

**Contract M811
ENVIRONMENTAL SERVICES FOR
PERMANENT AVIATION FUEL FACILITY**

ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

Air Quality

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
4.5.3	3.3.1	Twice daily watering of all exposed site areas shall be undertaken.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	No debris or other materials shall be burnt on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		n/a
4.5.3	3.3.1	All exposed road surfaces and dust sources shall be maintained as wet.	All exposed surfaces / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	Watering shall be undertaken during rock/concrete breaking.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	Stockpiles of imported material kept on site shall be contained within hoardings, dampened and/or covered during dry and windy weather.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a

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4.5.3	3.3.1	Site hoarding not less than 2.4m at site boundary shall be provided.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	Dust creating activities shall be reprogrammed in periods of high winds.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a
4.5.3	3.3.1	Any vehicle used for moving materials which have the potential to create dust shall have properly fitting side and tail boards. 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		n/a
4.5.3	3.3.1	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.	Site entrance and exits/ throughout construction period	Contractor	TMEIA Avoid dust generation		Y		n/a

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4.7	3.3.1	Best practicable means as specified by the Air Pollution Control Ordinance for Part IV specified process shall be adhered to.	PAFF/Operational phase	Franchisee	APCO			Y	n/a
4.9.1	Section 3 EM&A Manual	EM&A in the form of site audit of dusty activities	Site / throughout construction period	Contractor	EM&A Manual		Y		n/a

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6.7.1.1	6.8.1	There should be no access to the shore or working from land within the Marine Park. No marine anchors shall be used within the Marine Park.	Marine Park/ Pipeline Dredging	Contractor	TMEIA		Y		N/A
6.7.1.1	6.8.1	No hydraulic dredging within Marine Park	Marine Park/ Pipeline Dredging	Contractor	TMEIA.		Y		N/A
6.7.1.1	6.8.1	Dredging for pipeline trench should be timed to coincide with maintenance dredging for Sha Chau AFRF marine access channel.	Sha Chau AFRF Marine access channel	Airport Authority	TMEIA		Y		N/A
6.7.1.1	6.8.1	Standard good dredging practice measures shall be written into the dredging contract.	Dredged areas/ Design Phase	Franchisee	TMEIA	Y			N/A
6.7.1.1	6.8.1	Use of Lean Material Overboard (LMOB) systems shall be prohibited. No mud overflow is to be permitted for dredging using trailer suction hopper dredgers.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.1	6.8.1	Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.1	6.8.1	Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A

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6.7.1.1	6.8.1	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.1	6.8.1	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.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.1	6.8.1	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.1	6.8.1	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.1	6.8.1	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.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A

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6.7.1.1	6.8.1	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.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions.		Y		N/A
6.7.1.5	6.8.1	Placement of pipeline trench backfill should be undertaken in a controlled manner to minimise impacts. Backfilling with rock should be undertaken either down pipe or by a reverse grab operation or other controlled technique to ensure that this material does not mound on the seabed.	Pipeline trench/ Pipeline Dredging	Contractor	TMEIA Minimise disturbance		Y		N/A
6.7.1.6	6.8.1	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	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.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A

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6.7.1.6	6.8.1	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 sandbag 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.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	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.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Temporary access roads should be surfaced with crushed stone or gravel.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A

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6.7.1.6	6.8.1	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	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.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A

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6.7.1.6	6.8.1	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.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	The section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	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	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A

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						D	C	O	
		with the requirements of the WPCO or collected for off site disposal.							
6.7.1.6	6.8.1	The contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	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.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A
6.7.1.6	6.8.1	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO Technical Memorandum on Effluent Standards		Y		N/A

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6.7.1.7	6.8.1	Wastewater from pipe commissioning de-watering exercises shall be stored on site and for chemical analysis and safe disposal in accordance with the WPCO.	Tank Farm/ Tank farm Commissi- oning	Franchisee	TMEIA WPCO Technical Memorandum on Effluent Standards			Y	N/A
6.10	Section 6	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All works /throughout Construct-ion period.	Contractor	EM&A Manual		Y		N/A
6.7.2.1	Section 6	Submarine section of aviation fuel pipeline shall be covered with rock armour protection which shall not protrude above the level of the adjacent natural seabed.	Submarine pipeline	Franchisee	TMEIA Rock armour to minimum thickness of 1m	Y	Y		Franchisee
6.7.2.2	Section 6	Detailed emergency response procedures shall be drawn up. These will include requirements to maintain floating oil booms, absorbent materials and skimmers on site at all times.	All facilities	Franchisee	TMEIA Industry Standards e.g. Oil Companies International Marine Forum.			Y	Franchisee
6.7.2.2	Section 6	Coupling points on the jetty will be protected with slop collection utilities.	Jetty	Franchisee	TMEIA Industry Standards e.g. Oil Companies International Marine Forum		Y		Franchisee
6.7.2.2	Section 6	Auxiliary tanks shall be permanently maintained at the tank farm for recovered fuel and slops	Tank farm	Franchisee	TMEIA			Y	Franchisee

