

Appendix C

Environmental Mitigation  
and Enhancement Measure  
Implementation Schedules

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference      | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing   | Implementation Agent | Relevant Standard or Requirement          | Implementation Stages |   |   | Status * |
|--------------------|-----------------------|---|--|----------------------|---|-----------------------|---|---|----------|
|                    |                       |   |  |                      |   | D                     | C | O |          |
| <b>Air Quality</b> |                       |   |  |                      |   |                       |   |   |          |
| 4.8.1              | 3.8                   | An effective watering programme of twice daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;   | All areas / throughout construction period   | Contractor           | TMEIA Avoid smoke impacts and disturbance |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | Watering of the construction sites in Lantau for 8 times/day and in Tuen Mun for 12 times/day to reduce dust emissions by 87.5% and 91.7% respectively and shall be undertaken.   | All areas / throughout construction period   | Contractor           | TMEIA Avoid dust generation               |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels. | All areas / throughout construction period   | Contractor           | TMEIA Avoid dust generation               |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | The Contractor shall not burn debris or other materials on the works areas.   | All areas / throughout construction period   | Contractor           | TMEIA Avoid dust generation               |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.   | All unpaved haul roads / throughout construction period in hot, dry or windy weather | Contractor           | TMEIA Avoid smoke impacts and disturbance |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.         | All areas / throughout construction period   | Contractor           | TMEIA Avoid dust generation               |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.   | All areas / throughout construction period   | Contractor           | TMEIA Avoid dust generation               |                       | Y |   | ✓        |
| 4.8.1              | 3.8                   | During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.   | All areas / throughout construction period   | Contractor           | TMEIA Avoid dust generation               |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

**Contract No. HY/2012/08**  
**Tuen Mun – Chek Lap Kok Link**  
**Northern Connection Sub-sea Tunnel Section**  
**Environmental Mitigation and Enhancement Measure Implementation Schedule**

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing  | Implementation Agent | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|---------------|-----------------------|---|---|----------------------|----------------------------------|-----------------------|---|---|----------|
|               |                       |   |   |                      |                                  | D                     | C | O |          |
| 4.8.1         | 3.8                   | Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards. | All areas / throughout construction period                        | Contractor           | TMEIA Avoid dust generation      |                       | Y |   | <>       |
| 4.8.1         | 3.8                   | No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.  | All site exits / throughout construction period                   | Contractor           | TMEIA Avoid dust                 |                       | Y |   | ✓        |
| 4.8.1         | 3.8                   | Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is  | All exposed surfaces / throughout construction period             | Contractor           | TMEIA Avoid dust generation      |                       | Y |   | ✓        |
| 4.8.1         | 3.8                   | All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.  | All areas / throughout construction period                        | Contractor           | TMEIA Avoid dust generation      |                       | Y |   | <>       |
| 4.11          | Section 3             | EM&A in the form of 1 hour and 24 hour dust monitoring and site audit.  | All representative existing ASRs / throughout construction period | Contractor           | EM&A Manual                      |                       | Y |   | ✓        |

