

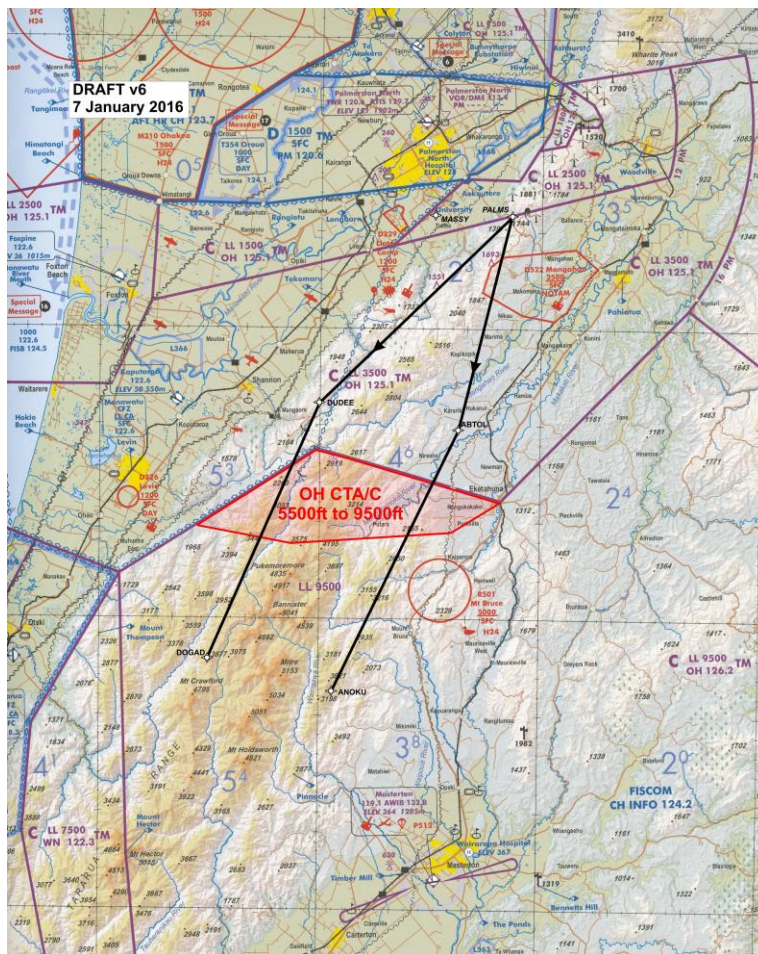
# Airways New Zealand submission to the Civil Aviation Authority's 2016 Manawatu Airspace Review

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## 1. Additional Ohakea CTA

Airways request the addition to the Ohakea control area of a new CTA 5,500ft to 9,500ft to the south of Palmerston North as depicted on the diagram below.



The reason for this additional CTA is to provide airspace containment for proposed new PBN departures from Palmerston North tracking to the south.

The additional CTA would also provide for correct containment of existing IFR flights climbing southbound from Palmerston North.

