

BY FAX & DESPATCH

MEMO

<i>From :</i>	Secretary for Development	<i>To :</i>	Distribution
<i>Ref :</i>	DEVB(W) 517/91/01	<i>Attn :</i>	
<i>Tel No :</i>	3509 8385	<i>Your Ref. :</i>	in
<i>Fax No :</i>	2524 9308	<i>dated :</i>	<i>Fax. No. :</i>
<i>Date :</i>	29 March 2018	<i>Total Pages :</i>	2 + Encl.

**Environmental, Transport and Works Bureau
Technical Circular (Works) No. 19/2005**

Environmental Management on Construction Sites

Purpose

This memo is to revise the Environmental, Transport and Works Bureau Technical Circular (Works) No. 19/2005 (ETWB TC(W) No. 19/2005) to reflect the enhancement to the Safety Management System (SMS) for public works contracts with a view to sustaining the effort on site safety as well as to simplify and streamline the existing administrative work.

Background

2. The SMS for public works contracts was first developed in 1993. The SMS was reviewed from time to time with implementation of enhancement measures (including the introduction of the Pay for Safety Scheme (PFSS) and also the Pay for Safety and Environment Scheme (PFSES)) to meet the contemporary requirements in delivering public works contracts.

3. In mid-2015, we conducted a review of the SMS, including PFSS and PFSES, for public works contracts with the objectives to sustain our effort on site safety as well as to simplify and streamline the existing initiatives and the corresponding administrative work. One of the review areas is on the appropriateness of the items in the Bills for the PFSS/PFSES.

4. After the review, we propose to make the following enhancements, among others, without compromising site safety. The proposal was endorsed by the Works Policies Coordination Committee at its meeting held in September 2016.

- (a) The PFSES would be renamed as the PFSS.
- (b) All environmental related pre-priced payment items from the Bills for the PFSES would be removed and then combined in an appropriate item to the Bills for Preliminaries.

Policy

5. All public works contracts, including design and build contracts and term contracts, the tender of which are issued **on or after 20 April 2018** shall implement the enhancements through incorporation of the following amendments to ETWB TC(W) No. 19/2005.

- (i) In general, construction site safety related provisions should be referred to the Construction Site Safety Manual (the Manual).
- (ii) DEVB's memo ref. (02LSW-01-1) in DEVB(W) 516/70/03 dated 22 November 2013 regarding the Pay for Safety Performance Merit Scheme is incorporated in Chapter 12 of the Manual with necessary updating and hereby superseded.
- (iii) References to "Pay for Site Safety and Environment", "Site Safety and Environmental Management Committee" and "Site Safety and Environmental Committee" should be replaced by "Pay for Site Safety", "Site Safety Management Committee" and "Site Safety Committee" respectively. Paragraph 2 of the Interim Guidance Note on Administration of Environmental Management and PFSES for Public Works Contracts (issued in June 2006)¹ promulgated by ETWB in June 2006 is hereby obsoleted.
- (iv) Appendix D(a) (Method of Measurement for PFSES) is revised to cover environmental management measures under Section 1 of the Method of Measurement (Preliminaries) only. Construction site safety related parts are incorporated in Appendix VI of Chapter 3 of the Manual.
- (v) Appendices E1 to E7 (Sample Bills of Quantities for PFSES) have been incorporated in Appendices I and II of Chapter 12 of the Manual, and thereby superseded.

———— 6. The revised Appendix D(a) to ETWB TC(W) No. 19/2005 is enclosed.

Enquiry

7. Any enquiries on the above should be addressed to our Assistant Secretary (Works Policies) 5.

(Jacky WU)
for Secretary for Development

Encl.

¹ <https://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/19/1/C-2005-19-0-1.pdf>

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SE/CA/WSD

Sample Method of Measurement for “Environmental Management” for Capital Works Contracts

- [Notes: 1. Where *Architect/Engineer is denoted in this MoM, it should be selected as appropriate or modified to suit the appropriate title of the contract.
2. The following MoM for Environmental Management should be incorporated under Section I of MoM (Preliminaries) or other appropriate section for building works contracts.]

Notes: For contracts using the Hong Kong Standard Method of Measurement for Building Works (4th Edition Metric 2005 incorporating Corrigenda 1), the phrase “General Principles paragraphs 3 and 4”, wherever it may appear below, should be deleted; and the phrase “General Preambles paragraph 2”, wherever it may appear below, should be replaced with “Hong Kong Standard Method of Measurement for Building Works (4th Edition Metric 2005 incorporating Corrigenda 1) – Section II clause 11”.

ENVIRONMENTAL MANAGEMENT

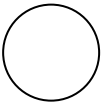
<i>Units</i>	xx.01	The unit of measurement shall be:
	(i)	provide environmental management measures month
<i>Measurement</i>	xx.02	The measurement for “provide environmental management measures” shall commence from the earliest date of possession of the Site or any portion of the Site by the Contractor to the date of substantial completion of the Works or an earlier or later date notified by the *Architect/Engineer.
	xx.03	Adjustment to or no measurement for the items on “provide environmental management measures” will be made if the *Architect/Engineer or his Representative is dissatisfied with the frequency, arrangements or quality of the measures provided and the Contractor cannot provide any justification acceptable to the *Architect/Engineer.
<i>Itemisation</i>	xx.04	Separate item shall be provided for “provide environmental management measures” in accordance with General Principles paragraphs 3 and 4 and the following:
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	Group	Feature
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	I	1. Provide environmental management measures
<hr/>		
<i>Provide environmental management measures</i>	xx.05	The item for “provide environmental management measures” shall, in accordance with General Preambles paragraph 2, include for:

Item Coverage

- (a) development, reviewing, updating and revising the Environmental Management Plan taking into account the comments made on the Environmental Management Plan by the *Architect/Engineer and any other parties;
- (b) providing the actual quantities of C&D materials generated for the month by completing the monthly summary Waste Flow Table, and a forecast of the quantities *[delete the last part if clause no. 5(4)(b) in Appendix C is not applicable]*;
- (c) updating of the summary table for work processes or activities requiring the use of timbers for Temporary Works construction;
- (d) reviewing the adequacy of resources and facilities for on-site sorting of C&D materials;
- (e) reviewing the adequacy of the nuisance abatement measures based on measurements taken on the various pollution parameters and public complaints;
- (f) submission of the qualifications and experience of the proposed Environmental Officer to the *Architect/Engineer for approval;
- (g) ensuring the fulfillment of the duties by the Environmental Officer in accordance with PS clause () *[clause no. 1(2)(c) in Appendix C]* to the satisfaction of the *Architect/Engineer or his Representative;
- (h) maintenance of the environmental records as per PS clause () *[clause no. 6(17) in Appendix C]*;
- (i) attendance of the Site Environmental Management Committee meetings and complete the agenda of the meeting for the month;
- (j) arranging inspection of the Site by members of the Site Environmental Management Committee before the meeting for the month;
- (k) providing necessary assistance for the proper functioning of the Site Environmental Management Committee;
- (l) establishment of the Site Environmental Committee;
- (m) arranging and giving adequate notice to relevant parties of the Site Environmental Committee meeting to be held for the month;
- (n) attendance of the Site Environmental Committee meetings and completion and distribution of minutes of meetings;
- (o) arranging, giving adequate notice to relevant parties of and

attending the weekly environmental walk;

- (p) using a comprehensive checklist during the walk to identify any deficiencies noted in the environmental provisions, recording the deficiencies in the summary table, and rectifying such deficiencies subsequently within the agreed time;
- (q) preparation of reports on environmental walks and environmental inspections conducted;
- (r) implementation and upkeeping of all measures stipulated in the Particular Specification on environmental management and the EMP, and maintain the effectiveness of all such provisions for the duration of the Contract;
- (s) conducting environmental inspections including, but without limitation to, the followings:
 - (i) the effectiveness of air, noise and wastewater pollution abatement measures of the Works;
 - (ii) the performance of dust and/or acoustic screens or enclosures provided at public interfaces;
 - (iii) maximizing the retrieval of reusable and recyclable materials from the C&D materials generated from the Site; and
 - (iv) prompt removal of surplus C&D materials off the Site;
- (t) implementation of the decisions and recommendations made by the Site Environmental Management Committee on matters relating to environmental nuisance and waste management; and
- (u) conducting environmental training in accordance with PS clause () [PS clause 1(4) in Appendix C].



MEMO

From Secretary for Development
Ref (02LSW-01-1) in DEVB(W) 516/70/03
Tel. No. 3509 8277
Fax No. 2524 9308
Email clwong@devb.gov.hk
Date 22 November 2013

To Distribution
(Attn : _____)
Your Ref. _____
dated _____
Fax No. _____
Total Pages 3 + Encl.

Pay for Safety Performance Merit Scheme

This memo promulgates the **Pay for Safety Performance Merit System (PFSPMS)** in public works contracts as an extension to the existing Pay for Safety and Environment Scheme (PFSES) and Pay for Safety Scheme (PFSS). The **PFSPMS** shall be applicable to all **capital works contracts** including electrical and mechanical contracts and Design and Build contracts which adopt PFSS/PFSES and with tenders to be invited on or after **1 February 2014**.

Background

2. Since 1990s, a series of safety measures including the PFSES and PFSS have been introduced in public works contracts. While the measures have significantly improved the safety performance of our public works contracts, we have also observed that some contractors have now become more focused on complying with the processes rather than performance. In addition, there is no provision to incentivize contractors to strive for better safety performance under the current PFSES/PFSS.

3. Under the current PFSES/PFSS, there is a separate section in the Bills of Quantities (BQ) or Schedule of Rates (SOR) entitled 'Site Safety and Environmental Management' (for PFSES) or 'Site Safety' (for PFSS). All the items in the BQ or SOR are pre-priced and the total value of the section shall be about 2% of the estimated Contract Sum (for contracts with BQ) or total estimated expenditure (for contracts with SOR) excluding the contingency and provisional sums, as stipulated in the Construction Site Safety Manual. Contractors are paid if they have completed the respective **task-tied** safety items, such as provision and updating of safety plan, attending safety meetings/walks, and provision of safety trainings, etc. The task-tied payment, however, is not linked to the safety performance of the contractors.

4. To motivate contractors to strive for better safety performance, the Works Policies Coordination Committee has approved the introduction of a performance based payment approach in public works contracts as an extension to the PFSES/PFSS. The **PFSPMS** is therefore introduced.

PFSPMS

5. Under the **PFSPMS**, payment will be made under a set of **pre-priced performance-tied** payment items which are measured according to the contractors' achievements in respect of the safety performance indicators specified in the contract. The total value of the performance-tied payment items under the **PFSPMS** shall be about 1.7% of the estimated Contract Sum or total estimated expenditure as stipulated in Annex B to the attached Guidelines. The payment for **PFSPMS** is **in addition** to that for PFSES/PFSS.

6. The **eight** safety performance indicators of the **PFSPMS** are as follows-

- (a) No reportable accident in a month;
- (b) No notice of safety or environmental prosecution received in a month;
- (c) Compliance of safety training (Silver Card) for workers of specified trades in a month;
- (d) Half-yearly review of safety performance – based on inspection / improvement / suspension notices received from the Labour Department;
- (e) 12-month rolling accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked;
- (f) Yearly review of safety performance - no fatal accident in a year;
- (g) Achievement in safety campaign organized by Development Bureau, (i.e. Considerate Contractors Site Award Scheme); and
- (h) Final review of safety performance – overall safety performance based on fatal accident and cumulative accident frequency rate for reportable accidents under the contract (Annex E to the Guidelines).

7. To implement the **PFSPMS**, we have prepared a set of **Guidelines** and relevant contract provisions for inclusion in the tender/contract documents for capital works contracts. A copy of the Guidelines and contract provisions are enclosed.

8. The **PFSPMS** for term contracts is under preparation and will be promulgated in due course.

9. The Guidelines and the contract provisions have been posted on the DEVB website as an attachment to the ETWB TC(W) No. 19/2005 and incorporated in the Construction Site Safety Manual Chapter 12. The two documents could be accessed via the following links: -

ETWB TC(W) No. 19/2005

<http://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/19/1/C-2005-19-0-1.pdf>

Construction Site Safety Manual Chapter 12

http://www.devb.gov.hk/filemanager/en/content_191/chapter12.pdf

10. Should you have any enquiries, please contact Mr. Sam LAM, AS(WP)5 at 3509 8305.

(C L Wong)
for Secretary for Development

Encl.

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Internal

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SEO(PS)

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Guidelines on the Inclusion of the Pay for Safety Performance Merit Scheme (PFSPMS) as Extension to the Pay for Safety Scheme (PFSS) and the Pay for Safety and Environment Scheme (PFSES)

Purpose

These Guidelines set out the policy and procedures to introduce the PFSPMS in public works contracts, as an extension to the existing PFSS and PFSES with a view to further uplifting site safety performance in public works contracts.

Scope

2. These Guidelines shall be applicable to all capital works contracts including electrical and mechanical (E&M) contracts and Design and Build (D&B) contracts which adopt PFSS or PFSES.

Effective Date

3. These Guidelines shall be applicable to capital works contracts with tenders to be invited on or after **1 February 2014**.

Existing Relevant Circulars

4. These Guidelines should be read in conjunction with the following circulars:-

- (a) Environment, Transport and Works Bureau (ETWB) TCW No. 19/2005 “Environmental Management on Construction Sites” and as amended by the Interim Guidance Note on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts issued by ETWB in June 2006.
- (b) The contractual provisions for construction safety and the updating of the Pay for Safety Scheme given in Chapters 3 and 12 of the Construction Site Safety Manual (CSSM) promulgated under WBTC No. 30/2000 “Construction Site Safety Manual Second Updating of Chapters 3 and 12”.
- (c) ETWB TCW No. 30/2002 “Implementation of Site Safety Cycle and Provision of Welfare Facilities for Workers at Construction Sites”.

Background

5. Since 1990s, a series of safety measures including the PFSES and PFSS have been introduced in public works contracts. While the measures have significantly

improved the safety performance of public works contracts, it is observed that some contractors have now become more focused on complying with the processes rather than the actual performance. In addition, there is no provision to incentivize contractors to strive for better safety performance under the current PFSES/PFSS.

6. Under the PFSES/PFSS, there is a separate section in the Bills of Quantities (BQ) or Schedule of Rates (SOR) entitled ‘Site Safety and Environmental Management’ (for PFSES) or ‘Site Safety’ (for PFSS) with all the items pre-priced and the total value of the section is set at about 2% of the estimated Contract Sum or total estimated expenditure¹ as stipulated in Appendix VII of Chapter 12 of the CSSM. Contractors are paid if they have completed the respective task-tied safety measures, such as provision and updating of safety plan, attending site safety committee meetings/walks, and provision of safety trainings, etc. The task-tied payment, however, is not linked to the contractors’ safety performance.

7. The PFSPMS, which serves as an incentive scheme to motivate contractors to strive for better safety performance through a performance based payment approach, is introduced as an extension to the PFSS/PFSES. Under the PFSPMS, payment will be made for the performance-tied items which are measured according to the contractors’ achievements in respect of the designated safety performance indicators under the contract as shown at **Annex A**.

Policy

8. Capital works contracts including E&M contracts and D&B contracts which adopt the existing PFSS or PFSES as per paragraph 12.2.1 in Chapter 12 of the CSSM or paragraph 11 to 14 of ETWB TCW No. 19/2005 and as amended by the Interim Guidance Note on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts issued by ETWB in June 2006 shall also adopt the PFSPMS.

9. Where a capital works contract adopts the PFSS/PFSES and PFSPMS, the provisions as listed in paragraph 14 below shall be incorporated into the tender/contract documents.

10. The total value on safety and environmental management items under the PFSS/PFSES and PFSPMS against the estimated contract sum or total estimated expenditure is shown in the chart at **Annex B**.

11. For contracts where a substantial portion of the estimated contract value is for the supply of equipment, the cost of equipment shall be excluded from the estimated contract sum or total estimated expenditure for the purpose of determining the total value of safety and environmental management items under the PFSS/PFSES and PFSPMS.

¹ Unless otherwise specified in the Guidelines, “estimated Contract Sum” is for contracts with BQ and “total estimated expenditure” is for contracts with SOR. Both exclude the contingency and provisional sums.

12. The total value of the safety and environmental management items determined in paragraph 10 above shall be distributed between the PFSS/PFSES and PFSPMS as follows:-

(a) Task-tied payment items under PFSS / PFSES	
Estimated contract sum/total estimated expenditure from and including \$20M, up to and including \$200M	2% of the estimated contract sum or total estimated expenditure
Estimated contract sum/total estimated expenditure exceeding \$200M	[\$4.0M + (estimated contract sum or total estimated expenditure - \$200M) x 1.0%.]
(b) Performance-tied payment items under PFSPMS	
Estimated contract sum/total estimated expenditure from and including \$20M, up to and including \$200M	1.7% of the estimated contract sum or total estimated expenditure
Estimated contract sum/total estimated expenditure exceeding \$200M	[\$3.4M + (estimated contract sum or total estimated expenditure - \$200M) x 0.85%.]

13. Where there are practical difficulties in incorporating part or all of the requirements of these Guidelines under a particular contract, the project office concerned shall seek the approval of an officer at D2 level or above for full or partial exemption.

Contract Preparation Stage

Tender/Contract Provisions

14. The project office shall include the following provisions in the tender/contract documents for the PFSPMS in addition to those for PFSS/PFSES:

- (a) A Provisional Sum for PFSPMS with value as per paragraph 12(b) above.
- (b) The Notes to Tenderers (NTT) at **Annex C**.
- (c) The Special Conditions of Contract (SCC) at **Annex D**.
- (d) The Measurement Rules (to be included as appendix to the above SCC) and a section in the Bills of Quantities (BQ) or Schedule of Rates (SOR) prepared based on the samples at **Annex E**.

- (e) The revised Particular Specifications (PS) on Site Safety at **Annex F**.

15. As stipulated in the SCC, the payments of the performance-tied items under the PFSPMS are not subject to retention and adjustment to contract price fluctuations.

Measurement Period and Pre-priced Rates

16. Unlike the measurement period for the PFSS/PFSES, the measurement period of the performance-tied payment items of the PFSPMS shall be from the earliest date of possession of the Site or any portion of the Site by the Contractor to the date six months after the completion date or extended completion date of the Works. The purpose of allowing this six-month period after the completion date or extended completion date of the Works is to encourage contractors to continue to strive for good safety performance in completing the outstanding works during the maintenance period.

17. The period for measurement for performance-tied payment items of the PFSPMS in the BQ or SOR shall include the EOT. Allowance for EOT shall be made in determining the quantities for the relevant items in the BQ or SOR. It is suggested that 2 months of EOT shall be allowed for every 12 months of the original contract period but the project officer shall make his judgement according to the nature of the contract.

18. No payment shall be made in the first 11 months from the earliest date of possession of the Site or any portion of the site by the Contractor for the item on the “12-month rolling accident frequency rate for reportable accidents”.

19. Project office should consider if the pre-priced rates for the performance-tied payment items of the **PFSPMS** calculated in accordance with the methodology at Annex E are appropriate especially for those mega projects with very high contract values or contracts with very short duration. If considered appropriate, the pre-priced rates for the performance-tied payment items so calculated can be adjusted to suit the nature, scope, size, complexity and duration, etc of the contract. All the pre-priced rates to be adopted in the contract shall be endorsed by an officer of D1 level or above and such endorsement should be properly documented.

Administration of the PFSPMS in Construction Stage

20. The Contractor shall submit a “Monthly Report on Safety Performance” (the Monthly Report) to the Architect/Engineer/Supervising Officer using a prescribed proforma (included as “Appendix I to Particular Specifications on Site Safety” at **Annex F** to these Guidelines) for the measurement of the performance-tied payment items. The Monthly Report shall be prepared and signed by the Safety Officer and

endorsed by the Contractor's Site Agent. The duly signed Monthly Report shall be submitted to the Architect/Engineer/Supervising Officer together with documentary proof for the performance achievements stated in the Monthly Report.

21. No measurement for the performance-tied payment items shall be made by the Surveyor/Engineer/Supervising Officer unless the achievements in respect of the corresponding indicators reported by the Contractor in the Monthly Report has been agreed by the Architect's/Engineer's/Supervising Officer's Representative.

22. If the Contractor or the Architect's/Engineer's/Supervising Officer's Representative subsequently considers that amendment(s) to any of the submitted Monthly Report(s), including those agreed by the Architect/Engineer/Supervising Officer, is/are required, it is the responsibility of the Contractor to revise and re-submit the concerned Monthly Report(s) with amendment(s) to the Architect/Engineer/Supervising Officer for agreement. Previous measurement(s) and payment(s) made to the Contractor shall be adjusted accordingly.

23. Any accident which is suspected to be a reportable accident shall be counted as a reportable accident in the Monthly Report in the first place. If the accident is subsequently confirmed as non-reportable accident by the authority, the Contractor shall revise and re-submit the concerned Monthly Report(s) to the Architect/Engineer/Supervising Officer and previous measurement(s) and payment(s) made to the Contractor shall be adjusted in accordance with paragraph 22 above.

24. If there is any mis-reporting of the achievements in respect of the performance indicators by the Contractor (e.g. late reporting or under reporting of accidents) in the Monthly Report(s), and if considered appropriate, the Architect/Engineer/Supervising Officer shall reflect the mis-reporting in rating the site safety section of the Contractor's Performance Report.

25. The Architect/Engineer/Supervising Officer is to note that there will not be any payment for the performance-tied payment items after the measurement period (i.e. six months after the completion date or the extended completion date of the Works).

Accident Frequency Rate and Man-hours Worked

26. The accident frequency rate is calculated as the number of reportable accidents per 100,000 man-hours worked. Reportable accident means accidents arising from activities of the Works (including those accidents which happen in Civil Engineering and Development Department's sorting facilities) resulting in any person suffering from death or injury with incapacity for more than three days but excluding the following types of accidents:-

- (a) accident occurred in a site office but was not related to any activity of the Works;
- (b) accident concerning the injury of a government staff;
- (c) accident concerning the injury of resident site staff of the HKSAR Government or its agents including those employed by consultants; and
- (d) accident concerning the injury of visitors or the public to the Site and was not related to any activity of the Works.

27. As a simplified approach for the calculation of accident frequency rate, the man-hours worked of the general workers and tradesmen can be calculated by multiplying the man-days worked with the average daily working hours. The average daily working hours shall be agreed by the Architect/Engineer/Supervising Officer.

