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BCA FIRE SAFETY UPGRADE STRATEGY REPORT

Building Address	157 Ocean Street, Narrabeen
Report No.	3580
Report For	Strata Plan 3128 (157 Ocean Street Narrabeen)
Report By	Greg Murrow
Title / Company	Director Murrow Consulting Pty Ltd
Date	27 May 2024

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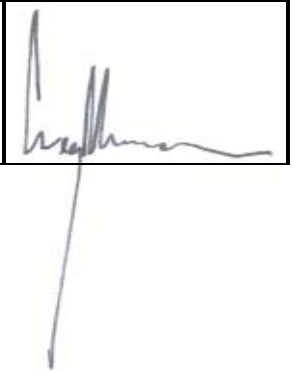
REPORT REVISION STATUS

Report No.	Revision	Issue Date	Report Status	Author		
3580	A	27/05/2024	Original report	Prepared and approved by:	Greg Murrow **Director**	

A. EXECUTIVE SUMMARY

This report provides a Building Code of Australia (BCA) fire safety upgrade strategy for the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

The purpose of this report is to propose a suitable BCA fire safety upgrade to address item 4 of the Northern Beaches Council's DA letter dated 27.10.23; and specifically addresses Clause 64 of Environmental Planning and Assessment Regulation 2021 which requires consideration of whether "*the measures contained in the building are inadequate—*
(i) to protect persons using the building, if there is a fire, or
(ii) to facilitate the safe egress of persons using the building from the building, if there is a fire, or
(iii) to restrict the spread of fire from the building to other buildings nearby".

The report also provides a fire safety schedule in accordance with item 6 of the Northern Beaches Council's DA letter dated 27.10.23.

It is recommended that the BCA fire safety upgrade strategy contained within the "*Recommended BCA Fire Safety Upgrade Works*" column in Section D of this report is wholly complied with and implemented as part of the proposed balcony and balustrades replacement work to be undertaken at the subject building.

B. INTRODUCTION

This report provides a Building Code of Australia (BCA) fire safety upgrade strategy for the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

The building comprises 12 apartments with units 1-6 on levels 1, 2 and 3 accessed from the rear internal lobby and stairway and units 7-12 on levels 1, 2 and 3 accessed from the front internal lobby and stairway; with garages and service rooms on the Ground Floor Level.

PURPOSE OF THE REPORT

This report only applies to the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

The purpose of this report is to propose a suitable BCA fire safety upgrade to address item 4 of the Northern Beaches Council's DA letter dated 27.10.23; and specifically addresses Clause 64 of Environmental Planning and Assessment Regulation 2021 which requires consideration of whether "*the measures contained in the building are inadequate—*
(i) to protect persons using the building, if there is a fire, or
(ii) to facilitate the safe egress of persons using the building from the building, if there is a fire, or
(iii) to restrict the spread of fire from the building to other buildings nearby".

AUTHOR'S QUALIFICATIONS AND EXPERTISE

I, Greg Murrow, am an expert in the field of BCA fire safety defects and building regulations in NSW. I am registered at the highest level in NSW as an Unrestricted Building Surveyor with NSW Fair Trading, which recognises my post graduate qualifications and 25 years experience as a professional building surveyor. I am the Director of Murrow Consulting Pty Ltd, specialising in BCA consulting and access consulting including the identification and resolution of fire safety related BCA DTS non-compliances. Please refer to Annexure 1 for a full copy of my curriculum vitae.

INFORMATION RELIED UPON

The following information and inspection has been relied upon in the execution of this report:

Item No.	Documentation			Date
Inspection				
1.	Inspection of the existing building at 157 Ocean Street, Narrabeen and external areas.			10.05.24
Plans				
2.	Architectural plans (Job No. 17009) issued by Woodhouse & Danks Architects.			
	DWG No.	**DWG Title**	**Revision**	
	DA-02	Site Development Plan	DA Issue	11.08.23
	DA-03	Ground Floor Plan	DA Issue	11.08.23
	DA-04	Typical 1F, 2F, & 3F Demolition Plan	DA Issue	11.08.23
	DA-05	First Floor Plan	DA Issue	11.08.23
	DA-06	Second Floor Plan	DA Issue	11.08.23
	DA-07	Third Floor Plan	DA Issue	11.08.23
	DA-08	Roof Plan	DA Issue	11.08.23
Applicable BCA				
3.	National Construction Code – Volume One – Building Code of Australia 2022 (Version 01.05.23), published by the Australia Building Codes Board (ABCB).			2023

REPORT EXCLUSIONS

The following exclusions / limitations apply to this report:

1. This report only applies to the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.
2. This report does not address any matters that are outside the scope of the BCA.
3. This report is limited to an assessment of whether "*the measures contained in the building are inadequate—*

(i) to protect persons using the building, if there is a fire, or
(ii) to facilitate the safe egress of persons using the building from the building, if there is a fire, or
(iii) to restrict the spread of fire from the building to other buildings nearby".

4. This report is based on a visible (non-invasive) inspection of the building on 10 May 2024.
5. This report is to not be used as a Tender Specification for tendering purposes. This report is intended as a broad identification of BCA fire safety upgrade works and not a detailed scope of works.
6. This report does not provide any Performance Solutions as recognised in the BCA.
7. This report does not consider any structural elements or geotechnical matters relating to the building.
8. This report does not provide any assessment of the fire resistance levels (FRLs) of the building or the combustibility or fire hazard properties of any materials inside / outside the building, such as cladding.
9. No testing of the operating capability of any fire safety measures was undertaken.
10. No invasive inspection of building elements was undertaken. Access was limited to all visible areas below ceilings.
11. There was no assessment of mechanical services, electrical services or hydraulic services.
12. The heritage or conservation area status of the building was not considered.
13. This report does not consider the Disability Discrimination Act 1992, Part D4 of the BCA; AS 1428.1-2009, AS 4299-1995 or the Disability (Access to Premises) Standards 2010.
14. This report does not consider Work Health & Safety considerations.
15. This report does not consider energy or water authority requirements.
16. This report does not consider Council's local planning policies.

C. BUILDING INFORMATION

BUILDING BCA INFORMATION SUMMARY

The following is a summary of the BCA assessment data in relation to the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

Applicable Edition of BCA	2022	
BCA Building Classification(s)	Ground Floor – Class 7a carpark Levels 1, 2 and 3 – Class 2 residential units	
Number of "storeys"	4	
"Rise in storeys"	4	
Type of Construction	Type A Construction (if built new today)	
"Effective height"	7.8m	
"*Fire source features*"	North	More than 3m to north adjoining allotment boundary
	East	More than 3m to eastern adjoining allotment boundary (adjoining beach)
	South	2.82-2.85m to southern adjoining allotment boundary
	West	More than 6m to far side of Ocean Street.

Note: Terms in italics above are BCA defined terms.

D. BCA FIRE SAFETY UPGRADE STRATEGY

Item No.	DTS non-compliance against BCA 2022	Recommended BCA Fire Safety Upgrade Works	Photographs
1.	**S5C11 – Type A fire resisting construction – fire resistance of building elements – Fire separation between Level 3 apartments and between apartments and public lobbies** BCA Clause S5C11(1)(b) requires that an internal wall required to have an FRL with respect to integrity and insulation must extend to— (i) the underside of the floor next above; or (ii) the underside of a roof complying with Table S5C11g; or (iii) if under S5C15 the roof is not required to comply with Table S5C11g, the underside of the non-combustible roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or (iv) a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes. The bounding masonry walls between Level 3 apartments and between apartments and public lobbies do not extend to the underside of the roof tiles in the roof space, which does not comply with BCA Clause S5C11(1)(b)(iii). Also, it is unknown if the ceiling that is immediately below the roof has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes, which would be a compliant alternative in accordance with BCA Clause S5C11(1)(b)(iv).	If it cannot be determined that the ceiling that is immediately below the roof has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes, the following work is required. Option 1 Apply an intumescent paint system (such as the CAP Coatings CAP508 intumescent paint system – see Annexure 2) to the existing Level 3 ceilings to achieve a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes, to comply with BCA Clause BCA Clause S5C11(1)(b)(iv). The new intumescent paint system shall be in accordance with a tested ceiling system. Any services (electrical, mechanical, hydraulic, downlights) penetrating the new intumescent paint system shall be fire-stopped in accordance with fire-stopping systems that are identical with a prototype assembly of the service and building element which has been tested in accordance with AS 4072.1 and AS 1530.4 and has achieved the required resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes, to comply with BCA Clause C4D15. Option 2 Install a new suspended fire resisting plasterboard ceiling below the existing Level 3 ceilings which has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes, to comply with BCA Clause BCA Clause S5C11(1)(b)(iv). The new suspended fire resisting plasterboard ceiling shall extend between internal masonry loadbearing walls and be in accordance with a tested ceiling system. Any services (electrical, mechanical, hydraulic, downlights)	 Level 3 rear block public lobby ceiling access panel  Level 3 rear block public lobby ceiling access panel   

Item No.	DTS non-compliance against BCA 2022	Recommended BCA Fire Safety Upgrade Works	Photographs
		penetrating the new suspended fire resisting plasterboard ceiling shall be fire-stopped in accordance with fire-stopping systems that are identical with a prototype assembly of the service and building element which has been tested in accordance with AS 4072.1 and AS 1530.4 and has achieved the resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes, to comply with BCA Clause C4D15. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the required FRL, to comply with BCA Clause C4D16. <u>Option 2</u> A Performance Solution, prepared in accordance with Part A2 of the BCA, shall be prepared by a NSW Fair Trading registered Certifier (Fire Safety) to address these DTS non-compliances for approval by a Registered Certifier as part of the construction certificate for the proposed new balcony / balustrade works.	
2.	**<u>C4D3 – Protection of openings – to side allotment boundary</u>** BCA Clause C4D3(2)(a) requires that openings in an external wall (that is required to have an FRL) must be protected in accordance with BCA Clause C4D5, if the distance between the opening and the fire-source feature to which it is exposed is less than 3 m from a side or rear boundary of the allotment. The openings in the southern external wall (that are required to have an FRL i.e. within 3m (2.82-2.85m) of the southern allotment boundary) are not protected in accordance with BCA Clause C4D5, which does not comply with BCA C4D3(2)(a).	<u>Option 1</u> Protect the openings in the southern external wall (that are required to have an FRL i.e. within 3m of the southern allotment boundary) in accordance with BCA Clause C4D5, to comply with BCA C4D3(2)(a). <u>Protection of windows options</u> a. Install external wall-wetting sprinklers above windows (to be automatic closing or permanently fixed in the closed position); or b. Replace the existing windows with –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or c. Install –/60/– automatic closing fire shutters above the windows. d. Install –/60/30 fire doors that are self-closing or automatic closing. <u>Option 2</u>	

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		A Performance Solution, prepared in accordance with Part A2 of the BCA, shall be prepared by a NSW Fair Trading registered Certifier (Fire Safety) to address these DTS non-compliances for approval by a Registered Certifier as part of the construction certificate for the proposed new balcony / balustrade works.	
3.	**C4D12 – Apartment entry doors** BCA Clause C4D12(1) requires that a doorway in a Class 2 building must be protected if it provides access from a sole-occupancy unit to— (a) a public corridor, public lobby, or the like; or (b) a room not within a sole-occupancy unit; or (c) the landing of an internal non fire-isolated stairway that serves as a required exit; or (d) another sole-occupancy unit. BCA Clause NSW C4D12(4) requires that protection for such a doorway in a building requiring Type A construction must be a self-closing -/60/30 fire door. The entry doorways to all 12 apartments have not been protected with a self-closing -/60/30 fire door, which does not comply with BCA Clause NSW C4D12(4)(a).	Replace the existing doorsets (frames and leaves) to the entry doorways to all 12 apartments with self-closing -/60/30 fire doors complying with AS 1905.1-2015 to comply with BCA Clause NSW C4D12(4)(a). Also remove the screen door attached to Unit 3 doorway.	 Unit 3 entry door is not a self-closing fire door (as an example)  Unit 4 entry door is not a self-closing fire door (as an example)  Unit 8 entry door is not a self-closing fire door (as an example)  Unit 10 entry door is not a self-closing fire door (as an example)

