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ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE

CONTRACT NO. DC/2013/10 - DESIGN, BUILD AND OPERATE SAN WAI SEWAGE TREATMENT WORKS – PHASE 1

QUARTERLY EM&A REPORT NO. 5

(01 MAY – 31 JULY 2018)

Prepared by: _____
LO, Ting Yi

Certified by: _____
LAU, Chi Leung
Environmental Team Leader

Issued Date: 21 August 2018 *Report No.: ENA85665*

ANEWR

Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme
5/F, Western Magistracy
2A Po Fu Lam Road
Hong Kong

Your reference:

Our reference: HKDSD203/50/105191

Date: 28 August 2018

Attention: Ms Carol Ho

BY EMAIL & POST
(email: carolho@dsd.gov.hk)

Dear Sirs

Agreement No. HATS 02/2016
Services for Independent Environmental Checker (IEC) for
Contract No. DC/2013/10 – Design, Build and Operate San Wai Sewage Treatment Works – Phase 1
Quarterly Environmental Monitoring and Audit Report No.5 (May 2018 – July 2018)

We refer to emails of 21 and 28 August 2018 from ETS-Testconsult Limited attaching the Quarterly Environmental Monitoring and Audit Report No.5 (May 2018 – July 2018).

We have no further comment and hereby verify the Quarterly Environmental Monitoring and Audit Report No.5 (May 2018 – July 2018).

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Nic Lam on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

Ada Lee
Independent Environmental Checker

LYMA/LHHN/WCKJ/lhmh

cc AECOM – Mr Patrick Leung (email: patrick.leung@swstw-aecom.com)
ETS-Testconsult Limited – Mr C L Lau (email: env@ets-testconsult.com)

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This Quarterly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Stage 1 (the Project) (hereafter referred to as "the Contract"). The Contract was awarded to ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE (ADCJV) by the Drainage Services Department (DSD) and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by ADCJV to implement the EM&A program in compliance with the EP and the EM&A Manuals.

According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-464/2013, an EM&A programme should be implemented in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-072/2003). The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit.

Baseline monitoring was completed in April 2017. Action and Limit Levels were established for air quality, noise and water quality parameters based on the baseline monitoring results.

This is the fifth Quarterly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries findings of the EM&A works conducted during the reporting period from 01 May to 31 July 2018.

Environmental Monitoring and Audit Progress
The quarterly EM&A programme was undertaken in accordance with the EM&A Manual for this Contract. The summary of the monitoring activities in this reporting month is listed below:

- *24-hour TSP Monitoring: 16 Occasions at 2 designated locations*
- *1-hour TSP Monitoring: 48 Occasions at 2 designated locations*
- *Noise Monitoring (Day-time): 16 Occasion at 2 designated locations*
- *Water Quality Monitoring: 39 Occasions at 1 designated location*
- *Weekly Site inspection: 13 Occasions*

Breaches of Action and Limit Levels
Air Quality Monitoring
No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in the reporting month.

Noise Monitoring
No exceedance of Action and Limit levels for noise monitoring was recorded in the reporting month.

Water Quality Monitoring
According to the summary of water monitoring results, no exceedance of Action and Limit levels was recorded in this reporting month.

Weekly Site Inspections
In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting period. The major findings observed during site inspections are presented in the **Section 3.4.**

Complaint Log
There was no complaint received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions
There were no notifications of summons or prosecutions received during the reporting period.

Reporting Change
There were no reporting changes during the reporting period.

1 INTRODUCTION

1.1. Basic Project Information

1.1.1. This Quarterly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Stage 1 (the Project) (hereafter referred to as "the Contract"). The Contract was awarded to ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE (ADCJV) by the Drainage Services Department (DSD) and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by ADCJV to implement the EM&A program in compliance with the EP and the EM&A Manuals.

1.1.2. The project involves expansion of the preliminary treatment works at San Wai STW from 164,000 m^3/d to 200,000 m^3/d Average Dry Weather Flow, upgrading the preliminary treatment level to CEPT and adding centralized disinfection. The site layout plan is shown in **Appendix A**. For any enquiries, hot line telephone (24 hours) at 9083 0560 was established.

1.1.3. According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-464/2013, an EM&A programme should be implemented by an independent Environmental Team (ET) in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-072/2003).These documents are available through the EIA Ordinance Register. The construction works of the Contract commenced on 16 May 2017.

1.1.4. The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit. The EM&A requirements for each parameter described in the following sections include:

- *All monitoring parameters;*
- *Monitoring schedules for the reporting month and forthcoming months;*
- *Action and Limit levels for all environmental parameters;*
- *Event/Action Plans;*
- *Environmental mitigation measures, as recommended in the Project EIA study final report; and*
- *Environmental requirements in contract documents*

1.1.5. As part of the project EM&A program, baseline monitoring was conducted from 21 March 2017 to 15 April 2017 to determine the ambient environmental conditions before the project commence any major construction works and it had been verified by IEC and endorsed by EPD.

1.1.6. This is the fifth Quarterly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries the audit findings of the EM&A programme during the reporting period from 01 May to 31 July 2018.

1.2. Project Organization

1.2.1. The project organization structure and lines of communication with respect to the on-site environmental management structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1.**

Table 1.1 Contact Information of Key Personnel

Party	*Position*	*Name of Key Staff*	*Tel. No.*	*E-mail*
Supervising Officer (AECOM Asia Co. Ltd.)	*Resident Engineer*	*Mr. Patrick Leung*	*5222 6561*	*patrick.leung@swstw-aecom.com*
Independent Environmental Checker (ANewR Consulting Limited)	*Technical Director*	*Mr. Adi Lee*	*2618 2836*	*aymlee@anewr.com*
	Senior Environmental Consultant	*Mr. Nic Lam*	*2618 2836*	*nhhlam@anewr.com*
Contractor (ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE)	*Environmental Officer*	*Mr. Johnny So*	*9513 8899*	*johnny.so@c302.chechk.com*
	Environmental Supervisor	*Ms Cherry Ye*	*6237 1125*	*cherry.ye@c302.chechk.com*
Environmental Team (ETS-Testconsult Ltd.)	*Environmental Team Leader*	*Mr. C. L. Lau*	*2946 7791*	*env@ets-testconsult.com*

1.3. Construction Programme

1.3.1. A copy of the Contractor's construction programme is provided in **Appendix C**.

1.4. Construction Works Undertaken During the Reporting Period

1.4.1. A summary of the construction activities undertaken during this reporting period is shown below:

- *Substructure (ELS & Bulk excavation);*
- *Removal of ELS;*
- *Substructure (rc structure);*
- *Backfilling;*
- *Superstructure (rc and metalworks);*
- *Piling Foundation (Prebored H-pile);*
- *Water Tightness Test;*
- *Bar Screen Installation;*
- *Slope works and Retaining Wall (Eastern Portion);*
- *Slope works and Retaining Wall (Northern Portion);*
- *Drainage Inlet connection;*
- *CLP Cable Duct and Draw Pits (within the Site);*
- *EVA (Road & Drainage);*
- *RC Trench and Odour Pipe;*
- *Process Pipe;*
- *Emergency By-Pass Pipe;*
- *Diversion of Existing Watermains by WSD*

2 EM&A Requirement

2.1. Summary of EM&A Requirements

2.1.1. The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit. The EM&A requirements for each parameter described in the following sections include:

- *All monitoring parameters;*
- *Monitoring schedules for the reporting month and forthcoming months;*
- *Action and Limit levels for all environmental parameters;*
- *Event/Action Plans;*
- *Environmental mitigation measures, as recommended in the Project EIA study final report; and*
- *Environmental requirements in contract documents*

2.2. Monitoring Requirements

2.2.1. Air Quality Monitoring

In accordance with the EM&A Manual, 1-hr and 24-hr TSP air quality monitoring were conducted three times and once per six days correspondingly. Two air monitoring location, ASR1a (晉榮貨櫃服務有限公司) and ASR2a (永康貨櫃服務有限公司) were selected which was shown in **Figure 1**.

2.2.2. Noise Monitoring

Noise levels (L_{eq}, L_{10} and L_{90}) were monitored in the reporting period in accordance with the EM&A Manual. Two noise monitoring stations, NSR1a (晉榮貨櫃服務有限公司) and NSR2a (永康貨櫃服務有限公司) which shown in **Figure 1**, were required to perform impact noise monitoring.

2.2.3. Water Quality Monitoring

Water quality was monitored 3 times per week in the reporting period in accordance with the EM&A Manual at the one alternative water quality monitoring station, R1b (at Tin Shui Wai Nullah) which shown in **Figure 2**.

2.2.4 The equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports.

2.3. Action and Limit Levels

2.3.1. The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.1**.

Table 2.1 Action and Limit Levels for 1-hr and 24-hr TSP

Air Quality Monitoring Station	*1-hr TSP ($\mu g/m^3$)*		*24-hr TSP ($\mu g/m^3$)*	
	Action Level	*Limit Level*	*Action Level*	*Limit Level*
ASR1a	*309*	*500*	*260*	*260*
ASR2a	*292*	*500*	*228*	*260*

2.3.2. The Action and Limit Levels for construction noise are provided in **Table 2.2**

Table 2.2 Action and Limit Levels for Construction Noise

Time Period	*Action*	*Limit*
0700 –1900 hrs normal weekdays	*When one documented complaint is received*	*75 dB(A)**

Remark: (*)70dB(A) for schools and 65dB(A) for schools during school examination period

2.3.3. The Action and Limit Levels for Water Quality are provided in **Table 2.3**

Table 2.3 Action and Limit Levels for Water Quality

Parameters	*Unit*	*Action*	*Limit*
Turbidity	*NTU*	*19.8*	*20.5*
Dissolved Oxygen	*mg/L*	*1.84*	*1.81*
Suspended Solid	*mg/L*	*17.0*	*17.8*

2.4. Event and Action Plans

2.4.1. The event and action plan is provided in **Appendix G**.

2.5. Mitigation Measures

2.5.1. Environmental mitigation measures for the Contract were recommended in the Approved EIA Report. **Appendix H** lists the recommended mitigation measures and the implementation status.

3 ENVIRONMENTAL MONITORING AND AUDIT

3.1. Air Quality Monitoring Result

3.1.1. No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in this quarter. Graphical presentation of 1-hour and 24-hour TSP monitoring results is shown in **Appendix D**. Wind data included wind speed and wind direction was extracted from Wetland Park Station of Hong Kong Observatory and is presented in **Appendix I**.

3.1.2. Generally, 1-hour TSP and 24-hour TSP monitoring results fluctuated well below the Action Level in this reporting period. The major dust source observed near the monitoring stations was mainly from vehicles passing by the container yards and general earth works. It can be concluded that the contractor implemented sufficient dust mitigation measures during this reporting quarter.

3.1.3. Apart from the construction activities, the cargo trunks passing through the container yards (晉榮貨櫃服務有限公司 and 永康貨櫃服務有限公司) would also generate dust since the Ha Tsuen Road was mainly made by soil and sand. A part of 1-hour TSP and 24-hour TSP monitoring results were contributed by the cargo trunks.

3.2. Noise Monitoring Results

3.2.1. No exceedance of Action and Limit Level of noise monitoring results was recorded during the reporting quarter. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting month is shown in **Appendix E**.

3.2.2. The noise monitoring data were found to be lower than the limit level. The major noise source during the monitoring event was the vehicles passing through the container yard entrance and the general earth works inside the construction site.

3.2.3. Since NSR1a and NSR2a were located inside the container yards, the frequency of vehicles moving in and out the container yards would influence the noise monitoring results.

3.3. Water Quality Monitoring Result

3.3.1. According to the summary of water monitoring results, no exceedance of Action and Limit levels was recorded in this reporting month. Graphical presentation of the monitoring results for the reporting month is shown in **Appendix F**.

3.3.2. Generally, the turbidity and suspended solids were found to be lower than the action level. Besides, all results of dissolved oxygen measured in this reporting period were higher than the action level.

3.3.3. Aside from the discharge, weather condition would be a major factor that affects the water quality in Tin Shui Wan Nallah. In rainy day, the soil and other suspended materials were flushed along the shore and entered the Tin Shui Wai Nullah. Besides, the nullah water would flow rapidly and the sand and stones in the nullah bed were upturned. Thus, the water quality would be deteriorated.

3.4. Site Inspection

3.4.1. Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the project. The dates of environmental site inspections during the reporting period are listed in **Table 3.1**.

Table 3.1 Environmental Site Inspection Date

May 2018	June 2018	July 2018
04, 11, 18, 25 and 31	07, 15, 21 and 28	06, 13, 20 and 27

3.4.2. Observations for the site inspections within this reporting period are summarized in **Table 3.2**.

Table 3.2 Summary of observation of site inspections

Date	Observations / Reminders	Follow-up Action	Closed Date
26 April 2018	1. Opened cement pack without impervious cover was observed at CEPT.	1. Impervious cover was provided at CEPT.	04 May 2018
04 May 2018	1. General refuse was observed at P1.	1. General refuse was collected at P1.	11 May 2018
11 May 2018	1. Stagnant pool was observed inside the drip tray of a generator.	1. Stagnant pool was cleared inside the drip tray of the generator.	18 May 2018
18 May 2018	--	--	--
25 May 2018	--	--	--
31 May 2018	1. Stagnant water pool was observed at CEPT.	1. Stagnant pool was cleared at CEPT.	07 June 2018
07 June 2018	--	--	--
15 June 2018	1. Discoloured NRMM label was found on a generator.	1. Appropriate NRMM label was provided	21 June 2018
21 June 2018	--	--	--
28 June 2018	1. General refuse was observed at Portion AB. 2. Stagnant water was found accumulated inside the drip tray near Portion CEPT. 3. Stagnant pool was	1. General refuse was collected at Portion AB. 2. Stagnant water was cleared inside the drip tray near Portion CEPT. 3. Stagnant water was	06 July 2018

	observed near Portion SDB.	cleared near Portion SDB.	
06 July 2018	1. Discoloured NRMM label was found on a generator.	1. Appropriate NRMM label was provided on the generator.	13 July 2018
13 July 2018	--	--	--
20 July 2018	1. Stagnant water pool was observed.	1. Stagnant pool was cleared.	27 July 2018
27 July 2018	1. General refuse was observed at Portion AB. 2. Stagnant water was observed at Portion AB. 3. Stagnant water was observed near Portion SDB.	Follow-up actions for outstanding observation will be inspected during the next site inspection.	--

3.5. Advice on the Solid and Liquid Waste Management Status

3.5.1. All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil

3.5.2. The quantities of waste for disposal in this reporting period are summarized in the Monthly Summary Waste Flow Table which is shown in **Appendix J**.

3.5.3. To control over the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are in full compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the EM&A Manual based on actual site conditions.

3.6. Landscape and Visual Audit

3.6.1. Landscape and visual audits were undertaken at least once every two weeks throughout the construction period by a competent landscape architect. During the reporting period, audits were carried out on 04, 18 & 31 May 2018, 15 & 28 June 2018 and 13 & 27 July 2018.

3.6.2. Observations and reminders were summarized in the landscape and visual impact assessment checklists which are attached in the monthly EM&A reports.

3.7. Discharge License and Results of Effluent Monitoring

3.7.1. Effluent quality was monitored in the reporting quarter in accordance with the EM&A Manual at the discharge point. A discharge license under Water Pollution Control Ordinance was obtained by the Contractor upon commencement of the Project. Self-monitoring would be performed as per the requirement under the discharge license. According to the EM&A Manual, pH, chemical oxygen demand and total suspended solid are required to be analysed at least once every two week.

3.7.2. Effluent water samples were sampled by the Contractor. The dates of effluent sampling during the reporting period are listed in **Table 3.3**. During May 2018, the Wetsep at P6 and P8 were not operated and P3 was operated on 31 May 2018, the effluent water samples were sampled at P1 only on 08 and 17 May 2018 while sampled at P1 and P3 on 31 May 2018. During June 2018, since the Wetsep at P3 and P6 were not operated, the effluent water samples were sampled at P1 and P8 only in June 2018. During July 2018, the effluent water sample was sampled at P1 and P8 only as the Wetsep at P3 and P6 were not operated during July 2018.

Table 3.3 Effluent Sampling Dates

May 2018	June 2018	July 2018
08, 17 and 31	12 and 26	10 and 24

3.7.3. The required testing parameter including pH, chemical oxygen demand and total suspended solid were carried out in a HOKLAS laboratory. The methods of chemical oxygen demand and total suspended solid determination follow APHA 19ed 5220 B and APHA 19ed 2540 D respectively.

3.7.4. For effluent quality monitoring as per the discharge license requirement, the results complied with the discharge license requirement.

3.8. Implementation Status of Environmental Mitigation Measures

3.8.1. The environmental mitigation measures that recommended in the Environmental Monitoring and Audit Manual covered the issues of dust, noise and waste and they are summarized as following:

Dust Mitigation Measures

a. The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
b. All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition;
c. Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point;
d. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;
e. Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit;
f. Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet;
g. The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;
h. Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels;
i. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
j. The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
k. Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;
l. Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.

Noise Mitigation Measures

a. Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs.
b. Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers

c. The contractor should site noisy equipment and activities as far from sensitive receivers as practical.
d. Idle equipment should be turned off or throttled down.
e. Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided
f. Construction plant should be properly maintained and operated.

Water Quality Mitigation Measures

a. Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;
b. The exposed soil surfaces should also be properly protected to minimize dust emission;
c. The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;
d. Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;
e. Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;
f. A discharge license needs to be applied from EPD for discharging effluent from the construction site;
g. The treated effluent quality is required to meet the requirements specified in the discharge license;
h. Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;
i. A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;
j. Illegal disposal of chemicals should be strictly prohibited;
k. Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;
l. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handing chemical wastes;
m. The impact from accidental spillage of chemicals can be effectively controlled through good management practices.

Waste Management Mitigation Measures

a. Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
b. To encourage collection of aluminium cans by individual collectors, separate bins should be provided to segregate this waste from other general refuse generated by the workforce;
c. Any unused chemicals or those with remaining functional capacity should be recycled;
d. Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill;
e. Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and
f. Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.

4 SUMMARY OF EXCEEDANCE, COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

4.1. Summary of Exceedance of the Environmental Quality Performance Limit

4.1.1. There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2a during this reporting month.

4.1.2. There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a during the reporting period.

4.1.3. According to the summary of water monitoring results, there was no Action and Limit Level exceedance for water quality monitoring recorded at station R1b during the reporting period.

4.2. Summary of Complaints, Notification of Summons and Successful Prosecution

4.2.1. There were no complaints received during the reporting period.

4.2.2. There were no notifications of summons or prosecutions received during the reporting period.

4.2.3. A summary of environmental complaints, notifications of summons and successful prosecutions was given in **Table 4.1**.

Table 4.1 Summary of Environmental Complaints Notification of Summons and Successful Prosecution

Reporting Period	Cumulative Statistic		
	Complaints	Notifications of summons	Successful prosecutions
The reporting period	0	0	0
From commencement date of construction to end of reporting month	0	0	0

5 COMMENTS, RECOMMENDATIONS AND CONCLUSION

5.1. Comments

5.1.1. According to the environmental site inspection undertaken during the reporting period, the following recommendations were provided:

- The Contractor was reminded to clear all the stagnant water pools;
- The Contractor was reminded to provide appropriate NRMM;
- The Contractor was reminded to provide impervious cover for cement stock;
- The Contractor was reminded to collect the general refuse properly.

5.2. Recommendations

5.2.1. With implementation of the recommended environmental mitigation measures, the contract's environmental impacts were considered environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.

5.2.2. The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the Contract. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

5.3. Conclusions

5.3.1. There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2a during this reporting month.

5.3.2. There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a during the reporting period.

5.3.3. According to the summary of water monitoring results, there was no Action and Limit Level exceedance for water quality monitoring recorded at station R1b during the reporting period.

5.3.4. Environmental site inspections were carried out on 04, 11, 18, 25 & 31 May 2018, 07, 15, 21 & 28 June 2018 and 06, 13, 20 & 27 July 2018. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.

