Appendix 10.1 Impacts Summary

Landslide Preventive Works at Po Shan, Mid-levels – Natural Terrain Risk Mitigation Measures

Assessment Points / Sensitive Receivers	Predicted Impact Level	Relevant Criteria / Standard	Predicted Exceedance	Impact Avoidance Measures / Proposed Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Ecological Impact					
Natural woodland habitat	Low to Moderate Although the natural woodland habitat is considered of moderate to high ecological value, and provides roosting site for bats, the area of habitat affected is small in scale (0.65 ha). Besides, with on-site adjustment of the location of scaffolding, installation of soil nails and nail heads, and the construction of raking drains, no tree felling and slope cutting would be required. The impact to the natural woodland and the country park area is hence considered low to moderate.	Not applicable	Not applicable	• On-site adjustments of the location of scaffolding, installations of soil nails and nail heads, and the construction of raking drains. • No tree felling and slope cutting would be required.	Low
Freshwater habitat and the associated fauna	Low The impacts to the freshwater habitat and the associated fauna due to site runoff are considered limited as the two streams and drainage culvert are not within the proposed works area. With the implementation of mitigation measure, no site runoff and discharge to the freshwater habitat would be resulted.			To minimize the indirect impacts to the nearby stream course and drainage culvert, the site runoff control measures mentioned in Section of Construction Water Quality Impact should be implemented.	Low
Two plant species of conservation important, Small Persimmon (*Diospyros vaccinioides*) and Common Tutcheria (*Tutcheria spectabilis*)	Low Although these two species fall within the proposed works area under this Project might be directly impacted by the proposed works, the soil nails near the individuals of these species would be carefully adjusted to avoid or minimize			• A detail vegetation survey conducted by a suitably qualified botanist/ecologist with over 7 years relevant experience would be required to identify the individuals potentially affected by the proposed works. • These identified individuals would be labelled on site prior to	Low

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	the potential damages. Given that Small Persimmon are locally common and widespread, and are not threatened in Hong Kong, the potential loss or damage of a relatively small number of individuals of the Small Persimmon would be a minor impact and no transplantation for Small Persimmon would be required. The potential impacts for both protected species are therefore considered low.			the commencement of works for better protection during construction phase. • A specific monitoring programme would be conducted to check on the health and condition of these plants during the construction phase. • Planting of suitable shrubs/herbs, including the Small Persimmon, would be provided to compensate for the loss of understorey vegetation.	
Short-nosed Fruit Bat (*Cynopterus sphinx*)	Low Only a small amount (about ten individuals) of bats recorded in the palm trees at the margin of the proposed works area would be impacted by the construction phase disturbance. With the use of effective quiet machinery, construction phase noise disturbance to the bats would be minimized. In the worse-case scenario, the construction phase disturbance may cause roosting bats to move away and result in the abandonment of roosting site. This outcome would still be regarded as a relatively minor impact. It is probable that the bats would simply re-locate alternative roost sites adjacent to the proposed works area if disturbed. Hence the impact to the bat is considered low			• With the use of quiet powered mechanical equipment and insulating fabric for drill rigs, construction phase noise disturbance would be minimised. • All construction activities would be implemented at daytime only. • Measures such as noise barriers should be used to minimise disturbance to the bat roost identified close to the western side of the works area. • Bat roost (i.e. the two palm trees) would be retained. • Chinese Fan-palm (*Livistona chinensis*) would be planted near the existing bat roost to provide suitable habitat for the Short-nosed Fruit Bat after the completion of landslide preventive works.	Low

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Landscape and Visual Impact						
Landscape Resources	*Construction*	*Operation*	Annex 3, 10 and 18 of EIAO-TM and EIAO Guidance Note No. 8/2002	Not applicable	Construction Phase: • Designation of 'no-intrusion zones' • Allowance for adjustment of soil nails on site for the avoidance of tree trunks and tree roots • Dust and erosion control for exposed soil • All retained trees should be record photographically at the commencement of Contract, and carefully protected during the construction period. • control over the appearance of construction workers, hoarding, construction plants/ machines • careful selection of security floodlights to avoid light pollution Operation Phase: • Re-use of existing soil where possible • 12 month establishment period for soft landscape works • Re-instatement of excavated area • Woodland mix is proposed to screen sensitive views, to match surrounding vegetation, and to provide greenery to the	
LR1	Intermediate	Intermediate				Insubstantial
LR2	Negligible	Negligible				Insubstantial
LR3	Small	Small				Insubstantial
LR4	Negligible	Negligible				Insubstantial
LR5	Negligible	Negligible				Insubstantial
LCA1	Intermediate	Intermediate				Insubstantial
LCA2	Negligible	Negligible				Insubstantial
Visually Sensitive Receivers	*Construction*	*Operation*	Annex 3, 10 and 18 of EIAO-TM and EIAO Guidance Note No. 8/2002	Not applicable		
R1A	Intermediate	Intermediate				Insubstantial
R1B	Intermediate	Intermediate				Insubstantial
R1C	Intermediate	Intermediate				Insubstantial
R1D	small	small				Insubstantial
R1E	Intermediate	Intermediate				Insubstantial
R1F	Intermediate	Intermediate				Insubstantial
R2	small	negligible				Insubstantial
R3	small	small				Insubstantial
GIC1	small	negligible				Insubstantial
O1	small	negligible				Insubstantial
T1	small	small				Insubstantial

