

Environmental Impact Assessment Ordinance (Cap. 499), Section 5 (7)

Environmental Impact Assessment Study Brief No. ESB-158/2006

Project Title : **Landslide Preventive Works at Po Shan, Mid-levels – Natural Terrain Risk Mitigation Measures**
(hereinafter known as the "Project")

Name of Applicant : **Planning Division, Geotechnical Engineering Office, Civil Engineering and Development Department, Hong Kong SAR Government.**
(hereinafter known as the "Applicant")

1. BACKGROUND

- 1.1 An application (No. ESB-158/2006) for an Environmental Impact Assessment (EIA) study brief under section 5(1) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by the Applicant on 10 October 2006 with a project profile (No. PP-303/2006) (the Project Profile).
- 1.2 The scope of the Project is to construct and operate landslide preventive works on the natural hillside located above Po Shan Road, to protect the existing residential developments at the toe of the Project site, and is partly within the boundary of the existing Pok Fu Lam Country Park and Special Area, as shown in Figure 1 in Appendix A and described below :
 - (i) installation of about 700 numbers of soil nails and about 60 numbers of raking drains. The length of the soil nails is about 20m with a spacing of 2m horizontally and 3m vertically. The length of raking drains is about 10m with a spacing of 5m horizontally and 15m vertically ;
 - (ii) rock slope stabilization works for the rock outcrop / boulders at the upper portion of the natural terrain. Measures such as scaling, rock bolts/dowels, concrete buttress and wire mesh protection will be provided where necessary; and
 - (iii) associated landscaping works;
- 1.3 The Project is a designated project (DP) under Item Q.1 in Schedule 2 of the EIAO – all projects including earthworks and other building works partly or wholly in an existing or gazetted proposed country park.
- 1.4 The Applicant had previously applied for and was granted the permission to apply direct for an Environmental Permit for a nearby project “*Landslide Preventive Works at Po Shan, Mid-Levels*”, involving mainly the construction of two 3.5m diameter underground drainage adits, each of lengths 260m and 175m respectively, and sub-vertical drains at the Po Shan area. An Environmental Permit was subsequently issued for that nearby project. It is currently covered by a valid Environmental Permit no. EP-235/2005/A.
- 1.5 Pursuant to section 5(7)(a) of the EIAO, the Director of Environmental Protection (the Director) issues this EIA study brief to the Applicant to carry out an EIA study.

1.6 The purpose of this EIA study is to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and related activities that take place concurrently. This information will contribute to decisions by the Director on :

- (i) the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project;
- (ii) the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and
- (iii) the acceptability of residual impacts after the proposed mitigation measures are implemented.

2. OBJECTIVES OF THE EIA STUDY

2.1 The objectives of the EIA study are as follows :

- (i) to describe the Project and associated works together with the requirements for carrying out the Project;
- (ii) to identify and describe elements of community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including natural and man-made environment and the associated environmental constraints;
- (iii) to provide information on the consideration of alternatives to avoid and minimize potential environmental impacts to ecologically sensitive areas and other sensitive uses; to compare the environmental benefits and dis-benefits of each of different options; to provide reasons for selecting the preferred option(s) and to describe the part environmental factors played in the selection of preferred option(s);
- (iv) to identify and quantify any potential losses or damage to flora, fauna and natural habitats and to propose measures to mitigate these impacts;
- (v) to identify and quantify any potential landscape and visual impacts and to propose measures to mitigate these impacts;
- (vi) to identify and quantify construction noise, air and water pollution and waste generation and determine the significance of impacts on sensitive receivers and potential affected uses;
- (vii) to propose the provision of mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operation of the Project;
- (viii) to investigate the feasibility, practicability, effectiveness and implications of the proposed mitigation measures;
- (ix) to identify, predict and evaluate the cumulative effects and the residual environmental impacts (i.e. after practicable mitigation) expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses, taking into account nearby concurrent project(s), such as the Landslide Preventive Works at Po Shan, Mid-levels under Environmental Permit EP-235/2005/A mentioned in section 1.4 above;
- (x) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these environmental impacts and cumulative effects and reduce them to acceptable levels;

- (xi) to investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA study, as well as the provision of any necessary modification; and
- (xii) to investigate, and where found necessary and justified, design and specify environmental monitoring and audit requirements to ensure the effective implementation of the recommended environmental protection and pollution control measures.

3. DETAILED REQUIREMENTS OF THE EIA STUDY

3.1 The Purpose

The purpose of this study brief is to scope the key issues of the EIA study. The Applicant has to demonstrate in the EIA report that the criteria in the relevant sections of the Technical Memorandum on the Environmental Impact Assessment Process of the Environmental Impact Assessment Ordinance (hereinafter referred to as “the TM”) are complied with.

