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28 June 2024

The Shire of Serpentine Jarrahdale
c/- Marius Le Grange
6 Paterson Street
Mundijong WA 6123
Via email [redacted]@sjshire.wa.gov.au
28 June 2024

RE: PA24/106_445 Abernethy Road, Oakford - Independent Peer Review of co-location opportunities

Dear Marius,

Further to the work instruction, this independent review is being undertaken as required under 'Local Planning Policy 4.6- Telecommunications Infrastructure', namely that a technical study is completed purporting to conclude that a co-location option is not possible.

We confirm that Overland Team are not currently or have previously been involved in the deployment of this Facility.

We thank you for the opportunity to assist Council on this proposal.

Please contact the undersigned with any questions or queries on [redacted]@overland.team or mobile: 0403 [redacted]

BEN NARRAMORE
Director

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The Proposed Facility

Address	445 Abernethy Road Oakford WA 6121
Lot and Plan	Lot 350 on DP416047
RFNSA Ref	6121007
LGA	The Shire of Serpentine Jarrahdale
Proposed Carrier/s	TPG Telecom Optus (TPG led eJV Facility)
Proposed Structure	35m TPG owned Monopole
Co-ordinates	-32.22249, 115.96245
Optus Site Name	P1295_Byford West -V
TPG Telecom Site Name	640257_Byford West
eJV Site Name	JP5109_Byford West - V

1. The application for the proposed site has been made by TPG Telecom to accommodate both TPG and Optus active equipment.

2. Both 4G and 5G technologies have been proposed on the site.

	Existing		Proposed	
Carrier	**Systems**	**Configuration**	**Systems**	**Configuration**
Vodafone			5G	NR/LTE700 (proposed), NR/LTE850 (proposed), NR/LTE1800 (proposed), NR/LTE2100 (proposed), NR3500 (proposed)
Optus			4G, 5G	NR/LTE700 (proposed), NR/LTE900 (proposed), LTE1800 (proposed), NR/LTE2100 (proposed), LTE2600 (proposed), NR2300 (proposed), NR3500 (proposed)

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Adjacent co-location options

Nearby Site Address	RFNSA Ref	Distance from Proposed Site	Carriers onsite	Status
400 Kargotich Road, Oakford	6121002	1.35km	NBN	On Air
10 Charolais Court, Oakford	6121006	1.53km	Optus	On Air
928 Orton Road, Oldbury	6121005	2.26km	Telstra	On Air
82 Malarkey Road, Byford	6122009	2.67km	Optus	Proposed
1099 Nicholson Road, Oakford	6121001	3.79km	Optus, Telstra, Vodafone	On Air

- The closest TPG Telecom site is located 3.79km from the proposed facility.
- The closest co-location option is the NBN owned 45m Monopole located 1.35km from the proposed facility.
- The terrain from the closest co-location option (NBN RFNSA 6121002) to the Eastern border of the proposed coverage area sees an increase in elevation of 20m's.

