

24.11.2015

131808 P

Mladen Stancovici
 144-150 Mount Vernon Road
 Mount Vernon NSW 2178

Attention: Mladen Stancovici

Mount Vernon Dam Dam Filling

Dear Mr. Stancovici,

The following has been prepared as supporting documentation to accompany the Development Application for filling of the existing dam at 144-150 Mount Vernon Road. The site is located within Penrith City Council Local Government Area and is bound by rural properties to the north, east, south and Mount Vernon Road to the west.

It is proposed that the existing dam at the western end of the property be filled. An existing upstream catchment drains overland to the dam and eventually to Mount Vernon Road (refer image below). A local swale will be formed over the site to assist with flow conveyance to the current overflow location which will become the discharge point. An existing inter-allotment pipe from 152-158 Mount Vernon Road will be extended to the discharge point (refer to the attached sections and plan drawings).

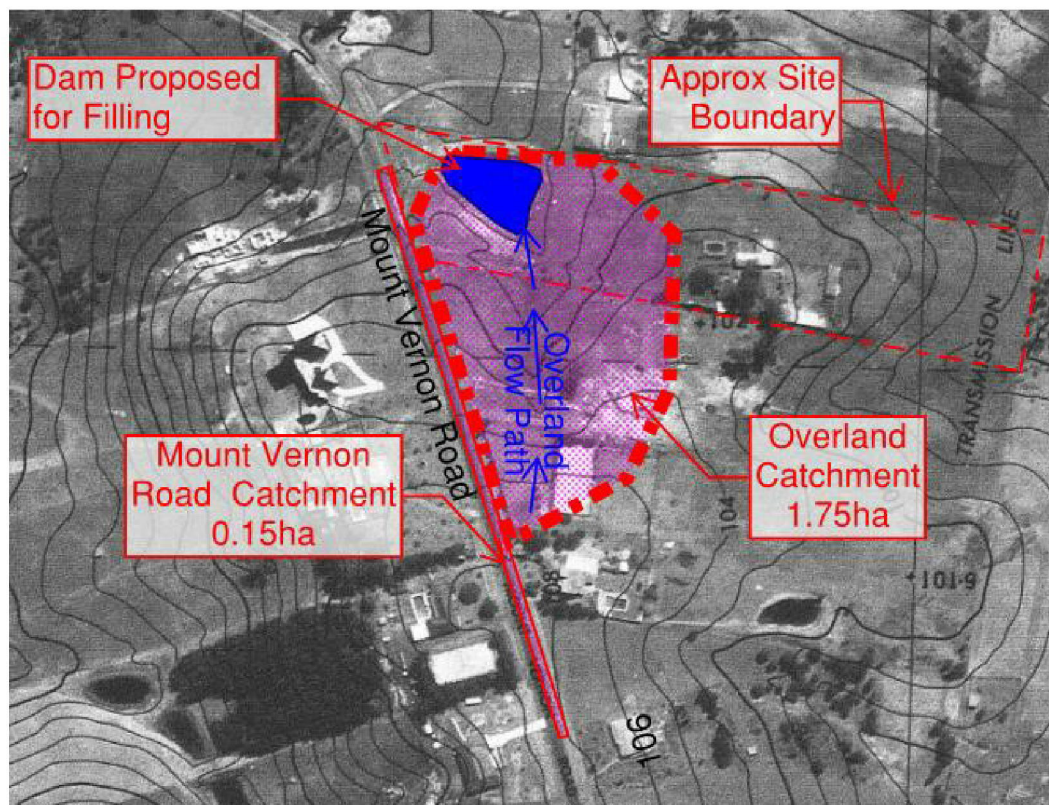


Figure 1 Site Overview

Structural

Civil

Traffic

Facade

Engineers

TTW Group

Directors

RT Green BE Hons MEngSc FIE Aust
 D Carolan BE Hons MEngSc MIEAust
 R Mackellar BE Hons MIEAust
 B Young BE Hons MIEAust
 M Eddy BE Hons MIEAust
 R McDougall BE MIEAust

Technical Directors

P Yannoulatos BE Hons Dip LGE MIEAust
 D Genner BE Hons MIEAust
 S Brain BE Hons MIEAust
 D Jeffree BE MIEAust
 N Burdon BE Hons ME MIEAust MIPENZ
 H Nguyen BScEng MIEAust
 R Pratikna BE MConstMgt MIEAust
 K Berry BE Hons MIEAust CPEng MIPENZ MICE

