From: Mr James Maclachlan
140 Georges River Road
Jannali 2226
7th May 2012

To: The Director General
New South Wales Department of Planning

Dear Sir or madam,

Re: Proposed Amended Sharks Development

This is my objection to the proposed revised development. The proposed changes by the developer are minor and will still result in a gross over development of with all of its adverse impacts.

As expressed in my original submission, I would not be directly or greatly affected by the Sharks Development if it proceeded. Although there are compelling reasons to save the Sharks from bankruptcy, this in itself is not a justification for approval, which should be based on urban planning merits alone.

I am concerned about the precedent that approval of such a large development might set for the whole shire, particularly since the application includes exaggerated claims to its merits. I object to the Applicants' attempt to deny responsibility for remedial works. Therefore I oppose the development in that it would herald the demise of the shire into an urban ghetto.

My original submission was numbered by your department as 4479. The consultant's summary to my submission of 5th December lists it renumbered as 4306. The consultant's summary listed the following points from my submission

Club's Financial Circumstances	This does not outweight (sic) the disadvantages
Impact on Traffic Flow & Parking	There will be a bad effect on traffic
Other	Air and noise pollution will occur for surrounding residents
Visual impact	The development will pose a visual impact which are not shown by the developer
Other	Misleading claims have been made that the criteria of a growth centre has been met
Public transport	The development is a long walk from Woolooware train station
Other	The power lines will pose a health risk to residents and patrons at games
Ecological Impacts	A complete ecological study has not been conducted

The table lists some of my concerns but does not satisfactorily answer them, nor acknowledge that I also found technical faults with the report and that key problems were omitted from consideration, as follows.

1. The traffic report had a number of anomalies and omissions,

2. The noise impact assessment was inadequate, contained anomalies and there were crucial omissions.
3. The electromagnetic report was too simplistic and attempted to define risk by occupational exposure rather than more the more continuous residential exposure

The consultant has offered no defence to my criticisms or satisfactorily answered or resolved the issues of my original submission. Accordingly I must now repeat the claims of my original submission, supported now with additional information that I have found since my original submission together with the results of extra calculation.

Of immediate concern is the impact on the present residents nearer to the development site and opposition or support of the development is principally a matter for them in their fear of:

1. the visual impact of the development,
2. dangers from resulting increased traffic
3. air and noise pollution resulting increased traffic impacting on their health,
4. mechanical noise from the new buildings.

Shopkeepers in adjoining suburbs would also have just cause for concern about the economic impact of the new retail centre on their trade.

Accordingly before any approval to proceed is given, the Planning Department must ensure that the views of those most affected are weighted according to the intensity of the proposed impact on them and not merely by a crude basis of numbers for and against it. For example, the impact, including that on health and safety, of the development proceeding on the neighbouring residents would occur 365 days per year, In contrast, the impact on its supporters by refusal of the proposal may result only on the loss of a few days entertainment each year.

The matters of concern in the revised application, but referring to original reports where a new report was not redone, are as follows:

1. The Applicant claims that approval of such a large development is necessary to solve the club financial problems.
2. Dismissive assessment of visual impact by presenting selective views.
3. The traffic study has insufficient documentation to enable assessment of whether the conclusions are soundly based. Anomalies in some of traffic readings raise concern about the accuracy of the modelling on which it depends. Significant underestimation of traffic generation. Impacts are not described for other nearby intersections. The applicant disowns any responsibility for contributing to remedying adverse traffic impacts at key intersections.
4. Inadequate noise impact assessment, noteworthy in comparison to that for the Kirrawee Brick Pit and other developments done by the same Noise Consultant.

5. Misleading claims that the development fulfils the criteria for a growth centre by quoting 1 km distance that fails to take account of the further 500 m to the proposed residential part of the site, and exaggerating the likelihood that a feeder bus route would be approved.
6. Electromagnetic Radiation. The applicant proposes to house a couple of thousand people very close to high tension powerlines against the mounting body of evidence about the health dangers. The Consultants report does not adequately take into account the dangers of the electric field to people when outside buildings. Calculations are simplistic and underestimate the magnetic field, and an attempt to relate a week's exposure to a so-called safe limit does is irrelevant to residential occupation of the site.
7. The original ecological study indicated only 3 hours of fieldwork in contrast the necessity to be completed over a range of climatic conditions and during a number of seasons. A new study still suggests that some further investigation is required.
8. Public Opinion - The consultant has exploited the Department of Planning's non-listing of suburbs where submitters requested their details be withheld in order to claim a majority of shire support the development. This is against the more likely proposition that the 1160 submitters withholding details that oppose the development would be mostly from the shire and in a greater proportion than the 238 submitters withholding details that support it.

More detailed discussion of these points follows.

1. Club's financial problems

The Director General requirements included requiring an assurance that the Clubs community commitments would continue. The response by the applicant seems to be more along the lines that approval is necessary to solve the clubs financial problems. This claim is irrelevant to urban planning and cannot be allowed to influence the outcome of the approval process. It is puzzling that the Club is proposed to shrink and yet maintain its community support.

2. Dismissive assessment of visual impact

The height and bulk are out of character with the present open space.

I am concerned that rather than remediate the site, the applicant propose merely to build over it. The carpark then being above ground level raises the building envelope, which having set a precedent, other developers may seek the same height, even where basement carparking is possible. Also There is no building set back on Captain Cook Drive to relieve the visual impact, which sets a precedent for bad urban design.

The report has selectively chosen viewpoints distant, e.g. from Captain Cook Bridge, from and/or obscured between the viewpoint and the Sharks development so that the buildings look less significant

Another example, Figure 41 showing a view from Castlewood Ave

is accompanied by a defence of the project that:

> "This viewpoint also demonstrates the insignificant visual impact of the Concept Plan scheme development in comparison to the more immediate visual intrusions posed by existing development within the foreground."

This view nevertheless indicates that the light-coloured flat roof of the intervening house is generally in line with and below the mangrove tree-line on the foreshore of Woolooware Bay such that most of the waterway would presently be visible.

However the proposed development buildings will intrude into the view of the most significant expanse of water extending to the channel between Woolooware Bay and onto Botany Bay, and also break into the skyline, and thereby spoil the whole experience of this water view. This is clearly indicated in the picture extract below similarly focussing onto the expanse of water as would a person seeking the water view.

Therefore the visual impact of the proposed development on this view is not so "insignificant".

This viewpoint is at the very edge of the basin whence northerly water views can be obtained, and is therefore not a "typical" view. A more typical view suffering greater impact would be in Woolooware North or even on the Kingsway immediately north of Castlewood Ave such as from the dwelling with the light-coloured flat roof.

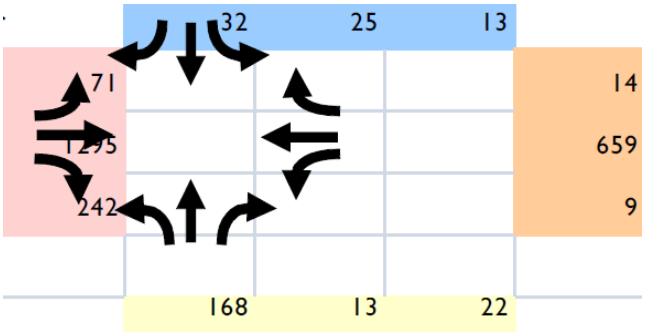
3. Traffic Study

There a number of inconsistencies in traffic counts between intersections between which there is a straight piece of road and which cannot be explained away by traffic leaving/entering the road from/to private property or on-street parking. These errors in the original report have been carried over into the revised report.

The following significant instances were found for the Friday evening peak period on 1st April 2011. I have not analysed the Saturday midday peak case.

