LANDPARTNERS
Surveyors and Planners

Sydney
"Parklands Estate"
Level 2, 23-29 South Street
RYDALMERE NSW 2116
PO Box 1144
DUNDAS NSW 2117
T: 61 2 9685 2000

Ref: SY073930.000

Tuesday, 21 July 2020

Willow Tree Planning

Attn: Andrew Cowan
e: acowan@willowtp.com.au

RE: Synopsis re Service Infrastructure Assessment – SSD9522

1.1. I have amended the Service Infrastructure Assessment to include reference to updated masterplan SSD-MRM-DA-009 ver C

1.2. I have included estimated demand annexures for this new masterplan which I have referenced as Stage 1 Development Demand in the Annexures to my report

1.3. I have continued to include estimated demand calculations for the overall development outlined in SSD-MRM-DA-007 issue A

1.4. The conclusion outlined in the Execution Summary concerning utility servicing of the proposed logistics hub has not changed from my previous report.

Should you have any enquiries or wish to discuss the matter, please do not hesitate to contact our office.

Yours Faithfully,
LANDPARTNERS PTY LTD

Gregory K Oxley
Registered Land Surveyor/Project Director

UDIA Urban Development Institute of Australia NEW SOUTH WALES
MEMBER 2020/21

ABN 19 118 146 008 | sydney@landpartners.com.au |

LANDPARTNERS
built environment consultants

Planning Titling Surveying Mapping & GIS Urban Design Environmental

Sydney
"Parklands Estate"
Level 2, 23-29 South Street
RYDALMERE NSW 2116

PO Box 1144
DUNDAS NSW 2117
T: 61 2 9685 2000
F: 61 2 9685 2001

To: **FRASERS/ALTIS PROPERTY**

Project: **"PROPOSED WAREHOUSE, LOGISTICS & INDUSTRIAL FACILITIES HUB" SERVICE INFRASTRUCTURE ASSESSMENT**

Our Ref: **SY073930.000**

Date: **JULY 2020**

ABN 19 118 146 008 | sydney@landpartners.com.au | www.landpartners.com.au

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Revision:

Issue	Date	Comment
A	5/2018	Issue for comment
B	5/2018	Minor Edits
C	7/2018	Endeavour Energy response included
D	7/2018	Sydney Water planning comments included
E	9/2018	SEARS comments added
F	3/2019	Updated to reflect further Sydney Water comments
G	10/2019	Revised Masterplan & updated Sydney Water comments
H	4/2020	Revised Masterplan
I	7/2020	Revised Masterplan – Stage 1

EXECUTIVE SUMMARY SYNOPSIS SERVICE INFRASTRUCTURE

Servicing Capability

- Potable Water

  - A 200mm water main is laid in Mamre Road adjacent to the frontage of the site. The 200mm continues through an unformed road within the site to serve the Twin Creeks residential development.

  - The site is within the Cecil Hills reservoir supply zone.

  - Based on the GHD analysis of the Cecil Hills reservoir zone undertaken for the Oakdale Local Area Service Plan (L.A.S.P) for Water supply the existing Cecil Hills reservoir (and associated pumping station WP 0184B) has sufficient capacity to serve the entire Cecil Hills reservoir zone based on expected 2020 demands.

  - However, as the subject development is at the extent of the Cecil Hills reservoir zone a pressure and flow enquiry has revealed that flows from the existing 200mm water main adjacent to the site are inadequate to serve the development.

  - As part of the South West Growth Area strategic planning completed by Sydney Water in 2015-2017, Sydney Water identified upgrades are required to the Cecil Hill reservoir to cater for future development in South West Growth Area including; Austral, Leppington and Leppington North.

    It is understood that Sydney Water are currently in detailed design phase of proposed Cecil Hill reservoir upgrades with construction forecast to commence in 2020 – 2021. Potential upgrades as advised within community update include;

    - *New trunk mains (laid within the road reserve) to be delivered in stages by 2025;*
    - *New reservoir and pumping station within Sydney Water property at the Liverpool Cecil Hills reservoir site (required by 2022); and*
    - *New pressure transfer main to transfer water supply from Liverpool reservoir to the Existing Cecil Park reservoir via Western Sydney Parklands (required by 2022).*

    As a consequence of this strategy system area rezoning will occur and this site will be serviced from the Erskine Park Elevated reservoir system.

  - Supply will be achieved by extension of a DN 200mm - DN 300mm water main to be constructed in Mamre Road north of the Sydney Catchment Authority water supply pipes. This 300mm main will be served from the Erskine Park Elevated reservoir zone. (Refer to Sydney Water advice letter of 12/8/2019 Appendix A)

  - Sydney Water in their prior correspondence to the proponent of the development dated 8/11/2018 identified that the preferred servicing strategy is to supply potable water to the site from the Erskine Park Elevated System (refer to Appendix A). Sydney Water are consulting with RMS concerning upgrades to Mamre Road to provide further trunk mains in conjunction with the road upgrades.

  - Based on the demand assessment for the subject site by this report (refer to Appendix A) supply to the subject site can be catered by extension of the a 300mm water main from the reticulation system north of the site.

  - Sydney Water in its response to D.P.I.E in letter dated 5 July 2019 further advised that drinking (potable) water services could be provided in the short term and they were working with the RMS (now TfNSW) to deliver trunk mains in conjunction with Mamre Road upgrade.

- Waste Water
  - No Sydney Water waste water assets currently service the subject site.
  - Sydney Water have commenced studies for the preparation of an integrated servicing strategy for the Priority Growth Areas, particularly driven by the need to provide a waste water treatment solution to service the Western Sydney Airport.
  - Meetings with Sydney Water planning staff have identified that a new Waste Water Treatment Plant (WWTP) is likely to be constructed and operational by late 2025 – early 2026. The preferred location of the new WWTP is along South Creek, north of Elizabeth Drive and south of the M12 corridor.
  - However due to topography and timing of delivery of the new WWTP the interim waste water treatment strategy for the subject site is to direct waste water flows to the St Marys WWTP (see Appendix A – Sydney Water correspondence).
  - Sydney Water have identified that the St Marys WWTP has sufficient capacity to treat flows from the subject site. (see Sydney Water correspondence 8/11/2018 – Appendix A)
  - Service options for the development site could include:
    a) Initial pumpout solution through a Sec 68 approval process from Council.
    b) Pressure sewer system to connect to the Mamre Road Carrier Sec 4 to the north of the site.
    c) Installation of Sewer Pump Station and rising main to discharge to Mamre Road Carrier Sec 4.
  - Sydney Water indicate that the St Marys Waste Water Treatment Plant (WWTP) has adequate capacity to cater for flows from the proposed development and in their correspondence of 8/11/18 note their endorsed strategy is to transfer initial flows to St Marys WWTP. The ultimate strategy for service for this site would be the construction of a Sewer Pump Station (SPS) and transfer to the new WWTP to be built and operational by late 2025-2026 (described above).
  - Alternative treatment of waste water is available from private companies operating under the Water Industry Competition Act (WICA).
- Electricity
  - Zone substation at John Morphett Place Erskine Park (the Mamre Zone Substation) will have capacity to service proposed development.
  - Development of the site will require new underground high voltage (H.V) feeders to be provided from Mamre Z.S.
  - First stage development of Stage 1 outlined in Masterplan drawing SSD-MRM-DA-009 rev C will trigger the need for new underground H.V feeders to service an expected demand of 4MVa.
  - Further stages in the 2021 – 2029 period will require further H.V feeders to support the development.
  - Endeavour Energy note that an existing feeder at the corner of James Erskine Drive and Quarry Rd has 2MVa capacity. This may be capable of serving approx. 80,000m^2 of warehouse space and 4000m^2 of office space in the initial period whilst new feeders are constructed from the Mamre Z.S.

EXECUTIVE SUMMARY – AUTHORITY, INFRASTRUCTURE, POSSIBLE TIMEFRAME

EXECUTIVE SUMMARY – SERVICE INFRASTRUCTURE
KEMPS CREEK STRATEGY

SERVICE	AUTHORITY	CURRENT INFRASTRUCTURE	PROPOSED INFRASTRUCTURE	DELIVERY TIME-FRAME
1. Potable Water	Sydney Water	Limited availability from water mains in Mamre Road.	Rezoning of supply system to allow potable water reticulation from Erskine Park Elevated supply system.	Supply from Erskine Park Elevated available now following extension of existing reticulation system along Mamre Rd estimated –6-9 month delivery time.
2. Waste Water	Sydney Water	No Waste Water assets currently available	Development of Integrated servicing strategy, construction of new Waste Water Treatment Plant and associated sewer carriers. However, Sydney Water interim strategy is transfer of flows to the St Marys Waste Water Treatment Plant.	a) 5 years for new WWTP to be operational b) Transfer to St Marys WWTP available now
3. Waste Water	Penrith Council	As described in 2 above	Interim Sec 68 approval for initial pump out process	Immediate
4. Waste Water	Sydney Water	As describe in 2 above	Initial Pressure sewer system to discharge waste water to Mamre Road Carrier. (noted in 2 above)	6 – 9 months
5. Waste Water	Sydney Water	As described in 2 above	Sewer Pump Station (SPS) and associated infrastructure to discharge to new WWTP.	2025 – 2026
6. Waste Water	WICA Licensee	As described in 2 above	WICA licensee constructs treatment plant on site	2 – 3 years
7. Electricity	Endeavour Energy	Minor 11kv and low voltage reticulation adjacent to site.	Existing zone substation has capacity to service the site. Existing HV feeder to north of site can be extended to service initial stage of development. (Estimated 80,000m^2 of warehouse and 4000m^2 of office space) Further development will require HV feeders from Mamre Z.S.	6 months for initial service from existing feeder. 12 – 18 months for amplified feeders from Mamre Z.S.
8. Gas	Jemena	210kPa gas main available in Mamre Road.	Available with further amplification once DPE structure plan resolved	Now
9. Telecommunication	Telstra	Fibre Optic systems laid in Mamre Road.	Amplification of the Fibre Optic system required to address increased capacity required for Western Sydney Airport and other developments in the Priority Growth Areas.	Now and Continuing
10. Telecommunication	NBN Co	NBN Co have fibre optic systems in Mamre Road immediately to the north of the subject site	Extension of NBN fibre optic system following application for service from NBN Co.	2 years

PLANNING SECRETARYS ENVIRONMENTAL REQUIREMENTS (SEARS)

The SEARS document provided to the developer identifies key issues to be addressed as part of the Environmental Impact Statement. One of the identified issues is Infrastructure Requirements. This report outlines the key public utility infrastructure required to support the proposed development.

a) Description of Infrastructure required for the development. The key public utility assets required to support the proposed development are:

(i) Potable Water reticulation

(ii) Waste Water reticulation

(iii) Electrical reticulation

(iv) Telecommunications infrastructure

These assets will be delivered through the standard asset creation processes of Sydney Water (potable and waste water reticulation via the Section 73 asset creation path), Endeavour Energy (electrical reticulation via Notification of Arrangement asset creation path) and NBN Co (telecommunications via the provisioning certificate asset creation paths)

b) Offsite Infrastructure. No amplifications of offsite infrastructure are required to service this development.

(i) Lead-in potable water reticulation main is required along Mamre Rd from the existing potable water reticulation at the corner of Distribution Dr and Mamre Rd.

(ii) Lead out waste water pressure sewer main is required along Mamre to connect to the existing waste water receiving system in James Erskine Drive.

(iii) A new underground electrical feeder will be required to be installed from Mamre Zone Substation (located at John Morphett Place Erskine Park) to the site.