**WATER QUALITY**

*Marine Works (Sequence A)*

|     |         |   |  |            |         |  |   |  |   |
|-----|---------|---|--|------------|---------|--|---|--|---|
| 6.1 | Annex A | Construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. The protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2a and detailed in Appendix D6a. The part of the works where such measures can be undertaken for the majority of the time includes the following locations:<br><br>- TM-CLKL northern reclamation; | All areas/ prior to dredging and backfilling works | Contractor | TM-EIAO |  | Y |  | ✓ |
| 6.1 | -       | a maximum of 50% public fill to be used for all seawall filling below +2.5mPD for TM-CLKL southern and northern landfalls.  | TM-CLKL seawall filling                            | Contractor | TM-EIAO |  | Y |  | ✓ |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference                      | Environmental Protection Measures  | Location/ Timing                                       | Implementation Agent | Relevant Standard or Requirement                          | Implementation Stages |   |   | Status * |
|---------------|--|--|--|----------------------|---|-----------------------|---|---|----------|
|               |  |  |  |                      |   | D                     | C | O |          |
| 6.1           | -  | a maximum of 30% public fill to be used for reclamation filling below +2.5mPD for TM-CLKL southern landfall  | TM-CLKL southern landfall reclamation filling          | Contractor           | TM-EIAO   |                       | Y |   | N/A      |
| 6.1           | -  | a maximum of 100% public fill to be used for reclamation filling below +2.5mPD for TM-CLKL northern landfall   | TM-CLKL northern landfall reclamation filling          | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1           | -  | Use of cage type silt curtains round allgrab dredgers during the HKBCF, HKLR and TM-CLKL southern reclamation works.   | All areas dredging works                               | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
|               | Figure 1.1 of Annex C                      | A layer of floating type silt curtain will be applied when dredging and reclamation works are being undertaken at Portion N-a as shown in Figure 1.1 of Annex C of the EM&A Manual.  | All areas/ through out marine works                    | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1           | -  | Trailer suction hopper dredgers shall not allow mud to overflow.   | All areas/ throughout construction period              | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1           | -  | The use of Lean Material Overboard (LMOB) systems shall be prohibited.   | All areas/ throughout construction period              | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1           | Annex A<br><br>Figure 6.2b<br>Appendix D6b | For other parts of the reclamation works construction of seawalls to be advanced by at least 200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 6.2b and detailed in Appendices D6b. The part of the works where such measures can be undertaken for the majority of the time includes the following locations:<br><br>- TM-CLKL northern reclamation; | TM-CLKL northern landfall, Portion D of HKBCF and HKLR | Contractor           | TM-EIAO   |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference               | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing                                    | Implementation Agent | Relevant Standard or Requirement              | Implementation Stages |   |   | Status * |
|-----------------------------|-----------------------|--|---|----------------------|---|-----------------------|---|---|----------|
|                             |                       |  |   |                      |   | D                     | C | O |          |
|                             |                       | - Reclamation filling for Portion D of HKBCF; Reclamation filling for FSD berth of HKBCF; and<br>- Reclamation dredging and filling for Portion 1 of HKLR;   |   |                      |   |                       |   |   |          |
| 6.1                         | -                     | The filling material for the other parts of the works are the same as Sequence A;  | All other areas/backfilling works                   | Contractor           | TM-EIAO                                       |                       | Y |   | N/A      |
| 6.1                         | 5.7                   | Cage type silt curtain (with steel enclosure) shall be used for grab dredgers working in the site of HKBCF and TM- CLKL southern reclamation. Cage type silt curtains will be applied round all grab dredgers at other works area.         | HKBCF, HKLR and TM-CLKL grab dredging               | Contractor           | TM-EIAO                                       |                       | Y |   | ✓        |
| 6.1                         | Annex A               | A layer of floating type silt curtain will be applied around all works as defined in Appendix D6b.   | All areas/ through out marine works                 | Contractor           | TM-EIAO                                       |                       | Y |   | ✓        |
| 6.1                         | -                     | TM-CLKL northern landfall:<br>- Reclamation filling shall not proceed until at least 200m section of leading seawall at both the east and west sides of the reclamation are formed above +2.5 mPD, except for 100m gaps for marine access; | All areas/ through out marine works                 | Contractor           | TM-EIAO                                       |                       | Y |   | ✓        |
| <i>General Marine Works</i> |                       |  |   |                      |   |                       |   |   |          |
| 6.1                         | -                     | Use of TMB for the construction of the submarine tunnel.   | Tunnel works / Construction phase                   | Contractor           | TM-EIAO                                       |                       | Y |   | N/A      |
| 6.1                         | -                     | Export dredged spoils from NWWCZ.  | All areas as much as possible / dredging activities | Contractor           | DASO Permit conditions                        |                       | Y |   | ✓        |
| 6.1                         | -                     | Where public fill is proposed for filling below +2.5mPD, the fine content in the public fill will be controlled to 25%   | All areas/ backfilling works                        | Contractor           | TM-EIAO                                       |                       | Y |   | N/A      |
| 6.1                         | -                     | Where sand fill is proposed for filling below +2.5mPD, the fine content in the sand fill will be controlled to 5%.   | All areas/ backfilling works                        | Contractor           | TM-EIAO                                       |                       | Y |   | N.A      |
| 6.1                         | -                     | Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted.  | All areas/ throughout construction period           | Contractor           | Marine Fill Committee Guidelines. DASO permit |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing                          | Implementation Agent | Relevant Standard or Requirement                          | Implementation Stages |   |   | Status * |
|---------------|-----------------------|--|---|----------------------|---|-----------------------|---|---|----------|
|               |                       |  |   |                      |   | D                     | C | O |          |
|               |                       |  |   |                      | conditions.   |                       |   |   |          |
| 6.1           | -                     | Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.   | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1           | -                     | Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.  | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1           | -                     | Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation. | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1           | -                     | Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.   | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1           | -                     | Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;  | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | N/A      |
| 6.1           | -                     | All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.                                | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit             |                       | Y |   | N/A      |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference     | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing                          | Implementation Agent | Relevant Standard or Requirement                          | Implementation Stages |   |   | Status * |
|-------------------|-----------------------|--|---|----------------------|---|-----------------------|---|---|----------|
|                   |                       |  |   |                      |   | D                     | C | O |          |
|                   |                       |  |   |                      | conditions.   |                       |   |   |          |
| 6.1               | -                     | The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.  | All areas/ throughout construction period | Contractor           | Marine Fill Committee Guidelines. DASO permit conditions. |                       | Y |   | ✓        |
| 6.1               | 5.2                   | Silt curtain shall have proved effectiveness from the producer and shall be fully maintained throughout the works by the contractor.   | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1               | -                     | The daily maximum production rates shall not exceed those assumed in the water quality assessment.   | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1               | -                     | The dredging and filling works shall be scheduled to spread the works evenly over a working day.   | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| <i>Land Works</i> |                       |  |   |                      |   |                       |   |   |          |
| 6.1               | -                     | Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.  | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1               | -                     | Sewage effluent and discharges from on- site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.  | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1               | -                     | Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks. | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | ✓        |
| 6.1               | -                     | Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.  | All areas/ throughout construction period | Contractor           | TM-EIAO   |                       | Y |   | <>       |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

