

11 Implementation Schedule

11.1 Project Implementation Schedule

The implementation schedule containing the EIA study recommendations and mitigation measures with reference to the implementation programme is presented in **Table 11.1**.

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Table 11.1: Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	*When to implement the measure?			What requirements or standards for the measure to achieve
						Des	C	O	
Water Quality Impact									
3.8	2.9	<p>Specific mitigation measures to be applied to all dredging activities of the project include:</p> <ul style="list-style-type: none"> ▪ Dredging shall be conducted by either closed grab dredgers and/or TSHDs. The grab dredgers shall not be operating at the same time as the TSHDs. ▪ The dredging rates for the Project shall not exceed the maximum allowable dredging rates specified in Section 3.7.1.3 for each respective working zone and for the respective dredging method. ▪ If dredging work is carried out in more than one working zone in any day, the lowest maximum allowable dredging rate in the affected zones should apply for that day. ▪ Cage-type silt curtains (at least 10 m depth) should be used for the grab dredger options. ▪ Where grab dredger is used, the closed grab capacity should not be less than 8 m³ (except near the submarine pipeline where smaller grabs may be used). 	Control dredging activities to prevent adverse impacts at WSRs due to SS release from dredging works	Contractor	Within working zones of the project		✓	✓	EIA recommendations
3.8	2.9	<p>Good site practices shall be adopted including:</p> <p>General</p> <ul style="list-style-type: none"> ▪ Works should not cause foam, oil, grease or litter or other objectionable matter to be present in the water within and adjacent to the works site. ▪ Vessels should be sized to maintain adequate clearance of the seabed during all states of the tide in order to reduce undue turbidity generated by turbulence from vessel movement or propeller wash. ▪ Vessel speeds should be reduced to no more 	Implement good site practices to avoid water quality impacts due to marine works	Contractor	Within project site boundary and project vessels travelling to/from the project site		✓	✓	EIA recommendations

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		<p>than 10 knots within the project site boundary</p> <p>Grab Dredger</p> <ul style="list-style-type: none"> Care should be taken during lowering and lifting grabs to minimise unnecessary disturbance to the seabed. The Contractor should ensure that grabs are tightly closed. <p>TSHD</p> <ul style="list-style-type: none"> No overflow is permitted and use of lean mixture overboard (LMOB) system is prohibited. Any pipe leakages should be repaired quickly. Plant should not be operated with leaking pipes. <p>Barges and Hoppers</p> <ul style="list-style-type: none"> Fitted with tight fitting seals to their bottom openings to prevent leakage of material. Should not be filled to a level which will cause overflow of materials during loading and transportation. Loading should be controlled to prevent splashing of dredged material into the surrounding waters. Excess materials should be cleaned from decks and exposed fitting before the vessel is moved. Adequate freeboard should be maintained to ensure that decks are not washed by wave action. 							
Marine Ecological Impact									
4.7	3.2	<p>Mitigation measures to be applied:</p> <ul style="list-style-type: none"> Avoid dredging Zone 4 of the navigation channel during the calving season for the 	<p>Minimise impacts to the cetacean Finless Porpoise which has low</p>	Contractor	Within project site boundary and project vessels travelling		✓	✓	EIA recommendations

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		<p>Finless Porpoise from February to April, with the exception of necessary hotspot / localised dredging being kept under the recommended maximum allowable dredging rates</p> <ul style="list-style-type: none"> ▪ Vessel movements to disposal grounds are recommended to bypass the Finless Porpoise habitat area in southwest and east Lamma ▪ Implement a maximum speed limit of 10 knots in south and east Lamma waters ▪ All vessel operators working on the Project should be thoroughly briefed on the possible occurrence of Finless Porpoise within and in the vicinity of the Project Area and along routes to the Project Area, as well as rules for safe vessel operation around cetaceans and slowing down to 10 knots in the presence of cetaceans in south and east Lamma waters ▪ Water quality mitigation measures specified above 	density of usage of the Project Area in dry season		to/from the project site				
Fisheries Impact									
5.5	4.1	Recommendations in the Water Quality Impact Assessment chapter (refer to Section 3.8) for minimizing water quality impacts will also minimize any adverse environmental impact to fisheries.	Control dredging activities to prevent adverse impacts at WSRs due to SS release from dredging works	Contractor	Within working zones of the project		✓	✓	EIA recommendations
Hazard to Life Impact									
6.7	5.2 and 5.3	<p><u>General</u></p> <ol style="list-style-type: none"> 1. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to check and confirm all anchors are secured in position before the working vessels are allowed to travel inside the non-anchor zone. 2. Recommend the Contractor to avoid the working vessel traveling during berthing and 	To further minimize the potential risk to the submarine pipeline due to the dredging works	Engineer Contractor	Construction Site		✓	✓	EIA recommendations

