

14. CONCLUSIONS

The potential impacts associated with the construction and operation of the Route 10 (NLYLH) (Southern Section) have been assessed, based on the latest available information. It has concluded that, provided the recommended control and mitigation measures are implemented, the Project will comply with the environmental standards and legislation. An Environmental Management Plan will need to be submitted before construction commences taking into account all recommendations set out in this Report. An implementation schedule of the recommendations is shown in Table 14.1 and the principal findings of this EIA-FAR are summarized below.

14.1 Air Quality

During construction dust levels could be high at some of the ASRs due to activities such as: site clearance, earthworks, materials handling, blasting, concrete batching, truck haulage and other plant movements. In order to minimise dust levels the following suppression measures will be required: water spraying, covering of stockpiles, minimising construction vehicle movements and speeds and providing dust filters to any ventilation systems. The *Air Pollution Control (Construction Dust) Regulation* together with the notes on *Best Practical Means Requirements for Cement Works* and on *Best Practical Means Requirements for Stone Crushers* will be fully complied with. Provided these mitigation and control measures are implemented dust criteria will be complied with at all ASRs. The implementation will be checked through the EM&A procedures in the EM&A programme.

During operation the AQO will be satisfied at all existing and planned ASRs. This will include the effects of, inter alia, vehicular emissions, emissions from the tunnel portals and noise enclosures, and emissions associated with the Toll Plaza.

14.2 Noise

14.2.1 Construction Phase

An assessment of the impacts arising from the construction has been undertaken using conservative construction equipment schedules. The predictions indicate that during the daytime some activities would cause an exceedance of the noise criteria ($L_{Aeq, (30min)}$ 75 dB) at some of the NSRs.

In order to reduce the impacts on the NSRs, and to demonstrate compliance with the noise criteria, various mitigation measures have been examined (eg. re-phasing of the works, use of super-silenced plant and equipment and the installation mobile barriers). With the application of such measures the results from the modelling carried out indicate that the daytime construction noise levels will not exceed the given criteria.

Twenty-four hour working will be required for the construction of Tsing Lung Bridge if the committed commissioning date in 2007 is to be achieved. The noise predictions indicate that during the restricted hours (1900-0700 hrs) with the proposed mitigation measures, both evening and night-time construction noise levels will not exceed the given criteria at all NSRs. At Hong Kong Gardens the predicted noise levels will just achieve the noise criteria for restricted hours working. A construction noise permit

(CNP) is required before work can commence during restricted hours. There is no guarantee that a CNP will be issued. If a permit is issued, EPD will include any condition it thinks fit and such conditions are to be followed while the works covered by the permit are being carried out. Failure to comply with the permit conditions will lead to cancellation of the permit and prosecution under the NCO. It should be noted that despite any description or assessment made in the EIA Report, the EPD will be guided by the relevant Technical Memorandum (Memoranda) in assessing an application, once filed, for a CNP. It will consider all the factors when arriving at its decision taking contemporary situations/conditions into account. Nothing in this Report shall bind EPD in making its decision.

In view of the marginal compliance with the noise criteria at Hong Kong Gardens and the consequential programme and contractual risks should a CNP not be issued or be withdrawn, it is, in our view, essential that an application is made to ExCo for exemption for the construction of Tsing Lung Bridge. This would follow the procedure adopted for Tsing Ma Bridge which was granted an exemption by ExCo.

14.2.2 Operational Phase

Road Traffic Noise

Noise impact arising from the operational stage of the Route 10 (NLYLH) (Southern Section) is mainly from the traffic noise from the open road sections. The potential road traffic noise impacts associated with the Route 10 (NLYLH) have been assessed for the worst case traffic flows for the year 2022. Noise predictions indicated that the unmitigated noise levels at some NSRs are above the TMEIA criterion and therefore the noise benefit from various direct mitigation measures have been investigated.

An effective package of direct mitigation measures are recommended to minimise the traffic noise impact. This includes low noise road surfaces (everywhere except the Tsing Lung Bridge and the Toll Plaza), roadside barriers and enclosures. By such mitigation measures, the majority of NSRs are protected from being adversely impacted by traffic noise from Route 10 (NLYLH).

However, as demonstrated by the noise modelling, it is not possible to reduce the overall traffic noise levels at certain NSRs to below the TMEIA criterion by mitigating the noise impact from the Route 10 (NLYLH). It is predicted that about 260 dwellings are likely to be eligible for indirect technical remedies in the form of window insulation and air conditioning. This is, however, subject to final approval from ExCo. It is recommended a detailed noise insulation assessment be carried out to identify the exact extent of noise insulation at the detailed design stage.

In Area 48 G/IC and R(B)2, residual impacts partially attributable to Route 10 (NLYLH) are predicted at three NSR's. For a further three NSR's, although residual impacts are not attributable to Route 10 (NLYLH), the predicted noise levels from Route 10 (NLYLH) alone exceed the TMEIA criteria. Therefore, development constraints such as self protective blocks, building setback and limiting the angle of view are recommended. Investigations during the detailed design stage for the development of these areas will be required to test the effectiveness of adopting suitable building layouts to reduce the angle of exposure to the roadways.

14.3 Waste Disposal and Management

Waste arising from the construction will be effectively handled, transported and disposed of through the application of appropriate mitigation measures. No potential insurmountable environmental impacts are identified. Operational impacts from the proposed route will be minimal. A Waste Disposal Plan will need to be provided before construction commences.

14.4 Water Quality

During the construction phase the key issue relating to water quality is the dredging of marine mud for the seawall at the Toll Plaza. Mitigation measures have been proposed to reduce these impacts which it is expected can be minimised to acceptable levels.

