ARCADIS Design & Consultancy for natural and built assets

MAEDA

Maeda Corporation

MONTHLY REPORT (FEBRUARY 2019)

MTRCL Contract C3840-13C

Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

AECOM
8/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號新城
市中央廣場第 2 座 8 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Your Ref:
Our Ref: 60453136.40032976/2019000085E

By Email and Post

MTR Corporation Limited
Fo Tan Railway House
No. 9, Lok King Street, Fo Tan
Shatin, N.T.,
Hong Kong

Attn.: Mr. Alfa Liu

8 March 2019

Dear Sirs,

Consultancy Agreement A130-13
Independent Environmental Checker for CRS and LTS
CRS - Verification for 60th Monthly Environmental Monitoring and Audit (EM&A) Report (February 2019) (Report No.: EB001340R0811)

We refer to the 60th Monthly EM&A Report (February 2019) received under cover of the email from the Environmental Team, Arcadis Design & Engineering Limited, dated on 7 March 2019.

Further to our comments provided on 8 March 2019 and subsequent revision of the Report by Arcadis Design & Engineering Limited on 8 March 2019, we have no further comment and have verified the captioned report (Report No.: EB001340R0811).

Should you have any queries, please feel free to contact the undersigned at 3922 9366.

Yours faithfully
AECOM Consulting Services Ltd

Y. W. Fung
Independent Environmental Checker

LLMC/wwsc

cc Arcadis Design & Engineering Limited (Attn.: Mr. F. N. Wong) via email
Maeda Corporation (Attn.: Mr. Calvin Chan) via email

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Monthly EM&A Report (FEBRUARY 2019)

MTRCL Contract C3840-13C

Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Author	Bonnie Ng	
Checker	Wong Fu Nam	
Proof Reader	Raymond Sung	
Approver	pp Taj Ishola	
Report No	EB001340R0811	

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EXECUTIVE SUMMARY

Breaches of Action and Limit Levels

ES01 As the environmental monitoring results registered no breaches of Action and Limit Levels of air quality and construction noise during the Reporting Period, neither Notice of Exceedance nor the associated investigation and follow-up actions were required.

ES02 No major corrective actions were taken as the environmental audit during the Reporting Period observed:

1) No deficiencies with major environmental significance of the required environmental mitigation measures;
2) No non-compliance with the required waste management; and
3) No adverse environmental impacts on the sensitive receivers environed with the site of the Project.

Environmental Complaints

ES03 No environmental complaints were recorded during the Report Period.

Notification of Summons & Successful Prosecutions

ES04 No notification of summons and successful prosecutions were recorded during the Reporting Period.

Changes of EM&A Program

ES05 1-Hr TSP monitoring at K11 continued during the Reporting Period. The proposed change of monitoring parameter was approved by EPD under the EP Condition 3.1 of EP No. EP-440/2012.

ES06 The proposed termination of the EM&A programme was approved by EPD on 27 February 2019 after substantial completion of the construction under the Project.

Future Key Issues

ES07 The construction work under the Project has been substantially completed while the Reinstatement of Carnarvon Road and the Entrance D2 have been completed and re-opened to the public. Entrance D1 has also been completed which will be re-opened shortly subject to final inspection by BD.

ES08 The remaining works to be carried out in the near future comprises only very minor defective work within Entrance D1 with insignificant environmental impacts anticipated. No particular corrective actions or remedial measures are therefore required.

1 INTRODUCTION

1.1 Project Background

1.1.1 In order to improve the appearance of Carnarvon Road Entrance D1 and D2 of Tsim Sha Tsui Station (hereafter referred as 'TST') and to provide a more comfortable walking environment nearby, MTR Corporation Limited (hereafter referred as 'MTRCL') proposed the MTRCL Contract C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works (the Project) and commissioned Meada Corporation as the Contractor (hereinafter referred as 'MC' or the 'Contractor') to implement the construction of the Project.

1.1.2 The Project was proposed to rebuild the existing Entrance D1 and D2 and construct a new Entrance D3 at the basement B2 level of the K11 Art Mall to connect to the TST station by a subway, which extended from the Entrance D1 and D2 and ran approximately 80m along Carnarvon Road and across the Bristol Avenue to the Entrance D3.

1.1.3 The existing TST Station was in operation before the Environmental Impact Assessment Ordinance (hereafter referred as 'EIAO') was effective on 1 April 1998. It constituted an exempted Designated Project (hereinafter referred as 'DP') according to Section 9(2) (g) of the EIAO (Cap. 499). As the Project involved a material change to an exempted DP which might have potential environmental impacts, an environmental permit was required prior to the commencement of the modification works. The Project Profile (PP-462/2012) (hereinafter referred as 'PP') was developed to provide information for direct application of an environmental permit (hereinafter referred as 'the EP'). The EP No. EP-440/2012EP was granted on 18 July 2012.

1.1.4 Site map, works area and locations of the environmental monitoring under the Project are illustrated in Figure 1.1 Site Location Plan of ***Appendix A***.

1.1.5 Management structure of the Project, including organization chart, lines of communication and contact names and telephone numbers of key personnel, are demonstrated in ***Appendix B***.

1.1.6 Construction programme is shown in ***Appendix C***, whereas implementation schedule for the recommended environmental mitigation measures (hereinafter referred as 'the Implementation Schedule') are summarised in ***Appendix D***, which fine tuned the construction activities and showed inter-relationships with the environmental protection/ mitigation measures for the construction period. Where appropriate, the construction programme was continuously reviewed and updated upon availability of more solid information.

1.1.7 This is the 60th monthly EM&A report (hereinafter referred as 'This Report'). According to EPD's approval for termination of the EM&A programme under the Project granted on 27 February 2019, no EM&A activities will be conducted in March 2019 and thereafter. This Report will therefore be the last monthly EM&A report under EP-440/2012.

1.1.8 This Report was written in accordance with the ***Environmental Monitoring and Audit Plan*** (hereinafter referred as 'the EM&A Plan') enclosed in the ***Project Profile – MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works***, which is registered in the Environmental Permit No. EP-440/2012 (hereinafter referred as 'the EP') (Register No.: PP-462/2012). This Report presents the construction and EM&A activities conducted from 1st to 28th February 2019 (hereinafter referred as 'the Reporting Period'), after substantial completion of the construction under the Project in December 2018.

1.2 Construction Activities

Substantial Completion of the Construction Activities

1.2.1 The construction work under the Project has been substantially completed while the Reinstatement of Carnarvon Road and the Entrance D2 have been completed and re-opened to the public. Entrance D1 has also been completed which will be re-opened shortly subject to final inspection by BD.

Remaining Construction Activities

1.2.2 The remaining minor construction activities undertaken during the Reporting Period and thereafter are summarised in ***Table 1-4-1***:

Table 1-4-1 Construction Activities

Item	*Description*
	Construction Activities Undertaken during the Reporting Period
1	Southern Pedestrian footpath reinstatement
	Construction Activities to be Undertaken in the Up-Coming Month
2	Defective works for Entrance D1

1.3 Environmental Status

EM&A Personnel

1.3.1 In compliance with the EP conditions, AECOM Consulting Services Limited was appointed as the Independent Environmental Checker under the Project (hereinafter referred as 'the IEC'), whereas Arcadis Design and Engineering Limited (formerly known as Hyder Consulting Limited) was appointed as the Environmental Team under the Project (hereinafter referred as 'the ET').

Baseline Monitoring

1.3.2 According to the conditions set out in clauses 3.2(a) and (b) of the EP and the associated PP and EM&A Plan, the baseline monitoring was conducted between 10th and 24th January 2014 prior to commencement of the works under the Project.

1.3.3 The Baseline Monitoring Report, certified by the ET Leader and verified by the IEC, was submitted to EPD with cover letter ref. EB001340R0022 dated 14th February 2014, where the environmental quality performance limits (Action and Limit Levels (hereinafter referred as "the AL Levels") were established according to Table 3.1 of the PP, Typical Action and Limit Levels for Air Quality, for implementation of the Event and Action Plan as shown in ***Appendix F***.

Status of Environmental Permits/License/Notification

1.3.4 Status of relevant environmental permits, licences, and/or notifications on environmental protection for the Project are detailed in ***Appendix E***. They are summarised in ***Table 1-3-1*** below.

Table 1-3-1 Summary of Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust)	Notification Ref. 403252, 421293 & 433242 acknowledged on 02 Jun 2016, 18 Sep 2017 & 07 May 2018 respectively
2	Water Pollution Control Ordinance (Discharge License)	The discharge license (Ref No. WT00019722-2014) was granted on 01 Sep 2014 superseding the previous license (Ref No. WT00018229-2014)
3	Billing Account for Disposal of Construction Waste	A/C Ref. 7018523 granted on 25 Oct 2013
4	Chemical Waste Producer Registration	Registration Ref. 5213-2214-M2446-16 granted on 4 Mar 2014

Termination of the EM&A Programme under the Project

1.3.5 Termination of the construction dust and noise monitoring programme under the Project was proposed after substantial completion of the construction under the Project. It has been certified by the ET Leader and verified by the IEC.

1.3.6 EPD's approval for the proposed termination of the EM&A programme (construction dust and noise monitoring) under the Project was granted on 27th February 2019 after the joint site visit conducted on 20th February 2019 by the representatives of EPD, MTRCL, IEC, ETL and Maeda. The rationale for termination of the EM&A programme is summarized as follows:

a) The construction of subway and entrances of TST Station was substantially completed except some minor defects rectification works;

b) Construction dust and noise monitoring have been conducted in accordance with the EM&A Plan. All the monitoring results complied with the AL Levels since the commencement ofrnouitoring and the monitoring results demonstrated that the ambient TSP levels and noise levels have been reinstated;

c) There is no environmental prosecution and outstanding environmental complaints against the construction works; and

d) During the process of hand over and re-opening of Carnarvon Road in December 2018, relevant government departments and local communities (including nearby buildings such as K11 and Mirador Mansion) were consulted through email or tele-conversation about the project and environmental monitoring activities. No comments on such arrangement were recorded.

2 EM&A REQUIREMENTS

2.1 Air Quality

Monitoring Location

2.1.1 According to the EM&A Plan, Mirador Mansion was designated to be the air quality monitoring station of the Project. As the access to the air monitoring location designated in the EM&A Plan was denied by the owner of the property, the ET proposed an alternative monitoring location on the roof-top above the 4/F of the commercial complex of K11 (hereinafter referred as 'K11'), which was agreed among MTRC, IEC and MC, and the associated access to K11 was granted by the management office of K11 prior to the commencement of the baseline monitoring in January 2014.

2.1.2 Air quality monitoring location is summarised in ***Table 2-1-1*** and illustrated in ***Appendix A***.

Table 2-1-1 Air Quality Monitoring Location

Location ID	Name of Premises	Description
K11	K11 Art Mall	Rooftop, 4/F

Monitoring Parameters

2.1.3 According to the EM&A Plan, 24-Hour Total Suspended Particulates (hereinafter referred as '24-hr TSP') is required to be monitored once a week during construction period of the Project. 1-hr Total Suspended Particulates (hereinafter referred as '1-hr TSP') is required to be monitored when exceedances of 24-Hr TSP occur, following the Event and Action Plan presented in ***Appendix F***.

Change of Monitoring Parameters

2.1.4 Since 21st September 2018, the 24-hr TSP monitoring by high volume sampler (HVS) at K11 had been replaced by 3 x 1-hr TSP monitoring by portable dust meter for the rationale as follows:

a) the HVS was damage by the typhuon Mangkhut on 16 Sept 2018;

b) reinstatement of the damaged HVS involved permission from the landlord and establishment of a safe access to the HVS, which would take time and unlikely be completed by December 2018, when the construction under the Project would had been substantially completed; and

c) monitoring datad to date recorded no exceedences of the 24-Hr TSP AL Levels and no significant environmental impacts were anticipated for the remaining construction works.

2.1.5 The proposed change of monitoring parameter for the remaining construction period, which was certified by the ET Leader and verified by the IEC, was approved by EPD under the EP Condition 3.1 of EP No. EP-440/2012.

Monitoring Schedule

2.1.6 Environmental monitoring schedules for air quality for the Reporting Period and the upcoming month were prepared and distributed to the MTRC, IEC and MC prior to implementation via e-mail and/or facsimile as appropriate. (No environmentl monitoring was scheduled for March 2019 as the EM&A programme under the Project has been terminated. (Refer toprevious Section 1.3.6)

2.1.7 If amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., notification will be given at least 24 hours prior to implementation or as practical as possible. The monitoring schedule is enclosed in ***Appendix G***.

Monitoring Equipment

2.1.8 The air quality monitoring equipment to be used for construction air impact monitoring is shown in ***Table 2-1-2*** below:

Table 2-1-2 Air Quality Monitoring Equipment

Equipment Type	Model	Serial Number
Personal Aearosal Monitor	SITEPAC^{TM} AM520	5201707005

2.1.9 Weather information, including wind speeds and wind directions, was extracted from King's Park Weather Station. The weather information was used as weather conditions during the Reporting Period. They are presented in ***Appendix H***.

Calibration of Monitoring Equipment

2.1.10 The SITEPACTM AM520 for 1-Hr TSP monitoring should be calibrated annually and the calibration certificates of the equipment are shown in ***Appendix I***.

Monitoring Methodology

Field Monitoring Procedures

2.1.11 The procedures for measurement of 1-Hr TSP followed Manufacturer's Instruction Manual. They are summarised as follows:

a) Install the battery and secure with screw;

b) Check the battery and charge as appropriate;

c) Select Impacttor and sintered disk if needed;

d) Power on;

e) If using impactor, verify 1.7 L/min flow rate with the flow calibrator;

f) Zero Cal the equipment;

g) Select calibration factor if needed (Factory default = 1.0)

h) Select Run Mode;

i) Select Manual Mode (Survey Mode does not log data); and

j) Download logged data and record them in the 1-hr TSP Monitoring Field Record Sheet.

Maintenance and Calibration

2.1.12 The procedures for maintenance and calibration of the 1-Hr TSP meter (SITEPACTM AM520) followed the Manufacturer's Instruction Manual. They are summarized as follows:

a) The SITEPACTM AM520 should be calibrated at 1-year intervals throughout the whole environmental monitoring period.

b) Calibration certificate for the SITEPACTM AM520 direct dust meters is shown in ***Appendix I***.

Action and Limit Levels

2.1.13 The AL Levels established in the Baseline Monitoring Report in accordance with the derivation criteria specified in Section 3.7 of the EM&A Plan as extracted in ***Table 2-1-3*** as follows:

Table 2-1-3 Derivation of Action and Limit Levels for Air Quality at K11, µg/m³

Parameter	Action Level	Limit Level
1-Hr TSP	For baseline level ≤ 384 µg/m³, Action level = (130% of baseline level + Limit level)/2 For baseline level >384 µg/m³, Action level = Limit level	500

2.1.14 As the 1-Hr TSP baseline level at K11 was updated, the 1-Hr TSP AL Levels is calculated by adoption of the worst case approach as follows:

According to ***Table 2-1-3*** (1-Hr TSP):

- Hr TSP Limit Level = 500 µg/m³
- In adopting the worst case approach, let the 1-Hr TSP baseline level = 0 (≤ 384 µg/m³)
- 1-Hr TSP Action Level = (130% of Baseline Level + Limit Level) ÷ 2 = (0 + 500) ÷ 2 = 250

2.1.15 The established AL Levels for 1-Hr TSP are summarised in ***Table 2-1-4*** as follows:

Table 2-1-4 Action & Limit Levels for Air Quality at K11, µg/m³

Parameter	Action Level	Limit Level
1-Hr TSP	250	500

Event and Action Plan

2.1.16 In case exceedances of the AL Levels for air quality occur, Event and Action Plan for Air Quality enclosed in ***Appendix F*** should be implemented.

Environmental Mitigation Measures for Air Quality

2.1.17 Although most of the construction works would be carried out underground, appropriate dust mitigation measures as stipulated in the EP, Project Profile, related environmental regulation including Air Pollution Control (Construction Dust) Regulation and those recommended in the Implementation Schedule should be implemented to control fugitive dust emission. The key dust suppression measures are summarized as follows:

a) Decking over the excavation areas;

b) Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;

c) Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;

d) Provision of vehicle washing facilities at the exit points of the site; and

e) Provision of tarpaulin covering for any dusty materials on a vehicle leaving the site.

2.2 Construction Noise

Monitoring Parameters

2.1.1 ***Table 2-2-1*** summarizes the monitoring parameters and frequency for construction noise:

Table 2-2-1 Noise Monitoring Parameters and Frequency

Parameters	Frequency
L_{eq} in 30 minutes	Once a week

Monitoring Schedule

2.1.2 Environmental monitoring schedules for construction noise for the Reporting Period and the upcoming month were prepared and distributed to the MTRC, IEC and MC prior to implementation via e-mail and/or facsimile as appropriate. (No environmentl monitoring was scheduled for March 2019 as the EM&A programme under the Project has been terminated. (Refer to the previous ***Section 1.3.6***)

2.1.3 If amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., notification will be given at least 24 hours prior to implementation or as practical as possible. The monitoring schedule is enclosed in ***Appendix G***.

Monitoring Equipment

2.1.4 With reference to the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications (both publications have been withdrawn and replaced by 61672:2003) are used for carrying out the noise monitoring. Details of the sound level meters and calibrators are summarized in the following ***Table 2-2-2***:

Table 2-2-2 Construction Noise Monitoring Equipment

Item	Equipment Name	Model
1	Sound Level Meter	B&K2238 (Serial No. 2562782)
2	Acoustic Calibrator	CAL200 (Serial No. 10929)

Monitoring Location

2.1.5 As agreed among MTRC, IEC and MC, the construction noise monitoring was performed at K11 as summarized in ***Table 2-2-3*** and illustrated in ***Appendix A***.

Table 2-2-3 Noise Monitoring Location

Location ID	Name of Premises	Description
K11	K11 Art Mall	Rooftop, 4/F

Monitoring Methodology

Field Monitoring

2.1.6 Procedures for noise monitoring are summarised as follows:

a) The microphones of the Sound Level Meter should be about 1 m from the exterior of the building façade, or a free field correction of +3dB(A) should be made to the results of the noise measurement.

b) The battery condition should be checked to ensure the correct functioning of the meter.

c) Parameters such as frequency weighting, the time weighting, the measurement time and monitoring frequency should be set as follows:

i. Frequency weighting: A

ii. Time weighting: Fast

iii. Time measurement: 30 minutes' intervals (between 0700-1900 on normal weekdays)

iv. Monitoring frequency: one set of measurement on a weekly basis

d) Prior to and after each noise measurement, the meter should be calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement should be considered invalid and the measurement should be repeated after re-calibration or repair of the equipment.

e) During the monitoring period, the Leq(30 min) should be recorded.

f) All monitoring information should be recorded on a Field Data Sheet as shown in ***Appendix J***.

Maintenance and Calibration.

2.1.5 The Sound Level Meter and calibrator should be sent to the supplier or a HOKLAS laboratory to check and calibrate prior to the monitoring. Calibration records are presented in ***Appendix I***.

Weather Condition

2.1.6 The wind speeds and directions during the monitoring period should be recorded as shown in ***Appendix H***.

Action and Limit Levels

2.1.7 The AL Levels established in the Baseline Monitoring Report are summarised in ***Table 2-2-4*** as follows:

Table 2-2-4 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one valid documented complaint is received.	75*

Note: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

Event and Action Plan

2.1.8 In case exceedances of AL Levels for construction noise occur, the Event and Action Plan enclosed in ***Appendix F*** should be triggered.

Mitigation Measures for Construction Noise

2.1.9 Although no residual noise impact would be generated after the proposed mitigation measures were in place, the general construction noise control measures stipulated in the EP, Project Profile as well as those recommended in the Implementation Schedule should be fully implemented in order to minimise noise impacts during the construction phase. They are summarised as follows:

a) The Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD should be adopted;

b) The statutory and non-statutory requirements and guidelines should be complied with;

c) Approval for the method of working, equipment and noise mitigation measures intended to be used at the site should be granted from the Project Engineer before commencing any work;

d) Working methods to minimize the noise impact on the surrounding NSRs should be formulated and executed, and the implementation of these methods should be monitored by experienced personnel with suitable training;

e) Noisy equipment and noisy activities should be located as far away from the NSRs as is practical;

f) Unused equipment should be turned off;

g) PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;

h) All plant and equipment should be maintained regularly; and

i) Material stockpiles and other structures should be effectively utilised as noise barriers, whenever practicable.

2.1.10 Details of the implementation schedule for the mitigation measures are presented in ***Appendix D***.

3 MONITORING RESULTS

3.1 Air Quality

Monitoring Results

3.1.1 The 1-Hr TSP monitoring during the Reporting Period was conducted according to the monitoring schedule.

3.1.2 The 1-Hr TSP results of the Reporting Period are summarised in the following ***Table 3-1-1***. Graphical plots of the parameter are illustrated in ***Appendix K***.

Table 3-1-1 Summary of TSP Monitoring Results, µg/m^3

Monitoring Date	1-Hr TSP			Action Level	Limit Level
	Test 1	Test 2	Test 3		
8 February 2019 Average (Min – Max)	54 (46-137)	70 (60-127)	70 (61-184)	**250**	**500**
15 February 2019 Average (Min – Max)	71 (49-541)	58 (13-217)	103 (75-297)		
22 February 2019 Average (Min – Max)	48 (25-206)	35 (18-407)	35 (20-367)		

Discussion

3.1.3 ***Table 3-1-1*** demonstrates that all 1-Hr TSP results of the Reporting Period fluctuated well below the A/L Levels of the parameter, i.e. neither Action Level nor Limit Level exceedances were recorded.

3.1.4 No Notice of Exceedances (thereinafter referred as 'NOE'). Therefore, the associated NOE Investigation as well as remedial actions were not required during the Reporting Period.

3.2 Construction Noise

Monitoring Results

3.2.1 Construction noise monitoring during the Reporting Period was conducted according to the monitoring schedule.

3.2.2 Construction noise monitoring results of the Reporting Period are summarised in the following ***Table 3-2-1***. Graphical plots of the parameter are illustrated in ***Appendix K***.

Table 3-2-1 Summary of Construction Noise Monitoring Results at K11, dB(A)

Monitoring Date	$L_{eq\ (30\ min)}$	Action Level	Limit Level
08 February 2019	69.7	***Any documented complaint against construction noise.***	**75**
15 February 2019	68.5		
22 February 2019	69.5		
Mean (Min – Max), *Leq* (30 min)	**69.3 (68.5-69.7)**		

Discussion

3.2.3 No environmental complaint against construction noise was registered during the Reporting Period and hence no Action Levels were exceeded. As demonstrated in ***Table 3-2-1***, all construction noise results were fell below the Limit Level during the Reporting Period. In summary, no exceedances of AL Level were recorded.

3.2.4 Neither NOE nor NOE investigation and the associated remedial actions were required during the Reporting Period.

3.2.5 As the major construction activities have been substantially completed and the minor defective works for Entrance D1 and Southern Pedestrian footpath reinstatement were not anticipated to cause significant environmental impacts, no specific mitigation measures were required.

3.3 Weather Conditions

2.3.1 No weather conditions or any other factors having significant effects on the air and noise monitoring results were identified during the Reporting Period.

2.3.2 Weather information during the Reporting Period which was extracted from Hong Kong Observatory King's Park Weather Station and enclosed for reference in ***Appendix H***.

3.4 Conclusions and Recommendations

Conclusions

3.4.1 No exceedances of AL Levels of air quality and construction noise were registered during the Reporting Period.

3.4.2 No NOE and the associated NOE Investigation and corrected actions were required during the Reporting Period.

Recommendations

3.4.3 As the major construction activities have been substantially completed and the minor defective works for Entrance D1 and Southern Pedestrian footpath reinstatement were not anticipated to cause significant environmental impacts, no specific mitigation measures were required.

4 ENVIRONMENTAL AUDIT

4.1 Site Inspection

4.1.1 Weekly site inspections during the Reporting Period were conducted by MTRC, MC and ET. The site inspection followed strictly the agreed Site Inspection Checklist, which covered all the site audit requirements stipulated in the EP, PP and EM&A Plan as well as all relevant environmental laws.

4.1.2 The completed Site Inspection Checklists were distributed to relevant parties upon completion of the site inspection for agreement and signature of the relevant parties, and for implementation of the recommended follow up actions where appropriate.

4.1.3 The site inspections during the Reporting Period were conducted on 08th and 15th February 2019. A joint site inspection was conducted on 20th February 2019 by representatives of EPD, MTRC, IEC, ET and MC.

4.1.4 Findings of the site audit and the associated follow up actions are summarised in the following ***Table 4-1-1***:

Table 4-1-1 Summary of Findings and Follow-Up Actions of the Site Inspection

Date	Findings	Follow-Up Action
8th February 2019	***Follow-up item(s)***	
	No follow-up item.	Not required.
	Observation(s) on the day of inspection	
	No deficiency was observed on site.	Not required.
15th February 2019	***Follow-up item(s)***	
	No follow-up item.	Not required.
	Observation(s) on the day of inspection	
	No deficiency was observed on site.	Not required.
20th February 2019 (IEC monthly site audit - cum - Joint Site Inspection by representatives of EPD, MTRCL, IEC, ET and MC)	***Follow-up item(s)***	
	No follow-up item.	Not required.
	Observation(s) on the day of inspection	
	No deficiency was observed on site.	Not required.

4.1.5 As shown in Table 4-1-1, no deficiencies or non-compliance of environmental mitigation measures or adverse environmental impacts were observed during the Reporting Period.

4.2 Compliance with Legal/Contractual Requirements

4.2.1 The remaining construction activities during the Reporting Period complied with all environmental protection and pollution control laws in Hong Kong, as well as the contractual requirements of the Project. ***Table 4-2-1*** summarizes the identified breaches of legal and contractual requirements.

Table 4-2-1 Summary of Breaches of Legal and Contractual Requirements

Month	No. of Breach(s)	Cumulative no. from March 2014 to the Reporting Period
February 2019	0	0

4.3 Environmental Complaints

4.3.1 Where appropriate, environmental complaints were handled following closely the flow chart of complaint response procedures, as shown in ***Appendix L***.

4.3.2 Environmental complaints registered during the Reporting Period are summarised in ***Table 4-3-1*** below:

Table 4-3-1 Summary of Complaint

Month	No. of Complaint(s)	Cumulative no. from March 2014 to the Reporting Period
February 2019	0	6

4.4 Notification of Summons/Successful Prosecutions

4.4.1 Notification of summons and successful prosecutions registered during the Reporting Period are summarised in ***Table 4-4-1*** below:

Table 4-4-1 Summary of Summon and Successful Prosecutions

Month	No. of Breach(s)	Cumulative no. from March 2014 to the Reporting Period
February 2019	0	0

5 CONSTRUCTION WASTE

5.1 Waste Management

5.1.1 Waste management under the Project was performed in accordance with the Waste Management Plan, which was prepared for implementation of the construction waste mitigation measures in compliance with the requirements stipulated in the EM&A Plan, PS, Waste Disposal Ordinance and the associated subsidiary regulations.

5.2 Waste Management Status and Record

5.2.1 Updated waste management status is detailed in ***Appendix M***, where the 3-R status of the construction waste generated from construction of the Project during the Reporting Period is presented.

5.2.2 Despite small scale of the Project and the amount of C&D material that needed to be hauled off site and disposed of was anticipated to be insignificant, 3-R waste management i.e. Reduce, Reuse and Recycle, was adopted in order to minimize adverse environmental impacts to be generated from construction of the Project.

6 FUTURE ENVIRONMENTAL ISSUES

6.1 Future Key Environmental Issues

6.1.1 Construction under the Project has been substantially completed, including the road reinstatement work for Carnarvon Road and super-structures of Entrance D1 and D2, etc., and Carnarvon Road has been re-opened to public since 30 December 2018.

6.1.2 Reinstatement of the south-side pedestrian footpath (Entrance D1 and D2 side) was carried out from January 2019 and minor internal defect fixing works was also conducted as necessary.

6.1.3 The remaining works to be carried out in the near future comprises only very monor defective work within Entrance D1 with anticipated insignificant environmental impacts. No particular key environmental issues are expected in the future, and no particular corrective actions or remedial measures are therefore required.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

7.1.1 The proposed termination of the EM&A programme was approved by EPD on 27 February 2019 after substantial completion of the construction under the Project.

7.1.2 1-Hr TSP monitoring at K11 continued during the Reporting Period. The proposed change of monitoring parameter was approved by EPD under the EP Condition 3.1 of EP No. EP-440/2012.

7.1.2 EM&A results during the Reporting Period showed full compliance with the AL Levels, indicating no adverse environmental impacts were generated from the remaining construction activities and hence neither NOE/ NOE investigation nor corrective actions were required during the Reporting Period.

7.1.4 No deficiencies, non-compliance or adverse environmental impacts were observed on the sensitive receivers environed with the site of the Project during the Reporting Period, and hence no remedial actions were taken.

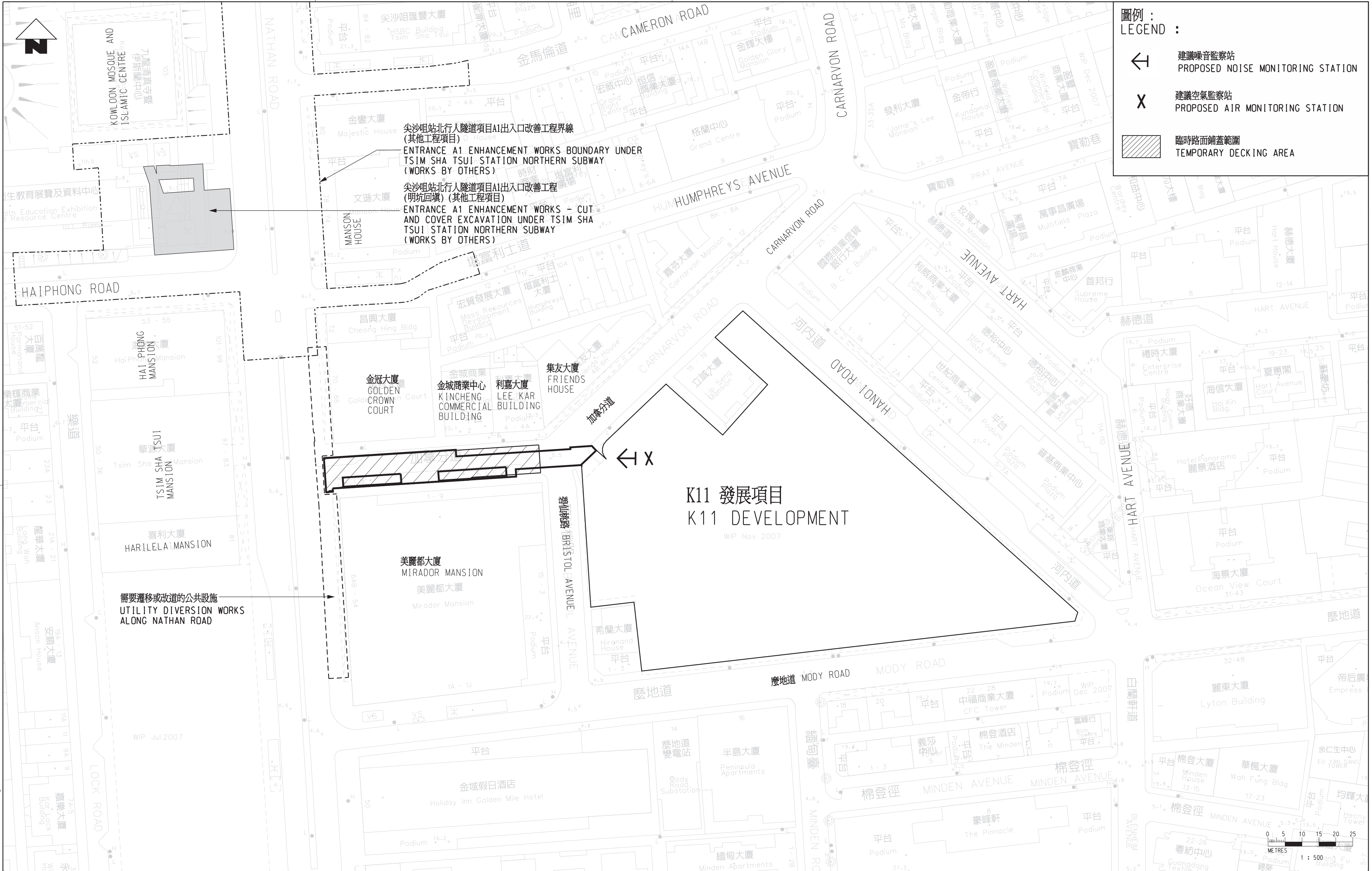
7.1.5 In addition, no notification of summons and successful prosecutions were reported during the Reporting Period.

7.2 Recommendations

7.2.1 As the construction work under the Project has been substantially completed while the Reinstatement of Carnarvon Road and the Entrance D2 have been completed and re-opened to the public. Entrance D1 has also been completed which will be re-opened shortly subject to final inspection by BD. In addition, the remaining works to be carried out in the near future comprises only very minor defective work within Entrance D1 with insignificant environmental impacts anticipated, no particular corrective actions or remedial measures are therefore required.