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				surrounding area.	
Construction Noise					
N1	62 – 82 dB(A)	75 dB(A) daytime	7 dB(A)	• Quieter plants • Movable noise barriers • Noise enclosure • Noise insulating fabric • Restriction on the number of drill rigs in different Works Areas	None
N2	61 – 79 dB(A)		4 dB(A)		
N3	53 – 69 dB(A)		None		
N4	52 – 68 dB(A)		None		
N5	64 – 72 dB(A)		None		
N6	60 – 72 dB(A)		None		
Construction Water Quality					
Victoria Harbour Water Control Zone and all areas within 500m from the works site boundary	Water quality impacts from the land-based construction works can be controlled to comply with the WPCO standards by implementing the recommended mitigation measures. No unacceptable water quality impacts from the proposed land-based works are anticipated.	Water Pollution Control Ordinance Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters Practice Note for Professional Persons ProPECC PN	Not applicable	• Provision of perimeter drains to intercept storm-runoff from outside the works area. These shall be constructed in advance of site formation works and earthworks. Earth bunds or sand bag barriers should be provided on-site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction • Sand/silt removal facilities such as sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the	None

Assessment Points / Sensitive Receivers	Predicted Impact Level	Relevant Criteria / Standard	Predicted Exceedance	Impact Avoidance Measures / Proposed Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		1/94		Water Pollution Control Ordinance. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. The detailed design of the sand/silt traps will be undertaken by the Contractor prior to the commencement of construction.2 month establishment period for soft landscape works • Air would be used as the flushing medium of the drilling equipment to avoid the groundwater being affected by the flushing medium. In addition, permanent casing may be provided to the drillhole of soil nail within the permeable colluvium layer as instructed by the Engineer to minimize the impact to the groundwater table situated at the permeable soil stratum. • An outlet pipe extending above the slope surface would be installed to facilitate collection of discharge of air, water and grout from the drillhole inserted with soil	

Assessment Points / Sensitive Receivers	Predicted Impact Level	Relevant Criteria / Standard	Predicted Exceedance	Impact Avoidance Measures / Proposed Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				nail during grouting. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times • Exposed slope/soil surface should be covered by tarpaulin as soon as possible to reduce the potential of soil erosion. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94. • Open stockpiles of construction materials or construction wastes on-site of more than $50m^3$ should be covered with tarpaulin or similar fabric during rainstorms.	

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Construction Air Quality					
A1 to A7	Air quality impacts from the land-based construction works can be controlled to comply with the APCO standards by implementing the recommended mitigation measures. No unacceptable air quality impacts from the proposed works are anticipated.	TSP Concentration 260 µg/m3 (daily) 80 µg/m3 (annual)	Not applicable	Good Site Practice • Covering/watering of any aggregate or dusty material storage piles • Tarpaulin covering of all dusty vehicle loads • Use of vehicle wheel and body washing facilities at the exit points of the site • Dusty activities should be re-scheduled where possible if high-wind conditions are encountered	None
Waste Management					
Not applicable	Adverse environmental impacts would not be expected during the construction phase, provided the identified waste arisings are handled, transported and disposed of using approved methods and the recommended good site practices are strictly followed.	Waste Disposal Ordinance (Cap. 354) Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	Not applicable	Good Site Practice • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical waste handling procedures • Provision of sufficient waste disposal points and regular collection for disposal • Appropriate measures to minimize windblown litter and	None

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		Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation Annexes 7 & 15 of EIAO- TM		dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors Use of vehicle wheel and body washing facilities at the exit points of the site Waste Reduction • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force • Any unused chemicals or those with remaining functional capacity shall be recycled • Proper storage and site practices to minimize the potential for damage or contamination of construction materials • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste	