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15th April 2020

Maven Associates
12-14 Walls Rd
Penrose
Attn: Will Moore

Hi Will,

Further to our meeting at your offices on 18th March and the information you provided subsequently, I understand you have a land development project involving an existing catchment and two downstream wastewater pumpstations that are at capacity during peak flows.

Our team have looked at this and put together a design for a wastewater pumpstation which was sent to you on 9th April 2020; this consisted of a pumpstation that would not pump during peak times (4 hours in the morning and 4 hours in the evening) either from the current existing catchment or from the proposed development.

The design of this pumpstation was based on two catchments:

Existing catchment	
ADWF	0.3 l/sec
PDWF	0.9 l/sec
PWWF	2.01 l/sec
Proposed catchment	
ADWF	0.67 l/sec
PDWF	2.01 l/sec
PWWF	4.49 l/sec
Total	
ADWF	0.97 l/sec
PDWF	2.91 l/sec
PWWF	6.50 l/sec

This pumpstation has two storage volume components, one is for the emergency storage volume (as per a typical Veolia pumpstation) of 8 hours storage of ADWF, and the second is for storing the on-peak storage volume based on 4 hours.

The calculation sheet shows that the emergency storage volume is 27.94m³ and the on-peak storage volume is 83.81m³ which brings the total storage volume to 111.74m³ which is between the pump start level and overflow level.

Since this is not practical / cost effective to have this in a single wetwell, we have employed the use of two horizontal storage tanks adjacent to the wetwell which will store most of the volume.

However this does mean that some of the storage tanks volume will be used twice per day, this will lead to some silt settling; to address this we will install a spray ball system in the ceiling of the tank which will flush out the tank upon pump stop.

The pumps also have been sized to cater for the PWWF of 6.5 l/sec, the theoretical flow rate for each pump is 7.52 l/sec.

With this solution, because we are taking in the upstream catchment, this pumpstation is taking pressure off the existing downstream pumpstations during peak times.

Glossary of terms used in this letter:

ADWF	Average Dry Weather Flow (average daily flow divided down to create l/sec)
PDWF	Peak Dry Weather Flow (ADWF with a peaking factor of 3 to cope with instantaneous flows during early morning and evening times)
PWWF	Peak Wet Weather Flow (ADWF with a peaking factor of 6.7 to allow for I&I during peak wet weather events). Otherwise known as Exceptional PDWF.
l/sec	Litres per second

I trust this is helpful, please contact me if you have any questions.

Warm regards,



Joel Mason

Director | Pump & Valve Specialties Ltd