

RNSH

MODIFICATION TO PROJECT APPROVAL-
HEIGHT INCREASE AND HELIPAD ON
ACUTE HOSPITAL BUILDING

MP08_00172

Royal North Shore Hospital

Modification to Project Approval- Height Increase
and Helipad on Acute Hospital Building

Prepared for Infrashore

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InfraShore

urbis

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1 INTRODUCTION

This planning report accompanies an application made under Section 75W of the Environmental Planning and Assessment Act 1979 with respect to a proposed modification to Major Project Approval MP08_00172 – Royal North Shore Acute Hospital and Community Health Building. The proposed modifications relate specifically to the inclusion of a new helipad on the approved Acute Hospital Building and a minor increase in height of the building.

The site plan below indicates the location of the proposed Helipad in the south east corner of the Acute Hospital Building roof area.

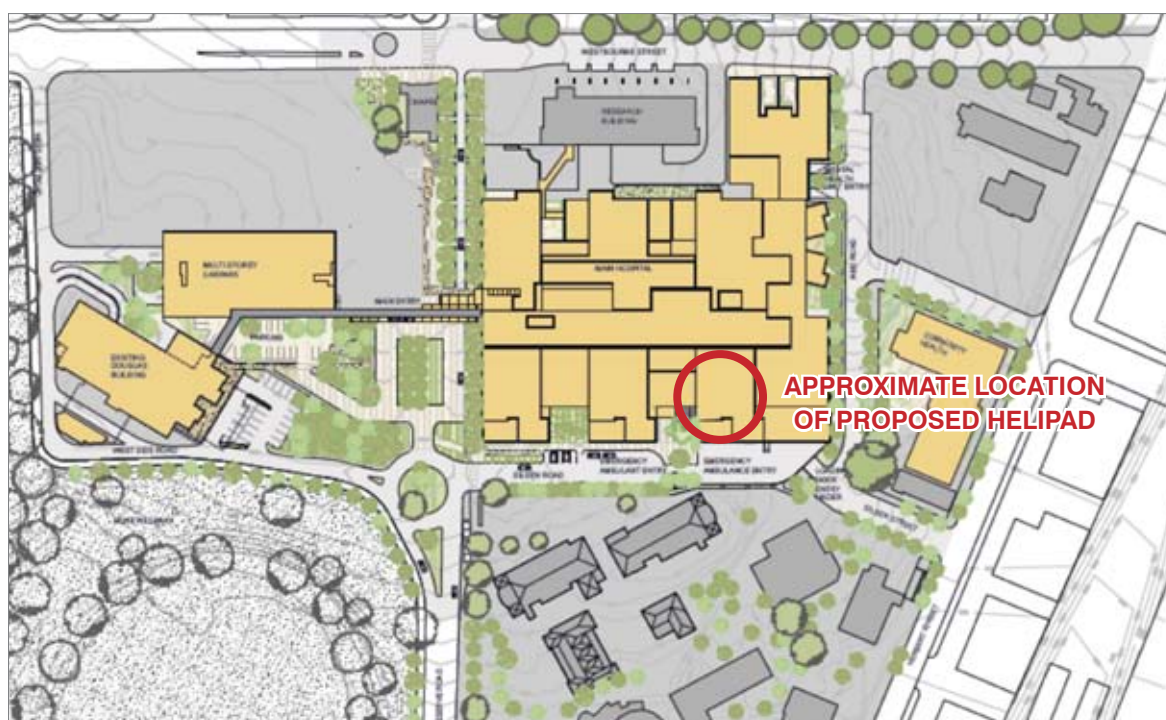


Figure 1 - Site Plan

Refer to **Appendix A** for copy of the Instrument of Approval and a reduced set of approved plans.

