

Project Profile for Improvement to the Ngong Ping Stream

December 2005

Mott Connell Ltd
40th floor, Hopewell Centre
183 Queen's Road East
Wanchai
Hong Kong

Tel: 852 2828 5757

Fax: 852 2828 1823

Anne.Kerr@mottconnell.com.hk

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E. EXECUTIVE SUMMARY

E.1 Background

The Project comprises the trimming of a short section of stream bed at Ngong Ping Stream around the previous columbarium bridge and the creation of shallow rock pools at the section to be trimmed. The main purpose of this Project is to remove the high point at the stream bed (i.e. the obstacle to flow) to mitigate the flooding hazard to the future Ngong Ping Terminal at the upstream section. The incorporation of shallow rock pools will not only prevent the stream from totally drying up in the dry season, it will also provide microhabitats for the stream fauna to seek shelter. During the wet season, these shallow rock pools may also allow constant flow of water.

During the stream course diversion exercise (under Environmental Permit No. EP-178/2003), a very cautious approach has been taken to avoid disturbances to this natural stream section and works inside the Country Park. The diverted stream course is designed to accommodate a 1-in-50 year rainfall event according to the Drainage Impact Assessment (DIA) approved by DSD. It was not anticipated that the natural stream section downstream could significantly reduce the flow capacity of the diverted stream course. The high point in the stream bed downstream has created ponding water and water backs up to the confluence adjacent to Ngong Ping Terminal. This concurred with the observation that, when an amber rain storm warning was hoisted on 20 August 2005, the water level rose to the very top of the diverted stream course. It is apparent that removal of the obstacle to flow to mitigate the flooding hazard to the future cable car operation is desirable. The level of trimming of 429.4mPD is the required design level in the hydraulic analysis of the stream.

E.2 Scale of the Project

The section of stream bed to be trimmed is approximately 27m in length (i.e. between Chainage 58m and 85m from the confluence between the natural and diverted stream sections, see **Figure 1.2**). The objective is to remove the high point at the stream bed from approximately 430.1mPD to 429.4mPD to mitigate the flooding hazard to the future Ngong Ping Cable Car Terminal at the upstream section.

One breaker and one backhoe will be deployed to excavate and break out the rock in the stream bed. No rare or protected plant species were recorded. No trees and shrubs will be felled, but strips of herbaceous riparian vegetation might be affected to allow the trimming works to take place. It is proposed that the works will be undertaken during the dry season to minimise impacts on water quality and ecology in the Country Park. These will take no more than two weeks to complete.

E.3 Planning and Implementation Programme

The proposed stream bed trimming for Ngong Ping Stream will be implemented by MTR's appointed Contractors. It is proposed the works will commence in March 2006 during dry season and would be completed within two weeks.

E.4 Conclusions of the Assessments

Assessments have been carried out to determine the environmental impacts associated with the Project. The works would generate short term impacts in terms of air quality, noise, waste, water and ecology during construction. These impacts can be controlled to acceptable levels. Once completed there are significant benefits to be accrued from the Project including reduction in the risk of flooding and enhancement in terms of ecological and habitat resources.

Air Quality : Air quality impacts resulting from the proposed stream bed trimming are not likely to exceed air quality criteria or impact on sensitive receivers. Nonetheless good site practices are recommended.

Noise : Noise resulting from the proposed stream bed trimming will be insignificant due to large distance attenuation.

Waste : Reduction of waste and the re-use of materials in-situ is the design requirement to minimise the need for off-site disposal of material as far as practical.

Water : During construction some potential water quality impacts could arise. These will be controlled and are considered to be acceptable on the basis of the implementation of the Environmental Code of Practice for the Tung Chung Cable Car Project. Once operational the water quality benefits include enhancement of flow, reduction in stagnation and thus reduction in the risk of flooding.

Ecology : The trimming of the stream course will result in the loss of flora and fauna during construction. Regeneration of riparian vegetation is expected by natural process from the adjacent riparian zone along the stream bank during the wet season. Once operational the benefits to be accrued are the enhancement of the in-stream habitats due to the change from a large ponding water to several shallow rock pools with continuous flow which will provide more microhabitats for stream fauna.

Environmental Monitoring and Audit: This section is complimentary to the “Code of Practice for the Works of Tung Chung Cable Car Project” (October 2002), and the EM&A Manual prepared for the Tung Chung Cable Car Project. With regard to the proposed trimming of Ngong Ping Stream works particular attention is drawn to the waste, water and ecological impacts for the proposed stream bed trimming. Mitigation measures for all environmental impacts will follow those given in **Section 14** of the Approved EIA for the Tung Chung Cable Car EIA (Study Brief No. ESB-068/2001).

Summary: The impacts associated with the construction and operation of the trimming of stream course section are acceptable and in overall terms will provide benefits to the area.

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1. BASIC INFORMATION

1.1 Project Title

Improvement to the Ngong Ping Stream

1.2 Purpose and Nature of the Project

The Project comprises the trimming of a short section of stream bed at Ngong Ping Stream around the previous columbarium bridge and the creation of shallow rock pools at the section to be trimmed. The main purpose of this Project is to remove the high point at the stream bed (i.e. the obstacle to flow) to mitigate the flooding hazard to the future Ngong Ping Terminal at the upstream section. The incorporation of shallow rock pools will not only prevent the stream from totally drying up in the dry season, it will also provide microhabitats for the stream fauna to seek shelter. During the wet season, these shallow rock pools may also allow constant flow of water.

During the stream course diversion exercise (under Environmental Permit No. EP-178/2003), a very cautious approach has been taken to avoid disturbances to this natural stream section and works inside the Country Park. The diverted stream course is designed to accommodate a 1-in-50 year rainfall event according to the Drainage Impact Assessment (DIA) approved by DSD. It was not anticipated that the natural stream section downstream could significantly reduce the flow capacity of the diverted stream course. The high point in the stream bed downstream has created ponding water and water backs up to the confluence adjacent to Ngong Ping Terminal. This concurred with the observation that, when an amber rain storm warning was hoisted on 20 August 2005, the water level rose to the very top of the diverted stream course. It is apparent that removal of the obstacle to flow to mitigate the flooding hazard to the future cable car operation is desirable. The level of trimming of 429.4mPD is the required design level in the hydraulic analysis of the stream.

1.3 Name of Project Proponent

MTR Corporation Limited

1.4 Contact Persons

Dr Glenn H. Frommer
MTR Corporation Limited
MTR Tower Telford Plaza
Kowloon Bay, Hong Kong
Telephone: (852) 2993 2111
Direct Line: (852) 2993 3543
Facsimile: (852) 2993 7743
E-mail: gfrommer@mtr.com.hk

1.5 Location of the Project

The stream course section to be trimmed is situated in the Lantau North Country Park and located at the northeast of the future Ngong Ping Cable Car Terminal. The stream is connected to the Ngong Ping stream course diversion at the upstream section. The location of the proposed extent of trimming is shown in **Figure 1.1**.

The Cable Car Terminal site has previously been subject to an Environmental Impact Assessment (EIA) under Section 5(7) of the Environmental Impact Assessment Ordinance (EIAO) (Environmental Permit No. EP-177/2003) while an Environmental Assessment has been prepared for the Theme Village under Section 16 of the Town Planning Ordinance (cap. 131). A Project Profile has also been prepared for the Ngong Ping Stream Diversion under Section 5(11) of the EIAO (Environmental Permit No. EP-178/2003).

1.6 Scale of the Project

The section of stream bed to be trimmed is approximately 27m in length (i.e. between Chainage 58m and 85m from the confluence between the natural and diverted stream sections, see **Figure 1.2**). The objective is to remove the high point at the stream bed from approximately 430.1mPD to 429.4mPD to mitigate the flooding hazard to the future Ngong Ping Cable Car Terminal at the upstream section.

One breaker and one backhoe will be deployed to excavate and break out the rock in the stream bed. There will be a temporary access of no wider than 3m for construction vehicles travelling to and from the trimming site (see Figure 1.1). No rare or protected plant species were recorded. No trees and shrubs will be felled, but strips of herbaceous riparian vegetation might be affected to allow the trimming works to take place. It is proposed that the works will be undertaken during the dry season to minimise impacts on water quality and ecology in the Country Park. These will take no more than two weeks to complete.

1.7 Site History and Existing Condition

1.7.1 Surrounding Environment

The portion of the Ngong Ping Stream within the site, is a natural stream with a width of between 0.6m and 3.0m. The water level in current dry season is approximately at 430mPD (about 0.5m on average) but the flow is stagnant. The streambed is composed of bare rocks, boulders, rubbles and silt, with natural riparian vegetation of herbs and shrubs growing along the streambank. **Plate 1 to Plate 3 in Appendix A** shows the stream section proposed to be trimmed.

The stream runs through a steep natural mountainous area downstream of the site. The stream flow is eventually either captured by the Water Supplies Department's catch waters that drain into Shek Pik Reservoir or conveyed through rural hinterland and discharged to the sea at Sham Wat Wan.

Upstream of the Project Site, the Ngong Ping Stream runs between the scattered village buildings, has smoother and more regular surfacing and thus has a relatively higher drainage capacity. The channelized portion of the upstream section has smooth surfacing and is slightly steeper. This further increases the drainage capacity for flood protection in the upstream developments. The newly diverted stream course (constructed mid 2004) at the upstream portion of the confluence is a combination of gabion channel, rip-rap and natural rocks. Although the new diversion is designed to alleviate flooding problem in wet season, the drainage capacity of the natural watercourse downstream is however limited, as the stream is narrow and the gradient is gentle with the raised stream bed holding water locally.

1.7.2 Water Quality

The Ngong Ping Stream is a seasonal stream with intermittent flow during dry season (October to March). There is a stagnant flow between the confluence of the stream diversion and the rocky outcrops proposed to be trimmed. The water appeared turbid which is the result of domestic discharge from the Ngong Ping community at the upstream.

1.7.3 Flooding

High water level up to the margin of the diverted stream embankment was observed on 20 August 2005 during the amber rainstorm. The high point in the stream bed at downstream region created the ponding of water and water back up to the confluence adjacent to Ngong Ping Terminal. In order to mitigate the flooding hazard to the future Ngong Ping Terminal at the upstream section, it is proposed to remove the high point at the stream bed (i.e. the obstacle to flow).

1.8 Number and Types of Designated Projects to be Covered by the Project Profile

The proposed improvement to the Ngong Ping Stream is a designated project (DP) under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) under Schedule 2 Part I Item I.1(b)(vii) of the EIAO by virtue of: “A drainage channel or river training and diversion works which discharges or discharge into an area which is less than 300m from the nearest boundary of an existing conservation area.”