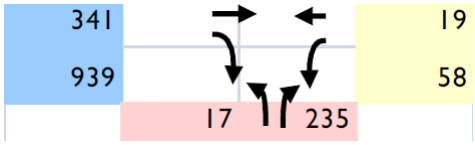
1. Captain Cook Drive Woolooware Road

Annexure A Sheet 10 of 12



Captain Cook Drive / Elouera Rd

Annexure A Sheet 7 of 12



For westbound traffic on Captain Cook Drive between these two intersections, these diagrams in the Traffic Study report indicate that:

- **19 vph** from Captain Cook Drive east of the intersection with Elouera Rd,
  plus **17 vph** turning left from Elouera Rd,
  totalling **36 vph**, enter Captain Cook Drive westbound,

but that:

- **14 + 659 + 9 = 682 vph** enter the intersection with Woolooware Rd,

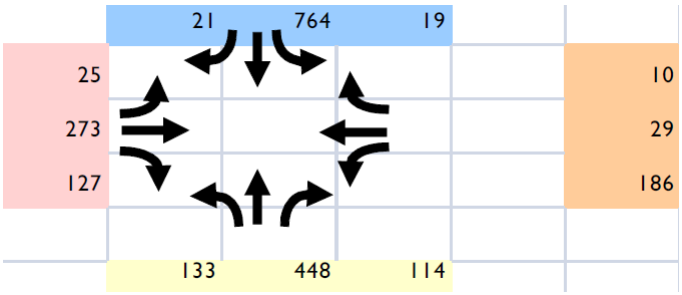
which is a discrepancy of **646 vph,** a significantly extreme anomaly.

Apart from that for power line, roadside, or golf course maintenance vehicles, there is no vehicle entry or exit points between these two intersections. Nor could the occasional pulling up by the roadside or occasional 360° turns at the roundabouts account for this extent of anomaly.

Much of this extreme anomaly appears to derive from the **19 vph** and **17 vph** intersection-entering values at the Captain Cook Drive/ Elouera Rd intersection that are far too low and should have been questioned at the outset and the monitoring redone. However these obviously anomalous readings have been included in the report such that the integrity of the whole traffic study becomes dubious.

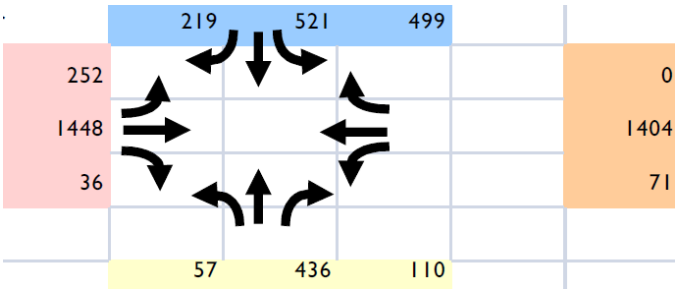
2. Gannon's Rd & Denman Av

Annexure A Sheet 7 of 12



Captain Cook Drive / Elouera Rd

Annexure A Sheet 7 of 12



For southbound traffic Gannon's Rd on between these two intersections, these diagrams in the Traffic Study report indicate that:

- **127 vph** from Denman Ave west of the intersection of Gannon's Rd with Denman Ave,
  plus **764 vph** travelling straight ahead from north of this intersection,
  plus **186 vph** turning left from Denman Ave,
  totalling **1077 vph**, entering Gannon's Rd southbound,

but that:

- **219 + 521 + 499 = 1239 vph** enter the intersection with The Kingsway,

which is a discrepancy of **162** vph, much less than the aforementioned extreme anomaly but still significant.

Traffic entering or leaving from the handful of dwellings on the west side of Gannon's Road and minimal on-street parking, could account for this extent of anomaly.

Section **6.1 Consultation with NSW Department of Transport**
under "Create New Bus Route" heading states:

> **"Table 8** of this report shows that the total Friday PM peak hour traffic generation to the shopping centre component of the development is about 1,260 two way vehicles per hour."

However Section **8.2 Traffic Generation** includes the statement on page 30 under Table 8:

> "Thus the external additional traffic generation reduces to some **1,015** additional vehicle trips (559 in; 456 out) beyond the immediate influence of the driveways serving the on-site parking provision for the Friday evening period (i.e. 0.8 x (1,1274 + 14 -125 [retail centre])= 827 plus 188 residential precinct = 1,015)."

Thus the Consultant in its inconsistency has done both:

1. Reduced traffic figures to reduce perceived traffic impact,
2. Padded the anticipated public transport patronage in order to boost the justification that the development proposal meets strategic transport objectives.

Against the 10% figure diversion for public transport it is notable that Table 5 shows a maximum bus patronage level of 5% which is for Westfield and the figure for Kareela is zero.

Section **8.6 Residential Amenity** states**:**

> "In terms of residential amenity consideration, it is evident that Woolooware Road North currently accommodates peak hour volumes in excess of the maximum level set by the RTA. However, it must be stressed that these limiting values (developed by the RTA) are for roads purely within residential precincts, typical of the new estates being planned in new urban release areas.
> Woolooware Road North provides access to a nearby rail station and abuts a recreational area. Thus RTA limiting values should not be strictly applied in this instance, but gives a guide as to when existing roads may require some form of treatment (either directly or indirectly)."

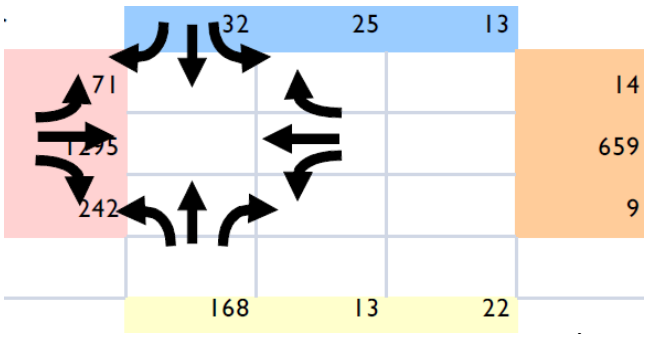
This vague general statement is all that is said about Woolooware Rd itself. Apart from the intersection with Captain Cook Drive about which the consultant is self-congratulatory about providing traffic lights to accommodate the increased traffic, and the Captain Cook-Elouera Rd intersection, the consultant has chosen to ignore any study of traffic impact on the local streets in North Cronulla and North Woolooware. There is absolutely nothing quoted or described that would allow an assessor to make a clear assessment of the impact.

Accordingly I have had to calculate the following myself, which along the way exposes how the consultant's traffic generation calculations have grossly underestimated the true likely traffic with impact on assessment for all intersections. However I will focus on Woolooware Rd North which will suffer the most proportional impact.

Traffic report: Woolooware Road North existing traffic (Annex A Sheet 10) shows existing traffic counts.

1. Captain Cook Drive Woolooware Road

Annexure A Sheet 10 of 12



These are tabulated below from the above diagram

Northbound	vph	Southbound	vph
Turning left into Captain Cook Drive Proceeding straight ahead Turning right into Captain Cook Drive	168 13 22	Turning right from Captain Cook Drive Proceeding straight ahead Turning left from Captain Cook Drive	242 25 9
Total	203		276

Total traffic in both directions = 203 + 276 = 479 vph

Traffic Generation as Calculated by Consultant

Traffic generation from consultant's Table 8 indicates:

Residential traffic increase= 173 vph

Retail and other non-residential increase: REDUCED Club 168 – 60 = 108, Commercial 15, Supermarket 903, Mini/Major Retail 26, Specialty Retail 318, Medical 14 = 1384 vph

Total =1557 vph

Then the consultant applies two reduction figures of retail components to get a final total of 1,015 vph

Re-appraisal of Retail and other Non - Residential Traffic Generation

Table 8 for Friday PM traffic generation claims a 125 vph reduction owing to "Allowance for dual use of supermarket/ retail area by club patrons and residents (say 10%)". However this claimed reduction represents a huge 56% of the combined listed club's (108 vph) and residential (173 vph) traffic generation = 221 vph, and is dubious.

But even more tellingly, Table 9 for Saturday non traffic generation claims a 131 vph reduction owing to "Allowance for dual use of supermarket/ retail area by club patrons and residents (say 10%)". However this claimed reduction exceeds the combined listed club's (70 vph) and residential (43 vph) traffic generation = 113 vph, that is the reduction is 116% of what it is reducing. The claim is therefore meaningless and is discredited for both time scenarios.