1.1 BACKGROUND

The current Helipad serving the Royal North Shore Hospital is located on the roof of the existing Douglas building. NSW Health has determined that the new Helipad is essential from a clinical perspective to ensure the seamless delivery of urgent medical treatment to its patients. NSW Health has advised that:

*“Following the occupation of the new Acute Services Building, the Emergency Department, Operating Theatres, and the Intensive Care Unit will be located approximately 250m from the existing helipad and requiring multiple vertical movements. This has been reassessed and identified as **a key clinical risk** to the operation of the new facilities.”*

The current helipad on the Douglas building is to be retained for clinical reasons. NSW Health has advised:

“... the clinical requirement to maintain the existing Douglas building helipad is to ensure the direct access to the acute services of the Burns Unit and Neonatal Intensive Care Unit. The retention of the existing helipad will not only service the acute services in the Douglas Building but provide critical infrastructure redundancy for Royal North Shore Hospital to continue to accept emergency transfers via helicopter should the new helipad be made inaccessible.”

A statement from NSW Health providing clinical justification in support of the new helipad and retention of the existing helipad at the Douglas Building is included as **Appendix B**.

In addition to the proposed Helipad, the design has been further refined resulting in a minor increase of the height of the Acute Hospital Building by 900mm to accommodate services between the ceiling and floors to levels 3, 4 & 5 (300mm each).

2 PROPOSAL

The proposed modifications are discussed below:

Proposed Helipad

As discussed in the Background to this report, the helipad is required for clinical reasons to facilitate the most efficient and speedy delivery of patients to the Emergency Department, ICU and operating theatres. The proposed Helipad is located on Level 11 in the south east corner of the new Acute Hospital building, which is currently under construction.

The project architect (BVN) has advised that the location of the proposed helipad is based on consideration of the following:

- Clinical functionality. The optimal location for the helipad is that which provides the shortest, safest most immediate access to the Priority Lift which connects the helipad to the appropriate receiving areas of the Operating Theatres, ICU, and Emergency Department. This lift is located in the easternmost core of the building and requires the helipad to be located in the eastern end of the building.
- The location of the recently completed Kolling building to the north of the acute hospital site precludes the helipad being positioned in the northern half of the building.
- The height of the helipad is subsequently determined by the Approach/ Departure Path to the final Approach and Take Off area (FATO). The proposed helipad has been located as low to the roof and as far to the north as possible without compromising this critical safety zone.

Please refer to **Appendix C** for BVN's Design Statement.

A further reason why the new helipad is located at the front (southern side) of the building is due to the future development potential of the hospital which includes expansion of the northern part of the building pursuant to the Concept Approval.

The new Helipad will be used in conjunction with the existing helipad located on top of the Douglas building, and will be used only in emergencies. The decision as to which helipad will be used in an emergency will be based on:

- clinical reasons - in terms of which hospital department the patient needs to be delivered to; and
- weather conditions - including prevailing winds.

Whilst the trip rate may increase over time (estimated at 4% per annum) the addition of the new helipad does not contribute to any such increase. With respect to the frequency of helicopter trips, there is not expected to be an increase in total movements, rather a division of existing trips between the existing and proposed helipad. The current statistics for the existing Helipad indicates an average of between 15-20 arrivals per month.

