

Our Ref: 9600 Flood Evac Eng Stat revB 140314.docx

14 March 2014

Penrith Lakes Development Corporation
PO Box 457
CRANEBROOK NSW 2749

Attn: Chad Jackson

**Subject: Penrith Lakes
Flood Evacuation Route and Engineering Statement**

Dear Chad,

J. Wyndham Prince has prepared the proposed 138 x 2 hectare rural lot subdivision and associated road and drainage works for the Penrith Lakes Lot 4 development application (as seen in Appendix A). These proposed works have been generally designed in accordance with *Penrith City Council's Urban Design Guidelines*, DCP 2010, AustRoads and industries best practice.

We confirm that the proposed road networks and widths have been designed in accordance with *Penrith City Council's Design Guidelines and Development Control Plan (PCC, 2010)* we also understand from the *Penrith Lakes Urban Lands Development Application – Traffic Impact Statement (2014)* prepared by TTM, that the proposed internal road network has sufficient capacity to service the proposed 138 lots.

In addition, J. Wyndham Prince has reviewed the *Hawkesbury Nepean Flood Emergency Sub Plan (2005)*, J. Wyndham Prince's Development Application plans 9600DA1-DA16 (2013) and Cardno's *Penrith Lakes Scheme Summary Flood Impact Report (2013)* and identified suitable flood evacuation routes for the occupants of the 138 rural lots with respect to events greater than the 1 % AEP.

The previous flood assessment report for the Penrith Lakes Scheme, which was undertaken on behalf of the NSW Department of Planning (Molino Stewart, 2006), indicates that the level 2 flood evacuation shall commence when the Nepean River rises to RL 23 m AHD at Victoria Bridge. The recent Cardno report (2013) for the Penrith Lakes Scheme confirms that the RL 23 m AHD reading at Victoria Bridge is an accurate assessment of the 5 % AEP flood. This 5 % AEP flood level would therefore be the trigger for the SES to provide flood warnings to the residents of the Penrith Lakes Scheme for the larger 1 % AEP event and would provide approximately seven (7) hours warning in advance of the flood peak.

Based on the vehicle estimates within the Molino Stewart 2011 North West Sector Flood Evacuation Analysis Final report (Molino Stewart 2011) there would an additional 248 vehicle (138 residents x 1.8 vehicles) that would need to exit the Penrith Lake development onto Castlereagh Road during a planned flood excavation. The expect warning time of seven (7) hour would suggest that this limited number of vehicles would have ample time to joining any existing traffic on Castlereagh Road and be safely evacuated for the Penrith Lake area prior to flood water inundating the proposed development.

As stated in Cardno's report (2013), the peak 1 % AEP flood level for the Stage 5.2 development is RL 21.7 m AHD with a proposed Flood Planning Level of 22.2 m AHD. We confirm that the proposed lot levels are above 22.7 m AHD, which is well clear of the 1 % AEP and proposed Flood Planning Level. It is noted that a portion of the lots which adjoin the

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lake areas will transition to the lake in those fringe areas (and below 21.7 m AHD). However, development is not proposed in these areas. J. Wyndham Prince recognises that there appears to be opportunity for the majority of the dwelling ground floor levels to be at or above 23.2 m AHD (which is above the 0.5 % AEP).

The internal roads designed by J. Wyndham Prince for Stage 5.2 have surface levels which are above the 1 % AEP flood level. The internal roads provide a continuously rising grade of minimum 0.025 % (1:4000) for emergency vehicular and pedestrian access towards the primary and secondary evacuation routes. Lot gradings within the development have adopted minimum grades above 0.5 %.

The recommended Regional Evacuation Route in the Hawkesbury Nepean Flood Emergency Sub Plan – December 2005 is toward **The Northern Road**.

The aim of the flood evacuation routes is for future residents to proceed safely on the road network by motor vehicle to flood evacuation centres ahead of a major flood event and also to ensure the exit routes are available for pedestrians to walk to higher ground ahead of a rising flood. A list of evacuation centres is included in the *Hawkesbury Nepean Flood Emergency Sub Plan (2005)*.

The recommended evacuation routes in a rising flood by vehicle and pedestrian are as follows:

- Residents from the Penrith Lakes Development can evacuate via three (3) locations along Castlereagh Road. The recommended evacuation route for each local road is shown on Figure SK101.
- **[Primary Route]** Vehicles and pedestrians shall travel South along Castlereagh Road (0.5 – 4.9 km), turn left onto Andrews Road and continue East (2.3 km) to adjoin The Northern Road (9600 SK101). Once on The Northern Road, proceed South to the Great Western Highway (2.5 km) or M4 Motorway (6 km).
- **[Secondary Route]** Alternatively, residents shall travel along Castlereagh Road towards the intersection with Cranebrook Road or Vincent Road (0.8 - 2km). Residents shall then travel East along Cranebrook Road (3.4 km) or Vincent Road (2.4 km) to adjoin The Northern Road (9600 SK102). Once on The Northern Road, proceed South to the Great Western Highway (8 km) or M4 Motorway (11.5 km).

It is noted that the secondary route via Cranebrook Road/Vincent Road may be more feasible during the evacuation period if the adjacent Waterside estate is evacuated at the same time.

The Northern Road and Castlereagh Road are designated flood evacuation routes in the Hawkesbury Nepean Flood Emergency Sub Plan, December 2005.

If further information is required, please contact J. Wyndham Prince.

