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Planning

Working Beyond Expectations

Section 75W Modification (MP 06_0309) MOD 3

Further Preferred Project Report

Proposed Trinity Point Helipad

Property:
Pt Reserve 10121129 Crown Land (Lake Macquarie), which includes land for lease purposes shown on DP 1252681
Adjoins Part Lot 32 DP 1117408

Adjoins No 71 Trinity Point Drive,
Trinity Point, Morisset Park

Applicant:
Johnson Property Group Pty Ltd

Date:
May 2019

Document Control Sheet

Issue No.	Amendment	Date	Prepared By	Checked By
A	Draft	20 May 2019	SH	CM
B	Draft	21 May 2019	SH	CM
C	Final	22 May 2019	SH	CM

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1.0 Introduction

On 28 October 2016 an Environmental Assessment Report (EA) prepared by ADW Johnson Pty Ltd was submitted to the NSW Department of Planning & Environment (DPE) in support of a Section 75W modification application (MOD 3) for the addition of a helipad to Concept Approval 06_0309 for the Trinity Point marina and mixed use development. The MOD 3 application was lodged by the proponent, Johnson Property Group Pty Ltd (JPG).

MOD 3 was publicly exhibited from 17 November 2016 to 20 January 2017. Exhibition was originally scheduled to conclude on 16 December 2016 however this was extended to 20 January 2017 by the NSW DPE. A Preferred Project Report, responding to government agency and public submissions was submitted in April 2018 including provision of addendum reporting, without modifying the proposal. The Preferred Project Report was notified between 27 June 2018 and 10 July 2018.

The application is the subject of Land and Environment Court Proceedings 2018/207343.

Amendments are proposed to the application as a consequence of discussions with DPE occurring as part of those proceedings, generally as follows (and as further described within this report and its attachments):

- Helicopter movements to be restricted over residential area of Bardens Bay and part of Sugar Bay, identified as an "exclusion area" for all helicopters (at any height) using the helipad;

- Specific flight paths have been removed and a take-off and landing area (for movements over water below 500 feet) provided to the south and east of the helipad over water;

- The number of daily flight movements has been reduced to a maximum of six movements per day, with a maximum 38 movements per week retained;

- To reflect changing helicopter types within the Australian market since the original application, the Airbus 135 has been replaced by AS355F. This is smaller and lighter than the design helicopter for the pontoon (being the Agusta Westland AW109), which is unchanged;

- The size of the helipad pontoon has been increased to 25m x 25m (without change to the design helicopter) with a minor shift in location of the centre of the helipad and to the minimum 30m managed safety zone, to reflect that change;

- A maximum managed safety zone is introduced to reflect detailed downwash assessment when operations occur in strong winds, being a distance measured 66.5m radius from the centre of the helipad;

- Updated Principles 11, 14 and 15 are included, as amendments to the approved Trinity Point Concept Plan Revised Principles, Objectives and Urban Design Guidelines to:

    - reinforce environmental water management requirements for the helipad;
    - identify siting and staging of the helipad relative to the marina;

- reinforce the helipad exclusion and take-off and landing areas, as well as movement and timing restrictions;
- include requirement for on site weather station, with trained staff, to provide weather data to pilots prior to landing and departure to enable informed landing and departure decisions to be made;
- require various operational and management requirements to be documented within a Helipad Operations Manual, with the Manual to be approved and in place prior to commencement of the use.

The report is also supported by additional specialist reporting where considered necessary, being a rotor downwash assessment report as well as additional acoustic, ecological and social information.

A final Helipad Operations Manual has been identified to be prepared and approved following receipt of development consent and detailed design but prior to commencement of the use. To inform assessment if relevant, an updated draft Helipad Operations Manual is provided (and supersedes the draft provided in the original Environmental Assessment Report).

This report has been prepared as a Preferred Project Report (PPR). The format is as follows:

- Section 1 provides an introduction and summary of the amended particulars;
- Section 2 provides an updated description of the proposed development, helipad concept design and helipad operations, incorporating the amendments;
- Section 3 provides the findings of additional specialist reporting provided within the appendices of the report; and
- Section 4 provides a Conclusion.

2.0 Amended Description of Proposed Modification

Section 1.0 provides a summary of the amendments proposed to the application as part of the current Land and Environment Court proceedings.

To assist, a complete amended description of the proposed modification is provided in this Section, to replace that provided in Section 3.0 of the original Environmental Assessment.

2.1 OBJECTIVES

The original key objectives of the proposed modification were articulated as follows:

- To modify Concept Approval 06_0309 for the inclusion of a proposed helipad. The proposed helipad is to be integrated into the approved marina design.
- To provide a helipad facility, which will support the operation of a five star resort within a regional tourist destination on the western side of Lake Macquarie.
- The proposed helipad will offer an alternate transportation means for visitors accessing the Trinity Point Marina and Mixed Use development.
- Subject to separate Development Application (inclusive of an Environmental Impact Statement), allow the construction and operation of a helipad attached to the approved and under construction Trinity Point marina.

These key objectives remain, with the amendments introduced as a consequence of discussions with DPE occurring and to further reduce impacts to residents and other uses including the Brightwaters Christian College, sited around Bardens Bay and in the general locality.

2.2 DESCRIPTION OF THE PROPOSED HELIPAD

Full construction, design and operational detail of the original proposed helipad is contained within an Environmental Impact Statement which accompanied DA 1176/2014 (lodged with Lake Macquarie City Council and currently also subject to separate Land and Environment Court proceedings). Amended particulars as identified within this report will also be introduced into those proceedings.

Amended plans of the proposed helipad are provided within **Appendix B and C** of this Report.

2.2.1 Proposed Exclusion Area and Take-Off and Landing Area

The proposed exclusion area and designated take-off and landing area are shown in **Figure 1** below (refer also ***Appendix B)*** and are described below.

- No helicopters using the helipad are to fly within the exclusion area (at any height). For the avoidance of doubt, helicopters that are not using the Trinity Point Helipad are not excluded from flying in the exclusion area; and
- All helicopters must land and take-off (ie operate below 500 feet) within the designated

take off and landing area (generally being 1200m from the helipad for movements over water below 500 feet, other than the eastern extent which has been limited to less than 1200m distance to match an existing observable feature within the lake and as assessed by specialists).

