Appendix M
Investigation Report for Exceedances

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: A140324_24TSP

Date	24 March 2014
Time	--
Monitoring Location	SR77
Parameter	24-Hr Total Suspended Particulate
Action / Limit Levels	Action Level: 170.3μg/m^3 Limit Level: 260μg/m^3
Measured Level	188.1μg/m^3 (Action level being exceeded)
Possible reason for the exceedance	It was noticed that there were construction works being undertaken by another Contractor (under Contract No. TP/2010/02) which occurred immediately next to the High Volume Sampler (HVS) of the air quality monitoring station at SR77 (refer to the attached photo). Such works mainly involved excavation of earth materials, operation of excavator (with exhaust emission), handling and moving of earth materials, etc. These construction works are anticipated to cause considerable suspended particulates impact that may lead to high TSP levels as have been measured by our HVS. The construction works are anticipated to be completed by the end of April 2014. Also, the HVS is located close to roadside. When there is traffic, the vehicles may cause disturbance to the nearby open excavation sites, generate dust impact and affect the TSP results recorded by the HVS. On the other hand, the construction works carried out during the monitoring period included backfilling works being carried out at northern side of the site and extension of box culverts, which were at a much farther distance from the air quality monitoring station at SR77 (refer to the attached location plan showing the works activities of the entrusted portion). As such, the exceedance was unlikely due to the construction works of the project.

Action taken / to be taken	As the exceedance was non-project related, no further investigation and specific remedial measure(s) would be recommended for the Entrusted Works. Nevertheless, the following mitigation measures had been implemented on-site for dust suppression: 1. Exposed slopes near the river were covered with impervious sheets; 2. Any open stockpile of construction materials were covered with impervious sheet; 3. Sufficient watering was applied along the haul road.
Remarks	-

Construction works observed within close proximity of SR77 (Date: 24 March 2014)

Dust suppression is being undertaken at construction site (Date: 24 March 2014)

Contract No. CV/2012/09
Liantang / Heung Yuen Wai Boundary Control Point
Site Formation and Infrastructure Works - Contract 3

俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

SETTING OUT POINTS

	EASTING	NORTHING
A	833867.6259	837368.5638
B	833945.6833	837375.1412
C	833721.8117	838310.5250
D	833782.3083	838375.1303

Extension of box culvert ID4

Extension of box culvert ID5

Backfilling of soil to reach the same level as Fanling Highway

SR77
Air Monitoring Satation

CV201209-T-CWC-SK-001g_AD_edit.dgn 23/12/2013 14:21:13

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W140324_SS

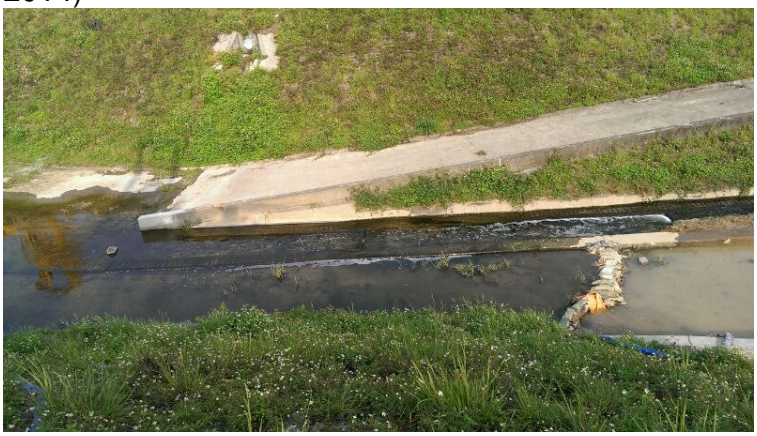
Date	24 March 2014
Time	10:03am
Monitoring Location	I5
Parameter	Suspended Solids
Action / Limit Levels	Action Level: 42.6 mg/L or 120% of upstream control station's SS of the same day (i.e. 5.3mg/L) Limit Level: 46.8 mg/L or 130% of upstream control station's SS of the same day (i.e. 5.8mg/L)
Measured Level	11.3mg/L (Limit level being exceeded - 130% of C3a)
Possible reason for the exceedance	Construction within proximity of the river channel is listed as follows: Box Culvert ID4 (refer to attached photos) - Formwork erection for casting Bay 3 Box Culvert ID5 (refer to attached photos) - Backfill of outfall Construction works at the river stream are properly enclosed by sandbags to avoid site runoff. No spillage is identified. (refer to attached photos) For comparison, suspended solids levels at C3a and C3b on 24 March 2014 are 4.5mg/L and 4.1mg/L respectively. The results are very low when comparing against the baseline monitoring where the suspended level can be as high as 51mg/L and 88mg/L at C3a and at C3b respectively. Also, recorded suspended solids level at I5 has not exceeded the maximum recorded level of 47mg/L during baseline monitoring and significantly below the absolute action level of 42.6mg/L. As 11.3mg/L is considered low level, and proper mitigations were fully implemented as a preventive measure to ensure no adverse water quality impact to the river environment, it is unlikely that the construction works activities would be the possible sources and reasons of contamination.