28. The total man-hours worked in the calculation of accident frequency rate shall be the sum of the man-hours worked of the general workers, tradesmen and site management staff employed by the Contractor or the sub-contractors for the Works in accordance with Chapter 9 of the CSSM and agreed by the Architect/Engineer/Supervising Officer.

29. No additional documentary proof for the man-days worked is required for the Monthly Report as long as the corresponding man-days worked in the Labour Relation Officer's report are referred to and the figure is agreed by the Architect/Engineer/Supervising Officer.

ANNEX A

**LIST OF SAFETY PERFORMANCE
INDICATORS
FOR
PAY FOR SAFETY PERFORMANCE MERIT
SCHEME (PFSPMS)**

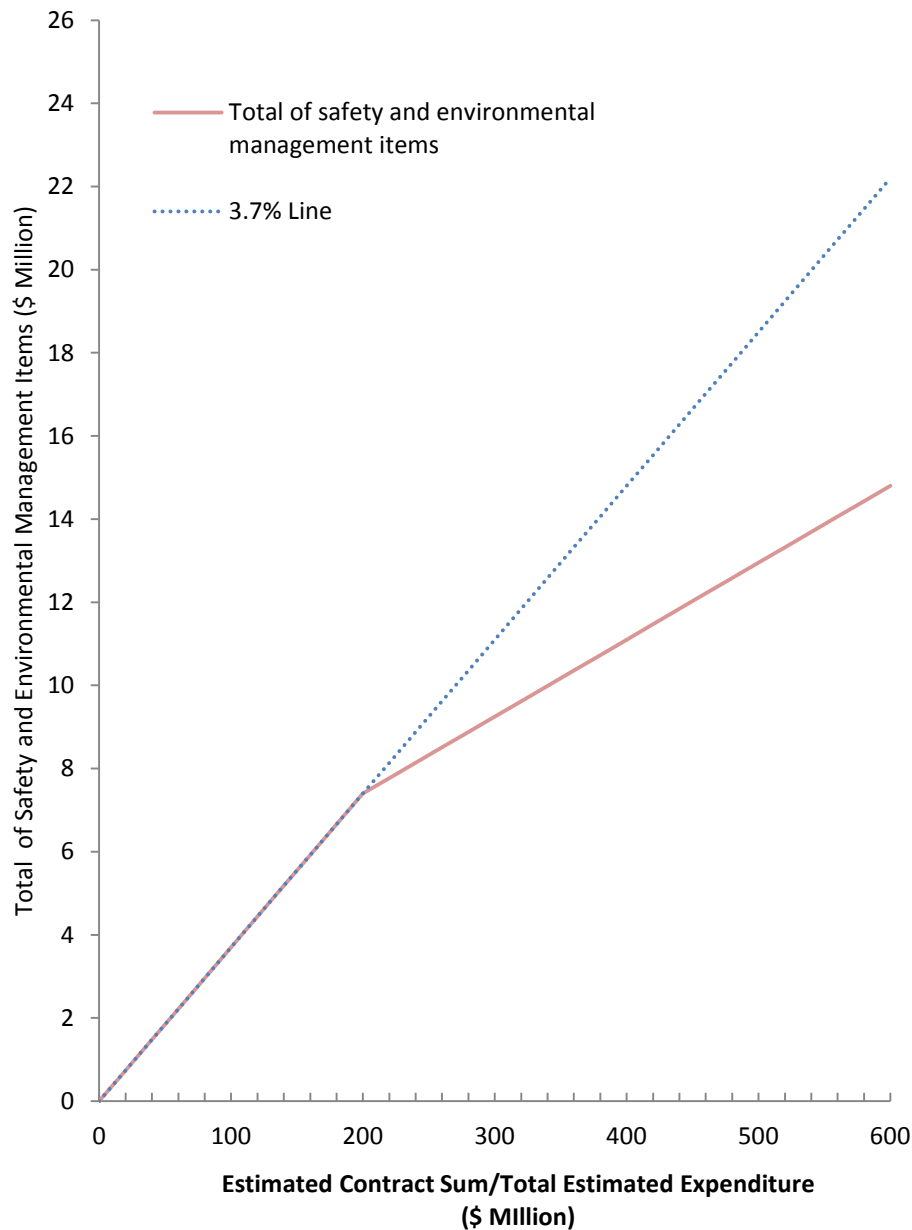
Safety Performance Indicators for PFSPMS

1. No reportable accident in a month.
2. No notice of safety or environmental prosecution received in a month.
3. Compliance of safety training (Silver Card) for workers of specified trades per month.
[Payment is to be made if number of workers with Silver Card training/total number of workers requiring Silver Card > 90%.]
4. Half yearly review of safety performance – based on notices received from Labour Department (LD) in the half year:
 - No Part I Inspection Notice from LD in the half year; and
 - Not more than 5 Part II Inspection Notice from LD in the half year; and
 - No Improvement Notice or Suspension Notice from LD in the half year.
5. 12-month rolling accident frequency rate for reportable accidents (in terms of number of reportable accidents per 100,000 man-hours worked) below **0.25** per 100,000 man-hours worked.
6. Yearly review of safety performance – no fatal accident in a year.
7. Achievement in safety campaigns organized by the Development Bureau [i.e. Considerate Contractors Site Award Scheme (CCSAS)]: -
 - Award under the Considerate Contractors Site Award (CCSA);
 - Award under the Outstanding Environmental Management Performance Award (OEMPA)
 - If the Contractor does not receive any award under CCSA of CCSAS – measurement is made based on the percentage of level 1 (being the highest grade) received in the site assessments.
 - If the Contractor does not receive any award under OEMPA of CCSAS – measurement is made based on the percentage of level 1 (being the highest grade) received in the site assessments
8. Final review of safety performance –
 - No fatal accident in the measurement period as defined in the Measurement Rules; and
 - Cumulative accident frequency rate for reportable accidents below **0.25** per 100,000 man-hours worked in the measurement period as defined in the Measurement Rules.

ANNEX B

GUIDANCE ON SETTING THE TOTAL VALUE OF SAFETY AND ENVIRONMENTAL MANAGEMENT ITEMS FOR CONTRACTS UNDER THE PFSS / PFSES AND PFSPMS

Guidance on the Total Value of Safety and Environmental Management Items for Contracts under the PFSS/PFSES and PFSPMS



Note:

1. For estimated contract sum or total estimated expenditure (excluding the Contingency Sum or any sum for the payment of fluctuations) from and including \$ 20 M, up to and including \$ 200 M, total value of safety and environmental management items under the PFSS/PFSES and PFSPMS = **3.7** % of estimated contract sum or total estimated expenditure.
2. For estimated contract sum or total estimated expenditure (excluding the Contingency Sum or any sum for the payment of fluctuations) > \$ 200 M, total of safety and environmental management items = \$ **7.4M** + (estimated contract sum or total estimated expenditure - \$ 200M) x **1.85** %.

ANNEX C

NOTES TO TENDERERS (FOR THE PFSS/PFSES AND PFSPMS)

Annex C

The following clause is to be added to the Notes to Tenderers:

- (xx) Tenderers shall note that besides the task-tied payment items for the Pay for Safety Scheme (PFSS)*/Pay for Safety and Environment Scheme (PFSES)*, performance-tied payment items for the newly introduced Pay for Safety Performance Merit Scheme (PFSPMS) are also included in this Contract. Tenderers shall pay attention to the Special Conditions of Contract Clause SCC # “Pay for Safety Performance Merit Scheme (PFSPMS)”, Measurement Rules for the Performance-tied Payment Items of the PFSPMS and Schedule of Performance-tied Payment Items of the PFSPMS in Appendix # to the Special Conditions of Contract and the Particular Specification (PS) Clause # of “Particular Specification for Site Safety”** for the operation of the PFSPMS.

(*Delete as appropriate.)

(**Amend as appropriate.)

(# Insert as appropriate.)

ANNEX D

SPECIAL CONDITIONS OF CONTRACTS (FOR PFSPMS)

The following SCC clause is to be added to the Special Conditions of Contract:

[Guidance Notes:

- 1. The following SCC# shall be used when the Pay for Safety Performance Merit Scheme (PFSPMS) is applicable.**
- 2. Pursuant to “Guidelines on the Inclusion of the Pay for Safety Performance Merit Scheme (PFSPMS) as Extension to the Existing System of the Pay for Safety Scheme (PFSS) or the Pay for Safety and Environment Scheme (PFSES)” issued by DEVB’s memo ref. DEVB(W) 516/70/03 dated 22 November 2013, it is a mandatory requirement for public works contracts, but excluding term contracts, that are included in the existing PFSS or PFSES, to be included in the PFSPMS.]**

SCC# (1) For the purposes of this Special Condition of Contract:

“last Section” means the Section with the latest time for completion;

“PFSPMS” means the Pay for Safety Performance Merit Scheme;

“performance-tied payment items” means the performance-tied payment items listed in the Schedule of Performance-tied Payment Items of the PFSPMS in Appendix # to the Special Conditions of Contract under the PFSPMS; and

“time for completion” means the time for completion prescribed by General Conditions of Contract Clause 49 or, where applicable, the extended time for completion granted under General Conditions of Contract Clause 50.

**Pay for Safety
Performance
Merit Scheme
(PFSPMS)**

- (2) The PFSPMS is included in the Contract with the aim of encouraging the Contractor through payment for the performance-tied payment items for achieving better safety performance. The Contractor shall comply with the provisions of this Special Condition of Contract and Particular Specification Clause # “Particular Specification for Site Safety”** for participation in the PFSPMS.
- (3) The Contractor shall submit Monthly Reports on Safety Performance (each of such reports is hereinafter referred to in this Clause as “Monthly Report”) and relevant documentary proof for the performance-tied payment items as required by Particular Specification Clause #

“Particular Specification for Site Safety”** for the agreement by the Architect* / Engineer* / Supervising Officer*.

- [(4) The Engineer* / Supervising Officer* shall assess the amounts for the performance-tied payment items submitted in each Monthly Report on Safety Performance in accordance with the Measurement Rules for the Performance-tied Payment Items of the PFSPMS and the Schedule of Performance-tied Payment Items of the PFSPMS in Appendix # to the Special Conditions of Contract and notify the Contractor of the assessed amounts. The Contractor shall include the assessed amounts in the next interim statement submitted in accordance with General Conditions of Contract Clause 78 or where there is no further interim statement, in the statement of final account submitted in accordance with General Conditions of Contract Clause 79(6).]***[Note: Use this version of sub-clause (4) with the General Conditions of Contract for Civil Engineering Works, Electrical and Mechanical Engineering Works, or Design and Build Contracts.]**

[OR]

- [(4) The Surveyor upon agreement to the Monthly Report by the Architect shall assess the amounts for the performance-tied payment items submitted in each Monthly Report in accordance with the Measurement Rules for the Performance-tied Payment Items of the PFSPMS and the Schedule of Performance-tied Payment Items of the PFSPMS in Appendix # to the Special Conditions of Contract and notify the Contractor of the assessed amounts. The Contractor shall include the assessed amounts in the next interim statement submitted in accordance with General Conditions of Contract Clause 78. Where there is no further interim statement, the Surveyor shall include the assessed amounts in the priced Bills of Variations provided to the Contractor in accordance with General Conditions of Contract Clause 59(7).]* **[Note: Use this version of sub-clause (4) with the General Conditions of Contract for Building Works.]**
- (5) (a) If the Contractor or the Architect* / Engineer* / Supervising Officer* considers that adjustment of any of the Monthly Reports, including those submitted and agreed by the Architect* / Engineer* / Supervising Officer* previously, is required, the Contractor shall revise and re-submit the relevant Monthly Report to the Architect* / Engineer* / Supervising Officer* for

correction and agreement. Any amounts for the performance-tied payment items previously certified by the Surveyor* / Engineer* / Supervising Officer* under General Conditions of Contract Clause 79 shall be corrected accordingly.

- (b) Any accident which is suspected to be a reportable accident shall be counted as a reportable accident in the Monthly Report for the month in which the accident occurs. Without prejudice to the generality of sub-clause (5)(a) above, if it is subsequently concluded that the accident is not a reportable accident, the Contractor shall revise and re-submit the relevant Monthly Report to the Architect* / Engineer* / Supervising Officer* for correction and agreement. Any amounts for the performance-tied payment items previously certified by the Architect* / Engineer* / Supervising Officer* under General Conditions of Contract Clause 79 shall be corrected accordingly.
- (6) There shall be no adjustment for retention of the percentage stated in the Contract [or fluctuations in the cost of labour and materials]* referred to in General Conditions of Contract Clause 79(1) [and Clause 89]* in respect of the amounts certified by the Surveyor* / Engineer* / Supervising Officer* for the performance-tied payment items. [Note: Delete the words in square brackets where contract price fluctuations are not provided for under the contract.]
- (7) Further to General Conditions of Contract Clause 79(5), the Engineer* / Supervising Officer* shall have the power to omit from any certificate the amounts for the performance-tied payment items if he is for the time being dissatisfied with the documentary proof for those items submitted by the Contractor and for that purpose, or for any other reason which to the Engineer* / Supervising Officer* may seem proper, he may by any certificate delete, correct or modify any amounts previously certified by him in respect of the performance-tied payment items. [Note: Use this version of sub-clause (7) with the General Conditions of Contract for Civil Engineering Works, Electrical and Mechanical Engineering Works, or Design and Build Contracts.]

[OR]

- [(7) Further to General Conditions of Contract Clause 79(6) [Note: See the SCC “Final payment certificate” introduced by ETWBTC(W) No. 5/2004], the Surveyor shall have the power to omit from any certificate the

amounts for the performance-tied payment items if the relevant Monthly Report or any part thereof has not been agreed by the Architect and for that purpose, or for any other reason which to the Surveyor may seem proper, he may by any certificate delete, correct or modify any amounts previously certified by him in respect of the performance-tied payment items. [Note: Use this version of sub-clause (7) with the General Conditions of Contract for Building Works.]

- (8) The Surveyor* / Engineer* / Supervising Officer* shall finalise the assessment of the performance-tied payment items within the time period required by the Contract for the issue of the final payment certificate. Effect shall be given to such assessment in the calculation of the Final Contract Sum and in the payment due from the Employer to the Contractor or from the Contractor to the Employer as the case may be under the final payment certificate issued in accordance with General Conditions of Contract Clause 79.

(*Delete as appropriate.)

(**Amend as appropriate.)

(# Insert as appropriate.)

ANNEX E

SAMPLE METHOD OF MEASUREMENT AND SCHEDULE OF ITEMS (FOR PFSPMS)

Annex E – Part I

Sample Measurement Rules for the Performance-tied Payment Items of the PFSPMS **(Appendix to Special Conditions of Contract)**

MEASUREMENT RULES FOR THE PERFORMANCE-TIED PAYMENT ITEMS OF THE PFSPMS

Performance–tied Payment Items

<i>Preambles</i>	a	Rates appearing in the Schedule of Performance-tied Payment Items of the PFSPMS are pre-fixed and shall be deemed to allow for all cost and value for the Contractor in achieving the required performance including meeting all statutory and contractual obligations in the upkeeping of management in the execution of the Works and any other related obligations, liabilities, risks and profit.
	b	The submission of the “Monthly Report on Safety Performance” by the Contractor and the agreement of the Architect’s/Engineer’s/Supervising Officer’s Representative on the above Report are pre-requisites for measurement of the performance-tied payment items. No measurement shall be made in respect of any performance-tied payment items if they are not submitted by the Contractor in the above Report or if they are disagreed by the Architect’s/Engineer’s/Supervising Officer’s Representative.
	c	<p>For the purpose of measurement stated in these Measurement Rules:</p> <p>“calendar month” means any of the twelve portions into which a year is divided;</p> <p>“calendar year” means the period of 12 months commencing on 1 January and ending on 31 December;</p> <p>“earliest date of possession of the Site” means the earliest date of possession of the Site or any Portion or part thereof by the Contractor in accordance with General Conditions of Contract Clause 48;</p> <p>“half calendar year” means the time from and including the first day of January of the year to the last day of June of the same year or, as the case may be, from and including the first day of July of the year to the last day of December of the same year;</p> <p>“last Section” means the Section with the latest time for completion;</p> <p>“PFSPMS” means the Pay for Safety Performance Merit Scheme; and</p> <p>“time for completion” means the time for completion prescribed</p>

		by General Conditions of Contract Clause 49 or, where applicable, the extended time for completion granted under General Conditions of Contract Clause 50.
	d	The quantities in the Schedule of Performance-tied Payment Items of the PFSPMS are provisional only. The final quantities shall be measured in accordance with these Measurement Rules.

	1. NO REPORTABLE ACCIDENTS IN A MONTH	
<i>Units</i>	1	The unit of measurement shall be:
		(i) no reportable accidents in a month month
<i>Measurement</i>	2	The first month to be included in the period to be measured for this item shall commence on the earliest date of possession of the Site and end on the last day of the calendar month within which the earliest date of possession of the Site falls. The second month shall commence on the first day of the second calendar month and end on the last day of the second calendar month and the subsequent months shall run in a similar way. The last month to be included in the period to be measured for this item shall end on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time for completion of the last Section or on an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. Any month which is not a complete calendar month shall be measured proportionally as a fraction of the relevant calendar month. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	3	The item shall be measured once only for each month when during the month, there is no reportable accident on the Site reported.
	4	No measurement shall be made for this item if there is reportable accident on the Site reported in the month.
<i>No reportable accidents in a month</i>	5	The item for “no reportable accidents in a month” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	2. NO NOTICE OF SAFETY OR ENVIRONMENTAL PROSECUTION RECEIVED IN A MONTH	
<i>Units</i>	6	The unit of measurement shall be:
		(i) no notice of safety or environmental prosecution received in a month month

<i>Measurement</i>	7	The first month to be included in the period to be measured for this item shall commence on the earliest date of possession of the Site and end on the last day of the calendar month within which the earliest date of possession of the Site falls. The second month shall commence from and including the first day of the second calendar month to the last day of the second calendar month and the subsequent months shall run in similar way. The last month to be included in the period to be measured for this item shall end on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time for completion of the last Section or an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. Any month which is not a complete calendar month shall be measured proportionally as a fraction of the relevant calendar month. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	8	The item shall be measured once only for each month within which no notice of safety or environmental prosecution in respect of the Works is received by the Contractor.
	9	No measurement shall be made for this item for a month if notice of safety or environmental prosecution in respect of the Works is received by the Contractor in the month.
<i>No notice of safety or environmental prosecution received in a month</i>	10	The item for “no notice of safety or environmental prosecution received in a month” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	3. SAFETY TRAINING (SILVER CARD) FOR SPECIFIED TRADE WORKERS COMPLIANCE	
<i>Units</i>	11	The unit of measurement shall be:
		(i) safety training (Silver Card) for specified trade workers compliance per month ... month
<i>Measurement</i>	12	The first month to be included in the period to be measured for this item shall commence on the earliest date of possession of the Site and end on the last day of the same calendar month. The second month shall commence from and including the first day of the second calendar month to the last day of the second calendar month and the subsequent months shall run in similar way. The last month to be included in the period to be measured for this item shall end on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time

		for completion of the last Section or to an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. Any month which is not a complete calendar month shall be measured proportionally as a fraction of the relevant calendar month. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	13	The item shall be measured once only for a month when the percentage of the number of Silver Card compliance over the total number of workers requiring Silver Card is larger than 90% on a date specified by the Architect/Engineer/Supervising Officer during the month.
	14	No measurement shall be made for this item for a month when the percentage of the number of Silver Card compliance over the total number of workers requiring Silver Card is less than or equal to 90% on the date specified by the Architect/Engineer/Supervising Officer during the month.
<i>Safety training (silver card) for specified trade workers compliance</i>	15	The item for “safety training (silver card) for specified trade workers compliance” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	4. HALF-YEARLY REVIEW OF SAFETY PERFORMANCE – NOTICES FROM LABOUR DEPARTMENT(LD) IN HALF YEAR	
<i>Units</i>	16	The unit of measurement shall be:
		(i) half-yearly review of safety performance – notices from Labour Department (LD) in half year... half year
<i>Measurement</i>	17	The first half year to be included in the period to be measured for this item shall commence on the earliest date of possession of the Site and end on the last day of the half calendar year within which the earliest date of possession of the Site falls. The second half year shall commence on the first day of the second half calendar year and end on the last day of the second half calendar year and the subsequent half years shall run in similar way. The last half year to be included in the period to be measured for this item shall end on the date six months after the time for completion of the Works, or if the Works are divided into Sections, the time for completion of the last Section or on an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for

		completion of the Works or the last Section, as the case may be. Any half year which is not a complete half calendar year shall be measured proportionally as a fraction of the relevant half calendar year. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	18	If inspection(s) of the construction site is/are conducted by Labour Department (LD) in the concerned period, the item shall be measured once only for each half year when during the half year, the Contractor has satisfied all of the following criteria in respect of the Works:
		(i) no Part I Inspection Notice is issued by LD; (ii) not more than 5 Part II Inspection Notice is issued by LD; and (iii) no Improvement Notice (IN) or Suspension Notice (SN) is issued by LD.
	19	If no inspection of the construction site is conducted by LD in the concerned period, this item shall be measured once.
	20	No measurement shall be made for this item for any half year within which any of the criteria regarding Notices issued by Labour Department mentioned in the paragraph 24 above is not satisfied.
<i>Half-yearly review of safety performance – notices from Labour Department in half year</i>	21	The item for “half-yearly review of safety performance – notices from LD in half year” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	5. 12-MONTH ROLLING ACCIDENT FREQUENCY RATE FOR REPORTABLE ACCIDENTS	
<i>Units</i>	22	The unit of measurement shall be:
		(i) 12-month rolling accident frequency rate for reportable accidents ... 12- month rolling period
<i>Measurement</i>	23	In each 12- month rolling period within the period to be measured for this item, all reportable accidents in the 12-month rolling period shall be included in the calculation of the total reportable accidents on the Site per total man-hours worked as the 12-month rolling accident frequency rate for reportable accidents for the 12-month rolling period. A 12-month rolling period within the period to be measured for this item shall be measured if its 12-month rolling accident frequency rate for reportable accidents is below

		the threshold of 0.25 per 100,000 man-hours worked. The period to be measured for this item shall commence on the earliest date of possession of the Site and end on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time for completion of the last Section or an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. Any month which is not a complete calendar month shall not be included in any 12- month rolling period for calculation of the 12-month rolling accident frequency rate for reportable accidents for this item. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	24	The item shall be measured once only for any 12- month rolling period of which the 12-month rolling accident frequency rate for reportable accidents is below 0.25 per 100,000 man-hours worked.
	25	No measurement shall be made for this item for any period which is not a 12-month rolling period or for any 12- month rolling period of which the 12-month rolling accident frequency rate for reportable accidents is equal or higher than 0.25 per 100,000 man-hours worked.
<i>12-month rolling accident frequency rate for reportable accidents</i>	26	The item for “12-month rolling accident frequency rate for reportable accidents” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	6. YEARLY REVIEW OF SAFETY PERFORMANCE - NO FATAL ACCIDENT IN A YEAR	
<i>Units</i>	27	The unit of measurement shall be:
		(i) yearly review of safety performance - no fatal accident in a year ... year
<i>Measurement</i>	28	The first year to be included in the period to be measured for this item shall commence on the earliest date of possession of the Site and end on the last day of the calendar year within which the earliest date of possession of the Site falls. The second year shall commence on the first day of the second calendar year and end on the last day of the second calendar year and the subsequent years shall run in similar way. The last year to be included in the period to be measured for this item shall end on the date six months after the time for completion of the Works, or if the Works are divided into Sections, the time for completion of the last Section or an earlier or later date notified by the Architect/Engineer/Supervising

		Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. Any year which is not a complete calendar year shall be measured proportionally as a fraction of the relevant calendar year. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	29	The item shall be measured once only for each year when during the year, no fatal accident on the Site is reported.
	30	No measurement shall be made for this item for a year if fatal accident on the Site is reported during the year.
<i>Yearly review of safety performance - no fatal accident in a year</i>	31	The item for “yearly review of safety performance - no fatal accident in a year” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	7. ACHIEVEMENT IN SAFETY CAMPAIGNS ORGANIZED BY DEVELOPMENT BUREAU	
<i>Units</i>	32	The units of measurement shall be:
		(i) Considerate Contractors Site Award (CCSA)....nr (ii) Outstanding Environmental Management Performance Award (OEMPA)...nr (iii) No CCSA under CCSAS – measurement for level 1 assessment.....% (iv) No OEMPA under CCSAS – measurement for level 1 assessment.....%
<i>Measurement</i>	33	The number (nr) to be measured for “Considerate Contractors Site Award (CCSA)” under the Considerate Contractors Site Award Scheme (CCSAS) shall be within the period commencing on the earliest date of possession of the Site and ending on the last date of the time for completion of the Works or if the Works are divided into Sections, the last date of the time for completion of the last Section or to a later date notified by the Architect/Engineer/Supervising Officer. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	34	The item “Considerate Contractors Site Award (CCSA)” shall be measured once for each CCSAS participated by the Contractor if the Contractor completes the CCSAS with achievement of either gold award, silver award, bronze award or merit award of CCSA in the CCSAS.
	35	No measurement shall be made for “Considerate Contractors Site

		Award (CCSA)” for the CCSAS participated by the Contractor where the Contractor has not achieved any of the gold, silver, bronze or merit awards of CCSA in the CCSAS.
	36	The number (nr) to be measured for “Outstanding Environmental Management Performance Award (OEMPA)” under the CCSAS shall be within the period commencing on the earliest date of possession of the Site and ending on the last date of the last date of the time for completion of the Works or if the Works are divided into Sections, the last date of the time for completion of the last Section or to a later date notified by the Architect/Engineer/Supervising Officer. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	37	The item “Outstanding Environmental Management Performance Award (OEMPA)” shall be measured once for each CCSAS participated by the Contractor if the Contractor completes the CCSAS with achievement of either gold award, silver award, bronze award or merit award of OEMPA in the CCSAS.
	38	No measurement shall be made for “Outstanding Environmental Management Performance Award (OEMPA)” for the CCSAS participated by the Contractor where the Contractor has not achieved any of the gold, silver, bronze or merit awards of OEMPA in the CCSAS.
	39	The percentage (%) to be measured for “No CCSA under CCSAS – measurement for level 1 assessment” shall be within the period commencing on the earliest date of possession of the Site and ending on the last date of the time for completion of the Works or if the Works are divided into Sections, the last date of the time for completion of the last Section or to a later date notified by the Architect/Engineer/Supervising Officer. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	40	The item “No CCSA under CCSAS – measurement for level 1 assessment” shall be measured once for each CCSAS participated by the Contractor based on the percentage of number of achievement of level 1 assessments by the Contractor per total number of assessments for each CCSAS participated by the Contractor when the Contractor does not achieve any award under the same CCSAS participated by the Contractor. Level 1 assessment refers to the assessment sheet of the CCSAS with level 1 being the highest rating for each item.
	41	No measurement shall be made for “No CCSA under CCSAS – measurement for level 1 assessment” for the CCSAS participated by the Contractor where the Contractor has achieved any of the gold, silver, bronze or merit awards of CCSA under the same CCSAS participated by the Contractor.
	42	The percentage (%) to be measured for “No OEMPA under CCSAS – measurement for level 1 assessment” shall be within the period commencing on the earliest date of possession of the Site

		and ending on the last date of the time for completion of the Works or if the Works are divided into Sections, the last date of the time for completion of the last Section or to a later date notified by the Architect/Engineer/Supervising Officer. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	43	The item “No OEMPA under CCSAS – measurement for level 1 assessment” shall be measured once for each CCSAS participated by the Contractor based on the percentage of number of achievement of level 1 assessments by the Contractor per total number of assessments for each CCSAS participated by the Contractor when the Contractor does not achieve any OEMPA under the same CCSAS participated by the Contractor. Level 1 assessment refers to the assessment sheet of the CCSAS with level 1 being the highest rating for each item.
	44	No measurement shall be made for “No OEMPA under CCSAS – measurement for level 1 assessment” for the CCSAS participated by the Contractor where the Contractor has achieved any of the gold, silver, bronze or merit awards of OEMPA under the same CCSAS participated by the Contractor.
	45	The item for “Considerate Contractors Site Award (CCSA)” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	46	The item for “Outstanding Environmental Management Performance Award (OEMPA)” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	47	The item for “no CCSA under CCSAS – measurement for level 1 assessment” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	48	The item for “no OEMPA under CCSAS – measurement for level 1 assessment” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
	8. FINAL REVIEW OF SAFETY PERFORMANCE	
<i>Units</i>	49	The units of measurement shall be:
		(i) no fatal accident.....item

		(ii) cumulative accident frequency rate for reportable accidents.....item
<i>Measurement</i>	50	The period covered by “no fatal accident” shall be the time commencing on the earliest date of possession of the Site and ending on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time for completion of the last Section or an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. This item shall be measured in the final review if no fatal accident on the Site is reported during the above mentioned period of time. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	51	The period covered by “cumulative accident frequency rate for reportable accidents” shall be the time commencing on the earliest date of possession of the Site and ending on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time for completion of the last Section or an earlier or later date notified by the Architect/Engineer/Supervising Officer provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. This item shall be measured in the final review if the cumulative accident frequency rate for reportable accidents on the Site reported is below 0.25 per 100,000 man-hours worked during the above period of time in the final review. No measurement shall be made for this item for any time before or after the above mentioned period to be measured for this item.
	52	No measurement shall be made for “no fatal accident” if there is fatal accident record reported during the above mentioned period of time in the final review.
	53	No measurement shall be made for “cumulative accident frequency rate for reportable accidents” if the cumulative accident frequency rate for reportable accidents on the Site reported is above or equal to 0.25 per 100,000 man-hours during the above mentioned period of time in the final review.
<i>No fatal accident</i>	54	The item for “no fatal accident” shall include for:
<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
<i>Cumulative accident frequency rate for reportable accidents</i>	55	The item for “cumulative accident frequency rate for reportable accidents” shall include for:

<i>Item coverage</i>		(a) all efforts, costs, expenses, loss or profit provided, incurred or allowed by the Contractor for striving to achieve the performance required by this item.
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Annex E – Part II (A)

Sample Schedule of Performance-tied Payment Items of the PFSPMS

(Based on \$200M estimated contract value, excluding the Contingency Sum and any sum allowed for fluctuations, for a contract period of 24 months)

Schedule of Performance-tied Payment Items of the PFSPMS

(A) Performance-tied payment items						
Item no.	Description of Payment items on performance indicators	Quantity	Unit	Rate (\$)	Amount (\$)	[Assigned % on capped amounts][®]
1.	No reportable accidents in a month	34 [^]	month	12,000	408,000*	[12%]
2.	No notice of safety or environmental prosecution received in a month	34 [^]	month	12,000	408,000*	[12%]
3.	Safety training (Silver Card) for specified trade workers compliance per month Payment to be made if: no. of Silver Card compliance/ total no. of workers requiring Silver Card > 90% on a date specified by the Architect/Engineer/Supervising Officer during the month	34 [^]	month	6,000	204,000*	[6%]
4.	Half-yearly review of safety performance – notices from Labour Department (LD) Payment to be made if there is:- - No Part I Inspection Notice ^(note 2) from LD; - Not more than 5 Part II Inspection Notice ^(note 2) from LD; and - No Improvement Notice or Suspension Notice from LD in half year	5.6 [^]	Half-year	73,000	408,800*	[12%]
5.	12-month rolling accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked	23 ^{^^}	12-month rolling period	27,000	621,000*	[18%]
6.	Yearly review of safety performance - no fatal accident in a year	2.8 [^]	year	220,00	616,000*	[18%]
7.	Achievement in safety campaigns organized by Development Bureau (i) Considerate Contractors Site Award (CCSA [#]) (a) Obtaining gold award	2	nr	120,000	240,000*	[7% or \$0.36M whichever is the lower]

(A) Performance-tied payment items						
Item no.	Description of Payment items on performance indicators	Quantity	Unit	Rate (\$)	Amount (\$)	[Assigned % on capped amounts]®
8.	(b) Obtaining silver award	2	nr	96,000	192,000	(80% of gold)
	(c) Obtaining bronze award	2	nr	72,000	144,000	(60% of gold)
	(d) Obtaining merit award	2	nr	48,000	96,000	(40% of gold)
	(ii) Outstanding Environmental Management Performance Award (OEMPA [#])					
	(a) Obtaining gold award	2	nr	45,000	90,000 *	[3%* or \$0.14M whichever is the lower]
	(b) Obtaining silver award	2	nr	36,000	72,000	(80% of gold)
	(c) Obtaining bronze award	2	nr	27,000	54,000	(60% of gold)
	(d) Obtaining merit award	2	nr	18,000	36,000	(40% of gold)
	(iii) No CCSA under CCSAS – measurement for level 1 ^(note3) assessment:	200	%	24,000	48,000	(20% of gold)
	(iv) No OMEPA under CCSAS – measurement for level 1 ^(note3) assessment:	200	%	9,000	18,000	(20% of gold)
	Final review of safety performance in respect of:					
	(i) no fatal accident	1	item	200,000	200,000 *	[6%]
	(ii) cumulative accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked	1	item	200,000	200,000 *	[6%]
Total					3,395,800Δ	
Provisional Sum for PFSPMS to be stated in the Summary of Tender** / General Summary**/Grand Summary**:					[Sum]	

Notes:

- ^ The period allowed for the completion of the Works is: for every 12 months of the original contract period, a 2 months' period for potential extension of time is added and for the whole contract period, a six months' period after the certified completion of the Works is to be added. E.g. 24 months for original contract period + 2 x 2months for EOT + 6 months after certified completion = 34 months (or 2.8 years or 5.6 half years). Deduction should be made to the above allowed period if the earliest date of possession of the Site or Portion(s) of the Site by the Contractor in accordance with GCC Clause 48(1) is to be later than the date for commencement of the Works.
- ^^ The period allowed for the completion of the Works is: for every 12 months of the original contract period, a 2 months' period for potential extension of time is added and for the whole contract period, a six months' period after the certified completion of the Works is to be added. However, as the countable 12-month rolling period does not include the first 11 months from the earliest date of possession of the Site by the Contractor, the period allowed for this item has to minus 11 months. E.g. 24 months for original contract period + 2 x 2months + 6 months after certified completion for EOT – 11 months = 23 months. Deduction should be made to the above allowed period if the earliest date of possession of the Site or Portion(s) of the Site by the Contractor in accordance with GCC Clause 48(1) is to be later than the date for commencement of the Works.
- # The CCSA and OEMPA are awards under annual Considerate Contractors Site Award Scheme (CCSAS) organized by DEVB. An award can be achieved for each calendar year started usually from the first day of the year to the last day of the year. The proportions of the rates for the gold award, silver award, bronze award and merit award for CCSA and OEMPA and shown in the sample Schedule are for reference and should be adjusted by the project officer to suit the circumstances of the Works.
- @ This column is for guidance only and should not be entered in the Schedule of Performance-tied Payment Items of the PFSPMS.
- ** To be deleted or amended as appropriate.
- Δ Total of payment items marked with *.
- 1. For estimated contract value (excluding the Contingency Sum and any sum allowed for fluctuations) from and including \$20M, up to and including \$200M, the maximum total amount of all the capped amounts (denoted with *) allowed for the performance-tied payment items is calculated as:

$$(\text{estimated contract value} \times 1.7\%) = 1.7\% \text{ of the estimated contract value}$$

The maximum total amount allowed for the performance-tied payment items for estimated contract value of \$200M is approximate to the calculation of:

$$(\$200\text{M estimated contract value} \times 1.7\%) = \$3.4\text{M}.$$

The capped amount (*) is approximate to the calculation of:

$$\$3.4\text{M} \times \text{the percentage assigned to the capped amount}.$$
- 2. Part I Inspection Notice and Part II Inspection Notice refer to the requirements tabulated in Part I and Part II of the Site Inspection Report issued by the Labour Department.
- 3. Level 1 assessment refers to the assessment sheet of the CCSAS for CCSA and OMEPA respectively with level 1 being the highest rating for each item.

Annex E – Part II (B)

Sample Schedule of Performance-tied Payment Items of the PFSPMS

(Based on \$500M estimated contract value, excluding the Contingency Sum and any sum allowed for fluctuations, for a contract period of 36 months)

Schedule of Performance-tied Payment Items of the PFSPMS

(B) Performance-tied payment items						
Item no.	Description of Payment items on performance indicators	Quantity	Unit	Rate (\$)	Amount (\$)	[Assigned % on capped amounts][@]
1.	No reportable accidents in a month	48 [^]	month	16,000	768,000*	[12%]
2.	No notice of safety or environmental prosecution received in a month	48 [^]	month	16,000	768,000*	[12%]
3.	Safety training (Silver Card) for specified trade workers compliance per month Payment to be made if: no. of Silver Card compliance/ total no. of workers requiring Silver Card > 90% on a date specified by the Architect/Engineer/Supervising Officer during the month	48 [^]	month	7,000	336,000*	[6%]
4.	Half-yearly review of safety performance – notices from Labour Department (LD) Payment to be made if there is:- - No Part I Inspection Notice ^(note 2) from LD; - Not more than 5 Part II Inspection Notice ^(note 2) from LD; and - No Improvement Notice or Suspension Notice from LD in half year	8.0 [^]	Half-year	85,000	680,000 *	[12%]
5.	12-month rolling accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked	37 ^{^^}	12-month rolling period	30,000	1,110,000 *	[18%]
6.	Yearly review of safety performance - no fatal accident in a year	4 [^]	year	275,00	1,100,000 *	[18%]
7.	Achievement in safety campaigns organized by Development Bureau (i) Considerate Contractors Site Award (CCSA [#]) (a) Obtaining gold award	3	nr	120,000	360,000 *	[7% or \$0.36M whichever is the lower]

(B) Performance-tied payment items						
	(b) Obtaining silver award	3	nr	96,000	288,000	<i>(80% of gold)</i>
	(c) Obtaining bronze award	3	nr	72,000	216,000	<i>(60% of gold)</i>
	(d) Obtaining merit award	3	nr	48,000	144,000	<i>(40% of gold)</i>
	(ii) Outstanding Environmental Management Performance Award (OEMPA [#])					
	(a) Obtaining gold award	3	nr	45,000	135,000 *	<i>[3%* or \$0.14M whichever is the lower]</i>
	(b) Obtaining silver award	3	nr	36,000	108,000	<i>(80% of gold)</i>
	(c) Obtaining bronze award	3	nr	27,000	81,000	<i>(60% of gold)</i>
	(d) Obtaining merit award	3	nr	18,000	54,000	<i>(40% of gold)</i>
	(iii) No CCSA under CCSAS – measurement for level 1 ^(note3) assessment:	300	%	24,000	72,000	<i>(20% of gold)</i>
	(iv) No OMEPA under CCSAS – measurement for level 1 ^(note3) assessment:	300	%	9,000	27,000	<i>(20% of gold)</i>
8.	Final review of safety performance in respect of:					
	(i) no fatal accident	1	item	350,000	350,000 *	<i>[6%]</i>
	(ii) cumulative accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked	1	item	350,000	350,000 *	<i>[6%]</i>
				Total	5,957,000Δ	
	Provisional Sum for PFSPMS to be stated in the Summary of Tender** / General Summary**/Grand Summary**:				[Sum]	

Notes:

- ^ The period allowed for the completion of the Works is: for every 12 months of the original contract period, a 2 months' period for potential extension of time is added and for the whole contract period, a six months' period after the certified completion of the Works is to be added. E.g. 36 months for original contract period + 3 x 2months for EOT + 6 months after certified completion = 48 months (or 4.0 years or 8.0 half years). Deduction should be made to the above allowed period if the earliest date of possession of the Site or Portion(s) of the Site by the Contractor in accordance with GCC Clause 48(1) is to be later than the date for commencement of the Works.

- ^^ The period allowed for the completion of the Works is: for every 12 months of the original contract period, a 2 months' period for potential extension of time is added and for the whole contract period, a six months' period after the certified completion of the Works is to be added. However, as the countable 12-month rolling period does not include the first 11 months from the earliest date of possession of the Site by the Contractor, the period allowed for this item has to minus 11 months. E.g. 36 months for original contract period + 3 x 2months + 6 months after certified completion for EOT – 11 months = 37 months. Deduction should be made to the above allowed period if the earliest date of possession of the Site or Portion(s) of the Site by the Contractor in accordance with GCC Clause 48(1) is to be later than the date for commencement of the Works.

- # The CCSA and OEMPA are awards under annual Considerate Contractors Site Award Scheme (CCSAS) organized by DEVB. An award can be achieved for each calendar year started from the first day of the year to the last day of the year. The proportions of the rates for the gold award, silver award, bronze award and merit award for CCSA and OEMPA shown in the sample Schedule are for reference and should be adjusted by the project officer to suit the circumstances of the Works.

- @ This column is for guidance only and should not be entered in the Schedule of Performance-tied Payment Items of the PFSPMS.

- ** To be deleted or amended as appropriate.

- Δ Total of payment items marked with *.

- 1. For estimated contract value (excluding the Contingency Sum and any sum allowed for fluctuations) of more than \$200M, the maximum total amount of all the capped amounts (denoted with *) allowed for the performance-tied payment items is calculated as:

$$[\$3.4\text{M} + (\text{estimated contract value} - \$200\text{M}) \times 0.85 \, \%]$$

The maximum amount allowed for the performance-tied payment items for estimated contract value of \$500M is approximate to the calculation of:

$$[\$3.4\text{M} + (\$500\text{M estimated contract value} - \$200\text{M}) \times 0.85 \, \%] = \$5.95\text{M}.$$

The capped amount (*) is approximate to the calculation of:

$$\$5.95\text{M} \times \text{the percentage assigned to the capped amount}.$$

- 2. Part I Inspection Notice refers to the requirements tabulated in Part I of the Site Inspection Report issued by the Labour Department.

- 3. Level 1 assessment refers to the assessment sheet of the CCSAS for CCSA and OMEPA respectively with level 1 being the highest rating for each item.

Annex E – Part II(C)

Sample Schedule of Performance-tied Payment Items of the PFSPMS

(Based on an estimated total expenditure of \$100M, excluding the Contingency Sum and any sum allowed for fluctuations, for a contract period of 24 months)

Schedule of Performance-tied Payment Items of the PFSPMS for Lump Sum Contracts with Drawings and Specification

(C) Performance-tied payment items						
Item no.	Description of Payment items on performance indicators	Quantity	Unit	Rate (\$)	Amount (\$)	[Assigned % on capped amounts][@]
1.	No reportable accidents in a month	34^	month	6,000	204,000*	[12%]
2.	No notice of safety or environmental prosecution received in a month	34^	month	6,000	204,000*	[12%]
3.	Safety training (Silver Card) for specified trade workers compliance per month Payment to be made if: no. of Silver Card compliance/ total no. of workers requiring Silver Card > 90% on a date specified by the Architect/Engineer/Supervising Officer during the month	34^	month	3,000	102,000*	[6%]
4.	Half-yearly review of safety performance – notices from Labour Department (LD) Payment to be made if there is:- - No Part I Inspection Notice ^(note 2) from LD; - Not more than 5 Part II Inspection Notice ^(note 2) from LD; and - No Improvement Notice or Suspension Notice from LD in half year	5.6^	Half-year	35,000	196,000*	[12%]
5.	12-month rolling accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked	23^^	12-month rolling period	13,000	299,000*	[18%]
6.	Yearly review of safety performance - no fatal accident in a year	2.8^	year	105,000	294,000*	[18%]
7.	Achievement in safety campaigns organized by Development Bureau (i) Considerate Contractors Site Award (CCSA [#]) (a) Obtaining gold award	2	nr	70,000	140,000*	[7% or \$0.36M whichever is the lower]

(C) Performance-tied payment items						
Item no.	Description of Payment items on performance indicators	Quantity	Unit	Rate (\$)	Amount (\$)	[Assigned % on capped amounts][®]
	(b) Obtaining silver award	2	nr	56,000	112,000	(80% of gold)
	(c) Obtaining bronze award	2	nr	42,000	84,000	(60% of gold)
	(d) Obtaining merit award	2	nr	28,000	56,000	(40% of gold)
	(ii) Outstanding Environmental Management Performance Award (OEMPA [#])					
	(a) Obtain gold award	2	nr	30,000	60,000 *	[3%* or \$0.14M whichever is lower]
	(b) Obtaining silver award	2	nr	24,000	48,000	(80% of gold)
	(c) Obtaining bronze award	2	nr	18,000	36,000	(60% of gold)
	(d) Obtaining merit award	2	nr	12,000	24,000	(40% of gold)
	(iii) No CCSA under CCSAS – measurement for level 1 ^(note3) assessment:	200	%	14,000	28,000	(20% of gold)
	(iv) No OMEPA under CCSAS – measurement for level 1 ^(note3) assessment:	200	%	6,000	12,000	(20% of gold)
8.	Final review of safety performance in respect of:					
	(i) no fatal accident	1	item	100,000	100,000 *	[6%]
	(ii) cumulative accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked	1	item	100,000	100,000 *	[6%]
Total					1,699,000Δ	
Provisional Sum for PFSPMS to be stated in the Summary of Tender** / General Summary**/Grand Summary**:					[Sum]	

Notes:

- ^ The period allowed for the completion of the Works is: for every 12 months of the original contract period, a 2 months' period for potential extension of time is added and for the whole contract period, a six months' period after the certified completion of the Works is to be added. E.g. 24 months for original contract period + 2 x 2months for EOT + 6 months after certified completion = 34 months (or 2.8 years or 5.6 half years). Deduction should be made to the above allowed period if the earliest date of possession of the Site or Portion(s) of the Site by the Contractor in accordance with GCC Clause 48(1) is to be later than the date for commencement of the Works.
- ^^ The period allowed for the completion of the Works is: for every 12 months of the original contract period, a 2 months' period for potential extension of time is added and for the whole contract period, a six months' period after the certified completion of the Works is to be added. However, as the countable 12-month rolling period does not include the first 11 months from the earliest date of possession of the Site or Portion(s) of the Site by the Contractor, the period allowed for this item has to minus 11 months. E.g. 24 months for original contract period + 2 x 2months + 6 months after certified completion for EOT – 11 months = 23 months. Deduction should be made to the above allowed period if the earliest date of possession of the Site or Portion(s) of the Site by the Contractor in accordance with GCC Clause 48(1) is to be later than the date for commencement of the Works.
- # The CCSA and OEMPA are awards under annual Considerate Contractors Site Award Scheme (CCSAS) organized by DEVB. An award can be achieved for each calendar year started from the first day of the year to the last day of the year. The proportions of the rates for the gold award, silver award, bronze award and merit award for CCSAS and OEMPA shown in the sample Schedule are for reference and should be adjusted by the project officer to suit the circumstances of the Works.
- @ This column is for guidance only and should not be entered in the Schedule of Performance-tied Payment Items of the PFSPMS.
- ** To be deleted or amended as appropriate.
- Δ Total of payment items marked with *.
- 1. For estimated contract value (excluding the Contingency Sum and any sum allowed for fluctuations) from and including \$20M, up to and including \$200M, the maximum total amount of all the capped amounts (denoted with *) allowed for the performance-tied payment items is calculated as:

$$(\text{estimated contract value} \times 1.7\%) = 1.7\% \text{ of the estimated contract value}$$

The maximum total amount of all the capped amounts (denoted with *) allowed for the performance-tied payment items of estimated total expenditure of \$100M is approximate to the calculation of:

$$(\$100\text{M estimated contract value} \times 1.7\%) = \$1.7\text{M}.$$

The capped amount (*) is approximate to the calculation of:

$$\$1.7\text{M} \times \text{the percentage assigned to the capped amount}.$$
- 2. Part I Inspection Notice refers to the requirements tabulated in Part I of the Site Inspection Report issued by the Labour Department.
- 3. Level 1 assessment refers to the assessment sheet of the CCSAS for CCSA and OMEPA respectively with level 1 being the highest rating for each item.

