11 WATER

Ensure stormwater runoff is managed to limit impacts on the receiving environment.

Objective

To provide preventative measures to limit impacts on aquatic environment and lake water quality and to provide for water harvesting and re-use opportunity.

Guidelines

Stormwater Management Plans are to be provided with Development Applications, incorporating the following measures:

11.1. Adopt a best practice water sensitive design approach, focusing on preventative and source controls where possible.

11.2. Provide rainwater harvesting and bio-filtration swales as part of overall stormwater strategy (where deemed appropriate). Residential accommodation to achieve water efficiency targets as required by BASIX.

11.3. Fuel storage tanks are to be designed according to authority requirements including double skinned tanks.

11.4. All potential contaminants and their collection systems must be located so they are adequately protected from entering the lake during a 1 in 100 year flood event, plus sea level rise. This includes, but is not limited to, things such as fuel, oil separators and the like.

11.5. Implement a water quality monitoring program during construction and for three years of marina operation (for marina only).

11.6. Design and install sediment and erosion control structures during construction according to an erosion and sediment control plan.

11.7. Incorporate overland flow paths as necessary.

11.8. In addition to the above, the following broad stormwater management strategies should also be considered:

11.9. Reduce the extent of paved surfaces to maximise landscape opportunities. The reduced impervious services minimises the impact upon the catchment hydrology and reduces potential sources of waterway pollutants. Additionally, source controls including rainwater harvesting, gross pollutant traps and bio-filtration swales are to be proposed as part of an overall water quality strategy.

11.10. Consider acid sulphate soils management, in line with a management plan, in design and construction methodologies.

11.11. Consider groundwater implications in design and construction methodologies.

11.12. Helipad is to include first flush treatments and/or bunding as described in the Environmental Assessment (MOD 3) dated November 2016 prepared by ADW Johnson.

11.13 Suitable operational management procedures for the Helipad, as identified in Principle 15, are to be incorporated including but not limited to inspections of the helipad, integration of the helipad into the wider marina pollution and incident management system and availability on site of spill kits and emergency containment booms

PART B: SITE PRINCIPLE 14

14 MARINA

To provide a Marina

Objective

Having regard to the contextual analysis undertaken, the proposal aims to take advantage of the Lake for the purposes of promoting tourism to the region. This site presents that opportunity, given limited environmental constraints and impacts (no dredging required, no significant impacts on sea grass or marina species and the like) together with the unique chance to combine it with a land based marina and tourism component.

Guidelines

14.1. Stage 1 of the marina (divided into substages 1a and 1b) will consist of a maximum of 94 berths with part of the floating breakwater as required. Subsequent stages of up to 94 additional berths may proceed subject to a range of strict assessment triggers to be outlined in any Concept Plan or subsequent approval (see also Principle 19). Other land based marina functions will also occur without being limited to specific staging of the water-based marina.

14.2. The proposed 188 berth marina being constructed in stages (up to 5 stages across the full marina with a 94 berth 'hold point' as defined in the Concept Approval) as conceptually identified in Figure 62 and being designed to meet AS 3962-2001 "Guidelines for Design of Marinas".

14.3. The proposed Marina will provide for boats predominantly up to a maximum length of 20m, with the option to provide up to two berths for boats between 20-30m length with a maximum draught of 1.9m generally in locations as shown in Figure 63. No dredging is permitted to facilitate the berthing of any vessels

14.4. NOTE: The berthing of boats with a draught in excess of 1.9m in the locations identified in Figure 63 in Principle 14 may be permitted if it can be demonstrated that these vessels can safely pass through the Swansea Channel.

14.5. The proposed Marina will be connected to the shore based components in a manner than does not unreasonably restrict public access along the foreshore. Structures crossing the narrow fringing seagrass, to be constructed with open grating to limit shading impacts.

14.6. The proposed Marina to be protected by an outer floating Breakwater

14.7. The proposed Marina is to include a landward floating boardwalk parallel to the foreshore. That boardwalk and its connections to the foreshore, are to be publicly accessible.