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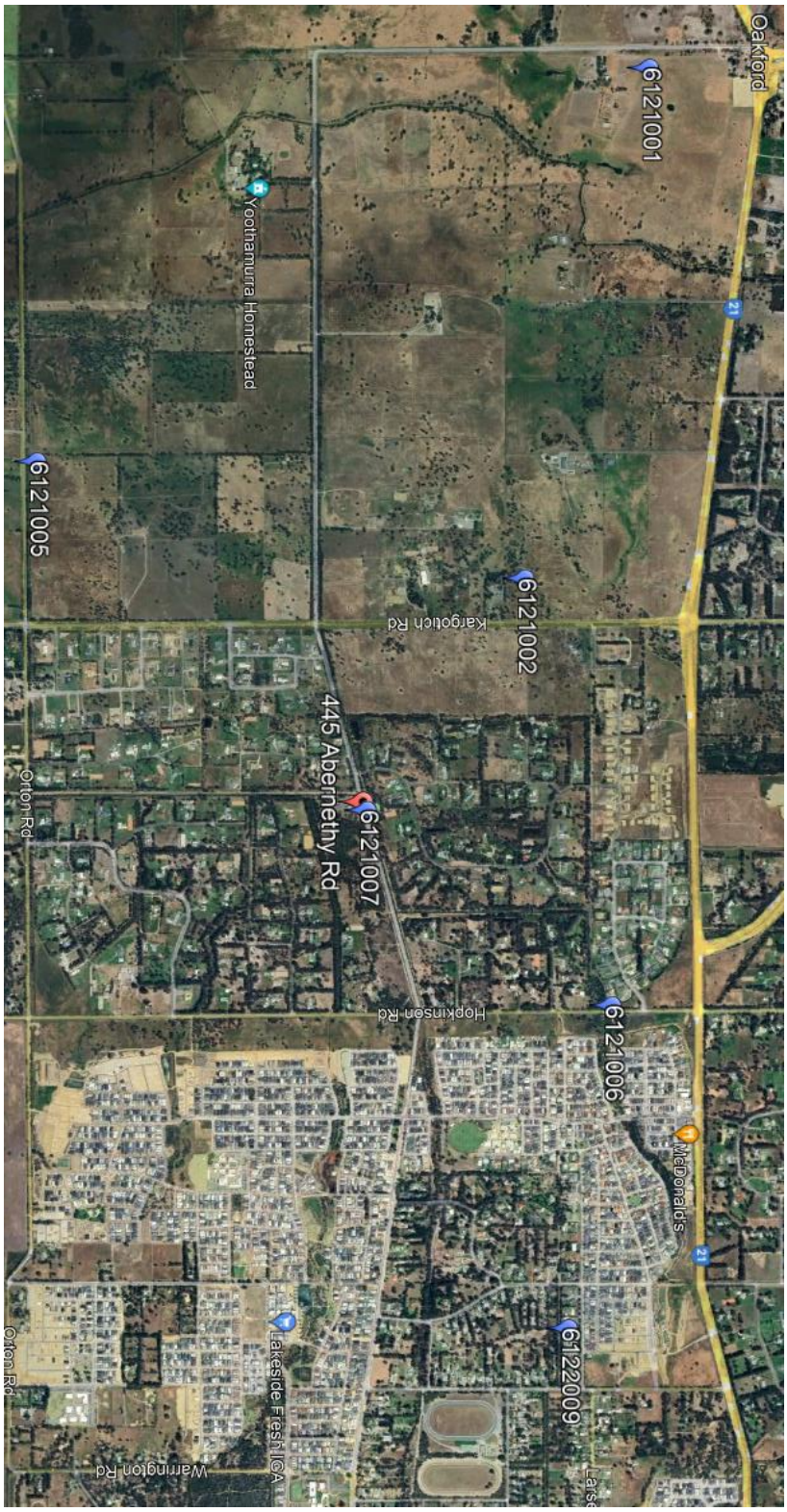
Adjacent Sites – Map