2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Planning and Implementation Programme

The proposed improvement to the Ngong Ping Stream will be implemented by MTR's appointed Contractors. The trimming works are proposed to commence in March 2006 during dry season and would be completed within two weeks.

3. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

3.1 Air

3.1.1 Existing Environment

No industrial uses are located within the area. The local traffic using the Ngong Ping Road and other local roads and the newly built Public Transport Interchange (PTI) are the dominant sources of emissions to affect ambient air quality in Ngong Ping and its environs.

3.1.2 Sensitive Receivers

Representative Air Sensitive Receivers (SRs) within 500m of the Project limit have been identified according to the criteria set out in the TMEIA and through site inspections and a review of land use plans. At this site the Sensitive Receivers are the same for noise and air and their horizontal distances to the site boundary have been identified and are summarized in the **Table 3.1** below. Locations of the SRs are shown in **Figure 3.1**.

Table 3-1: Locations of Air and Noise Sensitive Receivers

SRs	Receiver Description	Usage	No. of Storey(s)	Shortest Horizontal Distance to the Proposed Works
SR 1a	Village House – Kam Wai Yuen	Residential	2	230
SR 1b	Village House along Ngong Ping Road near bus terminus	Residential	2	470

3.2 Noise

3.2.1 Existing Environment

Ngong Ping Road, other local roads and the newly built PTI are the dominant noise pollution sources at the study area.

3.2.2 Sensitive Receivers

Representative Noise Sensitive Receivers (NSRs) within 300m of the project limit have been identified according to the criteria set out in the TM-EIA and NCO, through site inspections and a review of land use plans. At this site the Sensitive Receivers are the same for noise and air and their shortest horizontal distances to the proposed works have been identified and are summarised in **Table 3.1** above. Locations of the SRs are shown in **Figure 3.1**.

3.3 Water

3.3.1 Existing Environment

The trimming section of the Ngong Ping Stream receives water from the stream diversion at the boundary of the future Cable Car Terminal and Theme Village Complex. The water appeared turbid with epi-lithic algae growing on the stream substratum, probably due to enrichment of water by pollutants (**Plate 1 to 3**). There are no records of the water quality in this stream, observations between 2002 and 2005 (Mott Connell) indicate that the water course is stressed through the effects of pollution primarily from domestic sources. Existing pollution sources generally related to the domestic effluents generated by the Ngong Ping community and the increase discharge from the tourist hotspots upstream in the local region. (The construction of Ngong Ping Sewage Treatment Plant and sewerage scheme will remove this source of pollution from the stream in 2007 when all village houses are connected to the STP.)

3.3.2 Sensitive Receivers

The Ngong Ping Stream is a sensitive receiver as is the Water Gathering Ground (WGG) in which the stream is located. The downstream section is natural with better water quality than the section along developed area.

3.4 Ecology

3.4.1 Existing Environment

Literature Review

The stream at Ngong Ping has been comprehensively investigated through a series of field surveys and literature reviews for this study as well as the Ecological Baseline Study (BMT, 2002) which provided the basis for the approved Tung Chung Cable Car EIA (Mott Connell, 2003) (approved by Government), the approved Ngong Ping Sewage Treatment Works EIA (Ove Arup and Partners Hong Kong, 2002) and the approved Ngong Ping Stream Diversion Project Profile (Mott Connell, 2003). These approved reports and further ecological surveys provide the ecological basis for the proposed trimming of Ngong Ping Stream report.

Site of Conservation Importance

Lantau North Country Park

The proposed trimming stream section is located within the Lantau North Country Park (LNCP) which was designated in August 1978. LNCP has an area of approximately 2,200 ha with secondary woodland and shrubs along the riparian zone at the downstream section. Several waterfalls could be found along the Ngong-Sham Stream in the LNCP. These waterfalls receive water from the tributary at Nei-Sham Stream, an uninhabited area on the western slope of Nei Lak Shan, which makes the water in this section exceptionally clean and clear.

Ecological Survey

The ecological field survey conducted in the EIA was undertaken through site walkover, systematic records of tree species, direct and indirect observations, transects survey and incidental observation. In addition to the baseline literature (primarily from the EIA), Mott Connell conducted additional ecological surveys in December 2005 to verify baseline data and literature during 2003 stream course diversion. The survey results are summarised below and the checklist for flora and fauna species are showed in **Appendix B** and **Appendix C** respectively.

Vegetation/ Habitat

The habitat type surrounding Ngong Ping is mixture of village houses with development (developed area), plantation woodland, shrub habitat, patches of grassland and active/abandoned agricultural land. A habitat map showing the approximate locations of the existing habitat types is shown in **Figure 3.2**.

Plantation Woodland

The majority of the plantation species comprise common exotic species, in particular *Acacia confusa*, which is planted throughout Hong Kong. Other common local species recorded include: *Aporosa dioica*, *Gordonia axillaris*, *Machilus chekiangensis*, *Mallotus paniculatus*, *Schefflera heptaphylla*, *Symplocos lancifolia* and *Syzygium jambos*.

Most of the existing trees are young with age less than 30 years and were planted by villagers or self seeded from abandoned cultivation. No rare or significant trees within the proposed site of the trimming stream section have been recorded. 19 trees have been transplanted along the footpath to the proposed works section from the alignment of the stream diversion in 2003. Most trees at Ngong Ping area are generally small or medium in size, comprises a mix of ornamental exotic and native species of trees, shrubs and herbs (**Plate 4**).

Shrubland Habitat

The number of species in shrubland habitat were recorded, these include: *Blechnum orientale*, *Aster baccharoides*, *Cibotium barometz*, *Breynia fruticosa*, *Altingia chinensis*, *Archidendron clypearia*, *Archidendron lucidum*, *Acacia auriculiformis*, *Ardisia crenata*, *Ardisia quinquegona*, *Baeckea frutescens*, *Adina pilulifera* and *Camellia euryoides*. Shrub habitat appears to have resulted from fire (**Plate 5** showing the area adjacent to a grave after fire) and to an extent in change of land use (abandonment of cultivated land). The shrub habitat varies in age throughout the Study Area, but generally appears to be about 5-10 years old.

Cultivation and Abandoned Cultivation

Cultivation (orchid) and abandoned cultivation include: *Citrus reticulata*, *Dimocarpus longnan* and *Psidium guajava*. No rare or protected trees were noted to date (**Plate 6**).

Stream Habitat

The Ngong Ping Stream runs through the Po Lin Monastery, the future Cable Car Terminal and Theme Village to the Columbarium at the northwest joined with the Nei Lak Shan Stream to Sham Wat at the downstream. Ngong Ping Stream to the north and west of the future Ngong Ping Cable Car Terminal and Theme Village has been re-aligned and diverted with gabion, rip-rap and natural rock (**Plate 7**). The section with man-made concrete channel is considered to be of a low ecological value (**Plate 8**).

Herbaceous plant species with both the native and exotic species were grown along the stream. They comprise of *Ageratum conyzoides*, *Chrysopogon aciculatus*, *Miscanthus floridulus*, *Mikania micrantha*, *Colocasia esculenta*, *Alocasia odora*, *Hedychium coronarium* and *Microstegium ciliatum*. Vegetation has also regenerated along the stream diversion section after operation in mid 2004.

The stream has low flow in dry season with approximately of 100m in length of stagnant flow at the confluence, which appeared green and turbid (**Plate 1**). Epi-lithic algae growing on stream substratum was also observed in the stream (**Plate 3**).

Fauna

Aquatic Fauna

Around 50 Mosquito Fishes *Gambusia affinis* were observed on 6 December 2005 at the stagnant pool along the trimming section. It is an exotic species which is common and could tolerate polluted environment. Freshwater snail *Physa acuta* and larvae of *Chironomus/Polypedilum* spp. were also recorded by BMT (2002) dominant in the stream. These species are indicator of organic pollution and the Diptera larvae indicate the oxygen level in the water environment is low.

Amphibians

Although the Ngong Ping Stream has relatively poor water quality, the stream habitat has a high potential ecological value, although the current condition is generally moderate (and low in some areas).

The Leaf Litter Toad *Leptolalax pelodytoides*, a fairly restricted and uncommon species in Hong Kong, has been reported close to the study area in a hill stream near Ngong Ping (Lau and Dudgeon 1999). Other species recorded close to the study area include the Asian Common Toad, Gunther's Frog, Green Cascade Frog, Three-striped Grass Frog, Brown Tree Frog, Asiatic Painted Frog and Ornate Pigmy Frog which were common to abundant and locally widespread at Ngong Ping (Karsen *et al.* 1998).

Mott Connell surveys in 2003 (refer to **Appendix C**) confirmed the presence of some of the species at the Ngong Ping Stream. A large number (approximately 75+ individuals) of Brown Tree Frogs were observed in cultivation/ abandoned cultivation and heard from riparian vegetation along the existing stream. Large numbers of Brown Tree Frogs were also located in the drains throughout Ngong Ping Village.

Reptiles

Appendix C summarises details from various sources of reptile records made around Ngong Ping. Amongst these, the terrapin *Chinemys reevesii*, found in seasonal streams at Ngong Ping, is listed as "endangered" in the IUCN Red List. Of the snakes, *Achalinus rufescens* is rare; *Amphiesma stolatum* and *Oligodon cinereus* are uncommon/ restricted; and *Elaphe radiata* is listed as "endangered" in the China Red Data Book (Zhao, 1998 in Ove Arup and Partners, 2002).

A number of restricted and/or uncommon reptiles have also been recorded in the Study Area. They include Rufous Burrowing Snake *Achalinus rufescens*, found in the plantation, tall shrubland and forest at Ngong Ping; and Buff-striped Keelback *Amphiesma stolatum*, found in a stream at Ngong Ping (Kolby and Lazell, 2001).

An Asian Leaf Turtle *Cyclemys dentata* observed in the stream diversion section in August 2004 during site walk by Mott Connell. This is an exotic species probably released by worshiper for the traditional religious belief.

Insects

There was no insect record on the day of survey on 6 December 2005 due to cold and overcast weather. Records from the Hong Kong Lepidopterists' Society (HKLS) include 'several' *Troides aeacus* on the path from Ngong Ping to Tung Chung (outside the Study Site) in September 1999 (Wong, 1999) and in September 2000 (Wong, 2000). During the 1999 visit by Mott Connell it was noted that *Zanthoxylum nitidum* flowering along the path attracted the species. Butterfly records are provided in **Appendix C**. *Lantana camara* (a foodplant for *Troides Helena*) is recorded throughout Ngong Ping and adjacent to the existing stream. However, no historical or current record of *Troides helenae* at this location have been recorded.

