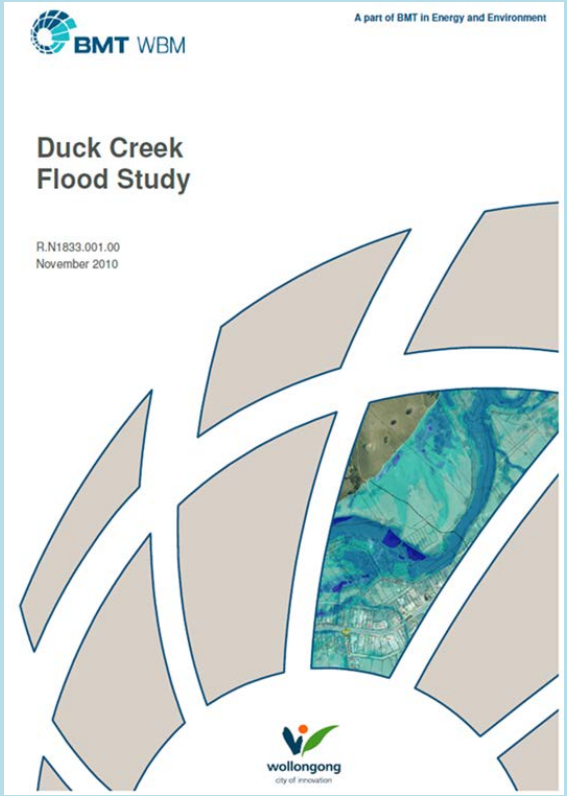
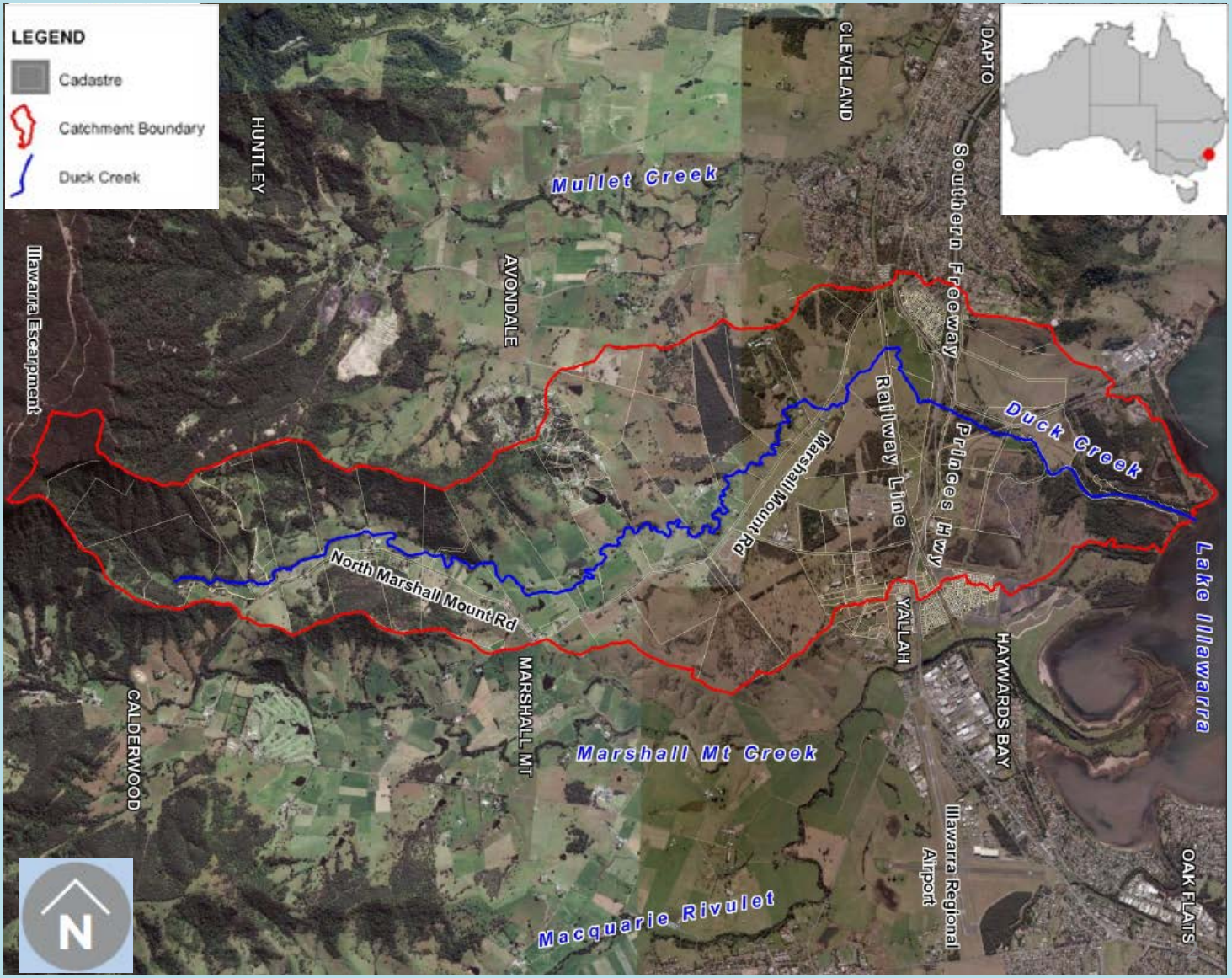
Albion Park - Flood Focus Group