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		<p>unberthing of coal vessel</p> <p>3. Recommend the Contractor to avoid the working vessel travelling after sunset or under low visibility when the works area is near the submarine pipeline.</p> <p>4. Recommend the Contractor to check the weather information from Marine Department before deploying the vessel to the dredging zone.</p> <p>5. Recommend the Contractor to consider the preliminary coal vessel shipping plan provided by HK Electric when scheduling the programme of the dredging works.</p> <p>6. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to check and confirm if all large and moveable objects must be tightly secured on the dredger by lashing, before it is allowed to travel inside the non-anchor zone. The condition of the lashing will be checked daily when the dredger is near the submarine pipeline and under adverse weather such as typhoon, strong monsoon, and rough sea condition.</p> <p>7. Recommend vessel owners use electrical appliance for cooking and smoking onboard is not allowed when the dredging works is within non-anchoring zone.</p> <p>8. Recommend vessel owners to store dangerous goods in an explosion proof cabinet, if any, according to the statutory requirements at all times.</p> <p>9. Recommend the Contractor to check any loosen anchoring system on board regularly to avoid drifting of the working vessel towards slipway of gas pipeline.</p>		<p>Contractor and Engineer</p> <p>Contractor</p> <p>Contractor, Engineer and HK Electric</p> <p>Engineer</p> <p>Contractor and Engineer</p> <p>Contractor and Engineer</p> <p>Contractor</p>					

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		<p>10. Recommend the Contractor to prepare and submit an Emergency Response Plan (ERP) to cater for drifting of working vessel to Engineer for review. The ERP provides the necessary safety actions required to avoid or minimize the impact of jetty facilities and submarine gas pipeline.</p> <p>11. Recommend the Engineer to send a foreman to ensure the visibility is good before the working vessel travels near the seawall in each time.</p> <p>12. Recommend the Engineer to provide an indicator (e.g. flashing lamp) onshore at the point where the pipeline transits from onshore to seabed. The indicator should be able to be clearly seen from the working vessel's cabin at distance.</p> <p>13. Recommend the Engineer to impose a safe traveling speed to the working vessels when they are traveling or working near the seawall.</p> <p>14. Recommend the Engineer (as hired by the HK Electric to manage the dredging works) to request the Contractor (i.e. dredging operator) to provide maintenance records of the working vessel.</p> <p>15. Recommend the working vessel not to stay right above the submarine pipeline unless it is necessary.</p> <p>16. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a diver to the seabed to locate the point where the pipeline transits from the section with rock armour to that without rock armour.</p> <p>17. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to put buoys in the sea to indicate the transition point.</p>		<p>Contractor and Engineer</p> <p>Contractor and Engineer</p> <p>Engineer</p> <p>Engineer</p> <p>Contractor and Engineer</p> <p>Contractor and Engineer</p> <p>Engineer</p> <p>Engineer</p>					

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		<p>24. Recommend the Contractor to conduct underwater survey by diver at the location of submarine gas pipeline immediately after completion of dredging works there.</p> <p><u>Specific for Grab Dredging</u></p> <ol style="list-style-type: none"> 1. Recommend to provide a buoy for anchor location and possibly to provide buoys above submarine pipeline alignment. 2. Recommend the Contractor to deploy a guard boat to alert third party vessel not to travel inside the dredging works area. 3. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to double-check if the anchor dropping point is within the designated anchorage area, before the anchor is dropped into the sea. 4. Recommend the Engineer to verify the accuracy of all GPS/DGPS system. 5. Recommend the tug boat to travel at a low speed in each time the anchor is placed on the tug boat. This allows the tugboat master to react for emergency. 6. Recommend the Engineer and Contractor to check the length of anchor chain is sufficient to cover the non-anchor zone area and double check the anchorage location with respect to the length of anchor before dropping of anchors. 7. Recommend the Contractor to deploy a guard boat to monitor the separation distance between the anchor chain and other incoming vessel. 8. Recommend the Contractor to observe tidal conditions and sea current in the work area 		<p>Contractor and Engineer</p> <p>Contractor and Engineer</p> <p>Contractor</p> <p>Engineer</p> <p>Engineer</p> <p>Contractor</p> <p>Contractor and Engineer</p> <p>Contractor</p> <p>Contractor</p>					

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		<p>and take precautionary measures as necessary to enable safe working conditions.</p> <p>9. Recommend the Contractor to check the depth of the seabed and maintain the bottom of the silt curtain to be above the seabed.</p> <p>10. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to verify if the dredger is near or right above the submarine pipeline every time the dredger arrives at the project site boundary or when it needs to be relocated.</p> <p>11. When the dredger is in close proximity of the submarine pipeline, it is recommended to prohibit the Contractor to allow free-falling of the grab when the dredging works is taken place near the submarine pipeline. The grab will always be lowered slowly to the seabed. The foreman should regularly check if this prohibition is followed.</p> <p>12. Recommend to have a trial run for the dredging works when it is conducted right above and in close proximity of the submarine pipeline. An established communication network should be maintained between the dredger's operator, the foreman, the Engineer and HK Electric during the trial run.</p> <p>13. Recommend operator to regularly monitor the pressure fluctuation in the submarine pipeline during the dredging works near the pipeline.</p> <p>14. Recommend to use a much smaller grab for dredging works with control movement near the submarine pipeline.</p> <p>15. The type of grab (e.g. size, weight) used for the dredging works near the submarine pipeline has to be reviewed by the Engineer, taking the design of the rock armour into</p>		<p>Contractor and Engineer</p> <p>Engineer</p> <p>Contractor and Engineer</p> <p>Contractor, Engineer and HK Electric</p> <p>HK Electric</p> <p>Contractor and Engineer</p> <p>Contractor and Engineer</p>					

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		<p>account, before the dredging works is started.</p> <p>16. When the dredging is getting close to the submarine pipeline without rock armour, the type of grab (e.g. size, weight) used for the dredging works has to be reviewed by the Engineer, better to conservatively assume rock armour is not present.</p> <p>17. Recommend the foreman to confirm that only the type of grab approved by the Engineer is installed in the dredger before the dredging works is started near the submarine pipeline.</p> <p>18. Recommend the Engineer (as hired by the HK Electric to manage the dredging works) to have a visual examination of the integrity of the wire cable of the grab hosting system before the dredging is allowed to move near the submarine pipeline without rock armour.</p> <p>19. Recommend the foreman to remind the dredger master to observe if there is any rock being dredged from the seabed when the dredging works is taken place in close proximity of the submarine pipeline.</p> <p>20. Recommend the grab is retrieved back to inside the dredger after the completion of dredging works in each working day.</p> <p>21. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to regularly check the location of the dredger using GPS to see if the dredger is carried away by sea current.</p> <p>22. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to conduct a thorough examination of the structural integrity of the existing seawall to ensure it is structurally sound for a nearby dredging works. If necessary, remedy action</p>							

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		<p>(e.g. providing temporary supporting structure) is taken before the dredging works is allowed.</p> <p>23. Based on the condition of the seawall structure, the Engineer (as hired by HK Electric to manage the dredging works) needs to recommend and impose a minimal separation distances between the seawall and the dredging works.</p> <p>24. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to monitor the condition of the seawall structure throughout the dredging works.</p> <p>25. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator), to ensure the separation distance is maintained every time the dredger is relocated near the seawall structure.</p> <p>26. Recommend the hopper barge operator to monitor the draught of barge to ensure that the hopper barge will not be overloaded.</p> <p>27. Recommend the Engineer (as hired by HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator) to confirm all the anchors have been completely retrieved from the seabed before allowing the dredger/barge to travel.</p> <p>28. Recommend to request the tug boat to travel around the dredger to observe if all the anchors have been completely lifted up before it tugs the dredger.</p> <p>29. Recommend to request the hopper barge not to stay near the submarine pipeline and this</p>		<p>Engineer</p> <p>Engineer</p> <p>Engineer</p> <p>Contractor</p> <p>Engineer</p> <p>Contractor and Engineer</p> <p>Contractor and Engineer</p>					