3.2 The Scope

3.2.1 The scope of this EIA study shall cover the Project mentioned in sub-section 1.2 above. The EIA study shall address the likely key issues described below, together with any other key issues identified during the course of the EIA study:

- (i) potential losses or damage to flora, fauna and natural habitats and the potential ecological impacts from the Project during its construction and operation stages;
- (ii) potential landscape and visual impacts to nearby sensitive receivers from the Project during its construction and operation stages;
- (iii) potential construction noise impacts to nearby sensitive receivers from the Project;
- (iv) potential construction water quality and dust impacts to nearby sensitive receivers, as well as waste management implications, from the Project; and
- (v) potential cumulative impacts to nearby sensitive receivers for the above key issues, taking into account the existing and planned projects in the vicinity of the Project, such as the Landslide Preventive Works at Po Shan, Mid-levels under Environmental Permit EP-235/2005/A.

3.3 Consideration of Alternatives

3.3.1 The Need of the Project

The Applicant shall study and review the need of the Project, and provide information to justify the need. The Applicant shall explain clearly the purpose and objectives of the Project and describe the scenarios with and without the Project.

3.3.2 Consideration of Different Technology and Design Options

In addition to the proposed scope of works mentioned in sub-section 1.2 above, the Applicant shall consider other feasible options for the Project, provide justification

regarding how the proposed scheme is arrived at, including descriptions of the environmental factors considered in the option selection. Alternative landslide preventive works options and selection of the most suitable technology shall be reviewed and investigated. A comparison of the environmental benefits and dis-benefits of possible landslide preventive works options and alternative technologies and design shall be made with a view to recommending the preferred option to maximise environmental benefits and avoid/minimize adverse environmental effects to the maximum practicable extent.

3.3.3 Consideration of Alternative Construction Methods and Sequences of Works

Taking into consideration the combined effect with respect to the severity and duration of the construction impacts to the affected sensitive receivers, the EIA study shall explore alternative construction methods and sequences of works for the Project, with a view to avoid prolonged adverse environmental impacts to the maximum practicable extent. A comparison of the environmental benefits and dis-benefits of applying different construction methods and sequence of works shall be made.

3.3.4 Selection of Preferred Scenario

Taking into consideration of the findings in sub-sections 3.3.2 and 3.3.3 above, the Applicant shall recommend / justify the adoption of the preferred scenario that will maximise environmental benefits and avoid or minimize adverse environmental effects arising from the Project, and adequately describe the part that environmental factors played in arriving at the final selection.

3.4 **Technical Requirements**

The Applicant shall conduct the EIA study to address environmental aspects as described in sub-sections 3.1, 3.2 and 3.3 above. The EIA study shall include the following technical requirements on specific impacts.

3.4.1 **Ecological Impact (Terrestrial and Aquatic)**

3.4.1.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing ecological impact as stated in Annexes 8 and 16 of the TM, respectively.

3.4.1.2 The study area for the purpose of this ecological impact assessment shall include areas within 500 metres from the works site boundary, including the Pok Fu Lam Country Park and Special Area, and area likely to be impacted by the Project .

3.4.1.3 In the ecological impact assessment, the Applicant shall examine the flora, fauna and other components of ecological habitats within the study area. The aim shall be to protect, maintain or rehabilitate the natural environment. In particular, the Project shall avoid impacts on other recognized sites of conservation importance (e.g. Country or Marine Parks, Sites of Special Scientific Interest and Special Areas) and other ecological sensitive areas. The assessment shall identify and quantify as far as possible potential ecological impacts associated with the Project.

3.4.1.4 The assessment shall include the following major tasks:

- (i) review the findings of relevant studies and collate the available information regarding the ecological characteristics of the study area;

- (ii) evaluate information collected and identify any information gap relating to the assessment of potential ecological impacts to terrestrial and aquatic environment;
- (iii) carry out necessary field surveys for a duration of at least four months, covering a wet season, and investigations to verify the information collected, fill the information gaps identified and fulfil the objectives of the EIA study;
- (iv) establish the general ecological profile and describe the characteristics of each habitat found; major information to be provided shall include :
 - (a) description of the physical environment;
 - (b) habitat maps of suitable scale (1:1000 to 1:5000) showing types and locations of habitats in the study area;
 - (c) ecological characteristics of each habitat type such as size, vegetation and/or substrate type, species present, dominant species found, species diversity and abundance, community structure, seasonal patterns, inter-dependence of the habitats and species, and presence of any features of ecological importance;
 - (d) representative colour photos of each habitat type and any important ecological features identified;
 - (e) species found that are rare, endangered and/or listed under local legislation, international conventions for conservation of wildlife/habitats or red data books;
- (v) investigate and describe existing wildlife uses of various habitats with special attention to any habitats and wildlife groups with conservation interests, including but not limited to the following:
 - (a) woodlands
 - (b) natural stream courses
 - (c) Plants of conservation interest (e.g. *Artocarpus hypargyreus*, *Cibotium barometz*, *Diospyros vaccinioides*, *Neottopteris nidus*, *Pavetta hongkongensis*, *Pholidota chinensis* and *Rhododendron* spp.)
 - (d) Vertebrates (e.g. avifauna, mammal including bats, fish and herpetofauna)
 - (e) macroinvertebrates (e.g. butterflies, odonates, aquatic macroinvertebrates in particular Mountain Crab *Nanhaipotamon hongkongense* and endemic shrimp *Caridina serrata*)”.
- (vi) describe recognized sites of conservation importance in the study area, in particular, the Pok Fu Lam Country Park and Special Area, and assess whether and how these sites will be affected by the Project;
- (vii) using suitable methodology, identify and quantify as far as possible any direct, indirect, on-site, primary, secondary and cumulative ecological impacts such as destruction of habitats, reduction of species abundance/diversity, loss of feeding and breeding grounds, reduction of ecological carrying capacity and habitat fragmentation, impacts on existing trees (e.g. survival and health of trees due to disturbance and damage to tree roots) from the proposed slope works (e.g. soil nails, rock slope stabilization works and raking drain installation) and impacts of potentially harmful effects associated with any construction work on ecological sensitive receivers;

