receivers would be lower for a shorter period of emergency overflow. Provision of mitigation measures would protect the seawater intakes.

4.5 Mitigation of Adverse Impacts

4.5.1 *Construction Phase*

Changes in Coastline Configurations

4.5.1.1 The changes in coastline configurations as a result of the SEKD reclamation would potentially affect the hydrodynamic and water quality conditions in the harbour and the seawater intakes for flushing and cooling purposes. Reduction in the cross-sectional area in the harbour would increase the flow velocity enhancing water flushing and dispersion of pollutants.

4.5.1.2 The present scheme of SEKD involves the reclamation in the KTAC, KTTS and Hoi Sham. As the KTAC and KTTS are bounded by the disused Kai Tak Airport runway and the existing land boundary, the reclamation in these two areas would not cause a major change in coastline configurations.

4.5.1.3 The proposed reclamation area in Hoi Sham is located between the disused Kai Tak Airport runway and Hung Hom. The existing coastline in this region is quite irregular forming a partially enclosed area in between these two locations. This partially enclosed area would be reclaimed after the implementation of the Hoi Sham reclamation. The smoothness of the future coastline in this region would be improved causing less restriction to the flow movement in Kowloon Bay. With a smaller reclamation area for the present development scheme, the influence on hydrodynamic and water quality conditions is likely to be less when compared to the cases in the previous scheme of SEKD.

Nullah and Box Culvert Diversion

4.5.1.4 The option of discharging the KTN flow near the boundary between the KTAC and KTTS would not make much difference from the original discharge situation where the KTN flow is first discharged into the KTAC then to the open water via KTTS. The potential water quality impacts to the harbour would be similar to the original discharge situation.

4.5.1.5 The option for temporary diversion of the KTN and box culverts to the Kowloon Bay water may affect the water quality in TKWTS. The modelling results showed that the option of adopting the shortest diversion route would not cause a significant deterioration of the water quality in the typhoon shelter. The fall back option of diverting the flow away from the typhoon shelter provides an alternative for allocating the discharges. The modelling results for this fall back option also indicated no unacceptable water quality impacts to the nearby sensitive receivers.

4.5.1.6 During the implementation of nullah/box culvert diversion works, potential impacts would arise from the construction activities close to the nullahs and box culverts. Release of construction wastes into the diverted section of the nullah and box culverts would pollute the water quality of these receivers. These wastes are generally characterised by high concentrations of suspended solids and elevated pH values. Adoption of good housekeeping would reduce generation of construction wastes and the potential water pollution.

4.5.1.7 Stockpiles of construction and dusty materials should not be placed near the nullahs/box culverts during the carrying out of diversion works. This avoids the release of dusty materials into the water of the nullahs/box culverts. Construction activities, which generate a large amount of wastewater, should be carried out in a distance away from the diverted section, wherever practicable.

4.5.1.8 Mitigation measures to control site runoff from entering the diverted section should be implemented to minimise the water quality impacts. Provision of surface channels along the edge of the diverted section could intercept the runoff.

Dredging and Filling

4.5.1.9 Release of heavy metals and metalloid from the sediments in the KTAC, KTTS and Hoi Sham during dredging and filling would be low based on the results of the elutriate test. There would be no adverse impacts to the nearby aquatic environment in terms of the release of heavy metals and metalloid. Release of organic micro-pollutants (TBT, PCBs and PAHs) would be diluted by the ambient water to reach a lower level at a short distance from the dredging sites. However, there is uncertainty of the PCB levels due to the high detection limit. The contaminants including TKN, NO_3-N, NO_2-N, NH_3-N and TP would also be quickly diluted to reach the background levels within a short distance from the release points.

