infrastructure & development consulting

Coffs Harbour Jetty Foreshore State Assessed Planning Proposal

Utilities Infrastructure Servicing Strategy

Property & Development NSW

February 2025

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Project Number	22-533	Date	26 February 2025
Project Name	Coffs Harbour Jetty Foreshore Precinct	Status	F
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Glossary of Terms

Term	Definition
Development Servicing Plan (DSP)	A plan which details the water or sewer developer charges to be levied on a development utilising water or sewer infrastructure. A developer charge is an upfront charge that assists a utility authority to recover the cost of providing new or upgraded infrastructure to support new development.
Equivalent Tenement (ET)	A measurement of the demand a new development will place on water and sewer infrastructure. One ET is equal to the estimated demand of a typical freestanding dwelling.
Peak Hour Demand	The maximum volume of water delivered to the water system in a single hour expressed in kilolitres per hour (or litres per second). Distribution systems are be designed to adequately handle the peak hourly demand or maximum day demand plus fire flows, whichever is greater.
Maximum Day Demand	The maximum volume of water delivered to the water system in a single day expressed in kilolitres per day.
Average Dry Weather Flow (ADWF)	The average daily sanitary flow into a sewer system from domestic, commercial or industrial sources.
Peak Dry Weather Flow (PDWF)	The most likely peak sanitary flow in the sewer system during a normal day.
Peak Wet Weather Flow (PWWF)	The maximum flow into a pipe during or immediately after a period of heavy rainfall.
Diversified Load	The maximum electrical demand generated by a development after a diversification factor (0.8) is applied to account for the fact that not all demands will occur at the same time.

Executive Summary

IDC has been engaged by PDNSW to prepare a Utilities Servicing Strategy to support the State Assessed Planning Proposal for the Coffs Harbour Jetty Foreshore Precinct. The strategy identifies existing utilities infrastructure within the vicinity of the Precinct, estimates the demands for future utilities infrastructure which can be expected from the proposed development of the indicative masterplan, and outlines a strategy to service this development.

The locations of utilities infrastructure shown in this report are indicative only for the purpose of highlighting a potential servicing strategy. Final locations will be subject to detailed design during a subsequent phase of the project.

Potable Water

- Potable water is supplied to the study area and its surrounds by Coffs Harbour City Council.
- A new potable water main lead-in will be required to support the Planning Proposal and to facilitate future development. A new 200mm diameter main would be required and would be extended from the existing 375mm diameter main located on the southern side of Victoria Street. The new main could be extended down Howard Street, through the existing bushland to the south of the site before entering the site at the southern boundary. An indicative alignment is shown in Figure 9.
- The proposed main will be extended to the north of the study area, to the existing 225mm diameter main in Orlando Street, on the northern side of Coffs Creek.
- Given the complexities of the southern connection through bushland and Littoral Rainforest, the final alignment will be subject to further assessment during the detailed design phase.

Sewer

- The site and surrounding area are serviced by the Coffs Harbour Water Recycling Plant (WRP). Wastewater is conveyed to the WRP via a series of sewer pumping stations and pressure mains.
- The Precinct is bisected by a 600mm diameter asbestos cement pressure main which transfers flows from a pump station adjacent Vost Street, north of the site boundary, to the WRP. There are no direct connections from existing uses on the site to this main. Council have indicated that the length within the site boundary, as well as the length south of the site connecting to the Coffs Harbour WRP need to be replaced. These works will be undertaken at the discretion and cost of Council, however there may be opportunities for this work to be coordinated and undertaken during the development of the site.
- The Precinct is also bisected by a 600mm diameter effluent main which connects to the WRP via a similar alignment to the existing pressure main. Sections of this main to the south of the site boundary are made of asbestos cement and Council have indicated that this length of main will need to be replaced. In addition, some sections within the site

boundary will need to be realigned to suit the proposed development layout and building footprints.

- It is expected that the effluent main realignment works required within the site boundary would be funded by PDNSW, while all other renewal/replacement works along the existing alignment within the site and to the south of the site would be funded and delivered by Council.
- The future alignment of the pressure and effluent mains will be confirmed with Council during the detailed design phase of the project.
- A number of sewer pump stations will be required to service the site and transfer sewer flows to the Coffs Harbour WRP. It is expected that the proposed site grading and the alignment of future mains will be resolved during the detailed design phase of the project.
- Flows would be transferred from the site to the Coffs Harbour WRP via a pressure main, which would follow a similar alignment to the proposed water main to utilise the same railway crossing. The proposed alignment of the pressure main through the bushland to the south of the site will be subject to detailed design during a subsequent stage of the project. An indicative strategy is shown in Figure 12.

Electricity

- The site is located within the Essential Energy electrical supply zone. The closest zone substations to the site are the Coffs Harbour South ZS and the Coffs Harbour North ZS.
- Some initial development within the Precinct may be supplied from existing feeders from Coffs Harbour South ZS. It is estimated that up to 1MVA of supply could be provided by reconfiguring existing feeders. Spare capacity cannot be reserved for future development and this capacity is expected to reduce over time as future developments connect to Essential Energy's network.
- After the capacity in the existing feeders is exhausted, a new feeder would be required, which would likely originate from the Coffs Harbour North ZS. This feeder would be constructed along existing road corridors and would need to cross the rail corridor and the Orlando Street bridge to reach the site. An indicative alignment for this feeder is shown in Figure 14.
- Essential Energy is planning to deliver a new zone substation within the vicinity of the site in future. Should the Coffs Harbour East ZS be available at the time of development of the site, it is likely that a new feeder would originate from this zone substation, rather than Coffs Harbour North ZS due to the proximity to the site.
- Delivery timing of the Coffs Harbour East ZS will be further discussed with Essential Energy during a subsequent design stage of the project.

Telecommunications

- Development on the site will be serviced by NBN Co. fixed line infrastructure. NBN Co. will bring fibre to future lot boundaries to provide a connection point for premises.

