Our Ref CE005353 :AM

Contacts John Olsen
Anette Morse

21 January 2008

Mr Jeff Smith
Chief Executive Officer
Northeast Business Park
PO Box 1001
SPRING HILL QLD 4004

Dear Sir,

NORTHEAST BUSINESS PARK
ADDENDUM TO TRAFFIC REPORT

The studies for the Northeast Business Park EIS have involved a number of parallel investigations and analysis. The traffic analysis undertaken as part of the Traffic Report was based on an anticipated development area and mix of ultimate activities on the site. Following completion of this analysis work it was found appropriate to amend the development footprint and the resultant detailed uses of the site.

This supplementary material details the differences between the final structure plan and that analysed in the traffic report. The implications of the changes are discussed herein.

This addendum letter outlines the sensitivity test undertaken for the proposed land use and should be read in conjunction with the Traffic Report (January 2008).

1.0 Amended Concept Plan

The attached Figure 2 Development Proposal (Plan Number 20430-10D, dated 30 July 2007) shows the concept analysed. Drawing number 20430-10F dated 25 September 2007 indicates the currently proposed land use. Table 1.1 below summarises the changes by land use type for the development.

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Indonesia
Vietnam
China
Kenya
United Arab Emirates
United Kingdom
United States

Table 1.1 ***Land Use***

Precinct	Land Use	Analysed	Proposed	Difference
Residential	Detached	1,272 lots	630 lots	-642 lots
	Attached	85 lots	783 lots	698 lots
	Multi Unit Apartments	927 lots	888 lots	-39 lots
Marina Village	Restaurant	1,808 sq m GFA	5,247 sq m GFA	3,439 sq m GFA
	Tavern	1,575 sq m GFA	1,591 sq m GFA	16 sq m GFA
	Retail	7,500 sq m GFA	4,834 sq m GFA	-2,666 sq m GFA
	Office	7,000 sq m GFA	5,333 sq m GFA	-1,667 sq m GFA
	Yacht Club	800 sq m GFA	0 sq m GFA	-800 sq m GFA
	Marina Berths	800 berths	1211 berths	411 berths
	Resort	120 rooms	200 rooms	80 rooms
Industrial	Industrial	155 ha	127 ha	-28 ha
	Neighbourhood Centre	10,000 sq m GFA	6,800 sq m GFA	-3,200 sq m GFA
	Marina Shipyard	5,498 sq m GFA	7,479 sq m GFA	1,981 sq m GFA
Other	Child Care	75 children	0 children	-75 children
	School	0 enrolments	700 enrolments	700 enrolments
	Golf Course	1 course	1 course	N/C
	Golf Club	1,500 sq m GFA	4,000 sq m GFA	2,500 sq m GFA

Whilst the overall number of residential dwellings are similar to the analysed yield there has been a decrease in the proportion of larger size detached dwellings (premium and traditional lots) and an increase in the attached dwellings (courtyard and townhouse lots).

The Marina Village retail and commercial uses have been reduced from 10,167sq.m GFA to 14,500sq.m GFA with additional restaurant, tavern and club house uses proposed (5,155sq m GFA). The number of marina berths have also bee increased with 111 additional wet berths and provision for a day boat stacker in the ship yard area to store upwards of 300 boats.

An overall reduction of gross hectares in the MIBA precinct, including a reduction in the gross hectares of industrial land (18%) and neighbourhood centre is also proposed.

The Northeast Business Park development proposal now includes consideration of a school on 5ha of land within the residential area. This has been estimated to have a capacity of around 700 enrolments and could include child care facilities or before and after school care. The previously proposed child care facility is no longer included as a separate facility.