In the operational phase two components of the Project could potentially affect water quality. These are the Toll Plaza between Tso Wan and Fa Peng and the reclamation to provide ship protection at the Tsing Lung Bridge (Northern) Tower. Both components have been designed to minimise the impacts on the receiving waters and both are located within existing embayments. They do not intrude into the main tidal flows and thus have limited potential to affect hydrodynamic regimes (except in the immediate area). No residual water quality impacts are expected.

14.5 Terrestrial and Marine Ecology

14.5.1 Terrestrial Ecology

The ecological resources within the Study Area comprises a variety of habitat types including shrubland, tall shrubland, grassland/shrubland mosaic, secondary woodland, fung-shui wood, wetland, freshwater stream, agricultural field and orchard. Field surveys conducted between July and December 1998 indicated that shrubland and grassland/shrubland mosaic, which are typical of similar habitat elsewhere in Hong Kong, are the main habitat type within the Study Area. Tall shrubland, wetland and coastal habitats were found to support a few rare/restricted/protected plant including *Amorphophallus variabilis*, *Diplarcum caricinum*, *Rhaphis excelsa*, *Fimbristylis complanata*, *Phymatodes scopendria*, *Vitis balanceana*, *Thespesia populnea*, *Nepenthes mirabilis* (pitcher plant), *Enkianthus quinqueflorus*, *Lespedeza cuneate* (*L. juncea* var. *sericea*) and *Hedyotis pinifolia*. The fung shui wood at So Kwun Wat also supports plants of ecological interest including *Ixonanthes chinensis*, *Vitis balansaeana*, *Celtis timorensis*, *Ficus gibbosa*, *Pavetta hongkongensi*, *Castanopsis concinna*, *Ormosia semicastrata* and *Lithocarpus litseifolius*. Besides the fung shui woodland which possess high ecological value, the other habitat types are mostly disturbed with low ecological importance according to the criteria stated in EIAO TM.

Mitigation measures for the road construction such as on-site planting, erecting fences along the boundary of construction sites before the commencement of works, and prohibiting and preventing open fires within the site boundary are recommended to avoid and minimise the potential impact to the fung shui woods as well as the rare/restricted/protected plant species. No residual impact is expected.

14.5.2 Marine Ecology

The Study Area supports intertidal hard surface assemblages and subtidal soft benthos and marine mammal *Sousa chinensis*.

Direct impacts will occur through habitat loss in the area that is to be dredged or reclaimed and will affect the soft benthos as well as hard surface assemblages along Tsing Lung Tau, Tso Wan and Fa Peng. However, these assemblages are of low to medium ecological value and the dredged or reclaimed areas are only approximately 8.1 hectares. Therefore, predicted direct impacts are considered to be localised and acceptable.

Indirect impacts during the construction phase, such as noise from underwater blasting and marine traffic may cause some cetacean species to minimise their use of areas affected. Underwater blasting could affect the Chinese White Dolphin *Sousa chinensis* and mitigation measures, such as the installation of air-bubble curtain and surveillance for a 500 m radius of the blast site half an hour prior to blast detonation, are recommended.

An increase in suspended sediment concentrations and decrease in dissolved oxygen in the water column may impact filter feeders and soft corals living in the intertidal and subtidal habitats. However, these indirect impacts are anticipated to be localised and transient. In addition, any constraints on construction operations recommended to reduce impacts to water quality and noise to acceptable levels are expected to also mitigate for effects on marine ecology.

14.6 Fisheries Impact

A review of existing information indicated that the Study Area supports fisheries resources. As impacts resulting from the Project will be confined to within local areas of dredging/reclamation, no adverse impacts to fisheries resources are expected. Generally the mitigation measures which are recommended to control water quality impacts to within acceptable levels, are also expected to control impacts to fisheries resources. Therefore, no fisheries-specific mitigation measures are required.

14.7 Hazard

Provided the risk mitigation measures recommended in the HAR (STLFS) are implemented the risk from Tai Lam Chung PCH is considered acceptable. Construction phase risks will be small in relation to the operational phase risks and will be within the Risk Guidelines.

14.8 Land Contamination

An account of the present land uses, in accordance with *ProPECC PN3/94*, along the alignment did not indicate any contaminating uses of concern. Land use is primarily village type developments or agricultural, or it is undeveloped. Potential contamination and associated impacts are noted to be minimal based upon these land uses. Thus it is judged that no CAP is required.

However, if contamination is encountered, a contamination assessment should be performed in accordance with *ProPECC PN 3/94*, and a CAP will be required for submission and approval by the EPD prior to conducting the assessment.

14.9 Landuse, Landscape and Visual

The Study Area comprises areas of hillside on North Lantau and at Tai Tsing together with the three valleys of Tai Lam Chung, Siu Lam and So Kwun Wat in the New Territories. They are primarily natural hillsides with low levels of disturbance and with high landscape and visual quality. A number of areas, such as the knolls between the Siu Lam and So Kwun Wat valleys and the eastern end of the So Kwun Wat valley, have previously been disturbed. The steeply undulating nature of the Study Area results in much of the alignment being enclosed within tunnel, elevated or requiring extensive earthworks or slope cutting.

The alignment runs against the overall landform of the area, which results in major visual and landscape impacts. There is limited opportunity to integrate the alignment with the existing natural landform, landscape and visual environment, with which it sharply contrasts.