- NBN Co. policy requires developers to provide pit and pipe infrastructure within their standard road reserve allocation for all subdivisions. The NBN layout will follow the electricity layout in a shared trench arrangement.
- In addition to NBN's fixed line servicing, the site has blanket coverage from Telstra's 5G network.

1 Introduction

Property and Development NSW (PDNSW) is continuing to lead the revitalisation of the Coffs Harbour Jetty Foreshore Precinct (the Precinct) on behalf of the NSW Government. Infrastructure & Development Consulting (IDC) has been engaged by PDNSW to prepare a Utilities Servicing Strategy that outlines the servicing requirements to support future development of the Precinct.

This Utilities Servicing Strategy supports a Planning Justification Report that outlines proposed amendments to the Coffs Harbour Local Environmental Plan (CHLEP) 2013 and will be submitted to the Department of Planning, Housing and Infrastructure (DPHI) as part of a State Assessed Planning Proposal (planning proposal).

As Coffs Harbour continues to grow as a Regional City, the NSW Government and Coffs Harbour City Council have, through various strategic planning exercises, identified four key strategic priorities to reimagine its direction and respond to current and future challenges and opportunities:

- Deliver a regional economy (CHCC LSPS, 2020; CH Economic Development Strategy, 2017) that is diverse, sophisticated and able to retain businesses and skills
- Evolve the tourism offering CHCC LSPS, 2020) with improved attractions, activities and accommodation
- Provide more housing (CHCC LSPS, 2020) in accessible locations, including affordable housing
- Provide better connections between places with more sustainable movement choices (CHRCAP, 2021; CHCC, 2020)

As a large, strategically located and wholly government owned site, the Precinct represents a significant opportunity to deliver on each of these key regional priorities. In this planning proposal, PDNSW seeks to celebrate the unique location, history and culture of the Jetty Foreshore to deliver outcomes for the benefit of the Coffs Harbour community. The revitalisation will be staged and funded, over time, to deliver the shared community vision.

1.1 Our Shared Community Vision

Coffs' family playground, a precinct of parks and places, that connects community with Country. The community is and always has been at the heart of creating a thriving regional economy and destination for Coffs Harbour. Shaped with the community, our vision is to ensure The Jetty Foreshore will become a world-class oceanfront precinct through the principles shown in Figure 1.

Figure 1 - Vision for the Coffs Harbour Jetty Foreshore

2 The Precinct

The Precinct, wholly owned by the NSW Government, is strategically significant to the State and to the Coffs Harbour region. The Precinct is located on the traditional lands of the Gumbaynggirr people, in saltwater freshwater Country. It encompasses approximately 62 hectares of foreshore land, 5km east of the Coffs Harbour CBD, located on the Coffs Harbour coast with direct access to the Pacific Ocean. Access is provided on Marina Drive in the north, and Camperdown Street in the south, with Jordan Esplanade bisecting the site north to south. A Precinct map showing existing conditions is provided at Figure 2.

The west boundary is generally defined by the railway line and Coffs Harbour Railway Station. To the north the Precinct borders a culturally significant site known as "Happy Valley", which has been returned as freehold land to the Coffs Harbour and District Local Aboriginal Land Council (LALC). Gallows and Boambee Beaches are located to the south of the Precinct, where Littoral Rainforest occurs. Coffs Harbour itself, the Pacific Ocean, Muttonbird Island and South Coffs Island (Corambirra Point) form the eastern boundary.

The Precinct is a popular destination for both locals and tourists offering a variety of attractions and amenities. These include Jetty Beach and extensive parklands with biodiversity value, as well as items of heritage significance such as the Coffs Harbour Jetty and Ferguson's Cottage, owned by the Coffs Harbour LALC. Further, the Coffs Harbour Fisherman's Co-op, the Coffs Harbour Yacht Club, weekly Sunday markets, and community hub building (recently delivered by PDNSW) are located within the Precinct. Various public works including breakwater and boat ramp upgrades have been undertaken over recent years to support the marina function.

There are redeveloped and well-maintained parts in the area however, much can be done to enhance the Coffs Harbour Jetty Foreshore Precinct. A large portion of the Precinct is currently gravelled, and a large area of residual railway land is fenced off and inaccessible to the public, as shown in Figure 3. While gravelled areas provide informal overflow parking, they do not reflect the potential of this foreshore.

Figure 2 - Coffs Harbour Jetty Foreshore Precinct

Source: SJB

Figure 3 - Existing State of the Precinct Rail Lands & Gravelled Areas

Source: PDNSW

3 The Illustrative Masterplan

The planning proposal is supported by an Illustrative Masterplan (Figure 4) that presents a potential development outcome that could be realised at the Coffs Harbour Jetty Foreshore Precinct – it is not prescriptive nor is it determined. The Illustrative Masterplan builds on the shared vision created via extensive community and stakeholder consultation and provides further detail in relation to land use and development outcomes sought for the Precinct.

The Place Principles shown in Figure 5, agreed with the community, guided the formation of the Illustrative Masterplan.

The Illustrative Masterplan is broadly organised across six sub-precincts that will each have a distinct character and function. These are identified as:

1. Foreshore Parklands – with improved amenities, proposed new board walk and nature-based playground.
2. The Marina – An active marina revitalised to accommodate local marine based businesses that reflect their regional importance.
3. North Park – Functional open space with recreational courts and formalised parking.
4. Jetty Hub – A hub of residential and tourist accommodation supporting activation, tourism and regional attraction located adjacent to the current Jetty Walkway, with massing capped at 6 storeys stepping down in scale when closer to public areas.
5. Activity Hub and Village Green – An active village green that delivers increased public open space connected to the existing foreshore parklands and may include family-friendly food and beverage, community uses and club houses or facilities to support events. A local business activity zone connected to the rail station.
6. Corambirra Point – A new regional tourist destination on the site of the former Deep Sea Fishing Club site including publicly accessible cafes and restaurants, a function space, activity centre and tourist accommodation.

A precinct map showing the Illustrative Masterplan and the six distinct zones is provided at Figure 6.