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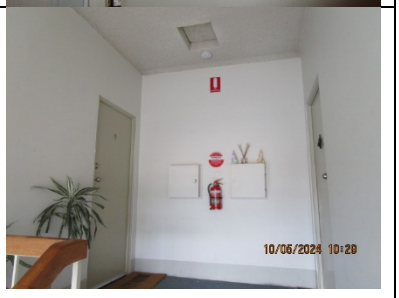
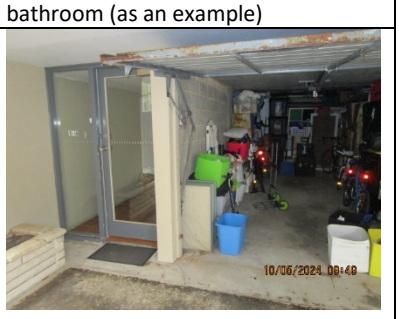
4.	**C4D12 – Electricity meters room doorway** The electricity meters room doorway to the front block Ground Floor lobby is not protected with a fire doorset, which does not comply with BCA Clause C4D12(1)(b) and (4)(a).	Replace the existing doorset (frame and leaf) to the electricity meters room doorway to the front block Ground Floor lobby with a self-closing -/60/30 fire door complying with AS 1905.1-2015 to comply with BCA Clause C4D12(1)(b) and (4)(a).	 
5.	**C4D12 – Infill of redundant milk boxes** There are 12 redundant milk boxes in bounding walls to public lobbies that reduce the fire-resisting performance of the walls, which does not comply with BCA Clause C4D12(6).	Remove the 12 redundant milk boxes in bounding walls to public lobbies and replace with fire-resisting lightweight walls achieving an FRL of not less than -/60/60 in accordance with BCA Clause S5C11 to comply with BCA Clause C4D12(6).	 
6.	**C4D13 – Fire stopping of services within non-fire-resisting hydraulic risers/shafts** BCA Clause C4D13(2) requires that in a building of Type A construction, a service must be protected by a (fire-resisting) shaft complying with Specification 5 of the BCA; or in accordance with C4D15. The apartments have non-fire-resisting shafts in the kitchens and/or bathrooms which contain hydraulic services (metal pipes and PVC pipes) that are not fire-stopped at slab level at the following floors, which does not comply with BCA Clause C4D13(2): • Floor between Level 1 and Level 2.	Option 1 Install floor-to-floor fire separation (fire-resisting boards, fire collars and/or whole cluster system products) to fire-stop the hydraulic services (metal pipes and PVC pipes) and surrounding apertures penetrating the following floors (slabs) in the kitchens and bathrooms of apartments to comply with BCA Clause C4D13(2): • Floor between Level 1 and Level 2. • Floor between Level 2 and Level 3. All hydraulic services penetrating fire-resisting floors (slabs) shall be fire-stopped in accordance with fire-stopping systems that are identical	 

Item No.	DTS non-compliance against BCA 2022	Recommended BCA Fire Safety Upgrade Works	Photographs
	• Floor between Level 2 and Level 3. *<u>Note</u>: The fire-stopping of pipe penetrations through the floor between Ground Floor Level and Level 1 is addressed in another row item.*	with a prototype assembly of the service and building element which has been tested in accordance with AS 4072.1 and AS 1530.4 and has achieved the required FRL of -/90/90, to comply with BCA Clause C4D15. <u>Option 2</u> A Performance Solution, prepared in accordance with Part A2 of the BCA, shall be prepared by a NSW Fair Trading registered Certifier (Fire Safety) to address these DTS non-compliances for approval by a Registered Certifier as part of the construction certificate for the proposed new balcony / balustrade works.	Unit 3 non-fire-resisting shaft in kitchen (as an example)   Unit 4 non-fire-resisting shaft in bathroom (as an example)
7.	**<u>C4D15 – Fire-stopping of hydraulic services penetrating through floor (slab) between Ground Floor and Level 1</u>** There are other hydraulic services (metal pipes and PVC pipes) penetrating the fire-resisting floor (slab) between Ground Floor and Level 1 which are not fire stopped, which does not comply with BCA Clause C4D15.	<u>Option 1</u> All hydraulic services (metal pipes and PVC pipes) penetrating the fire-resisting floor (slab) between Ground Floor and Level 1 shall be fire-stopped in accordance with fire-stopping systems that are identical with a prototype assembly of the service and building element which has been tested in accordance with AS 4072.1 and AS 1530.4 and has achieved the required FRL, to comply with BCA Clause C4D15. <u>Option 2</u> A Performance Solution, prepared in accordance with Part A2 of the BCA, shall be prepared by a NSW Fair Trading registered Certifier (Fire Safety) to address these DTS non-compliances for approval by a Registered Certifier as part of the construction certificate for the proposed new balcony / balustrade works.	   Pipes in slab above garage for Unit 3 (as an example)