Annex E – Part III

Sample Summary of Tender for Lump Sum Capital Works Contracts (with Drawings and Specification contract or Design and Build contract) included in the PFSS / PFSES and PFSPMS

[Guidance Note: Sample Summary of Tender showing how the Provisional Sums are included]

Summary of Tender

	Page	\$	¢
1. SPECIFICATION PRELIMINARIES		()*	
2. SCHEDULE OF RATES (to be submitted by the Contractor)			
Section A – Contractor’s Designed piled Foundations		()*	
Section B – Contractor’s Designed Pile Caps and Strap Beams		()*	
Section C – Ancillary Work		()*	
Section D – [Pay for Safety and Environment Scheme, Site Cleanliness and Tidiness, etc. Insert as applicable.]		()*	
3. PROVISIONAL SUM			
<i>[Provide the following sums to be expended in part or in whole as directed by the Architect+ / Engineer+/Supervising Officer+ or wholly deducted from the Contract Sum if not required.]</i>			
Provide the Provisional Sum of \$_____ for performance-tied payment items under the Pay for Safety Performance Merit Scheme (PFSPMS).	sum	_____	00
4. CONTINGENCY SUM			
Contingency Sum	sum	**2,000,000	00
TOTAL CARRIED TO FORM OF TENDER		\$	

[Notes:

- * Amount to be inserted by tenderers
- ** Amount fixed by the contract drafter
- # Insert the information as appropriate.
- + Delete or amend as appropriate.]

ANNEX F

REVISED PARTICULAR SPECIFICATION ON SITE SAFETY

**Revision to Particular Specifications on Site Safety in Construction Site Safety Manual
Chapter 3 Appendix III**

Revisions to Particular Specification on Site safety in Construction Site Safety Manual Chapter 3 Appendix III shall be made as follows:

- (1) The terms “Construction Industry Training Authority” and “CITA” as appeared in Particular Specification on Site safety in Construction Site Safety Manual Chapter 3 Appendix III shall be replaced by “Construction Industry Council Training Academy” and “CICTA” respectively.
- (2) The terms “Site Safety Committee” and “Site Safety Management Committee” as appeared in Particular Specification on Site safety in Construction Site Safety Manual Chapter 3 Appendix III shall be replaced by “Site Safety and Environmental Committee” and “Site Safety and Environmental Management Committee” respectively (as per ETWB TCW No. 19/2005 and Interim Guidance Note on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts).
- (3) Clauses introduced by ETWB TCW No. 30/2002 shall be added to Particular Specification on Site Safety for capital works contracts and Design and Build contracts that are included in the PFSS / PFSES or/and PFSPMS shall be added as Clauses 16 “Site Safety Cycle” and 17 “Welfare Facilities for Workers” in the Particular Specification on Site Safety and/or Temporary Accommodation for the Contractor/Contractor's Site Accommodation as appropriate.
- (4) The following Clause 18 shall be added to Particular Specification on Site Safety if the Contract is a capital works contract, electrical and mechanical (E&M) contract or Design and Build (D&B) contract that covers task-tied payment items of the PFSS / PFSES and performance-tied payment items of the PFSPMS:

18 Report on Safety Performance and Payment for Performance-tied Payment Items**

- (1) The payments on safety cover both the task-tied payment items for the implementation of stipulated safety measures such as provision and updating of safety plan, attending safety meetings and safety walks, provision of safety officers and safety training etc. and the performance-tied payment items which are measured according to the Contractor’s achievements in the performance indicators such as no reportable accident in a month, accident frequency rate, no notice of safety and environmental prosecution, etc. The task-tied payment items are payment items under the Pay for Safety Scheme (PFSS)** / Pay for Safety and Environment Scheme (PFSES)** and are listed in Bills of Quantities Bill No. [#]** / Schedule of Rates**. The performance-tied payment items are payment items under the Pay for Safety Performance Merit Scheme (PFSPMS) and are listed in the Schedule of Performance-tied Payment Items of the PFSPMS in Appendix [#] to the Special Conditions of Contract. Measurement and payment for the performance-tied payment items shall be in accordance with the Special Conditions of Contract Clause SCC[#]. A Provisional Sum for the performance-tied payment items payment items under the PFSPMS is stated in the General Summary in the Bills of Quantities** / Summary of Tender**.

- (2) In the performance-tied payment items of the PFSPMS, “reportable accident” means accidents arising from activities of the Works (including those accidents which happen in Civil Engineering and Development Department’s sorting facilities)* resulting in any person suffers death or injury with incapacity for more than three days but excluding the following types of accidents:-
- (a) accident occurred in a site office but was not related to any activity of the Works;
 - (b) accident concerning the injury of a government staff;
 - (c) accident concerning the injury of resident site staff of the HKSAR Government or its agents including those employed by consultants; and
 - (d) accident concerning the injury of visitors or the public to the Site and was not related to any activity of the Works.
- (3) The accident frequency rate is calculated as the number of reportable accidents per 100,000 man-hours worked in which:-
- (a) wherever appropriate, the rules for counting reportable accidents for accidents statistics in Section 9.3 in Chapter 9 of Construction Site Safety Manual published by the Development Bureau shall be followed; and
 - (b) “man-hours worked” is the man-hours worked by all persons employed by the Contractor and his sub-contractors who are exposed to risk, including the Contractor’s site supervisory staff, site agent and engineer(s), workers and watchmen etc., and the man-hours of Architect/Engineer/Supervising Officer’s site staff are to be excluded.
- (4) The Contractor shall submit a “Monthly Report on Safety Performance” (the Monthly Report) to the Architect/Engineer/Supervising Officer* using the prescribed proforma in Appendix I** of this Particular Specification on the measurement of the performance-tied payment items of the PFSPMS for each month falling within the period which commences on the earliest date of possession of the Site and ends on the date six months after the time for completion of the Works or if the Works are divided into Sections, the time for completion of the last Section or on an earlier or later date notified by the Architect/Engineer/Supervising Officer* provided that such date shall not be earlier than the last date of the time for completion of the Works or the last Section, as the case may be. The first month shall commence on the earliest date of possession of the Site and end on the last day of the calendar month within which the earliest date of possession of the Site falls. The second month shall commence on the first day of the second calendar month and end on the last day of the second calendar month and the subsequent months shall run in a similar way. The last month shall end on the date on which the said period ends. The Monthly Report shall be prepared and signed by the Safety Officer and endorsed by the Site Agent of the Contractor. For the purposes of this Clause, the terms “calendar month”, “earliest date of possession of the Site”, “time for completion” and “last Section” shall have the meaning assigned to those terms in the Measurement Rules for the Performance-tied Payment Items of the PFSPMS in Appendix [#] to the Special Conditions of Contract.
- (5) The Contractor shall submit documentary proof for the performance achievements stated in the “Monthly Report on the Safety Performance” to the Architect/Engineer/Supervising Officer*.
- (6) No measurement and payment on the performance-tied payment items shall be assessed by the Surveyor/Engineer/Supervising Officer* unless the performance achievements on the corresponding indicators reported by the Contractor in the duly completed and signed Monthly Report has been agreed by the Architect’s/Engineer’s/Supervising Officer’s Representative*.

- (7) If it is subsequently aware by the Contractor or the Architect's/Engineer's/Supervising Officer's* Representative that adjustment(s) on any of the Monthly Reports on the Safety Performance, including those submitted and agreed by the Architect's/Engineer's/Supervising Officer's* Representative previously, is/are required, it is the responsibility of the Contractor to revise and re-submit the concerned Monthly Report with adjustment(s) to the Architect/Engineer/Supervising Officer* for correction and agreement. Any previous measurement(s) and payment(s) made to the Contractor shall be deducted or adjusted accordingly.

(*Delete as appropriate.)

(**Amend the clause/appendix no. where appropriate.)

(# Insert relevant information.)

The following proforma shall be added in the Particular Specification on Site Safety:-

To: The Architect/Engineer/Supervising Officer^{#1}

Contractor's Monthly Report on Safety Performance (Revision No. _____)
(for measurement of the performance-tied payment items under PFSPMS)

A. Contract Details

Department : _____

Contract No. and Title: _____

Name of Contractor: _____

Reporting Month: _____ / _____ / _____ to _____
(dd/mm/yyyy) (dd/mm/yyyy)

B. Safety Performance of the Contract in the Reporting Period

Performance Indicators	Performance achievements in this Reporting Month (to be reported by the Contractor)	Verified by Architect's/Engineer's/ Supervising Officer's ^{#1} Representative
1. No reportable accident(s) in the reporting month	Yes/No ^{#1} Number of reportable accident(s) in this month:- _____ (nr)	Agree/Disagree ^{#1} _____ (initial)
2. No notice of safety or environmental prosecution in this month	Yes/No ^{#1} Number of prosecution received in this month:- Safety _____ (nr) Environmental _____ (nr)	Agree/Disagree ^{#1} _____ (initial)
3. Safety training (Silver Card) for specified trade ^{#2} workers compliance per month [Note: Measurement to be made if: no. of Silver Card compliance/ total no. of workers requiring Silver Card > 90% on a date specified by the Architect/Engineer during the month]	Measurement Date : _____ Number of skilled workers who are employed in the specified trades on : _____ Number of skilled workers in above who possessed the relevant Silver Card: _____ Percentage: _____	Agree/Disagree ^{#1} _____ (initial)
4. Half-yearly review of safety performance – notices from Labour Department (LD) ^{#3} a. No Part I Inspection Notice in half year b. Not more than 5 nos. of Part II Inspection Notice in half year c. No Improvement Notice (IN) or Suspension Notice (SN) in half year	Half year period : From: _____ to _____ (dd/mm/yyyy) (dd/mm/yyyy) Yes/No ^{#1} No. of Pt. I received _____ (nr) Yes/No ^{#1} No. of Pt. II received _____ (nr) Yes/No ^{#1} No. of SN received _____ (nr)	Agree/Disagree ^{#1} _____ (initial)
5. 12-month rolling accident frequency rate for reportable accidents ^{#4} below 0.25 per 100,000 man-hours worked ^{#5}	Yes/No ^{#1} 12-month rolling accident frequency rate for reportable accidents ^{#4} in this end-month of 12- month period :- _____	Agree/Disagree ^{#1} _____ (initial)

Performance Indicators	Performance achievements in this Reporting Month (to be reported by the Contractor)	Verified by Architect's/Engineer's/ Supervising Officer's ^{#1} Representative
6. Yearly review of safety performance - no fatal accident in a year ^{#6}	Yes/No ^{#1} Number of fatal accident(s) in this Year : _____ (nr)	Agree/Disagree ^{#1} (initial)
7. Achievement in safety campaigns organized by DEVB ^{#6} (i) Considerate Contractors Site Award (CCSA) (ii) Outstanding Environmental Management Performance Award (OEMPA) (iii) If no CCSA under CCSAS – measurement for level 1 assessment (iv) If no OEMPA under CCSAS – measurement for level 1 assessment	Gold/Silver/Bronze/Merit/No Award/ /Not applicable ^{#1} In year :- Gold/Silver/Bronze/Merit/No Award/ /Not applicable ^{#1} In year :- No. of Level 1 ^{#7} assessment: Total no. of assessment: _____ % of Level 1 assessment: _____ In year:- _____ No. of Level 1 ^{#7} assessment: Total no. of assessment: _____ % of Level 1 assessment: _____ In year:- _____	Agree/Disagree ^{#1} (initial) Agree/Disagree ^{#1} (initial) Agree/Disagree ^{#1} (initial) Agree/Disagree ^{#1} (initial)
8. Final review ^{#8} of safety performance in respect of (review to be made upon a date six month after the time for completion of the Works or such extended time for completion of the Works as may be determined in accordance with GCC Clauses 49 and 50 or an earlier or later date notified by the Architect/Engineer/Supervising Officer): (i) No fatal accident in the period from contract commencement to six month after the time for completion of the Works or such extended time for completion of the Works (ii) Cumulative accident frequency rate for reportable accidents ^{#2} below 0.25 per 100,000 man-hours in the period from contract commencement to six month after the time for completion of the Works or such extended time for completion of the Works	Yes/No ^{#1} No. of fatal accident(s) in the the period: _____ (nr) Yes/No ^{#1} Cumulative accident frequency rate for reportable accidents ^{#2} in the period : _____	Agree/Disagree ^{#1} (initial) Agree/Disagree ^{#1} (initial)

Notes:-

^{#1} Delete as appropriate

^{#2} Specified trades are set out in Paragraph 8(2)(A)(i) of this Particular Specifications on Site Safety

^{#3} To be reported half yearly

^{#4} “accident frequency rate for reportable accidents” shall be calculated as the number of reportable accidents per 100,000 man-hours worked

^{#5} Measurement is not made for any period with less than 12 months

- #6 To be reported once for each year
- #7 Level 1 assessment refers to the assessment sheet of Considerate Contractors Site Award Scheme (CCSAS) for CCSA and OEMPA respectively with level 1 being the highest rating for each item
- #8 To be reported six months after the time for completion of the Works or such extended time for completion of the Works or an earlier or later date as notified by the Architect/Engineer

Important:- If there is any false information, including mis-reporting, late reporting or under reporting of accidents, in the Monthly Report, if considered appropriate, the Architect/Engineer shall reflect the mis-reporting in the rating of the relevant items in the Score Card for assessment of the Contractor's site safety performance.

Endorsed by:-

((signature)
 Name
 Site Agent)

Date :

Reported by:-

((signature)
 Name
 Safety Officer)

Date :

This Monthly Report is verified by:

((signature)
 (Name of the Architect's/ Engineer's/Supervising
 Officer's^{#1} Representative)
 (Post))

Date:

Environment, Transport and Works Bureau
Technical Circular (Works) No. 19/2005

Environmental Management on Construction Sites

N O T I C E

This technical circular has been *partially* updated by the Interim Guidance Note on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts. The Appendices to the technical circular should be replaced by the Appendices to the Interim Guidance Note.

The order within this file is therefore as follows:

- 1) [Interim Guidance Note on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts.](#)
 - 2) [The main text \(excluding the Appendices\) of the original ETWB TCW No. 19/2005 \(for reference\).](#)
 - 3) [Revised Appendices to the technical circular as promulgated by the Interim Guidance Note.](#)
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Interim Guidance Note on Administration of Environmental Management and Pay for Safety and Environment Scheme for Public Works Contracts

Introduction

This interim note sets out further guidance on the application of ETWB TCW No. 19/2005. The note has incorporated recent feedback from the construction industry, EPD and works departments, and the resulting modifications to ETWB TCW No. 19/2005 are summarized below:

- a) The Circular shall be applicable to capital works contracts (including Design & Build contracts and E&M contracts, with contract sum \geq \$20M and contract period $>$ 6 months), **and hence all references to term contracts shall become obsolete.**
- b) Appendices A to F of the Circular shall be replaced by the corresponding appendices attached to this note.
- c) The Circular as modified by this note shall be applicable to tenders of capital works contracts, invited on or after **1 August 2006.**
- d) References to sample clauses in the Appendices in the Circular should be read in conjunction with the modified Appendices attached to this note.
- e) The following paragraphs in the Circular shall become obsolete:
 - i) ‘Pay for Environment’ - paragraphs 18 to 21; and
 - ii) ‘Provision of information to contractor’ - paragraph 26.
- f) The “pay for safety and environment scheme” has incorporated provisions requiring that all trucks used for the transportation of C&D materials to and from the Site shall be fitted with mechanical covers. Notwithstanding this, the Architect/Engineer may, but not obliged to, waive such requirement on specific trucks if the Contractor can demonstrate to the satisfaction of the Architect/Engineer that it is not practical to install the mechanical covers on such trucks. In the event the Architect/Engineer grants the waiver, the Contractor shall implement measurements stipulated in WBTC No. 18/99 to ensure that the C&D materials being transported are properly and securely covered.

Construction Site Safety Manual (CSSM)

2. To implement the “Pay for Safety and Environment Scheme”, the following amendments should be made to the CSSM promulgated under WBTC No. 30/2000 for capital works contracts:

- a) Under the Special Conditions of Contract for works contracts with safety plan requirement (see Appendix II(a), Chapter 3 of CSSM), references to “Payment for Site Safety” and “site safety section” should be replaced by “Payment for Site Safety and Environment” and “site safety and environment section” respectively.
- b) In Chapter 12 of CSSM, references to “Site Safety Management Committee” and “Site Safety Committee” should be replaced by “Site Safety and Environmental Management Committee” and “Site Safety and Environmental Committee” respectively.
- c) Notwithstanding expanding the scope of the “pay for safety” scheme to cover environmental management, the total cost of the pre-priced items under the expanded “Pay for Safety and Environment Scheme” should tally with the percentage as stated in clause 12.2.2 in the Chapter 12 of CSSM, and the assessment basis therein shall apply.

3. For further enquiries, please contact AS(S)2, WB of ETWB at tel: 2848 2585.

Attachments

- Appendix A : Notes to Tenderers and Special Conditions of Tender
- Appendix B : Special Conditions of Contract
- Appendix C : Particular Specification on Environmental Management
- Appendix D : Sample Method of Measurement
- Appendix E : Sample Bills of Quantities
- Appendix F : Particular Specification on Environmental Management where the “Pay for Safety and Environment Scheme” is not Applicable

Safety Section
ETWB
June 2006

政府總部
環境運輸及工務局
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Ref. : ETWB(W) 517/91/01
Group : 2, 5, 7, 8, 12

29 December 2005

Environment, Transport and Works Bureau
Technical Circular (Works) No. 19/2005

Environmental Management on Construction Sites

Scope

This Circular sets out the policy and procedures requiring contractors to:

- (a) prepare and implement an Environmental Management Plan (EMP) in all public works contracts, which comprises -
 - (i) the abatement of environmental nuisances on construction sites including air, noise and wastewater pollution;
 - (ii) the reduction of construction and demolition (C&D)¹ materials to be disposed of during the course of construction (such requirements have been stipulated in ETWB TCW No. 15/2003, which has now been incorporated into the EMP under this Circular);
- (b) adopt unified standards on environmental nuisance abatement measures such as the mechanical dump truck covers, automatic wheel washing system, quality powered mechanical equipment (QPME)², dust/acoustic screens or

¹ C&D materials mean both inert and non-inert C&D materials. The inert portion is the "inert C&D materials" including soil, building debris, broken rock, concrete etc., and the non-inert portion is the "C&D wastes" comprising timber, paper, plastics, general refuse etc.

² QPME are constructional plant and equipment that are notably quieter, more environmentally friendly and efficient. The list of the types and models of plant or equipment accepted by Environmental Protection Department (EPD) as QPME can be viewed on the EPD's website at <http://www.epd.gov.hk>, via "Noise > Quality Powered Mechanical Equipment (QPME) > QPME Table". EPD has also developed a system for the registration of QPME that are used in Hong Kong. A label will be issued by EPD for those plant and equipment that have been registered under the system.

enclosures, wastewater treatment facilities etc., for specified processes or works; and

- (c) expand the Pay for Safety and Environment Scheme (PFSES) to cover environmental nuisances.

Effective Date

2. The requirements of this Circular shall be applicable to all public works contracts, including capital works contracts, electrical and mechanical (E&M) contracts, Design and Build (D&B) contracts and term contracts for which tenders are invited on or after 16 January 2006.

Effect on Existing Circulars

3. This Circular supersedes WBTC No. 6/97 on “Prohibition of Use of Diesel Hammers for Percussive Piling for Government Projects”; WBTC No. 18/99 on “Particular Specification clause for Vehicles Carrying Dusty Materials” and ETWB TCW No. 15/2003 on “Waste Management on Construction Sites”, which are hereby cancelled. However, ETWB TCW No. 15/2003 shall continue to apply to existing contracts for which tenders are invited before 16 January 2006.