Figure 4 – Illustrative Masterplan

Source: SJB

Figure 5 - Community Led Principles

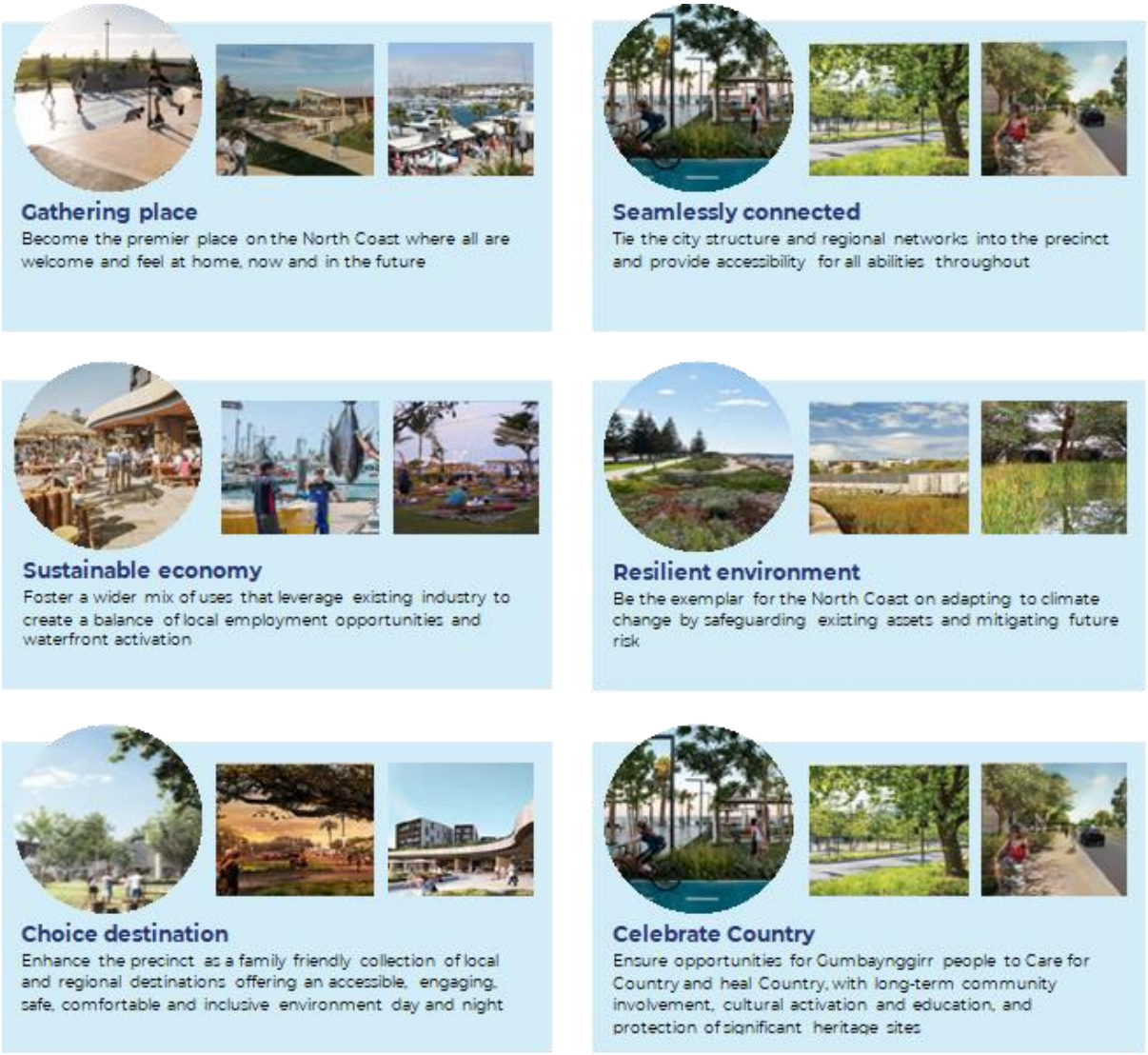


Figure 6 - Sub-Precinct Map

Source: SJB

3.1 The Planning Proposal

The master planning of large-scale precincts follows a highly consultative and stepped approach. The current step, which paves the way for the revitalisation of the Coffs Harbour Jetty Foreshore Precinct, is the application for a State Assessed Planning Proposal, which is a legislated process.

PDNSW is lodging a planning proposal with the Department of Planning, Housing and Infrastructure that seeks approval for:

- Changes to permissible land uses
- Changes to permissible maximum building heights
- Planning controls for future State Significant Development Applications including design guidelines and design excellence processes

This Utilities Servicing Strategy supports this planning proposal.

4 Proposed Development

The Precinct will be rezoned to provide a mix of development typologies. A breakdown of the expected land uses is provided in Table 1.

Table 1 - Land Use Breakdown

Land Use	Estimated Quantity	Units
Retail and Food & Beverage	5,000	m^2 GFA
Function	1,000	m^2 GFA
Community	1,300	m^2 GFA
Working Harbour/Commercial	5,000	m^2 GFA
Residential	250	Dwellings
Accommodation	200	Units