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			  Pipes in slab above hot water room (as an example)
8.	**<u>D3D14 – Nosing strips on internal stairway treads</u>** BCA Clause D3D14(1)(e) requires that a stairway must have treads which have: (i) a surface with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586; or (ii) a nosing strip with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586. Some flights have treads with non-slip nosing strips however most treads of the 2 x internal stairways do not have a slip-resistance surface or non-slip nosing strips, which does not comply with BCA Clause NSW D3D14(1)(e).	Affix the treads and landings of the 2 x internal stairways with conspicuous nosing strips with a slip-resistance classification of not less than P3 (in accordance with AS 4586), to comply with BCA Clause D3D14(1)(e).	 
9.	**<u>D3D18 & D3D19 – Balustrades</u>** The balustrades in the following locations are less than 1m high at landings, which does not comply with BCA Clause NSW D3D18(1)(e): • Front block internal stairway balustrade at top landing is less than 1m high (is 820mm). • Rear block internal stairway balustrade at top landing is less than 1m high (is 840mm). The balustrades in the following locations are less than 865mm high at flights (measured above the nosing line of the stair treads), which does	Undertake the following work to the balustrades in the following locations to comply with BCA Clauses D3D18 and D3D19. <u>Front block internal stairway:</u> • Provide additional top rails to the balustrade at the top flight so the height is not less than 1m high and so gaps do not permit a 125 mm sphere to be able to pass through the openings. • Provide additional top rail to the flight balustrades so the height is not less than 865mm high measured above the nosing line of the stair treads.	 Front block internal stairway balustrade at top landing is less than 1m high (is 820mm)

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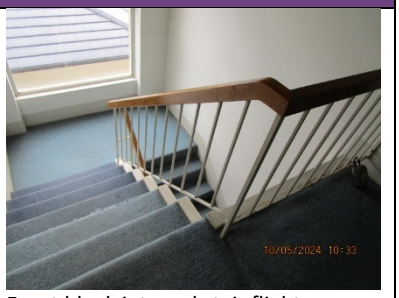
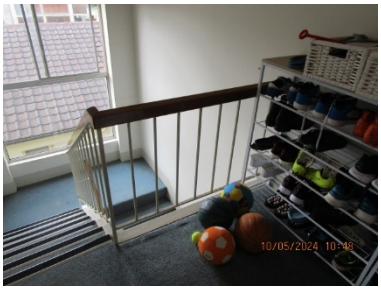
	not comply with BCA Clause NSW D3D18(1)(b): • Front block internal stair flights balustrades are less than 865mm high (are 820mm). • Rear block internal stair flights balustrades are less than 865mm high (are 820mm).	<u>Rear block internal stairway:</u> • Provide additional top rails to the balustrade at the top flight so the height is not less than 1m high and so gaps do not permit a 125 mm sphere to be able to pass through the openings. • Provide additional top rail to the flight balustrades so the height is not less than 865mm high measured above the nosing line of the stair treads.	 Front block internal stair flights balustrades are less than 865mm high (are 820mm)  Rear block internal stairway balustrade at top landing is less than 1m high (is 840mm)  Rear block internal stair flights balustrades are less than 865mm high (are 820mm)
10.	**<u>D3D25 – Swing of lobby exit doors</u>** The 2 x Ground Floor lobby entrance/exit doors do not swing in the direction of egress, which does not comply with BCA Clause D3D25(1)(b).	The 2 x Ground Floor lobby entrance/exit doors shall both be fitted with a device for holding them in the open position, to comply with BCA Clause D3D25(1)(b).	 Front block lobby entrance/exit door  Rear block lobby entrance/exit door

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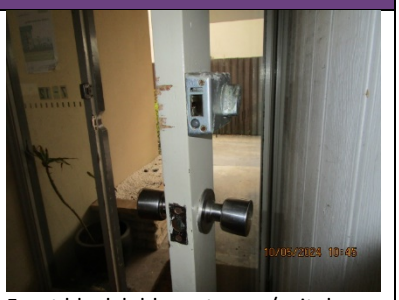
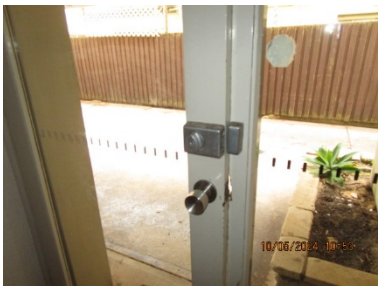
11.	**D3D26 – Non-compliant door hardware to exit doors** The 2 x Ground Floor lobby entrance/exit doors are not provided with a non-key operable lever type handle which is located between 900 mm and 1.1 m from the floor, which does not comply with BCA Clause D3D26(1)(a).	Replace the non-compliant door hardware to the 2 x Ground Floor lobby entrance/exit doors with a lever door handle that is readily openable without a key from the side that faces a person seeking egress, by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm, to comply with BCA Clause D3D26(1)(a).	 Front block lobby entrance/exit door hardware  Rear block lobby entrance/exit door hardware
12.	**E1D2 – Adequacy of street hydrant** The building is only served by a street hydrant in the footpath in front of 156 Ocean Street (at the corner of Octavia Street) (see Annexure 3) which may not meet the pressures and flows requirements of AS 2419.1-2021 and does not meet the coverage requirements of AS 2419.1-2021 as not all parts of the building are not more than 70m from a fire brigade pumping appliance located on a hardstand within 20m of the street hydrant, as measured in accordance with Figure H.6.2 of AS 2419.1-2021 (see below diagram).	Option 1 Pressures and flows from subject street hydrant Obtain information from Sydney Water confirming the available pressures and flows from the street hydrant in the footpath in front of 156 Ocean Street (at the corner of Octavia Street) meets the pressures and flows requirements of AS 2419.1-2021. Coverage from subject street hydrant As coverage from the street hydrant exceeds that measured in accordance with Figure H.6.2 of AS 2419.1-2021, a concession shall be sought and obtained from Fire + Rescue NSW in accordance with their "*Fire hydrant concessions for existing buildings Technical Information Fire Safety Guideline*" (Ref: D16/62522, Version 01, dated 27.02.20 – see below link). https://www.fire.nsw.gov.au/gallery/files/pdf/guidesheets/Tech%20info%20sheet%20-%20Existing%20buildings-Fire%20hydrant%20concession.pdf Option 2 As coverage from the street hydrant in the footpath in front of 156 Ocean Street (at the corner of Octavia Street) exceeds that measured in	 