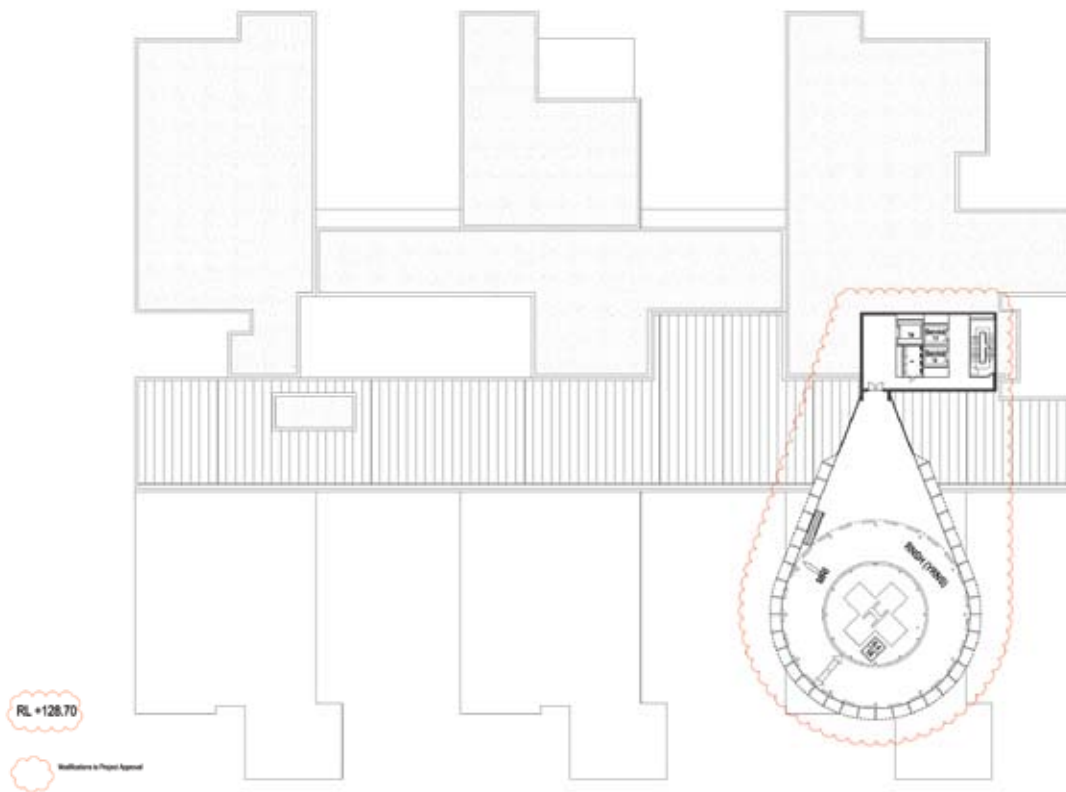


Figure 2 - Level 11 Helipad Plan, prepared by BVN.



Figure 3 - South Elevation, prepared by BVN.



Figure 4 - East Elevation, prepared by BVN

Increase in Height

The floor to ceiling heights of levels 3, 4, and 5 of the Acute Hospital building have been increased by 300mm each, resulting in an overall increase to the building height of 900mm. This design amendment is required for the provision of services between the ceiling and floor spaces at these levels.

Refer to **Appendix D** for a copy of the modified drawings, prepared by BVN.

3 ENVIRONMENTAL ASSESSMENT

3.1 ASSESSMENT CRITERIA

Under Section 75W of the Act, the Minister may provide environmental assessment requirements to be addressed by the proponent prior to any application under this Part being determined.

In this respect, and to assist the Department in the consideration of this matter, it is proposed for the purposes of this assessment that those Director General Requirements, as they applied to the original Project Application and as relevant to the current proposal, be re-considered.

In this respect, the following relevant environmental assessment criteria have been adopted:

- Justification for the proposal in light of any potential environmental impacts and whether or not the project is in the public interest.
- Consistency with the Concept and Project Approvals.
- Amenity impacts.
- Operational Impacts.
- Acoustics.

Other matters for consideration include:

- Aviation issues
- Wind effects
- Air quality
- Structural and hydraulic issues

3.2 ASSESSMENT

3.2.1 Justification for the modification

The new helipad is critical for delivery of patient care from a clinical perspective. The speedy delivery of patient care which will be facilitated by the new helipad is clearly in the public interest. The modest increase in building height is required to accommodate additional services to facilitate the construction of this critical infrastructure.

3.2.2 Height

The proposal has been sensitively designed to minimise the height and footprint of the new helipad as far as possible to ensure it does not have any significant impact on amenity. Further discussion of the design rationale for the helipad structure is provided in section 3.2.3 of this report.

The proposed helipad is located wholly within the Building Height Control Line which was determined during the original Concept Approval process. The location of the proposed helipad in relation to the Building Height Control Line is clearly illustrated in **Figure 5**.