(iv) NBN Co will provide telecommunications infrastructure to the site from their recently installed infrastructure at the corner of Distribution Drive and Mamre Rd. This Lead-in infrastructure will be provided along the Mamre Road corridor.

c) Infrastructure Staging

(i) All lead-in infrastructure will be sized and installed to cater for the full development potential of the site. This lead-in infrastructure will be installed as part of the first stage development.

(ii) Installation of internal reticulation of service utility assets will reflect the proposed staging arrangements the developer will undertake. All infrastructure will be sized and installed as per the relevant service authorities requirements which require inclusion of upstream catchment areas when sizing downstream service assets.

d) Existing infrastructure surrounding site

No major utility services infrastructure affects the proposed development of the site.

(i) Sydney Water

- No existing waste water assets in or adjacent to the site
- A 200mm potable water reticulation main servicing the Twin Creeks residential area is located within the unformed section of Bakers Lane and along Mamre Rd for part of the development sites frontage to Mamre Rd. As part of proposed roadworks to service the proposed development standard adjustment and deviation processes outlined by Sydney Water will be undertaken.

(ii) Endeavour Energy

- Minor low voltage reticulation system (underground) exists along the eastern site of Mamre Rd to the north of Bakers Lane together with overhead 11KV pole mounted transmission system.
- 11KV overhead reticulation system exists along the unformed section of Bakers Lane. As part of future roadworks along the Bakers Lane corridor standard Endeavour Energy asset reticulation procedures would apply.

(iii) Telecommunications

- No NBN Co assets exist adjacent to or within the development site
- Telstra fibreoptic cable exists in Mamre Rd adjacent to the site with minor 50 pair copper reticulation constructed along the unformed section of Bakers Lane serving the existing residential buildings.

1.0 INTRODUCTION

The proponents of the development of the subject site propose to lodge a State Significant Development Application to the Department of Planning and Environment to facilitate the development of a Proposed Warehouse, Logistics and Industrial Facilities Hub comprising 14 buildings, including 19 warehouses and 20 offices. This report has been prepared to support the application to the authority. The report comprises an assessment of infrastructure requirements to support development of the site.

Stage 1 of the proposed development will incorporate 8 warehouses, a residue lot capable of further subdivision, lots zoned RE1 and RE2, a corridor along South Creek and public roads including Mamre Rd widening.

1.1 THE SITE

The site is located at Mamre Rd Kemps Creek within the State Environmental Planning Policy – (Western Sydney Employment Area) 2009 land. The site is currently described as rural residential and bounded by Mamre Road, in the east, South Creek in the west, Sydney Catchment Authority water supply pipelines to the north and rural residential lands in the south. The site is highlighted in orange boundary on the following plan (which also highlights other areas the subject of studies within the Priority Growth Area):

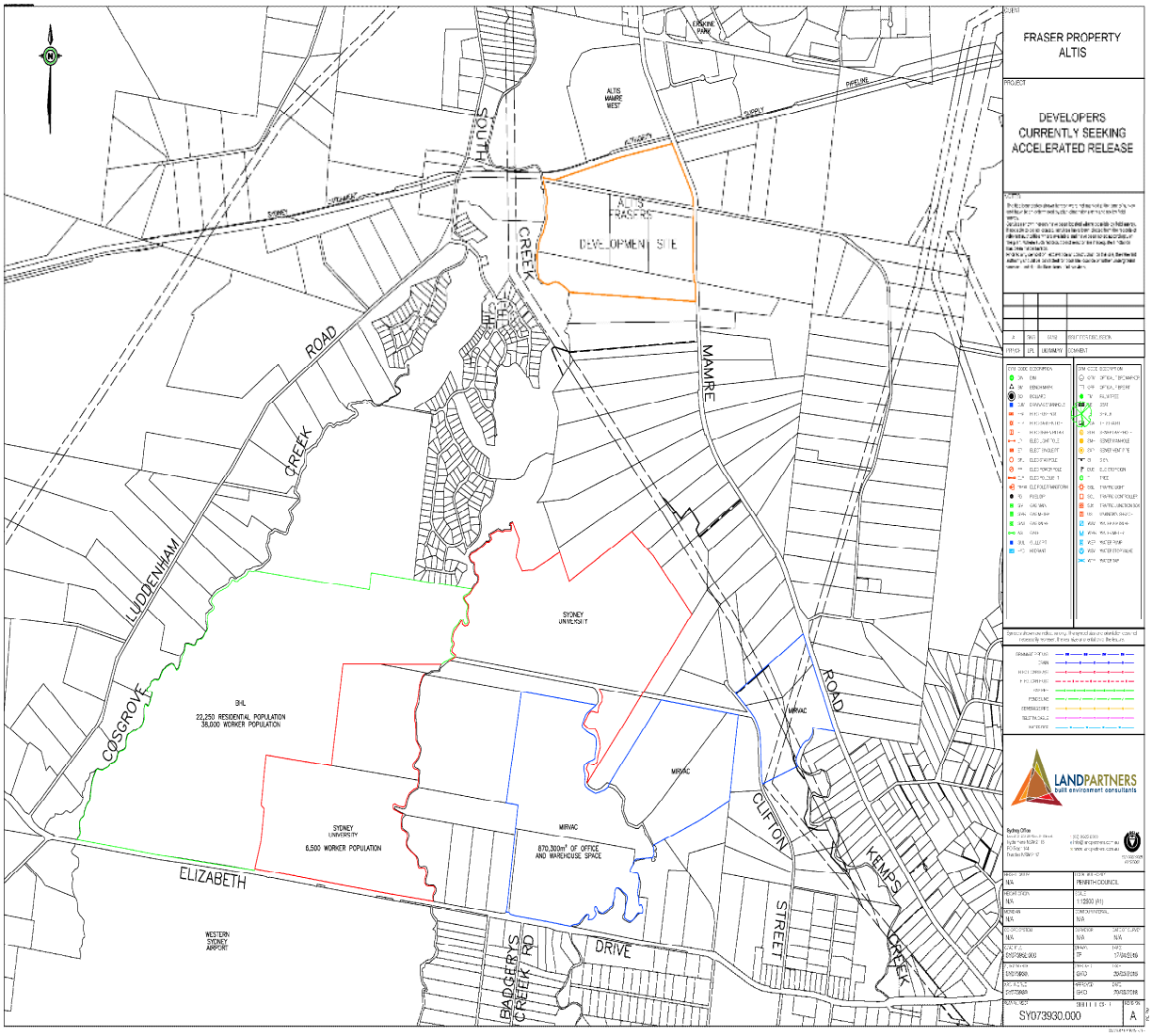

Fig 1

EXECUTIVE SUMMARY SYNOPSIS SERVICE INFRASTRUCTURE

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- Potable Water

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  - The site is within the Cecil Hills reservoir supply zone.

  - Based on the GHD analysis of the Cecil Hills reservoir zone undertaken for the Oakdale Local Area Service Plan (L.A.S.P) for Water supply the existing Cecil Hills reservoir (and associated pumping station WP 0184B) has sufficient capacity to serve the entire Cecil Hills reservoir zone based on expected 2020 demands.

  - However, as the subject development is at the extent of the Cecil Hills reservoir zone a pressure and flow enquiry has revealed that flows from the existing 200mm water main adjacent to the site are inadequate to serve the development.

  - As part of the South West Growth Area strategic planning completed by Sydney Water in 2015-2017, Sydney Water identified upgrades are required to the Cecil Hill reservoir to cater for future development in South West Growth Area including; Austral, Leppington and Leppington North.

    It is understood that Sydney Water are currently in detailed design phase of proposed Cecil Hill reservoir upgrades with construction forecast to commence in 2020 – 2021. Potential upgrades as advised within community update include;

    - *New trunk mains (laid within the road reserve) to be delivered in stages by 2025;*
    - *New reservoir and pumping station within Sydney Water property at the Liverpool Cecil Hills reservoir site (required by 2022); and*
    - *New pressure transfer main to transfer water supply from Liverpool reservoir to the Existing Cecil Park reservoir via Western Sydney Parklands (required by 2022).*

    As a consequence of this strategy system area rezoning will occur and this site will be serviced from the Erskine Park Elevated reservoir system.

  - Supply will be achieved by extension of a DN 200mm - DN 300mm water main to be constructed in Mamre Road north of the Sydney Catchment Authority water supply pipes. This 300mm main will be served from the Erskine Park Elevated reservoir zone. (Refer to Sydney Water advice letter of 12/8/2019 Appendix A)

  - Sydney Water in their prior correspondence to the proponent of the development dated 8/11/2018 identified that the preferred servicing strategy is to supply potable water to the site from the Erskine Park Elevated System (refer to Appendix A). Sydney Water are consulting with RMS concerning upgrades to Mamre Road to provide further trunk mains in conjunction with the road upgrades.

  - Based on the demand assessment for the subject site by this report (refer to Appendix A) supply to the subject site can be catered by extension of the a 300mm water main from the reticulation system north of the site.

  - Sydney Water in its response to D.P.I.E in letter dated 5 July 2019 further advised that drinking (potable) water services could be provided in the short term and they were working with the RMS (now TfNSW) to deliver trunk mains in conjunction with Mamre Road upgrade.

2.1.2 WASTE WATER

Waste Water servicing of the site (and any other development in the Priority Growth Area) will be required as no existing infrastructure exists with the Priority Growth Area.

a) Sydney Water have commenced development of a waste water servicing strategy for the employment lands – driven by the need to address supply requirements for Western Sydney Airport by 2026. Further detailed requirements of the waste water servicing strategy will be refined once a formal structure plan for the Priority Growth Employment Lands is released.

b) The integrated servicing strategy that Sydney Water will develop following the release of the structure plan will need to reflect the strategies that Sydney Water are developing for the Western Sydney Regional Masterplan. This Masterplan will identify and set priorities for the delivery of infrastructure throughout Western Sydney. This Masterplan is programmed for delivery in 2020.

c) Various options exist to service the site.

(i) Initial site servicing – Sec 68

- Depending on release/rezoning timeframes, initial servicing could be achieved via a Sec 68 approval process with the local authority to install a wet well and pump out/tankering arrangement. Waste Water demand for the total development is estimated at 507kl/day (refer Appendix A). However, it is unlikely that 18 warehouse lots as outlined in the current masterplan would be developed together. Construction will commence in 2021 and the whole precinct development may be undertaken over a period of 3 years - subject to market demand - so allow a discharge of approx. 150 - 180kl/day (i.e. 6 warehouses) to be catered for in the 2021-2022 period

(ii) Initial site servicing – Pressure Sewer System

- Pressure sewer system could be constructed to discharge waste water to the Mamre Rd Carrier. Odour & septicity studies may require dosing of the waste water to control waste water quality. Dosing with potable water/recycled water could limit the quantity of water to be discharged utilising this type of system. Sydney Water have advised this is an acceptable interim solution until the new WWTP being developed to service the Aerotropolis region is commissioned in 2026.

(iii) Initial site servicing – Sewer Pump Station and rising main

- Alternatively, a Sewer Pump Station (SPS) could be installed to cater for servicing of the site. This arrangement could extend between 2019 – 2023 when it would be expected that implementation of Sydney Water servicing strategy would commence. The waste water demand in 2021 – 2024 period (Stage 1 development) is estimated initially (i.e. 2021-2022) at approx.174kl/day (2.0litre/s over a 24 hour work window) rising to 507kl/day (or 5.9l/s over a 24-hour period) for the total precinct delivery. These flows will be directed to the Mamre Rd sewer carrier which drains to St Marys Waste Water Treatment Plant (WWTP) as an interim stage with flows eventually being redirected to the new WWTP to be constructed south of the subject site. (Refer to Appendix A for demand calculation)

- Sydney Water in their letter of 21 June 2018 have indicated that the St Marys WWTP has adequate capacity to service the proposed development.