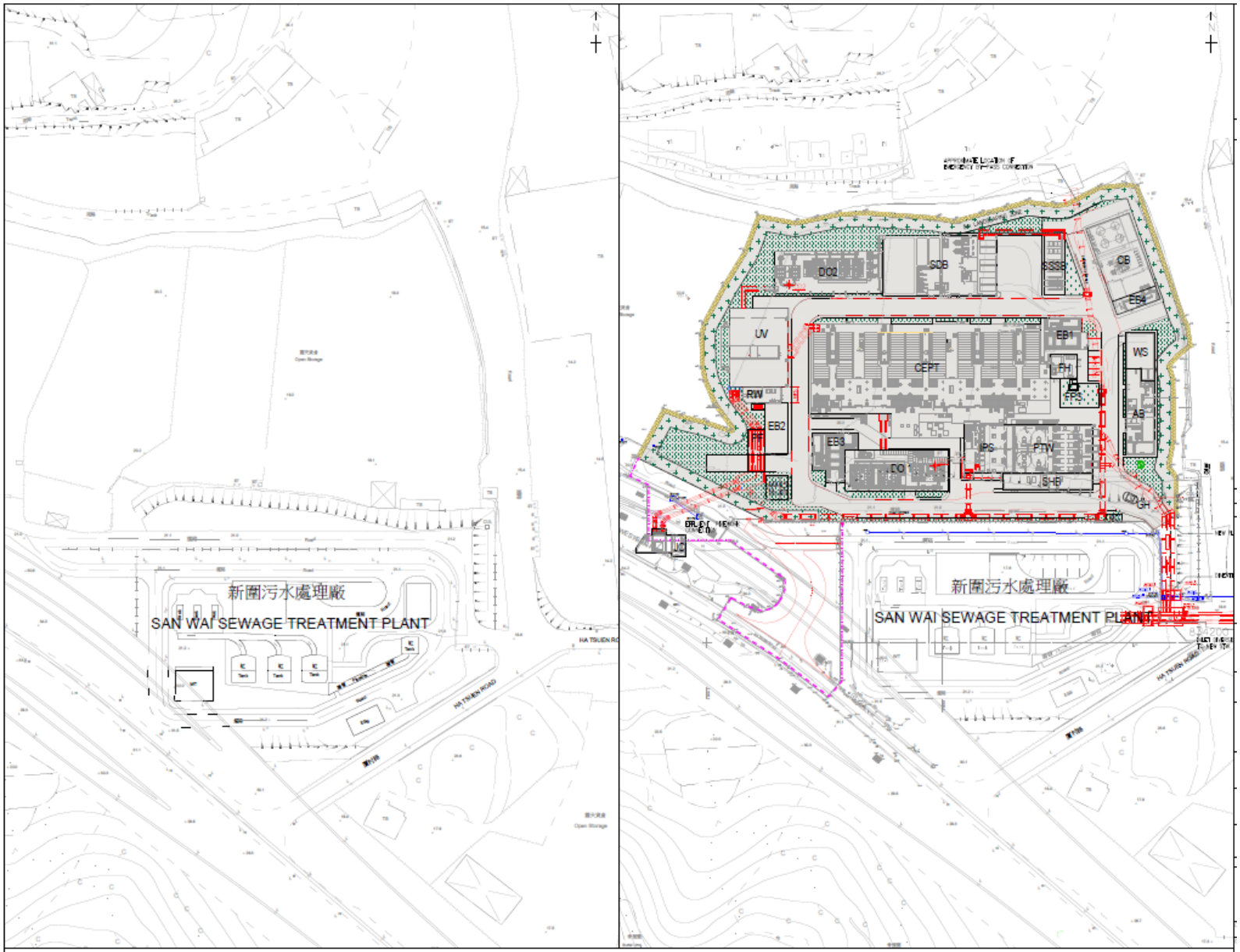
5.3.5. There were no complaints received during the reporting period.

5.3.6. There was no notification of summons and successful prosecution received during the reporting period.

- END OF REPORT -

Appendix A

Location of Works Areas

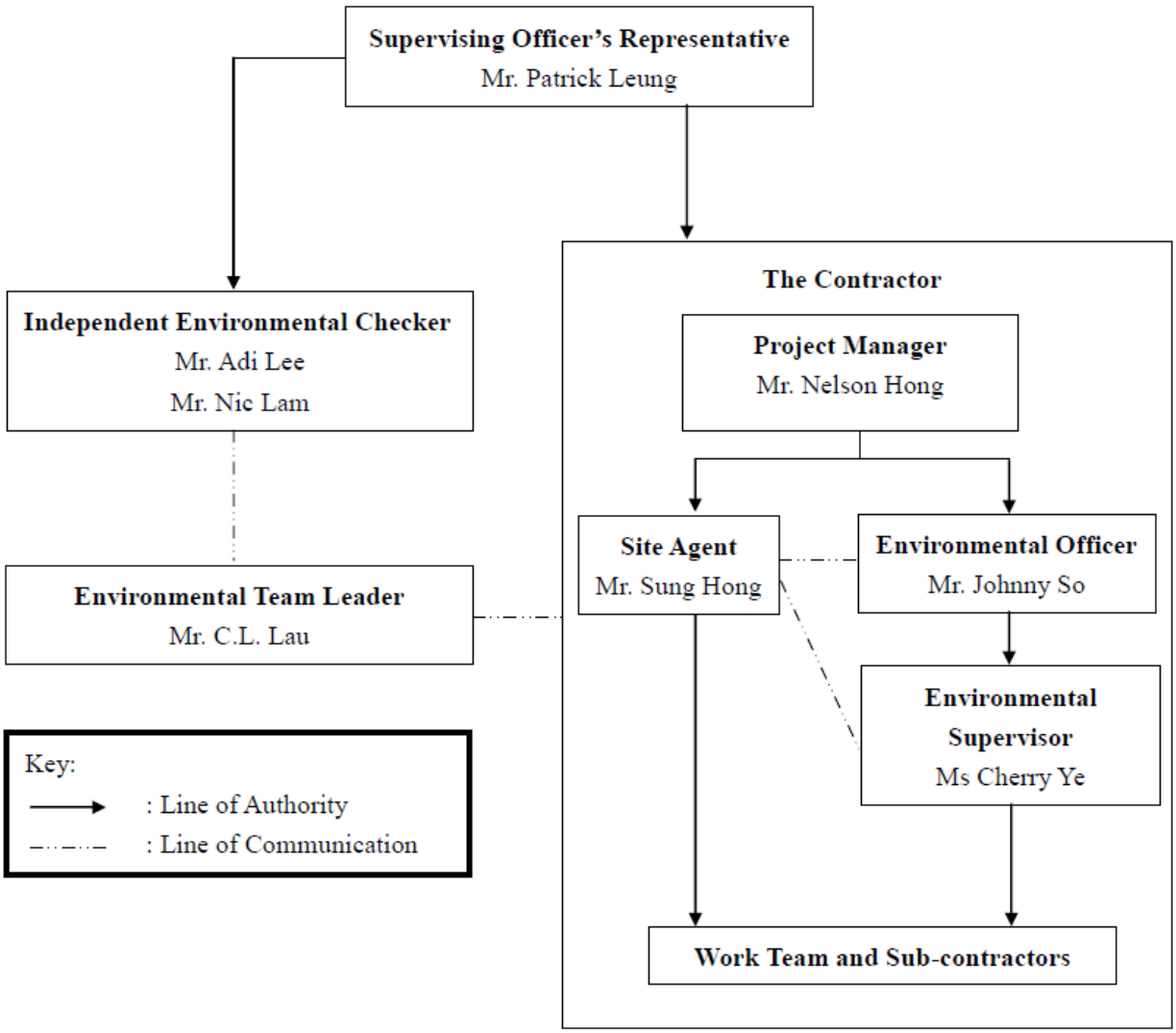


EXISTING SAN WAI SEWAGE TREATMENT WORKS

EXPANDED AND UPGRADED SAN WAI SEWAGE TREATMENT WORKS

Appendix B

Project Organization Chart

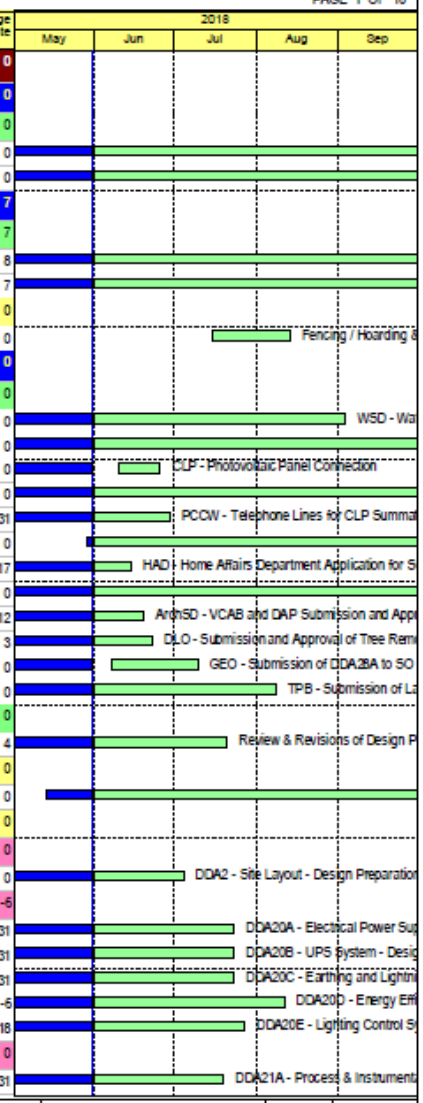

Supervising Officer's Representative
Mr. Patrick Leung
Independent Environmental Checker
Mr. Adi Lee
Mr. Nic Lam
Environmental Team Leader
Mr. C.L. Lau
The Contractor
Project Manager
Mr. Nelson Hong
Site Agent
Mr. Sung Hong
Environmental Officer
Mr. Johnny So
Environmental Supervisor
Ms Cherry Ye
Work Team and Sub-contractors
Key:
: Line of Authority
: Line of Communication

Appendix C

Construction Programme

DATA DATE: 31-May-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31May18) |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
San Wai Sewage Treatment Works Phase 1 - Rev 9 MP (Update as of 31May 2018)		**1137**	**27-May-16 A**	**06-Oct-20**	**27-May-16**	**06-Oct-20**	**0**	**0**
Key Date		**1593**	**27-May-16 A**	**06-Oct-20**	**27-May-16**	**06-Oct-20**	**0**	**0**
Commencement & Completion of Works		1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20	0	0
KD150	Section 1 - Handover to Home Affairs Department for Maintenance	1041	30-Nov-17 A	06-Oct-20	30-Nov-17	06-Oct-20	0	0
KD160	Section 2 - Period of Works (FOT P.3 cl 67, 71) - Including 10.5 Days Granted EOT	1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20	0	0
Preliminaries & General Requirement		**1277**	**01-Apr-17 A**	**29-Sep-20**	**01-Apr-17**	**05-Oct-20**	**0**	**7**
Contractor Requirement		1277	01-Apr-17 A	29-Sep-20	01-Apr-17	05-Oct-20	0	7
PS465	Impact Monitoring	1189	27-Jun-17 A	28-Sep-20	27-Jun-17	05-Oct-20	0	8
PS485	Site Drainage Plan Implementation	1277	01-Apr-17 A	29-Sep-20	01-Apr-17	05-Oct-20	0	7
Contractor Requirement for Working Area Portion (P8)		30	15-Jul-18	13-Aug-18	15-Jul-18	13-Aug-18	0	0
PS160	Fencing / Hoarding & Signboard Erection (P8)	30	15-Jul-18	13-Aug-18	15-Jul-18	13-Aug-18	0	0
Design & Design Checking of Permanent Works		**1115**	**26-Jun-16 A**	**03-Oct-20**	**26-Jun-16**	**03-Oct-20**	**0**	**0**
Statutory Submission		1433	01-Nov-16 A	03-Oct-20	01-Nov-16	03-Oct-20	0	0
DS160	WSD - Water Supply & Plumbing	578	02-Feb-17 A	03-Sep-18	02-Feb-17	02-Sep-18	0	0
DS165	CLP - Power Supply	751	01-Nov-16 A	21-Nov-18	01-Nov-16	21-Nov-18	0	0
DS166	CLP - Photovoltaic Panel Connection	184	24-Dec-17 A	25-Jun-18	24-Dec-17	25-Jun-18	0	0
DS173	PCCW - Telephone Lines and Megalink	540	27-Jun-17 A	19-Dec-18	27-Jun-17	18-Dec-18	0	0
DS174	PCCW - Telephone Lines for CLP Summation Metering	336	28-Jul-17 A	29-Jun-18	28-Jul-17	29-May-18	0	-31
DS177	EMSD - Passenger Lift	326	29-May-18 A	20-Apr-19	29-May-18	20-Apr-19	0	0
DS185	HAD - Home Affairs Department Application for Section 1 (ID KD150)	318	31-Jul-17 A	14-Jun-18	31-Jul-17	30-Jun-18	0	17
DS195	BEAM Plus - Final Assessment (FA)	948	01-Mar-18 A	03-Oct-20	01-Mar-18	03-Oct-20	0	0
DS200	ArchSD - VCAB and DAP Submission and Approval	461	15-Mar-17 A	19-Jun-18	15-Mar-17	30-Jun-18	0	12
DS210	DLO - Submission and Approval of Tree Removal and Transplant Proposals	508	31-Jan-17 A	22-Jun-18	31-Jan-17	25-Jun-18	0	3
DS230	GEO - Submission of DDA28A to SO for onward submission to GEO for Checking Certificate	341	03-Aug-17 A	09-Jul-18	03-Aug-17	10-Jul-18	0	0
DS280	TPB - Submission of Landscape Proposal to TPB for Approval	179	10-Feb-18 A	08-Aug-18	10-Feb-18	07-Aug-18	0	0
AIP / DDA Submission & Approval		647	26-Jun-16 A	18-Dec-18	26-Jun-16	18-Dec-18	0	0
DS410	Review & Revisions of Design Plan	755	26-Jun-16 A	20-Jul-18	26-Jun-16	25-Jul-18	0	4
Design Memorandum (AIP1 / DDA1)		220	13-May-18 A	18-Dec-18	13-May-18	18-Dec-18	0	0
DS505	DDA1 - Design Memorandum - Design Preparation to SO Approval	220	13-May-18 A	18-Dec-18	13-May-18	18-Dec-18	0	0
Global Design		512	21-Oct-16 A	09-Oct-18	21-Oct-16	08-Oct-18	0	0
Site Layout (AIP2 / DDA2)		622	21-Oct-16 A	04-Jul-18	21-Oct-16	04-Jul-18	0	0
DG390	DDA2 - Site Layout - Design Preparation to SO Approval	622	21-Oct-16 A	04-Jul-18	21-Oct-16	04-Jul-18	0	0
Electrical Power Supply System (AIP20 / DDA20ABCDE)		475	24-Apr-17 A	11-Aug-18	24-Apr-17	06-Aug-18	0	-5
DG1891	DDA20A - Electrical Power Supply System - Design Preparation to SO Approval	455	24-Apr-17 A	23-Jul-18	24-Apr-17	22-Jun-18	0	-31
DG3880	DDA20B - UPS System - Design Preparation to SO Approval	455	24-Apr-17 A	23-Jul-18	24-Apr-17	22-Jun-18	0	-31
DG3896	DDA20C - Earthing and Lightning System - Design Preparation to SO Approval	455	24-Apr-17 A	23-Jul-18	24-Apr-17	22-Jun-18	0	-31
DG3912	DDA20D - Energy Efficiency - Design Preparation to SO Approval	475	24-Apr-17 A	11-Aug-18	24-Apr-17	06-Aug-18	0	-5
DG3960	DDA20E - Lighting Control System - Design Preparation to SO Approval	329	01-Sep-17 A	27-Jul-18	01-Sep-17	08-Jul-18	0	-18
Control and Monitoring System (AIP21 / DDA21ABCDE)		592	12-Jan-17 A	27-Aug-18	12-Jan-17	27-Aug-18	0	0
DG1924	DDA21A - Process & Instrumentation Diagram (P&ID) - Design Preparation to SO Approval	554	12-Jan-17 A	19-Jul-18	12-Jan-17	18-Jun-18	0	-31



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

ATAL-Degremont-China Harbour Joint Venture

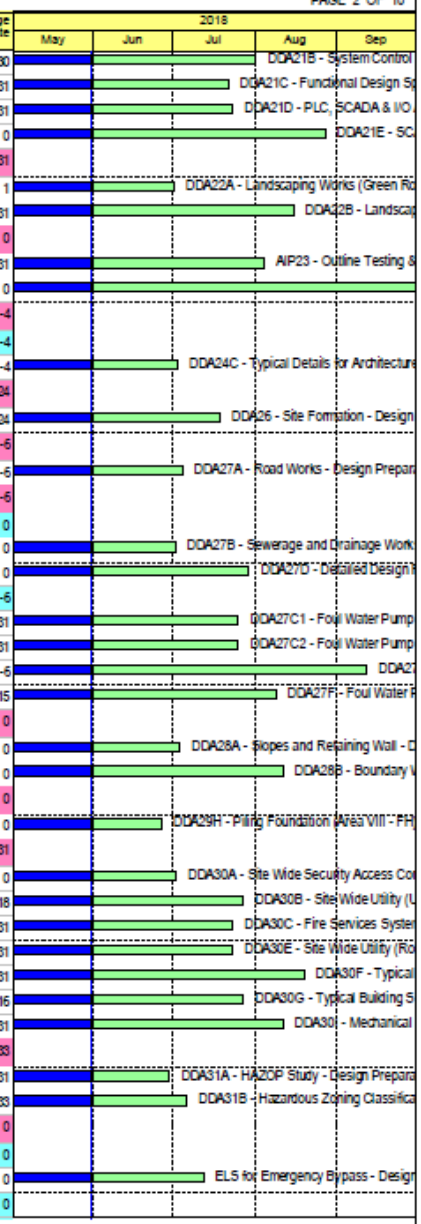
TASK filter: 3 Months Rolling Programme.

CONTRACT NO. DC/2013/10 DESIGN, BUILD & OPERATE
SAN WAI SEWAGE TREATMENT WORKS - PHASE 1
MASTER PROGRAMME Rev 9 (31 May 2018)
THREE (3) MONTHS ROLLING PROGRAMME

Date	Revision	Checked	Approved
31-May-18	Three (3) Months Rolling Programme...		

