

Annex A Implementation Schedule for South Soko

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
1. Air Quality Measures								
<i>Construction Phase</i>								
S 4.7.1	EM&A in the form of site audit of dust generating activities.	Land Site / During Construction	ET		✓			Environmental Impact Assessment Ordinance
S.4.7.1	Dust control measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> will be implemented during the construction of the LNG terminal to control the potential fugitive dust emissions.	Land Site / During Construction	Contractor(s)		✓			Air Pollution Control (Construction Dust) Regulation
S.4.7.1	Good site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	Land Site / During Construction	Contractor(s)		✓			-
S 4.7.1	For dust control measures for the operation of a concrete batching plant, mitigation measures specified in the <i>Guidance Note of Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2</i> shall be implemented.	Land Site / During Construction	Contractor(s)		✓			Guidance Note of Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2
S 4.7.1	The dust control measures for the operation of the rock crushing plant recommended in the <i>Guidance Note of Best Practicable Means for Mineral Works (Rock Crushing Plant) BPM 11/1</i> will be implemented during the operation of the mobile rock crusher.	Land Site/During Construction	Contractor(s)		✓			Guidance Note of Best Practicable Means for Mineral Works (Rock Crushing Plant) BPM 11/1
<i>Operational Phase</i>								

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S.4.7.2	The air control measures for the operation of the gas turbine generator recommended in the <i>Guidance Note of Best Practicable Means for Electricity Works (Coal-fired Plant, Gas-fired Gas Turbine and Oil-fired Gas Turbine (Peak Lopping Plant))</i> (BPM 7/1) will be implemented.	During operation of the gas turbine generators	CAPCO	✓		✓		Guidance Note of Best Practicable Means for Electricity Works (Coal-fired Plant, Gas-fired Gas Turbine and Oil-fired Gas Turbine (Peak Lopping Plant)) (BPM 7/1)
2. Noise								
No mitigation measures were specified in the EIA report as no noise sensitive receivers are located in the Project Area.								
3. Water Quality								
S.6.7.6	No ballast water from the LNG carrier will be discharged in Hong Kong waters.	Hong Kong Waters / During Operation	Contractor(s)			✓		-
S 6.8.1 and Annex 6A EM&A Manual	Dredging/Jetting plants will be required to comply with the rates modelled in the EIA report (<i>S6 Annex 6A</i>) for the various activities assessed and a pilot test will be conducted to verify their performance as well as the effectiveness of silt curtains prior to commencement of marine construction works. The details of the test will be agreed with EPD and AFCD prior to start of the test.	Dredged/Jetting areas / During Construction	Contractor(s) and ET		✓			-
S 6.8.1	No overflow is permitted from the trailing suction hopper dredger but the Lean Mixture Overboard (LMOB) system will be in operation at the beginning and end of the dredging cycle when the drag head is being lowered and raised.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	Dredged marine mud will be disposed of in a gazetted marine disposal area in accordance with the <i>Dumping at Sea Ordinance (DASO)</i> permit conditions.	Dredged areas/ During Construction	Contractor(s)		✓			Dumping at Sea Ordinance
S 6.8.1	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Dredged areas/ During Construction	Contractor(s)		✓			Dumping at Sea Ordinance

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S 6.8.1	Barges will be filled to a level, which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Dredged areas/ During Construction	Contractor(s)		✓			Dumping at Sea Ordinance
S 6.8.1	The contractor(s) will ensure that the works cause no visible foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the dredging site.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	If installed, degassing systems will be used to avoid irregular cavitations within the pump.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	Monitoring and automation systems will be used to improve the crew's information regarding the various dredging parameters to improve dredging accuracy and efficiency.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	Control and monitoring systems will be used to alert the crew to leaks or any other potential risks such as chemicals and oils.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	When the dredged material has been unloaded at the disposal areas, any material that has accumulated on the deck or other exposed parts of the vessel will be removed and placed in the hold or a hopper. Under no circumstances will decks be washed clean in a way that permits material to be released overboard.	Dredged areas/ During Construction	Contractor(s)		✓			Dumping at Sea Ordinance
S 6.8.1	Dredgers will maintain adequate clearance between vessels and the seabed at all states of the tide and reduce operations speed to ensure that excessive turbidity is not generated by turbulence from vessel movement or propeller wash.	Dredged areas/ During Construction	Contractor(s)		✓			-
S 6.8.1	Deployment of silt curtains (stand type or cage type) at various locations during the dredging/jetting works for the project. Please refer to Annex A1 for details.	Dredging/Jetting at Various Locations	Contractor(s)		✓			-

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S 6.8.1 S 6.8.2	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes. The forward speed of the jetting machine should be limited to a maximum of 21 m/hr along the zones at West of South Soko, the Urmston Road crossing near to the Lung Kwu Chau and Sha Chau Marine Park and West of Black Point.	Dredged areas/ During Construction Jetting/ During Construction	Contractor(s)		✓			-
S 6.8.3	Prior to the commencement of the site formation earthworks, surface water flowing into the site from uphill will be intercepted through perimeter channels at site boundaries and safely discharged from the site via adequately designed sand/silt removal facilities such as sand traps.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Channels, earth bunds or sand bag barriers will be provided on site to direct stormwater to silt removal facilities. The design of silt removal facilities will make reference to the guidelines in <i>Appendix A1 of ProPECC PN 1/94</i> .	Land Site / During Construction	Contractor(s)		✓			ProPECC PN 1/94
S 6.8.3	The surface runoff or extracted ground water contaminated by silt and suspended solids will be collected by the on-site drainage system and discharged into storm drains after the removal of silt in silt removal facilities.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Unprotected partially formed soil slopes will be temporarily protected by plastic sheeting, suitably secured against the wind, at the end of each working day.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.2	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Appropriate surface drainage will be designed and provided where necessary. All slope drainage will be designed to the Geotechnical Manual for Slopes published by the Geotechnical Engineering Office of The Civil Engineering and Development Department.	Land Site / During Construction	Contractor(s)		✓			-