2.0 Traffic Generation Comparison

The traffic generation potential of the proposed Northeast Business Park development has been assessed to identify the daily and AM and PM peak demand. The main traffic generator within the site is the business park industrial component, which is expected to have a peak demand at the time of the general road peak. For other land uses, such as recreational land uses within the marina/golf course precincts and school, the peak generation would occur outside of the general weekday AM and PM peak hours. The peak hour intersection and ramp analysis considers the peak demand of the site as a whole and the expected demand at the time of the road peak has been identified and used for the purpose of the traffic analysis.

The following sections provide a summary comparison of the daily, AM peak and PM peak generation rates, the resulting traffic volumes and outlines the key changes in the traffic generation potential for each time period.

2.1 Daily Traffic Generation and Volume Comparison

Table 2.1 summarises the daily traffic generation of the analysed and currently proposed development land use mixture.

Table 2.1 ***Daily Traffic Generation***

Precinct	Land Use	Generation Rate	Analysed (vpd)	Proposed (vpd)	Difference (vpd)
Residential	Detached	8.0 vpd/lot	10,176	5,040	-5,136
	Attached	6.0 vpd/lot	510	4,698	4,188
	Multi Unit Apartments	4.0 vpd/lot	3,708	3,552	-156
	Sub Total		***14,394***	***13,290***	***-1,104***
Marina	Restaurant	40 vpd/100sqm	723	2,099	1,376
	Tavern	40 vpd/100sqm	630	636	6
	Retail	90 vpd/100sqm	6,750	4,351	-2,399
	Office	10 vpd/100sqm	700	533	-167
	Yacht Club	40 vpd/100sqm	320	0	-320
	Marina Berths	0.9 vpd/berth	720	1,090	370
	Resort	4.0 vpd/room	480	800	320
	Sub Total		***10,323***	***9,509***	***-814***
Industrial	Industrial	210 vpd/ha	32,550	26,670	-5,880
	Neighbourhood centre	40 vpd/100sqm	4,000	2,720	-1,280
	Marina Shipyard	9 vpd/100sqm	495	673	178
	Sub Total		***37,045***	***30,063***	***-6,982***
Other	Child Care	0 vpd/child	0	0	0
	School	2.3 vpd/enrolment	0	1,610	1,610
	Golf Course	480 vpd/course	480	480	0
	Golf Club	40 vpd/100sqm	600	1,600	1,000
	Sub Total		***1,080***	***3,690***	***2,610***
TOTAL			**62,842**	**56,552**	**-6,290**

The overall daily demand is expected to be reduced by around 10% or 6,290vpd. This is largely related to the reduced footprint of developable land for industrial uses. The residential demand has also decreased as a result of a higher proportion of smaller lots. These smaller lots generally provide for fewer persons per household and have a lower traffic generation potential than standard or premium lots (detached dwellings).

Traffic volumes related to the marina precinct have also been reduced in response to a proposed lower retail yield, however the increased recreational uses within the site (marina berths, restaurant and club facilities) would be expected to generate additional traffic. The total change in daily trips from this area is a reduction of around 800vpd.

Daily volumes analysed in the traffic report are higher than what would be expected from the currently proposed land used, and the recommended road works and timing of upgrades are therefore conservative.

2.2 AM Peak Traffic Generation and Volume Comparison

Table 2.2 outlines the traffic generation potential of analysed and proposed land uses in the AM peak hour.

Table 2.2 ***AM Peak Traffic Generation***

Precinct	Land Use	Generation Rate	Analysed (vph)	Proposed (vph)	Difference (vph)
Residential	Detached	0.8 vph/lot	1,018	504	-514
	Attached	0.6 vph/lot	51	470	419
	Multi Unit Apartments	0.4 vph/lot	371	355	-16
	Sub Total		***1,439***	***1,329***	***-110***
Marina	Restaurant	1 vph/100sqm	9	26	17
	Tavern	1 vph/100sqm	8	8	0
	Retail	2 vph/100sqm	150	97	-53
	Office	3 vph/100sqm	238	181	-57
	Yacht Club	1 vph/100sqm	4	0	-4
	Marina Berths	0.1 vph/berth	72	109	37
	Resort	0.4 vph/room	48	80	32
	Sub Total		***529***	***501***	***-28***
Industrial	Industrial	21 vph/ha	3,255	2,667	-588
	Neighbourhood centre	4 vph/100sqm	400	272	-128
	Marina Shipyard	1 vph/100sqm	49	67	18
	Sub Total		***3,704***	***3,006***	***-698***
Other	Child Care	0 vph/child	0	0	0
	School	1.1 vph/enrolment	0	770	770
	Golf Course	48 vph/course	48	48	0
	Golf Club	1 vph/100sqm	8	20	13
	Sub Total		***56***	***838***	***783***
TOTAL			**5,728**	**5,674**	**-54**