4. This Circular should be read in conjunction with the following circulars:

Number	Subject
WBTC No. 2/93	Public Dumps
WBTC No. 2/93A	Public Filling Facilities
WBTC Nos. 4/98 & 4/98A	Use of Public Fill in Reclamation & Earth Filling Projects
WBTC Nos. 25/99, 25/99A & 25/99C	Incorporation of Information on Construction and Demolition Material Management in PWSC Papers
WBTC No. 12/2000	Fill Management
WBTC No. 11/2002	Control of Site Crushers
WBTC No. 12/2002	Specifications Facilitating the Use of Recycled Aggregates
WBTC No. 15/2002	Contract Advisers and Technical Audits on Works Contracts
ETWB TCW No. 33/2002	Management of Construction & Demolition Materials Including Rock

Number	Subject
ETWB TCW No. 13/2003	Guidelines and Procedures for Environmental Impact Assessment of Government Projects and Proposals
ETWB TCW No. 31/2004	Trip-ticket System for Disposal of Construction & Demolition Material

5. Furthermore, the contractual provisions for “Site Safety” are given in Chapters 3 and 12 of the Construction Site Safety Manual promulgated under WBTC 30/2000.

Background

6. Government has been very cautious about the management of C&D materials from construction projects due to lack of public fill and landfill space in Hong Kong. Since November 2000, public works contractors have been required to take concrete steps to reduce the generation of C&D materials at construction sites through the requirement of a waste management plan (WMP) under WBTC No. 29/2000. In addition, guidelines were issued under ETWB TCW No. 33/2002 requiring project offices to minimize generation of C&D materials at the outset during the planning and design stages of a project.

7. ETWB TCW No. 15/2003 called for strengthening the requirements on WMP in terms of enforcement of implementation, site monitoring and control, and inclusion for measurement of the contractor’s performance on waste management into the framework of the then “Pay for Safety Scheme” by extending the scheme as the PFSES.

8. This Circular aims at extending the concept of waste management on public works construction sites further to environmental management, targeted at those nuisances relating to air (smoke and dust), noise and wastewater pollution. WMP becomes part of the EMP.

9. There is also a need to unify the standards and payment methods on specific environmental nuisance abatement measures, such as mechanical dump truck covers, automatic wheel washing system, QPME, dust/acoustic screens or enclosures, wastewater treatment facilities etc., so as to avoid the unnecessary contractual dispute. Where such provisions are specified, separate items shall be provided in the Bills of Quantities to be priced by the contractors in tendering.

10. Previously, the requirement of waste management was applicable to capital works contracts only. Under this Circular, the requirements of environmental management covering both nuisance abatement and waste management shall be applied to all public works contracts including capital works contracts and term contracts.

Policy

11. As a general rule, capital works contracts including E&M contracts and D&B contracts having an estimated contract sum of \$20M or more (or a smaller contract sum as set by individual departments), or term contracts having a total estimated expenditure of \$50M or more (or minor works term contracts with a smaller total estimated expenditure as set by individual departments), for which tenders are invited on or after 16 January 2006 shall be included under PFSES. For contracts with a substantial portion of their value as E&M equipment, the cost of such equipment (including those in the form of provisional sums) shall be excluded from the estimated contract sum in determining whether they should be included under PFSES. Irrespective of the value of the contract, contracts with duration of **6 months** (previously set at 12 months for the “Pay for Safety Scheme”) or less can be exempted from inclusion under PFSES.

12. Where a public works contract (including capital works contracts and term contracts) is included under PFSES, the standard terms and clauses as set out in paragraph 15 below shall be incorporated in their tender documents.

13. Where there are practical difficulties in incorporating part or all of the requirements in this Circular in a contract, the project officer concerned shall seek the approval of an appropriate D2 officer or above of his department for full or partial exemption.

14. Notwithstanding that a contract may have been exempted fully or partly from the requirements of EMP under paragraphs 11 and 12 above, certain minimum environmental measures as set out in Appendix F shall still be required.

Procedures

15. The project office should include the following provisions in all PFSES contracts:

- (a) the Special Condition of Tender (SCT) at Appendix A requiring the contractor to submit an outline EMP for tender assessment;
- (b) the Special Condition of Contract (SCC) at Appendix B requiring the contractor to submit and finalize the EMP within the periods prescribed;
- (c) the Particular Specification (PS) at Appendix C setting out the detailed requirements for environmental management on construction sites (N.B. For “designated” projects under the Environmental Impact Assessment Ordinance (EIAO), the project office should additionally incorporate in the PS other relevant requirements/conditions as set out in the Environmental Permit); and

- (d) the Method of Measurement (MoM) and the Bills of Quantities (BQ)/ Schedule of Rates (SoR) developed based on the samples at Appendices D and E respectively for environmental management measures. (N.B. Both Appendices D & E cover the whole PFSES including site safety and environmental management.)

16. To facilitate implementation of EMP, the project office should, at the early planning and design stages, take into consideration the space requirement for the environmental provisions, e.g. on-site sorting and temporary storage of C&D materials, automatic wheel washing machine, wastewater treatment facilities etc.

17. For non-PFSES contracts or contracts exempted from the full requirements of EMP, the project office should incorporate the following for basic environmental measures and monitor their compliance:

- (a) SCC X2 from Appendix B;
- (b) PS at Appendix F;
- (c) MoM clauses yy. 37 to 40 at Appendix D(c) for capital works contracts, or MoM clauses yy. 25 to 27 at Appendix D(d) for term contracts; and
- (d) Item (O) of the sample BQ in Appendix E9 for capital works contracts, or item (I) of the sample SOR in Appendix E10 for term contracts.

[Items (a), (c) and (d) are specifically for monitoring the use of ultra low sulphur diesel (ULSD) in public works contracts.]

Pay for Environment

18. As mentioned in para. 15(d), the MoM and BQ/SoR set out in Appendices D and E respectively cover both the “pay for safety” and the “pay for environment”. The part on “pay for environment” in each of the MoM and the BQ/SoR, is broadly divided into two parts:

- (a) “Pay for environmental management” - which is part of the PFSES as described in paragraph 19. The sample MoM given at Appendices D(a) and D(b) for capital works contracts and term contracts respectively, and the sample BQ/SoR given at Appendices E1 to E8 are relevant for reference for contract document preparation. The items for their payment are preset and pre-priced.
- (b) “Pay for environmental measures” - which is to cover for the physical measures on nuisance abatement and waste management as described in paragraph 20. The sample MoM given at Appendices D(c) and D(d), and the

sample BQ/SoR given at Appendices E9 and E10 for capital works contracts and term contracts respectively are relevant for reference for contract document preparation. Provisions for such measures are to be priced by tenderers on a competitive basis. Where additional measure(s) is/are considered necessary, project office can create item(s) in the MoM and BQ/SoR for their payment. In doing so, particular consideration should be given to their possible impact on the project budget and contract administration.

Pay for Environmental Management

19. ETWB TCW No. 15/2003 introduced PFSES to cover waste management for capital works contracts. The scheme is now expanded to environmental management absorbing waste management into it and includes term contracts. The purpose of PFSES is to encourage contractors to put in more effort on environmental management and to facilitate monitoring and control of their performance. The following items are included in the MoM and sample BQ/SoR for PFSES:

- (a) complete an EMP;
- (b) update the EMP periodically as specified;
- (c) introduce an item into the agenda for the Site Safety and Environmental Management Committee (SSEMC) meeting and the Site Safety and Environmental Committee (SSEC) meeting for discussion on environmental issues of the Site;
- (d) arrange and attend weekly environmental walk; and
- (e) expand site-specific induction training and toolbox talks to cover environmental topics.

More details about the requirements for items (b) to (e) are given in paragraphs 22, 23 and 32 below.

Pay for Environmental Measures

20. For capital works contracts, payment as measured items for the following environmental measures on nuisance abatement and waste management is covered in the model MoM and sample BQ/SoR.

Air Pollution Control

- (a)* Providing covering/containment for dusty material
- (b)* Providing screens/enclosures for smoky/dusty activities
- (c) Compacting road surfaces
- (d) Providing automatic water spraying system
- (e) Providing automatic wheel washing system
- (f) Providing mechanical covers for dump trucks
- (g) Providing vacuum cleaners for dusty operations

Noise Pollution Control

- (h)* Use of “quality powered mechanical equipment (QPME)”
- (i)* Providing acoustic screens/enclosures

Wastewater Pollution Control

- (j)* Providing measures to prevent ingress of surface run-off into Site
- (k) Providing wastewater collection system
- (l)* Arranging disposal of sewage by a licensed contractor
- (m) Providing wastewater treatment facilities

Waste Management

- (n)* arranging and conducting on-site sorting of construction and demolition (C&D) materials.

[N.B. Items marked with “*” are mandatory items to be provided by the contractors. Their requirement are all specified in the PS at Appendix C and project officer should delete those items that are not appropriate to his contract.]

21. For term contracts, the requirements for environmental measures are different from those for the capital works contracts, where many of the large scale plants and equipment for dust suppression and wastewater treatment are not applicable. Furthermore, the method and the unit of measurements for some of the environmental measures are also different between the two contract types. To facilitate preparation of contract documents, the following measures are covered in the model MoM and sample BQ/SoR for term contracts.

Air Pollution Control

- (a) Providing covering/containment for dusty material
- (b) Providing screens/enclosures for smoky/dusty activities
- (c) Providing vacuum cleaners for dusty operations

Noise Pollution Control

- (d) Use of QPME
- (e) Providing acoustic screens/enclosures

Wastewater Pollution Control

- (f) Providing measures to prevent ingress of surface run-off into Site

Waste Management

- (g) Sorting and delivering of hard rock and broken concrete to designated location
- (h) Sorting and proper disposal of paper and cardboard packaging

Performance Monitoring

22. The contractor's environmental performance is monitored and controlled through the weekly environmental walks, SSEMC meetings and SSEC meetings under PFSES. The items to be discussed in every SSEMC meeting shall include:

- (a) a review of the EMP in particular the suitability of the environmental measures on nuisance abatement and waste management adopted by the contractor;
- (b) the environmental performance of the contractor and his sub-contractors;
- (c) the effectiveness of the environmental measures on nuisance abatement and waste management implemented on the site, and any complaints received; and
- (d) the promptness of rectification or improvement actions of the contractor on the defects and deficiencies identified during inspections of the site.

23. The weekly environmental walks provide one good means for assessing the contractor's environmental performance. To monitor this, due regards should be given to the effectiveness of the environmental measures on nuisance abatement and waste management of the contractor, such as the provision of adequate resources, space and the performance of the facilities on site. Any defects or irregularities observed in the inspections should be pointed out promptly to the contractor for rectification or improvement. Payment of the BQ/SoR item for "arrange and attend weekly environmental walk" under PFSES shall be made to the contractor subject to the following conditions:

- (a) the contractor's environmental performance in the weekly environmental walk is to the satisfaction of the Architect/Engineer/Supervising Officer/Maintenance Surveyor (hereinafter referred to as the "A/E") and his delegate;
- (b) the defects and deficiencies identified in the weekly environmental walk are rectified to the satisfaction of A/E and his delegate within the agreed time; and
- (c) no commitment of environmental related offences intended to be prosecuted by or receipt of abatement notices from EPD within the week.

24. Irrespective of whether the contract is included under PFSES, or one which Appendix F applies, if the environmental performance of a contractor is not satisfactory, he should be verbally warned immediately at the first opportunity arising by the A/E or his Representative, including during and after the weekly environmental walk. If the contractor's performance is not improved promptly, the A/E shall issue a written warning to urge the contractor for prompt improvement actions. If the

contractor has exhibited consistently poor environmental performance, the A/E should consider giving the contractor a “Poor” rating in Section 4 (Environmental Pollution Control) of the Report on Contractor’s Performance, which will automatically result in an adverse report in the overall. Further guidelines and procedures for taking regulating action against poor performance contractors are given in Section 5 of the Contractor Management Handbook.

25. Subject to the agreement of the A/E, the assessment of the contractor’s safety performance and environmental performance for a week can be made in one weekly inspection, notwithstanding that there are separate payment items under the PFSES to allow for the contractor’s performance on safety and environment to be each assessed independently.

Provision of Information to Contractor

26. To facilitate the contractor in drawing up his EMP on the part about waste management for capital works contracts, the project office will provide additional relevant information to the contractor for his reference, which should be stated as not forming part of the contract, preferably within 14 days of the date of the Employer’s letter of acceptance of the Tender. Such information may include the following:

- (a) measures to be taken at the construction stage to minimize the C&D material generation;
- (b) arrangements for proper disposal of C&D materials at designated outlets; and
- (c) the estimated quantity of inert C&D materials for reuse on site or for recycling, and the estimated amount of surplus inert C&D materials requiring disposal off site.

Alternative Design Proposal by Contractor

27. Where alternative designs for the works are invited, the project office should consult the Secretary of the Public Fill Committee (PFC) at an early stage prior to tendering, and specify the minimum conditions on waste management in the tender document, so as to ensure that the situation on C&D materials would not be adversely affected by the alternative design proposed by the contractor.

Record of Generated Wastes

28. As part of the EMP on waste management, the contractor should establish a mechanism to record the quantities of C&D materials generated each month and report

the quantities to the A/E's Representative on a monthly basis, using the "Monthly Summary Waste Flow Table" as given in Annex 5 to Appendix C. In addition, the contractor should provide the estimated quantities of C&D materials that will be generated each year from the site, using the "Yearly Summary Waste Flow Table" which is also given in Annex 5. The contractor should include the yearly summary table covering the whole construction period in the EMP, and thereafter update the summary table on a half-yearly basis and submit it to the Architect/Engineer's Representative by not later than the 10th of June and December of each year throughout the construction period, in order to account for the revised works programme and latest outturn on the quantities of C&D materials generated from the site.

29. The contractor shall also set up a disposal recording system as part of the EMP by adopting the trip-ticket system as stipulated in WBTC No. 31/2004, for ensuring the proper disposal of C&D materials to designated outlets.

30. Information returned by the contractor in the Monthly Summary Waste Flow Table and Yearly Summary Waste Flow Table (including semi-annual updates thereon) shall be collected and collated by each works department. Works Department shall assign staff to input the data into the "PWP Construction Site Safety & Environmental Statistics" ("PCSES") System of ETWB via the internet interface at <https://pcses.wgi.etwb.hksarg/User/Login.pl>. ETWB will coordinate with the Departmental Safety and Environmental Advisors to monitor the returns from the contractors.

31. ETWB will, by making use of the data in the PCSES, prepare an annual report on the statistics and analyses of C&D materials for public works contracts for circulation to works departments.

Training

32. The contractor should develop site-specific induction training and toolbox talks to cover:

- (a) environmental nuisance abatement on construction sites with respect to air, noise and wastewater pollution control; and
- (b) waste management measures in particular on-site sorting of C&D materials to promote awareness of workers in handling, sorting, reuse and recycling of C&D materials.

33. Other requirements on providing environmental training for the contractor's managerial and supervisory staff are also specified in the PS.

Auditing

34. Implementation of the environmental management requirements as set out in paragraphs 15 to 17 of this Circular should be included in the technical audit carried out by works departments in accordance with WBTC No. 15/2002.

Ultra Low Sulphur Diesel (ULSD)

35. To improve the local air quality by curbing the emission of sulphur dioxide, all constructional plant powered by diesel fuel and operating on public works construction sites must use ULSD. ULSD is defined in Schedule 1 of the Air Pollution Control (Motor Vehicle Fuel) Regulation). Such requirement shall be stipulated in all contracts for which tenders are to be invited on or after 16 January 2006.

36. The contractor shall maintain a summary record of ULSD delivered to the site(s), including those ordered by his sub-contractors, together with the details of consumption of such fuel by individual constructional plant on the site and the date of arrival and departure of the constructional plant to and from the site. The record of fuel deliveries should be supported by the original receipts of the delivery notes of the oil companies. The summary record and the delivery notes shall be kept in the site office for ready inspection by A/E or his site supervisory staff upon request.

37. To ensure compliance, A/E or his Representative is empowered to take fuel samples from any constructional plant, fuel tank and/or container on site, and at any time for examination by a HOKLAS certified laboratory. To avoid unnecessary dispute, the contractor should advise A/E or his Representative whether the fuel samples to be taken from a plant, fuel tank and/or container on the site have been replenished with ULSD, or that the plant, fuel tank and/or container has been brought to the site recently according to the summary record maintained pursuant to para. 36 above. The name of the laboratory for carrying out the examination should be proposed by the contractor and agreed by A/E. An item is stipulated in the model MoM and the sample BQ/SoR in Appendices D and E respectively for the arrangement and examination of the test samples.

38. If the examination result proves that the fuel sample is ULSD, then the cost of the arrangement and examination of the test samples will be paid for by the Employer under the respective item in the MoM and BQ/SoR. Otherwise, the contractor shall bear the cost of the examination, forfeit the payment for the weekly environmental walk for the relevant week (not applicable if the contract is a non-PFSES contract), and receive a written warning from A/E for the non-compliance. If non-compliance is repeated after the issue of the warning, the contractor shall receive a "Poor" rating in Section 4 (Environmental Pollution Control) of the Report on Contractor's Performance, which will automatically result in an adverse report in the overall. Relevant contract clauses are included in the sample SCC in Appendix B, and PS in Appendices C or F.

Notes to Tenderers

39. Tenderers' attention should be drawn to the new requirements by means of the following Notes to Tenderers:

“Tenderers should note the Special Conditions of Contract and the Particular Specification on “Environmental Management” for minimising nuisances and waste generation from the Works. Separate items are provided in the *Bills of Quantities/Schedule of Rates *[delete as appropriate]* for nuisance abatement and waste management measures. In addition, tenderers should note that all Constructional Plant powered by diesel fuel working on this Contract must use ultra low sulphur diesel.”

(C S Wai)
**Deputy Secretary for the Environment,
Transport and Works (Works) 2**

APPENDIX A

NOTES TO TENDERERS

AND

SPECIAL CONDITIONS OF TENDER

Notes to Tenderers

Tenderers' attention should be drawn to the new requirements by means of the following Notes:

“Tenderers should note the Special Conditions of Contract and the Particular Specification on “Environmental Management” and “Environmental Management Plan” for minimising nuisances and waste generation from the Works. In addition, tenderers should note that all Constructional Plant powered by diesel fuel working on this Contract must use ultra low sulphur diesel.”

Special Conditions of Tender

- | | | |
|--------|--|--|
| SCT xx | <p>(1) The tenderer shall upon written request by the Engineer designate in accordance with the General Condition of Tender 25 submit an Outline Environmental Management Plan, which shall be the tenderer's proposal to:</p> <p style="margin-left: 40px;">(a) minimize the environmental nuisances of air, noise and wastewater pollution; and</p> <p style="margin-left: 40px;">(b) minimize the generation of surplus construction and demolition (C&D) materials, in particular, the proposed measures to avoid/minimize the use of timber for Temporary Works construction, to effectively carry out on-site sorting of C&D materials and to minimize the generation of C&D waste from equipment/material packaging during the course of the Works.</p> <p>(2) The Outline Environmental Management Plan shall be specific to the Site and used for the preparation of the Environmental Management Plan after the Contract is awarded. It shall <u>not</u> form part of the Contract.</p> <p style="margin-left: 40px;"><i>[Note: Sub-clause (2) shall <u>not</u> be applied if the project office requires the Outline Environmental Management Plan submitted by the tenderers to form part of the technical proposal under a marking scheme.]</i></p> | <p>Outline
Environmental
Management Plan</p> |
|--------|--|--|

[Note: Contract drafter shall ensure that the submission required under this SCT is also mentioned in GCT 25.]

APPENDIX B

SPECIAL CONDITIONS OF CONTRACT

Special Conditions of Contract

The following clause shall be added to the Special Conditions of Contract:

*[Where “*Architect/Engineer” is denoted in this SCC, it should be selected as appropriate or modified to suit the appropriate type of the contract.]*

- SCC X1**
- | | | |
|-----|--|-------------------------------|
| (1) | “Environmental Management Plan” means the Environmental Management Plan (EMP) referred to in this Special Condition of Contract, including any revised or updated version thereof, prepared by the Contractor in accordance with the Particular Specification. | Environmental Management Plan |
| (2) | The Contractor shall prepare a draft EMP in accordance with the Particular Specification <i>[add ‘and the Outline EMP’ in case of tenders selected based on a marking scheme where the Outline EMP is part of the Contractor’s technical proposal]</i> and submit () <i>[number of required copies to be inserted by the contract drafter**]</i> copies of the draft EMP to the *Architect/Engineer for comments within 21 days of the date of the Employer’s letter of acceptance of the Tender. | |
| (3) | If the *Architect/Engineer is of the opinion that the draft EMP does not meet the requirements of the Contract, he shall request the Contractor to revise the draft EMP by notice in writing and the Contractor shall revise the draft EMP and re-submit within 7 days of the date of the notice. | |
| (4) | The Contractor shall finalize the EMP within 45 days of the date of the Employer’s letter of acceptance of the Tender and submit () <i>[number of required copies to be inserted by the contract drafter**]</i> hard copies of the EMP and a soft copy in Microsoft Word format to the *Architect/Engineer. | |
| (5) | The Contractor shall review and update the EMP monthly and submit () <i>[the same number as for the EMP]</i> hard copies of the updated part of the EMP and a soft copy in Microsoft Word format to the *Architect/Engineer. | |
| (6) | The Contractor shall provide all facilities, access and assistance to the *Architect/Engineer or his Representative to periodically verify the EMP implementation. If the *Architect/Engineer or his Representative is of the opinion that the EMP is not properly implemented, the *Architect/Engineer or his Representative shall notify the Contractor in writing of such failure and the Contractor shall take all necessary steps promptly to rectify the failure. | |

- (7) The submission of EMP shall not relieve the Contractor from any of his obligations or responsibilities under the Contract.
- (8) The Contractor shall comply with the EMP and ensure compliance with the provision of the necessary environmental measures as specified in the Contract in the execution of the Works, including compliance by his employees and sub-contractors of all tiers. The Contractor shall provide any other parties working on the Site, including the Specialist Contractors and utility companies, with a copy of the EMP and shall request those parties to comply with it. The *Architect/Engineer or his Representative shall have the power to order any person who, or plant or equipment which, fails to comply with the EMP to be removed from the Site.