The concepts for the mitigation measures described in this Report form the basis for the Landscape Proposal and Preliminary Design. The mitigation measures seek to alleviate the impacts and every effort has been made to provide measures which reduce these impacts as far as possible. The mitigation responds to the impacts caused by construction and are considered to result in many of the impacts being less unacceptable in the long term. However, they cannot alleviate all the impacts caused by the introduction of the large-scale man-made structures into the landscape. The major landscape impacts are at:

- Village Areas of Fa Peng and Tso Wan due to the permanent loss of coastal context;
- North Lantau Natural Hillside and Coastline due to the permanent disturbance to the existing landform;
- Siu Lam Ridge due to the extensive cut across the natural ridge; and
- So Kwun Wat Valley due to the change in character and level of disturbance to the rural valley.

The more unacceptable visual impacts include:

- the local villages at Fa Peng and Tso Wan;
- East Lantau Planned Reclamation if developed with tourist and recreational facilities;
- Ma Wan Channel boat traffic;
- Ma Wan residents and Theme Park users;
- residents at Hong Kong garden to Sham Tseng, and residents in close proximity to the bridge;
- Tai Lam Chung Tsuen Wan residents;
- Siu Lam Village residents;
- residential development and planned CDA area at Siu Lam;
- So Kwun Wat Tsuen main and satellite village;

- MacLehose Trail walkers;
- Planned development Areas 48A, 55 and 56; and
- rural houses adjacent to Tuen Mun Road.

A Landscape Master Plan will be submitted during detailed design based on the recommendations contained herein.

14.10 Cultural Heritage

On the basis of the existing information the construction or operation of the Project will affect no archaeological or historical monuments. However, it is proposed that marine archaeological surveys be carried out in areas of reclamation and associated dredging during the detailed design phase.

A survey of pre-war graves at So Kwun Wat will be carried out as part of the Assignment. The detailed recording of the pre-war graves must be implemented to the satisfaction of the Antiquities and Monuments Office (AMO) before the commencement of any works.

Table 14.1 Implementation Schedule

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Air Quality								
Within all construction sites	3.5.4	2.9	<p>Air Pollution Control (Construction Dust) Regulation:</p> <ul style="list-style-type: none"> where breaking of rock/concrete is required, watering shall be implemented to suppress dust generation, water spray shall be used during the handling of excavated material at the site and at active cuts, tunnel construction works, excavation and fill sites where dust is likely to be created; the heights from which excavated materials are dropped shall be controlled to a minimum practical height to limit fugitive dust generation from unloading; 	HyD	Contractor	Contractor	Construction Phase	Air Pollution Control (Construction Dust) Regulation

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • all dusty materials shall be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; • any stockpiles of aggregate or spoil shall be covered and water applied; • vehicle travel on haul road shall be limited to a speed of 20 kph, • every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the load on the vehicles shall be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and • the working area of any excavation shall be sprayed with water before, during and immediately after the operation so as to maintain the entire surface wet. 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within all construction sites	3.5.4	2.9	<p>The following control measures are recommended during blasting of works:</p> <ul style="list-style-type: none"> the areas within 30 m from the blasting area shall be wetted with water prior to blasting; blasting shall not be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted unless prior permission of the Commissioner of Miners is obtained; wire mesh, gunny sacks and sandbags should be used on top of the blast area at each shot to prevent flying rock and dust; water the surface of the blast area to increase its moisture content; and dust filters should be fitted to the tunnel construction ventilation systems. 	HyD	Contractor	Contractor	Construction Phase	<p>Air Pollution Control (Construction Dust) Regulation</p> <p>EIA Report</p>

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within all construction sites	3.5.4	2.9	<p>The following mitigation measures are required for concrete batching plant:</p> <ul style="list-style-type: none"> • the loading, unloading, handling, transfer of storage of cement, pulverised fuel ash or other equally, dusty materials shall be carried in a enclosed system; • all dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system; • cement, pulverised fuel ash or other equally dusty materials shall be stored in storage silos fitted with audible high level alarms to warn of over-filling. The high-level alarm indicators shall be interlocked with the material filling line; • vents of all silos and weighing scales shall be fitted with fabric filtering system; and 	HyD	Contractor	Contractor	Construction Phase	Best Practicable Means Requirements for Cement Works (Concrete Batching Plant)

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Air Quality Monitoring								
Monitoring Locations	13.5.3	2.6	<ul style="list-style-type: none"> seating of pressure relief valves of all silos shall be checked, and the valves reseated if necessary, before each delivery. <p>Baseline monitoring shall be carried out prior to the commissioning of the construction works to obtain daily TSP samples. 1-hr sampling shall also be done at least 3 times per day.</p>	HyD	Environmental Team of the Contractor	--	At least 14 consecutive days prior to the commissioning of the construction works	--
Monitoring Locations	13.5.4	2.7	<p>Sampling for regular impact monitoring, shall be carried out at least once in every six-days at all the monitoring stations for 24-hr TSP monitoring.</p> <p>For 1-hr TSP monitoring, sampling frequency of at least 3 times in every 6-days shall be undertaken when the highest dust impact occurs.</p>	HyD	Environmental Team of the Contractor	--	Construction Phase	--

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Monitoring Locations	-	2.8	In case of non-compliance of the air quality criteria occurs, more frequent monitoring as specified in the Action Plan shall be carried out. The additional monitoring shall be continued until exceedance stops.	HyD	Environmental Team of the Contractor	--	Specified times	--
Tai Lam Tunnel	3.6.6 13.6.1	9.2	Ventilation inside the tunnel and noise enclosure to meet TAQG	HyD	Tunnel Operator	--	Operational Phase	Practice Note on Control of Air Pollution in Vehicle Tunnels
Noise								
Siu Lam Cutting	4.5.1	-	Excavated materials will be removed by a conveyer belt located along the Tai Lam Chung Nullah.	HyD	Contractor	Contractor	Construction Phase	--
Within construction sites at North Lantau	4.5.4	3.8	Use of quiet PME, reduction of the number of items of plant operating concurrently for the earthworks excavation at Fa Peng and use of temporary and movable noise barriers during the excavation at Fa Peng.	HyD	Contractor	Contractor	Construction Phase	PN 2/93 & EIAO