- Sydney Water correspondence of 26/6/2019 and 12/8/2019 indicate discharge to the St Marys WWTP is acceptable as an interim solution.

- Odour and Septicity studies for pumped discharges would be required to outline water quality treatment measures to control the environmental standards of the pumped flows.

(iv) Ultimate Servicing – Sydney Water

- Sydney Waters' integrated servicing strategy will reveal the preferred options for the waste water system to be delivered for the Priority Growth Areas.
- Sydney Waters initial concepts for the northern area of the S.W Growth Centre residential precincts indicated the long-term plan for waste water treatment could include the development of WWTP at South Creek north of Elizabeth Drive and south of the M12 corridor.
- Recent discussions with Sydney Water staff regarding development areas in the northern areas of the S.W Growth Centre have indicated the development of sewer carriers discharging to the north i.e. towards the South Creek WWTP along South Creek, north of Elizabeth Drive.
- Given the amount of development to occur in the northern areas of the S.W Growth Centre, the Aerotropolis areas adjacent to the Western Sydney Airport and the southern areas of the Priority Growth Area employment lands it would be expected that a WWTP would be constructed adjacent to South Creek. Timing of the delivery of that WWTP is now estimated to be late 2025 – early 2026.
- However, as the subject site is at the northern extents of the Priority Growth Area and due to topographical issues discharge to the Mamre Rd carrier draining to St Marys WWTP is the preferred interim outcome.
- The future permanent solution outlined in Sydney Water correspondence will lead to the establishment of a Sewer Pump Station (SPS) to collect waste water from the subject site and other surrounding sites and transfer the waste water to the new WWTP described above. In other words, Sydney Water will take into account the catchment that an SPS could serve that would provide a benefit to other developments in that catchment area.

(v) Ultimate Servicing – Water Industry Competition Act (WICA) licensee

- WICA

WICA allows private companies to perform the same role as Sydney Water. These companies are governed by the operations of the WICA which provide stringent procedures for the operational licence operator. A WICA licence could be granted for the site to develop a site-specific outcome for waste water treatment. Commonly the type of plant developed by the WICA operator would be based on membrane technology which produces a high quality recycled water product.

The great advantage of this type of technology is:

i. Speed of delivery
ii. Cost effective reticulation servicing
iii. Stage expansion of the treatment plant which assists in financial modelling of the development.

The type of reticulation systems developed for these types of plants are pressure sewer systems. As these systems are not gravity reticulation systems (the "typical" and traditional type of sewer reticulation systems) the processing plant (which requires a small footprint) can be located in any area of the site although in practical terms a central location for the processing plant is preferred.

Recycled water reticulation systems are constructed from the treatment plant to return the recycled water to the development for use in toilet flushing, landscape watering and laundry washing. Surplus recycled water is used to irrigate playing fields, open space parks, golf courses, riparian corridors or can be sold to nearby farms for agricultural uses. These systems are in operation at Pitt Town, Box Hill North ("The Gables Precinct"), Wyee and proposed for Sydney Science Park.

The Waste Water Treatment Plants are modular in scale and can be constructed to serve the first stages of development and then expanded to cater for further development stages. The staging model assists in managing cashflows and should be taken into account when developing financial models for the project.

2.1.3 FUNDING OF INFRASTRUCTURE

Sydney Water under its funding policies fully funds trunk infrastructure that support the governments land release programs. Sydney Water has outlined the options for funding development in its "Funding Infrastructure to Service Growth policy". In this instance the development site is not within Sydney Waters' Growth Servicing Plan 2017-2022 but is essentially a P.A.P. release that would be at no cost to government.

Funding would allow Sydney Water to enter a Commercial Agreement (C.A) with the developer. The C.A. will outline that the developer will fully fund, and construct required trunk infrastructure and transfer those assets to Sydney Water. The C.A will outline a payment regime based on development take up in the subject development to reimburse the developer the cost of construction of lead-in infrastructure.

Sydney Water policies also address the provision of interim infrastructure. In this instance there is the potential for some interim sewer infrastructure to be installed depending on the proposed development program. That interim infrastructure may be the provision of a temporary low pressure sewer system (similar to the Mamre West development) to discharge waste water flows from an initial scenario of 9 warehouse/logistics facilities that may be established as the initial development. The developer would be responsible for fully funding this infrastructure.

Internal reticulation infrastructure within the development site will be fully funded by the developer at no cost to government.

2.1.4 COORDINATION OF INFRASTRUCTURE DELIVERY

Potable Water

a) The lead in trunk water main will be sized and constructed to service the total development as the initial construction.

b) The cost of designing and constructing a properly sized main to service the total development is no different than constructing an interim smaller sized water main. Therefore, the lead-in water main will be constructed as part of the initial stages of the development.

c) Lead time from the development of a Basis of Planning report (leading to an Options Study), associated modelling and approval by Sydney water would be 6 months. Following that approval (which will outline the system area rezoning requirements) will be the design approvals, procurement processes, funding allocations, construction and transfer of ownership of the lead-in water main. This process will require a further 6 - 9 months.

d) As part of the delivery of the new infrastructure to service the development the existing 200mm water main servicing the "Twin Creeks" residential development (currently serviced from Cecil Hills reservoir system) would be rezoned to the Erskine Park Elevated system. This can be achieved via a 4 hour connection shutdown.

Waste Water

a) Delivery of waste water infrastructure needs to be coordinated with the proposed development timing of the subject site

b) Initial development could be provided with a low pressure sewer system or Sec 68 approval. Design and installation of an interim supply solution would be approx. 6-9 months.

c) Ultimate development as outlined in Sydney Water correspondence of 26/6/19 and 12/8/2019 will require the construction of a Sewer Pump Station (SPS) in the local area and transfer by a rising main to the proposed new WWTP to serve the Aerotropolis area.

d) Internal waste water reticulation will be developed based on production sequencing of the built form.

3.0 TELSTRA/NBNCO

Currently Telstra has limited capacity in area. A major rezoning of land in the area will require the provision of and amplification of Telstra's service assets. Telstra plans well ahead to cater for urban release areas. Once the Priority Growth Area moves beyond the initial consultation phase and rezoning process begins, Telstra's network planners will begin to investigate required infrastructure and upgrades to the network required to support the land release.

Whilst the site is not within the current NBN rollout area NBN Co have advised that supply can be made available to the site as NBN service has recently been made available to the new development area to the north of the site (adjacent to the Sydney Catchment Authority Supply Pipelines)

4.0 ELECTRICITY

Supply from the site will be obtained from the zone substation located at John Morphett Place Erskine Park (Mamre Zone Substation). That zone substation has sufficient capacity to service the development.

Total site demand estimated to be 10MVa by 2029 when full development of the precinct occurs (refer to Appendix B). Note that Endeavour Energy estimated demand at 11.2MVa based on an earlier masterplan providing a higher floor space development.

Stage 1 site demand is estimated at 4MVa (refer to Appendix B). The construction of 2 high voltage feeders from the Mamre Road Zone Substation will be required to service the Stage 1 development area.

Endeavour Energy have advised in their Technical Review Request response of 8 June 2018 (see attached in Appendix B) that high voltage (H.V) feeders will need to be constructed from the Mamre Z.S to serve the development.

Endeavour Energy note that an existing H.V feeder at the corner of James Erskine Drive and Quarry Rd currently has a capacity of 2MVa. This would be able to supply approximately 80,000m^2 of warehouse space and 4000m^2 of office space in the initial development space whilst H.V feeders are constructed from Mamre Z.S to serve the development. The final development of the site will require 4 H.V feeders to be constructed from the Mamre Z.S.

5.0 GAS - JEMENA

Jemena are the gas supply utility for this area. Jemena will not commit to gas supply until firm commitments are made regarding the timing and probability of the release and rezoning of land within the Priority Growth Area proceeding. Jemena will not supply gas "on spec". Jemena requires firm commitments from end-users to the quantity of gas to be purchased by end-users before it will commit to deliver substantial infrastructure to an area.

Jemena are the utility supplier of gas services in this area. Jemena's reticulation main (210kPa) is located in Mamre Road near the frontage of the site.

Jemena, like the other service authorities, needs to consider the land rezoning and release process on an area-wide basis. Location of pressure reduction stations and the development of a strategy for reticulation within the Priority Growth Area will only be done once clear direction is given with the rezoning/release process.

6.0 IMPACTS ON EXISTING INFRASTRUCTURE SURROUNDING THE SITE

The S.I.A describes the existing infrastructure adjacent and surrounding the site with the main service infrastructure located 300m north within the First Estate development (i.e. Mamre West precinct). The infrastructure that exists is:

(a) Potable Water – 200mm water main doing part of the frontage of Mamre road which extends along the unformed "Reserved Road" servicing the Twin Creeks residential development

(b) Electricals – overhead electricity on the eastern site of Mamre Road and overhead electricity along the unformed "Reserved Road" corridor.

(c) Telecommunications – Fibre optic and copper pair system on western side of Mamre Rd and copper pair system in unformed "Reserved Road"

(d) Gas – Gas reticulation is located on the western side of Mamre Road

6.1 EXPECTED IMPACTS

(a) Potable Water – road re-construction along Mamre Road may require adjustment/deviation of the existing 200mm water main however this is a function of civil deign of the required road infrastructure. Rezoning of the system area will require the insertion of a dividing valve (D.V) in the existing water main – location to be advised by Sydney Water. Under the current proposed masterplan for the site the 200mm main in the "Reserve Road "area may also be subject to an adjustment and deviation process dependent on the civil designs which are developed for the subject site.

(b) Electrical infrastructure – the electrical infrastructure along the Reserved Road is provided to supply the existing dwelling constructed on Lot 1 DP10118318. These assets will be abandoned, and new underground reticulation will be installed to service the development.

(c) Telecommunications – the fibre optic and copper pair system located in Mamre Rd may be subject to adjustment which will be dependent on civil design of the Mamre Rd corridor. The telco facilities servicing the existing dwelling on Lot 1 DP1018318 will be abandoned and new infrastructure provided as part of the precinct development.

(d) Gas – civil design of the intersection of the Bakers Lane and Mamre Road may require adjustment and relocation of the existing gas main located on the eastern side of Mamre Road.

APPENDIX A
POTABLE WATER & WASTE WATER DEMAND

Ultimate Development of Logistics Hub Site Demands (Potable Water/Waste Water)

SY073930 Development Area Tabulation and Demand – Based on 9.2kl/pnha/day			
SITE	**NET DEVELOPABLE AREA (ha)**	**AVERAGE DAY DEMAND (A.D.D) (9.2kl/day/ha)**	**MAX DAY DEMAND (M.D.D)**
1.	77.06ha	710kl/day	1,130kl/day

Note 1:
Reference GHD Local Area Servicing Plan (L.A.S.P) Water notes the Oakdale development (similar development type as the subject site) has an Average Day Demand (A.D.D) of 9.2kl/ per net hectare/day. Sydney Water advised GHD to use a weighted A.D.D based on the Wetherill Park and Moorebank Industrial areas – similar developments proposed for Oakdale and the subject site.