Yours faithfully

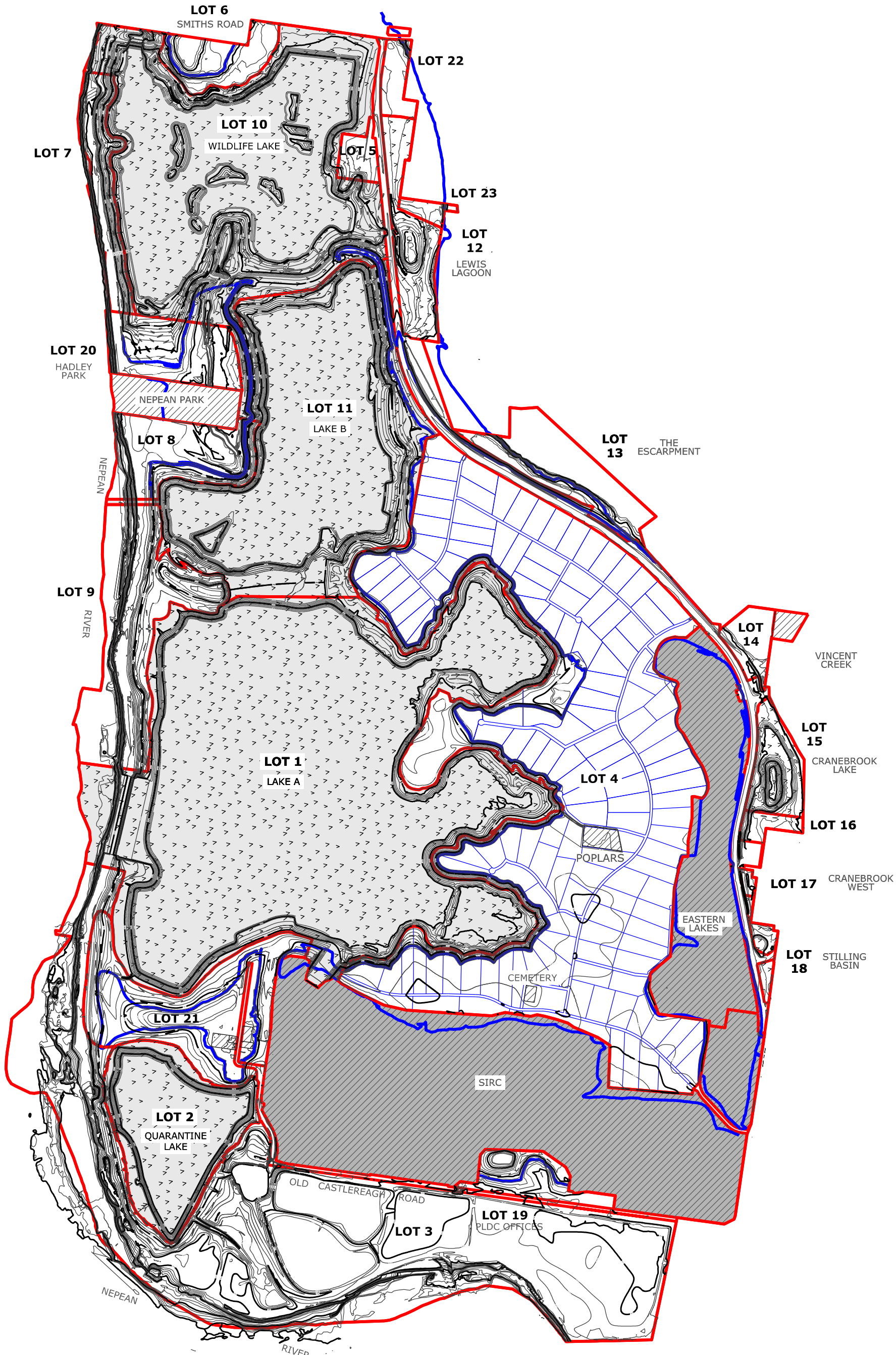
J. WYNDHAM PRINCE



DAVID CROMPTON

Manager – Stormwater and Environment Group

**APPENDIX A –
PENRITH LAKES DA5.1 – STAGE 1
DRAWING: PLDC-11731, rev. F, 24/02/2014**



Rev	Date	Description	Drafted By	Designed By	Checked By	Approved By
F	24/02/2014	FOR INFORMATION - NOT FOR CONSTRUCTION	NAE	BJM	AFK	
E	15/01/2014	FOR INFORMATION - NOT FOR CONSTRUCTION	NAE	BJM	AFK	
D	10/01/2014	FOR INFORMATION - NOT FOR CONSTRUCTION	NAE	BJM	AFK	
C	16/12/2013	FOR INFORMATION - NOT FOR CONSTRUCTION	NAE	BJM	AFK	
B	09/12/2013	FOR INFORMATION - NOT FOR CONSTRUCTION	TPK	BJM	AFK	
A	22/11/2013	FOR INFORMATION - NOT FOR CONSTRUCTION	TPK	BJM	AFK	

Notes:
STAGE 1
 Lot 1 to Lot 21

Legend:

- 1 In 100 Flood Level (RL 21.7m AHD)
- Government or Privately owned land
- Land to be dedicated in accordance with provisions of 1987 Deed of Agreement
- Possible future urban areas

LOT No.

Scale Bar:
 0 100 200 300 400 500
 Metres

Projection:
 MGA Zone 56

Sheet Size: ISO A3
 Print Scale: 1:20000

Title:
DA5.1 - Stage 1

Drawing No:
 PLDC - 11731

Revision:
 F



APPENDIX B – FIGURES