Pr11029 - Fire Hydrant Spacing and Location Technical Note

Document Owner	Head of Asset Management
Document Contact	Infrastructure Standards Team
References this technical note complements or modifies	WSA 03–2011-3.1 (SEQ WS&S D&C Code V1.3-2019) Part 1-9 Water Supply Code of Australia South East Queensland Service Providers Edition Version 1.3 (August 2019) (SEQ Water Code) AS2419.1:2021 Fire Hydrant Installations NCC Clause E1.9 Fire precautions during building construction work Queensland Fire and Emergency Services (QFES) Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial Lots Pr10255 - Unitywater Accreditation and Certification Manual Revision 4 (A & C Manual)

1. Purpose

This Technical Note has been prepared to provide clarification to the locations and spacing requirements and limitations for spring hydrants owned, operated and maintained by Unitywater, i.e. hydrants located within public road reserves, such as within the nature strip, footpath or road verges and carpark areas as well as public park reserves, where applicable.

Expectation: Where reticulated water is available, hydrants are to be located so that:

1. Unitywater has safe and ready access for operations and maintenance; and
2. QFES has safe and ready access for firefighting purposes.

Acceptable Outcome: Hydrants above or below ground should be provided and maintained to the minimum required performance standard as per AS 2419.1 2005.

2. Scope

All other Hydrant construction requirements of hydrants are not covered within this Technical Note, and reference must be made to the relevant standards and Code requirements.

3. Definitions/Acronyms

Term	Meaning
N/A	No definitions to define

4. Hydrant spacing and location requirements

4.1 Current status

Referenced sections from SEQ Water Code are (see Appendix A):

- 8.8.8 Hydrant Spacing
- 8.8.9 Hydrant Location
- Drawing SEQ-WAT-1303-1(B)

Referenced sections from the A&C Manual are:

- 3.3.18. Certification Package subheading Network Works.

4.2 Hydrant Location

As shown in Figure 1 – Battle Axe and Private Gated Communities and Figure 2 – Street Locations**,** hydrants are to be located

1. Inline (+/- 200 mm) with the side real property boundary between lots; and
2. For corner lots, on alignment at a perpendicular projection to the first property boundary truncation.

For a staged residential subdivision, properly locating hydrants in permitted location may require an iterative design approach. In some circumstances, an additional hydrant or hydrants may need to be incorporated in the design to address permitted locations and to not exceed maximum spacing requirements.

4.3 Maximum spacing

As stated in section 8.8.8 - Hydrant spacing of the SEQ Water Code hydrants shall be installed at a maximum spacing of 80 m. This distance may be measured either along the centreline of the water reticulation main or “as the hose is laid”.

A Network Hydrant Coverage Plan (hydrant location and spacing), as required in the A&C Manual, should demonstrate that the maximum spacing has not been exceeded.

4.4 Clearance

Access to Fire Hydrants must not be obstructed by buildings or other infrastructure – refer to AS2419.1:2021 Fire Hydrant Installations Section 3.5.3 Location.

4.5 Deviation from requirements

In the case where spacing of hydrants is measured ‘as the hose is laid’, and not along the centreline of the water supply main, the Designer and the Registered Certifier are required to demonstrate that maximum hydrant spacing is not exceeded by showing dimensioned measurements between those hydrants on a Network Hydrant Coverage Plan (hydrant location and spacing).

5. Rationales

Rationale 1	Firefighters use water as a prime extinguishing medium for structure fires. Reticulated water mains have hydrants placed at regular intervals to enable firefighters to connect into the reticulated system. The water is pressurised by pumps in the fire truck and delivered via hoses to the fire.
Rationale 2	Upon arriving at a structure fire, fire fighters position the fire truck considering safety, access to the fire, positioning of other responding trucks and access to water supply for firefighting purposes. Firefighters have an expectation that fire hydrants will be located, as required in AS 2419.1 2005, Appendix B, on reticulated water systems no more than 80m apart QFES equipment, procedures and personnel training is based on this preferred standard of fire hydrant placement and associated access requirements. Ideally Hydrants should be located at each intersection, whilst maintaining the 80m maximum spacing distance. The 80metre distance is generally measured “as the fire hose is laid” and should not traverse (trespass) private property, i.e. it is not to be measured as the crow flies or direct “line of sight”. “line of sight” maybe encumbered with a building or high property boundary fence which would restrict direct access. Hydrants servicing rear or battle-axe blocks must be located so that there is a maximum distance of 90metres to the rear building envelope of the furthest block from the Hydrant. This allows for all portions of any proposed building to be within reach of a 10m hose stream, issuing from a nozzle at the end of an 80metre length of hose as laid on the ground. If this requirement cannot be met, a private fire main may need to be considered (SEQ Code Section 8.8.8).
Rationale 3	Hydrants should be located adjacent property boundaries reducing the risk of • hydrants being located within or under driveways; and • damage to the hydrant and the servicing watermain from traffic movements.