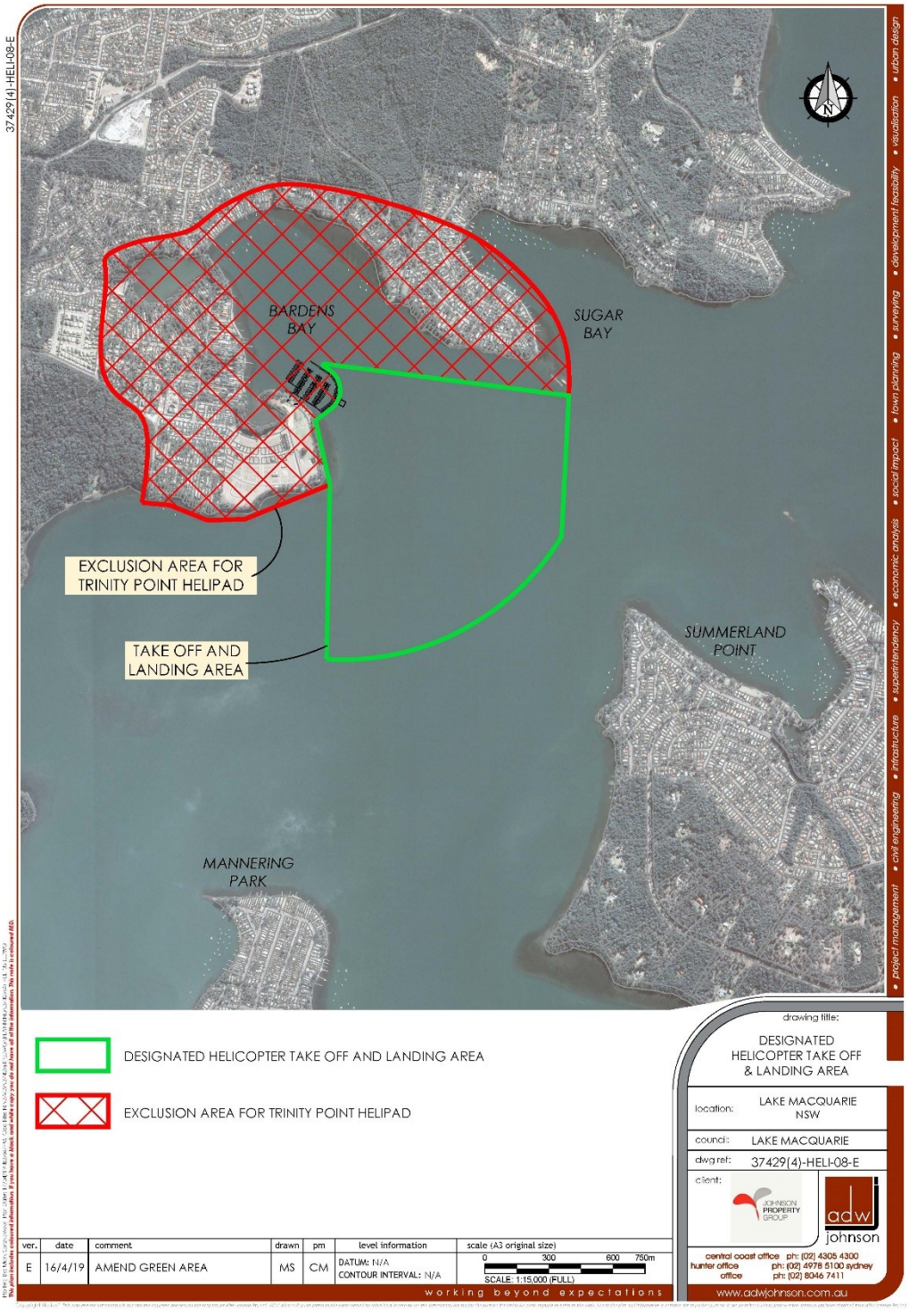

Figure 1 - Proposed Exclusion Area and Designated Take-Off and Landing Area

These areas will be conditional to use of the helipad, with the limitations communicated to pilots and users of the helipad through a prior permission protocol, and through a Helicopter Operations Manual (HOM) to be finalised and approved prior to the use commencing.

The introduction of the exclusion area and designated take-off and landing area may limit use of the helipad in certain wind conditions, compared to the original proposal that included movements towards the north. The applicant accepts that limitation. If a pilot determines that wind or other conditions do not allow safe movement confined to the designated take-off and landing area, helicopters must not undertake that movement. In order to provide appropriate information to inform and aid pilots' decision making relating to weather and wind data prior to take-off and landing, it is proposed to install a meteorological observing station at Trinity Point, in addition to the wind indicator pole originally proposed. Staff, appropriately trained to use the station and for radio or other communications, will voice communicate this information to pilots.

Additionally, the pilots will be informed through the prior permission protocol that the helipad environment includes a marina with berths that the helipad is attached to, and a water environment in which watercraft outside the marina but within the designated take-off and landing area may be present at any time. The immediate vicinity of the helipad (being within nominated minimum and maximum safety management areas) will be managed by an on ground HLS manager in accordance with set procedures (and communicated to pilots prior to the movement). If the pilot determines that the presence of watercraft outside that immediate area presents an obstacle to safe movement or helicopter movements would create a hazard to other water users, and the watercrat cannot be safely avoided whilst remaining confined to the designated take-off and landing area, helicopters must not undertake that movement. The requirement for pilots to check, avoid obstructions and not generate unacceptable downwash impacts exists under Aviation Safety provisions with or without specific procedures for this helipad. Given the marine environment of this helipad, these circumstances are emphasised for the helipad with an additional operational procedure added requiring visual checks of at least 130m distance from the helipad prior to take-off movements to assist pilots make informed choices based on their obligations that exist under Aviation Safety Regulations.

Each of these matters are identified in the amended Concept Plan Principle 15, as well as the draft HOM.

2.2.2 Proposed Helipad Design

The proposed helipad has been designed to form an integrated component of the marina. It will be constructed at any stage of the marina, noting that Stage One of the marina which provides the adjoining breakwater and connection back to land is already constructed and in operation.

The key concept details of the proposed helipad are shown in **Figures 2-4** below (refer also ***Appendix C***) and are described below.

- The pontoon design remains based on the Agusta Westland AW109 as the design helicopter, as described within the previous environmental assessment reporting, other than the pontoon size has increased;

- A 25m x 25m pontoon (which exceeds the minimum 20m x 20m FATO required for the design helicopter) with at least 4 x corner telescopic piles will be constructed. The

corner telescopic piles are anticipated to be 600mm diameter. The number of piles, diameter and design will be subject to detailed design. The piles will not extend above the pontoon so as not to present a safety hazard during helicopter movement, and their installation does not require dredging;

- The pontoon will be connected to the marina by a 1.5m wide x 17m long gangway and three, 3m x 4m pontoons, with one pile. In accordance with Civil Aviation Safety Authority (CASA) guidelines, the pontoons will not contain a handrail. If during detailed design it is determined by a qualified aviation consultant that a safety net is a desirable addition to the helipad, this can be provided, and has been notated on the plans;

- The pontoon will likely be constructed of concrete to match the design of the marina breakwater structure. The gangway will be a hinged aluminium gangway;

- The helipad pontoon will sit in the water similar to the marina outer breakwater structure. Preliminary engineering identifies that the helipad will sit 700mm above water level with 600mm draught below water level;

- The pontoon and piles will be located within the registered Trinity Point lease area, documented on DP 1252681 (refer ***Appendix A*** and as now overlaid onto the proposal plans);

- Helipad marking will be consistent with Civil Aviation Safety Authority (CASA) guidelines (being CAAP 92-2 Guidelines for the establishment and operation of onshore Helicopter Landing Sites), reflect the designated take-off and landing area and finalised as part of detailed design and based on final advice from a qualified aviation consultant;

- Water quality measures will be implemented including:

    - Bunding of the helipad to prevent runoff from directly entering the lake;
    - Provision of readily accessible oil / fuel spill kits and containment boom; and
    - First flush treatment for the deck of the pontoon structure;

- The marina is connected to services, which will, where necessary, also service the helipad;

- Provision of two (2) 9kg fire extinguishers in red cabinets on the marina breakwater';

- A wind indicator will be attached to a marina pole as required;

- A bollard and chain will be installed on the marina at the gangway connection to restrict access to the helipad;

- Two (2) bollards will be installed on the marina gangway either side of the maximum managed safety zone (refer operational details below) so that access is physically restricted within the managed safety zone on the marina breakwater during helicopter take-off and landing movements. Access to this part of the breakwater is security gate controlled from the land, so the access control will be for berth owners, or any public utilising the causal berthing further along the breakwater; and

- Two (2) flashing lights will be installed to marina pillars for use when a helicopter take-off or landing is occurring.