Duck Creek Flood Study



Duck Creek Catchment Area



Duck Creek Study Objectives

Defines flood behaviour

- Flood levels
- Flood velocities
- Level and extent of flooding
- For a range of floods specifically
  - 1% Annual Excedance Probability (AEP)
  - Probable Maximum Flood (PMF - worst flood that can occur /this flood defines floodplain)

Duck Creek - history of flooding

	1-day Total		2-day Total		3-day Total	
Rank	Year	Rainfall (mm)	Year	Rainfall (mm)	Year	Rainfall (mm)
1	1991	312	1961	477	1961	549
2	1961	307	1943	438	1991	533
3	1898	307	1991	423	1943	500
4	1911	285	1956	414	1914	477
5	1975	281	1975	392	1978	478
6	1943	266	1914	388	1956	429
7	1914	248	1974	370	1975	396
8	1895	244	1911	362	1974	387
9	1952	230	1898	356	1898	380
10	1956	225	1959	353	1959	377
11	1984	223	1952	348	1952	372
12	1969	217	1984	346	1911	372

Duck Creek – Lake Illawarra downstream boundary conditions

History of Flood Levels

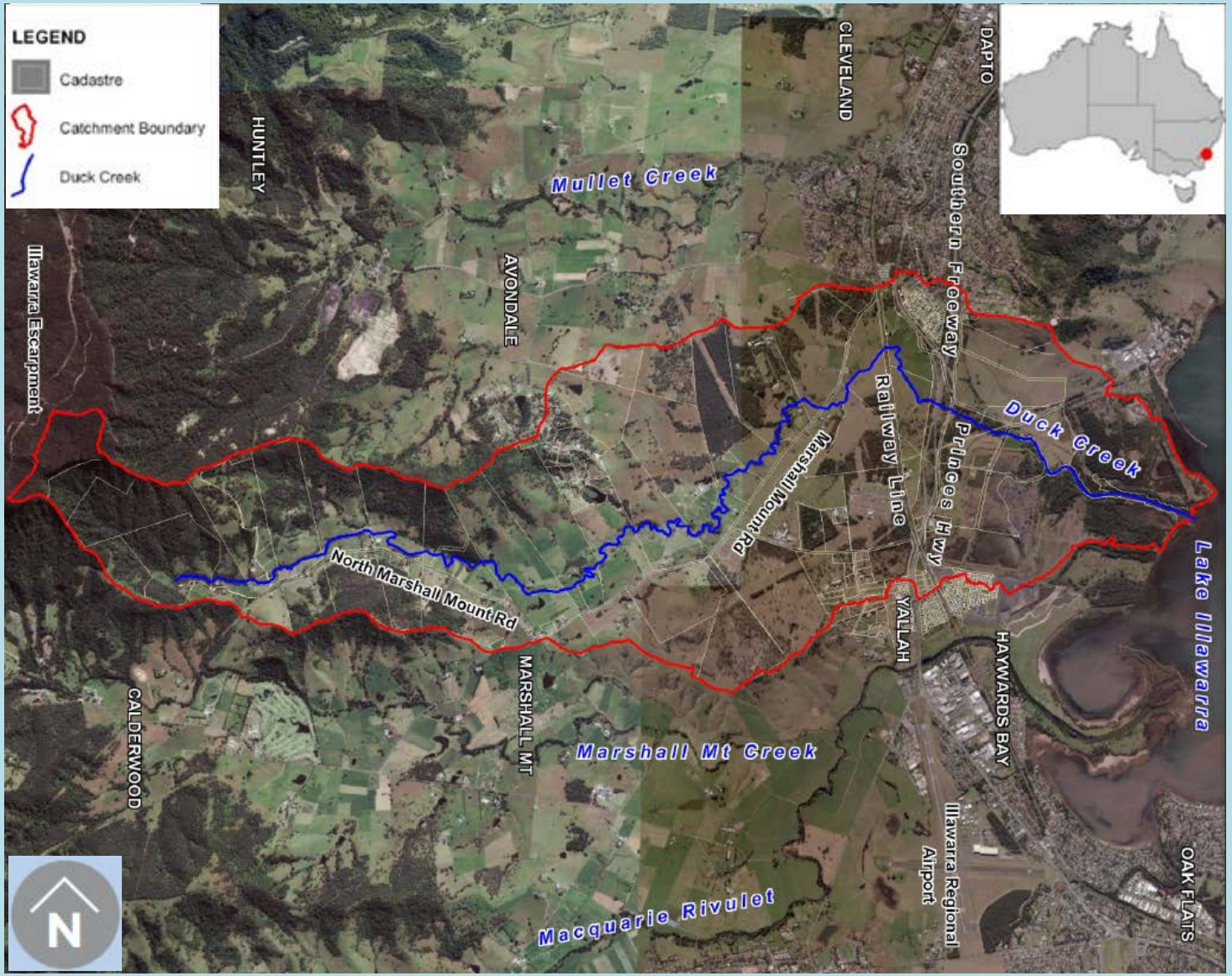
Date	Peak Recorded Flood Level (m AHD)	Date	Peak Recorded Flood Level (m AHD)
1930	>1.5	Mar, 1978	1.6
1943	>1.5	Feb, 1984	1.9
1959	>1.5	Apr, 1988	1.5
Apr, 1974	>1.5	Aug, 1990	1.4
Mar, 1975	1.8	Jun, 1991	1.8
Mar, 1977	1.8	Aug, 1998	1.2

Recorded flood levels within the catchment

Major Floods

Levels recorded throughout the catchment for:

- March 1978
- February 1984
- March 2011



Duck Creek Flood Model Calibration

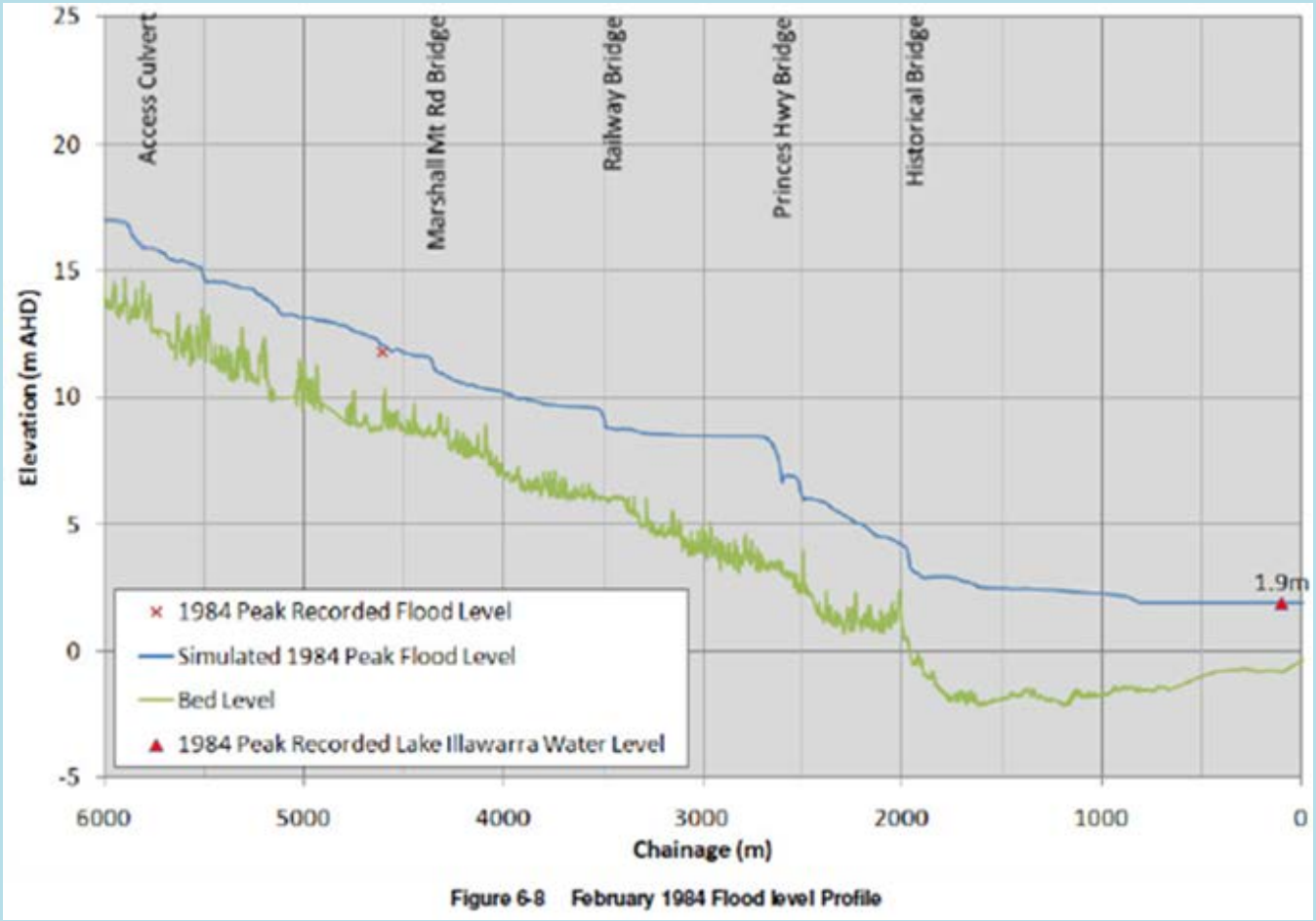


Figure 6-8 February 1984 Flood level Profile

- Fit recorded field data into the model and replicate flood levels
- Closer modelled data to recorded data the better
- Gives confidence in the model