Further, the consultant then attempts to double dip on reducing the traffic figures by claiming "Beyond the immediate driveways a discount of 20% applies to the retail traffic generation for "linked & multi-purpose trips", based upon Section 3.6.1 of the RTA's "Guide to Traffic Generating Developments".

However reading the full paragraph in the RTA guide:

The incidence of linked and multi-purpose trips can reduce overall trip generation rates. A linked trip is a trip taken as a side-track from another trip, for example, a person calling in to the centre on the way home from work. A multi-purpose trip is where more than one shop or facility is visited. Any trip discounts would apply differently in new free-standing centres and for new shops within existing centres. Discounts in the former case vary depending on the nature of the adjacent road network. With the latter case, an average discount of about 20% is suggested, with this figure reducing with increasing centre size, with rates of 25% (less than 10,000 m^2 GLFA), 20% (10,000-30,000 m^2 GLFA) and 15% (over 30,000 m^2 GLFA) indicative. Note that these discounts apply to trip generation but not to parking demand. Discounts of this nature should not apply without adequate substantiation.

indicates that the consultant has doubly erred because:

1. It has applied 20%, one of the suggested discount applicable to the "latter" case whereas the former case "new free-standing centres" would instead be applicable to the Sharks and would "vary depending on the nature of the adjacent road network"
2. "Discounts of this nature should not apply without adequate substantiation" but the consultant has not even attempted any substantiation of the claimed 20% reduction.

It is noteworthy that Halcrow, the traffic consultant for the Kirrawee Brick pit development did not apply and such reduction:

It is noted that the forecast traffic flows do not make the normal RTA suggested 20% reduction in generated traffic to account for the fact that a significant amount of traffic generated by a new shopping centre is diverted from traffic that would have passed the site anyway.

The situation would worsen further for the Sharks. For the "given road network" near the Sharks, it is reasonable to assume that a sizeable proportion of traffic normally heading home via Gannon's Rd would divert to do some shopping, leading to increased traffic to the centre, which when departing would logically head south along Woolooware Rd and then Denman Ave heading westward to rejoin their route home via Gannon's Rd .

McLaren Engineering discredited Halcrow for underestimating traffic generation for the brick pit development

Overall, the HALCROW & M^{C}LAREN peak hourly figures are:

	Thursday AM	Thursday PM	Saturday
HALCROW	431	1,092	1,063
M^{C}LAREN	590	1,397	1,570

Clearly, with these differences, reliance cannot be put on HALCROW'S assessment of the external traffic impact as they are too low. The percentage & numeric differences are as follows:

Nor had McLaren's revised figures resulted from a 20% reduction so it is inconsistent that they claim it for the Sharks.

Although it would be valid to increase for Gannon's Rd diversion, I would not attempt to propose an unsubstantiated figure so I have based my calculations on purely the unreduced figure of non-residential traffic increase: Commercial 15, Supermarket 903, Mini/Major

Retail 26, Specialty Retail 318, Medical 14 = 1276 vph should be adopted for weekday PM peak hour. This is less than the inferred consultant's unreduced value because I have taken the club component out of any increase.

I have ignored the consultant's dubious claim to reduce club patronage based on reduction of floor area. The more likely reality would be that the club is eliminating or reducing its less used areas, perhaps the auditorium, and is unlikely to expel members to reduce its patronage.

Therefore, based on the consultant's assignment of 30% to Woolooware Rd the traffic increase would be **383 vph**, instead of what inference* from the consultant would result in 30% of 1216vph with 10% then 20 % reduction = 262 vph.

Residential Traffic Generation

It is noteworthy that McLaren Engineering also criticised Halcrow, the traffic consultant for the Kirrawee Brick pit development, for using the same 0.29 vph that McLaren have now themselves used for the Sharks development.

> For residential, the report adopts an RTA sub-regional centre rate of 0.29 veh/hr/unit. It is not really a sub-regional centre but it does have good public transport. The report estimates 450 x 0.29 = 131 veh/hr. I would prefer a mid-range projection of 316 by 1-2BR units @ 0.3 + 134 by 3BR units @ 0.4 = about 148 veh/hr.

However apart from demonstrating the inconsistency of the traffic consultant, even this minor increase relevant for the proposed Kirrawee Brick Pit development* near a railway station, is irrelevant for the Sharks development because of the Shark's remoteness from a transport hub. (*This shall not be construed as support for that development to which submitted an objection)

The RTA's Guide to Traffic Generating Developments breaks up residential traffic generation into three categories: dwelling houses, medium density, and high density with The lasted trip generation rates per dwelling are as follows:

Dwelling houses: 0.85 vph
Smaller units and flats (up to two bedrooms): 0.4-0.5 vph
Larger units and town houses (three or more bedrooms): 0.5-0.65 vph
High density residential flat building, Metropolitan Regional (CBD) Centres: 0.24 vph
Metropolitan Sub-Regional Centres: 0.29 vph

A reasonable assumption is that these values are not fundamentally based on the shape of the dwelling but on the distance from a transport hub such as a railway station. The categories would be based on the hitherto reality that high density development would be within ½ km of the station, and medium density within one km.

The residential component of the Sharks development would be 1½ km from the station, further away that single dwelling houses in the area. Accordingly the relevant traffic generation figure should be as for single dwelling houses at 0.85 vph, not 0.29 vph, which must be discredited as being relevant.

Most people from the shire that catch the train drive and park as near as they can to the station rather than catch the bus to the station. This is clearly confirmed by analysing Table 3: 2006 Census Journey to Work (from Shire) in the McLaren traffic study. It shows that 0% (signifying less than ½ %) catch the bus, and 13% catch the train. Of the 13% that catch the train it would be reasonable to assume that only those within a one km of the station would walk and even some of those would drive. The residential section of the Sharks development is 1.5 km from Woolooware Station so it is reasonable that least 10% (from the 13%) would drive because less than ½ % would catch the bus and only a small percentage of busy commuters would take the time to walk to and from the station.

This would be additional to the 10% assignment to Woolooware Rd work because the consultant had assumed that the train commuters would all either walk or catch the shuttle bus.

Therefore the peak hour vph traffic generation from residential assigned to Woolooware Road north would be 20% of 507 vph = 101 **vph** instead of what inference* from the consultant would result in 17 vph.

*Inference necessitated because the consultant has attempted to evade the Woolooware Rd traffic problem by the strategy of omission.

Total Woolooware Road North traffic from the development = 383 + 101 = 484 vph

Percentage Increase = 484 ÷ 479 x 100 = 101%

This peak traffic comparison hides a much larger % increase of 383 vph generated retail and other non-residential traffic over present off-peak traffic.

The consultant has mentioned that “treatment” may be required. No further mention is made of this “treatment” for Woolooware Rd, in line with the developer’s attitude to the impact on the intersections of Captain Cook Drive with Gannon’s Rd and Taren Point Road, such that the cost of this “treatment” would be added to the list of remedial works emanating from this development to be funded from the public purse.

Section 9.4 Gannon’s Rd Roundabout versus Signals states:

> The RTA suggests that Gannon’s Road roundabout requires an upgrade to signals. It is noted that this upgrade to signals is needed regardless of this development, as it currently operates at a LoS F during the PM peak period which represents an unsatisfactory performance. As such it is not deemed to be the responsibility of this development to fund the upgrade of this intersection, if it is needed in any event and in view of recent approvals for residential commercial activity within the Kurnell peninsula.

and

The Concept Plan Application under Potential Traffic Impact states:

> A number of key intersections to the west of the subject site are currently at or above capacity, most notably the Captain Cook Drive/ Gannon's Road roundabout and the Captain Cook Drive/ Taren Point Road signalised intersection to the west of the site, at both of which vehicles experience an average delay of more than 2 minutes during the Friday PM peak period. It is anticipated that recently approved residential developments on the Kurnell Peninsula are likely to further worsen this situation. Under the proposed Concept Plan scheme the Level of Service at these intersections during the Friday PM peak the Level of Service will remain at F, however it is likely that there will be some impact on average delays at these intersections. The poor existing level of service and oversaturation of these intersections is symptomatic of existing issues and broader peak traffic issues within the regional road network, particularly at the Kingsway. These issues are required to be addressed in the short-to-medium term irrespective of the proposed development , and as such is not a matter for consideration in the assessment of this proposal.