14.8. Marina arms to consist of floating pontoons.

14.9. Provision being for casual public berthing (as part of each stage including temporary provision in Stage 1a) and provision made for occasional berthing of tourist boats on outside eastern edge of the breakwater. This berthing is in addition to the maximum 188 berths of the marina and can be under the care and control of the marina but to be made available for casual public berthing

14.10. Vessel exclusion zone to south of southern breakwater to protect extensive sea grass areas, if required by authorities.

14.11. Berths to be provided with water, power and lighting services.

14.12. Marina to include required fire fighting equipment plus public fuel and sewage pump out within Stage 1a. Double skinned fuel storage tanks to be provided on land.

14.13. Maximum draughts for the fuel facility are to be communicated with marina information and signposted on the wharf.

14.14. No dredging required with marina designed to existing water depths, with tubular steel piles used throughout construction to reduce seabed impact.

14.15. Associated land based facilities including marina facilities and services and service infrastructure, as well as mixed use development and parking (refer other components of Concept Plan, including flood planning). At grade marina carpark forms part of concept approval, replacing the deleted vessel hardstand and repair/ maintenance facilities.

14.16. A water quality monitoring program is to be developed for the construction phase of the water and land based marina development.

14.17. Construction Environmental Management Plans are to be prepared (water quality, erosion and sediment, noise, acid sulphate soil management and the like).

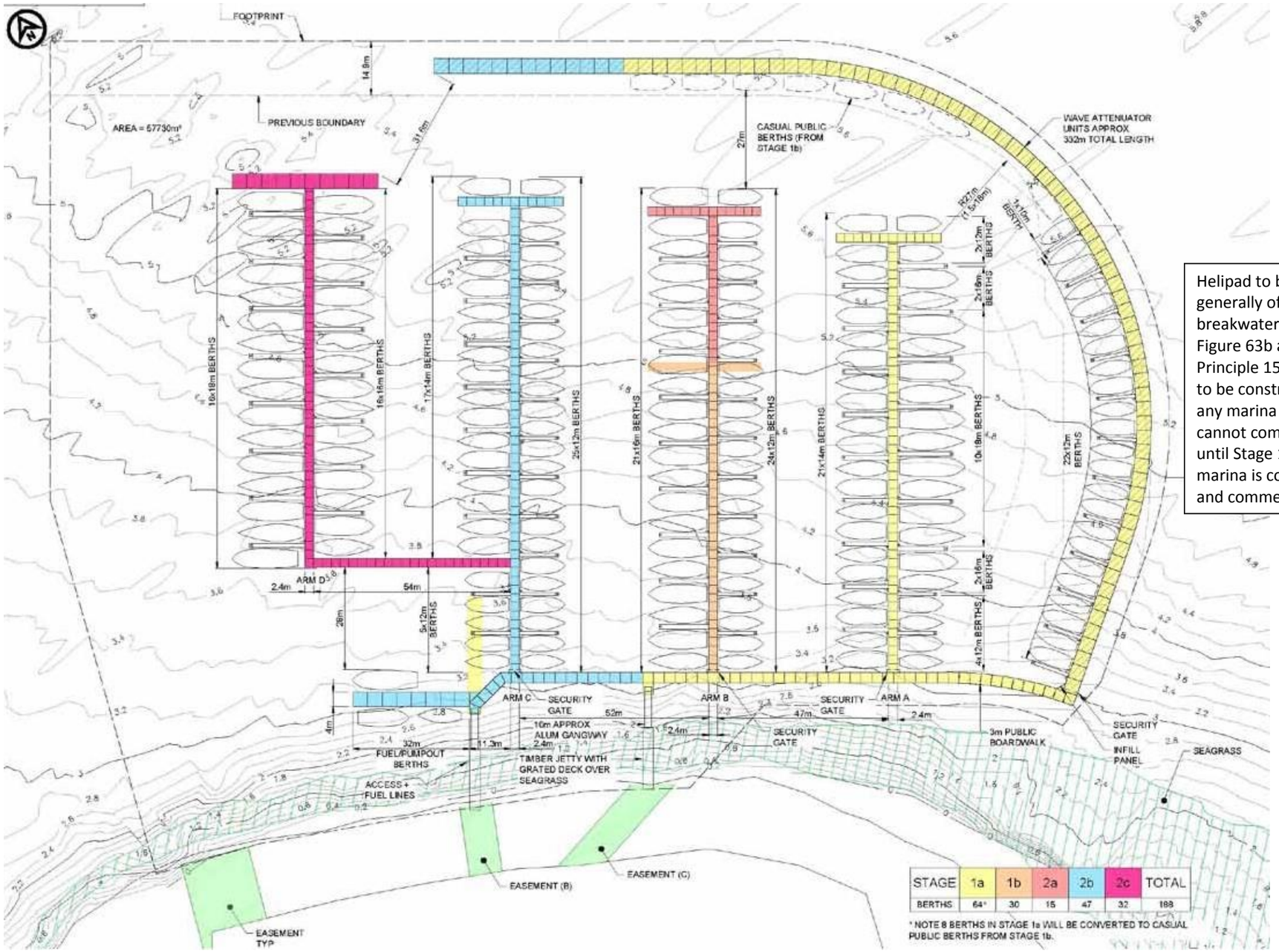
14.18. Operational Environmental Management Plans are to be prepared, to also include operational management of the facility.