Flood Model – Design Stage

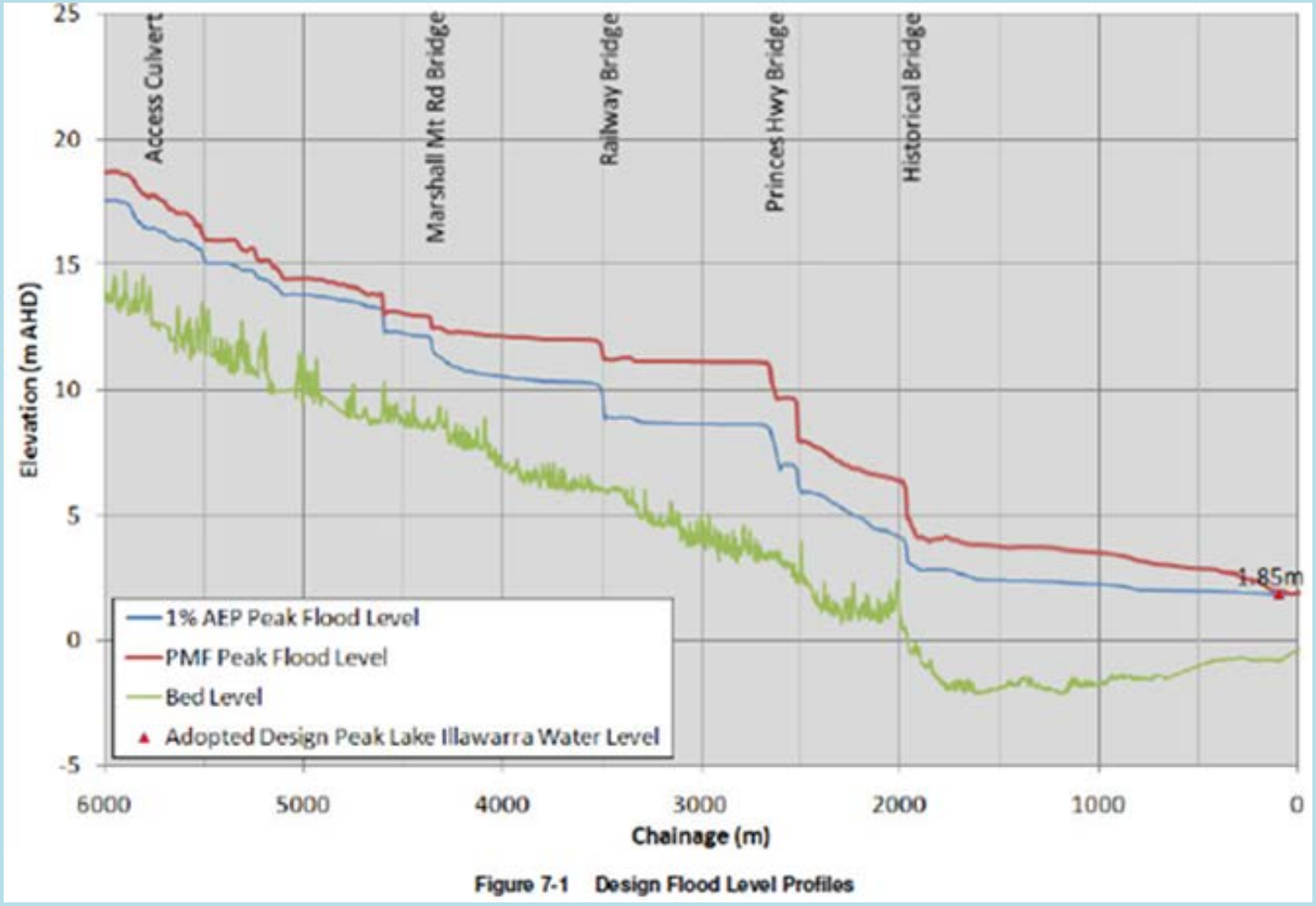
