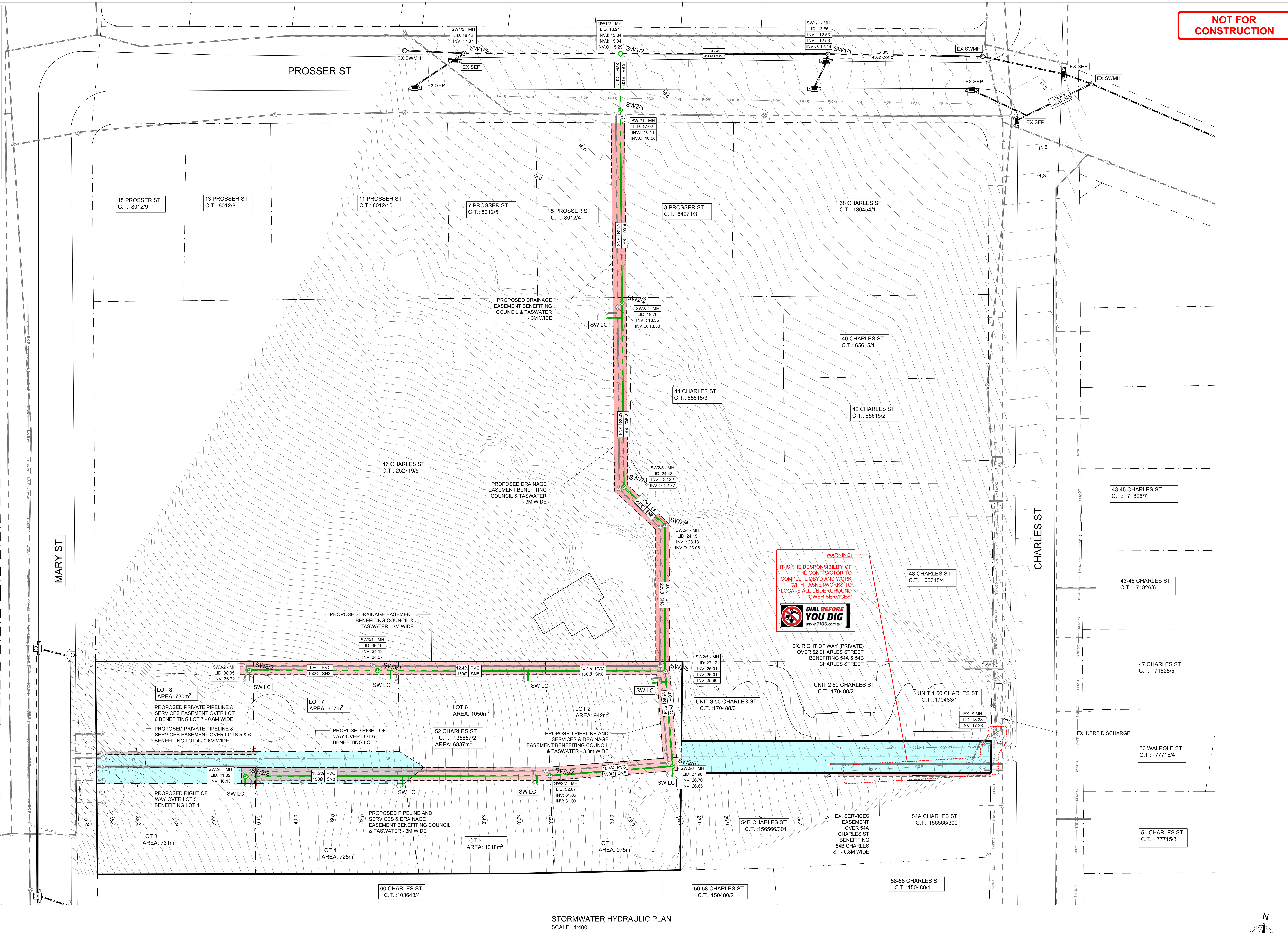
DRAWING TITLE
PROPOSED SITE PLAN

PROJECT NO	DWG NO	REV
18E99-126	C05	D

9/20/2018 9:44:46 AM

NOT FOR CONSTRUCTION

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.
4. ALL WORKS SHALL BE IN ACCORDANCE WITH AS3500, THE TASMANIAN PLUMBING CODE, WATER SERVICES ASSOCIATION OF AUSTRALIA, THE LOCAL COUNCIL REQUIREMENTS & ALL RELEVANT WH&S REQUIREMENTS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE SERVICES AUTHORITY AND LOCATE EXISTING UNDERGROUND SERVICES PRIOR TO ANY EXCAVATION WORKS COMMENCING ON SITE.
6. ALL WORKS TO BE COMPLETED BY APPROVED CONTRACTOR AT DEVELOPERS COST.
7. SW LC - PROPOSED PVC DN150 SN8 SW CONNECTION AS PER LGAT STANDARD DRAWINGS TSD-SW25-V1.
8. REFER TO H02 & H03 FOR STORMWATER LONG SECTIONS.
9. ALL PROPOSED STORMWATER MAINTENANCE SHAFTS - DN1050 SW MH AS PER TSD-SW02-V1 - REFER TO H02 & H03 FOR LID CLASSES.



PROSSER ST
MARY ST
CHARLES ST
SW1/3 - MH LID: 18.42 INV: 17.37
SW1/2 - MH LID: 16.21 INV.I: 15.34 INV.I: 15.34 INV.O: 15.29
SW1/1 - MH LID: 13.56 INV.I: 12.53 INV.I: 12.53 INV.O: 12.48
EX SWMH
EX SEP
SW2/1 - MH LID: 17.02 INV.I: 16.11 INV.O: 16.06
SW2/2 - MH LID: 19.78 INV.I: 18.55 INV.O: 18.50
SW2/3 - MH LID: 24.48 INV.I: 22.82 INV.O: 22.77
SW2/4 - MH LID: 24.15 INV.I: 23.13 INV.O: 23.08
SW2/5 - MH LID: 27.12 INV: 26.01 INV: 26.01 INV: 25.96
SW2/6 - MH LID: 27.90 INV: 26.70 INV: 26.65
SW2/7 - MH LID: 32.07 INV: 31.05 INV: 31.00
SW2/8 - MH LID: 41.02 INV: 40.13
SW3/1 - MH LID: 36.10 INV: 34.12 INV: 34.07
SW3/2 - MH LID: 38.05 INV: 36.72
SW LC
15 PROSSER ST C.T.: 8012/9
13 PROSSER ST C.T.: 8012/8
11 PROSSER ST C.T.: 8012/10
7 PROSSER ST C.T.: 8012/5
5 PROSSER ST C.T.: 8012/4
3 PROSSER ST C.T.: 64271/3
38 CHARLES ST C.T.: 130454/1
40 CHARLES ST C.T.: 65615/1
44 CHARLES ST C.T.: 65615/3
42 CHARLES ST C.T.: 65615/2
46 CHARLES ST C.T.: 252719/5
48 CHARLES ST C.T.: 65615/4
43-45 CHARLES ST C.T.: 71826/7
43-45 CHARLES ST C.T.: 71826/6
47 CHARLES ST C.T.: 71826/5
36 WALPOLE ST C.T.: 77715/4
51 CHARLES ST C.T.: 77715/3
PROPOSED DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE
EX. RIGHT OF WAY (PRIVATE) OVER 52 CHARLES STREET BENEFITING 54A & 54B CHARLES STREET
UNIT 2 50 CHARLES ST C.T. :170488/2
UNIT 3 50 CHARLES ST C.T. :170488/3
UNIT 1 50 CHARLES ST C.T. :170488/1
EX. S MH LID: 18.33 INV: 17.28
EX. KERB DISCHARGE
LOT 8 AREA: 730m²
LOT 7 AREA: 667m²
LOT 6 AREA: 1050m²
LOT 2 AREA: 942m²
52 CHARLES ST C.T. : 135657/2 AREA: 6837m²
PROPOSED PRIVATE PIPELINE & SERVICES EASEMENT OVER LOT 6 BENEFITING LOT 7 - 0.6M WIDE
PROPOSED PRIVATE PIPELINE & SERVICES EASEMENT OVER LOTS 5 & 6 BENEFITING LOT 4 - 0.6M WIDE
PROPOSED RIGHT OF WAY OVER LOT 6 BENEFITING LOT 7
PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3.0m WIDE
PROPOSED RIGHT OF WAY OVER LOT 5 BENEFITING LOT 4
PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE
LOT 3 AREA: 731m²
LOT 4 AREA: 725m²
LOT 5 AREA: 1018m²
LOT 1 AREA: 975m²
54B CHARLES ST C.T. :156566/301
EX. SERVICES EASEMENT OVER 54A CHARLES ST BENEFITING 54B CHARLES ST - 0.8M WIDE
54A CHARLES ST C.T. :156566/300
60 CHARLES ST C.T. :103643/4
56-58 CHARLES ST C.T. :150480/2
56-58 CHARLES ST C.T. :150480/1
WARNING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH TASNETWORKS TO LOCATE ALL UNDERGROUND POWER SERVICES.
DIAL BEFORE YOU DIG www.1100.com.au
N

STORMWATER HYDRAULIC PLAN
SCALE: 1:400

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
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Phone (03) 6224 5625 www.jsaengineers.com.au

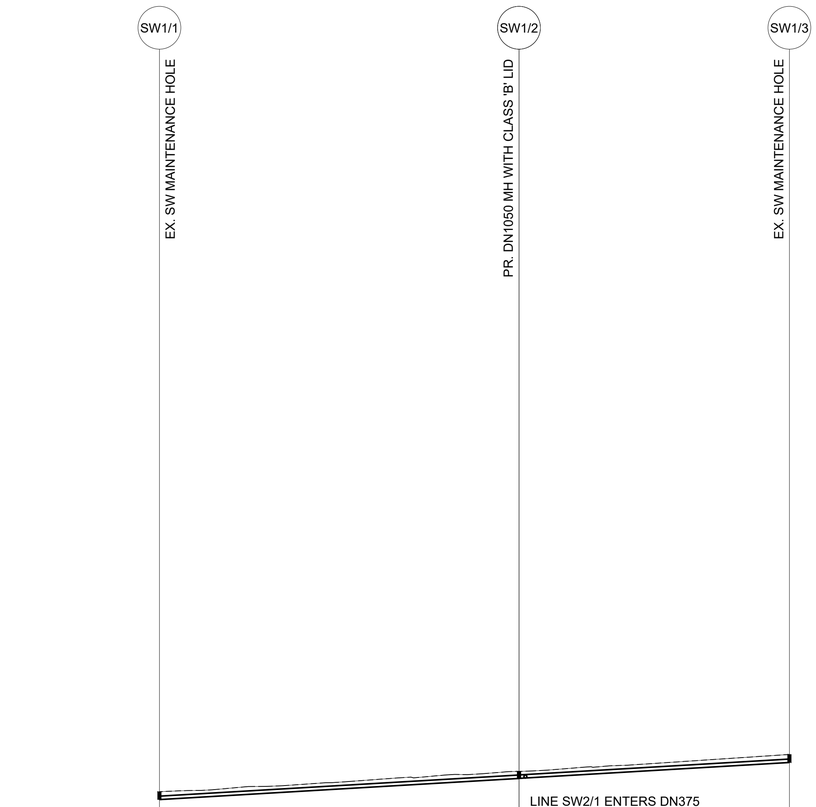
CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: E. TONG
HYDRAULIC ENGINEER: R. HORNER
STATUS: PLANNING APPROVAL

PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190

DRAWING TITLE: STORMWATER HYDRAULIC PLAN
PROJECT NO: 18E99-126
DWG NO: H01
REV: D

9/20/2018 9:44:46 AM

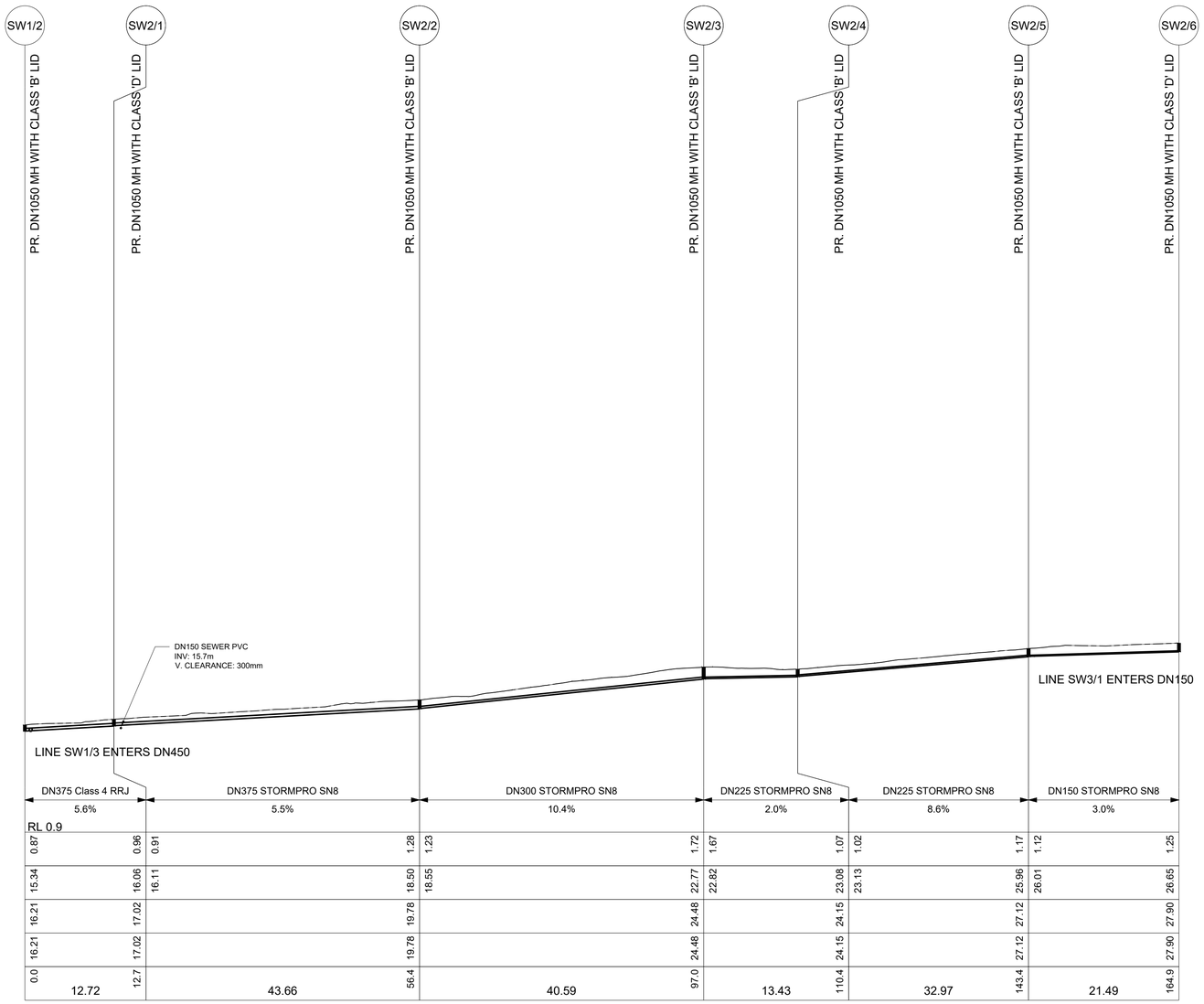
NOT FOR CONSTRUCTION



PIPE DETAILS		DN450 Class 4 RRJ		DN450 CLASS 4 RRJ	
SLOPE/GRADE		5.9%		5.9%	
DATUM RL -1.9					
DEPTH TO INVERT	1.03		0.92		1.05
INVERT LEVEL	12.53		15.29		17.37
TOP OF PIT LEVEL	13.56		16.21		18.42
EXISTING SURFACE	13.56		16.21		18.42
CHAINAGE	0.0	46.96	47.0	35.31	82.3

