

## Site Formation Assessment Executive Summary

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### INTRODUCTION

This technical assessment aims to propose site formation for developments and infrastructures of the three New Development Areas (NDAs), assess and determine the quantity of cut and fill arising from the site formation works and quantity of unsuitable materials arising from the earthwork, and recommend feasible solutions to minimise impacts imposed by the proposed site formation on the existing villages and historical buildings.

### PROPOSED SITE FORMATION

The site formation levels have been critically reviewed in order to achieve cut/fill balance for each development package. In addition, the proposed site formation levels take into account the flood levels to ensure the proposed development would not be subject to flooding.

The site formation works to be implemented under the NDAs Development include:

- The proposed public roads and highway structures, drainage, sewerage, waterworks, footpaths, cycle tracks, slopes, amenities and landscaping works, and the main service and utility installations;
- Land for various development purposes; and
- Land proposed as district open/local open spaces.

The site formation levels have also taken into consideration of the levels of the areas adjacent to NDA and the drainage impact to the surrounding areas.

### GROUND SETTLEMENT ANALYSIS AND MITIGATION MEASURES

#### Ground Treatment Measures

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The existing ground investigation data reveals the presence of alluvial deposits within the development sites, which may undergo consolidation settlement triggered by filling works under the proposed site formation. A consolidation settlement analysis has been carried out to estimate the general degree of primary and secondary consolidation. The report recommends a surcharging method for use to accelerate the consolidation process to achieve residual settlement less than 25mm and appropriate ground movement monitoring measures during construction stage.

### EARTHWORK BALANCE, FILL SOURCES AND DISPOSAL SITES

#### Minimisation of Disposal of Materials Off-site

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The site formation levels and the slope works have been critically reviewed to minimise the generation of excavated materials and maximise the on-site reuse of the generated materials. On-site sorting, reuse and recycling of different excavated materials have been proposed.

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### Handling of Unsuitable Materials

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Most of the excavated materials from the NENT NDAs will be inert construction and demolition (C&D) soft materials or rock materials suitable to be reused for filling works. Nevertheless, it is estimated that about 10% of the total excavation from NENT NDAs will be alluvium materials. The current C&D materials management policy has strong reservation on the disposal of the alluvium material to mud pit or landfill, which has limited capacity. The report has therefore proposed to carry out appropriate soil mixing or cement mixing works to improve the physical properties of the excavated alluvium such that the grading and plasticity of the mixture will be suitable for reuse on-site as backfilling materials.

Non-inert C&D wastes are proposed to be disposed of at the Government landfill sites, in accordance with the current waste management policy.

### Quantity of Earthworks

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A preliminary estimation of the amount of filling works required for the three NDAs was carried out under this study. In general, the estimated quantities of filling works for the three NDAs are more than excavated quantities.

As the eastern side of Kwu Tung North (KTN) NDA and the overall Fanling North (FLN) NDA are low-lying, filling is required to raise the site formation levels to provide sufficient protection against flooding. These two NDAs require a net import of general fill from the public fill bank. In general, cut-fill balance is achieved in Ping Che/Ta Kwu Ling (PC/TLK) NDA.

### Transportation of Fill

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The three NDAs are close to the existing and planned strategic highway network. The transportation of fill is proposed to be by dump truck from/to the public fill bank. The haul road to KTN NDA is through the Pak Shek Au Interchange and the Castle Peak Road. The haul road for FLN NDA is through Sha Tau Kok Road and Po Shek Wu Road, depending on the destination. Once Fanling Bypass is constructed, it could also serve as the haul road to minimise construction traffic through the existing Fanling town centre. The haul road for PC/TKL NDA is through Sha Tau Kok Road and Ping Che Road. However it is proposed to construct the connection road to the Ping Yeung Interchange of Liantang/Heung Yuen Wai (LT/HYW) Boundary Control Point (BCP) Connecting Road in advance. The LT/HYW BCP Connecting Road can also serve as the main haul road to minimise construction traffic through the villages in Ping Che and Ta Kwu Ling and through Sha Tau Kok Road.

### CONCLUSIONS

The geotechnical constraints are presented in the technical report and corresponding solutions are identified. It is concluded that the proposed site formation in the KTN, FLN and PC/TKL NDAs is technically feasible.