4.5.1.10 The sediment plume modelling results indicated that the adopted dredging rate would not cause significant increases in SS levels in the waters away from the dredging sites. Transport of contaminants released from the dredging operation is expected to occur near the dredging sites. However, when high levels of contaminants are detected near the dredging sites during the water quality monitoring, reducing the rate of dredging would minimise the potential impacts to the aquatic environment. The actual rate may need to be determined based on the working conditions and should be reviewed during the EM&A process. Tightly closed grabs should be used to reduce sediment loss during dredging and raising of the grabs from the seabed to the dredgers. The descent speed of grabs should be controlled to minimise the disturbance to the seabed.

4.5.1.11 Mitigation measures to reduce the formation and spreading of sediment plumes during dredging and filling are presented as follows:

- Sealed grab dredgers should be used for dredging;
- The grabs should be fully-enclosed to minimise sediment loss during raising of the grabs;
- The decks of all barges should be clean and tidy to avoid any substances that might be washed to the water during loading;
- Sediment loading should be carried out carefully to minimise splashing of sediments;
- Overloading of barges should not be allowed and sufficient freeboard should be maintained to ensure that there would be no spill over of the dredged material during loading and transport;
- The bottom opening of barges should be tightly sealed to prevent leakage of the dredged material during transport of the sediments to disposal site;
- The speed of vessels in the dredging area should be reduced to prevent generation of turbulence from moving vessels; and
- Silt curtains should be provided to restrict the spreading of sediment plumes particularly at WSD's seawater intake points.

4.5.1.12 As indicated in the modelling results, the dredging impacts would be localised. It is therefore recommended that silt curtains should be used in the dredging sites where sediment contaminant levels are higher. The most polluted areas within the KTAC were found to be at AC1 to AC5 covering the areas from the upstream end of the KTAC to the Taxiway Bridge. The KTAC is a semi-enclosed area. Installation of silt curtains at the boundary between the KTAC exit and KTTS can effectively control the release of sediment particles and contaminants to the open water. During the filling operation, it is recommended to carry out the filling behind sea wall or rock-filled barrier. This confinement structure can be provided at the boundary between the KTAC exit and KTTS. Silt curtains should be installed at the narrow marine access in this location.

4.5.1.13 For the KTTS reclamation, the most polluted areas were found to be at the locations near KT1 and KT2. Silt curtains can either be installed at the opening of the existing breakwaters or around the dredging points to confine the spreading of sediment and contaminants during dredging in these locations. The sediments in the areas further away from the existing KTTS and near KT3 and KT4 were less polluted. Silt curtain may not be necessary for dredging to be carried out in the less contaminated areas such as the eastern and western breakwaters of the new KTTS. Filling behind sea wall would restrict the spreading of sediment plumes within KTTS. Silt curtains should be installed at the marine access in the KTTS reclamation site.

4.5.1.14 The Hoi Sham reclamation area is in the open water. As predicted by the detailed model for the 2002 scenario, the current speeds in the Hoi Sham area (Kowloon Bay) ranged between 0.08 m/s and 0.28 m/s. Silt curtains can be effectively applied when the current speeds are lower than 0.5 m/s[11]. It is likely that the tidal currents would not significantly affect the use of silt curtains in the Hoi Sham area. Silt curtains should be installed around the dredging sites particularly in the areas along the coastline of the Hoi Sham area and at Earth Bund. It is due to the relatively high pollutant levels in these areas. For the filling operation, silt curtains should be installed at the exit of the sea wall or rock-filled barrier to control the sediment plume dispersion.

4.5.1.15 Water quality monitoring should be included as part of the Environmental Monitoring and Audit programme to detect if there are any elevated contaminant concentrations in the nearby water body during dredging and filling. Background levels of the contaminants should be measured in advance of the dredging works. If the monitoring results indicate that the contaminant concentrations in the nearby water body increase significantly during dredging and filling, the mitigation measures and construction programme should be reviewed and rescheduled to minimise the impacts.