**Contract No. HY/2012/08**  
**Tuen Mun – Chek Lap Kok Link**  
**Northern Connection Sub-sea Tunnel Section**  
**Environmental Mitigation and Enhancement Measure Implementation Schedule**

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing                          | Implementation Agent | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|---------------|-----------------------|---|---|----------------------|----------------------------------|-----------------------|---|---|----------|
|               |                       |   |   |                      |                                  | D                     | C | O |          |
| 6.1           | -                     | Temporary access roads should be surfaced with crushed stone or gravel.   | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.  | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.   | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.  | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | 5.8                   | Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.   | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.   | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.  | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.  | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1           | -                     | Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.   | All areas/ throughout construction period | Contractor           | TM-EIAO                          |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government



**Contract No. HY/2012/08**  
**Tuen Mun – Chek Lap Kok Link**  
**Northern Connection Sub-sea Tunnel Section**  
**Environmental Mitigation and Enhancement Measure Implementation Schedule**

| EIA Reference                   | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing   | Implementation Agent          | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|---------------------------------|-----------------------|---|--|-------------------------------|----------------------------------|-----------------------|---|---|----------|
|                                 |                       |   |  |                               |                                  | D                     | C | O |          |
| 6.1                             | -                     | Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal. | All areas/ throughout construction period  | Contractor                    | TM-EIAO                          |                       | Y |   | N/A      |
| 6.1                             | -                     | The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.   | All areas/ throughout construction period  | Contractor                    | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1                             | -                     | Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.  | All areas/ throughout construction period  | Contractor                    | TM-EIAO Waste Disposal Ordinance |                       | Y |   | ✓        |
| 6.1                             | -                     | All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.  | All areas/ throughout construction period  | Contractor                    | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1                             | -                     | Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.   | All areas/ throughout construction period  | Contractor                    | TM-EIAO                          |                       | Y |   | ✓        |
| 6.1                             | -                     | Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.  | Roadside/ design and operation   | Design Consultant/ Contractor | TM-EIAO                          | Y                     |   | Y | ✓        |
| 6.1                             | Section 5             | All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.   | All areas/ throughout construction period  | Contractor                    | EM&A Manual                      |                       | Y |   | ✓        |
| <i>Water Quality Monitoring</i> |                       |   |  |                               |                                  |                       |   |   |          |
| 6.1                             | Section 5             | Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen. Nutrients and metal parameters shall also be measured for Mf sediment operations (only HKBCF and HKLR required handling of Mf sediment) during baseline, backfilling and post construction period.  | Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality | Contractor                    | EM&A Manual                      |                       | Y | Y | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference  | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing  | Implementation Agent                                       | Relevant Standard or Requirement | Implementation Stages |   |   | Status *                           |
|----------------|-----------------------|--|---|--|----------------------------------|-----------------------|---|---|------------------------------------|
|                |                       |  |   |  |                                  | D                     | C | O |                                    |
|                |                       | One year operation phase water quality monitoring at designated stations.  | monitoring for a year.  |  |                                  |                       |   |   |                                    |
| <b>ECOLOGY</b> |                       |  |   |  |                                  |                       |   |   |                                    |
| 8.14           | 6.3                   | Specification for and implement pre, during and post construction dolphin abundance monitoring.                              | All Areas/Detailed Design/ during construction works/post construction                        | Design Consultant/ Contractor                              | TMEIA                            | Y                     | Y | Y | ✓                                  |
| 8.14           | 6.3,6.5               | Specification and implementation of 250m dolphin exclusion zone.   | All dredging and reclamation areas/Detailed Design/ during all reclamation and dredging works | Design Consultant/ Contractor                              | TMEIA                            | Y                     | Y |   | ✓                                  |
