9 August 2023

K200826-2

Goodland Group Limited
PO Box 302247
North Harbour
Auckland

GEOTECHNICAL RESPONSE TO COUNCIL SECTION 92 REQUEST FOR FURTHER INFORMATION - BUN60406128, WAT60412104 & DIS60412103
PROPOSED SUBDIVISION - 2127 KAIPARA COAST HIGHWAY, MAKARAU

We confirm that we have received a copy of a Section 92 Request for Further Information (RFI) letter from Auckland Council (AC), dated 21 December 2022, with regard to the subject subdivision at 2127 Kaipara Coast Highway. For reference, a copy of the RFI letter is appended to the rear of this document. KGA has been engaged to provide comment on Items 21 to 24, and 48 to 50 within the RFI letter.

In generating this response, we have reviewed and referenced the latest revision of the proposed scheme and earthworks drawings prepared by Crang Civil Consultants Limited (CCC), reference 1366, dated July 2023 and attached our latest amended Geotechnical Investigation Report (GIR), reference No. K200826-1A, dated July 2023.

Response to Item 21

Sufficiently detailed wastewater site plan. The wastewater site plan (or overall site plan is not sufficiently detailed to demonstrate compliance with TP58 (2004). Please ensure the plan is to scale and contains the following:

a) Size of each specified wastewater land disposal field (1,280m^2)
b) Ground contours, slope direction and gradient (within the land disposal areas and downslope).

c) *Location of all surface water (including any swamp ponds, wetlands, stormwater drains etc) and mark the actual setback from the specified wastewater land disposal system. Please specified how the lines will be installed and show the additional setback to surface water required where the surface is laid (Note 3, Table 5.2 of TP58).*

d) *Hand auger borehole locations*

e) *The minimum setback distance between the specified wastewater land disposal areas and natural wetlands.*

Plans of each individual lot or a cluster of lots may provide improved clarity of information.

Our amended GIR (reference K200826-1A) and corresponding KGA drawings, KGA2 and KGA 2A to 2F, have been updated to include the requirements above. It should be noted that due to the slope gradients generally being steeper than 1 vertical on 4 horizontal, the loading rate is restricted to 2.5mm/m^2/day and treatment is required to be advanced secondary at minimum, an additional setback to surface water (Note 3, Table 5.2 of TP58) was not considered to be required.

Response to Item 22

For each of the specified wastewater land disposal areas on Lots 1 to 25, please confirm the following:

f) *They are located on stable slopes to be a PA, the wastewater land disposal fields must be located on stable land.*

As discussed in our GIR, the slope stability assessment through the critical sections within the proposed Lots (Cross-Sections D-D' to M-M') indicate stable slopes.

g) *They comply with the minimum setback to the seasonal high groundwater table in accordance with TP58 (2004).*

The winter groundwater measurements (May 2021) taken within the hand-auger boreholes generally measured at depths greater than 1.0m below current ground level, with the exception of AH1 and AH2, drilled in the overland flow path in the northern portion of the site, and AH6 drilled immediately adjacent the quarry pond near the centre of the site. As such, we consider the groundwater table to be deeper than the minimum setback in accordance with TP58.

h) Will not be subject located on earth worked soils, cut or fill.

Proposed earthworks for the subdivision development encroach into Lots 6, 8, 10, 13 and 15, and are generally comprised of cut earthworks up to a maximum height of 2.0m. The subsoils encountered at these depths are generally consistent with those above and subject to an appropriate topsoil thickness (minimum of 300mm) being placed within these areas we consider them suitable as dispersal area. If the proposed earthworks vary from those shown, any applicable restrictions will be discussed in the completion documents and further covenants placed on the affected Lots.

i) *Is not within or subject to a 1 in 20-year flood plain.*

As indicated in Figure 1 below, the proposed Lot layouts and corresponding onsite wastewater dispersal areas do not encroach with the 1 in 20-year flood plans (light blue), as per Auckland Council's 'GeoMaps' web application.