APPENDIX A

SITE LOCATION PLAN



DRAWN	HO
DESIGNED	--
CHECKED	--
APPROVED	--
DATE	--

REV	DESCRIPTION	BY	DATE	APPROVED
A	PROJECT PROFILE	HO	--	--

DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE.

MTR

TST STATION CARNARVON ROAD SUBWAY

ORIGINATOR

Mott MacDonald

In association with
Ivanho Architect Ltd
ERM Hong Kong Ltd

CADD REF.

TITLE

CONSULTANCY AGREEMENT NO. NEX/1049
DETAILED DESIGN FOR CARNARVON ROAD SUBWAY
AIR AND NOISE MONITORING LOCATIONS
空氣及噪音監察站位置圖

SCALE 1:500 (A1)

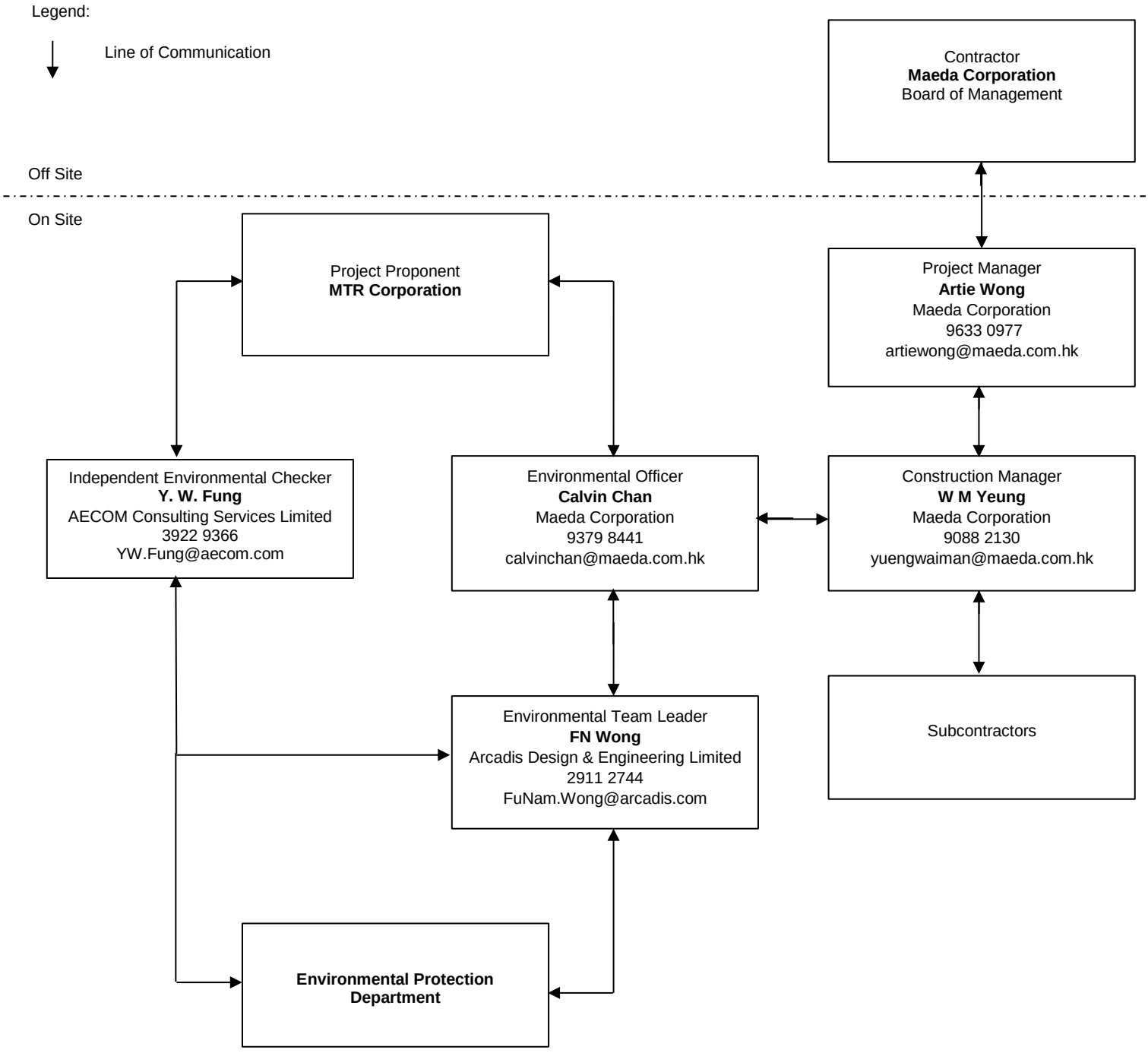
DRAWING NO. APPENDIX B

REV. A

APPENDIX B

MANAGEMENT STRUCTURE

Project Organization Chart in Environmental Management (Rev.05)



Note: In Compliance with
i) Clause.1.3 of Environmental Monitoring and Audit Manual (Appendix VII of Project Profile PP462/2012)

APPENDIX C

CONSTRUCTION PROGRAMME

Contract C3840-13C

Tsim Sha Tsui Station, Carnarvon Road Subway

MTR

MAEDA

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
Master Programme Revision As Per SA1		1633d	175d	11-Oct-13 A	30-Dec-18		0d
Preliminaries		1633d	175d	11-Oct-13 A	30-Dec-18		0d
Contract Key Dates		1670d	0d	11-Oct-13 A	26-Oct-18		0d
C3840-CD-10	Date of Contract Award	0d	0d	11-Oct-13 A		100%	
C3840-CD-20	Date of Commencement	0d	0d	14-Oct-13 A		100%	
C3840-CD-30	Date for completion of the whole of the Works	0d	0d		26-Oct-18*	0%	0d
Specified Degrees of Completion		107d	0d	08-Feb-18 A	13-Jun-18		200d
C3840-CD-2A	Complete to Deg. 1 status for all civil engineering works and ABWF in Subway outside K11 Lot Boundary	0d	0d		26-Feb-18 A	100%	
C3840-CD-2B	Comp. Deg. 1 for all civil & BS in Subw. inside K11, incl. works ass. with breakthro & make good K11 D. wall	0d	0d		08-Feb-18 A	100%	
C3840-CD-2C	Complete energisation of the power isolator in the Telephone Equipment Rm	0d	0d		18-Apr-18 A	100%	
C3840-CD-2D	Complete energisation of MCCBs CRS1 and CRS2 in the Electrical Rm	0d	0d		08-May-18 A	100%	
C3840-CD-2E	Complete all Works in the Subway and New Entrances D2 and D3	0d	0d		13-Jun-18	0%	16d
Possession of Works Area As PS Clause P8 & PS Appendix G		0d	0d	31-Oct-13 A	31-Oct-13 A		
C3840-AD-20	Access Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)	0d	0d	31-Oct-13 A		100%	
C3840-AD-30	Access Date for Works Areas 3840.W2 (subject to SLG/TMLG Approval)	0d	0d	31-Oct-13 A		100%	
Initial Site Survey		35d	0d	31-Oct-13 A	10-Dec-13 A		
C3840-SS-20	Validate the survey record and carry out any necessary additional survey at Works Areas 3840.W1 & W2	35d	0d	31-Oct-13 A	10-Dec-13 A	100%	
Vacation of Works Areas as PS Clause P8 and PS Appendix G		0d	0d	26-Oct-18	26-Oct-18		65d
C3840-VD-20	Vacate Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)	0d	0d		26-Oct-18	0%	65d
C3840-VD-30	Vacate Date for Works Area 3840.W2 (subject to SLG/TMLG Approval)	0d	0d		26-Oct-18	0%	65d
Procurement of Subcontract Packages		1335d	6d	11-Oct-13 A	05-Oct-18		70d
Preliminaries and Utilities Diversion		60d	0d	11-Oct-13 A	13-Jan-14 A		
C3840-PRC-100	Hoardings, Fencing and Associated Metalwork	40d	0d	15-Oct-13 A	13-Jan-14 A	100%	
C3840-PRC-110	Land Survey/Setting Out	5d	0d	15-Oct-13 A	19-Oct-13 A	100%	
C3840-PRC-120	Instrumentation and Monitoring	53d	0d	15-Oct-13 A	14-Dec-13 A	100%	
C3840-PRC-130	Advance Ground Works	28d	0d	15-Oct-13 A	15-Nov-13 A	100%	
C3840-PRC-140	Temporary Traffic Diversion (Consultant)	4d	0d	11-Oct-13 A	18-Oct-13 A	100%	
C3840-PRC-150	Obtain Eng's Approval for Temporary Traffic Diversion (Consultant)	6d	0d	19-Oct-13 A	31-Oct-13 A	100%	
C3840-PRC-160	Site Security	48d	0d	15-Oct-13 A	24-Dec-13 A	100%	
C3840-PRC-200	Independent Checking Engineer (ICE)	6d	0d	18-Nov-13 A	27-Nov-13 A	100%	
C3840-PRC-210	Obtain Eng's Approval for ICE	6d	0d	27-Nov-13 A	13-Dec-13 A	100%	
C3840-PRC-220	Ground Investigation (Pre-drilling work)	60d	0d	15-Oct-13 A	28-Dec-13 A	100%	
Temporary Works, ELS & Earthworks		512d	0d	16-Nov-13 A	17-Oct-15 A		
C3840-PRC-240	Specialist Demolition Contractor	40d	0d	16-Dec-13 A	20-Feb-14 A	100%	

Current Bar
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

Data Date: 01-Jun-18

Master Programme Revision RMPRSA1

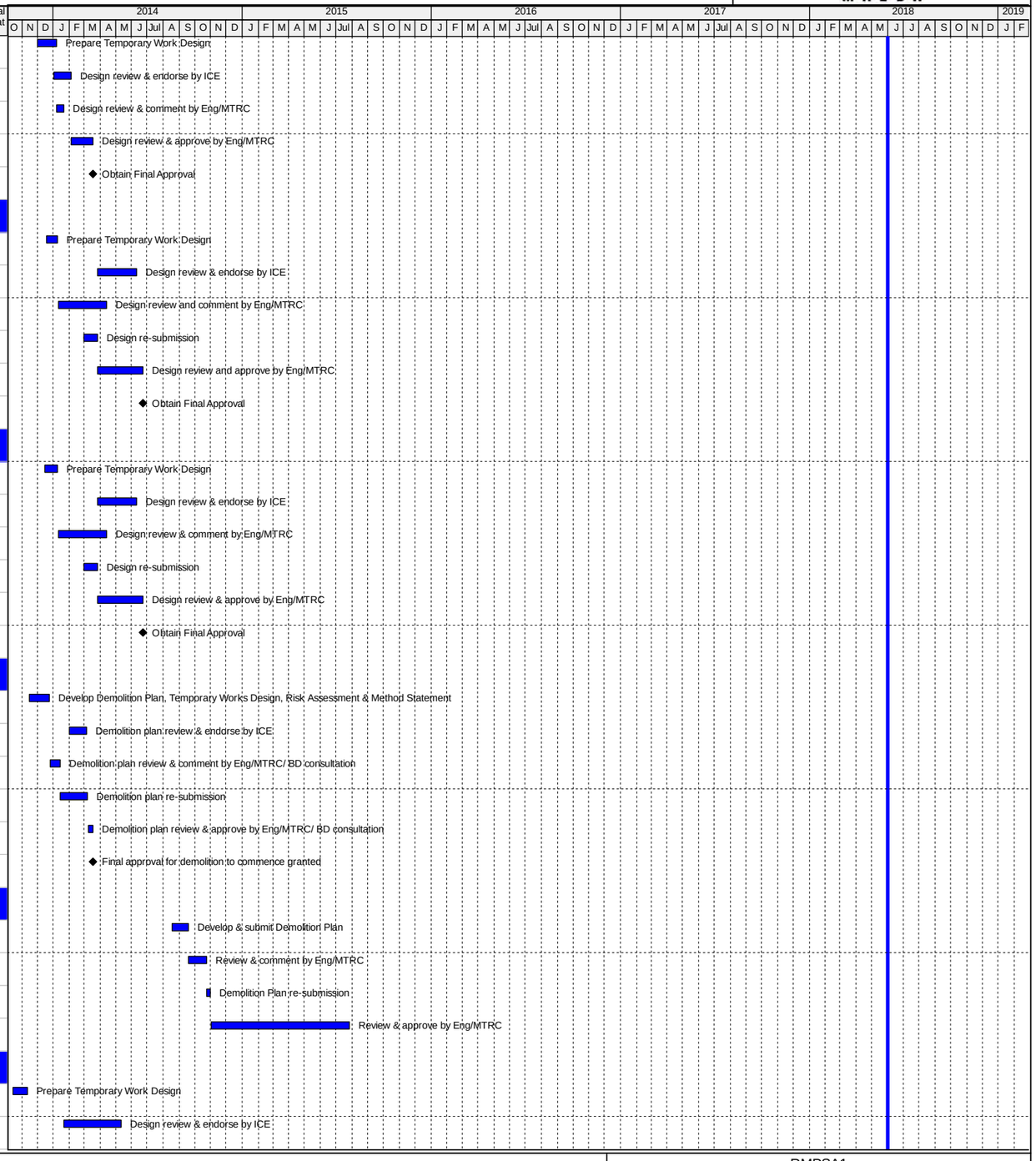
RMPSA1

Date	Revision	Checked	Approved
01-Jun-18		BG	AW

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-PRC-250	Sheet Piling	40d	0d	29-Jan-14 A	27-Mar-14 A	100%	
C3840-PRC-260	Pipe Piling & grouting	60d	0d	16-Nov-13 A	27-Mar-14 A	100%	
C3840-PRC-270	Pipe Roofing & horizontal grouting	60d	0d	03-Oct-14 A	31-Dec-14 A	100%	
C3840-PRC-280	Flood Barrier Wall	40d	0d	10-Dec-13 A	28-Jan-14 A	100%	
C3840-PRC-300	Earthworks including for Tunnel	443d	0d	07-Jul-14 A	17-Oct-15 A	100%	
Permanent Works		550d	0d	01-Feb-14 A	18-Mar-17 A		
C3840-PRC-310	Rebar Supply	0d	0d	01-Feb-14 A	28-Feb-14 A	100%	
C3840-PRC-320	Concrete Supply	60d	0d	01-Feb-14 A	28-Feb-14 A	100%	
C3840-PRC-330	Structural S.S.Steelworks.	54d	0d	01-Mar-16 A	18-Mar-17 A	100%	
C3840-PRC-340	Subway, RC Work Package Contractor	90d	0d	02-Jan-15 A	30-Jun-15 A	100%	
External Works		789d	6d	02-Jan-14 A	05-Oct-18		0d
C3840-PRC-360	Closed Circuit TV Inspection	24d	0d	02-Jan-14 A	16-Jan-14 A	100%	
C3840-PRC-370	Asphalt Surfacing	6d	6d	28-Sep-18	05-Oct-18	0%	0d
ABWF & Building Services		625d	0d	01-Nov-13 A	18-Mar-17 A		
C3840-PRC-380	BS Works	90d	0d	01-Nov-13 A	30-Apr-14 A	100%	
C3840-PRC-390	ABWF Works for TS	749d	0d	01-Nov-13 A	24-Oct-15 A	100%	
C3840-PRC-395	ABWF Works for the Permanent Works	60d	0d	15-Feb-16 A	18-Mar-17 A	100%	
Removal of Existing Escalator		190d	0d	21-Apr-15 A	11-Mar-16 A		
C3840-PRC-400	Specialist Contractor	190d	0d	21-Apr-15 A	11-Mar-16 A	100%	
Site Establishment		120d	0d	14-Oct-13 A	25-Apr-14 A		
Apply Utilities		90d	0d	18-Oct-13 A	25-Apr-14 A		
C3840-AU-100	Temporary Water Supply (subject to approval from WSD)	90d	0d	25-Oct-13 A	25-Apr-14 A	100%	
C3840-AU-110	Temporary CLP Power Supply (subject to approval from CLP)	90d	0d	18-Oct-13 A	25-Feb-14 A	100%	
Contractor's Site Office		30d	0d	14-Oct-13 A	12-Nov-13 A		
C3840-OS-100	Setup Project Office	30d	0d	14-Oct-13 A	12-Nov-13 A	100%	
Condition Survey		100d	0d	07-Jan-14 A	17-Feb-14 A		
C3840-CS-20	Propose the influence zone to the satisfaction of the Eng	60d	0d	28-Jan-14 A	17-Feb-14 A	100%	
C3840-CS-35	Obtain condition report from MTR	0d	0d		07-Jan-14 A	100%	
C3840-CS-40	Verify and accept the conditionsurvey report	28d	0d	28-Jan-14 A	17-Feb-14 A	100%	
Environmental Management Plan and Quality Plan		129d	0d	11-Oct-13 A	28-Apr-14 A		
C3840-EQ-100	EMP (G5.1.10) - Prepare and submit for Eng approval	28d	0d	11-Oct-13 A	28-Nov-13 A	100%	
C3840-EQ-110	EMP - Eng comment and approve	14d	0d	29-Nov-13 A	06-Dec-13 A	100%	
C3840-EQ-150	Environmental Team Leader (ET) (P22.14) - Appoint and submit for Eng approval	30d	0d	14-Oct-13 A	14-Nov-13 A	100%	
C3840-EQ-160	ET - Eng comment and approve	14d	0d	15-Nov-13 A	22-Nov-13 A	100%	

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-EQ-170	Confirm monitiroing location & setup noise monitoring deivices	30d	0d	17-Dec-13 A	09-Jan-14 A	100%	
C3840-EQ-180	Baseline noise monitoring	14d	0d	10-Jan-14 A	24-Jan-14 A	100%	
C3840-EQ-190	Prepare baseline noise monitoring report & submit to Eng, ICE and EPD	7d	0d	25-Jan-14 A	11-Feb-14 A	100%	
C3840-EQ-200	Baseline noise monitoring report review and approved by Eng, ICE and EPD	14d	0d	14-Feb-14 A	01-Apr-14 A	100%	
C3840-EQ-210	Confirm monitoring location & setup air monitoring deivices	30d	0d	17-Dec-13 A	09-Jan-14 A	100%	
C3840-EQ-220	Baseline air monitoring	14d	0d	10-Jan-14 A	25-Jan-14 A	100%	
C3840-EQ-230	Prepare baseline air monitoring report & submit to Eng, ICE and EPD	7d	0d	27-Jan-14 A	11-Feb-14 A	100%	
C3840-EQ-240	Baseline air monitoring report review and approved by Eng, ICE and EPD	14d	0d	14-Feb-14 A	01-Apr-14 A	100%	
C3840-EQ-320	Quality Plan (G9.2.1) - Prepare and submit for Eng approval	28d	0d	14-Oct-13 A	30-Dec-13 A	100%	
C3840-EQ-330	Quality Plan - Eng comment and approve	14d	0d	31-Dec-13 A	28-Apr-14 A	100%	
Health & Safety Plan		74d	0d	11-Oct-13 A	22-Jan-14 A		
C3840-HS-100	Health and Safety Plan (G3.6.1) - Prepare and submit for Eng approval	60d	0d	11-Oct-13 A	13-Dec-13 A	100%	
C3840-HS-110	Health and Safety Plan - Eng comment and approve	14d	0d	14-Dec-13 A	22-Jan-14 A	100%	
C3840-HS-130	System Assurance Plan as per App. K of PS - Prepare and submit for Eng approval	28d	0d	11-Oct-13 A	20-Dec-13 A	100%	
C3840-HS-140	System Assurance Plan - Eng comment and approve	14d	0d	21-Dec-13 A	09-Jan-14 A	100%	
Programme Management		116d	0d	11-Oct-13 A	30-Mar-14 A		
C3840-PM-100	Initial Three Month Rolling Programme (G4.8.1) - Prepare and submit for Eng review	14d	0d	11-Oct-13 A	28-Oct-13 A	100%	
C3840-PM-110	Preliminary Master Programme (G4.6.1) - Prepare and submit for Eng approval	60d	0d	11-Oct-13 A	12-Dec-13 A	100%	
C3840-PM-120	Preliminary Master Programme (G4.6.1) - Eng comment	28d	0d	13-Dec-13 A	13-Jan-14 A	100%	
C3840-PM-130	Preliminary Master Programme (G4.6.1) - Re-submit for Eng approval	14d	0d	14-Jan-14 A	11-Feb-14 A	100%	
C3840-PM-135	Preliminary Master Programme (G4.6.1) - Eng's further comment	14d	0d	12-Feb-14 A	22-Feb-14 A	100%	
C3840-PM-136	Preliminary Master Programme (G4.6.1) - Further re-submission	14d	0d	23-Feb-14 A	27-Feb-14 A	100%	
C3840-PM-140	Preliminary Master Programme (G4.6.1) - Eng approval	14d	0d	28-Feb-14 A	07-Mar-14 A	100%	
C3840-PM-170	Submission Schedule (G12.11.1) - Prepare and submit for Eng approval	28d	0d	11-Oct-13 A	12-Nov-13 A	100%	
C3840-PM-180	Submission Schedule - Eng comment and approve	28d	0d	13-Nov-13 A	30-Mar-14 A	100%	
Temporary Works Design & Approval Process (Incl. Demolition)		1581d	175d	15-Oct-13 A	30-Dec-18		0d
Hoarding Plan		84d	0d	15-Oct-13 A	18-Mar-14 A		
C3840-TD-100	Prepare Hoarding Plan	27d	0d	15-Oct-13 A	11-Jan-14 A	100%	
C3840-TD-110	Hoarding plan review & endorse by ICE	40d	0d	01-Feb-14 A	08-Mar-14 A	100%	
C3840-TD-120	Hoarding plan review & comment by Eng/MTRC	28d	0d	12-Jan-14 A	23-Jan-14 A	100%	
C3840-TD-140	Hoarding plan re-submission	11d	0d	24-Jan-14 A	28-Feb-14 A	100%	
C3840-TD-150	Hoarding plan review & approve by Eng/MTRC	28d	0d	01-Mar-14 A	18-Mar-14 A	100%	
C3840-TD-160	Obtain Final Approval	0d	0d		18-Mar-14 A	100%	
Flood Protection Wall		89d	0d	01-Dec-13 A	18-Mar-14 A		

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-TD-170	Prepare Temporary Work Design	24d	0d	01-Dec-13 A	06-Jan-14 A	100%	
C3840-TD-180	Design review & endorse by ICE	40d	0d	02-Jan-14 A	04-Feb-14 A	100%	
C3840-TD-190	Design review & comment by Eng/MTRC	28d	0d	07-Jan-14 A	21-Jan-14 A	100%	
C3840-TD-210	Design review & approve by Eng/MTRC	28d	0d	05-Feb-14 A	18-Mar-14 A	100%	
C3840-TD-220	Obtain Final Approval	0d	0d		18-Mar-14 A	100%	
Temporary Works Design for Temporary Traffic Decking		129d	0d	18-Dec-13 A	23-Jun-14 A		
C3840-TD-230	Prepare Temporary Work Design	24d	0d	18-Dec-13 A	09-Jan-14 A	100%	
C3840-TD-240	Design review & endorse by ICE	40d	0d	27-Mar-14 A	11-Jun-14 A	100%	
C3840-TD-250	Design review and comment by Eng/MTRC	28d	0d	10-Jan-14 A	14-Apr-14 A	100%	
C3840-TD-260	Design re-submission	18d	0d	01-Mar-14 A	26-Mar-14 A	100%	
C3840-TD-270	Design review and approve by Eng/MTRC	28d	0d	27-Mar-14 A	23-Jun-14 A	100%	
C3840-TD-310	Obtain Final Approval	0d	0d		23-Jun-14 A	100%	
Temporary Work Design for Utilities Supports		118d	0d	16-Dec-13 A	23-Jun-14 A		
C3840-TD-320	Prepare Temporary Work Design	24d	0d	16-Dec-13 A	09-Jan-14 A	100%	
C3840-TD-330	Design review & endorse by ICE	24d	0d	27-Mar-14 A	11-Jun-14 A	100%	
C3840-TD-340	Design review & comment by Eng/MTRC	28d	0d	10-Jan-14 A	14-Apr-14 A	100%	
C3840-TD-350	Design re-submission	18d	0d	01-Mar-14 A	26-Mar-14 A	100%	
C3840-TD-360	Design review & approve by Eng/MTRC	28d	0d	27-Mar-14 A	23-Jun-14 A	100%	
C3840-TD-370	Obtain Final Approval	0d	0d		23-Jun-14 A	100%	
Demolition Plan for Existing D1, D2 and Subway		89d	0d	15-Nov-13 A	18-Mar-14 A		
C3840-DMD-100	Develop Demolition Plan, Temporary Works Design, Risk Assessment & Method Statement	24d	0d	15-Nov-13 A	24-Dec-13 A	100%	
C3840-DMD-110	Demolition plan review & endorse by ICE	24d	0d	01-Feb-14 A	06-Mar-14 A	100%	
C3840-DMD-120	Demolition plan review & comment by Eng/MTRC/ BD consultation	28d	0d	25-Dec-13 A	13-Jan-14 A	100%	
C3840-DMD-130	Demolition plan re-submission	18d	0d	14-Jan-14 A	08-Mar-14 A	100%	
C3840-DMD-140	Demolition plan review & approve by Eng/MTRC/ BD consultation	28d	0d	09-Mar-14 A	18-Mar-14 A	100%	
C3840-DMD-190	Final approval for demolition to commence granted	0d	0d		18-Mar-14 A	100%	
Submission/Approval for Demolition & Modification Works at Basement Wall of K11		99d	0d	18-Aug-14 A	27-Jul-15 A		
C3840-DMD-400	Develop & submit Demolition Plan	24d	0d	18-Aug-14 A	18-Sep-14 A	100%	
C3840-DMD-430	Review & comment by Eng/MTRC	28d	0d	19-Sep-14 A	23-Oct-14 A	100%	
C3840-DMD-440	Demolition Plan re-submission	18d	0d	24-Oct-14 A	31-Oct-14 A	100%	
C3840-DMD-450	Review & approve by Eng/MTRC	28d	0d	01-Nov-14 A	27-Jul-15 A	100%	
ELS Design for Tunnel (Vertical Shaft)		116d	0d	15-Oct-13 A	26-May-14 A		
C3840-ED-100	Prepare Temporary Work Design	55d	0d	15-Oct-13 A	12-Nov-13 A	100%	
C3840-ED-110	Design review & endorse by ICE	40d	0d	22-Jan-14 A	12-May-14 A	100%	



Contract C3840-13C

Tsim Sha Tsui Station, Carnarvon Road Subway

MAEDA

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-ED-120	Design review & comment by Eng/MTRC, GEO and BD consutation	28d	0d	13-Nov-13 A	27-Jan-14 A	100%	
C3840-ED-130	Design re-submission	14d	0d	09-Jan-14 A	22-May-14 A	100%	
C3840-ED-140	Design review & approve by Eng/MTRC, GEO and BD consutation	28d	0d	13-Feb-14 A	26-May-14 A	100%	
C3840-ED-170	Obtain Final Approval	0d	0d		26-May-14 A	100%	
ELS Design for Subway and Temporary Staircase		82d	0d	18-Dec-13 A	23-Jun-14 A		
C3840-ED-180	Prepare ELS Design	24d	0d	18-Dec-13 A	09-Jan-14 A	100%	
C3840-ED-190	Design review & endorse by ICE	40d	0d	06-Mar-14 A	11-Jun-14 A	100%	
C3840-ED-200	Design review & comment by Eng/MTRC, GEO and BD consultation	28d	0d	10-Jan-14 A	27-Jan-14 A	100%	
C3840-ED-210	Design re-submission	12d	0d	05-Mar-14 A	12-Jun-14 A	100%	
C3840-ED-220	Design review & approve by Eng/MTRC, GEO and BD consultation	28d	0d	06-Mar-14 A	23-Jun-14 A	100%	
C3840-ED-230	Obtain Final Approval	0d	0d		23-Jun-14 A	100%	
ELS Design for Tunnel (Horizontal Pipe Piling)		349d	0d	02-Jun-14 A	02-Jun-15 A		
C3840-ED-240	Prepare Temporary Work Design (AIP)	24d	0d	02-Jun-14 A	16-Jun-14 A	100%	
C3840-ED-260	Design review & comment by Eng/MTRC and GEO	28d	0d	17-Jun-14 A	22-Jul-14 A	100%	
C3840-ED-270	Design re-submission (DDA)	18d	0d	18-Jun-14 A	08-Aug-14 A	100%	
C3840-ED-280	Design review & approve by Eng/MTRC	28d	0d	09-Aug-14 A	13-Aug-14 A	100%	
C3840-ED-300	Design submission for BD approval	1d	0d	13-Aug-14 A	13-Aug-14 A	100%	
C3840-ED-310	BD & GEO review and approval	60d	0d	14-Aug-14 A	28-Oct-14 A	100%	
C3840-ED-315	BA 8/ BA10 submission for ground treatment and GI field works	1d	0d	05-Feb-15 A	05-Feb-15 A	100%	
C3840-ED-320	BA 8 submission for BD consent for HPP works	1d	0d	23-Mar-15 A	23-Mar-15 A	100%	
C3840-ED-330	BD process BA 8/BA10 submission & BD issue consent	28d	0d	24-Mar-15 A	02-Jun-15 A	100%	
ELS Design for Subway and D2 (C&C)		82d	0d	18-Dec-13 A	23-Jun-14 A		
C3840-ED-340	Prepare ELS Design	24d	0d	18-Dec-13 A	09-Jan-14 A	100%	
C3840-ED-350	Design review & endorse by ICE	40d	0d	27-Mar-14 A	11-Jun-14 A	100%	
C3840-ED-360	Design review & comment by Eng/MTRC, GEO and BD consultation	28d	0d	10-Jan-14 A	27-Jan-14 A	100%	
C3840-ED-370	Design re-submission	12d	0d	26-Mar-14 A	12-Jun-14 A	100%	
C3840-ED-380	Design review & approve by Eng/MTRC, GEO and BD consultation	28d	0d	27-Mar-14 A	23-Jun-14 A	100%	
C3840-ED-410	Obtain Final Approval	0d	0d		23-Jun-14 A	100%	
Temporary Traffic Mangement Schemes (TTMs) for Carnarvon Road Closure & Piling works at TS and C&C		448d	0d	16-Oct-13 A	13-Jun-14 A		
C3840-TTM-100	Appoint Traffic Consultant	0d	0d		16-Oct-13 A	100%	
C3840-TTM-110	Pepare & submit review by Eng Outline TTM Schemes as per PS P20.4	6d	0d	17-Oct-13 A	23-Oct-13 A	100%	
C3840-TTM-120	Eng review Outline TTM Schemes	4d	0d	24-Oct-13 A	28-Oct-13 A	100%	
C3840-TTM-130	Prepare Detailed TTMS	5d	0d	24-Oct-13 A	30-Oct-13 A	100%	
C3840-TTM-140	Discussion and agree in priniciple at TMLG Meeting	1d	0d	30-Oct-13 A	30-Oct-13 A	100%	