- (viii) identification of ecological sensitive receivers including sensitive elements of terrestrial and aquatic communities/habitats which would be potentially affected directly or indirectly by the Project. The Pok Fu Lam Country Park and Special Area shall be included as major sensitive receivers;
- (ix) evaluate the significance and acceptability of the ecological impacts identified using criteria in Annex 8 of the TM;

Ecological Mitigation

- (x) consider, evaluate and recommend possible alternatives and practicable mitigation measures to avoid, minimize, and/or compensate for adverse ecological impacts identified, including selecting the location of each soil nail and raking drain to reduce damage to tree roots, avoidance of concreting and excavation adjacent to trees, and adopting tree-friendly site practices and conveying them to the workers;
- (xi) evaluate the feasibility and effectiveness of the recommended mitigation measures and define the scope, type, location, implementation arrangement, subsequent management and maintenance of such measures;
- (xii) determine and quantify as far as possible the residual ecological impacts after implementation of the proposed mitigation measures;
- (xiii) evaluate the severity and acceptability of the residual ecological impacts using well-defined criteria. If off-site mitigation measures are considered necessary to mitigate the residual impacts, the guidelines and requirements laid down in the PELB Technical Circular No. 1/97 shall be followed; and
- (xiv) review the need for and recommend any ecological monitoring programme required.

3.4.2 Landscape and Visual Impact

- 3.4.2.1 The Applicant shall follow the criteria and guidelines as stated in Annexes 10 and 18 of the TM for evaluating and assessing landscape and visual impacts of the Project, including any above ground structures and work areas associated with the Project. Landscape and visual impacts during both construction and operation stages within the study area shall be assessed.
- 3.4.2.2 Study areas for landscape impact assessment shall include areas within 100m from the Project. Study area for visual impact assessment shall be defined by the visual envelope of the Project. The defined visual envelope must be shown on a plan in the EIA report.
- 3.4.2.3 The Applicant shall review relevant Outline Zoning Plans, Development Permissions Area Plans, Outline Development Plans, Layout Plans, other relevant published land use plans, planning briefs and studies which may identify areas of high landscape value and recommend country park, open space, amenity area and green belt designations. Any guidelines on landscape strategies, landscape frameworks, urban design concepts, special design areas, open space networks, landscape links that may affect the appreciation of the Project shall also be reviewed. The aim is to gain an insight to the future outlook of the area so as to assess whether the Project can fit into surrounding setting. Any conflict with statutory town plan(s) and any published land use plans should be highlighted and appropriate follow-up action should be recommended.

