



DEVELOPMENT
ENGINEERING
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CONDOR NOMINEES PTY LTD
LOT 28 BARFIELD ROAD, HAMMOND PARK
ENGINEERING SERVICES REPORT

1. General:

The subject site is approximately 4.8 hectares in size and is located on the eastern side of Barfield Road and abuts the western side of the Kwinana Freeway in the suburb of Hammond Park

The western portion of Lot 28, comprising approx. 2.5ha which is zoned 'Development' under the City of Cockburn's TPS No.3 is to be ultimately developed into up to 46 residential lots. The eastern portion of Lot 28 is zoned Special Use and is subject to a Western Power easement which accommodates transmission lines abutting the freeway.

This report covers existing and proposed services, plus proposals for earthworks, retaining walls, roads, drainage, groundwater, water supply, sewerage, power supply, gas, telecommunication as required for current urban development standards.

2. Executive Summary

The land the subject of this report is located on the eastern side of Barfield Road in the City of Cockburn, some 750m north of Rowley Road and just north of the intersection between Whadjuck Drive and Barfield Road and opposite the intersection of Boota Way. It can be easily developed immediately by extending all required services from the abutting road.

In the mid to late 1980's the front portion of the lot was cleared and a house and outbuildings were constructed. Having purchased Lot 28 in 2005, Condor Nominees demolished the house and outbuildings in 2017. That area remains cleared and the area beneath the power lines has been "parkland cleared". In December 2021 an EPBC referral proposing further clearing of remnant vegetation was deemed "not a controlled action" by the federal Department of Agriculture, Water and the Environment, thereby allowing development to proceed in due course.

The land is currently vacant. The eastern portion of the site accommodates a large Western Power transmission easement which is occupied by a single 132KV power line and two 330KV double circuit lines. Limited development can occur within the easement subject to Western Power's approval and compliance with their easement conditions which limit the height of any structures higher than the natural ground levels can be erected and vegetation.

Barfield Road abuts the site on its western boundary. The road is currently unkerbed on its eastern side and on both sides north of Boota Way and has been kerbed on its western side as part of the adjoining "Vivente" development. Although it is in good condition it

will required to be upgraded, kerbed on its eastern side and “urbanized” as part of the development works.

The development will entail earthworks largely via a cut to fill balance to provide level, free draining building blocks with low to medium height retaining walls. It is proposed to shape the area beneath the power lines to level to potentially create an area of recreation space subject to negotiations with the City of Cockburn and the WAPC. Permission has been granted from Western Power Transmission Section for this to occur.

No drainage function is proposed, as the adjoining development has a large drainage basin and significant unused area occupied by the power lines which has spare capacity to accommodate drainage.

According to the measured levels and comparison with surrounding, the groundwater level at the site generally has a peak level at RL23.3m AHD at the Barfield Road rising to around RL23.7m AHD at the western side of the power easement. The site levels rise from RL25.5m AHD in the north west corner of the site to around RL34m AHD in the south eastern corner of the site abutting the Kwinana Freeway providing a minimum clearance to peak groundwater of some 2.1m.

The land can be connected to all services, either by extension and upgrading from existing infrastructure in Barfield Road. Power, telephone, gas, sewer and water services already pass along the site frontage.

It is proposed that all road stormwater from the development up to and including the 1% AEP (1 in 100yr) event will be conveyed to the existing drainage basin to the north of the site. Houses will discharge roof stormwater into on site soakwells.

There is some 3-4 m fall across the western portion of the site where development is proposed hence retaining wall be required to terrace the allotments to suit the terrain and provide level building blocks.

3. Site

The land the subject of this report is located on the eastern side of Barfield Road and west of the Kwinana Freeway in the City of Cockburn, some 750m north of Rowley Road and just north of the intersection between Whadjuck Drive and Barfield Road. The site levels rise from RL25.5m AHD in the north west corner of the site to around RL34m AHD in the south eastern corner of the site abutting the Kwinana Freeway.

The geology of the land is described by the Environmental Geology Map of the Geological Survey of WA, as “S8 Bassendean sand”.

The site is adjacent Water Corporation sewer and scheme water, as well as telephone, gas and power. Access is from the existing abutting sealed road being Barfield Road. Historically, the site had its driveway off Barfield just north of its southern boundary. Baldivis Road and Fifty Road abutting the site are both constructed to rural standard, and are of fair quality, having been built many years ago. A path is located along the western verge of Barfield Road where the land to the west has been developed.

A major fibre optic cable is located on the western side of the power easement which will be incorporated within the future road. All existing services are available for

connection, including a 110PE High Pressure gas, 150mm water main and 150mm sewer on the western side of Barfield Road.

Aerial power lines are located along the on the opposite side of the road to the site.