Associate Directors

S Schuetze BE Hons MIEAust
 M Rogers BSc Hons MIEAust
 D Taylor BE Hons MIEAust
 J Tropiano BE MIEAust
 J Haling BE Hons MIEAust
 D Mayne MEng Hons MIEAust
 G Fowle BE Hons MIEAust
 W Alexander BE Hons MIEAust
 R Milsted MEng Hons MIEAust
 N Hallam BE Hons BCom MIEAust
 S Nixon BE Hons MIEAust

Associates

N Biason BE MIEAust
 M King BE Hons MIEAust
 J Miles BE Hons
 G Bills BE Hons MIEAust
 G Petschack JP
 M Raddatz

Manager Facade

N McClelland BSc BE Hons MBA MIEAust

A hydrologic assessment of the existing upstream catchment draining overland has been undertaken to determine the likely impacts following the filling of the dam. The assessment was undertaken using Council's Design Guidelines for Engineering Works for Subdivisions and Developments, November 2013. The 100 year ARI flow rate for the overland flow path and the Mount Vernon Road Catchments were calculated using the rational method based on the following:

Kinematic Wave Equation $t = 6.94 (Ln^*)^{0.6} / I^{0.4} S^{0.3}$		
	Upstream Catchment	Mount Vernon Road Catchment
L (m)	190	200
n*	0.1	0.01
I (mm/hr)	166	191.5
S (m/m)	0.09	0.07
T (min)	10.8	2.6 (6min Applied Council Minimum)
Rational Method $Q = CIA/0.36$		
C*10	0.49	0.49
Fy	1.2	1.2
A (ha)	1.75	0.15
ARI (years)	100	100
$^{100}I_{10min}$ (mm/hr)	166	191.5
Q₁₀₀ (l/s)	390	39

Council drainage infrastructure within the vicinity of the site consists of a 1 meter wide and 0.15m deep swale V-drain and Mount Vernon Road.

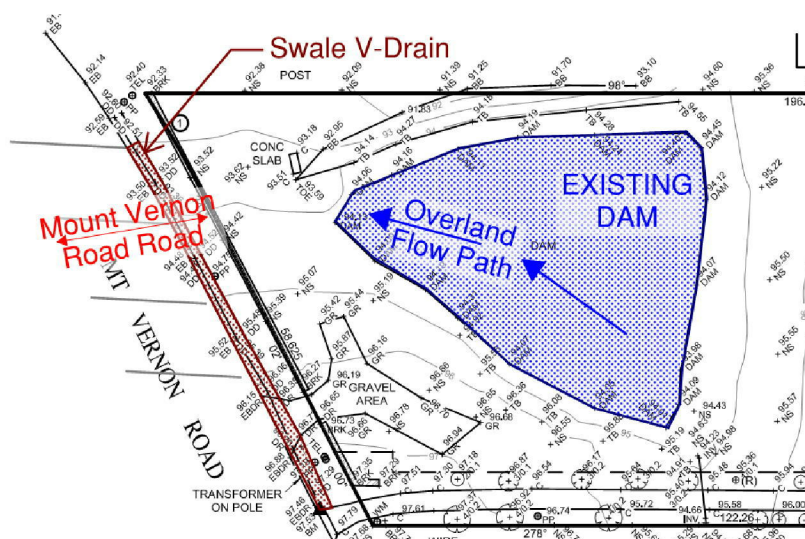



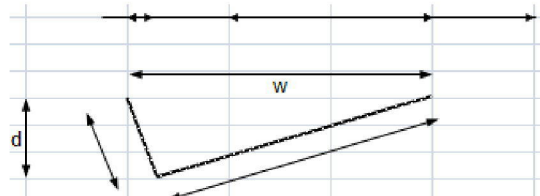
Figure 2 Council Drainage Infrastructure

The capacity of the existing Council infrastructure to convey the flows downstream of the property has been determined to be the following:

Swale/V-drain

		
d =	0.15 m	
w =	1 m	
S =	0.09 m/m	
n =	0.025	0.013 = concrete
		0.025 = grass, winding & overgrown
A =	0.075 m ²	
P =	1.044 m	
R =	0.072 m	
Q =	155.5 l/s	

6m wide Mount Vernon Road

	
crossfall	0.02 m/m
d =	0.12000 m
w =	6.0000 m
s =	0.09 m/m
n =	0.013
a =	0.36 sq.m
p =	0.724361 m
r =	0.49699 m
Q =	5,212.49 l/s

Based on the above and following filling of the dam, the existing overland flow path over the site will be maintained. Overland flow though the site will continue to Mount Vernon Road discharging at the existing overflow location. Council owned infrastructure at this location will be able to convey the 100 year ARI flow without impacting the downstream properties.

Should you require anything further please contact the undersigned

For and on Behalf of

TAYLOR THOMSON WHITTING (NSW) PTY LTD

A. Sasha Kovacina

Civil Engineer

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