BEFORE THE WESTERN BAY OF PLENTY DISTRICT COUNCIL

UNDER	the Resource Management Act 1991
AND	
IN THE MATTER OF	Plan Change 93 (Te Puna Springs) to the Western Bay of Plenty District Plan

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STATEMENT OF EVIDENCE OF ADRIAAN ROSSOUW
ON BEHALF OF WESTERN BAY OF PLENTY DISTRICT COUNCIL

Engineering

5/07/2022

Introduction

1 My name is Adriaan de Wet Rossouw and I am the acting Asset and Capital Manager for Western Bay of Plenty District Council (WBOPDC), a position I have held since 4 July 2022. I am a civil engineer with 32 years of experience. I hold a B Eng (Civil) qualification 1990 from Stellenbosch University (South Africa). I am a Chartered Professional Engineer with Engineering NZ. My role generally is Capital Projects Team Leader, which I have held since 29 April 2019.

2 My areas of responsibility within Council include the management of "three waters" asset and capital works relating to water, wastewater and stormwater to our Western Bay of Plenty communities of nearly 50,000 people.

3 My previous employment included a number of engineering, management and project management positions within private and public sector undertaking works in the three waters industry. These include Site Engineer (Goldstein Coastal Construction), Lecturer (Free State Technikon), Associate Engineer (Bigen Africa Consulting Engineers) and Lead Infrastructure Planning (Rotorua Lakes Council).

4 My 10 ½ year tenure at Rotorua Lakes Council, and my current role in the employment of Western Bay of Plenty District Council, involves in depth experience in water, wastewater and stormwater. For stormwater, my experience includes managing projects for hydraulic modelling, investigations, issues and options studies for development applications, structure planning, and stormwater upgrades, as well as the design and construction of stormwater solutions. My experience also includes writing and compiling the Catchment Management Plan and managing the application for a Comprehensive Stormwater Consent for the Rotorua Urban Area and for the Eastern Comprehensive Stormwater Consent of Western Bay of Plenty District Council.

Code of Conduct for Expert Witnesses

5 I have read and am familiar with the Code of Conduct for Expert Witnesses in the current (2014) Environment Court Practice Note. I have the particular engineering expertise and experience outlined above and, unless I state otherwise, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express. To the extent I give an expert opinion to assist the Commissioners, I agree to comply with this Code of Conduct and have done so in preparing this written brief. I also acknowledge that as an expert expressing opinions my duty is to impartially assist the Commissioners. In particular I am not an advocate for my employer.

Scope of evidence

6 My evidence will cover:

i) Background
ii) Stormwater Management
iii) Conclusion

7 **Background**

7.1 As the Acting Asset and Capital Manager since 4 July 2022 (due to Coral-Lee Ertel, the Asset and Capital Manager being on extended maternity leave) I have been briefed by the utilities staff involved in the consenting process for the Council. Due to the limited time available, my scope is limited to reviewing the approach followed by utilities staff only. I have also read the evidence by Kathy Thiel-Lardon of Bay of Plenty Regional Council and communications with the applicant.

7.2 In late May 2022, Utilities department at WBoPDC was contacted requesting to review the proposed stormwater management method at 23 Te Puna Road, as part of the Plan Change 93. As this is a private plan change Utilities staff only undertakes a high-level assessment of the approach followed for stormwater management and checking that the parameters used in the methodologies are

acceptable and sound. No detailed calculations are checked at this stage of the work and the report compiled by Aurecon, Te Puna Plan Change, 23 Te Puna Road, Reference: 251282 Revision 2, was reviewed.

7.3 Generally, the stormwater review process proceeds along the following steps:

- Step 1: Review the location against WBoPDC flood maps to determine any floodable areas.
- Step 2: Consider the purpose of the development, e.g. commercial or residential.
- Step 3: Review the proposed methodologies for management of stormwater.

8 Stormwater Review Process

8.1 Steps 1 and 2 were done by simply checking against available information, i.e.: The flow paths and floodable areas are indicated in the extract from BopMap below, while the application is for a commercial area:

8.2 Step 3 requires a more detailed review, as summarised below:

8.3 Flows and Volumes: The applicant (Aurecon) has completed the stormwater assessment as per the Bay of Plenty Regional Council's guidelines based on 1% AEP 2130 RCP 8.5.

8.4 Table 2 from the report compiled by Aurecon (Te Puna Plan Change, 23 Te Puna Road, Reference: 251282 Revision 2) gives a summary of the flows:

Table 2: Peak flow rates for Pre and Post development during 2,10 and 100yr ARI events

ARI	Predevelopment Flow (m^3/s)	Post development Flow (m^3/s)	Required storage volume (m^3)	Peak Elevation (m RL)	Controlling outlets
2yr	4.22 at RL 14.6m (i.e. spilling)	4.11	3000	12.62	2x 1050mm dia pipes at invert level 11.35 RL
10yr	7.62 at RL 14.7m (i.e. spilling)	7.53	5200	13.38	2x 825 mm dia pipes at invert level 12.625 RL
100yr	11.84 (1.98 from site + 9.85 from the rest of the catchment) at RL 14.77m (i.e. spilling) Targeting = 80% of 1.98(1.6) + 9.85 = 11.45	10.53	8300	14.24	As above

8.5 Primary and secondary flow paths:

8.6 Primary flows from the two culverts under SH2 will be conveyed by a piped network to the proposed pond.

8.7 Secondary flows will run down the new road that will convey flows in the event of storms above the design capacity of the piped network.

8.8 I noted that the roading layout was subsequently changed as per the revised Structure Plan of Neill Raynor's evidence that does not show a road for secondary flows (see extract below). However, it still allows for overland flow and is acceptable as now proposed development will impede the flow path.