LONG SECTION FOR LINE SW1

SCALES: HORIZONTAL 1:400 VERTICAL 1:400



		DN375 Class 4 RRJ		DN375 STORMPRO SN8		DN300 STORMPRO SN8		DN225 STORMPRO SN8		DN225 STORMPRO SN8		DN150 STORMPRO SN8	
		5.6%		5.5%		10.4%		2.0%		8.6%		3.0%	
RL 0.9													
	0.87		0.96	0.91	1.28	1.23	1.72	1.67	1.07	1.02	1.17	1.12	1.25
	15.34		16.06	16.11	18.50	18.55	22.77	22.82	23.08	23.13	25.96	26.01	26.65
	16.21		17.02		19.78		24.48		24.15		27.12		27.90
	16.21		17.02		19.78		24.48		24.15		27.12		27.90
	0.0	12.72	12.7	43.66	56.4	40.59	97.0	13.43	110.4	32.97	143.4	21.49	164.9

LONG SECTION FOR LINE SW2

SCALES: HORIZONTAL 1:400 VERTICAL 1:400

STORMWATER LONG SECTION SH.01
SCALE: H 1:400 V 1:400

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20					
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20					
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

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Phone (03) 6224 5625 www.jsaengineers.com.au

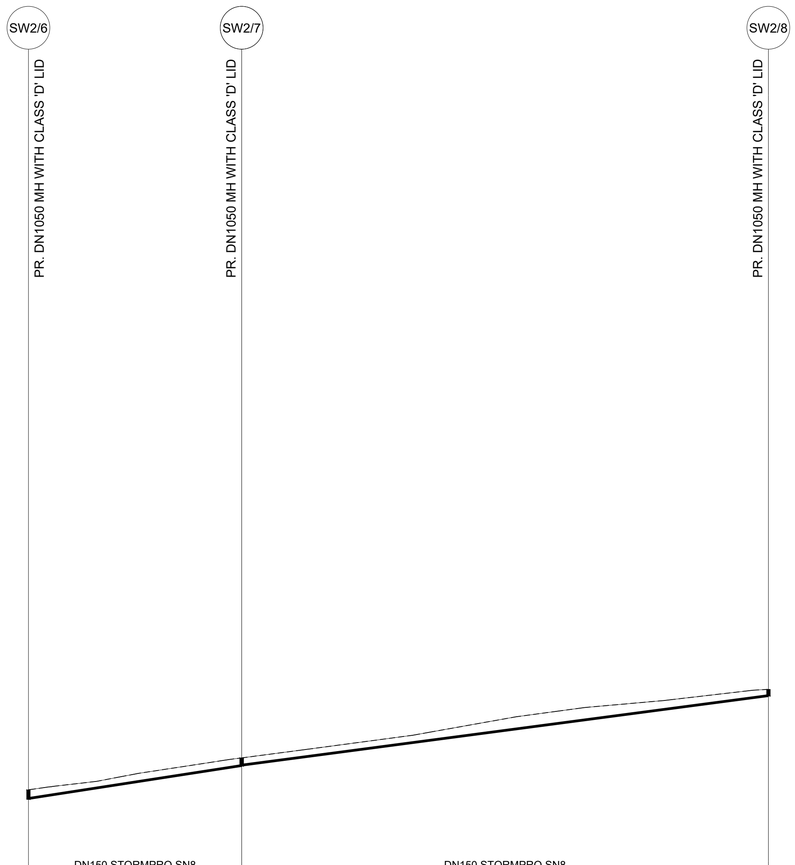
CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: E. TONG
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
STORMWATER LONG SECTION SH.01
PROJECT NO: **18E99-126**
DWG NO: **H02**
REV: **D**

9/20/2018 9:47:43 AM

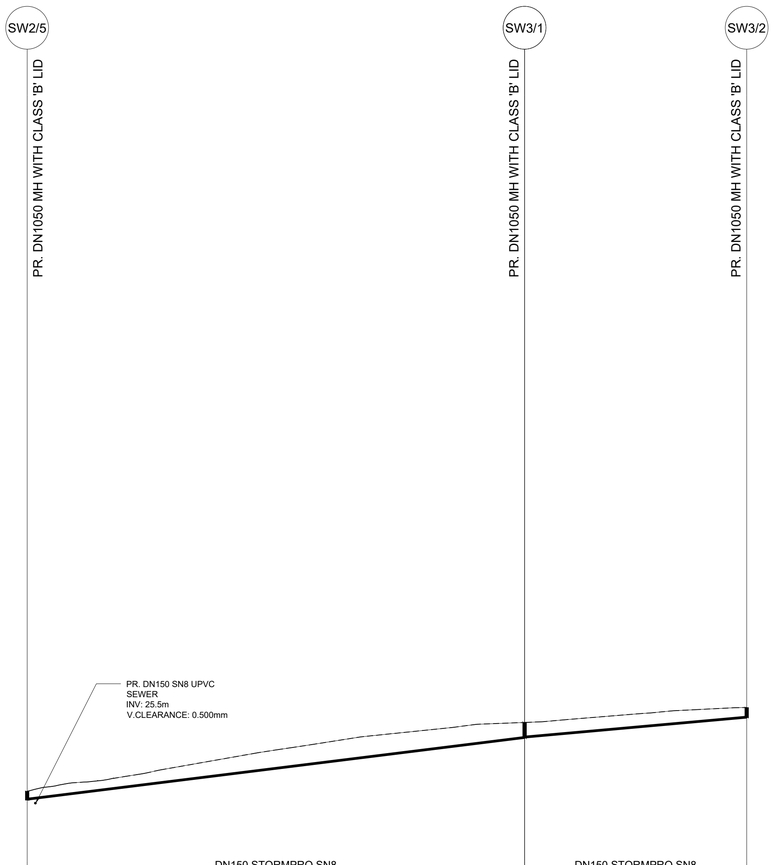
NOT FOR CONSTRUCTION



PIPE DETAILS						
SLOPE/GRADE	DN150 STORMPRO SN8 15.4%			DN150 STORMPRO SN8 13.2%		
DATUM RL 12.2						
DEPTH TO INVERT	1.20		1.07	1.02		0.89
INVERT LEVEL	26.70		31.00	31.05		40.13
TOP OF PIT LEVEL	27.90		32.07			41.02
EXISTING SURFACE	27.90		32.07			41.02
CHAINAGE	164.9	27.85	192.7		68.79	261.5

LONG SECTION FOR LINE SW2

SCALES: HORIZONTAL 1:400 VERTICAL 1:400



	DN150 STORMPRO SN8 12.4%			DN150 STORMPRO SN8 9.0%		
RL 11.6						
	1.12		2.04	1.99		1.33
	26.01		34.07	34.12		36.72
	27.12		36.10			38.05
	27.12		36.10			38.05
	0.0	64.96	65.0		29.00	94.0

LONG SECTION FOR LINE SW3

SCALES: HORIZONTAL 1:400 VERTICAL 1:400

STORMWATER LONG SECTION SH.02
SCALE: H 1:400 V 1:400

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE
PRINTED & READ IN COLOUR

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Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED	M. HORSHAM CC5865 I	SCALE	AS SHOWN
SIZE	A1		
CIVIL ENGINEER	E. TONG	HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL		

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

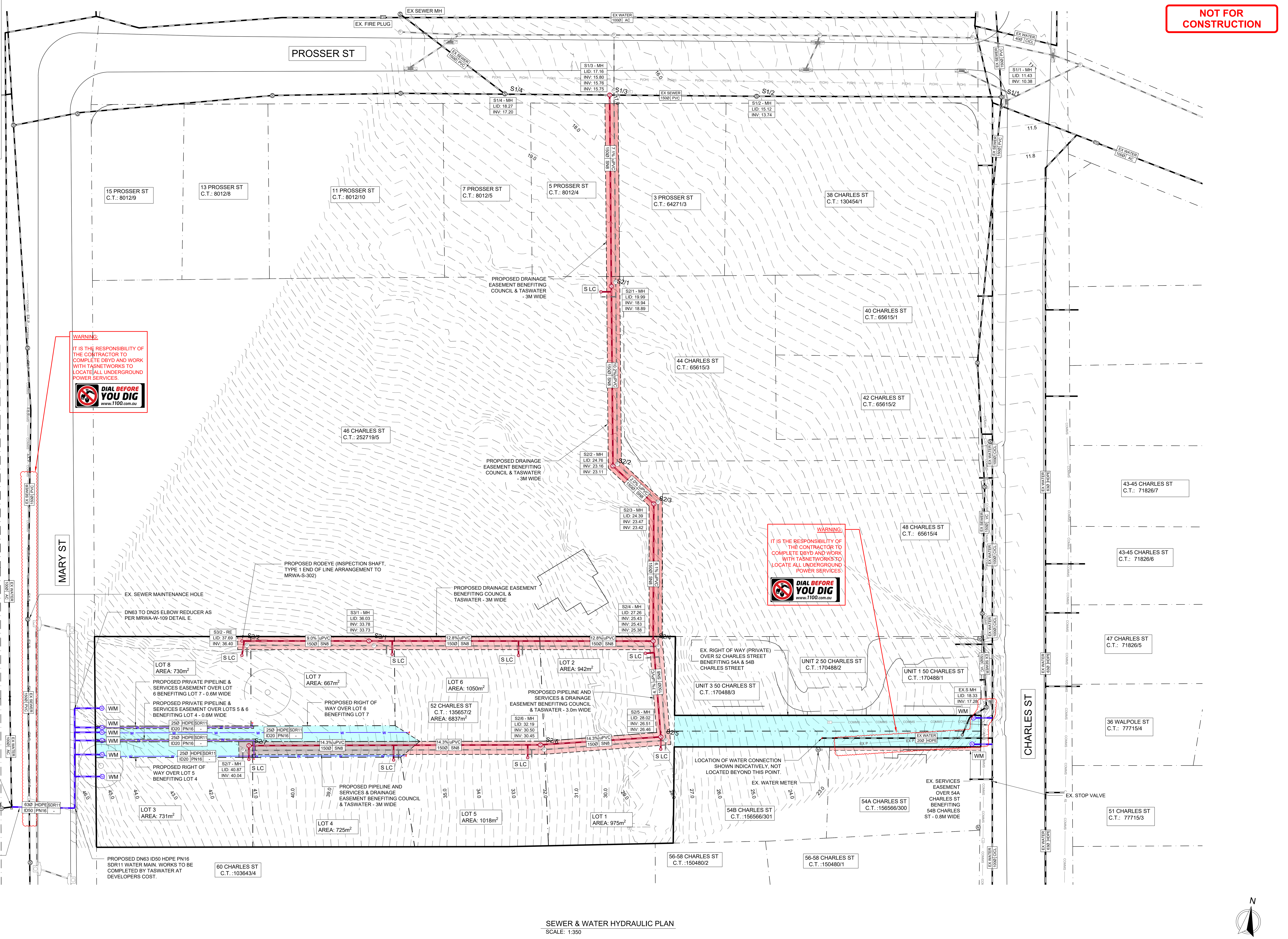
DRAWING TITLE
STORMWATER LONG SECTION SH.02

PROJECT NO	DWG NO	REV
18E99-126	H03	D

9/20/2018 9:47:43 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019 & 25/02/2020.
4. ALL WORKS MUST BE TO THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2, SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2 AND TASWATER SUPPLEMENTS, TASWATER STANDARD DRAWINGS TWS-W-0002 SERIES, WATER METER POLICY/METERING GUIDELINES & AS3500.1:2003.
5. WM - 8 No. NEW ID20 WATER METERS & DN25 ID20 PN16 HDPE SDR11 WATER CONNECTIONS (1 PER LOT) AS PER TWS-W-0002 REV.5 SHEET 05 TO BE SUPPLIED & INSTALLED BY TASWATER AT DEVELOPERS COST.
6. S LC - PROPOSED DN100 SN10 SEWER LOT CONNECTION AS PER MRWA-S-300-SERIES.
7. PROPOSED SEWER MAINTENANCE SHAFTS - DN1050 MH AS PER MRWA-S-300 SERIES, REFER TO H05 & H06 FOR LID CLASSES.

NOT FOR CONSTRUCTION



PROSSER ST
MARY ST
CHARLES ST
EX SEWER MH
EX. FIRE PLUG
S1/4 - MH LID: 18.27 INV: 17.20
S1/3 - MH LID: 17.16 INV: 15.80 INV: 15.76 INV: 15.75
S1/2 - MH LID: 15.12 INV: 13.74
S1/1 - MH LID: 11.43 INV: 10.38
15 PROSSER ST C.T.: 8012/9
13 PROSSER ST C.T.: 8012/8
11 PROSSER ST C.T.: 8012/10
7 PROSSER ST C.T.: 8012/5
5 PROSSER ST C.T.: 8012/4
3 PROSSER ST C.T.: 64271/3
38 CHARLES ST C.T.: 130454/1
40 CHARLES ST C.T.: 65615/1
44 CHARLES ST C.T.: 65615/3
42 CHARLES ST C.T.: 65615/2
46 CHARLES ST C.T.: 252719/5
48 CHARLES ST C.T.: 65615/4
11 MARY ST C.T.:154406/3
9 MARY ST C.T.:154406/4
7 MARY ST C.T.:154406/5
43-45 CHARLES ST C.T.: 71826/7
43-45 CHARLES ST C.T.: 71826/6
47 CHARLES ST C.T.: 71826/5
36 WALPOLE ST C.T.: 77715/4
51 CHARLES ST C.T.: 77715/3
PROPOSED DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE
S2/1 - MH LID: 19.99 INV: 18.94 INV: 18.89
S2/2 - MH LID: 24.76 INV: 23.16 INV: 23.11
S2/3 - MH LID: 24.39 INV: 23.47 INV: 23.42
S2/4 - MH LID: 27.26 INV: 25.43 INV: 25.43 INV: 25.38
S2/5 - MH LID: 28.02 INV: 26.51 INV: 26.46
S2/6 - MH LID: 32.19 INV: 30.50 INV: 30.45
S2/7 - MH LID: 40.87 INV: 40.04
S3/1 - MH LID: 36.03 INV: 33.78 INV: 33.73
S3/2 - RE LID: 37.69 INV: 36.40
WARNING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH TASNETWORKS TO LOCATE ALL UNDERGROUND POWER SERVICES.
DIAL BEFORE YOU DIG www.1100.com.au
PROPOSED RODEYE (INSPECTION SHAFT, TYPE 1 END OF LINE ARRANGEMENT TO MRWA-S-302)
EX. SEWER MAINTENANCE HOLE
DN63 TO DN25 ELBOW REDUCER AS PER MRWA-W-109 DETAIL E.
LOT 8 AREA: 730m²
LOT 7 AREA: 667m²
LOT 6 AREA: 1050m²
LOT 2 AREA: 942m²
LOT 3 AREA: 731m²
LOT 4 AREA: 725m²
LOT 5 AREA: 1018m²
LOT 1 AREA: 975m²
52 CHARLES ST C.T. : 135657/2 AREA: 6837m²
PROPOSED PRIVATE PIPELINE & SERVICES EASEMENT OVER LOT 6 BENEFITING LOT 7 - 0.6M WIDE
PROPOSED PRIVATE PIPELINE & SERVICES EASEMENT OVER LOTS 5 & 6 BENEFITING LOT 4 - 0.6M WIDE
PROPOSED RIGHT OF WAY OVER LOT 6 BENEFITING LOT 7
PROPOSED RIGHT OF WAY OVER LOT 5 BENEFITING LOT 4
PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3.0m WIDE
PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE
EX. RIGHT OF WAY (PRIVATE) OVER 52 CHARLES STREET BENEFITING 54A & 54B CHARLES STREET
UNIT 2 50 CHARLES ST C.T. :170488/2
UNIT 3 50 CHARLES ST C.T. :170488/3
UNIT 1 50 CHARLES ST C.T. :170488/1
LOCATION OF WATER CONNECTION SHOWN INDICATIVELY, NOT LOCATED BEYOND THIS POINT.
EX. WATER METER
EX. STOP VALVE
EX. SERVICES EASEMENT OVER 54A CHARLES ST BENEFITING 54B CHARLES ST - 0.8M WIDE
54A CHARLES ST C.T. :156566/300
54B CHARLES ST C.T. :156566/301
56-58 CHARLES ST C.T. :150480/2
56-58 CHARLES ST C.T. :150480/1
60 CHARLES ST C.T. :103643/4
PROPOSED DN63 ID50 HDPE PN16 SDR11 WATER MAIN TO BE CONNECTED TO EX. DN100 AC WATER MAIN ACROSS MARY STREET. WORKS TO BE COMPLETED BY TASWATER AT DEVELOPERS COST.
PROPOSED DN63 ID50 HDPE PN16 SDR11 WATER MAIN. WORKS TO BE COMPLETED BY TASWATER AT DEVELOPERS COST.
N