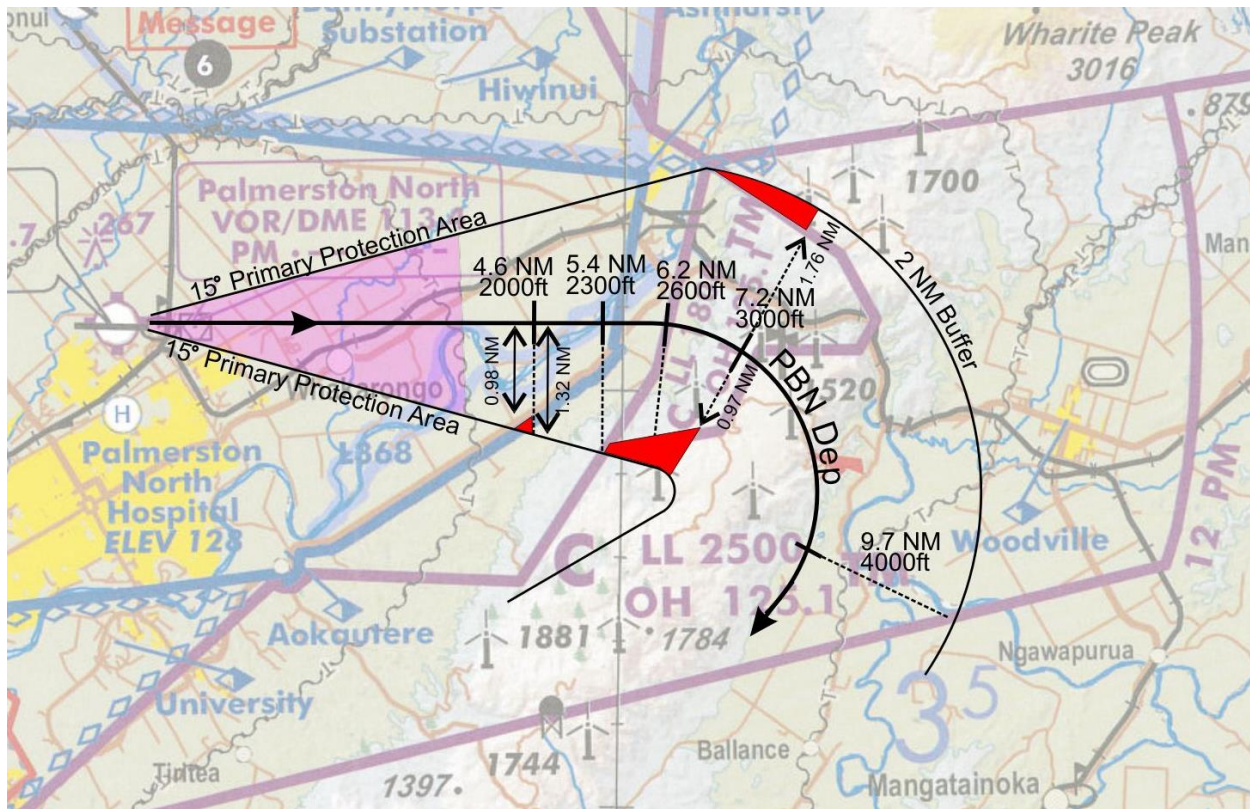
The CTA would also provide for containment of a proposed new holding pattern to the south east of Ohakea associated with an approach to Ohakea runway 33.

## 2. PM CTR and OH CTA to the east of Palmerston North

Airways has been working to develop new PBN departures from PM RWY 07. Two main issues with the development of these departures are the rising high terrain to the east of Palmerston North and containment within controlled airspace. To help address those issues, the proposed departures are designed with a 6.5% climb gradient.

Unfortunately though, the departures are not fully contained within the existing controlled airspace.

The diagram below depicts the proposed PBN departure that turns right off PM RWY 07. The containment criteria applied is the 15 degree primary protection area until it reaches 2 NM wide; thereafter it is a 2 NM buffer.