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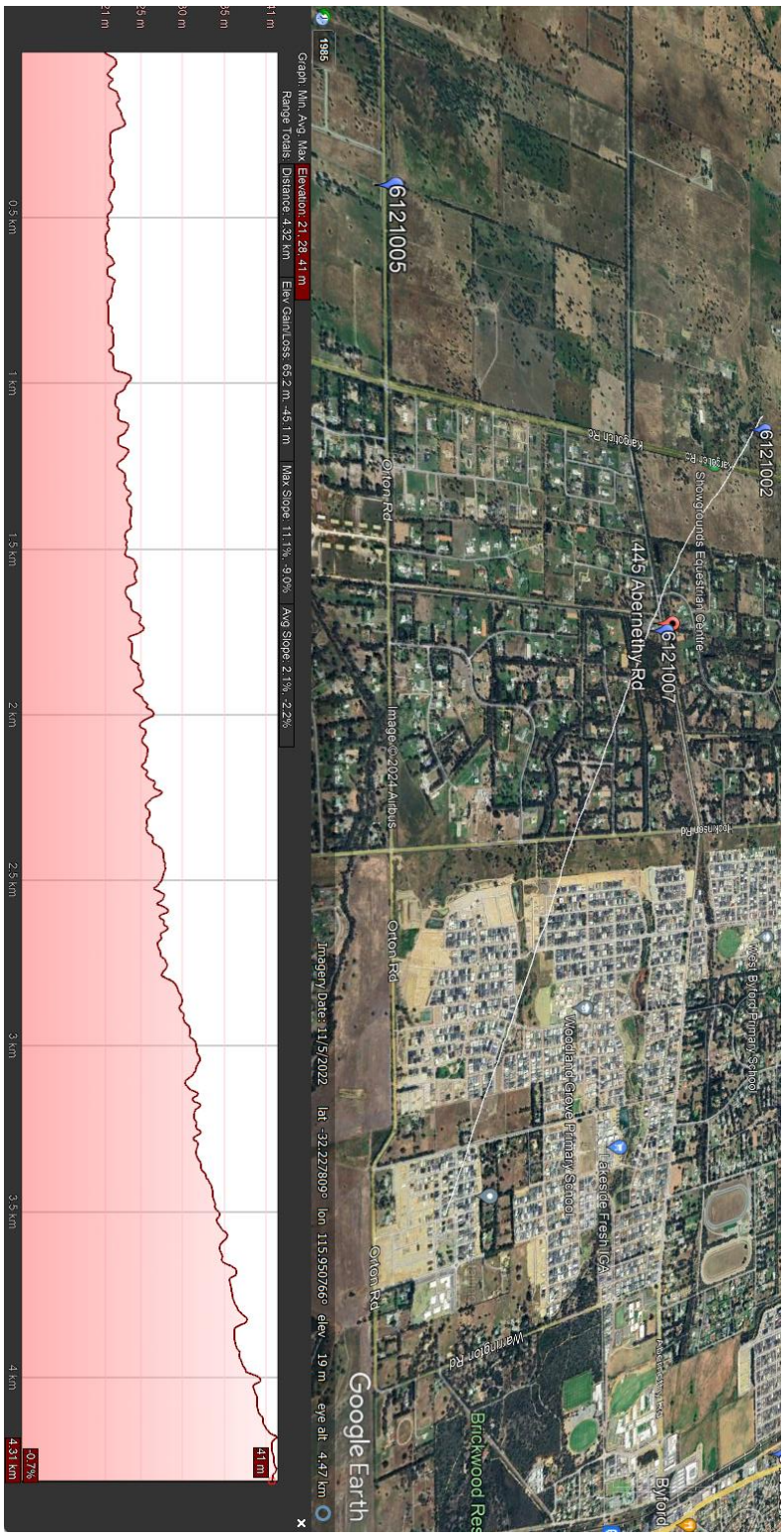
Adjacent Sites – Elevation profile across proposed coverage area



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A summary of 5G technologies and user uptake

The introduction of 5G technologies into the Carrier networks and the uptake in usage from customers has necessitated the requirement for additional 'infill' Mobile Phone Facilities.

The need for more mobile sites (or base stations) with 5G compared to 4G primarily stems from the technical characteristics and requirements of the 5G technology:

1. **Higher Frequencies**: 5G utilizes higher frequencies, including millimeter-wave bands, which have shorter wavelengths. These higher frequencies result in higher data transfer speeds but also lead to shorter propagation distances and poorer penetration through obstacles like buildings and trees. As a result, more base stations are needed to ensure adequate coverage and signal strength in urban areas and indoors.

2. **Capacity Requirements**: 5G is expected to handle significantly higher data traffic volumes and support a larger number of connected devices simultaneously compared to 4G. This increased capacity necessitates denser networks with more base stations to maintain quality of service and meet user demand, especially in crowded urban environments and areas with high concentrations of mobile users.

