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Report No.: 0165/15/ED/0867

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INVESTIGATION REPORT ON ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

**Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and
Ancillary Buildings and Facilities**

Report No. Ref.: 0165-15-IR002

Prepared by: Ms. Jamie Tam

Reviewed by: Mr. Bong Yu

Certified by: 
Mr. Arthur Cheng
Environmental Team Leader

Date: 1-8-2017

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NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR002

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing
Facilities - Vehicle Clearance Plazas and Ancillary Buildings and
Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance W107 was forwarded by IEC on 26
July 2017, with the information provided by the ET of Contract No. HY/2010/02:

Monitoring Date: 12 July 2017

The Action and Limit Levels of suspended solids (SS) determined from baseline
monitoring data are listed below:

Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Depth averaged SS (in mg/L)	23.5	34.4

Mid-Ebb tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring Time	Measured Depth Averaged	Level Exceeded
SR3	13:49	24.7	Action

Monitoring was undertaken by the ET of Contract No. HY/2010/02. The Notification
of Action/Limit Level Exceedance W107 provided by the ET of Contract No.
HY/2010/02 is shown in **Appendix A**.

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3. Investigation of Non-compliance

Date Exceedance Investigated by Environmental Team: 1 August 2017

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, marine-based construction works were undertaken in Box Culvert B and there was one derrick lighter delivered sand to the work site of Three Runway Project on 12 July 2017 under Contract No. HY/2013/03. Both marine-based construction works and the route of marine transportation were far away from the concerned WQM station SR3. There was no notification of exceedance received at the WQM stations closer to the marine-based construction works areas, such as IS(Mf)11, IS10, IS17 and SR7. Besides, the SS exceedance was recorded at 13:49. The derrick lighter was deposited at HKBCF from morning until 16:00. Therefore, it was unlikely to generate any suspended solids to cause the SS exceedance recorded at the concerned WQM station SR3 during mid-ebb tide on 12 July 2017. The location of the WQM station where exceedance was recorded and all relevant WQM stations are shown in **Figure 1** and the locations of marine transportation and marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
W1-
 1. barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
 2. any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
 3. loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
 4. excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
 5. adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
 6. all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

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4. Follow up Status (Exceedance)

During weekly site audit on 30 June, 6 and 13 July 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
- Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

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Figure 1

The Location of WQM Stations

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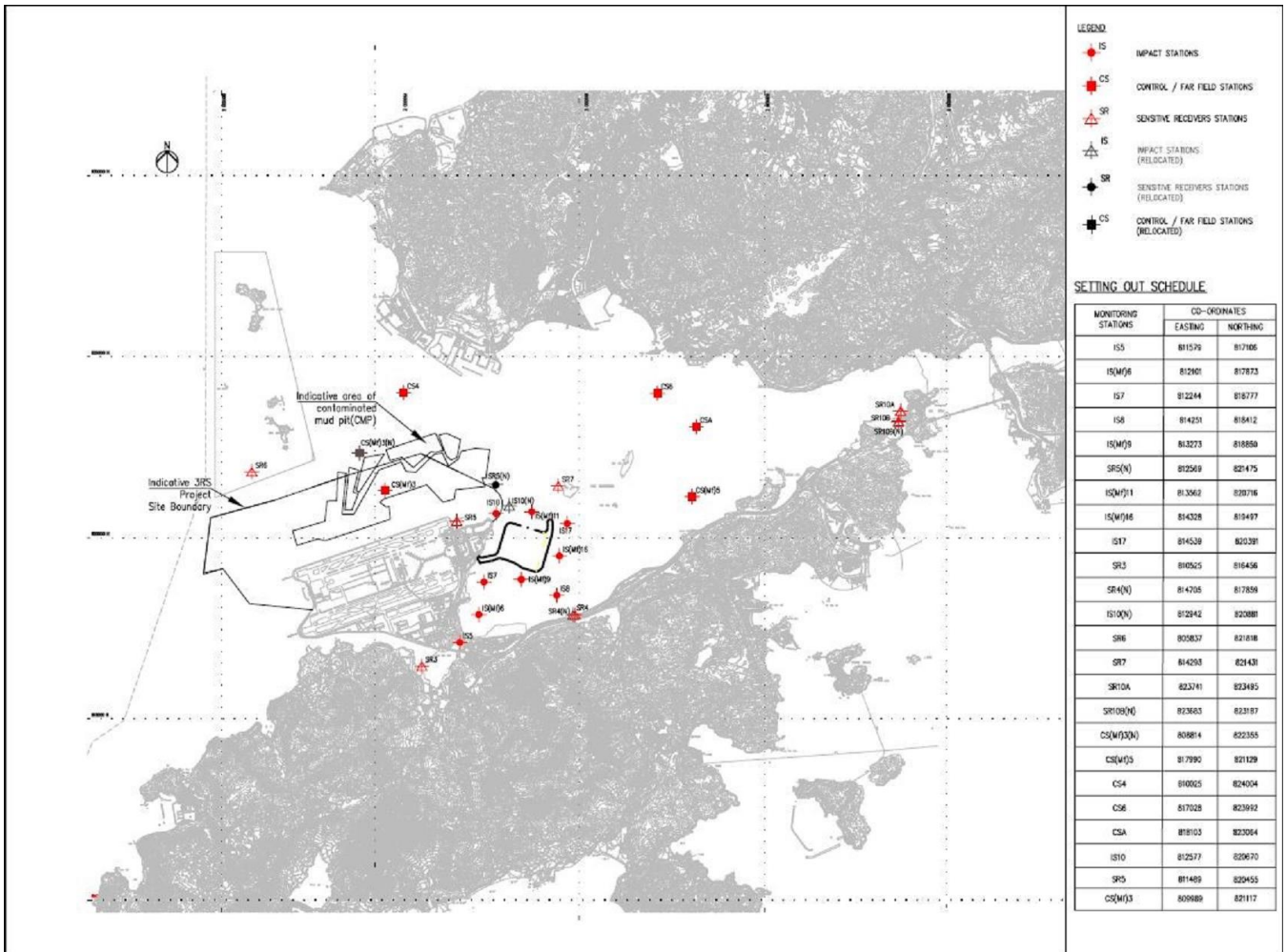
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Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