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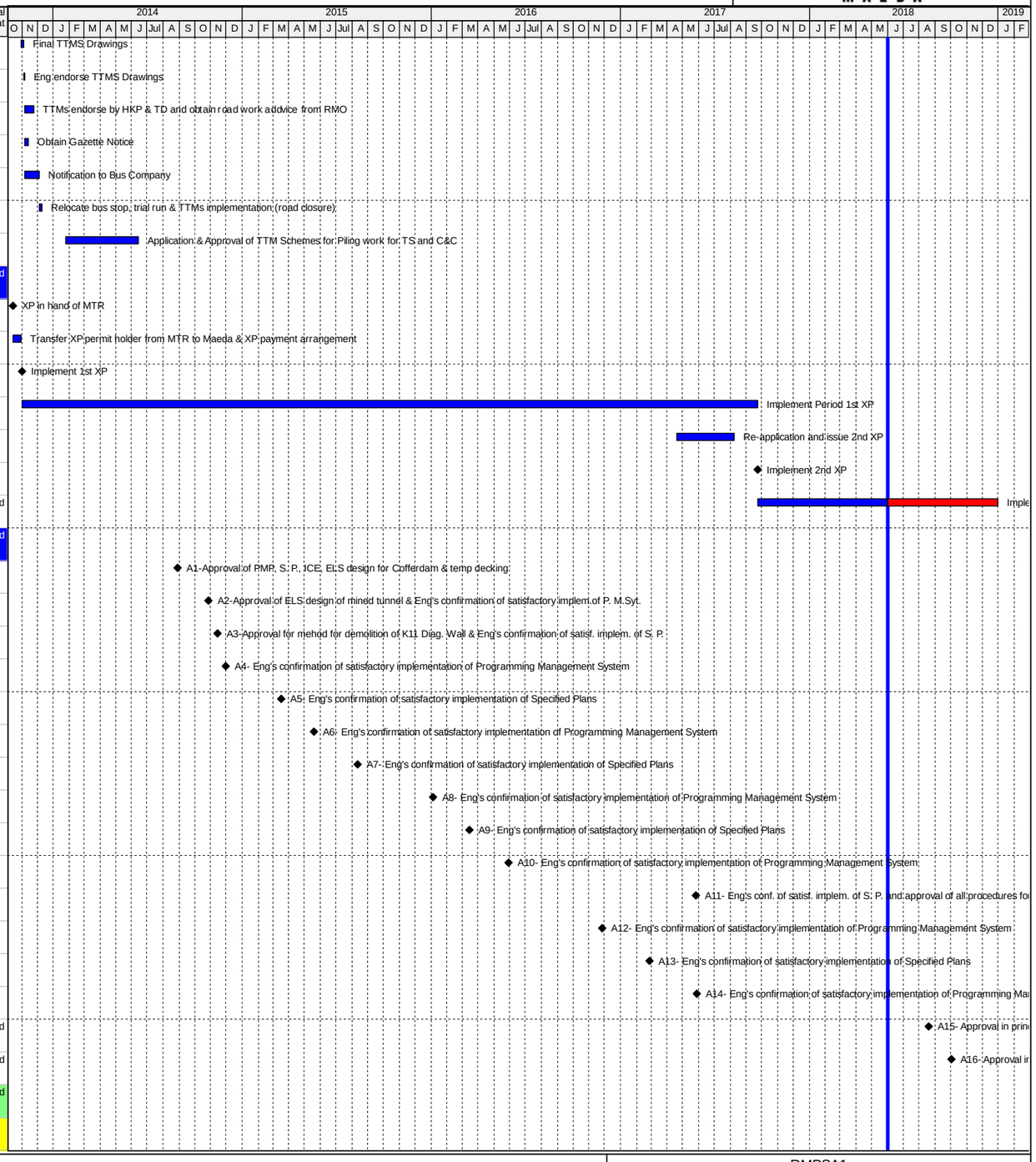
Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-TTM-150	Final TTMS Drawings	4d	0d	31-Oct-13 A	04-Nov-13 A	100%	
C3840-TTM-160	Eng endorse TTMS Drawings	2d	0d	05-Nov-13 A	06-Nov-13 A	100%	
C3840-TTM-170	TTMs endorse by HKP & TD and obtain road work addvice from RMO	18d	0d	07-Nov-13 A	24-Nov-13 A	100%	
C3840-TTM-180	Obtain Gazette Notice	18d	0d	07-Nov-13 A	14-Nov-13 A	100%	
C3840-TTM-190	Notification to Bus Company	28d	0d	07-Nov-13 A	04-Dec-13 A	100%	
C3840-TTM-210	Relocate bus stop, trial run & TTMs implementation (road closure)	5d	0d	05-Dec-13 A	10-Dec-13 A	100%	
C3840-TTM-220	Application & Approval of TTM Schemes for Piling work for TS and C&C	42d	0d	24-Jan-14 A	13-Jun-14 A	100%	
Excavation Permit (XP)		1581d	175d	15-Oct-13 A	30-Dec-18		0d
C3840-XP-100	XP in hand of MTR	0d	0d		15-Oct-13 A	100%	
C3840-XP-110	Transfer XP permit holder from MTR to Maeda & XP payment arrangement	15d	0d	15-Oct-13 A	31-Oct-13 A	100%	
C3840-XP-130	Implement 1st XP	0d	0d	01-Nov-13 A		100%	
C3840-XP-140	Implement Period 1st XP	1422d	0d	01-Nov-13 A	22-Sep-17 A	100%	
C3840-XP-150	Re-application and issue 2nd XP	180d	0d	20-Apr-17 A	09-Aug-17 A	100%	
C3840-XP-160	Implement 2nd XP	0d	0d	23-Sep-17 A		100%	
C3840-XP-170	Implement Period for 2nd XP	464d	213d	23-Sep-17 A	30-Dec-18	40.95%	0d
Milestones for Cost Centre A - Preliminaries		1525d	45d	29-Aug-14 A	03-Oct-18		88d
C3840-MS-A01	A1-Approval of PMP, S. P., ICE, ELS design for Cofferdam & temp decking	0d	0d		29-Aug-14 A	100%	
C3840-MS-A02	A2-Approval of ELS design of mined tunnel & Eng's confirmation of satisfactory implem.of P. M.Syt.	0d	0d		28-Oct-14 A	100%	
C3840-MS-A03	A3-Approval for mehod for demolition of K11 Diag. Wall & Eng's confirmation of satisf. implem. of S. P.	0d	0d		13-Nov-14 A	100%	
C3840-MS-A04	A4- Eng's confirmation of satisfactory implementation of Programming Management System	0d	0d		30-Nov-14 A	100%	
C3840-MS-A05	A5- Eng's confirmation of satisfactory implementation of Specified Plans	0d	0d		16-Mar-15 A	100%	
C3840-MS-A06	A6- Eng's confirmation of satisfactory implementation of Programming Management System	0d	0d		19-May-15 A	100%	
C3840-MS-A07	A7- Eng's confirmation of satisfactory implementation of Specified Plans	0d	0d		12-Aug-15 A	100%	
C3840-MS-A08	A8- Eng's confirmation of satisfactory implementation of Programming Management System	0d	0d		04-Jan-16 A	100%	
C3840-MS-A09	A9- Eng's confirmation of satisfactory implementation of Specified Plans	0d	0d		15-Mar-16 A	100%	
C3840-MS-A10	A10- Eng's confirmation of satisfactory implementation of Programming Management System	0d	0d		29-May-16 A	100%	
C3840-MS-A11	A11- Eng's conf. of satisf. implem. of S. P. and approval of all procedures for T&C of BS & ABWF works	0d	0d		26-May-17 A	100%	
C3840-MS-A12	A12- Eng's confirmation of satisfactory implementation of Programming Management System	0d	0d		27-Nov-16 A	100%	
C3840-MS-A13	A13- Eng's confirmation of satisfactory implementation of Specified Plans	0d	0d		26-Feb-17 A	100%	
C3840-MS-A14	A14- Eng's confirmation of satisfactory implementation of Programming Management System	0d	0d		28-May-17 A	100%	
C3840-MS-A15	A15- Approval in principle of draft O&M Manuals and draft As-built Drwgs. for Whole of the Works	0d	0d		19-Aug-18	0%	133d
C3840-MS-A16	A16- Approval in principle of O&M Manuals and As-built Drwgs. for Whole of the Works	0d	0d		03-Oct-18	0%	88d
Carnarvon Road Subway and Entrances		1352d	122d	14-Oct-13 A	26-Oct-18		53d
Instrumentation		52d	0d	16-Dec-13 A	02-Apr-14 A		



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Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-INS-10	Prepare & submit instrumentation/monitoring plan for approval of Eng	28d	0d	16-Dec-13 A	28-Jan-14 A	100%	
C3840-INS-20	Eng approve instrumentation/monitoring plan	7d	0d	29-Jan-14 A	05-Feb-14 A	100%	
C3840-INS-30	Installation of instrumentations	12d	0d	07-Jan-14 A	25-Feb-14 A	100%	
C3840-INS-40	Initial reading and agreement with Eng	14d	0d	24-Feb-14 A	30-Mar-14 A	100%	
C3840-INS-50	Commence regular monitoring	0d	0d	02-Apr-14 A		100%	
Utility Diversion		1292d	0d	14-Oct-13 A	12-Dec-15 A		
C3840-UTD-010	Utility Detection Survey incl. prepare survey report	12d	0d	02-Nov-13 A	11-Dec-13 A	100%	
C3840-UTD-030	Notification to Utility Companies and 1st ULG meeting	46d	0d	14-Oct-13 A	28-Nov-13 A	100%	
C3840-UTD-040	Relocation of mail box	8d	0d	29-Nov-13 A	06-Dec-13 A	100%	
C3840-UTD-110	Relocation of Telephone Kiosk by PCCW	40d	0d	23-Dec-13 A	08-Jan-14 A	100%	
C3840-UTD-290	Diversion of Gasmain crossing tunnel shaft	57d	0d	13-Feb-14 A	26-Mar-14 A	100%	
C3840-UTD-295	Exposure & temporary support to underground gasmain and cable duct at TS	64d	0d	11-Mar-15 A	30-Jun-15 A	100%	
C3840-UTD-320	Exposure & slewing of underground utilities for driving pipe piles execept D2 area	57d	0d	13-Feb-14 A	31-Oct-14 A	100%	
C3840-UTD-335	Temporary Diversion of existing watermain that clash with temp. staircase	40d	0d	28-May-15 A	17-Jul-15 A	100%	
C3840-UTD-360	Removal of Street Lighting Post near D2	57d	0d	13-Feb-14 A	23-May-14 A	100%	
C3840-UTD-455	Exposure & slewing of underground utilities for driving pipe piles at D2 area	51d	0d	07-Oct-15 A	12-Dec-15 A	100%	
Remove Existing Escalator by Specialist Contractor		109d	0d	01-Mar-16 A	05-Aug-16 A		
C3840-ESC-110	Appoint Specialist Contractor	0d	0d		11-Mar-16 A	100%	
C3840-ESC-120	Prepare method statement & delivery route for removal of exist. Escalator	6d	0d	01-Mar-16 A	11-Mar-16 A	100%	
C3840-ESC-130	Eng review and approve method statement & delivery route for removal of exist. Escalator	21d	0d	12-Mar-16 A	02-Jun-16 A	100%	
C3840-ESC-140	Liaise with maintenance Contractor via. Eng and submit Form EL3 to EMSD	6d	0d	06-Apr-16 A	06-Jul-16 A	100%	
C3840-ESC-150	EMSD/MTRC decommission exisitng escalator	3d	0d	06-Jul-16 A	06-Jul-16 A	100%	
C3840-ESC-152	MTR's testing on Existing Escalator	2d	0d	07-Jul-16 A	08-Jul-16 A	100%	
C3840-ESC-160	Remove existing escalator	14d	0d	11-Jul-16 A	05-Aug-16 A	100%	
Open Cut Sequence 1 (Advance Ground Works & Piling Works)		778d	0d	13-Nov-13 A	30-Sep-16 A		
Advance Ground Works		113d	0d	13-Nov-13 A	24-Jul-14 A		
C3840-AGW-010	Site clearance	24d	0d	13-Nov-13 A	10-Dec-13 A	100%	
C3840-AGW-020	Trial Pit/trench excavation	69d	0d	14-Nov-13 A	31-Mar-14 A	100%	
C3840-AGW-030	Temporary Hoarding Erection	15d	0d	11-Dec-13 A	30-Dec-13 A	100%	
C3840-AGW-040	Pre-drilling works	24d	0d	30-Dec-13 A	24-Jan-14 A	100%	
C3840-AGW-050	Permanent Hoarding Erection	25d	0d	28-Feb-14 A	08-Apr-14 A	100%	
C3840-AGW-070	Joint Survey & Remove existing BS & ABWF Services	6d	0d	01-Feb-14 A	22-Feb-14 A	100%	
C3840-AGW-080	Close D1 & Construct Flood Barrier at D1	9d	0d	23-Feb-14 A	27-Feb-14 A	100%	
C3840-AGW-100	Demolish D1 above GL	12d	0d	18-Mar-14 A	24-Apr-14 A	100%	

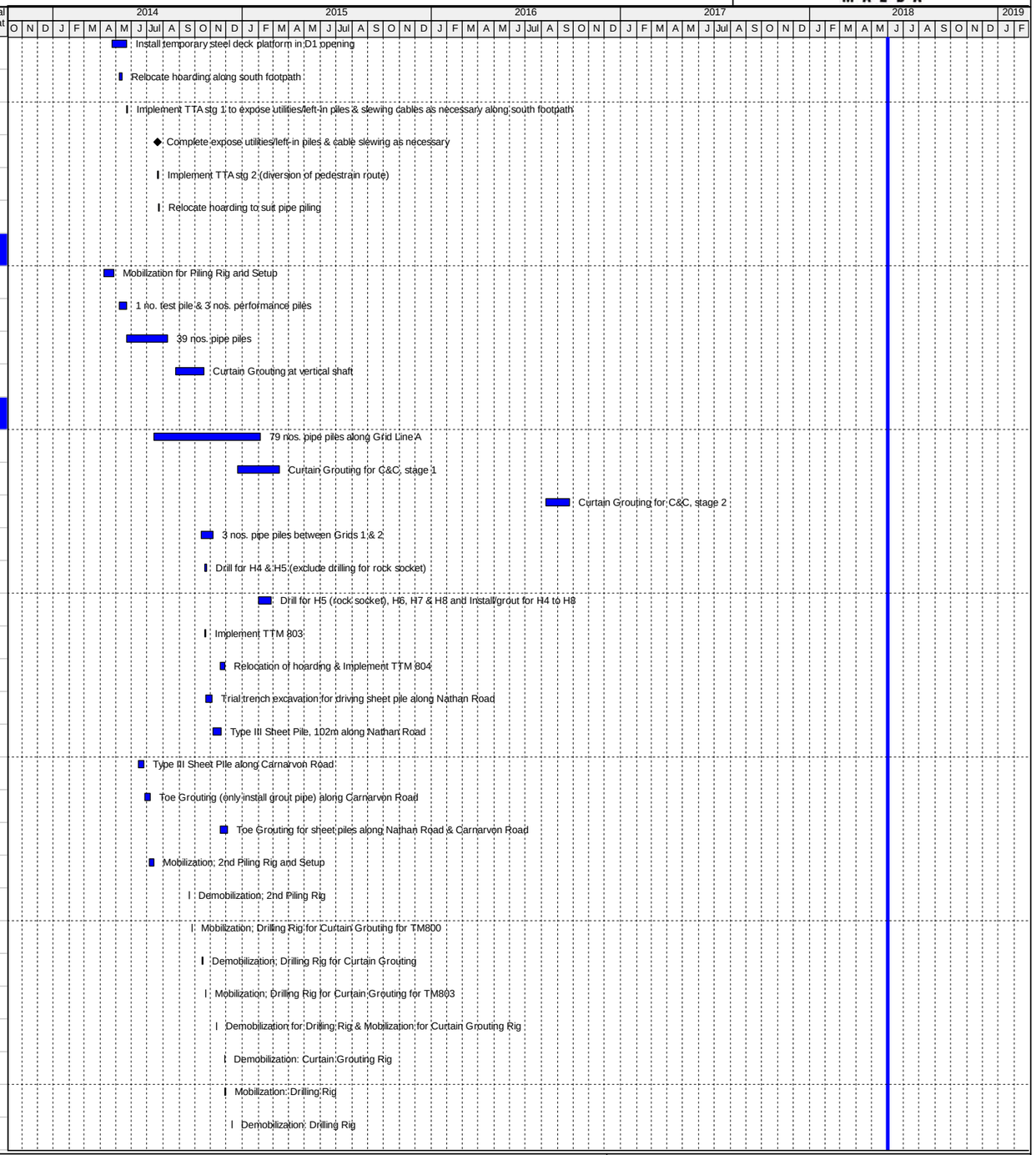
Contract C3840-13C

Tsim Sha Tsui Station, Carnarvon Road Subway

MTR

MAEDA

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-AGW-120	Install temporary steel deck platform in D1 opening	9d	0d	25-Apr-14 A	22-May-14 A	100%	
C3840-AGW-130	Relocate hoarding along south footpath	4d	0d	08-May-14 A	13-May-14 A	100%	
C3840-AGW-140	Implement TTA stg 1 to expose utilities/left-in piles & slewing cables as necessary along south footpath	1d	0d	23-May-14 A	23-May-14 A	100%	
C3840-AGW-150	Complete expose utilities/left-in piles & cable slewing as necessary	0d	0d		21-Jul-14 A	100%	
C3840-AGW-160	Implement TTA stg 2 (diversion of pedestrain route)	1d	0d	22-Jul-14 A	22-Jul-14 A	100%	
C3840-AGW-170	Relocate hoarding to suit pipe piling	4d	0d	23-Jul-14 A	24-Jul-14 A	100%	
Piles & Grouting for Vertical Shaft		113d	0d	08-Apr-14 A	18-Oct-14 A		
C3840-EVS-010	Mobilization for Piling Rig and Setup	4d	0d	08-Apr-14 A	28-Apr-14 A	100%	
C3840-EVS-015	1 no. test pile & 3 nos. performance piles	6d	0d	08-May-14 A	22-May-14 A	100%	
C3840-EVS-020	39 nos. pipe piles	35d	0d	23-May-14 A	09-Aug-14 A	100%	
C3840-EVS-040	Curtain Grouting at vertical shaft	18d	0d	25-Aug-14 A	18-Oct-14 A	100%	
Piles & Grouting for Temporary Staricase & C&C Subway		685d	0d	14-Jun-14 A	24-Sep-16 A		
C3840-ETS-020	79 nos. pipe piles along Grid Line A	47d	0d	15-Jul-14 A	05-Feb-15 A	100%	
C3840-ETS-028	Curtain Grouting for C&C, stage 1	24d	0d	23-Dec-14 A	13-Mar-15 A	100%	
C3840-ETS-029	Curtain Grouting for C&C, stage 2	30d	0d	09-Aug-16 A	24-Sep-16 A	100%	
C3840-ETS-032	3 nos. pipe piles between Grids 1 & 2	6d	0d	13-Oct-14 A	05-Nov-14 A	100%	
C3840-ETS-042	Drill for H4 & H5 (exclude drilling for rock socket)	6d	0d	21-Oct-14 A	24-Oct-14 A	100%	
C3840-ETS-044	Drill for H5 (rock socket), H6, H7 & H8 and Install/grout for H4 to H8	17d	0d	02-Feb-15 A	25-Feb-15 A	100%	
C3840-ETS-052	Implement TTM 803	6d	0d	21-Oct-14 A	22-Oct-14 A	100%	
C3840-ETS-053	Relocation of hoarding & Implement TTM 804	6d	0d	20-Nov-14 A	28-Nov-14 A	100%	
C3840-ETS-054	Trial trench excavation for driving sheet pile along Nathan Road	12d	0d	23-Oct-14 A	04-Nov-14 A	100%	
C3840-ETS-060	Type III Sheet Pile, 102m along Nathan Road	6d	0d	05-Nov-14 A	21-Nov-14 A	100%	
C3840-ETS-070	Type III Sheet PIle along Carnarvon Road	12d	0d	14-Jun-14 A	25-Jun-14 A	100%	
C3840-ETS-075	Toe Grouting (only install grout pipe) along Carnarvon Road	8d	0d	27-Jun-14 A	07-Jul-14 A	100%	
C3840-ETS-080	Toe Grouting for sheet piles along Nathan Road & Carnarvon Road	8d	0d	20-Nov-14 A	03-Dec-14 A	100%	
C3840-ETS-090	Mobilization; 2nd Piling Rig and Setup	4d	0d	05-Jul-14 A	14-Jul-14 A	100%	
C3840-ETS-091	Demobilization; 2nd Piling Rig	1d	0d	20-Sep-14 A	20-Sep-14 A	100%	
C3840-ETS-092	Mobilization; Drilling Rig for Curtain Grouting for TM800	1d	0d	26-Sep-14 A	26-Sep-14 A	100%	
C3840-ETS-093	Demobilization; Drilling Rig for Curtain Grouting	1d	0d	16-Oct-14 A	16-Oct-14 A	100%	
C3840-ETS-094	Mobilization; Drilling Rig for Curtain Grouting for TM803	1d	0d	22-Oct-14 A	22-Oct-14 A	100%	
C3840-ETS-095	Demobilization for Drilling Rig & Mobilization for Curtain Grouting Rig	1d	0d	12-Nov-14 A	12-Nov-14 A	100%	
C3840-ETS-096	Demobilization: Curtain Grouting Rig	1d	0d	28-Nov-14 A	28-Nov-14 A	100%	
C3840-ETS-097	Mobilization: Drilling Rig	1d	0d	29-Nov-14 A	29-Nov-14 A	100%	
C3840-ETS-098	Demobilization: Drilling Rig	1d	0d	12-Dec-14 A	12-Dec-14 A	100%	



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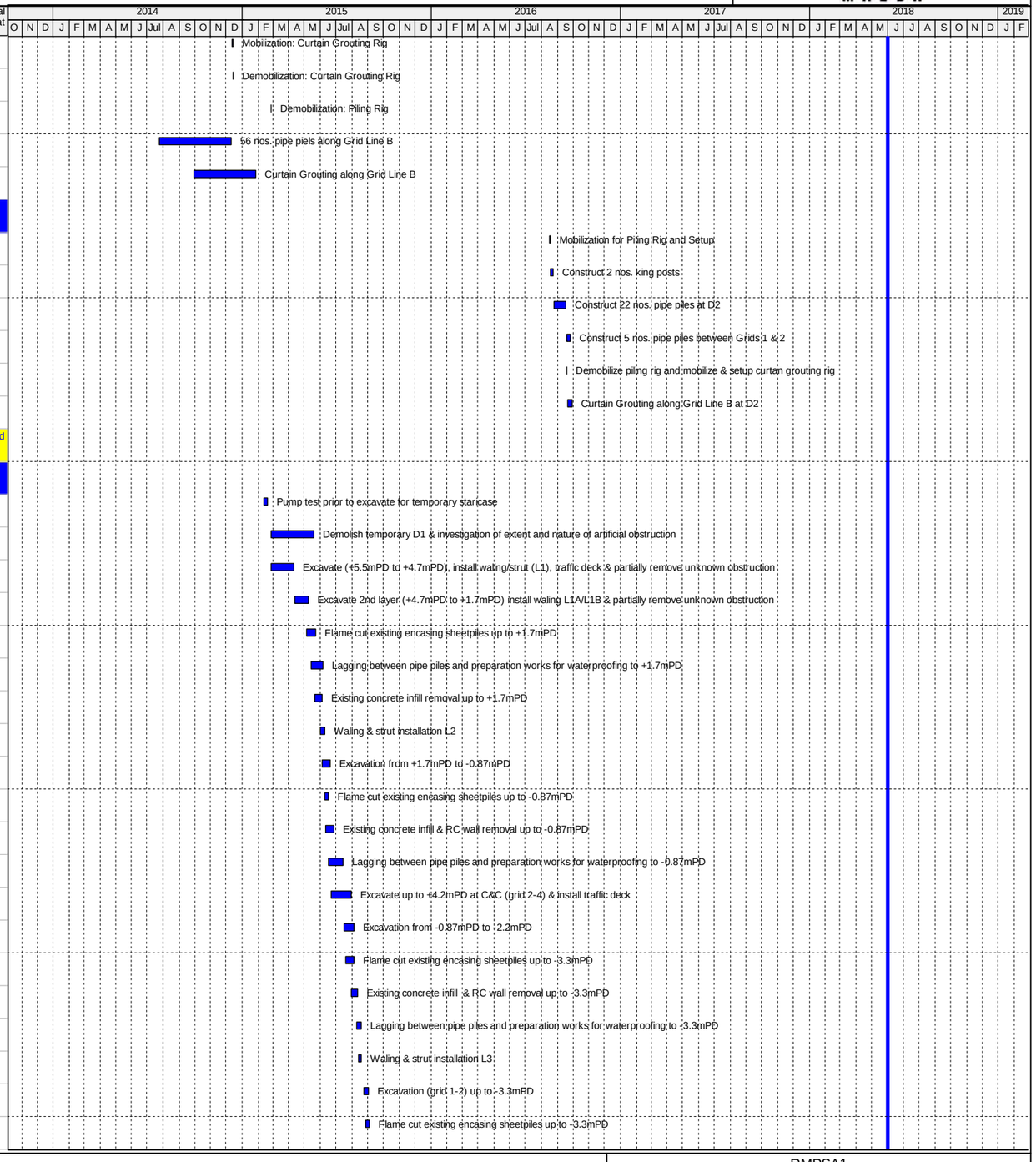
C3840-ETS-099	Mobilization: Curtain Grouting Rig	1d	0d	13-Dec-14 A	13-Dec-14 A	100%	
C3840-ETS-101	Demobilization: Curtain Grouting Rig	1d	0d	14-Dec-14 A	14-Dec-14 A	100%	
C3840-ETS-102	Demobilization: Piling Rig	1d	0d	25-Feb-15 A	25-Feb-15 A	100%	
C3840-ETS-110	56 nos. pipe piels along Grid Line B	25d	0d	24-Jul-14 A	11-Dec-14 A	100%	
C3840-ETS-120	Curtain Grouting along Grid Line B	13d	0d	30-Sep-14 A	26-Jan-15 A	100%	
Piles & Grouting for Remaining Section of Cofferdam at D2		63d	0d	17-Aug-16 A	30-Sep-16 A		
C3840-ECD-010	Mobilization for Piling Rig and Setup	4d	0d	17-Aug-16 A	18-Aug-16 A	100%	
C3840-ECD-012	Construct 2 nos. king posts	2d	0d	19-Aug-16 A	23-Aug-16 A	100%	
C3840-ECD-020	Construct 22 nos. pipe piles at D2	22d	0d	25-Aug-16 A	17-Sep-16 A	100%	
C3840-ECD-021	Construct 5 nos. pipe piles between Grids 1 & 2	7d	0d	19-Sep-16 A	26-Sep-16 A	100%	
C3840-ECD-022	Demobilize piling rig and mobilize & setup curtan grouting rig	2d	0d	19-Sep-16 A	20-Sep-16 A	100%	
C3840-ECD-030	Curtain Grouting along Grid Line B at D2	8d	0d	21-Sep-16 A	30-Sep-16 A	100%	
Open Cut Sequence 2 (Excavation for Temporary Staricase)		1281d	0d	26-Jan-14 A	01-Aug-18		124d
Excavation		209d	0d	12-Feb-15 A	02-Nov-15 A		
C3840-EXC-100	Pump test prior to excavate for temporary staricase	24d	0d	12-Feb-15 A	18-Feb-15 A	100%	
C3840-TSE-10	Demolish temporary D1 & investigation of extent and nature of artificial obstruction	66d	0d	26-Feb-15 A	19-May-15 A	100%	
C3840-TSE-12	Excavate (+5.5mPD to +4.7mPD), install waling/strut (L1), traffic deck & partially remove unknown obstruction	35d	0d	26-Feb-15 A	11-Apr-15 A	100%	
C3840-TSE-14	Excavate 2nd layer (+4.7mPD to +1.7mPD) install waling L1A/L1B & partially remove unknown obstruction	23d	0d	13-Apr-15 A	09-May-15 A	100%	
C3840-TSE-16	Flame cut existing encasing sheetpiles up to +1.7mPD	16d	0d	06-May-15 A	23-May-15 A	100%	
C3840-TSE-18	Lagging between pipe piles and preparation works for waterproofing to +1.7mPD	18d	0d	14-May-15 A	05-Jun-15 A	100%	
C3840-TSE-20	Existing concrete infill removal up to +1.7mPD	12d	0d	21-May-15 A	04-Jun-15 A	100%	
C3840-TSE-22	Waling & strut installation L2	9d	0d	01-Jun-15 A	10-Jun-15 A	100%	
C3840-TSE-24	Excavation from +1.7mPD to -0.87mPD	13d	0d	05-Jun-15 A	19-Jun-15 A	100%	
C3840-TSE-26	Flame cut existing encasing sheetpiles up to -0.87mPD	7d	0d	09-Jun-15 A	16-Jun-15 A	100%	
C3840-TSE-28	Existing concrete infill & RC wall removal up to -0.87mPD	13d	0d	12-Jun-15 A	27-Jun-15 A	100%	
C3840-TSE-30	Lagging between pipe piles and preparation works for waterproofing to -0.87mPD	23d	0d	16-Jun-15 A	14-Jul-15 A	100%	
C3840-TSE-31	Excavate up to +4.2mPD at C&C (grid 2-4) & install traffic deck	34d	0d	22-Jun-15 A	31-Jul-15 A	100%	
C3840-TSE-32	Excavation from -0.87mPD to -2.2mPD	18d	0d	16-Jul-15 A	05-Aug-15 A	100%	
C3840-TSE-34	Flame cut existing encasing sheetpiles up to -3.3mPD	15d	0d	20-Jul-15 A	05-Aug-15 A	100%	
C3840-TSE-36	Existing concrete infill & RC wall removal up to -3.3mPD	12d	0d	30-Jul-15 A	12-Aug-15 A	100%	
C3840-TSE-38	Lagging between pipe piles and preparation works for waterproofing to -3.3mPD	9d	0d	10-Aug-15 A	19-Aug-15 A	100%	
C3840-TSE-40	Waling & strut installation L3	6d	0d	13-Aug-15 A	19-Aug-15 A	100%	
C3840-TSE-42	Excavation (grid 1-2) up to -3.3mPD	8d	0d	25-Aug-15 A	02-Sep-15 A	100%	
C3840-TSE-44	Flame cut existing encasing sheetpiles up to -3.3mPD	6d	0d	28-Aug-15 A	04-Sep-15 A	100%	