4. Development Proposal

It is proposed to develop the western portion of Lot 28 ultimately as up to 46 residential lots with an average area of some 390sqm in accordance with its “Development” zoning and compliance with the City of Cockburn’s “Southern Suburbs District Structure Plan” which prescribes a minimum density of 15 dwellings/ha, with the proposed 46 lots delivering a density of 18.4 dwellings/ha.

Access to the proposed subdivision will be by way of two new subdivisional roads off Barfield Road, with the centrelines of each road being 37.5 metres from the southern and northern boundary of the site. All lots on Barfield Road currently have direct frontage and as such, some 8 lots of this development with front directly to Barfield Road.

The development will be provided with all normal services, with links to abutting developments for sewer, water, power, roads, gas and telephone services, with all drainage to be disposed on site via soakage.

5. Earthworks & Retaining Walls

The development will entail earthworks largely via a cut to fill balance to provide level, free draining building blocks with low to medium height retaining walls. It is proposed to shape the area beneath the power lines to level to potentially create an area of recreation space subject to negotiations with the City of Cockburn and the WAPC . Permission has been granted from Western Power Transmission Section for this to occur.

Earthworks will essentially cut from the eastern portion of the site and fill the western portion of the site and terrace between the high level to the south-east to the lower level at the north-west.

Some medium height retaining walls will be required to terrace the levels and ensure level building blocks.

All retaining walls will be subject to Council building approval.

Earthworks on site will entail removal of topsoil, cut and fill. No import of fill is likely to be required.

6. Roads

All new subdivisional roads will be constructed to City of Cockburn standards and approval, including kerbing and piped drainage plus provision of footpaths as required. Access to the site will be by way of new subdivisional roads off Barfield Road, located approximately 40 metres north and 80 metres south of Boota Way.

The existing Barfield Road is an 6.5m wide asphalt road. The western part of the road south of Boota Way has been developed and kerbed and the whole of the road in fair condition. The upgrading is envisaged to involve kerbing and drainage for the eastern side of the road and the whole of the portion north of Boota Way.

7. Drainage

Drainage from the whole site will be wholly contained within the proposed drainage basin located in the existing basin east of Westwood Crescent in the northern development.

Lot drainage will be self-contained in soakwells. The known soil characteristics of the site will allow site soakage.

Stormwater design will be done to the standards of the City of Cockburn, and as detailed in the Local Water Management Strategy (LWMS) submitted with the structure plan documentation, and the Urban Water Management Plan (UWMP) which will be done in conjunction with the detailed subdivision design.

8. Groundwater

The groundwater level at the site is expected to peak at a maximum RL21m AHD, based on peripheral groundwater investigations plus on site measurements. This is not expected to impinge in any way on the development of the site, being some 4.5 metres below the expected lowest lot level at RL25.8m AHD.

9. Power

Sufficient power supply exists in the area to supply the development. A high and low voltage aerial power line is located along the eastern verge Barfield Road. Underground cables have been installed as part of the development west of Barfield Road which provide opportunity for extension.

Any existing aerial lines along Barfield Road are likely to be removed. No connections will be permitted from the existing HV power lines in the power easement.

All subdivisional power reticulation lines and transformer installations will be constructed at the cost of the developer. Transformer sites will be determined at the detailed subdivision design stage.

10. Water Supply

Sufficient water supply exists in the area to service this development.

At present there is a 150mm reticulation water main located along the western verge of Barfield, to which the development will be connected.

11. Sewer

The site is not currently connected to sewer, although a reticulation sewer main is located along the eastern verge of Barfield Road, to which it is proposed to connect.

The 250mm "Darling Chase" sewer pressure main is located along the eastern verge of Barfield Road abutting the development.

The site sewer connection will be made by connecting a 150mm reticulation sewer under Barfield Road to the existing sewer scheme. Internal sewers will allow for future extensions to abutting properties as required.

12. Telephone & NBN

Telstra underground infrastructure services exist adjacent to the site along the frontage to the site in Barfield Road. This will be extended or upgraded to service this proposed development.

OPTUS Fibre Optic cables are located to the east of the site in the Western Power easement, which will be incorporated within the future road reserve. Caution will need to be taken with subdivisional services connections and road construction where the road and services are constructed in close proximity to this cable.

Telstra has advised that its network has the capacity to absorb the likely incremental customers from this proposal, there are no known quality issues at the site with the Telstra network, and there are no identified Telstra Wireless upgrade needs in the immediate area.

In accordance with recent requirements, the developer is required to install NBN “pipe and pit” to allow for future installation of cables for the NBN. The design of the “pipe & pit” is the responsibility of the developer, and will be designed in conjunction with the underground power network, and installed during the construction phase of the development.

13. Gas

An existing 150mm high pressure gas main is located on the western side of Barfield Road. It is expected that reticulated gas services will be extended into this development by ATCO in the normal way, with trenching done by the developer.

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THIS REPORT IS DATED 30TH NOVEMBER 2022.