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6.7.2.2	Section 6	Oily drainage systems and slop collection systems will connect to an oil/water separator.	Tank farm	Franchisee	TMEIA Industry Standards e.g. Oil Companies International Marine Forum		Y		Franchisee
6.7.2.2	Section 6	All tanks shall be bunded to a capacity of at least 110% of the largest individual tank in each compound. Tank pits shall be protected by an impermeable bed (e.g. geotextile sheeting) to prevent seepage of aviation fuel to ground. A leak detection system shall be installed beneath the containment membrane.	Tank farm	Franchisee	TMEIA Hong Kong Code of Practice for Oil Installations, 1992		Y		Franchisee
6.7.2.2	Section 6	There shall be no direct outlet from the bund. A collection sump shall be included in the base. Removal of accumulated rainwater shall be activated manually and discharged to storm drain via an oil / water separator.	Tank farm	Franchisee	TMEIA		Y		Franchisee
6.7.2.2	Section 6	Contingency procedures shall be drawn up to ensure containment and safe disposal of any fuel lost from tanks or pipework. Suitable absorbent materials (e.g. sand or earth) shall be kept on site to deal with spillages.	Tank farm	Franchisee	TMEIA Hong Kong Code of Practice for Oil Installations, 1992			Y	Franchisee
6.7.2.2	Section 6	Valves shall be installed within the storm drainage system to facilitate the retention of spillages.	Tank farm	Franchisee	TMEIA		Y		Franchisee

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6.9	Section 6	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen.	Designated monitoring stations as defined in EM&A Manual, section 6. Construction period when dredging takes place within 1000m of Marine Park	Contractor	EM&A Manual		Y		N/A

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Ecology

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						D	C	O	
7.8.2	5.5.1	Specification for 500m dolphin exclusion zone during piling shall be prepared.	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Specification for 250m dolphin exclusion zone during dredging in the Marine Park shall be prepared.	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Specification for pre and post construction dolphin abundance monitoring.	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Specification for underwater noise monitoring during piling shall be prepared.	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Specification for acoustic monitoring shall be prepared	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Design of bubble jacket for pile shall be prepared.	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Design of acoustic decoupling methods	Detailed Design	Design Consultant	TMEIA	Y			n/a
7.8.2	5.5.1	Implementation of bubble jacket to achieve a 3-5 dB reduction. Specific underwater noise targets are as follows: 162 dB at 250m, 152 dB at 500m and 145dB at 1000m	Around each jetty pile / throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	A 500m dolphin exclusion zone shall be implemented and piling shall not begin until the observer has confirmed that the area has been	500m around piling barge / throughout piling activities	Contractor	TMEIA		Y		n/a

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		clear for 30 minutes.							
7.8.2	5.5.1	A 250m dolphin exclusion zone shall be implemented and piling shall not begin until the observer has confirmed that the area has been clear for 30 minutes.	250m around dredger in Marine Park / throughout dredging in Marine Park	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Spot acoustic monitoring shall be undertaken for 3 days in the first week of piling.	within dolphin exclusion zone / 3 days in first week of piling	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Underwater noise monitoring during percussive piling activities	250m, 500m and 1000m from piling barge / throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Piling shall be scheduled outside the period April to June.	April to June	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Implement acoustic decoupling measures in accordance with specifications prepared during the design phase.	Piling barge / throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Ramping up of the piling hammer shall be implemented at the start of each piling session.	Piling barge/ throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Piling activities shall be continuous and short breaks and random sudden noises avoided.	Piling barge/ throughout piling	Contractor	TMEIA		Y		n/a

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			activities						
7.8.2	5.5.1	Piling events shall be scheduled to occur on a regular basis and commence at the same time each day	Throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	The piling shall be scheduled to allow a rest period of 7 hours during the nighttime	Jetty/Throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	All mitigation measures shall be audited to ensure effectiveness.	Jetty/ throughout piling activities	Contractor	TMEIA		Y		n/a
7.8.2	5.5.1	Data review shall be undertaken using available long term data set prior to the works to check that dolphin distribution patterns are consistent with those assumed in the EIA.	Prior to piling activities	Contractor	TMEIA		Y		n/a
7.11	Section 5 EM&A Manual	Design and construction phase EM&A to prepared specifications and undertaken monitoring and audit during piling	Jetty/ throughout piling activities	Contractor	TMEIA		Y		n/a