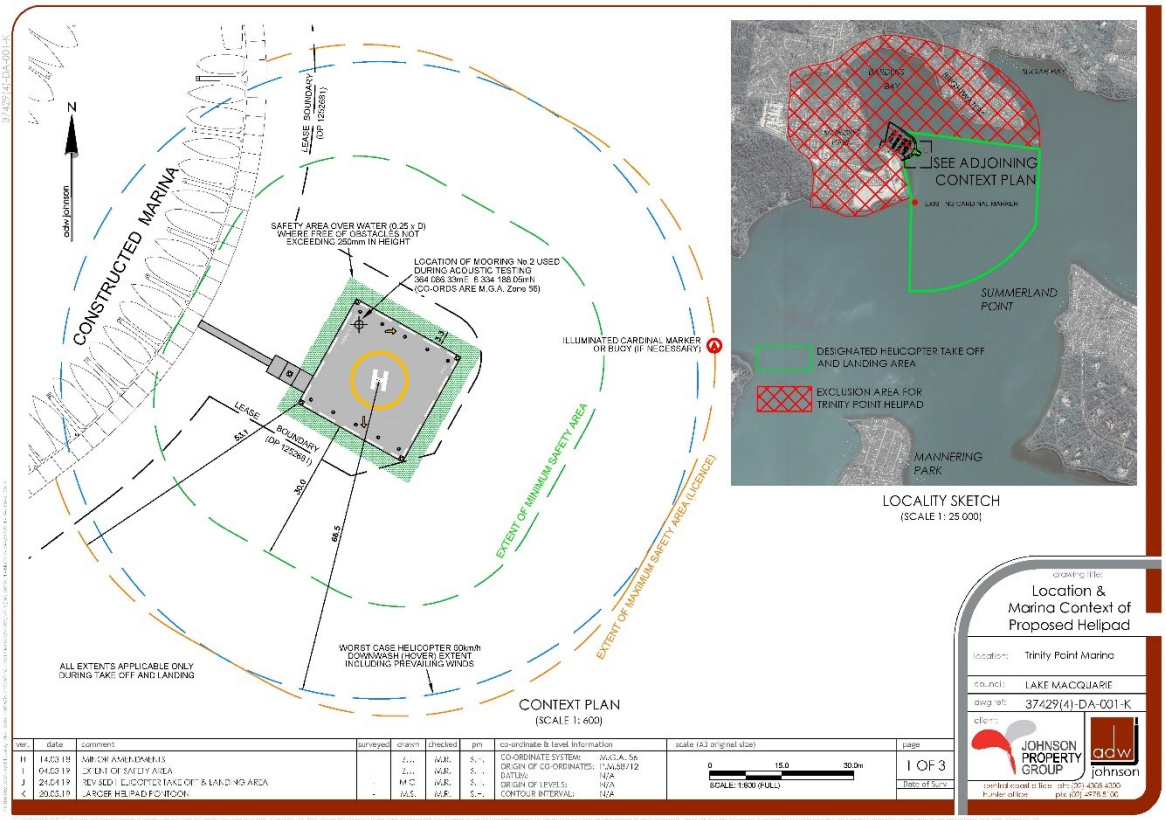

Figure 2 - Proposed Helipad.

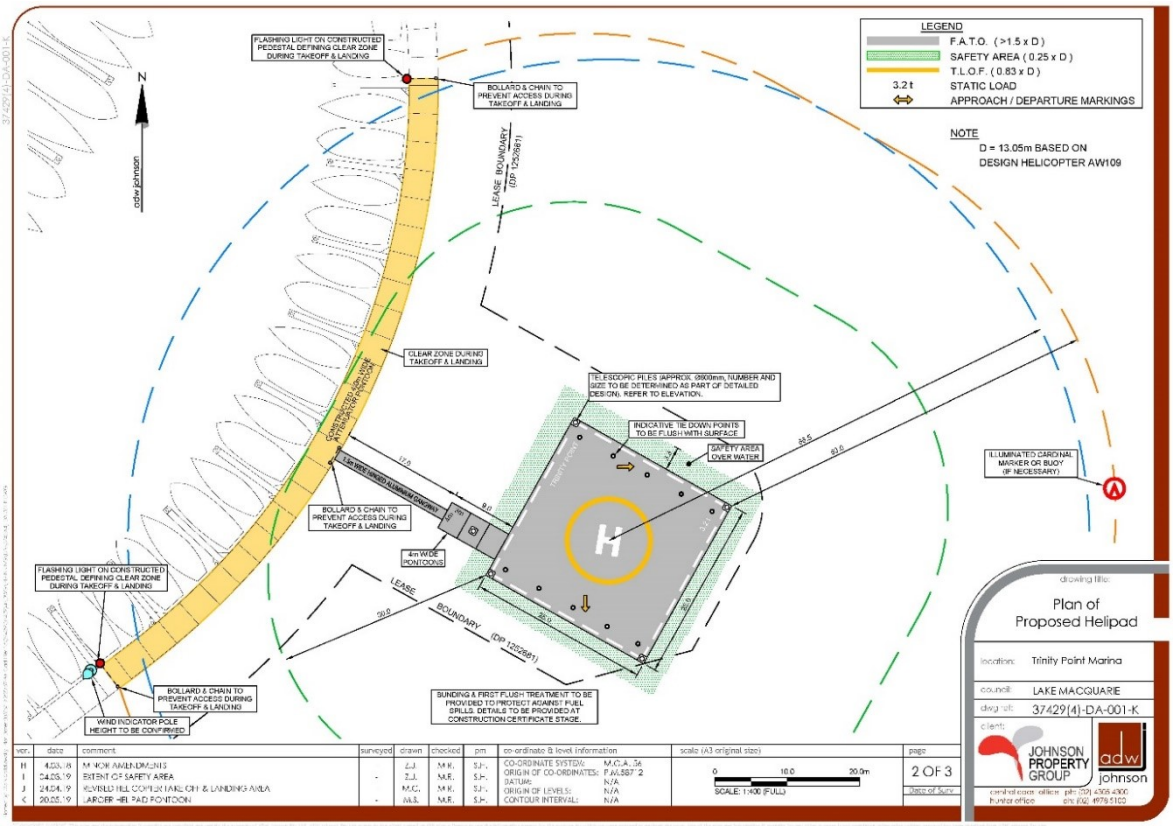

Figure 3 - Concept Proposed Helipad Design.