- 3.4.2.4 The Applicant shall describe, appraise, analyse and evaluate the existing and planned landscape resources and character of the study area. A system shall be derived for judging landscape and visual impact significance as required under the TM and EIAO Guidance Note No.8/2002 “*Preparation of Landscape and Visual Impact Assessment under EIAO*”. Annotated oblique aerial photographs and plans of suitable scale showing the baseline landscape character areas and landscape resources and mapping of impact assessment shall be extensively used to present the findings of impact assessment. Descriptive text shall provide a concise and reasoned judgment from a landscape and visual point of view. The assessment shall be particularly focused on the sensitivity of the landscape framework and its ability to accommodate change. The Applicant shall identify the degree of compatibility of the Project with the existing and planned landscape settings. The landscape impact assessment shall quantify potential landscape impacts as far as possible, so as to illustrate the significance of such impacts arising from the Project. Clear mapping of the landscape impact is required. A tree survey shall be carried out and the impacts on existing trees shall be addressed. Cumulative landscape and visual impacts of the Project with other existing, committed and planned developments in the study area shall be assessed.
- 3.4.2.5 The Applicant shall assess the visual impacts of the Project. Clear illustrations including mapping of visual impact is required. The assessment shall include :
- (i) identification and plotting of visual envelope of the Project;
 - (ii) identification of the key groups of sensitive receivers within the visual envelope with regard to views from both sea level, ground level and elevated vantage points;
 - (iii) description of the visual compatibility of the Project with the surrounding and the existing and planned setting, and its obstruction and interference with the key views of the adjacent areas; and
 - (iv) description of the severity of visual impacts in terms of nature, distance and number of sensitive receivers
- 3.4.2.6 The Applicant shall evaluate the merits of preservation in totality, in parts or total destruction of existing landscape and the establishment of a new landscape character area. In addition, alternative alignment, design and construction methods that would avoid or reduce the identified landscape and visual impacts shall be evaluated for comparison before adopting other mitigation or compensatory measures to alleviate the impacts. The mitigation measures proposed shall not only be concerned with damage reduction but shall also include consideration of potential enhancement of existing landscape and visual quality. The Applicant shall recommend mitigation measures to minimize adverse effects identified above, including provision of a landscape design.
- 3.4.2.7 The mitigation measures shall include preservation of vegetation, transplanting of trees, provision of screen planting, re-vegetation of disturbed land, woodland restoration, compensatory planting, provisioning / reprovisioning of amenity areas and open spaces, avoidance or minimization of barriers, design of structures, provision of finishes to structures, colour scheme and texture of material used and any measures to mitigate the impact on existing and planned land uses and sensitive receivers. A Tree Transplantation Schedule showing details of the trees proposed to be transplanted shall be provided as appropriate. Measures to be adopted to facilitate effective tree transplantation shall be proposed as appropriate. Parties shall be identified for the on going management and maintenance of the proposed mitigation works to ensure their effectiveness throughout the operation phase of the Project. A practical programme

and funding proposal for the implementation of the recommended measures shall be provided. Presentation of photomontages of the Project in the existing and planned setting illustrating the effectiveness of the proposed mitigation measures shall be included.

- 3.4.2.8 Annotated illustration materials such as coloured perspective drawings, plans and section/elevation diagrams, oblique aerial photographs, photographs taken at vantage points, and computer-generated photomontage shall be adopted to illustrate the landscape and visual impacts of the Project. In particular, the landscape and visual impacts of the Project with and without mitigation measures shall also be properly illustrated in existing and planned setting by computer-generated photomontage so as to demonstrate the effectiveness of the proposed mitigation measures. Computer graphics shall be compatible with Microstation DGN file format or as agreed with the Director. The Applicant shall record the technical details such as system set-up, software, data files and function in preparing the illustration, which may need to be submitted for verification of the accuracy of the illustrations.

3.4.3 Construction Noise Impact

- 3.4.3.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing construction noise impact as stated in Annexes 5 and 13 of the TM, respectively.

- 3.4.3.2 The construction noise impact assessment shall include the following :

(i) Determination of Study Area

The study area for the noise impact assessment shall generally include areas within 300m from the Project boundary. Subject to the agreement of the Director, the study area could be reduced accordingly if the first layer of noise sensitive receivers (NSRs), closer than 300m from the outer Project limit, provides acoustic shielding to those receivers at distances further away from the Project. Subject to the agreement of the Director, the study area shall be expanded to include NSRs at distances over 300m from the Project which would be affected by the construction and operation of the Project.

(ii) Provision of Background Information and Existing Noise Levels

The Applicant shall provide background information relevant to the Project, e.g. relevant previous or current studies. Unless required for determining the planning standards, e.g. those for planning of fixed noise sources (such as ventilation systems of traffic noise enclosures), no existing noise levels are particularly required.

(iii) Identification of Noise Sensitive Receivers

- (a) The Applicant shall refer to Annex 13 of the TM when identifying the NSRs. The NSRs shall include existing NSRs and planned/committed noise sensitive developments and uses, such as Po Shan Mansion, Hamilton Court, Piccadilly Court, No.21 Po Shan Road, No.23 Po Shan Road, No. 24 Po Shan Road, No. 53 Conduit Road, Ching Yuen Garden, No. 30 Po Shan Road, Pok Fu Lam Country Park, etc. that would be affected by the Project, including those earmarked on the

relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans. Photographs of existing NSRs shall be appended to the EIA report.

- (b) The Applicant shall select assessment points to represent identified NSRs for carrying out quantitative noise assessment described below. The assessment points shall be agreed with the Director prior to the quantitative noise assessment. A map showing the location and description such as name of building, use, and floor of each and every selected assessment point shall be given. For planned noise sensitive land uses without committed site layouts, the Applicant should use the relevant planning parameters to work out representative site layouts for operational noise assessment purpose.

- (iv) Provision of an Emission Inventory of the Noise Sources

The Applicant shall provide an inventory of noise sources including representative construction equipment for construction noise assessment. Confirmation of the validity of the inventory shall be obtained from the relevant government departments/authorities and documented in the EIA report.