(The following sub-clause should be included if the Works involves demolition)

- (9) For works involving demolition, the Contractor shall submit a method statement for the works as part of the EMP to the *Architect/Engineer for approval prior to the commencement of the demolition on the Site. The Contractor shall include in the method statement the sequence of demolition and the work programme to facilitate effective recovery of reusable and/or recyclable portions of C&D materials at the earliest stage, so as to minimise the need for subsequent sorting, and specify the measures to minimize nuisance affecting the immediate vicinity. Particular attention shall be given to materials that will cause contamination or ill-health to workers. C&D materials arising from demolition debris shall be separated into the following categories:
 - (i) broken concrete
 - (ii) other inert materials, e.g. blockwork, brickwork etc.
 - (iii) metals, e.g. reinforcement bars, mechanical and electrical fittings, building services fittings, hardware etc.
 - (iv) general refuse
 - (v) hazardous materials

<u>SCC X2</u>	(1) All Constructional Plant powered by diesel fuel, whether they belong to the Contractor or his sub-contractors, must only be replenished with ultra low sulphur diesel (ULSD) (defined as diesel fuel containing not more than 0.005% by weight of sulphur) when working on the Site. The Contractor shall maintain a summary record of <u>all</u> delivery notes of ULSD delivered to the Site, including those ordered by his sub-contractors, together with the details of consumption of such fuel by individual Constructional Plant on the Site and the date of arrival and departure of the Constructional Plant to and	Use of Ultra Low Sulphur Diesel
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from the Site. The record of fuel deliveries shall be supported by the original receipts of delivery notes from oil companies. Both the record and delivery receipt shall be kept on the Site for inspection by the *Architect/Engineer or his site supervisory staff upon request.

- (2) The *Architect/Engineer or his Representative may order at any time any number of fuel samples to be taken from any diesel-operated Constructional Plant, fuel tank and/or container on the Site, except those which the Contractor can substantiate that the Constructional Plant, fuel tank and container concerned has/have been brought to the Site recently according to the summary record maintained pursuant to sub-clause (1), and has/have never been replenished with any fuel since its arrival. The sulphur content of the fuel samples shall be tested by a HOKLAS accredited laboratory using internationally recognized testing methods such as ASTM D2622, ISO 14596 and ISO 20884. The laboratory to carry out the test shall be proposed by the Contractor and agreed by the *Architect/Engineer.

(* delete or amend to suit departmental contract arrangements)

(** The number of required copies should be kept to the minimal to save paper)

APPENDIX C

PARTICULAR SPECIFICATION ON ENVIRONMENTAL MANAGEMENT

Particular Specification on Environmental Management

[Note: 1. Contract drafter should examine this Particular Specification carefully and decide which measures are suitable for his project. Where necessary, the contract drafter should amend the clauses to suit his project requirements.

- 2. The following specification on Environmental Management shall be included in Section 1 of the PS for the contract. The project specific requirements recommended or imposed by EPD should be included in a new Section 26 (Environmental Protection) of the PS .]*

[* delete where inappropriate or amend to suit departmental contract arrangements.]

1. General

- (1) The Contractor shall prepare an Environmental Management Plan (EMP) in accordance with this Particular Specification (PS) *[add ‘based on the Outline EMP’ in case of tenders selected based on a marking scheme where the Outline EMP is part of the Contractor’s technical proposal]* for implementation on the Site to reduce environmental nuisances and construction and demolition (C&D) materials arising from Works, throughout the construction period. Irrespective of the measures proposed by the Contractor in the EMP, the Contractor shall not be absolved from his liability to satisfy in full all statutory requirements and requirements in this PS on Environmental Management.

(2)@ Organization

[@ Contract drafter shall select one of the following options for sub-clause 2(a) for incorporation into the contract. Option 1 is applicable to projects that are highly environmentally sensitive and complex, such as mega projects with significant ecological impacts to the environment. For other projects that are less environmentally sensitive and not as complex, options 2 to 4 should be selected based on the estimated contract sum.]

.....

[Start of Option Selection for Clause (2)(a)]

.....

[Option 1]

- (a) The Contractor shall assign a person as the Environmental Officer for overseeing all environmental matters of the Works. The minimum qualification of this person shall be -
- (i) a corporate member of the Hong Kong Institution of Engineers (HKIE) in Environmental Discipline or equivalent; or
 - (ii) a corporate member of a professional institution (e.g. HKIE other than in the Environmental Discipline, or the Hong Kong Institute of Architects or the Hong Kong Institute of Surveyors etc.) having at least (3) years *[the figure is tentative and should be determined by the contract drafter]* of experience in environmental management, monitoring and auditing of construction activities **AND** in possession of a diploma or above in environmental studies or environmental engineering awarded by a local or overseas tertiary educational institution.

The Environmental Officer shall be present full time on the Site. Details and curriculum vitae of the person to be nominated as the Environmental Officer for the Contract shall be submitted to the *Architect/Engineer for approval.

OR

[Option 2 – This option is applicable to contracts (including D&B contracts and E&M contracts where an EMP is required) with an estimated contract sum of \$200M or above, unless otherwise agreed by an appropriate D2 or above officer. The D2 or officer may exempt in part or in full the items to be implemented where practical difficulties are encountered.]

- (a) The Contractor shall assign a person as the Environmental Officer for overseeing all the environmental matters of the Works. The minimum qualification of this person shall be -
 - (i) a corporate member of the Hong Kong Institution of Engineers (HKIE) in Environmental Discipline or equivalent; or
 - (ii) a corporate member of a professional institution (e.g. HKIE other than in the Environmental Discipline, or the Hong Kong Institute of Architects or the Hong Kong Institute of Surveyors etc.) **EITHER** having at least (3) years *[the figure is tentative and should be determined by the contract drafter]* of experience in environmental management, monitoring and auditing of construction activities, **OR** in possession of a diploma or above in environmental studies or environmental engineering awarded by a local or overseas tertiary educational institution; or
 - (iii) a senior staff of the Contractor having at least (5) years *[the figure is tentative and should be determined by the contract drafter]* of construction site experience and completed the Environmental Officer Course run by the Construction Industry Training Authority (CITA), or an equivalent certificate course on environmental studies or environmental engineering run by a tertiary educational institution as agreed by the *Architect/Engineer. For the purpose of this Contract, a person who is attending or has applied to attend the Environmental Officer Course mentioned above shall be deemed to have fulfilled the requirement of this sub-clause; or
 - (iv) a senior staff of the Contractor,
 - (a) either possessing an engineering degree and having at least (10) years of construction site experience, or possessing a higher certificate in a construction related subject and having at least (15) years *[the figures on the years of experience are tentative and should be determined by the contract drafter, but a differential of at least 5 years should be maintained]* ; and
 - (b) who has completed the “Environmental Management Course for Construction Managers ” or equivalent organized by CITA or similar training institutions as agreed by the *Architect/Engineer.

The Environmental Officer shall be present full time on the Site but not necessarily be working solely on environmental duties. Such person can be a

Safety Officer if the Contract has employed more than one Safety Officer. Details and curriculum vitae of the person to be nominated as the Environmental Officer for the Contract shall be submitted to the *Architect/Engineer for approval.

OR

[Option 3 – This option is applicable to contracts (including D&B contracts and E&M contracts where EMP is required) with an estimated contract sum of less than \$200M but above or equal to \$50M.]

- (a) The Contractor shall assign a person as the Environmental Officer for overseeing all the environmental matters of the Works. The minimum qualification of this person shall be -
- (i) a corporate member of a professional institution (e.g. the Hong Kong Institution of Engineers (HKIE) and from a construction related discipline; the Hong Kong Institute of Architects; or the Hong Kong Institute of Surveyors etc.); or
 - (ii) an associate member of the HKIE in the Environmental Discipline or equivalent; or
 - (iii) a person in possession of a diploma or above in environmental studies or environmental engineering awarded by a local or overseas tertiary educational institution with 3 years of experience in environmental management; or
 - (iv) a staff of the Contractor having at least (2) years *[the figure is tentative and should be determined by the contract drafter]* of construction site experience and completed the Environmental Officer Course run by the Construction Industry Training Authority (CITA), or an equivalent certificate course on environmental studies or environmental engineering run by a tertiary educational institution as agreed by the *Architect/Engineer. For the purpose of this Contract, a person who is attending or has applied to attend the Environmental Officer Course mentioned above shall be deemed to have fulfilled the requirement of this sub-clause.

The Environmental Officer shall be present full time on the Site but not necessarily be working solely on environmental duties. Such person can be a Safety Officer if the Contract has employed more than one Safety Officer. Details and curriculum vitae of the person to be nominated as the Environmental Officer for the Contract shall be submitted to the *Architect/Engineer for approval.

OR

[Option 4 - This option is applicable to contracts (including D&B contracts and E&M contracts where EMP is required) with an estimated contract sum less than \$50M.]

- (a) The Contractor shall assign one senior site personnel ('Assigned Person') other than the Contractor's agent for overseeing all environmental matters of the Works. The Assigned Person shall be present full-time on the Site but not necessarily be working solely on environmental duties. *[N.B. Contract drafter may specify an Environmental Officer as in Option 3 where necessary.]*

[End of Option Selection]

- (b) In addition, the Contractor shall appoint at least one additional site staff ('Environmental Supervisor') to assist the * Environmental Officer/Assigned Person pursuant to clause 1(2)(a) above for the inspection, supervision and monitoring of the environmental performance of the Works. Where the number of workers employed on the Works, whether in the employment of the Contractor or his sub-contractors, exceeds 50 in aggregate, the number of Environmental Supervisor shall be increased by one for every additional 50 persons or part thereof. The Environmental Supervisor and the Safety Supervisors pursuant to PS clause () *[relevant clause no. in PS for Site Safety]* can be the same person provided that he/they have attended or has been arranged to attend the training courses pursuant to clause 1(4)(b) below.
- (c) The duties of the *Environmental Officer/Assigned Person shall, for the purpose of environmental management under the Contract, include but without limitation to the followings:
 - (i) Prepare, implement and update the Environmental Management Plan;
 - (ii) Advise on measures to be taken in the interest of environmental protection, and implement such measures;
 - (iii) Liaise on all matters relating to environmental monitoring and auditing; *[N.B. delete this sub-clause if environmental monitoring and auditing is not required for the Works.]*
 - (iv) Carry out inspections of the Site for identifying potential hazards to the environment, and to report findings with recommendations for corrective actions;
 - (v) Participate in the weekly environmental walks (whether this is combined with the weekly safety walk or otherwise) with the nominated site staff of the *Architect/Engineer, and to supervise and monitor the environmental performance on the Site;
 - (vi) Check and ensure that any polluting or potentially polluting situation is promptly rectified;

- (vii) Attend Site Safety and Environmental Management Committee (SSEMC) meetings and Site Safety and Environmental Committee (SSEC) meetings;
 - (viii) Compile the monthly environmental report for submission to the *Architect/Engineer at least five working days before the SSEMC meetings;
 - (ix) Arrange and provide the environmental training including the site specific induction training and toolbox talks for the staff and workers on the Site, and to organize environmental promotional activities; and
 - (x) Advise the Contractor on the implementation of an environmental management system.
- (d) The duties of the Environmental Supervisor shall, for the purpose of environmental management under the Contract, include but without limitation to the followings:
 - (i) Assist the *Environmental Officer/Assigned Person carrying out his duties;
 - (ii) Carry out daily site environmental inspections based on a checklist approved by the *Architect/Engineer's representative, and to ensure that follow-up action is taken promptly to rectify defects and deficiencies identified;
 - (iii) Advise the *Environmental Officer/Assigned Person on the upkeep of environmental performance and standards of the Site;
 - (iv) Attend the weekly environmental walk if required;
 - (v) Supervise and promote the execution of environmental protection works by the workers on the Site;
 - (vi) Attend SSEMC meetings and SSEC meetings; and
 - (vii) Conduct toolbox talks as assigned by the Contractor's agent after acquiring the necessary qualifications.
- (3) Performance Monitoring
 - (a) The Contractor shall arrange weekly environmental walk to be attended by the *Environmental Officer/Assigned Person, the Contractor's Agent, and the *Architect/Engineer or his delegate to inspect the Site, checking that the environmental performance of the Site is satisfactory and in compliance with the requirements under the Contract and EMP. The places to be inspected in the weekly environmental walk shall be determined by the *Architect/Engineer or his delegate.
 - (b) The Contractor may arrange the weekly environmental walk to be carried out along with the weekly safety walk or other site inspections subject to the agreement of the *Architect/Engineer. The weekly environmental walks conducted under this clause are entirely without prejudice to and do not relieve any of the Contractor's responsibility to carry out regular inspections to upkeep

the environmental performance of the Site as required by the statute or other clauses under this Contract.

- (c) The Contractor shall prepare and agree with the *Architect/Engineer a comprehensive checklist for use in weekly environmental walk. The checklist will form the basis for assessing the environmental performance of the Contractor on the Site. Any defects or deficiencies identified in the weekly environmental walk shall be duly recorded in a summary table, a proforma of which is attached at Annex (1**). More than one table shall be used for recording the defects or deficiencies if the weekly environmental walk for the week is carried out by more than one inspection team.

*[** Amend the annex no. as appropriate]*

- (d) Immediately after the weekly environmental walk, the summary table shall be agreed and signed by the Contractor's representative and the *Architect/Engineer or his delegate attending the weekly environmental walk, and a copy should be kept by the *Architect/Engineer. The Contractor shall take prompt action to rectify the deficiencies identified and shall report the status of rectification actions in the forthcoming weekly environmental walk or the Site Safety and Environmental Management Committee meeting whichever comes first.

- (e) The following items should be included in the agenda for discussion at every SSEMC meeting and SSEC meeting, or other established channels for performance monitoring as agreed by the *Architect/Engineer:

- (i) Review the sufficiency of the measures in the EMP and proposals for improvement;
- (ii) Monitor the Contractor's environmental performance and achievement with reference to EMP;
- (iii) Assess the effectiveness of EMP taking into account the Contractor's environmental performance and achievement; and
- (iv) Monitor the follow-up action by the Contractor on the defects and deficiencies identified in weekly inspections.

(4) Environmental Training

- (a) The Contractor shall ensure that all site management staff in his employment on the Works shall have attended and completed the "Environmental Management Course for Construction Managers" run by CITA or similar training institutions as agreed by the *Architect/Engineer. For the purpose of this sub-clause, site management staff include the Contractor's agent, project managers etc. *[add "but excluding the Environmental Officer," or "including the Assigned Person" if option 4 is adopted for clause 1(2)(a)].* If anyone of the site management has not attended the course, the Contractor shall arrange such staff to attend the required environmental course within 14 days from the date of employment of such staff on the Site, and to complete the training within six*** months from the said date.

*[*** Amend the duration as necessary to take account of the normal waiting time, the duration and frequency of the courses.]*

- (b) The Contractor shall ensure that the Environmental Supervisor pursuant to clause 1(2)(b) shall have attended and completed the “Environmental Protection Course for Environmental Supervisors” or equivalent organized by CITA or similar training institutions as agreed by the *Architect/Engineer. If any person who has not attended the course, the Contractor shall arrange such staff to attend the required environmental training within 14 days from the date of employment of such staff on the Site, and to complete the training within six*** months from the said date. If the Environmental Supervisor had completed the “Environmental Protection Course for Construction Supervisors” previously organized by CITA, the person shall deem to have fulfilled the requirement of this sub-clause.

*[*** Amend the duration as necessary to take account of the normal waiting time, the duration and frequency of the courses.]*

- (c) Pursuant to PS clause () *[relevant clause no. in PS for Site Safety]*, the Contractor shall ensure that the site specific induction training cover environmental management in addition to safety for all staff and workers employed for the Works or in connection with the Contract, whether in the employment of the Contractor or his sub-contractors. The environmental part of the induction training shall be delivered by the Environmental Officer or Environmental Supervisor or the Assigned Person, as applicable. The training content should cover subjects such as organization structure, duties and responsibilities, measures, targets, in-house rules and regulations etc. The duration of the site specific induction training under PS clause *[relevant clause no. in PS for Site Safety]* shall be extended by at least 15 minutes to cover the necessary subjects on environmental management.
- (d) Pursuant to PS clause () *[relevant clause no. in PS for Site Safety]*, the Contractor shall provide toolbox talks for workers on environmental nuisance abatement and waste management in addition to safety and health. The frequency of training and the contents of the tool box training shall be subject to the approval of the *Architect/Engineer as in PS Clause () *[relevant clause no. in PS for Site Safety]*.

(5) Reporting

The Contractor shall submit a monthly report on environmental management for discussion in the SSEMC meeting. The monthly report shall be prepared by the *Environmental Officer/Assigned Person as mentioned in clause 1(2)(a) and duly endorsed by the Contractor’s agent containing the following information:

- (a) A summary of pollution incidents and remedies, comprising:
- (i) complaints
 - (ii) abatement notices issued by EPD
 - (iii) offences spotted by EPD during inspections
 - (iv) summonses of environmental offences
- (b) A list of major forthcoming activities in the next two months which will likely have environmental impacts or cause nuisances to the surroundings, together with the proposed control or mitigation measures;

- (c) The training programme for the next month and records of training arranged/conducted in the previous month pursuant to clause 1(4) above;
- (d) The updated organization chart on environmental management;
- (e) A summary of defects and deficiencies identified during inspections and weekly environmental walks, together with the follow-up actions and remedies taken to prevent similar recurrences.

2. Air Pollution Abatement

- (1) The Contractor shall ensure that dusty materials, including excavated materials, building debris and construction materials which are dusty by their nature, are properly covered by tarpaulin or other approved means. When dusty construction activities such as demolition work, drilling work, excavation in rock or artificial hard materials etc. are carried out in close proximity to the public, the Contractor shall provide dust abatement measures to the satisfaction of the *Architect/Engineer. Such measures shall include where appropriate screens or enclosures, water spraying system or the fitting of vacuum cleaning devices to pneumatic or power driven drilling, cutting and polishing machines, etc.
- (2) Where the public will be affected by exhaust fumes or smoke emission from any Constructional Plant or construction activities (e.g. welding) in the Site, such Constructional Plant or construction activities shall be shielded by a screen. Such screen shall be at least 1.8m in height, incombustible and shall be approved by the *Architect/Engineer.
- (3) The Contractor shall provide wheel washing system at all exit points of the Site, comprising high-pressure water jets, heavy duty metal grating capable for supporting the heaviest vehicles and a trough for collecting wastewater etc., in accordance with the specification given in () (*see Part A, Annex 2 to Appendix C*). [*This clause is optional and may not be applicable to the Site with space constraints.*]
- (4) All dump trucks entering or leaving the Site shall be provided with mechanical covers in good service condition in accordance with the specification given in () [*see Part B, Annex 2 to Appendix C*].
- (5) For Constructional Plant driven by internal combustion engines, the Contractor shall ensure that the smoke emission from the plant shall not exceed Shade 1 on the Ringelmann Chart continuously for 30 seconds at any time.
- (6) Ultra-low-sulphur diesel (ULSD) (defined as diesel fuel containing not more than 0.005% by weight of sulphur) shall be used in all diesel-operated Constructional Plant on the Site pursuant to SCC[.]. The Contractor shall demonstrate his compliance by maintaining a summary record of ULSD pursuant to SCC clause () [*relevant clause reference to be inserted by contract drafter*]. A proforma of the summary record is attached at () [*see Annex 3 to Appendix C*].
- (7) Where there is practical difficulty in implementing any air pollution abatement measures specified above, the Contractor shall submit alternative proposals for the approval of the *Architect/Engineer before the work commences. The *Architect/Engineer or his Representative shall have the power to order the removal of any person who, or Constructional Plant or equipment which, fails to comply with the requirements under this PS clause off Site

3. Noise Pollution Abatement

- (1) The Contractor shall adopt the following noise abatement practices:
 - (a) Use non-percussive pile driving methods such as hydraulic hammer, vibration or jacking method for installing or extracting sheet piles;
 - (b) Use non-percussive equipment such as hydraulic crusher, sawing, coring machines etc. for demolition and concrete breaking work;
 - (c) Close all hoods, cover panels and inspection hatches of powered mechanical plant such as generators, air compressors etc. during operation;
 - (d) Provide noise dampening materials inside and outside refuse chutes during building construction; and
 - (e) Fit mufflers or silencers, and dampening layer with steel collars to hand held pneumatic breakers.
- (2) Where percussive breakers are used, the Contractor shall enclose/wrap the breaker tip with sound insulating material to reduce the noise. This requirement is not applicable to works under emergency, or with prior agreement from the *Architect/Engineer that the provision of such is not necessary or not practicable under a given site condition.
- (3) Where the noise level measured at the noise sensitive receivers (NSR) exceeds 75 dB(A) (Leq 30 min) for domestic premises, and 70 dB(A) (Leq 30 min) for schools or 65 dB(A) during school examinations, the Contractor shall provide an acoustic screen or enclosure to shield the public or NSR from the noisy activity at source or adopt quiet process/plant *[including the use of ‘quality powered mechanical equipment’ pursuant to sub-clause (4) below. (include the reference to the “quality powered mechanical plant” only for contracts with a contract sum of \$200M or above)]*, except for works under emergency or with the prior agreement of the *Architect/Engineer that the provision of such is not necessary. The acoustic screen or enclosure shall be made of incombustible, sound insulating material with performance such that the noise level measured at the NSR do not exceed the limits as mentioned in this sub-clause. The detailed information including the size and form of the screen or enclosure shall be proposed by the Contractor and submitted to the *Architect/Engineer for approval before the work commences. The acoustic screen or enclosure shall be securely fixed at the base to avoid overturning. Notwithstanding any approval given, the Contractor shall be fully liable for his design in all respects.

[Sub-clauses (4) to (7) below are only applicable to contracts with an estimated contract sum of \$200M or above.]
- (4) The Environmental Protection Department (EPD) has published a category of Quality Powered Mechanical Equipment (QPME) in the website: <http://www.epd.gov.hk/cgi-bin/npg/qpme/list.pl?lang=eng>.
- (5) The categories of QPME include, but are not limited to:
 - (a) Asphalt paver
 - (b) Bulldozer, wheel

- (c) Bulldozer, tracked
- (d) Compactor, vibratory
- (e) Crane, mobile
- (f) Excavator, wheel/tracked
- (g) Generator
- (h) Loader, wheel
- (i) Loader, tracked
- (j) Powered rammer
- (k) Road roller
- (l) Roller, vibratory

A list of plant models under the QPME is also given by the EPD at the website: http://www.epd.gov.hk/cgi-bin/npg/qpme/search_gen.pl?lang=eng&st=sim&smtpe=1.

- (6) Where a QPME is used, the plant should be registered with EPD, and the label issued by EPD from such registration shall be affixed on the plant at all times and kept legible. The Contractor shall also establish a register to record all QPME used on the Site.
- (7) The *Architect/Engineer or his Representative shall have the power to inspect the QPME if he has doubt on its compliance with the QPME requirements. The Constructional Plant shall deem to be non-QPME for the purpose of this sub-clause if it does not have the registration label issued by EPD so affixed.