4.5.1.16 With the arising concerns on death of fish at fish culture zones, it is required to consult the mariculturists of the identified mariculture zones including Ma Wan and Tung Lung Chau Mariculture Zones before commencement of the marine works at SEKD. The project department should inform and update the mariculturists the tentative programme of the marine works in advance.

4.5.1.17 The contaminant concentrations determined from the elutriate test represent the conditions in the close proximity of the dredging area. Absorption of these contaminants by the suspended sediment particles, which would settle on the seabed, would reduce the contaminant concentrations in the water column. Dilution of the contaminants by the ambient water would minimise the impacts to the nearby water body.

4.5.1.18 If pilot tests support the use of *in-situ* treatment for sediment treatment, dredging would be minimised. Release of contaminants from the sediments into the receiving water body would be avoided. Mitigation measures to deal with the potential water quality impacts arising from pre-treatment of the contaminated sediments would vary from different treatment processes. Wastewater generated from pre-treatment of the contaminated sediments should be treated to acceptable levels prior to final discharge. Injection of chemicals for *in-situ* treatment should be carefully controlled to prevent leaching out of excess chemicals. Site trials would be required before the full-scale implementation of the treatment processes. It is recommended to assess the residual impacts associated with the selected treatment processes during site trials.

Construction Site Runoff

4.5.1.19 The practices outlined in *ProPECC PN 1/94 Construction Site Drainage* should be adopted to minimise site runoff and potential water pollution. Discharge of wastewater from the construction site is subject to control. A discharge licence should be applied from EPD. The

[11] Dredging – A Handbook for Engineers, 2nd Edition, R. W. Bray, A. D. Bates, and J. M. Land. John Wiley & Sons, Inc. 1997.

discharge quality should meet the requirements specified in the discharge licence. Suitable wastewater treatment systems or facilities may be required to reduce the concentrations of suspended solids and to adjust the pH value of the wastewater.

4.5.1.20 Perimeter channels should be provided in advance of site formation and earthworks to intercept runoff at site boundary. Drainage channels should be provided on site to convey storm water to sand/silt traps for removal of soil particles. Regular cleaning and maintenance of these facilities are required to ensure that these facilities are in normal function at all times. Provision of earth bunds or sand bags in areas where a large amount of exposed soils exists would be required.

4.5.1.21 The construction works should be properly programmed to minimise soil excavation in rainy seasons. This prevents soil erosion from exposed soil surfaces. Excavated trench should be backfilled in short sections. Before a rainstorm occurs, exposed stockpiles should be covered with tarpaulin or impervious sheets. Suitable locations should be selected on site to place the stockpiles so as to avoid release of materials into the drainage channels. Final surfaces of earthworks should be compacted and protected by permanent work. Hydroseeding could be used to protect exposed slope surfaces. To prevent storm runoff from washing across exposed soil surfaces, intercepting channels should be provided. It is recommended to pave haul roads with concrete and protect temporary access roads using crushed stone or gravel.

Wastewater and Sewage generated from Construction Activities

4.5.1.22 Wastewater generated from foundation construction and related activities should be collected and discharged into storm drains after removal of silt and sand in a sedimentation facility. The quality of the discharged effluent in terms of suspended solids, pH, chemical oxygen demand and other contaminants as specified in the discharge licence should be monitored to check for compliance with the licence's requirements. It is recommended that the treated effluent should be reused wherever practicable. The treated effluent could be used for vehicle washing, dust suppression and cleaning. Use of bentonite slurry in diaphragm wall and bore-pile construction should be reconditioned and reused wherever practicable to minimise the volume of used slurry to be disposed of.

4.5.1.23 Wastewater generated from washing of concrete lorry may contain fine concrete particles and the pH value of wastewater would be high (> pH 9). Provision of sediment settling facilities to remove the fine concrete particles prior to discharging into the final sedimentation facility is recommended. Suitable pH adjustment facilities would be required to lower the pH value of wastewater to an acceptable range.