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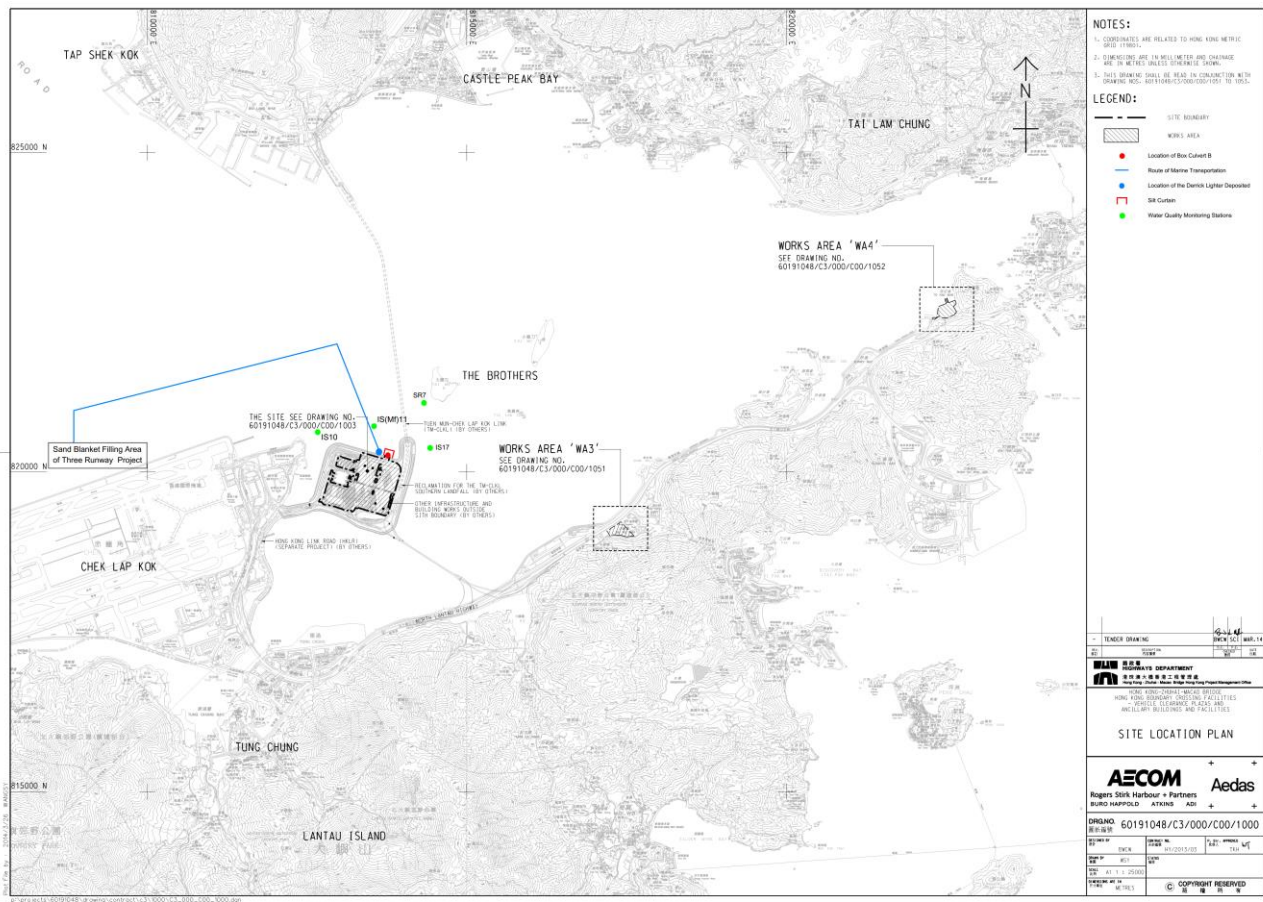
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Appendix A