Note:
1. For the purpose of this report demand is based on water usage of 9.2kl/pnha/day
2. pnha = pure net hectare
3. Areas based on Masterplan reference SSD-MRM-DA-002-revision L

SY073930 Development Area Tabulation and Demand – Based on Sydney Water Publication "Average Day Water Use by Property Type"				
SITE	**OFFICE AREA m^2**	**WAREHOUSE AREA m^2**	**AVERAGE DAY DEMAND (A.D.D)**	**MAX DAY DEMAND (M.D.D)**
1.	20,570m^2	401,250m^2	1,180kl/day	1,890kl/day

Note: Office area assessed as 2.27L/m^2/day
Warehouse area assessed as 2.82L/m^2/day

SY073930 WASTE WATER DEMAND CALCULATION				
SITE	**GROSS DEVELOPMENT AREA**	**EP/ha**	**DISCHARGE/EP**	**AVERAGE DAY WEATHER FLOW (kl/day)**
1.	84.5	40	150	507

Note:
1. Waste Water Network Growth Servicing Strategy Criteria and Guidelines (2012) notes an EP/ha of 75. This is considered unrealistic for the type of development to be undertaken on the subject site.
2. A conservative value of 40EP/ha has been adopted for this report.
3. Area is based on Gross Developable Area (refer Sewerage Code of Australia – Sydney Water Edition)

Stage 1 Development Demand (Potable Water/Waste Water)

Development Area Tabulation and Demand – Based on 9.2kl/pnha/day			
SITE	**NET DEVELOPABLE AREA (ha)**	**AVERAGE DAY DEMAND (A.D.D) (9.2kl/day/pnha)**	**MAX DAY DEMAND (M.D.D)**
Stage 1	29	209kl/day	335kl/day

Note:

1. For the purpose of this report demand is based on water usage of 9.2kl/pnha/day
2. pnha = pure net hectare
3. Areas calculated from Masterplan reference SSD-MRM-DA-009-rev C

Development Area Tabulation and Demand – Based on Sydney Water Publication "Average Day Water Use by Property Type"				
SITE	**OFFICE AREA m^2**	**WAREHOUSE AREA m^2**	**AVERAGE DAY DEMAND (A.D.D)**	**MAX DAY DEMAND (M.D.D)**
Stage 1	8,490	156,265	460kl/day	730kl/day

Note:
Office area assessed as 2.27L/m^2/day
Warehouse area assessed as 2.82L/m^2/day

WASTE WATER DEMAND CALCULATION				
SITE	**GROSS DEVELOPMENT AREA**	**EP/ha**	**DISCHARGE/EP**	**AVERAGE DAY DRY WEATHER FLOW (kl/day)**
Stage 1	29	40	150	174kl/day

12 August 2019

Paul Solomon
Planning and Infrastructure Manager
Frasers Property Australia

Stephen O'Connor
Project Director
Altis Property Partners

BY EMAIL: paul.solomon@frasersproperty.com.au
stephen.oconnor@altisproperty.com.au

RE: Altis Fraser proposed Mamre Road development.

Dear Paul and Stephen:

As an extension to our previous correspondence dated 26 June 2019 (Attachment 1) and in line with Sydney Water's Regional strategy, we have reviewed the draft of the preliminary options report dated 4 June 2019 (Attachment 2). Sydney Water can advise that the proposed water and wastewater options for servicing the site have been assessed and potential solutions identified, and we provide the following general advice pending finalisation of the report:

Water

- Based upon the information provided, it is considered feasible that a proposed DN300 extension along Mamre Road from the north could provide adequate flow and pressure to your development.

Wastewater

- Interim – It is considered feasible that the subject site could be temporarily served by either a low-pressure sewer solution connecting to the St Marys network or a gravity solution terminating in an interim operating solution. The selected temporary option would be required to be designed and constructed to coordinate with our long-term permanent solution.

- Permanent – It is expected that the Mamre precinct will be serviced long term by a new STP situated within the wider aerotropolis area. Sub-regional work is currently being carried out to assess capacity requirements within the subject systems.

Delivery of any temporary solutions will be developer funded. Fast-tracking any Sydney Water services or assets for the Mamre Road Precinct is dependent on NSW-DPIE formal precinct release advice and any other planning requirements, and any solution will be subject to Sydney Water's policy on developer accelerated servicing and statutory funding requirements. We note the planning disposition for this area remains fluid; please be aware of the potential for changes

to zoning and land use, in particular around the South Creek zoning and in relation to flooding/flood management decisions and how this may impact alterations to requirements.

This advice is subject to our formal review and approval process, and should you wish to progress this matter, please submit a Section 73 (S73) (Anticipated Requirements pathway) application through your Water Servicing Coordinator to instigate the process. We will provide guidance on next steps and required actions in a Notice of Requirements letter as a response to your application.

Should a S73 application be submitted on this matter, please alert me so I am able to address it accordingly with your Account Manager. Please feel free to contact me on 0447-675-280 if you wish to further discuss.

Sydney Water advises that this information is accurate at date of issue only as capacity within our networks and assets is subject to constant change and review.

Yours sincerely

Chris Gantt
Manager, Developer Partnerships, City Growth & Development
Liveable City Solutions
Sydney Water
0447-675-280

Attachments:

Attachment 1: Sydney Water letter dated 26-06-2019
Attachment 2: Preliminary concept options report dated 04-06-2019

26 June 2019

Paul Solomon
Planning and Infrastructure Manager
Frasers Property Australia
E Paul.Solomon@frasersproperty.com.au

Stephen O'Connor
Project Director
Altis Property Partners
E: stephen.oconnor@altisproperty.com.au

RE: Altis Fraser proposed Mamre Road development.

Dear Paul and Stephen

Thank you for the Options Report to service your development at Mamre Road. Sydney Water is committed to delivering integrated water services to meet growth in collaboration to achieve the Western Parkland City vision.

We are currently working with the Department of Planning and Environment to better understand potential changes to the release of the Western Sydney Employment Area and development along Mamre Road. Delivery of temporary solutions are developer funded and to fast track Sydney Water services for the Mamre Road Precinct is dependent on DPE formal release advice and subject to Sydney Water's policy on developer accelerated servicing. We have a meeting with the Department of Planning to discuss the proposed changes shortly and propose to provide comments on your option report post that meeting.

Concurrently, we are progressing with planning services for the Mamre Road Precinct based on current growth forecast and timeframes provided by the Department of Planning and Environment. In brief we can confirm that based on this information the Mamre Road Precinct can be serviced by 2026. Sydney Waters current proposed long-term services for the Mamre Road Precinct include:

- **Wastewater** services to Mamre Road Precinct can be provided temporarily by St Marys STP for up to 3years, this is based on formal notification of the expected date of connection. Long-term we intend to provide wastewater services from the proposed Upper South Creek WRP to be completed by 2025/26.

- **Drinking water** services can be provided in the short term, we are working to deliver a trunk main along Mamre Road by 2024-25. We will be working with RMS to deliver trunk mains in Mamre Road during road upgrade, subject to funding approval based on risk for development timeframes. Developer delivered precinct trunk mains will also be required to service the precinct.

- **Recycled water** services are being investigated for the whole of the Western Sydney Aerotropolis Growth Area (WSAGA) including this Precinct. We are seeking information on potential recycled water demands, types of use and will provide further advice later in the year. Consideration should be given to incorporating third pipe reticulation and recycled water plumbing connections during your planning stages.

- **Stormwater** – Sydney Water is collaborating with the Western Sydney Planning Partnership Office, member Councils and agencies on typologies, flood and waterway health models for the whole South Creek Catchment, to inform WSAGA LUIIP 2 and the WSAGA Precinct Plans. Consideration should be given to managing flooding and stormwater runoff quality.

Please feel free to contact me or Nelly Berry on 8849 6921 if you wish to further discuss.

Yours sincerely

Fernando Ortega
Account Manager for the Western Sydney Planning Partnership
Liveable City Solutions
Sydney Water
0407 702 994

8 November 2018 COPY

Stephen O'Connor
Altis Property Partners
Level 14, 60 Castlereagh Street
Sydney NSW 2000

Mamre Road South, Kemps Creek – Detailed Planning Requirements Package

Dear Stephen,

I refer to your discussions with our Growth Planning Lead, Kristine Leitch about accelerating the water related servicing of Mamre Road South, Kemps Creek. We understand this is a joint venture between Frasers Property and Altis Property Partners located around Mamre Road and Bakers Lane comprising the creation of a warehousing and logistics hub with associated employment creation of 2,500 jobs. The development is proposed to be built over five stages with the first aiming to start in 2019-22 and the final to be completed by 2026-2029.

Commercial Agreement
To accelerate the servicing of Mamre Road South, Frasers/Altis will need to complete the detailed options planning activities outlined in Attachments 1 and 2 at their cost. If, following the completion of the detailed options planning activities Frasers/Altis chooses to proceed with the design and delivery of water and wastewater infrastructure needed to service Mamre Road South, Sydney Water may reimburse Frasers/Altis for the reasonable and efficient costs of the design and construction of this work. This will be achieved through a commercial agreement in line with our funding principles for developer delivered major infrastructure if applicable.

Sydney Water will not reimburse costs for the options planning stage irrespective as to whether the work progresses to the design and delivery stage, as the development is currently not re-zoned, and the developer is undergoing an application for a State Significant Development which is not yet approved and which, whilst covering the whole site, is only investigating warehouse development within part of the development. Further approvals would be required to cater for the total growth indicated across the five development stages. At present these sit in the South Creek Precinct.

If applicable, and under the relevant commercial agreements, and Frasers/Altis deliver the required infrastructure to Sydney Water's standards, Sydney Water may then look to reimburse the developer for the reasonable and efficient costs of these infrastructure works on a per lot/connection basis or as set out in the commercial agreement.

Detailed Options Planning
Presently there is no significant water or wastewater infrastructure servicing the development. Sydney Water's strategic planning for the Mamre Road South development has identified the preferred servicing strategy as:

- Water – supply from Erskine Park Elevated.
- Wastewater – transfer from the St Mary's treatment works
- Non-drinking water – supply from rainwater tanks or BASIX system where appropriate.

The preferred servicing strategy is shown in Attachment 1.
Frasers/Altis will need to complete the detailed planning work to develop the above servicing options to determine the optimal servicing solution for the lowest lifecycle cost and acceptable risk.

This work will need to consider the potential staging of infrastructure. A full list of the tasks to be completed is in Attachment 1 and 2. A detailed planning options report will ultimately be delivered as part of this work, which identifies the location and/or route of water and wastewater infrastructure needed to service the development area.

As outlined in Attachment 1 and 2:

- Frasers/Altis will need to obtain planning approval for the infrastructure from the relevant local council.
- Requirements for land acquisition and easements for any infrastructure to be delivered will be in line with Sydney Water's land acquisition policies.

Engagement of professional services
Frasers/Altis will need to engage and fund appropriate consultancies to complete the detailed planning work. The funding of this work is at Frasers/Altis own risk. Should Frasers/Altis choose not to progress the development of the site, Sydney Water will not reimburse Frasers/Altis for any costs associated with the detailed planning.

Frasers/Altis is to prepare a project brief based on the tasks in Attachment 1 which is to be endorsed by Sydney Water **prior to seeking quotes from any consultants.** We recommend that Frasers/Altis also engages a Project Manager to manage the detailed planning. The role of the Project Manager is outlined in Attachment 1.

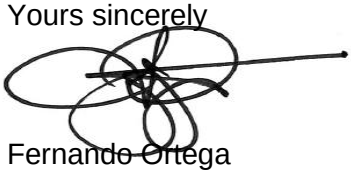
Frasers/Altis must follow our Urban Growth Procurement Guidelines for any work Frasers/Altis may seek reimbursement for. This includes the engagement of any consultants for the detailed planning work. Our Procurement Guidelines are available in the Plumbing, Building and Developing (Growth Servicing Plan) section of our website at: www.sydneywater.com.au.