14.19. (Note: In the event of an inconsistency between this Principle and other site principles, this Principle 14 prevails).

14.20 A helipad and associated structures, connected to the marina as shown in Principle 15, may be constructed at any stage of the marina, but cannot commence until the first stage of the marina is constructed and commenced.

14

MARINA

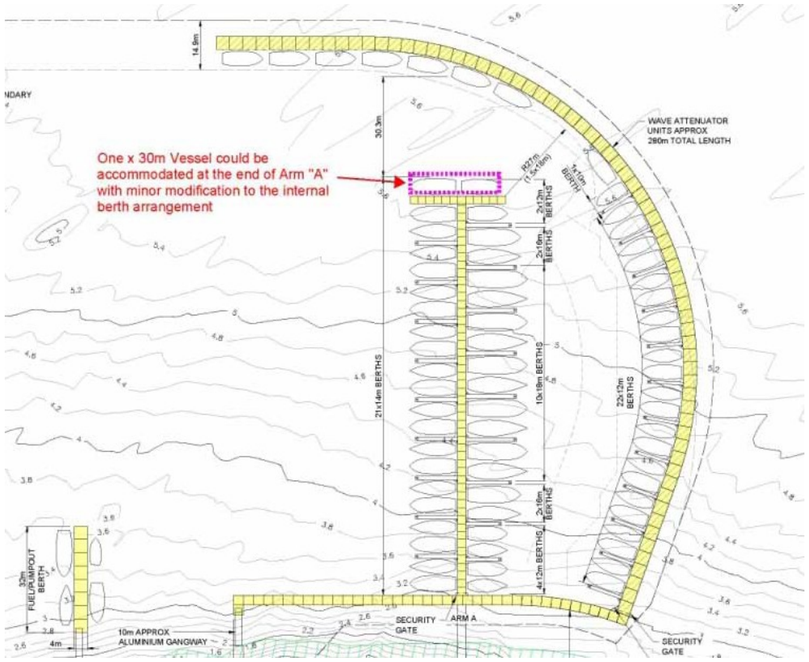


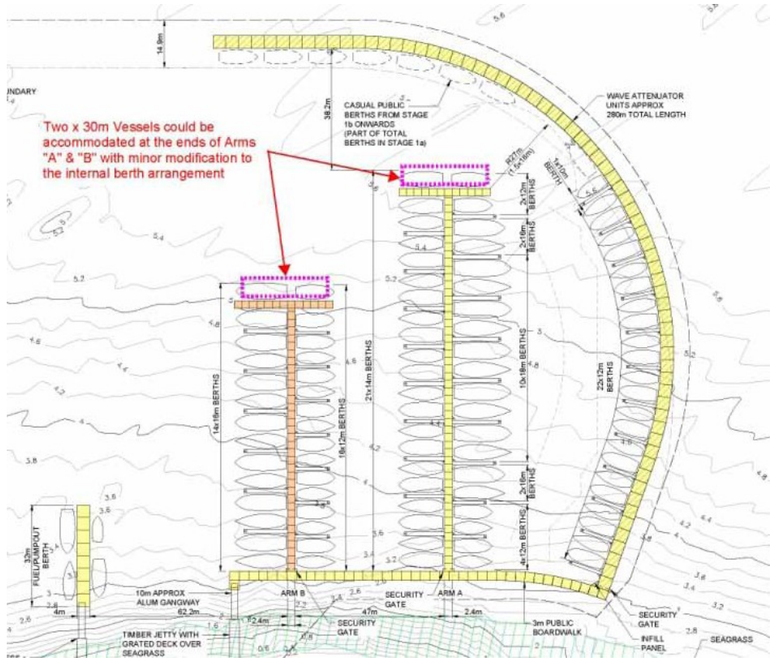
Helipad to be located generally off breakwater as per Figure 63b and Principle 15. Helipad to be constructed with any marina stage, but cannot commence until Stage 1a of marina is constructed and commenced.