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites at Tsing Lung Tau	4.5.4	3.8	<ul style="list-style-type: none"> • Use of quiet PME; • Reduce the number of items of plant operating concurrently for the excavation of seabed, caisson fitting, bridge tower formation, Tsing Lung Tau reclamation, adit and portal formation, viaduct foundation and superstructure and road pavement & finishes, and use of temporary; • Movable noise barriers for the reclamation and adit formation at Tsing Lung Tau; • 3m high movable barrier (having minimum surface density of 10kg/sq.m) on a working platform during bridge tower construction; • enclosures around concrete pump, generator and air compressor during bridge tower construction; and • avoiding the use of tower crane with other equipments concurrently during bridge tower construction. 	HyD	Contractor	Contractor	Construction Phase	PN 2/93 & EIAO

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Grand Bay Villa	4.5.4	-	Resume Grand Bay Villa	HyD	HyD	HyD	Before the construction of Route 10	--
Within construction sites at Tai Lam Chung	4.5.4	3.8	Use of quiet PME, reduce the number of items of plant operating concurrently for viaduct foundation with the other construction activity.	HyD	Contractor	Contractor	Construction Phase	PN 2/93 & EIAO
Within construction sites at Siu Lam	4.5.4	3.8	<ul style="list-style-type: none"> • Use of quiet PME; • reduce the number of items of plant operating concurrently; • use of temporary and movable noise barriers for viaduct foundation, earthwork excavation and road pavement & finishes at Siu Lam; and • 50% on-time restriction (i.e. 15 minutes for every 30 minutes) for the PMEs of viaduct formation close to NSR SL-N11. 	HyD	Contractor	Contractor	Construction Phase	PN 2/93 & EIAO

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites at So Kwun Wat	4.5.4	3.8	<ul style="list-style-type: none"> • Use of quiet PME; • reduce the number of items of plant operating concurrently; • use of temporary and movable noise barriers for viaduct foundation, viaduct superstructure, earthworks excavation and road pavement and finishes; • use of temporary noise barriers along site boundary fronting NSRs SKW-N5 to SKW-N9, SKW-N11, SKW-N13, SKW-N14 and SKW-N16; • 50% on-time restriction (i.e. 15 minutes for every 30 minutes) for the PMEs operating close to NSRs SKW-N7, SKW-N8, SKW-N11 and SKW-N16; and • within 40m from SKW-N14, rock drill should be used alone (ie. without the use of other noisy PME working concurrently) with a percentage on-time restriction of 20% during earthwork excavation. 	HyD	Contractor	Contractor	Construction Phase	PN 2/93 & EIAO

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
<i>Construction Noise Monitoring</i>								
Monitoring locations	13.3.4	3.5	The baseline noise monitoring shall be carried out at the noise monitoring locations for a period of two weeks prior to the commencement of the construction works.	HyD	Environmental Team of the Contractor	--	Specified times	--
Monitoring locations	13.3.5	3.6	Construction noise monitoring shall be carried out once per week between 0700-1900 on normal weekdays at all designated monitoring locations.	HyD	Environmental Team of the Contractor	--	Specified times	--
Monitoring locations	-	3.6	In case of non-compliance with the construction noise criteria, more frequent monitoring as specified in the Action Plan shall be carried out. The additional monitoring shall be continued until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.	HyD	Environmental Team of the Contractor	--	Specified times	--

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
<i>Noise Barrier - North Lantau</i>								
1m from the edge of the eastern carriageway north of Toll Plaza CH 6880 - CH 7030	4.6.4	-	Cantilever barrier comprising an 8m vertical section with a 1m horizontal barrier protruding from the top	HyD	HyD	HyD	Before completion of Project	TMEIA
1m from the edge of the eastern carriageway of Toll Plaza CH 6800 - CH 6880	4.6.4	-	Cantilever barrier comprising an 8m vertical section with a 0.5m horizontal barrier protruding from the top	HyD	HyD	HyD	Before completion of Project	TMEIA
1m from the edge of the eastern carriageway of Toll Plaza CH 6670 - CH 6800	4.6.4	-	8m vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
1m from the edge of the eastern carriageway of Toll Plaza CH 6530 - CH 6670	4.6.4	-	3m vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
1m from the edge of the eastern carriageway of Toll Plaza CH 6380 - CH 6530	4.6.4	-	6m vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
<i>Noise Barrier - Siu Lam Section</i>								
1m from the northbound carriageway of Route 10 CH 12870 - CH 13240	4.6.4	-	1.5m vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the eastern edge of southbound Siu Lam Link Road CH 2000 - CH 2400	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the eastern edge of southbound Siu Lam Link Road CH 2400 - CH 2550	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
Southbound Siu Lam Link Road CH 2550 - CH 2780	4.6.4	-	Full enclosure	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the eastern edge of southbound Siu Lam Link Road CH 2780 - CH 3150	4.6.4	-	Semi-enclosure with absorptive lining (covering the entire width of the carriageway)	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the eastern edge of northbound Siu Lam Link Road CH 1320 - CH 1680	4.6.4	-	Semi-enclosure with absorptive lining (covering the entire width of the carriageway)	HyD	HyD	HyD	Before completion of Project	TMEIA
Northbound Siu Lam Link Road CH 1680 - CH 1910	4.6.4	-	Full enclosure	HyD	HyD	HyD	Before completion of Project	TMEIA