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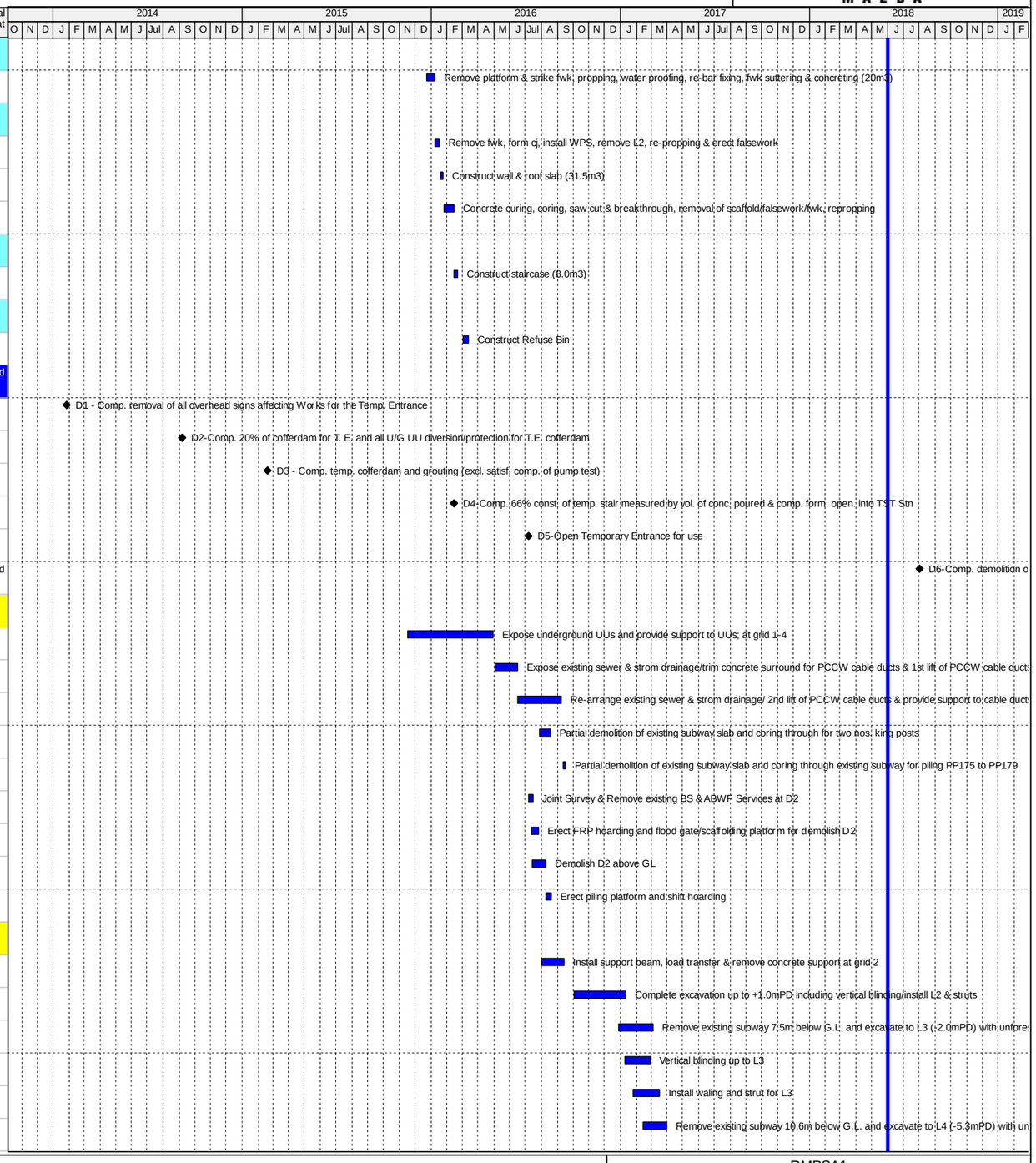
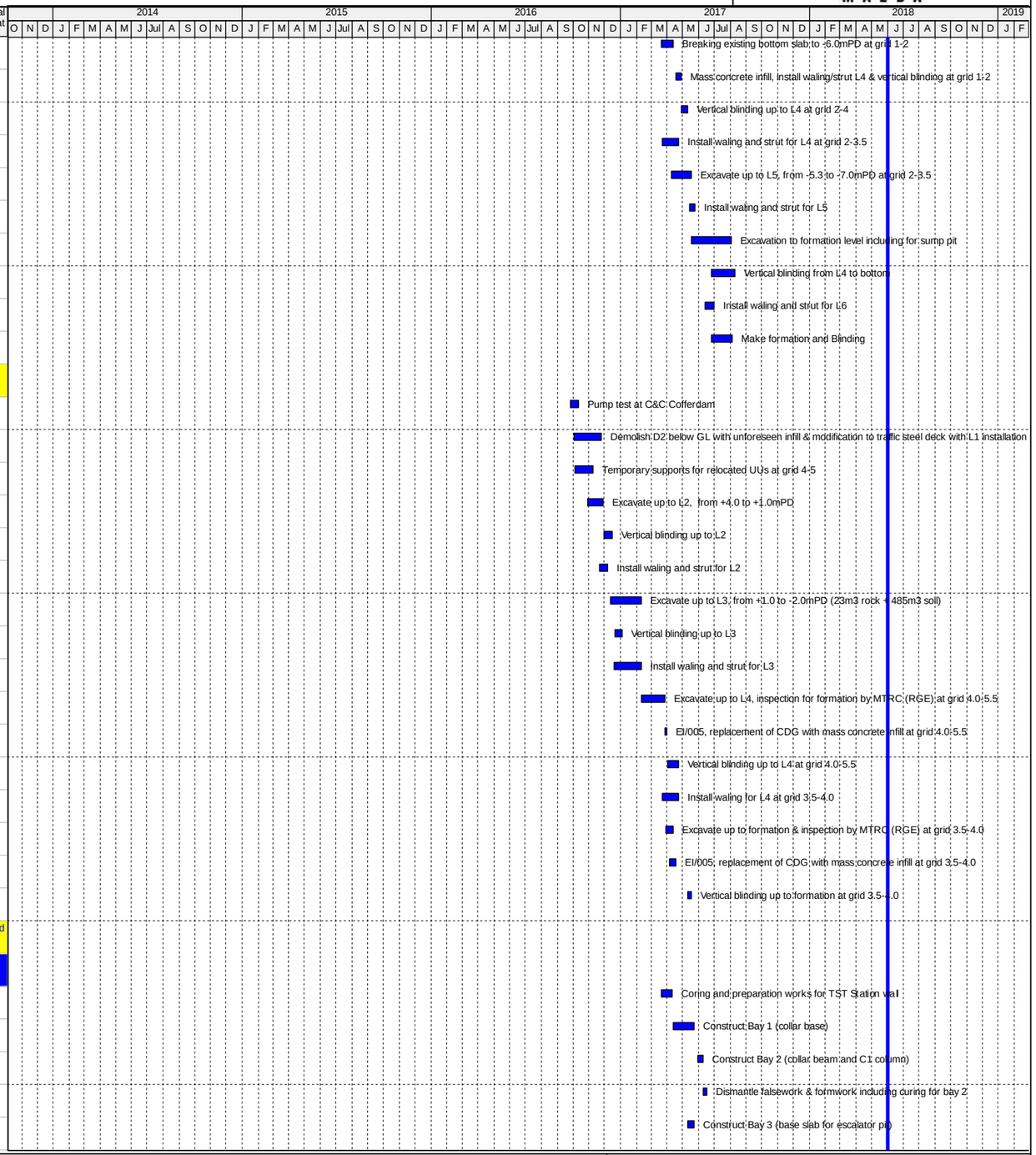
C3840-TSE-48	Lagging between pipe piles and preparation works for waterproofing to -3.3mPD	3d	0d	05-Sep-15 A	08-Sep-15 A	100%	
C3840-TSE-50	Waling & strut installation L4	6d	0d	09-Sep-15 A	15-Sep-15 A	100%	
C3840-TSE-52	Excavation up to formation at grid 1-2 & up to +3.75mPD at grid 2-4	18d	0d	09-Sep-15 A	30-Sep-15 A	100%	
C3840-TSE-58	Lagging between pipe piles and preparation works for waterproofing to formation level	4d	0d	26-Oct-15 A	02-Nov-15 A	100%	
C3840-TSE-60	Formation & place mass concrete foundation stage 1	2d	0d	24-Sep-15 A	26-Sep-15 A	100%	
C3840-TSE-62	Place mass concrete formation (remaining)	3d	0d	28-Oct-15 A	02-Nov-15 A	100%	
Additional Unforseen Obstruction		66d	0d	03-Jul-15 A	27-Oct-15 A		
C3840-AOB-100	Prepare MS and carryout trial for trimming bulged section of existing TST Stn wall	1d	0d	03-Jul-15 A	07-Jul-15 A	100%	
C3840-AOB-102	Investigation, prepare MS and trimming to expose rebar at exising TST Stn wall	21d	0d	11-Jul-15 A	04-Aug-15 A	100%	
C3840-AOB-104	Remove overpour section of TST Stn wall from +1.0mPD to -1.0mPD	4d	0d	07-Aug-15 A	11-Aug-15 A	100%	
C3840-AOB-106	Prepare MS and trimming to expose rebar at existing subway wall	5d	0d	07-Aug-15 A	12-Aug-15 A	100%	
C3840-AOB-108	Remove overpour section of wall at existing subway from -1.0mPD to -2.0mPD	2d	0d	14-Aug-15 A	15-Aug-15 A	100%	
C3840-AOB-110	Remove overpour section of wall at existing subway from -2.0mPD to -3.5mPD	30d	0d	15-Aug-15 A	19-Sep-15 A	100%	
C3840-AOB-112	Remove overpour section of RC structure at TST Station from -3.5mPD to formation level	29d	0d	21-Sep-15 A	27-Oct-15 A	100%	
Removal of ACM by Other		31d	0d	08-Oct-14 A	16-Nov-14 A		
C3840-ACM-100	Diversion of existing BS & MCB at the breakthrogh location	6d	0d	08-Oct-14 A	18-Oct-14 A	100%	
C3840-ACM-105	Relocation of existing EIB at Entrance D, Concourse Level (additional work)	9d	0d	08-Oct-14 A	24-Oct-14 A	100%	
C3840-ACM-110	Removal of ACM by other	6d	0d	16-Nov-14 A	16-Nov-14 A	100%	
RC Structure (Temporary Staricase)		160d	0d	19-Aug-15 A	12-Mar-16 A		
Section between Grid 2 and 4		94d	0d	19-Aug-15 A	20-Nov-15 A		
Bay 1 (Base Slab at +0.18mPD)		15d	0d	19-Aug-15 A	31-Aug-15 A		
C3840-TSR-100	Falsework & soffit fwk	4d	0d	19-Aug-15 A	22-Aug-15 A	100%	
C3840-TSR-105	Rebar fixing	4d	0d	25-Aug-15 A	28-Aug-15 A	100%	
C3840-TSR-110	Water proofing system, erect fwk & concreting (13.5m3)	10d	0d	20-Aug-15 A	31-Aug-15 A	100%	
Bay 2 (Walls from -0.36mPD to +2.2mPD)		6d	0d	01-Sep-15 A	08-Sep-15 A		
C3840-TSR-120	Rebar fixing for sidewall and end wall	2d	0d	01-Sep-15 A	02-Sep-15 A	100%	
C3840-TSR-125	Install water proofing membrane, fwk erection & concreting (5.0m3)	4d	0d	03-Sep-15 A	08-Sep-15 A	100%	
Bay 3 (Staircase at from +2.2 to +4.2mPD)		7d	0d	09-Sep-15 A	16-Sep-15 A		
C3840-TSR-135	Falsework & soffit fwk	2d	0d	09-Sep-15 A	10-Sep-15 A	100%	
C3840-TSR-140	Rebar fixing	3d	0d	11-Sep-15 A	14-Sep-15 A	100%	
C3840-TSR-145	Water proofing, fwk and concreting (6.0m3)	3d	0d	14-Sep-15 A	16-Sep-15 A	100%	
Bay 4 (Staircase from +4.2 to +6.1mPD)		6d	0d	17-Sep-15 A	23-Sep-15 A		
C3840-TSR-185	Rebar fixing	4d	0d	17-Sep-15 A	21-Sep-15 A	100%	
C3840-TSR-190	Fwk & concreting (14.5m3)	3d	0d	21-Sep-15 A	23-Sep-15 A	100%	

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
	Bay 5 (Staircase from +0.33 to 2.2mPD)	10d	0d	24-Sep-15 A	29-Sep-15 A		
C3840-TSR-200	Soffit fwk	2d	0d	24-Sep-15 A	25-Sep-15 A	100%	
C3840-TSR-210	Rebar fixing, fwk for risers & concreting (2.0m3)	2d	0d	26-Sep-15 A	29-Sep-15 A	100%	
	Bay 6 (walls & roof from 2.2mPD to 4mPD)	12d	0d	02-Oct-15 A	12-Oct-15 A		
C3840-TSR-150	Strike fwk, form cj, install waterproofing membrane & rebar fixing	4d	0d	02-Oct-15 A	06-Oct-15 A	100%	
C3840-TSR-165	Erect fwk/working platform & concreting (16.0m3)	5d	0d	07-Oct-15 A	12-Oct-15 A	100%	
	Bay 7 (walls & roof from +4mPD to +5.7mPD)	6d	0d	13-Oct-15 A	19-Oct-15 A		
C3840-TSR-215	Strike fwk, remove working platform, form cj & rebar fixing	2d	0d	13-Oct-15 A	14-Oct-15 A	100%	
C3840-TSR-225	Falsework, fwk, working platform & concreting (13.5m3)	4d	0d	15-Oct-15 A	19-Oct-15 A	100%	
	Bay 8 (walls & roof above +5.7mPD)	45d	0d	20-Oct-15 A	20-Nov-15 A		
C3840-TSR-230	Strike fwk, remove working platform, form cj , erect fwk & rebar fixing	10d	0d	20-Oct-15 A	31-Oct-15 A	100%	
C3840-TSR-235	Falsework, fwk, working platform & concreting (33.5m3)	10d	0d	20-Oct-15 A	02-Nov-15 A	100%	
C3840-TSR-236	Erect fwk and concreting (2m3) for upstand wall	2d	0d	03-Nov-15 A	05-Nov-15 A	100%	
C3840-TSR-237	Concrete curing and remove fwk/falsework	15d	0d	03-Nov-15 A	20-Nov-15 A	100%	
	Section between Grid 1 and 2	111d	0d	28-Oct-15 A	12-Mar-16 A		
	Bay 9 (Collar Frame up to -4.3mPD)	35d	0d	28-Oct-15 A	16-Nov-15 A		
C3840-TSR-500	Coring dowel bars holes & form groove/cj	12d	0d	28-Oct-15 A	11-Nov-15 A	100%	
C3840-TSR-505	Install waterproofing membrane/dowel bars	5d	0d	04-Nov-15 A	09-Nov-15 A	100%	
C3840-TSR-510	Rebar fixing	2d	0d	11-Nov-15 A	12-Nov-15 A	100%	
C3840-TSR-515	End fwk shuttering & concreting collar to slab (2.5m3)	3d	0d	13-Nov-15 A	16-Nov-15 A	100%	
	Bay 12 (Base Slab at -4.32mPD)	13d	0d	04-Nov-15 A	19-Nov-15 A		
C3840-TSR-540	Construct base slab (20.0m3)	13d	0d	04-Nov-15 A	19-Nov-15 A	100%	
	Bay 10 (Collar Frame up to -2mPD)	9d	0d	20-Nov-15 A	27-Nov-15 A		
C3840-TSR-520	Erect working platform, install waterproofing membrane & rebar fixing	3d	0d	20-Nov-15 A	24-Nov-15 A	100%	
C3840-TSR-525	Fwk & concreting to -2.2mPD (1.5m3)	4d	0d	25-Nov-15 A	27-Nov-15 A	100%	
	Bay 13 (Walls up to -3.2mPD)	7d	0d	27-Nov-15 A	07-Dec-15 A		
C3840-TSR-550	Install water proofing system, rebar fixing for W1, W2, W3 & 250 mm partition wall	3d	0d	27-Nov-15 A	30-Nov-15 A	100%	
C3840-TSR-555	Erect working platform, fwk shuttering & concreting (9.0m3)	4d	0d	01-Dec-15 A	07-Dec-15 A	100%	
	Bay 11 (Collar Frame up to +1.2mPD)	12d	0d	30-Nov-15 A	07-Dec-15 A		
C3840-TSR-530	Erect working platform, Install waterproofing membranne & rebar fixing	5d	0d	30-Nov-15 A	03-Dec-15 A	100%	
C3840-TSR-535	Fwk & concreting to collar (4.0m3)	7d	0d	01-Dec-15 A	07-Dec-15 A	100%	
	Bay 14 (Walls up to -0.96mPD) and Bay 18a (Stair)	6d	0d	08-Dec-15 A	28-Dec-15 A		
C3840-TSR-560	Construct bay 14 (18.5m3)	6d	0d	08-Dec-15 A	15-Dec-15 A	100%	
C3840-TSR-602	Construct bay 18a (3.5m3)	5d	0d	19-Dec-15 A	28-Dec-15 A	100%	

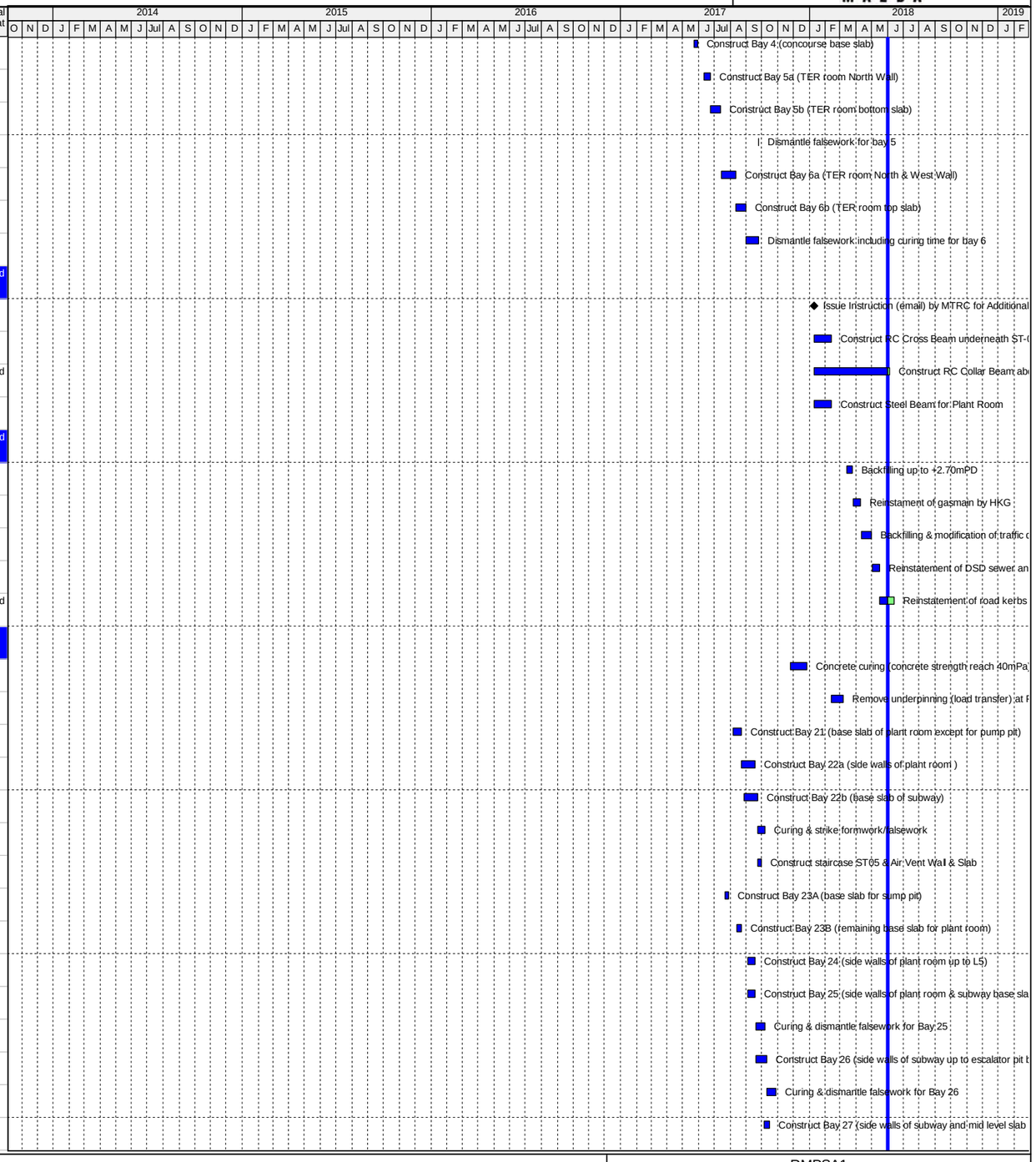
Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
	Bay 15 (Walls up to +1.25mPD)	13d	0d	23-Dec-15 A	07-Jan-16 A		
C3840-TSR-580	Remove platform & strike fwk, propping, water proofing, re-bar fixing, fwk suttering & concreting (20m3)	13d	0d	23-Dec-15 A	07-Jan-16 A	100%	
	Bay 16 (Walls & Roof Slab)	32d	0d	08-Jan-16 A	13-Feb-16 A		
C3840-TSR-590	Remove fwk, form cj, install WPS, remove L2, re-propping & erect falsework	5d	0d	08-Jan-16 A	16-Jan-16 A	100%	
C3840-TSR-595	Construct wall & roof slab (31.5m3)	14d	0d	18-Jan-16 A	23-Jan-16 A	100%	
C3840-TSR-600	Concrete curing, coring, saw cut & breakthrough, removal of scaffold/falsework/fwk, repropping	13d	0d	25-Jan-16 A	13-Feb-16 A	100%	
	Bays 17 and 18b (Stairs up to 2nd Landing)	7d	0d	15-Feb-16 A	20-Feb-16 A		
C3840-TSR-585	Construct staircase (8.0m3)	7d	0d	15-Feb-16 A	20-Feb-16 A	100%	
	Construction of Refuse Bin	7d	0d	03-Mar-16 A	12-Mar-16 A		
C3840-TSR-604	Construct Refuse Bin	7d	0d	03-Mar-16 A	12-Mar-16 A	100%	
	Milestones for Cost Centre D - Temporary Entrance	1584d	0d	26-Jan-14 A	01-Aug-18		151d
C3840-MS-D01	D1 - Comp. removal of all overhead signs affecting Works for the Temp. Entrance	0d	0d		26-Jan-14 A	100%	
C3840-MS-D02	D2-Comp. 20% of cofferdam for T. E. and all U/G UU diversion/protection for T.E. cofferdam	0d	0d		06-Sep-14 A	100%	
C3840-MS-D03	D3 - Comp. temp. cofferdam and grouting (excl. satisf. comp. of pump test)	0d	0d		18-Feb-15 A	100%	
C3840-MS-D04	D4-Comp. 66% const. of temp. stair measured by vol. of conc. poured & comp. form. open. into TST Stn	0d	0d		13-Feb-16 A	100%	
C3840-MS-D05	D5-Open Temporary Entrance for use	0d	0d		06-Jul-16 A	100%	
C3840-MS-D06	D6-Comp. demolition of Temp. Entrance and disposal of all C&D waste arising there from	0d	0d		01-Aug-18	0%	151d
	Open Cut Sequence 3 (Advance Ground Works at D2 & in front of D1)	178d	0d	17-Nov-15 A	17-Sep-16 A		
C3840-ELS-400	Expose underground UUs and provide support to UUs; at grid 1-4	132d	0d	17-Nov-15 A	30-Apr-16 A	100%	
C3840-ELS-410	Expose existing sewer & strom drainage/trim concrete surround for PCCW cable ducts & 1st lift of PCCW cable ducts	36d	0d	03-May-16 A	16-Jun-16 A	100%	
C3840-ELS-420	Re-arrange existing sewer & strom drainage/ 2nd lift of PCCW cable ducts & provide support to cable ducts	50d	0d	17-Jun-16 A	09-Sep-16 A	100%	
C3840-ELS-430	Partial demolition of existing subway slab and coring through for two nos. king posts	12d	0d	28-Jul-16 A	18-Aug-16 A	100%	
C3840-ELS-450	Partial demolition of existing subway slab and coring through existing subway for piling PP175 to PP179	12d	0d	12-Sep-16 A	17-Sep-16 A	100%	
C3840-ELS-510	Joint Survey & Remove existing BS & ABWF Services at D2	6d	0d	07-Jul-16 A	16-Jul-16 A	100%	
C3840-ELS-520	Erect FRP hoarding and flood gate/scaffolding platform for demolish D2	9d	0d	12-Jul-16 A	26-Jul-16 A	100%	
C3840-ELS-530	Demolish D2 above GL	12d	0d	14-Jul-16 A	09-Aug-16 A	100%	
C3840-ELS-540	Erect piling platform and shift hoarding	6d	0d	10-Aug-16 A	20-Aug-16 A	100%	
	Open Cut Sequence 4 (Excavation for Subway in front of D1)	249d	0d	31-Jul-16 A	09-Aug-17 A		
C3840-ELSD1-102	Install support beam, load transfer & remove concrete support at grid 2	8d	0d	31-Jul-16 A	14-Sep-16 A	100%	
C3840-ELSD1-115	Complete excavation up to +1.0mPD including vertical blinding/install L2 & struts	74d	0d	03-Oct-16 A	11-Jan-17 A	100%	
C3840-ELSD1-145	Remove existing subway 7.5m below G.L. and excavate to L3 (-2.0mPD) with unforeseen infill	29d	0d	28-Dec-16 A	04-Mar-17 A	100%	
C3840-ELSD1-155	Vertical blinding up to L3	8d	0d	09-Jan-17 A	27-Feb-17 A	100%	
C3840-ELSD1-165	Install waling and strut for L3	6d	0d	25-Jan-17 A	17-Mar-17 A	100%	
C3840-ELSD1-175	Remove existing subway 10.6m below G.L. and excavate to L4 (-5.3mPD) with unforeseen infill	29d	0d	14-Feb-17 A	31-Mar-17 A	100%	



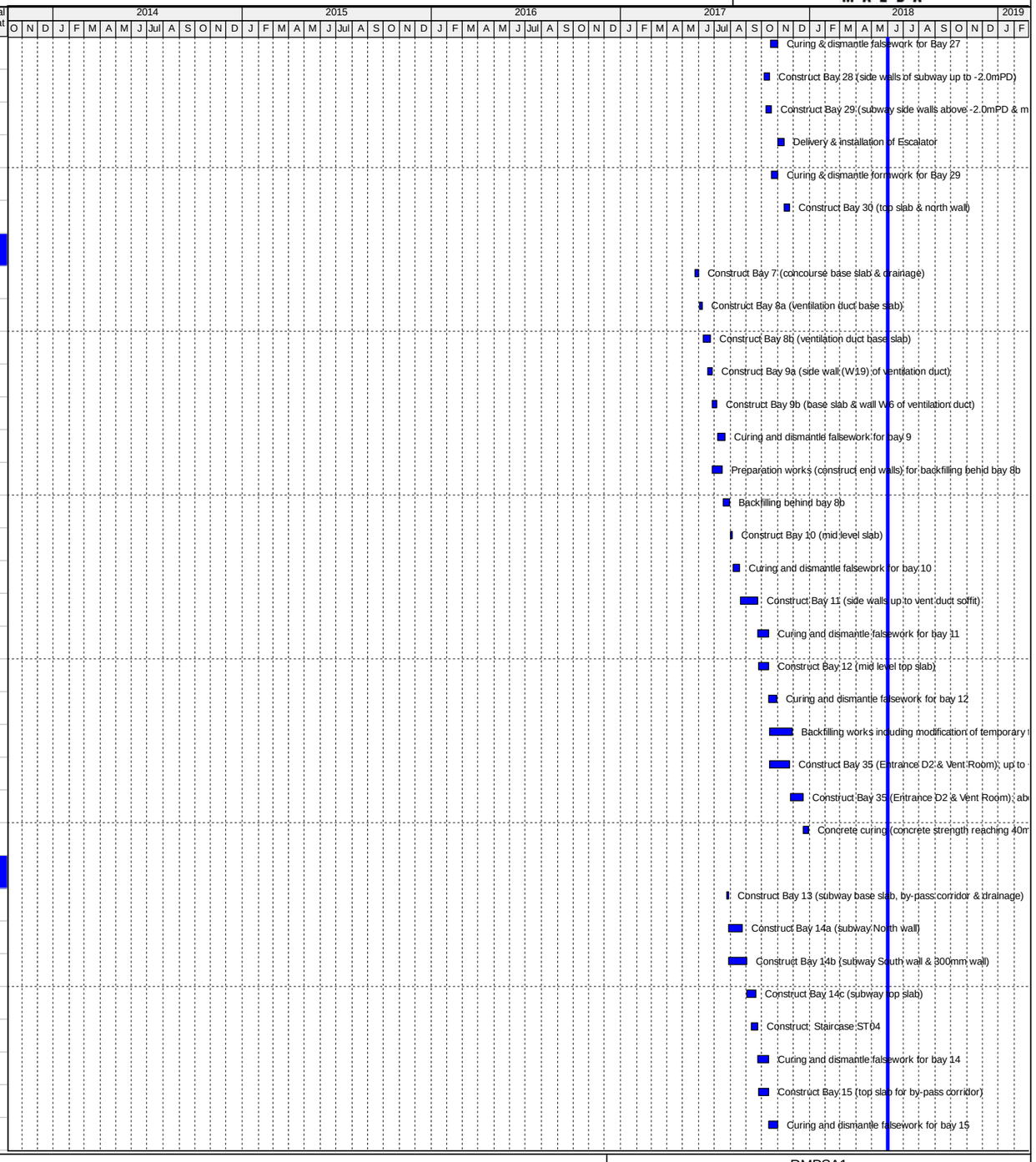
Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-ELSD1-177	Breaking existing bottom slab to -6.0mPD at grid 1-2	1d	0d	20-Mar-17 A	13-Apr-17 A	100%	
C3840-ELSD1-179	Mass concrete infill, install waling/strut L4 & vertical blinding at grid 1-2	1d	0d	18-Apr-17 A	28-Apr-17 A	100%	
C3840-ELSD1-185	Vertical blinding up to L4 at grid 2-4	8d	0d	29-Apr-17 A	10-May-17 A	100%	
C3840-ELSD1-195	Install waling and strut for L4 at grid 2-3.5	6d	0d	23-Mar-17 A	22-Apr-17 A	100%	
C3840-ELSD1-205	Excavate up to L5, from -5.3 to -7.0mPD at grid 2-3.5	27d	0d	10-Apr-17 A	17-May-17 A	100%	
C3840-ELSD1-225	Install waling and strut for L5	6d	0d	15-May-17 A	25-May-17 A	100%	
C3840-ELSD1-235	Excavation to formation level including for sump pit	48d	0d	18-May-17 A	02-Aug-17 A	100%	
C3840-ELSD1-245	Vertical blinding from L4 to bottom	8d	0d	26-Jun-17 A	09-Aug-17 A	100%	
C3840-ELSD1-255	Install waling and strut for L6	6d	0d	13-Jun-17 A	30-Jun-17 A	100%	
C3840-ELSD1-330	Make formation and Blinding	4d	0d	26-Jun-17 A	05-Aug-17 A	100%	
Open Cut Sequence 4 (Excavation for D2 & Subway in front of D2)		201d	0d	26-Sep-16 A	18-May-17 A		
C3840-ELSD2-100	Pump test at C&C Cofferdam	24d	0d	26-Sep-16 A	11-Oct-16 A	100%	
C3840-ELSD2-115	Demolish D2 below GL with unforeseen infill & modification to traffic steel deck with L1 installation	40d	0d	04-Oct-16 A	25-Nov-16 A	100%	
C3840-ELSD2-122	Temporary supports for relocated UUs at grid 4-5	15d	0d	05-Oct-16 A	09-Nov-16 A	100%	
C3840-ELSD2-145	Excavate up to L2, from +4.0 to +1.0mPD	13d	0d	29-Oct-16 A	28-Nov-16 A	100%	
C3840-ELSD2-155	Vertical blinding up to L2	8d	0d	01-Dec-16 A	15-Dec-16 A	100%	
C3840-ELSD2-165	Install waling and strut for L2	6d	0d	22-Nov-16 A	07-Dec-16 A	100%	
C3840-ELSD2-175	Excavate up to L3, from +1.0 to -2.0mPD (23m3 rock + 485m3 soil)	28d	0d	13-Dec-16 A	10-Feb-17 A	100%	
C3840-ELSD2-185	Vertical blinding up to L3	8d	0d	22-Dec-16 A	04-Jan-17 A	100%	
C3840-ELSD2-195	Install waling and strut for L3	6d	0d	19-Dec-16 A	10-Feb-17 A	100%	
C3840-ELSD2-205	Excavate up to L4, inspection for formation by MTRC (RGE) at grid 4.0-5.5	40d	0d	11-Feb-17 A	27-Mar-17 A	100%	
C3840-ELSD2-207	EI/005, replacement of CDG with mass concrete infill at grid 4.0-5.5	4d	0d	28-Mar-17 A	31-Mar-17 A	100%	
C3840-ELSD2-215	Vertical blinding up to L4 at grid 4.0-5.5	10d	0d	03-Apr-17 A	22-Apr-17 A	100%	
C3840-ELSD2-225	Install waling for L4 at grid 3.5-4.0	6d	0d	23-Mar-17 A	22-Apr-17 A	100%	
C3840-ELSD2-235	Excavate up to formation & inspection by MTRC (RGE) at grid 3.5-4.0	12d	0d	29-Mar-17 A	13-Apr-17 A	100%	
C3840-ELSD2-237	EI/005, replacement of CDG with mass concrete infill at grid 3.5-4.0	5d	0d	06-Apr-17 A	18-Apr-17 A	100%	
C3840-ELSD2-240	Vertical blinding up to formation at grid 3.5-4.0	8d	0d	11-May-17 A	18-May-17 A	100%	
Open Cut Sequence 5 (Construction of Subway & D2)		366d	12d	21-Mar-17 A	14-Jun-18		163d
RC Structure at D1 Side (Between Grids 1 and 1.8)		162d	0d	21-Mar-17 A	26-Sep-17 A		
C3840-STR-D1-001	Coring and preparation works for TST Station wall	16d	0d	21-Mar-17 A	11-Apr-17 A	100%	
C3840-STR-D1-100	Construct Bay 1 (collar base)	22d	0d	12-Apr-17 A	22-May-17 A	100%	
C3840-STR-D1-110	Construct Bay 2 (collar beam and C1 column)	9d	0d	31-May-17 A	09-Jun-17 A	100%	
C3840-STR-D1-112	Dismantle falsework & formwork including curing for bay 2	8d	0d	10-Jun-17 A	17-Jun-17 A	100%	
C3840-STR-D1-120	Construct Bay 3 (base slab for escalator pit)	13d	0d	10-May-17 A	22-May-17 A	100%	



Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-STR-D1-130	Construct Bay 4 (concourse base slab)	12d	0d	23-May-17 A	29-May-17 A	100%	
C3840-STR-D1-132	Construct Bay 5a (TER room North Wall)	10d	0d	12-Jun-17 A	23-Jun-17 A	100%	
C3840-STR-D1-132b	Construct Bay 5b (TER room bottom slab)	10d	0d	24-Jun-17 A	13-Jul-17 A	100%	
C3840-STR-D1-133	Dismantle falsework for bay 5	2d	0d	25-Sep-17 A	26-Sep-17 A	100%	
C3840-STR-D1-134	Construct Bay 6a (TER room North & West Wall)	12d	0d	14-Jul-17 A	11-Aug-17 A	100%	
C3840-STR-D1-135	Construct Bay 6b (TER room top slab)	17d	0d	12-Aug-17 A	31-Aug-17 A	100%	
C3840-STR-D1-136	Dismantle falsework including curing time for bay 6	16d	0d	01-Sep-17 A	25-Sep-17 A	100%	
Additional Remedial Works for Permanent Structures		30d	4d	09-Jan-18 A	05-Jun-18		171d
C3840-RMD-100	Issue Instruction (email) by MTRC for Additional Remedial Works for Permanent Structures	0d	0d		09-Jan-18 A	100%	
C3840-RMD-110	Construct RC Cross Beam underneath ST-01	30d	0d	10-Jan-18 A	12-Feb-18 A	100%	
C3840-RMD-120	Construct RC Collar Beam above +3.6mPD	30d	4d	10-Jan-18 A	05-Jun-18	63.3%	171d
C3840-RMD-130	Construct Steel Beam for Plant Room	30d	0d	10-Jan-18 A	12-Feb-18 A	100%	
Reinstament Works in Front of Entrance D2		84d	12d	15-Mar-18 A	14-Jun-18		12d
C3840-STR-300	Backfilling up to +2.70mPD	76d	0d	15-Mar-18 A	24-Mar-18 A	100%	
C3840-STR-302	Reinstament of gasmain by HKG	8d	0d	26-Mar-18 A	10-Apr-18 A	100%	
C3840-STR-304	Backfilling & modification of traffic deck	12d	0d	11-Apr-18 A	30-Apr-18 A	100%	
C3840-STR-306	Reinstatement of DSD sewer and storm pipe & U/U reinstatement	12d	0d	02-May-18 A	16-May-18 A	100%	
C3840-STR-308	Reinstatement of road kerbs and paving block	24d	12d	17-May-18 A	14-Jun-18	50%	12d
RC Structure at D1 Side (Between Grids 1.8 and 3.3)		209d	0d	22-Jul-17 A	07-Mar-18 A		
C3840-STR-290	Concrete curing (concrete strength reach 40mPa) & removal of falsework/fwk for bay 30	9d	0d	25-Nov-17 A	27-Dec-17 A	100%	
C3840-STR-310	Remove underpinning (load transfer) at Plant Room	25d	0d	13-Feb-18 A	07-Mar-18 A	100%	
C3840-STR-D1-140	Construct Bay 21 (base slab of plant room except for pump pit)	7d	0d	07-Aug-17 A	22-Aug-17 A	100%	
C3840-STR-D1-150	Construct Bay 22a (side walls of plant room)	21d	0d	23-Aug-17 A	18-Sep-17 A	100%	
C3840-STR-D1-155	Construct Bay 22b (base slab of subway)	10d	0d	28-Aug-17 A	22-Sep-17 A	100%	
C3840-STR-D1-170	Curing & strike formwork/falsework	14d	0d	23-Sep-17 A	07-Oct-17 A	100%	
C3840-STR-D1-180	Construct staircase ST05 & Air Vent Wall & Slab	13d	0d	23-Sep-17 A	30-Sep-17 A	100%	
C3840-STR-D1-200	Construct Bay 23A (base slab for sump pit)	3d	0d	22-Jul-17 A	28-Jul-17 A	100%	
C3840-STR-D1-210	Construct Bay 23B (remaining base slab for plant room)	6d	0d	14-Aug-17 A	22-Aug-17 A	100%	
C3840-STR-D1-212	Construct Bay 24 (side walls of plant room up to L5)	10d	0d	04-Sep-17 A	18-Sep-17 A	100%	
C3840-STR-D1-214	Construct Bay 25 (side walls of plant room & subway base slab)	9d	0d	04-Sep-17 A	18-Sep-17 A	100%	
C3840-STR-D1-215	Curing & dismantle falsework for Bay 25	14d	0d	19-Sep-17 A	07-Oct-17 A	100%	
C3840-STR-D1-216	Construct Bay 26 (side walls of subway up to escalator pit base slab)	9d	0d	19-Sep-17 A	10-Oct-17 A	100%	
C3840-STR-D1-217	Curing & dismantle falsework for Bay 26	14d	0d	11-Oct-17 A	28-Oct-17 A	100%	
C3840-STR-D1-222	Construct Bay 27 (side walls of subway and mid level slab @0.18mPD)	9d	0d	05-Oct-17 A	16-Oct-17 A	100%	



Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-STR-D1-223	Curing & dismantle falsework for Bay 27	14d	0d	17-Oct-17 A	31-Oct-17 A	100%	
C3840-STR-D1-230	Construct Bay 28 (side walls of subway up to -2.0mPD)	8d	0d	05-Oct-17 A	16-Oct-17 A	100%	
C3840-STR-D1-240	Construct Bay 29 (subway side walls above -2.0mPD & mid level lab)	4d	0d	09-Oct-17 A	19-Oct-17 A	100%	
C3840-STR-D1-242	Delivery & installation of Escalator	11d	0d	01-Nov-17 A	13-Nov-17 A	100%	
C3840-STR-D1-245	Curing & dismantle formwork for Bay 29	14d	0d	20-Oct-17 A	31-Oct-17 A	100%	
C3840-STR-D1-255	Construct Bay 30 (top slab & north wall)	10d	0d	14-Nov-17 A	24-Nov-17 A	100%	
RC Structure at D2 Side (Between Grids 3.3 and 4.5)		179d	0d	25-May-17 A	30-Dec-17 A		
C3840-STR-D2-100	Construct Bay 7 (concourse base slab & drainage)	6d	0d	25-May-17 A	01-Jun-17 A	100%	
C3840-STR-D2-110	Construct Bay 8a (ventilation duct base slab)	10d	0d	02-Jun-17 A	08-Jun-17 A	100%	
C3840-STR-D2-110b	Construct Bay 8b (ventilation duct base slab)	10d	0d	09-Jun-17 A	23-Jun-17 A	100%	
C3840-STR-D2-120	Construct Bay 9a (side wall (W19) of ventilation duct)	10d	0d	19-Jun-17 A	27-Jun-17 A	100%	
C3840-STR-D2-120b	Construct Bay 9b (base slab & wall W6 of ventilation duct)	10d	0d	28-Jun-17 A	05-Jul-17 A	100%	
C3840-STR-D2-122	Curing and dismantle falsework for bay 9	14d	0d	07-Jul-17 A	22-Jul-17 A	100%	
C3840-STR-D2-125	Preparation works (construct end walls) for backfilling behid bay 8b	1d	0d	27-Jun-17 A	17-Jul-17 A	100%	
C3840-STR-D2-126	Backfilling behind bay 8b	11d	0d	18-Jul-17 A	31-Jul-17 A	100%	
C3840-STR-D2-130	Construct Bay 10 (mid level slab)	5d	0d	01-Aug-17 A	05-Aug-17 A	100%	
C3840-STR-D2-132	Curing and dismantle falsework for bay 10	16d	0d	06-Aug-17 A	19-Aug-17 A	100%	
C3840-STR-D2-140	Construct Bay 11 (side walls up to vent duct soffit)	20d	0d	21-Aug-17 A	22-Sep-17 A	100%	
C3840-STR-D2-142	Curing and dismantle falsework for bay 11	16d	0d	23-Sep-17 A	13-Oct-17 A	100%	
C3840-STR-D2-150	Construct Bay 12 (mid level top slab)	16d	0d	25-Sep-17 A	13-Oct-17 A	100%	
C3840-STR-D2-152	Curing and dismantle falsework for bay 12	15d	0d	14-Oct-17 A	30-Oct-17 A	100%	
C3840-STR-D2-160	Backfilling works including modification of temporary traffic deck	23d	0d	16-Oct-17 A	29-Nov-17 A	100%	
C3840-STR-D2-165	Construct Bay 35 (Entrance D2 & Vent Room); up to +4.3mPD	12d	0d	16-Oct-17 A	24-Nov-17 A	100%	
C3840-STR-D2-170	Construct Bay 35 (Entrance D2 & Vent Room); above +4.3mPD	21d	0d	25-Nov-17 A	19-Dec-17 A	100%	
C3840-STR-D2-180	Concrete curing (concrete strength reaching 40mPa) and removal of falsework/fwk	9d	0d	20-Dec-17 A	30-Dec-17 A	100%	
RC Structure at D2 Side (Between Grids 4.5 and 5.9)		95d	0d	25-Jul-17 A	31-Oct-17 A		
C3840-STR-D2-200	Construct Bay 13 (subway base slab, by-pass corridor & drainage)	9d	0d	25-Jul-17 A	28-Jul-17 A	100%	
C3840-STR-D2-210	Construct Bay 14a (subway North wall)	14d	0d	29-Jul-17 A	24-Aug-17 A	100%	
C3840-STR-D2-211	Construct Bay 14b (subway South wall & 300mm wall)	14d	0d	29-Jul-17 A	01-Sep-17 A	100%	
C3840-STR-D2-212	Construct Bay 14c (subway top slab)	13d	0d	02-Sep-17 A	20-Sep-17 A	100%	
C3840-STR-D2-213	Construct Staircase ST04	7d	0d	11-Sep-17 A	22-Sep-17 A	100%	
C3840-STR-D2-215	Curing and dismantle falsework for bay 14	17d	0d	23-Sep-17 A	14-Oct-17 A	100%	
C3840-STR-D2-220	Construct Bay 15 (top slab for by-pass corridor)	16d	0d	25-Sep-17 A	13-Oct-17 A	100%	
C3840-STR-D2-222	Curing and dismantle falsework for bay 15	15d	0d	14-Oct-17 A	31-Oct-17 A	100%	



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Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
Open Cut Sequence 6		25d	25d	01-Jun-18	30-Jun-18		0d
C3840-D1-100	Erect hoarding	12d	12d	01-Jun-18	14-Jun-18	0%	12d
C3840-D1-110	Open New D2 & D3	1d	1d	30-Jun-18	30-Jun-18	0%	0d
Open Cut Sequence 7 (D1)		121d	121d	02-Jun-18	26-Oct-18		0d
C3840-D1-120	Erect platform	6d	6d	03-Jul-18	09-Jul-18	0%	0d
C3840-D1-130	Demolish (Saw cut) Temporary Staircase	20d	20d	10-Jul-18	01-Aug-18	0%	0d
C3840-D1-150	Construct RC Structure at D1 Entrance	20d	20d	02-Aug-18	24-Aug-18	0%	0d
C3840-D1-160	Concrete curing and removal of falsework/fwk	6d	6d	25-Aug-18	31-Aug-18	0%	0d
C3840-D1-170	Install Structural steel	12d	12d	01-Sep-18	14-Sep-18	0%	0d
C3840-D1-190	Backfilling, removal of temporary decking & reinstate UUs	100d	100d	02-Jun-18	29-Sep-18	0%	0d
C3840-D1-200	Cut head of Pipe Pile 2m	100d	100d	07-Jun-18	05-Oct-18	0%	0d
C3840-D1-210	Reinstate Carnarvon Road	12d	12d	06-Oct-18	20-Oct-18	0%	0d
C3840-D1-220	Reinstate traffic sign and shop sign	3d	3d	22-Oct-18	24-Oct-18	0%	0d
C3840-D1-225	Inspection for acceptance by relevant authorities	1d	1d	25-Oct-18	25-Oct-18	0%	0d
C3840-D1-230	Open New Entracne D1	1d	1d	26-Oct-18	26-Oct-18	0%	0d
Excavation for Shaft and Tunnel		814d	0d	13-Oct-14 A	07-Aug-17 A		
Additional G.I. (ABH1)		203d	0d	26-Nov-14 A	02-Jun-15 A		
C3840-ABH1-10	Submission for BD consent	0d	0d	26-Nov-14 A		100%	
C3840-ABH1-20	Obtain consent from BD	65d	0d	27-Nov-14 A	31-Jan-15 A	100%	
C3840-ABH1-30	Site preparation, mobilization, set up and drilling hole for ABH1	6d	0d	02-Feb-15 A	06-Feb-15 A	100%	
C3840-ABH1-40	Prepare & submit assessment report to for ABH1 to MTRC for submission to BD	9d	0d	07-Feb-15 A	17-Feb-15 A	100%	
C3840-ABH1-50	BD review assessment report for ABH1 & issue consent for horizontal piling	62d	0d	18-Feb-15 A	02-Jun-15 A	100%	
Shaft Excavation, Tunnel Grouting and HPP Works		569d	0d	13-Oct-14 A	12-Sep-16 A		
C3840-SH-100	Pump Test	13d	0d	13-Oct-14 A	27-Oct-14 A	100%	
C3840-SH-110	Expose utilities, excavatefrom +5.5 to +0.2mPD (496.8m3), install 1st waling and traffic decking	17d	0d	28-Oct-14 A	15-Nov-14 A	100%	
C3840-SH-120	Utilities protection and temporary diversion and install lagging wall	18d	0d	17-Nov-14 A	06-Dec-14 A	100%	
C3840-SH-130	Install steel plate lagging and 2nd layer waling & strut	13d	0d	08-Dec-14 A	27-Dec-14 A	100%	
C3840-SH-140	Forming platform for tunnel works	15d	0d	29-Dec-14 A	12-Jan-15 A	100%	
C3840-SH-150	Regrouting for curtain grouting & pumping test (re-test)	24d	0d	12-Jan-15 A	07-Feb-15 A	100%	
C3840-SH-160	Mobilization & set up for tunnel grouting works (Simon & Son)	4d	0d	09-Feb-15 A	12-Feb-15 A	100%	
C3840-SH-170	Trial grouting	7d	0d	13-Feb-15 A	24-Feb-15 A	100%	
C3840-SH-180	Horizontal grouting for top section (44 nos. holes)	23d	0d	25-Feb-15 A	23-Mar-15 A	100%	
C3840-SH-190	Excavation of tunnel shaft from 0.2mPD to -0.5mPD (67m3)	2d	0d	07-Mar-15 A	09-Mar-15 A	100%	
C3840-SH-200	Demobilize plants for tunnelling works	2d	0d	24-Mar-15 A	25-Mar-15 A	100%	

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C3840-SH-210	Excavate tunnel shaft from -0.5mPD to -1.7mPD (soil 79m3, rock 34m3)	26d	0d	25-Mar-15 A	28-Apr-15 A	100%	
C3840-SH-220	Install waling/strut/lagging	8d	0d	20-Apr-15 A	28-Apr-15 A	100%	
C3840-SH-230	Mobilize & set up tunnel plants/erect platform at -0.5mPD	3d	0d	29-Apr-15 A	02-May-15 A	100%	
C3840-SH-240	Obtain consent from MTR/BD for test boring	28d	0d	24-Mar-15 A	02-May-15 A	100%	
C3840-SH-250	Test boring for horizontal pipe piling (HPP53 incl. BD inspection)	3d	0d	04-May-15 A	06-May-15 A	100%	
C3840-SH-260	Install HPP16	7d	0d	03-Jun-15 A	10-Jun-15 A	100%	
C3840-SH-270	Extract misaligned HPP53	2d	0d	11-Jun-15 A	12-Jun-15 A	100%	
C3840-SH-280	Make good extracted casing,reinstall HPP53 & check alignment	8d	0d	13-Jun-15 A	23-Jun-15 A	100%	
C3840-SH-290	Preparation work for drilling HPP54, drill HPP54 & drilling aborted due to problem detected with interlocking	6d	0d	24-Jun-15 A	30-Jun-15 A	100%	
C3840-SH-300	Demobilization HPP rig off site & remove platform at -0.5mPD	3d	0d	02-Jul-15 A	04-Jul-15 A	100%	
C3840-SH-310	Mobilization for excavation plant & excavate tunnel shaft from -1.7mPD to -2.8mPD (113.1m3)	39d	0d	06-Jul-15 A	20-Aug-15 A	100%	
C3840-SH-320	Demobilzation of excavation plants and setting up for drilling platform	2d	0d	21-Aug-15 A	22-Aug-15 A	100%	
C3840-SH-330	Mobilization for drilling rig & site set up	2d	0d	24-Aug-15 A	25-Aug-15 A	100%	
C3840-SH-340	Extracction of HPP16	1d	0d	26-Aug-15 A	26-Aug-15 A	100%	
C3840-SH-350	Site preparation for drilling works	4d	0d	27-Aug-15 A	31-Aug-15 A	100%	
C3840-SH-360	Horizontal pipe piling; 3 nos. (HPP16 to HPP18)	7d	0d	31-Aug-15 A	08-Sep-15 A	100%	
C3840-SH-370	Extraction of HPP53 & HPP54	2d	0d	09-Sep-15 A	10-Sep-15 A	100%	
C3840-SH-380	Horizontal pipe piling; 4 nos. (HPP19, HPP53 to HPP55)	8d	0d	11-Sep-15 A	19-Sep-15 A	100%	
C3840-SH-390	Demobilization for drilling rig & setting up for horizontal grouting	3d	0d	21-Sep-15 A	23-Sep-15 A	100%	
C3840-SH-400	Drilling and horizontal grouting (19 nos.)	17d	0d	24-Sep-15 A	15-Oct-15 A	100%	
C3840-SH-410	Demobilize grouting plants, remove rock fill, & mobilize & set up for rock excavation	17d	0d	16-Oct-15 A	23-Oct-15 A	100%	
C3840-SH-420	Installation of waling L2A, installation of steel plate and prepartion works for removal of vertical pipe piles	8d	0d	24-Oct-15 A	28-Oct-15 A	100%	
C3840-SH-430	Removal of vertical pipe pile PP84 ~ PP89a (7 numbers) & grouting for the gaps	9d	0d	29-Oct-15 A	07-Nov-15 A	100%	
C3840-SH-440	Removal of temporary platform	1d	0d	09-Nov-15 A	09-Nov-15 A	100%	
C3840-SH-450	Shaft excavation;-2.8mPD ~ -3.5mPD (65.6m³)	31d	0d	24-Oct-15 A	28-Nov-15 A	100%	
C3840-SH-460	Shaft excavation;-3.5mPD ~ -4.8mPD (122m³)	46d	0d	30-Nov-15 A	25-Jan-16 A	100%	
C3840-SH-470	Installation of additional waling L3A	2d	0d	23-Jan-16 A	27-Jan-16 A	100%	
C3840-SH-490	Shaft excavation;-4.8mPD ~ -6.0mPD (115m³)	36d	0d	18-Jul-16 A	11-Aug-16 A	100%	
C3840-SH-500	Reinstall drilling platform	2d	0d	28-Jan-16 A	28-Jan-16 A	100%	
C3840-SH-510	Mobilization & setup for drilling rig	4d	0d	29-Jan-16 A	02-Feb-16 A	100%	
C3840-SH-520	Installation of HPP roof (31 nos.)	30d	0d	03-Feb-16 A	22-Mar-16 A	100%	
C3840-SH-530	Modification of working platform for drilling rig	1d	0d	23-Mar-16 A	24-Mar-16 A	100%	
C3840-SH-540	Dismantling of waling L2B	1d	0d	29-Mar-16 A	30-Mar-16 A	100%	
C3840-SH-550	Installation of HPP wall (10 nos.)	10d	0d	30-Mar-16 A	18-Apr-16 A	100%	

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Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-SH-560	Modification of drilling platform	2d	0d	19-Apr-16 A	21-Apr-16 A	100%	
C3840-SH-570	Installation of HPP wall (3 numbers)	8d	0d	18-Apr-16 A	25-Apr-16 A	100%	
C3840-SH-572	Drilling for HPP64 & HPP25, cease drilling due to obstruction & extract HPP64	8d	0d	26-Apr-16 A	04-May-16 A	100%	
C3840-SH-620	Demobilize HPP rig, dismantle drilling platform, mobilization & setup for Horizontal Grouting works	2d	0d	05-May-16 A	16-May-16 A	100%	
C3840-SH-630	Drilling for horizontal grout hoels (13 nos.)	5d	0d	16-May-16 A	26-May-16 A	100%	
C3840-SH-632	Grouting for horizontal grout holes (13 nos.)	4d	0d	25-May-16 A	14-Jul-16 A	100%	
C3840-SH-640	Modification of drilling rig for HPP works & mobilization and set up HPP works	1d	0d	27-May-16 A	30-May-16 A	100%	
C3840-SH-642	Extract HPP25	2d	0d	30-May-16 A	31-May-16 A	100%	
C3840-SH-644	Drilling for HPP wall (5 nos.) including extraction of casing for HPP64	5d	0d	01-Jun-16 A	10-Jun-16 A	100%	
C3840-SH-646	Demolize drilling rig	3d	0d	13-Jun-16 A	13-Jun-16 A	100%	
C3840-SH-648	Modification of waling L3 & L3A/setting up drilling rig platform/mobilize & set up drilling rig	2d	0d	14-Jun-16 A	16-Jun-16 A	100%	
C3840-SH-650	Drilling for HPP wall (8 nos.)	23d	0d	17-Jun-16 A	14-Jul-16 A	100%	
C3840-SH-660	Demobilize drilling rig/Dismantle drilling platform	2d	0d	15-Jul-16 A	16-Jul-16 A	100%	
C3840-SH-665	Removal of vertical pipe piles PP89b	2d	0d	12-Aug-16 A	13-Aug-16 A	100%	
C3840-SH-668	Assembly of drilling platform for HPP rig	2d	0d	12-Aug-16 A	13-Aug-16 A	100%	
C3840-SH-670	Drilling and horizontal grouting (13 nos.)	18d	0d	13-Aug-16 A	24-Aug-16 A	100%	
C3840-SH-680	Modification of drilling rig	2d	0d	24-Aug-16 A	25-Aug-16 A	100%	
C3840-SH-690	Drilling for HPP wall (8 nos.)	8d	0d	25-Aug-16 A	10-Sep-16 A	100%	
C3840-SH-740	Modification of drilling rig	2d	0d	10-Sep-16 A	12-Sep-16 A	100%	
Re-fabrication and Delivery of Remaining Interlocking HPP Casing		87d	0d	07-Sep-15 A	12-Jan-16 A		
C3840-CF-100	Fabrication for remaining casing (Roof); 1st batch	20d	0d	07-Sep-15 A	30-Sep-15 A	100%	
C3840-CF-102	Delivery of casing (Roof); 1st batch	7d	0d	02-Oct-15 A	15-Oct-15 A	100%	
C3840-CF-104	Fabrication for remaining casing (Roof); 2nd batch	20d	0d	05-Oct-15 A	31-Oct-15 A	100%	
C3840-CF-106	Delivery of casing (roof); 2nd batch	7d	0d	02-Nov-15 A	09-Nov-15 A	100%	
C3840-CF-108	Fabrication for remaining casing; 3rd batch	20d	0d	21-Nov-15 A	17-Dec-15 A	100%	
C3840-CF-110	Delivery of casing (Wall); 3rd batch	7d	0d	18-Dec-15 A	24-Dec-15 A	100%	
C3840-CF-112	Fabrication for remaining casing (wall); 4th batch	12d	0d	18-Dec-15 A	02-Jan-16 A	100%	
C3840-CF-114	Delivery of casing (Wall); 4th batch	7d	0d	04-Jan-16 A	12-Jan-16 A	100%	
BD Submissions Prior to Tunnel Excavation		403d	0d	23-Nov-15 A	20-Jan-17 A		
C3840-BD-100	Submit piling record for phase 1 HPP	14d	0d	02-Jul-16 A	14-Jul-16 A	100%	
C3840-BD-102	Submit grouting record for pahse 1 grouting work	5d	0d	23-Nov-15 A	28-Nov-15 A	100%	
C3840-BD-106	BA8 for phase 1 tunnel excavation	28d	0d	18-Jul-16 A	27-Sep-16 A	100%	
C3840-BD-108	BA10 for pahse 1 tunnel excavation	7d	0d	19-Sep-16 A	27-Sep-16 A	100%	
C3840-BD-109	Obtain consent from BD for commencing phase 1 tunnel excavation	0d	0d		28-Sep-16 A	100%	

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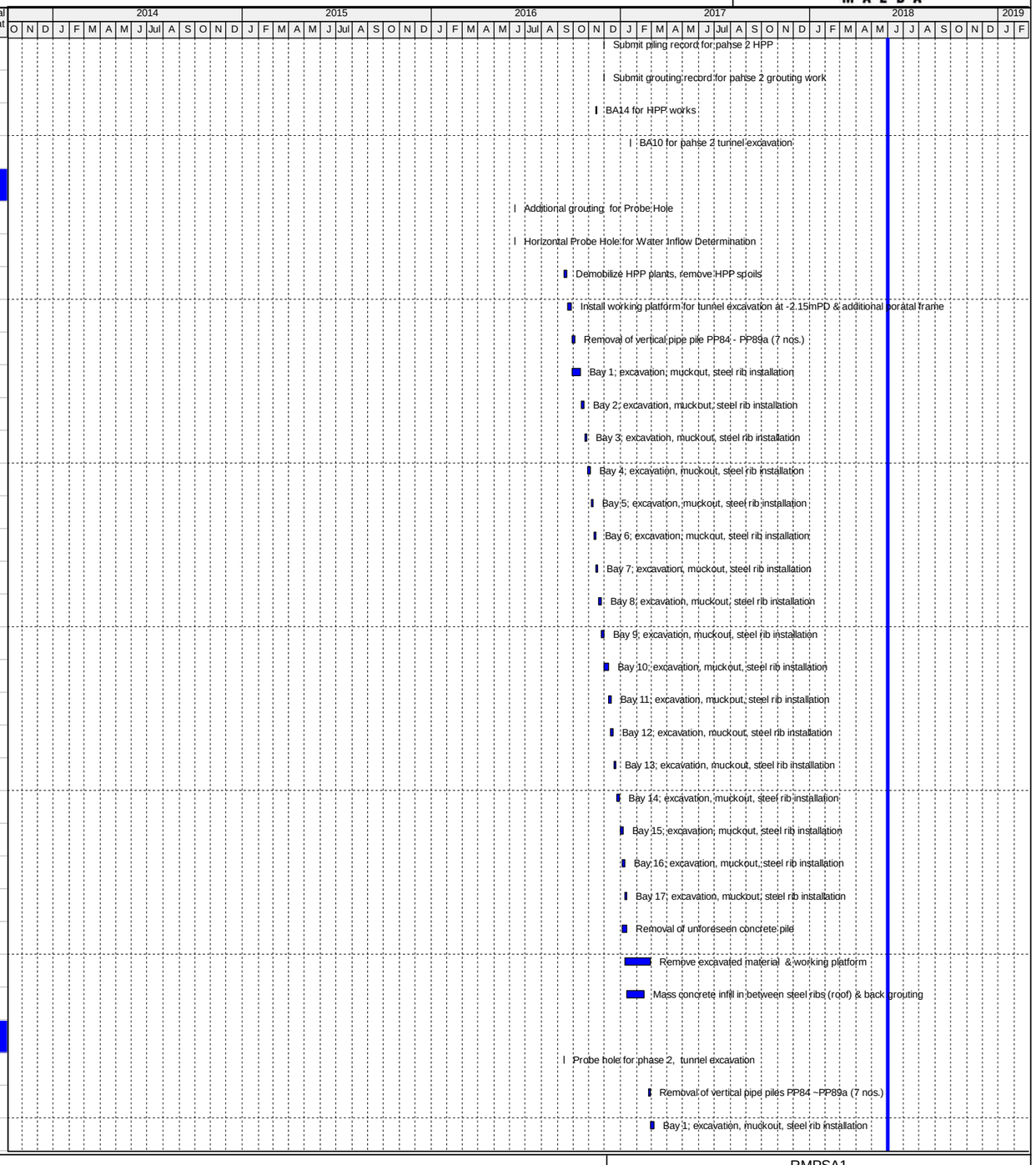
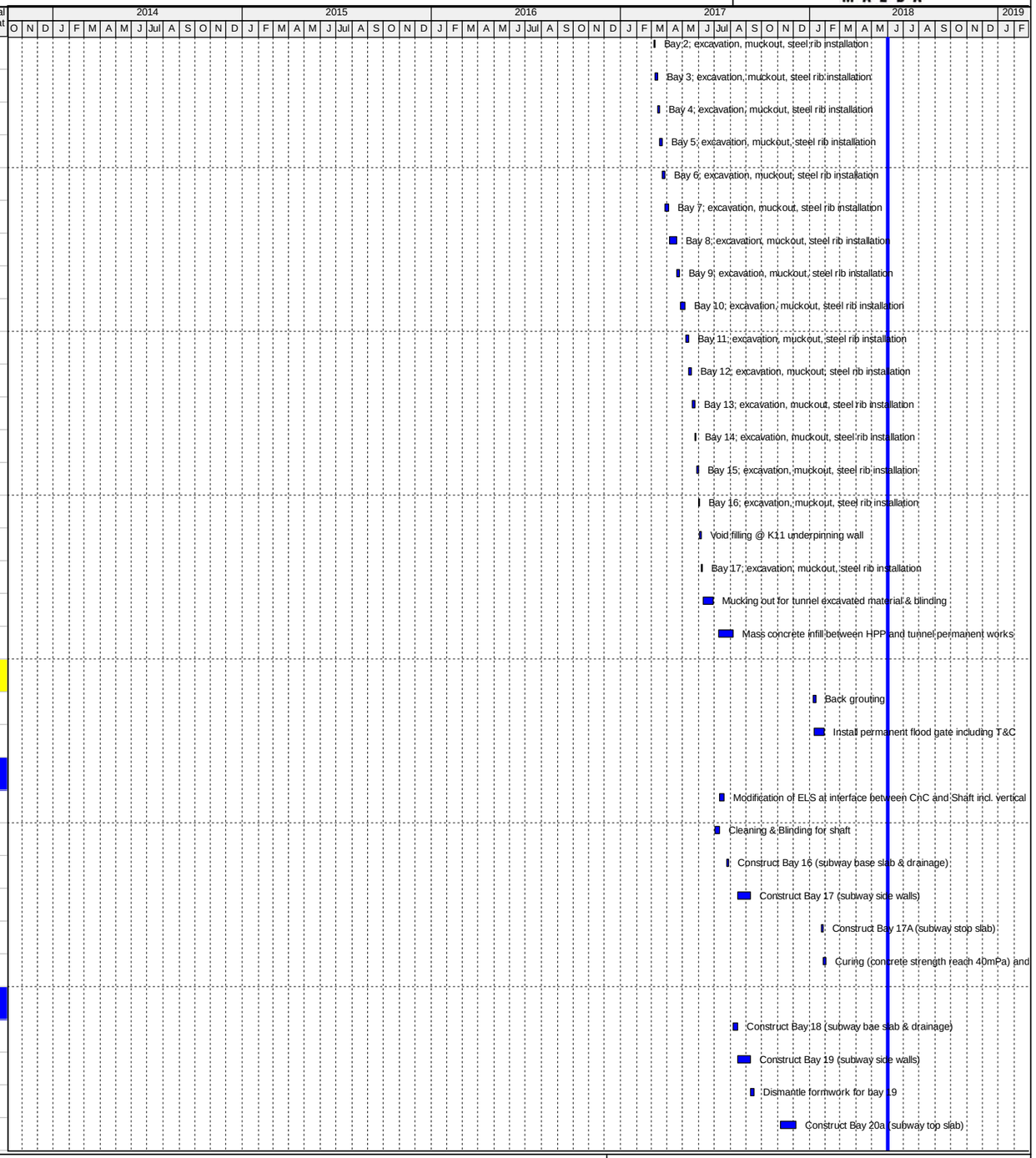
C3840-BD-110	Submit piling record for pahse 2 HPP	3d	0d	30-Nov-16 A	30-Nov-16 A	100%	
C3840-BD-112	Submit grouting record for pahse 2 grouting work	5d	0d	30-Nov-16 A	30-Nov-16 A	100%	
C3840-BD-114	BA14 for HPP works	1d	0d	15-Nov-16 A	15-Nov-16 A	100%	
C3840-BD-118	BA10 for pahse 2 tunnel excavation	7d	0d	20-Jan-17 A	20-Jan-17 A	100%	
Stage 1, Tunnel Excavation		205d	0d	11-Jun-16 A	28-Feb-17 A		
C3840-SE-640	Additional grouting for Probe Hole	3d	0d	11-Jun-16 A	11-Jun-16 A	100%	
C3840-SE-650	Horizontal Probe Hole for Water Inflow Determination	1d	0d	11-Jun-16 A	11-Jun-16 A	100%	
C3840-SE-651	Demobilize HPP plants, remove HPP spoils	1d	0d	14-Sep-16 A	19-Sep-16 A	100%	
C3840-SE-652	Install working platform for tunnel excavation at -2.15mPD & additional poratal frame	4d	0d	20-Sep-16 A	28-Sep-16 A	100%	
C3840-SE-660	Removal of vertical pipe pile PP84 - PP89a (7 nos.)	9d	0d	29-Sep-16 A	05-Oct-16 A	100%	
C3840-TE1-100	Bay 1; excavation, muckout, steel rib installation	9d	0d	29-Sep-16 A	15-Oct-16 A	100%	
C3840-TE1-102	Bay 2; excavation, muckout, steel rib installation	4d	0d	17-Oct-16 A	22-Oct-16 A	100%	
C3840-TE1-104	Bay 3; excavation, muckout, steel rib installation	4d	0d	24-Oct-16 A	28-Oct-16 A	100%	
C3840-TE1-106	Bay 4; excavation, muckout, steel rib installation	5d	0d	29-Oct-16 A	04-Nov-16 A	100%	
C3840-TE1-108	Bay 5; excavation, muckout, steel rib installation	5d	0d	05-Nov-16 A	09-Nov-16 A	100%	
C3840-TE1-110	Bay 6; excavation, muckout, steel rib installation	5d	0d	10-Nov-16 A	14-Nov-16 A	100%	
C3840-TE1-112	Bay 7; excavation, muckout, steel rib installation	5d	0d	15-Nov-16 A	18-Nov-16 A	100%	
C3840-TE1-114	Bay 8; excavation, muckout, steel rib installation	6d	0d	19-Nov-16 A	24-Nov-16 A	100%	
C3840-TE1-116	Bay 9; excavation, muckout, steel rib installation	6d	0d	25-Nov-16 A	30-Nov-16 A	100%	
C3840-TE1-118	Bay 10; excavation, muckout, steel rib installation	6d	0d	01-Dec-16 A	08-Dec-16 A	100%	
C3840-TE1-120	Bay 11; excavation, muckout, steel rib installation	6d	0d	09-Dec-16 A	13-Dec-16 A	100%	
C3840-TE1-122	Bay 12; excavation, muckout, steel rib installation	6d	0d	12-Dec-16 A	17-Dec-16 A	100%	
C3840-TE1-124	Bay 13; excavation, muckout, steel rib installation	6d	0d	19-Dec-16 A	23-Dec-16 A	100%	
C3840-TE1-126	Bay 14; excavation, muckout, steel rib installation	6d	0d	24-Dec-16 A	30-Dec-16 A	100%	
C3840-TE1-128	Bay 15; excavation, muckout, steel rib installation	4d	0d	31-Dec-16 A	05-Jan-17 A	100%	
C3840-TE1-130	Bay 16; excavation, muckout, steel rib installation	4d	0d	05-Jan-17 A	09-Jan-17 A	100%	
C3840-TE1-132	Bay 17; excavation, muckout, steel rib installation	4d	0d	09-Jan-17 A	12-Jan-17 A	100%	
C3840-TE1-133	Removal of unforeseen concrete pile	1d	0d	04-Jan-17 A	12-Jan-17 A	100%	
C3840-TE1-134	Remove excavated material & working platform	10d	0d	09-Jan-17 A	28-Feb-17 A	100%	
C3840-TE1-136	Mass concrete infill in between steel ribs (roof) & back grouting	10d	0d	13-Jan-17 A	15-Feb-17 A	100%	
Stage 2, Tunnel Excavation		245d	0d	13-Sep-16 A	07-Aug-17 A		
C3840-SE-800	Probe hole for phase 2, tunnel excavation	1d	0d	13-Sep-16 A	13-Sep-16 A	100%	
C3840-SE-802	Removal of vertical pipe piles PP84 ~PP89a (7 nos.)	5d	0d	24-Feb-17 A	27-Feb-17 A	100%	
C3840-TE2-100	Bay 1; excavation, muckout, steel rib installation	5d	0d	28-Feb-17 A	07-Mar-17 A	100%	



Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-TE2-110	Bay 2; excavation, muckout, steel rib installation	5d	0d	06-Mar-17 A	09-Mar-17 A	100%	
C3840-TE2-120	Bay 3; excavation, muckout, steel rib installation	6d	0d	09-Mar-17 A	13-Mar-17 A	100%	
C3840-TE2-130	Bay 4; excavation, muckout, steel rib installation	6d	0d	13-Mar-17 A	17-Mar-17 A	100%	
C3840-TE2-140	Bay 5; excavation, muckout, steel rib installation	6d	0d	17-Mar-17 A	22-Mar-17 A	100%	
C3840-TE2-150	Bay 6; excavation, muckout, steel rib installation	6d	0d	23-Mar-17 A	28-Mar-17 A	100%	
C3840-TE2-160	Bay 7; excavation, muckout, steel rib installation	6d	0d	28-Mar-17 A	03-Apr-17 A	100%	
C3840-TE2-170	Bay 8; excavation, muckout, steel rib installation	5d	0d	05-Apr-17 A	19-Apr-17 A	100%	
C3840-TE2-180	Bay 9; excavation, muckout, steel rib installation	5d	0d	20-Apr-17 A	25-Apr-17 A	100%	
C3840-TE2-190	Bay 10; excavation, muckout, steel rib installation	6d	0d	26-Apr-17 A	06-May-17 A	100%	
C3840-TE2-200	Bay 11; excavation, muckout, steel rib installation	6d	0d	08-May-17 A	12-May-17 A	100%	
C3840-TE2-210	Bay 12; excavation, muckout, steel rib installation	6d	0d	13-May-17 A	18-May-17 A	100%	
C3840-TE2-220	Bay 13; excavation, muckout, steel rib installation	6d	0d	19-May-17 A	24-May-17 A	100%	
C3840-TE2-230	Bay 14; excavation, muckout, steel rib installation	6d	0d	25-May-17 A	27-May-17 A	100%	
C3840-TE2-240	Bay 15; excavation, muckout, steel rib installation	6d	0d	29-May-17 A	31-May-17 A	100%	
C3840-TE2-250	Bay 16; excavation, muckout, steel rib installation	2d	0d	01-Jun-17 A	02-Jun-17 A	100%	
C3840-TE2-251	Void filling @ K11 underpinning wall	1d	0d	02-Jun-17 A	05-Jun-17 A	100%	
C3840-TE2-252	Bay 17; excavation, muckout, steel rib installation	6d	0d	06-Jun-17 A	08-Jun-17 A	100%	
C3840-TE2-254	Mucking out for tunnel excavated material & blinding	4d	0d	09-Jun-17 A	28-Jun-17 A	100%	
C3840-TE2-256	Mass concrete infill between HPP and tunnel permanent works	15d	0d	10-Jul-17 A	07-Aug-17 A	100%	
Tunnel RC Works including Breakthrough to K11 Diaphragm Wall		224d	0d	17-May-17 A	01-Feb-18 A		
C3840-TU-260	Back grouting	6d	0d	08-Jan-18 A	13-Jan-18 A	100%	
C3840-TU-262	Install permanent flood gate including T&C	6d	0d	11-Jan-18 A	29-Jan-18 A	100%	
RC Works Between Grids 5.9 and 6.2		185d	0d	03-Jul-17 A	01-Feb-18 A		
C3840-TU-165	Modification of ELS at interface between CnC and Shaft incl. vertical blinding at shaft	11d	0d	12-Jul-17 A	19-Jul-17 A	100%	
C3840-TU-170	Cleaning & Blinding for shaft	2d	0d	03-Jul-17 A	11-Jul-17 A	100%	
C3840-TU-180	Construct Bay 16 (subway base slab & drainage)	9d	0d	25-Jul-17 A	28-Jul-17 A	100%	
C3840-TU-185	Construct Bay 17 (subway side walls)	21d	0d	16-Aug-17 A	08-Sep-17 A	100%	
C3840-TU-248	Construct Bay 17A (subway stop slab)	6d	0d	24-Jan-18 A	27-Jan-18 A	100%	
C3840-TU-250	Curing (concrete strength reach 40mPa) and remove falsework for bay 17A	5d	0d	28-Jan-18 A	01-Feb-18 A	100%	
RC Works Between Grids 6.2 and 8.5		125d	0d	07-Aug-17 A	28-Dec-17 A		
C3840-TU-282	Construct Bay 18 (subway bae slab & drainage)	9d	0d	07-Aug-17 A	15-Aug-17 A	100%	
C3840-TU-284	Construct Bay 19 (subway side walls)	15d	0d	16-Aug-17 A	08-Sep-17 A	100%	
C3840-TU-285	Dismantle formwork for bay 19	3d	0d	09-Sep-17 A	16-Sep-17 A	100%	
C3840-TU-286	Construct Bay 20a (subway top slab)	26d	0d	06-Nov-17 A	05-Dec-17 A	100%	



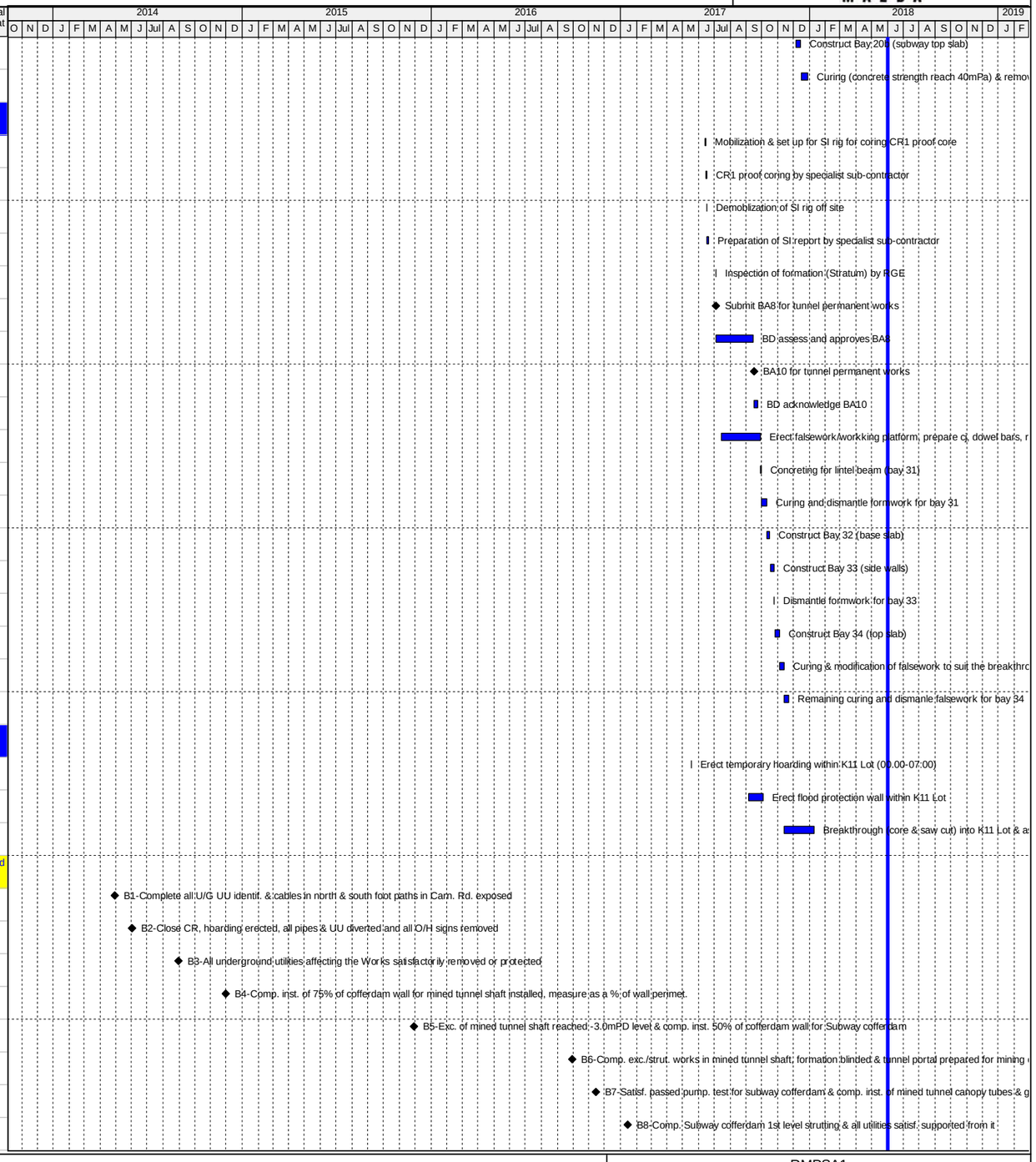
Current Bar
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

Data Date: 01-Jun-18

Master Programme Revision RMPRSA1

RMPSA1			
Date	Revision	Checked	Approved
01-Jun-18		BG	AW

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-TU-287	Construct Bay 20b (subway top slab)	9d	0d	06-Dec-17 A	15-Dec-17 A	100%	
C3840-TU-288	Curing (concrete strength reach 40mPa) & remove falsework for bay 20	9d	0d	16-Dec-17 A	28-Dec-17 A	100%	
RC Works Between Grids 8.5 and 9 (BD Full Approval Zone)		133d	0d	14-Jun-17 A	21-Nov-17 A		
C3840-TU-290	Mobilization & set up for SI rig for coring CR1 proof core	2d	0d	14-Jun-17 A	14-Jun-17 A	100%	
C3840-TU-292	CR1 proof coring by specialist sub-contractor	4d	0d	15-Jun-17 A	16-Jun-17 A	100%	
C3840-TU-294	Demoblization of SI rig off site	1d	0d	17-Jun-17 A	17-Jun-17 A	100%	
C3840-TU-296	Preparation of SI report by specialist sub-contractor	6d	0d	17-Jun-17 A	19-Jun-17 A	100%	
C3840-TU-298	Inspection of formation (Stratum) by RGE	1d	0d	04-Jul-17 A	04-Jul-17 A	100%	
C3840-TU-300	Submit BA8 for tunnel permanent works	0d	0d		04-Jul-17 A	100%	
C3840-TU-302	BD assess and approves BA8	28d	0d	05-Jul-17 A	14-Sep-17 A	100%	
C3840-TU-304	BA10 for tunnel permanent works	0d	0d		15-Sep-17 A	100%	
C3840-TU-306	BD acknowledge BA10	7d	0d	16-Sep-17 A	23-Sep-17 A	100%	
C3840-TU-308	Erect falsework/workking platform, prepare cj, dowel bars, rebar fixing and fwk for lintel beam	11d	0d	15-Jul-17 A	28-Sep-17 A	100%	
C3840-TU-310	Concreting for lintel beam (bay 31)	1d	0d	29-Sep-17 A	29-Sep-17 A	100%	
C3840-TU-312	Curing and dismantle formwork for bay 31	11d	0d	30-Sep-17 A	10-Oct-17 A	100%	
C3840-TU-316	Construct Bay 32 (base slab)	4d	0d	11-Oct-17 A	16-Oct-17 A	100%	
C3840-TU-318	Construct Bay 33 (side walls)	8d	0d	17-Oct-17 A	24-Oct-17 A	100%	
C3840-TU-319	Dismantle formwork for bay 33	1d	0d	25-Oct-17 A	25-Oct-17 A	100%	
C3840-TU-320	Construct Bay 34 (top slab)	8d	0d	26-Oct-17 A	04-Nov-17 A	100%	
C3840-TU-330	Curing & modification of falsework to suit the breakthrough work	5d	0d	05-Nov-17 A	12-Nov-17 A	100%	
C3840-TU-340	Remaining curing and dismanle falsework for bay 34	8d	0d	13-Nov-17 A	21-Nov-17 A	100%	
K11 Breakthroug		203d	0d	17-May-17 A	09-Jan-18 A		
C3840-TU-190	Erect temporary hoarding within K11 Lot (00.00-07:00)	1d	0d	17-May-17 A	17-May-17 A	100%	
C3840-TU-200	Erect flood protection wall within K11 Lot	6d	0d	06-Sep-17 A	04-Oct-17 A	100%	
C3840-TU-210	Breakthrough (core & saw cut) into K11 Lot & associated works	40d	0d	13-Nov-17 A	09-Jan-18 A	100%	
Milestones for Cost Centre B - Carnarvon Road Subway and Entrances		1668d	133d	30-Apr-14 A	24-Oct-18		67d
C3840-MS-B01	B1-Complete all U/G UU identif. & cables in north & south foot paths in Carn. Rd. exposed	0d	0d		30-Apr-14 A	100%	
C3840-MS-B02	B2-Close CR, hoarding erected, all pipes & UU diverted and all O/H signs removed	0d	0d		01-Jun-14 A	100%	
C3840-MS-B03	B3-All underground utilities affecting the Works satisfactorily removed or protected	0d	0d		31-Aug-14 A	100%	
C3840-MS-B04	B4-Comp. inst. of 75% of cofferdam wall for mined tunnel shaft installed, measure as a % of wall perimet.	0d	0d		30-Nov-14 A	100%	
C3840-MS-B05	B5-Exc. of mined tunnel shaft reached -3.0mPD level & comp. inst. 50% of cofferdam wall for Subway cofferdam	0d	0d		28-Nov-15 A	100%	
C3840-MS-B06	B6-Comp. exc./strut. works in mined tunnel shaft, formation blinded & tunnel portal prepared for mining exc.	0d	0d		30-Sep-16 A	100%	
C3840-MS-B07	B7-Satisf. passed pump. test for subway cofferdam & comp. inst. of mined tunnel canopy tubes & grouted	0d	0d		14-Nov-16 A	100%	
C3840-MS-B08	B8-Comp. Subway cofferdam 1st level strutting & all utilities satisf. supported from it	0d	0d		16-Jan-17 A	100%	



Current Bar
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Data Date: 01-Jun-18

Master Programme Revision RMPRSA1

RMPSA1			
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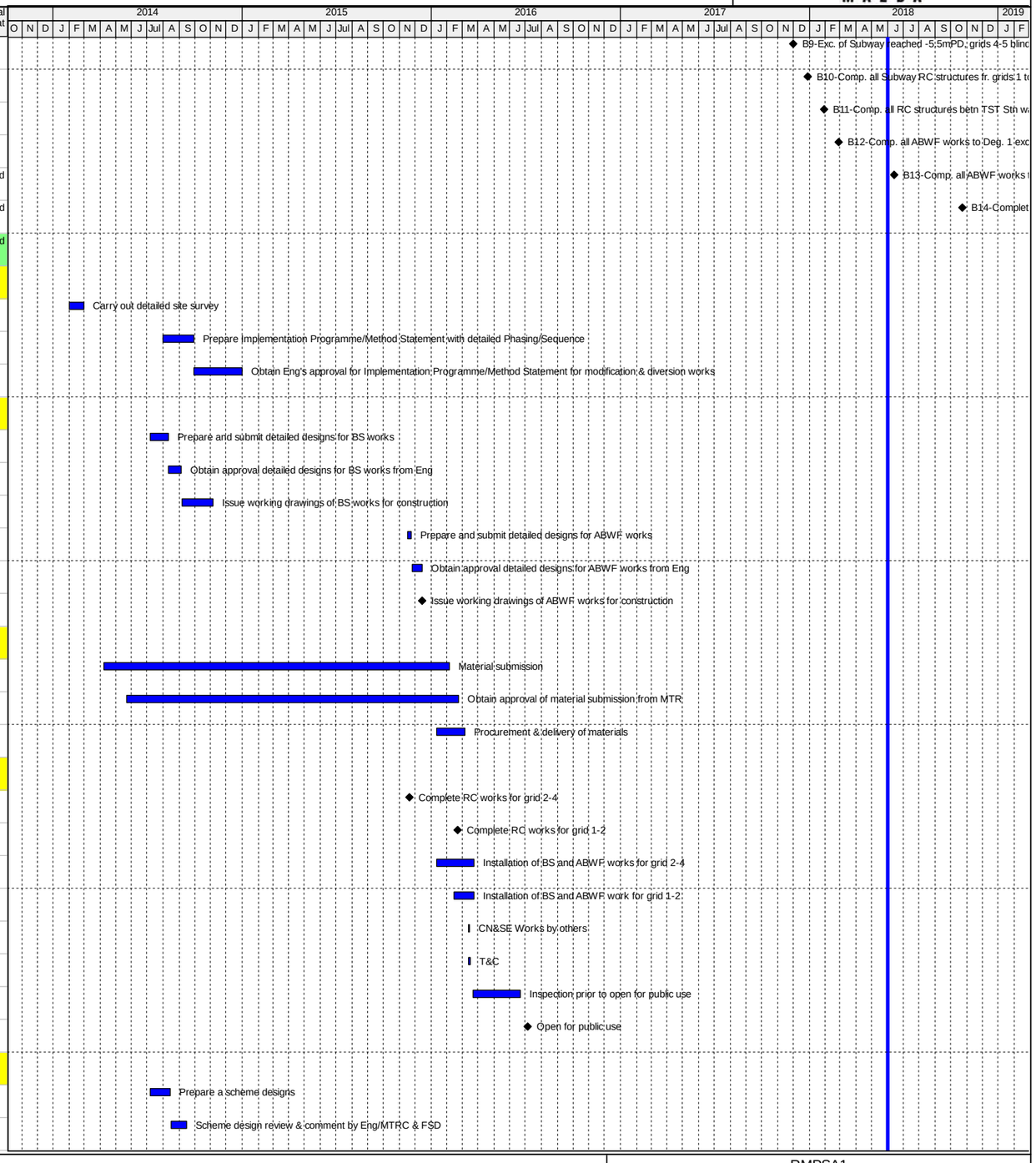
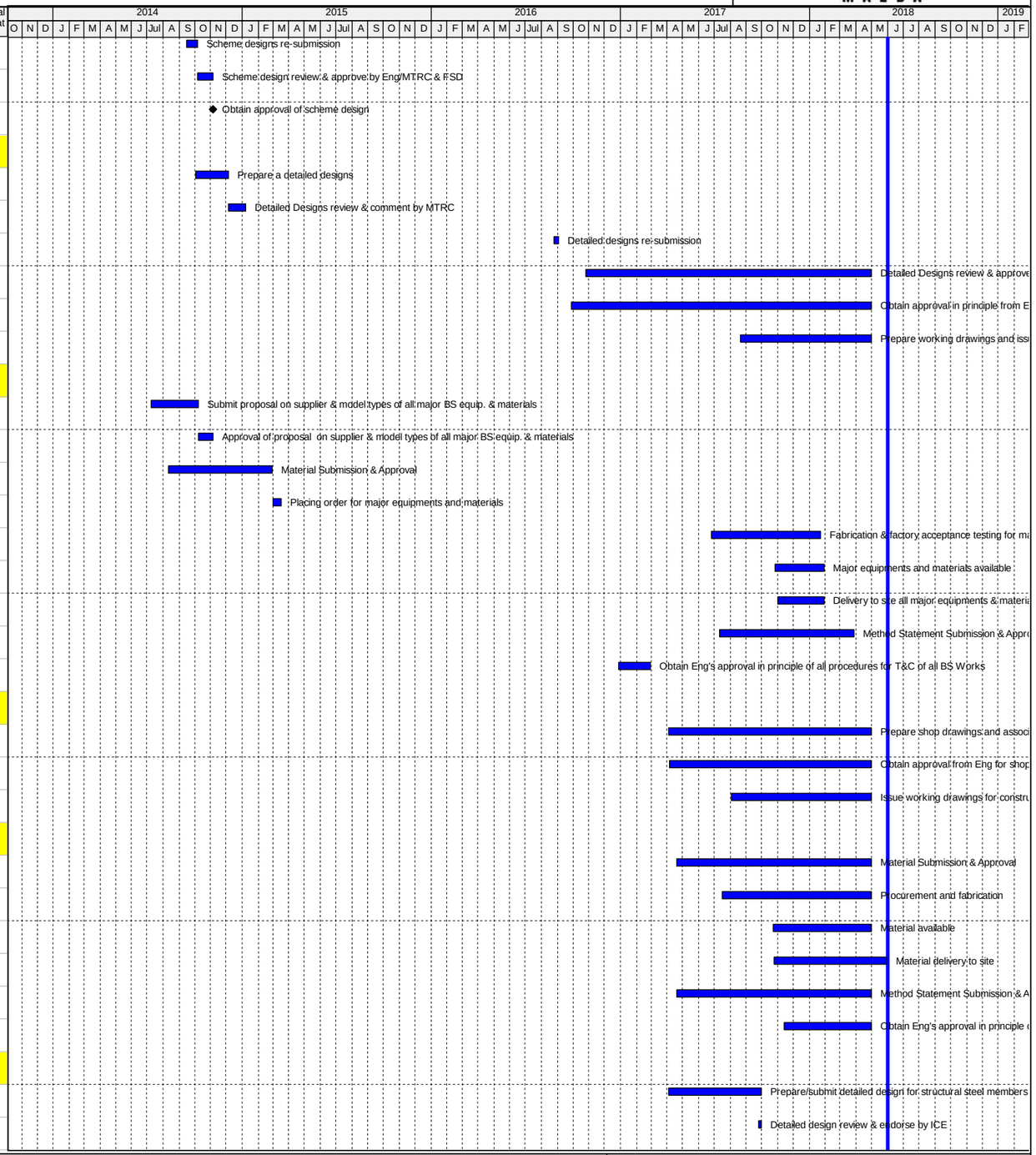
Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-MS-B09	B9-Exc. of Subway reached -5.5mPD, grids 4-5 blinded, comp. exc, for tunnel & 50% removal of K11 D. wall	0d	0d		30-Nov-17 A	100%	
C3840-MS-B10	B10-Comp. all Subway RC structures fr. grids 1 to 4+3m,	0d	0d		28-Dec-17 A	100%	
C3840-MS-B11	B11-Comp. all RC structures betn TST Stn wall & grid 4+3m & mined tunnel	0d	0d		29-Jan-18 A	100%	
C3840-MS-B12	B12-Comp. all ABWF works to Deg. 1 except for works assoc. with new entrance D1	0d	0d		26-Feb-18 A	100%	
C3840-MS-B13	B13-Comp. all ABWF works to Deg. 3 except for works assoc. with new entrance D1	0d	0d		13-Jun-18	0%	200d
C3840-MS-B14	B14-Complete all works in this Cost Centre	0d	0d		24-Oct-18	0%	67d
Building Services & ABWF Works		1445d	121d	01-Feb-14 A	25-Oct-18		54d
Site Validation		228d	0d	01-Feb-14 A	31-Dec-14 A		
C3840-SV-100	Carry out detailed site survey	6d	0d	01-Feb-14 A	28-Feb-14 A	100%	
C3840-SV-110	Prepare Implementation Programme/Method Statement with detailed Phasing/Sequence	90d	0d	01-Aug-14 A	29-Sep-14 A	100%	
C3840-SV-120	Obtain Eng's approval for Implementation Programme/Method Statement for modification & diversion works	60d	0d	30-Sep-14 A	31-Dec-14 A	100%	
Design for BS & ABWF Works at Temporary Staircase		646d	0d	07-Jul-14 A	15-Dec-15 A		
C3840-TSD-100	Prepare and submit detailed designs for BS works	49d	0d	07-Jul-14 A	11-Aug-14 A	100%	
C3840-TSD-110	Obtain approval detailed designs for BS works from Eng	50d	0d	12-Aug-14 A	05-Sep-14 A	100%	
C3840-TSD-120	Issue working drawings of BS works for construction	60d	0d	06-Sep-14 A	05-Nov-14 A	100%	
C3840-TSD-160	Prepare and submit detailed designs for ABWF works	6d	0d	17-Nov-15 A	24-Nov-15 A	100%	
C3840-TSD-170	Obtain approval detailed designs for ABWF works from Eng	30d	0d	25-Nov-15 A	14-Dec-15 A	100%	
C3840-TSD-180	Issue working drawings of ABWF works for construction	0d	0d		15-Dec-15 A	100%	
Material Submission & Material Procurement/Delivery for Temporary Staircase		535d	0d	09-Apr-14 A	05-Mar-16 A		
C3840-TSD-130	Material submission	21d	0d	09-Apr-14 A	05-Feb-16 A	100%	
C3840-TSD-140	Obtain approval of material submission from MTR	56d	0d	22-May-14 A	22-Feb-16 A	100%	
C3840-TSD-150	Procurement & delivery of materials	10d	0d	12-Jan-16 A	05-Mar-16 A	100%	
BS & ABWF Works at Temporary Staircase		200d	0d	20-Nov-15 A	06-Jul-16 A		
C3840-TSBA-100	Complete RC works for grid 2-4	0d	0d		20-Nov-15 A	100%	
C3840-TSBA-105	Complete RC works for grid 1-2	0d	0d		20-Feb-16 A	100%	
C3840-TSBA-110	Installation of BS and ABWF works for grid 2-4	59d	0d	12-Jan-16 A	23-Mar-16 A	100%	
C3840-TSBA-115	Installation of BS and ABWF work for grid 1-2	33d	0d	15-Feb-16 A	23-Mar-16 A	100%	
C3840-TSBA-117	CN&SE Works by others	2d	0d	14-Mar-16 A	15-Mar-16 A	100%	
C3840-TSBA-130	T&C	4d	0d	14-Mar-16 A	17-Mar-16 A	100%	
C3840-TSBA-140	Inspection prior to open for public use	83d	0d	22-Mar-16 A	22-Jun-16 A	100%	
C3840-TSBA-150	Open for public use	0d	0d		06-Jul-16 A	100%	
Scheme Designs for BS Works		85d	0d	07-Jul-14 A	05-Nov-14 A		
C3840-SD-100	Prepare a scheme designs	60d	0d	07-Jul-14 A	15-Aug-14 A	100%	
C3840-SD-120	Scheme design review & comment by Eng/MTRC & FSD	28d	0d	16-Aug-14 A	15-Sep-14 A	100%	



Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-SD-130	Scheme designs re-submission	24d	0d	16-Sep-14 A	06-Oct-14 A	100%	
C3840-SD-140	Scheme design review & approve by Eng/MTRC & FSD	28d	0d	07-Oct-14 A	05-Nov-14 A	100%	
C3840-SD-150	Obtain approval of scheme design	0d	0d		05-Nov-14 A	100%	
Detailed Designs for BS Works		1273d	0d	03-Oct-14 A	30-Apr-18 A		
C3840-DD-100	Prepare a detailed designs	40d	0d	03-Oct-14 A	04-Dec-14 A	100%	
C3840-DD-120	Detailed Designs review & comment by MTRC	28d	0d	05-Dec-14 A	07-Jan-15 A	100%	
C3840-DD-130	Detailed designs re-submission	7d	0d	26-Aug-16 A	03-Sep-16 A	100%	
C3840-DD-140	Detailed Designs review & approve by MTRC	464d	0d	26-Oct-16 A	30-Apr-18 A	100%	
C3840-DD-150	Obtain approval in principle from Eng for All Detailed Designs	442d	0d	27-Sep-16 A	30-Apr-18 A	100%	
C3840-DD-160	Prepare working drawings and issue for construction	114d	0d	21-Aug-17 A	30-Apr-18 A	100%	
Material Submission/Procurement/Delivery & Method Statement Submission for BS Works		1051d	0d	08-Jul-14 A	29-Mar-18 A		
C3840-BSP-100	Submit proposal on supplier & model types of all major BS equip. & materials	60d	0d	08-Jul-14 A	07-Oct-14 A	100%	
C3840-BSP-110	Approval of proposal on supplier & model types of all major BS equip. & materials	48d	0d	08-Oct-14 A	05-Nov-14 A	100%	
C3840-BSP-130	Material Submission & Approval	90d	0d	11-Aug-14 A	28-Feb-15 A	100%	
C3840-BSP-140	Placing order for major equipments and materials	36d	0d	02-Mar-15 A	16-Mar-15 A	100%	
C3840-BSP-150	Fabrication & factory acceptance testing for major equipments and materials	178d	0d	26-Jun-17 A	22-Jan-18 A	100%	
C3840-BSP-160	Major equipments and materials available	65d	0d	27-Oct-17 A	29-Jan-18 A	100%	
C3840-BSP-170	Delivery to site all major equipments & materials	59d	0d	01-Nov-17 A	29-Jan-18 A	100%	
C3840-BSP-190	Method Statement Submission & Approval	176d	0d	12-Jul-17 A	29-Mar-18 A	100%	
C3840-BSP-200	Obtain Eng's approval in principle of all procedures for T&C of all BS Works	32d	0d	28-Dec-16 A	28-Feb-17 A	100%	
Design for ABWF Works		302d	0d	04-Apr-17 A	30-Apr-18 A		
C3840-DABWF-100	Prepare shop drawings and associated temporary works design submission	207d	0d	04-Apr-17 A	30-Apr-18 A	100%	
C3840-DABWF-110	Obtain approval from Eng for shop drawings & associated temp. works designs	212d	0d	05-Apr-17 A	30-Apr-18 A	100%	
C3840-DABWF-120	Issue working drawings for construction	117d	0d	03-Aug-17 A	30-Apr-18 A	100%	
Material Submission/Material Procurement/Delivery & Method Statement Submission for ABWF Works		345d	0d	19-Apr-17 A	31-May-18 A		
C3840-ABWP-100	Material Submission & Approval	243d	0d	20-Apr-17 A	30-Apr-18 A	100%	
C3840-ABWP-110	Procurement and fabrication	157d	0d	17-Jul-17 A	30-Apr-18 A	100%	
C3840-ABWP-120	Material available	65d	0d	23-Oct-17 A	30-Apr-18 A	100%	
C3840-ABWP-130	Material delivery to site	51d	0d	25-Oct-17 A	31-May-18 A	100%	
C3840-ABWP-140	Method Statement Submission & Approval	250d	0d	19-Apr-17 A	30-Apr-18 A	100%	
C3840-BSP-180	Obtain Eng's approval in principle of all acceptance procedures for ABWF Works	44d	0d	13-Nov-17 A	30-Apr-18 A	100%	
Detailed Design for Canopies on Above Ground Structures (PS Cl. P4.3.3)		212d	0d	04-Apr-17 A	05-Feb-18 A		
C3840-PWDC-210	Prepare/submit detailed design for structural steel members & connection details & Glazing	24d	0d	04-Apr-17 A	30-Sep-17 A	100%	
C3840-PWDC-220	Detailed design review & endorse by ICE	7d	0d	25-Sep-17 A	30-Sep-17 A	100%	