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S 6.8.3	Temporary trafficked areas and access roads formed during construction will be protected by coarse stone ballast or equivalent. These measures shall prevent soil erosion caused by rainstorms.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Drainage systems, erosion control and silt removal facilities will be regularly inspected and maintained to ensure proper and efficient operation particularly following rainstorms. Deposited silt and grit will be removed regularly.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Measures will be taken to reduce the ingress of site drainage into excavations. If trenches have to be excavated during the wet season, they will be excavated and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations will be discharged into storm drains via silt removal facilities.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50 m ³ will have measures in place to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Manholes (including newly constructed ones) will be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in <i>Appendix A2 of ProPECC PN 1/94</i> .	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge will be adequately designed for the controlled release of storm flows.	Land Site / During Construction	Contractor(s)		✓			-

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S 6.8.3	The temporary diverted drainage will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land Site / During Construction	Contractor(s)		✓			-
S 6.8.3	Water used in ground boring and drilling for preparation of blasting or rock / soil slope stabilization works will be re-circulated as far as practicable after sedimentation. When there is a need for final disposal, the wastewater will be discharged into storm drains via silt removal facilities.	Boring & Drilling/ During Construction	Contractor(s)		✓			-
S 6.8.3	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, will undergo large object removal by installing bar traps at the drain inlets. It is not considered necessary to carry out silt removal due to the small quantities of water involved. Similarly, pH adjustment of such water is not considered necessary due to the small quantities and the fact that the water is only likely to be mildly alkaline.	Building / During Construction	Contractor(s)		✓			-
S 6.8.3	During the early stages of work, portable chemical toilets will be used and the effluent will be shipped offsite until the temporary sewage treatment work (STW) plant is operational.	All facilities / During Construction	Contractor(s)		✓			-

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S 6.8.3	The storage areas of oil, fuel and chemicals will be surrounded by bunds or other containment device to prevent spilled oil, fuel and chemicals from reaching the receiving waters.	All facilities / During Construction	Contractor(s)		✓			-
S 6.8.3	The Contractors will prepare guidelines and procedures for immediate clean-up actions following any spillages of oil, fuel or chemicals.	All facilities / During Construction	Contractor(s)		✓			-
S 6.8.3	Surface run-off from bunded areas will pass through oil/water separators prior to discharge to the stormwater system.	All facilities / During Construction	Contractor(s)		✓			-
S 6.8.3	Wastewater generated from the washing down of mixer trucks and drum mixers and similar equipment should be recycled wherever practicable. To prevent pollution from wastewater overflow, the pump sump of any wastewater recycling system will be provided with a standby pump of adequate capacity.	Concrete Batching Plant/ During Construction	Contractor(s)		✓			-
S 6.8.3	Under normal circumstances, surplus wastewater from the concrete batching will be treated in silt removal and pH adjustment facilities before it is discharged into foul sewers. Discharge of this wastewater into storm drains will require more elaborate treatment and regular testing checks. Surface run-off will be separated from the concrete batching plant as to the extent practical and diverted to the stormwater drainage system. Surface run-off contaminated by materials in the concrete batching plant will be adequately treated before disposal into stormwater drains.	Concrete Batching Plant/ During Construction	Contractor(s)		✓			-
S 6.9.3	Fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas.	Chemicals Storage and Handling/ During Operation	Contractor(s)			✓		-
S 6.9.4	Sewage from toilets, kitchens and similar facilities should be discharged into a foul sewer. Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewers via grease traps. The foul sewer will then lead to the sewage treatment plant prior to discharge to the ocean.	Wastewater / During Operation	Contractor(s)			✓		-

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S 6.9.4	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should, as far as possible, be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a oil / water separator.	Wastewater / During Operation	Contractor(s)			✓		-
S 6.9.4	Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal, in accordance with the <i>Waste Disposal Ordinance</i> .	Wastewater / During Operation	Contractor(s)			✓		Waste Disposal Ordinance
S 6.10.1	Water quality monitoring shall be undertaken for suspended solids, salinity, turbidity, and dissolved oxygen. If exceedances occur due to dredging and jetting activities, event and action plan should be adopted.	Designated monitoring stations as defined in EM&A Manual <i>Section 6</i> Construction period for dredging/jetting works	ET		✓			Environmental Impact Assessment Ordinance
4. Ecology								
Marine Ecology								
S 15.7	Removal of the breakwater in Tung Wan and associated reclamation.	Design	CAPCO	✓				-
S 9.9.2	Vessel operators working on the Project construction or operation will be given a briefing, alerting them to the possible presence of dolphins and porpoises in the area, and guidelines for safe vessel operations in the presence of cetaceans. If high speed vessels are used, they will be required to slow to 10 knots when passing through a high density dolphin area (west Lantau, Sha Chau and Lung Kwu Chau, north of South Soko).	During Construction / Marine works	Contractor(s) and ET		✓			-
S 9.9.2	The vessel operators will be required to use predefined and regular routes, as these will become known to dolphins and porpoises using these waters.	During Construction / Marine works	Contractor(s)		✓			-
S 9.9.1	The vessel operators will be required to control and manage all effluent from vessels.	During Construction / Marine works	Contractor(s)		✓			-