| 8.15           | 6.3, 6.5              | Specification and deployment of an artificial reef of an area of 3,600m2 in an area where fishing activities are prohibited. | Area of prohibited fishing activities/Detailed Design/towards end of construction period      | TM-CLKL/ HKBCF Design Consultant/TM-CLKL/ HKBCF Contractor | TMEIA                            | Y                     |   | Y | N/A.<br>To be implemented by AFCD. |
| 8.14           | 6.3, 6.5              | Specification and implementation of marine vessel control specifications   | All areas/Detailed Design/ during construction works  | Design Consultant/ Contractor                              | TMEIA                            | Y                     | Y |   | ✓                                  |
| 8.14           | 6.3, 6.5              | Design and implementation of acoustic decoupling methods for dredging and reclamation works                                  | All areas/ Detailed Design/ during dredging and reclamation works                             | Design Consultant/ Contractor                              | TMEIA                            | Y                     | Y |   | ✓                                  |
| 8.15           | 6.3, 6.4              | Pre-construction phase survey and coral translocation  | Detailed Design/Prior to construction   | Design Consultant/ Contractor                              | TMEIA                            | Y                     | Y |   | ✓                                  |
| 8.15           | 6.5                   | Audit coral translocation success  | Post translocation  | Contractor   | TMEIA                            |                       | Y |   | ✓                                  |
| 7.13           | 6.5                   | The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.      | All areas / As soon as accessible   | Contractor   | TMEIA                            |                       | Y |   | N/A.                               |
| 7.13           | 6.5                   | Spoil heaps shall be covered at all times.   | All areas / Throughout construction period  | Contractor   | TMEIA                            |                       | Y |   | ✓                                  |
| 7.13           | 6.5                   | Avoid damage and disturbance to the remaining and surrounding natural habitat  | All areas / Throughout construction period  | Contractor   | TMEIA                            |                       | Y |   | ✓                                  |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference               | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing  | Implementation Agent          | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|-----------------------------|-----------------------|---|---|-------------------------------|----------------------------------|-----------------------|---|---|----------|
|                             |                       |   |   |                               |                                  | D                     | C | O |          |
| 7.13                        | 6.5                   | Placement of equipment in designated areas within the existing disturbed land   | All areas / Throughout construction period                        | Contractor                    | TMEIA                            |                       | Y |   | ✓        |
| 7.13                        | 6.5                   | Disturbed areas to be reinstated immediately after completion of the works.   | All areas / Throughout construction period                        | Contractor                    | TMEIA                            |                       | Y |   | ✓        |
| 7.13                        | 6.5                   | Construction activities should be restricted to the proposed works boundary.  | All areas / Throughout construction period                        | Contractor                    | TMEIA                            |                       | Y |   | ✓        |
| <b>LANDSCAPE AND VISUAL</b> |                       |   |   |                               |                                  |                       |   |   |          |
| 10.9                        | 7.6                   | The colour and shape of the toll control buildings, ventilation building and administration building shall adopt a design which could blend it into the vicinity elements, and the details will be developed in detailed design stage (DM2) | All areas/detailed design   | Design Consultant             | TMEIA                            | Y                     |   |   | N/A      |
| 10.9                        | 7.6                   | Aesthetic design of the viaduct, retaining wall and other structures will be developed under ACABAS submission (DM5)  | All areas/detailed design   | Design Consultant             | TMEIA                            | Y                     |   |   | N/A      |
| 10.9                        | 7.6                   | Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)   | All areas/detailed design/ during construction/ post construction | Design Consultant/ Contractor | TMEIA                            | Y                     | Y |   | ✓        |
| 10.9                        | 7.6                   | Control night-time lighting and glare by hooding all lights (CM6)   | All areas/detailed design/ during construction                    | Design Consultant/ Contractor | TMEIA                            | Y                     | Y |   | N/A      |
| 10.9                        | 7.6                   | Ensure no run-off into water body adjacent to the Project Area (CM7)  | All areas/detailed design/ during construction                    | Design Consultant/ Contractor | TMEIA                            | Y                     | Y |   | ✓        |
| 10.9                        | 7.6                   | Avoidance of excessive height and bulk of buildings and structures (CM8)  | All areas/detailed design/ during construction                    | Design Consultant/ Contractor | TMEIA                            | Y                     | Y |   | ✓        |
| 10.9                        | 7.6                   | Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities (OM5)          | All areas/detailed design/ during construction / during operation | Design Consultant/ Contractor | TMEIA                            | Y                     | Y | Y | N/A      |
| 10.9                        | 7.6                   | Avoidance of excessive height and bulk of buildings and structures (OM6)  | All areas/detailed design/ during construction / during operation | Design Consultant/ Contractor | TMEIA                            | Y                     | Y | Y | N/A      |