3.2 The Te Puna Springs Industrial Development structure plan has been revised from the original application in response to submitters and is shown as Figure 2 below

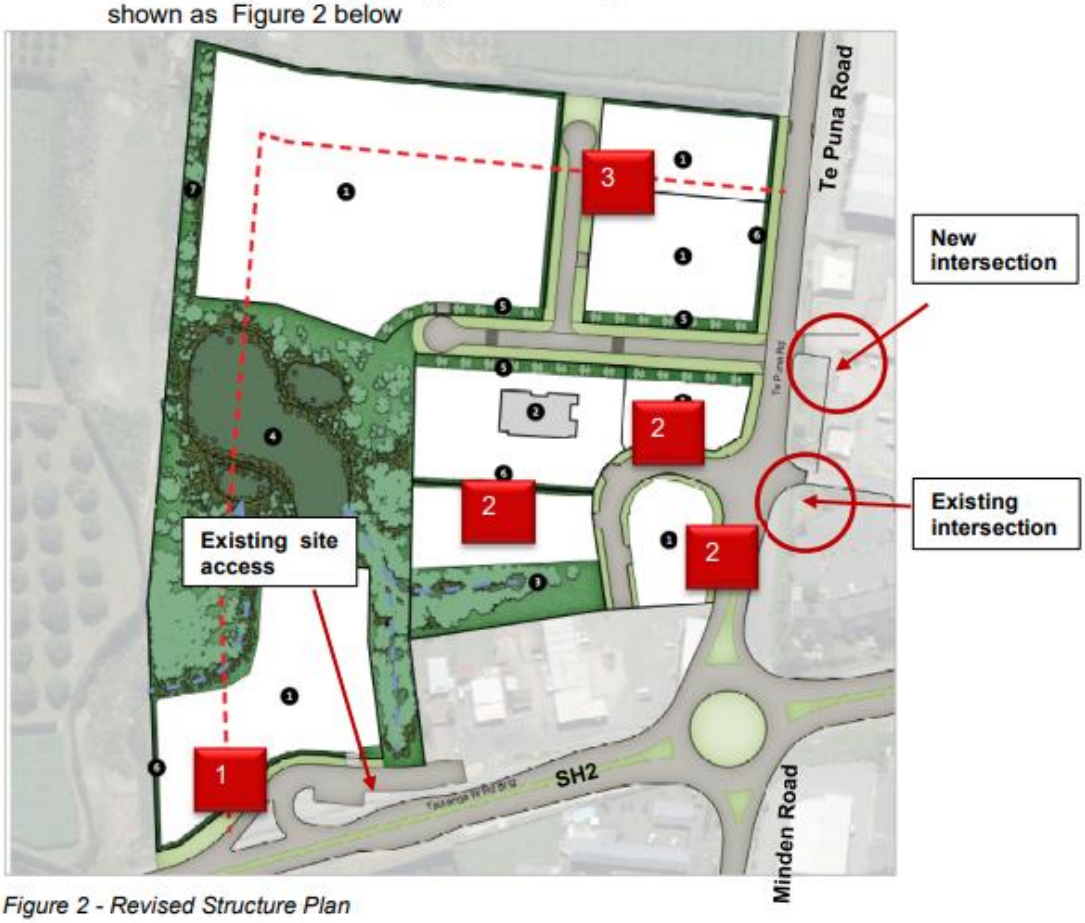

Figure 2 - Revised Structure Plan

8.9 Attenuation: It states in that the attenuation pond size will require upgrading the existing pond from 3100m^3 to 8300m^3 based on reducing the post development peak flow to 80% of the pre-development peak for 1:100y storm event.

8.10 Flooding and floor levels: The applicant is also considering the minimum floor level as per the Council flood model. The flood level is 14.24m R.L. (Note: minimum of 300mm of freeboard is proposed as part of the application).

8.11 Erosion: To mitigate any erosion effects from events smaller than the 2yr ARI, an extend detention pond is proposed that will control release these runoff volumes over a 24hr period.

8.12 I am satisfied with the stormwater management approach as it meets the required attenuation, will not cause flooding of buildings, and will not cause erosion.

9 SUBMISSIONS

9.1 Expert evidence provided by Neill Raynor from the applicant

I am satisfied with the expert evidence provided by Neill Raynor and have no further comments as it reflects the information that was reviewed by Utilities staff and does not deviate from or change my comments made under Section 8 of my evidence above.

9.2 Submission by Kathy Thiel-Lardon of the Bay of plenty Regional Council and the correspondence with the applicant and the regional council

9.3 I read the evidence by Kathy Thiel-Lardon of Bay of Plenty Regional Council. I understand that her concern relates to the feasibility of the proposed methodologies and especially that the proposed attenuation pond site will be inadequate and cannot accommodate the required size. I have not checked any calculations in this respect.

9.4 I read the correspondence between Bay of Plenty Regional Council and the applicant. I understand that their concern is that more work should be done to prove the stormwater management methodologies.

10 **Conclusion**

10.1 I am satisfied with the approach by Utilities staff and that the applicant's overall on-site stormwater management as proposed is sufficient and no further information was required from the applicant.

10.2 I am of the opinion that the proposed approach is acceptable considering that it is at plan change stage only. The details of the stormwater methodologies are normally only finalised at discharge consent stage. However, the risks highlighted by Bay of plenty Regional Council deserves to be noted and may cause reduction in the available land for commercial development should more land be required for wetlands or ponds.

Adriaan de Wet Rossouw
Date: 5 July 2022