4. Wastewater Pollution Abatement

- (1) The Contractor shall minimize the generation of wastewater from the Site through the following means:
 - (a) Prevent surface run-off from washing across the Site and spilling over to areas outside of the Site;
 - (b) Minimize the exposure of soil on the Site after excavation and backfilling where applicable and prevent the washout of soil or similar materials from the Site;
 - (c) Minimize water consumption;
 - (d)[#] Collect all surface run-off from the Site to a treatment facility; and
 - (e)[#] Treat all surface run-off and wastewater collected for reuse or before discharge.

[# Sub-clauses (d) and (e) above are optional.]
- (2) The Contractor shall also provide on Site an effective drainage system for proper control of surface run-off, and cover all exposed surfaces of soil slopes to prevent soil erosion.

[The following two sub-clauses (3) and (4) are optional and only applicable to contracts anticipated with large water consumption, e.g. those with a metered supply.]

- (3) The Contractor shall identify the work activities on the Site with large water consumption, and provide an effective drainage system for the collection of wastewater generated. To minimize overall water consumption, the Contractor shall provide treatment facilities to treat the wastewater for reuse. The capacity of the facilities if provided shall be large enough to cater for the worst credible condition of effluent intake. The specification for the wastewater treatment facilities is given in () *[see Part C, Annex 2 to Appendix C]*.

*[** Amend the annex no. as appropriate]*

- (4) The Contractor shall designate staff for the operation of the wastewater treatment facilities to ensure that the discharge shall comply with the standard specified by EPD, and regular removal of sludge to maintain the efficiency of the wastewater treatment facilities. The designated staff shall maintain a proper daily record of plant performance for inspection by the *Architect/Engineer or his Representative.

5. Waste Management

- (1) All C&D materials arising from or in connection with the Works shall be sorted on the Site to recover reusable and/or recyclable materials. For the avoidance of doubt, C&D materials means both inert and non-inert materials generated from construction and demolition activities. The inert portion of the C&D materials includes soil, building debris, broken rock, concrete, etc., and the non-inert portion comprises timber, paper, plastics, general refuse, etc..
- (2) Unless otherwise stated, all surplus C&D materials arising from or in connection with the Works shall become the property of the Contractor when it is removed from the Site. The Contractor shall promptly remove all sorted and processed surplus materials arising from or in connection with the Works from the Site to minimise temporary stockpiling on the Site.
- (3) On-site Sorting of C&D Materials
- (a) The Contractor shall devise a system for on-site sorting of C&D materials. The system shall include the identification of the source of generation, estimated quantity, arrangement for on-site sorting and/or collection, temporary storage areas, frequency of collection by recycling contractors or frequency of removal off the Site, etc..
- (b) The Contractor shall sort the materials at source into:
- (i) hard rock and large broken concrete suitable for reuse on the Site or recycling at a designated location (see sub-clause(c) below);
 - (ii) metals;
 - (iii) paper and plastics;
 - (iv) chemical waste; and
 - (v) materials suitable for disposal at public fill reception facilities, sorting facilities and landfills/outlying islands transfer facilities. **Disposal at the sorting facilities should first be approved by the *Architect/Engineer.**

- (c) The Contractor shall pay particular attention to hard rock and large broken concrete generated from demolition or road improvement works and deliver the materials to _____ *[designated recycling facility or location as advised by CEDD]* or a location as notified by the *Architect/Engineer.
 - (d) Equipment and material packaging (i.e. paper and cardboard) shall be recovered, properly stockpiled in dry and covered condition to prevent cross contamination by other C&D materials. The Contractor shall pay particular attention to avoid cross contamination in the course of collecting paper for recycling.
 - (e) The Contractor shall ensure the materials disposed of at public fill reception facilities, sorting facilities, and landfills/outlying islands transfer facilities, comply with their respective requirements under Schedule 6 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354) and be fully liable for all non-compliance.
 - (f) The Contractor shall identify and provide sufficient space for temporary storage of C&D materials to facilitate collection and/or sorting on the Site. The space provided shall commensurate with the estimated quantity for each type of C&D materials generated on the Site.
 - (g) Except for those inert C&D materials to be reused on the Site, the Contractor shall remove all other C&D materials off the Site as soon as practicable in order to optimize the use of the on-site storage space.
 - (h) The Contractor shall make arrangements with potential recycling contractors to facilitate that recyclable materials sorted from the Site are collected with reasonable care.
 - (i) The Contractor shall establish a system for proper handling and storage of chemical waste generated from the Site, and arrange collection and disposal of such chemical waste by specialist contractors.
 - (j) The Contractor shall carry out thorough sorting of C&D materials generated from demolition works for recovering of broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fittings/materials that have established recycling outlets.
- (4) Waste Flow Table (WFT)
- (a) The Contractor shall establish a mechanism to record the quantities of C&D materials generated each month, using the **monthly** summary “Waste Flow Table” (WFT) as given at Annex (4**) attached. The Contractor shall complete the monthly summary WFT, and submit it to the *Architect/Engineer’s Representative together with the updated sections of EMP (if any) by not later than the 15th day of each month following the month reported on, or if it is a General Holiday, the day following the General Holiday.

*[** Amend the annex no. as appropriate]*

[The following sub-clause is applicable to contracts where the estimated amount of C&D materials generated is equal to or greater than 50,000 m³.]
 - (b) The Contractor shall also submit the latest estimate of the TOTAL amount of C&D materials including rock, that are expected to be generated by the

Works, together with a breakdown of the nature of the materials (i.e. inert C&D materials (public fill), hard rock or concrete, C&D waste, etc.). Such information should be submitted together with the monthly summary “Waste Flow Table” as required above.

(5) Control the Use of Timbers

- (a) The Contractor shall avoid, reduce or minimize the use of timber in Temporary Works construction as far as possible. Where the Contractor has to use timber for a Temporary Works construction process/activity with an estimated quantity exceeding ($5m^3$) [*quantity tentatively set and to be determined by contract drafter*], he should submit a method statement to the *Architect/Engineer for agreement prior to commencement of the relevant Temporary Works.
- (b) The method statement should include the justification for and the measures taken to minimize the use of timber in the said Temporary Works. In addition, the Contractor shall provide a summary table containing the description, justification and the estimated quantity for every work process/activity requiring the use of timber for Temporary Works construction irrespective of the quantity of timber used. A proforma of the summary table is shown in Annex (5**) attached.

[** Amend the annex no. as appropriate]
- (c) The Contractor shall update the summary table on the use of timber for Temporary Works construction, and submit it to the *Architect/Engineer's Representative together with the monthly summary WFT for monitoring and review by not later than the 15th day of each month, or if it is a General Holiday, the day following the General Holiday. The Contractor shall draw the attention of the *Architect/Engineer's Representative to those work processes/activities for which the estimated quantities have been revised.

(6) Recording

- (a) The Contractor shall record the quantities of all the recyclable materials before removal off the Site by the recycling contractors, and include the details in the WFT for submission to the *Architect/Engineer's Representative pursuant to clause 5(4)(a).
- (b) The Contractor shall establish a comprehensive register of the Disposal Delivery Form pursuant to PS clause () & () [*relevant standard PS clause no. for the trip-ticket system*] for recording the disposal of C&D materials. The register shall also cover the recyclable materials removed by the recycling contractors off the Site.

6. Environmental Management Plan

The Contractor shall submit the EMP for the Contract to the *Architect/Engineer in accordance with the SCC clauses () & () [*clauses X1(2) & X1(4)*]. The EMP shall be signed before submission by both the Contractor's agent and the *Environmental Officer/Assigned Person. The EMP shall include the following details categorised into four parts namely, general, nuisance abatement, waste management and records:

PART A – GENERAL

(1) Environmental Management Policy

A policy statement setting out the management's approach, commitments, targets and measures for environmental and waste management of the Contract; it shall -

- (a) be signed by the managing director of the Contractor, or where the Contractor is a joint venture (where incorporated or unincorporated) the managing director of each participant of the joint venture;
- (b) state the Contractor's policy and strategy in promoting and implementing the Contractor's environmental management including waste management on the Site;
- (c) commit to provide sufficient resources and facilities for the implementation of environmental nuisance abatement and waste management;
- (d) commit to obtain and renew the necessary environmental licences, registrations and permits, and comply with the relevant statutory requirements and licensing standards.
- (e) commit to prevent pollution;
- (f) state the targets (if any) to be achieved in reducing or minimizing environmental nuisances and generation of C&D materials;
- (g) be communicated to all levels of persons involved in the Works; and
- (h) be dated and reviewed periodically for continuous improvement.

(2) Organizational Structure for Environmental Management

The organizational structure shall be illustrative graphically, showing the manpower resources provided to implement the EMP; it shall include:

- (a) The *Environmental Officer/Assigned Person appointed pursuant to PS clause 1(2)(a) above;
- (b) The Environmental Supervisor appointed pursuant to PS clause 1(2)(b) above;
- (c) The line of communication and authorities on environmental management matters;
- (d) The name of the person (if different from the *Environmental Officer/Assigned Person in sub-clause (a) above) to be responsible for updating the EMP, *the monthly summary WFT under PS clause 5(4), and the summary table for using timber in Temporary Works construction under PS clause 5(5);* and
- (e) The names and telephone numbers of persons (including sub-contractors and workers' representatives if appropriate) together with their trade for each specific area of the Works which they are responsible for the supervision in implementation of the EMP on the Site.

(3) Duties and Responsibilities

The duties and responsibilities of individuals and/or different levels of staff (including sub-contractors) involved in the implementation of the EMP; it shall -

- (a) define clearly who shall be responsible for the provision of resources and facilities for the implementation of the EMP;
- (b) define clearly the responsibilities among individuals and different levels of staff on environmental management; and
- (c) state the powers vested in the *Environmental Officer/Assigned Person to enable him to discharge his/her duties in the proper implementation of the EMP on the Site.

(4) Environmental Training

- (a) The requirements and arrangements for training on environmental and waste management for all staff covering:
 - (i) site managerial staff;
 - (ii) site supervisory staff; and
 - (iii) workers.
- (b) The training materials on environmental and waste management to be included in the site-specific induction training pursuant to PS clause 1(4)(c).
- (c) The topics of toolbox training to be provided to workers on environmental nuisance abatement and waste management.

(5) In-house Rules and Regulations

- (a) The in-house rules and regulations on environmental nuisance abatement and waste management including those specific rules and regulations laid down by the existing occupiers of the premises (in case of alteration works) for the Works to be carried out in areas that are occupied, partially occupied and/or controlled by the occupiers.
- (b) The arrangements made by the Contractor to ensure compliance with the in-house rules and regulations on environmental nuisance abatement and waste management are to be documented, reviewed, amended and communicated to all levels of staff working on the Site.
- (c) The means and disciplinary action to ensure implementation and enforcement of the in-house rules and regulations on environmental nuisance abatement and waste management.

(6) Committees

The arrangement for follow-up actions on environmental issues in the SSEC meetings and SSEC meetings.

(7) Performance Monitoring

The arrangement to establish procedures for monitoring the environmental performance on the Site including identification, recording and reporting of non-compliance with the EMP and their rectification; they shall include:

- (a) Planning and review of the frequency, coverage and extent of inspections conducted by different levels of site management and supervisory staff, and senior management from the headquarters;
- (b) Development of comprehensive checklists for use in the inspections, and a system for reporting of non-compliance identified and monitoring of the corrective actions taken by the appropriate staff; and
- (c) Compliance with all requirements in the Contract including licenses or permits.

(8) Promotion

The methods of promoting and maintaining the awareness on environmental nuisance abatement and waste management amongst all persons on the Site; they shall include:

- (a) Display of the company's environmental policy, non-compliance statistics, posters and signs at prominent locations;
- (b) Talks and campaigns, and distribution of bulletins or newsletters drawing attention to particular environmental issues; and
- (c) Procedure for recognition and commending those site personnel, teams or sub-contractors with good performance on environmental nuisance abatement and waste management.

(9) Review of Requirements

- (a) Arrangement for identification of potential environmental nuisance and review of the effectiveness of environmental nuisance abatement and waste management measures;
- (b) Location plan and inventory of nearby sensitive receivers or features (including residents, watercourse and natural environment) likely to be affected by the construction activities;
- (c) Location plan and inventory of nearby major environmental protection fixtures/pollutant discharge points and environmental monitoring stations; and
- (d) Emergency response plan of environmental incidents.

PART B – ENVIRONMENTAL NUISANCE ABATEMENT

(10) Air pollution abatement

Arrangement and details of the air pollution abatement measures; it shall include:

- (a) List of activities on the Site that will cause air pollution;

- (b) Specification and technical details of air pollution abatement measures pursuant to sub-clause (a) above for covering the activities as specified in PS clause 2 where appropriate;
 - (c) Construction details of the dust/smoke screen to be provided for the Works where the public will be affected, pursuant to PS clause 2;
 - (d) System for monitoring the effectiveness and efficiency of the air pollution abatement measures implemented on the Site; and
 - (e) System for recording and controlling the use of ULSD for all diesel-operated Constructional Plant on the Site.
- (11) Noise pollution abatement

Arrangement and details of the noise pollution abatement measures; it shall include:

- (a) List of activities on the Site that will cause noise pollution;
 - (b) Specification and technical details of the noise pollution abatement measures for each activity pursuant to sub-clause (a) above;
 - (c) Arrangement for regular monitoring of noise levels at noise sensitive receivers;
 - (d) Construction details of the acoustic screens or enclosures to be provided for the Works where the public will be affected, pursuant to PS clause 3 where appropriate;
 - (e) Mounting details of sound insulating material for percussion breakers of excavators pursuant to PS clause 3 where appropriate;
 - (f) System for monitoring the effectiveness and efficiency of the noise pollution abatement measures implemented on the Site; and
 - (g) Inventory of noise emission labels for QPME (if any) used on the Site.
- (12) Wastewater pollution abatement

Arrangements and details of the wastewater pollution abatement measures; they shall include:

- (a) Means to prevent surface run-off from washing across the Site and egress of surface run-off from the Site where applicable;
- (b) Layout plan for collection of surface run-off and, where applicable, the provision for its treatment before discharge;
- (c) Arrangement to minimize the exposure of soil on the Site after excavation and backfilling where applicable and prevent the washout of soil or similar materials from the Site.
- (d) Method of disposal of sewage effluent from the Site;

[The following sub-clauses from (e) to (h) are optional and should only be included if PS clause 4(3) and 4(4) are incorporated.]

- (e) The layout plan for collection of wastewater if the Site has large water consumption;
- (f) The schematic diagram and layout arrangement of wastewater treatment facilities if they are provided on the Site, and the operational parameters at different stages of the process including, but are not limited to, the followings:
 - (i) Maximum quantity of influent to be treated in m³/hr;
 - (ii) Maximum suspended solid concentration of influent intake in mg/l;
 - (iii) Minimum retention time for each work process of the treatment system in minutes;
 - (iv) Maximum suspended solid concentration after each work process in mg/l;
 - (v) Concentration of each chemical dosage for the process, if appropriate, in % of concentration;
 - (vi) Maximum suspended solid concentration of effluent discharge in mg/l (*to allow some safety margin for the deviation in the suspended solid concentration of the influent intake*); and
 - (vii) The method for treatment of sludge before disposal.
- (g) The proforma for recording the operational parameters of the wastewater treatment facilities pursuant to sub-clause (f) above.
- (h) The contingency measures to cater for failure of wastewater treatment facilities.

PART C – WASTE MANAGEMENT

(13) Waste Reduction Measures

Arrangement and details of the waste reduction measures; it shall include:

- (a) List of work processes or activities that will generate C&D materials during the Works;
- (b) Measures to reduce/minimize the generation of C&D materials for the Contract through proper planning of works and good site management such as minimizing over-ordering, avoiding cross contamination to reusable and/or recyclable materials collected, and forward planning for removal, storage and collection of disposal materials;
- (c) System for proper control of using timbers in Temporary Works construction; and

- (d) Pre-identification of reusable/recyclable materials, such as hard rock, broken concrete, metallic waste, timber, paper/cardboard packaging etc., to facilitate on-site sorting of the materials.
- (14) Waste Targets
- (a) The targets set for the Contract, which should cover the followings:
 - (i) All excavated materials to be sorted to recover the inert portion of C&D materials, e.g. hard rock, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
 - (ii) All metallic waste to be recovered for collection by recycling contractors;
 - (iii) All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
 - (iv) All chemical waste to be collected and properly disposed of by specialist contractors; and
 - (v) All demolition debris to be sorted to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fittings/materials that have established recycling outlets.
 - (b) The target set for reducing and controlling the use of timbers in the Temporary Works.
- (15) On-site sorting of C&D Materials
- (a) The system devised for on-site sorting for each type of C&D materials arising from or in connection with the Works, and the resources and facilities to be provided for effective implementation of the system on the Site pursuant to PS clause 5(3);
 - (b) The layout plan showing the temporary storage of C&D materials on the Site; and
 - (c) The arrangement for collection of recyclable materials by recycling contractors where appropriate.
- (16) Waste Flow
- (a) The arrangement for verifying the quantities of C&D materials reused, recycled and/or removed from the Site for the preparation of the monthly summary WFT at Annex 4, pursuant to PS clause 5(4).

PART D – RECORDS

(17) Sample Proforma for Recording

Sample proforma shall be provided for the following:

- (a) Inventory of licences, registration particulars and permits;

- (b) Inspection reports for weekly environmental walks;
- (c) Inventory of complaints, inspections by enforcement authorities, abatement notices, environmental offences and convictions;
- (d) Summary record of non-compliance of air, noise and wastewater pollution incidents;
- (e) Summary record of delivery notes for ordering of ULSD from oil companies and the replenishment of such fuel to individual diesel-operated construction plant and equipment on the Site;
- (f) Monthly Summary of Waste Flow Table;
- (g) Summary record of chemical waste disposal;
- (h) Summary record of trip ticket system;
- (i) Records of environmental training;
- (j) Records of timber usage;
- (k) Summary record of quality powered mechanical equipment (QPME) used on the Site including their servicing period;

Weekly Environmental Walk Inspection Report**Summary of Follow-up Actions****Part I :**

Contract No. _____ Contract Title _____

Date of Inspection _____ Time _____

Persons making the inspection:

Name in Block LettersDesignationSignature

1. Contractor's Agent (or his representative if agreed by A/E)
2. Environmental Officer (or Environmental Supervisor if agreed by A/E)
3. Architect/Engineer's nominated site representative
- 4.

Item No.	Location	Situation Requiring Follow-up Action	Agreed Due Date for Completion	Date Completed	Remarks
1.					
2.					
3.					
4.					
5.					
6.					

To be signed at the end of inspection:**The Contractor's performance on nuisance abatement and waste management *is/is not to the satisfaction of the Architect/Engineer's nominated site representative at the time of inspection. (* delete as appropriate)**

Architect/Engineer's nominated site representative _____ Contractor's Agent or his representative _____

Part II : (To be countersigned after ALL actions are completed)Contractor's *Environmental
Officer/Assigned Person _____

Architect/Engineer's Representative _____

Date _____

Date _____

(Note: No payment will be made for the item of "Weekly Environmental Walk" under the PFSES if the Contractor's site environmental and waste management performance is not satisfactory, or any one of the follow up actions is not completed on or before the "Agreed Due Date for Completion".)

PART A - PARTICULAR SPECIFICATION FOR WHEEL WASHING SYSTEM

[This PS is optional. Delete this specification from the contract document where inapplicable.]

1. Wheel washing system with facilities as detailed below, shall be provided at all exit points where vehicles will be leaving the Site.
2. The facilities shall have the following characteristics:
 - (a) A space for the vehicle to stop where the washing is being done, with heavy duty metal grating capable of taking the heaviest vehicles envisaged for the Site, with a trough below for collecting wastewater, etc.;
 - (b) A system of high pressure jets by which the water is sprayed on to all exposed parts of each of all the wheels of the vehicle simultaneously;
 - (c) A pump to increase the water pressure so that the water impinges on the wheels at a reasonable force;
 - (d) Collection of wastewater in the vicinity of the washing facility to the wastewater treatment facilities of the Site, if any.
 - (e) Use of recycled water from the Site for the washing facilities.
3. The result of washing shall be to the satisfaction of the *Architect/Engineer or his Representative. The Contractor shall submit the design of the facilities to the *Architect/Engineer for information prior to its set up on the Site, and shall maintain the facilities to satisfy the requirements in this specification.

PART B - PARTICULAR SPECIFICATION FOR THE MECHANICAL DUMP TRUCK COVERS

1. All C&D materials shall be delivered to the appropriate designated outlets by dump trucks fitted with covered box type dump bed. Such dump trucks shall comply with the following:
 - (a) The cover to the dump bed shall be power operated with manual backup, so that the operator would not need to climb on to the dump bed to operate the cover (both under power mode and manual mode). Operation from driver cab or with the operator standing on the ground is acceptable.
 - (b) After the cover to the dump bed is closed, any gap left on the system of enclosure should be less than 25 mm wide measured in a direction across the gap. Any remaining gap is to be sealed up tightly with a layer of nylon bristle of sufficient length to bridge across the gap.
 - (c) The Contractor shall be responsible for selecting a design of dump truck cover satisfying the above requirements without impairing the operation of the dump truck at any time. No claim by the Contractor shall be entertained for any loss of use of dump trucks as a result of complying with this specification.
 - (d) The *Architect/Engineer or his Representative shall -
 - i) refuse entry into the Site any dump truck that fails to meet this specification; and
 - ii) require any loaded dump truck to unload its contents before leaving the Site if its dump bed and cover is found not to comply with the above requirements after loading.

Provided always that approval for leaving the Site of a loaded dump truck by the *Architect/Engineer or his site supervisory staff does not absolve the liability of the Contractor from complying with the relevant legislation, and no claim against the Employer will be entertained for any offence by the Contractor (or his truck drivers) in relation to transportation of the C&D materials from the Site.

PART C - PARTICULAR SPECIFICATION FOR WASTEWATER TREATMENT FACILITIES

[Delete or modify this specification where necessary to suit actual site situation.]