Field survey undertaken for the Cable Car EIA (Mott Connell, 2003) indicated that the odonate community along the Cable Car alignment was rather less diverse than that of the butterflies. Of particular note were 2-5 individuals of *Orthetrum pruinosum* (abundant species) in the middle of the Ngong Ping Stream (outside the stream trimming section).

Avifauna

The birds recorded in the habitats near Ngong Ping Stream, are generally common and widespread species, including Crested Bulbul *Pycnonotus jocosus*, Chinese Bulbul *Pycnonotus sinensis*, White Wagtail *Motacilla alba* and White-breast Waterhen *Amaurornis phoenicurus* that are typical in disturbed areas with human presence and partly built environment. **Appendix C** lists the avifauna records and survey results. Abandoned cultivation and plantation have been identified as suitable habitats for some common bird species.

Notable records from Ngong Ping cited in Ove Arup and Partners (2002) include the Brown Thrush *Turdus chrysolaus*, Mountain Bush Warbler *Cettia fortipes*, Mugimaki Flycatcher *Ficedula mugimaki*, and Tristram's Bunting *Emberiza tristrami*. All these species are rare or uncommon migrants that can be found in tall shrub, woodland and/ or plantation (Viney et al, 1994). The bird survey undertaken by Ove Arup and Partners (2002) also recorded two rare species: the Chestnut Bulbul *Hemixos castanonotus* in plantation and woodland and White's Thrush *Zoothera dauma* in woodland. Although the precise location of these observations is unknown, wooded habitat is present throughout the general surroundings, thus there is potential for activity by these species within the Study Area.

Mammals

There are few records of terrestrial mammals from the Study Area. Ryukyus Mouse *Mus caroli*, a locally restricted species, has been recorded in the grassland at Ngong Ping (Mott Connell, 2003). **Appendix C** lists the mammal records and survey results at Ngong Ping Plateau. About 8 domestic dogs were observed during survey on 6 December 2005 near the cultivation and villages far from the proposed works area. Impacts from dogs on other species (mammals) are a possible explanation for the low number of mammal records.

3.4.2 Sensitive Receivers

The Ngong Ping Stream is potentially a sensitive receiver and has been considered in the assessment as well as the Water Gathering Grounds.

4. POTENTIAL ENVIRONMENTAL IMPACTS

4.1 Introduction

The impacts associated with the proposed stream bed trimming for Ngong Ping Stream are assessed according to the criteria listed in Annexes of the Technical Memorandum on Environmental Impact Assessment (TMEIA). The major potential impacts during construction and operation are shown below in **Table 4.1**.

Table 4-1: Major Potential Impacts during Construction and Operation Associated with the Proposed Stream Bed Trimming for Ngong Ping Stream

Potential Impacts		Phase	
		Construction	Operation
Air quality	Dust pollution	✓	✗
	Odour pollution	✗	✗
	Exhaust emissions	✗	✗
Noise	Machinery	✓	✗
Waste generation	Disposal of spoil	✓	✗
Water quality	Effluents	✓	✗
	Erosion and sedimentation	✓	✓
Ecology	Impacts on fauna	✓	✓
	Impacts to flora	✓	✗

Notes: ✓ = Possible; ✗ = Not anticipated

It should be noted that the potential impacts during the operation phase are minimal. For all other environmental aspects the focus of attention shall be concentrated on the construction phase.

4.2 Air Quality

Short-term fugitive dust arising from the construction of the proposed stream bed trimming works for Ngong Ping stream could cause a localised nuisance but this is likely to be insignificant. It is also a situation which can be easily mitigated using water sprays in the unlikely event a problem occurs.

4.3 Noise

The potential noise generated from the construction of the proposed stream bed trimming works for Ngong Ping stream could cause a localised nuisance but this will be of short-term and likely to be insignificant due to its distant from the nearest noise sensitive receiver which is 230m away.

4.4 Waste

4.4.1 Introduction

This section outlines the potential waste impacts arising from the construction and operation of the proposed trimming of Ngong Ping stream and recommends an appropriate disposal strategy to alleviate the identified potential impacts. The recommended disposal strategy is based upon the waste management principle to reduce the amount of waste for disposal through the development of plans for waste avoidance, material re-use and recycling.

Mitigation measures are proposed to alleviate the impacts caused by the excavated materials and residual wastes during their handling, temporary storage on site, transportation and final disposal. The key task of the waste management assessment is to determine the material types, and, where possible, estimate the quantities of all solid waste arising during the construction for determining the most appropriate methods of treatment, handling and disposal. During the operational phase no waste will be generated.

4.4.2 Potential Sources of Impact

Wastes which are likely to be generated during trimming of the stream bed are mainly excavated materials including rocks and stream bed sediment.

During the construction phase, waste containers will be situated at a temporary storage area on site for general refuse. The material generated will be transported by truck to the official waste depot.

It is anticipated that minimal quantities of material will be generated from these works. Approximately 60m³ of excavated material is expected to be removed for the proposed trimming section, of which 30m³ will be soil, and 30m³ will be rock material. All the material will be transported off-site to a public fill facility.

4.4.3 Evaluation of Impacts

No trees and shrubs will be felled. Strips of herbaceous riparian vegetation might be affected to allow the trimming works to take place. The riparian vegetation will be maintained as far as possible. Only minimal amount of vegetation would be removed. Thus, limited wastes will be generated from the stream bed trimming works.

Excavated material shall be reused as much as possible for the creation of rock pools along the trimmed section. Any surplus excavated materials that require disposal at public filling area could be sent to the public fill stockpiling area at Mui Wo. It was identified by the Secretary, Public Filling Committee (PFC) as a possible location available for dumping in accordance with the works programme.

4.5 Water

4.5.1 Introduction

This section outlines the potential water quality impacts arising from the construction and operation of the proposed trimming of Ngong Ping Stream. A water quality assessment has been undertaken to define the nature and scale of potential environmental impacts, specifically in terms of the effects in the vicinity of sensitive receivers. Both construction and operational phase impacts have been assessed and mitigation measures have been identified to determine whether residual impacts can be reduced to acceptable levels.

4.5.2 Potential Sources of Impact

Existing pollution sources within the site area are generally related to the domestic effluents generated by the Ngong Ping community and associated village houses. Trimming of stream section requires various activities which could potentially affect the water quality and impact on the water sensitive receivers. These are primarily:

- the excavation works that may lead to sedimentation and reduced water quality (higher amount of suspended solids); and
- wastewater generated by workforce during construction.

4.5.3 Evaluation of Impacts

Potential water quality impacts primarily relate to the un-controlled discharge of sediments/silts during the improvement works. The works are expected to be undertaken during the dry season within two weeks i.e. during a period of low flow. This minimises the pollution potential and in addition there will be the same level of pollution control exerted for the stream course construction works as for all other aspects of the Cable Car Project.

No activity will be carried out during the operational phase, but sand and silt may run-off during the first wet season, as the trimming section has not been stabilized. The effect will be minor and will stabilize after a short period of time.

It should be stressed that rather than the stream bed trimming works having a negative impact on the water, an improvement in water quality is anticipated. The profile of the stream course will include gentle sloping sides to avoid stagnation, encourage flow and to create areas of habitat interest.

4.6 Ecology

4.6.1 Introduction

This section outlines the potential ecological impacts arising from the construction and operation of the proposed trimming at Ngong Ping Stream. An ecological assessment has been undertaken to define the nature and scale of potential environmental impacts, specifically in terms of the effects on sensitive receivers. Both construction and operational phase impacts have been assessed and mitigation measures have been identified to determine whether residual impacts can be reduced to acceptable levels.

4.6.2 Potential Sources of Impact

The potential terrestrial/aquatic ecological impacts arising from the construction activities may include indirect impacts due to construction activities such as increased human activities or disturbance (including noise, air quality, water quality impacts etc). Potential construction phase impacts may arise from:

- construction resulting in wastes, pollutants and excavated material that may impacts on stream habitats by pollution, erosion and/ or sedimentation; and
- disturbance to flora and fauna from human activities including construction machinery, air quality from machinery and water quality from run-off of exposed soil.

No trees and shrubs will be felled. Strips of herbaceous riparian vegetation and grass along the temporary access might be affected to allow the trimming works to take place. The riparian vegetation will be maintained as far as possible. Only minimal amount of vegetation would be removed.

4.6.3 Evaluation of Impacts

The impacts resulting from the construction and operation of the stream bed trimming works include:

- Habitat loss;
- Disturbances from construction activities; and
- Change in microhabitats of the stream.

Habitat Loss

The length of stream habitat disturbed will be approximately 27m.

No trees and shrubs will be felled. Strips of herbaceous riparian vegetation might be affected to allow the trimming works to take place. The riparian vegetation will be maintained as far as possible. Only minimal amount of vegetation would be removed.

Riparian vegetation surrounding the existing stream at Ngong Ping including grass and herbaceous plants are *Ageratum conyzoides*, *Chrysopogon aciculatus*, *Miscanthus floridulus*, *Mikania micrantha*, *Colocasia esculenta*, *Alocasia odora*, *Hedychium coronarium* and *Microstegium ciliatum*. No rare flora species are recorded in the Study Area.

Minimal amount of herbaceous vegetation along the stream would be removed with low impact to fauna species like amphibians and dragonflies. However, the loss is only temporary and the herbaceous vegetation will regenerate in the wet season (successful plant regeneration can be observed in the upstream diversion section). In addition, the removal of the exotic species like *Mikania micrantha* will have benefit to other native plant species and reduce impact on avi-fauna utilizing the surrounding habitats for resting and preening.

Strip of grass at the temporary access for construction vehicles will be affected. Since the vehicles only pass through the access without vegetation clearance, and the affecting width will be limited to 3m for a short distance from the access road to the stream, the impacts will be minor and the grass will regenerate by natural process soon after the construction.

Fragmentation

Minor fragmentation impacts are anticipated during construction. The proposed trimming stream section will allow fauna movement to down/up stream.

Disturbance

Disturbance is an unavoidable impact of the construction process. Disturbance will generally have insignificant impacts on mobile taxa, or taxa which do not have highly specific habitat requirements, such as some birds, large mammals, reptiles, butterfly and dragonfly adults.). Disturbance to less mobile species including some amphibian species (e.g. Brown Tree Frog) are anticipated to be high if mitigation measures are not implemented.