Agreement of terms
Sydney Water only approves the developer to complete the detailed planning work. Approval of and requirements for the next stages of work (concept and detailed design) will be provided following Sydney Water's approval of the detailed planning options report.

If detailed planning work is progressed without Sydney Water's endorsement or approval as required, we may not reimburse you for the cost of that work.

To initiate the detailed planning work, Frasers/Altis must accept (in writing) the above conditions and agree to complete all appropriate tasks as listed in the enclosed attachments.

Yours sincerely



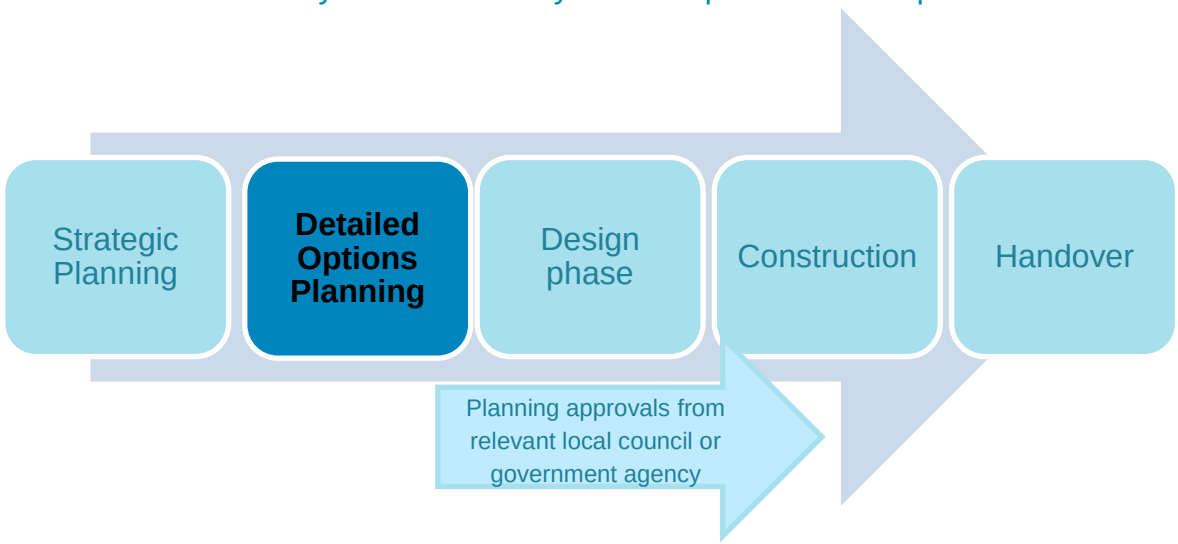
Fernando Ortega
A/ Manager, Growth Planning and Development
CC: Frasers Property

Attachment 1

Detailed Planning Options Assessment

Planning Requirements Package

Detailed Options planning is the second step in Sydney Water's process for planning and delivering water related infrastructure. Detailed options planning is based on the preferred servicing strategy and considers the optimal location, route, staging and sizing of infrastructure to identify the lowest lifecycle cost option with acceptable risk.



Overview

Where a developer chooses to accelerate the servicing of their development ahead of Sydney Water's delivery timeframe they may need to complete detailed planning work to determine the preferred servicing option. **Figure 1** provides an overview of this process.

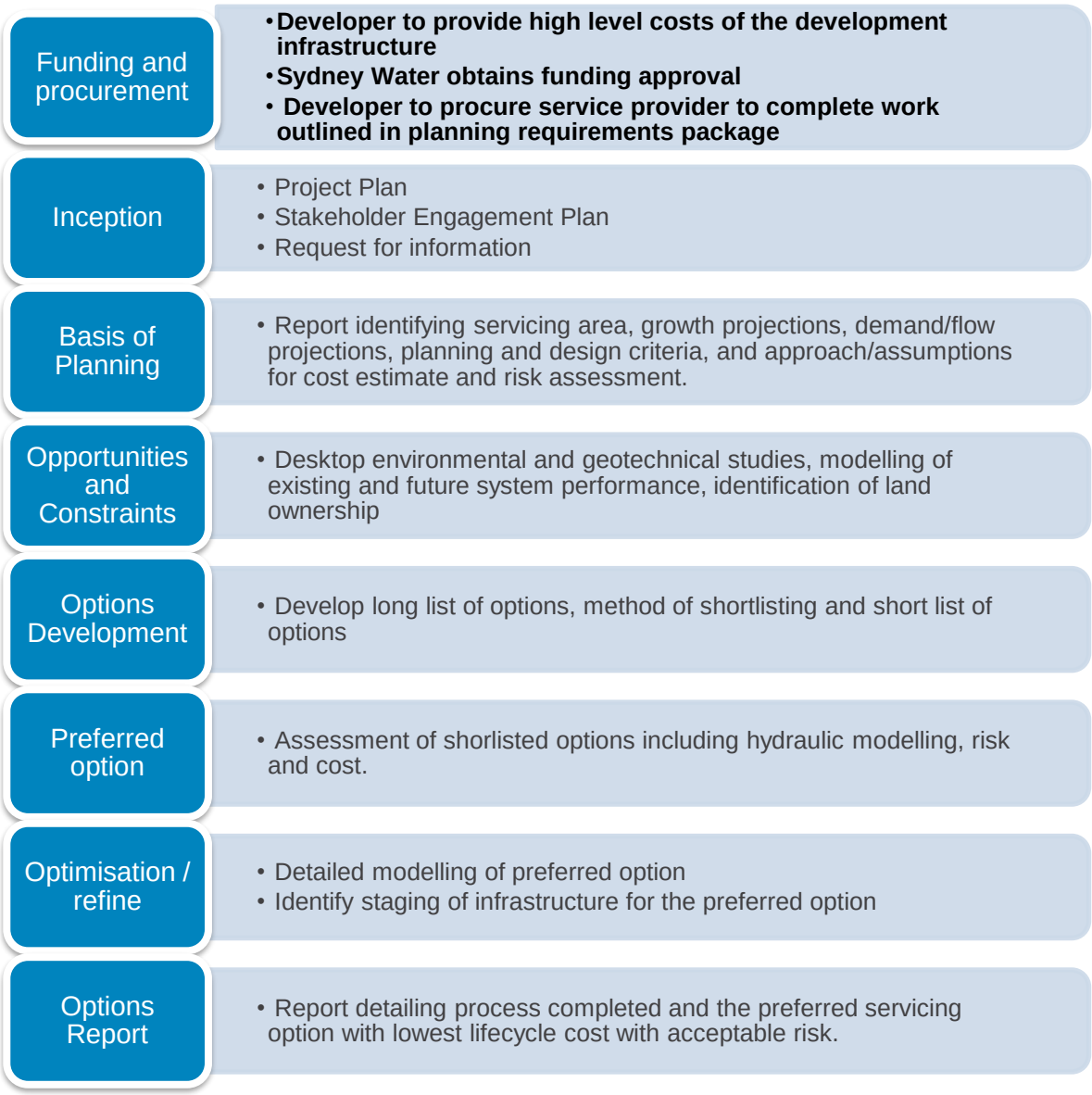
Figure 1

This detailed planning requirements package outlines the tasks, deliverables and hold points in Sydney Water's process for detailed planning of water related infrastructure. An overview of the detailed planning process is in **Figure 2**. Also included is the Planning output artefacts overview which provides a mirror of the SW planning process to assist in streamlining the processes, documentation and review timescales.

For the costs associated with detailed planning and subsequent delivery of water and wastewater infrastructure to be eligible for reimbursement by Sydney Water under a commercial agreement, where feasible, detailed planning works must be delivered in accordance with these requirements.

A number of 'hold points' are identified. At each of these hold points, Sydney Water must provide formal approval for the next tasks to commence. If subsequent tasks are commenced prior to receiving approval from Sydney Water at a hold point, some of or all of the work may not be eligible to be reimbursed by Sydney Water.

Figure 2 Over view of process



Funding of work

HOLD POINT: Before detailed planning work can begin, the developer must obtain formal confirmation from Sydney Water that funding of the work has been approved. The developer must provide indicative costs of the project to facilitate this.

To assist in obtaining funding approval, Sydney Water will require information from the developer including anticipated timing for rezoning, lot development, dwelling occupancy, infrastructure delivery and a pre-tender cost estimate for the work to be completed.

Engagement of professional services

The developer will need to engage and fund appropriately qualified service providers to complete the detailed planning work. The developer should prepare a project brief covering the tasks

outlined in **Table 1**, and submit to Sydney Water for review prior to seeking quotes from any service providers. Any work that may ultimately be funded by Sydney Water must be procured in line with Sydney Water's Procurement Guidelines.*

HOLD POINT: Prior to engaging a service provider for detailed planning and commencing work, the developer must demonstrate compliance with Sydney Water's Procurement Guidelines to gain approval of their procurement strategy and subsequent engagement of service providers.

*Work which is not reimbursable at the planning stage need not follow the guidelines however this may impact reimbursement at following stages.

Project Manager

We recommend developers engage a Project Manager to manage the detailed planning options assessment. The project manager must have relevant experience in planning and delivery of water related infrastructure to meet Sydney Water's requirements. The Project Manager is to be engaged only for the completion of the detailed planning options report and would be responsible for:

- Preparation and maintenance of a Management Control Plan for the detailed planning.
- Chair monthly progress meetings and prepare and circulate minutes.
- Prepare detailed project briefs as required for specialist contracts and assist the developer with engaging professional services in line with Sydney Water's Procurement Guidelines.
- Managing detailed planning contracts.

Planning approval

The developer will need to obtain planning approval for the delivery of infrastructure from the relevant planning authority. For example, from Council(s) under Part 4 of the *Environmental Planning and Assessment Act 1979* or the Department of Planning and Environment where the proposal is State Significant Development. This is typically by submission of a Development Application and a Statement of Environmental Effects or Environmental Impact Statement. We recommend developers liaise with Council(s) while completing strategic planning work.

Land acquisition and easements

Sydney Water may need to acquire land or take out easements to ensure our needs for operating and maintaining assets are met. The requirements for land acquisition and easements will be in line with Sydney Water's land acquisition policies. A stakeholder from Sydney Water's Group Property team will need to be consulted during the detailed planning work.