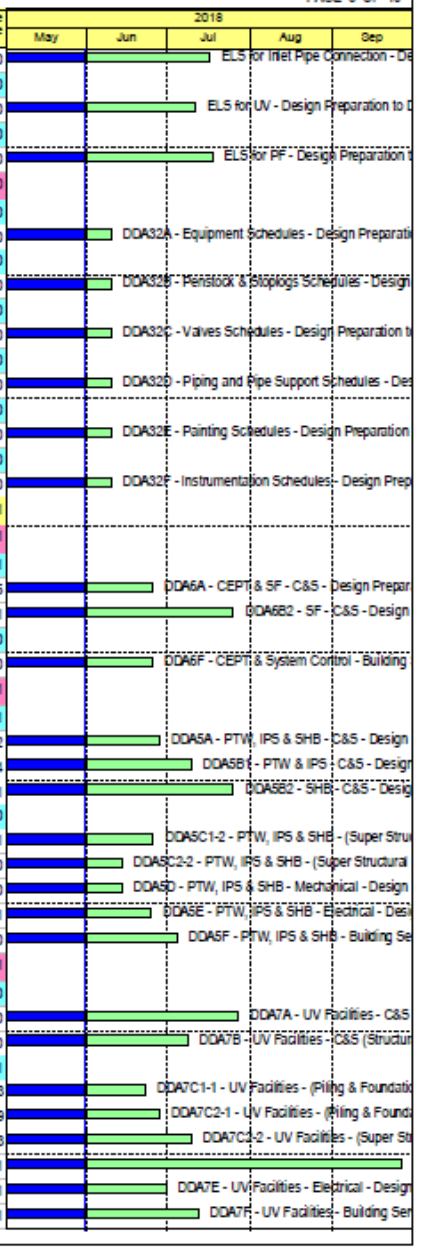
DATA DATE: 31-May-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31May18) |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
DG1940	DDA21B - System Control Philosophy - Design Preparation to SO Approval	499	20-Mar-17 A	01-Aug-18	20-Mar-17	02-Jul-18	0	-30
DG1956	DDA21C - Functional Design Specification - Design Preparation to SO Approval	475	03-Apr-17 A	21-Jul-18	03-Apr-17	20-Jun-18	0	-31
DG1972	DDA21D - PLC, SCADA & I/O Allocation Schedules - Design Preparation to SO Approval	456	23-Apr-17 A	23-Jul-18	23-Apr-17	22-Jun-18	0	-31
DG1988	DDA21E - SCADA Graphic Interface - Design Preparation to SO Approval	422	01-Jul-17 A	27-Aug-18	01-Jul-17	27-Aug-18	0	0
Landscaping Works (AIP22 / DDA22AB)		587	06-Jan-17 A	15-Aug-18	06-Jan-17	15-Jul-18	0	-31
DG1260	DDA22A - Landscaping Works (Green Roof) - Design Preparation to SO Approval	542	06-Jan-17 A	01-Jul-18	06-Jan-17	02-Jul-18	0	1
DG1274	DDA22B - Landscaping Works (Site Wide) - Design Preparation to SO Approval	409	03-Jul-17 A	15-Aug-18	03-Jul-17	15-Jul-18	0	-31
Testing and Commissioning Plan (AIP23 / DDA23)		315	28-Nov-17 A	09-Oct-18	28-Nov-17	08-Oct-18	0	0
DG3270	AIP23 - Outline Testing & Commissioning Plan - Design Preparation to SO Approval	249	28-Nov-17 A	04-Aug-18	28-Nov-17	04-Jul-18	0	-31
DG3305	DDA23 - Detailed Testing & Commissioning Plan - Design Preparation to SO Approval	170	22-Apr-18 A	09-Oct-18	22-Apr-18	08-Oct-18	0	0
General Notes Drawings for Foundation and Civil & Structural (AIP24AB / DDA24AB)		496	22-Feb-17 A	02-Jul-18	22-Feb-17	29-Jun-18	0	-4
General Notes Drawings for Civil & Structural (AIP24B / DDA24BC)		496	22-Feb-17 A	02-Jul-18	22-Feb-17	29-Jun-18	0	-4
DG3706	DDA24C - Typical Details for Architecture - Design Preparation to SO Approval	496	22-Feb-17 A	02-Jul-18	22-Feb-17	29-Jun-18	0	-4
Site Formation (AIP26 / DDA26)		551	14-Jan-17 A	18-Jul-18	14-Jan-17	24-Jun-18	0	-24
DG660	DDA26 - Site Formation - Design Preparation to SO Approval	551	14-Jan-17 A	18-Jul-18	14-Jan-17	24-Jun-18	0	-24
Road Works (AIP27A / DDA27A)		469	23-Mar-17 A	04-Jul-18	23-Mar-17	28-Jun-18	0	-6
DG1060	DDA27A - Road Works - Design Preparation to SO Approval	469	23-Mar-17 A	04-Jul-18	23-Mar-17	28-Jun-18	0	-6
Sewerage and Drainage Works (AIP27B / DDA27BC1C2DEF)		569	21-Feb-17 A	12-Sep-18	21-Feb-17	06-Sep-18	0	-6
Civil and Structural Design (AIP27B / DDA27BD)		524	21-Feb-17 A	29-Jul-18	21-Feb-17	29-Jul-18	0	0
DG960	DDA27B - Sewerage and Drainage Works - Design Preparation to SO Approval	496	21-Feb-17 A	01-Jul-18	21-Feb-17	01-Jul-18	0	0
DG988	DDA27D - Detailed Design Report for Pipe Trenches - C&S - Design Preparation to SO Approval	448	08-May-17 A	29-Jul-18	08-May-17	29-Jul-18	0	0
Electrical and Mechanical Design Foul Water Pump Sump (DDA27C1C2EF)		377	01-Sep-17 A	12-Sep-18	01-Sep-17	06-Sep-18	0	-6
DG3964	DDA27C1 - Foul Water Pump Sump - GA Drawing - Design Preparation to SO Approval	328	01-Sep-17 A	25-Jul-18	01-Sep-17	24-Jun-18	0	-31
DG3978	DDA27C2 - Foul Water Pump Sump - CR Drawing - Design Preparation to SO Approval	328	01-Sep-17 A	25-Jul-18	01-Sep-17	24-Jun-18	0	-31
DG3992	DDA27E - Foul Water Pump Sump - Mechanical - Design Preparation to SO Approval	289	28-Nov-17 A	12-Sep-18	28-Nov-17	06-Sep-18	0	-6
DG4006	DDA27F - Foul Water Pump Sump - Electrical - Design Preparation to SO Approval	254	28-Nov-17 A	08-Aug-18	28-Nov-17	24-Jul-18	0	-15
Boundary Wall & Entrance (AIP28 / DDA28AB)		555	03-Feb-17 A	11-Aug-18	03-Feb-17	11-Aug-18	0	0
DG1160	DDA28A - Slopes and Retaining Wall - Design Preparation to SO Approval	516	03-Feb-17 A	03-Jul-18	03-Feb-17	03-Jul-18	0	0
DG1195	DDA28B - Boundary Wall & Entrance - Design Preparation to SO Approval	421	17-Jun-17 A	11-Aug-18	17-Jun-17	11-Aug-18	0	0
Foundation & Piling Design (AIP29 / DDA29ABCDE)		135	20-Dec-17 A	26-Jun-18	20-Dec-17	26-Jun-18	0	0
DG552	DDA29H - Piling Foundation (Area VIII - FH) - Design Preparation to SO Approval	135	20-Dec-17 A	26-Jun-18	20-Dec-17	26-Jun-18	0	0
Site Wide Utility (AIP30 / DDA30ABCEFGI)		567	30-Jan-17 A	19-Aug-18	30-Jan-17	19-Jul-18	0	-31
DG3515	DDA30A - Site Wide Security Access Control & Communication System - Design Preparation to SO Approval	518	30-Jan-17 A	02-Jul-18	30-Jan-17	02-Jul-18	0	0
DG3774	DDA30B - Site Wide Utility (U/G Pipework, Ductwork, Cable Route, Cable Draw Pit) - Design Preparation to SO Approval	414	08-Jun-17 A	27-Jul-18	08-Jun-17	08-Jul-18	0	-18
DG3788	DDA30C - Fire Services System and Street Fire Hydrant System - Design Preparation to SO Approval	410	08-Jun-17 A	23-Jul-18	08-Jun-17	22-Jun-18	0	-31
DG3816	DDA30E - Site Wide Utility (Road Lighting) - Design Preparation to SO Approval	395	23-Jun-17 A	23-Jul-18	23-Jun-17	22-Jun-18	0	-31
DG3830	DDA30F - Typical Electrical Installation Drawings - Design Preparation to SO Approval	438	08-Jun-17 A	19-Aug-18	08-Jun-17	19-Jul-18	0	-31
DG3844	DDA30G - Typical Building Services Installation Drawings - Design Preparation to SO Approval	399	23-Jun-17 A	27-Jul-18	23-Jun-17	11-Jul-18	0	-16
DG3858	DDA30I - Mechanical Design Report for Pipe Trench - Design Preparation to SO Approval	414	23-Jun-17 A	11-Aug-18	23-Jun-17	11-Jul-18	0	-31
HAZOP Report (DDA31AB)		582	01-Dec-16 A	06-Jul-18	01-Dec-16	03-Jun-18	0	-33
DG3530	DDA31A - HAZOP Study - Design Preparation to SO Approval	575	01-Dec-16 A	29-Jun-18	01-Dec-16	29-May-18	0	-31
DG3545	DDA31B - Hazardous Zoning Classification Report - Design Preparation to SO Approval	308	01-Sep-17 A	06-Jul-18	01-Sep-17	03-Jun-18	0	-33
ELS / Bulk Excavation (Temporary Works)		287	12-Jun-17 A	17-Jul-18	12-Jun-17	17-Jul-18	0	0
ELS for Emergency Bypass		396	12-Jun-17 A	12-Jul-18	12-Jun-17	12-Jul-18	0	0
DG3740	ELS for Emergency Bypass - Design Preparation to DC and SO Approval	396	12-Jun-17 A	12-Jul-18	12-Jun-17	12-Jul-18	0	0
ELS for Inlet Pipe Connection		316	04-Sep-17 A	16-Jul-18	04-Sep-17	16-Jul-18	0	0



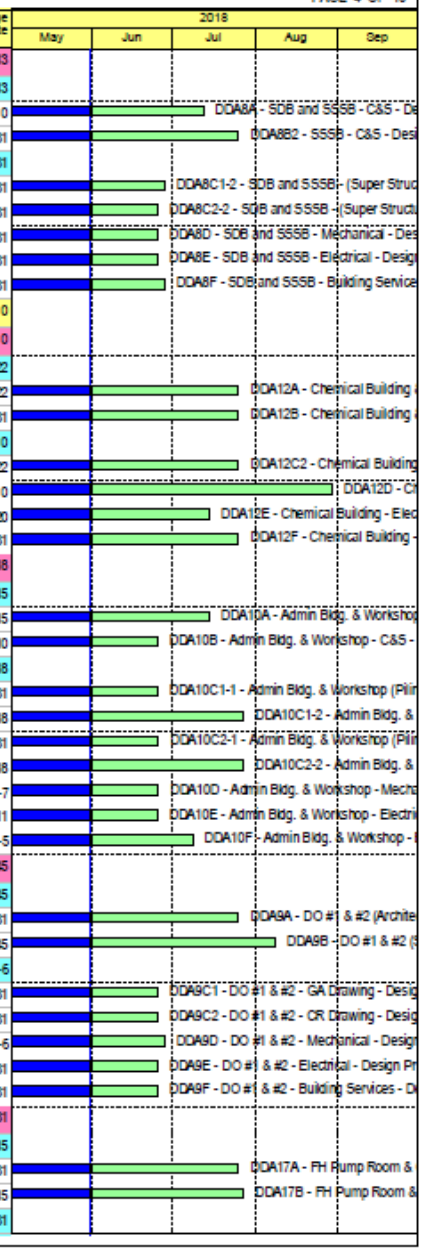
DATA DATE: 31-May-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31May18) |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
DG3755	ELS for Inlet Pipe Connection - Design Preparation to DC and SO Approval	316	04-Sep-17 A	16-Jul-18	04-Sep-17	16-Jul-18	0	0
ELS for UV		311	04-Sep-17 A	11-Jul-18	04-Sep-17	11-Jul-18	0	0
DG3769	ELS for UV - Design Preparation to DC and SO Approval	311	04-Sep-17 A	11-Jul-18	04-Sep-17	11-Jul-18	0	0
ELS for PF		233	25-Aug-17 A	17-Jul-18	25-Aug-17	17-Jul-18	0	0
DG3825	ELS for PF - Design Preparation to DC and SO Approval	233	25-Aug-17 A	17-Jul-18	25-Aug-17	17-Jul-18	0	0
Miscellaneous Design		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
Equipment Schedules (DDA32A)		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
DG2012	DDA32A - Equipment Schedules - Design Preparation to SO Approval	342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
Penstock & Stoplogs Schedules (DDA32B)		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
DG3216	DDA32B - Penstock & Stoplogs Schedules - Design Preparation to SO Approval	342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
Valves Schedules (DDA32C)		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
DG3222	DDA32C - Valves Schedules - Design Preparation to SO Approval	342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
Piping and Pipe Support Schedules (DDA32D)		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
DG3864	DDA32D - Piping and Pipe Support Schedules - Design Preparation to SO Approval	342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
Painting Schedules (DDA32E)		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
DG3228	DDA32E - Painting Schedules - Design Preparation to SO Approval	342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
Instrumentation Schedules (DDA32F)		342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
DG3234	DDA32F - Instrumentation Schedules - Design Preparation to SO Approval	342	03-Jul-17 A	09-Jun-18	03-Jul-17	09-Jun-18	0	0
LOT #1 - Building / Facilities Design : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB		670	26-Nov-16 A	26-Sep-18	26-Nov-16	26-Aug-18	0	-31
CEPT and System Control Flowmeter Chamber		579	24-Dec-16 A	25-Jul-18	24-Dec-16	24-Jun-18	0	-31
Civil and Structural Design (AIP6A / DDA6AB1B2)		579	24-Dec-16 A	25-Jul-18	24-Dec-16	24-Jun-18	0	-31
DB1123	DDA6A - CEPT & SF - C&S - Design Preparation to SO Approval	548	24-Dec-16 A	25-Jun-18	24-Dec-16	09-Jun-18	0	-15
DB4930	DDA6B2 - SF - C&S - Design Preparation to SO Approval	487	26-Mar-17 A	25-Jul-18	26-Mar-17	24-Jun-18	0	-31
Electrical and Mechanical Design (AIP6B / DDA6C1C2DEF)		516	25-Jan-17 A	25-Jun-18	25-Jan-17	04-Jun-18	0	-20
DB5608	DDA6F - CEPT & System Control - Building Services - Design Preparation to SO Approval	516	25-Jan-17 A	25-Jun-18	25-Jan-17	04-Jun-18	0	-20
Inlet Work, Preliminary Treatment Works, IPS and SHB		607	26-Nov-16 A	25-Jul-18	26-Nov-16	04-Jul-18	0	-21
Civil and Structural Design (AIP5A / DDA5AB1B2)		607	26-Nov-16 A	25-Jul-18	26-Nov-16	24-Jun-18	0	-31
DB1228	DDA5A - PTW, IPS & SHB - C&S - Design Preparation to SO Approval	579	26-Nov-16 A	27-Jun-18	26-Nov-16	15-Jun-18	0	-12
DB4814	DDA5B1 - PTW & IPS - C&S - Design Preparation to SO Approval	570	17-Dec-16 A	09-Jul-18	17-Dec-16	15-Jun-18	0	-24
DB4830	DDA5B2 - SHB - C&S - Design Preparation to SO Approval	535	06-Feb-17 A	25-Jul-18	06-Feb-17	24-Jun-18	0	-31
Electrical and Mechanical Design (AIP5B / DDA5C1C2DEF)		585	27-Nov-16 A	04-Jul-18	27-Nov-16	04-Jul-18	0	0
DB1264	DDA5C1-2 - PTW, IPS & SHB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	450	01-Apr-17 A	25-Jun-18	01-Apr-17	25-May-18	0	-31
DB1296	DDA5C2-2 - PTW, IPS & SHB - (Super Structural Design) - CR Drawing - Design Preparation to SO Approval	470	01-Mar-17 A	13-Jun-18	01-Mar-17	25-May-18	0	-20
DB4524	DDA5D - PTW, IPS & SHB - Mechanical - Design Preparation to SO Approval	564	27-Nov-16 A	13-Jun-18	27-Nov-16	25-May-18	0	-20
DB5306	DDA5E - PTW, IPS & SHB - Electrical - Design Preparation to SO Approval	575	27-Nov-16 A	24-Jun-18	27-Nov-16	24-May-18	0	-31
DB5322	DDA5F - PTW, IPS & SHB - Building Services - Design Preparation to SO Approval	585	27-Nov-16 A	04-Jul-18	27-Nov-16	04-Jul-18	0	0
UV Disinfection Facilities		644	22-Dec-16 A	26-Sep-18	22-Dec-16	26-Aug-18	0	-31
Civil and Structural Design (AIP7A / DDA7AB)		396	26-Jun-17 A	27-Jul-18	26-Jun-17	16-Jul-18	0	-10
DB1325	DDA7A - UV Facilities - C&S (Architectural) - Design Preparation to SO Approval	350	11-Aug-17 A	27-Jul-18	11-Aug-17	16-Jul-18	0	-10
DB5010	DDA7B - UV Facilities - C&S (Structural) - Design Preparation to SO Approval	378	26-Jun-17 A	08-Jul-18	26-Jun-17	08-Jul-18	0	0
Electrical and Mechanical Design (AIP7B / DDA7C1C2DEF)		644	22-Dec-16 A	26-Sep-18	22-Dec-16	26-Aug-18	0	-31
DB1352	DDA7C1-1 - UV Facilities - (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	547	22-Dec-16 A	22-Jun-18	22-Dec-16	18-Jun-18	0	-3
DB1384	DDA7C2-1 - UV Facilities - (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval	553	22-Dec-16 A	27-Jun-18	22-Dec-16	18-Jun-18	0	-9
DB1399	DDA7C2-2 - UV Facilities - (Super Structural Design) - CR Drawing - Design Preparation to SO Approval	374	01-Jul-17 A	09-Jul-18	01-Jul-17	06-Jul-18	0	-3
DB4540	DDA7D - UV Facilities - Mechanical - Design Preparation to SO Approval	546	30-Mar-17 A	26-Sep-18	30-Mar-17	26-Aug-18	0	-31
DB5338	DDA7E - UV Facilities - Electrical - Design Preparation to SO Approval	458	30-Mar-17 A	30-Jun-18	30-Mar-17	30-May-18	0	-31
DB5354	DDA7F - UV Facilities - Building Services - Design Preparation to SO Approval	470	30-Mar-17 A	12-Jul-18	30-Mar-17	11-Jun-18	0	-31



DATA DATE: 31-May-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31May18) |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
	Sludge Dewatering Building and Sludge Skip Storage Building	606	27-Nov-16 A	25-Jul-18	27-Nov-16	12-Jul-18	0	-13
	Civil and Structural Design (AIP8A / DDA8AB1B2)	579	24-Dec-16 A	25-Jul-18	24-Dec-16	12-Jul-18	0	-13
DB1433	DDA8A - SDB and SSSB - C&S - Design Preparation to SO Approval	566	24-Dec-16 A	12-Jul-18	24-Dec-16	12-Jul-18	0	0
DB4858	DDA8B2 - SSSB - C&S - Design Preparation to SO Approval	537	04-Feb-17 A	25-Jul-18	04-Feb-17	24-Jun-18	0	-31
	Electrical and Mechanical Design (AIP8B / DDA8C1C2DEF)	578	27-Nov-16 A	27-Jun-18	27-Nov-16	27-May-18	0	-31
DB1476	DDA8C1-2 - SDB and SSSB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	425	29-Apr-17 A	27-Jun-18	29-Apr-17	27-May-18	0	-31
DB1508	DDA8C2-2 - SDB and SSSB - (Super Structural Design) - CR Drawing - Design Preparation to SO Approval	422	29-Apr-17 A	25-Jun-18	29-Apr-17	25-May-18	0	-31
DB4556	DDA8D - SDB and SSSB - Mechanical - Design Preparation to SO Approval	575	27-Nov-16 A	25-Jun-18	27-Nov-16	25-May-18	0	-31
DB5370	DDA8E - SDB and SSSB - Electrical - Design Preparation to SO Approval	575	27-Nov-16 A	25-Jun-18	27-Nov-16	25-May-18	0	-31
DB5386	DDA8F - SDB and SSSB - Building Services - Design Preparation to SO Approval	578	27-Nov-16 A	27-Jun-18	27-Nov-16	27-May-18	0	-31
	LOT #2 - Building / Facilities Design : AB+WS, DO, CB+EB4, FH	701	28-Sep-16 A	29-Aug-18	28-Sep-16	29-Aug-18	0	0
	Chemical Building and EB 4	701	28-Sep-16 A	29-Aug-18	28-Sep-16	29-Aug-18	0	0
	Civil and Structural Design for CB & EB4 (AIP12A / DDA12AB)	541	31-Jan-17 A	25-Jul-18	31-Jan-17	04-Jul-18	0	-22
DB2123	DDA12A - Chemical Building & EB4 - C&S - Design Preparation to SO Approval	541	31-Jan-17 A	25-Jul-18	31-Jan-17	04-Jul-18	0	-22
DB5234	DDA12B - Chemical Building & EB4 - C&S - Design Preparation to SO Approval	541	31-Jan-17 A	25-Jul-18	31-Jan-17	24-Jun-18	0	-31
	Electrical and Mechanical Design for CB only (AIP12B / DDA12C1C2DEF)	701	28-Sep-16 A	29-Aug-18	28-Sep-16	29-Aug-18	0	0
DB2162	DDA12C2 - Chemical Building - CR Drawing - Design Preparation to SO Approval	666	28-Sep-16 A	25-Jul-18	28-Sep-16	04-Jul-18	0	-22
DB4602	DDA12D - Chemical Building - Mechanical - Design Preparation to SO Approval	571	05-Feb-17 A	29-Aug-18	05-Feb-17	29-Aug-18	0	0
DB5402	DDA12E - Chemical Building - Electrical - Design Preparation to SO Approval	525	05-Feb-17 A	14-Jul-18	05-Feb-17	24-Jun-18	0	-20
DB5418	DDA12F - Chemical Building - Building Services - Design Preparation to SO Approval	536	05-Feb-17 A	25-Jul-18	05-Feb-17	24-Jun-18	0	-31
	Administration Building & Maintenance Workshop	662	03-Oct-16 A	27-Jul-18	03-Oct-16	08-Jul-18	0	-18
	Civil and Structural Design (AIP10A / DDA10AB)	496	06-Mar-17 A	14-Jul-18	06-Mar-17	29-Jun-18	0	-15
DB2234	DDA10A - Admin Bldg. & Workshop - C&S - Design Preparation to SO Approval	489	13-Mar-17 A	14-Jul-18	13-Mar-17	29-Jun-18	0	-15
DB5248	DDA10B - Admin Bldg. & Workshop - C&S - Design Preparation to SO Approval	476	06-Mar-17 A	25-Jun-18	06-Mar-17	14-Jun-18	0	-10
	Electrical and Mechanical Design (AIP10B / DDA10C1C2DEF)	662	03-Oct-16 A	27-Jul-18	03-Oct-16	08-Jul-18	0	-18
DB2286	DDA10C1-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	630	03-Oct-16 A	25-Jun-18	03-Oct-16	25-May-18	0	-31
DB2307	DDA10C1-2 - Admin Bldg. & Workshop (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	299	01-Oct-17 A	27-Jul-18	01-Oct-17	08-Jul-18	0	-18
DB2327	DDA10C2-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval	631	03-Oct-16 A	25-Jun-18	03-Oct-16	25-May-18	0	-31
DB2349	DDA10C2-2 - Admin Bldg. & Workshop (Super Structural Design) - CR Drawing - Design Preparation to SO Approval	299	01-Oct-17 A	27-Jul-18	01-Oct-17	08-Jul-18	0	-18
DB4618	DDA10D - Admin Bldg. & Workshop - Mechanical - Design Preparation to SO Approval	511	31-Jan-17 A	25-Jun-18	31-Jan-17	18-Jun-18	0	-7
DB5434	DDA10E - Admin Bldg. & Workshop - Electrical - Design Preparation to SO Approval	510	31-Jan-17 A	25-Jun-18	31-Jan-17	13-Jun-18	0	-11
DB5450	DDA10F - Admin Bldg. & Workshop - Building Services - Design Preparation to SO Approval	524	31-Jan-17 A	08-Jul-18	31-Jan-17	03-Jul-18	0	-5
	Deodorization Facilities No.1 and No.2	602	15-Dec-16 A	08-Aug-18	15-Dec-16	24-Jun-18	0	-45
	Civil and Structural Design (AIP9A / DDA9AB)	560	26-Jan-17 A	08-Aug-18	26-Jan-17	24-Jun-18	0	-45
DB2323	DDA9A - DO #1 & #2 (Architectural) - C&S - Design Preparation to SO Approval	546	26-Jan-17 A	25-Jul-18	26-Jan-17	24-Jun-18	0	-31
DB5150	DDA9B - DO #1 & #2 (Structural) - C&S - Design Preparation to SO Approval	430	05-Jun-17 A	08-Aug-18	05-Jun-17	24-Jun-18	0	-45
	Electrical and Mechanical Design (AIP9B / DDA9C1C2DEF)	560	15-Dec-16 A	27-Jun-18	15-Dec-16	21-Jun-18	0	-6
DB2348	DDA9C1 - DO #1 & #2 - GA Drawing - Design Preparation to SO Approval	557	15-Dec-16 A	25-Jun-18	15-Dec-16	25-May-18	0	-31
DB2364	DDA9C2 - DO #1 & #2 - CR Drawing - Design Preparation to SO Approval	557	15-Dec-16 A	25-Jun-18	15-Dec-16	25-May-18	0	-31
DB4634	DDA9D - DO #1 & #2 - Mechanical - Design Preparation to SO Approval	518	26-Jan-17 A	27-Jun-18	26-Jan-17	21-Jun-18	0	-6
DB5466	DDA9E - DO #1 & #2 - Electrical - Design Preparation to SO Approval	515	26-Jan-17 A	25-Jun-18	26-Jan-17	25-May-18	0	-31
DB5482	DDA9F - DO #1 & #2 - Building Services - Design Preparation to SO Approval	515	26-Jan-17 A	25-Jun-18	26-Jan-17	25-May-18	0	-31
	Street Fire Hydrant Pump Room & GENSET Room	613	07-Dec-16 A	12-Aug-18	07-Dec-16	12-Jul-18	0	-31
	Civil and Structural Design (AIP17A / DDA17AB)	491	23-Mar-17 A	27-Jul-18	23-Mar-17	11-Jul-18	0	-15
DB2423	DDA17A - FH Pump Room & GENSET Room (Architectural) - C&S - Design Preparation to SO Approval	490	23-Mar-17 A	25-Jul-18	23-Mar-17	24-Jun-18	0	-31
DB5220	DDA17B - FH Pump Room & GENSET Room (Structural) - C&S - Design Preparation to SO Approval	360	01-Aug-17 A	27-Jul-18	01-Aug-17	11-Jul-18	0	-15
	Electrical and Mechanical Design (AIP17B / DDA17C1C2DE)	613	07-Dec-16 A	12-Aug-18	07-Dec-16	12-Jul-18	0	-31