I object to these denials by the applicant of any responsibly to contribute to remedying the impact of the development.

The traffic study presents no diagram of traffic flows and SIDRA outputs only for the new intersections at the site. The traffic study therefore lacks transparency.

4 Inadequate noise impact assessment

Section 6.1 ADDITIONAL TRAFFIC NOISE ON LOCAL STREETS, first sentence of second paragraph states:

The predicted worst case noise increases on each of the streets surrounding the development are summarised in the following table.

However the table lists only one street, Carabella St which is impacted by traffic noise from Captain Cook Drive so that the proportional, and hence decibel increase, would be minimal anyway.

None of the surrounding Streets such as Woolooware Road, Restormel St, Sturt Road, or even Denman Ave is listed.

This approach is inconsistent with a previous study by the same Consultant for the Kirrawee brick pit where they dismissed any analysis of main road, The Princes Highway, as indicated by the statement:
"Any noise generated by vehicles using the Princes Highway driveway will be negligible compared to the traffic noise already on the highway."
which was reasonable but contrasts where the only presenting results for the Sharks development are for a similar situation (disguised by quoting from an adjacent St rather than Captain Cook Drive).

Furthermore, the Brick Pit analysis states:
"Traffic noise on Flora Street and Oak Road, however, should be assessed."

Similarly, side streets near the Sharks site such as Woolooware Road, Restormel St, and Sturt Road near would be directly impacted by extra traffic, and the northern end of Woolooware Road would be affected by reflected traffic noise in Captain cook Drive caused by the new buildings of the proposed development. Extra traffic light control will result in more stopping and starting of traffic, with its relatively large ratio of earth-moving trucks.

None of this has been addressed in the report.

Looking at Other Acoustic Logic Projects demonstrates the Sharks noise study was minimal by comparison with some of their other projects where they were more appropriately thorough with multiple monitoring, as shown below.

KIRRAWEE BRICK PIT Mixed use including 450 residential units
https://majorprojects.affinitylive.com/public/1793b267f2295e20c07d83f2cc54c09c/Appendix%2014%20-%20Acoustic%20Assessment.pdf

One unattended monitoring point plus one attended point

MACQUARIE VILLAGE Mixed use including 310 residential units
https://majorprojects.affinitylive.com/public/4afab66100b7c3eaf3504632747d6d04/19_Appendix%20S_Noise%20Impact%20Assessment.pdf
Two unattended monitoring points plus two attended points

Figure 1 – Site Location and Measurement Positions

SHEPHERDS BAY URBAN RENEWAL, MEADOWBANK Up to 3,000 units

https://majorprojects.affinitylive.com/public/d89a1d2f46bcfad3c0e696869cca82fa/Annexure%20-%2028%20-%20Acoustic%20Report.pdf

Two unattended monitoring points, one for rail and one for traffic.

LINDFIELD RETAIL & RESIDENTIAL PROJECT 102 residential apartments plus retail

https://majorprojects.affinitylive.com/public/421eb227c3fdc8ef0d33999276831f97/Appendix_L_Environmental_Noise_and_Vibration_Impact_Report.pdf

Four locations, albeit close to each other but indicating a thoroughness not evident in the Sharks acoustic assessment

Figure 1 Site Map and Measurements Location

WELLES THOMAS PLAZA, CHATSWOOD Mixed use including 208 apartments

https://majorprojects.affinitylive.com/public/fe0a93e84c427fa2894d0a1d63127558/Appendix_H_Noise_and_Vibration_Assessment.pdf

Multiple measuring points, some for railway noise and vibration, albeit close to the site but again indicating thoroughness not evident in the Sharks acoustic assessment

Figure1 details the site and surrounding noise sources. Figure 2 details the proposed development.

Figure 1 – Site Map

Section 6 ADDITIONAL TRAFFIC NOISE GENERATION ASSESSMENT states:
"The proposed development includes carpark *(sic)* a below ground carpark within the site which will potentially provide for up to 750 cars (residential parking)..."

This contradicts with the proposal that all carparking will be above ground as necessitated by the contaminated site. The erroneous assumption of below ground parking may be the reason that car park traffic noise was not considered by the consultant. **However this is now exposed as an invalid reason.**

4 Misleading claims that the development fulfils the criteria for a growth centre

Section 3.14 referring to State Environmental Planning Policy No. 66 states

> The SEPP 66: Integrating Land Use and Transport policy has since been withdrawn. However it included a set of guidelines incorporating Accessible Development Principles which still remain applicable.
> The Accessible Development Principles are:
> 1. Develop concentrated centres of housing, employment, services and public facilities with an acceptable walking distance (400 to 1,000m) of major public transport nodes, such as railway stations and high frequency bus routes with at least a 15 minute frequency at peak times;

The consultant's statement under Executive Summary:

> "Woolooware Railway Station is located 1 kilometre to the south west of the site."
> This again indicates the misleading and essentially irrelevant distance of a point on the site rather than the substantive residential area. The amateurish mistake of indicating the wrong direction of Woolooware station throws doubt on the validity of the report for more complex issues.

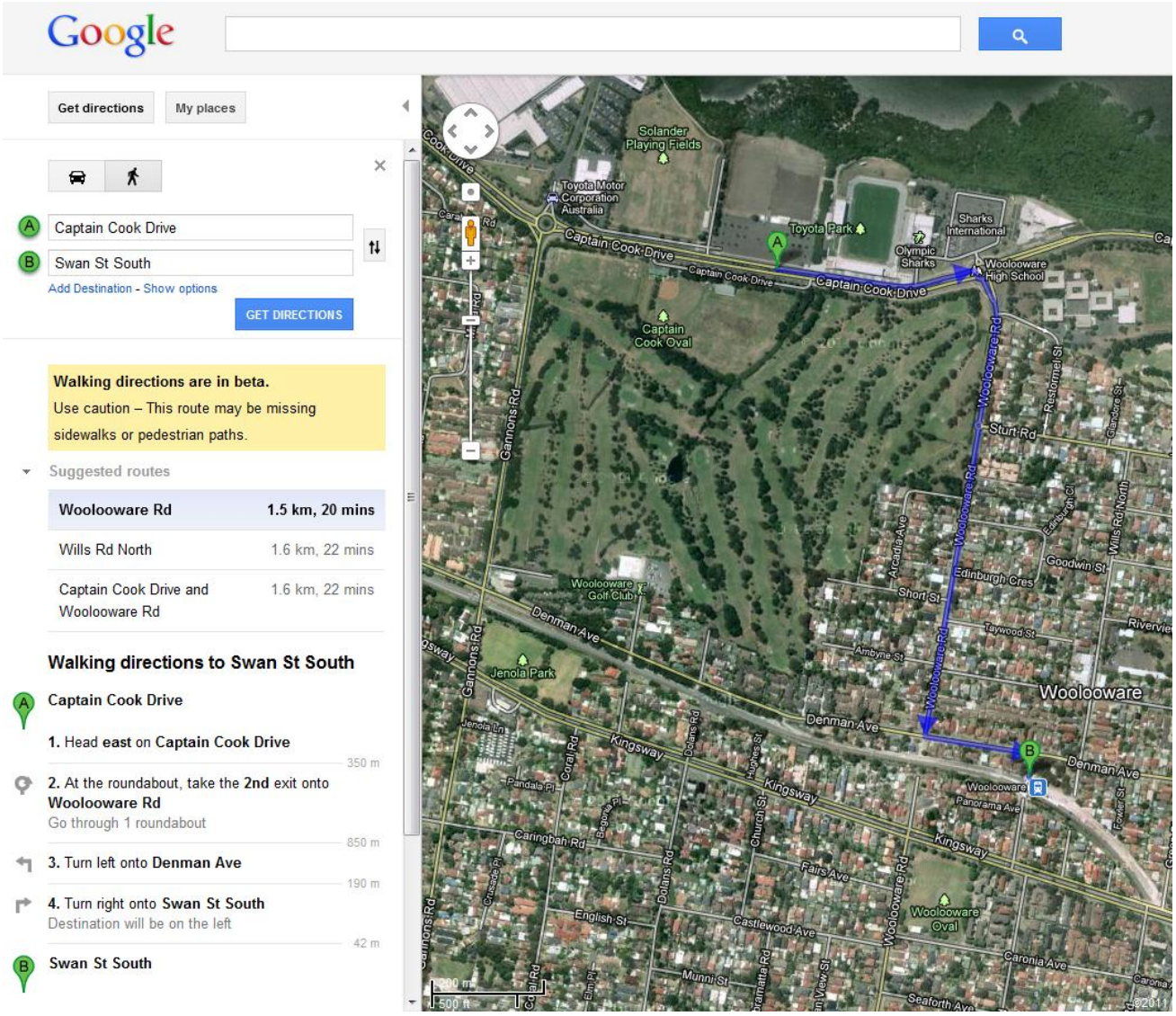
Section 2.8 **Public Transport Services** reiterates:

> "The site is located within a one (1) kilometre walking distance from the football field to Woolooware Railway Station."

The Net Community Benefit Test quotes on page 4 that:

> "In addition, Woolooware Station is located approximately 15 minutes walking distance
> to the south via Woolooware Road and Denman Avenue, both of which have good existing pedestrian facilities."

Although the figure of 1 km is quoted often, it is not applicable to the proposed residential part of the development. Google maps indicate that the walking distance is 1.5 km from the location of the proposed entrance to the residential development, with a walking time of 20 minutes. The 15 minutes claimed would be a very brisk walk of 6km/h which is possible but the average would be 5 km/h or less.



Note that although the destination is shown as "Swan St South", it (Point B) is nevertheless right on top of the railway Station as indicated above

Therefore the development site does not meet this principal criterion for a growth centre.

The Applicant's attempt to create a new bus route does not satisfy a growth centre's aim to be near a train station or a major bus route because the proposal is for a feeder bus route only. Such a service may prove to be unviable because It would serve only a single site to which the intervening open space and low density development between it and the train service and established commercial centres would not add any significant patronage. The Department's letter on the matter is no guarantee that a new bus route would be forthcoming, and they recommend the applicant proved a shuttle bus service in the interim, which is not mentioned in the Consultant's report.

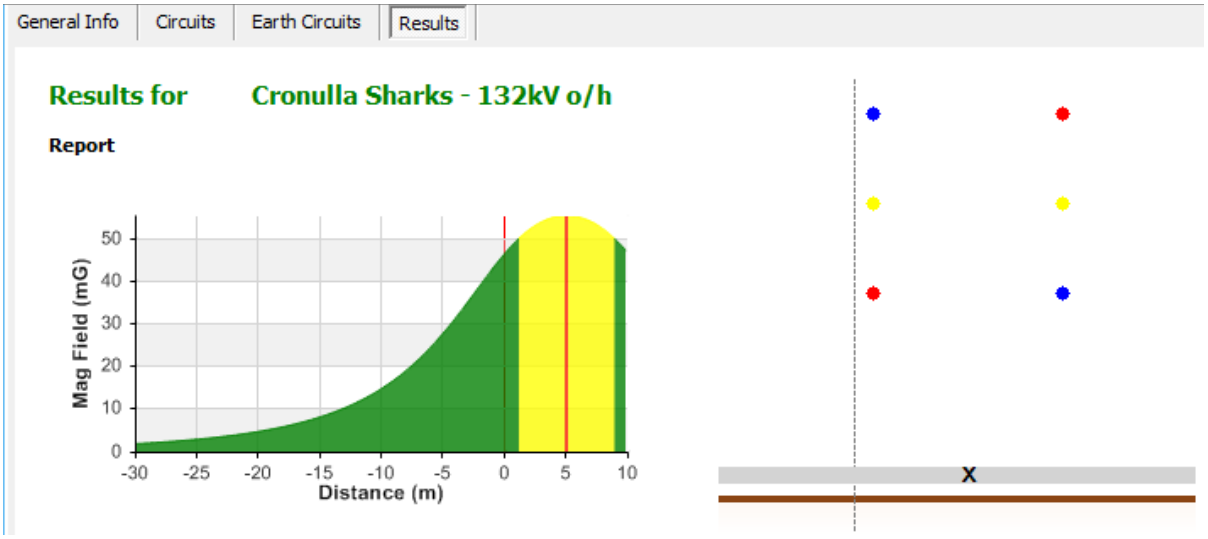
6 Electromagnetic Radiation

Magnetic Field

The Magshield Products Electromagnetic Radiation report states in Section 2 on page 2:

> "Each power line is constructed from three vertically spaced three twin wires where each pair of twin wires represents one phase of one power line. The two power lines are erected on either side of the support tower (see Fig.2 below).
> The twin wire phases of each circuit are installed one above the other on towers with 3.96m vertical distance between each phase."

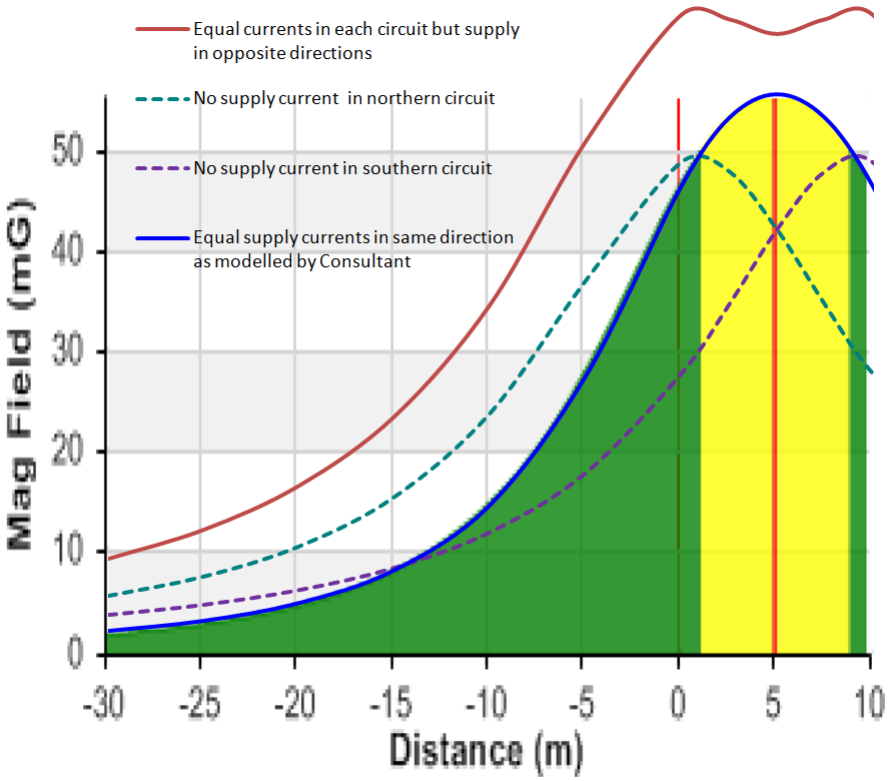
However the diagram in Section page 2 *(Requires colour to see. Middle yellow wires are difficult to see)*



shows that the top and bottom phases of one side/circuit have been reversed.

My enquiries to Ausgrid revealed that the configuration is "reverse phase", which corresponds to the consultant's calculation such that the consultant's description is wrong. However, the spokesman said that the two circuits are separate from each other and their currents will not be exactly the same. He said that after a new supply from la Perouse is installed that that the currents could occasionally be in opposite directions. He said he was unable to give any data for how much the variations could be and how often differing operational modes may occur.

The consultant's calculation with the two circuits supplying on the same direction with exactly the same current in each is an idealised simplification that would underestimate the magnetic field because of the magnetic fields are significantly reduced by the opposing phase currents. In the extreme case of opposing supply in each circuit, the calculated magnetic field at a distance of 30 m and 1m would be 4½ times as large for as that for the idealised equal supply in same direction scenario calculated by the consultant, shown on following graph, showing also the increase in the magnetic field when each circuit is shut down so that the magnetic field balancing is lost.



Clearly the operations are much more complex than the simple results from the consultant suggest and a whole range of values straddling the consultant's values would have to be time averaged. Field readings should also be taken as well in an attempt to quantify the risk to public health, not only for the proposed development but for existing uses, particularly the health risk on the 'family hill" during football games.

Extending calculations for varying height scenarios confirmed the trend for greater magnetic fields for variations from the idealised case.

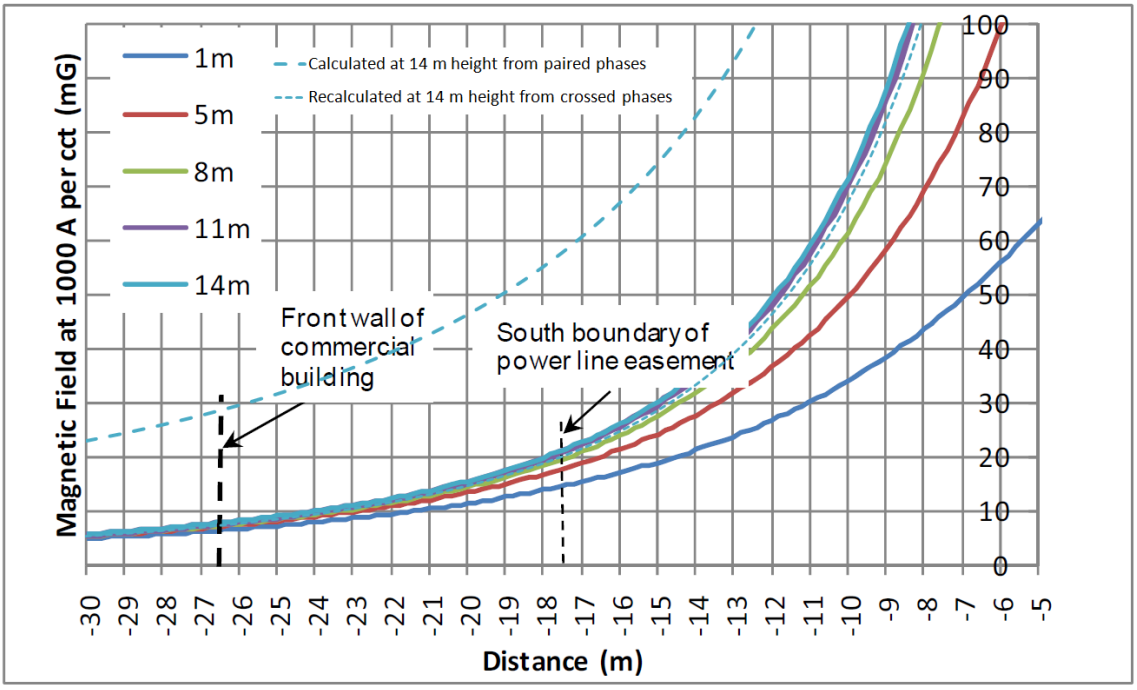


Fig.5 Magnetic field profiles across the power line easement for different heights above the natural ground and for the present electrical load of 445 A per circuit.

Note that the Figure 5 annotation is a second instance of a preceding similar figure 5 in the Consultant's Report. Whereas the Consultant's plotted lines are consistent with the 1000 A calculation (albeit erroneously for swapped phases), the title of the chart

erroneously refers to 445A case. The reference to "paired phases" corresponds to the worst case scenario of opposed supply with reverse phase operation. The other two cases of zero current on each circuit have not been calculated.

Section 3.3 of the Consultant's report concludes on page 11:

> If a child in a childcare centre or an expecting mother at work are exposed to 10 mG during 8 hours a day, then their time weighted average exposure level (TWA) over the entire week is less than 4 mG. This is calculated on the basis that statistically the average EMF exposure
> level for the majority of urbane population is less than 2 mG.
>
> $$EMF_{TWA} = \frac{(10mG \times 8hours + 2mG \times 16hours) \times 5days + 2mG \times 24hours \times 2days}{24hours \times 7days} = 3.9mG$$

Section 5, Conclusions and Recommendations, concludes on page 12:

> Based on our modelling and calculations we can also conclude that the derived magnetic field exposure levels in the proposed commercial and residential tenancies that would be located near the power line easement are below the time-weighted average level of 4 mG and, hence, pose no confirmed health risk for continuous occupancy of the premises by children.

It appears that the intention of the report is to link the 3.9 mG time weighted exposure derived in Section 3.3 to (being less than) the time weighted average of 4 mG. However the assumption of Section 3.3 of only 8 hours exposure @ 10mG per working day at the development site with the remainder @ 2mG away from the site, and the statement of "continuous occupancy" in Section 5, are clearly contradictory.

Continuous occupancy would be relevant to the residential component of the development such that the something like 10 mG figure would be applicable which is 2½ times the 4 mG limit.

The is mounting scientific evidence that even the 4 mg limit is too high, for example the book "The Force" in Chapter 3 quotes numerous examples, only a small fraction quoted herein:

- on page 28 - Australian and UK researchers joint study on leukaemia rates in Tasmania :"..every year spent living close to powerlines increased the risk of developing disease by 7%.
- On page 28 "Children exposed to 2 mG in the United States had nearly double the risk of leukaemia and those exposed to 4 to 5 mG had over 6 times the risk". Reference 11
- On page 33 that the BioInitiative Report of the International Agency for Research on Cancer "... recommended a limit of 1mG for locations near powerlines and 2 mG for all other new buildings. It also recommended a limit of 1 mG for areas that will be occupied by children or pregnant women."

Electric Field

Magshield's response to SSC concerns about electric fields at balconies of Sharks Development does nothing to allay these concerns about what will most likely end up as a planning and public health debacle, that yet again the public purse will be required to financially compensate the victims in years to come, long after the developer has made its profit. Residents buying a unit there would assume the government would only have allowed the development only if it was absolutely safe.

Council is rightly concerned about the effects of electric field from high voltage power lines on occupants on open balconies of the proposed development at similar heights to the power lines. The standard consideration at one metre height represents the mid-height of a human walking or standing on the ground. No one would have ever envisaged that anyone would be mad enough to build multi-storey buildings next to high voltage lines.

In their brief 1¼ page response to Council concerns, Magshield has included a graph of the electric field at varying heights. Since they did not include the original curve for the standard 1 m exposure, I have overlayed a replica of this curve onto their new graph. This clearly reveals an error where the Consultant has shown electric fields nearer to the pylons at all heights would be less than those calculated for 1 metre above ground level.