Mamre Road South Water Servicing Strategy

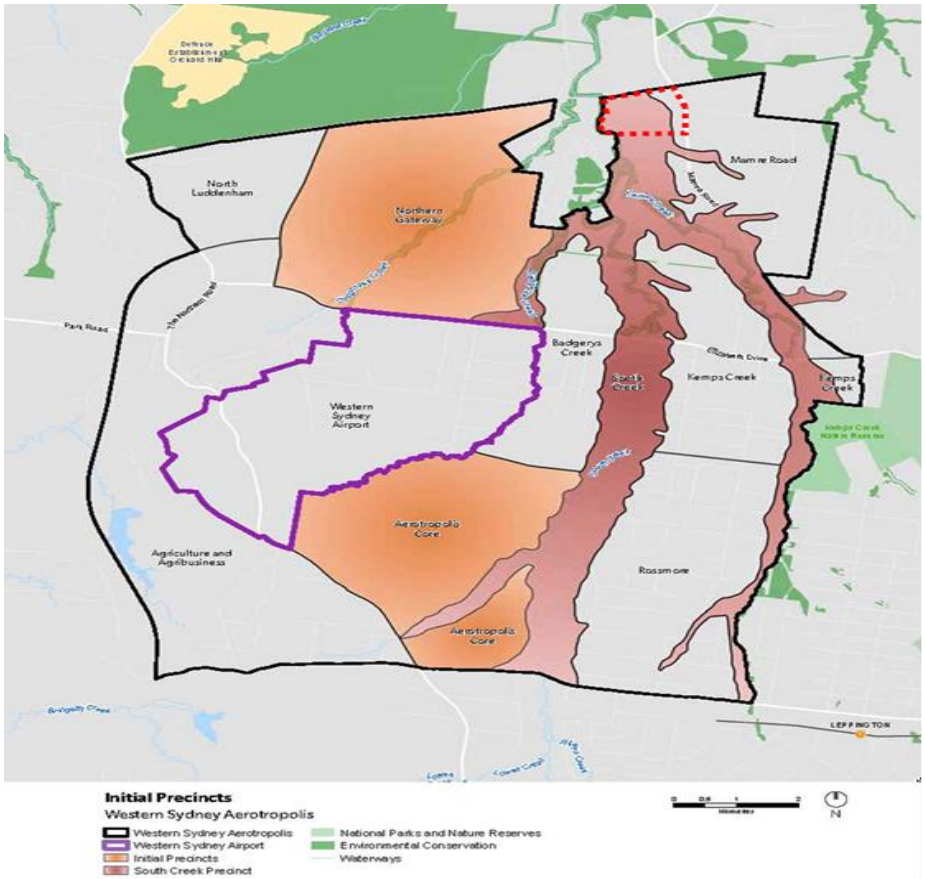
Sydney Water's endorsed water servicing strategy for *Mamre Road South* is:

Supply from *Erskine Park Elevated*

The investigation should: Consider the impact on and ability of the Erskine Park water supply to service this, and Minchbury only if required.

The options planning must consider:

- *The new growth demand from this development*
- *Existing demand*
- *Known variations to the demand at the Mamre Road North Development*
- *Additional growth volumes identified in the area that may impact the servicing ability, and as provided by Sydney Water.*



Indicative map only

Mamre Road South Wastewater Systems

Sydney Water's endorsed wastewater servicing strategy for *Mamre Road South* is:

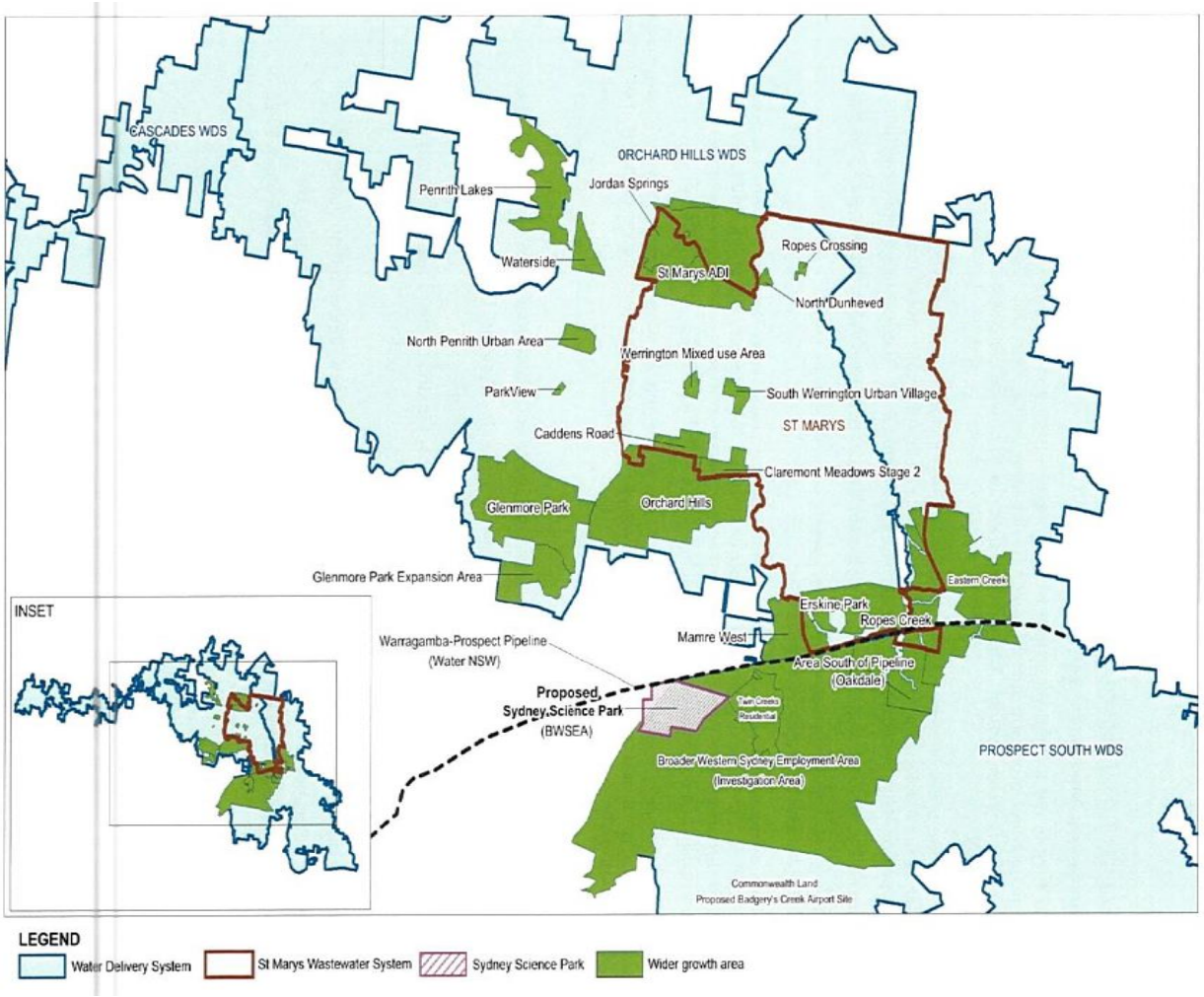
Transfer to *St Marys Wastewater Treatment Plant*

The investigation should:

Consider impact to St Marys treatment plant.

The options planning must consider:

- *The new growth demand from this development*
- *Existing demand*
- *Known variations to the demand at the Mamre Road North Development*
- *Additional growth volumes identified in the area that may impact the servicing ability, and as provided by Sydney Water.*



Indicative map only

Table 1 - Detailed planning activities -see also planning artefacts

Deliverable	Activities
Inception	Hold inception meeting with Sydney Water. The meeting should cover: • Confirmation of objectives, scope and deliverables. • Confirmation of communication protocols. • Discussion of any system constraints, issues or opportunities that may impact on options development. • Handover of any relevant Sydney Water reports, studies and planning guidelines • Access to Sydney Water models and cost estimator tools. **HOLD POINT: Inception meeting to be held with Sydney Water prior to work commencing.** Prepare a Project Execution Plan outlining: • Scope and deliverables • Management Control Plan (15 working days are needed for any hold points for Sydney Water review, endorsement or approval). • Roles and responsibilities. • Project objectives / methodologies. • Deliverables, timing and budgets. • Communication protocols. • Project Risk Assessment. The risk assessment is to be updated throughout the project and included in the final options report. Prepare a Stakeholder Engagement Plan outlining: • Internal stakeholders and how they will be engaged throughout the project. Stakeholders will be confirmed by Sydney Water Project Manager and may include Urban Growth, Servicing and Asset Strategies, Engineering and Environmental Services, Group Property and Service Delivery. • External stakeholders and how they will be engaged throughout the project, including coordination with planning authorities and other service providers. **HOLD POINT:** **Sydney Water to endorse Project Execution Plan before progressing to further activities** **Sydney Water to endorse Stakeholder Engagement Plan before progressing to Opportunities and Constraints.**

Deliverable	Activities
Basis of Planning Report	Prepare a Basis of Planning Report. Sydney Water may provide a template Basis of Planning Report. The report should include, but is not limited to: *Define servicing area* • Identify all potential development that can be included in the servicing area • Growth forecasts and development schedule for servicing area • Map showing staging plan for development area *Identify projected water demand and wastewater flows for the full catchment (including any staging). Consider different scenarios e.g. growth, demand design rates.* *Define planning and design criteria for locating and sizing assets.* *Identify planning horizons, including current and ultimate development. Interim horizons need to be assessed to determine staging of assets.* *Define assessment approach* • Identify cost estimate approach and assumptions (using Sydney Water Cost Estimator) • Identify non-cost assessment criteria • Identify risk framework approach and assumptions for acceptable risk (using Sydney Water risk matrix) **HOLD POINT: Sydney Water review and endorsement of Basis of Planning Report before progressing further activities.**
Opportunities and Constraints	*Assess Baseline System performance* • Update the relevant water and wastewater hydraulic models to existing conditions following Sydney Water's Water Modelling System QMS and Wastewater Modelling System QMS • Baseline performance of existing water and wastewater systems without the proposed development • Assessment of current and future water system performance using Sydney Water's Water Modelling System hydraulic water models • Assessment of current and future wastewater system performance using Sydney Water's MOUSE hydraulic wastewater models • Future system performance requirements.

Deliverable	Activities
	Desktop environmental constraints mapping • Environmental and geotechnical desktop assessments to map key environmental and geological constraints and issues using desktop assessment. This work will be used in the identification of options and assessment criteria. *Please note that while not required at this stage, field studies will be required once the preferred servicing option has been selected.* *External stakeholder engagement* • Engage with external stakeholders, as identified in the endorsed stakeholder engagement plan, to identify any other opportunities and constraints that may impact on the assessment of the servicing options e.g. land ownership, works being done by other utilities. • Minutes of meetings with external stakeholders capturing discussions and key outcomes to be provided to Sydney Water with the opportunities and constraints for endorsement. **HOLD POINT: Sydney Water review and endorse opportunities and constraints before endorsing shortlisted options (see Options Development)**
Options Development	Develop a list of options that are consistent with the approved Servicing Strategy. This should take into consideration: • Pipe alignment and sizing • Asset locations and sizing • Storage and operating configurations • Staging of infrastructure • Opportunities and constraints. Attend Value Options Workshop. The purpose of this workshop is to exhaust any feasible option that meets the project objectives. Tasks will include: • Preparation of a briefing paper on the long list of options • Attendance at the workshop by up to 2 key members of the project team • Review and incorporate outcomes of the Value Options Workshop. Identify method for shortlisting options. Short list options. **HOLD POINT: Sydney Water to endorse shortlisted options before detailed options assessment (see Determine preferred option).**

Deliverable	Activities
Determine preferred option	Detailed assessment of shortlisted options including: • Preliminary hydraulic assessment (including operating performance and issues) • Energy consumption / efficiency • Construction methods • Cost estimate / life cycle cost • Risk assessment Hold options assessment workshop with relevant stakeholders to determine preferred servicing option based on the assessment approach in the endorsed Basis of Planning Report. Sensitivity assessment including impact of staging, cost and sizing of infrastructure and population projections. **HOLD POINT: Workshop with relevant stakeholders to determine preferred option to be held prior to Options optimisation and completion and submission of Detailed Planning Options Report to Sydney Water.** **Key external stakeholder briefing on preferred option.** Sydney Water is to attend this briefing and minutes of the meeting to be endorsed by Sydney Water and attached to the final options report.
Options optimisation	Confirm staging of preferred option. Consider delivery timeframe of preferred option and potential need for interim option if required. Detailed hydraulic assessment of preferred option. Demand sensitivity analysis +/- 10% of as advised by Sydney Water Urban Growth. **HOLD POINT: Options optimisation to be completed prior to completion and submission of Detailed Planning Options Report to Sydney Water.**
Detailed Planning Options Report	Prepare an options report using Sydney Water's template to demonstrate the process of determining the preferred servicing option. The report at a minimum must include: • Objective of planning process. • Study area including growth and demand forecasts, and staging location of the development. • Catchment plans. • Description of existing systems including: - Evaluation of performance and constraints. - Operation and design criteria and design loadings. - Demands, flows and assumptions.