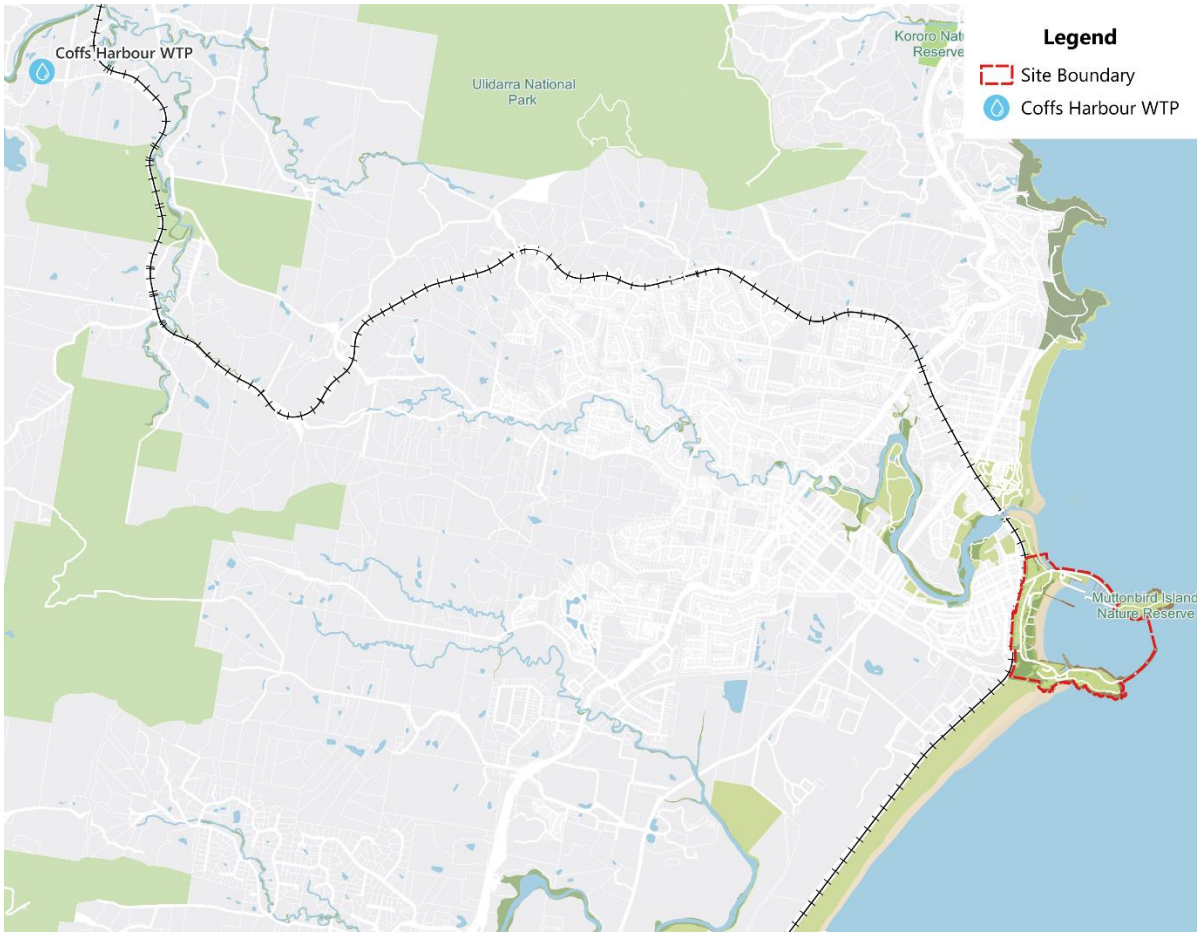
A high-level Illustrative Masterplan for the Precinct is shown in Figure 4.

5 Potable Water

5.1 Existing Network

Potable water is supplied to the study area and surrounding area by Coffs Harbour City Council. The Coffs Harbour region is supplied via the Coffs Harbour Water Treatment Plant (WTP), located approximately 11km northwest of the Precinct.

Figure 7 - Existing Water Network



Existing infrastructure within the study area boundary includes a 150mm diameter main which extends along Marina Drive. This main decreases in size to a 100mm diameter main which extends along the length of Jordan Esplanade and the access road to the boat ramp at the south of the Precinct. The closest trunk infrastructure to the precinct is a 375mm diameter main located on the southern side of Victoria Street. The existing potable water infrastructure within the vicinity of the site is shown in Figure 8 below.

Figure 8 - Existing Potable Water Infrastructure

5.2 Demand Calculations

A high-level assessment was undertaken using Council's *Water Supply Development Servicing Plan 2019* (DSP) to determine the trunk infrastructure requirements to support the Planning Proposal and to facilitate future development of the Precinct. This involved calculating the peak water demand to estimate the potential trunk main size required.

To determine the peak water demand, the number of Equivalent Tenements (ET) were first calculated using the rates provided in Appendix B of the DSP. Adopting the unrestricted peak day demand rate of 2.3kL/ET, the peak demand generated by the proposed development was calculated, the results are provided in Table 2.

Table 2 – Peak Water Demand

Land Use	Estimated Yield	ET Rate	Calculated ET	Peak Demand (L/s)
Retail	500	0.3/100m^2 GFA	1.5	0.08
Food & Beverage	4,500	1.0/100m^2 GFA	45.0	2.40
Function	1,000	0.3/100m^2 GFA	3.0	0.16
Community	1,300	0.3/100m^2 GFA	3.9	0.21
Commercial	5,000	0.65/100m^2 GFA	32.5	1.73
Residential <100m^2	200	0.7/dwelling	140.0	7.45
Residential >100m^2	50	1.0/dwelling	50.0	2.66
Accommodation	200	0.35/room	70.0	3.73
		Total	**345.9**	**18.42**

Based on the above assessment, a total of 345.9 ET is expected to be generated by the proposed development. A minimum 150mm diameter main would be required to support the proposed development, however to allow for potentially higher buildings and potential future uses within the vicinity of the site, a minimum 200mm diameter lead-in main is recommended.

5.3 Proposed Servicing Strategy

A new potable water main lead-in will be required to support the Planning Proposal and to facilitate future development of the Precinct. A new 200mm diameter main would be required and it is suggested that it is extended from the existing 375mm diameter main located on the southern side of Victoria Street. The new main would likely be extended down Howard Street, through the bushland to the south of the site before entering the site at the southern boundary. An indicative alignment for this main was developed by a previous consultant working on the project in consultation with Council and other stakeholders, and is shown in Figure 9 below.