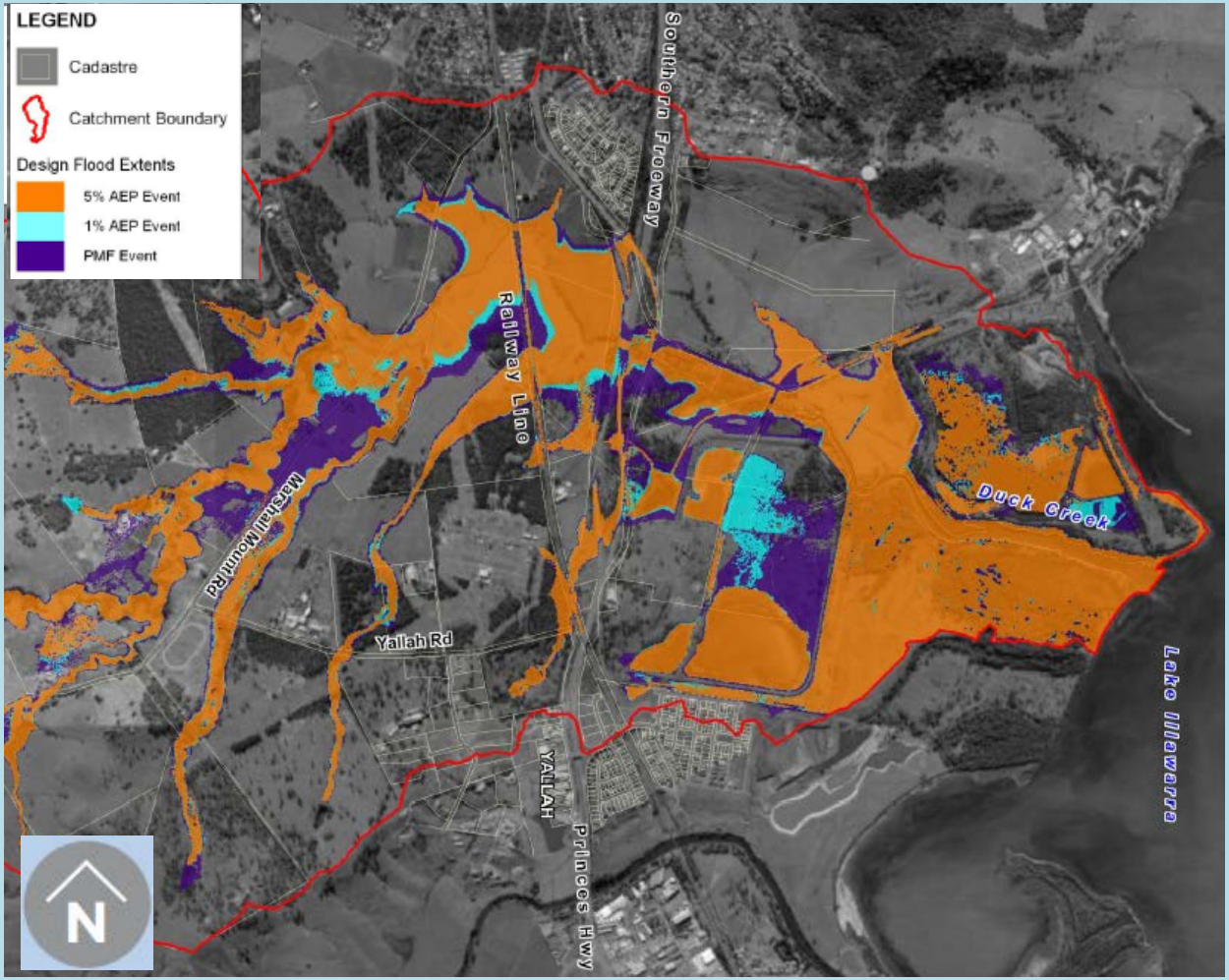