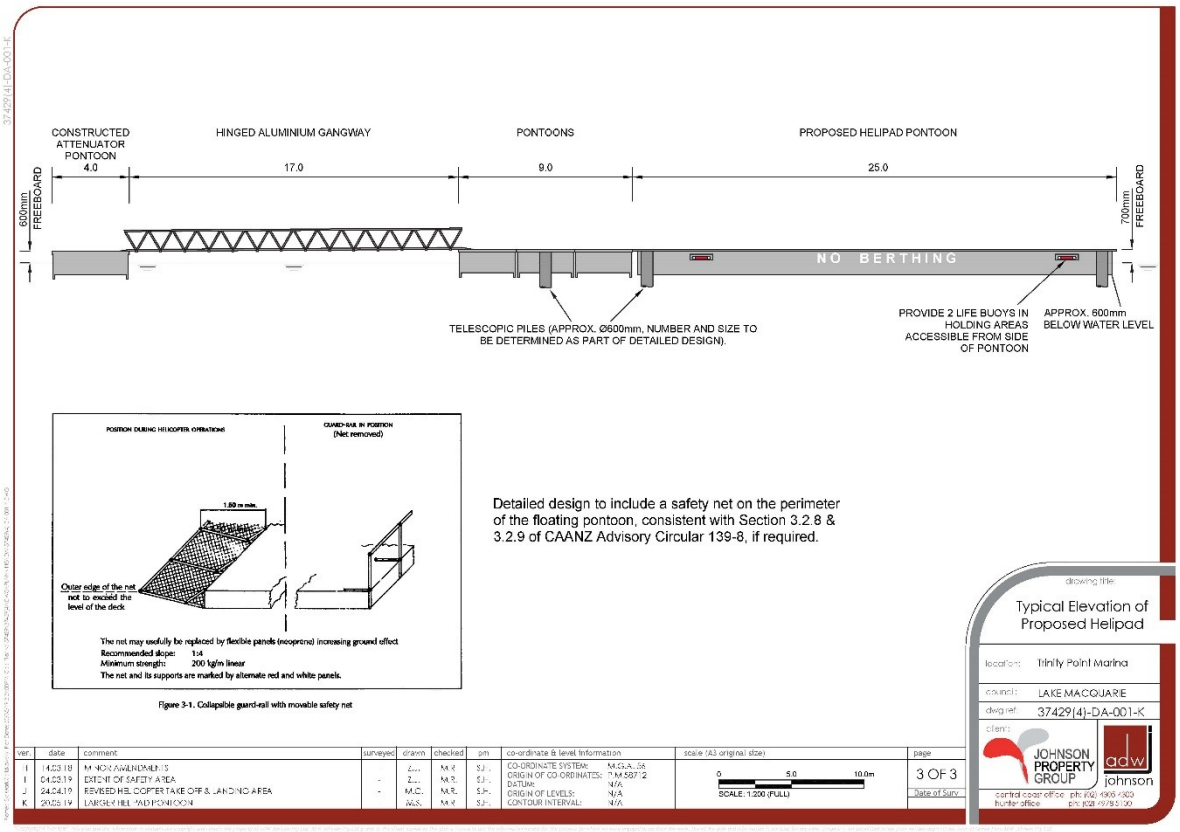

Figure 4 - Concept Proposed Helipad Elevation.

2.2.3 Proposed Helipad Operation

The key concept operational details for the proposed helipad (in addition to the proposed exclusion area and designated take-off and landing area, access to weather information and avoiding obstructions and impacts on other water users as described earlier) are as follows:

- A maximum of six (6) movements per day (ie. 3 landings and 3 departures).
- A maximum of 38 movements per week (ie. 19 landings and 19 departures).
- Operating hours from 8am (Mon-Sat) and from 9am (Sun and public holidays), through to sunset (with time seasonally variable), with no night time use. Note: 'Sunset' refers to the definition as published by Australian Government Geoscience Australia (http://www.ga.gov.au/geodesy/astro/sunrise.jsp).
- The proposed helipad has been designed and assessed to be suitable for use by small single turbine engine helicopters, with occassionally medium sized helicopters, and includes the following helicopter types (or those of type equivalents that do not exceed the weight and size limitations of the HLS and can safely operate within the designated take-off and landing area):
    - Bell 407

- Bell 206B
- Bell 206L
- McDonnell Douglas MD 500 C/D/E
- Airbus H125 (formally Ecureuil AS350)
- Airbus 120
- Airbus 130
- AS355F
- Agusta Westland AW109.

The design helicopter for the pontoon is AW109.

- Additionally, to limit use of the HLS by inexperienced pilots, Robinson R22/44 are precluded. Joyflights are also precluded.

- No refuelling of helicopters is proposed.

- No maintenance of helicopters is proposed.

- The helipad pontoon, contained within an existing lease area, will exclude the general public at all times and this will be controlled by a bollard and chain on the marina breakwater where it connects with the gangway access to the helipad, and if required a collapsable guardrail/safety net around the pontoon edge.

- A 'prior permission' protocol is intended. This will enable information to be communicated and agreed to by users of the helipad , including type of helicopter that can land, the exclusion area, the designated take-off and landing area, operating hours, the helipad environment (including adjoining marina and presence of other water users) and conditions of use and communications, as well as inspections, registers, important procedures, complaint management and monitoring and reporting to occur during the use.

- A 30 metre wide minimum managed safety zone measured from the edge of the helipad pontoon will be implemented during take off and landing movements only to satisfy minimum CASA requirements. This zone will not apply during times when no helicopters are arriving or departing the site.

- An expanded managed safety zone, measured 66.5m from the centre of the helipad, will be implemented when necessary during take off and landing movements only, to satisfy worst case rotor downwash impact in wind conditions for all helicopter types during touchdown, lift off and hover conditions as reported in the downwash assessment (refer ***Appendix E***). This zone will also not apply during times when no helicopters are arriving or departing the site.

- The managed safety zones will be managed by appropriately trained marina staff in accordance with an operations manual and includes:

    - access control (via closing of bollards and chains on the marina breakwater as described earlier) and inspection and removal of any foreign or loose objects on the helipad pontoon and that part of the marina breakwater structure between the access control;
    - exclusion of persons and watercraft from within the waters that form part of the

managed safety zones during take off and landing operations only, or otherwise advise pilot of presence and requirement not to land or take-off; and
- in strong wind conditions only, checking and confirming no persons are above deck on boats berthed within up to 15 berths within the marina.

Once the managed area is inspected, confirmation is to be communicated to pilots prior to landing or take-off, and flashing lights turned on.

In consultation with maritime authorities the applicant has confirmed that management of the safety areas (where outside the lease area) can occur by licence, with a further option identified to mark the extent of the safety management area via provision of a cardinal marker (or a buoy) that aligns with an existing cardinal marker to the south and the leading edge of the marina breakwater to the north.