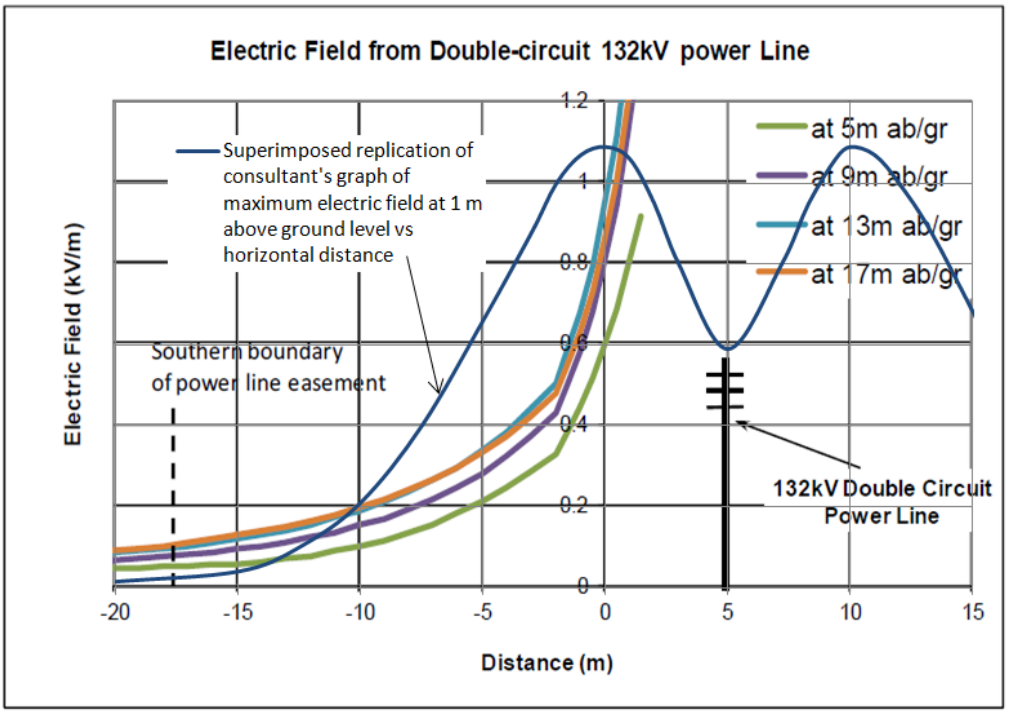


Fig.1 Electric field profiles at various distances above ground

It is impossible that the electric field at heights closer to the wires can be always be less than that at 1 m height, at least outside the cluster of conductors. The sharp bend in the Consultant's curves at distance of minus two metres increases the doubt about the Consultant's new graph and the values at distance.

Magshield's defence of their incomplete analysis relies on an attempted reassurance based on a general statement applicable to occupants within the outer walls of a building, except that they have attempted to extrapolate to the exterior based on a theory that the balcony railings will fully protect people from harm.

This is despite the light construction in front of the lower body offering limited protection and the line of sight above the railing to the wires offering no protection for the upper body at all.

Attenuation and deflection of the electric field depends on the electrical permittivity of the building materials and their structural configuration. Magshield has not demonstrated any of their claimed expertise in an analysis of the path of the electrostatic field between the power lines and the complex geometry of the building surfaces near a balcony, in either its original report or its two page defence that would validate their assertion.

In fact the apparent symmetry of the electric field graph in the original report indicates that they have taken no account of the electrostatic attraction of the building in increasing the electric field compared to the far side of the power lines. Why not, when they have appeared to have taken into account the attraction of the ground, as evidenced by the central dip in the electric field graph which doesn't occur if ground attraction is ignored?

My calculations indicate about 100 V/m intensity at 25m horizontal distance if electrostatic building attraction is ignored. Allowing for building attraction would significantly increase the field, up to double, according to my calculation. This is 5 metres further left of the chart and is where I assumed to building to be, and where the ratio is greater than apparent at the edge of the graph at "-20 m" distance.

For comparison I have overlaid my curves on the consultant's graph to indicate the inconsistencies. My calculations are in thinner line to match the colours used by the consultant for each height up to 17 m. Values for heights above 17m are shown dashed.

Earth attraction only

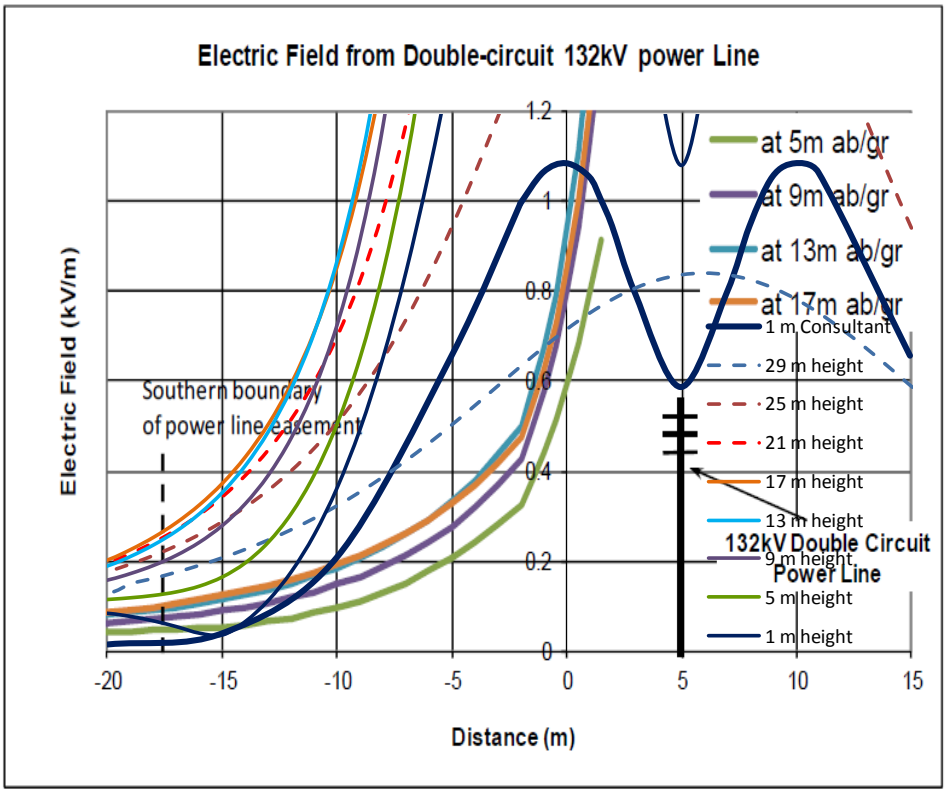


Fig.1 Electric field profiles at various distances above ground

Earth and wall (on left) attraction

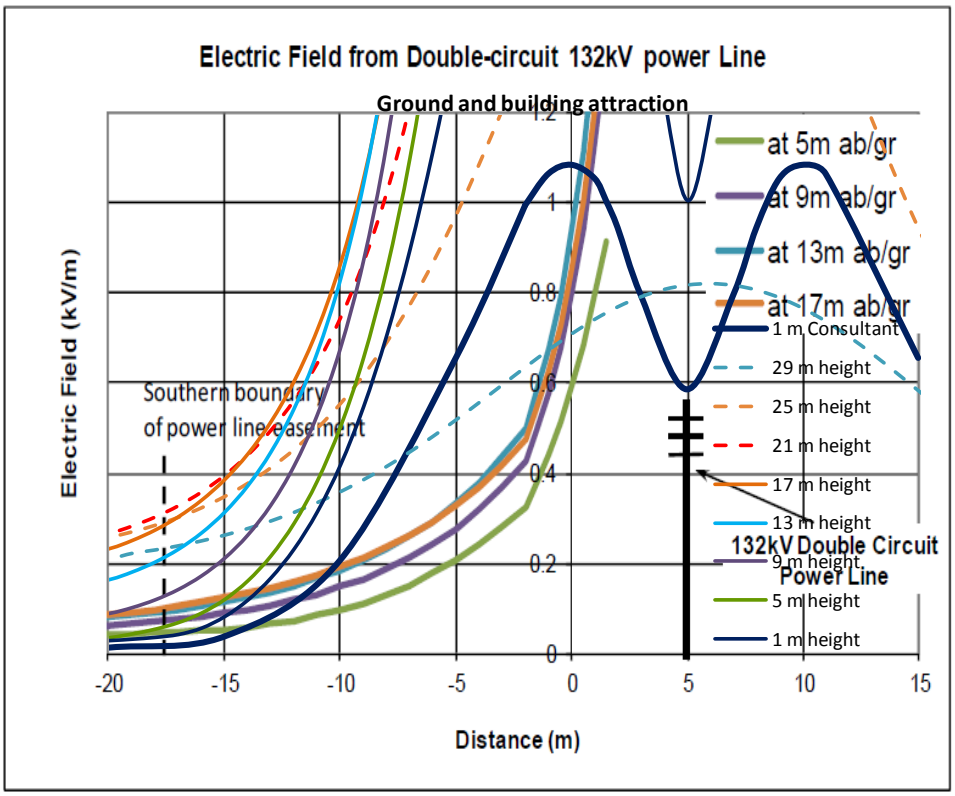


Fig.1 Electric field profiles at various distances above ground

Now that exposure at height can no longer be ignored, electric field (and magnetic field) calculations must also be done for the actual power line catenary along the full extent of the proposed building.