Pr11029 - Fire Hydrant Spacing and Location Technical Note

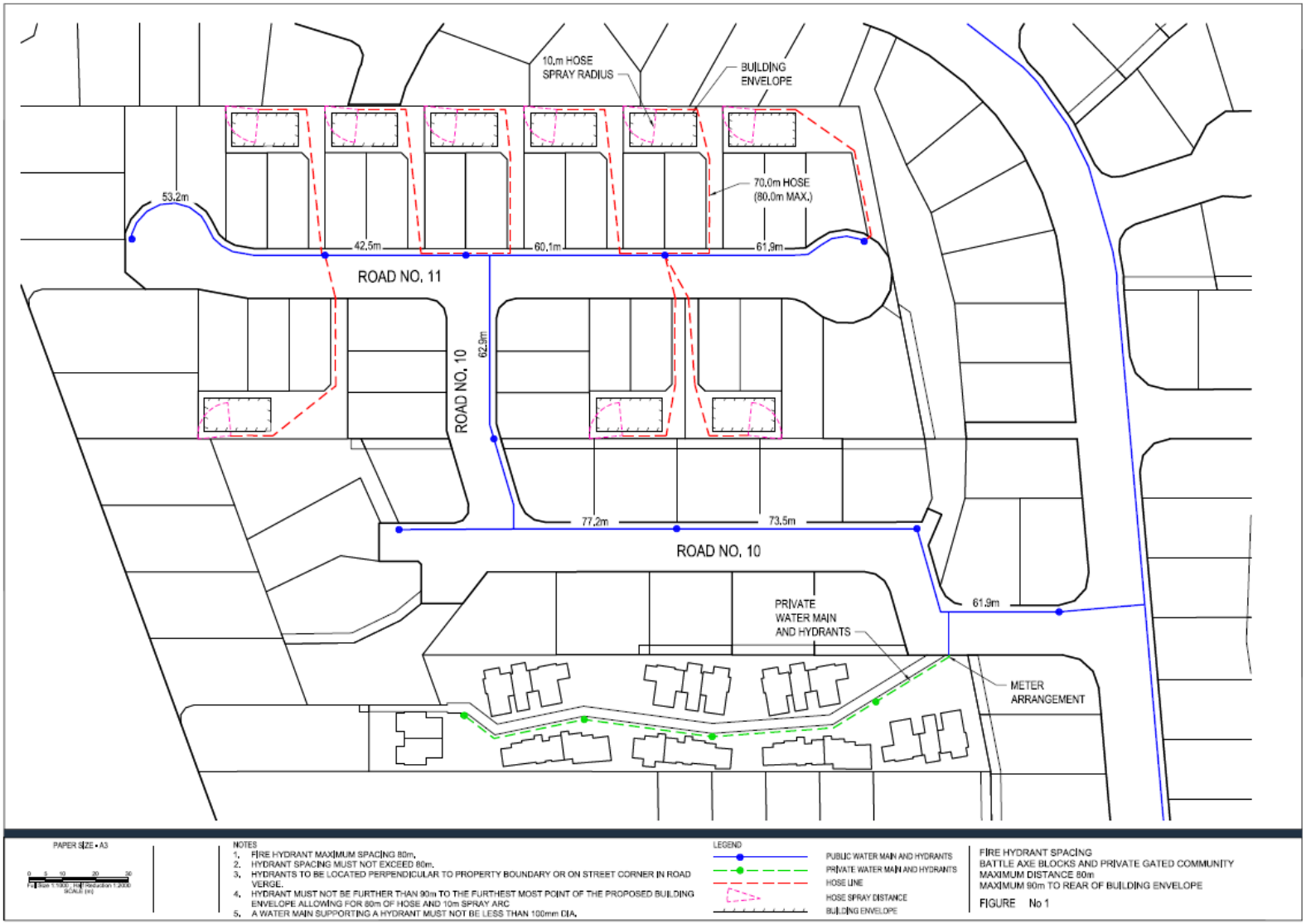

Figure 1 – Battle Axe and Private Gated Communities

Pr11029 - Fire Hydrant Spacing and Location Technical Note

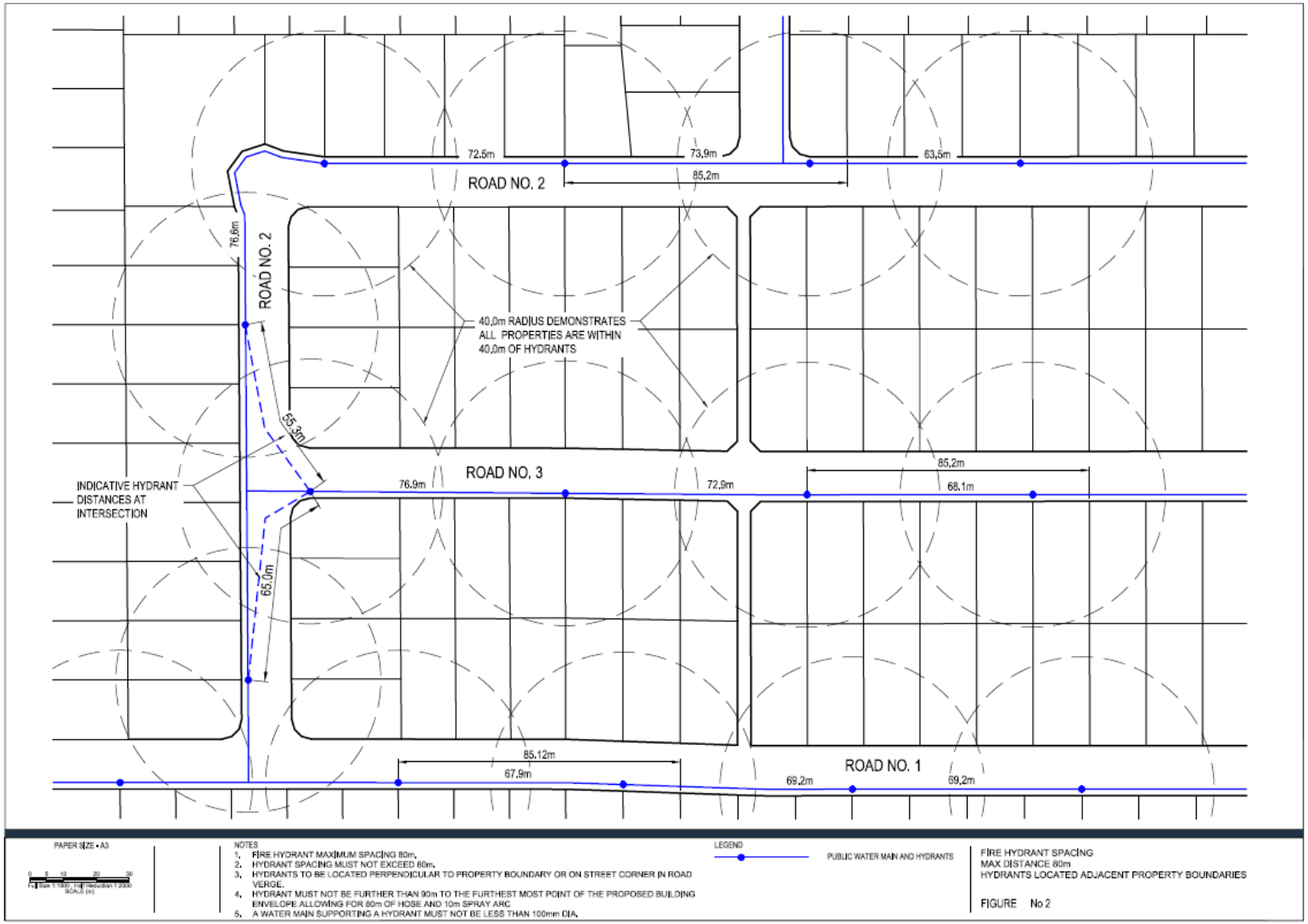

Figure 2 – Street Locations

Appendix A: Seqcode References

Referenced sections below are taken from WSA 03–2011-3.1 (SEQ WS&S D&C Code V1.3-2019) Water Supply Code of Australia South East Queensland Service Providers Edition Version 1.3 (August 2019).

8.8.8 Hydrant spacing

Spacing of hydrants on water mains, as agreed between local fire authorities and Water Agencies, varies considerably around Australia.

The position of hydrants on water mains shall comply with the following requirements:

a) Every property shall have a hydrant within 40 m of its front boundary (this requirement can be relaxed for urban residential infill developments where the water mains already exist);

b) In urban areas, every property, other than properties that are part of a community title scheme, shall have a hydrant within 90 m of the furthest point of any existing, proposed or future Class 1 buildings, measured along the street to the property entrance and around the perimeter of the building (where this requirement cannot be met from hydrants on SEQ-SP mains in public streets, a private fire main must be provided on the property);

c) Hydrants shall be installed at crests, low points and other points determined by the SEQ-SP for operational purposes;