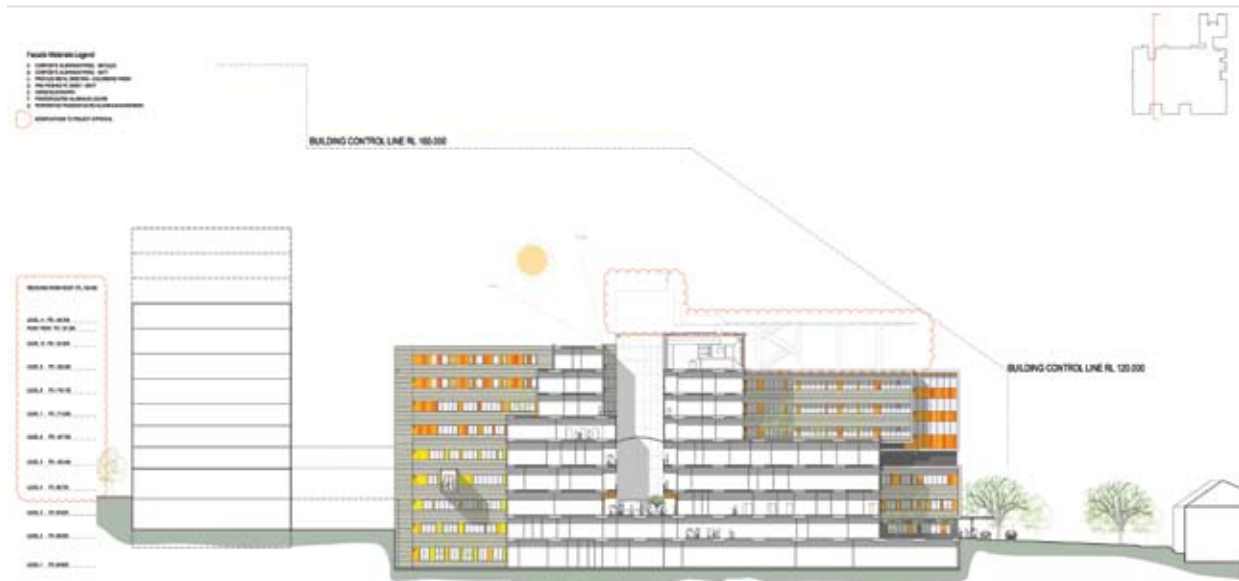


Figure 5 - North South Section 01

The proposed increase in height of the Acute Hospital Building by 900mm is within the prescribed building envelope.

3.2.3 Amenity Impacts

NOISE IMPACTS

Acoustic Logic Consultancy has assessed the potential noise impacts on nearby development associated with the location of the proposed helipad. The report is included in **Appendix H**. The report concludes that there will be a minor exceedance of the applicable noise levels of 95dB(A) by only 3dB(A) at the top floor of residences located east of the site on Herbert Street in the worst case scenario when a helicopter flies directly over the top of the residence.

It is important to note that this worst case scenario which involves a helicopter using the non-preferred flight path arc is expected to be a rare occurrence. Please note that this scenario currently applies to the current flight path arrangements for the existing Helipad. The arc is to be used only when weather conditions preclude the use of the preferred approach / departure arc. As noted in the Avipro report, the use of the non-preferred arc is not expected to exceed 5% of the total movements which are in the range of 15-20 arrivals per month based on current statistics for the existing helipad. This equates to a maximum of only 1 arrival per month utilising the non-preferred arc.

The Avipro report states further that:

"for other helicopter movements (not flying directly over the residences on Herbert Street) predicted noise levels will be less than 95dB(A). Assuming that the "Fly Neighbourly" principles set out in the Air Services Australia Environmental Principles and Procedures for Minimising the impact of Aircraft noise guidelines are adopted (minimising flying directly over residential areas, flying predominantly areas with high ambient levels such as highways, minimising ground idle time), noise impacts will be further reduced."

The acoustic report assessed the noise impacts on nearby development and concluded that the predicted noise levels in the worst case scenario are not unreasonable for reasons including:

"The helicopter movement which will generate the exceedance is not the preferred flight path, and would only occur during unfavourable weather conditions.

We are advised that approximately 5% of flights are expected to take off directly over the Herbert Street apartment building. Assuming a total of 15-20 flights per month, this would equate to approximately only one flight per month travelling directly over the Herbert Street buildings.

The predicted exceedance of guidelines is relatively minor (3dB(A)), a difference which is just perceptible to the human ear.

The predicted worst case scenario noise level of approximately 98dB(A) is similar to what may be expected in the event of a police car/fire truck with [a] siren operating (or other emergency vehicle) passing by residential properties at ground level."

In terms of noise impacts on the Royal North Shore Hospital, the acoustic report recommends the acoustic design of the Acute Hospital building shell to ensure appropriate noise levels are achieved. The Project Approval already includes SC41 to address such matters.