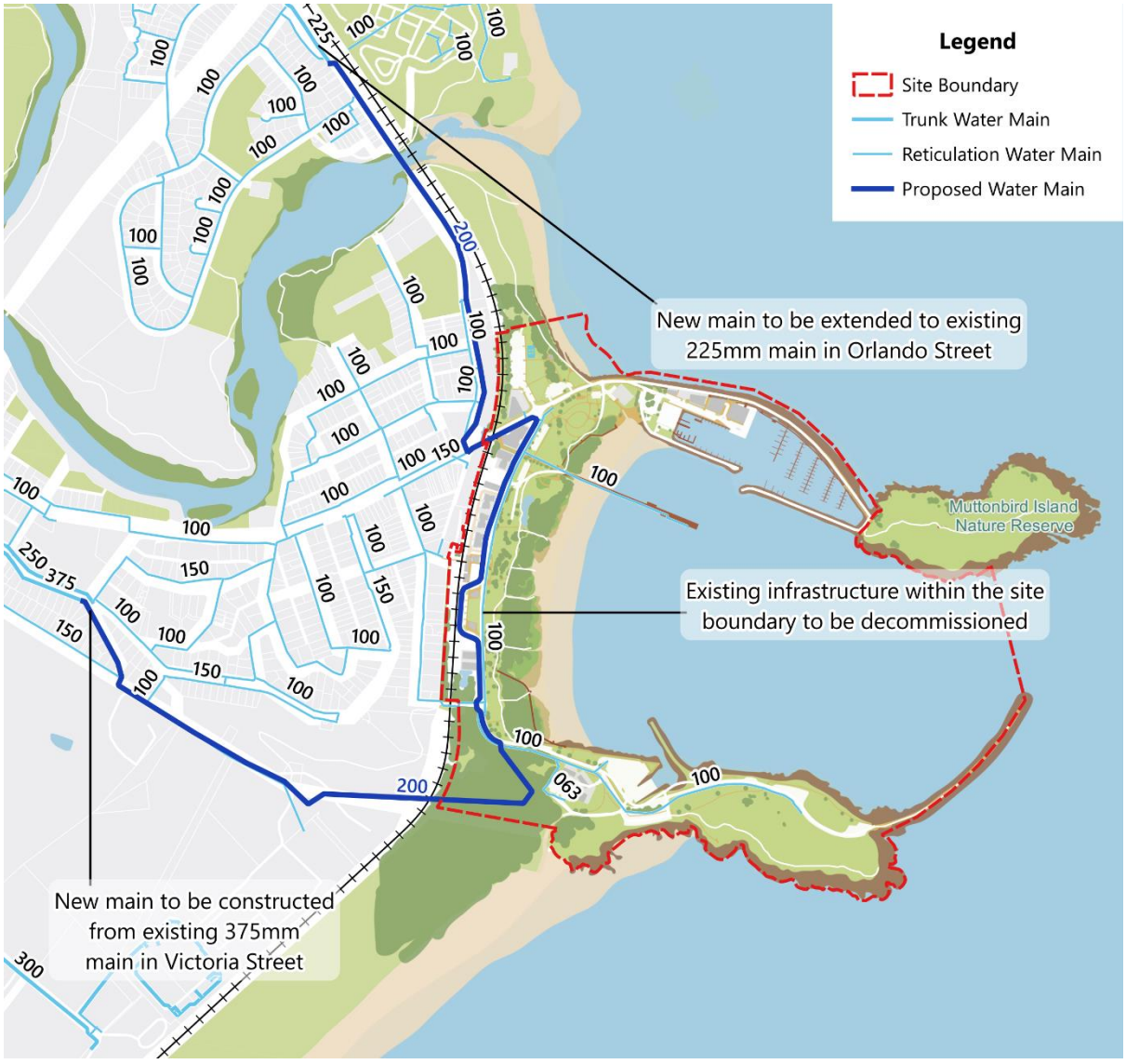
A new water main will be required and will be provided along the proposed Jordan Esplanade alignment. New connections will also be provided to the boat ramp at the southern end of the

site and the marina at the northern end. The proposed main will be extended to the north of the study area, to an existing 225mm diameter main in Orlando Street, on the northern side of Coffs Creek.

Given the complexities of the southern connection through bushland and Littoral Rainforest, the final alignment will be subject to further assessment during the detailed design phase. The final alignment will need to consider risks and constraints relating to (but not limited to) the Littoral Forest, flora and fauna and Aboriginal cultural heritage. A number of supporting technical studies have been prepared for the State Assessed Planning Proposal including a Coastal Risk Management Report (Royal Haskoning DHV, 2024), Flora, Fauna and Coastal Management Strategy (WSP, 2024), Aboriginal Cultural Heritage Assessment Report and Statement of Heritage Impact (Historical) (Artefact, 2023) and Intrusive Geotechnical Investigation Report (PSM, 2024).

The alignment shown in Figure 9 assumes the proposed main can be trenched, with a new rail crossing required near the southern site boundary.

Figure 9 - Proposed Potable Water Infrastructure



6 Sewer

6.1 Existing Network

The site and surrounds are serviced by the Coffs Harbour Water Recycling Plant (WRP), located approximately 750m southwest of the site. The location of the Coffs Harbour WRP relative to the site is shown in Figure 10.

Figure 10 - Coffs Harbour WRP

Wastewater is conveyed to the WRP via a series of sewer pumping stations (SPS) and pressure mains. Existing sewer infrastructure within the study area consists of three privately owned SPS and associated pressure mains. These existing SPSs are located:

1. At the existing marina on the northern end of Jetty Beach. This pump station transfers flows across the rail corridor to a 225mm diameter gravity main near Harbour Drive (SPS 1 on Figure 11).
2. At the public toilets at the northern end of the beach, also supporting the Coffs Harbour Yacht Club. This pump station also drains to the 225mm main in Harbour Drive (SPS 2 on Figure 11).

3. At the fishing club on the southern end of the beach. This pump station transfers flows across the rail corridor to a 150mm diameter gravity main in Camperdown Street (SPS 3 on Figure 11).

In addition to the above, a 600mm diameter pressure main which transfers flows from a pump station adjacent Vost Street to the WRP bisects the site to the east of Jordan Esplanade. This main is made of asbestos cement, and Council have indicated that the length within the site boundary, as well as the length south of the site connecting to the Coffs Harbour WRP needs to be replaced. While the existing alignment of this main does not conflict with the proposed development layout, there may be opportunities for this work to be coordinated and undertaken during the development of the site. The future replacement of the main would not be funded by PDNSW, and any replacement would be undertaken at Council's discretion and cost. It is expected that the future alignment of this main will be confirmed with Council during the detailed design phase of the project.