4.5.1.24 Wheel washing facilities should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the construction site by vehicles. Wastewater generated from wheel washing contains a large amount of silt and sand. The wheel washing wastewater should be diverted to the sedimentation facilities for removal of silt and sand before discharging into storm drains. To reduce vehicle tracking of soil and to prevent site runoff from entering storm drains, the road section between the construction site exit and the public road should be properly paved.

4.5.1.25 Building construction involves a large variety of construction activities. Wastewater would be generated from concreting, plastering, cleaning and polishing, internal decoration and similar activities. Direct discharge of wastewater into storm drains would pollute the water quality of the receiving water body. A suitably designed wastewater collection system should be provided on site to divert all the wastewater to the sedimentation facilities. If necessary, pH adjustment should be undertaken to neutralise the wastewater.

4.5.1.26 The newly constructed manholes should be covered and temporarily sealed to prevent debris and wastewater from entering the drainage systems. Similar approach should be taken to prevent pollutants to get into the water supply and drainage pipes during building construction.

4.5.1.27 The drainage which serves open filling points should be connected to a petrol interceptor before discharging into storm drains. If vehicle wash bays and lubrication bays are present on site, these facilities should be located in roofed areas. The drainage serving these areas should be connected to a petrol interceptor prior to discharging into a foul sewer.

4.5.1.28 Emergency plans should be developed to deal with accidental spillage of chemicals. Leakage and spillage should be contained and cleaned up immediately to minimise the pollution to water quality. If chemical wastes are generated from the construction activities, the chemical waste disposal should comply with the Waste Disposal Ordinance.

4.5.1.29 Sewage generated from workforce should be discharged into a foul sewer. Wastewater generated from kitchens contains oily wastes. Grease traps, which are capable of providing at least 20 minutes retention time during peak flow, should be provided to reduce the oil and grease contents in wastewater prior to discharging into a foul sewer. In case where a foul sewer is not available, suitable sewage collection and storage systems should be provided on site to hold the sewage. The stored sewage should be collected and disposed of by a licensed waste collector on a regular basis. Installation of a sewage treatment facility is an alternative to treat the sewage to acceptable discharge standards.

4.5.1.30 It is recommended to provide chemical toilets in buildings under construction and in areas where the construction activity involves a large number of workers for collection of toilet wastes. Cleaning of toilet wastes should be carried out regularly by a licensed waste collector. All the cleaning and waste disposal records should be properly filed.

Ground Improvement

4.5.1.31 Fill material will cover the undredged sediments during reclamation. A sand blanket should be placed on top of the sediments to minimise the disturbance to the sediments. This would minimise the resuspension of sediment particles and release of contaminated substances absorbed in the sediment particles.

4.5.1.32 Vertical sand drains or band drains could be used to release the excess pore water from the compressible soils/sediments during consolidation. Suitable surface drains should be provided at the outlet of sand drains or band drains to collect the pore water. Temporary retention structures with a large surface area could be used to store the collected pore water. Evaporation of pore water from the retention structures reduces the volume of pore water and disposal of pore water could be minimised. In case where discharge of the collected pore water is required, silt traps or wastewater treatment systems should be provided to remove the suspended solids and contaminants prior to final discharge. The quality of treated effluent should comply with the criteria specified in the Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters.

4.5.1.33 The ground improvement work should be properly planned and competent persons should be deployed for carrying out the work.

4.5.1.34 Site trials to test the applicability of DCM may be included in the development programme. A sand blanket should be placed on top of the sediments to minimise the disturbance to the sediments when carrying out the soil mixing operation. Leachate generated from the use of cement stabiliser in the DCM process would have elevated pH value. Release of leachate should be controlled to avoid the potential impacts to the surrounding environment.