Figure 62
Concept Marina and Staging
(refer also Principle 15 for Helipad)

14

MARINA





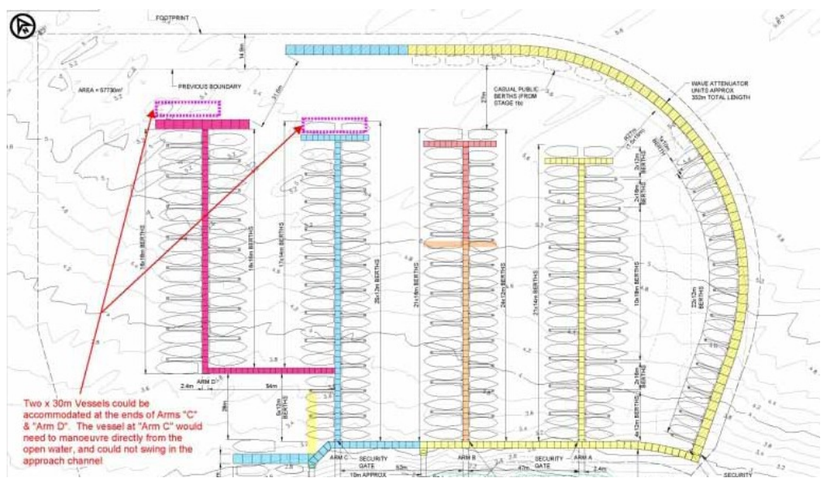


Figure 63

Potential Berths for Vessels 20-30m length across marina staging

DESIGNATED HELICOPTER TAKE OFF AND LANDING AREA

EXCLUSION AREA FOR TRINITY POINT HELIPAD

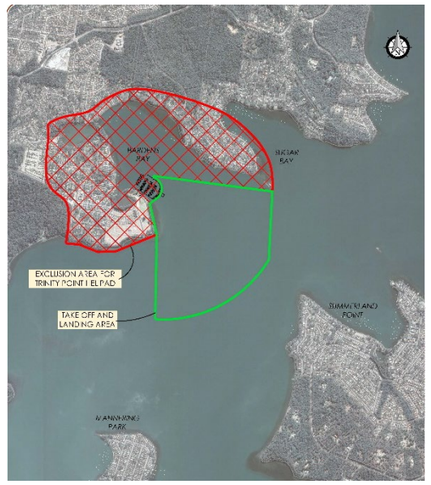


Figure 63b

Proposed Helipad (refer also Principle 15)

15 HELIPAD

To provide a controlled helicopter landing site attached to and operated in conjunction with the marina.