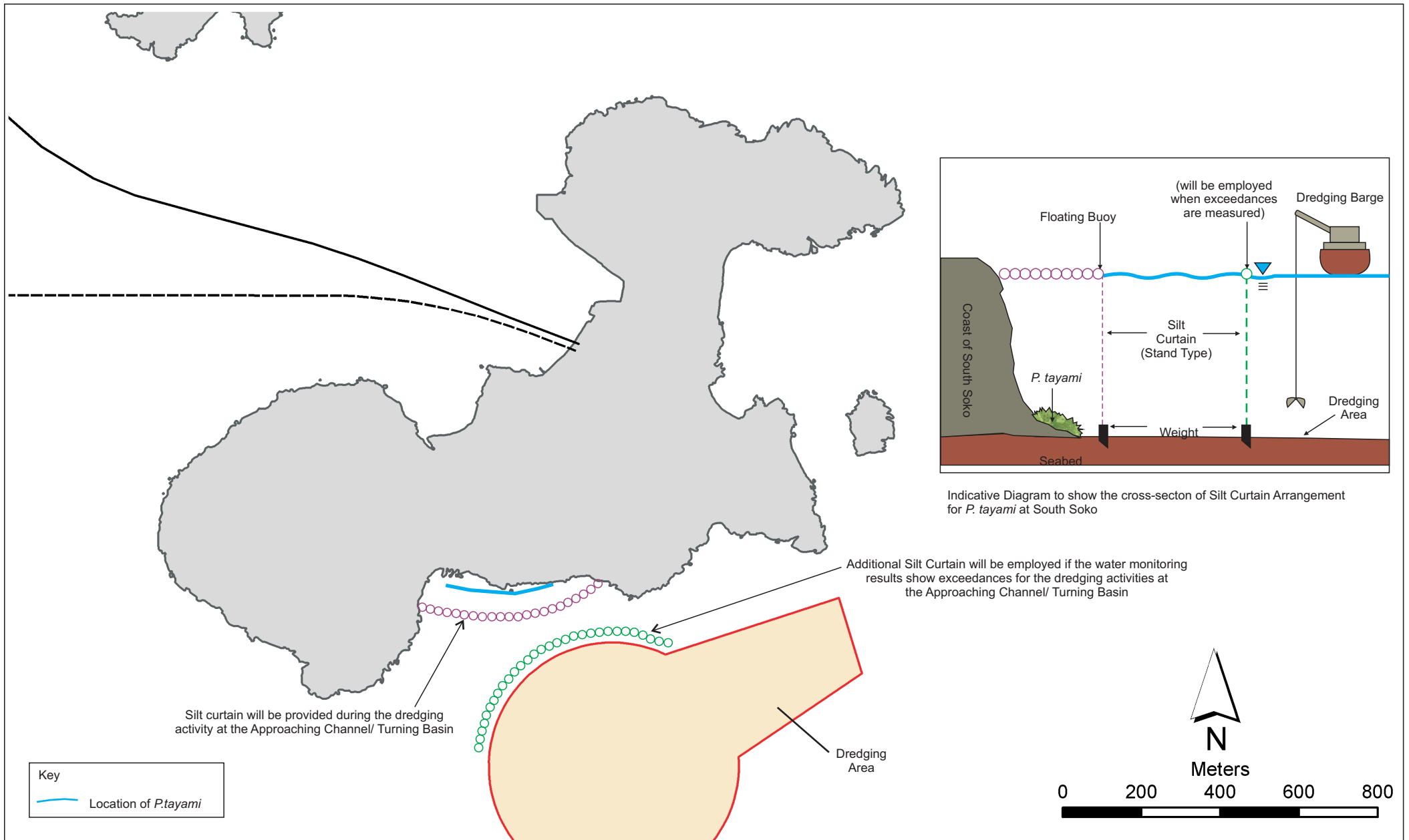


Figure A1.1

Indicative Arrangement of Silt Curtain (Stand Type) for *P. tayami*

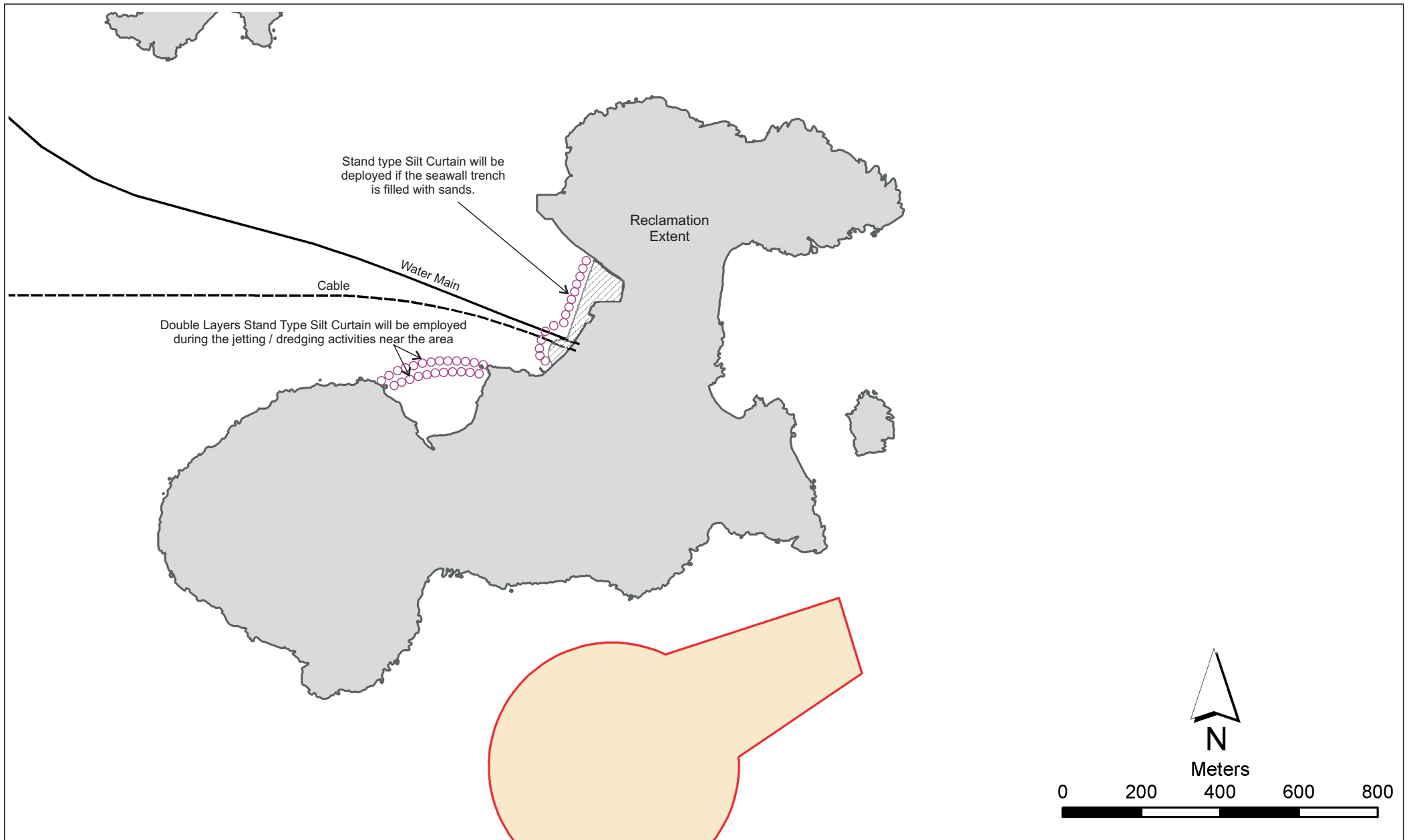
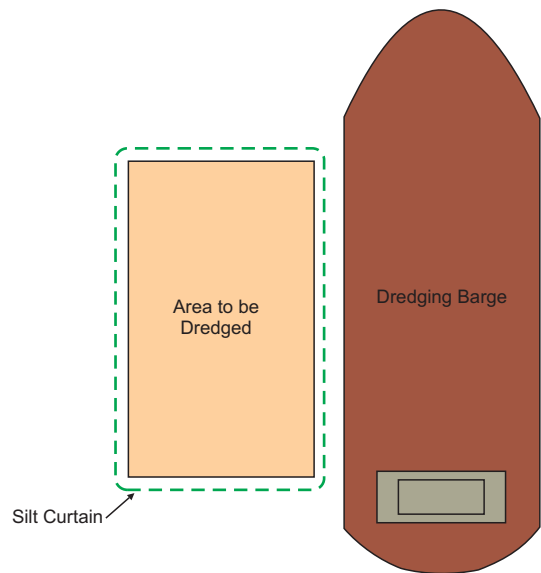
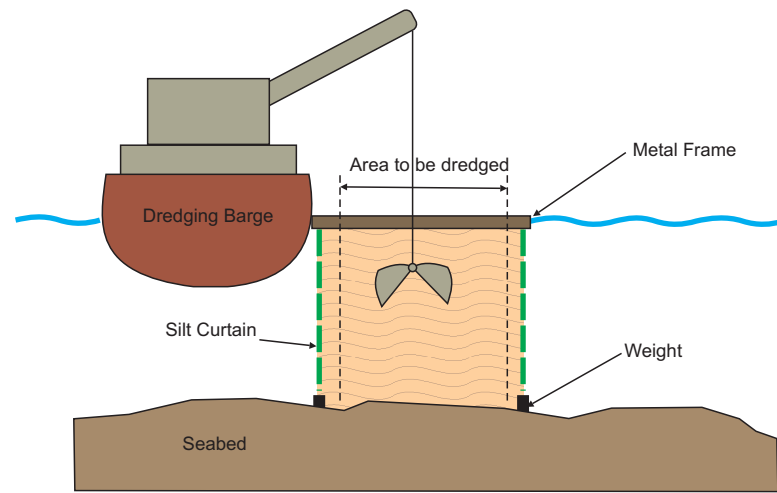


Figure A1.2 Indicative Arrangement of Silt Curtain (Stand Type) for Jetting / Dredging and Sanfilling Activities near South Soko



(a) Cage Type Silt Curtain Arrangement for Grab Dredging



(b) Cross-section of Cage Type Silt Curtain Arrangement

Figure A1.4

Indicative Arrangement of Cage Type / Metal Frame Type Silt Curtain

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S 9.9.2	A policy of no dumping of rubbish, food, oil, or chemicals will be strictly enforced. This will also be covered in the contractor briefings.	During Construction / Marine works	Contractor(s)		✓			-
S 9.10	No dredging works will be conducted during the finless porpoises calving period between October and January.	During dredging of the Approach Channel and Turning Circle	Contractor(s)		✓			-
S 9.10	No piling works will be conducted during the finless porpoises calving period between October and January.	During piling of the Jetty	Contractor(s)		✓			-
S 3.3.3	Standard practice in Hong Kong also includes using a bubble curtain/jacket to aid in attenuating underwater sound propagation. Such practice uses air bubbles to reduce noise by reflecting, scattering and absorbing the sound (in the form of underwater pressure pulses) produced by the piling works. Details will be agreed in advance of construction works with EPD.	During Percussive Piling works for Jetty	Contractor(s) and ET		✓			-