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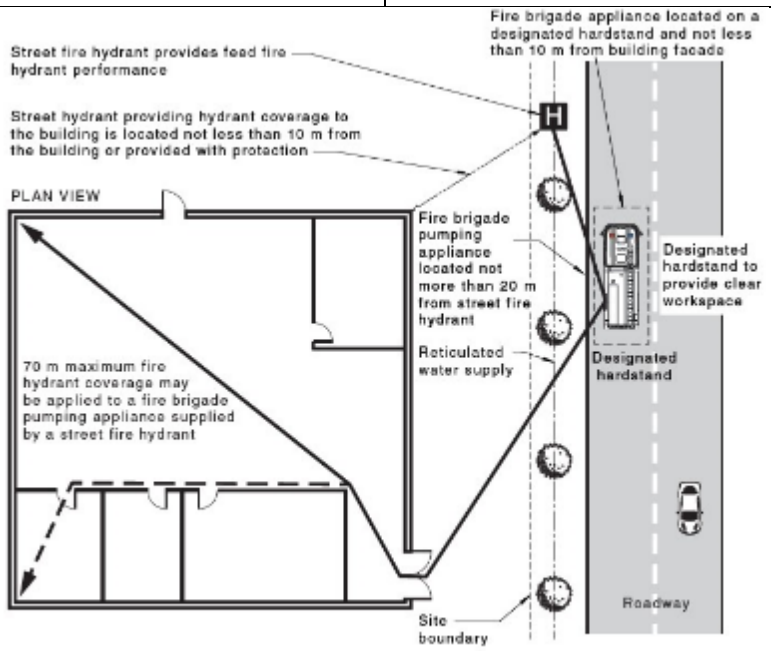
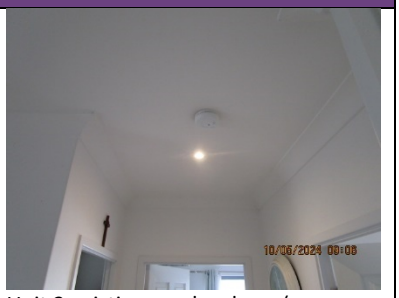
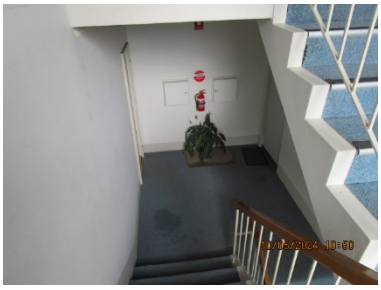
		accordance with Figure H.6.2 of AS 2419.1-2021, a new on-site hydrant system will be required to be installed in accordance with BCA Clause E1D2 and AS 2419.1-2021.	
		 Figure H.6.2 — Street fire hydrant coverage	
13.	**<u>E1D6– Sprinkler system required throughout whole building</u>** BCA Clause E1D6(1) requires that "*in a Class 2 or 3 building, or any multi-classified building containing a Class 2 or 3 part, sprinklers are required throughout the whole building if any part of the building has—* *(a) a rise in storeys of 4 or more; and* *(b) an effective height of not more than 25 m*". The building is a Class 2 building having a rise in storeys of 4 and an effective height of not more than 25m and is not provided with sprinklers throughout the whole building, which does not comply with BCA Clause E1D6(1).	<u>Option 1</u> A new sprinkler system to comply with BCA Clause E1D6(1) and complying with BCA Specification 17 and BCA Specification 18 as applicable shall be designed and installed by an Accredited Practitioner (Fire Systems Design and Fire Safety Assessment) throughout the whole building, as the building is a Class 2 building having a rise in storeys of 4 and an effective height of not more than 25m, to comply with BCA Clause E1D6(1). <u>Option 2</u> A Performance Solution, prepared in accordance with Part A2 of the BCA, shall be prepared by a NSW Fair Trading registered Certifier (Fire Safety) to address these DTS non-compliances for approval by a Registered Certifier as part of the construction certificate for the proposed new balcony / balustrade works.	

Item No.	DTS non-compliance against BCA 2022	Recommended BCA Fire Safety Upgrade Works	Photographs
14.	**S20C3 – Hardwired smoke alarms in apartments** It is noted that Fire + Rescue NSW advise that "***Landlords and agents must ensure smoke alarms are replaced within 10 years of manufacture, or earlier if specified by the manufacturer; and batteries are installed or replaced every year (or for lithium batteries, in the period specified by the manufacturer).*** The existing smoke alarms installed within the 12 apartments cannot be confirmed as being installed within the last 10 years and some apartments are not provided with smoke alarms.	Install hardwired (i.e. "*powered from the consumers mains source*") smoke alarms (with a battery backup), complying with AS 3786-2014, to each apartment on the ceiling in the hallway serving the bedrooms (between the 2 bedroom doors) in accordance with BCA Clause S20C3. Where there is more than one alarm installed within a sole-occupancy unit, alarms must be interconnected within that sole-occupancy unit. *Note: The existing smoke alarms can be removed after completion of the above works.*	 Unit 3 existing smoke alarm (as an example) to be replaced  Unit 4 existing smoke alarm (as an example) to be replaced  Unit 8 existing smoke alarm (as an example) to be replaced  Unit 10 existing smoke alarm (as an example) to be replaced
15.	**S20C3 – Automatic smoke alarm system in common areas** It is noted that Fire + Rescue NSW advise that "***Landlords and agents must ensure smoke alarms are replaced within 10 years of manufacture, or earlier if specified by the manufacturer; and batteries are installed or replaced every year (or for lithium batteries, in the period specified by the manufacturer).***	Install a hardwired and interconnected smoke alarm system, complying with AS 3786-2014, to the ceilings of the Ground Floor lobby and each level/landing in both the front block and rear block, in accordance with BCA Clause S20C3. Smoke alarms installed in public corridors and other internal public spaces shall be interconnected and located in accordance with the	 Front block Level 3 landing smoke alarm (as an example) to be replaced