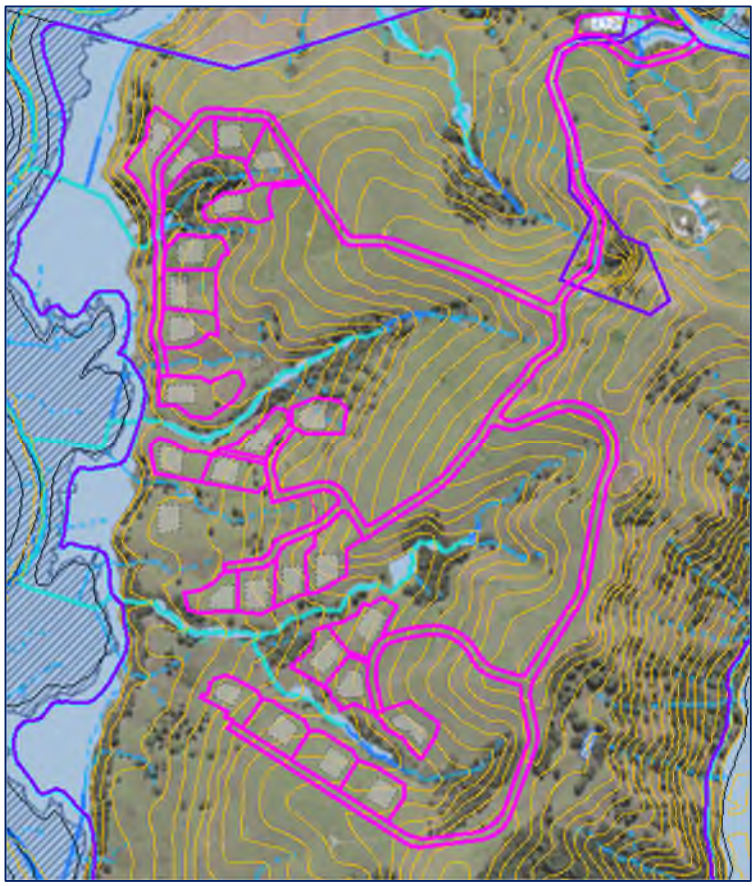

Figure 1: Proposed Lot Layout Overlaying the Flood Zones Taken from Auckland Council's 'GeoMaps' Application.

Response to Item 23

The wetland assessment is not adequate for the proposed wastewater land disposal within 15m to be supportable based on the information presented. The applicant must demonstrate the site is developable under the NES-F and that a sensible nature of residential development within the identified building site would result in an acceptable level of effects upon any natural wetland within 100 metres. Again, the onus would be on the applicant to provide a high level of detail to demonstrate that the site is developable under the NES-FW. This should include the following.

a) *Confirmation of the location and extent of the natural wetlands within 100m of any future discharge of wastewater (any other discharges or proposed earthworks).*

We have assumed all Lots and corresponding on-site wastewater dispersal areas are located within 100m of existing natural wetlands, the location of each natural inland wetland is located on our Site Plan presented in Appendix A of our GIR.

b) *High level assessment of the effects of wastewater discharge on the ecological values and water quality of the natural wetland (should include cumulative effects).*

Please refer to Section 14.5 of our GIR, which discusses mitigation methods and restrictions for each Lot's future development in order to reduce the impact on the water quality of the natural inland wetlands. In addition, we did not consider a cumulative assessment is necessary as the proposed lots were a minimum of 2.0Ha and the catchment for each wetland was generally greater than 3000m2 per proposed dispersal area.

c) *Consideration of development design optimisation and appropriate development constraints.*

Please refer to Section 14.5 of our GIR, which discusses mitigation methods and restrictions for future development on each Lot

Response to Item 24

In terms of Lots 9 to 12, the wastewater must be treated and dispersed within the site's legal boundaries. Any discharge of the wastewater onto an adjacent site is not supportable. Please demonstrate how this can be achieved.

Following the redesign of the Lot layouts assessed in our July 2023 GIR, the discharge of wastewater is proposed to be within each Lot boundary.

Response to Item 48

Clarification and further information is required on the future wastewater discharge. It is unclear if this activity is being proposed as part of this application; or is to be left to the individual lot owners in the future.

If the later, please clarify the mechanism to ensure that the activity would comply with this application material.

It is our understanding that the final wastewater dispersal design is to be left to the individual owners of the future Lots. However, the conditions and design requirements outlined in Section 14.5 of our GIR are to be included as property covenants/conditions on each Lot's title.

Response to Item 49

Please clarify the intended location of wastewater disposal field for each lot (including reserve area), separate from the building platform and with the disposal field clearly linked to each lot.

Please include in this plan the setback distance to the watercourses (including the overland flow paths and any curb/channel of the accessway); noting that the reporting of this setback distance varies across the application material.

Our amended GIR (reference K200826-1A) and corresponding KGA drawings, KGA2 and KGA 2A to 2F, have been updated to include the requirements above.

Response to Item 50

The ECIA has considered: all wastewater systems will be designed to ensure the highest possible levels of treatment is achieved….; however this is inconsistent with what is being proposed elsewhere; which is at best secondary treatment. Please provide an updated effects assessment based on the actual proposed design with specific reference to Lots 9-12, 17, 22, 24 and 25.

Please refer to Section 14.5 of our GIR which includes specific design covenants/conditions to be applied to each Lot (including Lots 9 to 12, 17, 22, 24 and 25). It should also be noted our assessment is based on a minimum treatment level of advanced secondary.

Conclusion

We trust that the above is sufficient to satisfy Items 21 to 24, and 48 to 50 within the RFI letter provided to us. However, if you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,
p.p. KGA Geotechnical Group Limited

Tom Rishworth
BSc (Hons), MSc
Engineering Geologist

Tom Palastanga
BSc (Hons), MEngSt (Hons), CMEngNZ, PEngGeol
Principal Engineering Geologist

Abilio Nogueira
BE (Eng. Geol.), CMEngNZ, CPEng
Director

Yan Chan
BE, ME, CMEngNZ
Director