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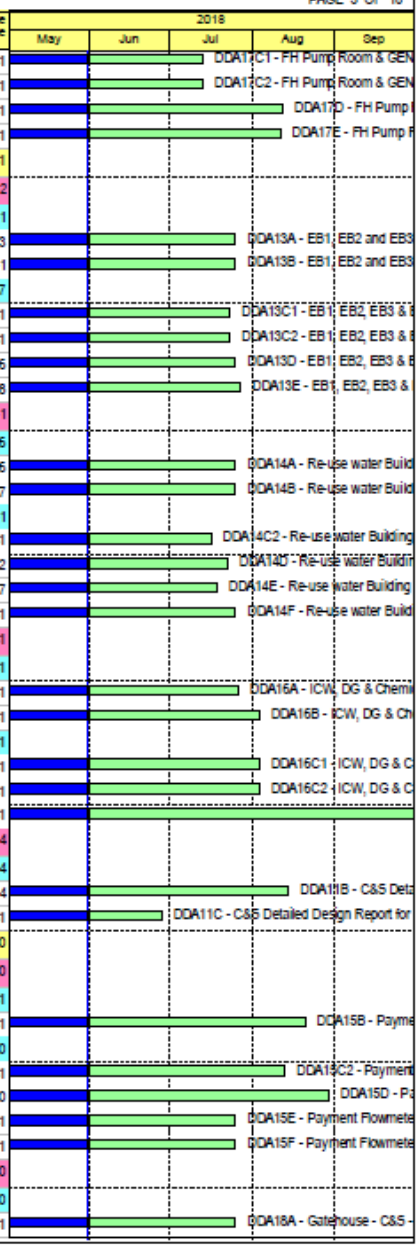
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
DB2448	DDA17C1 - FH Pump Room & GENSET Room - GA Drawing - Design Preparation to SO Approval	583	07-Dec-16 A	13-Jul-18	07-Dec-16	12-Jun-18	0	-31
DB2452	DDA17C2 - FH Pump Room & GENSET Room - CR Drawing - Design Preparation to SO Approval	583	07-Dec-16 A	13-Jul-18	07-Dec-16	12-Jun-18	0	-31
DB4648	DDA17D - FH Pump Room & GENSET Room - Electrical - Design Preparation to SO Approval	507	23-Mar-17 A	12-Aug-18	23-Mar-17	12-Jul-18	0	-31
DB5498	DDA17E - FH Pump Room & GENSET Room - Building Services - Design Preparation to SO Approval	507	23-Mar-17 A	11-Aug-18	23-Mar-17	11-Jul-18	0	-31
LOT #3 - Building / Facilities Design : EB1, EB2, EB3, EB4, RW, DG+ICW, Inlet/Outlet Connection		773	16-Sep-16 A	29-Oct-18	16-Sep-16	28-Sep-18	0	-31
Electrical Building No.1, No.2, No.3, No.4		679	16-Sep-16 A	27-Jul-18	16-Sep-16	24-Jul-18	0	-2
Civil and Structural Design for EB123 (AIP13A / DDA13AB)		561	11-Jan-17 A	25-Jul-18	11-Jan-17	24-Jul-18	0	-1
DB3123	DDA13A - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval	474	08-Apr-17 A	25-Jul-18	08-Apr-17	12-Jul-18	0	-13
DB5262	DDA13B - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval	561	11-Jan-17 A	25-Jul-18	11-Jan-17	24-Jul-18	0	-1
Electrical and Mechanical Design for EB1234 (AIP13B / DDA13C1C2DE)		679	16-Sep-16 A	27-Jul-18	16-Sep-16	10-Jul-18	0	-17
DB3148	DDA13C1 - EB1, EB2, EB3 & EB4 - GA Drawing - Design Preparation to SO Approval	675	16-Sep-16 A	23-Jul-18	16-Sep-16	22-Jun-18	0	-31
DB3164	DDA13C2 - EB1, EB2, EB3 & EB4 - CR Drawing - Design Preparation to SO Approval	675	16-Sep-16 A	23-Jul-18	16-Sep-16	22-Jun-18	0	-31
DB4664	DDA13D - EB1, EB2, EB3 & EB4 - Electrical - Design Preparation to SO Approval	518	23-Feb-17 A	25-Jul-18	23-Feb-17	10-Jul-18	0	-16
DB5512	DDA13E - EB1, EB2, EB3 & EB4 - Building Services - Design Preparation to SO Approval	519	23-Feb-17 A	27-Jul-18	23-Feb-17	08-Jul-18	0	-18
Re-use Water Building		600	03-Dec-16 A	25-Jul-18	03-Dec-16	24-Jul-18	0	-1
Civil and Structural Design (AIP14A / DDA14AB)		469	13-Apr-17 A	25-Jul-18	13-Apr-17	29-Jun-18	0	-26
DB3223	DDA14A - Re-use water Building (Architectural) - C&S - Design Preparation to SO Approval	469	13-Apr-17 A	25-Jul-18	13-Apr-17	29-Jun-18	0	-26
DB5080	DDA14B - Re-use water Building (Structural) - C&S - Design Preparation to SO Approval	342	18-Aug-17 A	25-Jul-18	18-Aug-17	28-Jun-18	0	-27
Electrical and Mechanical Design (AIP14B / DDA14C1C2DEF)		600	03-Dec-16 A	25-Jul-18	03-Dec-16	24-Jul-18	0	-1
DB3264	DDA14C2 - Re-use water Building - CR Drawing - Design Preparation to SO Approval	591	03-Dec-16 A	16-Jul-18	03-Dec-16	15-Jun-18	0	-31
DB4680	DDA14D - Re-use water Building - Mechanical - Design Preparation to SO Approval	466	13-Apr-17 A	22-Jul-18	13-Apr-17	24-Jul-18	0	2
DB5528	DDA14E - Re-use water Building - Electrical - Design Preparation to SO Approval	462	13-Apr-17 A	18-Jul-18	13-Apr-17	01-Jul-18	0	-17
DB5544	DDA14F - Re-use water Building - Building Services - Design Preparation to SO Approval	469	13-Apr-17 A	25-Jul-18	13-Apr-17	24-Jun-18	0	-31
ICW and DG Store & Chemical Waste Storage Building		698	30-Nov-16 A	29-Oct-18	30-Nov-16	28-Sep-18	0	-31
Civil and Structural Design (AIP16A / DDA16AB)		350	18-Aug-17 A	03-Aug-18	18-Aug-17	03-Jul-18	0	-31
DB3323	DDA16A - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval	284	16-Oct-17 A	26-Jul-18	16-Oct-17	25-Jun-18	0	-31
DB5276	DDA16B - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval	350	18-Aug-17 A	03-Aug-18	18-Aug-17	03-Jul-18	0	-31
Electrical and Mechanical Design (AIP16B / DDA16C1C2D)		698	30-Nov-16 A	29-Oct-18	30-Nov-16	28-Sep-18	0	-31
DB3348	DDA16C1 - ICW, DG & Chemical Stores - GA Drawing - Design Preparation to SO Approval	611	30-Nov-16 A	03-Aug-18	30-Nov-16	03-Jul-18	0	-31
DB3362	DDA16C2 - ICW, DG & Chemical Stores - CR Drawing - Design Preparation to SO Approval	611	30-Nov-16 A	03-Aug-18	30-Nov-16	03-Jul-18	0	-31
DB4694	DDA16D - ICW, DG & Chemical Stores - Building Services - Design Preparation to SO Approval	523	24-May-17 A	29-Oct-18	24-May-17	28-Sep-18	0	-31
Inlet & Outlet Pipe Connections and Diversion Pipeworks		592	31-Dec-16 A	14-Aug-18	31-Dec-16	10-Aug-18	0	-4
Civil and Structural Design (AIP11 / DDA11ABC)		592	31-Dec-16 A	14-Aug-18	31-Dec-16	10-Aug-18	0	-4
DB3438	DDA11B - C&S Detailed Design Report for Inlet Connections Pipework - Design Preparation to SO Approval	494	08-Apr-17 A	14-Aug-18	08-Apr-17	10-Aug-18	0	-4
DB3452	DDA11C - C&S Detailed Design Report for Emergency Bypass - Design Preparation to SO Approval	544	31-Dec-16 A	27-Jun-18	31-Dec-16	27-May-18	0	-31
LOT #4 - Building / Facilities Design : GH, PF		643	25-Nov-16 A	29-Aug-18	25-Nov-16	30-Aug-18	0	0
Payment Flowmeter Chamber		643	25-Nov-16 A	29-Aug-18	25-Nov-16	30-Aug-18	0	0
Civil and Structural Design (AIP15A / DDA15B)		495	13-Apr-17 A	20-Aug-18	13-Apr-17	20-Jul-18	0	-31
DB4323	DDA15B - Payment Flowmeter - C&S - Design Preparation to SO Approval	495	13-Apr-17 A	20-Aug-18	13-Apr-17	20-Jul-18	0	-31
Electrical and Mechanical Design (AIP15B / DDA15C1C2DEF)		643	25-Nov-16 A	29-Aug-18	25-Nov-16	30-Aug-18	0	0
DB4356	DDA15C2 - Payment Flowmeter (Superstructure Design) - CR Drawing - Design Preparation to SO Approval	626	25-Nov-16 A	13-Aug-18	25-Nov-16	13-Jul-18	0	-31
DB4740	DDA15D - Payment Flowmeter - Mechanical - Design Preparation to SO Approval	456	31-May-17 A	29-Aug-18	31-May-17	30-Aug-18	0	0
DB5560	DDA15E - Payment Flowmeter - Electrical - Design Preparation to SO Approval	421	31-May-17 A	25-Jul-18	31-May-17	24-Jun-18	0	-31
DB5576	DDA15F - Payment Flowmeter - Building Services - Design Preparation to SO Approval	421	31-May-17 A	25-Jul-18	31-May-17	14-Jul-18	0	-11
Gatehouse		481	24-Apr-17 A	18-Aug-18	24-Apr-17	17-Aug-18	0	0
Civil and Structural Design (AIP18A / DDA18AB)		396	18-Jul-17 A	18-Aug-18	18-Jul-17	17-Aug-18	0	0
DB4424	DDA18A - Gatehouse - C&S - Design Preparation to SO Approval	373	18-Jul-17 A	25-Jul-18	18-Jul-17	24-Jun-18	0	-31



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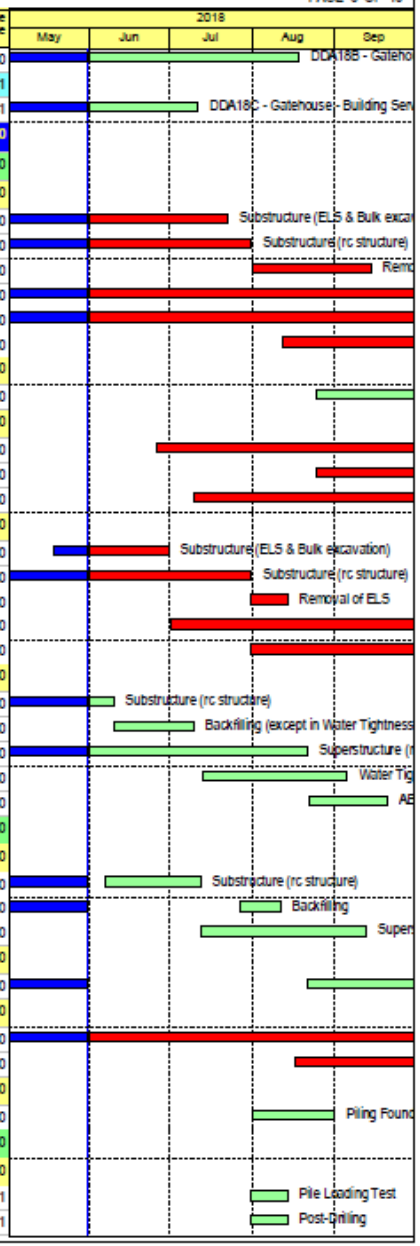
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
DB5290	DDA18B - Gatehouse - C&S - Design Preparation to SO Approval	395	18-Jul-17 A	18-Aug-18	18-Jul-17	17-Aug-18	-1	0
	Electrical and Mechanical Design (AIP18B / DDA18C)	444	24-Apr-17 A	11-Jul-18	24-Apr-17	10-Jun-18	0	-31
DB4754	DDA18C - Gatehouse - Building Services - Design Preparation to SO Approval	444	24-Apr-17 A	11-Jul-18	24-Apr-17	10-Jun-18	0	-31
Civil & Structural Works		**774**	**01-Oct-17 A**	**13-Nov-19**	**01-Oct-17**	**13-Nov-19**	**0**	**0**
LOT #1 - Bldg / Facilities Const. (Arch'l & Struct'l) : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB		472	01-Oct-17 A	15-Jan-19	01-Oct-17	15-Jan-19	0	0
Chemically Enhanced Primary Treatment (CEPT)		451	01-Oct-17 A	25-Dec-18	01-Oct-17	25-Dec-18	0	0
C51510	Substructure (ELS & Bulk excavation)	295	01-Oct-17 A	22-Jul-18	01-Oct-17	22-Jul-18	0	0
C51520	Substructure (rc structure)	187	26-Jan-18 A	31-Jul-18	26-Jan-18	31-Jul-18	0	0
C51525	Removal of ELS	45	01-Aug-18	14-Sep-18	01-Aug-18	14-Sep-18	0	0
C51526	Backfilling (except in Water Tightness Test area)	200	28-Apr-18 A	13-Nov-18	28-Apr-18	13-Nov-18	0	0
C51530	Superstructure (rc and metalworks)	307	22-Feb-18 A	25-Dec-18	22-Feb-18	25-Dec-18	0	0
C51540	Internal ABWF - CEPT	90	12-Aug-18	10-Nov-18	12-Aug-18	09-Nov-18	0	0
System Control Flowmeter Chamber (SF)		37	25-Aug-18	30-Sep-18	25-Aug-18	30-Sep-18	0	0
C51398	Substructure (ELS & Bulk excavation)	37	25-Aug-18	30-Sep-18	25-Aug-18	30-Sep-18	0	0
Inlet Work, Preliminary Treatment Works and Inlet Pumping Station (PTW & IPS)		204	26-Jun-18	15-Jan-19	26-Jun-18	15-Jan-19	0	0
C51210	Substructure (ELS & Bulk excavation)	97	26-Jun-18	30-Sep-18	26-Jun-18	30-Sep-18	0	0
C51220	Substructure (rc structure)	68	25-Aug-18	31-Oct-18	25-Aug-18	31-Oct-18	0	0
C51225	Backfilling (except in Water Tightness Test area)	190	10-Jul-18	15-Jan-19	10-Jul-18	15-Jan-19	0	0
UV Disinfection Facility (UV)		435	07-Oct-17 A	15-Dec-18	07-Oct-17	15-Dec-18	0	0
C51908	Substructure (ELS & Bulk excavation)	44	18-May-18 A	30-Jun-18	20-May-18	30-Jun-18	2	0
C51910	Substructure (rc structure)	297	07-Oct-17 A	31-Jul-18	07-Oct-17	30-Jul-18	0	0
C51912	Removal of ELS	14	31-Jul-18	14-Aug-18	31-Jul-18	13-Aug-18	0	0
C51915	Backfilling (except in Water Tightness Test area)	168	01-Jul-18	15-Dec-18	01-Jul-18	15-Dec-18	0	0
C51920	Superstructure (rc and metalworks)	78	31-Jul-18	17-Oct-18	31-Jul-18	16-Oct-18	0	0
Sludge Dewatering Building (SDB)		207	26-Feb-18 A	20-Sep-18	26-Feb-18	20-Sep-18	0	0
C51830	Substructure (rc structure)	104	26-Feb-18 A	09-Jun-18	26-Feb-18	09-Jun-18	0	0
C51836	Backfilling (except in Water Tightness Test area)	30	10-Jun-18	09-Jul-18	10-Jun-18	09-Jul-18	0	0
C51840	Superstructure (rc and metalworks)	170	05-Mar-18 A	21-Aug-18	05-Mar-18	21-Aug-18	0	0
C51845	Water Tightness Test + Backfilling	55	13-Jul-18	05-Sep-18	13-Jul-18	05-Sep-18	0	0
C51850	ABWF - Sludge Dewatering Building	30	22-Aug-18	20-Sep-18	22-Aug-18	20-Sep-18	0	0
LOT #2 - Bldg / Facilities Const. (Arch'l & Struct'l) : AB+WS, DO, CB, FH		444	13-Oct-17 A	31-Dec-18	13-Oct-17	30-Dec-18	0	0
Administration Building & Maintenance Workshop (AB & WS)		163	03-Apr-18 A	12-Sep-18	03-Apr-18	12-Sep-18	0	0
C51110	Substructure (rc structure)	101	03-Apr-18 A	12-Jul-18	03-Apr-18	12-Jul-18	0	0
C51115	Backfilling	131	03-Apr-18 A	11-Aug-18	03-Apr-18	11-Aug-18	0	0
C51120	Superstructure (rc and metalworks)	62	12-Jul-18	12-Sep-18	13-Jul-18	12-Sep-18	0	0
Deodorization Facilities No. 2 (DO 2)		411	22-Oct-17 A	07-Dec-18	22-Oct-17	06-Dec-18	0	0
C51710	Substructure (rc structure)	411	22-Oct-17 A	07-Dec-18	22-Oct-17	06-Dec-18	0	0
Chemical Building (CB)		444	13-Oct-17 A	31-Dec-18	13-Oct-17	30-Dec-18	0	0
C52310	Substructure (rc structure)	384	13-Oct-17 A	01-Nov-18	13-Oct-17	31-Oct-18	0	0
C52315	Backfilling	136	17-Aug-18	31-Dec-18	17-Aug-18	30-Dec-18	0	0
Street Fire Hydrant Pump Room & GENSET Room (FH)		31	01-Aug-18	31-Aug-18	01-Aug-18	31-Aug-18	0	0
C53003	Piling Foundation (Prebored H-pile) 6	31	01-Aug-18	31-Aug-18	01-Aug-18	31-Aug-18	0	0
LOT #3 - Bldg / Facilities Const. (Arch'l & Struct'l) : EB, RW, DG, ICW, JC		370	22-Oct-17 A	26-Oct-18	22-Oct-17	26-Oct-18	0	0
Electrical Building No.2 (EB2)		81	31-Jul-18	19-Oct-18	01-Aug-18	19-Oct-18	1	0
C52504	Pile Loading Test	14	31-Jul-18	14-Aug-18	01-Aug-18	14-Aug-18	1	1
C52505	Post-Driling	14	31-Jul-18	14-Aug-18	01-Aug-18	14-Aug-18	1	1