- (v) Construction Noise Assessment

- (a) The assessment shall cover the cumulative noise impacts due to the construction works of the Project and other concurrent projects identified during the course of the EIA study, such as the Landslide Preventive Works at Po Shan, Mid-levels under Environmental Permit EP-235/2005/A.
- (b) The Applicant shall carry out assessment of noise impact from construction (excluding percussive piling) of the Project during daytime, i.e. 7 a.m. to 7 p.m., on weekdays other than general holidays in accordance with the methodology in paragraphs 5.3. and 5.4 of Annex 13 of the TM. The criteria in Table 1B of Annex 5 of the TM shall be adopted in the assessment.
- (c) To minimize the construction noise impact, alternative construction methods to replace percussive piling shall be proposed as far as practicable.
- (d) If the unmitigated construction noise levels are found exceeding the relevant criteria, the Applicant shall propose practicable direct mitigation measures (including movable barriers, enclosures, quieter alternative methods, re-scheduling and restricting hours of operation of noisy tasks) to minimize the impact. If the mitigated noise levels still exceed the relevant criteria, the duration of the noise exceedance shall be given.
- (e) The Applicant shall, as far as practicable, formulate a reasonable construction programme so that no work will be required in restricted hours as defined under the Noise Control Ordinance (NCO). In case the Applicant needs to evaluate whether construction works in restricted hours as defined under NCO are feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under NCO. Regardless of the results of construction noise impact assessment for restricted hours, the Noise Control Authority will process Construction Noise Permit (CNP) application, if

necessary, based on NCO, the relevant technical memoranda issued under the NCO, and the contemporary conditions/situations. This aspect should be explicitly stated in the noise chapter and conclusions and recommendations chapter in EIA report.

3.4.4 Construction Water Quality Impact

3.4.4.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing construction water pollution as stated in Annexes 6 and 14 of the TM respectively.

3.4.4.2 The Study Area for the purpose of construction water quality impact assessment shall cover the Victoria Harbour Water Control Zone as designated under the Water Pollution Control Ordinance (WPCO), Cap. 358. Sensitive receivers including nearby streams and the ecological sensitive receivers identified in Ecological Impact Assessment in sub-section 3.4.1 shall be addressed in the water quality assessment. This Study Area may be extended to cover other areas such as stream courses and the associated water system, existing and new drainage system, fresh water and groundwater system; and the associated catchment area(s) being impacted and to be identified during the course of the EIA study.

3.4.4.3 The Applicant shall identify and analyse physical, chemical and biological disruptions of fresh water and ground water system(s) and the associated catchment area(s) and stormwater drainage system arising during the construction of the Project.

3.4.4.4 Essentially the assessment shall address the following :

- (i) Collection and review of background information on the existing and planned water system(s) and the respective catchment(s) and sensitive receivers which might be affected by the Project.
- (ii) Characterization of water quality of the water system(s) and respective catchment and sensitive receivers which might be affected by the Project based on existing information or site surveys and tests as appropriate.
- (iii) Identification and analysis of existing and planned future activities and beneficial uses related to the water system(s) and identification of water sensitive receivers;
- (iv) Establishment of pertinent water quality objectives, criteria and standards for the water system(s) and sensitive receivers in 3.4.4.4 (i), (ii) and (iii) above;
- (v) Review of the Project to identify any alteration of existing water course, natural streams/ ponds, flow regimes, ground water level and catchment type or area;
- (vi) Review the specific design and construction method of the Project, such as, but not limited to, the design and construction method of the soil nails and raking drains, rock slope stabilization works, scaling, rock bolts / dowels, concrete buttress and wire mesh protection works, in so far as they are related to water quality impacts;
- (vii) Identification, analysis and quantification of water pollution sources and loading, including point discharges and non-point sources to surface water runoff from the Project. Field investigation and laboratory tests shall be conducted as appropriate. Establishment and provision of an emission inventory on the quantities and characteristics of these pollution sources.

Wastewater and Non-point Sources Pollution

- (viii) Assessment and quantification of existing water pollutants from non-point sources and analysis on the provision and adequacy of facilities to reduce such pollution. In general, waste water generated shall have to meet the effluent discharge

standards set out in the Technical Memorandum stipulated under the WPCO prior to discharge.

Impact Prediction

- (ix) Prediction and quantification of the impacts on the water system(s) and the sensitive receivers due to the construction of the Project. Possible impacts include change in hydrology, flow regime, water quality and the effects on the aquatic organism due to such changes in the affected water bodies. The prediction shall take into account and include possible different construction stages or sequences.
- (x) Assessment of the cumulative impacts due to other related concurrent and planned projects, such as the Landslide Preventive Works at Po Shan, Mid-levels under Environmental Permit EP-235/2005/A, and activities or pollution sources within a boundary around the Study Area to be agreed by the Director, that may have a bearing on the environmental acceptability of the Project.

Mitigation

- (xi) Recommendation of appropriate mitigation measures to avoid or minimize impacts identified above. The residual impacts on the water system(s) and the sensitive receivers with regard to the relevant water quality objectives, criteria, standards or guidelines shall be assessed and quantified.
- (xii) Proposal of water pollution prevention and mitigation measures to be implemented during the construction stage so as to avoid and reduce the water quality impacts to within acceptable levels of standards. Requirements to be incorporated in the Project contract document shall also be proposed.
- (xiii) Best management practices to reduce stormwater and non-point source pollution shall be investigated and proposed as appropriate. Attention shall be given to water quality control & mitigation measures recommended in Practice Note for Professional Persons on Construction Site Drainage i.e. ProPECC PN 1/94.