Deliverable	Activities
	- Geotechnical constraints. • Summary of environmental constraints. This should include discussion around the environmental factors that were relevant to the development and/or selection of the preferred option. • Identify stakeholders, engagement activities and any issues. This should include any supporting evidence from discussions with stakeholders that was used in the assessment of the options. • Description of all servicing options including advantages and disadvantages of each option with respect to technical, environmental, social and economic assessment criteria. This should include the cost of each option. • Assessment process including: - Assessment criteria (cost and non-cost criteria) - Process for assessment - Sensitivity analysis - Outcome - Econ 8 – NPV of shortlisted options • Preferred servicing option including: - Description - Staging plan - Risk assessment **HOLD POINT: Sydney Water review and comment on Detailed Planning Options Report. Sydney Water to endorse the Detailed Planning Options Report once all comments have been adequately addressed.**

Next Steps

Following Sydney Water's endorsement of the Detailed Planning Options Report the developer may choose to progress with the next phase of work. The tasks below provide indicative information for next phase of work. Sydney Water will need to obtain funding approval for concept design, detailed design and construction, and executing the commercial agreement with the developer. The developer will need to allow time in their program for funding approval and procurement of service providers.

Deliverable	Activities	
Application	The developer is to engage a Water Servicing Coordinator (for application only). The Water Servicing Coordinator will submit an application in our e-developer system for the development. **HOLD POINT: In response to the application Sydney Water will issue a Notice of Requirements to the Water Servicing Coordinator. The Notice will:** • **confirm the infrastructure to be designed and constructed by the developer** • **confirm scope of work and funding approval for the next stage of work** • **identify any agreements that the developer must enter into with Sydney Water.**	
Concept Design and Needs Specification	If a **reservoir, water or wastewater pumping station or booster and associated pressure mains** are needed to service the development you will need to follow our Managing New Developments (Complex Works) process. This will include preparation of concept drawings and Needs Specification for Sydney Water approval prior to detailed design commencing.	If **water or wastewater gravity lead in mains** are needed to service the development you will need to follow our Managing New Developments process.
Risk Based Cost Estimate	Following Sydney Water's endorsement of the required concept designs and need specifications the developer will need to engage a consultant to do a Risk Based Cost Estimate of all works to be delivered under the commercial agreement. The outcome of the Risk Based Cost Estimate will inform the funding approval for detailed design and delivery of the infrastructure.	

HOLD POINT: Following completion of the above work Sydney Water may/will need to obtain funding approval for the detailed design and construction of the infrastructure.

Note:

The developer will need to allow time in their program for funding approval and procurement of professional services.

APPENDIX 2 – SYDNEY WATER PLANNING ARTEFACTS PROCESS (new)

Planning Needs	Basis of Planning	Gap Analysis	Pathways Development	Options Assessment	Local Area Scheme Plan (LASP)	Build Needs	Operational Change Needs	Plan on a Page
Need and trigger	Project objectives and scope	Constraints mapping	Pathway Development	Options Assessment	Background	Scope summary[3]	Operational Change Requirement	Current Risk
Scope / Coverage	Planning / design criteria [1,2]	Existing system/infrastructure	Decision criteria making approach	Decision-making approach	Growth Table and Growth Map	Timing	Operational Change Scope	Current Issues
Background	Growth forecast	Current performance	Servicing Concept Analysis	Options Analysis	Scheme Plan Layouts	Staging	Change Impact Assessment	Current Opportunities
Expected benefits	Flow / demand projections	Future performance	Adaptive Pathways	Sensitivity Analysis	Flow Schedule (appendix)	Summary of benefits	Timing & Staging	Future 30yrs Issues
Expected completion timeframe	Water and nutrient balance	Asset condition and capability assessment	Staging and Investment Plan	Preferred Option	Flow Diagram (appendix)	Cost forecast CAPEX and OPEX	Monitoring Plan	Future 30yrs Action Plan
Funding pathway	Process decision making approach	Gaps identification & importance assessment	Action Plan	Staging and Investment Plan		Delivery Pathway	Risk Assessment	5yrs Action Plan Cost
Cost forecast - CAPEX (30 years)	Stakeholder Engagement Plan	Risks, Issues and Opportunities (RIOs) identification		Action Plan		Risk and opportunity identification	Funding Pathway	5yrs Action Plan Operational Changes
Risk / opportunity assessment				Preliminary Geotechnical Assessment (appendix)			Recommendation	5yrs Action Plan Key benefits and drivers
				Preliminary Environmental Assessment (appendix)				
				Local Area Scheme Plan (when required)				

APPENDIX B
ELECTRICAL DEMAND

Overall Logistics Hub Development

SITE	OFFICE AREA (m^2) 100VA/m^2	WAREHOUSE AREA (m^2) 20VA/m^2	TOTAL
1.	20,570	401,250	10MVA

Stage 1 Development

SITE	OFFICE AREA (m^2) 100VA/m^2	WAREHOUSE AREA (m^2) 20VA/m^2	TOTAL
Stage 1	8,490	156,265	4MVA

8 June 2018

Endeavour Energy Ref: ENL3064 – 2014/02306/001

Frasers Property Industrial Constructions Pty Ltd
C/- Connect Infrastructure
6 Progress Circuit
PRESTONS NSW 2170

ENL3064 – Technical Review Request | Lot 34 DP1118173, Lot 1 DP1018318, Lot 22 DP 258414 and Lots X & Y DP421633, Mamre Road, KEMPS CREEK

Dear Sir/Madam

Thank you for your enquiry. This enquiry has been registered under our reference number ENL3064. Please quote this number for all future correspondence.

Endeavour Energy acknowledges the proposed development will yield approximately 35 warehouses with the associated office space, totalling approx. 486,140m^2 of building area. The total load is estimated at **11.2MVA** based on 20VA/m^2 for warehouse space and 100VA/m^2 for office space.

Staging of development is proposed as follows:

Stage / Site	**Development commencement date**
Sites 2 and 5 (16 warehouses)	2019 – 2022
Site 3 (6 warehouses)	2021 – 2024
Site 4 (6 warehouses)	2023 – 2027
Site 1 (7 warehouses)	2026 – 2029

HV requirements:

There are two 11kV feeders (MM1112 and MM1192) in the vicinity of the proposed development, both of which are at capacity. 11kV feeder MM1102 (Corner of James Erskine Rd and Quarry Rd) has approx. 2MVA of capacity, however supply from this feeder may not be feasible as the initial stage (Sites 2 and 5) require a total load of 5MVA and the distance involved. The required capacity is available at Mamre ZS.

<u>Sites 2 and 5;</u>
Total estimated load of 5 MVA. A new underground feeder direct from Mamre ZS is required to supply the proposed load. The new feeder is to be interconnected to existing feeder MM1112 to establish cross feeder tie and provide the necessary HV backup to the development site. Proposed HV route from Mamre ZS (refer to appendix A): Exit Mamre ZS in easement to Fox Lane, Lenore Drive, Erskine Park Road and Mamre Road. Spare ducts, where available, may be utilised except for the last remaining spare. Note: each 11kV feeder has 5MVA capacity.

<u>Sites 3,4, and 1;</u>
Total estimated load of 6.2MVA. These sites are proposed to be developed from 2021 to 2029. Two additional underground dedicated 11kV feeders may be required to supply total load of these three sites. This area is rapidly developing and network circumstances may significantly change in the

proposed time frame. Final determination from which source the feeders will come from and their configuration will be provided at the time of connection of load application.

Along with the feeder installation, the developer is also responsible for the installation of strategically located distribution substations within the development and provide a low voltage connection point to each proposed Lot. With interconnection to existing LV network or provision for future interconnection as the adjacent developments progresses.

All redundant overhead network within or along the road frontage of the development will need to be removed or undergrounded as part of reticulating this development.

To initiate the connection of the initial stage, the developer is required to complete and submit an a*pplication for the provision of an electricity network in a subdivision*. The nominated Level 3 ASP is then to prepare and provide a preliminary electrical design to Endeavour Energy in the form of a Proposed Method of Supply (PMOS), which will lead to detailed design and construction of the network extension to the development site. This activity is customer funded contestable works and the developer will need to pay for it.

This advice provided is in response to a Technical Review Request only and does not constitute a formal method of supply. An application must be submitted and subsequent designs certified or approvals granted will Endeavour Energy accept a method of supply or reserve capacity on the network or spare ducts for the development.

More information regarding Network Connections processes can be found on our website.

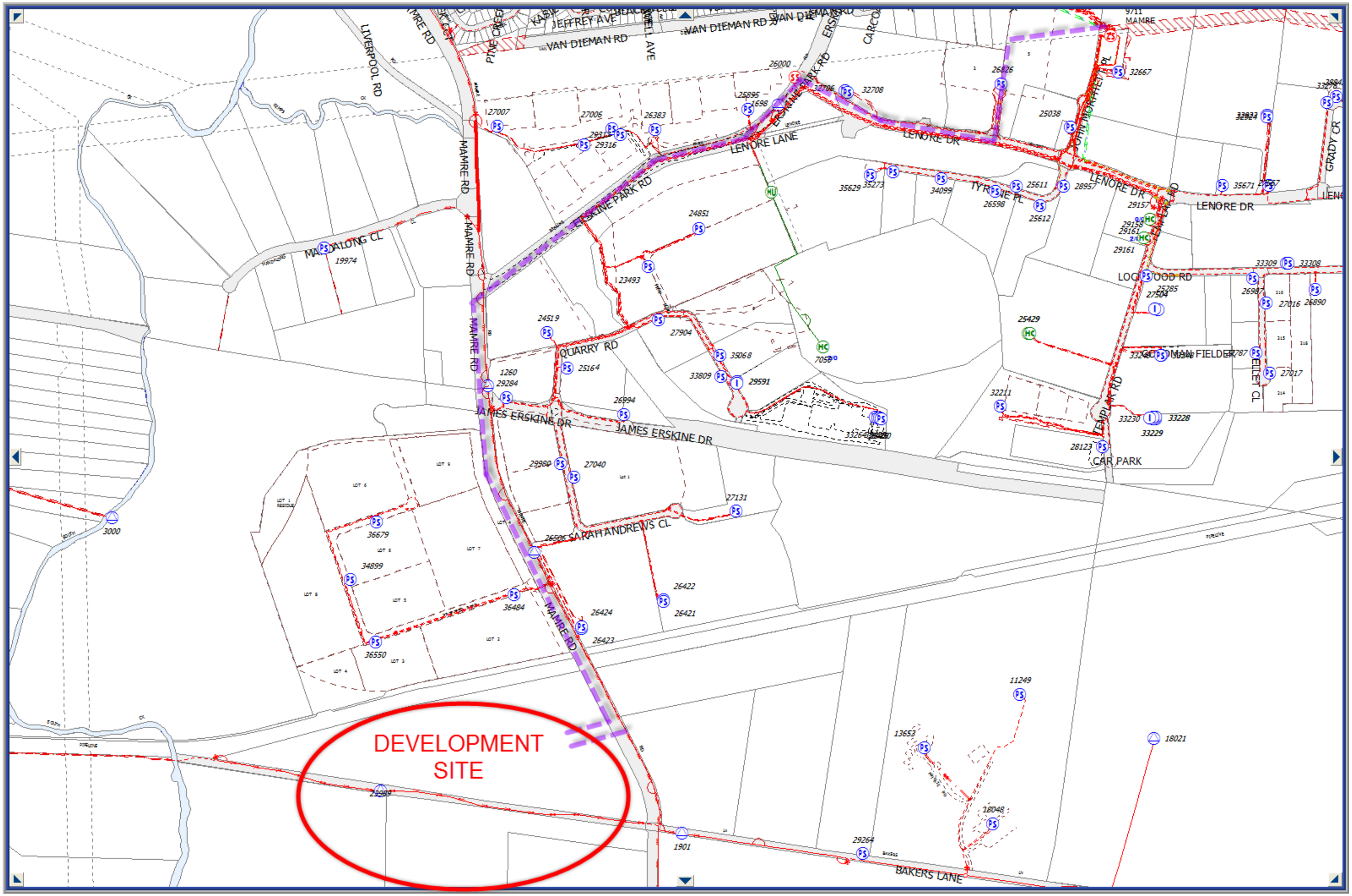
Should you have any enquiries regarding your application please do not hesitate to contact the undersigned.