SEWER & WATER HYDRAULIC PLAN
SCALE: 1:350

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

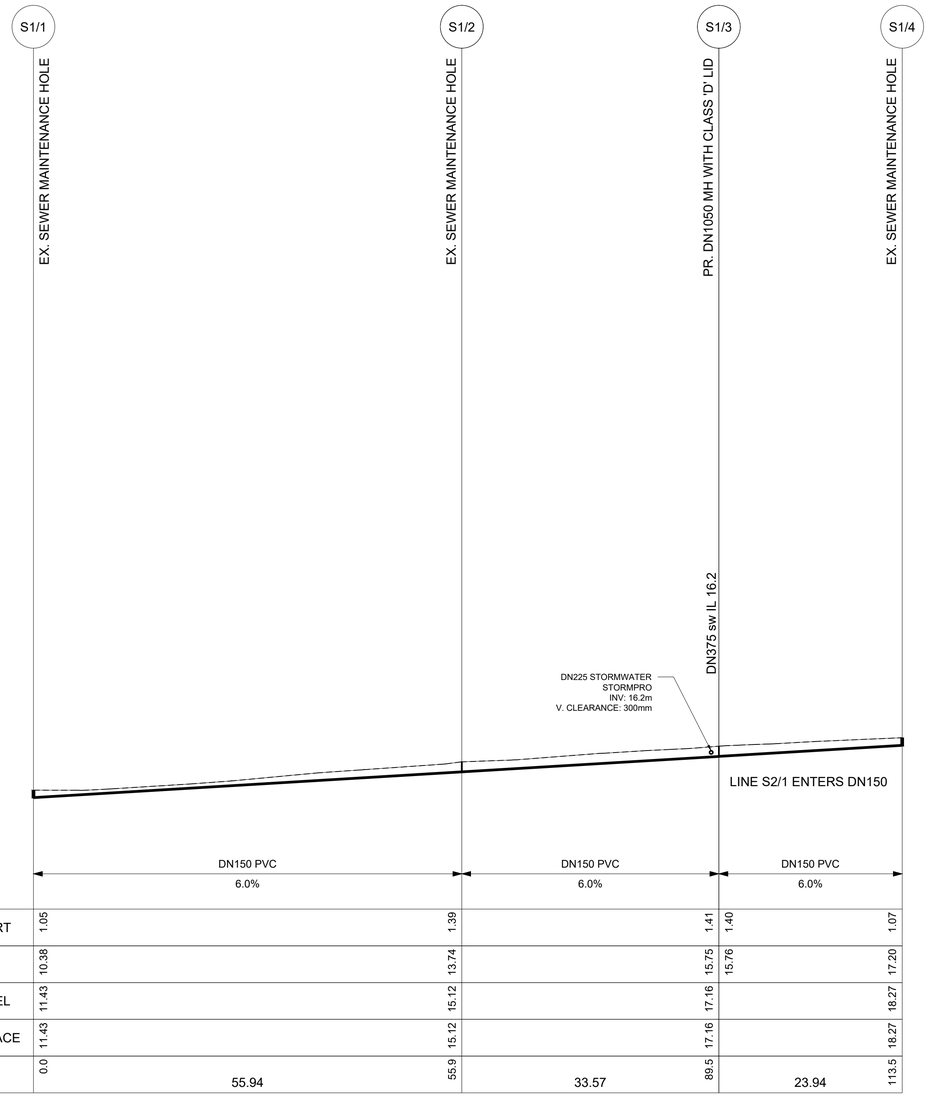
JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
CIVIL ENGINEER: E. TONG	HYDRAULIC ENGINEER: R. HORNER		
STATUS: PLANNING APPROVAL			

DRAWING TITLE: SEWER & WATER HYDRAULIC PLAN
PROJECT NO: 18E99-126
DWG NO: H04
REV: D

9/20/2018 9:44:46 AM

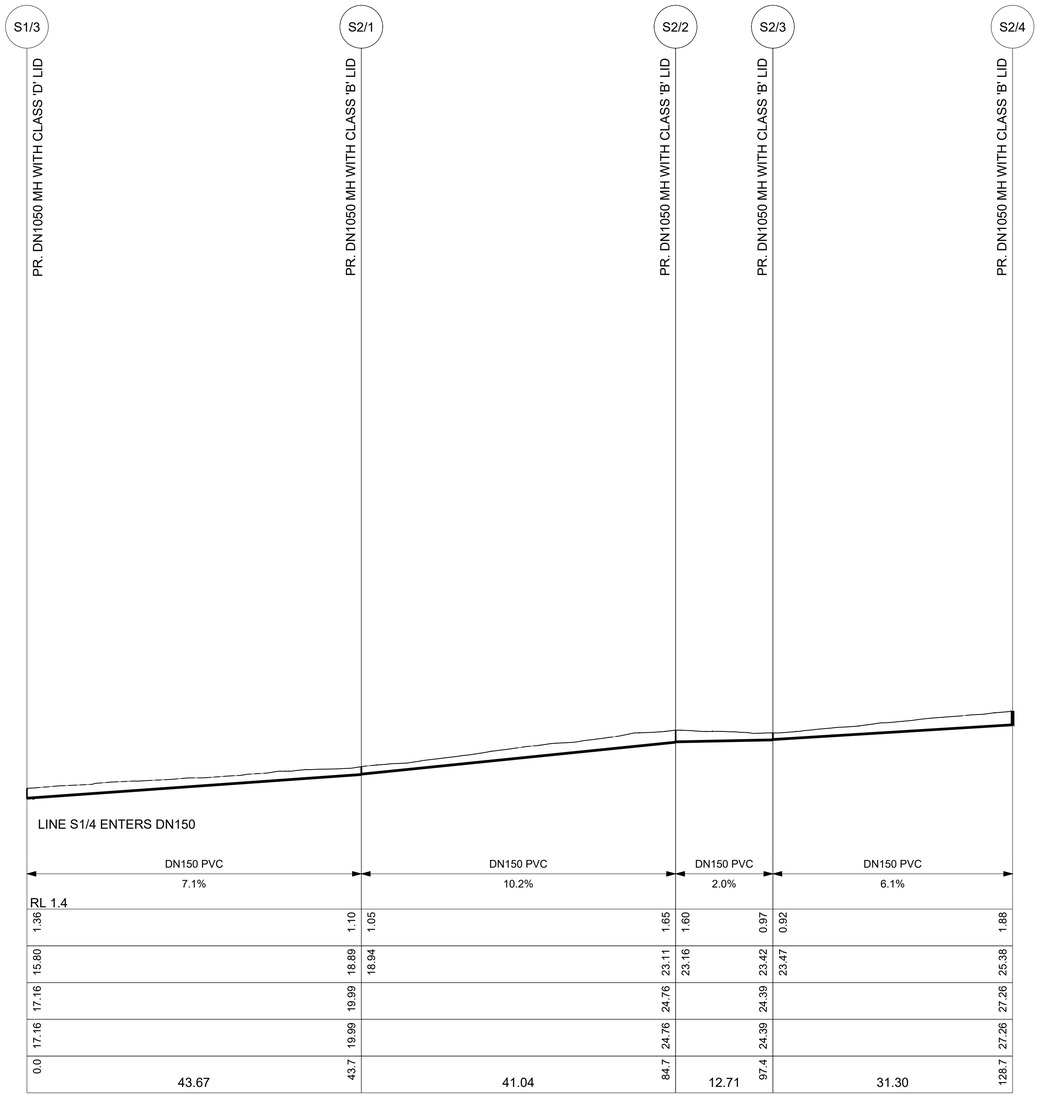
NOT FOR CONSTRUCTION



PIPE DETAILS									
SLOPE/GRADE		DN150 PVC 6.0%			DN150 PVC 6.0%			DN150 PVC 6.0%	
DATUM RL -4.1									
DEPTH TO INVERT	1.05		1.39		1.41		1.40		1.07
INVERT LEVEL	10.38		13.74		15.75		15.76		17.20
TOP OF PIT LEVEL	11.43		15.12		17.16				18.27
EXISTING SURFACE	11.43		15.12		17.16				18.27
CHAINAGE	0.0	55.94	55.9		89.5	33.57		23.94	113.5

LONG SECTION FOR LINE S1

SCALES: HORIZONTAL 1:400 VERTICAL 1:400



PIPE DETAILS													
SLOPE/GRADE		DN150 PVC 7.1%			DN150 PVC 10.2%			DN150 PVC 2.0%		DN150 PVC 6.1%			
RL 1.4													
	1.36		1.10		1.05		1.65	1.60	0.97	0.92		1.88	
	15.80		18.89		18.94		23.11	23.16	23.42	23.47		25.38	
	17.16		19.99				24.76		24.39			27.26	
	17.16		19.99				24.76		24.39			27.26	
	0.0	43.67	43.7		84.7	41.04		97.4	12.71		31.30		128.7

LONG SECTION FOR LINE S2

SCALES: HORIZONTAL 1:400 VERTICAL 1:400

SEWER LONG SECTION SH.01
SCALE: H 1:400 V 1:400

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20					
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20					
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

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CHECKED	SCALE	SIZE
M. HORSHAM CC5865 I	AS SHOWN	A1
CIVIL ENGINEER	HYDRAULIC ENGINEER	
E. TONG	R. HORNER	
STATUS		
PLANNING APPROVAL		

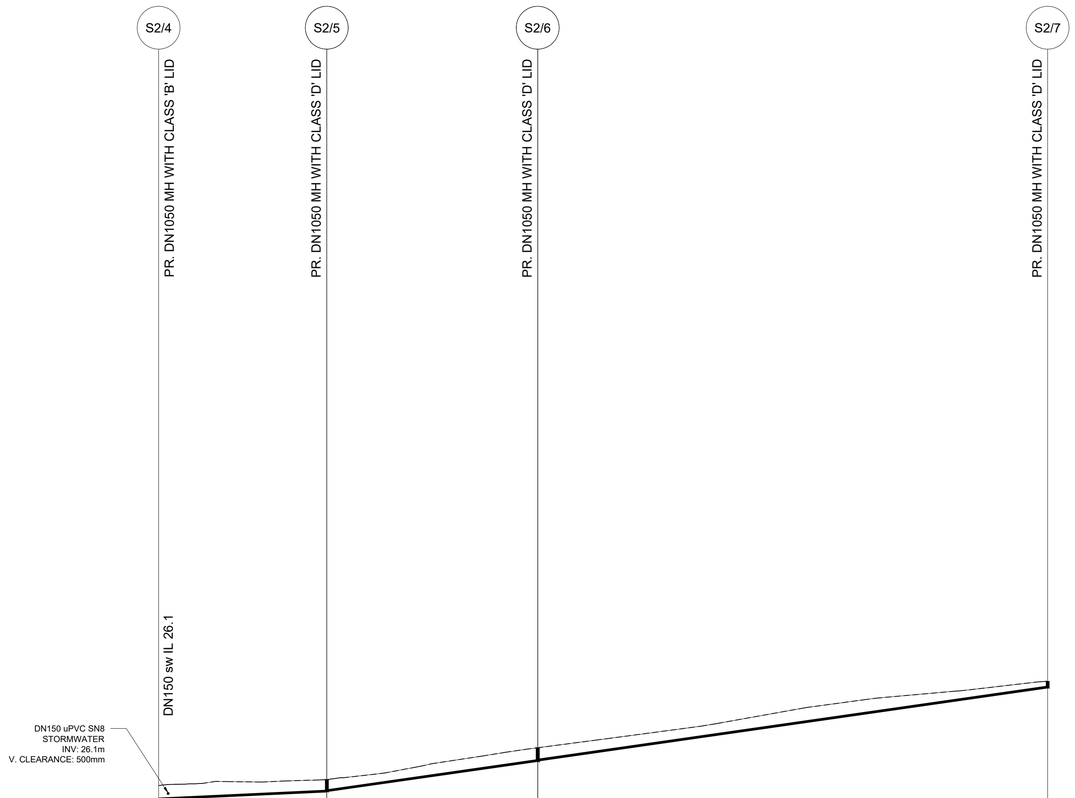
PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
SEWER LONG SECTION SH.01

PROJECT NO	DWG NO	REV
18E99-126	H05	D

9/20/2018 9:47:43 AM

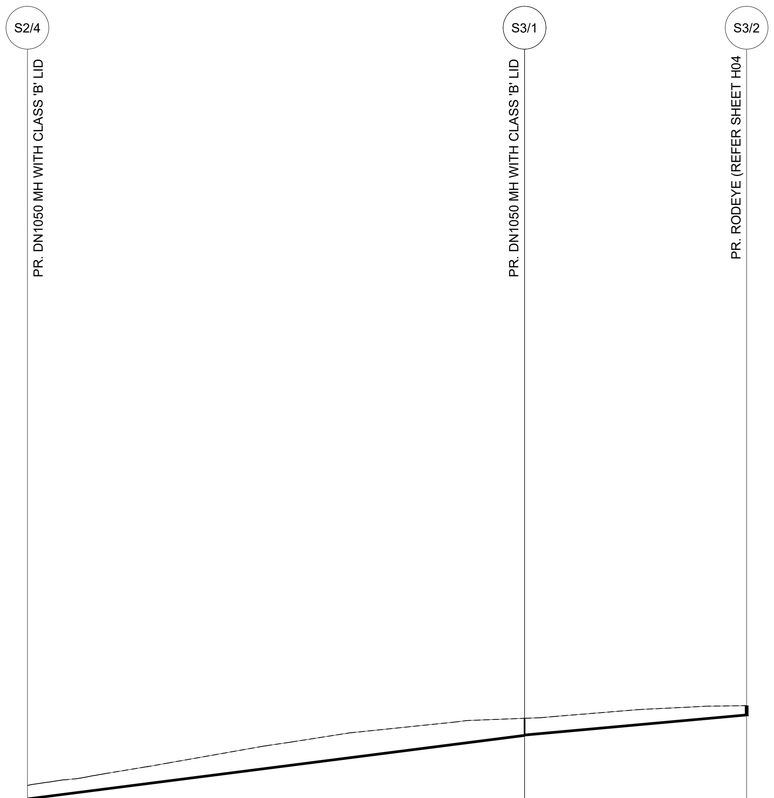
NOT FOR CONSTRUCTION



PIPE DETAILS	DN150 PVC		DN150 PVC		DN150 PVC	
SLOPE/GRADE	4.7%		14.3%		14.3%	
DATUM RL 11						
DEPTH TO INVERT	1.83	1.57	1.52	1.74	1.69	0.83
INVERT LEVEL	25.43	26.46	26.51	30.45	30.50	40.04
TOP OF PIT LEVEL	27.26	28.02		32.19		40.87
EXISTING SURFACE	27.26	28.02		32.19		40.87
CHAINAGE	128.7	150.7		178.2		244.8
	21.96		27.55		66.59	

LONG SECTION FOR LINE S2

SCALES: HORIZONTAL 1:400 VERTICAL 1:400



	DN150 PVC		DN150 PVC	
	12.8%		9.0%	
	1.83	2.30	2.25	1.29
	25.43	33.73	33.78	36.40
	27.26	36.03		37.69
	27.26	36.03		37.69
	0.0	64.9		93.9
	64.92		29.00	

LONG SECTION FOR LINE S3

SCALES: HORIZONTAL 1:400 VERTICAL 1:400

SEWER LONG SECTION SH.02
SCALE: H 1:400 V 1:400

REV	DESCRIPTION	BY	CHK	DATE
D	FOR PLANNING APPROVAL - CLIENT AMENDMENT	ET	MH	06/03/20
C	FOR PLANNING APPROVAL - DA3	ET	MH	20/02/20
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REV DATE: 30/10/18

IMPORTANT
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CHECKED	SCALE	SIZE
M. HORSHAM CC5865 I	AS SHOWN	A1
CIVIL ENGINEER	HYDRAULIC ENGINEER	
E. TONG	R. HORNER	
STATUS		
PLANNING APPROVAL		

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
SEWER LONG SECTION SH.02

PROJECT NO	DWG NO	REV
18E99-126	H06	D

9/20/2018 9:47:43 AM

PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190,
TASMANIA

NOT FOR CONSTRUCTION

INDEX

LOCALITY PLAN
SCALE: N.T.S.

