

| <b>Hong Kong- Zhuhai- Macao Bridge</b><br><b>Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)</b><br><b>Notifications of Environmental Quality Limits Exceedances</b> <span style="float: right;">Notification No.: 20180601DO</span>                       |         |                    |   |   |                                 |                                   |
|---|---------|--------------------|---|---|---------------------------------|-----------------------------------|
| <b>Date of Notification:</b> 6 June 2018  |         |                    | <b>Date of Investigation Report:</b> 19 June 2018 |   |                                 |                                   |
| <b>Works Inspected:</b> Data collected from water sampling works on 1 June 2018 and the results were issued on 6 June 2018  |         |                    |   |   |                                 |                                   |
| <b>Monitoring Location:</b> Water Quality Monitoring Station  |         |                    |   |   |                                 |                                   |
| <b>Parameter:</b> Dissolved Oxygen (DO)/ <del>Suspended Solid (SS) / Turbidity (TURB)</del>   |         |                    |   |   |                                 |                                   |
| <b>Action &amp; Limit Level (AL &amp; LL) / Measured Level:</b>   |         |                    |   |   |                                 |                                   |
| PARAM   | STATION | DEPTH              | AL (mg/L)   | LL (mg/L)   | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO  | SR6     | Surface and Middle | Surface and Middle<br>5.0<br>Bottom<br>4.7        | Surface and Middle<br>4.2<br>(except 5 mg/L for FCZ)<br>Bottom<br>3.6 | <b>4.9</b>                      | 5.9                               |
|   |         | Bottom             |   |   | <b>4.6</b>                      | 5.8                               |
| Notes:<br>AL means Action Level.<br>LL means Limit Level.<br><b>Bold</b> means AL exceedances.<br><b><u>Bold with underline</u></b> means LL exceedances.<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |         |                    |   |   |                                 |                                   |

**Possible reason for Action / Limit Level Non-compliance:**

On 1 June 2018, two AL exceedances of DO at SR6 were recorded during mid-ebb tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 1 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 1 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 1 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. In addition, the exceedances recorded at WQM station SR6 are far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station during mid-ebb tide on 1 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 1 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 1 June 2018. While DO exceedance was recorded at SR6, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. Also, no notification of DO exceedance at SR6 during monitoring at the next tide (i.e. mid-flood tide on the same day) was received.

During ET's regular weekly site inspection on 30 May 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:30 and 14:45. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 17, 25, 31 May and 7 June 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

|             |  |        |  |
|-------------|--|--------|--|
| Checked by: | <u>Keith Chau</u>  | Title: | <u>Environmental Team Leader<br/>(Contract No. HY/2013/01)</u> |
| Signature:  | <u></u> | Date:  | <u>19 June 2018</u>  |
| Copied to   | : Contractor, Engineer Representative and IEC/ENPO   |        |  |