3.4.4.5 Evaluation and quantification of residual impacts on the water system(s) and the sensitive receivers with regard to the appropriate water quality objectives, criteria, standards or guidelines.

3.4.5 Construction Air Quality Impact

3.4.5.1 The Applicant shall follow the criteria and guidelines as stated in section 1 of Annex 4 and Annex 12 of the TM for evaluating and assessing air quality impact due to the construction of the Project, as stipulated in Section 1.2 and 1.3 above.

3.4.5.2 The Study Area for construction air quality assessment shall generally be defined by a distance of 500 metres from the boundary of the project site, and it shall be extended to include other areas that may have a bearing on the environmental acceptability of the Project. For this project, the assessment shall include the existing and planned/committed air sensitive receivers within the study area. Such assessment shall be based on the best available information at the time of the assessment.

3.4.5.3 The Applicant shall review the constructional dust impact arising from the project with respect to the following:

- (i) Background and analysis of activities
 - (a) Provide background information relating to air quality issues relevant to the project, e.g. description of the types of activities of the project that may affect air quality during construction stage.
 - (b) Present the background air quality levels in the assessment area for the purpose of evaluating the cumulative construction air quality impacts.
 - (c) Consider alternative modes of operation to minimize construction air quality impact.

- (ii) Identification of Air Sensitive Receivers (ASRs) and Examination of Emission Characteristics
 - (a) Identify and describe representative existing and planned/committed ASRs, such as Po Shan Mansion, Hamilton Court, Piccadilly Court, No.21 Po Shan Road, No.23 Po Shan Road, No.24 Po Shan Road, No.53 Conduit Road, Ching Yuen Garden, No.30 Po Shan Road, Pok Fu Lam Country Park, etc. that would be affected by the Project, including those earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans and Layout Plans. A map showing the location and description including name of buildings, their uses and height of the selected ASRs shall be given. The separation distance of these ASRs from the nearest emission sources shall also be given.
 - (b) Identify and present a list of air pollutant emission sources, including any nearby emission sources, which are likely to have impact on the project. Examples of construction stage emission sources include vehicle movements on unpaved roads on site, earthworks and tunnel formation and material handling, etc.

- (iii) Construction Air Quality Impact

The Applicant shall follow the requirements of the Air Pollutant Control (Construction Dust) Regulation and propose any other remedies or mitigation measures in dust control to ensure construction dust impacts are controlled within the relevant standards as stipulated in section 1 of Annex 4 of the TM. A monitoring and audit programme for the construction phase shall be devised to verify the effectiveness of the control measures proposed so as to ensure proper construction dust control.

3.4.6 Waste Management Implications

3.4.6.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing waste management implications as stated in Annexes 7 and 15 of the TM respectively.

3.4.6.2 The assessment of waste management implications shall cover the following:

- (i) Analysis of Activities and Waste Generation

The Applicant shall identify the quantity, quality and timing of waste arising as a result of construction activities of the Project, based on sequence and duration of these activities.

(ii) Proposal for Waste Management

- (a) Prior to considering the disposal options for various types of wastes, opportunities for reducing waste generation, on-site or off-site re-use and recycling shall be evaluated. Measures which can be taken in the planning and design stages e.g. by modifying the design approach and in the construction stage for maximizing waste reduction shall be separately considered.
- (b) After considering the opportunities for reducing waste generation and maximizing re-use, the types and quantities of the wastes required to be disposed of as a consequence shall be estimated and the disposal options for each type of waste shall be described in detail. The disposal method recommended for each type of waste shall take into account of the result of the assessment in (c) below.
- (c) Impact caused by handling (including labelling, packaging & storage), collection, and disposal of wastes shall be addressed in detail and appropriate mitigation measures shall be proposed, including the adoption of a trip ticket system and the identification of parties responsible for the implementation of the trip ticket system. This assessment shall cover the following areas :
 - potential hazard;
 - air and odour emissions;
 - noise;
 - wastewater discharge; and
 - public transport.

3.4.7 Documentation of Key Assessment Assumptions, Limitation of Assessment Methodologies and related Prior Agreement(s) with the Director

To facilitate efficient information retrieval, the EIA report shall contain a summary to include the assessment methodologies and key assessment assumptions adopted in this EIA study, the limitations of these assessment(s) methodologies/assumptions, if any, plus all relevant prior agreement(s) with the Director and/or other Authorities on individual environmental media assessment components. The proposed use of any alternative assessment tool(s) or assumption(s) have to be justified by the Applicant, with supporting documents based on cogent, scientific and objectively derived reason(s) before seeking the Director's agreement. All related supporting documents to the summary shall also be provided in the form of an Appendix to the EIA study report.