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Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
C52507	Substructure (ELS & Bulk excavation)	25	01-Aug-18	25-Aug-18	01-Aug-18	25-Aug-18	0	0
C52510	Substructure (rc structure)	55	26-Aug-18	19-Oct-18	26-Aug-18	19-Oct-18	0	0
Electrical Building No.4 (EB4)		355	22-Oct-17 A	11-Oct-18	22-Oct-17	11-Oct-18	0	0
C52710	Substructure (rc structure)	314	22-Oct-17 A	31-Aug-18	22-Oct-17	31-Aug-18	0	0
C52715	Backfilling	65	07-Aug-18	11-Oct-18	08-Aug-18	11-Oct-18	0	0
Re-use Water Building (RW)		87	01-Aug-18	26-Oct-18	01-Aug-18	26-Oct-18	0	0
C52004	Pile Loading Test	14	01-Aug-18	14-Aug-18	01-Aug-18	14-Aug-18	0	0
C52005	Post-Drilling	14	01-Aug-18	14-Aug-18	01-Aug-18	14-Aug-18	0	0
C52007	Substructure (ELS & Bulk excavation)	25	01-Aug-18	25-Aug-18	01-Aug-18	25-Aug-18	0	0
C52010	Substructure (rc structure)	62	26-Aug-18	26-Oct-18	26-Aug-18	26-Oct-18	0	0
Existing Junction Chamber (JC)		120	12-Jun-18	09-Oct-18	12-Jun-18	09-Oct-18	0	0
C52210	Bar Screen Installation	120	12-Jun-18	09-Oct-18	12-Jun-18	09-Oct-18	0	0
LOT #4 - Bldg / Facilities Const. (Arch'l & Struct'l) : GH, PF, FW		220	24-Mar-18 A	30-Oct-18	24-Mar-18	29-Oct-18	0	0
Payment Flowmeter Chamber (PF)		220	24-Mar-18 A	30-Oct-18	24-Mar-18	29-Oct-18	0	0
C52080	Piling Foundation (Prebored H-pile) 9	129	24-Mar-18 A	31-Jul-18	24-Mar-18	31-Jul-18	0	1
C52085	Pile Loading Test	14	01-Aug-18	15-Aug-18	01-Aug-18	14-Aug-18	0	0
C52090	Post-Drilling	14	01-Aug-18	15-Aug-18	01-Aug-18	14-Aug-18	0	0
C52095	Substructure (ELS & Bulk excavation)	31	01-Aug-18	31-Aug-18	01-Aug-18	31-Aug-18	0	0
C52100	Substructure (rc structure)	90	01-Aug-18	30-Oct-18	01-Aug-18	29-Oct-18	0	0
External Works & Miscellaneous		517	15-Jun-18	13-Nov-19	15-Jun-18	13-Nov-19	0	0
C53201	Slope works and Retaining Wall (Eastern Portion)	197	04-Jul-18	16-Jan-19	04-Jul-18	16-Jan-19	0	0
C53203	Slope works (Northern Portion)	180	04-Jul-18	30-Dec-18	04-Jul-18	30-Dec-18	0	0
C53210	Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains) incl. slope & retaining wall work @ P8	208	15-Jul-18	07-Feb-19	15-Jul-18	07-Feb-19	0	0
C53230	CLP Cable Duct and Draw Pits (within the Site)	210	09-Jul-18	04-Feb-19	09-Jul-18	03-Feb-19	0	0
C53250	EVA (Road & Drainage)	503	29-Jun-18	13-Nov-19	29-Jun-18	13-Nov-19	0	0
C53252	RC Trench and Odour Pipe (DO1, DO2)	180	22-Jul-18	18-Jan-19	22-Jul-18	17-Jan-19	0	0
C53254	Process Pipe	180	30-Jul-18	25-Jan-19	30-Jul-18	25-Jan-19	0	0
C53258	Emergency By-Pass Pipe	260	15-Jul-18	31-Mar-19	15-Jul-18	31-Mar-19	0	0
C53260	Sewage Pipe	210	28-Aug-18	25-Mar-19	28-Aug-18	25-Mar-19	0	0
C53284	Diversion of Existing Watermains by WSD	60	15-Jun-18	13-Aug-18	15-Jun-18	13-Aug-18	0	0
Green Roof		60	22-Aug-18	20-Oct-18	22-Aug-18	20-Oct-18	0	0
C53350	Sludge Dewatering Building	60	22-Aug-18	20-Oct-18	22-Aug-18	20-Oct-18	0	0
Statutory Works		156	25-Jan-18 A	29-Jun-18	25-Jan-18	30-Sep-18	0	93
Electrical Supply & Energization - CLP		156	25-Jan-18 A	29-Jun-18	25-Jan-18	30-Sep-18	0	93
SR130	Application of XP by CLP	156	25-Jan-18 A	29-Jun-18	25-Jan-18	30-Sep-18	0	93
E&M Works		839	27-Nov-16 A	15-Mar-19	27-Nov-16	15-Mar-19	0	0
Procurement		839	27-Nov-16 A	15-Mar-19	27-Nov-16	15-Mar-19	0	0
Chemically Enhanced Primary Treatment (CEPT)		406	10-Nov-17 A	21-Dec-18	10-Nov-17	20-Dec-18	0	0
EM3112	Manufacturing & Logistic (Major Equipment)	206	21-Feb-18 A	15-Sep-18	21-Feb-18	25-Oct-18	0	41
EM3114	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	263	10-Nov-17 A	31-Jul-18	10-Nov-17	16-Aug-18	0	17
EM3116	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	17-Aug-18	21-Dec-18	17-Aug-18	20-Dec-18	0	0
EM3118	CMS Preparation, Submission & Approval (Electrical)	263	10-Nov-17 A	31-Jul-18	10-Nov-17	16-Aug-18	0	17
EM3120	Manufacturing & Logistic (Electrical)	126	17-Aug-18	21-Dec-18	17-Aug-18	20-Dec-18	0	0
EM3122	CMS Preparation, Submission & Approval (Building Services)	293	10-Nov-17 A	29-Aug-18	10-Nov-17	05-Sep-18	0	7
System Control Flowmeter Chamber (SF)		718	25-Jan-17 A	12-Jan-19	25-Jan-17	12-Jan-19	0	0
EM3132	CMS Preparation, Submission & Approval (Major Equipment)	521	25-Jan-17 A	29-Jun-18	25-Jan-17	10-Jul-18	0	11

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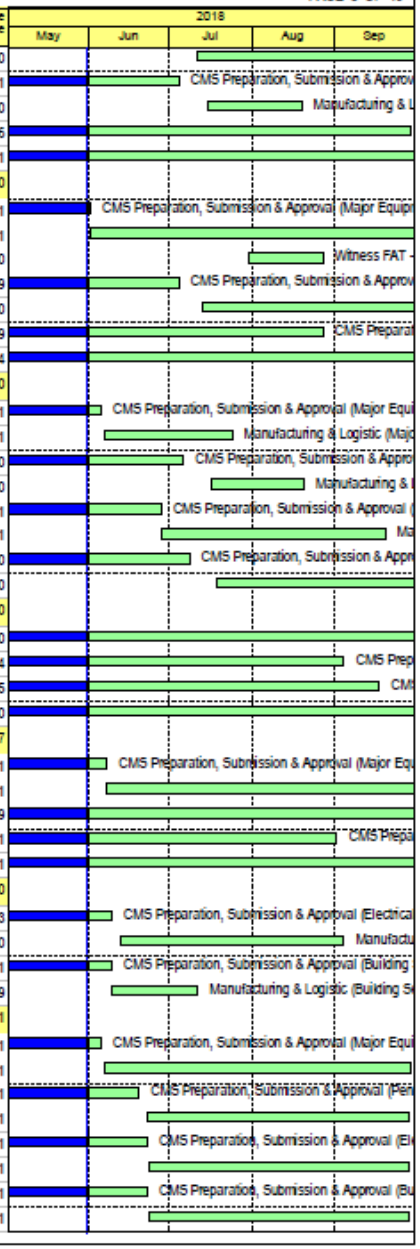
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
EM3134	Manufacturing & Logistic (Major Equipment)	185	11-Jul-18	12-Jan-19	12-Jul-18	12-Jan-19	0	0
EM3136	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	237	10-Nov-17 A	04-Jul-18	10-Nov-17	15-Jul-18	0	11
EM3138	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	15-Jul-18	19-Aug-18	16-Jul-18	19-Aug-18	0	0
EM3140	CMS Preparation, Submission & Approval (Electrical)	323	10-Nov-17 A	29-Sep-18	10-Nov-17	24-Oct-18	0	26
EM3144	CMS Preparation, Submission & Approval (Building Services)	329	10-Nov-17 A	04-Oct-18	10-Nov-17	15-Oct-18	0	11
Inlet Work, Preliminary Treatment Units and Inlet Pumping Station (PTW & IPS)		682	04-Jan-17 A	16-Nov-18	04-Jan-17	16-Nov-18	0	0
EM3135	CMS Preparation, Submission & Approval (Major Equipment)	513	04-Jan-17 A	01-Jun-18	04-Jan-17	01-May-18	0	-31
EM3137	Manufacturing & Logistic (Major Equipment)	160	01-Jun-18	08-Nov-18	01-May-18	08-Oct-18	-31	-31
EM3141	Witness FAT - Main Sewage Pumps	28	30-Jul-18	27-Aug-18	30-Jul-18	27-Aug-18	0	0
EM3635	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	277	01-Oct-17 A	04-Jul-18	01-Oct-17	13-Jul-18	0	9
EM3645	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	13-Jul-18	16-Nov-18	14-Jul-18	16-Nov-18	0	0
EM3655	CMS Preparation, Submission & Approval (Electrical)	330	01-Oct-17 A	27-Aug-18	01-Oct-17	14-Sep-18	0	19
EM3675	CMS Preparation, Submission & Approval (Building Services)	379	01-Oct-17 A	14-Oct-18	01-Oct-17	07-Nov-18	0	24
Solid Handling Building (SHB)		583	12-Apr-17 A	15-Nov-18	12-Apr-17	15-Nov-18	0	0
EM3145	CMS Preparation, Submission & Approval (Major Equipment)	419	12-Apr-17 A	05-Jun-18	12-Apr-17	05-May-18	0	-31
EM3150	Manufacturing & Logistic (Major Equipment)	48	06-Jun-18	24-Jul-18	06-May-18	23-Jun-18	-31	-31
EM3695	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	278	01-Oct-17 A	06-Jul-18	01-Oct-17	15-Jul-18	0	10
EM3705	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	16-Jul-18	20-Aug-18	16-Jul-18	19-Aug-18	0	0
EM3715	CMS Preparation, Submission & Approval (Electrical)	270	01-Oct-17 A	27-Jun-18	01-Oct-17	27-May-18	0	-31
EM3725	Manufacturing & Logistic (Electrical)	84	28-Jun-18	19-Sep-18	28-May-18	19-Aug-18	-31	-31
EM3735	CMS Preparation, Submission & Approval (Building Services)	281	01-Oct-17 A	08-Jul-18	01-Oct-17	18-Jul-18	0	10
EM3745	Manufacturing & Logistic (Building Services)	120	18-Jul-18	15-Nov-18	19-Jul-18	15-Nov-18	0	0
UV Disinfection Facility (UV)		480	21-Nov-17 A	15-Mar-19	21-Nov-17	15-Mar-19	0	0
EM3190	Manufacturing & Logistic (Major Equipment)	382	27-Feb-18 A	15-Mar-19	30-Apr-18	15-Mar-19	62	0
EM3755	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	287	21-Nov-17 A	04-Sep-18	21-Nov-17	27-Sep-18	0	24
EM3775	CMS Preparation, Submission & Approval (Electrical)	301	21-Nov-17 A	17-Sep-18	21-Nov-17	12-Oct-18	0	25
EM3795	CMS Preparation, Submission & Approval (Building Services)	344	21-Nov-17 A	31-Oct-18	21-Nov-17	29-Nov-18	0	30
Sludge Dewatering Building (SDB)		748	27-Nov-16 A	14-Dec-18	27-Nov-16	11-Jan-19	0	27
EM3175	CMS Preparation, Submission & Approval (Major Equipment)	558	27-Nov-16 A	07-Jun-18	27-Nov-16	07-May-18	0	-31
EM3180	Manufacturing & Logistic (Major Equipment)	190	07-Jun-18	14-Dec-18	07-May-18	13-Nov-18	-31	-31
EM3815	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	377	27-Oct-17 A	08-Nov-18	27-Oct-17	07-Dec-18	0	29
EM3835	CMS Preparation, Submission & Approval (Electrical)	310	27-Oct-17 A	01-Sep-18	27-Oct-17	22-Sep-18	0	21
EM3855	CMS Preparation, Submission & Approval (Building Services)	410	27-Oct-17 A	10-Dec-18	27-Oct-17	11-Jan-19	0	31
Sludge Skip Storage Building (SSSB)		365	04-Sep-17 A	04-Sep-18	04-Sep-17	03-Sep-18	0	0
EM3875	CMS Preparation, Submission & Approval (Electrical)	278	04-Sep-17 A	09-Jun-18	04-Sep-17	11-Jun-18	0	3
EM3885	Manufacturing & Logistic (Electrical)	84	12-Jun-18	04-Sep-18	12-Jun-18	03-Sep-18	0	0
EM3895	CMS Preparation, Submission & Approval (Building Services)	278	04-Sep-17 A	09-Jun-18	04-Sep-17	09-May-18	0	-31
EM3905	Manufacturing & Logistic (Building Services)	32	09-Jun-18	11-Jul-18	11-May-18	12-Jun-18	-29	-29
Administration Building & Maintenance Workshop (AB & WS)		607	31-Jan-17 A	29-Sep-18	31-Jan-17	29-Aug-18	0	-31
EM3125	CMS Preparation, Submission & Approval (Major Equipment)	491	31-Jan-17 A	05-Jun-18	31-Jan-17	05-May-18	0	-31
EM3130	Manufacturing & Logistic (Major Equipment)	115	06-Jun-18	29-Sep-18	06-May-18	29-Aug-18	-31	-31
EM3915	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	294	30-Aug-17 A	19-Jun-18	30-Aug-17	19-May-18	0	-31
EM3925	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	22-Jun-18	28-Sep-18	22-May-18	28-Aug-18	-31	-31
EM3935	CMS Preparation, Submission & Approval (Electrical)	297	30-Aug-17 A	22-Jun-18	30-Aug-17	22-May-18	0	-31
EM3945	Manufacturing & Logistic (Electrical)	98	23-Jun-18	28-Sep-18	23-May-18	28-Aug-18	-31	-31
EM3955	CMS Preparation, Submission & Approval (Building Services)	297	30-Aug-17 A	22-Jun-18	30-Aug-17	22-May-18	0	-31
EM3965	Manufacturing & Logistic (Building Services)	98	23-Jun-18	28-Sep-18	23-May-18	28-Aug-18	-31	-31



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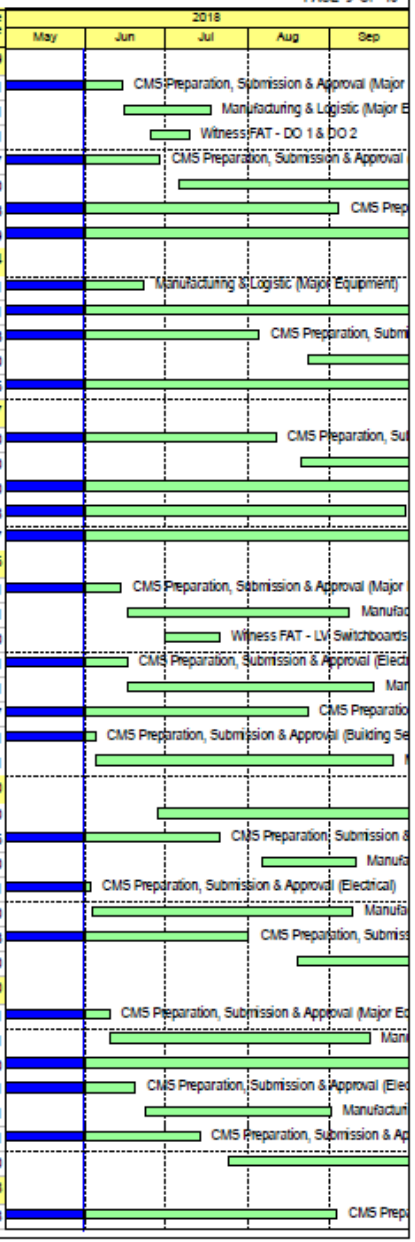
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
Deodorization Facilities No. 1 & 2 (DO 1 & DO 2)		729	10-Jan-17 A	08-Jan-19	10-Jan-17	06-Feb-19	0	29
EM3165	CMS Preparation, Submission & Approval (Major Equipment)	521	10-Jan-17 A	14-Jun-18	10-Jan-17	14-May-18	0	-31
EM3170	Manufacturing & Logistic (Major Equipment)	32	15-Jun-18	17-Jul-18	15-May-18	16-Jun-18	-31	-31
EM3171	Witness FAT - DO 1 & DO 2	14	25-Jun-18	09-Jul-18	25-May-18	08-Jun-18	-31	-31
EM3172	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	303	30-Aug-17 A	28-Jun-18	30-Aug-17	06-Jul-18	0	7
EM3173	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	05-Jul-18	08-Nov-18	06-Jul-18	09-Nov-18	0	0
EM3975	CMS Preparation, Submission & Approval (Electrical)	370	30-Aug-17 A	04-Sep-18	30-Aug-17	21-Sep-18	0	18
EM3995	CMS Preparation, Submission & Approval (Building Services)	497	30-Aug-17 A	08-Jan-19	30-Aug-17	06-Feb-19	0	29
Chemical Building (CB)		386	08-Nov-17 A	29-Nov-18	08-Nov-17	23-Dec-18	0	24
EM3230	Manufacturing & Logistic (Major Equipment)	97	17-Mar-18 A	22-Jun-18	17-Mar-18	31-Aug-18	0	71
EM4015	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	379	08-Nov-17 A	22-Nov-18	08-Nov-17	23-Dec-18	0	31
EM4035	CMS Preparation, Submission & Approval (Electrical)	270	08-Nov-17 A	05-Aug-18	08-Nov-17	22-Aug-18	0	18
EM4045	Manufacturing & Logistic (Electrical)	98	23-Aug-18	29-Nov-18	22-Aug-18	28-Nov-18	0	0
EM4055	CMS Preparation, Submission & Approval (Building Services)	330	08-Nov-17 A	03-Oct-18	08-Nov-17	29-Oct-18	0	26
Street Fire Hydrant Pump Room & GENSET Room (FH)		624	23-Mar-17 A	06-Dec-18	23-Mar-17	14-Dec-18	0	7
EM3275	CMS Preparation, Submission & Approval (Major Equipment)	506	23-Mar-17 A	11-Aug-18	23-Mar-17	21-Aug-18	0	10
EM3280	Manufacturing & Logistic (Major Equipment)	84	21-Aug-18	13-Nov-18	21-Aug-18	13-Nov-18	0	0
EM4075	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	432	01-Oct-17 A	06-Dec-18	01-Oct-17	06-Dec-18	0	0
EM4095	CMS Preparation, Submission & Approval (Electrical)	363	01-Oct-17 A	29-Sep-18	01-Oct-17	22-Oct-18	0	23
EM4115	CMS Preparation, Submission & Approval (Building Services)	412	01-Oct-17 A	16-Nov-18	01-Oct-17	14-Dec-18	0	27
Electrical Buildings (EB1, EB2, EB3 & EB4)		579	23-Feb-17 A	24-Sep-18	23-Feb-17	09-Sep-18	0	-16
EM3235	CMS Preparation, Submission & Approval (Major Equipment)	476	23-Feb-17 A	14-Jun-18	23-Feb-17	14-May-18	0	-31
EM3240	Manufacturing & Logistic (Major Equipment)	84	16-Jun-18	08-Sep-18	16-May-18	08-Aug-18	-31	-31
EM3245	Witness FAT - LV Switchboards (8 nos. for EB's and 4 nos. for SDB)	21	30-Jun-18	21-Jul-18	30-Jun-18	21-Jul-18	0	0
EM3300	CMS Preparation, Submission & Approval (Electrical)	279	11-Sep-17 A	16-Jun-18	11-Sep-17	16-May-18	0	-31
EM3305	Manufacturing & Logistic (Electrical)	93	16-Jun-18	17-Sep-18	16-May-18	17-Aug-18	-31	-31
EM3310	CMS Preparation, Submission & Approval (Control & Instrument)	346	11-Sep-17 A	23-Aug-18	11-Sep-17	09-Sep-18	0	17
EM3320	CMS Preparation, Submission & Approval (Building Services)	300	09-Aug-17 A	04-Jun-18	09-Aug-17	04-May-18	0	-31
EM3325	Manufacturing & Logistic (Building Services)	112	04-Jun-18	24-Sep-18	04-May-18	24-Aug-18	-31	-31
Re-use Water Building (RW)		385	19-Nov-17 A	09-Dec-18	19-Nov-17	09-Dec-18	0	0
EM3200	Manufacturing & Logistic (Major Equipment)	140	28-Jun-18	14-Nov-18	28-Jun-18	14-Nov-18	0	0
EM4135	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	244	19-Nov-17 A	21-Jul-18	19-Nov-17	06-Aug-18	0	16
EM4145	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	06-Aug-18	10-Sep-18	06-Aug-18	10-Sep-18	0	0
EM4155	CMS Preparation, Submission & Approval (Electrical)	196	19-Nov-17 A	02-Jun-18	19-Nov-17	04-Jun-18	0	1
EM4165	Manufacturing & Logistic (Electrical)	98	03-Jun-18	09-Sep-18	04-Jun-18	10-Sep-18	0	0
EM4175	CMS Preparation, Submission & Approval (Building Services)	255	19-Nov-17 A	01-Aug-18	19-Nov-17	19-Aug-18	0	18
EM4185	Manufacturing & Logistic (Building Services)	112	19-Aug-18	09-Dec-18	19-Aug-18	09-Dec-18	0	0
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		539	24-May-17 A	13-Nov-18	24-May-17	14-Nov-18	0	0
EM3255	CMS Preparation, Submission & Approval (Major Equipment)	382	24-May-17 A	09-Jun-18	24-May-17	09-May-18	0	-31
EM3260	Manufacturing & Logistic (Major Equipment)	98	10-Jun-18	15-Sep-18	10-May-18	15-Aug-18	-31	-31
EM4195	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	304	10-Dec-17 A	10-Oct-18	10-Dec-17	09-Nov-18	0	30
EM4215	CMS Preparation, Submission & Approval (Electrical)	262	30-Sep-17 A	19-Jun-18	30-Sep-17	19-May-18	0	-31
EM4225	Manufacturing & Logistic (Electrical)	70	23-Jun-18	01-Sep-18	23-May-18	01-Aug-18	-31	-31
EM4235	CMS Preparation, Submission & Approval (Building Services)	287	30-Sep-17 A	13-Jul-18	30-Sep-17	25-Jul-18	0	11
EM4245	Manufacturing & Logistic (Building Services)	112	24-Jul-18	13-Nov-18	25-Jul-18	14-Nov-18	0	0
Gatehouse (GH)		498	24-Apr-17 A	03-Sep-18	24-Apr-17	16-Sep-18	0	13
EM3285	CMS Preparation, Submission & Approval (Building Services)	498	24-Apr-17 A	03-Sep-18	24-Apr-17	16-Sep-18	0	13