The overall AM peak generation is largely unchanged from the analysed demand and the AM peak analysis is still considered representative of the proposed land use mixture. The key changes in the AM peak are the reduced industrial generation and the addition of school traffic. In this comparison all school traffic is treated as external while there will be some local resident trips to/from the school.

2.3 PM Peak Traffic Generation and Volume Comparison

Table 2.3 summarises the PM peak traffic generation rates and volumes associated with the yield adopted for the traffic report analysis compared to the currently proposed land use mix. The school demand in the critical PM peak hour is assumed to be negligible as the school peak is expected around 2pm and the road peak around 5pm.

Table 2.3 ***PM Peak Traffic Generation***

Precinct	Land Use	Generation Rate	Analysed	Proposed	Difference
Residential	Detached	0.8 vph/lot	1,018	504	-514
	Attached	0.6 vph/lot	51	470	419
	Multi Unit Apartments	0.4 vph/lot	371	355	-16
	Sub Total		***1,439***	***1,329***	***-110***
Marina	Restaurant	5 vph/100sqm	90	262	172
	Tavern	5 vph/100sqm	79	80	1
	Retail	12 vph/100sqm	900	580	-320
	Office	3 vph/100sqm	238	181	-57
	Yacht Club	5 vph/100sqm	40	0	-40
	Marina Berths	0.1 vph/berth	72	109	37
	Resort	0.4 vph/room	48	80	32
	Sub Total		***1,467***	***1,292***	***-175***
Industrial	Industrial	21 vph/ha	3,255	2,667	-588
	Neighbourhood centre	4 vph/100sqm	400	272	-128
	Marina Shipyard	1 vph/100sqm	49	67	18
	Sub Total		***3,704***	***3,006***	***-698***
Other	Child Care	0 vph/child	0	0	0
	School	0 vph/enrolment	0	0	0
	Golf Course	48 vph/course	48	48	0
	Golf Club	5 vph/100sqm	75	200	125
	Sub Total		***123***	***248***	***125***
TOTAL			**6,734**	**5,876**	**-858**

Similar to the daily traffic volume, the PM peak volume has been reduced from the analysed demand. The impacts described in the Traffic Report are therefore conservative in comparison to the currently proposed development. The key difference arises from the reduction in scale of the industrial area. In the PM peak, school activities would be concluded so the differences between the analysed and proposed volumes are more marked for the PM peak.

3.0 Parking

The Traffic Report investigates the expected parking demand within the marina and the potential for a relaxation of rates in view of cross utilisation and temporal variation between the peak parking demand of the various uses. The possible temporal variation within the marina precinct was described as follows.

Table 3.1 ***Temporal Variation (% of peak rates)***

Land Use	Weekday		Weekend	
	Day time	PM Peak	Day time	Night time
Multiple Dwellings (Visitor Spaces)	60%	70%	100%	100%
Restaurant/Tavern/Yacht Club	60%	70%	75%	100%
Shop/Retail	75%	100%	100%	0%
Office	100%	20%	0%	0%
Marina Berths	50%	20%	100%	50%

The resulting marina demands are detailed in Table 3.2 and 3.3 for the analysed yield and currently proposed yield respectively.