S 9.10	To reduce underwater sound levels associated with percussive piling, the following steps will be taken: - Quieter hydraulic hammers should be used instead of the noisier diesel hammers; - Instigate 'ramping-up' of the piling hammer to provide an advance warning system to marine mammals in the vicinity - Acoustic decoupling of noisy equipment on work barges should be undertaken.	During Percussive Piling works for Jetty	Contractor(s)		✓			-

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S 9.10	An exclusion zone of 500 m radius will be scanned around the work area for at least 30 minutes prior to the start of percussive piling. If dolphins or porpoises are observed in the exclusion zone, piling will be delayed until they have left the area. No marine percussive piling works will be conducted during the finless porpoises peak calving period between October and January. Marine percussive piling works to be restricted to a daily maximum of 12 hours within daylight operations	During Percussive Piling works for Jetty	ET & Contractor(s)		✓			-
EM&A Manual	A pilot test of the bubble jacket will be conducted during percussive piling of the 1 st marine pile. Details of the test will be agreed with EPD and AFCD prior to commencement of the test.	During Percussive Piling works for Jetty	ET & Contractor(s)		✓			-
S 9.10	No dredging works for the submarine gas pipeline installation works along the west Lantau pipeline route as well as the pipeline route along the border of the Sha Chau Lung Kwu Chau Marine Park will take place during the peak calving season of the Indo-Pacific Humpback Dolphin, ie March through August.	During Dredging for the Gas Pipeline Installation at West and Northwest Lantau Waters, along the Sha Chau/Lung Kwu Chau Marine Park Boundary	ET & Contractor(s)		✓			-