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Landscape and Visual

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8.10	7.2.1	The construction programme for the PAFF should be reduced to the shortest possible period and should be executed in phases with future phases of tanks built in sets of 2-4.	PAFF site / throughout construction period	Contractor	TMEIA	Y	Y		n/a
8.10	7.2.1	The extent and periphery of the works areas should be managed so that they are as small as possible and do not appear cluttered, untidy and unattractive, particularly to road traffic along Lung Mun Road.	PAFF site / throughout construction period	Contractor	TMEIA		Y	Y	n/a
8.10	7.2.1	Temporary hoarding barriers should be of a recessive visual appearance in both colour and form.	PAFF site / throughout construction period	Contractor	TMEIA	Y	Y		n/a
8.10	7.2.1	Materials should be stored in areas with the least obstruction to residents, pedestrians and traffic	PAFF site / throughout construction period	Contractor	TMEIA		Y	Y	n/a
8.10	7.2.1	All material stockpiles should be covered with an impermeable material and sandbagging diversions should be placed around exposed soil	PAFF site / throughout construction period	Contractor	TMEIA		Y	Y	n/a
8.10	7.2.1	Conservation of existing and imported soil resources	PAFF site / throughout construction period of fuel tank expansion	Contractor	TMEIA			Y	n/a
8.10	7.2.1	Transplantation of existing road side whips affected by the proposed works and new compensatory planting works should be carried	PAFF Site on commencement of	Project Proponent	TMEIA	Y	Y		n/a

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Landscape and Visual

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
		within the first year of construction	construction						
8.10 Figure 8.6	7.2.1	Temporary earth mounding, tree planting and hydroseeding should be implemented on the area of site not initially required for tanks.	PAFF site / on commencement of construction	Project Proponent	TMEIA	Y	Y		n/a
8.10	7.2.1	A raised bund/earth mound comprising containment bund-wall, access road and planting buffer shall be built and maintained around the tank farm.	PAFF site / throughout construction period	Project Proponent	TMEIA	Y	Y	Y	Franchisee
8.10	7.2.1	The design of the PAFF should incorporate materials, details and textures which are visually recessive.	PAFF site / design	Project Proponent	TMEIA	Y	Y		n/a
8.10	7.2.1	Colours should be of low chromatic intensity to reduce the potential contrast between the structures and their background	PAFF site tanks/ design	Project Proponent	TMEIA	Y	Y		n/a
8.10	7.2.1	Visually permeable security fencing should be used around the perimeter.	Site perimeter	Project Proponent	TMEIA	Y	Y	Y	n/a
8.10	7.2.1	Minimum amount of lighting for the tanks shall be used, only applied for safety at the key access points and staircases	Tanks/Operational phase	Project Proponent	TMEIA	Y	Y	Y	n/a
8.10	7.2.1	Limited lighting intensity on the site	PAFF site /Operational phase	Project Proponent	TMEIA	Y	Y	Y	n/a

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Landscape and Visual

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
8.10	7.2.1	Directional down lighting is suggested to minimise light spill to the surrounding area.	PAFF site /Operational phase	Project Proponent	TMEIA	Y	Y	Y	n/a

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Cultural Heritage

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
9.7.7	9.2.1	A complete marine archaeological investigation shall be carried by a qualified marine archaeologist of the pipeline route before any construction works start. The marine archaeological investigation shall comprise a geophysical survey followed by a diver survey, if required, to confirm the results of the geophysical survey. The methodology for the survey shall be submitted to the Director of Environmental Protection for approval no less than one month before any field work commences and the results of the survey and any mitigation measures shall be to the approval of the Director of Environmental Protection. The CV of the marine archaeologist shall be submitted to the Director of Environmental Protection for approval prior to the start of the investigation at the time of submission of the methodology. The MAI shall be carried out by a qualified marine archaeologist who shall apply for a license under the Antiquities and Monuments Ordinance, Cap 53. The Project Proponent shall comply with the recommendations of the MAI.	Along pipeline alignment/Prior to dredging works	Franchisee	TMEIA	Y			n/a