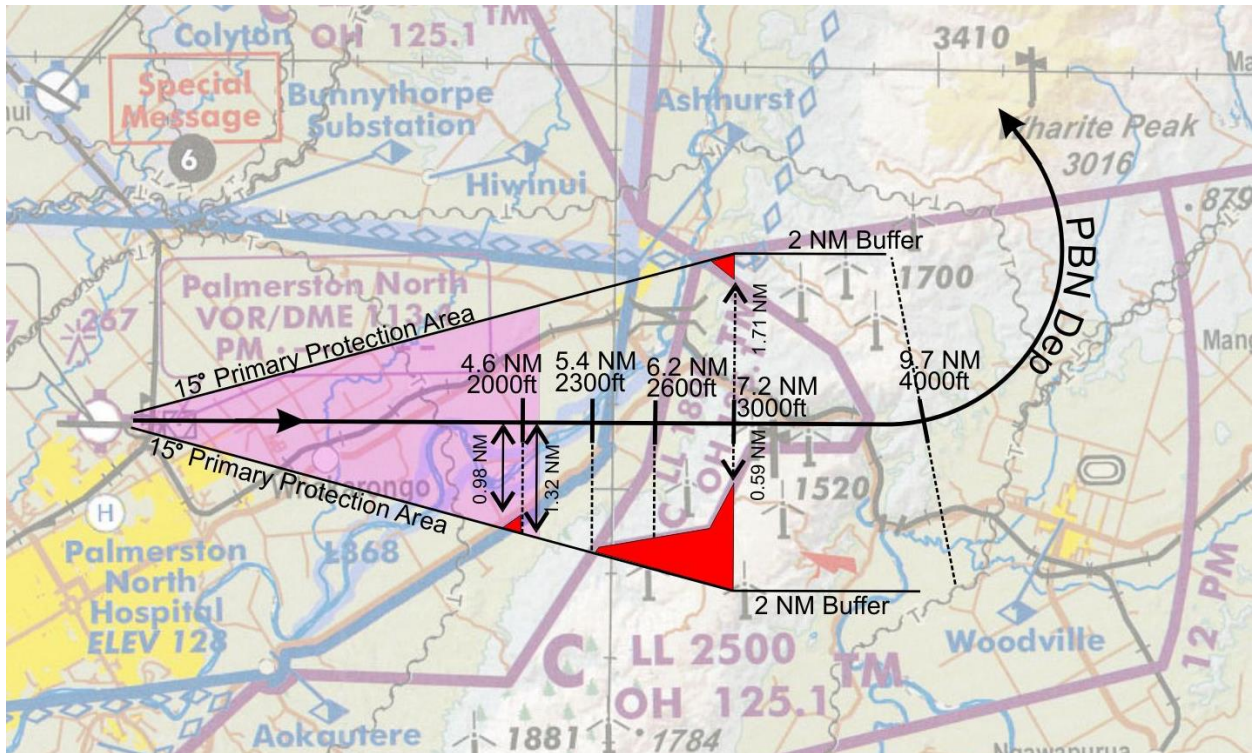


The diagram depicts some profile levels on the departure – i.e. at 4.6 NM, the profile level is 2,000ft AMSL, at 5.4 NM 2300ft, at 6.2 NM 2600ft at 7.2 NM 3000ft and at 9.7 NM 4000ft.

Bearing in mind that the departure profile needs to be at least 500ft above the lower limit of the airspace, the diagram above depicts 3 areas (in red) where the existing airspace does not fully contain the departure. These are;

1. The PM CTR needs to contain the departure until the profile passes 2000ft at 4.6 NM. This doesn't happen. Where the profile passes 2000ft, the CTR should be 1.32 NM wide but the existing CTR is only 0.98 NM wide – 0.34 NM less than it needs to be. A small triangular shaped increase in the CTR would be needed for full containment.
2. On the inside of the turn, between 5.4 NM and 7.2 NM the containment buffer reduces to 0.97 NM.
3. On the outside of the turn, between 6.2 NM and 7.2 NM the containment buffer reduces to 1.76 NM.

The proposed PBN departure to the north also has containment issues with the existing airspace as indicated in the diagram below by the red areas.