- A Helipad Operations Manual (HOM) is to be approved and in place before use of the HLS commences. An updated draft HOM is provided within **Appendix D** of this Report for information purposes. This illustrates the type of operational control and reporting and review intended and considered critical to the the successful co-existence of the helipad with the marina and tourist destination, boat owners, pilots and helicopter operators, visitors arriving and departing by helicopter, the public that lives around Bardens Bay and recreational users of the waters around Bardens Bay. Those draft operational, reporting and review controls include:

  - Site and Operations including key operational parameters for the helipad;
  - Prior Permission Protocol including flowchart;
  - Helicopter Exclusion Area;
  - Environmental and Safety Checks of Helipad;
  - Flight Movement Management, including tracking of movements;
  - Flight Safety including over water and access to on site weather information;
  - Managed Safety Areas and Rotor Downwash;
  - Fly Neighbourly;
  - Bird Avoidance;
  - Noise Management and Monitoring;
  - Environmental Management and Monitoring;
  - Incident Management and Emergency Response;
  - Communication Protocol and Complaints Management;
  - HLS Staff Training;
  - Security;
  - Maintainance and Refueling Exclusions;
  - Reporting and Review including:
    - register of operations (daily and weekly)
    - environmental performance monitoring and reporting (linked to the operating marinas monitoring and reporting)
    - auditing, compliance and reporting (including two audits in the first 12 months of operations, and an annual audit each year after plus a compliance audit against the HOM and conditions within the first three years, and every 3 years after), and
    - revision and document control.

The draft will be subject to updates to reflect approval conditions, additional emergency procedures relating to forced landings and detailed design for approval by

the consent authority authorising the operation and use, with a final approved HOM to be in place prior to commencement of the helipad use.

- During the proceedings, an issue was raised about the take-off procedure for the H125 helicopter as set out in its Rotorcraft Flight Manual (RFM) and the potential for downwash and other impacts. The requirement for pilots to check, avoid obstructions and not generate unacceptable downwash impacts exists under Aviation Safety provisions with or without specific procedures for this helipad.

  If a pilot considers that it is necessary to take-off from the helipad at a low profile for a distance that will exceed the managed safety zone (for example, hovering at a low height and accelerating without climbing until reacing required speed, the HOM provides for a specific procedure prior to take-off to assist pilots to ensure that the take-off is safe and complies with Aviation Safety requirements:

  - Both the helipad officer and the pilot are to make a visual assessment from the helipad for the presence of any other water users within a distance of 130m from the helipad. If conditions limit visibility across that distance (unlikely), a land and/or water check of that area is to be undertaken to make an informed departure choice.

    If the pilot determines that wind conditions permit, take-off procedures must avoid any water users to minimise the risk of physical impact.

  - If the pilot determines that wind conditions do not permit safe take-off whilst avoiding the other water user/s as above, then the movement shall not occur until such time as it can be safely undertaken.

  This procedure will only apply in circumstances where the pilot considers it necessary to take-off from the helipad at a low height over water without climbing before exiting the managed safety zone.

2.3 CHANGES SOUGHT TO CONCEPT PLAN APPROVAL

The application seeks that MP 06_0309 be updated to enable a helipad, connected to the approved marina, to be included within the concept plan, as amended.

In addition to incorporating that land use and updating development descriptions within any updated terms of concept plan approval, additional requirements may be added through assessment and determination. Where relevant, those would then sit within the modified concept approval and consistency with those will be required for subsequent construction and operation of the use.

The structure of MP 06_0309 currently includes a set of Urban Design Guidelines (UDG) that has most recently been approved by NSW DPE in November 2015. That includes an indicative summary figure, and a set of principles on key land uses and aspects of the concept plan.

Figure 5 overlays the addition of a proposed helipad onto the approved concept plan summary figure. This is supplied as an A3 plan also in **Appendix G**.

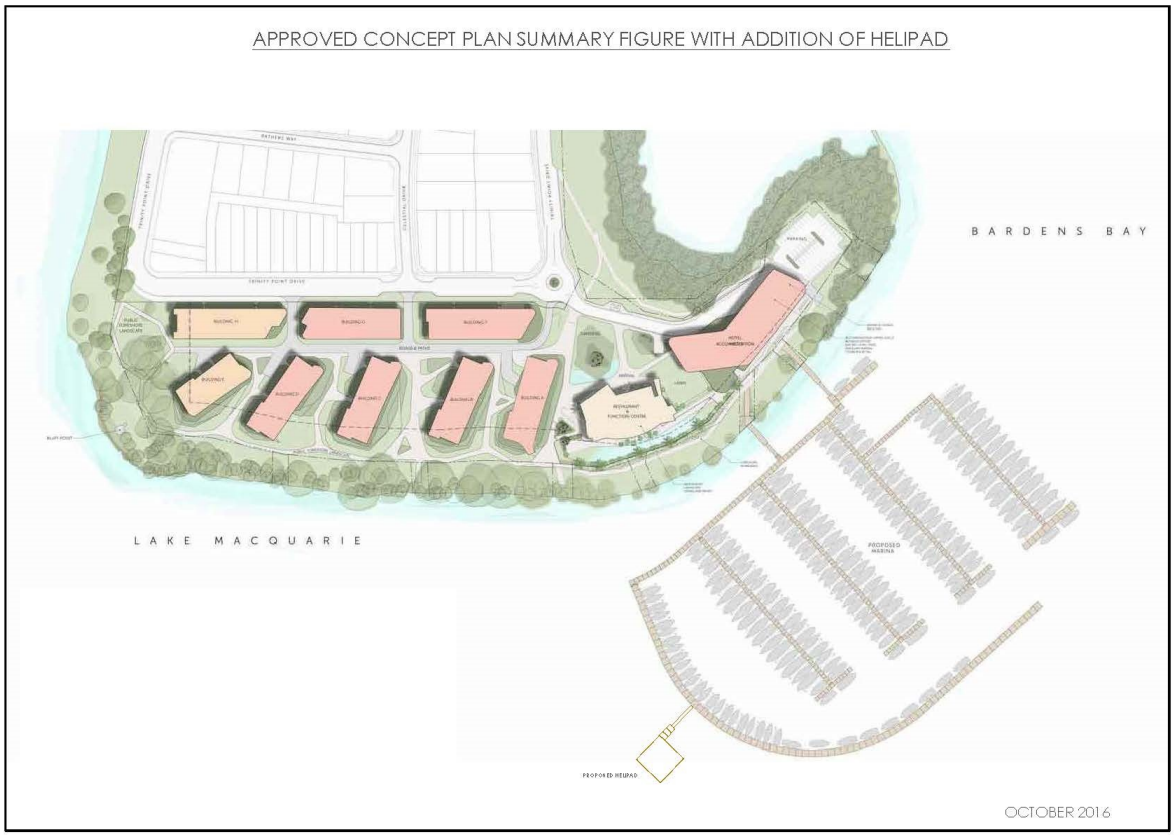

Figure 5 – Summary Concept Plan Figure with Helipad added.

Additionally, noting the structure of the approved UDG (Dec 2015), the original EA for Mod 3 sought to consolidate the critical aspects of the proposed land use into a single new principle relating to the proposed helipad, similar to the principle that exists for the marina. An amended principle (Principle 15- Helipad) has been prepared and also attached in **Appendix G.** Minor additions are also included to Principle 11 – Water Management and Principle 14 – Marina, to reflect the helipad proposal (refer also **Appendix G**).