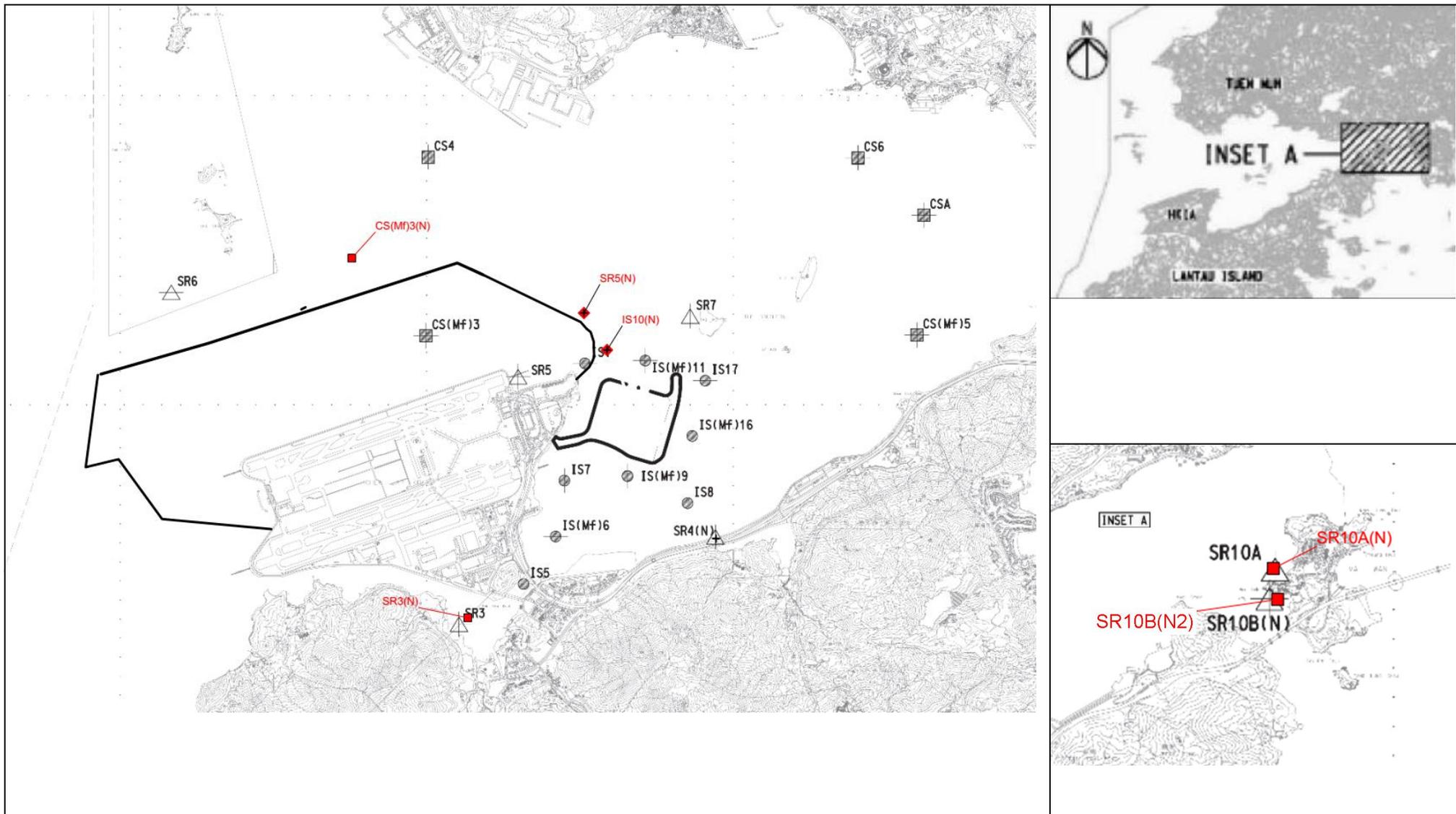


Figure 1: Location Plan

| <b>Hong Kong- Zhuhai- Macao Bridge</b><br><b>Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)</b><br><b>Notifications of Environmental Quality Limits Exceedances</b>   |         |                    |                           |  |                                 |                                   | Notification No.: 20180611DO |
|---|---------|--------------------|---------------------------|--|---------------------------------|-----------------------------------|------------------------------|
| <b>Date of Notification:</b> 14 June 2018   |         |                    |                           | <b>Date of Investigation Report:</b> 21 June 2018    |                                 |                                   |                              |
| <b>Works Inspected:</b> Data collected from water sampling works on 11 June 2018 and the results were issued on 14 June 2018  |         |                    |                           |  |                                 |                                   |                              |
| <b>Monitoring Location:</b> Water Quality Monitoring Station  |         |                    |                           |  |                                 |                                   |                              |
| <b>Parameter:</b> Dissolved Oxygen (DO)/ <del>Suspended Solid (SS) / Turbidity (TURB)</del>   |         |                    |                           |  |                                 |                                   |                              |
| <b>Action &amp; Limit Level (AL &amp; LL) / Measured Level:</b>   |         |                    |                           |  |                                 |                                   |                              |
| PARAM   | STATION | DEPTH              | AL (mg/L)                 | LL (mg/L)  | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |                              |
| DO  | SR6     | Surface and Middle | Surface and Middle<br>5.0 | Surface and Middle<br>4.2<br>(except 5 mg/L for FCZ) | 5.4                             | <b>4.8</b>                        |                              |
| Notes:<br>AL means Action Level.<br>LL means Limit Level.<br><b>Bold</b> means AL exceedances.<br><b><u>Bold with underline</u></b> means LL exceedances.<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |         |                    |                           |  |                                 |                                   |                              |

**Possible reason for Action / Limit Level Non-compliance:**

On 11 June 2018, one AL exceedance of DO at SR6 was recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 11 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 11 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 11 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. In addition, the exceedances recorded at WQM station SR6 are far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station during mid-flood tide on 11 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 11 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 11 June 2018. While DO exceedance was recorded at SR6, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. Also, during the next monitoring tide (i.e. mid-ebb tide on 13 June 2018), further DO exceedance at SR6 was recorded but there was no exceedance at IS(Mf)9.

During ET's regular weekly site inspection on 11 June 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:00 and 14:10. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 7, 14 and 20 June 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader  
(Contract No. HY/2013/01)