The exposure of soil surfaces during construction will create the potential for soil erosion and subsequent water quality and sedimentation impacts on stream habitats. The receiving environments are sensitive to water quality and sedimentation impacts particularly stream habitats and associated flora and fauna species, particularly amphibian species.

Impacts to Sensitive Species

Table 4.2 indicates the impacts to potential ecologically sensitive species and provides an evaluation of impacts.

Table 4-2: Ecologically Sensitive Receivers and Evaluation of Impacts

Species	Record/ Location	Habitat Requirement	Predicted Impacts
<i>Turdus chrysolaus</i> (Brown Thrush)	Observed at Ngong Ping (OAP, 2002).	They can be found in many types of terrestrial habitats (Carey <i>et al.</i> , 2001).	Insignificant impacts are predicted as no nesting trees will require removal. The noise produce from the breaker and excavation works are unlikely to cause high impact, as it is a mobile species.
<i>Cettia fortipes</i> (Mountain Bush Warbler)			
<i>Ficedula ugimaki</i> (Mugimaki Flycatcher)			
<i>Emberiza tristrami</i> (Tristram's Bunting)			
<i>Hemixos castanonotus</i> (Chestnut Bulbul)	Observed in plantation and woodland, Ngong Ping (OAP, 2002).	The number of species is rising and more places could be found (Carey <i>et al.</i> , 2001).	Insignificant impacts are predicted as no nesting trees will require removal. The noise produce from the breaker and excavation works are unlikely to cause high impact, as it is a mobile species.
<i>Zoothera dauma</i> (Whites' Thrush)			
Brown Tree Frog (<i>Polypedates megacephalus</i>)	Present in the Ngong Ping Stream and adjacent habitats (Mott Connell, 2003)	Common and abundant in many places. An extremely hardy species (Karson <i>et al.</i> , 1998).	Low impact is anticipated due to short section of the stream will be disturbed and the works will limit to dry season avoiding breeding season of the species.
<i>Leptolalax pelodytoides</i> (Leaf Litter Toad)	Ngong Ping Hill Stream (Lau and Dudgeon, 1999).	Narrow habitat tolerance. Low to moderate mobility.	The species has not been located in the vicinity of the trimming stream section. Insignificant impacts are anticipated resulting from construction near the Ngong Ping stream and subsequent disturbance (sedimentation and pollutants).
<i>Chinemys reevesii</i> (Reeves' Terrapin)	Observed in stream habitat, Ngong Ping (OAP, 2002).	Fairly narrow habitat tolerance. Low to moderate mobility.	Potential impacts may result from construction and subsequent disturbance (sedimentation and pollutants) without mitigation measures.
<i>Elaphe radiata</i> (Copperhead Racer)	Observed in grassland, Ngong Ping (OAP, 2002).	Can be found in many types of terrestrial habitats.	Insignificant impacts associated with construction. Reptile species of relatively high mobility which can relocate to other areas. Feeding habitat will be disturbed.
<i>Amphiesma stolatum</i> (Buff Striped Keelback)	Observed in stream habitat, Ngong Ping (OAP, 2002).	Can be found in many types of terrestrial habitats.	Insignificant impacts associated with construction. Reptile species of relatively high mobility which can relocate to other areas. Feeding habitat will be disturbed.
<i>Oligodon cinereus</i> (Golden Kuri Snake)	Observed in grassland, Ngong Ping (OAP, 2002).	Can be found in many types of terrestrial habitats.	Insignificant impacts associated with construction. Reptile species of relatively high mobility which can relocate to other areas. Feeding habitat will be disturbed.

Operation

The microhabitats of the trimmed stream section will be changed from a large ponding water to several shallow rock pools with continuous flow in operational phase. These will have positive impacts to water quality, and to species that are not tolerant to pollution (e.g. dragonfly larvae). The chance of disease spreading related to poor water quality like Dengue Fever, transmitted by mosquito breeding in stagnant water, may also be reduced. As there are more microhabitats for the aquatic animals to inhabit, the impacts on fauna during the operational phase is beneficial.

5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND ANY FURTHER ENVIRONMENTAL IMPLICATIONS

5.1 Waste Management Systems and Practices

5.1.1 *Recommended Waste Management Systems and Practices*

The various waste management options can be categorized in terms of preference from an environmental viewpoint. The options considered to be more preferable have the least impacts and are more sustainable in the longer term. Hence, the hierarchy is as follows:

- avoidance and minimization of waste generation;
- reuse of materials, thus avoiding disposal; and
- treatment and disposal, according to relevant laws, guidelines and good practice.

5.2 Water

5.2.1 *Recommended Mitigation Measures during Construction*

Mitigation measures should be undertaken to reduce minor water quality impacts. The following sections provide a summary of the mitigation measures proposed to be implemented to minimise potential environmental impacts resulting from the stream bed trimming works.

General Mitigation Measures

The Contractor shall provide adequate precautions to ensure that no spoil or debris of any kind is allowed to be pushed or washed down from the works.

The Contractor shall not permit any sewage, wastewater or other effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the site onto any adjoining land or allow any solid waste to be deposited anywhere within the Site or onto any adjoining land and shall have all such materials removed from the site.

The Contractor shall be responsible for temporary drainage, diverting or conducting of open streams or drains intercepted by any works and for reinstating these to their original courses on completion of the works.

The Contractor shall at all times ensure that all existing stream courses and drains within, and adjacent to the Site are kept safe and free from any debris and any excavated materials arising from the Works.

All Contractor's Equipment shall be designed and maintained to minimise the risk of silt and other contaminants being released into the water column or deposited in other than designated locations.

Water Gathering Ground

The Contractor will be required to comply the conditions for Working within Water Gathering Grounds as specified by Water Supplies Department.

It is proposed that the following measures be implemented:

- the trimming works to be constructed and completed prior to connection of up-stream water supply to reduce construction (in particular sedimentation) impacts;

- best practice construction methods and measures outlined in the Project Profile should be implemented; and
- ecologically friendly design (as described below in Section 5.3.1) should be undertaken.

5.2.2 Residual Impacts

No residual adverse impacts are expected as a result of proposed trimming of the stream at Ngong Ping.

5.2.3 Conclusions

By implementation of the mitigation measures and adherence to the practice notes and codes of practice for work within the Country Park and Water Gathering Grounds, the water quality impacts are deemed to be acceptable. Inspections of the work sites and the stream course in line with the routine auditing of the works would be expected to be adequate for the protection of the water resources. However, in the event of spillage or accidental discharges, the emergency plan prepared for the Tung Chung Cable Car Project would need to be implemented and checked for effectiveness.

The proposed stream bed trimming is anticipated to have benefits to the stream from the increased drainage capacity and avoidance of flooding which will improve the water quality of the stream course.

5.3 Ecology

5.3.1 Recommended Mitigation Measures during Construction

Mitigation measures should be undertaken to reduce impacts. The following section provides a summary of the mitigation measures proposed to be implemented to minimise potential environmental impacts resulting from trimming of Ngong Ping stream bed.

Design Considerations

- Construction works should be planned to take place in the dry season.
- Riparian vegetation should be maintained as far as possible (although some will need to be trimmed to permit the works to take place).
- Incorporation of pools (deeper areas) to provide habitats for fauna species.

Tree Protection

Trees within or adjacent to works areas should be protected.

Disturbance to Habitats (Waste/ Air Pollution/ Water Pollution)

- Prior to works commencing on site, a complete photographic record shall be obtained of the site.
- Workers shall not leave any litter on site. Litter shall not be burned on site but shall be removed off site. All surplus construction materials brought onto site shall be removed from site and daily clearance of general litter shall be undertaken. Particular care shall be taken with bottles, wire, polystyrene lunch boxes, plastic wrapping, cans and non-degradable materials. Waste from portable toilets will be taken off-site.
- Watercourses shall not be polluted with soaps, detergents or excretion.

Disturbance to Fauna

- Animals shall not be fed and no food shall be left for any animals and no pets of any type shall be allowed on any site. Workers shall not disturb birds and other animals.

Construction Site Access

- Access to work sites to be restricted and signed to prohibit unauthorised entry and the construction area should be fenced. This will minimise disturbance to vegetation, including unauthorised clearing. There shall be no work outside of the designated sites.
- Restrict the passage of machinery outside the designated construction areas and a minimum number of machinery parking areas should be used and clearly designated.

5.3.2 Residual Impacts

The residual impacts of the proposed trimming of stream bed will be the change in in-stream environment from a large ponding water to several shallow rock pools with continuous flow. The residual impacts are considered low.

5.3.3 Conclusions

The species of conservation interest appear to be widely distributed in the wider survey area and do not appear confined to any single location. The exception to this is amphibians that have relative low mobility and may be impacted upon by sedimentation and contamination.

Construction of the proposed Project shall be conducted in an appropriately ecologically sensitive manner, with particular attention given to avoidance or minimisation of disturbance through appropriate works scheduling and responsible works area. Stream and forest habitats in the Study Area are of moderate ecological value due to a low level of anthropogenic disturbance, and it is crucial that impacts to these sensitive habitats are avoided or minimised wherever possible.

Providing that the riparian vegetation of the stream will regenerate in wet season, and that mitigation measures are implemented (including water quality mitigation measures to prevent sedimentation, erosion etc.), no significant impacts are anticipated. The removal of exotic plantation, the creation of in-stream microhabitats and the improvement of water quality due to the removal of stagnant water, the proposed works is expected to have benefit on both water and ecological perspective.

6. ENVIRONMENTAL MONITORING AND AUDIT

6.1 Introduction

This section is complimentary to the “Code of Practice for the Works of Tung Chung Cable Car Project” (October 2002), and the EM&A Manual prepared for the Tung Chung Cable Car Project. With regard to the proposed trimming of Ngong Ping Stream works particular attention is drawn to the waste, water and ecological impacts for the proposed stream bed trimming. Mitigation measures for all environmental impacts will follow those given in **Section 14** of the Approved EIA for the Tung Chung Cable Car EIA (Study Brief No. ESB-068/2001).

6.2 Waste Management

MTR’s Contractor is required to refer to the Waste Management Plan prepared for the Tung Chung Cable Car Project. Waste shall be reused on site as far as practicable in order to minimise the impacts of waste disposal. It is anticipated that the majority of excavated material shall be reused on site for the creation of rock pools along the trimmed section. Detailed records shall be kept of waste produced in order to monitor disposal, and these records shall be audited. Regular site inspections shall be carried out to ensure implementation of the mitigation measures.