VISUAL AMENITY

The detailed design of the helipad has focussed on minimising impacts on visual amenity. The project architect BVN provided the following comments in respect of the design rationale:

"The helipad deck itself is circular as opposed to the more common square shape. This considerably reduces the apparent size of the deck and reduces the amount it overhangs the building outline immediately below.

The structure of the helipad has been designed to avoid the use of a perimeter edge beam. The required 1.5m wide safety net at the helipad perimeter is simply cantilevered from the main deck giving the structure a feathered edge which reduces its apparent size and bulk."

The increased height of 900mm to the Acute Hospital Building does not significantly increase the building mass and is considered generally consistent with the original Project Approval. There are no significant impacts on visual amenity for the wider neighbourhood.

OVERSHADOWING

C3D Interactive has prepared shadow diagrams comparing shadows from the approved building (shown in red) with shadows created by the slightly higher building and helipad structure. The shadow diagrams clearly indicate that the overshadowing impact of the proposed modification is not significant. A complete set of shadow diagrams is included in **Appendix E. Figure 6** shows the shadow (mid-winter) at 3pm which represents the worst case shadow in terms of potential shadow impact. It is clear that shadows created by the proposed modification do not impact on nearby dwellings and the area that will be most greatly affected is earmarked for approximately 24,000 square metres of commercial development under the Concept Approval.