Signature:  Date: 21 June 2018

Copied to : Contractor, Engineer Representative and IEC/ENPO

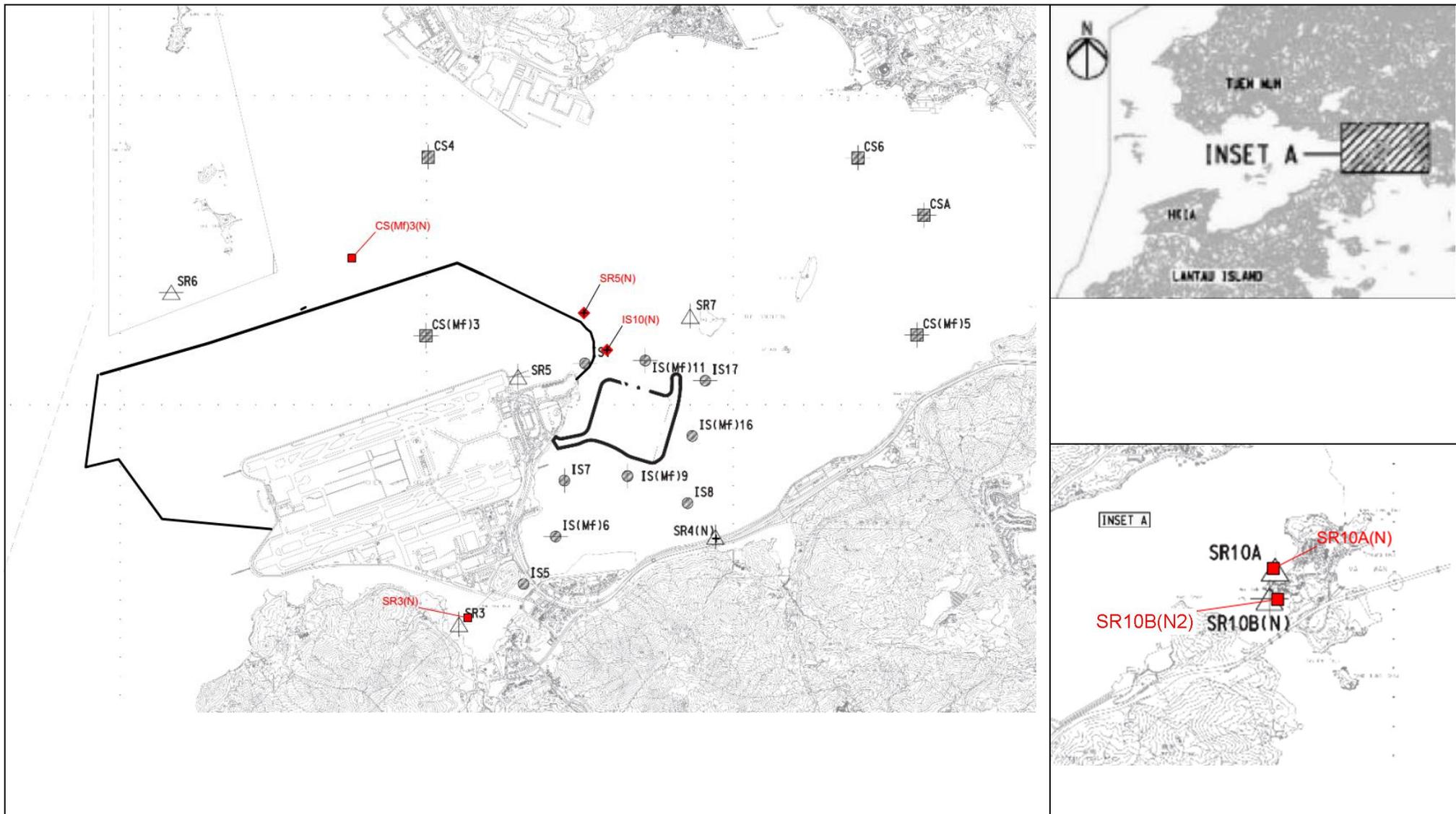


Figure 1: Location Plan

| <b>Hong Kong- Zhuhai- Macao Bridge</b><br><b>Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)</b><br><b>Notifications of Environmental Quality Limits Exceedances</b> <span style="float: right;">Notification No.: 20180613DO</span>                       |         |                    |   |  |                                 |                                   |
|---|---------|--------------------|---|--|---------------------------------|-----------------------------------|
| <b>Date of Notification:</b> 15 June 2018   |         |                    | <b>Date of Investigation Report:</b> 25 June 2018 |  |                                 |                                   |
| <b>Works Inspected:</b> Data collected from water sampling works on 13 June 2018 and the results were issued on 15 June 2018  |         |                    |   |  |                                 |                                   |
| <b>Monitoring Location:</b> Water Quality Monitoring Station  |         |                    |   |  |                                 |                                   |
| <b>Parameter:</b> Dissolved Oxygen (DO)/ <del>Suspended Solid (SS) / Turbidity (TURB)</del>   |         |                    |   |  |                                 |                                   |
| <b>Action &amp; Limit Level (AL &amp; LL) / Measured Level:</b>   |         |                    |   |  |                                 |                                   |
| PARAM   | STATION | DEPTH              | AL (mg/L)   | LL (mg/L)  | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO  | SR6     | Surface and Middle | Surface and Middle<br>5.0                         | Surface and Middle<br>4.2<br>(except 5 mg/L for FCZ) | 5.5                             | <b>4.6</b>                        |
|   | SR6     | Bottom             | Bottom<br>4.7                                     | Bottom<br>3.6  | 5.4                             | <b>4.5</b>                        |
| Notes:<br>AL means Action Level.<br>LL means Limit Level.<br><b>Bold</b> means AL exceedances.<br><b><u>Bold with underline</u></b> means LL exceedances.<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |         |                    |   |  |                                 |                                   |

**Possible reason for Action / Limit Level Non-compliance:**

On 13 June 2018, two AL exceedances of DO at SR6 were recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 13 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 13 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 13 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. In addition, the exceedances recorded at WQM station SR6 are far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station during mid-flood tide on 13 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 13 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 13 June 2018. While DO exceedance was recorded at SR6, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. Also, during the next monitoring tide (i.e. mid-ebb tide on 15 June 2018), further DO exceedance at SR6, SR7 and IS(Mf)11 was recorded but there was no exceedance at IS(Mf)9.

During ET's regular weekly site inspection on 11 June 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:00 and 14:10. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 7, 14 and 20 June 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

|             |  |        |  |
|-------------|--|--------|--|
| Checked by: | <u>Keith Chau</u>  | Title: | <u>Environmental Team Leader<br/>(Contract No. HY/2013/01)</u> |
| Signature:  | <u></u> | Date:  | <u>25 June 2018</u>  |
| Copied to   | : Contractor, Engineer Representative and IEC/ENPO   |        |  |

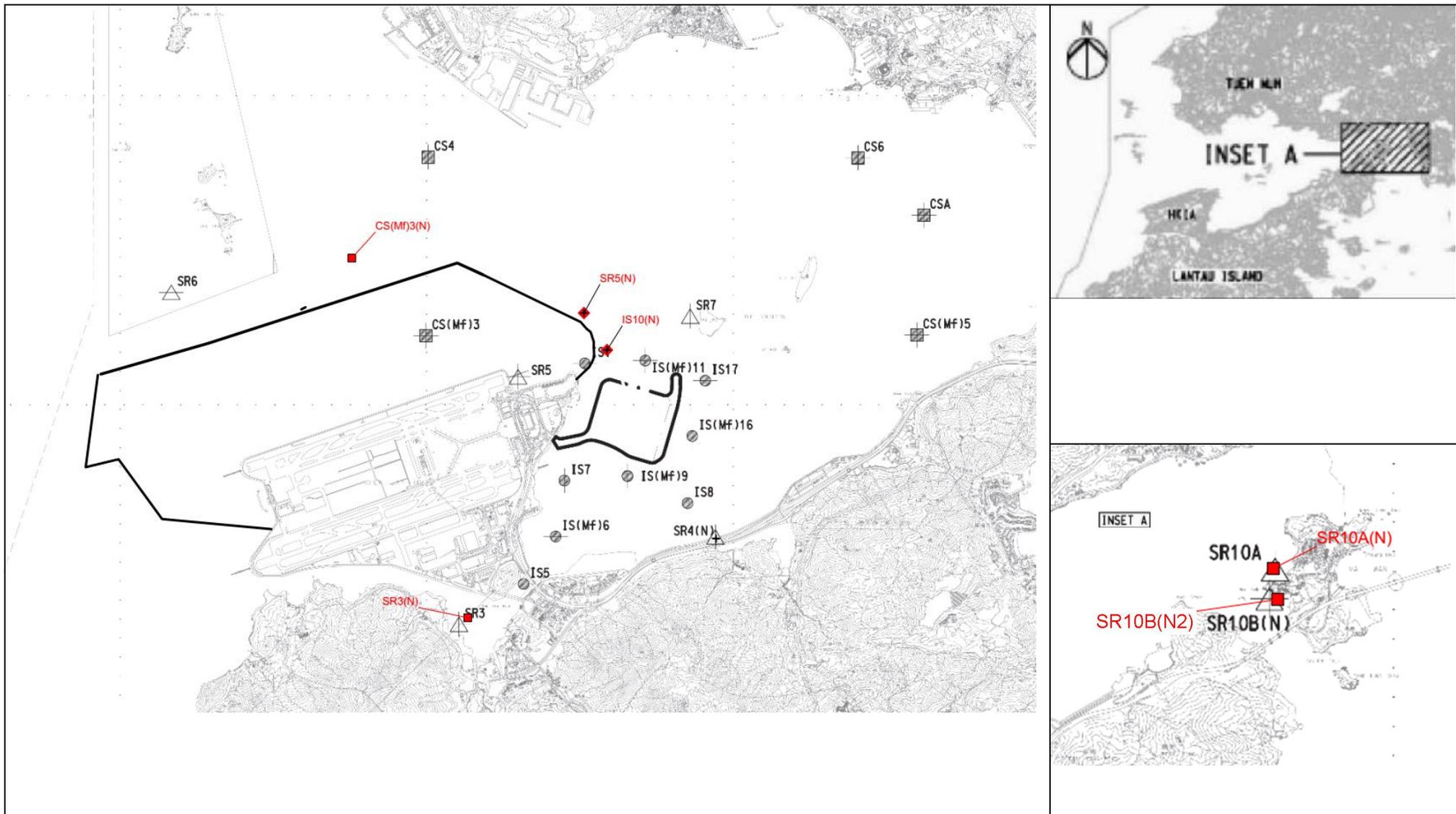


Figure 1: Location Plan

**Hong Kong- Zhuhai- Macao Bridge**  
**Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)**  
**Notifications of Environmental Quality Limits Exceedances** Notification No.: 20180615DO

**Date of Notification:** 15 June 2018 **Date of Investigation Report:** 25 June 2018

**Works Inspected:** Data collected from water sampling works on 15 June 2018 and the results were issued on 19 June 2018

**Monitoring Location:** Water Quality Monitoring Station

**Parameter:** Dissolved Oxygen (DO) / ~~Suspended Solid (SS)~~ / ~~Turbidity (TURB)~~

**Action & Limit Level (AL & LL) / Measured Level:**

| PARAM | STATION  | DEPTH              | AL (mg/L)                                  | LL (mg/L)   | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
|-------|----------|--------------------|--|---|---------------------------------|-----------------------------------|
| DO    | IS(Mf)11 | Surface and Middle | Surface and Middle<br>5.0<br>Bottom<br>4.7 | Surface and Middle<br>4.2<br>(except 5 mg/L for FCZ)<br>Bottom<br>3.6 | 5.1                             | <b>4.9</b>                        |
| DO    | SR6      | Surface and Middle |  |   | 5.7                             | <b>4.5</b>                        |
| DO    | SR6      | Bottom             |  |   | 5.0                             | <b>4.5</b>                        |
| DO    | SR7      | Surface and Middle |  |   | 5.0                             | <b>4.9</b>                        |

Notes:  
AL means Action Level.  
LL means Limit Level.  
**Bold** means AL exceedances.  
**Bold with underline** means LL exceedances.  
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4  
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

**Possible reason for Action / Limit Level Non-compliance:**

On 15 June 2018, four AL exceedances of DO at IS(Mf)11, SR6 and SR7 were recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 15 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 15 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 15 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. Silt curtain was also maintained to enclose the work area of the outlet of the box culvert fully. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station during mid-flood tide on 15 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 15 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 15 June 2018. While DO exceedance was recorded at SR6, SR7 and IS(Mf)11, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. Also, no notification of DO exceedance during the next monitoring tide (i.e. mid-ebb tide on 18 June 2018) was received.

During ET's regular weekly site inspection on 11 June 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:00 and 14:10. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 7, 14 and 20 June 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader  
(Contract No. HY/2013/01)

Signature:  Date: 25 June 2018

Copied to : Contractor, Engineer Representative and IEC/ENPO

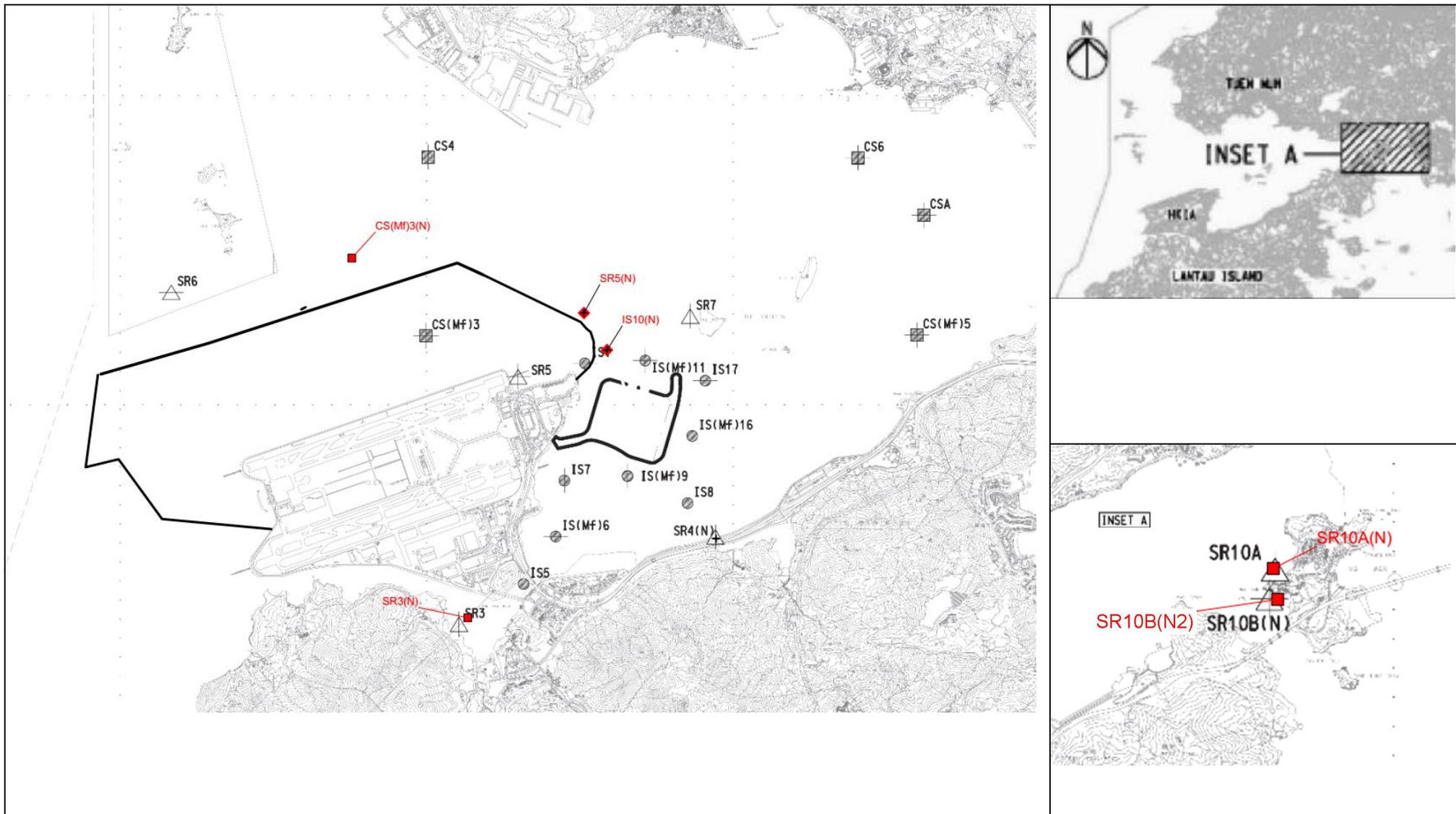


Figure 1: Location Plan

| <b>Hong Kong- Zhuhai- Macao Bridge</b><br><b>Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)</b><br><b>Notifications of Environmental Quality Limits Exceedances</b> <span style="float: right;">Notification No.: 20180625DO_TURB</span>           |         |               |   |   |                          |                            |
|--|---------|---------------|---|---|--------------------------|----------------------------|
| <b>Date of Notification:</b> 28 June 2018  |         |               |   | <b>Date of Investigation Report:</b> 12 July 2018   |                          |                            |
| <b>Works Inspected:</b> Data collected from water sampling works on 25 June 2018 and the results were issued on 28 June 2018   |         |               |   |   |                          |                            |
| <b>Monitoring Location:</b> Water Quality Monitoring Station   |         |               |   |   |                          |                            |
| <b>Parameter:</b> Dissolved Oxygen (DO)/ <del>Suspended Solid (SS)</del> / Turbidity (TURB)  |         |               |   |   |                          |                            |
| <b>Action &amp; Limit Level (AL &amp; LL) / Measured Level:</b>  |         |               |   |   |                          |                            |
| PARAM  | STATION | DEPTH         | AL  | LL (mg/L)   | MEASURED AT MID-EBB TIDE | MEASURED AT MID-FLOOD TIDE |
| DO   | IS10(N) | Bottom        | Surface and Middle<br>5.0 mg/L<br>Bottom<br>4.7 mg/L  | Surface and Middle<br>4.2 mg/L<br>(except 5 mg/L for FCZ)<br>Bottom<br>3.6 mg/L   | <b>4.5 mg/L</b>          | 5.0 mg/L                   |
| TURB   | IS(Mf)6 | Depth Average | 27.5 NTU and 120% (i.e. 9.4 NTU for mid-ebb/7.7 NTU for mid-flood) of upstream control station's turbidity at the same tide of the same day | 47.0 NTU and 130% (i.e. 10.2 NTU for mid-ebb/ 8.3 NTU for mid-flood) of upstream control station's turbidity at the same tide of the same day | <b>40.5 NTU</b>          | 8.8 NTU                    |
| Notes:<br>AL means Action Level.<br>LL means Limit Level.<br><b>Bold</b> means AL exceedances.<br><b>Bold with underline</b> means LL exceedances.<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |         |               |   |   |                          |                            |

**Possible reason for Action / Limit Level Non-compliance:**

On 25 June 2018, one AL exceedance of DO at IS10(N) was recorded during mid-ebb tide. One AL exceedance of TURB at IS(Mf)6 was recorded during mid-ebb tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 25 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 25 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 25 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. The turbidity exceedance recorded at station IS(Mf)6 is far away from the marine works area of Contract No. HY/2013/03, while there was no notification of turbidity exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO or turbidity exceedance recorded at the concerned WQM station on 25 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 25 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 25 June 2018. While the subject exceedances were recorded at IS10(N) and IS(Mf)6, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. Also, no notification of water quality exceedance during the next monitoring tide (i.e. mid-flood tide on 25 June 2018) was received.

During ET's regular weekly site inspection on 20 June 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 14:15 and 15:15. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the subject exceedance was attributed to active construction activities of this Contract;
3. IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the subject exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 20, 28 June 2018 and 5 July 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

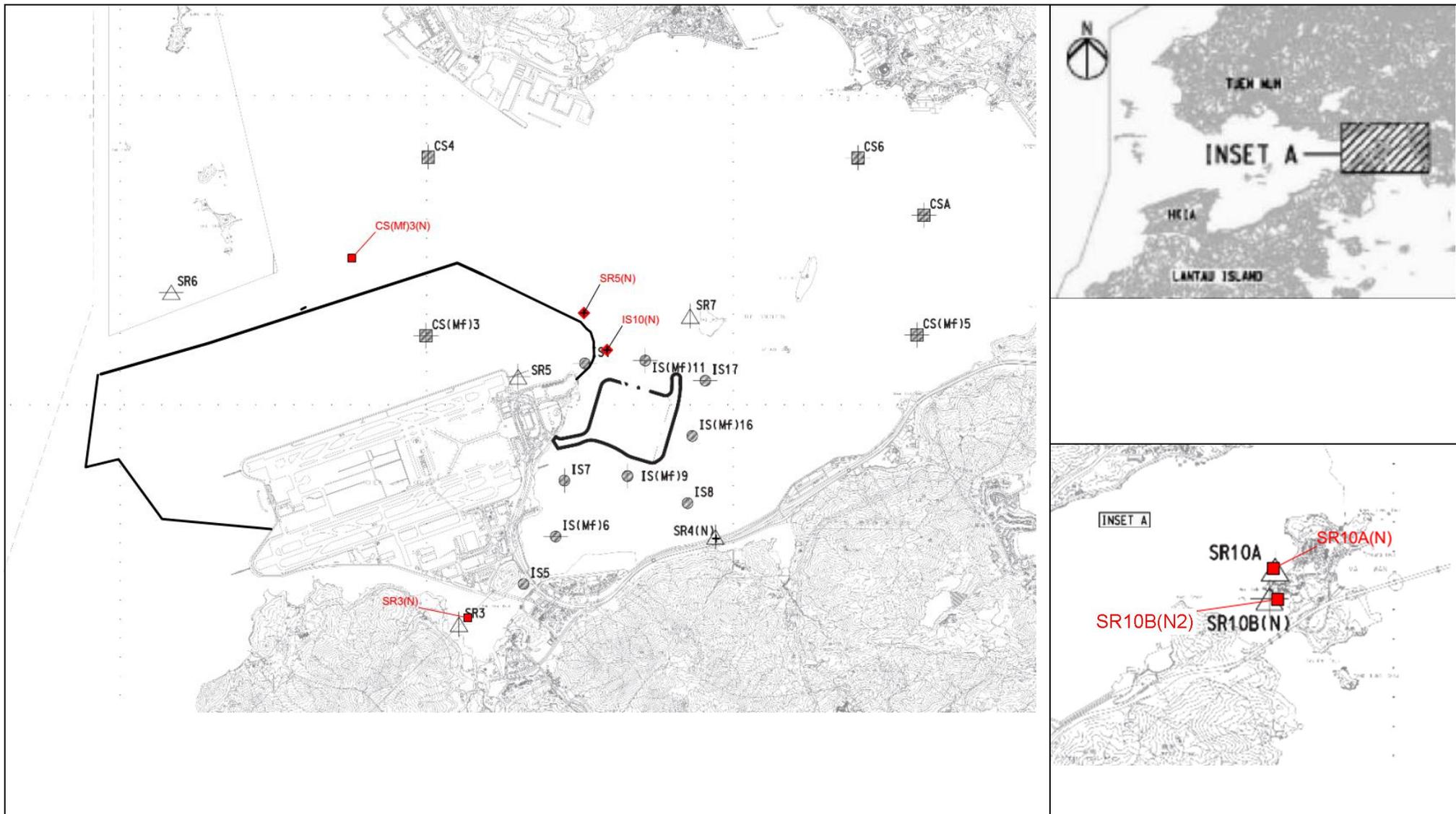
Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

|             |  |        |  |
|-------------|--|--------|--|
| Checked by: | <u>Keith Chau</u>  | Title: | <u>Environmental Team Leader<br/>(Contract No. HY/2013/01)</u> |
| Signature:  | <u></u> | Date:  | <u>12 July 2018</u>  |
| Copied to   | : Contractor, Engineer Representative and IEC/ENPO   |        |  |



**Figure 1: Location Plan**

| <b>Hong Kong- Zhuhai- Macao Bridge</b><br><b>Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)</b><br><b>Notifications of Environmental Quality Limits Exceedances</b> <span style="float: right;">Notification No.: 20180627DO_v1</span>             |          |                    |   |   |                                 |                                   |
|--|----------|--------------------|---|---|---------------------------------|-----------------------------------|
| <b>Date of Notification:</b> 04 July 2018  |          |                    | <b>Date of Investigation Report:</b> 16 July 2018 |   |                                 |                                   |
| <b>Works Inspected:</b> Data collected from water sampling works on 27 June 2018 and the results were issued on 04 July 2018   |          |                    |   |   |                                 |                                   |
| <b>Monitoring Location:</b> Water Quality Monitoring Station   |          |                    |   |   |                                 |                                   |
| <b>Parameter:</b> Dissolved Oxygen (DO) / <del>Suspended Solid (SS)</del> / <del>Turbidity (TURB)</del>  |          |                    |   |   |                                 |                                   |
| <b>Action &amp; Limit Level (AL &amp; LL) / Measured Level:</b>  |          |                    |   |   |                                 |                                   |
| PARAM  | STATION  | DEPTH              | AL (mg/L)   | LL (mg/L)   | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
| DO   | IS10(N)  | Bottom             | Surface and Middle<br>5.0<br>Bottom<br>4.7        | Surface and Middle<br>4.2<br>(except 5 mg/L for FCZ)<br>Bottom<br>3.6 | <b>4.3</b>                      | <b>4.4</b>                        |
| DO   | IS(Mf)11 | Bottom             |   |   | <b>4.6</b>                      | <b>4.6</b>                        |
| DO   | SR6      | Surface and Middle |   |   | 6.0                             | <b>4.9</b>                        |
| Notes:<br>AL means Action Level.<br>LL means Limit Level.<br><b>Bold</b> means AL exceedances.<br><b>Bold with underline</b> means LL exceedances.<br>Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4<br>Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA |          |                    |   |   |                                 |                                   |

**Possible reason for Action / Limit Level Non-compliance:**

On 27 June 2018, three AL exceedances of DO at IS10(N), IS(Mf)11 and SR6 were recorded during mid-flood tide while two AL exceedances of DO at IS10(N) and IS(Mf)11 were recorded during mid-ebb tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 27 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 27 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 27 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station on 27 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 27 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 27 June 2018. While the subject exceedances were recorded at IS10(N), IS(Mf)11 and SR6, no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. Also, no notification of water quality exceedance at these locations during the next monitoring tide (i.e. mid-ebb tide on 29 June 2018) was received.

During ET's regular weekly site inspection on 27 June 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 08:30 and 09:00. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 20, 28 June and 5 July 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader  
(Contract No. HY/2013/01)

Signature:  Date: 16 July 2018

Copied to : Contractor, Engineer Representative and IEC/ENPO

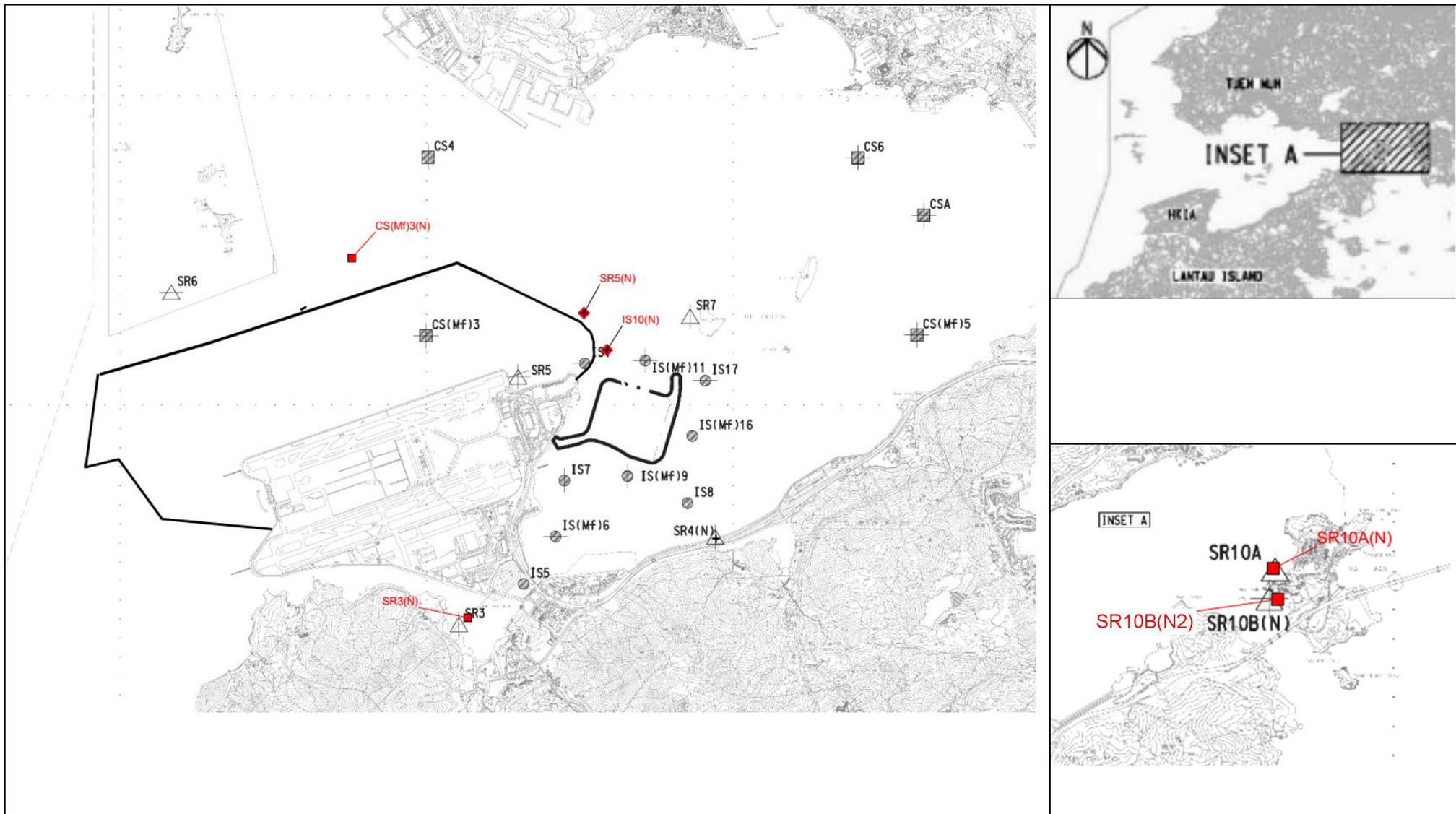


Figure 1: Location Plan

**Hong Kong- Zhuhai- Macao Bridge**  
**Hong Kong Boundary Crossing Facilities (Superstructure and Infrastructure Contracts)**  
**Notifications of Environmental Quality Limits Exceedances** Notification No.: 20180629DO\_v2

**Date of Notification:** 04 July 2018 **Date of Investigation Report:** 17 July 2018

**Works Inspected:** Data collected from water sampling works on 29 June 2018 and the results were issued on 04 July 2018

**Monitoring Location:** Water Quality Monitoring Station

**Parameter:** Dissolved Oxygen (DO) / ~~Suspended Solid (SS)~~ / ~~Turbidity (TURB)~~

**Action & Limit Level (AL & LL) / Measured Level:**

| PARAM | STATION   | DEPTH              | AL (mg/L)                                  | LL (mg/L)   | MEASURED AT MID-EBB TIDE (mg/L) | MEASURED AT MID-FLOOD TIDE (mg/L) |
|-------|-----------|--------------------|--|---|---------------------------------|-----------------------------------|
| DO    | IS5       | Bottom             | Surface and Middle<br>5.0<br>Bottom<br>4.7 | Surface and Middle<br>4.2<br>(except 5 mg/L for FCZ)<br>Bottom<br>3.6 | <b>4.1</b>                      | 6.6                               |
| DO    | SR10A(N)  | Surface and Middle |  |   | 6.4                             | <b><u>4.4</u></b>                 |
| DO    | SR10A(N)  | Bottom             |  |   | 6.2                             | <b>4.1</b>                        |
| DO    | SR10B(N2) | Surface and Middle |  |   | 5.9                             | <b><u>4.5</u></b>                 |
| DO    | SR10B(N2) | Bottom             |  |   | 5.0                             | <b>3.9</b>                        |
|       |           |                    |  |   |                                 |                                   |

Notes:  
AL means Action Level.  
LL means Limit Level.  
**Bold** means AL exceedances.  
**Bold with underline** means LL exceedances.  
Upstream control stations of mid-ebb tide: CS(Mf)3(N) and CS4  
Upstream control stations of mid-flood tide: CS(Mf)5, CS6 and CSA

**Possible reason for Action / Limit Level Non-compliance:**

On 29 June 2018, two AL exceedances of DO at SR10A(N) and SR10B(N2) were recorded during mid-flood tide, while one AL exceedance of DO at IS5 was recorded during mid-ebb tide. Two LL exceedances of DO at SR10A(N) and SR10B(N2) were recorded during mid-flood tide.

Contract No.: HY/2013/01

As confirmed by the Contractor of Contract No.: HY/2013/01, there was no marine transportation and marine-based work on 29 June 2018. No site runoff within the Contract site has been observed. All wastewater generated from construction site which potentially contain organic matter was collected by vacuum truck. No organic matter discharge/ accumulation at active works areas on 29 June 2018. Therefore, it is concluded that the exceedances were not related to the Contract.

Contract No.: HY/2013/02

As confirmed with RSS, it is concluded that the exceedances were not related to the Contract due to completion of marine works on 10 September 2017. ET (Contract No. HY/2013/02) confirmed that no any organic matter discharge/accumulation at active works areas under Contract HY/2013/02 was observed on the date of exceedance with respect to the exceedance in DO.

Contract No.: HY/2013/03

As confirmed with RSS of Contract No. HY/2013/03, there was no marine transportation on the date of exceedance. As confirmed with Mr. Marko Chan, Environmental Officer, and operation team of Contract No. HY/2013/03, no organic matter discharge or accumulation at active works areas on 29 June 2018 under Contract No. HY/2013/03. The marine-based works in Box Culvert B had been completed. In addition, the exceedances recorded at WQM station IS5, SR10A(N) and SR10B(N2) are far away from the marine works area of Contract No. HY/2013/03, while there was no notification of exceedance received at the WQM stations closer to the works areas, such as IS(Mf)11. It was unlikely that the works undertaken by Contract No. HY/2013/03 caused DO exceedance recorded at the concerned WQM station on 29 June 2018.

Contract No.: HY/2013/04

According to the Contractor of HY/2013/04, all marine-based segment deliveries were completed in January 2018 and no marine-based works were conducted under the contract on 29 June 2018. Furthermore, there was no visible observation of any discharge or accumulation of organic matter at the active works areas within HY/2013/04 site area on 29 June 2018. While the subject exceedances were recorded at IS5, SR10A(N) and SR10B(N2), no exceedance was recorded at IS(Mf)9 which is the nearest monitoring location to HY/2013/04 loading and unloading point and HY/2013/04 shoreline interfacing with open waters. During ET's regular weekly site inspection on 27 June 2018, HY/2013/04 site shoreline interfacing with open waters was inspected between 08:30 and 09:00. There were no observations referring to water quality mitigation measures associated with that shoreline.

It was concluded that the exceedance was not due to HY/2013/04.

Contract No.: HY/2014/05

There was no marine transportation and marine-based work under this contract. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

**Actions taken/ to be taken:**

Contract No.: HY/2013/01

Actions were taken under action plan:

1. in situ measurement was repeated to confirm findings;
2. After considering the above-mentioned investigation results, it appears that it was unlikely that the dissolved oxygen exceedance was attributed to active construction activities of this Contract;
3. EPD, IEC, Contractor and ER were informed via email;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Since it is considered that the dissolved oxygen exceedance is unlikely to be contract related, as such, Actions 5-7 under the EAP are not considered applicable.

However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Contract No.: HY/2013/02

Although the exceedance was considered not due to HY/2013/02, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2013/03

During weekly site audit on 20, 28 June 2018 and 5 July 2018, ET (Contract No. HY/2013/03) confirmed the Contractor had provided workable and effective water quality mitigation measures.

Contract No.: HY/2013/04

Although the exceedance was considered not due to HY/2013/04, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Contract No.: HY/2014/05

Although the exceedance was considered not due to HY/2014/05, the Contractor is reminded to implement all necessary water quality mitigation measures identified in the EM&A Manual.

Checked by: Keith Chau Title: Environmental Team Leader  
(Contract No. HY/2013/01)

Signature:  Date: 17 July 2018

Copied to : EPD, Contractor, Engineer Representative and IEC/ENPO

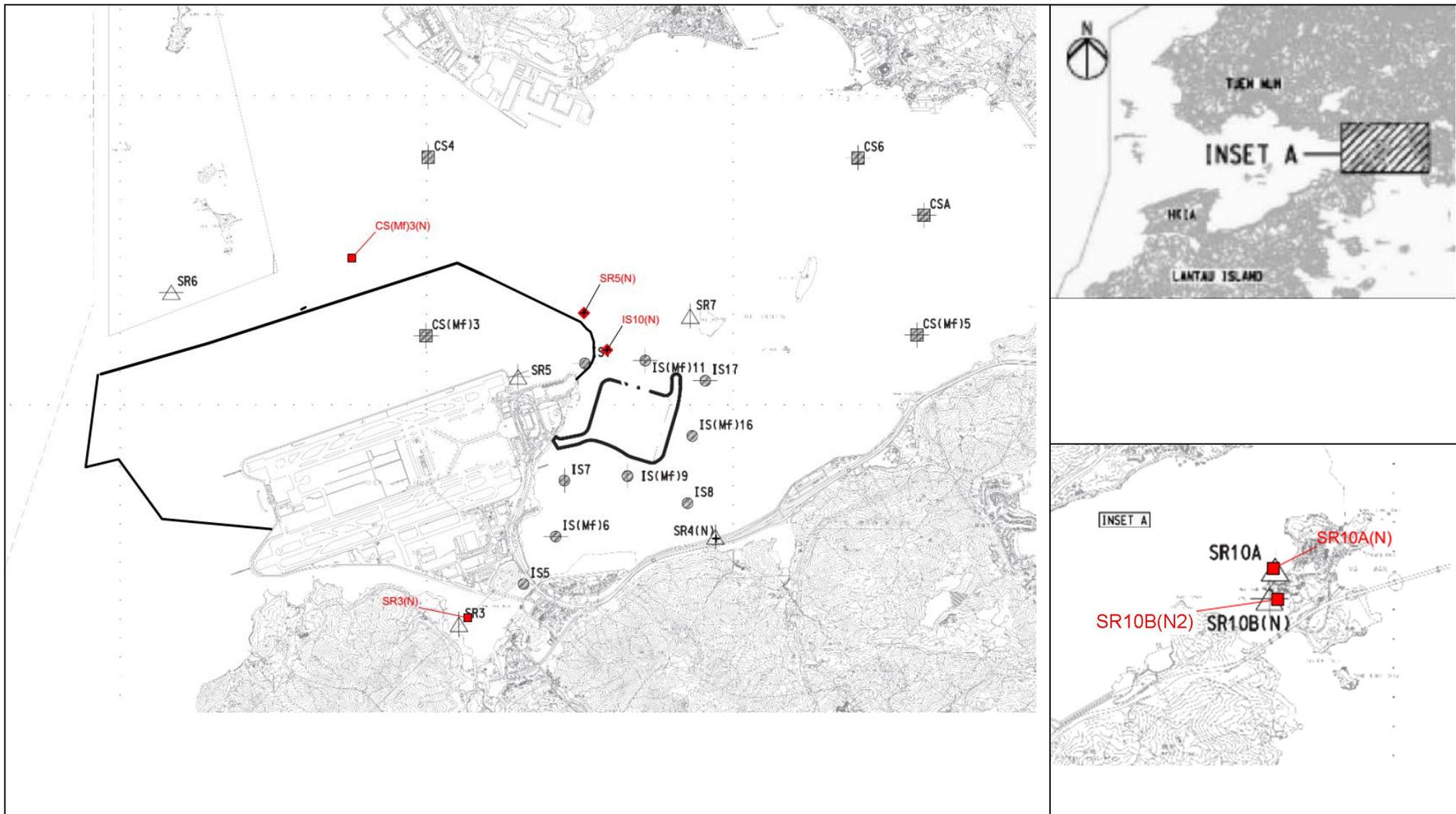


Figure 1: Location Plan