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Dear Stephen

TAURIKO WEST - PRELIMINARY GROUNDWATER DISCHARGE ASSESSMENT – Addendum: Option 5

1.0 Introduction

The Tauriko West or “Tauriko for Tomorrow” project is a planned residential development which will provide further housing capacity in the city as part of the SmartGrowth strategy. The project comprises development of existing primarily agricultural land, between Wairoa River to the west and State Highway 29 to the east, approximately 10 km south west of Tauranga CBD (Figure 1). The total footprint of the project is approximately 300 ha and it is expected to accommodate around 3,000 – 4,000 dwellings.

Much of the existing project area is low lying flood plain of the Wairoa River and susceptible to inundation at present elevations. Major earthworks are proposed to raise low lying areas above Wairoa River flood levels and provide a more suitable land contour for residential development.

The project area includes a number of permanently and intermittently flowing watercourses, many of which have been channelised and highly modified in places. Observation of the watercourses has indicated that their flows persist during drier months and are most likely sustained by groundwater discharges (springs). Modification of the landform has the potential to alter the occurrence of springs and therefore the flows in any watercourses that are raised as part of the development.

Tauranga City Council (TCC) previously engaged Pattle Delamore Partners (PDP) in 2020 to provide technical services to assess potential changes to groundwater discharge to surface watercourses under three broad landform options currently being considered as part of the landform design process.

This letter report documents the assessment of an additional conceptual landform design option (“Option 5”) and is an addendum to the Tauriko West Preliminary Groundwater Discharge Assessment (April 2020). This report addendum should be read in conjunction with the original report.



Figure 1: Project Location

2.0 Preliminary Groundwater Discharge Assessment

2.1 Landform Option

Three concept level landform design options were originally assessed and are described in the Preliminary Groundwater Discharge Assessment. These varied according to different degrees of departure from the existing pre-development drainage morphology. Assessment of these options was useful to demonstrate relative levels of modification to the groundwater discharge regime. A fourth and fifth conceptual landform design options have been developed since the preliminary assessment. Assessment of Option 4 is not included in this assessment addendum, the focus of which is on conceptual landform design Option 5.

The final topography associated with Option 5 is shown in Figure 2 alongside the pre-development (existing) landform.