6.3 Water Quality

Sedimentation impacts are the main concern with regard to water quality, and these may occur during rainfall events, so the works should take place during the dry season. MTR’s contractor shall implement the mitigation measures as detailed in the implementation schedule where appropriate in order to minimise adverse impacts on water quality as a result of the proposed works.

Auditing shall be carried out, including inspections of stream courses and drains, to ensure successful implementation of mitigation measures during construction.

6.4 Ecology

Construction of the proposed Project shall be conducted in an appropriately ecologically sensitive manner, with particular attention given to avoidance or minimisation of disturbance through appropriate works scheduling and restriction of works area.

Mitigation measures should be undertaken to reduce impacts on the proposed works. Careful monitoring of the proposed mitigation measures by an Environmental Specialist who is preferably be a member of the Hong Kong Institute of Environmental Impact Assessment with a minimum of 5 years experience of work in Hong Kong and preferably has a suitable background in natural history and a professional qualification in terrestrial ecology or botany, is required to assess the effectiveness of mitigation measures.

7. PREVIOUSLY APPROVED EIA REPORTS

This Project Profile utilised information from the following approved EIAs.

EIA-090/2003 Tung Chung Cable Car EIA Report (extracted from EPD/EIAO website)

Applicant (MTR) was informed on 27 March 2003 of the suitability of the report for public inspection.

The Report is exhibited for public to comment from 29 March 2003 to 27 April.

Approved with conditions on 9 June 2003.

The Tung Chung Cable Car EIA Report provides key information on the existing environment at Ngong Ping including the identification of sensitive receivers and the assessment and evaluation of potential impacts.

The Ngong Ping stream is within the Study Area boundary of the Government approved Ecological Baseline Study (BMT, 2002) which provided the basis for the approved Tung Chung Cable Car EIA (Mott Connell, 2003). The ecology baseline study was undertaken for 9 months for both wet and dry season in 2002-2003.

This Project Profile utilises information from the approved EIA to provide baseline data and determine ecological impacts. Acceptable impacts on ecology were predicted from the construction of the Cable Car terminal at Ngong Ping.

EIA-075/2002 Ngong Ping Sewage Treatment Works and Sewerage EIA (extracted from EPD/EIAO website)

Applicant was informed on 7 May 2002 of the suitability of the report for public inspection.

Report was exhibited for the public to comment from 14 May 2002 to 12 June 2002.

Approved with conditions on 4 July 2002

The Ngong Ping Sewage Treatment Works and Sewerage EIA was undertaken with an overlapping Study Area boundary which is located not far from the proposed trimming of stream section (and Cable Car Terminal and Theme Village). The report investigated the potential environmental impacts for the construction and operation of the Sewage Treatment Plant (STP). Environmental aspects including air quality noise, waste, water, landscape and visual, ecology, fisheries and cultural heritage were assessed in detail. In particular the existing environment at Ngong Ping (within the Study Area boundary) is the same and sensitive receivers are comparable.

Terrestrial ecological surveys were carried out from July 2001 to mid-April 2002, covering both dry and wet seasons, in accordance with the EIA Study Brief ESB-074/2001. Limited impacts on ecology were predicted from the construction of the sewage treatment works. Provided that good practice for controlling surface runoff is employed and enforced, and earthworks can be suspended for the section of sewer close to the stream where the Romer's Tree Frog was found during the breeding season of the frog (March to September), no residual impacts were anticipated.

8. CONCLUSIONS

8.1 Air

Air quality impacts resulting from the proposed stream bed trimming are not likely to exceed air quality criteria or impact on sensitive receivers. Nonetheless good site practices are recommended.

8.2 Noise

Noise resulting from the proposed stream bed trimming will be insignificant due to large distance attenuation.

8.3 Waste

Reduction of waste and the re-use of materials in-situ is the design requirement to minimise the need for off-site disposal of material as far as practical.

8.4 Water

During construction some potential water quality impacts could arise. These will be controlled and are considered to be acceptable on the basis of the implementation of the Environmental Code of Practice for the Tung Chung Cable Car Project. Once operational the water quality benefits include enhancement of flow, reduction in stagnation and thus reduction in the risk of flooding.

8.5 Ecology

The trimming of the stream course will result in the loss of flora and fauna during construction. Regeneration of riparian vegetation is expected by natural process from the adjacent riparian zone along the stream bank during the wet season. Once operational the benefits to be accrued are the enhancement of the in-stream habitats due to the change from a large ponding water to several shallow rock pools with continuous flow which will provide more microhabitats for stream fauna.

APPENDIX A

PLATES SHOWING THE STREAM IMPROVEMENT SECTION AND SURROUNDING HABITATS



Plate 1: Ngong Ping Stream with stagnant pool between Chainage 50m and 70m from the confluence (December 2005)



Plate 2: Chainage 70m to 80m from the confluence with rocky outcrop (December 2005)



Plate 3: Chainage 75m to 85m from the confluence with rocky outcrop (December 2005)



Plate 4 **Plantation woodland along the access road to the columbarium**



Plate 5 **Shrubland close to grave area after fire**



Plate 6 **Active cultivation next to the village**



Plate 7 Stream diversion section with gabion, rip-rap and natural rock as embankment and streambed



Plate 8 Concrete channel at the upstream of the stream diversion with low ecological value

APPENDIX B

FLORA LIST

APPENDIX B

1. FLORA SPECIES LISTS

1.1 Flora Species Recorded along the Trimming Section of Ngong Ping Stream

Species	Family	Chinese Name	Chinese Family Name	Form	Status
<i>Ageratum conyzoides</i>	Asteraceae	勝紅薊	菊科	Herb	Ex
<i>Chrysopogon aciculatus</i>	Poaceae	竹節草	禾本科	Grass	N
<i>Miscanthus floridulus</i>	Poaceae	五節芒	禾本科	Grass	N
<i>Aporosa dioica</i>	Euphorbiaceae	銀柴	大戟科	Tree	N
<i>Mikania micrantha</i>	Asteraceae	薇甘菊	菊科	Climb	Ex
<i>Colocasia esculenta</i>	Araceae	芋	天南星科	Herb	N
<i>Alocasia odora</i>	Araceae	海芋	天南星科	Herb	N
<i>Mallotus paniculatus</i>	Euphorbiaceae	白楸	大戟科	Tree	N
<i>Hedychium coronarium</i>	Zingiberaceae	薑花	薑科	Herb	Ex
<i>Schefflera heptaphylla</i>	Araliaceae	鵝掌柴	五加科	Shrub	N
<i>Lantana camara</i>	Verbenaceae	馬纓丹	馬鞭草科	Shrub	Ex
<i>Microstegium ciliatum</i>	Poaceae	剛莠竹	禾本科	Grass	N
<i>Symplocos lancifolia</i>	Symplocaceae	光葉山礬	山礬科	Tree	N

1.2 Flora Species Recorded from Ngong Ping Plateau

Species	Family	Form	Status	BMT, 2002 and Mott Connell EIA 2003	Mott Connell, 2003
<i>Abarema lucida</i>	Mimosaceae	Shrub	Ex.		*
<i>Acacia auriculiformis</i>	Mimosaceae	Tree	C		**
<i>Acacia confusa</i>	Mimosaceae	Tree	Ex/ VC		***
<i>Acacia mangium</i>	Mimosaceae	Tree	C	*	*
<i>Acronychia pedunculata</i>	Rutaceae	Tree	C	*	
<i>Adiantum malesianum</i>	Pteridaceae	Fern	C		*
<i>Adina pilulifera</i>	Rubiaceae	Tree	C		*
<i>Alocasia odora</i>	Araceae	Herb	C		*
<i>Altingia chinensis</i>	Hamamelidaceae	Tree	C		*
<i>Amygdalus persica</i>	Rosaceae	Tree	C	*	
<i>Aporosa dioica</i>	Euphorbiaceae	Tree	C		***
<i>Archidendron clypearia</i>	Leguminosae	Tree	C		*
<i>Archidendron lucidum</i>	Leguminosae	Shrub	C		*
<i>Ardisia crenata</i>	Myrsinaceae	Shrub	C		*
<i>Ardisia quinquegona</i>	Myrsinaceae	Shrub	C		*
<i>Aster baccharoides</i>	Compositae	Shrub	VC		*
<i>Baekea frutescens</i>	Myrtaceae	Shrub	VC		*
<i>Bidens pilosa</i>	Compositae	Herb	C		**
<i>Blechnum orientale</i>	Blechnaceae	Fern	VC	*	*
<i>Blumea lacera</i>	Compositae	Herb	C		*
<i>Breynia fruticosa</i>	Euphorbiaceae	Shrub	VC		*
<i>Bridelia tomentosa</i>	Euphorbiaceae	Tree	C		***
<i>Callistemon viminalis</i>	Myrtaceae	Tree	C	*	*
<i>Camellia euryoides</i>	Theaceae	Shrub	R/ Prot.	*	*
<i>Cassia mimosoides</i>	Caesalpiniaceae	Herb	C		*
<i>Casuarina equisetifolia</i>	Casuarinaceae	Tree	C	*	*
<i>Celtis sinensis</i>	Ulmaceae	Tree	C	***	*
<i>Chloris barbata</i>	Gramineae	Herb	C		*
<i>Cibotium barometz</i>	Dicksoniaceae	Fern	VC		*
<i>Citrus reticulata</i>	Rutaceae	Tree	C		*
<i>Cleistocalyx operculata</i>	Myrtaceae	Tree	C	*	*
<i>Clerodendrum fortunatum</i>	Verbenaceae	Shrub	C		*
<i>Cocos nucifera</i>	Palmae	Tree	C		*
<i>Colocasia esculenta</i>	Araceae	Herb	C		*
<i>Dianella ensifolia</i>	Phormiaceae	Herb	VC		*
<i>Dicranopteris pedata</i>	Gleicheniaceae	Fern	VC		*
<i>Dimocarpus longan</i>	Sapindaceae	Tree	C		*
<i>Diospyros morrisiana</i>	Ebenaceae	Tree	C	*	*
<i>Embelia laeta</i>	Myrsinaceae	Shrub	VC		*
<i>Eucalyptus robusta</i>	Myrtaceae	Tree	C	*	*
<i>Eurya japonica</i>	Theaceae	Tree	C		*