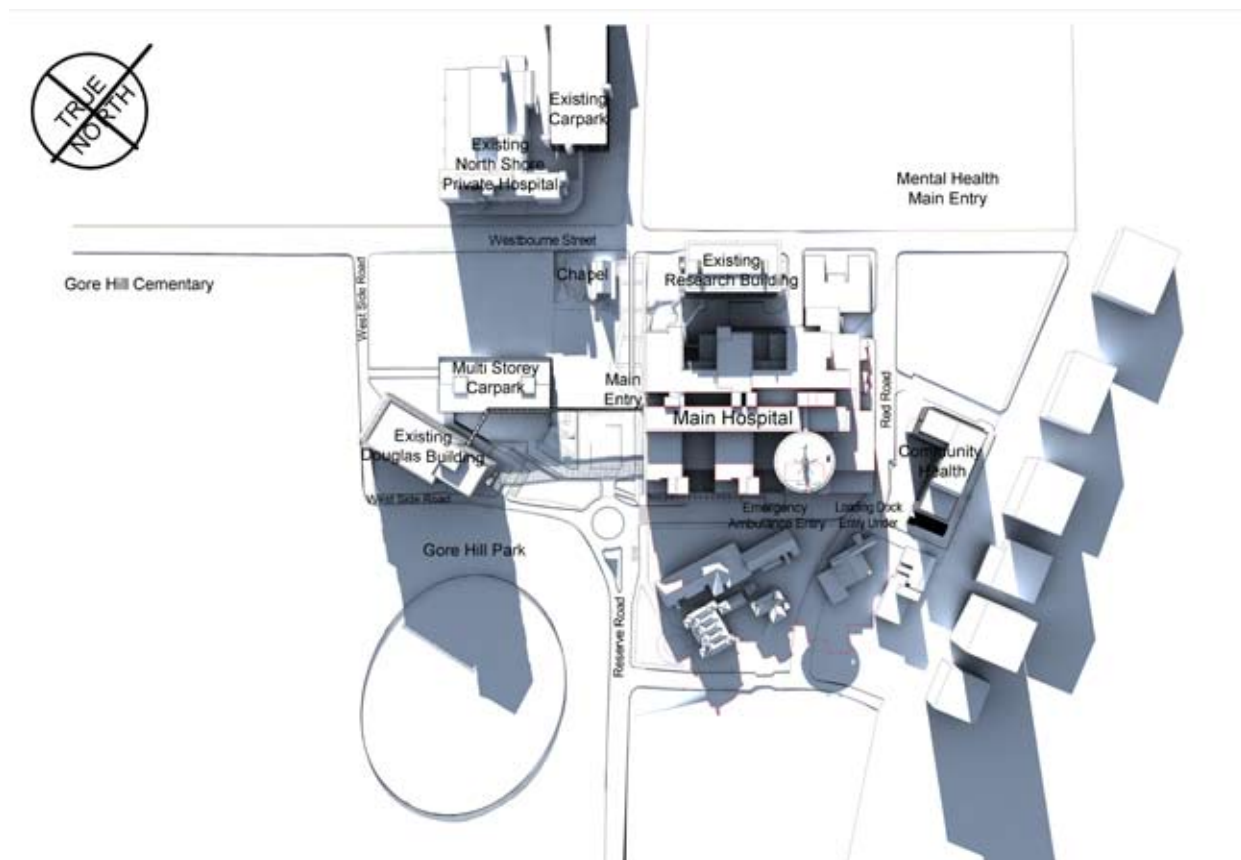


Figure 6 - Shadow Diagram June 22 – 3pm

3.2.4 Operational Impacts

USAGE OF THE NEW HELIPAD

The new helipad is to be used only in emergencies and will be used in conjunction with the existing helipad on the Douglas building. As noted in the acoustic report prepared by Acoustic Logic Consultancy, it is expected that there will be no net increase in the total number of helicopter movements as a result of the construction of the new helipad. Please note the helicopter flight path as prescribed in this application is for the Acute Hospital only. The helicopter flight paths will be re-assessed as part of the proposed Concept Plan Amendment to the Divestment Land within the RNSH Campus.

Helicopters will approach and depart the new helipad by one of two approach and departure arcs. The arcs have been determined based on an analysis of the prevailing wind conditions and taking account of existing surrounding development and the development potential of surrounding land. This analysis has included a review of the Willoughby LEP 1995, the draft Willoughby LEP 2009, the LC LEP, North Sydney LEP 2001 and Concept Plan height limits. A plan has been prepared showing the available approach and departure “arcs” and the primary (preferred) flight path. The plan is included as **Figure 7** with other details provided at **Appendix F**.