A 600mm diameter effluent main bisects the site along Jordan Esplanade and connects to the WRP via a similar alignment to the existing pressure mains. Sections of this main to the south of the site boundary are made of asbestos cement and Council have indicated that this length of main will need to be replaced.

In addition, some sections within the site boundary will need to be realigned to suit the proposed development layout and building footprints. This realignment will allow for buildings to be constructed in the locations shown in the reference masterplan, and will avoid clashes with other proposed utilities to be provided to support future development.

It is expected that the realignment works required within the site boundary would be funded by PDNSW, while all other replacement works within the site and to the south of the site would be funded and delivered by Council. It is expected that the future alignment of this main will be confirmed with Council during the detailed design phase of the project.

The existing sewer infrastructure within the vicinity of the site is shown in Figure 11.

Figure 11 - Existing Sewer Infrastructure

6.2 Demand Calculations

A high-level assessment was undertaken to determine the sewer loads generated by the indicative masterplan (potential development), and the corresponding sewer infrastructure required to facilitate future development of the Precinct should the Planning Proposal be approved. This assessment was based on loading rates outlined in Council's *Sewer Supply DSP 2019* and supplemented with information from the *Sewerage Supply Code of Australia (Sydney Water Edition)*.

A sewer loading of 576kL/year per year per ET and an Average Dry Weather Flow (ADWF) to Peak Dry Weather Flow (PDFW) factor of 3.0 for residential uses and 2.0 for non-residential uses were adopted. A PDWF to Peak Wet Weather Flow (PWWF) factor of 2.0 was used for all land use types based on our experience in planning sewer infrastructure. In subsequent and more detailed

phases of investigation and modelling, PWWF factors would be determined to include allowances for pipe conditions, stormwater infiltration and soil/groundwater conditions. The results of the assessment are provided in Table 3.

Table 3 - Proposed Sewer Demand

Land Use	Estimated Yield	ET Rate	Calculated ET	ADWF (L/s)	PDWF (L/s)	PWWF (L/s)
Retail	500	0.3/100m^2 GFA	1.5	0.03	0.05	0.11
Food & Beverage	4,500	1.0/100m^2 GFA	45.0	0.82	1.64	3.29
Function	1,000	0.3/100m^2 GFA	3.0	0.05	0.11	0.22
Community	1,300	0.3/100m^2 GFA	3.9	0.07	0.14	0.28
Commercial	5,000	0.65/100m^2 GFA	32.5	0.59	1.19	2.37
Residential <100m^2	200	0.7/dwelling	140.0	2.56	7.67	15.34
Residential >100m^2	50	1.0/dwelling	50.0	0.91	2.74	5.48
Accommodation	200	0.35/room	70.0	1.28	3.84	7.67
		Total	**345.9**	**6.32**	**17.38**	**34.77**

Based on the above, a PWWF of approximately 35L/s is expected the be generated by the development of the site.

6.3 Proposed Servicing Strategy

Council have indicated a preference for the site to be serviced via a gravity sewer network, however given the low lying and generally flat terrain throughout the site, it is anticipated that sewer pump stations will be required to provide sewer servicing to future development on the site. It is expected that the proposed site grading and the alignment of future mains will be resolved during the detailed design phase of the project. An indicative sewer network was developed by a previous consultant working on the project in consultation with Council which includes four sewer pump stations. This proposed network is shown in Figure 12 below.

From the proposed pump stations, flows would then be transferred to the Coffs Harbour WRP via a pressure main. The proposed pressure main would likely follow a similar alignment to the proposed water main shown in Figure 9 to utilise the same railway crossing. The proposed alignment of the pressure main through the bushland to the south of the site will be subject to detailed design during a subsequent stage of the project.

As discussed in Section 6.1, the existing effluent main which bisects the site will be realigned to suit the proposed development shown in the indicative masterplan. Council is also planning to replace sections of this main, as well as the existing 600mm diameter pressure main which are made of asbestos cement. It is anticipated that these mains will follow a similar alignment to the proposed pressure main servicing the development. These mains have not been shown on Figure 12 for clarity.

Figure 12 - Proposed Sewer Infrastructure

7 Electricity

7.1 Existing Network

The site is located within the Essential Energy (EE) electrical supply zone. The closest zone substations (ZS) to the site are the Coffs Harbour South ZS and the Coffs Harbour North ZS, located approximately 3.5km west and 3km northwest of the site respectively. Both substations are located on the 66kV transmission network and have a firm capacity of 20MVA. The existing electrical infrastructure within the vicinity of the site is shown in Figure 13.

Figure 13 - Existing Electrical Infrastructure

7.2 Demand Calculations

A high-level assessment was undertaken to determine the electrical servicing requirements for the site. The electrical demand generated by the proposed development was calculated using electrical demand rates from *AS/NZS 3000: Electrical Installation Wiring Rules* and supplemented with information provided by Endeavour Energy. The results are tabulated below.

Table 4 - Calculated Electrical Demand

Land Use	Estimated Yield	Unit	Demand Rate (VA/m^2)	Diversified Load (kVA)
Retail	500	GFA	100	40
Food & Beverage	4,500	GFA	100	360
Function	1,000	GFA	85	68
Community	1,300	GFA	100	104
Commercial	5,000	GFA	85	340
Residential (apartments)	200	Dwelling	4500	900
Accommodation	50	Rooms	3000	480
				2,292

Based on the assumption that a single 11kV feeder can supply approximately 4-5MVA (depending on length), the proposed development will likely require one new feeder to supply all development over time.

The required timing for the new feeder is unknown at this stage, and will be confirmed with Essential Energy as development of the site progresses. Delivery of the feeder is generally the responsibility of the developer.