Table 3.2 ***Expected Parking Demand – Analysed Yield***

Land Use	Proposed Rate	Weekday		Weekend	
		Day time	Night time	Day time	Night time
Multiple Dwellings (Visitor Spaces)	232	139	162	232	232
Restaurant	121	72	84	90	121
Tavern/Yacht Club	119	71	83	89	119
Shop/Retail	500	375	500	500	0
Office	233	233	47	0	0
Marina Berths	240	120	48	240	120
TOTAL	**1,444**	**1,011**	**924**	**1,151**	**591**
Possible Reduction	**0%**	**30%**	**36%**	**20%**	**59%**

Table 3.3 ***Expected Parking Demand – Proposed Yield***

Land Use	Proposed Rate	Weekday		Weekend	
		Day time	Night time	Day time	Night time
Multiple Dwellings (Visitor Spaces)	222	133	155	222	222
Restaurant	350	210	245	262	350
Tavern/Yacht Club	80	48	56	60	80
Shop/Retail	322	242	322	322	0
Office	178	178	36	0	0
Marina Wet Berths	273	137	55	273	137
Marina Dry Berths	60	30	12	60	30
TOTAL	**1,485**	**977**	**880**	**1,200**	**818**
Possible Reduction	**0%**	**34%**	**41%**	**19%**	**45%**

The above outlines the expected demand across the week for both the initial analysed yield and the current development proposal. The overall outcome of this comparison suggests that the demand for spaces is slightly higher and the potential for relaxation remains close to 20%. It be noted that any relaxation would need to consider the relative location of the land uses and the practical potential for cross utilisation. Further assessment of the potential demand across the week should be undertaken at a later stage when the design and component land use yields are better understood.

4.0 Conclusion

Intersection analysis and ramp analysis have been undertaken for the AM and PM peak demand. The AM peak generation potential is largely unchanged from the analysed yield and the intersection analysis is considered to be representative of the currently proposed development. The PM peak demand is reduced by 13% from the analysed volumes and the analysis is expected to be conservative. The changes in land use mixture would therefore result in improved intersection and ramp operation for the analysed ultimate development scenarios (2030). The intersection works and ramp configurations outlined in the Traffic Report road works program should therefore be sufficient to cater for the ultimate development at the 2030 design horizon.

Midblock analysis has been undertaken as part of the January 2008 Traffic Report to determine the required cross section configurations for relevant road sections. That analysis was based on the daily volumes from the previously proposed yield and suggested that the following mid block upgrades would be required:

- Buchanan Road (east and west of the highway) would likely require upgrading to four lanes before the completion of Stage 3;
- the capacity of the existing two lane configuration of Uhlmann Road, east of the Bruce Highway, is expected to be exceeded sometime before 2030 with the development demand and a four lane cross section would ultimately be required;
- Uhlmann Road west of the highway is expected to need upgrading to allow a four lane cross section sometime before 2020. The early stages of the development are not expected to have a significant impact at this location and midblock works are generally driven by background growth. The upgraded four lane cross section is expected to accommodate the projected traffic volume with development in 2030.
- Buckley Road would need to be upgraded to a higher standard to accommodate the development demand. Two lanes would be sufficient for the projected background and development demand at 2030.

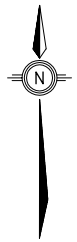
With a reduced daily yield of around 10% the development impacts are expected to be less significant than the analysed volume scenarios. The above works are therefore still considered valid, however the development impact on the timing of works may be reduced.

Comparison of the parking demand suggests that the demand for shared spaces in the marina is slightly higher for the revised yield (3%) and the potential for remains around 20%. It should be noted that the parking demand analysis is preliminary in nature and would need to be revisited when the relative location of parking and development areas is known.

In conclusion, the comparison of the traffic volume and parking demand resulting from the analysed development yield and the currently proposed land use mixture suggests that the development traffic and parking impacts reported in the January 2008 Traffic Report are still descriptive of the development proposal.

Yours sincerely

Anette Morse
Traffic Engineer
for **Cardno Eppell Olsen**



LEGEND

- STRUCTURE PLAN BOUNDARY
- 1(1) MIBA ESPLANADE
- 1(2) MIBA CORE
- 1(3) MIBA HIGHWAY
- 1(4) MIBA SOUTH
- 1(5) MIBA MARINE INDUSTRY
- 2(1) MARINA BASIN
- 2(2) SHIPYARD
- 2(3) MARINA CENTRE
- 2(4) MARINA RESIDENTIAL
- 2(5) HOTEL
- 2(6) MARINA APARTMENTS
- 2(7) MARINA PAVILION
- 2(8) GOLF RESIDENTIAL
- 3(1) RESIDENTIAL
- 3(2) RESIDENTIAL
- 3(3) RESIDENTIAL
- 4(1) GOLF CLUB
- 4(2) GOLF COURSE
- 4(3) OPEN SPACE
- HERITAGE PARK
- COMMUNITY NODE
- SPORTING FIELDS
- EDUCATION & TRAINING
- PRIMARY ROUTE
- COLLECTOR
- MINOR COLLECTOR
- LOAD LIMITED THRESHOLD

Plan sourced from PMM Brisbane Pty Ltd, dwg name 20430STRUCTURE, plan number 20430-10D, 30 July 2007.

200 0 200 400 600 800 1000m
1:20,000

Scale 1:20,000 (A3)

FIGURE 2

DEVELOPMENT PROPOSAL

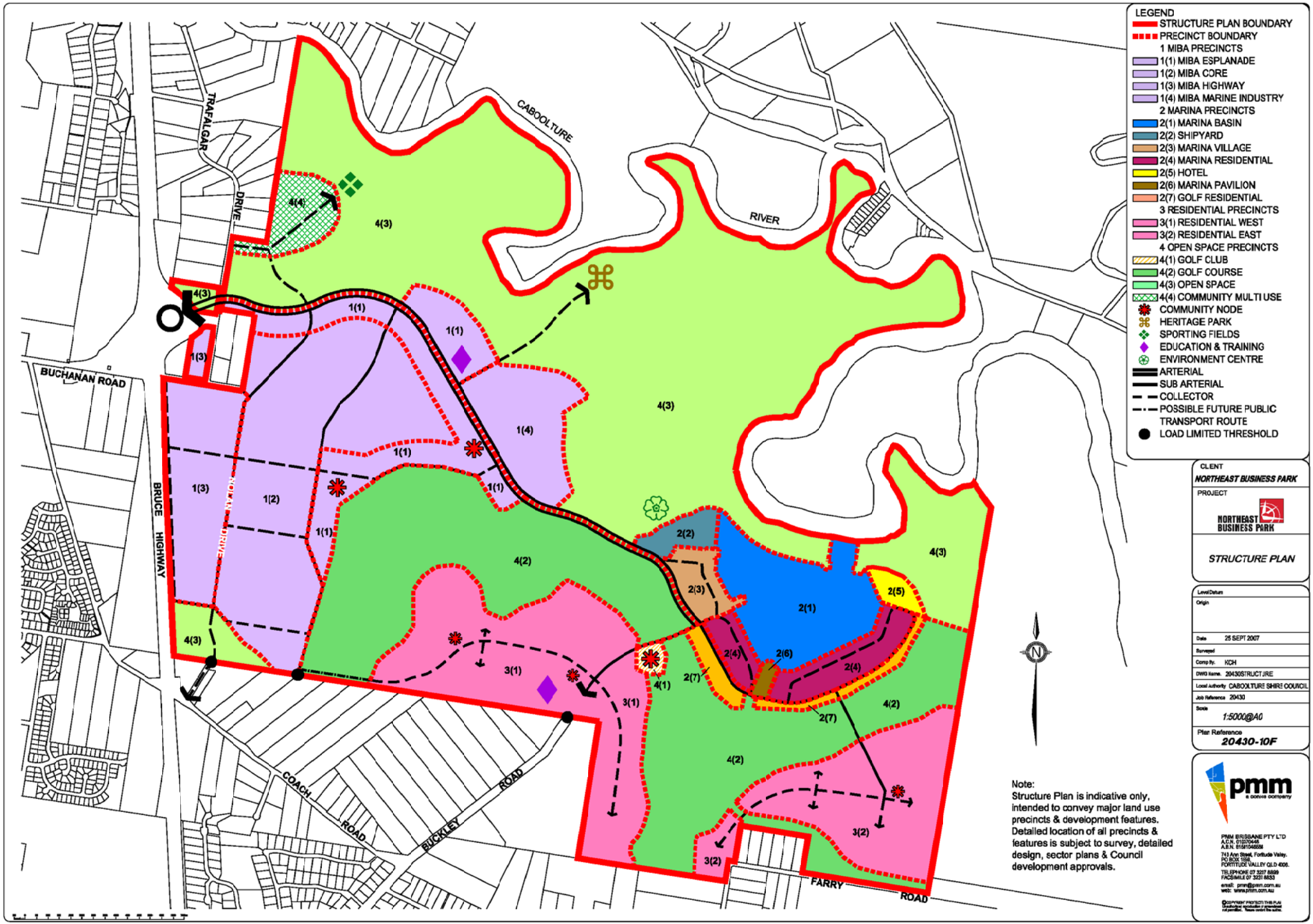
Rev: Orig. Date: 17 August 2007

Project No.: 7900/33

Northeast Business Park Pty Ltd

CAD FILE: I:\7800-40\ACAD\Sub-Consultant Brief\Figure 2 - Development Proposal.dwg
XREF's:

PRINT DATE: 06 September, 2007 - 11:36am


LEGEND
STRUCTURE PLAN BOUNDARY
PRECINCT BOUNDARY
1 MIBA PRECINCTS
1(1) MIBA ESPLANADE
1(2) MIBA CORE
1(3) MIBA HIGHWAY
1(4) MIBA MARINE INDUSTRY
2 MARINA PRECINCTS
2(1) MARINA BASIN
2(2) SHIPYARD
2(3) MARINA VILLAGE
2(4) MARINA RESIDENTIAL
2(5) HOTEL
2(6) MARINA PAVILION
2(7) GOLF RESIDENTIAL
3 RESIDENTIAL PRECINCTS
3(1) RESIDENTIAL WEST
3(2) RESIDENTIAL EAST
4 OPEN SPACE PRECINCTS
4(1) GOLF CLUB
4(2) GOLF COURSE
4(3) OPEN SPACE
4(4) COMMUNITY MULTI USE
COMMUNITY NODE
HERITAGE PARK
SPORTING FIELDS
EDUCATION & TRAINING
ENVIRONMENT CENTRE
ARTERIAL
SUB ARTERIAL
COLLECTOR
POSSIBLE FUTURE PUBLIC TRANSPORT ROUTE
LOAD LIMITED THRESHOLD
TRAFALGAR DRIVE
CABOOLTURE RIVER
BUCHANAN ROAD
BRUCE HIGHWAY
COACH ROAD
BUCKLEY ROAD
FARRY ROAD
Note:
Structure Plan is indicative only, intended to convey major land use precincts & development features. Detailed location of all precincts & features is subject to survey, detailed design, sector plans & Council development approvals.
CLENT
NORTHEAST BUSINESS PARK
PROJECT
NORTHEAST BUSINESS PARK
STRUCTURE PLAN
Level Datum
Origin
Date 25 SEPT 2007
Surveyed
Comp by. KCH
DWG Name. 20430STRUCTURE
Local Authority CABOOLTURE SHIRE COUNCIL
Job Reference 20430
Scale 1:5000@A0
Plan Reference 20430-10F
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