Item No.	DTS non-compliance against BCA 2022	Recommended BCA Fire Safety Upgrade Works	Photographs
	The existing smoke alarms installed at the landings and lobbies of the front block and rear block cannot be confirmed as being installed within the last 10 years.	requirements for smoke detectors in AS 1670.1-2018. *Note: The existing smoke alarm can be removed after completion of the above works.*	 Rear block Level 3 landing smoke alarm (as an example) to be replaced
16.	**E4D2 – No emergency lighting in public corridors or stairways** Emergency lighting has not been installed throughout the internal stairways and public lobbies in the front block or rear block, which does not comply with BCA Clause E4D2(d).	Install an emergency lighting system, complying with AS/NZS 2293.1-2018, throughout the internal stairways and public lobbies in the front block and rear block, to comply with BCA Clause E4D2(d).	 No emergency lighting in the internal stairway and public lobbies in the front block  No emergency lighting in the internal stairway and public lobbies in the rear block
17.	**E4D5 – Exit signs** Exit signs are not clearly visible to persons approaching the 2 x Ground Floor lobby entrance/exit doors, which does not comply with BCA Clause E4D5.	Install illuminated exit signs complying with AS/NZS 2293.1-2018 above the 2 x Ground Floor lobby entrance/exit doors, to comply with BCA Clause E4D5. Alternatively, install a permanent sticker on the side remote from the exit with the word “EXIT” in capital letters 25 mm high in a colour contrasting with that of the background.	 No exit sign above front block Ground Floor lobby entrance/exit door  No exit sign above rear block Ground Floor lobby entrance/exit door

Item No.	DTS non-compliance against BCA 2022	Recommended BCA Fire Safety Upgrade Works	Photographs
18.	**<u>Electrical installation to be inspected and certified</u>** There is an electricity meters and switches room in the front block Ground Floor lobby. The electricity meters and switches appear original and it is unknown if they or the remainder of the electrical installation throughout the building in general is in a compliant and/or safe condition.	The electrical installation serving the subject premises shall be inspected by a suitably qualified electrical contractor (licensed electrician). A written report, with appropriate accompanying documentation, shall be provided to the Owners Corporation confirming the following: • The electrical contractor's licence number. • That a visual examination (refer to Clause 8.2 of AS/NZS3000-2018) of wiring, fittings and accessories was undertaken and they were found to be in sound condition, or if not what works are required to rectify the electrical installation throughout the building; • That an insulation resistance and circuit connection test was carried out pursuant to Clause 8.3.6 of AS/NZS3000-2018 and was found to be satisfactory, or if not what works are required to rectify the electrical installation throughout the building.	 

E. FIRE SAFETY SCHEDULE

The fire safety schedule outlines the existing and proposed statutory fire safety measures.

FIRE SAFETY MEASURE	Existing	Proposed	INSTALLATION STANDARDS/LEVEL OF PERFORMANCE
Automatic smoke alarm system in common areas	X	X	BCA Clauses S20C3 and S20C7 AS 3786-2014
Emergency lighting		X	BCA Clauses E4D2, E4D4 AS/NZS 2293.1-2018
Exit signs		X	BCA Clauses E4D5, E4D7, E4D8 AS/NZS 2293.1-2018
Fire doors		X	BCA Clauses C4D12 AS 1905.1-2015
Fire engineering TBC		X	TBC
Fire seals protecting openings in fire-resisting components of the building		X	BCA Clause C4D15 AS 4072.1-2005 AS 1530.4-2014
Hardwired smoke alarms in apartments	X	X	BCA Clauses S20C3 AS 3786-2014
Lightweight construction (Level 3 fire-resisting ceiling)		X	BCA Clauses C2D9, S5C11 Manufacturer's specifications
Paths of travel to exits	X		BCA Clause D2D8 Clause 109 Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021
Portable fire extinguishers		X	BCA Clause E1D14 AS 2444-2001
Protection of openings – TBC		X	BCA Clauses C4D3 and C4D5
Sprinkler system throughout building		X	BCA Clauses E1D4 and E1D6, BCA Specification 17 or BCA Specification 18 – TBC
Street hydrant location plan or fire hydrant system TBC		X	BCA Clause E1D2 AS 2419.1-2021 - TBC

F. CONCLUSION

This report provides a BCA fire safety upgrade strategy for the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

The purpose of this report was to propose a suitable BCA fire safety upgrade to address item 4 of the Northern Beaches Council's DA letter dated 27.10.23; and specifically addresses Clause 64 of Environmental Planning and Assessment Regulation 2021 which requires consideration of whether "*the measures contained in the building are inadequate—*
(i) to protect persons using the building, if there is a fire, or
(ii) to facilitate the safe egress of persons using the building from the building, if there is a fire, or
(iii) to restrict the spread of fire from the building to other buildings nearby".

It is recommended that the BCA fire safety upgrade strategy contained within the "*Recommended BCA Fire Safety Upgrade Works*" column in Section D of this report is wholly complied with and implemented as part of the proposed balcony and balustrades replacement work to be undertaken at the subject building.

If you require any further information, please contact the undersigned.

Signed

Greg Murrow
Director – Murrow Consulting Pty Ltd
Grad Dip Build Surv, Dip Access Consulting
AIBS National Accredited Level 1 Building Surveyor
NSW Fair Trading Registered Unrestricted Building Surveyor

ANNEXURE 1 – AUTHOR'S CURRICULUM VITAE

MURROW CONSULTING

Murrow Consulting Pty Ltd
PO Box 771
Drummoyne NSW 1470

murrowconsulting.com.au
02 8386 0737
info@murrowconsulting.com.au

CURRICULUM VITAE OF GREG MURROW

Greg Murrow is a specialist Building Code of Australia (BCA) consultant holding the peak registration as an Unrestricted Building Surveyor with NSW Fair Trading since 2010; and Australian Institute of Building Surveyors (AIBS) Accredited Membership as a Level 1 Building Surveyor, after commencing his professional building surveying career in 1999 and founding Murrow Consulting Pty Ltd in 2015.

Greg is also an accomplished Access Consultant having obtained a Diploma in Access Consulting and Associate Membership with the Access Consultants Association (ACA) which supplemented his existing extensive experience and expertise in the field of access consulting. Greg is also registered as a Livable Housing Australia (LHA) Design Guidelines Assessor, with the authority to issue LHA Provisional (Design) certificates and Final (As-built) certificates for developers/builders and owners.

Having enjoyed a 10-year (2009-2019) career as a BCA fire safety defects expert witness has allowed Greg to attain an intimate knowledge and deep understanding of the BCA and Disability (Access to Premises – Buildings) Standards 2010.

Murrow Consulting Pty Ltd is an AIBS Accredited Body Corporate Member, having met the prescribed requirements for corporate membership with the AIBS.

ACCREDITATIONS & AFFILATIONS

- Unrestricted Building Surveyor with NSW Fair Trading – Registration No: BDC1767 since 2010
- Level 1 Building Surveyor Accredited Membership with AIBS since 2022 and Full Member since 2003
- Livable Housing Australia (LHA) Design Guidelines Assessor – Registration No: 20322 since 2022
- Associate Member of Access Consultants Association (ACA) since 2019
- Member Association of Australian Certifiers (AAC) since 2010
- Member Engineers Australia Society of Fire Safety (SFS) since 2015
- Member Fire Protection Association (FPA) Australia since 2015

TERTIARY QUALIFICATIONS

- Bachelor of Applied Science Degree with major studies in Environmental Health with Credit – University of Western Sydney 2001
- Graduate Diploma in Building Surveying – University of Western Sydney 2008
- Diploma of Access Consulting – Access Institute 2020

SUPPLEMENTARY QUALIFICATIONS

- Advanced Building Regulations Short Course – UTS 2006
- Development Control Short Course – UTS 2001

DESIGN REVIEWS FOR BCA COMPLIANCE AND ACCESS COMPLIANCE

- Experienced and proficient assessor of building designs to identify Deemed-to-Satisfy (DTS) non-compliances and advisor of design improvements and innovations resulting in value adding for the client.
- LHA Design Guidelines Assessor with the authority to issue LHA Provisional (Design) certificates and Final (As-built) certificates certifying Silver Level, Gold Level or Platinum Level compliance for developers/builders and owners.

AUTHOR OF PERFORMANCE SOLUTIONS

- Leading author of BCA Part A2 qualitative Performance Solutions for a range of DTS matters concerning access, health and amenity.

CAREER

Murrow Consulting Pty Ltd
Founder and Director – October 2015 to present

AED Group
Associate Director – April 2008 to October 2015

City of Sydney Council – January 2005 to April 2008
- Specialist Building Surveyor (May 2007 to April 2008)
- District Building Surveyor (January 2006 to May 2007)
- Building Compliance Officer (Contract Position) January 2005 to June 2005

Leichhardt Municipal Council – October 2004 to January 2005
Building Surveyor (Contract Position)

Penrith City Council – February 2004 to September 2004
Building Surveyor (Contract Position)

Fairfield City Council – January 1999 to April 2003
- District Building Surveyor (December 2000 to April 2003)
- Trainee Health & Building Surveyor (January 1999 to December 2000)

ANNEXURE 2 – CAP508 INTUMESCENT PAINT SYSTEM

CAP Coatings CAP508 *fire rated paint technology offers a cost effective non-destructive alternative to achieving fire ratings on existing ceilings to comply with Council fire order upgrades*

Fire safety orders are issued by Councils on existing buildings where the fire safety is deemed to be inadequate. Often a main issue with older apartment buildings is the fire separation between occupancies. Rectifying this can become a major undertaking using traditional methods such as replacing ceilings with fire rated linings or attempting to install sprinkler systems.

The CAP508 intumescent paint system is a recognised and trusted non-destructive alternative to achieve fire separation requirements.

There is often no need to "rip down" existing substrates. In many cases the CAP508 paint system can be applied to existing surfaces, with works completed in 5 days or less. Ceilings are restored and coated with a water based low VOC intumescent coating that is spray applied to achieve a high level of finish.

The trusted CAP508 paint application offers owners, developers, and certifiers a tested non-destructive alternative to achieving compliance. The CAP Coatings CAP508 system is the only tested fire rated paint system to achieve 60 and 90 minute fire separation on existing ceiling substrates including, standard plasterboard, fibrous plaster, lath and plaster and fibre cement sheet.

- Cost effective efficient process
- Achieve FRL's of up to 90/90/90 and RISF of 60 minutes on existing ceilings.
- Applied and certified by Recognised Applicators
- The only intumescent paint system tested to AS1530.4 on a range of ceiling and wall substrates
- Proven track record on hundreds of projects across Australia.
- Retain heritage significance of ornate surfaces
- Trusted and recommended by councils, certifiers and fire engineers Australia wide
- Groundbreaking CAPMark RFID tagging system

CAP COATINGS AUSTRALIA
1800 508 800
info@capcoatings.com.au

CAP
Fire Rated Coatings

CAP
Fire Rated Coatings

"A simple intumescent paint process to achieve fire ratings on existing ceilings"

1. Preparation

2. Application

3. Certification

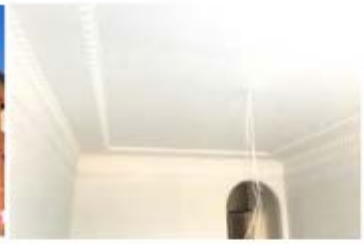
Case study examples - compliance with fire orders

Project: Apartments above shop
Substrate: Fibrous plaster
Fire rating: **90/90/90**

- Ornate ceilings restored and fire rated
- Cost effective alternative
- Time efficient process for client
- Required fire separation achieved

Project: Apartment block upgrade
Substrate: Standard 10mm plasterboard
Fire rating: **60/60/60**