Notification of Limit Level Exceedance W107

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Contract No. HY/2010/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Reclamation Works
Incident Report on Action Level or Limit Level Non-compliance

Report No. W107
Monitoring Date 12-Jul-17

The Action and Limit Levels of turbidity and suspended solids (SS) determined from baseline monitoring data are reproduced below:

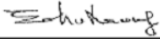
Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Depth averaged SS (in mg/L)	23.5	34.4

Mid-Ebb tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
SR3	13:49	24.7	Action

Investigation results will be provided within three working days.

ET Leader Signature & Date:  26-Jul-17

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INVESTIGATION REPORT ON ACTION AND LIMIT LEVEL NON-COMPLIANCE

FOR

CONTRACT NO. HY/2013/03

**Hong Kong Zhuhai Macao Bridge
Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and
Ancillary Buildings and Facilities**

Report No. Ref.: 0165-15-IR003

Prepared by: Ms. Jamie Tam

Reviewed by: Mr. Bong Yu

Certified by: 
Mr. Arthur Cheng
Environmental Team Leader

Date: 1-8-2017

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NON-COMPLIANCE INVESTIGATION REPORT No.: 0165-15-IR003

1. Project Details

Contract No.: HY/2013/03

Contract Title: Hong Kong Zhuhai Macao Bridge Hong Kong Boundary Crossing
Facilities - Vehicle Clearance Plazas and Ancillary Buildings and
Facilities

Project Proponent: Highways Department

Main Contractor: China Harbour Engineering Co. Ltd.

2. Details of Non-compliance

Notification of Action/Limit Level Exceedance W108 was forwarded by IEC on 26
July 2017, with the information provided by the ET of Contract No. HY/2010/02:

Monitoring Date: 14 July 2017

The Action and Limit Levels of suspended solids (SS) determined from baseline
monitoring data are listed below:

Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Depth averaged SS (in mg/L)	23.5	34.4

Mid-Flood tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring Time	Measured Depth Averaged	Level Exceeded
IS7	10:17	24.9	Action

Monitoring was undertaken by the ET of Contract No. HY/2010/02. The Notification
of Action/Limit Level Exceedance W108 provided by the ET of Contract No.
HY/2010/02 is shown in **Appendix A**.

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3. Investigation of Non-compliance

Date Exceedance Investigated by Environmental Team: 1 August 2017

Summary of Investigation

As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, marine-based construction works were undertaken in Box Culvert B and there were two derrick lighters delivered sand to the work site of Three Runway Project on 14 July 2017 under Contract No. HY/2013/03. Both marine-based construction works and the routes of marine transportation were undertaken in the north side of HKBCF while the concerned WQM station IS7 was in the south-west side. As the concerned monitoring station was far away from both marine-based construction works and the routes of marine transportation and there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11, IS10, SR7 and IS17, it was unlikely to generate any suspended solids to cause the SS exceedance recorded at the concerned WQM station IS7 during mid-flood tide on 14 July 2017. The location of the WQM station where exceedance was recorded and all relevant WQM stations are shown in **Figure 1** and the locations of marine transportation and marine-based construction works are shown in **Figure 2**.

Investigation Results

The ET of Contract No. HY/2013/03 concluded that the captioned exceedance was not related to the construction site activities of the contract. Nevertheless, the Contractor had been reminded to comply with the requirements stipulated in the Environmental Mitigation Implementation Schedule (EMIS) of the EM&A Manual, in particular:

- Water Quality:
W1-
 1. barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
 2. any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
 3. loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
 4. excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;
 5. adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
 6. all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

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4. Follow up Status (Exceedance)

During weekly site audit on 30 June, 6, 13 and 21 July 2017, ET confirmed the Contractor had provided workable and effective water quality mitigation measures.