Species	Family	Form	Status	BMT, 2002 and Mott Connell EIA 2003	Mott Connell, 2003
<i>Glochidion hirsutum</i>	Euphorbiaceae	Tree	C		*
<i>Glochidion zeylanicum</i>	Euphorbiaceae	Tree	C	*	*
<i>Gordonia axillaris</i>	Theaceae	Tree	C	*	*
<i>Ilex asprella</i>	Aquifoliaceae	Shrub	C		
<i>Ischaemum aristatum</i>	Gramineae	Herb	C		*
<i>Itea chinensis</i>	Grossulariaceae	Tree	C		
<i>Lantana camara</i>	Verbenaceae	Shrub	VC		**
<i>Lemna minor</i>	Lemnaceae	Herb	C		*
<i>Lepidosperma chinense</i>	Cyperaceae	Grass	C		*
<i>Ligustrum sinense</i>	Oleaceae	Shrub	C		*
<i>Liquidambar formosana</i>	Hamamelidaceae	Tree	C		*
<i>Litchi chinensis</i>	Sapindaceae	Tree	C		*
<i>Litsea cubeba</i>	Lauraceae	Shrub	C		*
<i>Lophostemon conferta</i>	Myrtaceae	Tree	C	***	*
<i>Machilus breviflora</i>	Lauraceae	Tree	C	***	**
<i>Machilus chekiangensis</i>	Lauraceae	Tree	C	**	*
<i>Machilus thunbergii</i>	Lauraceae	Tree	C	*	*
<i>Machilus velutina</i>	Lauraceae	Tree	C	*	*
<i>Mallotus paniculatus</i>	Euphorbiaceae	Shrub	VC		*
<i>Mangifera indica</i>	Anacardiaceae	Tree	C	*	*
<i>Melaleuca leucadendron</i>	Myrtaceae	Tree	C	*	*
<i>Melastoma candidum</i>	Melastomataceae	Shrub	C	***	***
<i>Melastoma dodecandrum</i>	Melastomataceae	Herb	C		*
<i>Melastoma sanguineum</i>	Melastomataceae	Shrub	C		*
<i>Melia azedarach</i>	Meliaceae	Tree	C	***	
<i>Michelia alba</i>	Magnoliaceae	Tree	C	*	*
<i>Mikania micrantha</i>	Compositae	Climb	Ex/ VC		*
<i>Palhinhaea cernum</i>	Lycopodiaceae	Fern	VC		*
<i>Psidium guajava</i>	Myrtaceae	Tree	C		**
<i>Psychotria serpens</i>	Rubiaceae	Climb	VC		
<i>Pterospermum heterophyllum</i>	Sterculiaceae	Tree	C	*	
<i>Pyrus c.f. Calleryana</i>	Rosaceae	Tree	C	*	
<i>Raphiolepis indica</i>	Rosaceae	Tree	C	*	
<i>Rhodomyrtus tomentosa</i>	Myrtaceae	Shrub	C		*
<i>Rubus reflexus</i>	Rosaceae	Climb	VC		*
<i>Sapium discolor</i>	Euphorbiaceae	Tree	C		*
<i>Sapium sebiferum</i>	Euphorbiaceae	Tree	C		*
<i>Schefflera octophylla</i>	Araliaceae	Tree	C		*
<i>Scleria spp.</i>	Cyperaceae	Grass	C		*
<i>Symplocos cochinchinensis</i>	Symplocaceae	Tree	C		*
<i>Symplocos cochinchinensis</i>	Symplocaceae	Shrub	C		*
<i>Symplocos lancifolia</i>	Symplocaceae	Tree	C		*
<i>Syzygium jambos</i>	Myrtaceae	Tree	C		*
<i>Washingtonia robusta</i>	Arecaceae	Tree	C		*
<i>Wedelia trilobata</i>	Compositae	Herb	C		*
<i>Wikstroemia indica</i>	Thymelaeaceae	Shrub	C		*

Source: Adapted from BMT (2002) and Field Investigation Mott Connell (2002)

Status: Ex = Exotic; P = Planted; VC = Very Common; C = Common; U = Uncommon (Restricted); R = Rare; Prot. =

Protected

Abundance: * Occasional (< 10% cover); ** Common (10 - 25% cover); *** Abundant (> 25% cover).

APPENDIX C

FAUNA LIST

APPENDIX C

1. FAUNA SPECIES LISTS

1.1 Aquatic Fauna Species List

Freshwater Fish and Macroinvertebrates Recorded at Ngong Ping Stream

Species	Common Name	Abundance	BMT 2002	Mott Connell 2003 - 2005
<i>Gambusia affinis</i>	Mosquito Fish	Abundance		√
<i>Physa acuta</i>	Freshwater Snail	Dominant	√	√
<i>Chironomus</i> spp.	Chironomid	Dominant	√	√
<i>Polypedilum</i> spp.	Chironomid	Dominant	√	

1.2 Amphibian Species List

Amphibian Species Recorded at Ngong Ping Plateau

Species	Common Name	Abundance Observed	Lai and Ng, 1972	Lau and Dudgeon, 1999*	OAP, 2002	BMT, 2002 and Mott Connell EIA, 2003	Mott Connell, 2003
<i>Bufo melanostictus</i>	Asian Common Toad	***		PW		AC	
<i>Kaloula pulchra</i>	Asiatic Painted Frog	**	W	W			S
<i>Leptolalax pelodytoides</i>	Leaf-litter Toad			S			
<i>Megophrys branchykolos</i>	Short-legged Toad			S			
<i>Microhyla ornata</i>	Ornate Pigmy Frog	*		AC		AC	
<i>Microhyla pulchra</i>	Marbled Pigmy Frog			AC			S, AC
<i>Philautus romeri</i>	Romer's Tree Frog			S	S		
<i>Polypedates megacephalus</i>	Brown Tree Frog	***	P	P	P		S, AC
<i>Rana exilis spinosa</i>	Lesser Spiny Frog			S			
<i>Rana guentheri</i>	Gunther's Frog			S/ M	S/ M		
<i>Rana limnocharis</i>	Paddy Frog		P	P			
<i>Rana livida</i>	Green Cascade Frog			S			
<i>Rana ruglosa</i>	Chinese Bullfrog	**				AC	
TOTAL	13	.	3	12	3	3	3

Notes:

Habitat: (S) = Stream; (PW) = Plantation Woodland; (M) = Marsh; (P) = Pool; (F) = Field; (SH) = Shrubland; (G) = Grassland; (D) = Developed (AC) Abandoned Cultivation and Cultivation; (W) = Woodland

Abundance is based on BMT, 2002 which provided the basis for the Tung Chung Cable Car EIA and Mott Connell observations 2003

1.3 Reptile Species List

Reptile Species Recorded from Ngong Ping Plateau

Species	Common Name	Abundance Observed	Romer, 1961	Green Lantau	OAP, 2002	BMT, 2002 and Mott Connell EIA, 2003	Mott Connell, 2003-2004
<i>Achalinus rufescens</i>	Rufous Burrowing Snake			P/SH/W			
<i>Amphiesma stolatum</i>	Buff-striped Keelback			S			
<i>Calotes versicolor</i>	Changeable Lizard			P/SH	P		
<i>Chinemys reevesii</i>	Reeves' Terrapin			S			
<i>Cyclemys dentate</i>	Asian Leaf Turtle						S
<i>Cyclophiops major</i>	Greater Green Snake			SH			
<i>Elaphe radiata</i>	Copperhead Racer			G			
<i>Eumeces quadrilineatus</i>	Blue-tailed Skink	*		SH		SH	
<i>Gekko chinensis</i>	Chinese Gecko			W / P	W		G
<i>Hemidactylus bowringii</i>	Bowring's Gecko			D			
<i>Mabuya longicaudata</i>	Long-tailed Skink	*		SH	SH	D	G
<i>Naja atra</i>	Chinese Cobra	*		SH		SH/ G	
<i>Oligodon cinereus</i>	Golden Kukri Snake			G			
<i>Oligodon formosanus</i>	Taiwan Kukri Snake			P			
<i>Pareas margaritophorus</i>	White-spotted Slug Snake	*			W		
<i>Psammodynastes pulverulentus</i>	Mock Viper		N/a				
<i>Ptyas korros</i>	Indo-Chinese Rat Snake			W			
<i>Rhabdophis subminiatus</i>	Red-necked Keelback			SH/W			
<i>Scincella reevesii</i>	Reeve's Smooth Skink	*		SH	SH		
<i>Trimeresurus albolabris</i>	Bamboo Snake			SH/ P			
<i>Tropidophorus sinicus</i>	Chinese Waterside Skink			S			
<i>Xenochrophis piscator</i>	Checkered Keelback			AC			
TOTAL	20	.	1	19	5	3	2

Source: Adapted from BMT (2002)

*Source: Lau M.W.N (Unknown) University of Hong Kong: Herpetologist and ecologist *In* A Green Lantau Conservation Strategy

Habitat: (S) =Stream; (PW) = Plantation Woodland; (M) = Marsh; (P) = Pool; (F) = Field; (SH) = Shrubland; (G) = Grassland; (D) = Developed (AC) Abandoned Cultivation and Cultivation