4.5.1.35 The cement slurry used for stabilisation will be injected into the sediments. The injection rate should be controlled to avoid leaching out of cement slurry. The slurry waste generated during the DCM process should be properly disposed of. In addition, the treatment work should be properly planned and competent persons should be deployed for carrying out the work. It is recommended to carry out monitoring during the trials to assess the residual environmental impacts arising from the application of the DCM method.

Groundwater Discharge during Dewatering

4.5.1.36 Based on the information reported in the EIA Study for Decontamination of NAKTA, the quality of groundwater in the NAKTA was not significantly contaminated. As groundwater extracted during the excavation and construction of foundation may contain high concentrations suspended solids, it is recommended to provide sedimentation tanks to remove the SS in groundwater to levels in compliance with the TM requirements prior to final discharge.

4.5.1.37 Measures to minimise the release of contaminants during excavation of soil in the NAKTA area include:

- Carrying out excavation during dry season wherever possible to minimise the potential water quality impacts resulting from contaminated runoff;
- Covering the excavated material to minimise exposure of contaminated soil to rainwater;
- Recharging the groundwater extracted from the excavation site back into the groundwater table through groundwater recharge wells, which could be built near the excavation site. This reduces the discharge of groundwater into the nearshore water; and
- Monitoring the concentrations of benzene, toluene and tetrachlororethylene should groundwater discharge during dewatering be required. The groundwater should be collected and treated to the standards as recommended by the USEPA prior to final discharge.

4.5.2 *Operational Phase*

Sewage Generated from the SEKD

4.5.2.1 Upon completion of the SEKD, the population in the area would be increased. Sewage generated from the development area will be collected by a sewerage network, which diverts the flows to the KWPTW and TKWPTW for treatment. In addition, sewage would be treated to acceptable discharge standards as required by EPD provided that the two preliminary treatment works have sufficient spare capacities to handle the flows from the development.

4.5.2.2 Adequate sewers, rising mains and sewage pumping stations should be proposed in the design of sewerage systems for different phases of the SEKD. It is anticipated that there would be no adverse water quality impacts due to the sewage generated from the SEKD.

Presence of the SEKD Reclamation

4.5.2.3 The physical presence of the KTAC reclamation increases the land area within the Victoria Harbour. The present scheme of the SEKD has already minimised the reclamation area. There would be no major changes in coastline configurations due to the reclamation in the KTAC and KTTS. The predicted hydrodynamic condition for year 2003 showed no significant variations in current speeds in the harbour.

4.5.2.4 When the whole development is completed, there would be a slight reduction in average discharge (less than 3%) through the Victoria Harbour channel. The current speeds along the

channel would be slightly increased as a result of reduction in cross-sectional area. Dispersion of pollutants in the channel would be enhanced.

Discharges from Storm Drains and Sewage Outfalls/Nullahs

4.5.2.5 Diversion of Kai Tak Nullah and Jordan Valley box culvert from the KTAC to Kowloon Bay and the implementation of KTAC reclamation would eliminate the odour problem at KTAC. The flow carried by the nullah and box culvert would be discharged into the fast moving water in Kowloon Bay. Dispersion and dilution of pollutants in Kowloon Bay would be better when compared to the conditions in the KTAC.

4.5.2.6 The reduction in pollution load as a result of drainage and sewerage improvement works would minimise the water quality impacts to the Kowloon Bay water. Kai Tak Nullah and Jordan Valley box culvert will ultimately be extended further away to the open water in the Victoria Harbour after the completion of the whole SEKD. The water quality condition in the Kowloon Bay area would be improved when compared to the condition at the interim development stage.

4.5.2.7 The box culvert entering KTTS will also be diverted to Kowloon Bay after the implementation of the KTTS reclamation. Other existing box culverts carrying storm water to Kowloon Bay will be extended to the new coastline boundary. Effective controls on illegal discharge of wastewater into the nullahs would be required to minimise the water quality impacts. Illegal discharge of wastewater into the nullahs would be controlled through the implementation of legislation, enforcement of the laws and policies, regular inspections and prosecution by relevant departments.