	It is therefore considered that elevation of suspended solids would be due to natural fluctuation.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. Nonetheless, contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Construction works at ID4 (24 March 2014)

Construction works at ID5 (24 March 2014)

The construction works are properly protected with sand bags. (Date: 24 March 2014)



Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W140326_SS

Date	26 March 2014
Time	10:09am
Monitoring Location	I5
Parameter	Suspended Solids
Action / Limit Levels	Action Level: 42.6 mg/L or 120% of upstream control station's SS of the same day (i.e. 5.9mg/L) Limit Level: 46.8 mg/L or 130% of upstream control station's SS of the same day (i.e. 6.4mg/L)
Measured Level	13mg/L (Limit level being exceeded - 130% of C3a)
Possible reason for the exceedance	Construction within proximity of the river channel is listed as follows: Box Culvert ID4 (refer to attached photos) - Concreting of Bay 3 Box Culvert ID5 (refer to attached photos) - Formwork erection for headwell Construction works at the river stream are properly enclosed by sandbags to avoid site runoff. No spillage is identified. (refer to attached photos) For comparison, suspended solids levels at C3a and C3b on 26 March 2014 are 4.6mg/L and 4.9mg/L respectively. The results are very low when comparing against the baseline monitoring where the suspended level can be as high as 51mg/L and 88mg/L at C3a and at C3b respectively. Also, recorded suspended solids level at I5 has not exceeded the maximum recorded level of 47mg/L during baseline monitoring and significantly below the absolute action level of 42.6mg/L. As 13mg/L is considered low level, and proper mitigations were fully implemented as a preventive measure to ensure no adverse water quality impact to the river environment, it is unlikely that the construction works activities would be the possible sources and reasons of contamination.

	It is therefore considered that elevation of suspended solids would be due to natural fluctuation.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. Nonetheless, contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Construction works at ID4 (26 March 2014)

Construction works at ID5 (26 March 2014)

The construction works are properly protected with sand bags. (Date: 26 March 2014)

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W140331_SS

Date	31 March 2014
Time	11:09am
Monitoring Location	I5
Parameter	Suspended Solids
Action / Limit Levels	Action Level: 42.6 mg/L or 120% of upstream control station's SS of the same day (i.e. 90mg/L) Limit Level: 46.8 mg/L or 130% of upstream control station's SS of the same day (i.e. 97.5mg/L)
Measured Level	72.5.mg/L (Limit level being exceeded)
Possible reason for the exceedance	There was a heavy rainstorm during water sampling and the river is muddy due to vigorous water flow. The elevated suspended solids level was due to riverbed disturbed by the river flow. During the water sampling, there is no works being carried out within proximity of the river channel due to adverse weather condition. Both control stations also showed elevated suspended solids levels due to the adverse weather condition. It is therefore considered that elevation of suspended solids level would be due to natural fluctuation.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. Nonetheless, contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Muddy water observed at I5 during rainstorm. (Date: 31 March 2014)

Muddy water observed at C3a during rainstorm. (Date: 31 March 2014)

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W140331_Tby

Date	31 March 2014
Time	11:09am
Monitoring Location	I5
Parameter	Turbidity
Action / Limit Levels	Action level: 81.9 NTU or 120% of upstream control station's Tby of the same day (i.e. 108.4NTU) Limit Level: 91.9 NTU or 130% of upstream control station's Tby of the same day (i.e. 117.4NTU)
Measured Level	86.7NTU (Action level being exceeded)
Possible reason for the exceedance	There was a heavy rainstorm during water sampling and the river is muddy due to vigorous water flow. The elevated turbidity was due to riverbed disturbed by the river flow. During the water sampling, there is no works being carried out within proximity of the river channel due to adverse weather condition. Both control stations also showed elevated turbidity levels due to the adverse weather condition. It is therefore considered that elevation of turbidity would be due to natural fluctuation.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. Nonetheless, contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Muddy water observed during rainstorm. (Date: 31 March 2014)

Muddy water observed at C3a during rainstorm. (Date: 31 March 2014)