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S 9.10	<p>A marine mammal exclusion zone within a radius of 250 m from the pipeline dredging vessel will be implemented during the construction phase. An exclusion zone of 250 m radius will be scanned around the dredger for at least 30 minutes prior to the start of dredging. If cetaceans are observed in the exclusion zone for a continuous period of 30 minutes, dredging will be delayed until they have left the area. As per previous practice in Hong Kong, should cetaceans move into the dredging area during dredging, it is considered that cetaceans will have acclimatised themselves to the works therefore cessation of dredging is not required.</p> <p>Except the pipeline section along Urmston Road (waters of busy marine traffic), dredging works will be restricted to a daily maximum of 12 hours with daylight operations. Because of marine traffic constraints, grab dredgers may need to operate 24 hours on the pipeline section which crosses the Urmston Road channel off Black Point enabling completion in the shortest possible time.</p>	During Dredging for the Gas Pipeline Installation / Approaching Channel/Turning Basin	ET		✓			-

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S 9.13.3, Part 4 of EIA	Long-term monitoring will be conducted for the distribution and abundance of dolphins and porpoises during the construction and post-construction phase of the project. A suitable pre-construction period of dolphin monitoring will also be conducted. The protocols for this will be agreed with AFCD in advance and conducted as part of the Enhancement Plan	During marine construction activities / Post-construction and Pre-construction	CAPCO		✓			-
EM&A Manual	Dive monitoring will be conducted in accordance with the details specified in the EM&A Manual	<i>Dive Monitoring for False Pillow Coral / During Dredging</i>	ET		✓	✓		-
EM&A Manual	Pre-and Post-construction surveys of Amphioxus will be conducted within Tung Wan to confirm the presence/absence of this species in the benthic sediments.	<i>Pre and Post construction surveys of Amphioxus</i>	ET	✓				-
S 10.8	Geophysical survey will be conducted during the post-construction of pipeline works to confirm the seabed would be reinstated to its original	Post-construction after pipeline works	ET		✓	✓		-

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Terrestrial Ecology								
S 8.7.2	A detailed vegetation survey on the Golden Eulophia would be conducted within the impacted shrubland and Project Area by a suitably qualified botanist/ ecologist to identify and record the affected individuals prior to the commencement of site clearance works. Feasibility and suitability of transplanting the affected plant species would be carefully studied and suitable receptor sites would be identified. Detailed transplantation proposal providing information of transplantation methodology, recipient site, implementation programme, water requirement, post-transplanting monitoring and personal involved shall be submitted to and approved by EPD and AFCD. Transplantation would be undertaken and supervised by a suitably qualified botanist/ horticulturist. After transplantation, monitoring will be undertaken to check the performance and health conditions of the transplanted individuals on weekly basis in the first month after transplantation and monthly basis for additional eleven months. Remedial actions will be discussed with AFCD in the event of unsuccessful transplantation.	Land site / Pre-Construction	ET	✓				-
			Contractor(s)					-
			Contractor(s)					-
S 8.7.2	Where possible, structures will utilise appropriate design to complement the surrounding landscape. Materials and finishes will be considered during detailed design. The major lighting sources will be pointed inward and downwards where practicable to reduce light spill	Land site / Pre-Construction	Contractor(s)	✓				-
S 8.7.2	Erect fences along the boundary of the works area before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas.	Land site / Pre-Construction	Contractor(s)	✓				-
S 8.7.2	Regularly check the work site boundaries to ensure that they are not breached and that damage does not occur to surrounding areas.	Land site / During Construction	Contractor(s)		✓			-

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S 8.7.2	Reclaim temporarily affected areas, particularly the secondary woodland and shrubland habitats at South Soko, and shrubland at Shek Pik, after completion of construction works, through on-site tree/shrub planting. The tree shrub species will be chosen with reference to those in the surrounding area and the food plant of butterfly species of conservation interest.	Land site / Post-Construction	Contractor(s)			✓		-
S 8.7.3	Compensatory tree and shrub planting will be provided at the locations detailed in the EIA report, for the loss of secondary woodland (approximately 0.2 ha), shrubland (1.9 ha), grassland (1.3 ha) and revegetate the temporary lost habitat including the areas of the temporary construction stores and spoil storage area. The selection of planting species shall be made with reference to the species identified in <i>Annex 8</i> and be native to Hong Kong or the South China region, and will include food plants of the butterfly species of conservation interest, to provide additional measures for the butterflies.	Land site / Post-Construction	Contractor(s)			✓		-
5. Landscape and Visual								
S 11.11	Areas compacted during the construction phase that are not required during the operation phase, are to be cultivated to a depth of up to 300mm in accordance with the future Landscape Specification.	Land site / During Construction	Contractor(s)		✓			-
S 11.11	During the design phase, a soil stabilisation and embankment planting strategy will be developed to ensure that land affected by slope excavation can be replanted. Soil preparation and the selection and provision of suitable growing medium is to be completed in accordance with the relevant best practice guidelines.	Land site / Pre-Construction (Detail Design)	Contractor(s)	✓				-