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
3m from the western edge of northbound Siu Lam Link Road CH 1910 - CH 2050	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the western edge of northbound Siu Lam Link Road CH 2200 - CH 2450	4.6.4	-	3m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
<i>Noise Barrier - So Kwun Wat</i>								
3m from the northern edge of the eastbound carriageway of SKW Link Road CH 800 - CH 1020	4.6.4	-	Absorptive cantilever noise barrier comprising a 6 m vertical section with a 2 m horizontal projection	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the northern edge of the eastbound carriageway of SKW Link Road CH 1250 - CH 1290	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
0.5m from the southern edge of the eastbound carriageway of SKW Link Road CH 1250 - CH 1290	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the northern edge of the eastbound carriageway of SKW Link Road CH 1520 - CH 1600	4.6.4	-	5m vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
3m from the southern edge of the westbound carriageway of So Kwun Wat Link road CH 3420 - CH 3620	4.6.4	-	absorptive cantilever noise barrier comprising of a 6m vertical section with a 2m horizontal projection	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the southern edge of the westbound carriageway of So Kwun Wat Link Road CH 2870 - CH 3420	4.6.4	-	semi-enclosure with absorptive lining (covering the entire width of carriageway)	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the western edge of slip road LR2 CH 1580 - CH 1850	4.6.4	-	semi-enclosure with absorptive lining (covering with entire width of carriageway)	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the eastern edge of slip road LR1 CH 1035 - CH 1600	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
0.5 m from the western edge of slip road LR1 CH 1050 - CH 1430	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the eastern edge of slip road LR2 CH 950 - CH 1350	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
0.5m from the northern edge of westbound So Kwun Wat Link Road (CH 2560 - CH 2740)	4.6.4	-	5.5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
0.5m from the northern edge of westbound So Kwun Wat Link Road (CH 2740 - CH 2870)	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
3m from the northern edge of eastbound carriageway of So Kwun Wat Link Road CH 1600 - CH 1680	4.6.4	-	Semi-enclosure with absorptive lining (covering the entire width of carriageway)	HyD	HyD	HyD	Before completion of Project	TMEIA
3m from the northern edge of slip road LR2 CH 1850 - CH 2080	4.6.4	-	5m absorptive vertical barrier	HyD	HyD	HyD	Before completion of Project	TMEIA
Eastbound of SKW Link Road CH 1020 - CH 1250	4.6.4	-	230m full enclosure	HyD	HyD	HyD	Before completion of Project	TMEIA
Eastbound of SKW Link Road CH 1290 - CH 1520	4.6.4	-	230m full enclosure (minimum external height of 7.5m)	HyD	HyD	HyD	Before completion of Project	TMEIA
Slip Road LR2 CH 1350 - CH 1580	4.6.4	-	230 full enclosure	HyD	HyD	HyD	Before completion of Project	TMEIA
<i>Noise Insulation</i>								
Tsing Lung Tau	4.6.5	-	Window insulation and air conditioning for approximately 260 dwellings at the Hong Kong Garden	HyD	HyD	HyD	Before completion of Project	ExCo Directives

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Planned and Proposed Development along Route 10	4.6.5	-	<ul style="list-style-type: none"> Setback distance of 40m from the northern site boundary with a restricted angle of view of 110° facing Tuen Mun Road in Area 48 G/IC, south of Tuen Mun Road if noise sensitive development is required; and If residential blocks are to be built in Area 48 G/IC (north of Tuen Mun Road), the first row (row closest to Tuen Mun Road) are recommended to adopt self protective design with no sensitive facade overlooking Tuen Mun Road. 	Developer	Developer	Developer	Before completion of the residential development	TMEIA
<i>Operational Noise Monitoring</i>								
Monitoring Locations	13.4	9.3.4, 9.3.5	<p>Noise monitoring during operational phase to ensure the proposed mitigation measures are effective to ensure the impact at NSRs will be within acceptable noise limits. Two sets of traffic noise monitoring data shall be obtained during the first year of the operation of Route 10:</p> <ul style="list-style-type: none"> one set of measurements at the morning traffic peak hour on normal weekdays 	HyD	Monitoring Contractor	--	Operational Phase	--

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Outside the ventilation buildings at a distance of 1m from the centre of louvre	-	9.3.5	<ul style="list-style-type: none"> one set of measurements at the evening traffic peak hour on normal weekdays <p>Exact timing for monitoring has to be confirmed with Transport Department and agreed with EPD. During the traffic noise monitoring, traffic count shall also be conducted so as to ensure the traffic noise of the peak periods are covered.</p> <p>Noise monitoring for the ventilation buildings. Broadband measurement and frequency analysis should be carried out.</p>	HyD	Monitoring Contractor	--	Day one of commissioning and day 60 of operation	TM for the Assessment of Noise from Places other than Domestic Premises, Public Places and Construction Sites
Monitoring Locations	-	9.3.6	In case of non-compliance of the noise criteria, actions in accordance with the Action Plan shall be carried out.	HyD	Monitoring Contractor	--	Operational Phase	--