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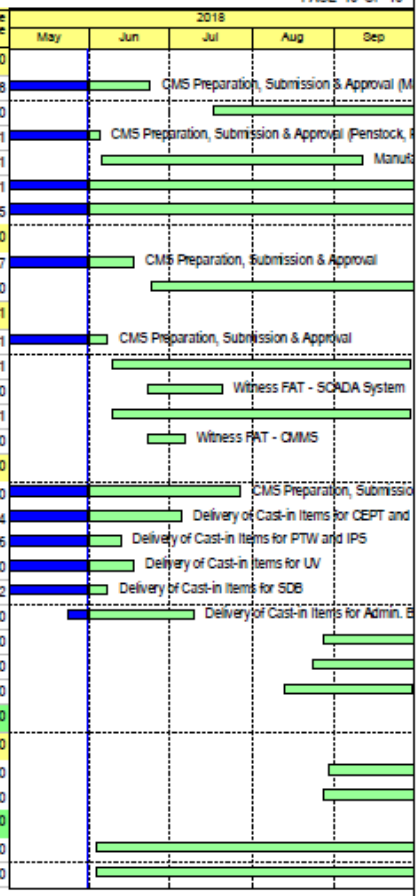
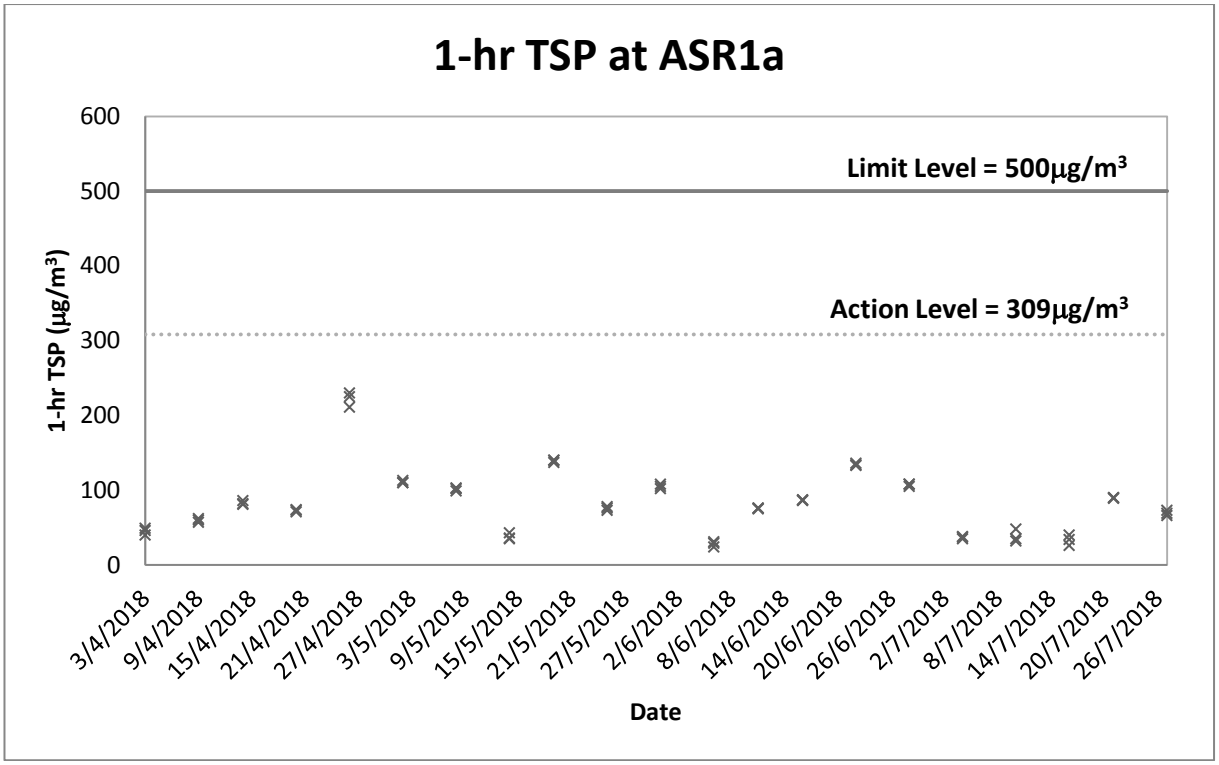
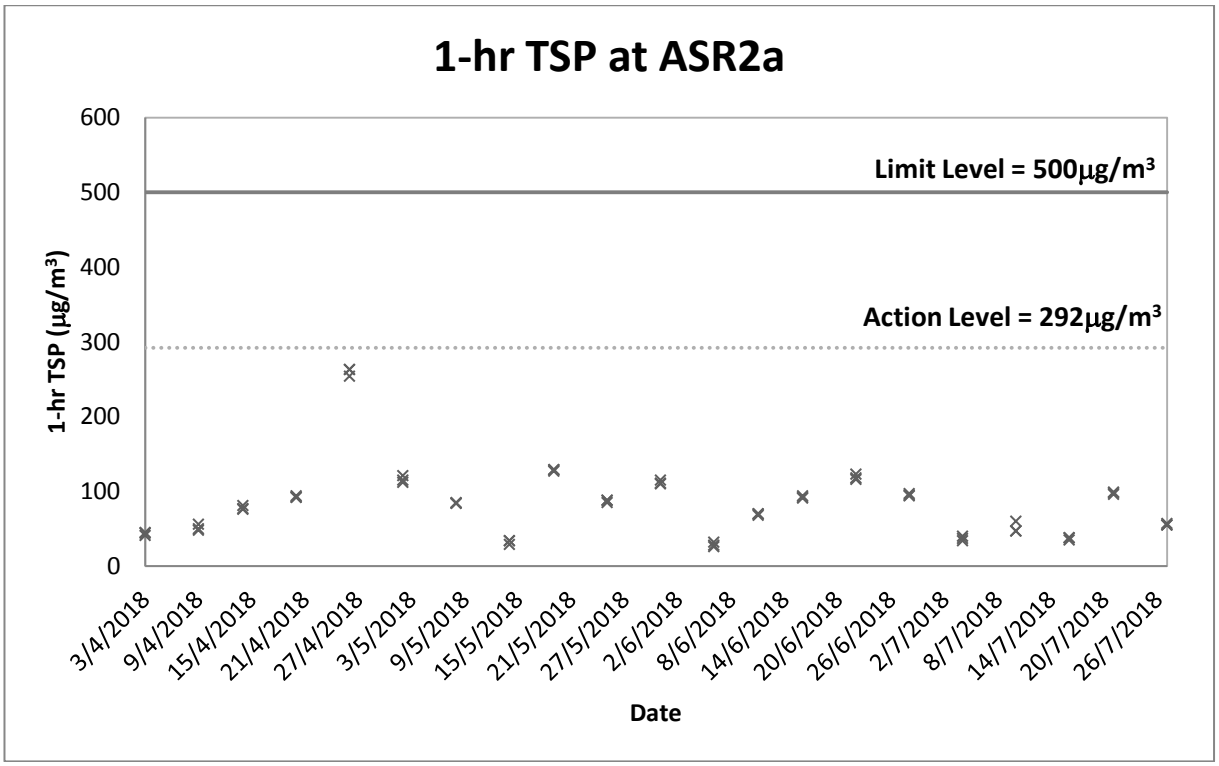
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date
Payment Flowmeter Chamber (PF)		723	25-Jan-17 A	18-Jan-19	25-Jan-17	16-Feb-19	0	30
EM3205	CMS Preparation, Submission & Approval (Major Equipment)	514	25-Jan-17 A	23-Jun-18	25-Jan-17	10-Jul-18	0	18
EM3210	Manufacturing & Logistic (Major Equipment)	185	17-Jul-18	18-Jan-19	17-Jul-18	17-Jan-19	0	0
EM4255	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	276	01-Sep-17 A	04-Jun-18	01-Sep-17	04-May-18	0	-31
EM4265	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	05-Jun-18	11-Sep-18	05-May-18	11-Aug-18	-31	-31
EM4275	CMS Preparation, Submission & Approval (Electrical)	363	20-Nov-17 A	17-Nov-18	20-Nov-17	18-Dec-18	0	31
EM4295	CMS Preparation, Submission & Approval (Building Services)	419	20-Nov-17 A	12-Jan-19	20-Nov-17	16-Feb-19	0	35
Foul Water Pump Sump		336	20-Nov-17 A	22-Oct-18	20-Nov-17	21-Oct-18	0	0
EM4315	CMS Preparation, Submission & Approval	209	20-Nov-17 A	17-Jun-18	20-Nov-17	23-Jun-18	0	7
EM4320	Manufacturing & Logistic	120	24-Jun-18	22-Oct-18	23-Jun-18	21-Oct-18	0	0
SCADA and CMMS Systems		456	01-Jul-17 A	29-Sep-18	01-Jul-17	29-Aug-18	0	-31
EM3330	CMS Preparation, Submission & Approval	342	01-Jul-17 A	07-Jun-18	01-Jul-17	07-May-18	0	-31
EM3335	Manufacturing & Logistic (SCADA)	112	09-Jun-18	29-Sep-18	09-May-18	29-Aug-18	-31	-31
EM3340	Witness FAT - SCADA System	28	22-Jun-18	20-Jul-18	22-Jun-18	20-Jul-18	0	0
EM3345	Manufacturing & Logistic (CMMS)	112	09-Jun-18	29-Sep-18	09-May-18	29-Aug-18	-31	-31
EM3350	Witness FAT - CMMS	14	22-Jun-18	06-Jul-18	22-Jun-18	06-Jul-18	0	0
Cast - In Items		620	01-Feb-17 A	14-Oct-18	01-Feb-17	14-Oct-18	0	0
EM3520	CMS Preparation, Submission & Approval	542	01-Feb-17 A	27-Jul-18	01-Feb-17	07-Aug-18	0	10
EM3525	Delivery of Cast-in Items for CEPT and SF	278	30-Sep-17 A	05-Jul-18	30-Sep-17	28-Jul-18	0	24
EM3530	Delivery of Cast-in Items for PTW and IPS	256	30-Sep-17 A	12-Jun-18	30-Sep-17	18-Jun-18	0	6
EM3540	Delivery of Cast-in Items for UV	48	30-Apr-18 A	17-Jun-18	30-Apr-18	16-Jun-18	0	0
EM3545	Delivery of Cast-in Items for SDB	102	26-Feb-18 A	07-Jun-18	26-Feb-18	09-Jun-18	0	2
EM3555	Delivery of Cast-in Items for Admin. Building	48	23-May-18 A	09-Jul-18	23-May-18	10-Jul-18	0	0
EM3565	Delivery of Cast-in Items for DO No. 2	48	27-Aug-18	14-Oct-18	27-Aug-18	14-Oct-18	0	0
EM3575	Delivery of Cast-in Items for FH	48	23-Aug-18	09-Oct-18	23-Aug-18	09-Oct-18	0	0
EM3625	Delivery of Cast-in Items for PF	48	13-Aug-18	30-Sep-18	13-Aug-18	30-Sep-18	0	0
Installation		182	27-Aug-18	25-Feb-19	27-Aug-18	25-Feb-19	0	0
Administration Building & Maintenance Workshop (AB & WS)		182	27-Aug-18	25-Feb-19	27-Aug-18	25-Feb-19	0	0
EM1100	SCADA System	180	29-Aug-18	25-Feb-19	29-Aug-18	25-Feb-19	0	0
EM1105	Plant Installation (WS)	180	27-Aug-18	23-Feb-19	27-Aug-18	23-Feb-19	0	0
Testing & Commissioning		120	03-Jun-18	01-Oct-18	03-Jun-18	01-Oct-18	0	0
TC030	Operation Plan - Preparation for Submission	120	03-Jun-18	01-Oct-18	03-Jun-18	01-Oct-18	0	0
TC040	Asset Management Plan - Preparation for Submission	120	03-Jun-18	01-Oct-18	03-Jun-18	01-Oct-18	0	0

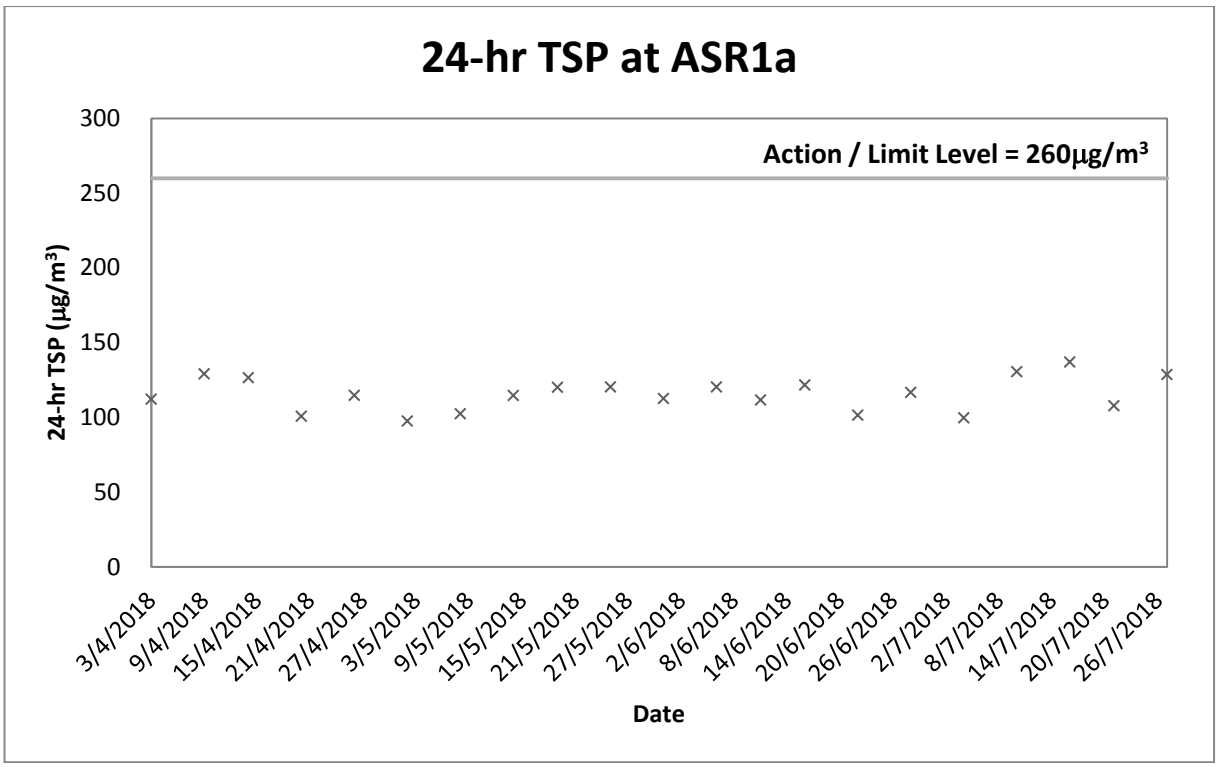


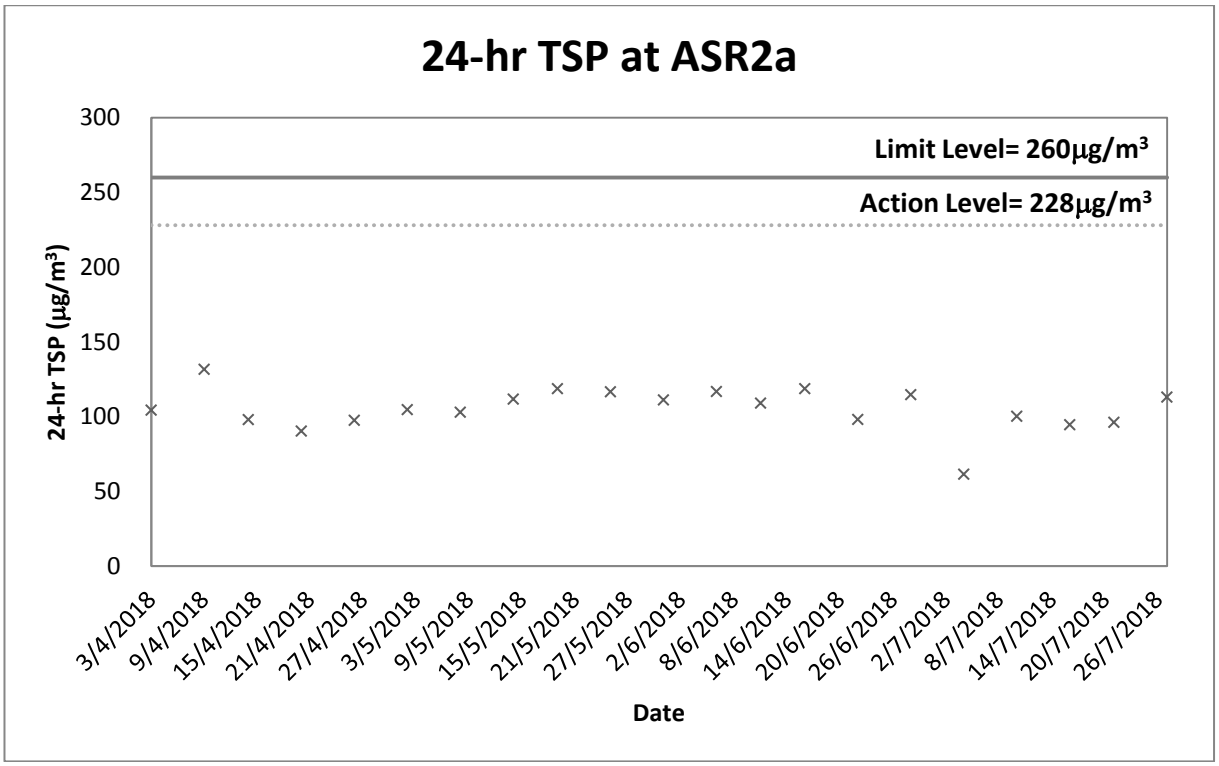
Appendix D

Graphical Plots of Impact Air Quality Monitoring Results


1-hr TSP at ASR1a
Limit Level = 500μg/m³
Action Level = 309μg/m³
1-hr TSP (μg/m³)
600
500
400
300
200
100
0
3/4/2018
9/4/2018
15/4/2018
21/4/2018
27/4/2018
3/5/2018
9/5/2018
15/5/2018
21/5/2018
27/5/2018
2/6/2018
8/6/2018
14/6/2018
20/6/2018
26/6/2018
2/7/2018
8/7/2018
14/7/2018
20/7/2018
26/7/2018
Date