Water Quality in the Extended Sections of Diverted Nullahs

4.5.2.8 The model predictions showed that the water quality in the extended sections of Kai Tak Nullah and Tsui Ping Nullah would be within acceptable levels. The water quality in the nullahs could be improved through drainage and sewerage improvement works. Overflows from dry weather flow interceptors (DWFIs) and illegal discharge of wastewater into the nullahs should be controlled. Control of overflows from DWFIs can be achieved through the proper design of DWFIs. This issue would be dealt with at the detailed design stage. The suspended particles carried by the flow in the nullahs would have a higher potential to settle on the channel bottoms when the flow mixed with the seawater near the nullah exits. Large particles would tend to settle in the region with low flow velocity.

4.5.2.9 Deposition of debris and silt in the extended sections of nullahs and box culverts could be avoided by undertaking regular maintenance works. Desilting works should be carried out on a regular basis to maintain the normal hydraulic condition in the nullahs.

4.5.2.10 The septicity problem due to deposition of debris and silt in the nullahs would be minimised by undertaking regular desilting and maintenance works. There is a potential of release of hydrogen sulphide from the deposited sediment. Forced ventilation should be continuously maintained during the carrying out of desilting and maintenance works. When the sediment is disturbed during desilting process and is removed to the ground surface, odour would be generated and dispersed to the surrounding environment. Use of sealed suction hose and enclosed tanker/container would reduce the odour impact. Open stockpiles of the removed sediment should be avoided and the sediment should be transported immediately to treatment facilities or disposal sites.

4.5.2.11 It is proposed to include in the EM&A programme that water quality monitoring should be implemented to determine the need for maintenance dredging in the extended section of Kai Tak Nullah. One of the purposes of maintenance dredging is to restore the hydraulic capacity of channel/box culvert. As the presence of deposited sediment in channel/box culvert may

generate odour and decomposition of organic matter would deteriorate water quality, the removal of sediment from the channel/box culvert during maintenance dredging can also minimise these impacts. Control and monitoring stations should be selected for monitoring the DO levels in the water near the nullah and inside the nullah. An initial monitoring period of 2 years is recommended. Details of the proposed action plan to trigger maintenance dredging are presented in the EM&A manual.

4.5.2.12 The approach to minimise the influence on water quality condition in Tsui Ping Nullah due to the presence of breakwater would be to install a tidal barrier to prevent the tidal flow from entering the nullah during the flood tides. A pumping station would be required to transfer the water behind the tidal barrier to the restricted waterway. This avoids the deposition of sediment in the lower reach of the nullah as a result of seawater intrusion. However, it is expected that the presence of breakwater would not cause adverse impacts to the water quality in Tsui Ping Nullah.

Cooling Water Discharges

4.5.2.13 The modelling results for the district cooling water discharges showed the nearby sensitive receivers would not be adversely affected. The region with elevated temperature would be close to the discharge point. The residual chlorine and biocide used to prevent fouling of the cooling system would be in low concentrations in the receiving water.

4.5.2.14 The distance between the seawater intake point and the discharge point for the DCS needs to be reviewed. Tidal current may carry the thermal plume towards the intake point during flood tide. The water with elevated temperature would enter the cooling system reducing the efficiency of the system. During the detailed design stage of the cooling system, a longer distance for separating the intake and discharge points may need to be adopted. Due to buoyancy effect, the thermal plume remains at the water surface. The seawater intake could be constructed at a level below the thermal plume layer to avoid short-circuiting.

4.5.2.15 The concentrations of chlorine and biocide should be suitably controlled to avoid release of excess chemicals into the receiving water body. Maintenance of DCS needs to be implemented on a regular basis to ensure the normal operation of the system.