1.4 Butterfly Survey Data for the Tung Chung Cable Car EIA

Butterfly Species Recorded from the Tung Chung Cable Car EIA and from Ngong Ping

Species	Common Name	Family	Status*	BMT, 2002 and Mott Connell EIA, 2003
<i>Abisara echerius</i>	Plum Judy	Rionidae	VC	AC/ G/ SH/ W
<i>Actyolepsis puspa</i>	Common Hedge Blue	Lycaenidae	C	AC/ G/ SH/ W
<i>Ampittia dioscorides</i>	Bush Hopper	Hesperiidae	U	G/ SH
<i>Argyreus hyperbius</i>	Hong Kong Fritillary	Nymphalidae	VC	G/ SH/ W
<i>Ariadne ariadne</i>	Angled Castor	Nymphalidae	C	G/ W
<i>Athyma perius</i>	Common Sergeant	Nymphalidae	C	AC/ G/ SH/ W
<i>Chiladias lajus</i>	Lime Blue	Lycaenidae	VC	AC/ SH/ W
<i>Cupha erymanthus</i>	Rustic	Nymphalidae	VC	W
<i>Danaus genutia</i>	Dark Veined Tiger	Danaidae	VC	AC/ G/ SH
<i>Delias pasithoe</i>	Common Black Jezebel	Pieridae	C	W
<i>Euchrysops cnejus</i>	Gram Blue Cupid	Lycaenidae	C	AC/ SH/ W
<i>Euploea core</i>	Common Indian Crow	Danaidae	VC	AC
<i>Euploea midamus</i>	Blue Spotted Crow	Danaidae	VC	AC/ G/ SH
<i>Eurema hecabe</i>	Common Grass Yellow	Pieridae	VC	AC/ G/ SH/ W
<i>Euthalia phemius</i>	White-edged Blue Baron	Nymphalidae	U	SH
<i>Faunis eumis</i>	Common Faun	Amathusiidae	C	AC/ W
<i>Graphium sarpendon</i>	Blue Triangle	Papilionidae	VC	G/ SH/ W
<i>Heliophorus epicles</i>	Purple Sapphire	Lycaenidae	VC	AC/ W
<i>Hypolimnas bolina</i>	Great Egfly	Nymphalidae	C	AC/ G/ W
<i>Ideopsis similis</i>	Blue Glassy Tiger	Danaidae	VC	AC/ SH
<i>Ixias pyrene</i>	Yellow Orange Tip	Pieridae	U	G
<i>Junonia almana</i>	Peacock Pansy	Nymphalidae	C	G
<i>Junonia hierta</i>	Yellow Pansy	Nymphalidae	U	AC
<i>Kaniska canace</i>	Blue Admiral	Nymphalidae	C	AC/ G
<i>Lampides boeticus</i>	Long-tailed Pea Blue	Lycaenidae	C	G/ SH/ W
<i>Lethe confusa</i>	Common White-banded Brown	Satyridae	C	AC/ SH
<i>Matapa aria</i>	Common Red Eye	Hesperiidae	U	AC/ W
<i>Mycalesis mineus</i>	Dark Brand Bush Brown	Satyridae	VC	AC/ G/ SH
<i>Neptis hylas</i>	Common Sailor	Nymphalidae	VC	G
<i>Pantoporia hordonia</i>	Common Lascar	Nymphalidae	C	SH
<i>Papila demoleous</i>	Lime Butterfly	Papilionidae	C	AC
<i>Papilo memnon</i>	Great Mormon	Papilionidae	VC	SH
<i>Papilo paris</i>	Paris Peacock	Papilionidae	VC	AC/ W
<i>Papilo polytes</i>	Common Mormon	Papilionidae	VC	AC/ G/ SH
<i>Papilo protenor</i>	Dark Mormon	Papilionidae	C	W
<i>Parantica aglea</i>	Glassy Tiger	Danaidae	C	AC
<i>Parasarpa dudu</i>	White Commodore	Nymphalidae	U	SH
<i>Pelopidas conjunctus</i>	Conjoined Swift	Hesperiidae	U	G
<i>Pieris canidia</i>	Cabbage White	Pieridae	C	AC/ SH/ W
<i>Pseudozizeeria maha</i>	Pale Grass Blue	Lycaenidae	C	AC/ G
<i>Suastus gremius</i>	Indian Palm Bob	Hesperiidae	U	SH
<i>Troides helena</i>	Common Birdwing	Papilionidae	U	AC
<i>Ypthima baldus</i>	Common Ring Five	Satyridae	C	G
<i>Ypthima lisandra</i>	Straight Six Ring	Satyridae	VC	AC/ G/ SH
<i>Zemeros flegyas</i>	Punchinello	Rionidae	C	SH/ W

Source: Adapted from BMT (2002)

*Source: Lau M.W.N (Unknown) University of Hong Kong: Herpetologist and ecologist *In* A Green Lantau Conservation Strategy

Habitat: (S) =Stream; (PW) = Plantation Woodland; (M) = Marsh; (P) = Pool; (F) = Field; (SH) = Shrubland; (G) = Grassland; (D) = Developed (AC) Abandoned Cultivation and Cultivation

1.5 Avifauna Species Recorded from the Tung Chung Cable Car EIA and from Ngong Ping Plateau

Avifauna Species Recorded from the Tung Chung Cable Car EIA and from Ngong Ping Plateau

Scientific Name	Common Name	Status^	Abundance*	BMT, 2002* and Mott Connell EIA 2003	Mott Connell 2003, 2005
<i>Accipiter trivirgatus</i>	Crested Goshawk	R	R	✓	
<i>Accipiter virgatus</i>	Besra	R	R	✓	
<i>Accipiter gularis</i>	Japanese Sparrowhawk	M	R	✓	
<i>Acridotheres cristatellus</i>	Crested Mynah	R	C/W	✓	
<i>Aethopyga christinae</i>	Fork-tailed Sunbird	R	U/L	✓	
<i>Alcedo atthis</i>	Common Kingfisher	R/AM	C/W	✓	
<i>Amauromis phoenicurus</i>	White-breasted waterhen	R	C/W		✓
<i>Anthus hodgsoni</i>	Olive-backed Pipit	WV	C/W	✓	
<i>Anthus sylvanus</i>	Upland Pipit	R	R	✓	
<i>Apus affinis</i>	Little Swift	R/SM	C/W	✓	
<i>Apus pacificus</i>	Pacific Swift	SM/SV	C/W	✓	
<i>Ardeola bacchus</i>	Chinese Pond Heron	R	C/W	✓	✓
<i>Buteo buteo</i>	Common Buzzard	WV	U/L	✓	
<i>Centropus bengalensis</i>	Lesser Coucal	R	U/L	✓	✓
<i>Centropus sinensis</i>	Greater Coucal	R/SV	C/W	✓	
<i>Cettia diphone</i>	Japanese Bush Warbler	WV	U/L	✓	
<i>Cettia fortipes</i>	Brownish-flanked Bush Warbler	WV	R	✓	
<i>Charadrius dubius</i>	Little Ringed Plover	R	W	✓	
<i>Coccothraustes</i>	Chinese Grosbeak	WV	R	✓	
<i>Copsychus saularis</i>	Oriental Magpie Robin	R	C/W	✓	
<i>Corvus marcorhynchos</i>	Large-billed Crow	R	C/W	✓	✓
<i>Cuculus micropterus</i>	Indian Cuckoo	SV	U/L	✓	
<i>Dicrurus hottentotus</i>	Hair-crested Drongo	M/SV/WV	U/L	✓	
<i>Dicrurus macrocercus</i>	Black Drongo				✓
<i>Egretta garzetta</i>	Little Egret	R	C/W	✓	
<i>Egretta sacra</i>	Pacific Reef Egret	R	U/L	✓	
<i>Eudynamis scolopacea</i>	Common Koel	R/SV	C/W	✓	
<i>Falco tinnunculus</i>	Eurasian Kestrel	WV	U/L	✓	
<i>Ficedula albicilla</i>	Red-throated Flycatcher	AM/WV	R	✓	
<i>Garrulax canorus</i>	Hwamei	R	U/L	✓	✓
<i>Garrulax perspicillatus</i>	Masked Laughingthrush	R	C/W	✓	
<i>Halcyon smyrnensis</i>	White-throated Kingfisher	AM,W,R	E	✓	
<i>Halcyon pileata</i>	Black-capped Kingfisher	AM/WV	U/L	✓	
<i>Haliaeetus leucogaster</i>	White Bellied Sea Eagle	R	R	✓	✓
<i>Hieraaetus fasciatus</i>	Bonelli's Eagle	R	R	✓	
<i>Hierococcyx sparveriioides</i>	Large Hawk Cuckoo	SV	U/L	✓	
<i>Hirundo rustica</i>	Barn Swallow	SM/SV	C/W	✓	
<i>Hypsipetas castananonotus</i>	Chestnut Bulbul	R	R	✓	
<i>Lanius schach</i>	Long-tailed Shrike	R	C/W	✓	
<i>Lonchura striata</i>	White-rumped Munia	R	U/L	✓	
<i>Milvus migrans</i>	Black Kite	R/WV	C/W	✓	
<i>Monticola solitarius</i>	Blue Rock Thrush	WV	U/L	✓	
<i>Motacilla alba ocularis</i>	White Wagtail	R/WV	C/W	✓	✓
<i>Motacilla cinerea</i>	Grey Wagtail	WV	C/W	✓	
<i>Muscicapa latirostris</i>	Asian Brown Flycatcher	AM/WV	U/L	✓	
<i>Myiophonus caeruleus</i>	Blue Whistling Thrush	R	C/W	✓	
<i>Nycticorax nycticorax</i>	Night Heron	R	U/L	✓	
<i>Orthotomus sutorius</i>	Common Tailorbird	R	C/W	✓	
<i>Parus major</i>	Great Tit	R	C/W	✓	✓
<i>Passer montanus</i>	Eurasian Tree Sparrow	R	C/W	✓	✓
<i>Phoenicurus aureus</i>	Daurian Redstart	WV	U/L	✓	
<i>Phylloscopus proregulus</i>	Pallas' Leaf Warbler	WV	U/L	✓	
<i>Phylloscopus fuscatus</i>	Dusky Warbler	WV	U/L	✓	
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler	WV	C/W	✓	
<i>Phylloscopus reguloides</i>	Blyth's Leaf Warbler	WV	R	✓	
<i>Phylloscopus tenellipes</i>	Pale-legged Leaf Warbler	AM	R	✓	✓
<i>Pica pica</i>	Magpie	R	C/W	✓	
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	R	C/W	✓	
<i>Prinia inornata</i>	Plain Prinia	R	U/L	✓	
<i>Pycnonotus aurigaster</i>	Sooty-headed Bulbul	R	C/W	✓	
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	R	C/W	✓	✓
<i>Pycnonotus sinensis</i>	Chinese Bulbul	R	C/W	✓	✓
<i>Spilornis cheela</i>	Crested Serpent Eagle	R	R	✓	
<i>Streptopelia chinensis</i>	Spotted Dove	R	C/W	✓	✓
<i>Sturnus nigricollis</i>	Black-collared Starling	R	C/W	✓	
<i>Tarsiger cyanurus</i>	Red-flanked Bluetail	WV	U/L	✓	
<i>Turdus cardis</i>	Japanese Thrush	AM/ WV	R	✓	
<i>Turdus hortulorum</i>	Grey-backed Thrush	WV	W	✓	

Scientific Name	Common Name	Status^	Abundance*	BMT, 2002* and Mott Connell EIA 2003	Mott Connell 2003, 2005
<i>Turdus merula</i>	Common Blackbird	WV	U/L	✓	
<i>Turdus pallidus</i>	Pale Thrush	WV	U/L	✓	
<i>Urocissa erythrorhyncha</i>	Blue Magpie	R	C/W	✓	
<i>Urosphena squameiceps</i>	Asian Stubtail Warbler	WV	R	✓	
<i>Zoothera citrina</i>	Orange-headed Thrush	R	R	✓	
<i>Zosterops japonica</i>	Japanese White-eye	R	C/W	✓	

Note*: The BMT (2002) survey covered a larger survey area - the entire Tung Chung Cable Car EIA Study Area

^ R = Residents / M = Migrant / AM = Autumn Visitors / WV = Winter Visitors / SM = Summer Migrant / SV = Summer Visitor
* Abundance according to Viney *et al*, 2001.