d) Hydrants shall be installed at a maximum spacing of 80 m.

Fire protection within community title scheme developments shall comply with the State Planning Policy requirements.

Where an agreement exists between a fire authority and a Water Agency on hydrant spacing, that agreement shall take precedence.

Where an agreement does not exist, it is recommended that the currently established maximum fire hydrant spacings should apply until an agreement can be negotiated between the Water Agency and relevant fire authority.

Maximum hydrant spacing requirements advised by Water Agencies are listed in APPENDIX H — HYDRANT SPACINGS.

Disregard Appendix H for SEQ-SPs.

8.8.9 Hydrant location

Hydrants on *reticulation mains* shall be located below-ground in a non-trafficable location i.e. within the nature strip, footway or road verge and clear of driveways.

Typical installations of spring and screw hydrants, with and without isolation, for non-trafficable and trafficable locations are shown in Figure 8.31, Figure 8.32, Figure 8.33, Figure 8.34 and Figure 8.37.

Hydrants shall not be located in carriageways unless otherwise directed by the Water Agency (See Figure 8.34 for typical offsetting installation).

Hydrants shall be located in line (+/- 200 mm) with the side real property boundary. Refer drawings SEQ-WAT-1302-1 for typical installations.

Where there is a water main on both sides of a road, hydrants shall be staggered where practicable to maximise fire fighting capability. All hydrants shall be identified by the installation of appropriate location markers (Refer to *8.11 APPURTENANCE LOCATION MARKING*).

In rural areas, hydrants shall be located at street intersections and opposite accessways to bush reserves and fire trails. Hydrants in bush fire prone areas and in areas where vegetation may obscure a below-ground hydrant shall be an aboveground type to the requirements of the local Water Agency. *Alternatively, hydrant locations may be identified by fire resistant e.g. metallic indicator posts.*

Appendix B: AS2419.1:2021 Fire Hydrant Installations Section 3.5.3 Location

Hydrants must not impede access or egress from any building.

Each Hydrant must be located:

- Not less than 10 metres from the building or fire compartment that it is designed to protect. (heat from the building on fire may impede safe access to the hydrant for hose connection purposes).
- Not be located less than 10 metres from any high voltage main electrical distribution board or transformer.
- Not less than 10 metres from any electrical vehicle charging station.
- Not less than 10 metres from any stored dangerous goods.
- Not less than 10 metres from any combustible storage facility.
- Not less than 3.0 metres from any vent terminal of any gas assembly or gas measurement facility.
- All Hydrants must have a 1.0 metre free clearance from all obstructions.
- If located within a car park, or in a vehicle movement area, hydrants must be located so that there is always a minimum 1.0 metre clearance. Protecting bollards must also be located a minimum of 1.0 metre from any hydrant.