| <b>WASTE</b>                |                       |   |   |                               |                                  |                       |   |   |          |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing                           | Implementation Agent | Relevant Standard or Requirement  | Implementation Stages |   |   | Status * |
|---------------|-----------------------|---|--|----------------------|---|-----------------------|---|---|----------|
|               |                       |   |  |                      |   | D                     | C | O |          |
| 12.6          |                       | The Contractor shall identify a coordinator for the management of waste.  | Contract mobilisation                      | Contractor           | TMEIA   |                       | Y |   | ✓        |
| 12.6          |                       | The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established. | Contract mobilisation                      | Contractor           | TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material                                       |                       | Y |   | ✓        |
| 12.6          |                       | The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.   | Contract mobilisation                      | Contractor           | TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance. |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.  | Contract Mobilisation                      | Contractor           | TMEIA   |                       | Y |   | ✓        |
| 12.6          | 8.1                   | The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.   | All areas / throughout construction period | Contractor           | TMEIA   |                       | Y |   | ✓        |
| 12.6          | 8.1                   | The surplus surcharge should be transferred to a fill bank  | Reclamation areas / after surcharge works  | Contractor           | TMEIA   |                       | Y |   | N/A      |
| 12.6          | 8.1                   | Rock armour from the existing seawall should be reused on the new sloping seawall as far as possible  | All areas / throughout construction period | Contractor           | TMEIA   |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures   | Location/ Timing                              | Implementation Agent | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|---------------|-----------------------|---|---|----------------------|----------------------------------|-----------------------|---|---|----------|
|               |                       |   |   |                      |                                  | D                     | C | O |          |
| 12.6          | 8.1                   | The site and surroundings shall be kept tidy and litter free.   | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | <>       |
| 12.6          | 8.1                   | No waste shall be burnt on site.  | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Provisions to be made in contract documents to allow and promote the use of recycled aggregates where appropriate.  | Detailed Design                               | Design Consultant    | TMEIA                            | Y                     |   |   | ✓        |
| 12.6          | 8.1                   | The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.  | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.  | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.   | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.   | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.   | Reclamation areas / throughout dredging works | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage. | All areas / throughout construction period    | Contractor           | TMEIA                            |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing                           | Implementation Agent | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|---------------|-----------------------|--|--|----------------------|----------------------------------|-----------------------|---|---|----------|
|               |                       |  |  |                      |                                  | D                     | C | O |          |
| 12.6          | 8.1                   | The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.  | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | All falsework will be steel instead of wood.   | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:<br><br>f Suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed;<br><br>f Having a capacity of <450L unless the specifications have been approved by the EPD; and<br><br>f Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations.<br><br>f Clearly labelled and used solely for the storage of chemical wastes;<br><br>f Enclosed with at least 3 sides;<br><br>f Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;<br><br>f Adequate ventilation; | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | <>       |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing                           | Implementation Agent | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|---------------|-----------------------|--|--|----------------------|----------------------------------|-----------------------|---|---|----------|
|               |                       |  |  |                      |                                  | D                     | C | O |          |
|               |                       | f Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and<br>f Incompatible materials are adequately separated.  |  |                      |                                  |                       |   |   |          |
| 12.6          | 8.1                   | Waste oils, chemicals or solvents shall not be disposed of to drain,   | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.   | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Night soil should be regularly collected by licensed collectors.   | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | N/A      |
| 12.6          | 8.1                   | General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited. | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | <>       |
| 12.6          | 8.1                   | All waste containers shall be in a secure area on hardstanding;  | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6          | 8.1                   | Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.   | All areas / throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