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S 11.11	Planting of trees and shrubs is to be carried out in accordance with the Landscape Details and the relevant best practice guidelines. Plant species and densities are to be provided in future detailed design documents and are to be selected so as to achieve a finished landscape that matches the surrounding equivalent landscape	Land site / Post-Construction	Contractor(s)			✓		-
EM&A Manual	Post-construction phase audit shall be conducted at the last 12 months of the landscaping proposal during establishment work	Land site / Post-Construction	ET			✓		-
S 11.11	Areas of cut to be stabilised for operational requirements. Materials and finishes of stabilisation to be selected to complement the surrounding landscape where this is technically feasible. This includes the addition of pigments and aggregates in the finished slope that complement the existing geology of the area.	Land site / During Construction	Contractor(s)		✓			-
S 11.11	It is anticipated that sand will naturally form at the base of the new sea walls creating a beach area similar to the existing beach. This process is dependent on natural forces, but is likely to occur within ten years.	Land site / During Construction	Contractor(s)		✓			-
S 11.11	Where technically feasible and practicable, new plantings are to be installed as early as possible during the construction works	Land site / During Construction	Contractor(s)		✓			-
S 11.11	Where possible site hoardings to be erected and coloured to complement the surrounding areas. Colours such as green and light brown are recommended.	Land site / During Construction	Contractor(s)		✓			-
S 11.11	The reclamation areas shall utilise natural rocks for the engineered sea-walls.	Land site / During Construction	Contractor(s)		✓			-

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S 11.17	Where possible, built structures should utilise appropriate designs to complement the surrounding landscape. Materials and finishes will also be considered during detailed design.	Land site (VMM1) / Pre-Construction (Detail Design)	Contractor(s)	✓				-
S 11.17	Colours for the terminal can be used to complement the surrounding area. Lighter colours such as shades of light grey and light brown may be utilised where technically feasible to reduce the visibility of the terminal.	Land site (VMM2) / Pre-Construction (Detail Design)	Contractor(s)	✓				-
S 11.17	In addition to the landscape mitigation plantings proposed in the EIA report, appropriate new plantings will be installed where possible, to help integrate the new structures into the surrounding landscape.	Land site (Vmm3) / Pre-Construction (Detail Design)	Contractor(s)	✓				-
S 11.18	Security lighting of the site boundary - These will generally be spot lights mounted on the external fencing and will have the beams directed towards the ground.	Land site / During & Post-Construction	Contractor(s)		✓	✓		-
S 11.18	General access lighting - This will provide safe access and operational lighting conditions around the site. Baffles will be fitted where possible to reducing upward light spill	Land site / Post-Construction	Contractor(s)			✓		-
6. Cultural Heritage								
S 12.7	A photographic and cartographic record will be prepared for impacted standing heritage sites, in accordance with the AMO's requirements.	Tai A Chau Tin Hau Temple, 21 graves and an associated tablet and 7 earthshrines/Prior to relocation of impacted standing heritage sites at South Soko	Contracted Cultural Heritage Specialist	✓				Antiquities and Monuments Ordinance
S 12.7	An archaeological survey will be undertaken to confirm if there is any archaeological impact to the suitable relocation site for the Tai A Chau Tin Hau Temple. If archaeological deposits are identified, appropriate measures will be implemented prior to relocation work commence.	Tai A Chau Tin Hau Temple relocation site/Prior to relocation work	Contracted and Licenced Archaeologist	✓				Antiquities and Monuments Ordinance

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 12.7	Rescue excavations at the impacted archaeological deposits (i.e., Sites A,B, C, D and E) to preserve the archaeological deposits by record, following the Archaeological Action Plan (a separate document detailing the rescue excavation plan, archaeological watching brief plan and contingency plan to be submitted and agreed with AMO by the project proponent prior to licence application by a qualified archaeologist.	Sites B to E with area coverage of 800 m ² , 1,600 m ² , 100 m ² and 450 m ² respectively and impacted area of Site A (maximum area of 900m ²)/Prior to construction commencement at South Soko	Contracted Archaeological Rescue Excavation Team led by a Licenced Archaeologist.	✓				Antiquities and Monuments Ordinance
S 12.7	An archaeological watching brief (archaeological monitoring) will be undertaken following the separate <i>Archaeological Action Plan</i> to be agreed with AMO by the project proponent as mentioned above.	Buffer areas of Sites B to E and impacted buffer area of Site A/ During Construction at South Soko	Contracted and Licenced Archaeologist		✓			Antiquities and Monuments Ordinance
7. Waste Management								
S 7.6	The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation / During Construction (C)	Contractor(s)		✓			-
S 7.6	The waste coordinator shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed.	Contract mobilisation / During Construction (C)	Contractor(s)		✓			-

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation / During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes WBTC No 5/99, Trip-ticket System for Disposal of Construction and Demolition Material Water Pollution Control Ordinance
S 7.6	No waste shall be burnt on site. Wastes shall be collected by licensed waste haulier and be disposed of at licence sites.	During Construction	Contractor(s)		✓			Air Pollution Control Ordinance
S 7.5 & 7.6	Excavated material shall be used on site to the extent practical. It is intended that the excavated rock be taken to a quarry in China for processing. It is intended that the processed rock will be subsequently reused within the project for the submarine gas pipeline bedding works or within the reclamation. Otherwise, excavated rocks shall be reused in other concurrent projects in Hong Kong to the extent practical. Excavated rocks shall be delivered to the Public Fill in Tuen Mun Area 38 at the last resort.	Land Site / During Construction (C)	Contractor(s)		✓			WBTC No. 2/93, Public Dumps ETWBTC No. 34/2002, Management of Dredged/Excavated Sediment; Environment, Transport and Works Bureau, Hong Kong SAR Government
S 7.6	Material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material.	Land Site / During Construction (C)	Contractor(s)		✓			WBTC 32/92, The Use of Tropical Hard Wood on Construction Site