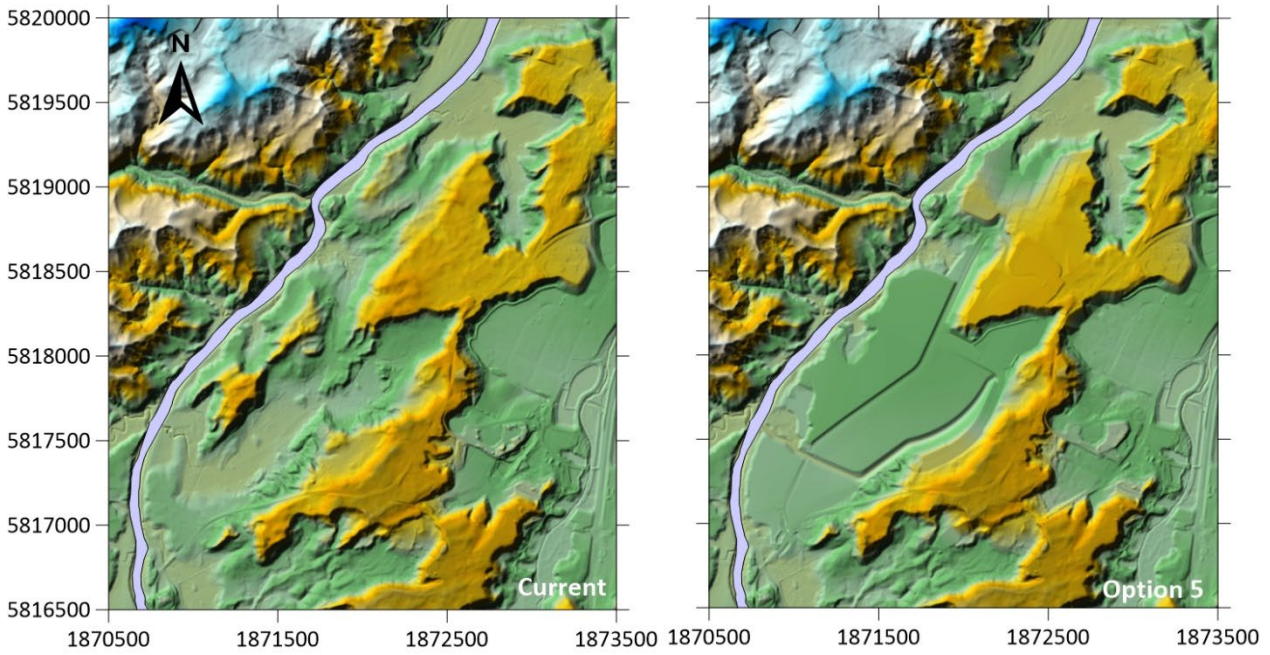


Figure 2: Pre-development topography and conceptual landform design Option 5

2.2 Results

Figure 3 shows the result for Scenario 5 in terms of simulated groundwater discharge distribution (left), and changes from the pre-development landform scenario (right). Conceptual changes in groundwater discharge distributions are shown as blue circles where discharge increases are simulated, and red circles where discharge is simulated to decrease compared with the baseline scenario.

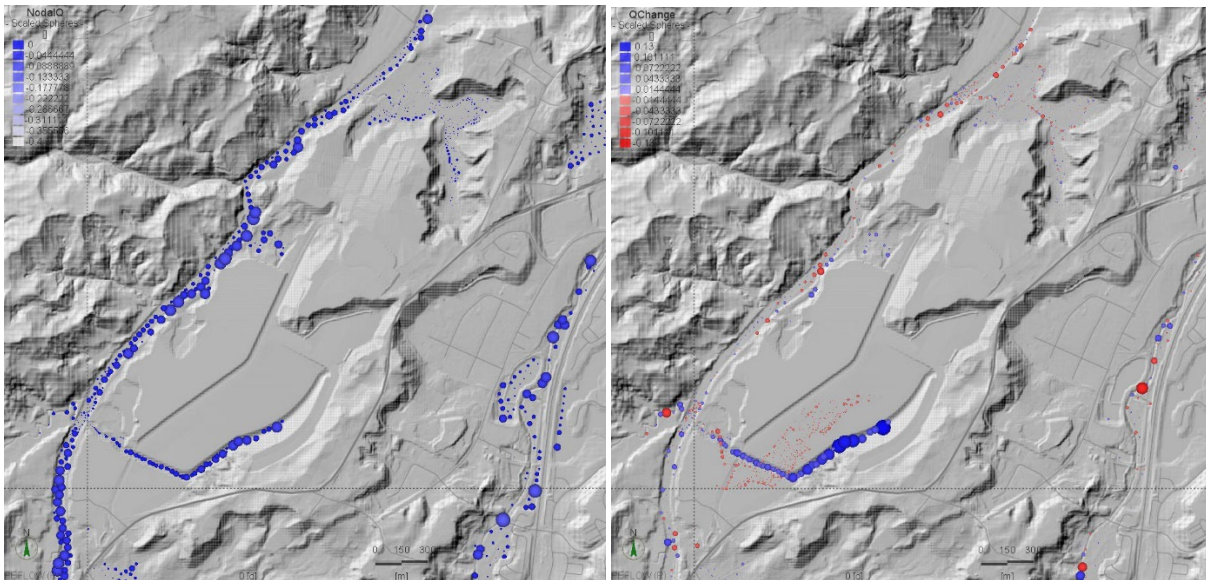


Figure 3: Option 5 - Simulated Groundwater Discharge (left) and Changes from Baseline Scenario (right)

Results indicate that the inclusion of an incised channel in the southern catchment in conceptual landform design Option 5 improves the likelihood of maintaining groundwater seepage and flow in the channel during dry conditions. Based on the conceptual assessment, groundwater seepage that may have otherwise occurred in the broad valley floor in the southern catchment would more likely become concentrated in the incised channel constructed as part of Option 5 (during dry conditions). Landform changes in other parts of the conceptual landform design option are indicated to have a limited influence on the overall groundwater discharge distribution (in dry conditions).

3.0 Discussion and Conclusions

The conceptual-numerical modelling described in this report demonstrated the relative influence of broad scale topographic features on groundwater discharge under simplified, hypothetical hydrogeological conditions. More detailed work would be required to better characterise the groundwater conditions at the site to inform an effects assessment. For example, it is likely that the distribution of seepage would be strongly influenced by local stratigraphy, which is understood to promote perched groundwater conditions in similar settings. The purpose of the conceptual level assessment presented herein was to provide a cursory check on key elements of the conceptual landform design option.

Development of a refined and calibrated model using available hydrogeological data is recommended if predictions of greater confidence are required to support advanced landform design options or provide an assessment of effects for consenting purposes. It is understood that effects assessments for specific landform proposals will be prepared by developers to support future resource consent applications.

4.0 Limitations

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Tauranga City Council. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

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Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED

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