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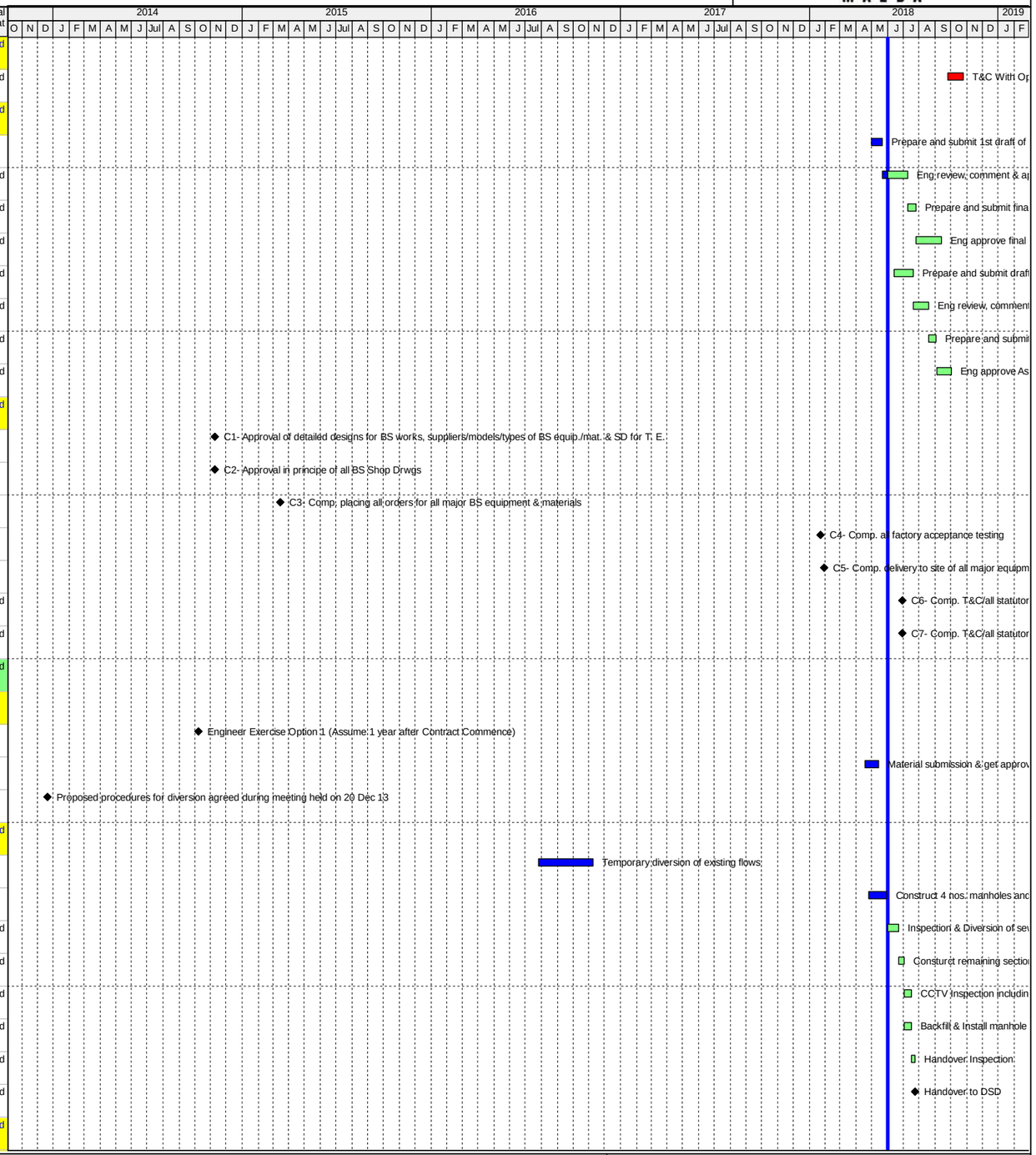
C3840-PWDC-230	Detailed design review & comment by Eng/MTRC	28d	0d	23-Jun-17 A	16-Oct-17 A	100%	
C3840-PWDC-240	Detailed design submission to BD Consultation	6d	0d	11-Oct-17 A	11-Oct-17 A	100%	
C3840-PWDC-250	Detailed design review & approve by Eng/MTRC/BD	44d	0d	12-Oct-17 A	05-Feb-18 A	100%	
C3840-PWDC-270	Issue Working Drawings for Construction	6d	0d	13-Nov-17 A	05-Feb-18 A	100%	
BS Works at TST Station		234d	0d	19-Dec-14 A	31-May-18 A		
C3840-BST-140	Cable containment work for Substation #4 inside TST Station (Night Time Work)	7d	0d	19-Dec-14 A	30-Dec-14 A	100%	
C3840-BST-150	Cable containment & pipe work for SCR inside Station (Night Time Work)	114d	0d	18-Jul-17 A	08-Dec-17 A	100%	
C3840-BST-180	Cable laying inside Station (Night Time Work)	24d	0d	26-Jan-18 A	09-Feb-18 A	100%	
C3840-BST200	Submit T&C Record	2d	0d	20-Nov-17 A	31-May-18 A	100%	
BS & ABWF Works at D2 Entrance including at By Pass Corridor		47d	0d	02-Jan-18 A	26-May-18 A		
C3840-BSD2-110	BS 1st Fix	24d	0d	08-Jan-18 A	07-Apr-18 A	100%	
C3840-BSD2-120	BS 2nd Fix	24d	0d	05-Feb-18 A	30-Apr-18 A	100%	
C3840-BSD2-130	ABWF Works to Deg. 1 & 2 Completion including installation for SS steelwork	24d	0d	02-Jan-18 A	14-Apr-18 A	100%	
C3840-BSD2-135	ABWF Works to Deg. 3 Completion	24d	0d	15-Jan-18 A	26-May-18 A	100%	
BS & ABWF Works at Subway Conc. Level, including at Plant Room & D3		180d	11d	23-Oct-17 A	13-Jun-18		2d
C3840-BSS-100	BS 1st Fix	90d	0d	02-Nov-17 A	14-Apr-18 A	100%	
C3840-BSS-110	BS 2nd Fix	40d	5d	01-Feb-18 A	06-Jun-18	99%	5d
C3840-BSS-120	ABWF Works to Deg. 1 & 2 Completion	80d	0d	23-Oct-17 A	24-Apr-18 A	100%	
C3840-BSS-125	ABWF Works to Deg. 3 Completion	40d	11d	02-Jan-18 A	13-Jun-18	98%	2d
BS & ABWF Works at Mid Landing Level including TER Rooms		120d	0d	18-Dec-17 A	31-May-18 A		
C3840-BSM-100	BS 1st Fix	56d	0d	02-Jan-18 A	21-Apr-18 A	100%	
C3840-BSM-110	BS 2nd Fix	40d	0d	01-Feb-18 A	30-Apr-18 A	100%	
C3840-BSM-120	Complete all BS works in TER	0d	0d		18-Apr-18 A	100%	
C3840-BSM-130	Complete all BS works in Electrical Room & Power On for New MCB Board	0d	0d		08-May-18 A	100%	
C3840-BSM-140	ABWF Works to Deg. 1 & 2 Completion	40d	0d	18-Dec-17 A	14-Apr-18 A	100%	
C3840-BSM-150	ABWF Works to Deg. 3 Completion	40d	0d	15-Jan-18 A	31-May-18 A	100%	
T&C and Statutory Inspections Prior to Open Entrances D2/D3 for Public Use		25d	24d	05-Feb-18 A	29-Jun-18		0d
C3840-BSM-160	Testing & Commissioning including issuance of FSD Form 501 for completion of FSD works	24d	8d	05-Feb-18 A	09-Jun-18	50%	4d
C3840-BSM-170	Operational Team and all Statutory inspections / obtain compliance certificates	24d	24d	15-May-18 A	29-Jun-18	20%	0d
BS & ABWF Works at D1 Entrance		38d	38d	01-Sep-18	18-Oct-18		60d
C3840-BSD1-130	BS 1st Fix	24d	24d	11-Sep-18	10-Oct-18	0%	0d
C3840-BSD1-140	BS 2nd Fix	18d	18d	26-Sep-18	18-Oct-18	0%	0d
C3840-BSD1-150	ABWF Works to Deg. 1 & 2 Completion including installation of SS steelwork	24d	24d	01-Sep-18	29-Sep-18	0%	0d
C3840-BSD1-155	ABWF Works to Deg. 3 Completion	18d	18d	22-Sep-18	15-Oct-18	0%	62d

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
T&C and Statutory Inspection Prior to Open Entrance D1 for Public Use		24d	24d	26-Sep-18	25-Oct-18		0d
C3840-BSD1-170	T&C With Operation Inspection	24d	24d	26-Sep-18	25-Oct-18	0%	0d
Operational & Maintenance Manuals, As-built Drawings, Design Data		114d	103d	02-May-18 A	03-Oct-18		19d
C3840-OD-1000	Prepare and submit 1st draft of O&M Manuals as per PS 18	30d	0d	02-May-18 A	22-May-18 A	100%	
C3840-OD-1010	Eng review, comment & approve draft O&M Manuals as per PS 18	56d	40d	23-May-18 A	10-Jul-18	20%	43d
C3840-OD-1020	Prepare and submit final version of O&M Manuals as per PS 18	15d	15d	11-Jul-18	25-Jul-18	0%	43d
C3840-OD-1030	Eng approve final version of O&M Manuals as per PS 18	50d	50d	26-Jul-18	13-Sep-18	0%	43d
C3840-OD-1040	Prepare and submit draft as-built Drawings as per PS 18	30d	30d	14-Jun-18	20-Jul-18	0%	19d
C3840-OD-1050	Eng review, comment & approve draft as-built Drawings as per PS 18	30d	30d	21-Jul-18	19-Aug-18	0%	23d
C3840-OD-1060	Prepare and submit final as-built Drawings as per PS 18	15d	15d	20-Aug-18	03-Sep-18	0%	23d
C3840-OD-1070	Eng approve As-built Drawings as per PS 18	30d	30d	04-Sep-18	03-Oct-18	0%	23d
Milestones for Cost Centre C - Building Services		1304d	0d	10-Nov-14 A	29-Jun-18		184d
C3840-MS-C01	C1- Approval of detailed designs for BS works, suppliers/models/types of BS equip./mat. & SD for T. E.	0d	0d		10-Nov-14 A	100%	
C3840-MS-C02	C2- Approval in principe of all BS Shop Drwgs	0d	0d		10-Nov-14 A	100%	
C3840-MS-C03	C3- Comp. placing all orders for all major BS equipment & materials	0d	0d		16-Mar-15 A	100%	
C3840-MS-C04	C4- Comp. all factory acceptance testing	0d	0d		22-Jan-18 A	100%	
C3840-MS-C05	C5- Comp. delivery to site of all major equipment for the basement E&M plant room	0d	0d		29-Jan-18 A	100%	
C3840-MS-C06	C6- Comp. T&C/all statutory & operational team inspections for New Entrance D2	0d	0d		29-Jun-18	0%	184d
C3840-MS-C07	C7- Comp. T&C/all statutory & operanal team inspection for new Entrance D3 and Subway	0d	0d		29-Jun-18	0%	184d
DSD Entrusted Drainage Works - Option		1119d	44d	20-Dec-13 A	24-Jul-18		131d
Submissions		1368d	0d	20-Dec-13 A	14-May-18 A		
C3840-ENT-010	Engineer Exercise Option 1 (Assume 1 year after Contract Commence)	0d	0d		08-Oct-14 A	100%	
C3840-ENT-020	Material submission & get approval from MTRC	60d	0d	18-Apr-18 A	14-May-18 A	100%	
C3840-ENT-030	Proposed procedures for diversion agreed during meeting held on 20 Dec 13	0d	0d		20-Dec-13 A	100%	
DSD Entrusted Sewage Works		604d	44d	26-Jul-16 A	24-Jul-18		78d
C3840-ENT-070	Temporary diversion of existing flows	18d	0d	26-Jul-16 A	09-Nov-16 A	100%	
C3840-ENT-080	Construct 4 nos. manholes and pipe laying in between 4 nos. manholes (85%)	13d	0d	26-Apr-18 A	31-May-18 A	100%	
C3840-ENT-082	Inspection & Diversion of sewer flow from temporary sewer pipeline to newly constructed sewer pipeline	18d	18d	01-Jun-18 A	22-Jun-18	0%	78d
C3840-ENT-090	Consturct remaining section of entrusted sewage works (15%)	8d	8d	23-Jun-18	03-Jul-18	0%	78d
C3840-ENT-160	CCTV Inspection including report	12d	12d	04-Jul-18	17-Jul-18	0%	78d
C3840-ENT-170	Backfill & Install manhole cover	12d	12d	04-Jul-18	17-Jul-18	0%	78d
C3840-ENT-180	Handover Inspection	6d	6d	18-Jul-18	24-Jul-18	0%	78d
C3840-ENT-190	Handover to DSD	0d	0d		24-Jul-18	0%	78d
Milestones for Cost Centre E - DSD Entrusted Drainage Works - Option		21d	21d	03-Jul-18	24-Jul-18		159d



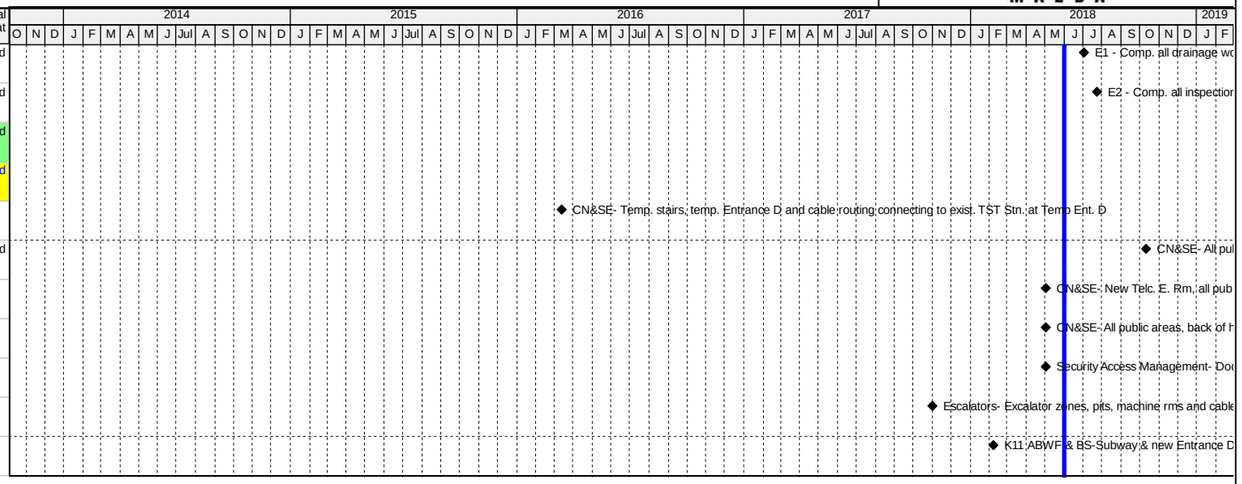
Current Bar
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

Data Date: 01-Jun-18

Master Programme Revision RMPRSA1

RMPSA1			
Date	Revision	Checked	Approved
01-Jun-18		BG	AW

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	% Complete	Total Float
C3840-MS-E01	E1 - Comp. all drainage works incl. pipes, manholes, bedding and etc.	0d	0d		03-Jul-18	0%	180d
C3840-MS-E02	E2 - Comp. all inspection works and handed over to DSD	0d	0d		24-Jul-18	0%	159d
Interface Requirements Associated with Designated Contracts		893d	0d	14-Mar-16 A	11-Oct-18		81d
Access Dates for Designated Contractors As PS Appendix B		893d	0d	14-Mar-16 A	11-Oct-18		81d
C3840-DC-10	CN&SE- Temp. stairs, temp. Entrance D and cable routing connecting to exist. TST Stn. at Temp Ent. D	0d	0d	14-Mar-16 A		100%	
C3840-DC-20	CN&SE- All public areas, back of house areas and cable routings at New Entrance D1	0d	0d	11-Oct-18		0%	81d
C3840-DC-30	CN&SE- New Telc. E. Rm, all pub. areas, back of house areas and cab. rout. at B. P. Rm, m.l., Subw& N.E. D2	0d	0d	02-May-18 A		100%	
C3840-DC-40	CN&SE- All public areas, back of house areas & cable routings at Subway & new Ent. D3	0d	0d	02-May-18 A		100%	
C3840-DC-50	Security Access Management- Doors requiring security protection or door contacts at Basement P. Rm.	0d	0d	02-May-18 A		100%	
C3840-DC-60	Escalators- Excalator zones, pits, machine rms and cable routes at Subway lvl to mid-landing	0d	0d	01-Nov-17 A		100%	
C3840-DC-70	K11 ABWF & BS-Subway & new Entrance D3 within K11 Lot Boundary at Subway within K11 Lot B.	0d	0d	08-Feb-18 A		100%	



APPENDIX D

IMPLEMENTATION SCHEDULE

Appendix VIII

Implementation Schedule

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	Noise Impact					
S.3.1	Use of quieter plant	To minimise construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
S.3.1	Use of noise enclosure and movable barrier • movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME; • noise enclosure can achieve 15dB(A) reduction for PME; • A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME; • Barrier material of surface mass in excess of 7kg/m^2 shall be required to achieve the maximum screening effect (and minimum 10kg/m^2 for noise enclosure); • The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected.	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.3.1	General Construction Noise Control Measures • The Code of Practice on Good Management Practice	To minimize construction noise	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted; • The statutory and non-statutory requirements and guidelines shall be complied with; • Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work; • Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training; • Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical; • Unused equipment shall be turned off; • PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided; • All plant and equipment shall be maintained regularly; and • Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable.	emissions				Ordinance
	Air Quality Impact					
S.3.2	Construction Dust Control Measures • Decking will be provided subsequent to the completion of surface excavation works. The duration	To minimise the dust impacts arising from the	Contractor	Work site	Construction Stage	Air Pollution Control (Construction

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	of decking is around 13 months after surface excavation works; • Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; • Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; • Cover all excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet; • Provision of vehicle washing facilities at the exit points of the site; and • Provision of tarpaulin covering of any dusty materials on a vehicle leaving the site.	construction works				Dust) Regulation
	Water Quality Impact					
S.3.3	Construction Water Quality Impact Measures • The Contractor should design and implement all the mitigation measures and practices specified in the ProPECC PN 1/94 "Construction Site Drainage" and "Recommended Pollution Control Clauses for Construction Contracts" issued by EPD. • All runoffs arising from the construction site should be properly collected and treated to ensure the discharge standards as stipulated in WPCO are met. Silt trap and oil interceptor should be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors should be cleaned and maintained regularly.	To reduce water quality impact induced by the construction work	Contractor	Work Site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	• Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor. • Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed to a foul sewer.					
	Waste Management					
S.3.4	Construction Waste Management Measures • Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible. • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner. • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed. • Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. • All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or	To adopt waste management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site	Construction Stage	Waste Disposal Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.

APPENDIX E

STATUS OF ENVIRONMENTAL LICENSES AND PERMITS

Maeda Corporation

Contract No. C3840-13C
Tsim Sha Tsui Station Carnarvon Road Subway

Last Update: 01-March-2019

Licence Summary

Item No.	Our Ref.	Govt. Ord.	Type? (License / Permit / Account / Notification / Registration & etc.)	Description	Submission	Ref. No	Date of Submission (to EPD) (DD-MM-YYYY)	Date of Approval / Receipt (from EPD) (DD-MM-YYYY)	Date of Activation (DD-MM-YYYY)	Date of Expiry (DD-MM-YYYY) Green = expire next mth; Yellow = expire this wk; Red = Expired	Description	Remarks
000	000	EIAO	Permit	Environmental Permit	N/A	AEP-440/2012	N/A	N/A	18 - 07 - 2012	N/A	Baseline, Air & Noise Impact Monitoring	Termination of construction phase EM&A Program was approved by EPD on 28 Feb 2019
002	APCO #002	WDO	Account	Construction Waste Billing Account	EPD-211 (Form 1) Application for a Billing Account for Disposal of Construction Waste	7018523	18 - 10 - 2013	25 - 10 - 2013	25 - 10 - 2013	N/A	Disposal of C&D Waste	Application No. WFG12765
003	WPCO #002	WPCO	Licence	Water Discharge Licence	EPD-117 (Form A) Application for a Licence of Water Discharge	WT00019722-2014	24 - 07 - 2014	01 - 09 - 2014	01 - 09 - 2014	31 - 03 - 2019	Quarterly Report FlowRate 25m3/d, pH 6-9, SS 30mg/L, COD 80mg/L	
004	CWP #001	WDO	Registration	Chemical Waste Producer	EPD-129 Application for Registration as a Chemical Waste Producer	5213-2214-M2446-16	15 - 01 - 2014	04 - 03 - 2014	04 - 03 - 2014	N/A	Surplus paint, spent lubrucating oil, spent battery	

APPENDIX F

EVENT AND ACTION PLAN

Event and Action Plan for Air Quality

In case the Action and Limit Levels are not complied during construction stage, the Event and Action Plan shown below should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample	1. Identify source; 2. If valid, 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
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and EPD; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial action 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 measure properly implemented.	1. Submit proposals for remedial action to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
Exceedance for one sample	1. Identify source; 2. Inform ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase	1. Check monitoring 2. data submitted by ET; 3. Check Contractor's working	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC

Event / Action	ET	IEC	ER	Contractor
	monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	method; 4. Discuss with ET and the Contractor on possible remedial measures; 5. Advise the ER on the effectiveness of the proposed remedial measures; 6. Supervise implementation of remedial measures.	measures properly implemented.	within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify sources; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of 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 ET accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. 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 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 the ER until the exceedance is abated.

Event / Action	ET	IEC	ER	Contractor
	results; 8. If exceedance stops, cease additional monitoring.			

Event and Action Plan for Construction Noise

In case the Action and Limit Levels are not complied during the construction stage, the Event and Action Plan shown below should be followed.

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 mitigation effectiveness.	1. Review the analyzed result submitted by 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 of exceedance 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	1. Notify IEC, ER, EPD and Contractor, and follow other actions 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Check 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 effectiveness of Contractor's	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 ET accordingly 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of exceedances 2. Notify Contractor 3. Require Contractor to propose remedial measures 4. Ensure remedial measures are properly implemented 5. 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 IEC within 3 working days of notifications 3. Implement the agreed proposals 4. Revise and resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event / Action	ET	IEC	ER	Contractor
	remedial actions and keep IEC, EPD, ER informed of the results 8. If exceedance stops, cease additional monitoring			

APPENDIX G

MONITORING SCHEDULE

C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works
Environmental Monitoring & Audit Schedule
February 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8 1-hr TSP* Noise Weekly Site Audit	9
10	11	12	13	14	15 1-hr TSP* Noise Weekly Site Audit	16
17	18	19	20 IEC monthly site audit cum Joint Site Inspection by representatives of EPD, MTRCL, IEC, ET & MC	21	22 1-hr TSP* Noise	23
24	25	26	27	28		

Note: * 1-Hr TSP has replaced the 24-Hr TSDP since 21st September 2018 due to HVS outage

This schedule may be subject to change due to unexpected circumstances e.g. adverse weather, termination of EM&A programme, etc.

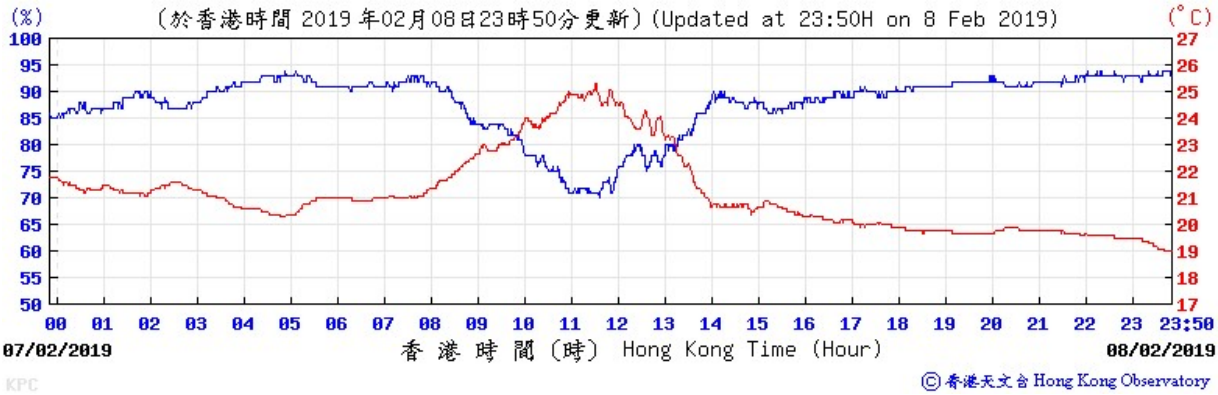
APPENDIX H

WEATHER INFORMATION EXTRACTED FROM HK OBSERVATORY

Daily Total Rainfall at King's Park HKO Weather Monitoring Station -February 2019				
Day	**Total Rainfall, mm**	**1-hr TSP**	**Noise**	**Remarks**
1	-			
2	Trace			
3	Trace			
4	-			
5	-			
6	-			
7	Trace			
8	Trace	✓		No significant rainfall during noise measurement
9	0.8			
10	0.8			
11	Trace			
12	0.2			
13	-			
14	Trace			
15	0.2	✓		No significant rainfall during noise measurement
16	-			
17	0.1			
18	18.1			
19	31			
20	0.2			
21	Trace			
22	1.6	✓		No significant rainfall during noise measurement
23	12.3			
24	3.4			
25	Trace			
26	Trace			
27	Trace			
28	-			
Mean/Total	68.7			
Normal*	54.4			
Station	Hong Kong Observatory			

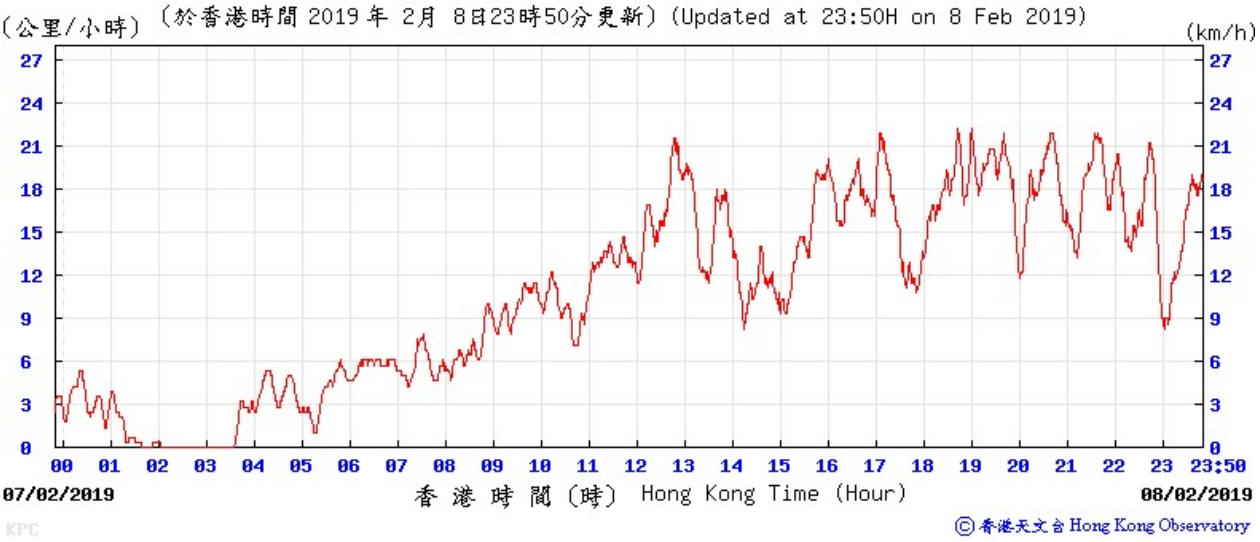
King's Park Weather Station – 8 February 2019

Tempearture/Humidity:



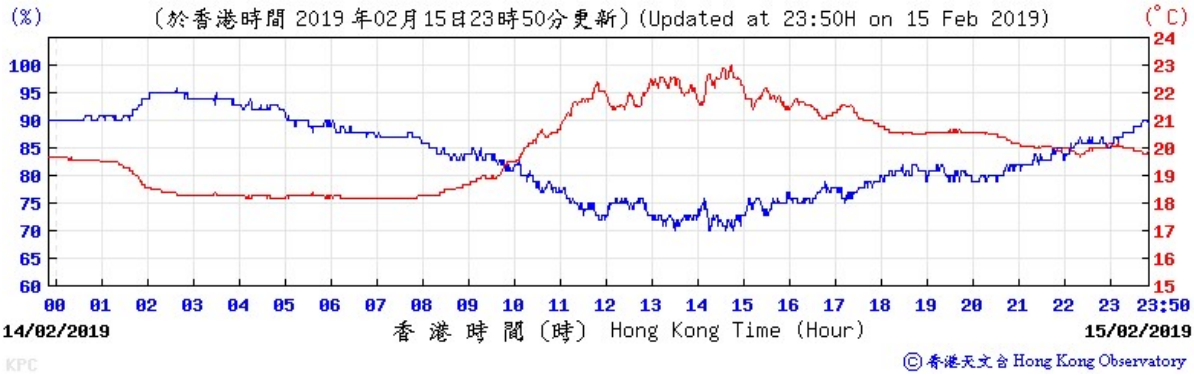
Wind Direction:

Wind Speed:

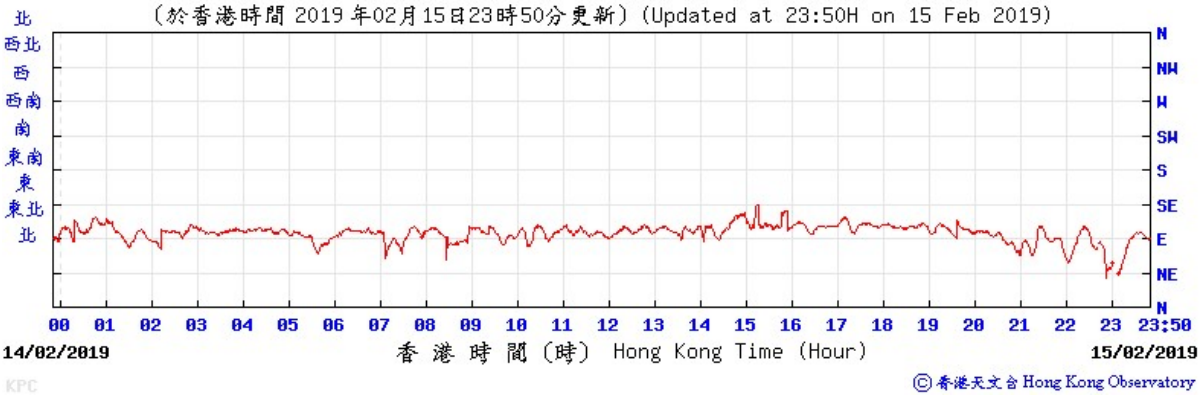


King's Park Weather Station – 15 February 2019

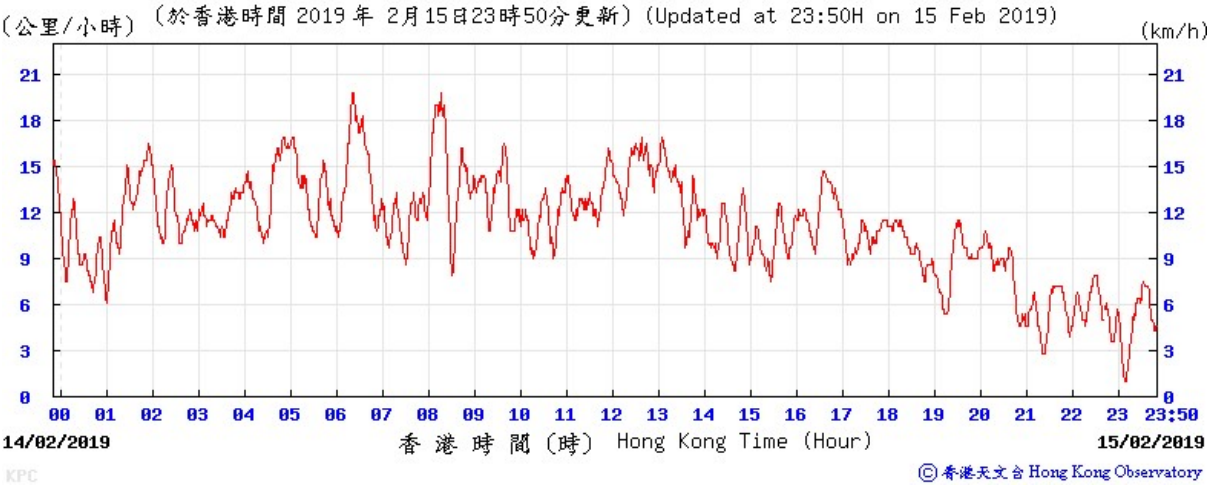
Tempearture/Humidity:



Wind Direction:

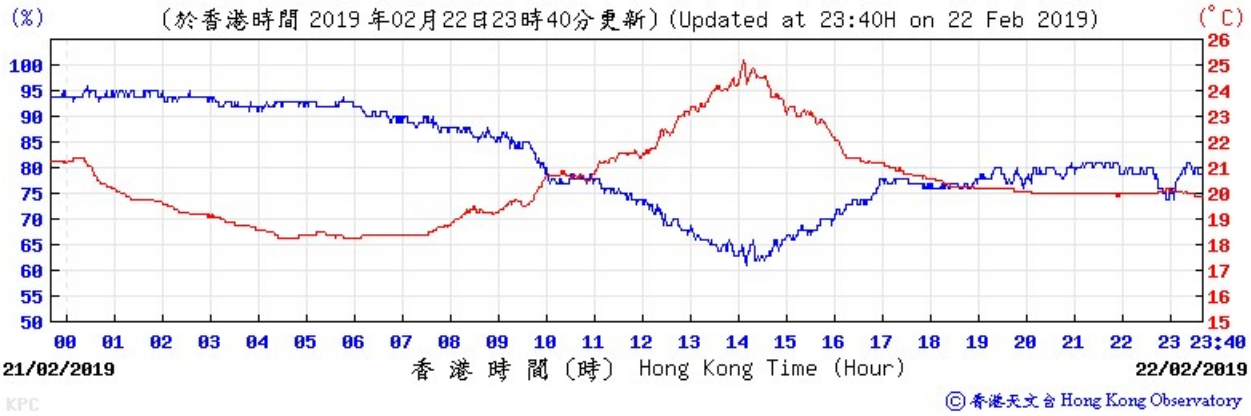


Wind Speed:



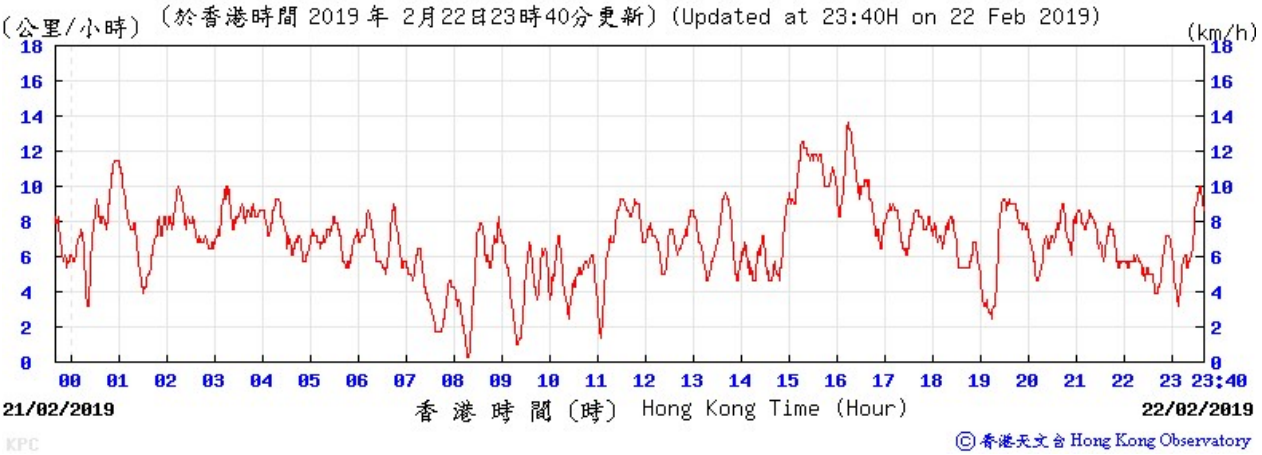
King's Park Weather Station – 22 February 2019

Tempearture/Humidity:



Wind Direction:

Wind Speed:



APPENDIX I

CERTIFICATE OF LABORATORY AND EQUIPMENT CALIBRATION

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR THOMAS CHAN	WORK ORDER	: **HK1858992**
CLIENT	: MOTT MACDONALD HONG KONG LIMITED		
ADDRESS	: 3/F MAPLETREE BAY POINT, 348 KWUN TONG ROAD, KOWLOON, HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 12-NOV-2018
		DATE OF ISSUE	: 21-NOV-2018
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	:

General Comments

- Sample(s) were received in ambient condition.
- Sample(s) analysed and reported on an as received basis.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group
11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER	: HK1858992
SUB-BATCH	: 1
CLIENT	: MOTT MACDONALD HONG KONG LIMITED
PROJECT	: ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1858992-001	S/N: 5201707005	Equipments	12-Nov-2018	S/N: 5201707005

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	TSI AM520
Serial No.	5201707005
Equipment Ref:	NA
Work Order:	HK1858992

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	Calibration Room
Equipment Ref:	HVS 018
Last Calibration Date:	21 September 2018

Equipment Verification Results:

Verification Date: 13&14 November 2018

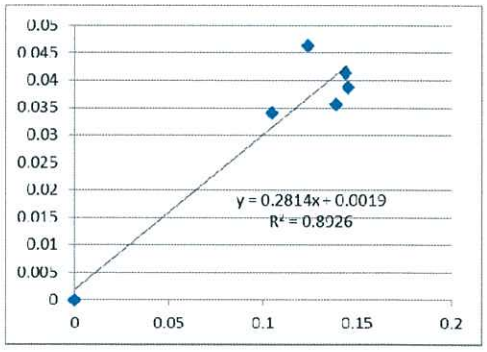
Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Concentration in mg/m^3 (Calibrated Equipment)	Tolerance (mg/m^3)
2hr01min	09:20 ~ 11:21	24.3	1014.1	0.036	0.139	0.103
2hr01min	11:27 ~ 13:28	24.3	1014.1	0.039	0.145	0.106
2hr01min	13:35 ~ 15:36	24.3	1014.1	0.041	0.144	0.103
2hr10min	15:41 ~ 17:51	24.3	1014.1	0.046	0.124	0.078
2hr15min	09:24 ~ 11:39	23.5	1015.6	0.034	0.105	0.071

Linear Regression of Y or X

Slope (factor): 0.2814

Correlation Coefficient 0.9448

Date of Issue 21 November 2018



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.2814 should be applied for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Fai So Signature : Date : 21 November 2018

QC Reviewer : Ben Tam Signature : Date : 21 November 2018

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	21-Sep-18
Location ID :	Calibration Room	Next Calibration Date:	21-Dec-18

CONDITIONS

Sea Level Pressure (hPa)	1011.6	Corrected Pressure (mm Hg)	758.7
Temperature (°C)	29.2	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02017
Model->	5025A	Qstd Intercept ->	-0.03691
Calibration Date->	13-Feb-18	Expiry Date->	13-Feb-19

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	5.4	5.4	10.8	1.632	56	55.56
13	4.3	4.3	8.6	1.459	48	47.62
10	3.3	3.3	6.6	1.280	43	42.66
8	2.1	2.1	4.2	1.025	34	33.73
5	1.3	1.3	2.6	0.810	24	23.81

LINEAR REGRESSION

Slope = 37.2548
Intercept = -5.5606
Corr. coeff. = 0.9970

Calculations :

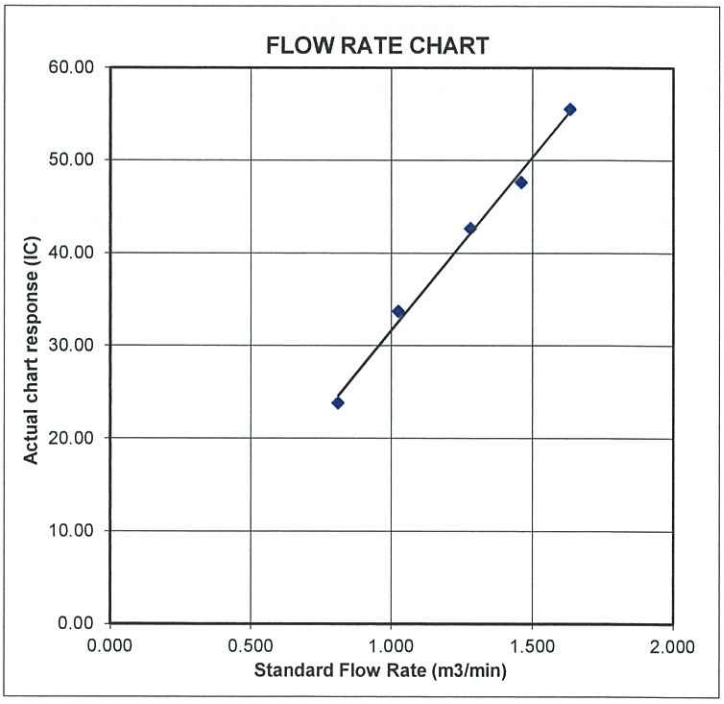
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Hong Kong Calibration Ltd.
香 港 校 正 有 限 公 司

Calibration Certificate

Certificate No. 804231 Page 1 of 3 Pages

Customer : Arcadis Design & Engineering Limited

Address : 20/F, AXA Tower, Landmark East, 100 How Ming Street, Kwun Tong, Kowloon, Hong Kong.

Order No. : Q81642 **Date of receipt :** 26-Apr-18

Item Tested

Description : Sound Level Meter

Manufacturer : B&K **I.D.** : --

Model : 2238 **Serial No.** : 2562782

Test Conditions

Date of Test : 30-Apr-18 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 60651, IEC 60804.

Test Results

All results were within the IEC 60651 Type1 and IEC 60804 Type1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C170120	SCL-HKSAR
S240	Sound Level Calibrator	803357	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Alan Chu

Date: 30-Apr-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range	Freq. Wgt.	Bandwith	Center Freq.		
28 ~ 108	A	BB/F	--	94.0	94.0
	A	BB/S	--		94.0
	C	BB/F	--		94.0
48 ~ 128	A	BB/F	--	94.0	94.0
	A	BB/F	--	114.0	114.1

IEC 60651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 60651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.1 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.0	0.0	± 0.7 dB
130	104.0	104.0	0.0	
120	94.0	94.0 (Ref.)	- -	
110	84.0	84.0	0.0	
100	74.0	74.1	+0.1	
90	64.0	64.0	0.0	
80	54.0	54.0	0.0	

Uncertainty : ± 0.1 dB

Calibration Certificate

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec.
120	84.0	84.0	0.0	± 0.4 dB
	94.0	94.0 (Ref.)	- -	
	95.0	95.0	0.0	± 0.2 dB

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 60651 Type 1 Spec.
31.5 Hz	-39.3	- 39.4 dB, ± 1.5 dB
63 Hz	-26.3	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref)	0 dB, ± 1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1 dB
4 kHz	+0.9	+ 1.0 dB, ± 1 dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-6.7	- 6.6 dB, + 3 dB ~ - ∞

Uncertainty : ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 60804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	40.0	± 0.5 dB
$1/10^2$	40.0	40.0	
$1/10^3$	40.0	40.0	± 1.0 dB
$1/10^4$	40.0	40.0	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric pressure : 1 014 hPa.
4. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

---------- END ----------

Hong Kong Calibration Ltd.
香 港 校 正 有 限 公 司

Calibration Certificate

Certificate No. 803788

Customer : Arcadis Design & Engineering Limited

Address : 20/F, AXA Tower, Landmark East, 100 How Ming Street, Kwun Tong, Kowloon, Hong Kong.

Order No. : Q81484 **Date of receipt :** 18-Apr-18

Item Tested

Description : Precision Acoustic Calibrator
Manufacturer : Larson Davis **I.D.** : --
Model : CAL200 **Serial No.** : 10929

Test Conditions

Date of Test : 26-Apr-18 **Supply Voltage** : --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
Ref. Document/Procedure : IEC 60942, F20, Z02.

Test Results

All results were within the IEC 60942 Class 1 specification.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	707126	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	803357	NIM-PRC & SCL-HKSAR
S041	Universal Counter	802061	SCL-HKSAR
S206	Sound Level Meter	707129	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 26-Apr-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. **Generated Sound Pressure Level**

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	93.7	± 0.4 dB
114.0	113.8	

Uncertainty : ± 0.2 dB

2. **Short-term Level Fluctuation** : 0.0 dB
IEC 60942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

3. **Frequency**

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	0.999	± 1 %

Uncertainty : ± 3.6 x 10^{-6}

4. **Total Distortion** : < 0.4%
IEC 60942 Class 1 Spec. : < 4 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 015 hPa.

---------- END ----------

APPENDIX J

SAMPLE DATA RECORD SHEET

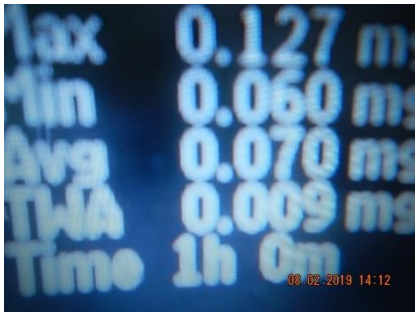
C3840-13C MTRCL Tsim Sha Tsui Station
Carnarvon Road Subway and Entrances Modification Works

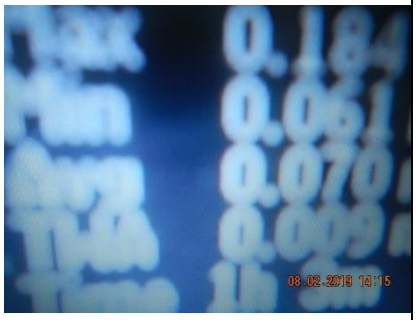
1-HR TSP MONITORING FIELD RECORD SHEET

Monitoring Location				4/F Roof top, K11
Date of Monitoring				8 February 2019
1-Hour TSP Monitoring	No.	Measurement Time (minutes)		Monitoring Results, ug/M^3 (Average (min-max))
	1	09:00 – 10:00	60	54 (46-137)
	2	10:00 – 11:00	60	70 (60-127)
	3	11:00 – 12:00	60	70 (61-184)
Weather Condition				Overcast
Equipment Model (Serial Number)				TSI AM520 (5201707005)
Expiry Date				12 November 2019
Action Level, ug/M^3				250
Limit Level, ug/M^3				500
Major Construction Dust Source(s) During Monitoring				No construction activities were observed
Other Dust Source(s) During Monitoring				Traffic, nearby fixed plant exhaust/emission

Name & Designation	Date	Signature
Record by: Wong Fu Nam	8 February 2019	
Checked by: Tung Chi Sun	8 February 2019	

Photo Records





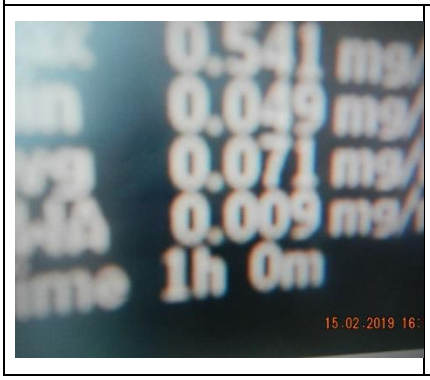
C3840-13C MTRCL Tsim Sha Tsui Station
Carnarvon Road Subway and Entrances Modification Works

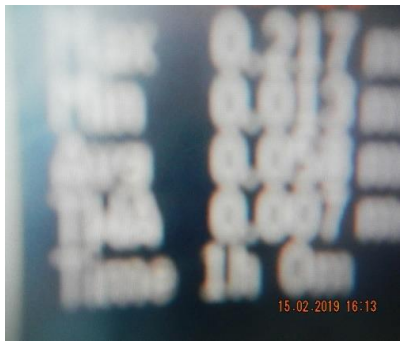
1-HR TSP MONITORING FIELD RECORD SHEET

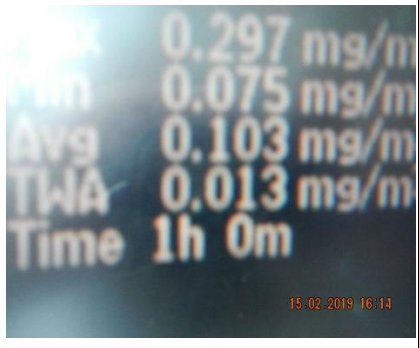
Date of Monitoring				15 February 2019
1-Hour TSP Monitoring	No.	Measurement Time (minutes)		Monitoring Results, ug/M^3 (Average (min-max))
	1	09:00 – 10:00	60	71 (49-541)
	2	10:00 – 11:00	60	58 (13-217)
	3	11:00 – 12:00	60	103 (75-297)
Weather Condition				Overcast
Equipment Model (Serial Number)				TSI AM520 (5201707005)
Expiry Date				12 November 2019
Action Level, ug/M^3				250
Limit Level, ug/M^3				500
Major Construction Dust Source(s) During Monitoring				No construction activities were observed
Other Dust Source(s) During Monitoring				Traffic, nearby fixed plant exhaust/emission

Name & Designation	Date	Signature
Record by: Wong Fu Nam	15 February 2019	
Checked by: Tung Chi Sun	15 February 2019	

Photo Records







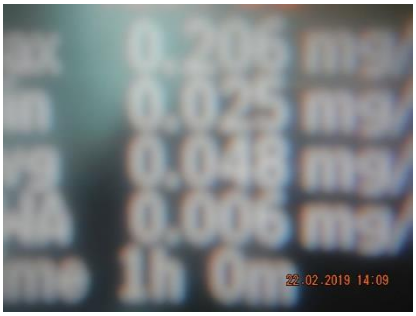
C3840-13C MTRCL Tsim Sha Tsui Station
Carnarvon Road Subway and Entrances Modification Works

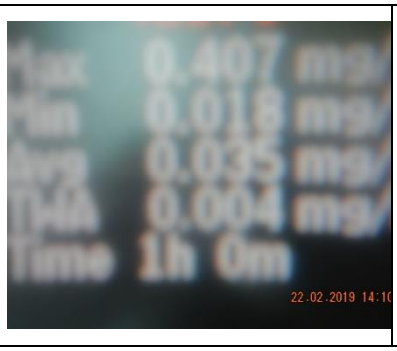
1-HR TSP MONITORING FIELD RECORD SHEET

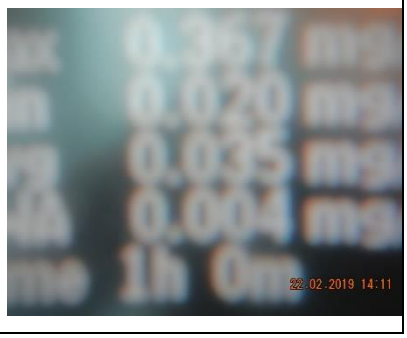
Monitoring Location				4/F Roof top, K11
Date of Monitoring				22 February 2019
1-Hour TSP Monitoring	No.	Measurement Time (minutes)		Monitoring Results, ug/M^3 (Average (min-max))
	1	09:00 – 10:00	60	48 (25-206)
	2	10:00 – 11:00	60	35 (18-407)
	3	11:00 – 12:00	60	35 (20-367)
Weather Condition				Overcast
Equipment Model (Serial Number)				TSI AM520 (5201707005)
Expiry Date				12 November 2019
Action Level, ug/M^3				250
Limit Level, ug/M^3				500
Major Construction Dust Source(s) During Monitoring				No construction activities were observed
Other Dust Source(s) During Monitoring				Traffic, nearby fixed plant exhaust/emission

Name & Designation	Date	Signature
Record by: Wong Fu Nam	22 February 2019	
Checked by: Tung Chi Sun	22 February 2019	

Photo Records







C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Location		4/F Roof top, K11
Date of Monitoring		8 February 2019
Monitoring Start Time		09:00
Monitoring Stop Time		09:30
Measurement Time Length, minutes		30
Weather Condition		Overcast
Wind Speed		1.2 m/s
Noise Meter Model		B&K2238 (Serial No. 2*562782*)
Calibrator Model		CAL200 (Serial No. 10929)
Measurement Results, dB(A)	L_{eq}	69.7
	L_{10}	71.5
	L_{90}	67.0
Limit Level		75.0 dB(A)
Major Construction Noise Source(s) During Monitoring		On-site powered mechanical equipment
Other Noise Source(s) During Monitoring		Traffic and nearby fixed plant
Name & Designation	Date	Signature
Record by: Wong Fu Nam	8 February 2019	
Checked by: Tung Chi Sun	8 February 2019	

C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Location		4/F Roof top, K11
Date of Monitoring		15 February 2019
Monitoring Start Time		09:00
Monitoring Stop Time		09:30
Measurement Time Length, minutes		30
Weather Condition		Overcast
Wind Speed		0.8 m/s
Noise Meter Model		B&K2238 (Serial No. 2*562782*)
Calibrator Model		CAL200 (Serial No. 10929)
Measurement Results, dB(A)	L_{eq}	68.5
	L_{10}	70.0
	L_{90}	67.0
Limit Level		75.0 dB(A)
Major Construction Noise Source(s) During Monitoring		On-site powered mechanical equipment
Other Noise Source(s) During Monitoring		Traffic and nearby fixed plant
Name & Designation	Date	Signature
Record by: Wong Fu Nam	15 February 2019	
Checked by: Tung Chi Sun	15 February 2019	

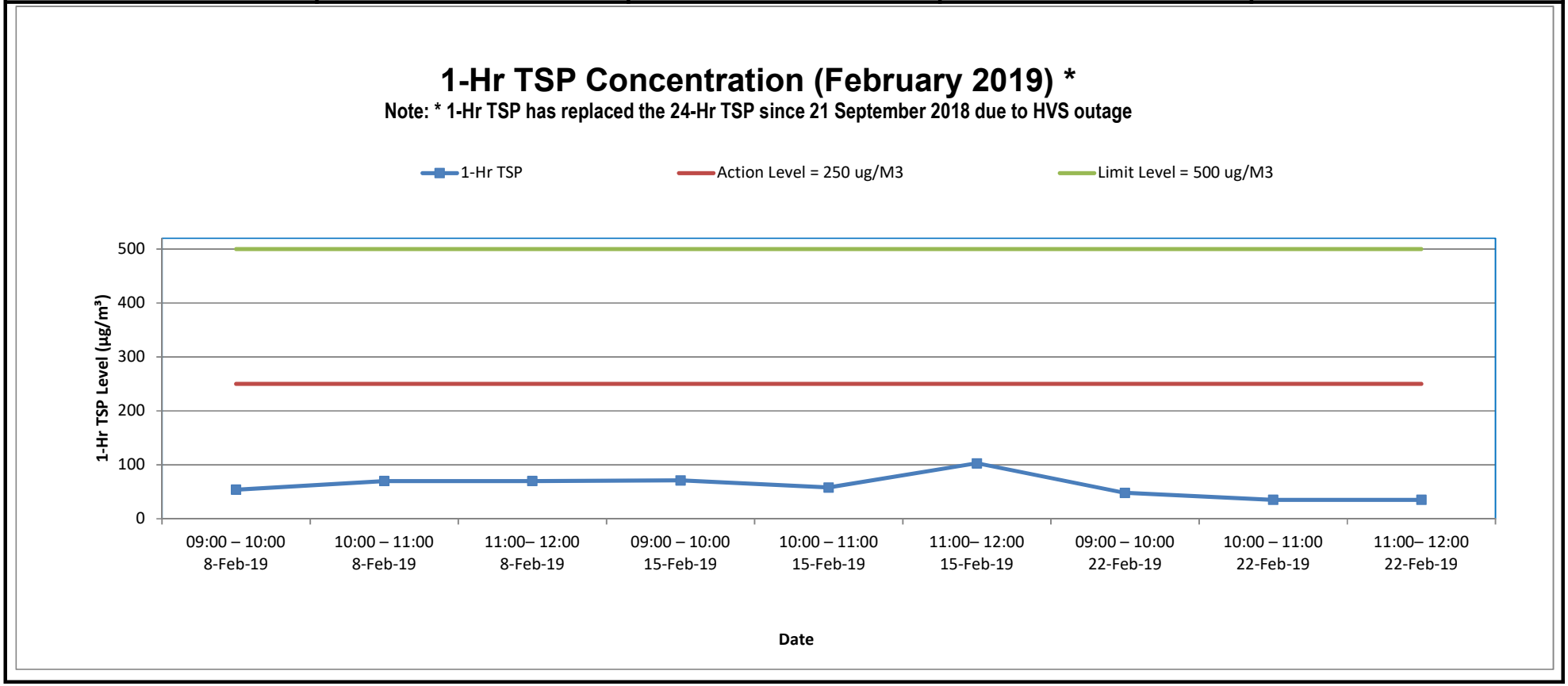
C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Location		4/F Roof top, K11
Date of Monitoring		22 February 2019
Monitoring Start Time		09:00
Monitoring Stop Time		09:30
Measurement Time Length, minutes		30
Weather Condition		Overcast
Wind Speed		1.4 m/s
Noise Meter Model		B&K2238 (Serial No. 2*562782*)
Calibrator Model		CAL200 (Serial No. 10929)
Measurement Results, dB(A)	L_{eq}	69.5
	L_{10}	70.5
	L_{90}	67.0
Limit Level		75.0 dB(A)
Major Construction Noise Source(s) During Monitoring		N / A
Other Noise Source(s) During Monitoring		Traffic and nearby fixed plant
Name & Designation	Date	Signature
Record by: Wong Fu Nam	22 February 2019	
Checked by: Tung Chi Sun	22 February 2019	

APPENDIX K

MONITORING RESULTS AND PLOTS

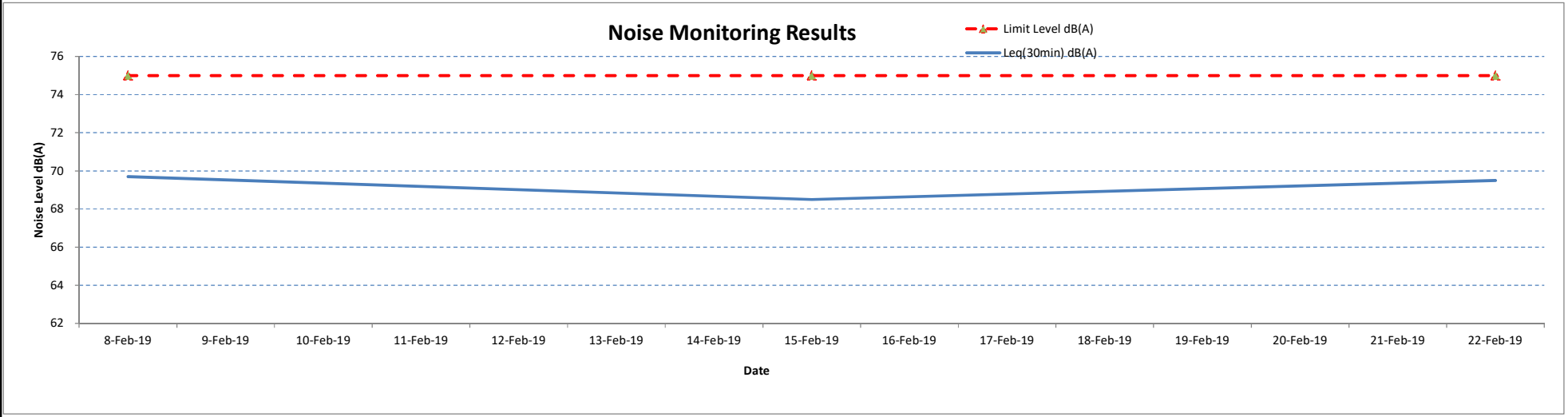
1-Hr TSP Results and Plot				
Date	**Time**	**1-Hr TSP**	**Action Level = 250 ug/M^3**	**Limit Level = 500 ug/M^3**
8-Feb-19	09:00 – 10:00	54	250	500
8-Feb-19	10:00 – 11:00	70	250	500
8-Feb-19	11:00– 12:00	70	250	500
15-Feb-19	09:00 – 10:00	71	250	500
15-Feb-19	10:00 – 11:00	58	250	500
15-Feb-19	11:00– 12:00	103	250	500
22-Feb-19	09:00 – 10:00	48	250	500
22-Feb-19	10:00 – 11:00	35	250	500
22-Feb-19	11:00– 12:00	35	250	500



(1) Noise Impact Monitoring Results at K11

Monitoring Locations	Date	Weather Conditions	Wind Speed (m/s)	Start Time	End Time	Background Level dB(A)	Limit Level dB(A)	Leq(30min) dB(A)	L10(30min) dB(A)	L90(30min) dB(A)
K11 Art Mall	8-Feb-19	Overcast	1.2	9:00	9:30	65.3	75	69.7	71.5	67.0
	15-Feb-19	Overcast	0.8	9:00	9:30	65.3	75	68.5	70.0	67.0
	22-Feb-19	Overcast	1.4	9:00	9:30	65.3	75	69.5	70.5	67.0

Red Bold indicates an exceedance of Limit Level

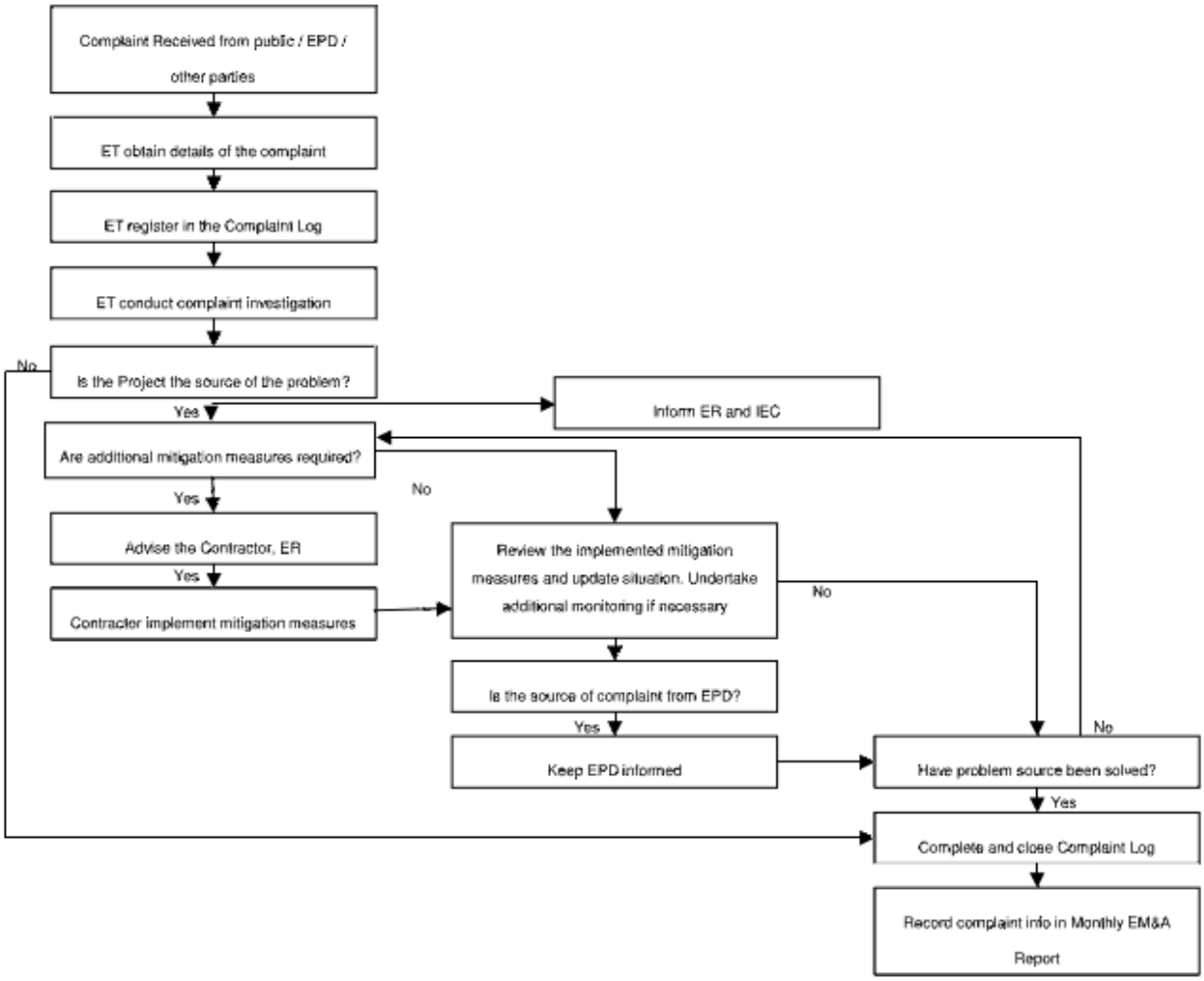


APPENDIX L

FLOW CHAT FOR HANDLING ENVIRONMENTAL COMPLAINTS

APPENDIX L

Complaint Response Procedure



APPENDIX M

WASTE MANAGEMENT RECORDS

Monthly Summary Waste Flow Table for 2019 (year)

Contract No: C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway
Date Reported: 1-March-2019

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m³/tonne)
Carried from Project Start	9.8321	-	-	-	9.8321	-	293.6300	-	-	-	0.3114
Jan	0.0154	-	-	-	0.0154	-	-	-	-	-	0.0045
Feb	0.0017	-	-	-	0.0017	-	-	-	-	-	0.0049
Mar	-	-	-	-		-	-	-	-	-	
Apr	-	-	-	-		-	-	-	-	-	
May	-	-	-	-		-	-	-	-	-	
June	0.0000	-	-	-		-	-	-	-	-	
Sub-total	0.0171	-	-	-	0.0171	-	-	-	-	-	0.0094
July	-	-	-	-		-	-	-	-	-	
Aug	-	-	-	-		-	-	-	-	-	
Sept	-	-	-	-		-	-	-	-	-	
Oct	-	-	-	-		-	-	-	-	-	
Nov	-	-	-	-		-	-	-	-	-	
Dec	-	-	-	-		-	-	-	-	-	
Total	0.0171	-	-	-	0.0171	-	-	-	-	-	0.0094
Acc. Total	9.8492	(accumulated quantity of the project = carried amount + this year amount)					293.6300				0.3208

Notes:

(1) The performance targets are given below:
- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

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

(3) Broken concrete for recycling into aggregates.

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