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	Surplus material generated shall be sorted on site into construction and demolition (C&D) waste and the public fill fraction. A sorting facility shall be set up on the site.	Land Site / During Construction (C)	Contractor(s)		✓			-
S 7.6	The site and surroundings shall be kept tidy and litter free. Waste storage area shall be properly cleaned and shall not cause windblown litter and dust nuisance.	All areas / During Construction (C)	Contractor(s)		✓			WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness. Works Bureau, Hong Kong SAR Government
S 7.6	Stockpiled material shall avoid vegetated areas.	Land Site / During Construction (C)	Contractor(s)		✓			
S 7.6	Stockpiles shall be covered by tarpaulins and/or watered as needed.	Land Site / During Construction, particularly dry season (C)	Contractor(s)		✓			Air Pollution Control (Construction Dust) Regulation
S 7.6	Storage of material on site should be kept to a minimum. Construction materials shall be planed and stocked carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas / During Construction (C)	Contractor(s)		✓			-
S 7.6	Use of reusable non-timber formwork to reduce the amount of C&D materials	All areas / During Construction (C)	Contractor(s)		✓			Works Branch Technical Circular (WBTC) No. 32/92, The Use of Tropical Hard Wood on Construction Site
S 7.6	Wheel washing facilities shall be used by all trucks leaving the site to prevent the transfer of mud onto public roads.	Site entrances and exits / During Construction (C)	Contractor(s)		✓			Air Pollution Control (Construction Dust) Regulation

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	Suitable chemical waste storage areas should be formed at the works site for temporary storage pending collection. Chemical wastes shall be separated for special handling and shall be disposed at appropriate treatment at the Chemical Waste Treatment Centre.	Land Site / During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S 7.6	Any unused chemicals and those with remaining functional capacity shall be recycled to the extent practical.	Land Site / During Construction (C)	Contractor(s)		✓			-
S 7.6	A licensed contractor shall be employed to collect chemical waste for delivery to a licensed treatment facility.	Chemical waste treatment facility at Tsing Yi/ During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S 7.6	Temporary storage areas for general refuse should be enclosed or contained to avoid environmental impacts.	All areas / During Construction (C)	Contractor(s)		✓			WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.
S 7.6	Sufficient dustbins should be provided for storage of waste.	All areas / During Construction (C)	Contractor(s)		✓			WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness. Works Bureau, Hong Kong SAR Government

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	General refuse should be timely cleared and should be disposed of to the nearest licensed facility.	All areas / During Construction (C)	Contractor(s)		✓			WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.
S 7.5 & 7.6	Nightsoil arising from chemical toilets and chemical treatment facilities should be transported by a licensed contractor to government Sewage Treatment Works for disposal. The dewatered sludge from the toilets shall be stored in enclosed containers and transported by barge to the WENT landfill for disposal.	Land Site / During Construction (C)	Contractor(s)		✓			-
S 7.6	Waste oils, chemicals or solvents shall not be disposed of to drain. Drainage systems, sumps and oil interceptors shall be cleaned and maintained regularly.	All facilities / During Construction (C)	Contractor(s)		✓			-
S 7.6	Good site practice shall be implemented to avoid waste generation and promote waste minimisation.	All facilities / During Construction (C)	Contractor(s)		✓			-
S 7.6	Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable. Different types of waste shall be segregated and stored of in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal. Recycling bins will be provided at strategic locations to facilitate recovery of aluminium can and waste paper from the site.	Land Site / During Construction (C)	Contractor(s)		✓			ETWBTC No. 33/2002, Management of Construction and Demolition Material Including Rock
S 7.6	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance. Marine mud shall be assessed in accordance with the ETWBTC No. 34/2002 prior to the dredging to identify the suitable disposal ground.	Dredging / During Construction (C)	Contractor(s)		✓			Dumping at Sea Ordinance
S 7.6	Waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water.	All facilities / During Construction (C)	Contractor(s)		✓			WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	Waste containers shall be in a secure area on hardstanding.	All facilities / During Construction (C)	Contractor(s)		✓			WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.
S 7.6	Proper storage and site practices shall be adopted to reduce the potential for damage or contamination of construction materials.	All facilities / During Construction (C)	Contractor(s)		✓			-
S 7.6	Emergency equipment to deal with any spillage or fire shall be kept on site.	All facilities / During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S 7.6	Containers used for storage of chemical waste shall be: - maintained in good condition and clearly labelled in both English and Chinese; - suitable for the substance they are holding, resistant to corrosion, and securely closed; and - capacity of less than 450 L unless the specifications have been approved by the EPD.	All facilities / During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	Storage areas for chemical waste shall be: - clearly labelled and used solely for the storage of chemical waste; - enclosed on at least 3 sides; - have adequate ventilation; - arranged so that incompatible materials are appropriately separated; - have impermeable floor and bunding sufficient to fully retain any spillage or - leakages; ventilated; and - covered to prevent rainfall from entering.	All facilities / During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S 7.6	Leaking containers shall be contained and removed from site as soon as is reasonably practicable.	All facilities / During Construction (C)	Contractor(s)		✓			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S 7.6	Training shall be provided to site personnel in proper waste management and chemical handling procedures, the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	All facilities / During Construction (C)	Contractor(s)		✓			-

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 7.6	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All facilities / During Construction (C)	ET		✓			-
S 7.6	Nomination of approved personnel to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility of the wastes generated at the site.	All facilities / During Construction (C)	Contractor(s)		✓			-
S 7.6	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All facilities / During Construction (C)	Contractor(s)		✓			-
S 7.6	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. A recording system for the amount of wastes generated/recycled and disposal sites.	All facilities / During Construction (C)	Contractor(s)		✓			-
8. Land Contamination								
S 14.4	Fuel, lubricating oil, chemical and chemical waste storage areas present on the site shall be provided with secondary containment.	Land Site / During Operation (O)	CAPCO			✓		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S 14.4	Individual drainage from lines, pumps, compressors, vessels, heat exchangers and instruments shall be connected to an on-site Coalescing Plate Interceptor (CPI) type oil water separator.	Land Site / During Operation (O)	CAPCO			✓		-
S 14.4	Stationary equipment that could release hydrocarbons and that are not located in containment areas will be installed on skids containing drain pans. An open drain system will collect spillage/leakage/contaminated storm water from these areas and will connect to the oil water separator.	Land Site / During Operation (O)	CAPCO			✓		-