A consolidated amended UDG, redated to May 2019, and incorporating amended Principles 11, 14 and 15 from **Appendix G**, is included in **Appendix H.**

It is not intended to provide any new Statement of Commitments associated with this modification, noting that key commitments associated with the proposed use are included in other documents.

3.0 Additional Assessments

Additional assessments in support of the amendments proposed as part of the Land and Environment Court proceedings is attached to this report, and include the following:

- Additional Acoustic Report relating to the amended proposal (refer **Appendix J**);
- Additional Ecological Report relating to the amended proposal (refer **Appendix I**);
- Helicopter Downwash Assessment (refer **Appendix E**);
- Addendum relating to H125 RFM Normal Operations for Take-Off Movements (refer **Appendix F**);
- Amended Stakeholder Engagement Plan (refer **Appendix K**); and
- Response to Strategic Documents (refer **Appendix L**).

3.1 ADDITIONAL ACOUSTIC ASSESSMENT

An additional acoustic assessment relating to the amended proposal is included in **Appendix J**, prepared by The Acoustic Group. This is based on the revised assessment provided with the original PPR, updated to reflect the amendments.

The assessment identifies that relative to distance from monitoring locations (refer **Figure 6**) to the designated take-off and landing area, location 7 will have no difference in noise, location 6 will have similar nose, locations 2 and 5 will have slight reduction in noise and locations 3 and 4 will have a significant reduction in noise. However, additionally, due to the reduction in daily movements to only six, the amended proposal will result in lower ANEF levels at all reference locations, and achieve ANEF levels significantly less than the ANEF 20 residential limit.

Figure 6 – Monitoring Locations

3.2 ADDITIONAL ECOLOGICAL ASSESSMENT

An supplementary ecological assessment is included in **Appendix I**, prepared by MJD Environmental.

This is supplementary to the MJD (2018) Assessment (the original assessment). It is noted that the MJD (2018) Assessment formed part of the PPR (April 2018) and also the submitted Environmental Impact Statement lodged with Lake Macquarie City Council under DA 1176/2014. In correspondence dated 26 June 2018, Office of Environment and Heritage (OEH) advised Lake Macquarie City Council that they were satisfied with the threatened biodiversity assessment proposed, and no further assessment was required.

The supplementary assessment is provided to provide additional assessment due to the amended proposal and in particular the designated take-off and landing area. It has used the some methodology accepted in the original assessment, and an adjusted study area and some additional field survey undertaken at three sites (refer **Figure 7**), being to:

- Sugar Bay – East;
- Fishery Point;
- Frying Pan Bay –Boat Ramp/Jetty.

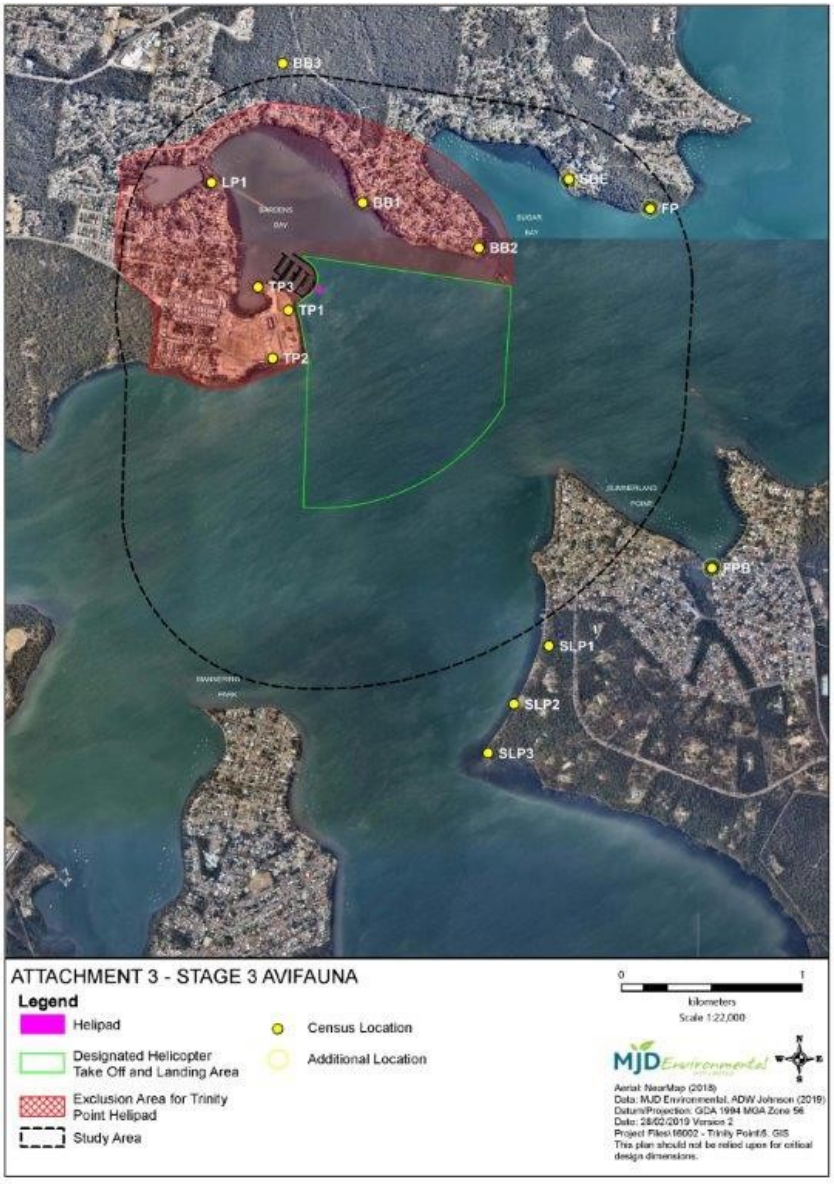

Figure 7 – Adjusted Study Area and Supplementary Avifauna Survey Locations

Results are presented together with a summary of findings. Impacts within the Study Area are detailed in the original Assessment, with the additional survey areas subject to the same indirect impacts, with bird mortality as a result of striking helicopters in flight and low levels of noise impacts due to helicopter operations being the primary potential impact. Direct impacts as described in the original Assessment will not occur in the additional survey areas.

The likelihood of occurrence and potential impact on threatened flora and fauna species is provided (unchanged from the original assessment), and species where potential for impact as considered have been further assessed under an Assessment of Significance, being for the White Bellied Sea Eagle and Eastern Osprey (being the same species assessed also in the original assessment).

The additional survey areas did not contain any significant habitats, or habitats different from those recorded in the original Assessment, and no additional threatened flora or fauna species were recorded.

The original Assessment and 7-Part Test considered whether the proposed helipad would have the potential to constitute a significant impact on known threatened species (particularly Avifauna) and populations from the locality such that a local extinction may occur.

The assessment concluded that the proposal was unlikely to have a significant impact on the threatened entities assessed. The supplementary assessment advised those conclusions remain accurate within the additional areas survey and the adjusted study area arising from the designated take-off and landing area now proposed.

The assessment concludes that the proposal as amended is unlikely to have a significant impact on threatened species, populations, or ecological communities listed under the Threatened Species Act (as repealed, in force at time of lodgement) or the EPBC Act.