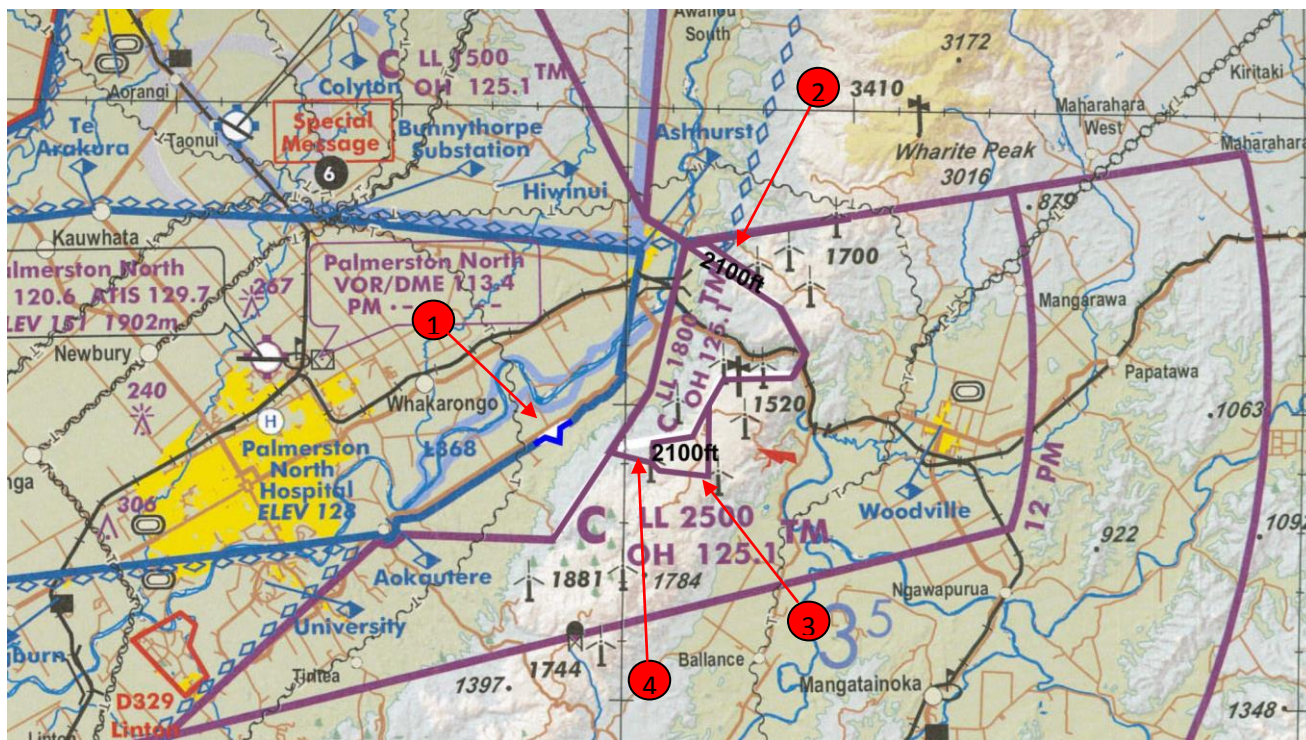


The lack of containment by the CTR is the same as for the right turning departure.

Between 5.4 NM and 7.2 NM, containment to the south reduces to 0.59 NM. To the north it reduces to 1.71 NM.

To provide full containment of the proposed new PBN departures off PM RWY 07 the PM CTR and OH CTA would need to be amended as depicted in the diagram below. This adds;

1. a small triangular increase to the PM CTR along the south-eastern boundary; and
2. a new CTA portion LL 2100 ft east of Ashhurst; and
3. a new CTA portion LL 2100 ft along the ranges south of the Manawatu Gorge; and
4. a small extension of the existing CTA LL 1800 ft to the south



Incorporating the 2100 ft CTA portions into the existing 1800 ft CTA is not possible as the CTA would be less than the required 700ft above the surface of the earth.

Airways considered steepening the departure gradient to avoid the need for the additional airspace but concluded that this was not appropriate as turboprop aircraft may struggle to attain the proposed 6.5% let alone a steeper gradient.

Airways considered designing the departures with earlier/lower turns but concluded that earlier turns would either not be possible due to terrain or result in a similar need for small portions of lowered airspace.

Whilst the additional areas of controlled airspace are what are required for full containment, Airways believe there would be practical and safety issues with such small areas of controlled airspace such as depiction on charts and pilots being able to determine where the boundaries are. Also, VFR flights avoiding the new airspace would need to be closer to the terrain.

It should be noted that;

- the nominal tracks of the proposed PBN departures are within controlled airspace; and
- the existing PM instrument procedures east of PM are also not fully contained by the existing airspace.

The Airways submission is that CAA and operators consider this and either;

1. change the PM CTR and OH CTA to include the additional airspaces in order to provide full containment of the PBN departures; or
2. leave the PM CTR and OH CTA boundaries where they currently are and accept the reduced airspace containment of the PBN departures; or
3. leave the PM CTR and OH CTA boundaries where they are and advise Airways that PBN departures need to be fully contained. This would preclude the implementation of the proposed PBN departures. CAA should also consider the lack of containment of the existing departures and the only alternative then is to increase the climb gradient to more than 6.5%.

### 3. OH CTR

Airways has explored possible reductions in the size of the OH CTR and discussed this with the RNZAF. The diagram below is submitted for consideration.

Airways position is that if the CTR is amended then NZM310 should also be amended to match the new CTR dimensions. NZM312, the overlying CTA down to 1500ft would be unchanged.

### Possible OH CTR Reduction DRAFT v1 6 January 2016



OH CTR and M310 amended so that the northern boundary goes from Marton to Bonny Glenn to Turakina and towards Whangāehu. This boundary would generally follow the railway line to Turakina.

M312 boundary would remain unchanged.

Containment of instrument flight procedures (including VOR/DME RWY 15 and RNAV (GNSS) D) would not be any less than current.