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		<p>will be confirmed by the foreman who is hired by the Engineer.</p> <p><u>Specific for TSHD</u></p> <ol style="list-style-type: none"> 1. Recommend to request the working vessel to leave the Channel in case it is on fire. 2. Recommend the dredging path to consider potential infringement to nearby structure (e.g. seawall). 3. Recommend the Engineer (as hired by the HK Electric to manage the dredging works) to request the Contractor (i.e. dredging operator) to provide maintenance record for the dredger to ensure the sea-worthiness of the dredgers. 4. Recommend the TSHD not to lower the suction pipe in close proximity of the submarine pipeline. This has to be monitored by the foreman hired by the Engineer. 5. Recommend to request the Contractor (i.e. dredging operator) to prepare and submit an Emergency Response Plan (ERP) to the Engineer for review. The ERP provides the necessary safety actions required to avoid or minimize the impact to the submarine pipeline due to failure of suction pipe gantries system. 6. Recommend the Engineer to provide the Contractor (i.e. dredging operator) the design details and location of the submarine pipeline (e.g. details of rock armour). 7. Recommend the TSHD to travel in a slow speed when the dredging works is near the submarine pipeline. 8. Recommend to request the Contractor (i.e. dredging operator) to prepare and submit an Emergency Response Plan (ERP) to the Engineer for review. The ERP provides the necessary safety actions required to avoid or minimize the impact to the submarine pipeline 		<p>Contractor and Engineer</p> <p>Contractor and Engineer</p> <p>Engineer</p> <p>Contractor and Engineer</p> <p>Contractor and Engineer</p> <p>Contractor, Engineer and HK Electric</p> <p>Contractor and Engineer</p> <p>Contractor and Engineer</p>					

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		<p>when the draghead is stuck with the rock armour or the seabed.</p> <p>9. Recommend the Engineer (as hired by the HK Electric to manage the dredging works) to request the TSHD owner to provide maintenance records and valid examination certificates of the compensator to ensure it is in good order.</p> <p>10. Recommend the Engineer (as hired by the HK Electric to manage the dredging works) to send a foreman, who is independent of the Contractor (i.e. dredging operator) to confirm the operability of the compensator by observing the movement of the hydraulic cylinder of the compensator when the dredging works is carried out near the submarine pipeline.</p> <p>11. Recommend the foreman to remind the dredger master to observe if liquid flow is reduced by clogging of suction pipe.</p> <p>12. Recommend to request the TSHD not to stay near the submarine pipeline unless it is necessary and this will be confirmed by the foreman who is hired by the Engineer.</p>		<p>Contractor and Engineer</p> <p>Engineer</p> <p>Engineer</p> <p>Contractor and Engineer</p>					
Noise Impact									
7.10	6.1	A daily log book should be maintained to record the number and type of plants deployed for auditing purpose.	Ensure construction plants are kept to within the maximum numbers / types to avoid noise impacts at NSRs	Contractor	Within the Project site / During construction phase		✓	✓	EIAO and Noise Control Ordinance
Waste Management Implications									
8.5.1	7.2 and 7.3	<ul style="list-style-type: none"> The Category L marine sediment will require Type 1 Open Sea Disposal. No dredging work is allowed to proceed until all matters on management of dredged sediments have been resolved and all relevant arrangements have been endorsed by the relevant 	Minimise impacts in relation to sediment handling	Contractor	Within project site boundary and project vessels travelling to/from the project site		✓	✓	EIA recommendations

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		<p>authorities including MFC and EPD.</p> <ul style="list-style-type: none"> ▪ The distance between the barge and the dredging point should be shortened as far as possible to avoid dropping of sediment from the close grab to seawater ▪ During transportation and disposal of the dredged marine sediments, the following measures should be taken to minimise potential impacts: <ul style="list-style-type: none"> ○ Bottom opening of barges will be fitted with tight fitting seals to prevent leakage of material; ○ Excess material shall be cleaned from the decks and exposed fittings of barges and dredgers before the vessel is moved; ○ Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation; ○ Barges or hopper barges should not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation; ○ Dumping barges should be installed with Real Time Tracking and Monitoring of Vessel (RTTMV) system for monitoring the mud dumping activities; and ○ All conditions stipulated in the dumping permit should be strictly followed. 							
8.5.2	7.2 and 7.3	If chemical wastes are produced, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the "Code of Practice on the Packaging Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely	Implement good practices to avoid chemical waste impact.	Contractor	Within working zones of the project		√	√	Code of Practice on the Packaging Labelling and Storage of Chemical Wastes; Waste Disposal (Chemical Waste)

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		attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. Licensed collector should be deployed to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.							(General) Regulation
8.5.3	7.2 and 7.3	General refuse should be stored in enclosed bins or compaction units and delivered to the refuse collection point accordingly. The Contractor should remove general refuse regularly to avoid odour nuisance or pest/vermin problem. Preferably an enclosed and covered container should be provided to minimise the refuse contaminate the marine environment. Sufficient recycling containers are recommended to be provided to encourage recycling of such waste as aluminium cans, plastics and waste paper.	Implement good practices to avoid odour nuisance or pest/vermin problem and waste impact.	Contractor	Within working zones of the project		✓	✓	Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Public Cleansing and Prevention of Nuisances Regulation

* Des = Design stage, C = Construction stage, O = Operation stage recurrent dredging