3.3 HELICOPTER DOWNWASH ASSESSMENT

A helicopter downwash assessment is included in **Appendix E,** prepared by JJ Ryan Consulting Pty Ltd. The report assesses downwash associated with the proposed amended helipad and the designated take-off and landing area to inform any amendments required and to determine if these significantly impact surrounding stakeholders including the marina operations, the Mannering Park Amateur Sailing Club (MPASC) and general lake users of the Lake Macquarie waterbody.

The assessment provides a comprehensive outline of its methodology, and identifies recommended maximum wind velocities from aviation provisions for different exposure types (including people and objects), and also identifies water craft types most sensitive to helicopter downwash and identified various wind speeds limits for begineers and amateur sailing. It reports that the velocity extents once calculated determine a safe distance from operating helicopters for various elements as follows:

- Downwash velocities should not exceed 80km/hr for areas where people are not expected to congregate (and personnel working);
- Downwash velocities should not exceed 60km/hr for areas where people have to walk and are expected to congregate;

- Downwash velocities should not exceed 20km/hr for areas where watercraft may be operating (as a conservative acceptable velocity).

The assessment of downwash during hover conditions was based on using a helicopter with a maximum rotor disc loading greater than others listed to land at the helipad (to provide conservative downwash calculations). The assessment also calculated downwash exacerbated by worst-case prevailing wind direction (conservatively applied to all directions).

The results are summarised in **Table 1** below (note that the distance is measured from the centre of the helipad). The downwash velocity envelopes are also shown on plans included in **Appendix E**.

Table 1 Downwash Velocity Envelope Results Summary (at pontoon during hover)

Helicopter Manufacturer & Model	No Wind		Max Wind	
	80km/hr contour (m from centre of pontoon)	60km/hr contour (m from centre of pontoon)	80km/hr contour (m from centre of pontoon)	60km/hr contour (m from centre of pontoon)
Bell 206B	10.5	23.3	29.8	52.2
Airbus H125	22.1	28.1	43.4	57.0
Bell 206L	19.8	25.3	39.0	51.2
Airbus 130	23.9	28.0	37.1	56.4
Agusta AW109	27.0	36.9	36.6	61.7
Airbus 120	20.6	26.3	40.6	53.3
AS355F	24.1	28.2	37.4	56.8
Airbus 135	29.1	39.7	39.3	66.4
Bell 407	23.4	27.3	36.3	55.1
MD500E	22.7	28.9	44.6	58.6

The conservative downwash calculations identified that the 30m minimum managed safety zone (measured from the edge of the pontoon) readily accommodates helicopter downwash in the following instances:

- At the pontoon during hover conditions and during calm conditions for both 60km/hr and 80km/hr downwash velocity envelopes for all helicopter types; and
- At the pontoon during hover conditions and accounting for worst case wind conditions, the 80km/hr downwash velocity envelopes for all helicopter types;

This assessment confirms that foreign object debris (FOD) is only relevant to the 80km/hr downwash velocity envelope and therefore is relevant only within the 30m minimum managed safety zone (which doesn't extend into marina berths).

A key recommendation arising from preliminary assessment was to introduce a maximum safety managed safety zone to accommodate the 60km/hr downwash velocity accounting for wind conditions. This was calculated at 66.5m measured from the centre of the helipad (refer **Table 1** above), and has been included within the amended proposal and shown on plans. It is noted that with the exclusion of the Airbus 135, the next worst-case distance is 61.7m (for the Agusta AW 109).

Based on the minimum and maximum managed safety zones for hover downwash, it was also decided to shift the access controls on the marina breakwater as proposed to the outer edge of the maximum zone (so that the one set of access controls can be used in both calm and in wind conditions). This has been included within the amended proposal and shown on plans.

The assessment identifies that between 7-14 marina berths will sit within the 60km/hr downwash velocity accounting for worst case wind conditions (with varying numbers of berths in that range for different helicopter types). It recommends that those berths be checked by the HLS Manager as part of pre-movement procedures, with no persons to be above deck on those boats during the helicopter movement in those conditions only. The draft HOM (***Appendix D***) includes a specific procedure to reflect this recommendation, simplified to the worst case (to check up to 15 berths).

Procedures to be undertaken by the HLS manager prior to movements for those parts of the minimum and maximum managed safety zones that sit over water and outside the marina breakwater have been included in the draft HOM (***Appendix D***). These require the HLS manager to check the relevant zone is free of the general public 15 minutes prior to the movement, request it to be made free of general public or advise the pilot that general public is present and that the movement is to be delayed.

These managed zones are relevant only immediately prior to landing or take-off movements until helicopters have cleared the zones.

During the proceedings, an issue was raised about the take-off procedure for the H125 helicopter as set out in its Rotorcraft Flight Manual (RFM) and the potential for downwash and other impacts. The requirement for pilots to check, avoid obstructions and not generate unacceptable downwash impacts exists under Aviation Safety provisions with or without specific procedures for this helipad.

Appendix F includes an addendum memo also prepared by JJ Ryan Consulting Pty Ltd to address and clarify the downwash assessment as it relates to take-offs from hover, and specifically for the H125 helicopter RFM. JJ Ryan Consulting Pty Ltd consulted a pilot to inform the take-off movement consistent with the RFM to inform downwash assessment, which was then further verified by first-principles calculations.

The addendum memo identifies that the downwash velocity envelope is based on the H125 rotor height of approximately 5.0m above water (based on height of pontoon surface above the water, 1.5m hover height from RFM and the height of the rotor above the skids). It identifies that the helicopter would reach an acceptable and conservative downwash velocity of 20km/hr for watercraft at a helicopter indicated airspeed of approximately 55km/hr (30kts). It calculates that it would reach that at 70m from the centre of the helipad.

The addendum concludes that the maximum managed safety area (66.5m) is generally suitable from a downwash perspective for operations of H125 in accordance with the RFM. It also reports that the H125 RFM appears to be the more prescriptive RFM from a take-off perspective, and therefore, if the maximum managed safety area is applied consistenty for all helicopter types, unacceptable downwash velocity effect will not occur to other water users elsewhere on the lake.

Noting that the H125 RFM requires the take off movement to continue without climbing past the 55km/hr indicated air speed, through to 74km/hr (estimated to occur at a distance of approximately 127m from the centre of the helipad). This means that obstacle clearance rather than helicopter downwash impacts governs aviation safety. This is addressed in this section for completeness.

The requirement for pilots to check and avoid obstructions exists under Aviation Safety provisions with or without specific procedures for this helipad. However, the draft HOM (***Appendix D***) has been updated to include a specific procedure prior to take-off to assist pilots to ensure that the take-off is safe relative to other water users beyond the specified maximum managed safety zone, as outlined earlier and within the HOM (requiring a visual check prior to take-off is completed for the presence of any other water users within a distance of 130m from the helipad, with those obstructions avoided (if wind conditions permit) or delaying the movement until such time as it can be safely undertaken.

3.4 AMENDED STAKEHOLDER ENGAGEMENT PLAN

An amended Community and Stakeholder Engagement Plan (CSEP) is included in **Appendix K**, prepared by Key Insights. An original version of this formed part of the PPR (April 2018) and also the submitted Environmental Impact Statement lodged with Lake Macquarie City Council under DA 1176/2014.