Objective

To support Trinity Point as a regional destination and promote additional capture of the visitor economy, whilst minimizing impacts to the immediate community around Bardens Bay and users of the wider Lake.

Helicopter Types:

Bell 407
Bell 206B
Bell 206L
McDonnell Douglas MD 500 C/D/E
Airbus H125
Airbus 120
Airbus 130
AS 355F
Agusta Westland AW109

Guidelines

15.1 A Helicopter Landing Site (HLS) may be attached to the south-western side of the marina breakwater, clear of seagrass beds and not extending beyond the marina footprint to the north-east. The HLS has been sited to enable flight paths over water and to cater for different wind conditions.

15.2 Any HLS is to be limited to a maximum of six (6) movements per day (ie. 3 landings and 3 departures) and a maximum of 38 movements per week (ie. 19 landings and 19 departures). No movements are to occur before 8am (Mon-Sat) and 9am (Sun, public holidays). No movements are to occur after sunset, and all night use is prohibited.

15.3 Use of the HLS is to be limited to the list of helicopter types (or type equivalents including any derivatives), that do not exceed the weight and size limitations of the HLS as listed, the maximum of which is the Agusta Westland AW109. Joyflights from the HLS must be precluded. Use of the HLS by Robinson R22/44 helicopters (or equivalent) are precluded.

15.4 No helicopters using the HLS are to fly within the exclusion area (at any height) as shown in Figure 63c.

15.5 All helicopters must land and take-off within the designated take off and landing area.

15.6 Use of the HLS is to be strictly by “Prior Permission” only protocol, which requires pilots and users of the HLS to receive, review and agree to the terms of the prior permission, including the type of helicopter able to use the HLS, use only of the approved take off and landing area as shown in Figure 63c, movements to meet ’fly neighbourly’ procedures (including no fly within the exclusion area), operating hours and safety procedures.

15.7 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 the movement. Pilots are to check weather and wind conditions prior to movements. An on site weather station is to be installed, with staff trained to communicate weather data to pilots prior to landing and take-off.

15.8 Pilots are to be advised that helipad operations occur within a marine environment, in which watercraft may be present at any time. Other water users are to be avoided when within the designated take-off and landing area and outside the nominated safety management areas and where, in the opinion of the pilot, they present an obstacle to safe flight movement or would create a hazard, including due to rotor downwash, to those other water users. If a pilot determines that they cannot undertake a safe movement relative to obstructions or other water users confined to the designated take-off and landing area, helicopters must not undertake that movement. The need to avoid boats within the marina and any other water users is relevant also for any emergency procedure relating to forced landings.

15.9 Design of the HLS is to be conceptually as shown in Figures 63d-f, generally being a floating pontoon of size and standard to meet the requirements of ‘Guidelines for the establishment and operation of onshore Helicopter Landing Sites’ CAAP 92-2(2). Additionally, water quality measures are to be included into the design that prevents runoff of any accidential spills direct into the lake.

15.10 Installation of piles and construction of the helipad are to be undertaken to minimise construction impacts.

15.11 No refuelling and no maintenance of helicopters is permitted.

15.12 During landing and take-off only, access control is to be provided over part of the marina breakwater and part of surrounding waters that sits within a minimum managed safety zone of 30m around the HLS, or otherwise as required for helicopter downwash management and to a radius of 66.5 metres from the centre of the helipad, where within the approved take off and landing area, generally as shown on the concept plans. Helicopter downwash management and procedures are to be included in a helipad operations manual (HOM) in order to manage impacts of helicopter operations and downwash on watercraft.

15.13 A helipad operations manual (HOM) is to be prepared and approved prior to commencement of use of the HLS. This is to identify operational parameters for the helipad, include a prior permission protocol, establish a noise management and monitoring plan, require a method of recording flight track information, establish safety management protocols and include appropriate emergency response and containment procedures and equipment, which can be linked into those associated with the marina operation.