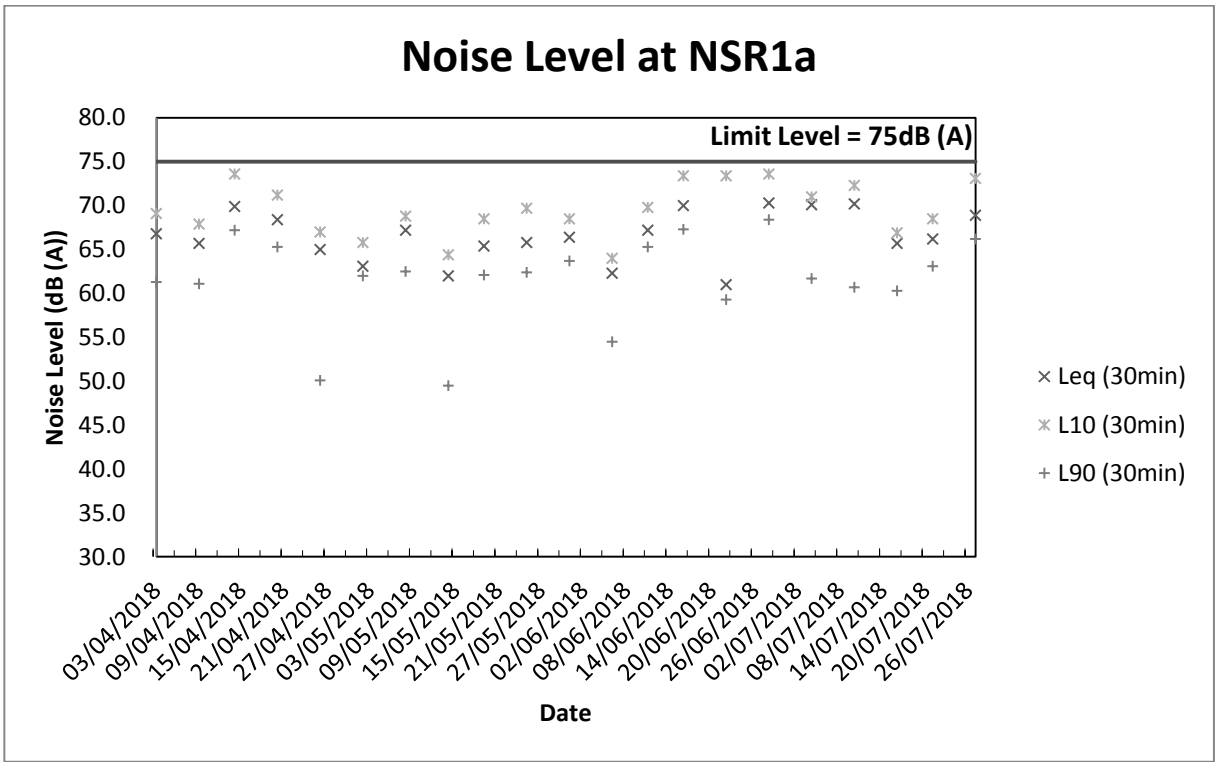

1-hr TSP at ASR2a
Limit Level = 500μg/m³
Action Level = 292μg/m³
1-hr TSP (μg/m³)
600
500
400
300
200
100
0
3/4/2018
9/4/2018
15/4/2018
21/4/2018
27/4/2018
3/5/2018
9/5/2018
15/5/2018
21/5/2018
27/5/2018
2/6/2018
8/6/2018
14/6/2018
20/6/2018
26/6/2018
2/7/2018
8/7/2018
14/7/2018
20/7/2018
26/7/2018
Date

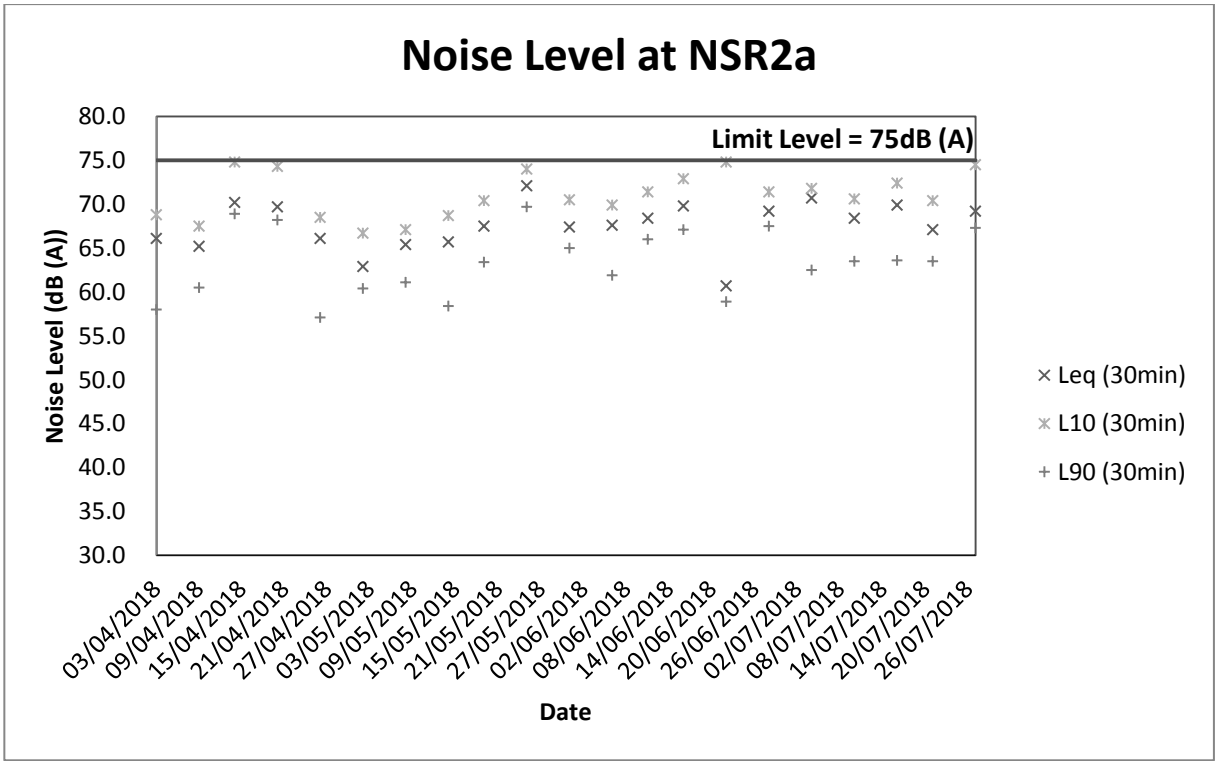

24-hr TSP at ASR1a
Action / Limit Level = 260μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
3/4/2018
9/4/2018
15/4/2018
21/4/2018
27/4/2018
3/5/2018
9/5/2018
15/5/2018
21/5/2018
27/5/2018
2/6/2018
8/6/2018
14/6/2018
20/6/2018
26/6/2018
2/7/2018
8/7/2018
14/7/2018
20/7/2018
26/7/2018
Date


24-hr TSP at ASR2a
Limit Level= 260μg/m³
Action Level= 228μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
3/4/2018
9/4/2018
15/4/2018
21/4/2018
27/4/2018
3/5/2018
9/5/2018
15/5/2018
21/5/2018
27/5/2018
2/6/2018
8/6/2018
14/6/2018
20/6/2018
26/6/2018
2/7/2018
8/7/2018
14/7/2018
20/7/2018
26/7/2018
Date

Appendix E

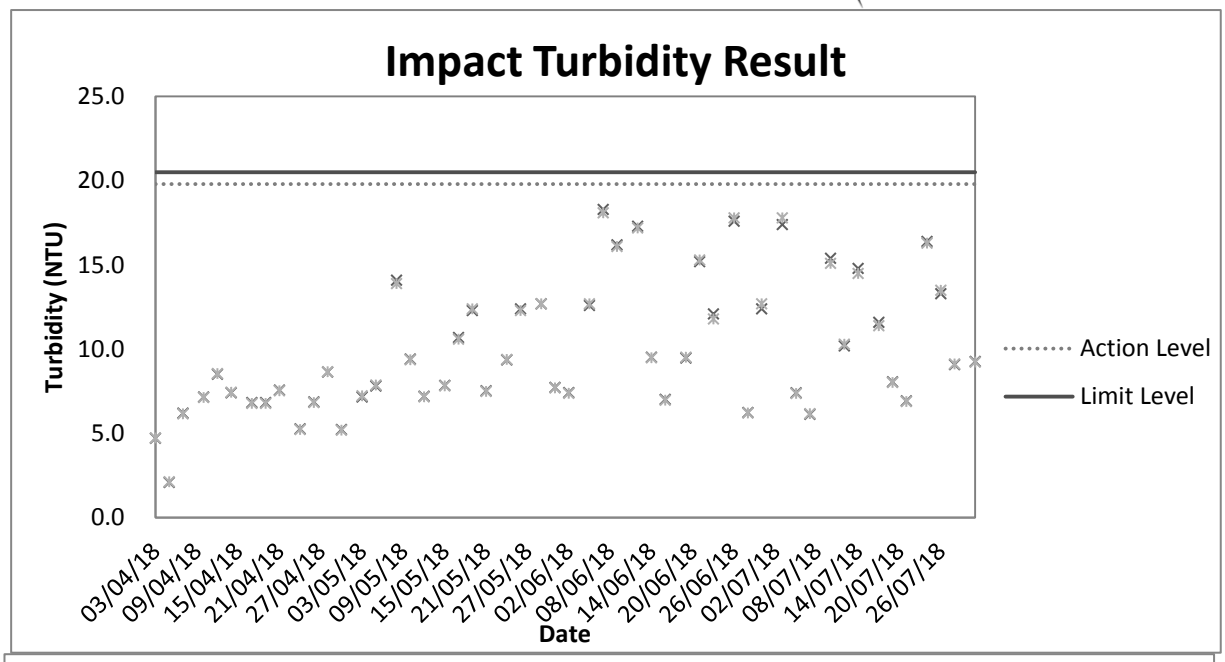
Graphical Plots of Impact Noise Monitoring Data

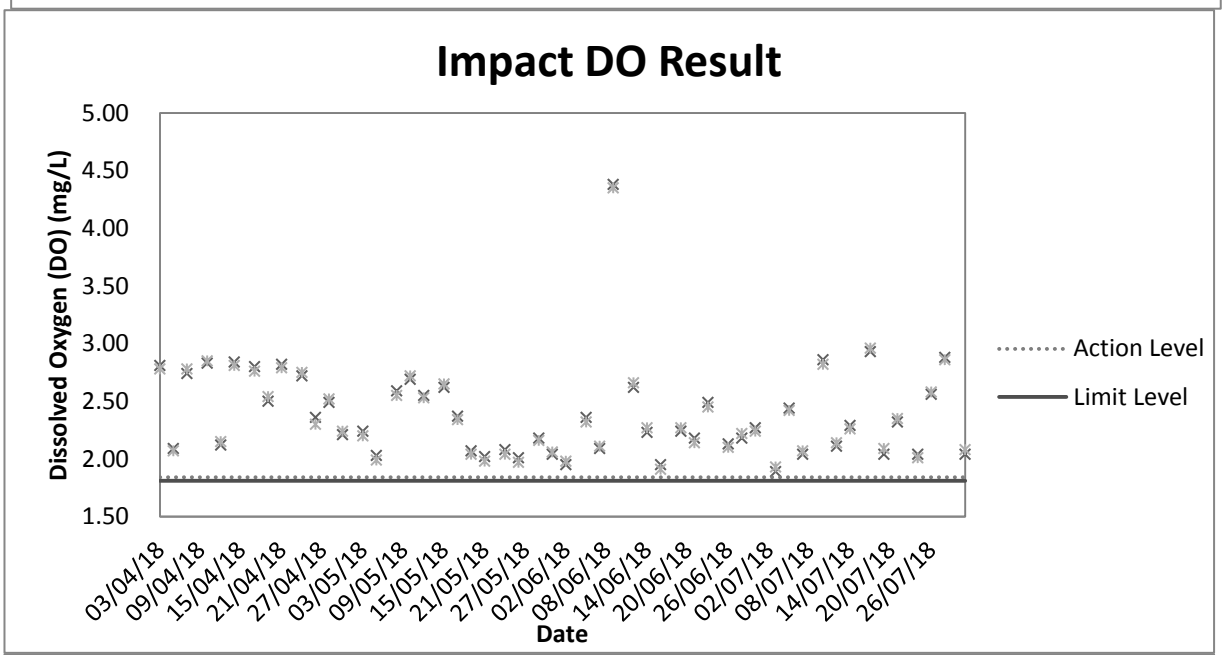

Noise Level at NSR1a
Limit Level = 75dB (A)
Noise Level (dB (A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
03/04/2018
09/04/2018
15/04/2018
21/04/2018
27/04/2018
03/05/2018
09/05/2018
15/05/2018
21/05/2018
27/05/2018
02/06/2018
08/06/2018
14/06/2018
20/06/2018
26/06/2018
02/07/2018
08/07/2018
14/07/2018
20/07/2018
26/07/2018
Date
Leq (30min)
L10 (30min)
L90 (30min)

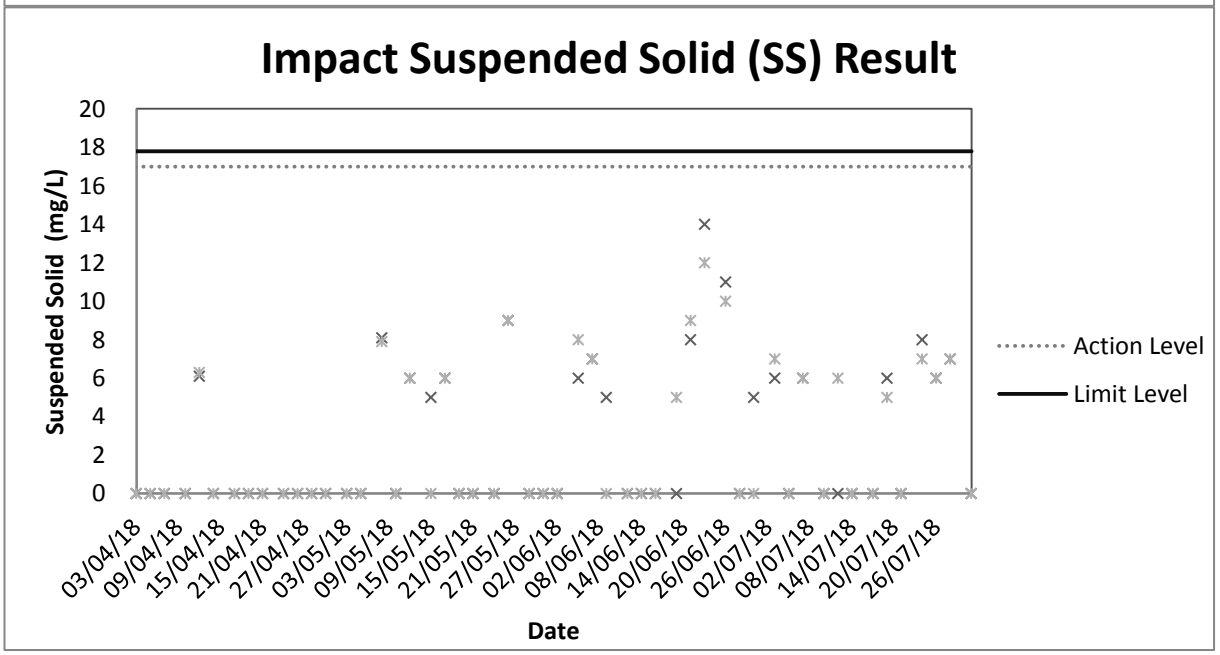

Noise Level at NSR2a
Limit Level = 75dB (A)
Noise Level (dB (A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
03/04/2018
09/04/2018
15/04/2018
21/04/2018
27/04/2018
03/05/2018
09/05/2018
15/05/2018
21/05/2018
27/05/2018
02/06/2018
08/06/2018
14/06/2018
20/06/2018
26/06/2018
02/07/2018
08/07/2018
14/07/2018
20/07/2018
26/07/2018
Date
Leq (30min)
L10 (30min)
L90 (30min)

Appendix F

Graphical Plots of Impact Water Quality Monitoring Data


Impact Turbidity Result
Turbidity (NTU)
25.0
20.0
15.0
10.0
5.0
0.0
03/04/18
09/04/18
15/04/18
21/04/18
27/04/18
03/05/18
09/05/18
15/05/18
21/05/18
27/05/18
02/06/18
08/06/18
14/06/18
20/06/18
26/06/18
02/07/18
08/07/18
14/07/18
20/07/18
26/07/18
Date
Action Level
Limit Level


Impact DO Result
Dissolved Oxygen (DO) (mg/L)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
03/04/18
09/04/18
15/04/18
21/04/18
27/04/18
03/05/18
09/05/18
15/05/18
21/05/18
27/05/18
02/06/18
08/06/18
14/06/18
20/06/18
26/06/18
02/07/18
08/07/18
14/07/18
20/07/18
26/07/18
Date
Action Level
Limit Level


Impact Suspended Solid (SS) Result
Suspended Solid (mg/L)
20
18
16
14
12
10
8
6
4
2
0
03/04/18
09/04/18
15/04/18
21/04/18
27/04/18
03/05/18
09/05/18
15/05/18
21/05/18
27/05/18
02/06/18
08/06/18
14/06/18
20/06/18
26/06/18
02/07/18
08/07/18
14/07/18
20/07/18
26/07/18
Date
Action Level
Limit Level

Appendix G

Event and Action Plan

Event and Action Plan for Air Quality (Dust) during Construction Phase

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded for one sample	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures are properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level being exceeded for one sample	1. Identify source; 2. Inform IEC, ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with Contractor on the possible mitigation measures; 3. Review the proposed mitigation	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Check monitoring data and Contractor's working methods; 4. Discuss with IEC and Contractor on potential	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	remedial actions; 6. Keep EPD and ER informed of the results.	measures submitted by Contractor and advise the ER accordingly.	remedial actions; 5. Ensure remedial actions properly implemented.	appropriate.
Limit Level being exceeded for two or more consecutive samples	1. Identify source; 2. Inform IEC, ER and EPD the causes & actions taken for the exceedances; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Investigate the causes of exceedance; 6. Arrange meeting with EPD and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Supervise the implementation of mitigation measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 4. Discuss with IEC and the Contractor on potential remedial actions; 5. Review Contractor's remedial actions whenever necessary to assure their effectiveness; 6. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not resolved; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level	1. Notify IEC and Contractor; 2. Carry out investigation ; 3. Report the results of investigation to the IEC and Contractor; 4. Discuss with the Contractor and formulate remedial measures ; 5. Increase monitoring frequency to check the effectiveness of mitigation measures.	1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure mitigation measures are properly implemented.	1. Submit noise mitigation proposal to IEC; 2. Implement noise mitigation proposals.
Limit level	1. Notify IEC, ER, EPD & Contractor; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess the	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure mitigation measures are properly implemented; 5. If exceedances continues, consider what portion of the work is responsible and instruct the Contractor to stop that	1. Undertake immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by ER, until the exceedance

	effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.		portion of work until the exceedance is abated.	is abated.

Event and Action Plan for Water Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; 6. Implement the agreed mitigation measures.
Action Level being exceeded by more than two consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented;	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and

Event	Action			
	ET Leader	IEC	ER	Contractor
	and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. Repeat measurement on next day of exceedance.	and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	3. Assess the effectiveness of the implemented mitigation measures.	equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.
Limit Level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contract or and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IEC	ER	Contractor
	monitoring frequency to daily until no exceedance of Limit Level.			
Limit Level being exceeded by more than two consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the ER, to slow down or to stop all or part of the marine work or construction activities.

Appendix H

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Environmental Mitigation Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality					
• The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;	Site Area	√			
• All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition;	Site Area	√			
• Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point;	Site Entrance	√			
• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;	Site Exit	√			
• Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit;	Site Area	√			
• Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet;	Main Haul Road	√			
• The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;	Site Entrance and Exit	√			
• Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels;	Site Exit	√			
• Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;	--	√			
• The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;	Site Area	√			
• Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable	Site Area	√			

surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;					
• Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.	Site Area	√			
Noise					
• Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs.	Site Area	√			
• Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers	Site Area	√			
• Intermittent noisy activities should be scheduled to minimize exposure of nearby NSRs to high levels of construction noise.	Site Area	√			
• Idle equipment should be turned off or throttled down.	Site Area	√			
• Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided	Site Area	√			
• Construction plant should be properly maintained and operated.	Site Area	√			
Water Quality					
• Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;	Site Area	√			
• The exposed soil surfaces should also be properly protected to minimize dust emission;	Site Area	√			
• The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;	Site Area	√			
• Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;	Site Exit	√			
• Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;	Site Area	√			
• A discharge license needs to be applied from EPD for discharging effluent from the construction site;	--	√			
• The treated effluent quality is required to meet the requirements specified in the discharge license;	--	√			
• Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;	Chemical Toilet	√			

• A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;	--	√			
• Illegal disposal of chemicals should be strictly prohibited;	Site Area	√			
• Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;	Site Area	√			
• Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handing chemical wastes;	Site Area	√			
• The impact from accidental spillage of chemicals can be effectively controlled through good management practices.	Site Area	√			
Waste Management					
• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;	Site Area		√		
• To encourage collection of aluminium cans by individual collectors, separate bins should be provided to segregate this waste from other general refuse generated by the workforce;	Site Area	√			
• Any unused chemicals or those with remaining functional capacity should be recycled;	Site Area	√			
• Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill;	Site Area	√			
• Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and	Site Area		√		
• Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	Site Area	√			
Landscape and Visual					
1. Detailed tree survey should have been completed	Site Area	√			
• Trees should be transplanted to their final positions clear of the construction site	--			√	
• Erect site hoarding to protect adjacent vegetation from damage	Site Area	√			

• Regular inspections of the transplanted trees should be made to ensure the effectiveness of the hoarding	Site Area	√			
• Any topsoil excavated during the course of the works should be stored and protected on site for reuse for the restoration and screen planting works	Site Area			√	

Appendix I

Weather Condition

Daily Extract of Meteorological Observations, May 2018 – Wetland Park

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1012.2	31.6	26.9	23.8	***	***	0.0	160	6.5
02	1012.3	32.6#	28.0	23.9#	22.5#	68#	0.0	160	4.8
03	1013.9	34.3	27.0	23.3	22.6	78	2.5	100	7.9
04	1015.7	28.2	24.2	21.9	20.1	79	1.0	080	11.0
05	1015.0	30.0	26.5	23.3	21.6	75	0.0	120	9.5
06	1010.9	31.0	27.7	24.7	23.6	79	5.5	160	8.0
07	1006.9	31.3	28.4	23.3	23.9	77	10.0	190	9.9
08	1008.2	28.4	25.3	23.2	23.3	89	2.5	180	3.6
09	1012.6	27.9	24.6	23.0	22.2	87	25.5	100	10.1
10	1014.6	26.4	23.9	22.5	20.2	80	0.0	100	13.5
11	1013.7	29.5	25.0	22.2	21.2	80	0.0	080	7.4
12	1012.1	31.0	26.5	22.8	22.6	80	0.0	160	6.0
13	1010.9	32.1	27.6	24.1	23.7	80	0.0	170	6.8
14	1009.7	31.9	28.2	25.1	24.4	81	0.0	170	7.4
15	1009.0	31.8	28.3	25.5	23.8	78	0.0	160	9.2
16	1008.6	31.8	28.1	24.1	23.2	76	0.0	160	8.9
17	1007.9	32.8	28.7	25.0	24.3	78	0.0	160	7.7
18	1007.4	33.3	29.3	25.8	24.7	77	0.0	160	6.1
19	1007.4	34.3	29.6	26.0	24.8	77	0.0	170	6.5
20	1008.1	34.5	29.6	26.1	24.1	74	0.0	170	6.9
21	1009.2	34.3	29.5	25.9	24.3	75	0.0	160	7.3
22	1010.2	34.9	29.9	25.9	23.3	69	0.0	160	7.3
23	1009.3	35.2	30.5	26.2	23.7	69	0.0	170	6.2
24	1009.0	34.9	29.9	26.8	23.9	71	0.0	170	8.5
25	1007.9	34.2	29.5	25.0	23.6	72	0.0	160	6.8
26	1008.0	34.4	30.1	26.1	24.7	74	6.5	160	7.0
27	1008.7	34.0	30.2	27.8	24.7	73	0.0	310	6.2
28	1008.9	34.7	30.2	26.8	23.6	69	0.0	310	4.7
29	1009.4	35.3	31.1	26.4	23.8	67	0.0	320	5.5
30	1009.4	35.4	31.3	28.1	24.2	68	0.0	170	6.2
31	1009.3	35.7	31.1	27.9	24.2	68	0.0	160	7.2

**** unavailable*

 # data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Daily Extract of Meteorological Observations, June 2018 – Wetland Park

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1009.6	35.1	29.9	27.1	24.7	75	0.0	090	6.2
02	1010.0	33.4	29.2	26.2	22.5	68	0.0	070	9.6
03	1008.0	33.9	29.2	26.2	23.0	70	0.0	090	7.7
04	1007.1	31.7	28.5	25.8	24.2	78	19.0	080	9.5
05	1006.7	31.3#	27.0	25.6#	25.3	91	23.0	070	5.9
06	1005.0	27.1	26.2	25.1	25.4	95	111.0	070	4.2
07	1004.0	28.6	26.6	24.3	25.2	92	98.0	130	5.0
08	1000.6	28.9	27.3	25.2	25.0	87	69.0	150	11.7
09	998.9	31.6	28.3	26.0	24.6	81	9.5	310	4.7
10	1000.5	34.1	29.8	25.9	24.1	73	0.0	330	6.4
11	1002.3	34.4	29.8	25.1	21.4	64	0.0	170	6.1
12	1002.1	29.4	26.7	24.6	24.5	88	25.0	140	3.9
13	998.0	30.4	26.6	25.0	25.3	93	21.5	080	2.9
14	998.5	28.5	26.2	24.8	23.4	85	0.0	340	4.5
15	1001.9	30.1	27.0	24.6	22.5	76	0.0	040	4.5
16	1003.4	32.4	28.2	25.4	22.0	71	0.0	110	8.7
17	1002.1	33.8	28.7	24.9	21.0#	63#	0.0	060	5.0
18	1001.7	32.8	29.2	26.3	***	***	0.0	190	6.9
19	1003.7	32.6	29.2	26.9	25.6#	82#	10.0	200	8.0
20	1005.1	32.9	29.7	27.3	25.9	80	0.0	150	6.2
21	1005.5	33.3	29.7	27.4	25.9	80	0.0	170	5.5
22	1006.0	32.3	27.1	24.7	25.2	90	33.0	160	5.7
23	1006.4	29.2	26.1	24.7	25.2	95	26.0	080	3.5
24	1007.8	32.3	28.5	25.5	24.5	80	4.0	150	8.5
25	1008.6	31.0	27.6	25.3	25.0	86	13.0	150	7.1
26	1010.3	32.7	28.7	25.0	24.9	81	3.0	160	8.0
27	1009.8	31.7	28.5	25.5	25.0	82	0.5	160	4.5
28	1006.7	33.6	29.3	25.1	24.5	76	0.0	310	5.7
29	1003.8	34.3	30.1	27.0	25.2	76	0.0	160	7.5
30	1003.8	33.3	30.4	28.1	25.5	75	0.0	200	7.3

**** unavailable*

 # data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Daily Extract of Meteorological Observations, July 2018 – Wetland Park

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1003.7	33.6	30.3	27.9	25.0	74	0.0	200	6.9
02	1003.0	32.6	29.3	26.7	25.6	81	2.5	150	5.9
03	1002.2	30.9	29.0	26.0	25.8	83	39.5	150	5.4
04	1001.7	33.1	30.0	26.6	25.2	76	0.5	160	10.1
05	1001.9	31.3	29.1	27.7	26.0	83	1.0	150	6.0
06	1002.2	32.7	29.8	27.7	25.8	80	0.0	160	6.9
07	1003.0	31.8	28.4	27.2	25.9	87	1.0	160	4.0
08	1004.2	32.4	28.6	26.3	25.4	83	1.0	060	5.9
09	1005.6	31.9	28.7	25.8	25.0	81	6.5	080	9.3
10	1004.9	33.6	28.8	24.3	24.5	79	8.5	140	5.3
11	1001.6	34.0	29.4	25.1	24.4	76	0.0	170	5.9
12	1003.0	33.8	29.7	26.2	24.7	76	0.0	100	8.7
13	1003.8	28.1	26.4	25.3	25.3	94	26.5	080	5.6
14	1003.9	29.9	26.9	25.0	24.7	88	32.5	130	8.6
15	1004.0	28.0	26.6	25.0	24.1	87	26.0	090	11.6
16	1003.8	31.2	28.0	25.7	23.9	79	2.5	090	9.2
17	1002.3	34.4#	29.6	26.1#	25.1	78	23.5	090	7.0
18	1003.9	29.9	27.9	25.5	24.6	82	19.5	090	12.0
19	1004.5	32.1	28.8	26.2	24.8	80	0.5	080	9.8
20	1003.6	32.0	28.4	25.8	25.1	83	1.5	090	5.9
21	1002.5	33.8	29.2	25.6	24.8	79	0.0	170	4.0
22	1002.0	33.2	29.0	26.2	24.7	78	0.0	310	5.0
23	1001.4	32.8	28.2	25.7	25.0	84	9.5	140	7.9
24	1003.2	31.2	28.7	26.5	26.0	86	20.5	150	10.5
25	1005.5	32.8	29.4	26.9	25.9	82	0.5	180	5.3
26	1006.3	32.0	28.1	26.3	26.0	89	16.0	330	3.1
27	1006.5	32.8	28.5	25.6	25.6	85	0.0	180	4.4
28	1006.4	32.6	29.1	25.6	25.2	80	0.0	170	5.8
29	1005.6	33.2	29.2	25.3	24.6	77	0.0	160	5.3
30	1005.3	33.4	29.6	25.9	25.3	79	0.0	160	5.5
31	1005.2	33.8	29.7	26.8	25.6	79	0.0	160	5.5

 # data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Appendix J

Waste Flow Table

Name of Department: DSD

Year: 2018

Project: Design, Build and Operate San Wai Sewage Treatment Works - Phase 1

Contract No.: DC/2013/10

Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Broken Concrete (see Note 3)	Reused in the Contract (see Note)	Reused in other Projects	Disposed as Public Fill (see Note 4)	Imported Fill (see Note 4)	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)
Jan	8.809	0.000	0.000	0.000	8.809	0.000	0.000	0.000	0.000	0.000	18.480
Feb	3.231	0.000	0.000	0.000	3.231	0.000	0.000	0.200	0.000	0.000	2.700
Mar	2.246	0.000	0.000	0.000	2.246	0.752	0.000	0.000	0.000	0.000	9.210
Apr	2.035	0.000	0.000	0.000	2.035	2.068	0.005	0.150	0.000	0.000	16.970
May	0.343	0.000	0.000	0.000	0.343	0.567	0.000	0.000	0.000	0.000	34.590
Jun	0.794	0.000	0.000	0.000	0.794	0.074	0.000	0.000	0.000	0.000	53.050
Jul	1.929	0.000	0.000	0.000	1.929	0.000	0.000	0.300	0.000	0.000	68.095
Aug											
Sep											
Oct											
Nov											
Dec											
Total	19.387	0.000	0.000	0.000	19.387	3.461	0.005	0.650	0.000	0.000	203.095

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

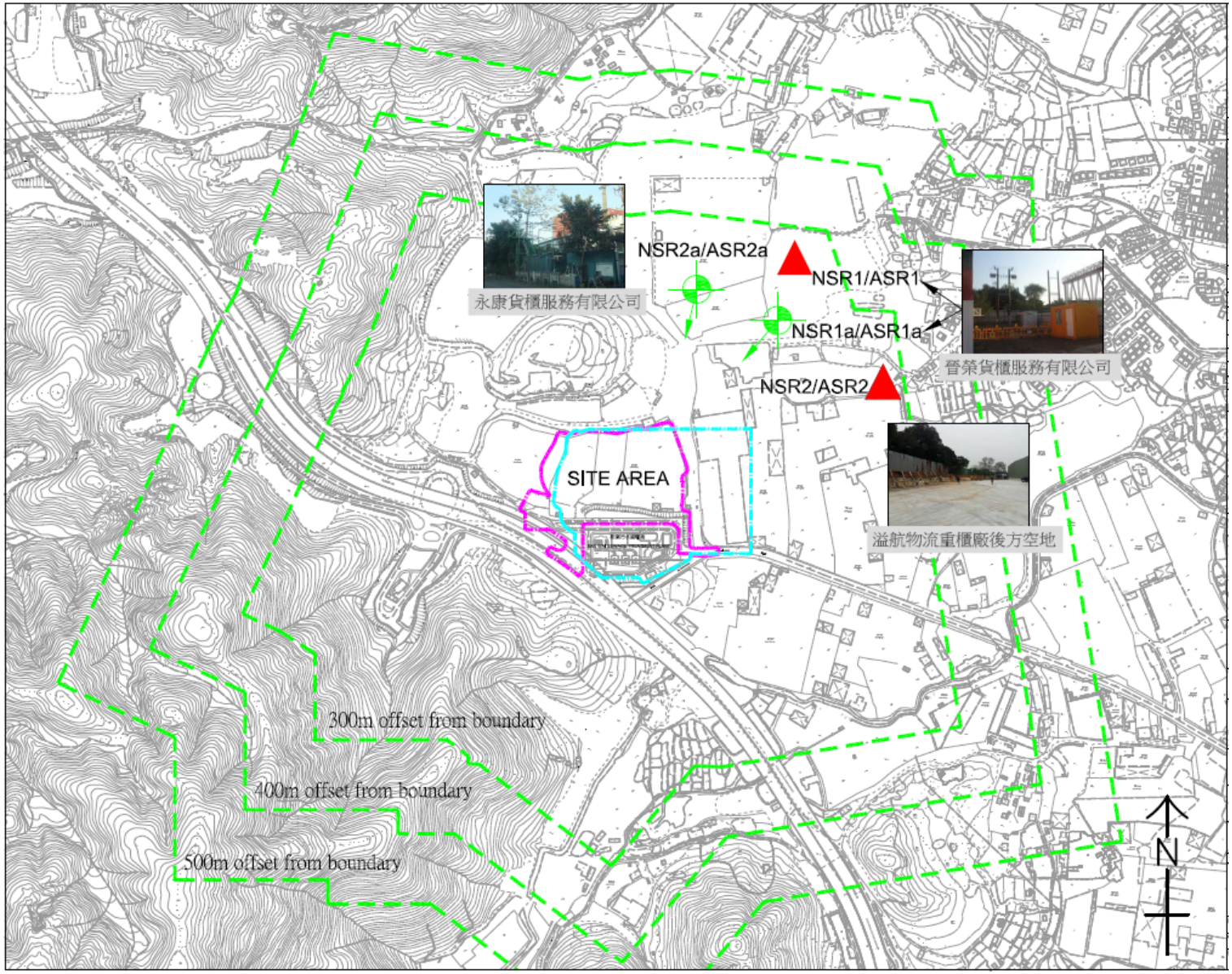
(2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.

(3) Broken concrete for recycling into aggregates.

(4) Assumption: The densities of subbase, Type A, Type B, Rockfill, Soil, Mix Rock and Soil, Reclaimed Asphalt Pave, Slurry are 2.0 ton/m^3; the densities of Building debris and special fill materials are 2.1 ton/m^3; the densities of Broken Concrete is 2.4 ton/m^3.

Figure 1

Locations of Air Quality and Noise Monitoring Stations

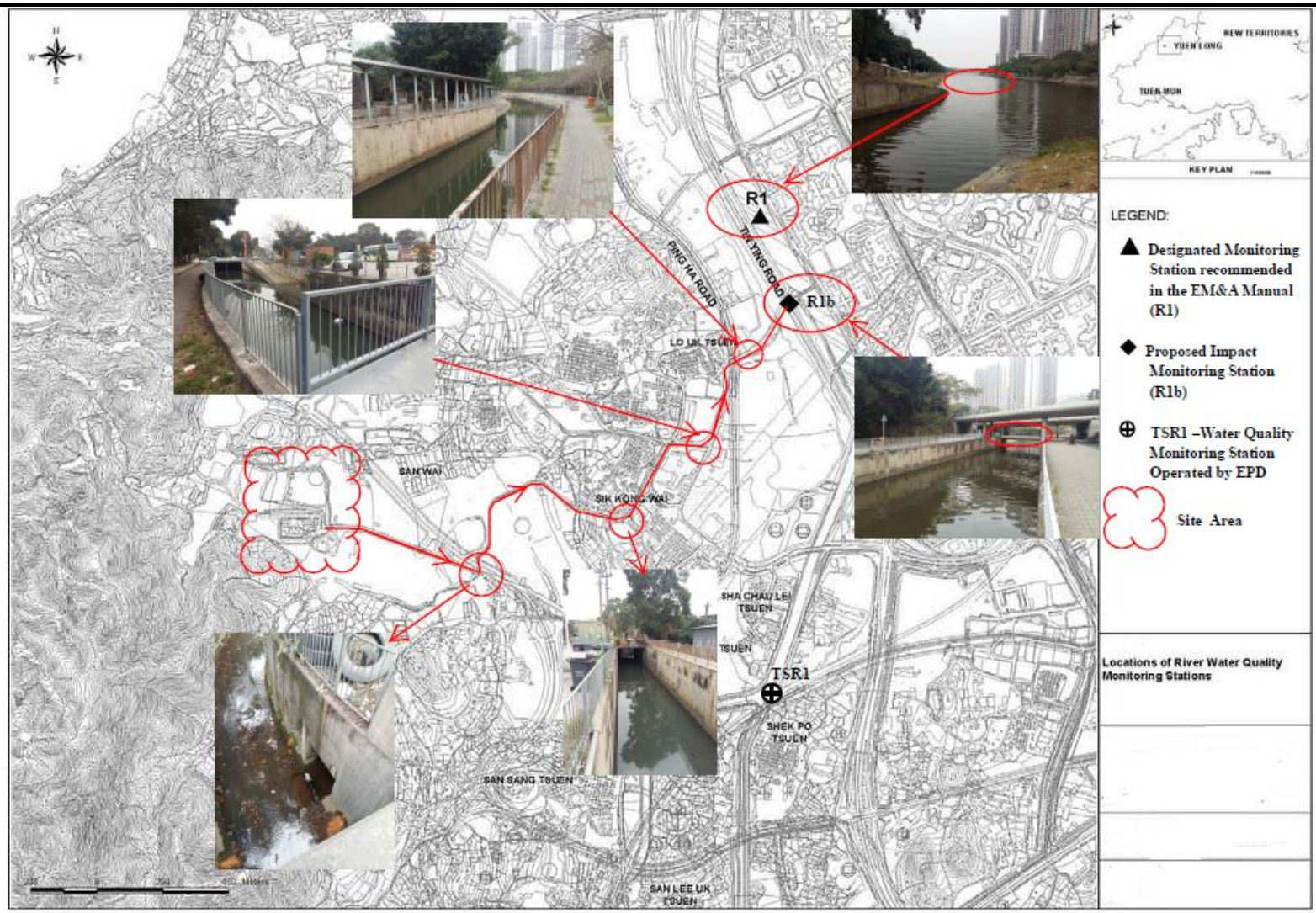


Project: Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 1 Locations of Air Quality and Noise Monitoring Stations

Figure 2

Locations of Water Quality Monitoring Station



Project: Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 2 Locations of Water Quality Monitoring Station