7.3 Proposed Servicing Strategy

IDC held a meeting with Essential Energy (EE) on 12 July 2023 to discuss the servicing requirements for the proposed development. EE advised that there may be an opportunity to supply some initial development from existing feeders from Coffs Harbour South ZS. EE estimated that up to 1MVA of supply could be provided by reconfiguring existing feeders, this could notionally supply some initial development on the site. It should be noted that spare capacity cannot be reserved for future development and this capacity is expected to reduce over time as future developments connect to EE's network.

After the capacity in the existing feeders is exhausted, a new feeder would be required. EE have advised that a new feeder would likely originate from the Coffs Harbour North ZS. This feeder would be constructed along existing road corridors and would need to cross the rail corridor and the Orlando Street bridge to reach the site.

Essential Energy also noted that they are planning to deliver a new zone substation within the vicinity of the site in future. The new Coffs Harbour East ZS is planned to have a firm capacity of between 20-25MVA and will be located near the existing transmission lines shown on Figure 13. The future zone substation site is already in EE ownership.

No delivery timeline has been confirmed for this infrastructure, however EE noted that a new zone substation typically takes two years to construct. Should the Coffs Harbour East ZS be available at the time of development of the site, it is likely that a new feeder would originate from this zone substation, rather than Coffs Harbour North ZS due to the proximity to the site. Delivery timing of the Coffs Harbour East ZS will be further discussed with EE during a subsequent design stage of the project. An indicative feeder alignment to supply development from the Coffs Harbour North ZS is shown in Figure 14.

Figure 14 - Proposed Electrical Infrastructure

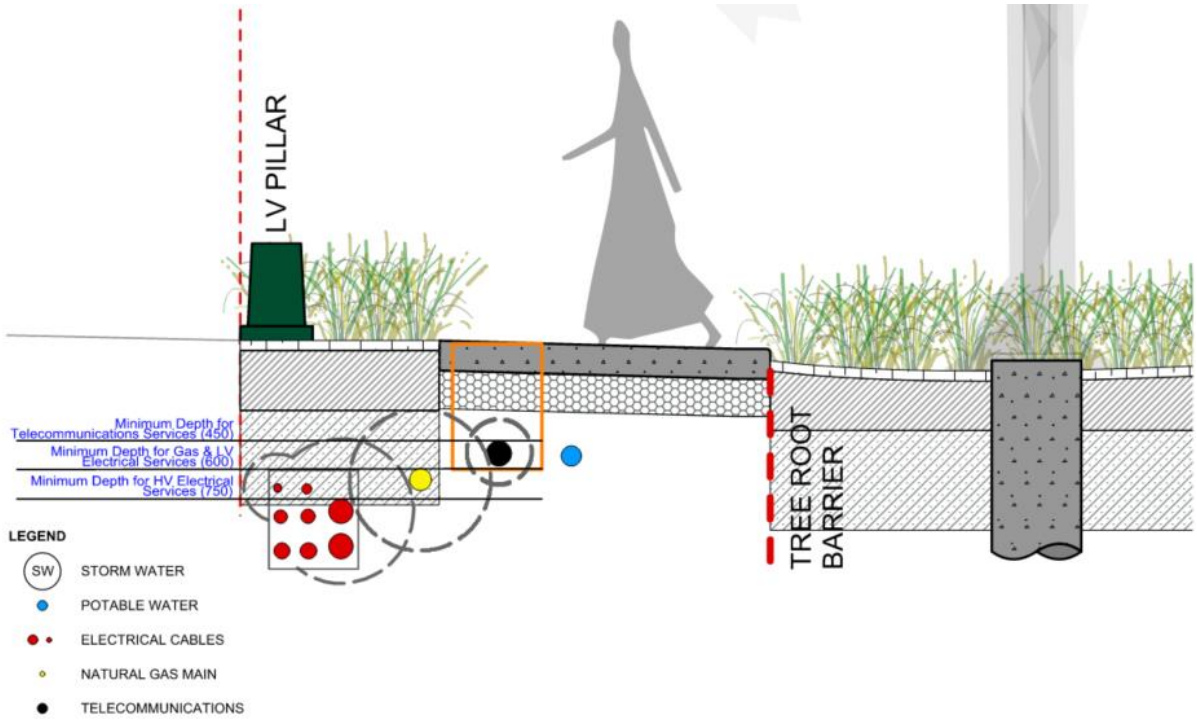
8 Telecommunications

Development on the site will be serviced by NBN Co. fixed line infrastructure. NBN Co. will bring fibre to future lot boundaries to provide a connection point for premises. NBN Co. policy requires developers to provide pit and pipe infrastructure within their standard road reserve allocation for all subdivisions. The NBN layout will follow the electricity layout in a shared trench arrangement, as shown in the figure below.

NBN Co. assess each application request separately to negotiate commercial terms, however connection fees of up to $400/unit may apply. Please note these charges are subject to change and are sometimes open for negotiation, particularly with larger developments.

NBN Co. have advised that most of the network in the Coffs Harbour region is located within Telstra's pit and pipe infrastructure. There are distribution cables located within the vicinity of the site, and depending on development staging, NBN Co. will assess the impact on the existing network. It is not expected that significant relocation work would be required as a result of the network.

Figure 15 - Standard Shared Trench Profile



Source: Western Sydney Street Design Guidelines (2020)

In addition to NBN's fixed line servicing, the site has blanket coverage from Telstra's 5G network.

9 Conclusion

9.1 Potable Water

Potable water is supplied to the study area and surrounding area by Coffs Harbour City Council. A new potable water main lead-in will be required to support the Planning Proposal and to facilitate future development. A new 200mm diameter main would be required and would likely be extended from the existing 375mm diameter main located on the southern side of Victoria Street.

The new main would likely be extended down Howard Street, through the bushland to the south of the site before entering the site at the southern boundary. The proposed main will be extended to the north of the study area, to an existing 225mm diameter main in Orlando Street, on the northern side of Coffs Creek.

Given the complexities of the southern connection through bushland and Littoral Rainforest, the final alignment will be subject to further assessment during the detailed design phase.