The amended CSEP includes changes to the operational phase engagement to reflect the amended proposal, and introduces a specific complaints management procedure that provides for:

- Contact details to school and sailing clubs connected to the HLS Manager;
- All calls to be responded to within 24 hours;
- Contact details to also be available to other neighbours and general community for enquiries/complaints;
- Nature of complaint and action take to be logged in complaints register and actions taken communicated to complainant;
- The HLS Manager will seek to resolve any issues directly with the complainant;
- If the complaint has arisen as a consequence of compliant activities, or actions not connected with the use of the helipad, the operator will provide a response and provide copy of complaint/response to Council on request;
- If investigation confirms that the complaint has arisen as a consequence of non-compliance with the development consent, the complaint will be referred to Council and complainant advised.
- Any audit of operations will include review of the complaints log to determine whether any repetitive complaints about compliant or unrelated activities are received. If so, the audit will include a review of the complaints and make recommendations for addressing the issue raised by complaints. Any such recommendations will be implemented by the HLS Manager;

These requirements have been incorporated and reflected within the draft HOM (**Appendix D**).

The amended proposal significantly reduces the perceived impacts previously identified by the Brightwaters Christian College, by not only removing any take-off and landing movements associated with the helipad to the north of the marina, but also including the

College site and its surrounds within an exclusion area, where no helicopters using the helipad are to fly within (at any height). As a consequence, there is unlikely to be any impacts from the amended proposed helipad on students, including special needs students. Notwithstanding, the HLS manager can engage in discussions with the College (and vice versa), or any other member of the community, as required.

The amended proposal now includes a downwash assessment report and addendum (refer **Appendix E and F**), which includes specific assessment relating to the MPASC Lake Macquarie sailing area and considers the height of helicopters using the designated take-off and landing area below 500 feet and associated downwash that may affect sailing craft. The northern extent of the sailing area is approximately 366m south of the helipad. The helicopter movements are significantly high enough and at speeds such that they can readily co-exist with the sailing area and not result in unacceptable downwash impact to any part of the sailing area, with no prevention or limitation on continued use of the sailing area. As part of communications, the HLS Manager is to obtain a calendar of sailing events and advise pilots of those events as part of the prior permission and pre-arrival procedures. This requirements has also been incorporated into the draft HOM (**Appendix D**).

As identified in Section 2.2.1, pilots will be informed through the prior permission protocol that the helipad environment includes a marina with berths and a water environment in which watercraft may be present beyond the specific managed safety management zones, including between there and the MPASC sailing area and within the designated take-off and landing areas. The requirement for pilots to check, avoid obstructions and not generate unacceptable downwash impacts to any such watercraft exists under Aviation Safety provisions with or without specific procedures for this helipad.

Similar to other members of the community, any issues raised by the school, the sailing club or other water users, will be investigated and managed in accordance with the complaints procedure and the draft HOM.

3.5 RESPONSE TO STRATEGIC DOCUMENTS

During proceedings, DPE requested additional response to various strategic documents, which is now provided in **Appendix L.**

3.6 DRAFT HELICOPTER OPERATIONS MANUAL

A Helipad Operations Manual (HOM) is to be approved and in place before use of the HLS commences. An updated draft HOM is provided within **Appendix D** of this Report.

This illustrates the type of operational control and reporting and review intended and considered critical to the the successful co-existence of the helipad with the marina and tourist destination, boat owners, pilots and helicopter operators, visitors arriving and departing by helicopter, the public that lives around Bardens Bay and recreational users of the waters around Bardens Bay. Those draft operational, reporting and review controls include:

- Site and Operations including key operational parameters for the helipad;
- Prior Permission Protocol including flowchart;
- Helicopter Exclusion Area;
- Environmental and Safety Checks of Helipad;

- Flight Movement Management, including tracking of movements;
- Flight Safety including over water and access to on site weather information;
- Managed Safety Areas and Rotor Downwash and additional visual checks;
- Fly Neighbourly;
- Bird Avoidance;
- Noise Management and Monitoring;
- Environmental Management and Monitoring;
- Incident Management and Emergency Response;
- Communication Protocol and Complaints Management;
- HLS Staff Training;
- Security;
- Maintainance and Refueling Exclusions;
- Reporting and Review including:
    - register of operations (daily and weekly)
    - environmental performance monitoring and reporting (linked to the operating marinas monitoring and reporting)
    - auditing, compliance and reporting (including two audits in the first 12 months of operations, and an annual audit each year after plus a compliance audit against the HOM and conditions within the first three years, and every 3 years after), and
    - revision and document control.

The draft will be subject to updates to reflect approval conditions and detailed design for approval by the consent authority authorising the operation and use, with a final approved HOM to be in place prior to commencement of the helipad use.

4.0 Conclusion

Johnson Property Group (JPG) have lodged a modification application (MOD 3) for the addition of a helipad to Concept Approval 06_0309 for the Trinity Point marina and mixed use development.

It is JPG's vision that the Trinity Point Marina and Mixed Use Development will be a world class land and water based destination development that forms part of an experience and interaction with Lake Macquarie. The success of the overall tourism facility is the diversity of land uses and activities on offer and the proposed helipad will contribute an important part of this outcome.

The Environmental Assessment (EA) for MOD 3 was publicly exhibited from 17 November 2016 to 20 January 2017. A Preferred Project Report was prepared to respond to the government authority and public submissions during that exhibition period, with elements of the helipad proposal retained.

The application is the subject of Land and Environment Court Proceedings 2018/207343.

Amendments are proposed to the application as a consequence of discussions with DPE occurring as part of those proceedings, generally as described and assessed within this report and its attachments. It is considered that the proposed helipad, as amended, can be readily approved and incorporated into the Concept Approval.

Appendix A

TRINITY POINT MARINA LEASE AREA (DP 1252681)

Appendix B

AMENDED PLAN – EXCLUSION AREA AND DESIGNATED TAKE-OFF AND LANDING AREA

Appendix C

AMENDED HELIPAD CONCEPT PROPOSAL PLANS

Appendix D

DRAFT HELIPAD OPERATIONS MANUAL

Appendix E

HELICOPTER DOWNWASH ASSESSMENT – JJ RYAN CONSULTING PTY LTD

Appendix F

MEMO ON IMPACTS OF H125 NORMAL OPERATIONS AS PER ROTOR FLIGHT MANUAL – JJ RYAN CONSULTING PTY LTD

Appendix G

AMENDED PRINCIPLES 11, 14 AND 15 AND CONCEPT SUMMARY PLAN

Appendix H

CONSOLIDATED URBAN DESIGN GUIDELINES AND PRINCIPLES INCORPORATING AMENDMENTS AND DATED MAY 2019

Appendix I

ADDITIONAL ECOLOGICAL REPORT– MJD ENVIRONMENTAL PTY LTD

Appendix J

ADDITIONAL ACOUSTIC ASSESSMENT– THE ACOUSTIC GROUP

Appendix K

REVISED STAKEHOLDER ENGAGEMENT PLAN – KEY INSIGHTS

Appendix L

RESPONSE TO STRATEGIC DOCUMENTS – ADW JOHNSON PTY LTD