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Water Quality								
Within construction sites	6.7.1	4.7.1	<p><i>General</i></p> <p>Any discharges from works areas must meet the requirements stipulated in the TM of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters.</p> <p>Standard mitigation measures shall be applied are:</p> <ul style="list-style-type: none"> removed via properly designed temporary drainage system; sewage, waste water or other effluent containing sand, cement, silt or any other suspended or dissolved material are not permitted to flow from the site onto any adjoining land or allow any solid waste to be deposited anywhere within the site; 	HyD	Contractor	Contractor	Construction Phase	TM of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • to construct and maintain temporary drainage and take precautions to avoid damage by flooding and silt, spoil or debris washed down from the works and also to reinstate temporary drainage, open streams or drains intercepted by any works to their original courses on completion of the works; • any proposed temporary diversions to stream courses or nullahs shall be submitted to the Engineer for agreement one month prior to such diversion works being commenced, diversions shall be constructed to allow water discharge without causing overflow, erosion or washout; 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • boundaries of works areas shall be marked and surrounded by ditches or sand bags to control run-off. Run off shall be diverted via silt retention ponds; • exposed areas shall be minimised by covering or reinstatement ; • water from tunnel dewatering activities shall pass through a silt and oil trap before being discharged to surface waters; • water used for drilling works, boring and concrete casing shall be recycled, if this cannot be done, water shall be passed through a silt trap prior to discharge; • fuel tanks shall be provided in banded areas with bunds of capacity not less than 110% of the largest tank capacity, the bunds shall be regularly drained of rain water and any spillages cleaned up immediately; 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites	6.7.1	4.7.2	<ul style="list-style-type: none"> • maintenance areas shall be paved with adequate drainage facilities with silt and oil interceptors and under cover if possible; • defined storage areas shall be set aside for waste material and litter nets shall be provided to retain wind blown litter; and • sewage from toilets, site canteens and offices shall be discharged into the local sewerage system, if this is not possible chemical toilets or package sewage treatment plants shall be provided. <p><i>Dredging and placing fill</i></p> <p>Mitigation measures to minimise release of materials to the water column during dredging includes:</p>	HyD	Contractor	Contractor	Construction Phase	-

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • mechanical grabs shall be designed and maintained to avoid spillage and shall be sealed tightly while being lifted, the rate of lift shall also be controlled to minimise disturbance to seabed; • all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide; • all pipe leakages are to be repaired promptly and plant is not to be operated with leaking pipes; • the marine works shall not cause visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • all barges and hopper dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before vessels are moved; • loading of barges and hopper shall be controlled to prevent splashing of dredged material to the surrounding water and barges or hoppers shall avoid overflowing of material or generating polluted water during loading or transportation; 					
			<ul style="list-style-type: none"> • all marine mud and unsuitable material shall be accurately disposed of at the approved locations; and • all disposal in designated marine dumping ground shall be in accordance with conditions of licence issued by the EPD. 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
	6.7.1	--	<ul style="list-style-type: none"> Implementation of close grab and silt curtain during dredging to reduce SS elevation 	HyD	Contractor	Contractor	Construction Phase	EPD WQOs
	6.7.1	--	<ul style="list-style-type: none"> Water quality monitoring and audit limited monitoring to be carried out at Tsing Lung Tau when placing fill to confirm supposition that this has minimal impact on water quality. 	HyD	Contractor	Contractor	Construction Phase	EPD WQOs
Waste Management								
Within construction sites	5.6.1	5.2	<p><i>Storage, Collection and Transport of Waste</i></p> <p>Permitted waste hauliers shall be used to collect and transport wastes to the disposal points. The following measures to minimise adverse impacts shall be instigated:</p>	HyD	Contractor	Contractor	Construction Phase	Practice Note for Authorized Person and Registered Structural Engineers, Building Department

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • handle and store waste in a manner which ensures that it is held securely without loss or leakage, thereby minimising the potential for pollution; • use waste hauliers authorised or licensed to collect specific category of waste; • remove waste in a timely manner; • maintain and clean waste storage areas regularly; • minimise windblown litter and dust during transportation by either covering trucks or transporting waste in enclosed containers; • obtain the necessary waste disposal permits from the appropriate authorities, if they are required; • dispose of waste at licensed waste disposal facilities; and 					<p><i>Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354), the Land (Miscellaneous Provision) Ordinance (Cap 28);</i></p>

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites	5.6.1	5.2	<ul style="list-style-type: none"> develop procedures such as a ticketing system to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of waste does not occur; and maintain records of the quantities of waste generated, recycled and disposed. <p><i>Surplus Excavated Material</i></p> <p><i>Dust:</i></p> <ul style="list-style-type: none"> wetting the surface of the stockpiled soil with water to keep the surface wet especially during the dry season; covering the stockpiled soil with sheets; and enclosure of the stockpiling area. 	HyD	Contractor	Contractor	Construction Phase	Practice Note for Authorized Person and Registered Structural Engineers from the Building Department, and Air Pollutant Control (Construction Dust) Regulation

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites	5.6.1	5.2	<p><i>Water Quality:</i></p> <ul style="list-style-type: none"> separating surface water drainage system for the stockpiling area; installation of silt traps for the surface water drainage system; and covering stockpiled material with tarpaulin during heavy rainstorm. 	HyD	Contractor	Contractor	Construction Phase	ProPECC PN 1/94
Within construction sites	5.6.1	5.2	<p><i>Marine Dredged Materials</i></p> <p>All vessels for marine transportation of dredged sediment shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials. In addition, loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water, and barges or hoppers shall under no circumstances be filled to a level which will cause the overflowing of materials or polluted water during loading or transportation.</p>	HyD	Contractor	Contractor	Construction Phase	Works Branch Technical Circular (WBTC) No. 22/92, Marine Disposal of Dredged Mud

