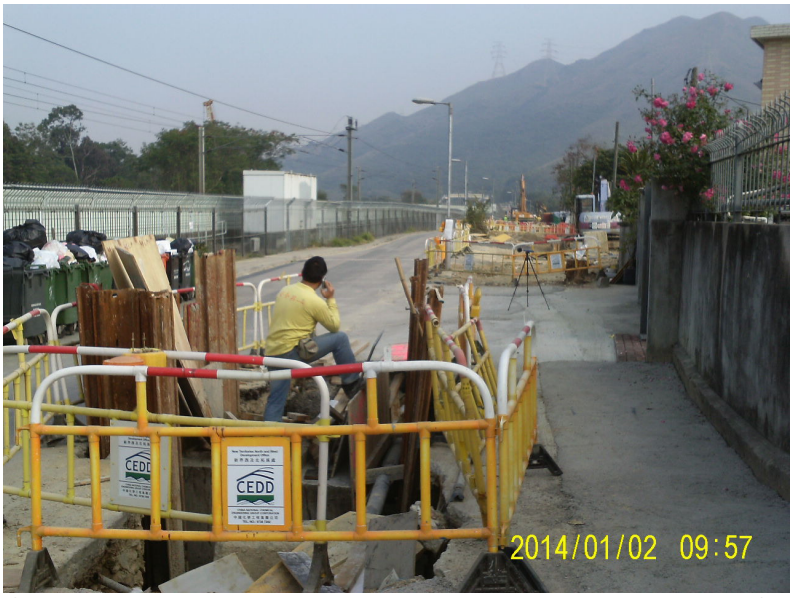
Appendix L
Investigation Report for Exceedances

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.: A140102_24TSP

Date	2 January 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	200.5μg/m^3 (Action level being exceeded)
Possible reason for the exceedance	It was noticed that there were construction works being undertaken by another Contractor which then occurred in very close proximity (about 5m) 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 have considerable suspended particulates impact that may lead to high TSP levels as have been measured by the nearby HVS. On the other hand, as there were no records of large scale excavation and earth movement works carried out for the Entrusted Works. Only the extension of box culverts were undertaken during the monitoring, 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 a conclusion, 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: 2 January 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

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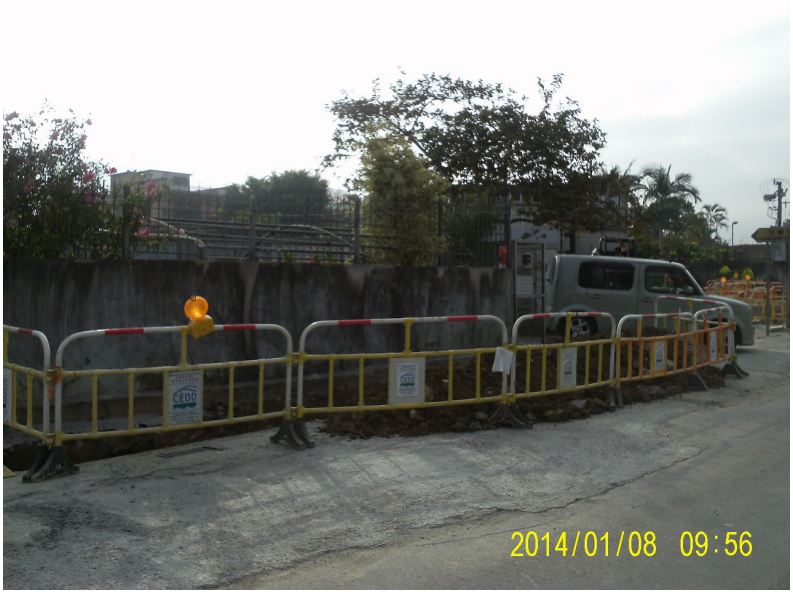
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: A140108_24TSP

Date	8 January 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	229.5μg/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 then occurred in very close proximity (less than 1m) 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 have considerable suspended particulates impact that may lead to high TSP levels as have been measured by the nearby HVS. The construction works is anticipated to be completed by the end of April. On the other hand, as there were no records of large scale excavation and earth movement works carried out for the Entrusted Works. Only the extension of box culverts were undertaken during the monitoring, 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 a conclusion, 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: 8 January 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

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

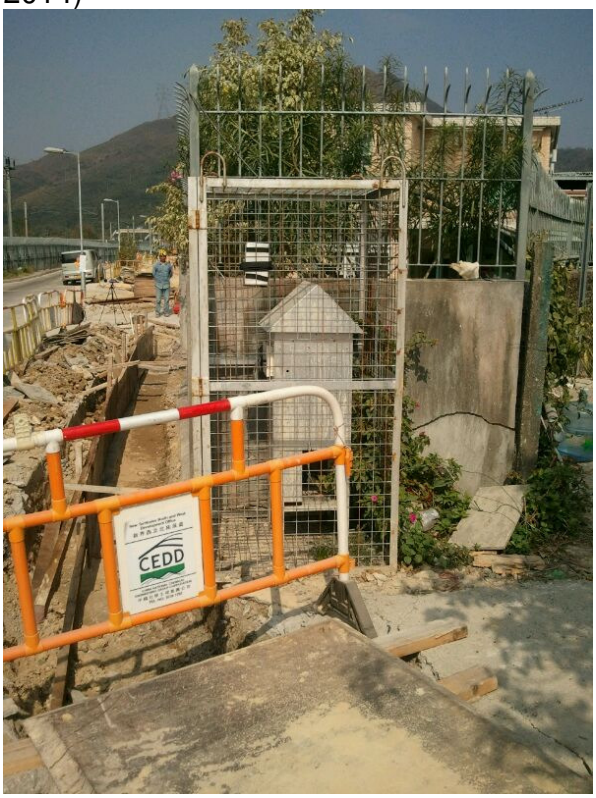
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: A140114_24TSP

Date	14 January 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	210μg/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 then 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 have considerable suspended particulates impact that may lead to high TSP levels as have been measured by the nearby HVS. The construction works is anticipated to be completed by the end of April. On the other hand, as there were no records of large scale excavation and earth movement works carried out for the Entrusted Works. Only the extension of box culverts were undertaken during the monitoring, 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 a conclusion, 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: 14 January 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

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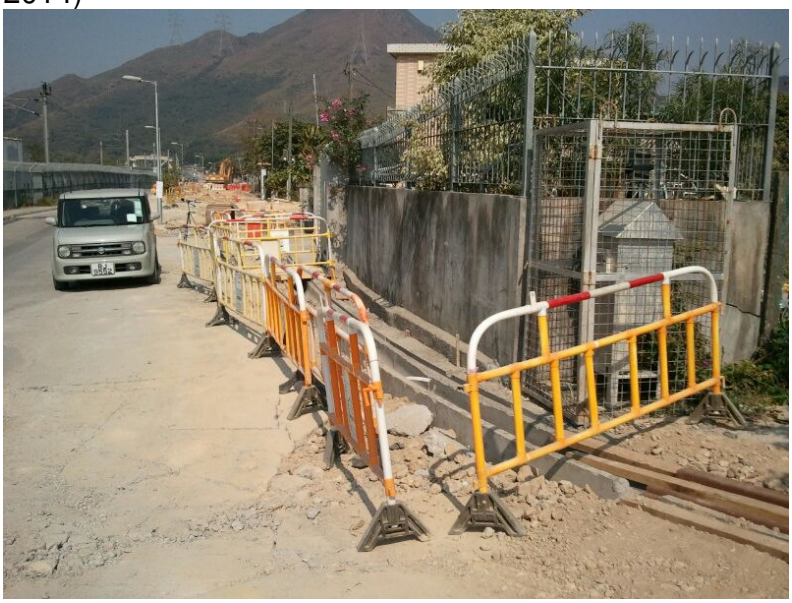
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: A140120_24TSP

Date	20 January 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	322.8μg/m^3 (Limit 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 then 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 have considerable suspended particulates impact that may lead to high TSP levels as have been measured by the nearby HVS. The construction works is anticipated to be completed by the end of April. On the other hand, as there were no records of large scale excavation and earth movement works carried out for the Entrusted Works. Only the extension of box culverts were undertaken during the monitoring, 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 a conclusion, 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: 20 January 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

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

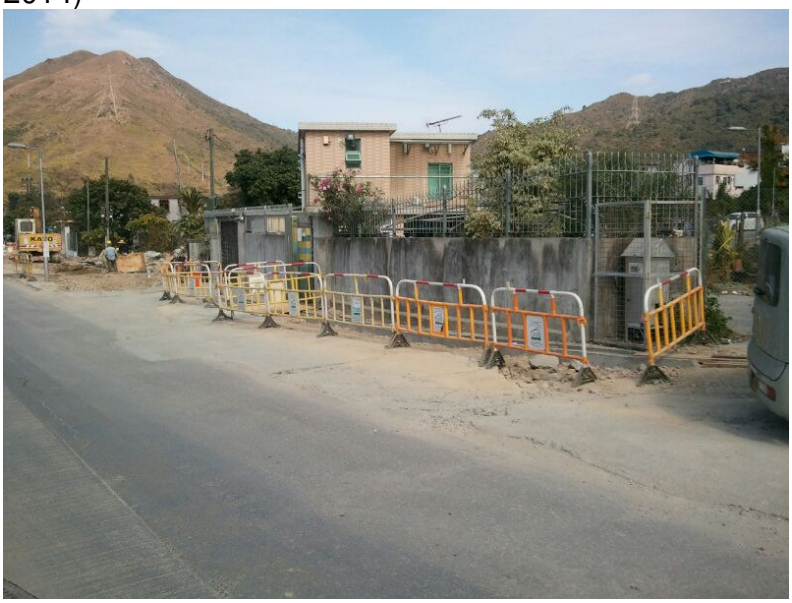
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: A140125_24TSP

Date	25 January 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	172.0μg/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 then 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 have considerable suspended particulates impact that may lead to high TSP levels as have been measured by the nearby HVS. The construction works is anticipated to be completed by the end of April. Also, the HVS is located close to roadside. When there is traffic, the vehicles may disturb the fugitive dust from nearby open excavation sites, generates dust impact and affects the TSP results recorded by the HVS. On the other hand, construction works carried out during the monitoring period include 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). Hence, considered the fact that TSP level has only marginally exceeded the action level by about 2μg/m^3 and the exceedance is regarded as minor, as a conclusion, 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: 25 January 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

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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.: A140130_24TSP

Date	30 January 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	175.8μg/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 then 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 have considerable suspended particulates impact that may lead to high TSP levels as have been measured by the nearby HVS. The construction works is anticipated to be completed by the end of April. Also, the HVS is located close to roadside. When there is traffic, the vehicles may disturb the fugitive dust from nearby open excavation sites, generates dust impact and affects the TSP results recorded by the HVS. On the other hand, construction works carried out during the monitoring period include 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). Hence, considered the fact that TSP level has only marginally exceeded the action level by about 6μg/m^3 and the exceedance is regarded as minor, as a conclusion, 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: 30 January 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

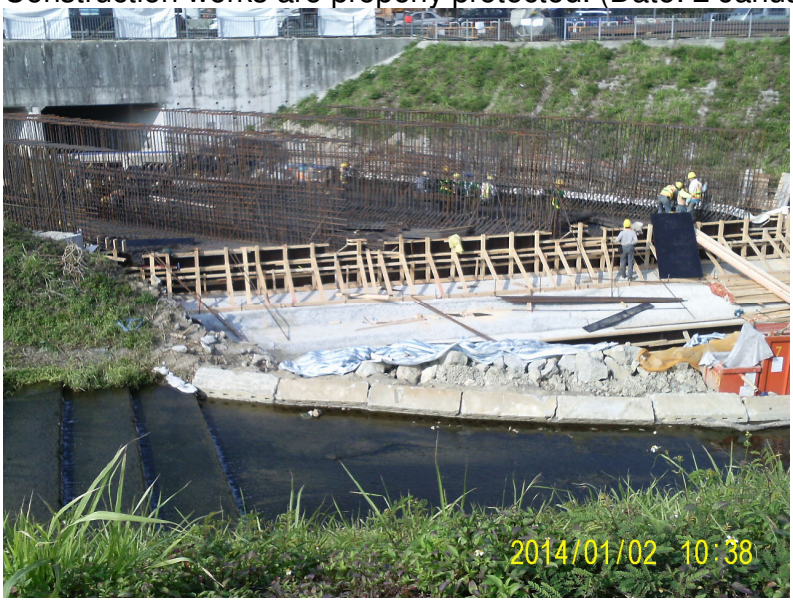
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W140102_Tby

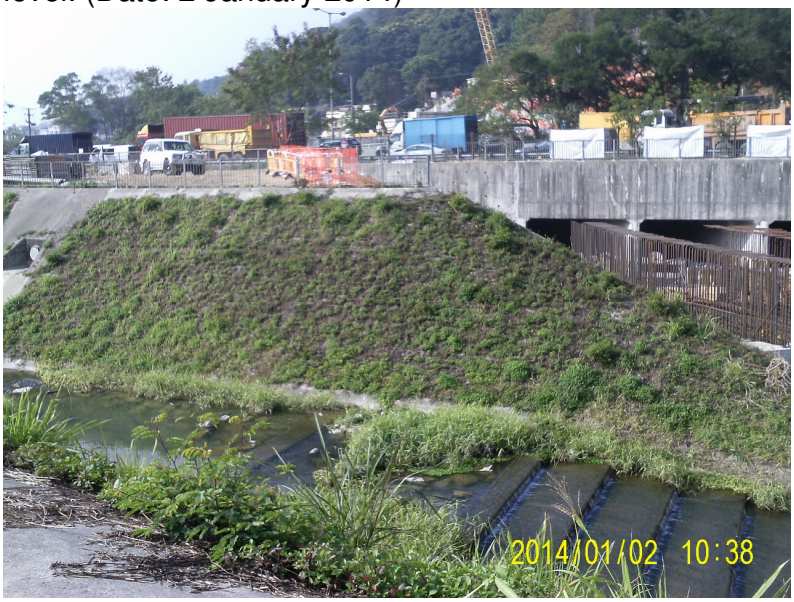
Date	2 January 2014
Time	10:44
Monitoring Location	I5
Parameter	Turbidity
Action / Limit Levels	Action level: 81.9 NTU or 120% of upstream control station's Tby of the same day (i.e. 31.1NTU) Limit Level: 91.9 NTU or 130% of upstream control station's Tby of the same day (i.e. 33.7NTU)
Measured Level	32.5NTU (Action level being exceeded - 120% of C3b)
Possible reason for the exceedance	Construction within proximity of the river channel is listed as follows: Box Culvert ID4 Formworks erection for base slab Box Culvert ID5 Formworks erection for walls Construction works at the river stream are properly enclosed by a bund to avoid site runoff. No spillage is identified. Consider the suspended solids level for the water sample is only 9mg/L, which is significantly lower than the SS level in C3a (17.5mg/L) and C3b (21.5mg/L), it is considered that the exceedance would not due to the construction works. Site observation at C3b observed the river water quality would be at high turbidity level. For comparison, turbidity levels at C3a and C3b on 2 January 2014 are 18.9NTU and 25.9NTU respectively. During baseline monitoring the turbidity level can be as high as 86.9NTU and 116NTU at C3a and at C3b respectively. Recorded turbidity level at I5 has not exceeded the maximum recorded level of 92.3NTU during baseline monitoring. 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.
Remarks	-

Construction works are properly protected. (Date: 2 January 2014)



Site observation at C3b observed the river water quality would be at high turbidity level. (Date: 2 January 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.: W140115_SS

Date	15 January 2014
Time	13:30
Monitoring Location	I5
Parameter	Suspended Solid
Action / Limit Levels	Action Level: 42.6 mg/L or 120% of upstream control station's SS of the same day (i.e. 8.4mg/L) Limit Level: 46.8 mg/L or 130% of upstream control station's SS of the same day (i.e. 9.1mg/L)
Measured Level	11mg/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) Formworks erection for top slabs Steel bar fixing for outfall structure Box Culvert ID5 (refer to attached photos) Formworks erection for box culvert Laying blinding for the outfall structure Construction works at the river stream are properly enclosed by a bund to avoid site runoff. No spillage is identified. (refer to attached photos) For comparison, suspended solids levels at C3a and C3b on 15 January 2014 are 7mg/L and 5.5mg/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. In addition, the turbidity level for the water sample at I5 on the same day is 22.1NTU, which is similar to the turbidity level in C3a (17.4NTU) and C3b (21.9NTU), it is considered that the water quality has not been worsened and hence the exceedance would not due to the construction works.

	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.
Remarks	-

Construction works at ID4 (15 January 2014)

Construction works at ID5 (15 January 2014)

The construction works are properly protected with sand bags. (Date: 15 January 2014)

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

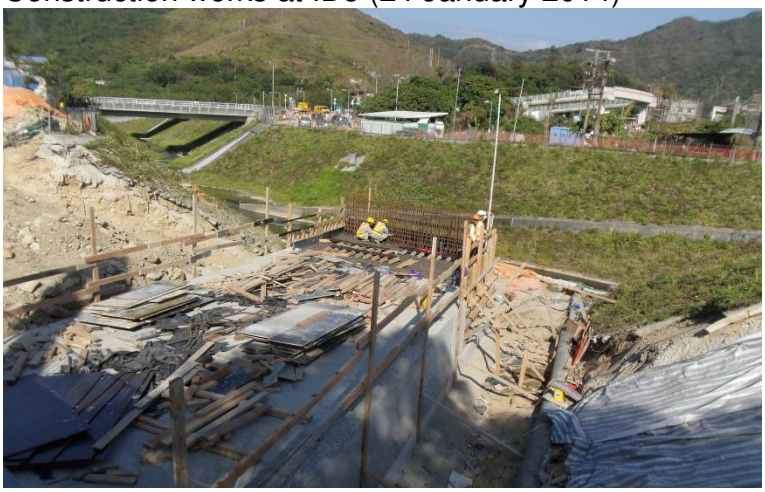
Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W140124_SS