* R = Rare or Localised / C/W = Common and Widespread / U/L = Uncommon and Local

1.6 Mammals Ngong Ping

Mammal Species Recorded from Ngong Ping Plateau

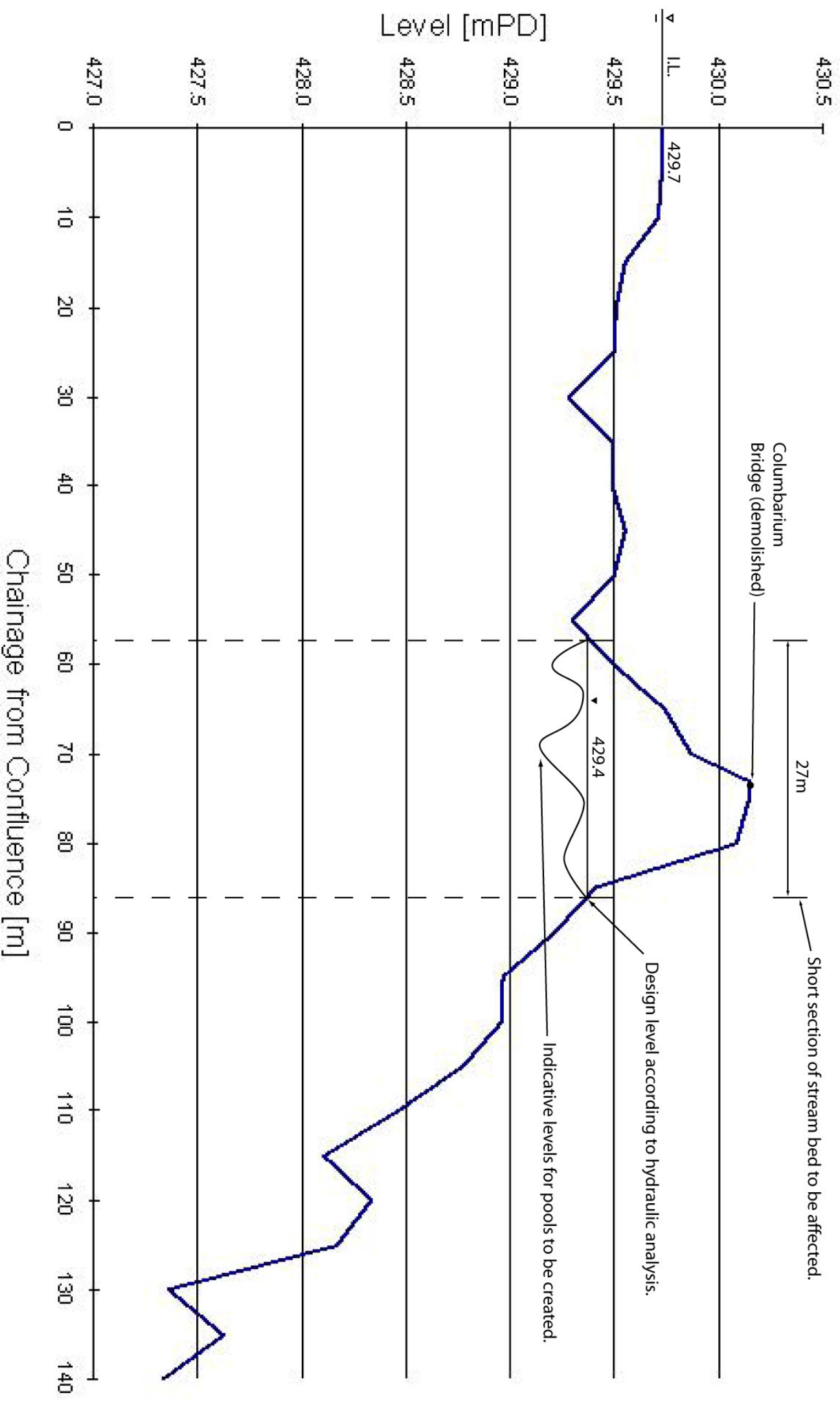
Species	Common Name	OAP 2002	Mott Connell, 2003
<i>Niviventer fulvescens</i>	Chestnut Spiny Rat	W	
<i>Rattus sikkimensis</i>	Sladen's Rat	W/G	
<i>Mus caroli</i>	Ryukyus Mouse	G	
<i>Bos Taurus</i>	Cow		D/ G
<i>Canis familiaris</i>	Dog		D/ G

Habitat: (S) = Stream; (PW) = Plantation Woodland; (M) = Marsh; (P) = Pool; (F) = Field; (SH) = Shrubland; (G) = Grassland; (D) = Developed (AC) Abandoned Cultivation and Cultivation

Source Ova Arup (2002) Previous records of mammal species recorded within/near the Study Area (Ades 1999; Lau 1996; Lau, pers. comm.; William Suen, pers. comm.)

FIGURES

Figure 1.2 Stream Bed Profile





Drawing No.

FIGURE 3.1

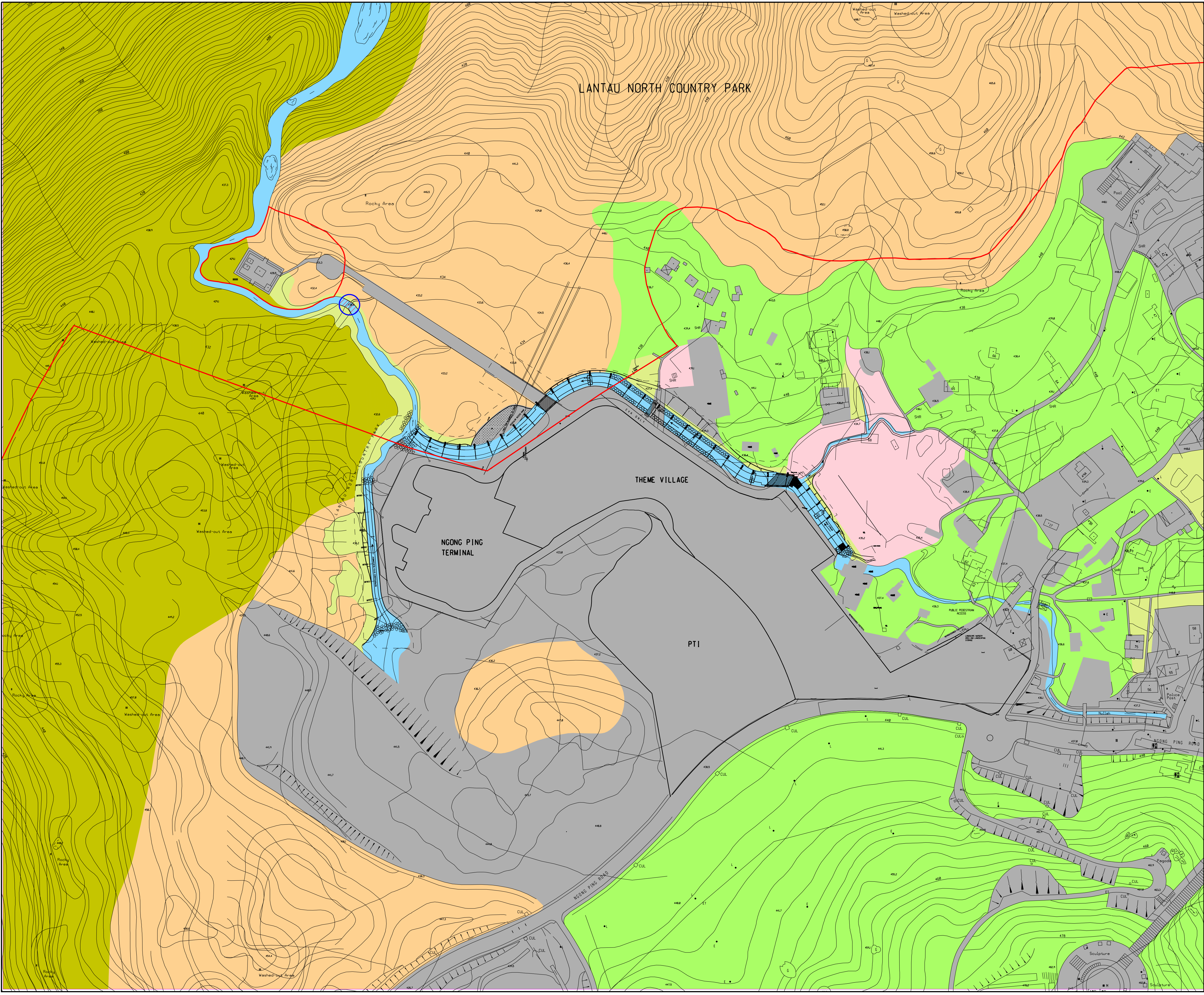
KEYPLAN SCALE 1: 40 000

LEGEND :

LOCATION OF THE PROPOSED
STREAM BED TRIMMING

LOCATION OF THE REPRESENTATIVE
SENSITIVE RECEIVERS

Rev.	Date	Drn.	Description	Dgn.	Chd.	App'd.
Designed:	Date:	Checked:				
Drawn:	Date:	Checked:				
Approved:	For MCL		Date of Issue:			
Client						
			MTR TOWER TELFORD PLAZA – KOWLOON BAY HONG KONG TEL : 2993 2111 FAX : 2798 8822			
Consulting Engineers						
Mott Connell Ltd.			Tel No. 2828 5757			
40/F Hopewell Centre			Fax No. 2827 1823			
183 Queen's Road East, Hong Kong						
Project						
IMPROVEMENT TO THE NGONG PING STREAM						
Originator						
MTR Corporation Limited PROJECT DIVISION						
Title						
LOCATION OF THE REPRESENTATIVE SENSITIVE RECEIVERS AT NGONG PING						
			Scale : 1 : 1000 @ A1			
			Contract No. / Unit			
			Drawing No.			
			Rev.			
© Copyright Reserved			FIGURE 3.1			
CAD File: \$FILE\$			Status:			



Drawing No. **FIGURE 3.2**

KEYPLAN SCALE 1: 40 000

LEGEND :

LOCATION OF THE PROPOSED
STREAM BED TRIMMING

COUNTRY PARK BOUNDARY

STREAM/DRAINAGE CHANNEL

GRASS/GRASSLAND

LOW SHRUB

PLANTATION/LANDSCAPING

TALL SHRUB

CULTIVATION/ABANDONED
CULTIVATION

DEVELOPED AREA/VILLAGE/
AREA UNDER CONSTRUCTION