The report totally omits any mention of carcinogenic aerosols near high voltage power lines.

Lack of any details in the consultant's report and response, has forced me to make assumption about wire diameters. I made a casual enquiry to Ausgrid seeking the information but was unable to get it. My results for maximum electric field from perfectly balanced reverse phase operation assuming 28.6 mm for the twelve main conductors and 13.95 mm for the two neutral wires are presented for lowest bottom wire height of 9 m as presented by the consultant, for two scenarios: with earth attraction only; and with combined earth and building attraction assuming the wall is 30 m from the power line centre line.

My calculations resulted in a recognisable double humped curve but my values are higher than the consultant's. Please note that trial calculations assuming ridiculously smaller conductors did not result in values approaching Magshield's, except directly under the wires.

There is sufficient doubt about the matter that I believe that it must be more thoroughly examined by experts, including on-site measurement.

While the electric field is a problem outside the building on balconies or on the ground, the problem of the magnetic field extends to within the building.

Overseas experience has resulted in recommendations that no residential development should exist within distances measure in hundred of metres, not tens of metres.

JBA Planning, not the industry specialist Magshield, has stated that:
Ausgrid's comments on the Concept Plan application state that the Electromagnetic Radiation Report did not address ARPANSA's *Draft Radiation Protection Standard for Exposure Limits to Electric and Magnetic Fields 0Hz- 3kHz*(7th December 2006). Magshield advises that the standard referenced has been in draft format for over five years now and according to official industry news will not be adopted as an Australian Standard.

Quoting "official industry news" that a government sponsored standard will not be adopted is absurd and is a blatant attempt to defy the energy authority Ausgrid that has expressed its justifiable concerns about such an unprecedented concentration of high dwellings next to powerlines. Magshield's alleged advice does not occur in its official response to Council concerns, and I could find no other response by anyone, let alone Magshield, to Ausgrid's concerns in the Department's website.

It is noteworthy that the Arpansa Draft Standard Table 2 quotes a basic restriction of 5 mV/m which is 1/20,000th of the 100 MV/m quoted by the consultant or 1/40,000th of the 200 V/m that I have calculated at the building facade.

Proximity of powerlines to a high building is more dangerous than being at ground level. My calculations indicate that the electric field strength at a height of 17 m on a home unit balcony would be 2½ times that at 1 m above ground level in the absence of the building.

7 Ecological Impacts

The last paragraph on page 20 of Section 4.2 FIELD INVESTIGATION states:
Generally, field surveys should be completed over a range of climatic conditions and during a number of seasons to optimise the potential for species to be recorded at a site. Fieldwork for the current, as well as previous studies, were conducted in winter, a time when the majority of migratory shorebird species are breeding in the northern hemisphere, and the detection of frogs and reptiles would also be limited.

Accordingly the report has admitted that the ecological study is incomplete.

Therefore the assembly patterns and movements of migratory birds have not been observed such that may have allowed some estimate of how the height and bulk of the development will:

1. cause the breeding migratory birds and their chicks to impact windows
2. obstruct the birds' circling flight patterns as they "land" and take off.
3. provide vantage opportunities for predatory birds as their prey try to negotiate around or between the towers, fully exposed to attack. Such high rise vantage is not a feature of the natural ecosystem of low rise foliage on the foreshore next to mangrove areas, and will thus impact on the natural predator-prey balance.

The consultant has since submitted an additional report which states that:
However, no migratory birds or threatened bird species were observed using the mangroves, grassy playing fields or the car park.
It doesn't indicate whether there were none observed because they were elsewhere in the bay or whether the short period from November to January covered the whole migratory bird cycle.

The report also states:
"However, one threatened species of micro-chiropteran, the Large-footed Myotis, may nest within the mangroves and forage over Woolooware Bay. Additional survey could be performed to confirm presence or absence of this species. If recorded, there may be specific management strategies that could be implemented to prevent adverse impacts e.g. habitat offsets."
The is no demonstrated commitment that the "Additional survey" will be undertaken. It is unclear how "habitat offsets" would be achieved such that the threatened birds would know how to get there before too many have been lost during the adjustment period.

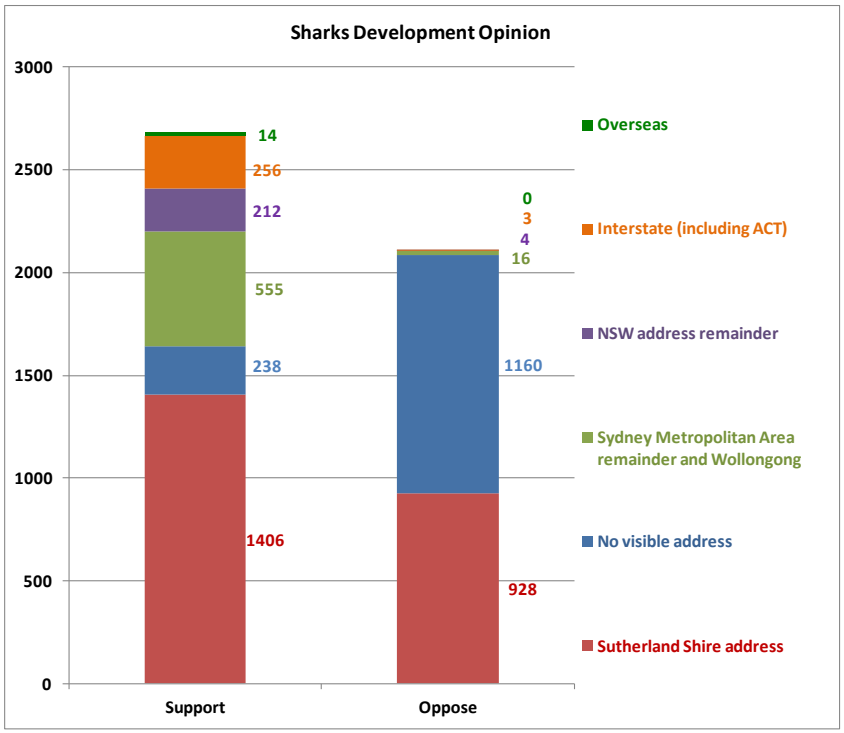
8 Public Opinion

Although this is not a planning matter normally to be considered by the Department, but is rather a political matter, the issue has nevertheless been tabled by the consultant and must therefore be challenged because of misleading claims that the consultant, JBA Planning, has made .

The number of public submissions on the Department of Planning website goes to 4842, but I count 4840 taking into account four unused numbers and two published submissions not allocated a number. This is well in excess of the 4813 as quoted by the developer, which includes at least 25 double counted submissions, resulting in 52 being omitted from consideration. The developer's numbering system deviates from the Department's website, to confuse analysis.

The people who wrote against it did disclose their address to the Dept of Planning but wanted their privacy protected. The Department of Planning website says "It is Departmental policy to also place a copy of your submission on the Department's website. If you tick this box, your submission will be published on the website with 'Name withheld on request' and the name of your suburb."

However the suburb has not been published in the majority of cases where personal details were withheld such that the developer has been given the opportunity to distort the level of support within the shire to an exaggerated 63%. By reasonably assuming that the vast majority of details withheld are from shire residents, the true level of support therein would drop to 44% with 55½ % opposed and ½ % comment only.



Please note that the category “No visible address” does not correspond exactly with all submitters who have requested their details withheld, because in some instances I was able to glean part of a suburb name or a postcode to enable to judge whether from the shire on not.

The true level of support and opposition cannot be unquestionably determined until the Department makes the list of suburbs of all submitters available according to its policy.

Jamie Maclachlan