3.4.8 Impacts Summary

To facilitate efficient retrieval of pertinent key environmental impacts information, the EIA report shall contain a summary in the form of a table (or in any other form approved by the Director) showing the assessment points (such as ASRs, NSRs), results of impact predictions, relevant standards or criteria, extents of exceedances predicted, impact avoidance measures considered, mitigation measures proposed and residual impacts (after mitigation) covering each individual environmental media assessment components in this EIA study. This impact summary shall also form an essential part of Executive Summary.

3.4.9 Summary of Environmental Outcomes

The EIA report shall contain a summary of key environmental outcomes arising from the EIA study, including the population and environmentally sensitive areas protected,

environmentally friendly designs recommended, key environmental problems avoided, compensation areas included and the environmental benefits of environmental protection measures recommended.

3.4.10 Environmental Monitoring and Audit (EM&A) Requirements

- 3.4.10.1 The Applicant shall identify and justify in the EIA study whether there is any need for EM&A activities during the construction and operation phases of the Project and, if affirmative, to define the scope of EM&A requirements for the Project in the EIA study.
- 3.4.10.2 Subject to confirmation of EIA study findings, the Applicant shall comply with requirements as stipulated in Annex 21 of the TM. The Applicant shall also propose real-time reporting of monitoring data for the Project through dedicated internet website.
- 3.4.10.3 The Applicant shall prepare a Project Implementation Schedule (in the form of a checklist as shown in Appendix B to this EIA study brief) containing the EIA study recommendations and mitigation measures with reference to the implementation programme. The Project Implementation Schedule shall include the explicit agreement reached between the Applicant and relevant parties on the responsibility for funding, implementation, management and maintenance of mitigation measures. Alternatively, the Project Implementation Schedule shall include an undertaking from the Applicant to assume the responsibility of those mitigation measures until an agreement is reached between the Applicant and relevant parties on the funding, implementation, management and maintenance of mitigation measures.

4. DURATION OF VALIDITY

- 4.1 The Applicant shall notify the Director of the commencement of the EIA study. If the EIA study does not commence within 36 months after the date of issue of the EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief before commencement of the EIA study.

5. REPORT REQUIREMENTS

- 5.1 In preparing the EIA report, the Applicant shall refer to Annex 11 of the TM for the contents of an EIA report. The Applicant shall also refer to Annex 20 of the TM, which stipulates the guidelines for the review of an EIA report.
- 5.2 The Applicant shall supply the Director with the following number of copies of the EIA report and the executive summary:
- (i) 50 copies of the EIA report in English and 80 copies of the executive summary (each bilingual in both English and Chinese) as required under section 6(2) of the EIAO to be supplied at the time of application for approval of the EIA report.
 - (ii) When necessary, addendum to the EIA report and the executive summary submitted in sub-section 5.2 (i) above as required under section 7(1) of the EIAO, to be supplied upon advice by the Director for public inspection.
 - (iii) 20 copies of the EIA report in English and 50 copies of the executive summary (each bilingual in both English and Chinese) with or without Addendum as required under section 7(5) of the EIAO, to be supplied upon advice by the Director for consultation with the Advisory Council on the Environment.

- 5.3 The Applicant shall, upon request, make additional copies of above documents available to the public, subject to payment by the interested parties of full costs of printing.
- 5.4 In addition, to facilitate public inspection of EIA report via EIAO Internet Website, the Applicant shall provide electronic copies of both the EIA report and executive summary prepared in HyperText Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of the EIA report and executive summary shall be included in the beginning of the document. Hyperlinks to figures, drawings and tables in the EIA report and executive summary shall be provided in the main text from where respective references are made. All graphics in the report shall be in interlaced GIF format unless otherwise agreed by the Director.
- 5.5 The electronic copies of the EIA report and the executive summary shall be submitted to the Director at the time of application for approval of the EIA report.
- 5.6 When the EIA report and the executive summary are made available for public inspection under section 7(1) of the EIAO, the content of the electronic copies of the EIA report and the executive summary must be the same as the hard copies and the Director shall be provided with the most updated electronic copies.
- 5.7 To promote environmentally friendly and efficient dissemination of information, both hardcopies and electronic copies of future EM&A reports recommended by the EIA study shall be required and their format shall be agreed by the Director.

6. OTHER PROCEDURAL REQUIREMENTS

- 6.1 If there is any change in the name of Applicant for this EIA study brief during the course of the EIA study, the Applicant must notify the Director immediately.
- 6.2 If there is any key change in the scope of the Project mentioned in sub-section 1.2 of this EIA study brief and in Project Profile (No. PP-303/2006), the Applicant must seek confirmation from the Director in writing on whether or not the scope of issues covered by this EIA study brief can still cover the key changes, and the additional issues, if any, that the EIA study must also address. If the changes to the Project fundamentally alter the key scope of the EIA study brief, the Applicant shall apply to the Director for a fresh EIA study brief.