DESIGN SPECIFICATIONS

1. STORMWATER PIPE COVER DESIGNED TO TASMANIAN STANDARD DRAWINGS (LGAT).
2. SEWER PIPELINE DESIGNED TO MRWA SEWERAGE STANDARDS.

N

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE
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CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	
CIVIL ENGINEER: B. AALTONEN	HYDRAULIC ENGINEER: R. HORNER		
STATUS: PLANNING APPROVAL			

PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190

DRAWING TITLE: INDEX & COVER SHEET

PROJECT NO	DWG NO	REV
18E99-126	C00	B

20/09/2018 9:14:26 AM

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CIVIL AND HYDRAULIC NOTES

GENERAL NOTES

1. THE MAIN CONTRACTOR AND ALL SUB CONTRACTORS SHALL COMPLY WITH THE STATE WORK HEALTH AND SAFETY ACT AND ALL RELEVANT CODES OF PRACTICE.
2. ALL HYDRAULICS WORKS TO BE CARRIED OUT IN ACCORDANCE WITH IPWEA STANDARD DRAWINGS AND SPECIFICATIONS, (WSAA SEWERAGE CODE OF AUSTRALIA & WATER SUPPLY CODE OF AUSTRALIA) AND TO THE SATISFACTION OF COUNCIL'S DEVELOPMENT ENGINEER.
3. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING TASNETWORKS TO APPLY FOR NEW CONNECTIONS AND/OR ADDITIONAL SUPPLY. SUFFICIENT TIME FOR TASNETWORKS DESIGN AND REVIEW PROCESSES SHOULD BE ALLOWED FOR.
4. NO TOP SOIL SHALL BE REMOVED FROM THE SITE WITHOUT THE CONSENT OF COUNCIL. TOP SOIL DISTURBED OR REMOVED AS A RESULT OF WORKS SHALL BE STOCK-PILED ON SITE AND LATER USED FOR REDRESSING ANY DISTURBED SURFACES.
5. ALL DISTURBED SURFACES ON SITE, EXCEPT THOSE SET ASIDE FOR ROADWAYS AND FOOTPATHS SHALL BE DRESSED WITH IMPORTED FILL AND REVEGETATED TO THE SATISFACTION OF THE COUNCIL'S DEVELOPMENT ENGINEER.
6. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
7. ALL LEVELS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
8. ALL CONNECTIONS TO EXISTING STORMWATER MAINS TO BE CARRIED OUT BY COUNCIL AT DEVELOPERS COST UNLESS APPROVED OTHERWISE, ALL CONNECTIONS TO SEWER/WATER MAINS TO BE CARRIED OUT BY TASWATER AT DEVELOPERS COST UNLESS APPROVED OTHERWISE
9. GENERAL MATERIALS, INSTALLATION AND TESTING SHALL COMPLY WITH TASMANIAN MUNICIPAL STANDARDS PART 4.
10. EXCAVATED AND IMPORTED MATERIAL USED AS FILL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
11. ANY DEPARTURES FROM THE DESIGN DRAWINGS ARE TO BE AT THE WRITTEN APPROVAL OF THE ENGINEER AND APPROVAL FROM THE AUTHORITY. CHANGES INCLUDES CONFLICTS WITH EXISTING SERVICES.
12. UNLESS NOTED OTHERWISE, THESE NOTES SHALL APPLY TO ALL DRAWINGS IN THE SET
13. BATTERS:

MAX EMBANKMENT SLOPE	1:3.0
MAX CUTTING SLOPE	1:2.0 (LOOSE ROCK)
	1:3.0 (SOIL)

APPROVALS:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT A VALID BUILDING AND PLUMBING PERMIT IS IN PLACE FOR THE WORK AND THAT THE BUILDING SURVEYOR IS NOTIFIED OF ALL SITE INSPECTION REQUESTS.
2. THE APPLICANT SHALL NOT COMMENCE CIVIL CONSTRUCTION WORKS WITHIN A ROAD RESERVE UNTIL THE FOLLOWING REQUIREMENTS ARE MET:
3. A 'PERMIT TO CARRY OUT WORKS WITHIN A COUNCIL ROAD RESERVATION' HAS BEEN ISSUED BY THE COUNCIL AND THE ASSOCIATED FEE PAYMENT MADE
4. TRAFFIC MANAGEMENT AND PEDESTRIAN PLAN HAS BEEN PRODUCED AND FOLLOWED IN ACCORDANCE WITH DEPARTMENT OF INFRASTRUCTURE, ENERGY AND RESOURCES 'TRAFFIC CONTROL AT WORK SITES' CODE OF PRACTICE.

GENERAL HYDRAULICS NOTES:

1. DURING CONSTRUCTION ANY OPEN PIPES TO BE SEALED TEMPORARILY DURING WORKS TO PREVENT ENTRY OF FOREIGN MATTER
2. CONCEAL ALL PIPEWORK IN DUCTS, CEILING SPACES, WALL CAVITIES UNLESS OTHERWISE NOTED
3. CONFIRM ALL INVERT LEVELS PRIOR TO EXCAVATION.
4. THE LOCATION OF EXISTING SERVICES SHOULD BE CONFIRMED ONSITE INCLUDING: MAINS WATER, GAS, TELECOMMUNICATIONS, POWER, SEWER STORMWATER.
5. ALL PIPEWORK UNDER TRAFFICABLE AREAS TO BE BACKFILLED TO FULL DEPTH WITH DIER CLASS A 19MM FCR COMPACTED TO AS3798.
6. FOR CLASS H AND E SITES, JOINTS IN PLUMBING SHALL BE ARTICULATED WITHIN 3M OF THE BUILDING UNDER CONSTRUCTION TO ACCOMMODATE GROUND MOVEMENT WITHOUT LEAKAGE.
7. ALL PIPEWORK SHALL BE ADEQUATELY SUPPORTED. SUPPORT SHALL ALLOW FOR EXPANSION AND BE FITTED AT THE TIME OF PIPE INSTALLATION
8. WHERE PIPEWORK PENETRATES FIRE RATED WALL OR FLOORS A FIRE STOP COLLAR SHALL BE INSTALLED

SEWER NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH WSAA SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2.0, TASWATERS SUPPLEMENT TO THIS CODE, AS3500.2:2018 AND TO THE SATISFACTION OF TASWATER'S DEVELOPMENT ENGINEER.
2. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
3. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY TASWATER'S APPROVED CONTRACTOR AT DEVELOPERS COST UNLESS APPROVED OTHERWISE.
4. GENERAL MATERIALS, INSTALLATION & TESTING SHALL COMPLY WITH WSAA SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2.0, TASWATERS SUPPLEMENT TO THIS CODE, AS3500.2:2018 AND TO THE SATISFACTION OF TASWATER'S DEVELOPMENT ENGINEER.
5. ALL DROPS MUST BE INTERNAL AND IN ACCORDANCE WITH MRWA S-311.
6. ALL PIPE WORK UNDER TRAFFICABLE AREAS, INCLUDING DRIVEWAYS, IS TO BE BACKFILLED WITH FCR.
7. LOT CONNECTIONS SHALL BE DN100 UPVC U.N.O. AS PER MRWA S-302 AND BRING INSPECTION OPENING TO SURFACE INSIDE LOT BOUNDARY.
8. ALL SEWER MAINS TO BE PIPE CLASS SN8.
9. PIPEWORK SHALL BE PRESSURE TESTED PROGRESSIVELY DURING INSTALLATION TO ENSURE ABSENCE OF LEAKS.
10. ALL PIPEWORK SHALL BE INSTALLED AS CLOSE AS PRACTICABLE TO THE UNDERSIDE OF FLOORS.

STORMWATER NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL MUNICIPAL STANDARDS, AS3500 AND IPWEA (TAS) MUNICIPAL STANDARD DRAWINGS AND SPECIFICATIONS WHERE APPLICABLE AND TO THE SATISFACTION OF COUNCIL'S MUNICIPAL ENGINEER
2. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY COUNCIL AT DEVELOPERS COST UNLESS APPROVED OTHERWISE.
3. GENERAL MATERIALS, INSTALLATION & TESTING SHALL COMPLY WITH TASMANIAN MUNICIPAL STANDARDS PART 4. PROVIDE 600mm MIN COVER TO ALL SERVICES.
4. ALL PIPE WORK UNDER TRAFFICABLE AREAS INCLUDING DRIVEWAYS IS TO BE FILLED WITH FCR.
5. LOT CONNECTIONS SHALL BE DN150 UPVC UNO MINIMUM PIPE CLASS TO BE CLASS SN4, PIPE UNDER ROADS TO BE CLASS SN8.
6. ALL MAINTENANCE HOLES DEEPER THAN 1m FROM FINISHED SURFACE LEVEL TO MAINTENANCE HOLE BASE TO BE FITTED WITH APPROVED STEP IRONS.
7. IPWEA STANDARD DRAWINGS REFERENCED ARE THE MOST RECENT DRAWING SET UNO.

WATER NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH WSAA WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2.0, TASWATERS SUPPLEMENT TO THIS CODE AND TO THE SATISFACTION OF TASWATERS DEVELOPMENT ENGINEER.
2. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORK.
3. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY TASWATER AT DEVELOPERS COST UNLESS APPROVED OTHERWISE.
4. GENERAL MATERIALS INSTALLATION AND TESTING SHALL COMPLY WITH WSA 03-2011-3.1 AND TASWATER APPROVED PRODUCTS CATALOGUE.
5. WATER MAIN TO BE oPVC SERIES 2 CLASS 16 OR APPROVED EQUIVALENT, WITH RODS AND CONNECTIONS BEING POLY PN16 PE100.
6. THRUST BLOCKS SHALL BE INSTALLED AT ALL TEES, BLANK ENDS, VALVES, FIRE HYDRANTS, REDUCERS AND BENDS GREATER THAN 5°.
7. INDIVIDUAL LOT CONNECTIONS TO BE MIN DN25 ID20 PN16 POLY UNO.
8. DEVELOPER TO MAKE APPLICATION TO TASWATER FOR THE SUPPLY OF 20mm WATER METER AND BOX, PRIOR TO COMMENCEMENT OF WORKS ONSITE. METER TO BE INSTALLED BY PLUMBING CONTRACTOR.
9. ALL ISOLATION VALVES SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS. VALVES LOCATED IN WALLS OR DUCTS SHALL BE FITTED WITH APPROVED ACCESS COVERS.
10. INTERNAL PLUMBING SHALL BE CONSTRUCTED IN ACCORDANCE WITH AS3500 PARTS 1, 2 & 3 AND THE TASMANIAN PLUMBING CODE
11. THE PLUMBER SHALL ARRANGE FOR ALL INSPECTIONS AND PRESSURE TESTING REQUIRED BY TASWATER OR THE LOCAL AUTHORITY PRIOR TO CONCEALMENT.
12. ALL STOP VALVES TO BE CLOCKWISE CLOSING.
13. PROVIDE C.I. VALVE BOX COVERS TO ALL VALVES AND FIRE PLUG.
14. STOP VALVES AND FIRE PLUGS SHALL BE MARKED IN ACCORDANCE WITH THE IPWEA FIRE HYDRANT GUIDELINES: TASMANIA DIVISION.
15. FIRE PLUGS AND VALVE POSITIONS TO BE MARKED ON KERB BACKS WITH HIMARK CONCRETE PAINT.
16. PROVIDE ELECTROMAGNETIC, METAL IMPREGNATED TAPE IN ALL NON METALLIC PIPE TRENCHES. ENSURE TAPE TERMINATIONS ARE ACCESSIBLE.
17. ALL PROPERTY CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MRWA-W-110 AND MRWA-W-111 AND TASWATER STANDARD DRAWING TW-SD-W-20 SERIES. THEY SHALL BE DN25 (ID20) HDPE PE100 SDR11 PN16 PIPE
18. ALL FITTINGS TO BE F.B.E.
19. FIRE PLUGS TO HAVE 100mm RISERS WITH SPRING TYPE PLUGS.
20. TASWATER TO WITNESS PRESSURE TEST TO 1200kPA PRIOR TO BACKFILL AT JOINTS.
21. MAIN TO BE DISINFECTED PRIOR TO CONNECTION TO THE RETICULATION NETWORK. REFER TO WSA CODE FOR DETAILS.
22. PLACEMENT OF WATER MAINS IN FILL REQUIRES THE CONTRACTOR TO PROVIDE DOCUMENTARY EVIDENCE INCLUDING; THE COMPOSITION OF FILL MATERIAL, VERIFYING THAT IT CONTAINS NO ORGANIC OR OTHER MATERIALS THAT DECOMPOSE OR OTHERWISE LEAD TO LONG TERM SETTLEMENT.

ROAD NOTES:

1. MINIMUM SUB BASE THICKNESS TO BE 200mm.
2. PRIOR TO PLACEMENT OF SUB BASE COURSE, PAVEMENT CUT IS TO BE ROLLED AND TESTED FOR CBR VALUES BY METHOD APPROVED BY THE SUPERINTENDENT. WHERE THE CBR VALUES ARE LESS THAN 5 WITHIN THE FIRST 200mm THEN ADDITIONAL TESTS WILL BE REQUIRED TO ALLOW SUFFICIENT DESIGN ALTERATIONS TO THE SUB BASE.
3. PAVEMENT DESIGN BASED ON A CBR VALUE OF 3-4%.
4. ROAD MARKINGS AND SIGNS AS PER AS1742
5. IF THE CBR VALUE IS LESS THAN 2 AT ANY DEPTH GREATER THAN 200mm THEN THE SUB BASE IS TO BE INCREASED GENERALLY ACCORDING TO THE FOLLOWING TABLE & CONSULT ENGINEER:

CBR VALUES:	DESIGN:
3-4	AS PER PAVEMENT DETAIL
~2	ADVISE & CONSULT ENGINEER. TYPICALLY INCREASE SUB BASE TO 400mm THICK (SUBGRADE REPLACEMENT)
<1	ADVISE & CONSULT ENGINEER. SPECIAL PAVEMENT DESIGN TO BE SPECIFIED.

DRIVEWAY NOTES:

1. EXCAVATED AND IMPORTED MATERIAL USED AS FILL IS TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
2. FILL MATERIAL SHALL BE WELL GRADED AND FREE OF BOULDERS OR COBBLES EXCEEDING 150mm IN DIAMETER UNLESS APPROVED OTHERWISE.
3. FILL REQUIRED TO SUPPORT DRIVEWAYS INCLUDING FILL IN EMBANKMENTS THAT SUPPORT DRIVEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
4. TOP SOIL AND ORGANIC MATTER SHALL BE STRIPPED TO A MINIMUM OF 100mm.
5. THE SUB GRADE SHALL BE CHECKED FOR A MINIMUM BEARING CAPACITY OF 50 kPa.
6. FILL IN EMBANKMENTS SHALL BE KEYED 150mm INTO NATURAL GROUND.
7. THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 200mm.
8. EACH LAYER SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95%, IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS IS ACHIEVED.
9. WHERE THE ABOVE REQUIREMENTS CANNOT BE ACHIEVED THE ENGINEER SHALL BE CONSULTED AND THE FORMATION SHALL BE PROOF ROLLED (UNDER SUPERVISION OF THE ENGINEER) TO DEMONSTRATE COMPACTION PRIOR TO THE PLACEMENT OF BASE OR SUB-BASE COURSES.
10. UNREINFORCED CONCRETE KERBS AND CHANNELS SHALL HAVE TROWELLED JOINTS AT NOT MORE THAN 3.0m CRS

CONTROLLED FILL:

1. CONTROLLED FILL SHALL BE LAID IN STRICT ACCORDANCE WITH AS2870 AND AS3798 REQUIREMENTS. THE FOLLOWING METHOD IS APPROVED:
2. FILL MATERIAL SHALL BE WELL GRADED FCR OR SITE ROCK REVIEWED DURING EXCAVATION.
3. THE SUB GRADE SHALL BE CHECKED FOR BEARING CAPACITY WHICH IS A MINIMUM OF 50kPa FOR SLABS AND A MINIMUM OF 100kPa FOR FOOTINGS.
4. THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 150mm
5. THE FILL SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95% FOR RESIDENTIAL APPLICATIONS. IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS LEVEL OF COMPACTION IS ACHIEVED. IMPORTED MATERIAL, CONTRARY TO THE ABOVE SPECIFICATION, INTENDED FOR USE AS STRUCTURAL FILL SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO USE.

CONCRETE:

1. CONCRETE SHALL BE NOT LESS THAN N25 GRADE, WITH 20mm NOMINAL MAXIMUM AGGREGATE SIZE, SLUMP SHALL BE SELECTED TO SUIT THE CONSTRUCTION CONDITIONS. UNLESS NOTED OTHERWISE THE MINIMUM APPROPRIATE SPECIFICATIONS FROM AS3600 AND AS2870 SHALL BE ADOPTED.
2. SAWN CONTROL JOINTS SHALL BE CONSTRUCTED AS SOON AS POSSIBLE WITHOUT RAVELING THE JOINT, GENERALLY THIS SHALL BE WITHIN 24 HOURS.
3. CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS USING CURRENT BEST PRACTICE METHODS. SPRAY APPLIED CURING COMPOUNDS ARE GENERALLY NOT DEEMED SATISFACTORY AS SOLE CURING METHOD.
4. CONCRETE SHALL BE MECHANICALLY VIBRATED U.N.O.
5. ADDITIONAL WATER SHALL NOT BE ADDED TO THE CONCRETE ON SITE UNLESS SIGNED BY THE DRIVER AND APPROVED BY THE SUPPLIER.

DISCLAIMER

ENGINEERING NOTES ARE INTENDED FOR USE AS A GUIDE TO RELEVANT CODES, REGULATIONS AND STANDARDS FOR THE BUILDER OR CONTRACTOR DURING THE CONSTRUCTION PROCESS, THEY SHALL NOT REPLACE THEM IN ANY WAY. THESE NOTES ARE NOT SITE SPECIFIC AND SHALL NOT BE USED TO CONTRAVENE APPROVED PLANS OR TO SPECIFY ANY UNAPPROVED WORKS.

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

JSA CONSULTING ENGINEERS
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CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	
CIVIL ENGINEER: B. AALTONEN	HYDRAULIC ENGINEER: R. HORNER		
STATUS: PLANNING APPROVAL			

PROJECT: PROPOSED SUBDIVISION, 52 CHARLES STREET, ORFORD, 7190

DRAWING TITLE: CIVIL & HYDRAULIC NOTES

PROJECT NO	DWG NO	REV
18E99-126	N01	B

9/20/2018 9:43:19 AM

NOT FOR CONSTRUCTION

PIPE LEGEND

MARK	DESCRIPTION
AG	SLOTTED HDPE SN8 DRAINAGE PIPE
SW	PROPOSED STORMWATER PIPE
S	PROPOSED SEWER PIPE
RSM	PROPOSED RISING SEWER MAIN
W	PROPOSED PE PN16 WATER SUPPLY
	PROPOSED PUBLIC STORMWATER MAIN
	PROPOSED PUBLIC SEWER MAIN
	PROPOSED PUBLIC WATER MAIN
P	POWER CIRCUIT
T	COMMUNICATIONS
FS	DN100 PVC-M PN16 PVC
EX AG	EXISTING SLOTTED AG DRAINAGE PIPE.
EX W	EXISTING WATER SUPPLY
EX S	EXISTING SEWER PIPE
EX RSM	EXISTING RISING SEWER MAIN
EX SW	EXISTING STORMWATER
EX P	EXISTING POWER
EX SW	EXISTING PUBLIC STORMWATER MAIN
EX SEWER	EXISTING PUBLIC SEWER MAIN
EX WATER	EXISTING PUBLIC WATER MAIN
MW	DEMOLISHED MAIN WATER
SW	DEMOLISHED STORMWATER
S	DEMOLISHED SEWER
W	DEMOLISHED WATER
	SWALE DRAIN

LINE LEGEND

MARK	DESCRIPTION
	PROPERTY BOUNDARY
	SURROUNDING PROPERTY BOUNDARY
	PROPOSED PROPERTY BOUNDARY
	EXISTING EASEMENT
	PROPOSED EASEMENT
	NATURAL SURFACE CONTOUR (MAJOR)
	NATURAL SURFACE CONTOUR (MINOR)
	BANK TOP
	BANK BOTTOM
	EXISTING BUILDING OUTLINE
	PROPOSED BUILDING OUTLINE
	PROPOSED ROAD CENTRELINE
	PROPOSED ROAD
	EXISTING ROAD
	EXISTING KERB
	PROPOSED BARRIER FENCE

SYMBOL LEGEND

MARK	DESCRIPTION
M	DN25 ID 20 WATER CONNECTION + METER AS PER TW-SD-W-20 SERIES
	450 x 450 x 600 DEEP PIT WITH GRATED LID
	'ACO' K300 CHANNEL DRAIN & INCLINE PIT WITH CLASS 'B' TRAFFICABLE GRATE
SW	STORMWATER MANHOLE AS PER LGAT STANDARD DRAWING TSD-SW02-v1
S	SEWER MAINTENANCE HOLE TYPE P2 AS PER MRWA-S300 SERIES
	DN150 STORMWATER LOT CONNECTION AS PER LGAT STANDARD DRAWINGS TSD-SW25-v1
H	DN100 SEWER LOT CONNECTION AS PER MRWA-S300 SERIES
FH	FIRE HYDRANT AS PER MRWA-W-302
	ISOLATING VALVE AS PER MRWA-W-302
	THRUST BLOCK (CONCRETE) AS PER MRWA-W-205A
	CONCRETE HEADWALL
	SIDE ENTRY PIT TYPE 5 AS PER TSD-SW12-v1
	SIDE ENTRY PIT TYPE 3 AS PER TSD-SW09-v1
PS-1	POWER SUBSTATION
	POWER TURRET
P5	NBN PIT
	STREETLIGHT

HATCH LEGEND

MARK	DESCRIPTION
	EXISTING CONCRETE SLABS, DRIVEWAY ETC
	EASEMENT
	RIGHT OF WAY

SURFACE LEGEND

MARK	DESCRIPTION
FSL XX.XX	PROPOSED FINISHED SURFACE LEVEL
Δ XX.XX	HEIGHT OF PROPOSED SURFACE RELATIVE TO NATURAL SURFACE (FILL REQUIRED)
Δ -XX.XX	HEIGHT OF PROPOSED SURFACE RELATIVE TO NATURAL SURFACE (CUT REQUIRED)

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE
PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: PLANNING APPROVAL

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
SYMBOLS & LINE LEGENDS

PROJECT NO	DWG NO	REV
18E99-126	N02	B

9/20/2018 9:44:12 AM

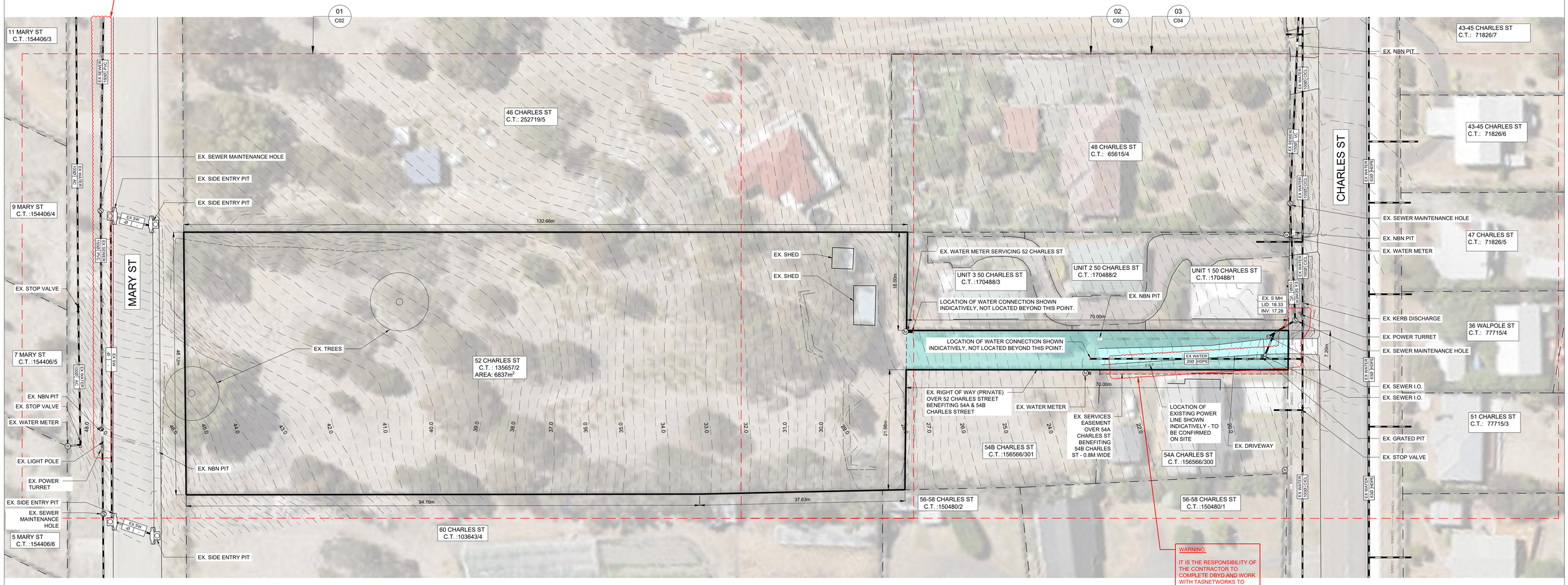
NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.

NOT FOR CONSTRUCTION

WARNING:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH TASNETWORKS TO LOCATE ALL UNDERGROUND POWER SERVICES.

DIAL BEFORE YOU DIG www.1100.com.au



EXISTING SITE PLAN
SCALE: 1:350

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

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CHECKED	M. HORSHAM CC5865 I
SCALE	AS SHOWN
SIZE	A1
CIVIL ENGINEER	B. AALTONEN
HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL
PROJECT	PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
DRAWING TITLE	EXISTING SITE PLAN
PROJECT NO	18E99-126
DWG NO	C01
REV	B

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
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NOT FOR CONSTRUCTION

01 / C01 EXISTING SITE PLAN CALLOUT - 1
SCALE: 1:200

0 10 20 30 40 50m

N

SCALE 1:200 AT A1 SHEET

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
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Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	
CIVIL ENGINEER: B. AALTONEN	HYDRAULIC ENGINEER: R. HORNER		
STATUS: **PLANNING APPROVAL**			

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
EXISTING SITE PLAN CALLOUT - 1

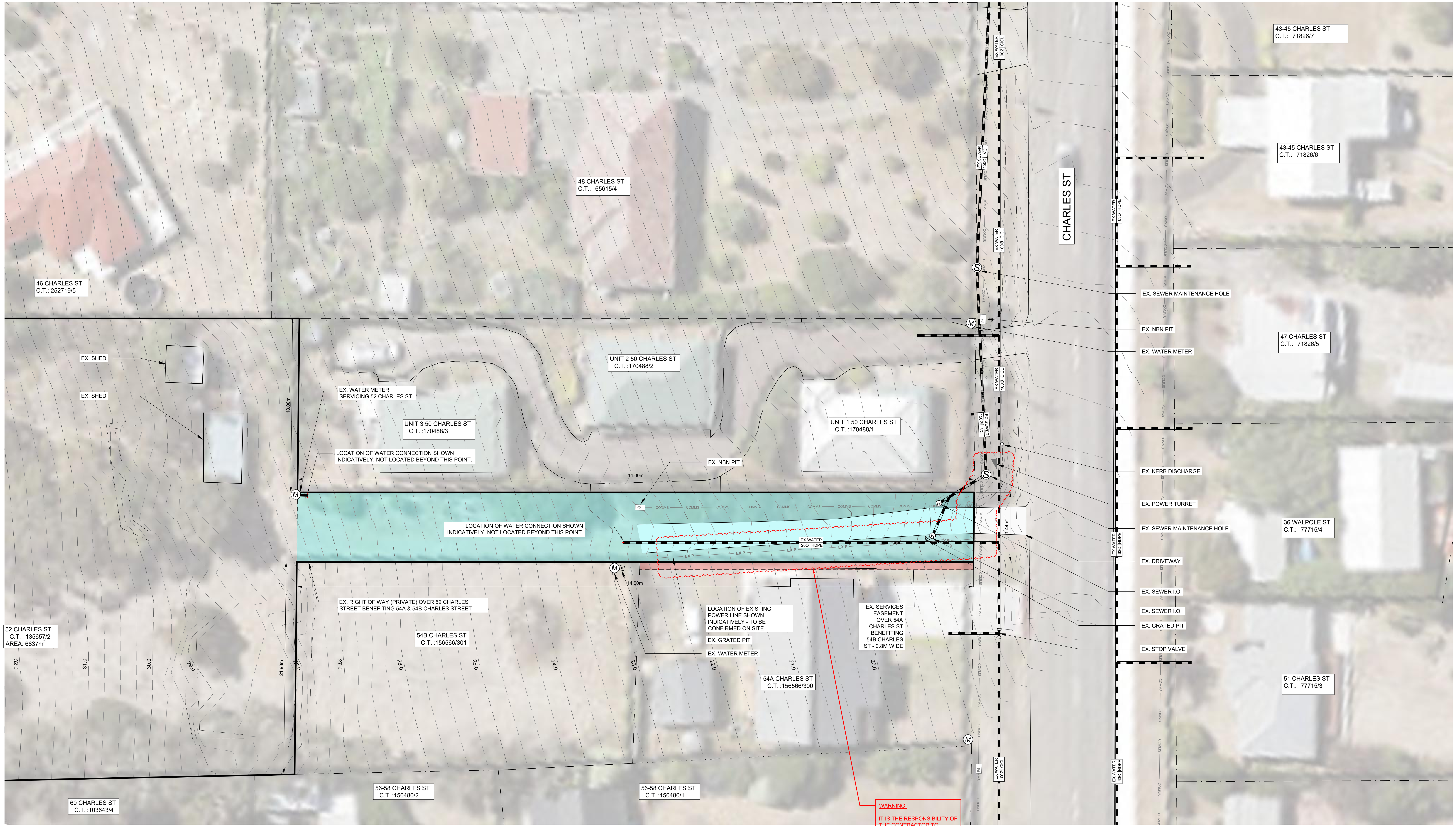
PROJECT NO	DWG NO	REV
18E99-126	**C02**	**B**

9/20/2018 9:44:46 AM

--

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.

NOT FOR CONSTRUCTION



WARNING:

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DIAL BEFORE YOU DIG www.1100.com.au

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

N

02 / C01 EXISTING SITE PLAN CALLOUT - 2
SCALE: 1:200

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

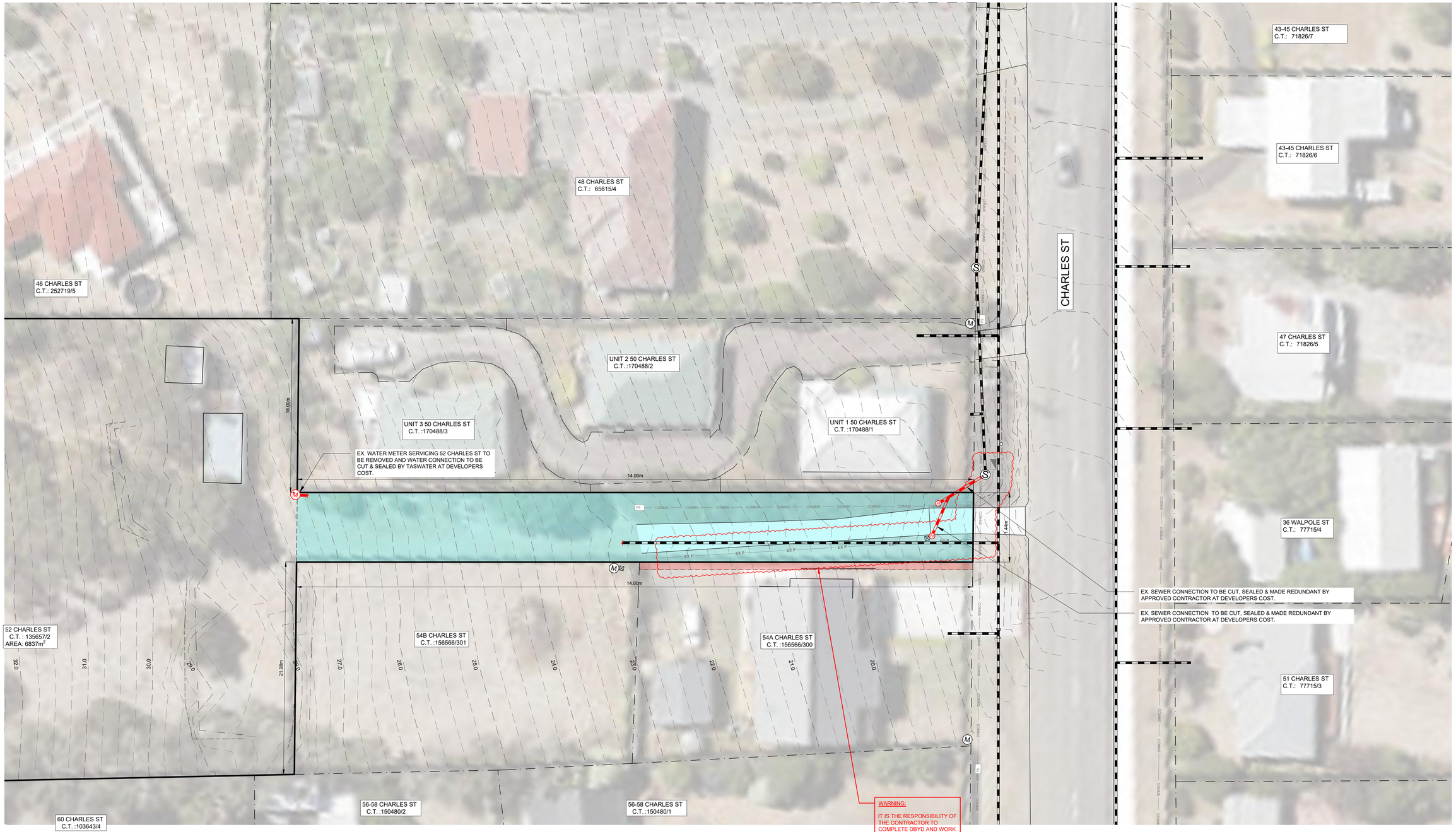
JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: PLANNING APPROVAL
PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
DRAWING TITLE: EXISTING SITE PLAN CALLOUT - 2
PROJECT NO: 18E99-126
DWG NO: C03
REV: B

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.

NOT FOR CONSTRUCTION



0 10 20 30 40 50m

N

SCALE 1:200 AT A1 SHEET

03 / C01 DEMOLITION PLAN
SCALE: 1:200

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
CIVIL ENGINEER: B. AALTONEN	HYDRAULIC ENGINEER: R. HORNER		
STATUS: **PLANNING APPROVAL**			

DRAWING TITLE		
DEMOLITION PLAN		
PROJECT NO	DWG NO	REV
18E99-126	**C04**	**B**

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.

NOT FOR CONSTRUCTION

WARNING:

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DIAL BEFORE YOU DIG www.1100.com.au

11 MARY ST C.T. :154406/3

9 MARY ST C.T. :154406/4

7 MARY ST C.T. :154406/5

5 MARY ST C.T. :154406/6

MARY ST

04 C06

05 C07

46 CHARLES ST C.T.: 252719/5

48 CHARLES ST C.T.: 65615/4

CHARLES ST

43-45 CHARLES ST C.T.: 71826/7

43-45 CHARLES ST C.T.: 71826/6

47 CHARLES ST C.T.: 71826/5

36 WALPOLE ST C.T.: 77715/4

51 CHARLES ST C.T.: 77715/3

PROPOSED DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE

132.66m

LOT 8 AREA: 730m²

PROPOSED PIPELINE & SERVICES EASEMENT OVER LOT 6 BENEFITING LOT 7 - 0.6M WIDE

PROPOSED PIPELINE & SERVICES EASEMENT OVER LOTS 5 & 6 BENEFITING LOT 4 - 0.6M WIDE

LOT 7 AREA: 667m²

PROPOSED RIGHT OF WAY OVER LOT 6 BENEFITING LOT 7

LOT 6 AREA: 996m²

LOT 2 AREA: 996m²

PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - VARIABLE WIDTH

52 CHARLES ST C.T. : 135657/2 AREA: 6837m²

EX. RIGHT OF WAY (PRIVATE) OVER 52 CHARLES STREET BENEFITING 54A & 54B CHARLES STREET

UNIT 3 50 CHARLES ST C.T. :170488/3

UNIT 2 50 CHARLES ST C.T. :170488/2

UNIT 1 50 CHARLES ST C.T. :170488/1

EX. S MH LID: 18.33 INV: 17.28

18.00m

70.00m

7.20m

PROPOSED RIGHT OF WAY OVER LOT 5 BENEFITING LOT 4

LOT 4 AREA: 725m²

LOT 5 AREA: 1000m²

LOT 1 AREA: 993m²

PROPOSED PIPELINE AND SERVICES EASEMENT BENEFITING TASWATER - 3M WIDE

EX. SERVICES EASEMENT OVER 54A CHARLES ST BENEFITING 54B CHARLES ST - 0.8M WIDE

LOT 3 AREA: 731m²

PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE

54B CHARLES ST C.T. :156566/301

54A CHARLES ST C.T. :156566/300

94.10m

37.63m

56-58 CHARLES ST C.T. :150480/2

56-58 CHARLES ST C.T. :150480/1

60 CHARLES ST C.T. :103643/4

WARNING:

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PROPOSED SITE PLAN
SCALE: 1:350

N

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED	M. HORSHAM CC5865 I
SCALE	AS SHOWN
SIZE	A1
CIVIL ENGINEER	B. AALTONEN
HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
PROPOSED SITE PLAN

PROJECT NO	DWG NO	REV
18E99-126	C05	B

9/20/2018 10:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.

WARNING:
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NOT FOR CONSTRUCTION

PROPOSED SITE PLAN CALLOUT - 1
SCALE: 1:200

SCALE 1:200 AT A1 SHEET

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

IMPORTANT
DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: PLANNING APPROVAL

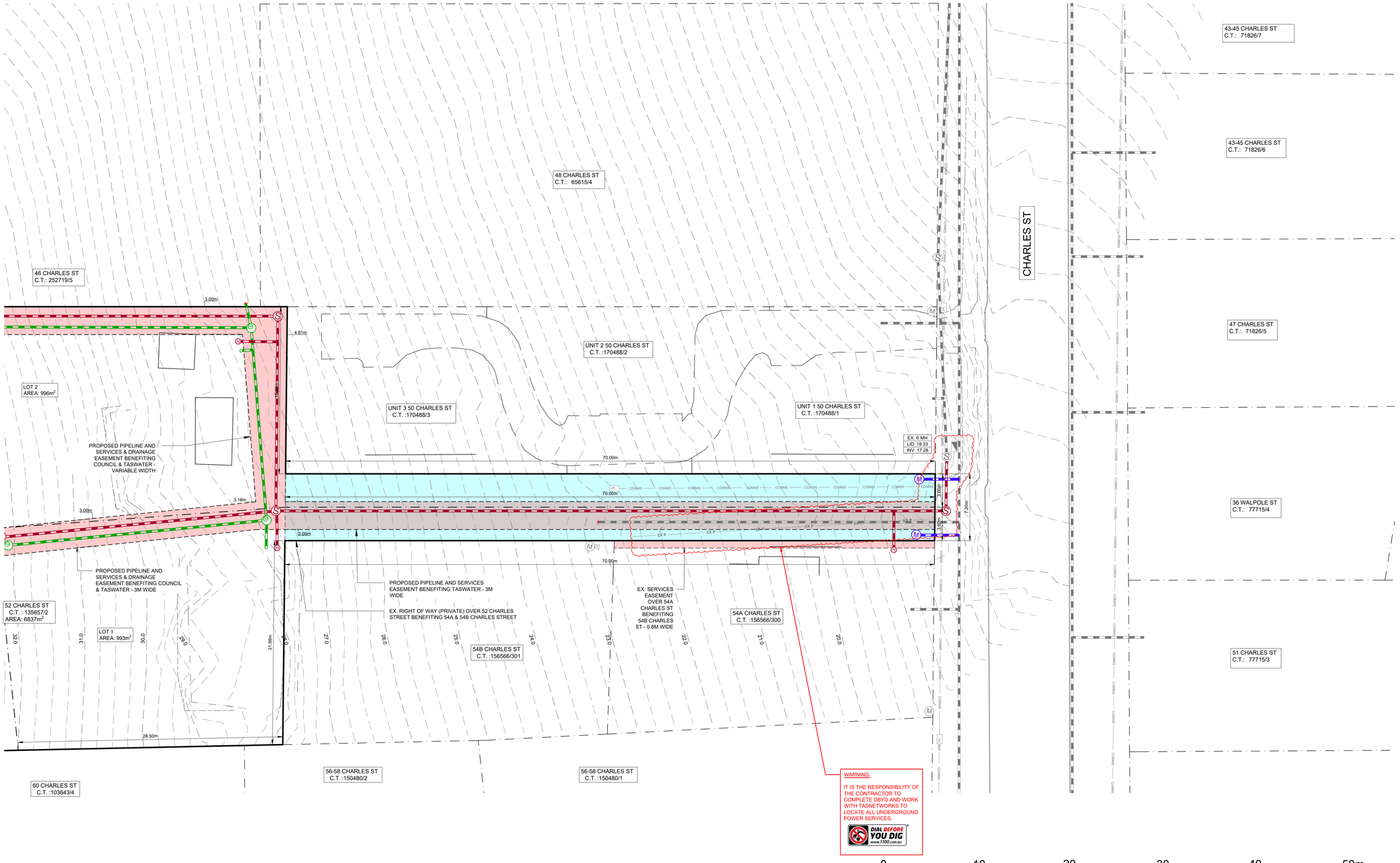
PROJECT: PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE: PROPOSED SITE PLAN CALLOUT - 1
PROJECT NO: 18E99-126
DWG NO: C06
REV: B

REV DATE: 30/10/18

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.

NOT FOR CONSTRUCTION



05 C05 PROPOSED SITE PLAN CALLOUT - 2
SCALE: 1:200

SCALE 1:200 AT A1 SHEET

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

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Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED	M. HORSHAM CC5865 I
SCALE	AS SHOWN
SIZE	A1
CIVIL ENGINEER	B. AALTONEN
HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL
PROJECT	PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
DRAWING TITLE	PROPOSED SITE PLAN CALLOUT - 2
PROJECT NO	18E99-126
DWG NO	C07
REV	B

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.
4. ALL WORKS SHALL BE IN ACCORDANCE WITH AS3500, THE TASMANIAN PLUMBING CODE, WATER SERVICES ASSOCIATION OF AUSTRALIA, THE LOCAL COUNCIL REQUIREMENTS & ALL RELEVANT WH&S REQUIREMENTS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE SERVICES AUTHORITY AND LOCATE EXISTING UNDERGROUND SERVICES PRIOR TO ANY EXCAVATION WORKS COMMENCING ON SITE.
6. ALL WORKS TO BE COMPLETED BY APPROVED CONTRACTOR AT DEVELOPERS COST.
7. SW LC - PROPOSED PVC DN150 SN8 SW CONNECTION AS PER LGAT STANDARD DRAWINGS TSD-SW25-V1.
8. REFER TO H03 FOR STORMWATER LONG SECTIONS.
9. ALL PROPOSED STORMWATER MAINTENANCE SHAFTS - DN1050 SW MH AS PER TSD-SW02-V1 - REFER TO H03 FOR LID CLASSES.