Yours faithfully

SBarkho

Simon Barkho
Contestable PM
Ph: 9853 7965
Email: simon.barkho@endeavourenergy.com.au

APPENDIX A: PROPOSED HV ROUTE



APPENDIX C
PRESSURE & FLOW RESULTS

Statement of Available Pressure and Flow

Sydney WATER

Lilliane Moujalli
23-29 South St
Rydalmere, 2116

Attention: Lilliane Moujalli Date: 04/05/2018

Pressure & Flow Application Number: 433744
Your Pressure Inquiry Dated: 2018-04-17
Property Address: 657 Mamre Road, Kemps Creek 2178

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Bakers Lane	Side of Street: North
Distance & Direction from Nearest Cross Street	200 metres East from Mamre Road
Approximate Ground Level (AHD):	38 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	120 metre head
Minimum Pressure	69 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	68
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5 10	65 52
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	57
Maximum Permissible Flow	10	41

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

swtapin@sydneywater.com.au

General Notes

This report is provided on the understanding that (i) the applicant has fully and correctly supplied the information necessary to produce and deliver the report and (ii) the following information is to be read and understood in conjunction with the results provided.

1. Under its Act and Operating Licence, Sydney Water is not required to design the water supply specifically for fire fighting. The applicant is therefore required to ensure that the actual performance of a fire fighting system, drawing water from the supply, satisfies the fire fighting requirements.

2. Due to short-term unavoidable operational incidents, such as main breaks, the regular supply and pressure may not be available all of the time.

3. To improve supply and/or water quality in the water supply system, limited areas are occasionally removed from the primary water supply zone and put onto another zone for short periods or even indefinitely. This could affect the supply pressures and flows given in this letter. This ongoing possibility of supply zone changes etc, means that the validity of this report is limited to one (1) year from the date of issue. It is the property owner's responsibility to periodically reassess the capability of the hydraulic systems of the building to determine whether they continue to meet their original design requirements.

4. Sydney Water will provide a pressure report to applicants regardless of whether there is or will be an approved connection. Apparent suitable pressures are not in any way an indication that a connection would be approved without developer funded improvements to the water supply system. These improvements are implemented under the Sydney Water 'Urban Development Process'.

5. Pumps that are to be directly connected to the water supply require approval of both the pump and the connection. Applications are to be lodged online via Sydney Water Tap in™ system -
Sydney Water Website – www.sydneywater.com.au/tapin/index.htm. Where possible, on-site recycling tanks are recommended for pump testing to reduce water waste and allow higher pump test rates.

6. Periodic testing of boosted fire fighting installations is a requirement of the Australian Standards. To avoid the risk of a possible 'breach' of the Operating Licence, flows generated during testing of fire fighting installations are to be limited so that the pressure in Sydney Water's System is not reduced below 15 metres. Pumps that can cause a breach of the Operating Licence anywhere in the supply zone during testing will not be approved. This requirement should be carefully considered for installed pumps that can be tested to 150% of rated flow.

Notes on Models

1. Calibrated computer models are used to simulate maximum demand conditions experienced in each supply zone. Results have not been determined by customised field measurement and testing at the particular location of the application.

2. Regular updates of the models are conducted to account for issues such a urban consolidation, demand management or zone change.

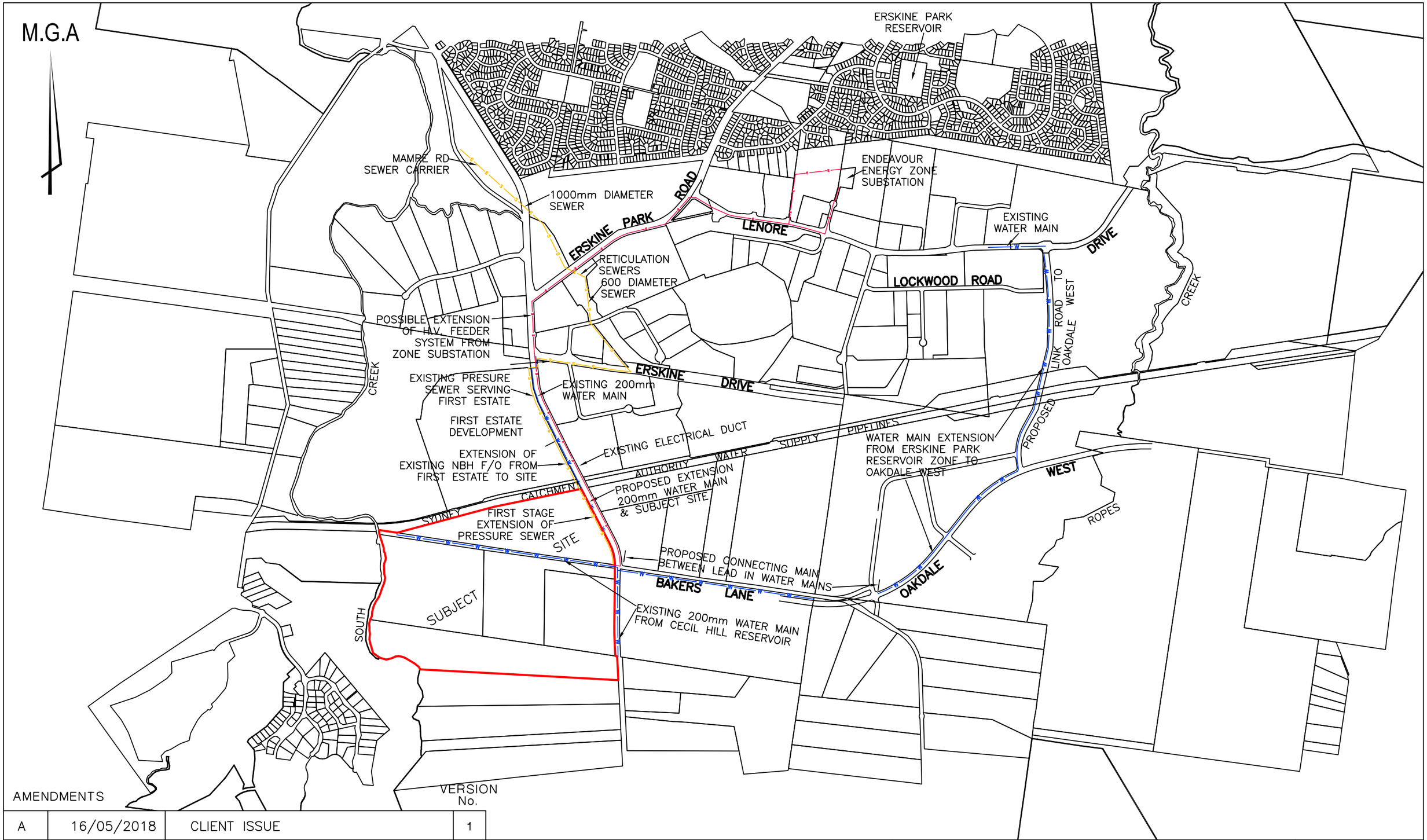
3. Demand factors are selected to suit the type of fire-fighting installation. Factor 1 indicates pressures due to system demands as required under Australian Standards for fire hydrant installations. Factor 2 indicates pressures due to peak system demands.

4. When fire-fighting flows are included in the report, they are added to the applicable demand factor at the nominated location during a customised model run for a single fire. If adjacent properties become involved with a coincident fire, the pressures quoted may be substantially reduced.

5. Modelling of the requested fire fighting flows may indicate that local system capacity is exceeded and that negative pressures may occur in the supply system. Due to the risk of water contamination and the endangering of public health, Sydney Water reserves the right to refuse or limit the amount of flow requested in the report and, as a consequence, limit the size of connection and/or pump.

6. The pressures indicated by the modelling, at the specified location, are provided without consideration of pressure losses due to the connection method to Sydney Water's mains.

APPENDIX D
PLAN OF SERVICE ASSETS ADJACENT TO SITE



AMENDMENTS

VERSION No.			
A	16/05/2018	CLIENT ISSUE	1

NOTES:

L.G.A.
PENRITH

CLIENT
FRASER PROPERTY & ALTIS PROPERTY PARTNERS

LANDPARTNERS
built environment consultants
ISO 9001:2008 FS 535063
Sydney Office
Level 2, 23–29 South St Rydalmere NSW 2116
PO Box 1144 Dundas NSW 2117
t 61 2 9685 2000 e sydney@landpartners.com.au
w www.landpartners.com.au

JOB TITLE
PLAN OF
SERVICE ASSETS
ADJACENT TO SUBJECT SITE
KEMPS CREEK

Plan No.:
73930
VER 1

Reduction Ratio:	Date of Survey:	Surveyor: GKO	Sheet 1 of 1
1: 20,000	N/A	Drawn By: TF	

APPENDIX E
RESPONSE MATRIX

Table 1: Land Partners Response Matrix	
Relevant Agency Response to Submissions	**Formalised Response**
NSW Department of Planning, Industry and Environment (DPIE)	
Wastewater: *In the RTS to Sydney Water's comments, please address how the three year delay in providing wastewater to the site will impact timing of construction and operation of the development.*	The issue of staged waste water service is addressed in the report. Various options exist to service the initial stages of development as described in the report. These being: a) Sec 68 interim pump out b) Initial pressure sewer system similar to the system serving the First Estate development c) W.I.C.A Licensee
Penrith City Council	
As previously indicated, any infrastructure within a floodway is not supported as a design solution.	Noted and utility services are not proposed in the floodway zone.
Public Submission (BGMG 1 Oakdale West Trust)	
10. SSD 9522 Strains Local Services and Infrastructure *The location of the proposal will detrimentally and permanently impact upon the existing services capacities of the surrounding area. This will require the installation of new or intervention of existing infrastructure, which has been built to accommodate the surrounding developments such as Oakdale West Industrial Estate. According to the EIS, services may require adjustment or completely new infrastructure to accommodate the proposed development. Proposals to resolve these fundamental issues are not addressed in SSD-9522.*	Reference is made to the responses Sydney Water and Endeavour Energy that are outlined in the Service Infrastructure Assessment. It is acknowledged and accepted that new service utility infrastructure will be installed to service the development.
NSW Department of Planning, Industry and Environment (DPIE) – Water and Natural Resources Access Regulator	
The proponent needs to identify water take requirements for the construction phase of the project, and demonstrate that take of water is appropriately licensed under the Water Management Act 2000.	Extension of the 200mm water main noted in the Service Infrastructure Assessment will provide water for the development, including the construction phase. Lead in service infrastructure will be delivered as a priority to facilitate development. Refer to Sydney Water advices included in the Service Infrastructure Assessment. Construction demands are a function of the staging of the development.