--- END OF EIA STUDY BRIEF ---

Nov 2006
Environmental Assessment and Noise Division,
Environmental Protection Department

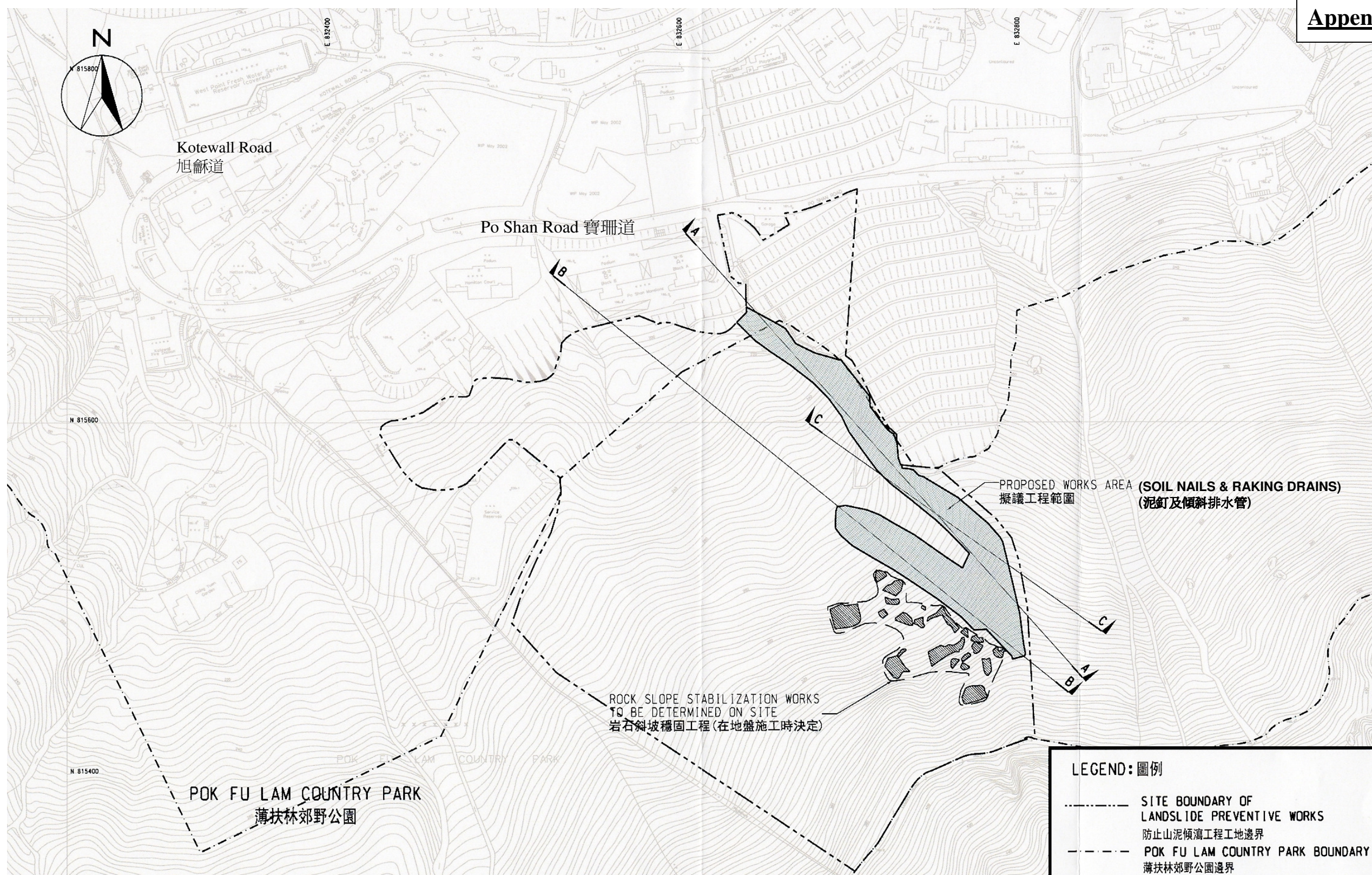


Figure 1: General Layout Plan
圖 1 : 整體平面圖

Project Title: Landslide Preventive Works at Po Shan, Mid-levels - Natural Terrain Risk Mitigation Works
工程名稱 : 半山區寶珊地段防止山泥傾瀉工程-設計及施工(天然山坡滑坡災害緩減工程)

EIA Study Brief No. ESB-158/2006

Note:
Reproduced from Figure 1.2 of the Project Profile PP-303/2006 dated 10/10/2006

Appendix B

IMPLEMENTATION SCHEDULE

EIA* Ref.	EM&A	Environmental Protection Measures*	Location/Duration of measures/	Implementation	Implementation Stage **				Relevant Legislation & Guidelines
	Log Ref.		Timing of completion of measures	Agent	Des	C	O	Dec	

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

** Des=Design; C=Construction; O=Operation; Dec=Decommissioning