5. Recommendation to the Contractor

The Contractor was reminded to continue to fully maintain all water quality mitigation measures.

6. Follow up Status (Overall)

The captioned exceedance was not related to the Contract and therefore, no additional follow-up action is needed. However, ET proposed recommendations to Contractor in particular to the following aspects when there are marine construction activities.

Water Quality:

- Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;
- Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;
- Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;
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- Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; and
- All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

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Figure 1

The Location of WQM Stations

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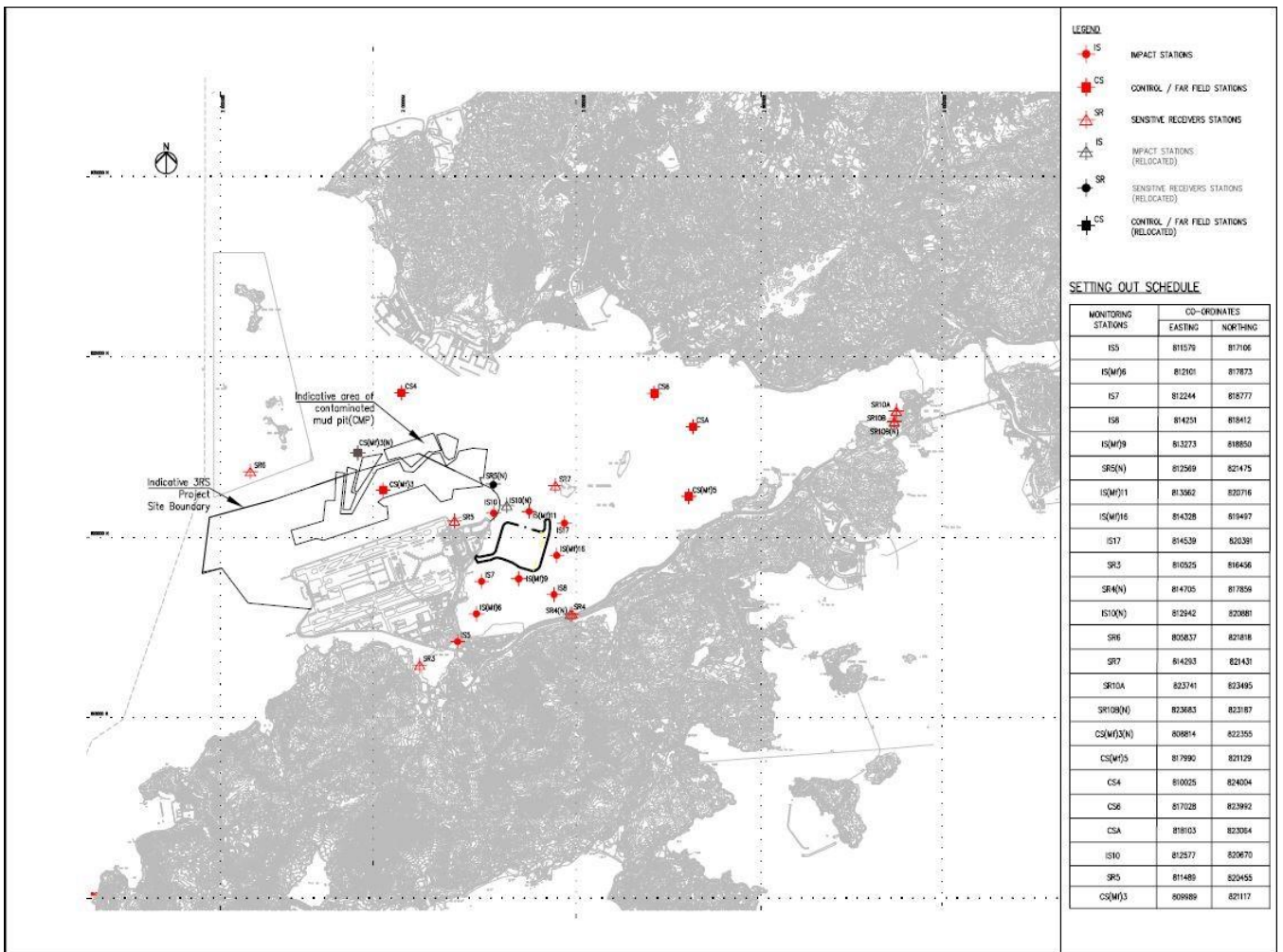
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Figure 2