*Contract No. HY/2012/08  
Tuen Mun – Chek Lap Kok Link  
Northern Connection Sub-sea Tunnel Section  
Environmental Mitigation and Enhancement Measure Implementation Schedule*

| EIA Reference            | EM&A Manual Reference | Environmental Protection Measures  | Location/ Timing                             | Implementation Agent | Relevant Standard or Requirement | Implementation Stages |   |   | Status * |
|--------------------------|-----------------------|--|--|----------------------|----------------------------------|-----------------------|---|---|----------|
|                          |                       |  |  |                      |                                  | D                     | C | O |          |
| 12.6                     | 8.1                   | Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site. | Site Offices/ throughout construction period | Contractor           | TMEIA                            |                       | Y |   | ✓        |
| 12.6                     | Section 8             | EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.   | All areas / throughout construction period   | Contractor           | EM&A Manual                      |                       | Y |   | ✓        |
| <b>CULTURAL HERITAGE</b> |                       |  |  |                      |                                  |                       |   |   |          |
| 11.8                     | Section 9             | EM&A in the form of audit of the mitigation measures   | All areas / throughout construction period   | Highways Department  | EIAO-TM                          |                       | Y |   | N/A      |

**\* Remarks:**

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Contractor
- Δ Deficiency of Mitigation Measures but rectified by Contractor
- N/A Not Applicable in Reporting Period

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government