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites	5.6.1	5.2	<p><i>C&D Waste</i></p> <p>The Contractor shall recycle C&D material on-site. Proper segregation of waste on site will increase the feasibility of certain components of the waste stream by the recycling contractors.</p> <p>Different areas of the worksite shall be designated for such segregation and storage wherever site conditions permit.</p>	HyD	Contractor	Contractor	Construction Phase	<p>Works Branch Technical Circular (WBTC) No. 5/98, Onsite Sorting of</p> <p>Construction Waste on Demolition Sites</p>
Within construction sites	5.6.1	5.2	<p><i>Chemical Waste</i></p> <p>Containers used for the storage of chemical waste shall:</p> <ul style="list-style-type: none"> be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 litres unless the specifications have been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. 	HyD	Contractor	Contractor	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes, EPD

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites	5.6.1	5.2	<p>The storage area for chemical wastes shall:</p> <ul style="list-style-type: none"> • be clearly labelled and used solely for the storage of chemical waste; • be enclosed on at least 3 sides; • have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • have adequate ventilation; • be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and • be arranged so that incompatible materials are adequately separated. 	HyD	Contractor	Contractor	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes, EPD

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within construction sites	5.6.1	5.2	<p>Disposal of chemical waste shall:</p> <ul style="list-style-type: none"> • be via a licensed waste collector; and • be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers; or • be to a reuser of the waste, under approval from the EPD. <p><i>General Refuse</i></p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D and chemical wastes. A waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D and chemical wastes, on a daily or every second day basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p>	HyD	Contractor	Contractor	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes, EPD
Within construction sites	5.6.1	5.2	<p><i>General Refuse</i></p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D and chemical wastes. A waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D and chemical wastes, on a daily or every second day basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p>	HyD	Contractor	Contractor	Construction Phase	Practice Note for Authorized Person and Registered Structural Engineers, Building Department and Public Health and Municipal Services Ordinance

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			Office waste can be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme shall be considered if one is available.					
Within Construction Sites	-	-	A coordinator for the management of waste should be identified	Contractor	Contractor	-	Construction Phase	-
Within Construction Sites	-	-	A Waste Management Plan should be prepared by the coordinator and submitted to EPD	Contractor	Contractor	-	Construction Phase	-
Ecology								
Within and in the vicinity of the construction sites	7.3.5	6.2	<p><i>Terrestrial Ecology</i></p> <ul style="list-style-type: none"> adjust the construction area to avoid/minimize encroaching into the <i>fung-shui</i> woodland FSW1 and FSW4; and at locations where locally rare/protected plant species have been identified; 	HyD	Contractor	Contractor	Construction Phase	

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> tree survey for the affected <i>fung-shui</i> woodland should be undertaken before work commencement to provide detailed information on amount and condition of affected trees and recommended protective measure (such as retaining or transplantation), and compensatory planting programme; 					Tree Survey: Works Branch Technical Circular No. 24/94 & Planning Environment and Lands Branch Technical Circular No. 3/94 - Tree Preservation
			<ul style="list-style-type: none"> erection of fences along the boundary of construction sites before the commencement of works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas, particularly <i>fung-shui</i> woodlands and where the rare/protected plant species are located; any damage that may occur to individual major trees in the adjacent area shall be treated with surgery; 	HyD	Contractor	Contractor	Construction Phase	--

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • stream sedimentation during construction should be prevented by erection of sediment barriers and operation of stilling ponds in streams to be potentially affected; • the exact location of haul routes, storage and works areas shall be selected to minimise disturbance on/avoid secondary woodland, <i>fung-shui</i> woodland and stream habitats; • regular checking to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas; • prohibition and prevention of open fires within the work site boundary during construction and provision of temporary fire fighting equipment in the work area during construction; 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> on-site planting should be provided for <i>fung-shui</i> woodlands 0.2 ha and secondary woodlands 0.8 ha to compensate for those lost to the road construction; and temporary work sites/disturbed areas should be reinstated straightaway after completion of the road construction by on-site tree/shrub planting. <p>Tree/shrub species used should take reference from those in the surrounding area.</p>	HyD	Contractor	Contractor	After construction phase	--
Within and in the vicinity of the construction sites	7.4.5	6.3	<p><i>Marine Ecology</i></p> <p>In order to protect the Chinese White Dolphin <i>Sousa chinensis</i> from direct impacts of underwater blasting, the following mitigation measures shall be carried out</p> <ul style="list-style-type: none"> charges shall be placed in cores within the rock in order that there will be no blast directly into the water; and the installation of an air-bubble curtain. <p>The surveillance procedures shall be as follows:</p>	HyD	Contractor	Contractor	Construction Phase	--

