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**From:** Masala, Charles  
**Sent:** Wednesday, January 02, 2013 6:56 PM  
**To:** Colleen Hughes  
**Cc:** Emerson, Dan; Fathalla, Amr M  
**Subject:** RE: Hydrological Data  
**Attachments:** DOC311212-Hydrological Data.pdf

Colleen,

Based on my preliminary assessment of the Bootjack culvert design, the current proposed design of 2-16" pipes is not sufficient for the 1 in 200-year flood from a drainage area of 2 km<sup>2</sup>. The current design is based on peak flow of up to 0.18 m<sup>3</sup>/s. This flow is low for a 1 in 200-year flood.

My preliminary assessment is also confirm by the Hydrological Data information you sent me in the attached document. According to the attached document, the peak 1 in 200-year flood at Bootjack weir was estimated to be 10.2 m<sup>3</sup>/s for a drainage area of 3.77 km<sup>2</sup> (Table 6-3). Based on this analysis the peak flow of the current 2.0 km<sup>2</sup> should be approximately 5 M<sup>3</sup>/s, significantly higher than the current proposed flow of 0.18 m<sup>3</sup>/s.

My recommendation is that a more detail analysis should be performed for this design.

As I mentioned I am currently on vacation until the week of Jan. 14, 2013. At that time I will be available to perform a more detailed analysis. If you would like something done before then, I would have to defer the project to someone else (but it will depend on their availability). Please let me know what you decide.

Thanks,

Charles Masala, M.A.Sc., P.Eng, P.E.  
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-----Original Message-----

From: Colleen Hughes [<mailto:chughes@mountpolley.com>]  
Sent: December-31-12 2:33 PM  
To: Masala, Charles  
Subject: RE: Hydrological Data

Here it is.

-----Original Message-----

From: Masala, Charles [<mailto:charles.masala@amec.com>]

Sent: December-31-12 2:31 PM

To: Colleen Hughes

Subject: RE: Hydrological Data

Colleen,

Thanks for the information. I will now just wait for the engineering design information for the culvert.

Charles

-----Original Message-----

From: Colleen Hughes [<mailto:chughes@mountpolley.com>]

Sent: December-31-12 11:35 AM

To: Masala, Charles

Subject: Hydrological Data

Hi Charles - looks like you were right and there has been some studies done here.

Colleen

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