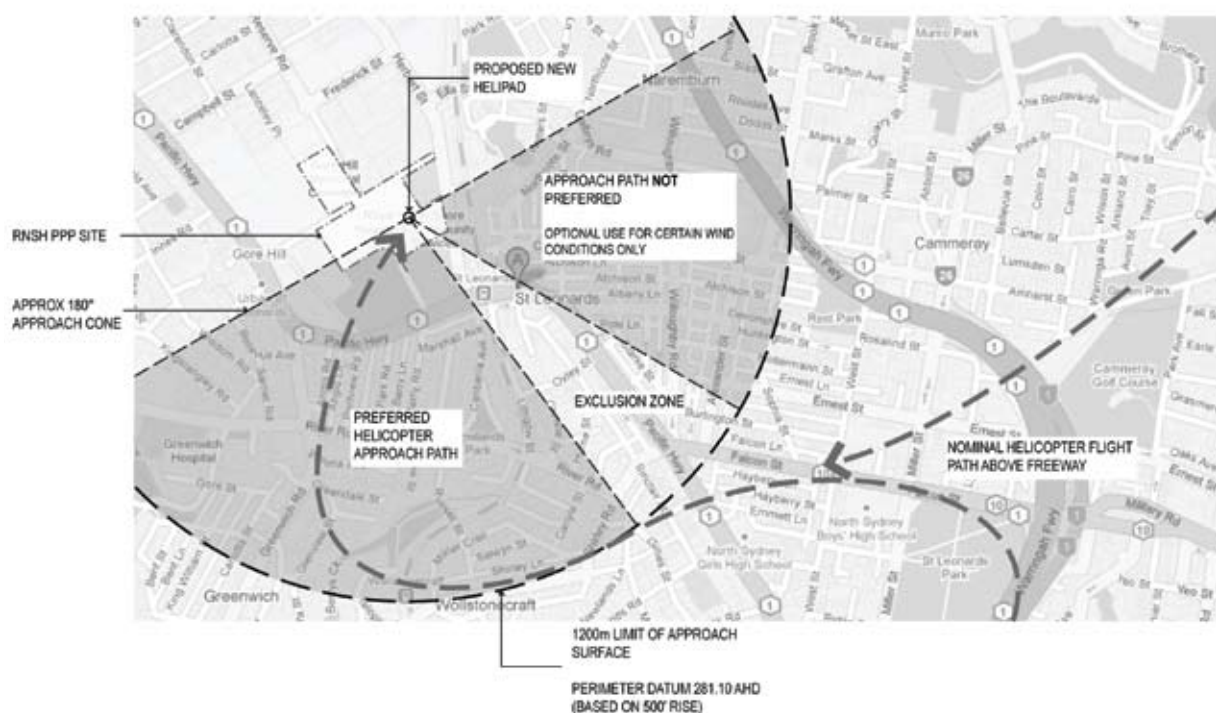


Figure 7 - Acute Hospital Helipad Approach Plan – Local Context

An Aviation Report has been prepared by Avipro and is included in **Appendix G**. The Avipro Report determined the appropriate flight paths to be used by helicopters accessing the new helipad. The report has confirmed that the proposed approach and departure arcs and flight paths shown on **Figure 7** are acceptable. The report states:

“Two approach and departure arcs of approximately 125 – 225 degrees and 045 -100 degrees Magnetic have been proposed. The suggested primary flight path (preferred flight path) is within the arc 125-225 degrees, with an approach direction of approximately 355 degrees and a departure direction of approximately 175 degrees. It appears that these arcs and proposed flight paths provide acceptable VFR Approach/Departure and Transitional Surfaces. The arc 045 -100 degrees (non-preferred path) would only be used under extenuating weather conditions due to the proximity of occupied dwellings and commercial premises.”

The report further advises that the non-preferred flight path arc:

“would only be used if the weather conditions were such that an approach or departure was not possible in the primary (preferred) arc. A requirement for the use of this arc is not expected to exceed 5% of the total movements. It should be noted however that pilots will apply a “fly neighbourly” policy and avoid wherever possible, low flight over occupied buildings.”

AIR QUALITY

Cermak Peterka Petersen (CPP) has undertaken an assessment of the helipad to assess the potential for helicopter exhaust fumes to contaminate the Acute Hospital building's air intakes. The locations of the intakes are shown in CPP's Qualitative Turbulence and Air Quality Study report which is included in **Appendix I**. The CPP report states:

“It is likely that odour thresholds for helicopter exhaust will be exceeded at the air intakes on the south side of the building, particularly on the upper floors. Under certain conditions, helicopter odours may be noticeable even at the lower set of primary intakes, at level 5.”

The report recommends the implementation of passive and/or active systems to minimise the impact of odour from helicopter exhaust to acceptable levels. Details of the suggested active and passive mechanisms are contained in CPP's report, and include activated carbon filters or management systems to block outside air from temporarily entering the air conditioning system.

As noted in the CPP report, the extent of any active or passive measures required will be determined from wind tunnel results. Specifically, the report states:

"Exhaust dispersion testing, conducted using physical modelling in a wind tunnel, will be conducted to quantify pollutants and determine which air intakes may require these special measures."

We confirm that the mechanical ventilation will be designed as per Statement of Commitment SC 17 made with the original Project Approval.

STRUCTURAL AND HYDRAULIC ADEQUACY

The project's structural engineers, Hyder have confirmed that the current design of the Acute Hospital building may accommodate the additional load of the helipad structure and the increase in building height. Hyder's statement of structural adequacy is included as **Appendix J**.

Warren Smith & Partners have assessed the hydraulic implications of the new helipad and confirm that the helipad will have minimal impact on stormwater management. The hydraulic assessment is included in **Appendix K**.

4 CONCLUSION

The proposed modification to include a new helipad is considered to be critical to facilitate the efficient delivery of emergency patient care services at the Royal North Shore Hospital. No significant adverse environmental impacts are expected as a result of the proposal. Noise impacts associated with the proposal are considered to be reasonable and generally comply with acceptable noise limits.

The proposed minor increase in height of the Acute Hospital building is considered to have no significant adverse environmental impacts and does not result in any significant overshadowing compared to the original Project Approval.

The modified design continues to comply with the relevant provisions of the Concept Approval and is generally consistent with the current Project Approval as modified. The proposal is considered to be firmly within the public interest and it is recommended that approval be granted to the proposed revisions.

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