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
				Des	C	O	Dec	
S 14.4	Spill containment and clean up equipment shall be provided in areas where oils, chemicals and chemical wastes are handled and stored.	Land Site / During Operation (O)	CAPCO			✓		-
S 14.4	Training shall be provided to relevant personnel on hazardous materials handling and spill control and clean up.	Land Site / During Operation (O)	CAPCO			✓		-
S 14.4	Contaminated materials and dispensed spill control and clean-up equipment shall be collected and disposed of in accordance with the WDO.	Land Site / During Operation (O)	CAPCO			✓		Waste Disposal Ordinance

Annex A1 Summary of Mitigation Measures during the Dredging and Jetting Activities for LNG Project

Marine Work Location (Zone)	Marine Work and Plant Type	No. of Plants	Proposed Mitigation Measures
Western Berth, South Soko	Dredging by Closed Grab Dredger	1	Double-Layer silt curtain will be provided at Pak Tso Wan (see <i>Figure A.1.2</i>) during the dredging activities at western berth. Cage type silt curtain will be installed next to the grab dredger.
Sai Wan Western Berth, South Soko	Sandfilling by Pelican Barge	1	Seawall (completely constructed) in place prior to the reclamation works. In case the seawall trench is filled with sand instead of rock, a silt curtain (stand type) enclosing the sandfilling area, see <i>Figure A1.2</i> will be installed.
Tung Wan Eastern Berth, South	Dredging by Closed Grab Dredger	1	Although no predicted WQO exceedances, cage type silt curtain will be installed next to the grab dredger to minimise the sediment dispersion.
Approach Channel and Turning Basin	Dredging by Closed Grab Dredger or TSHD	3 grabs or 2 grabs + 1 TSHD (please refer to EIA S6 for further details)	Silt curtain (cage type, see <i>Figure A.1.4</i>) will be used during grab dredging activities at AC/TB. Silt curtain (stand type) will be provided at South of South Soko to protect the False Pillow Coral (see <i>Figure A1.1</i>). Should exceedance occur during water quality monitoring, additional silt curtain (stand type) (see <i>Figure A1.1</i>) will be installed at the edge of the channel dredging area.
Submarine Water Main (at South Soko shore approach)	Dredging by Closed Grab Dredger	1	Double-layer silt curtain will be provided at Pak Tso Wan (see <i>Figure A.1.2</i>) during the dredging activities at western berth. Cage type silt curtain will be installed next to the grab dredger.
Submarine Water Main (at Shek Pik shore approach)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances.
Submarine Water Main (waterway crossing sand borrow area and marine navigation channel)	Dredging by Closed Grab Grab Dredger	1	Not required due to no predicted WQO exceedances.
Submarine Water Main (near South Soko)	Jetting by Jetting machine	1	Double-layer silt curtain (<i>Figure A1.2</i>) will be provided at Pak Tso Wan during the jetting activities near Pak Tso Wan, South Soko
Submarine Water Main (near Shek Pik)	Jetting by Jetting machine	1	Not required due to no predicted WQO exceedances.

Marine Work Location (Zone)	Marine Work and Plant Type	No. of Plants	Proposed Mitigation Measures
Submarine Cable Circuit	Jetting by Jetting machine	1	Double-Layer silt curtain (<i>Figure A1.2</i>) will be provided at Pak Tso Wan during the jetting activities near Pak Tso Wan, South Soko
Submarine Intake	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances.
Cooled Water Outfall	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances.
Gas Receiving Station at Black Point	Dredging by Closed Grab Dredger	2	Not required due to no predicted WQO exceedances.
Gas Receiving Station at Black Point	Sandfilling by Pelican Barge	1	Not required due to no predicted WQO exceedances.
Gas Pipeline (KP 0 - 1)	Dredging by Closed Grab Grab Dredger	1	Double-Layer silt curtain (see <i>Figure A1.2</i>) will be provided at Pak Tso Wan during the dredging activities near the west of South Soko. Cage type silt curtain will be installed next to the grab dredger.
Gas Pipeline (KP 1 - 24.5)	Dredging by TSHD	1	The TSHD will be operated 12 hours a day and the dredging works will avoid the Chinese White Dolphin calving season from March to August.
Gas Pipeline (KP 24.5 - 31)	Dredging by Closed Grab Dredger	3	Cage type silt curtain will be used during grab dredging activities along Lung Kwu Chau/Sha Chau Marine Park Boundary.
Gas Pipeline (KP 31 - 33.5)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances. Should exceedance occur during water quality monitoring, silt curtain (cage type) (see <i>Figure A1.4</i>) will be used during the dredging activity.
Gas Pipeline (KP 33.5 - 33.976)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances. Should exceedance occur during water quality monitoring, silt curtain (cage type) (see <i>Figure A1.4</i>) will be used during the dredging activity.
Gas Pipeline (KP 33.976 - 35.39)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances. Should exceedance occur during water quality monitoring, silt curtain (cage type) (see <i>Figure A1.4</i>) will be used during the dredging activity.
Gas Pipeline (KP 35.39 - 37)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances. Should exceedance occur during water quality monitoring, silt curtain (cage type) (see <i>Figure A1.4</i>) will be used during the dredging activity.

Marine Work Location (Zone)	Marine Work and Plant Type	No. of Plants	Proposed Mitigation Measures
Gas Pipeline (KP 37 - 37.803)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances. Should exceedance occur during water quality monitoring, silt curtain (cage type) (see <i>Figure A1.4</i>) will be used during the dredging activity.
Gas Pipeline (KP 37.803 - 38.303)	Dredging by Closed Grab Dredger	1	Not required due to no predicted WQO exceedances. Should exceedance occur during water quality monitoring, silt curtain (cage type) (see <i>Figure A1.4</i>) will be used during the dredging activity.