9.2 Sewer

The site and surrounding area are serviced by the Coffs Harbour WRP. Wastewater is conveyed to the WRP via a series of sewer pumping stations and pressure mains. The site is bisected by two trunk mains:

- A 600mm diameter pressure main which transfers flows from a pump station adjacent Vost Street to the WRP. Council have indicated that the length within the site boundary, as well as the length south of the site connecting to the Coffs Harbour WRP need to be replaced. These works will be undertaken at the discretion and cost of Council, however there may be opportunities for this work to be coordinated and undertaken during the development of the site.
- A 600mm diameter effluent main which connects to the WRP via a similar alignment to the existing pressure main. Sections of this main to the south of the site boundary are made of asbestos cement and Council have indicated that this length of main will need to be replaced. In addition, some sections within the site boundary will need to be realigned to suit the proposed development layout and building footprints.

It is expected that the realignment works required within the site boundary would be funded by PDNSW, while all other replacement works within the site and to the south of the site would be funded and delivered by Council. It is expected that the future alignment of this main will be confirmed with Council during the detailed design phase of the project.

Due to the low lying and generally flat terrain throughout the site, it is anticipated that sewer pump stations will be required to provide sewer servicing to future development on the site. It is expected that the proposed site grading and the alignment of future mains will be resolved during the detailed design phase of the project. An indicative sewer network has been developed by a previous consultant working on the project in consultation with Council which includes four sewer pump stations.

From the proposed pump stations, flows would then be transferred to the Coffs Harbour WRP via a pressure main. The proposed pressure main would likely follow a similar alignment to the proposed water main shown in Figure 9 to utilise the same railway crossing. The proposed alignment of the pressure main through the bushland to the south of the site will be subject to detailed design during a subsequent stage of the project.

9.3 Electricity

The site is located within the Essential Energy electrical supply zone. The closest zone substations to the site are the Coffs Harbour South ZS and the Coffs Harbour North ZS. EE advised that there may be an opportunity to supply some initial development from existing feeders from Coffs Harbour South ZS. EE estimated that up to 1MVA of supply could be provided by reconfiguring existing feeders, this could notionally supply some initial development on the site.

After the capacity in the existing feeders is exhausted, a new feeder would be required. EE have advised that a new feeder would likely originate from the Coffs Harbour North ZS. This feeder would be constructed along existing road corridors and would need to cross the rail corridor and the Orlando Street bridge to reach the site.

Essential Energy also noted that they are planning to deliver a new zone substation within the vicinity of the site in future. Should the Coffs Harbour East ZS be available at the time of development of the site, it is likely that a new feeder would originate from this zone substation, rather than Coffs Harbour North ZS due to the proximity to the site. Delivery timing of the Coffs Harbour East ZS will be further discussed with EE during a subsequent design stage of the project.

9.4 Telecommunications

Development on the site will be serviced by NBN Co. fixed line infrastructure. NBN Co. will bring fibre to future lot boundaries to provide a connection point for premises. NBN Co. policy requires developers to provide pit and pipe infrastructure within their standard road reserve allocation for all subdivisions. It is not expected that significant relocation work would be required as a result of the proposed development of the site.

In addition to NBN's fixed line servicing, the site has blanket coverage from Telstra's 5G network.

9.5 Key Risks

This utilities infrastructure servicing strategy has identified the existing utilities infrastructure within the vicinity of the Precinct and provided a proposed servicing strategy to support future development, should the Planning Proposal be successful. A number of risks have been identified throughout this report, which are summarised below:

- A potable water main lead-in will be required and will be extended from the existing 375mm diameter main located on the southern side of Victoria Street. The new main would likely be extended down Howard Street, through the bushland to the south of the site before entering the site at the southern boundary. The final alignment will be

determined during the detailed design phase and will need to consider risks and constraints relating to (but not limited to) the littoral forest, flora and fauna and Aboriginal cultural heritage.

- The site is bisected by a 600mm diameter sewer pressure main which transfers flows from the north of the site to the Coffs Harbour WRP. This main is made of asbestos cement and Council have indicated that the length within the site boundary, as well as the length south of the site connecting to the Coffs Harbour WRP need to be replaced. These works will be undertaken at the discretion and cost of Council, however there may be opportunities for this work to be coordinated and undertaken during the development of the site.
- The site is bisected by a 600mm diameter effluent main which transfers flows from the north of the site to the Coffs Harbour WRP. Some sections of this main will need to be realigned to suit the proposed development layout as shown in the reference masterplan. In addition, sections of this main to the south of the site are made of asbestos cement and will need to be replaced by Council. Future alignments of this main will be determined in consultation with Council during the detailed design phase. It is expected that the effluent main realignment works required within the site boundary would be funded by PDNSW, while all other renewal/replacement works along the existing alignment within the site and to the south of the site would be funded and delivered by Council.
- Due to the challenging site topography, a number of sewer pump stations will likely be required to provide sewer servicing to future development sites. The number and location of these pump stations will be confirmed during the detailed design phase.
- Initial development within the site boundary may be supplied electricity via existing nearby feeders, however after any available capacity in existing feeders is exhausted a new feeder would be required from the Coffs Harbour North ZS. Spare capacity cannot be reserved for future development and this capacity is expected to reduce over time as future developments connect to EE's network.
- A new feeder from the Coffs Harbour North ZS would be constructed along existing road corridors and would need to cross the rail corridor and the Orlando Street bridge to reach the site.
- The proposed services lead-ins are planned to traverse existing urban environments. There is therefore an inherent risk related to the presence of existing infrastructure and utilities that may increase complexities, costs and/or alignments. As the project moves though future, more detailed design exercises, these risks should be managed.

The above risks are not expected to pose a constraint to future development of the site, and it is expected that they will be addressed through a subsequent design phase in consultation with Council, utility providers and potential future developers.

9.6 Limitations

The information in this report is based on high-level calculations. No detailed modelling has been undertaken and the strategies outlined above have not been endorsed by Council or the utility authorities. These strategies are subject to future detailed design and approvals.