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<p>(a) Three observers (two on land and one on a small patrolling vessel) shall start looking for marine mammal activity within a 500 m radius of the blast site half an hour prior to blast detonation. Both land observers shall be located where there is an unrestricted view of waters around the blast site. Observers must keep track of radio announcements on the blast (30-minute and 5-minute warnings given).</p> <p>(b) Small boat patrols within the 500 m zone at 6-8 knots with constant observations being made of the entire area up to and around the 500 m zone. Distance shall be checked with radar or by range finding device.</p> <p>(c) If marine mammals are sighted, blasting must be postponed until they have moved outside the 500 m zone.</p>					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<p>(d) After sighting marine mammals, the vessel shall follow no closer than 100 m of them (between the blast site and animals). Blasting shall be postponed until after the marine mammals have cleared the 500 m zone. The discovery of marine mammals shall not preclude a diligent search for other marine mammals in the 500 m zone. Such animals, shall, in turn, be treated similarly.</p>					
			<p>(e) After the blast and after "all-clear" signal, the observer boat shall spend 10 minutes patrolling the 500 m zone to confirm no injured marine mammals are present.</p> <p>Any changes to this procedure must be agreed by the Agriculture and Fisheries Department.</p> <p>Other mitigation measures that will be in place to minimise impacts to marine mammals include the following:</p>					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • all vessel operators who will be working on the project should be given a briefing, alerting them to the possible presence of marine mammals and the rules of safe vessel operation around marine mammals; • a policy of no dumping of rubbish, food, oil or chemicals by any of the contractors should be strictly enforced. This should also be covered in the contractor briefing; • every attempt should be made to minimise the effects of the construction and operation of the port facilities on the water quality of the area; and • the marine stages of the reclamation works for the Toll Plaza and the blasting works for the Tsing Lung Bridge North Tower should be planned to take place in the spring and summer seasons when dolphin density in the area is low. 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Fisheries								
Within and in the vicinity of the construction site	8.5.1	--	<ul style="list-style-type: none"> In order to assist in the post-construction rehabilitation of intertidal hard bottom habitat at Tsing Lung Tau rubble mounded seawalls to provide habitat over the total surface area is recommended. 					
Fisheries Resources								
			In order to protect the fisheries resources (especially Ma Wan FCZ) from direct impacts of underwater blasting, the installation of an air-bubble curtain around the works area should be provided.	HyD	Contractor	Contractor	Construction Phase	--
Land Contamination								
Within Construction Sites	10.6	-	<p>The following environmental control measures are recommended to limit potential impact if contaminated soils and groundwater are identified on site:</p> <ul style="list-style-type: none"> bulk earth moving equipment shall be used to minimise the potential interface with site construction workers; 	HyD	Contractor	Contractor	Construction Phase	TMEIA and ProPECC PN 3/94

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
			<ul style="list-style-type: none"> • exposure to any contaminated materials present shall be minimised, and where there is contact, appropriate clothing and personal protective gear, such as gloves, shall be worn, adequate hygiene and washing facilities shall be provided, and smoking and eating shall be prevented; • the contractor shall ensure that rainfall and surface run-off is diverted around any areas currently being worked, minimising water volumes requiring disposal; and • prohibit stockpiling of any contaminated soils and excavated materials, and sheeting of vehicle/lorries containing any contaminated materials to limit potential dust emissions or contaminated waste run-off under wet conditions. 					

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Landscape and Visual								
Within all construction sites	11.11		Consideration of design of all slopes to minimise extent of cutting and design in accordance with EIA recommendations.	HyD	HyD / Design consultant	--	Detailed Design Phase	EIA WBTC 25/93 Control of Visual Impact of Slopes
Within all construction sites	11.11.6		Minimisation of all slope cutting where possible	HyD	Contractor	Contractor	Construction	Contract Docts
Within all construction sites	11.11.7		Felling of trees in accordance with WBTC 24/94 Tree Preservation <ul style="list-style-type: none"> Felling and transplanting of trees affected by submission and approval of Tree Felling Application 	HyD	HyD / Design consultant	--	Detailed Design Phase	WBTC 24/94 Tree Preservation
Within all construction sites	11.11.7		Felling of trees in accordance with WBTC 24/94 Tree Preservation <ul style="list-style-type: none"> Felling and transplanting of trees affected in accordance with Tree Felling Application and with contract docts 	HyD	Contractor	Contractor	Construction Phase	WBTC 24/94 Tree Preservation Contract documents
Within all construction sites	11.11.9		Erection of hoardings or advance planting as visual screens to works	HyD	Contractor	Contractor	Construction	Contract documents

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within all construction sites	11.11.8		Topsoils to be tested for quality and if valuable to be stockpiled no greater than 2m high for later use	HyD	Contractor	Contractor	Construction	Contract documents
Within all construction sites	11.11		Design of landscape works in accordance with EIA recommendations	HyD	HyD / Design consultant	--	Detail Design Phase	EIA
Within all construction sites	11.11		Implementation of landscape works in accordance with EIA recommendations and contract documents	HyD	Contractor	Contractor	Construction	Contract documents
Cultural Heritage								
Pre-war graves at So Kwun Wat	12.5		Recording of all pre-war graves and relocation as appropriate	HyD	Consultant/ HyD	-	Construction	EIA
Hazard								
-	9.5	-	Any changes to traffic forecast, route alignment, road linkage and tunnel arrangements should result in a review of the Hazard Assessment.	HyD	HyD	HyD	During Detailed Design Stage	-
Within Consultation Zone of TLC PCH	9.5	-	The number of construction workers within the Consultation Zone of Tai Lam Chung PCH should be minimised as far as reasonably practicable.	-	Contractor	Contractor	Construction Phase	-

Location	EIA Ref	EM&A Log Ref	Environmental Protection Measures	Funding Agent	Implementation Agent	Maintenance Agent	Implementation Stages	Relevant Legislation and Guidelines
Within Consultation Zone of TLC PCH	9.5	-	If construction staffing levels exceeds 500, it should be referred to EPD to determine if future Hazard Assessment is required prior to the commencement of construction	-	Contractor	Contractor	Before Construction Phase	-
Within Consultation Zone of TLC PCH	9.5	-	In the event that a chlorine release could be drawn up to one of the enclosed section of the route, the emergency plans should ensure that the relevant ventilation fans are quickly shutdown to minimise the ingress of chlorine.	HyD	Tunnel Operator	Tunnel Operator	During operational phase	-
TLC PCH	9.5	-	The emergency procedures relating to Route 10 should be included in the FSD's Emergency Plan for the PCH	WSD	Tunnel Operator/ WSD	WSD	During operational phase	-