3. **Network Architecture**: The architecture of 5G networks, particularly with the introduction of virtualized and software-defined networking (SDN), may also require more distributed base stations to support dynamic allocation of network resources and efficient management of traffic flows.

In summary, while 5G offers significant advancements in speed, capacity, and latency compared to 4G, its higher frequencies and capacity requirements necessitate a denser network of base stations to ensure comprehensive coverage, maintain signal quality, and support the anticipated growth in mobile data usage and device connectivity.

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In Australia, the uptake of 5G has been steadily increasing since its initial rollout, driven by several factors and considerations among users:

1. **Network Availability**: As major telecommunications providers continue to expand their 5G coverage across urban centres and regional areas, more users are gaining access to the new technology. This expanded coverage is crucial for encouraging adoption among consumers and businesses alike.

2. **Speed and Performance**: One of the primary attractions of 5G is its promise of significantly faster speeds and lower latency compared to 4G. This appeals particularly to users who rely on mobile connectivity for high-bandwidth applications such as streaming 4K videos, online gaming, and real-time video conferencing.

3. **Device Compatibility**: The availability of a growing range of 5G-enabled smartphones and other devices has also driven adoption. As older devices are replaced with newer models, many users are opting for 5G-capable devices to take advantage of the enhanced capabilities of the network.

4. **Industry Applications**: Beyond individual consumers, industries such as healthcare, manufacturing, transportation, and agriculture are exploring the potential of 5G for applications like remote surgery, autonomous vehicles, smart logistics, and precision agriculture. These sectors are expected to be early adopters of 5G technologies as they seek to leverage its capabilities for innovation and efficiency gains.

5. **Awareness and Education**: Telecommunications providers and technology companies have been actively promoting the benefits of 5G through marketing campaigns and educational initiatives. This has helped raise awareness and understanding among consumers about how 5G can improve their mobile experience and enable new applications.

Overall, while the uptake of 5G in Australia is still in its early stages compared to some other regions, the combination of expanding network coverage, improved device availability, and compelling use cases is driving increasing adoption among both individual users and businesses looking to leverage the advantages of this next-generation technology. As infrastructure continues to develop and more applications are introduced, the uptake of 5G is expected to continue growing steadily across the country.

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Telecommunications Code of Practice 2021

Further to Council's own legislation requirement to ensure that co-location options are not possible, the Telecommunications Code of Practice 2021 'The Code', places similar obligations on the Carriers themselves.

In this instance, these Carrier investigations are evidenced from the Candidate summary report in the applicants Development Application.

Part 3 Additional carrier conditions

3.13 Co-location

(1) Before engaging in a subscriber connection activity, a carrier must take all reasonable steps to find out whether any of the following things (***existing facilities***) is available for the activity:

(a) cabling, conduits or other facilities of the carrier or another carrier; or

(b) a facility of a public utility; or

(c) an easement attaching to the land for a public purpose.

(2) The carrier must take all reasonable steps to use existing facilities for the activity.

3.14 Cooperation about activities

Before engaging in a subscriber connection activity, a carrier (the ***first carrier***) must take all reasonable steps:

(a) to find out whether another carrier, or a public utility, is engaging in, or proposing to engage in, a similar activity for the same land; and

(b) to consider whether it is practicable to work with the other carrier or the utility to allow the first carrier:

(i) to cause as little detriment and inconvenience as is practicable; and

(ii) to do as little damage as is practicable.

Note The carrier is required to take all reasonable steps to ensure that the carrier causes as little detriment and inconvenience, and does as little damage, as practicable in engaging in the activity: see Act, Schedule 3, clause 8.

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Summary of advice

Our assessment has considered all existing adjacent sites in proximity to the proposed Facility and determined that a viable co-location option does not currently exist.

The combination of the distance to existing Sites, the terrain height changes in the target area, the Radio Frequency coverage mapping provided by TPG, and the fact that two Carriers will be accommodated on this proposed Facility has led to the conclusion of this review that the proposal justifies a real network need with no viable co-location options existing.

END