Figure 7-1 Design Flood Level Profiles

Derived Flood Levels

- 1% flood (blue line)
- PMF – (red line)

Duck Creek – design flood extents

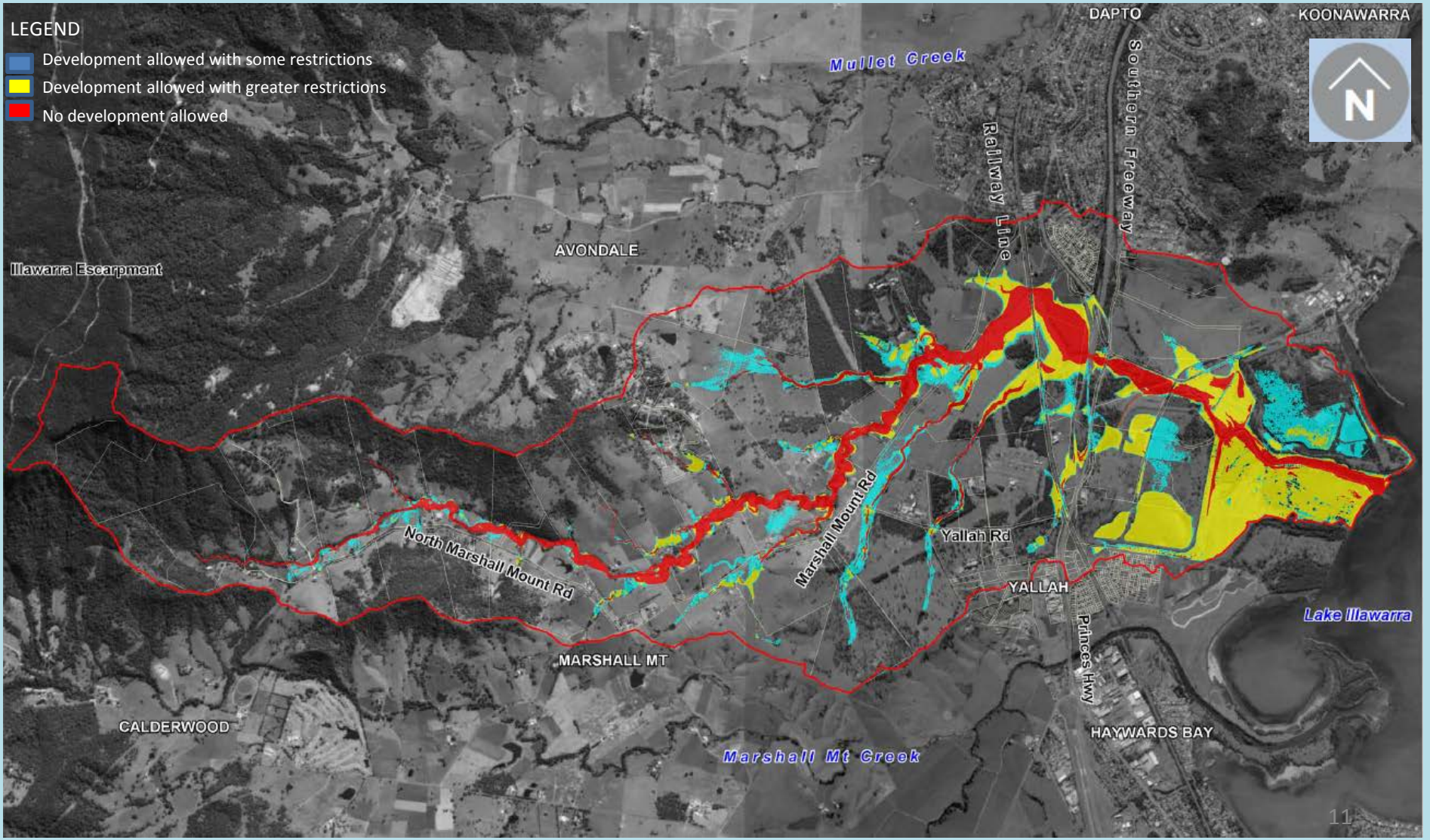


Pre- development of bypass

- 1% flood (blue area)
- PMF (blue + purple area)

NOTE: This flood extent is aimed to be maintained with the bypass constructed within the floodplain (i.e. to maintain status-quo).

Duck Creek – hydraulic categories



QUESTIONS?