The Locations of Marine Transportation and Marine-based Construction Works

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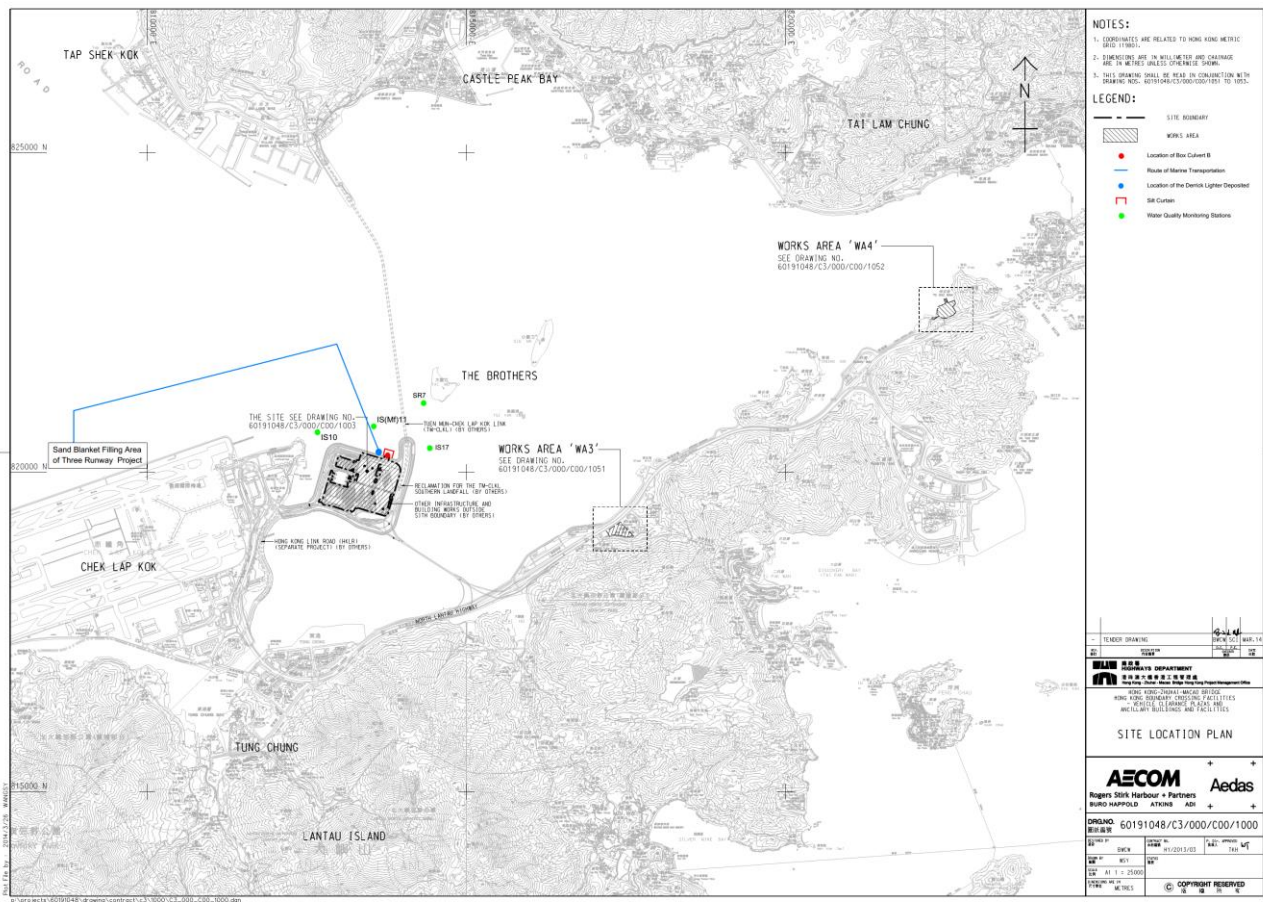
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Appendix A

Notification of Limit Level Exceedance W108

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Contract No. HY/2010/02
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Reclamation Works
Incident Report on Action Level or Limit Level Non-compliance

Report No. W108
Monitoring Date 14-Jul-17

The Action and Limit Levels of turbidity and suspended solids (SS) determined from baseline monitoring data are reproduced below:

Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Depth averaged SS (in mg/L)	23.5	34.4

Mid-Flood tide

Suspended Solids (SS) (in mg/L)

Monitoring Station	Monitoring time	Measured depth averaged	Level Exceeded
IS7	10:17	24.9	Action

Investigation results will be provided within three working days.

ET Leader Signature & Date:  26-Jul-17