NOT FOR CONSTRUCTION

WARNING:

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DIAL BEFORE YOU DIG www.1100.com.au

06
H02

11 MARY ST
C.T.:154406/3

9 MARY ST
C.T.:154406/4

7 MARY ST
C.T.:154406/5

5 MARY ST
C.T.:154406/6

MARY ST

EX. SIDE ENTRY PIT

EX. SIDE ENTRY PIT

EX. SIDE ENTRY PIT

EX. SW

EX. SW

EX. SW

46 CHARLES ST
C.T.: 252719/5

48 CHARLES ST
C.T.: 65615/4

43-45 CHARLES ST
C.T.: 71826/7

43-45 CHARLES ST
C.T.: 71826/6

47 CHARLES ST
C.T.: 71826/5

36 WALPOLE ST
C.T.: 77715/4

51 CHARLES ST
C.T.: 77715/3

CHARLES ST

PROPOSED DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE

½ - REFER TO DOCUMENTATION BY OTHERS FOR SUBDIVISION OF 46 CHARLES ST FOR CONTINUATION OF STORMWATER DOWNSTREAM

EX. RIGHT OF WAY (PRIVATE) OVER 52 CHARLES STREET BENEFITING 54A & 54B CHARLES STREET

UNIT 2 50 CHARLES ST
C.T.:170488/2

UNIT 1 50 CHARLES ST
C.T.:170488/1

UNIT 3 50 CHARLES ST
C.T.:170488/3

EX. KERB DISCHARGE

2/2 - SW MH
LID: 38.050
INV: 36.718

2/1 - SW MH
LID: 36.100
INV: 34.114
INV: 34.064

1/2 - SW MH
LID: 27.220
INV: 25.858

1/3 - SW MH
LID: 27.880
INV: 26.691

1/4 - SW MH
LID:32.09
INV: 30.749
INV: 30.699

1/5 - SW MH
LID: 41.080
INV: 40.329

EX. S MH
LID: 18.33
INV: 17.28

1:100 PVC 1500 SN8

SW LC

132.66m

18.00m

70.00m

7.20m

LOT 8
AREA: 730m²

LOT 7
AREA: 667m²

LOT 6
AREA: 996m²

LOT 2
AREA: 996m²

LOT 4
AREA: 725m²

LOT 3
AREA: 731m²

LOT 1
AREA: 993m²

LOT 5
AREA: 1000m²

52 CHARLES ST
C.T. : 135657/2
AREA: 6837m²

PROPOSED PIPELINE & SERVICES EASEMENT OVER LOT 6 BENEFITING LOT 7 - 0.6M WIDE

PROPOSED PIPELINE & SERVICES EASEMENT OVER LOTS 5 & 6 BENEFITING LOT 4 - 0.6M WIDE

PROPOSED RIGHT OF WAY OVER LOT 6 BENEFITING LOT 7

PROPOSED RIGHT OF WAY OVER LOT 5 BENEFITING LOT 4

PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - VARIABLE WIDTH

PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE

EX. SERVICES EASEMENT OVER 54A CHARLES ST BENEFITING 54B CHARLES ST - 0.8M WIDE

54B CHARLES ST
C.T.:156566/301

54A CHARLES ST
C.T.:156566/300

56-58 CHARLES ST
C.T.:150480/2

56-58 CHARLES ST
C.T.:150480/1

60 CHARLES ST
C.T.:103643/4

94.10m

37.63m

WARNING:

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DIAL BEFORE YOU DIG www.1100.com.au

STORMWATER HYDRAULIC PLAN
SCALE: 1:350

N

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

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JSA CONSULTING ENGINEERS
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Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**

PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
STORMWATER HYDRAULIC PLAN

PROJECT NO	DWG NO	REV
18E99-126	H01	B

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
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4. ALL WORKS SHALL BE IN ACCORDANCE WITH AS3500, THE TASMANIAN PLUMBING CODE, WATER SERVICES ASSOCIATION OF AUSTRALIA, THE LOCAL COUNCIL REQUIREMENTS & ALL RELEVANT WH&S REQUIREMENTS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE SERVICES AUTHORITY AND LOCATE EXISTING UNDERGROUND SERVICES PRIOR TO ANY EXCAVATION WORKS COMMENCING ON SITE.
6. ALL WORKS TO BE COMPLETED BY APPROVED CONTRACTOR AT DEVELOPERS COST.
7. SW LC - PROPOSED PVC DN150 SN8 SW CONNECTION AS PER LGAT STANDARD DRAWINGS TSD-SW25-V1.
8. REFER TO H03 FOR STORMWATER LONG SECTIONS.
9. ALL PROPOSED STORMWATER MAINTENANCE SHAFTS - DN1050 SW MH AS PER TSD-SW02-V1 - REFER TO H03 FOR LID CLASSES.

WARNING:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH TASNETWORKS TO LOCATE ALL UNDERGROUND POWER SERVICES.

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NOT FOR CONSTRUCTION

06 H01 STORMWATER HYDRAULIC CALLOUT
SCALE: 1:200

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

N

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

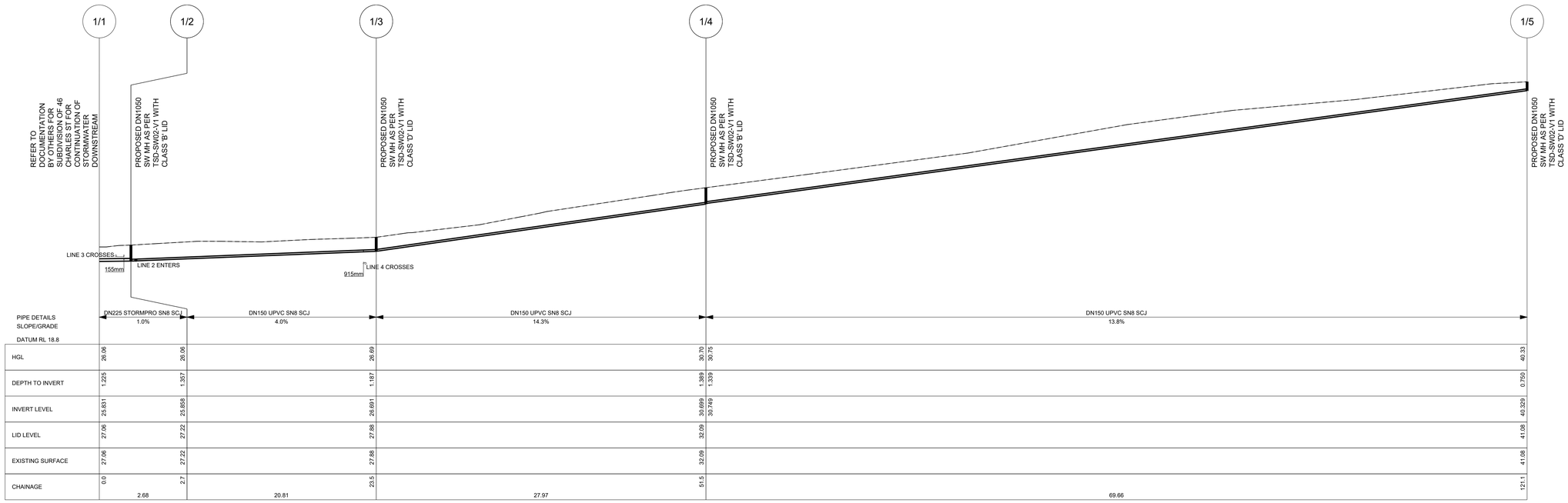
IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: **PLANNING APPROVAL**
PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
DRAWING TITLE: STORMWATER HYDRAULIC CALLOUT
PROJECT NO: 18E99-126
DWG NO: H02
REV: B

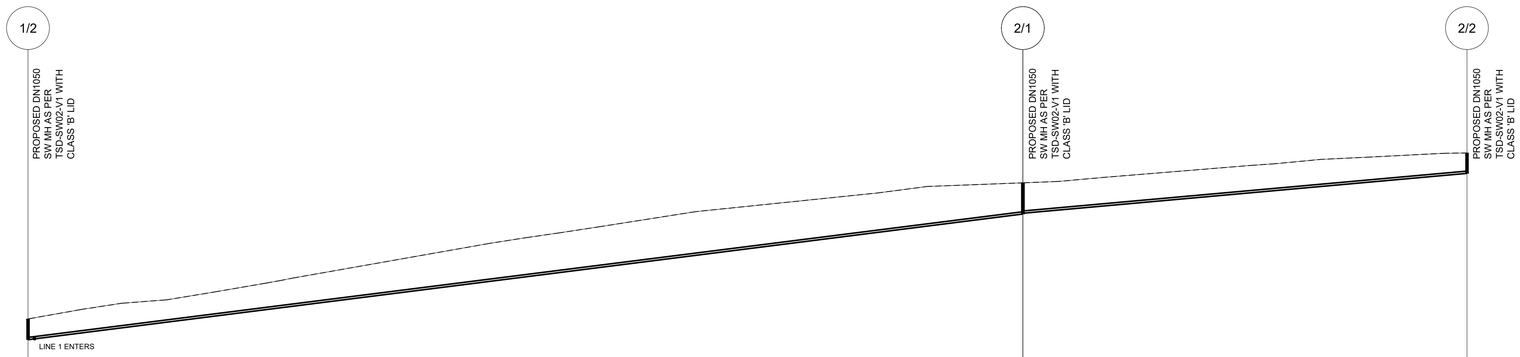
9/20/2018 9:44:46 AM

NOT FOR CONSTRUCTION



PIPE DETAILS		DN225 STORMPRO SN8 SCJ		DN150 UPVC SN8 SCJ		DN150 UPVC SN8 SCJ		DN150 UPVC SN8 SCJ	
SLOPE/GRADE		1.0%		4.0%		14.3%		13.8%	
DATUM RL 18.8									
HGL	26.06	26.06	26.69		30.70	30.75		40.33	
DEPTH TO INVERT	1.225	1.357	1.187		1.989	1.939		0.750	
INVERT LEVEL	25.831	25.858	26.681		28.669	28.749		40.329	
LID LEVEL	27.06	27.22	27.88		32.09			41.08	
EXISTING SURFACE	27.06	27.22	27.88		32.09			41.08	
CHAINAGE	0.0	2.7	23.5		51.5			121.1	
		2.68	20.81		27.97		69.66		

STORMWATER LONG SECTION - LINE 1
SCALE: H 1:200 V 1:200



PIPE DETAILS		DN150 UPVC SN8 SCJ		DN150 UPVC SN8 SCJ	
SLOPE/GRADE		12.6%		9.0%	
DATUM RL 18.8					
HGL	26.06	34.06	34.11		36.72
DEPTH TO INVERT	1.357	2.036	1.986		1.333
INVERT LEVEL	25.858	34.064	34.114		35.718
LID LEVEL	27.22	36.10			38.05
EXISTING SURFACE	27.22	36.10			38.05
CHAINAGE	0.0	65.0		94.0	
		64.96		29.00	

STORMWATER LONG SECTION - LINE 2
SCALE: H 1:200 V 1:200

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

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Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: PLANNING APPROVAL

PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190

DRAWING TITLE: STORMWATER LONG SECTIONS
PROJECT NO: 18E99-126
DWG NO: H03
REV: B

9/20/2018 9:47:43 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.
4. ALL WORKS MUST BE TO THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2, SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2 AND TASWATER SUPPLEMENTS, TASWATER STANDARD DRAWINGS TWS-W-0002 SERIES, WATER METER POLICY/METERING GUIDELINES & AS3500.1:2003.
5. WM - 8 No. NEW ID20 WATER METERS & DN25 ID20 PN16 HDPE SDR11 WATER CONNECTIONS (1 PER LOT) AS PER TWS-W-0002 REV.5 SHEET 05 TO BE SUPPLIED & INSTALLED BY TASWATER AT DEVELOPERS COST.
6. S LC - PROPOSED DN100 SN10 SEWER LOT CONNECTION AS PER MRWA-S-300-SERIES.
7. PROPOSED SEWER MAINTENANCE SHAFTS - DN1050 MH AS PER MRWA-S-300 SERIES, REFER TO H07 FOR LID CLASSES .

NOT FOR CONSTRUCTION

SEWER & WATER HYDRAULIC PLAN
SCALE: 1:350

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1
CIVIL ENGINEER: B. AALTONEN	HYDRAULIC ENGINEER: R. HORNER	
STATUS: PLANNING APPROVAL		

PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190

DRAWING TITLE: SEWER & WATER HYDRAULIC PLAN

PROJECT NO	DWG NO	REV
18E99-126	H04	B

9/20/2018 9:44:46 AM

NOT FOR CONSTRUCTION

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.
4. ALL WORKS MUST BE TO THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2, SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2 AND TASWATER SUPPLEMENTS, TASWATER STANDARD DRAWINGS TWS-W-0002 SERIES, WATER METER POLICY/METERING GUIDELINES & AS3500.1:2003.
5. WM - 8 No. NEW ID20 WATER METERS & DN25 ID20 PN16 HDPE SDR11 WATER CONNECTIONS (1 PER LOT) AS PER TWS-W-0002 REV.5 SHEET 05 TO BE SUPPLIED & INSTALLED BY TASWATER AT DEVELOPERS COST.
6. S LC - PROPOSED DN100 SN10 SEWER LOT CONNECTION AS PER MRWA-S-300-SERIES.
7. PROPOSED SEWER MAINTENANCE SHAFTS - DN1050 MH AS PER MRWA-S-300 SERIES, REFER TO H07 FOR LID CLASSES .

WARNING:
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DIAL BEFORE YOU DIG www.1100.com.au
11 MARY ST C.T. :154406/3
9 MARY ST C.T. :154406/4
7 MARY ST C.T. :154406/5
5 MARY ST C.T. :154406/6
MARY ST
EX. SEWER MAINTENANCE HOLE
EX. STOP VALVE
EX. WATER METER
46 CHARLES ST C.T.: 252719/5
52 CHARLES ST C.T. : 135657/2 AREA: 6837m2
60 CHARLES ST C.T. :103643/4
PROPOSED RODEYE (INSPECTION SHAFT, TYPE 1 END OF LINE ARRANGEMENT TO MRWA-S-302)
PROPOSED DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE
DN63 TO DN25 ELBOW REDUCER AS PER MRWA-W-109 DETAIL E.
PROPOSED PIPELINE & SERVICES EASEMENT OVER LOT 6 BENEFITING LOT 7 - 0.6M WIDE
PROPOSED PIPELINE & SERVICES EASEMENT OVER LOTS 5 & 6 BENEFITING LOT 4 - 0.6M WIDE
PROPOSED RIGHT OF WAY OVER LOT 6 BENEFITING LOT 7
PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - VARIABLE WIDTH
PROPOSED PIPELINE AND SERVICES & DRAINAGE EASEMENT BENEFITING COUNCIL & TASWATER - 3M WIDE
PROPOSED RIGHT OF WAY OVER LOT 5 BENEFITING LOT 4
PROPOSED DN63 ID50 HDPE PN16 SDR11 WATER MAIN. WORKS TO BE COMPLETED BY TASWATER AT DEVELOPERS COST.
PROPOSED DN63 ID50 HDPE PN16 SDR11 WATER MAIN TO BE CONNECTED TO EX. DN100 AC WATER MAIN ACROSS MARY STREET. WORKS TO BE COMPLETED BY TASWATER AT DEVELOPERS COST.
LOT 8 AREA: 730m2
LOT 7 AREA: 667m2
LOT 6 AREA: 996m2
LOT 2 AREA: 996m2
LOT 4 AREA: 725m2
LOT 5 AREA: 1000m2
LOT 1 AREA: 993m2
LOT 3 AREA: 731m2
3/6 PR.S IS LID: 37.69 INV: 36.396
3/5 PR.S MH LID: 36.03 INV: 33.776 INV: 33.726
3/4 PR.S MH LID: 26.61 INV: 25.865 INV: 25.815
3/3 PR.S MH LID: 27.69 INV: 25.406 INV: 25.356
4/1 PR.S MH LID: 32.19 INV: 30.498 INV: 30.448
4/2 PR.S MH LID: 40.94 INV: 40.041
1:60 uPVC 150Ø SN8
25Ø HDPE SDR11 ID20 PN16
63Ø HDPE SDR11 ID50 PN16
S LC
WM
132.66m
94.10m
37.63m
18.00m
21.98m