Date	24 January 2014
Time	13:33
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. 7.2mg/L) Limit Level: 46.8 mg/L or 130% of upstream control station's SS of the same day (i.e. 7.8mg/L)
Measured Level	9.5mg/L (Limit level being exceeded - 130% of C3b)
Possible reason for the exceedance	Construction within proximity of the river channel is listed as follows: Box Culvert ID4 (refer to attached photos) - Formworks erection for external wall of Bay 2 - Steel bar fixing for headwall Box Culvert ID5 (refer to attached photos) - Formworks erection for headwall and wall of Bay 3 Construction works at the river stream are properly enclosed by a bund to avoid site runoff. No spillage is identified. (refer to attached photos) For comparison, suspended solids levels at C3a and C3b on 24 January 2014 are 4mg/L and 6mg/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. In addition, the turbidity level for the water sample at I5 on the same day is 30.4NTU, which is similar to the turbidity level in C3b (29.4NTU) but not C3a (15.9NTU). It is therefore considered that the water quality has been influenced from the upstream at C3b and hence the exceedance would not due to the construction works.

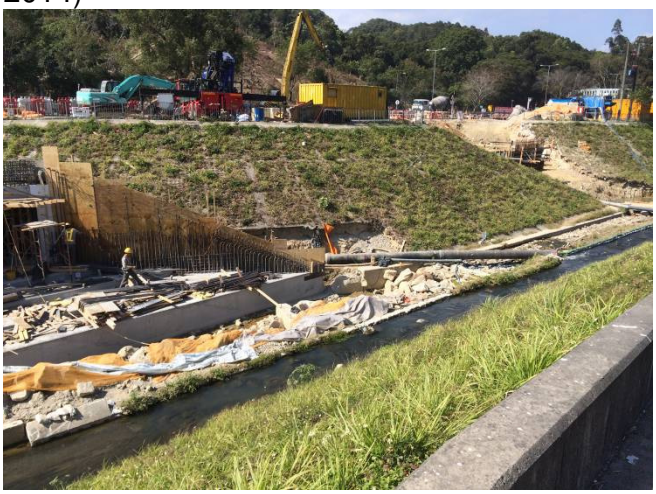
	Site walk at about 11:00 on the same day identified some muddy water being discharged at upstream of C5b. This may contribute to the elevation of SS level at I5. (refer to attached photos) Aquatic plants growth was also identified in the river course between C3a and I5. Since the location of plantation growth located before the Box Culvert ID4 the growth would not be introduced by construction works. The plants being washed away by the water would cause the level of suspended solid level to elevate. (refer to attached photos) 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.
Remarks	-

Construction works at ID4 (24 January 2014)

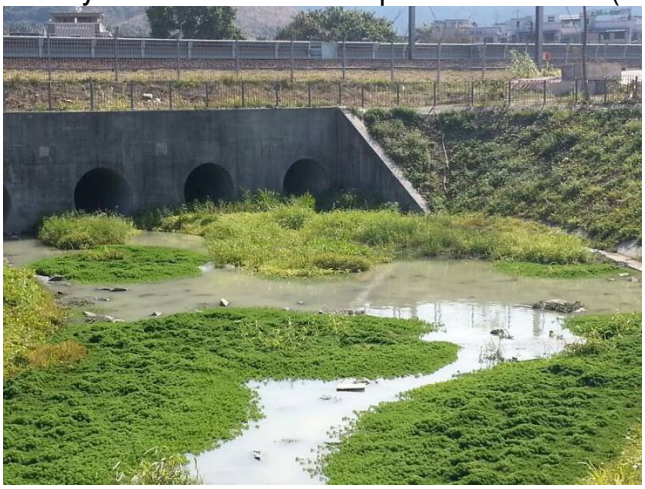
Construction works at ID5 (24 January 2014)



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



Muddy water observed at upstream of C3b. (Date: 24 January 2014)



Aquatic plant growth observed. (Date: 24 January 2014)