Storm and Emergency Overflows

4.5.2.16 During the dry weather period, the quantity of dry weather flow would be relatively low. In the case of the occurrence of storm overflow during high tides, the dry weather flow, which has a lower density than the seawater, would tend to flow near the water surface. The overflow of this more polluted surface layer would carry higher pollution loads. The release of pollutants may be more than the wet weather overflow condition. It is therefore recommended to control the overflow discharge at a level below the water surface by introducing suitable control mechanisms at the overflow weir. This should be considered at the detailed design stage of the project. To minimise the impacts to the new KTTS and marina, the following measures should be considered:

- Stormdrains should be diverted away from the typhoon shelter and the marina; and
- For the storm overflows into the KTTS, the overflow weirs should be set at a level of 2.5mPD or above. The overflow structure should be so designed to avoid, during dry weather condition, the overflow of the dry weather flows, which tends to form a thin surface layer on top of the seawater due to the lower density, into the typhoon shelter.

4.5.2.17 To avoid the impacts due to the emergency overflows from TKWPTW and KTPTW to the WSD's seawater intakes at Tai Wan and Cha Kwo Ling, the seawater extracted from the intake points should be monitored for *E. coli* and SS levels. The management of the two sewage treatment works should inform WSD to take protective measures when emergency

overflow occurs. Disinfection of the extracted seawater can lower the *E. coli* levels during the period of emergency overflow and installation of silt curtains in front of the seawater intake points would reduce the SS to acceptable levels. The following measures should be incorporated to deal with emergency overflows from KTPTW and TKWPTW:

- For the emergency overflow from KTPTW, a by-pass pipe should be provided to convey the emergency overflow along the new breakwater (eastern arm of KTTS) and to discharge at the end of the breakwater to allow quick dispersion of the sewage plume; and
- For the emergency overflow from TKWPTW, an emergency bypass along the proposed box culvert (Outfall P1) plus a 150m submarine outfall should be provided to allow discharging into more open water.

4.6 Impact Summary

4.6.1.1 Implementation of mitigation measures reduces the water quality impacts arising from the construction and operational phases of the development. The remaining water quality impacts after implementation of mitigation measures are referred to as residual impacts.

4.6.1.2 The reduction in cross-sectional area in the harbour after reclamation would slightly increase the current speeds and reduce the quantity of flow passing through the harbour. Based on the model predictions, the resulting hydrodynamic and water quality would not be adversely affected by the SEKD.

4.6.1.3 The existing water quality in Victoria Harbour exceeds the WQO values for some parameters monitored by EPD. The background level of TIN is high. The predicted water quality condition also showed high TIN concentrations in the harbour. It is not likely that the SEKD would increase the exceedances of the WQO for TIN. In fact, the water quality in the harbour would be improved in 2016 as the pollution flows and loads entering the harbour would be reduced.

4.6.1.4 Diversion of flows from the KTAC to Kowloon Bay would increase the pollution loads in the Kowloon Bay area. Redistribution of pollutants from the low flushing capacity area at KTAC to the relatively high flushing capacity area at Kowloon Bay would enhance the dispersion and dilution of pollutants. The option of adopting the shortest route of the KTN diversion is not likely to cause unacceptable water quality changes in TKWTS. The proposed fall back option of diverting the flows away from TKWTS provides an alternative to further prevent deterioration of water quality in the typhoon shelter.

4.6.1.5 The cooling discharges would have little impact on the nearby sensitive receivers. The area of influence as a result of the increases in water temperature and concentrations of anti-fouling chemicals would be in the close proximity of the discharge point.

4.6.1.6 Implementation of mitigation measures would minimise the water quality impacts arising from the construction and operational phases of the SEKD. With the inclusion of suitable mitigation measures in the Environmental Monitoring and Audit programme, the potential water quality impacts are expected to be within acceptable levels. There would be no insurmountable water quality impacts to the environment due to the proposed development.

4.6.1.7 An impact summary for water quality impacts during the construction and operational phases of the proposed SEKD is included in **Table 4.58**.