07 H04 SEWER & WATER HYDRAULIC CALLOUT - 1
SCALE: 1:200

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

IMPORTANT
DRAWINGS MUST BE
PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I
SCALE: AS SHOWN
SIZE: A1
CIVIL ENGINEER: B. AALTONEN
HYDRAULIC ENGINEER: R. HORNER
STATUS: PLANNING APPROVAL

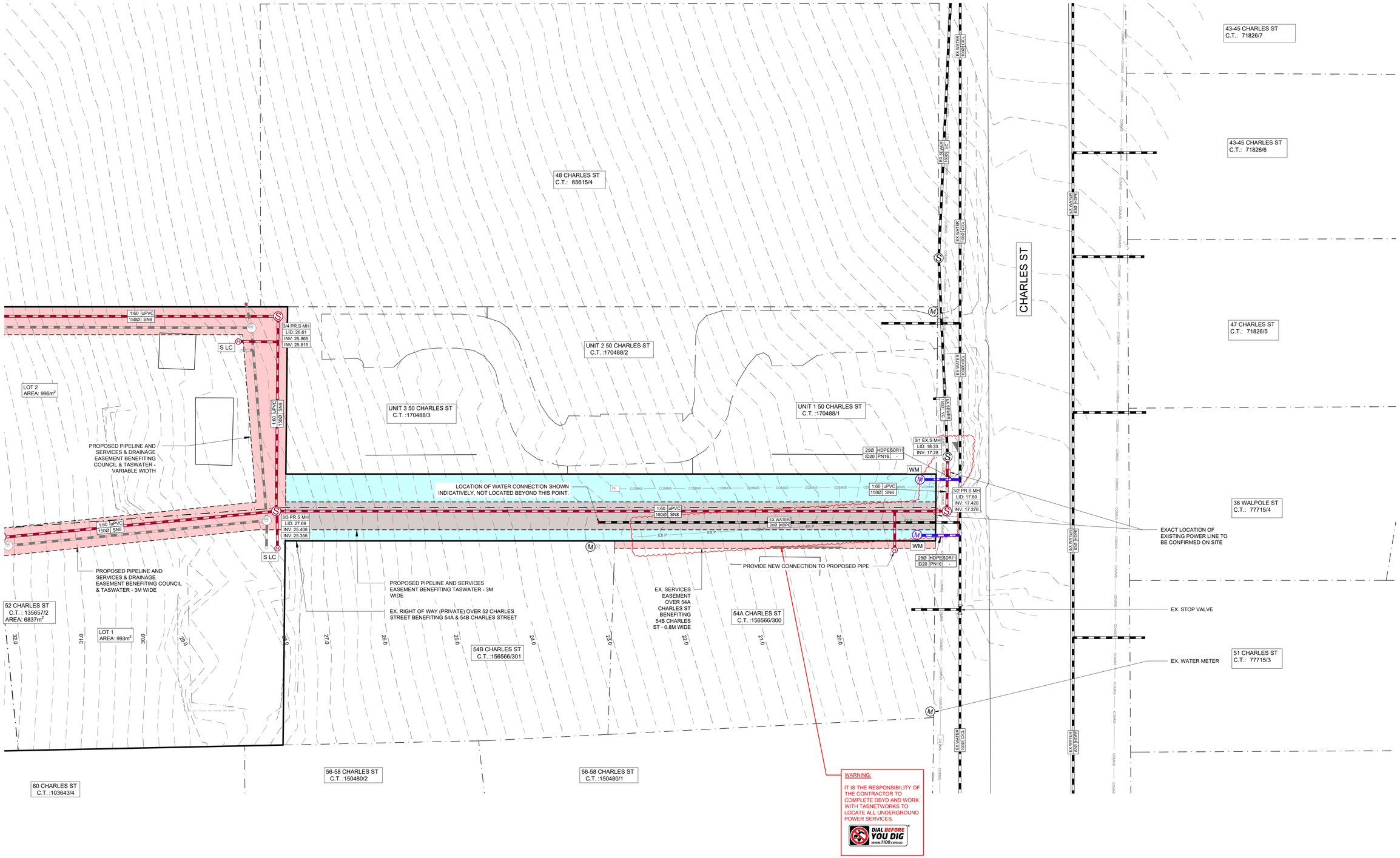
PROJECT: PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE: SEWER & WATER HYDRAULIC CALLOUT - 1
PROJECT NO: 18E99-126
DWG NO: H05
REV: B

9/20/2018 9:44:46 AM

NOTE
1. SURVEY DATA COMPLETED AND PROVIDED BY ROGERSON & BIRCH, DATED 31/10/2018, REFERENCE No BURJO01 11131 - 02.
2. HORIZONTAL DATUM GDA, VERTICAL DATUM AHD, CONTOUR INTERVALS AT 0.25m.
3. EXISTING SERVICES LOCATIONS CONFIRMED ON SITE BY ENGINEER ON SITE DATED 6/09/2019.
4. ALL WORKS MUST BE TO THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 MRWA EDITION V2, SEWERAGE CODE OF AUSTRALIA WSA 02-2014-3.1 MRWA EDITION V2 AND TASWATER SUPPLEMENTS, TASWATER STANDARD DRAWINGS TWS-W-0002 SERIES, WATER METER POLICY/METERING GUIDELINES & AS3500.1:2003.
5. WM - 8 No. NEW ID20 WATER METERS & DN25 ID20 PN16 HDPE SDR11 WATER CONNECTIONS (1 PER LOT) AS PER TWS-W-0002 REV.5 SHEET 05 TO BE SUPPLIED & INSTALLED BY TASWATER AT DEVELOPERS COST.
6. S LC - PROPOSED DN100 SN10 SEWER LOT CONNECTION AS PER MRWA-S-300-SERIES.
7. PROPOSED SEWER MAINTENANCE SHAFTS - DN1050 MH AS PER MRWA-S-300 SERIES, REFER TO H07 FOR LID CLASSES .

NOT FOR CONSTRUCTION



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08 / H04 SEWER & WATER HYDRAULIC CALLOUT - 2
SCALE: 1:200

0 10 20 30 40 50m

SCALE 1:200 AT A1 SHEET

N

REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19
A	FOR PLANNING APPROVAL	AK	MH	21/12/18

REV DATE: 30/10/18

IMPORTANT DRAWINGS MUST BE PRINTED & READ IN COLOUR

JSA CONSULTING ENGINEERS
Ellerslie House, Level 1, 119 Sandy Bay Road, Sandy Bay TAS 7005
Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED	M. HORSHAM CC5865 I
SCALE	AS SHOWN
SIZE	A1
CIVIL ENGINEER	B. AALTONEN
HYDRAULIC ENGINEER	R. HORNER
STATUS	PLANNING APPROVAL

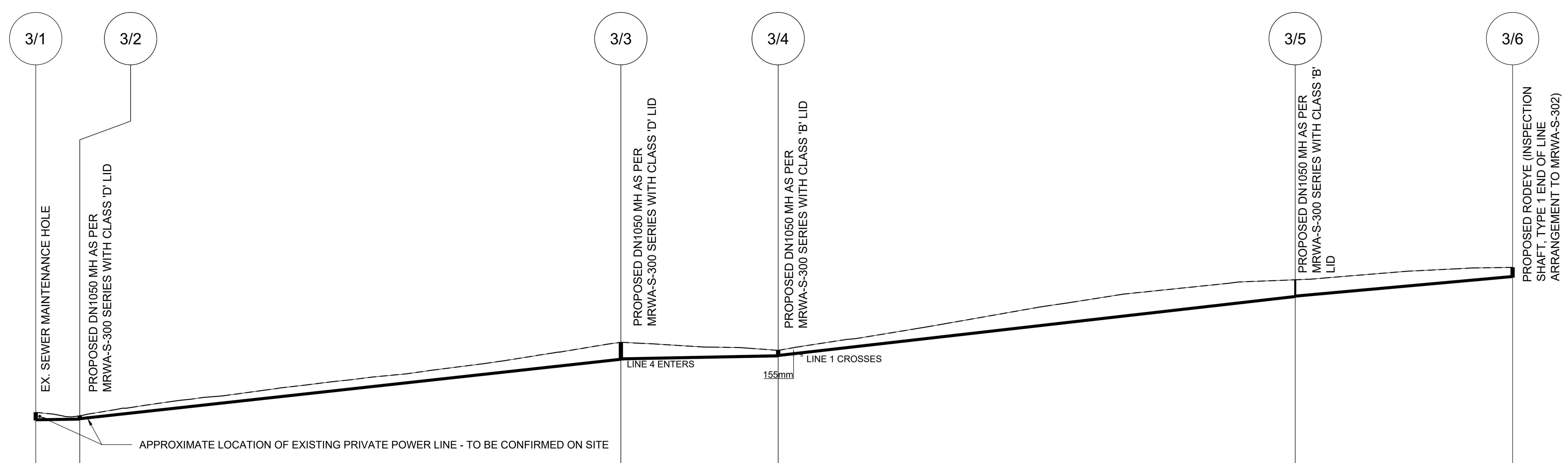
PROJECT
PROPOSED SUBDIVISION
52 CHARLES STREET,
ORFORD, 7190

DRAWING TITLE
SEWER & WATER HYDRAULIC CALLOUT - 2

PROJECT NO	DWG NO	REV
18E99-126	H06	B

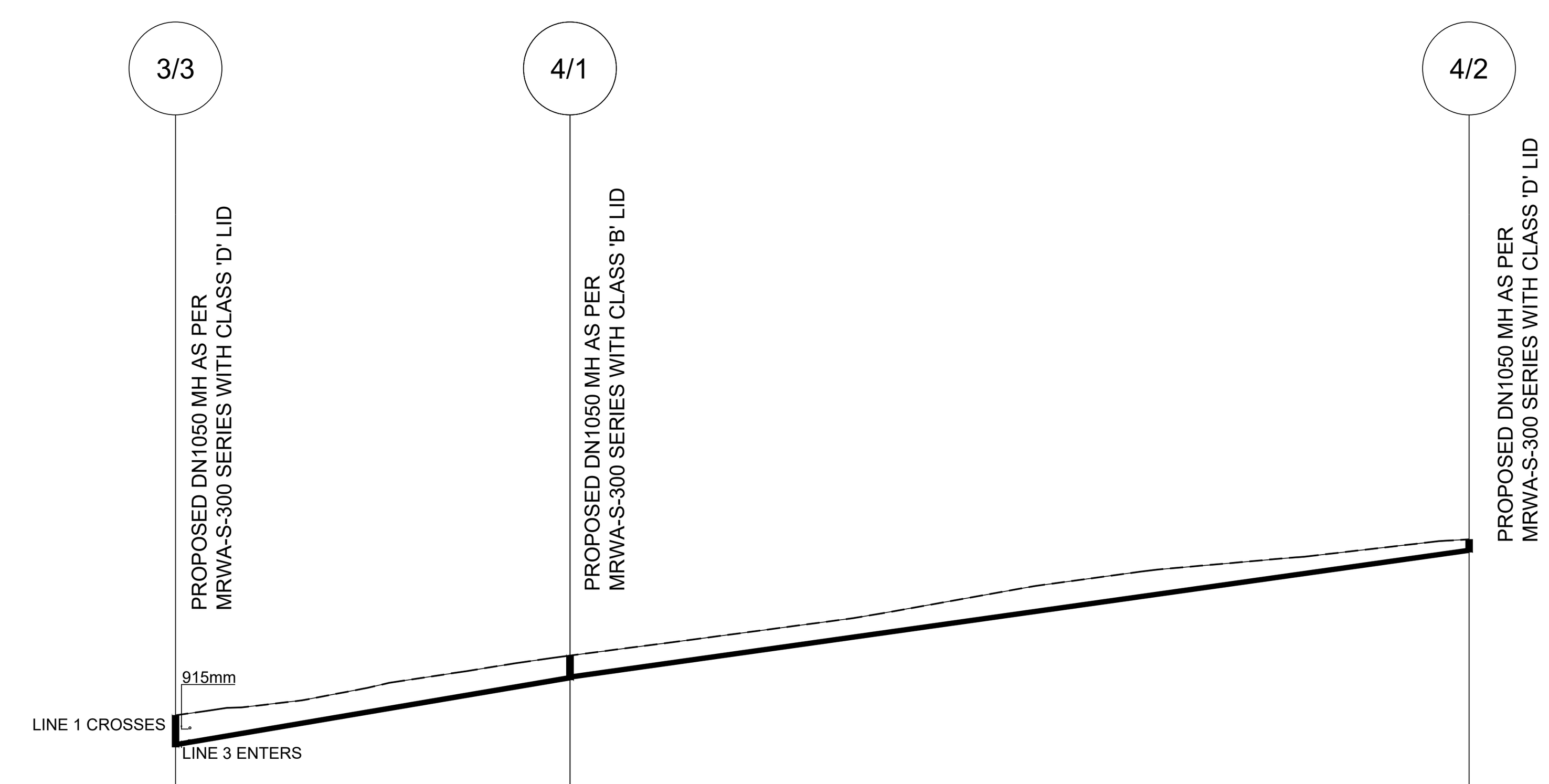
9/20/2018 9:44:46 AM

NOT FOR CONSTRUCTION



PIPE DETAILS / SLOPE/GRADE	DN150 PVC SN8 SCJ 1.7%		DN150 PVC SN8 SCJ 11.0%		DN150 PVC SN8 SCJ 1.9%		DN150 PVC SN8 SCJ 11.4%		DN150 PVC SN8 SCJ 9.0%	
DATUM RL -0.3										
HGL										
DEPTH TO INVERT	1.057	0.513	0.463	2.335	2.285	0.800	0.750	2.305	2.255	1.294
INVERT LEVEL	17.280	17.378	17.428	25.356	25.406	25.815	25.865	33.726	33.776	36.396
LID LEVEL	18.34	17.89		27.69		26.61		36.03		37.69
EXISTING SURFACE	18.34	17.89		27.69		26.61		36.03		37.69
CHAINAGE	0.0	5.9		78.1		99.0		168.0		197.0
	5.87		72.19		20.98		68.97		29.00	

SEWER LONG SECTION - LINE 3
SCALE: H 1:500 V 1:500



PIPE DETAILS / SLOPE/GRADE	DN150 PVC SN8 SCJ 17.0%		DN150 PVC SN8 SCJ 14.1%	
RL 7.9				
HGL				
DEPTH TO INVERT	2.285	1.740	1.690	0.900
INVERT LEVEL	25.406	30.448	30.498	40.041
LID LEVEL	27.69	32.19		40.94
EXISTING SURFACE	27.69	32.19		40.94
CHAINAGE	0.0	29.7		97.4
	29.71		67.71	

SEWER LONG SECTION - LINE 4
SCALE: H 1:500 V 1:500

REV	DESCRIPTION	BY	CHK	DATE	REV	DESCRIPTION	BY	CHK	DATE
B	FOR PLANNING APPROVAL - DA2	BA	MH	10/09/19					
A	FOR PLANNING APPROVAL	AK	MH	21/12/18					

REV DATE: 30/10/18

JSA CONSULTING ENGINEERS
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Phone (03) 6224 5625 www.jsaengineers.com.au

CHECKED: M. HORSHAM CC5865 I	SCALE: AS SHOWN	SIZE: A1	PROJECT: PROPOSED SUBDIVISION 52 CHARLES STREET, ORFORD, 7190
CIVIL ENGINEER: B. AALTONEN	HYDRAULIC ENGINEER: R. HORNER		DRAWING TITLE: SEWER LONG SECTIONS
STATUS: PLANNING APPROVAL			PROJECT NO: 18E99-126 / DWG NO: H07 / REV: B

9/20/2018 9:47:43 AM