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Fuel Spill Risk

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
11.4.1.1	10.2	Tank farms will be constructed in a bunded area surrounding the tanks which will have collection capacity of 110% of the maximum content of the largest tank.	Tank Farm / Design Phase	Franchisee	TMEIA	Y			
11.4.1.1	10.2	Shut off valves shall be installed within the wider site storm drainage system.	Tank Farm / Design Phase	Franchisee	TMEIA	Y			
11.4.1.1	10.2	An impermeable membrane shall be installed in the tank foundation beneath the tank bottom.	Tank Farm / Design Phase	Franchisee	TMEIA	Y			
11.4.1.1	10.2	Pipeline to be covered with a protective rock armour layer	Pipelines / Design Phase	Franchisee	TMEIA.	Y			Franchisee
11.4.1.1	10.2	An integrated leak detection system shall be installed to all pipelines to provide early detection of any leak.	Pipelines / Design Phase	Franchisee	TMEIA.	Y			
11.4.1.1	10.2	An automatic shut-off system shall be implemented for pipelines	Pipelines / Design Phase	Franchisee	TMEIA.	Y			
11.4.1.2	10.2	A workboat shall be on standby at the jetty during tanker berthing.	Jetty / During Tanker Berth	Franchisee	TMEIA.	Y		Y	
11.4.1.2	10.2	Skimmers shall be available for quick deployment in case of a spill.	Jetty / During Tanker Berth	Franchisee	TMEIA.	Y		Y	
11.4.1.3	10.2	An emergency response plan shall be prepared prior to the operation of the PAFF.	Jetty / During Tanker Berth	Franchisee	TMEIA.	Y		Y	
11.4.1.3	10.2	Operator-training programme shall be implemented.	Jetty / During Tanker Berth	Franchisee	TMEIA.	Y		Y	

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Design phase shall include designs for all phases of the facility

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Land Contamination

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
13.5.1	10.2	Bunding shall be provided for all fuel storage areas to 110% of largest individual tank in each compound.	Tank farm / Design	Franchisee	TMEIA	Y			
13.5.1	10.2	Relevant design standards for storage tanks, pipework, containment and drainage shall be adhered to.	Tank farm / Design	Franchisee	TMEIA	Y			
13.5.1	10.2	Plant inspections and maintenance shall be undertaken once per month.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	
13.5.1	10.2	Impermeable lining shall be provided for all tank pits.	Tank farm / Design	Franchisee	TMEIA	Y			
13.5.1	10.2	Leak detection systems shall be provided to all valves.	Tank farm / Design	Franchisee	TMEIA	Y			
13.5.1	10.2	Surface drainage shall be contained and treated prior to discharge.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	
13.5.1	10.2	Emergency spill response plans shall be prepared.	Tank farm / Design	Franchisee	TMEIA	Y		Y	
13.5.1	10.2	Spill control materials and equipment shall be provided on site.	Tank farm / Design	Franchisee	TMEIA	Y		Y	
13.5.5	10.2	Run off from the roofs of site buildings and landscaped areas shall be conveyed in closed drains to the nearest storm water drain to prevent the generation of excessive quantities of surface water which may be polluted.	Tank farm / Design	Franchisee	TMEIA	Y		Y	

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Land Contamination

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
13.5.5	10.2	Suitable absorbent materials (e.g. sand or earth) shall be kept on site to deal with spills. Chemical dispersants shall not be employed.	Tank farm / Design	Franchisee	TMEIA	Y			
13.5.5	10.2	The facility shall be designed, constructed, operated and maintained in full accordance with the Code of Practice for Oil Installations, 1992.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	
13.5.5	10.2	Tank pressure testing shall be carried out routinely to check for possible tank leaks. Product inventory monitoring shall be integrated into site management procedures to check for any abnormal or unexpected product loss.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	
13.5.5	10.2	Tank overfill monitoring systems shall be installed and regularly tested. Inlet valves shall be designed to automatically shutdown on exceedance of "high-high level" to prevent over-filling.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	
13.5.5	10.2	Pipe leakages shall be routinely checked for by means of a pressure sensitive leak detection system and routine inventory control.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	
13.5.5	10.2	Drainage from areas of hardstanding shall be treated by means of oil / water separators prior	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	

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Land Contamination

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
		to discharge to storm drain. All surface drainage shall be fitted with closure valves to provided additional containment and facilitate clean up of any leaks.							
13.5.5	10.2	The delivery pipeline from the jetty and the supply line to the airport shall be fitted with pressure sensitive leak detectors.	Tank farm / Design	Franchisee	TMEIA	Y	Y		