15.14 A register and flight movement log is to be maintained that logs all prior permissions granted and movements to and from the HLS, including dates, times, types of helicopter used, wind condition and flight path. A copy of the register shall be kept for two (2) years and provided to approval bodies on request. The HOM shall include a reporting and review procedure that describes activites, summarises any complaints, outlines monitoring results, provides comparisons against approvals and predictions, and identifies and analyses any issues, for distribution to approval bodies.

15.15 A complaints management and communications protocol is to be prepared prior to commencement of use of the HLS and included in the HOM.

15 HELIPAD

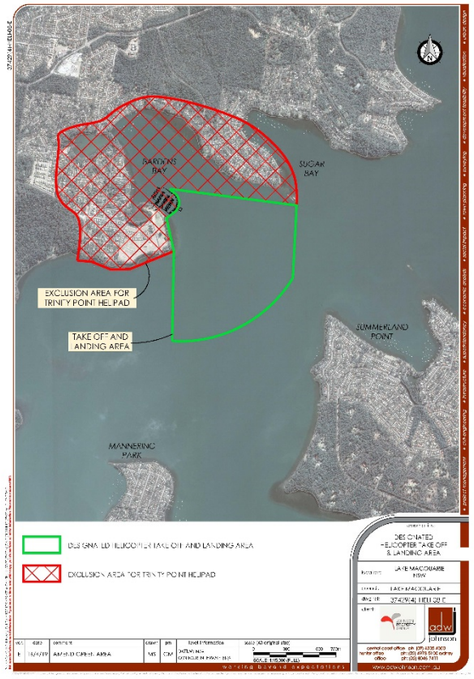


Figure 63c - Exclusion Area and Take Off and Landing Area

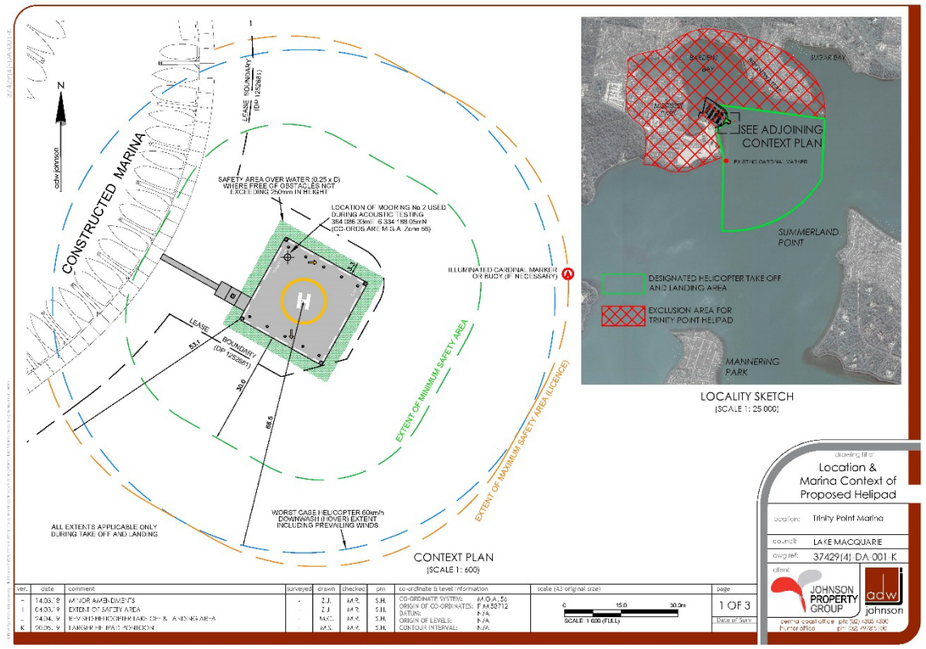


Figure 63d - Proposed Helipad

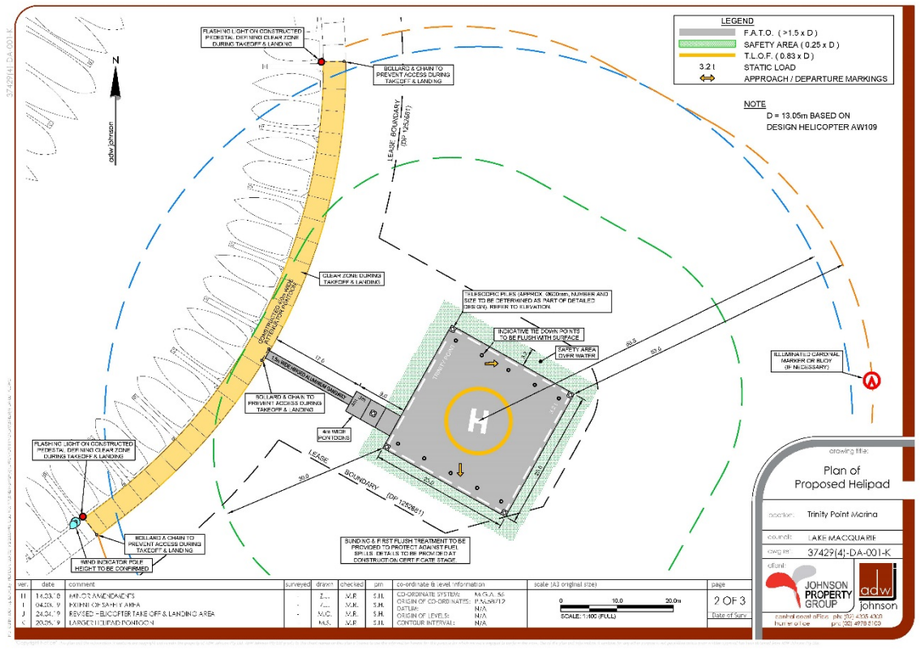


Figure 63e - Concept Helipad Design

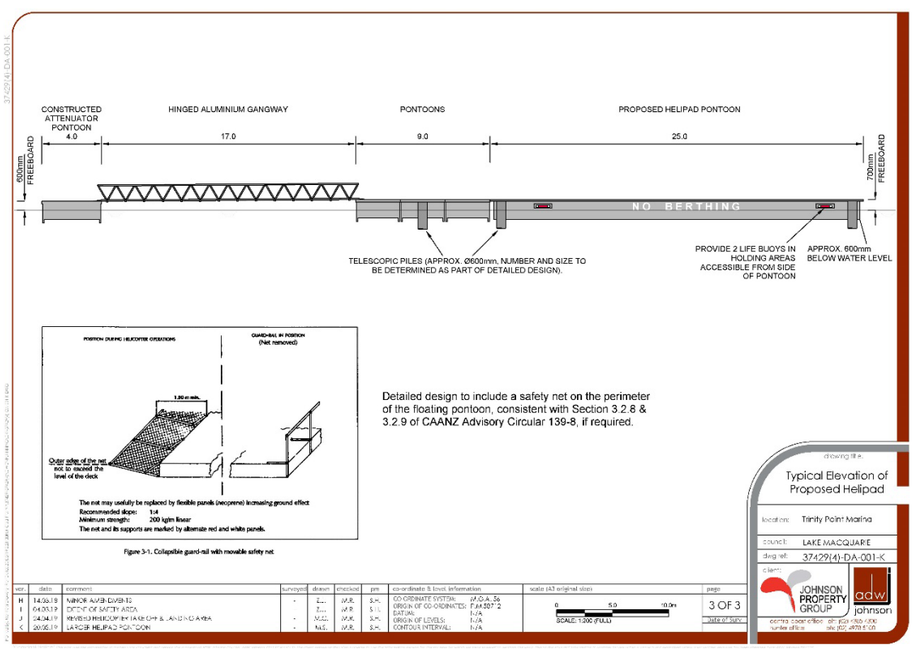


Figure 63f - Concept Helipad Elevation

APPROVED CONCEPT PLAN SUMMARY FIGURE WITH ADDITION OF HELIPAD

OCTOBER 2016