- Cost savings for clients compared to alternatives
- Fire rated downlight covers used in conjunction with system



Project: Strata upgrade
Substrate: Original fibrous plaster
Fire rating: **90/90/90**

- Savings with time and money for client
- Ornate features retained
- High levels of finish achieved

Project: Multi-storied mixed use building
Substrate: Exposed timber panels
Fire rating: **60/60/60**

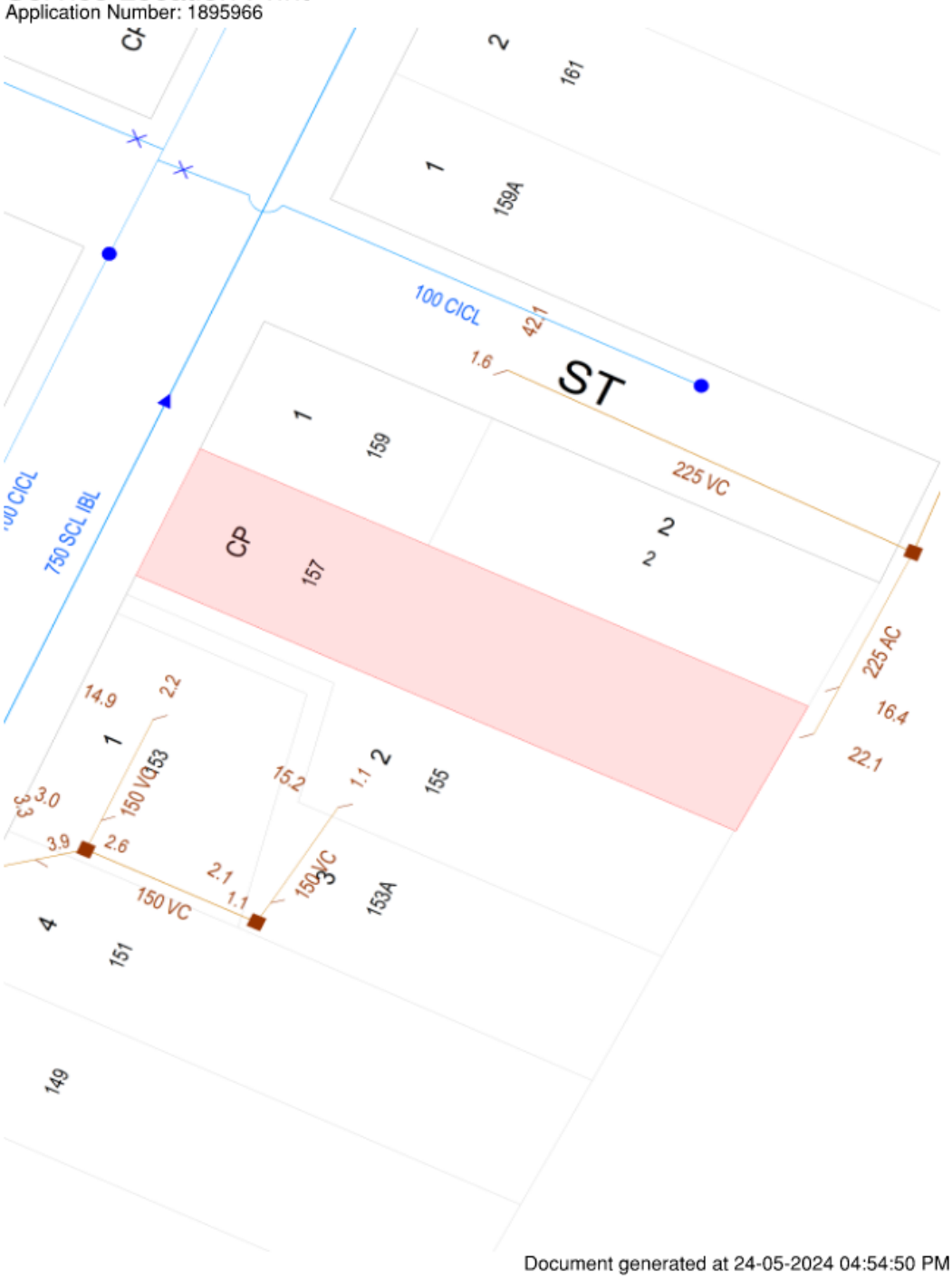
- Fire Engineered Solution
- Heritage timbers retained
- Tight timelines achieved

Contact our knowledgeable team on:**1800 508 800** or visit **www.capcoatings.com.au**

ANNEXURE 3 – SYDNEY WATER STREET HYDRANT DIAGRAM

Sydney WATER

Service Location Print
Application Number: 1895966



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Disclaimer
The information on this print shows if we provide any water, wastewater or stormwater services to this property. It may not be accurate or to scale. If you'd like to see the location of private wastewater pipes on the property, please buy a **Sewer service diagram**.

Page 1

Asset Information

Legend

Sewer

Sewer Main (with flow arrow & size type text) 225 PVC
Disused Main
Rising Main
Maintenance Hole (with upstream depth to invert) 1.7
Sub-surface chamber
Maintenance Hole with Overflow chamber
Ventshaft EDUCT
Ventshaft INDUCT
Property Connection Point (with chainage to downstream MH) 10.8
Concrete Encased Section Concrete Encased
Terminal Maintenance Shaft TMS
Maintenance Shaft MS
Rodding Point RP
Lamphole
Vertical
Pumping Station SP0882
Sewer Rehabilitation

Pressure Sewer

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

Vacuum Sewer

Pressure Sewer Main
Division Valve
Vacuum Chamber
Clean Out Point

Stormwater

Stormwater Pipe
Stormwater Channel
Stormwater Gully
Stormwater Maintenance Hole

Property Details

Boundary Line
Easement Line
House Number 25 26 27 28
Lot Number
Proposed Land
Sydney Water Heritage Site (please call **132 092** and ask for the **Heritage Unit**)

Water

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

Private Mains

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

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