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	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 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.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		n/a
14.7.2	8.3.1	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		n/a
14.7.2	8.3.1	No waste shall be burnt on site.	PAFF Site throughout construction period.	Contractor	TMEIA		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	Excavated material shall be used on site for purposes of landscaping or formation of bund walls.	All site / throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	All material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Suitable provisions shall be included in the construction contract to ensure that the Contractor sorts and recycles waste.	Contract preparation stage	HyD	TMEIA	Y			n/a
14.7.2	8.3.1	Re-use and recycling of waste must always be considered first. Waste disposal shall only be undertaken in the last resort. Any 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.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	The C&D waste shall be disposed of at a licenced landfill or deposited at an authorised waste transfer facility and the material suitable for public fill delivered to a public filling area, public filling barging point or public fill stockpile area after obtaining the appropriate licence.	CED public fill stockpile in Mui Wo, North Lantau or Mui Wo refuse transfer stations / Throughout construction	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Vegetation shall be stripped prior to site clearance, chopped and compacted using a mobile compactor to reduce the volume of material to be transported and disposed of.	Along alignment of haulage road and road link / Site Clearance activities	Contractor	TMEIA		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	Stockpiled material shall avoid vegetated areas.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Stockpiles shall be covered by tarpaulins and/or watered as required.	All areas / throughout construction period, particularly dry season	Contractor	TMEIA Public Health and Municipal Services Ordinances (Cap 132) and the Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		n/a
14.7.2	8.3.1	Storage of material on site should be kept to a minimum.	All areas / throughout construction period	Contractor	TMEIA Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	Excavated material in trucks shall be covered by tarpaulins.	All areas, particularly at site exits/ throughout construction period	Contractor	TMEIA Reduce the potential for spillage and dust. Public Health and Municipal Services Ordinances (Cap 132) and the Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		n/a
14.7.2	8.3.1	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 / throughout construction period	Contractor	TMEIA Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		n/a
14.7.2	8.3.1	Suitable chemical waste storage areas should be formed at the works site for temporary storage pending collection	Works site / throughout construction period	Contractor	TMEIA Code of Practice on the Package, Labelling and Storage of Chemical Wastes, A Guide to the Chemical Waste Control Scheme		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	A licensed contractor shall be employed to collect chemical waste for delivery to a licensed treatment facility.	Chemical waste treatment facility at Tsing Yi / Throughout construction period	Contractor	TMEIA Code of Practice on the Package, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme		Y		n/a
14.7.2	8.3.1	Temporary storage areas for general refuse should be enclosed to avoid environmental impacts.	All areas / throughout construction period	Contractor	TMEIA Public Health and Municipal Services Ordinance		Y		n/a
14.7.2	8.3.1	Sufficient dustbins should be provided for storage of waste.	All areas / throughout construction period	Contractor	TMEIA Public Cleansing and Prevention of Nuisances Ordinance (Regional Council) By-laws, Public Health and Municipal Services Ordinance		Y		n/a

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	General refuse should be cleared daily and should be disposed of to the nearest licensed facility.	All areas, WENT Landfill or NWNT refuse transfer stations / throughout construction period						
14.7.2	8.3.1	Nightsoil arising from chemical toilets and chemical treatment facilities should be transported by a licensed contractor to government Sewage Treatment Works for disposal	Site offices, along alignment / throughout construction period	Contractor	TMEIA Sanitation and Conservancy (Regional Council) By-laws		Y		n/a
14.7.2	8.3.1	Waste oils, chemicals or solvents shall not be disposed of to drain.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a

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EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	Good site practice shall be implemented to avoid waste generation and promote waste minimisation.	PAFF site, throughout construction period	Contractor	TMEIA		Y		
14.7.2	8.3.1	Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Temporary structures used during construction shall be provided in the form of proprietary Portakabin type units sited on areas of permanent hard paving units as far as practicable	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.			TMEIA		Y		n/a
14.7.2	8.3.1	All waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	All waste containers shall be in a secure area on hardstanding.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Emergency equipment to deal with any spillage or fire shall be kept on site.	PAFF site, throughout construction period		TMEIA		Y		n/a
14.7.2	8.3.1	All containers used for storage of chemical waste shall be maintained in good condition and clearly labelled in both English and Chinese.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	All storage areas for chemical waste shall be: <ul style="list-style-type: none"> ▪ clearly labelled; ▪ enclosed on at least 3 sides; ▪ have impermeable floor and bunding sufficient to fully retain any spillage or leakages; ▪ ventilated; and ▪ covered to prevent rainfall from entering. 	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a

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Waste Management

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Maintenance Agency
						D	C	O	
14.7.2	8.3.1	All types of asbestos including sources (such as clutch linings) shall be treated as chemical waste. Asbestos containing wastes shall be kept separate from other wastes.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	All leaking containers shall be contained and removed from site as soon as is reasonably practicable.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2	8.3.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	PAFF site, throughout construction period	Contractor	TMEIA		Y		n/a
14.7.2, Section 5	8.3.1	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		n/a

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