1. Wastewater treatment facilities (to be referred to as “the facilities” herein) shall be provided on the Site. All wastewater arising from the Works including the washing activities shall be collected for centralised treatment by the facilities before being reused or discharged into the appropriate drainage system subject to consent by the Drainage Services Department.
2. The facilities shall be integrated with the temporary wastewater collection system which in turn shall reach every part of the Works where use of water or generation of wastewater is expected, including but is not limited to temporary hand-wash basins. The wastewater to be treated shall be routed to the facilities. The design of the temporary wastewater collection system shall be adjusted at the Contractor’s own cost to suit the progress of the Works so as not to affect its performance and be subject to the approval of the *Architect/Engineer. Any such design modification shall be at the Contractor’s own cost and shall not constitute a variation. Wastewater from toilets should be collected separately for proper discharge/disposal and is not to be dealt with by these facilities.
3. The facilities and all temporary pipe works and channels shall be removed by the Contractor on completion of the Works. The Contractor shall NOT use the pipes that belong to the permanent works for the transport of the wastewater.
4. The treatment plant shall have the following characteristics:
 - (a) Modular liquid containers built up for wastewater collection and storage, and shall be expandable to suit the volume of water generated;
 - (b) The plant capacity shall cater for at least 120% of the maximum estimated volume of wastewater generated at any time;
 - (c) A 3-stage primary sedimentation tank shall be adopted for the wastewater treatment unless the Contractor can prove to the satisfaction of the *Architect/Engineer that a primary sedimentation tank with less stages is sufficient for the purpose. The hydraulic retention time of each stage shall not be less than 30 minutes.
 - (d) The plant shall have a final sedimentation tank with chemical enhanced sedimentation. The dosing of coagulant and flocculant shall be automatic and by means of a mixer. In addition, an automatic alkali and acid dosing device controlled by a feedback loop from an automatic pH sensor shall be provided for controlling the pH value of the effluent.
5. The sediment from the sedimentation tank shall be removed weekly or more frequently as the situation warrants, and properly treated and disposed of by a specialist contractor.
6. Samples of treated effluent shall be taken from the facilities at different times of a day to ensure that the quality of the effluent can meet the statutory criteria for discharge into the appropriate drain system. The test equipment shall be calibrated by a HOKLAS certified laboratory.
7. The Contractor shall submit the design of the facilities to the *Architect/Engineer for information prior to its set up on the Site, and shall maintain the facilities to satisfy the requirements in this specification.

Proforma for Monthly Recording Delivery and Consumption of Ultra Low Sulphur Diesel on Site

Contract No.: _____

Contract Title: _____

Name of Person completing the Proforma: _____

Name of Person responsible for audit checking: _____

Date	Intake			Consumption			
	Name of Contractor/ Sub-contractor	Details of Ordering Fuel	Quantity of Fuel Delivered (in litre)	Details of Plant belong to the Contractor/ Sub-contractor	Date of Arrival	Date of Departure	Quantity of Fuel Consumed (in litre)
		- name of oil company - delivery note no. and reference		- plant name and serial no.			
Total Delivered				Total Consumed			

[N.B. The total for the month is for checking the relative order of quantity of fuel delivered and consumed on the Site and need not necessarily be balanced.]

Name of Department: ArchSD/CEDD/DSD/EMSD/HyD/WSD

Contract No.: _____

Monthly Summary Waste Flow Table for ____ (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total											

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)

- Notes:
- (1) The performance targets are given in PS Clause 6(14).
 - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - * (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³. (PS Clause 5(4)(b) refers). [*Delete Note (4) and the table above on the forecast, where inapplicable*].

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: _____

Contract Title: _____

Item No.	Description of Works Process or Activity [see note (a) below]	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber Used (m³)	Actual Quantities used (m³)	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
Total Estimated Quantity of Timber Used					

- Notes:
- (a) The Contractor shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating.
 - (b) The summary table shall be submitted to the *Architect/Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with the PS sub-clause 5(5) in Appendix C.

APPENDIX D

SAMPLE METHOD OF MEASUREMENT

Sample Method of Measurement for “Site Safety and Environment Management” under the Pay for Safety and Environment Scheme

- [Notes: 1. Where *Architect/Engineer is denoted in this MoM, it should be selected as appropriate or modified to suit the appropriate title of the contract.
2. The sample MoM on Pay for Safety Scheme promulgated under WBTC 14/98, 30/2000, 30/2002 should be deleted and replaced by the samples herein.
3. The following MoM should be included in a new section of the MoM, instead of Section 1 (Preliminaries).

Notes: For contracts using the Hong Kong Standard Method of Measurement for Building Works (3rd Edition Metric February 1979), the phrase “General Principles paragraphs 3 and 4”, wherever it may appear below should be deleted; and the phrase “General Preambles paragraph 2”, wherever it may appear below, should be replaced with “Hong Kong Standard Method of Measurement for Building Works (3rd Edition Metric February 1979) – Section I clause 9” .

Section (XX) - Site Safety and Environmental Management

SITE SAFETY AND ENVIRONMENTAL MANAGEMENT

Particular Preambles

- xx.01 Rates appearing in this section of the Method of Measurement, whether pre-fixed or inserted by the Contractor, shall be deemed to allow for the value of work in connection with meeting all statutory and contractual obligations in the upkeeping of safety and health and environmental management in the execution of the Works and any other related obligations, liabilities, risks and profit. In the event that the rates have been insufficient or where there are any aspects where the methods provided hereunder do not measure any item or exclude the measurement of any item or part thereof, the difference in value shall be deemed to have been included in the rates inserted elsewhere in the Bills of Quantities.

SAFETY PLAN

<i>Units</i>	xx.02	The units of measurement shall be:
	(i)	complete Safety Plan item
	(ii)	update Safety Plan month
<i>Measurement</i>	xx.03	The items for “complete Safety Plan” shall be measured when the *Architect/Engineer is satisfied that the Safety Plan has been completed and it meets all the requirements of the Contract at the time of its completion and copies distributed.
	xx.04	The measurement for the “update Safety Plan” shall be the period of time commencing from the completion of the Safety Plan until the date of substantial completion of the Works or an earlier or later date notified by the *Architect/Engineer.

	xx.05	No measurement shall be made for the “update Safety Plan” for any period of time in which the Contractor fails to discharge any of its contractual obligations in respect of reviewing, revising or updating the Safety Plan.
<i>Itemisation</i>	xx.06	Separate items shall be provided for the Safety Plan in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Complete Safety Plan 2. Update Safety Plan

<i>Complete Safety Plan</i>	xx.07	The item for “complete Safety Plan” shall, in accordance with General Preambles paragraph 2, include for:
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- Item coverage*
- (a) development and completion of the Safety Plan taking into account the comments given by the *Architect/Engineer and any other parties; and
 - (b) distribution of the Safety Plan to all relevant parties.

<i>Update Safety Plan</i>	xx.08	The item for the “update Safety Plan” shall, in accordance with General Preambles paragraph 2, include for:
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- Item coverage*
- (a) reviewing, updating and revising the Safety Plan taking into account the comments made on the Safety Plan by the *Architect/Engineer and any other parties;
 - (b) preparing and updating risk assessments for the work scheduled at least for the next two months;
 - (c) reviewing and establishment of safe working procedures and method statements;
 - (d) updating of emergency and rescue procedures; and
 - (e) distribution of the revisions of the Safety Plan to all relevant parties.

ENVIRONMENTAL MANAGEMENT PLAN

<i>Units</i>	xx.09	The units of measurement shall be:
		(i) complete Environmental Management Plan item
		(ii) update Environmental Management Plan month

<i>Measurement</i>	xx.10	The item for “complete Environmental Management Plan” shall be measured when the *Architect/Engineer is satisfied that the Environmental Management Plan has been completed and it meets all the requirements of the Contract at the time of its completion and copies distributed.
	xx.11	The measurement for “update Environmental Management Plan” shall be the period of time commencing from the completion of the Environmental Management Plan until the date of substantial completion of the Works or an earlier or later date notified by the *Architect/Engineer.
	xx.12	No measurement shall be made for “update Environmental Management Plan” for any period of time in which the Contractor fails to discharge any of its contractual obligations in respect of reviewing, updating or revising the Environmental Management Plan.
<i>Itemisation</i>	xx.13	Separate items shall be provided for the Environmental Management Plan in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Complete the Environmental Management Plan 2. Update Environmental Management Plan

<i>Complete Environmental Management Plan</i>	xx.14	The item for “complete Environmental Management Plan” shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		(a) development and completion of the Environmental Management Plan taking into account the comments given by the *Architect/Engineer and any other parties; and (b) distribution of the Environmental Management Plan to all relevant parties.
<i>Update Environmental Management Plan</i>	xx.15	The item for “update Environmental Management Plan” shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		(a) reviewing, updating and revising the Environmental Management Plan taking into account the comments made on the Environmental Management Plan by the *Architect/Engineer and any other parties;

- (b) providing the actual quantities of C&D materials generated for the month by completing the monthly summary Waste Flow Table, and a forecast of the quantities *[delete the last part if PS 5(4)(b) is not applicable]*;
- (c) updating of the summary table for work processes or activities requiring the use of timbers for Temporary Works construction;
- (d) reviewing the adequacy of resources and facilities for on-site sorting of C&D materials;
- (e) reviewing the adequacy of the nuisance abatement measures based on measurements taken on the various pollution parameters and public complaints, and
- (f) distribution of the revisions of the Environmental Management Plan to all relevant parties.

PROVIDE SAFETY OFFICER AND ENVIRONMENTAL OFFICER

[Contract drafter should amend the title to “PROVIDE SAFETY OFFICER” and delete clauses xx16(ii), xx.18, xx.23 and the phrase “and/or the Environmental Officer” in xx.20 and xx.21 for the measurement for “provide Environmental Officer” if the contract does not require an Environmental Officer or if the contract only requires an Assigned Person to oversee the environmental matters.]

<i>Units</i>	xx.16	The unit of measurement shall be: <ul style="list-style-type: none">(i) provide Safety Officer number-month(ii) provide Environmental Officer number-month
<i>Measurement</i>	xx.17	The measurement for “provide Safety Officer” shall commence from the date of appointment of the Safety Officer as approved by the *Architect/Engineer or the date on which the Safety Officer commences his duty on the Site, whichever is the later. No measurement shall be made for any Safety Officer employed by the Contractor over and above the number of Safety Officers required under PS clause () <i>[relevant clause no. in PS for Site Safety⁺]</i> .
	xx.18	The measurement for “provide Environmental Officer” shall commence from the date of appointment of the Environmental Officer as approved by the *Architect/Engineer or the date on which the Environmental Officer commences his duty on the Site, whichever is the later.
	xx.19	No measurement shall be made after the date of substantial completion of the Works or an earlier or later date notified by the *Architect/Engineer.

- xx.20 No measurement shall be made for any period of time in which the Safety Officer and/or the Environmental Officer fails to discharge any of his duties.
- Itemisation* xx.21 Separate items shall be provided for “provide Safety Officer and Environmental Officer” in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Provide Safety Officer 2. Provide Environmental Officer

- Provide Safety Officer* xx.22 The item for “provide Safety Officer” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) submission of the qualifications and experience of the proposed Safety Officer to the *Architect/Engineer for approval;
 - (b) provision of sufficient number of Safety Officers in accordance with PS clause () [*relevant clause no. in PS for Site Safety⁺*] and supporting staff to the Safety Officers;
 - (c) ensuring the fulfillment of the duties by the Safety Officer(s) in accordance with PS clause () [*relevant clause no. in PS for Site Safety⁺*] to the satisfaction of the *Architect/Engineer or his Representative; and
 - (d) maintenance of the safety diary.

- Provide Environmental Officer* xx.23 The item for “provide Environmental Officer” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) submission of the qualifications and experience of the proposed Environmental Officer to the *Architect/Engineer for approval;
 - (b) ensuring the fulfillment of the duties by the Environmental Officer in accordance with PS clause () [*clause no. 1(2)(c) in Appendix C*] to the satisfaction of the *Architect/Engineer or his Representative; and
 - (c) maintenance of the environmental records as per PS clause () [*clause no. 6(17) in Appendix C*].

**ATTEND SITE SAFETY AND ENVIRONMENTAL
MANAGEMENT COMMITTEE, AND SITE SAFETY AND
ENVIRONMENTAL COMMITTEE**

<i>Units</i>	xx.24	The units of measurement shall be: <ul style="list-style-type: none"> (i) attend Site Safety and Environmental Management Committee month (ii) attend Site Safety and Environmental Committee month
<i>Measurement</i>	xx.25	The measurement shall commence from the date of the first meeting of the relevant Committee until the date of substantial completion of the Works or an earlier or later date notified by the *Architect/Engineer.
	xx.26	The item for “attend Site Safety and Environmental Management Committee” shall be measured as a whole if separate meetings are held for discussion on site safety and environmental issues individually.
	xx.27	No measurement shall be made for any month in which the Contractor fails to hold or attend any of such Committee meetings in accordance with the Contract, or fails to deal with any of the matters associated with such Committees in a satisfactory manner.
<i>Itemisation</i>	xx.28	Separate items shall be provided for “attend Site Safety and Environmental Management Committee, and Site Safety and Environmental Committee” in accordance with General Principles Paragraphs 3 and 4 and the following:

Group	Feature
I	1. Attend Site Safety and Environmental Management Committee
	2. Attend Site Safety and Environmental Committee

<i>Attend Site Safety and Environmental Management Committee</i>	xx.29	The item for “attend Site Safety and Environmental Management Committee” shall, in accordance with General Preambles paragraph 2, include for:
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<i>Item coverage</i>	(a)	attendance of the Site Safety and Environmental Management Committee meetings and complete the agenda of the meeting for the month;
	(b)	arranging inspection of the Site by members of the Site Safety and Environmental Management Committee before the meeting for the month;

- (c) providing necessary assistance for the proper functioning of the Site Safety and Environmental Management Committee; and
 - (d) submission of monthly safety and environmental report for consideration at the meeting.
- Attend Site Safety and Environmental Committee* xx.30 The item for “attend Site Safety and Environmental Committee” shall, in accordance with General Preambles paragraph 2, include for:
- Item coverage*
- (a) establishment of the Site Safety and Environmental Committee;
 - (b) arranging and giving adequate notice to relevant parties of the Site Safety and Environmental Committee meeting to be held for the month;
 - (c) attendance of the Site Safety and Environmental Committee meetings; and
 - (d) completion and distribution of minutes of meetings.

ARRANGE AND ATTEND WEEKLY SAFETY WALK, AND WEEKLY ENVIRONMENTAL WALK

- Units* xx.31 The unit of measurement shall be:
- (i) arrange and attend weekly safety walk number
 - (ii) arrange and attend weekly environmental walk number
- Measurement* xx.32 Only those safety walks or environmental walks conducted during the period from the date of commencement of the Works until the date of substantial completion of the Works or an earlier or later date notified by the *Architect/Engineer are qualified for measurement.
- xx.33 No payment shall be made for the weekly safety walk when any one of the following events occurs during that week:
- (a) The Contractor has received Improvement Notice or Suspension Notice issued by the Labour Department under the Occupational Safety and Health Ordinance in respect of any activities on the Site;
 - (b) The *Architect/Engineer has suspended the progress of the Works or any part thereof due to any reason caused by any default on the part of the Contractor in failing to ensure safety and health,

- (c) The *Architect/Engineer has given written notification to the Contractor requiring the Contractor to rectify any deficiency in the proper and full implementation of the Safety Plan, and the Contractor has failed to rectify the deficiency within a reasonable time; or
- (d) The Contractor has failed to rectify the defects and deficiencies identified in the weekly safety walk within the agreed time.
- (e) Any impending prosecution comes to the knowledge of the *Architect/Engineer under Section 27 of the Public Health and Municipal Services Ordinance.

xx.34 No payment shall be made for the weekly environmental walk when any one of the following events occurs during the week:

- (a) Any Air Pollution or Noise Abatement Notice has been issued by the Environmental Protection Department;
- (b) Any impending prosecution comes to the knowledge of the *Architect/Engineer under any of the following Ordinances:
 - (i) Air Pollution Control Ordinance;
 - (ii) Noise Control Ordinance;
 - (iii) Water Pollution Control Ordinance ;
 - (iv) Waste Disposal Ordinance;
 - (v) Environmental Impact Assessment Ordinance;
 - (vi) Dumping at Sea Ordinance; and
 - (vii) Ozone Layer Protection Ordinance.
- (c) Test results confirming that diesel-operated Constructional Plant replenished with other than ultra low sulphur diesel;
- (d) Any illegal or unauthorized disposal of C&D materials in connection with the Works notified by the Environmental Protection Department or other relevant department;
- (e) The public fill reception facilities have refused to receive the C&D materials from the Site because the materials contain an unacceptably high proportion of non-inert C&D materials or other waste;
- (f) The *Architect/Engineer has given written notification to warn the Contractor for any failure in the proper and full implementation of the Environmental Management Plan, but the Contractor has failed to rectify such failure within a reasonable time; and
- (g) The Contractor has failed to rectify the defects and deficiencies identified in the weekly environmental walk within the agreed time.

- xx.35 The weekly safety walk and environmental walk can be carried out simultaneously and by the same inspection team subject to the agreement of the *Architect/Engineer.
- Itemisation* xx.36 Separate items shall be provided for “arrange and attend weekly safety walk and weekly environmental walk” in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Arrange and attend weekly safety walk 2. Arrange and attend weekly environmental walk

- Arrange and attend weekly safety walk* xx.37 The item for “arrange and attend weekly safety walk” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) arranging and giving adequate notice to relevant parties of the weekly safety walk;
 - (b) using a comprehensive checklist during the walk to identify any deficiencies noted in the safety provisions, recording the deficiencies in the summary table, and rectifying such deficiencies subsequently within the agreed time;
 - (c) preparation of reports on safety walks and safety inspections conducted;
 - (d) implementation and upkeep of all measures stipulated in Particular Specification on site safety and the Safety Plan, and maintaining the effectiveness of all such provisions for the duration of the Contract;
 - (e) conducting safety inspections including, but without limitation to, the followings:
 - (i) scaffolding and safe access;
 - (ii) temporary electrical supply, and
 - (iii) site cleanliness and control of mosquito breeding.
 - (f) implementation of the decisions and recommendations made by the Site Safety and Environmental Management Committee on matters of safety and health.

- Arrange and attend weekly environmental walk* xx.38 The item for “arrange and attend weekly environmental walk” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) arranging and giving adequate notice to relevant parties of the weekly environmental walk;

- (b) using a comprehensive checklist during the walk to identify any deficiencies noted in the environmental provisions, recording the deficiencies in the summary table, and rectifying such deficiencies subsequently within the agreed time;
- (c) preparation of reports on environmental walks and environmental inspections conducted;
- (d) implementation and upkeeping of all measures stipulated in the Particular Specification on environmental management and the EMP, and maintain the effectiveness of all such provisions for the duration of the Contract;
- (e) conducting environmental inspections including, but without limitation to, the followings:
 - (i) the effectiveness of air, noise and wastewater pollution abatement measures of the Works;
 - (ii) the performance of dust and/or acoustic screens or enclosures provided at public interfaces;
 - (iii) maximizing the retrieval of reusable and recyclable materials from the C&D materials generated from the Site; and
 - (iv) prompt removal of surplus C&D materials off the Site;
- (f) implementation of the decisions and recommendations made by the Site Safety and Environmental Management Committee on matters relating to environmental nuisance and waste management.

PROVIDE SAFETY AND ENVIRONMENTAL TRAINING

<i>Units</i>	xx.39	The unit of measurement shall be: <ul style="list-style-type: none"> (i) provide safety and environmental training number
<i>Measurement</i>	xx.40	The measurement for “provide safety and environmental training” in the form of safety training for specified trade workers shall be on a per worker basis subject to the production of a Specified Trade Safety Training Certificate (‘Silver Card’) and submission of the original attendance certificate issued by the Construction Industry Training Authority as evidence of completing the Safety Training Course for Construction Workers of Specified Trade or its revalidation course, in accordance with PS clause () [<i>relevant clause no. in PS for Site Safety</i> ⁺]. The *Architect/Engineer or his representative will stamp on the attendance certificate and return it to the Contractor after the measurement for this item has been made. No measurement will be made if:

- (a) the specified trade worker has attended the course before he starts works on the Site or after he has left the Site;
- (b) the specified trade worker has attended the same course for the same trade more than once during the Contract period; and
- (c) measurement for this item has been made under another public works contract for the same trade worker to attend the same course for the same trade, or a valid or clean attendance certificate without prior payment record cannot be produced.

xx.41 The measurement for “provide safety and environmental training” in the form of site specific induction training shall be paid on a per worker per training basis.

xx.42 The measurement for “provide safety and environmental training” in the form of toolbox talks shall be paid on a per worker per talk basis based on a frequency of one talk per worker every two weeks in accordance with PS clause (). *[relevant clause no. in PS for Site Safety⁺]*

xx.43 No measurement for the items on “provide safety and environmental training” in the form of site specific induction training or toolbox talks will be made if the *Architect/Engineer or his Representative is dissatisfied with the frequency, arrangements, numbers certified, relevance or quality of such training and the Contractor cannot provide any justification acceptable to the *Architect/Engineer.

Itemisation

xx.44 Separate items shall be provided for “provide safety and environmental training” in accordance with General Principles paragraphs 3 and 4 and the following:

Group		Feature
I	1.	Provide safety and environmental training
II	1.	in the form of safety training for specified trade workers
	2.	in the form of site specific induction training
	3.	in the form of toolbox Talks

Provide safety and environmental training in the form of safety training for specified trade workers

xx.45 The items for “provide safety and environmental training” in the form of safety training for specified trade workers shall, in accordance with General Preambles paragraph 2, include for:

<i>Item coverage</i>		<ul style="list-style-type: none"> (a) arrangement of skilled workers to attend Safety Training Course for Construction Workers of Specified Trade organised by the Construction Industry Training Authority; (b) payment of the token allowance to skilled workers; (c) preparation of training programme and records, and submission of certified monthly statements to the *Architect/Engineer; and (d) administration in connection with (a), (b) and (c) above.
<i>Provide safety and environmental training in the form of site specific induction training</i>	xx.46	The items for "provide safety and environment training" in the form of site specific induction training shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		<ul style="list-style-type: none"> (a) site specific induction training conducted in accordance with PS clause () [<i>relevant clause no. in PS for Site Safety⁺</i>] and PS clause () [<i>PS clause 1(4)(c) in Appendix C</i>]; (b) the necessary facilities, trainers and demonstration equipment for complying with (a) above; (c) preparation of the training programme and records, and submission of certified monthly statements to the *Architect/Engineer; and (d) administration in connection with (a), (b) and (c) above.
<i>Provide safety and environmental training in the form of toolbox talks</i>	xx.47	The items for "provide safety and environmental training" in the form of toolbox talks shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		<ul style="list-style-type: none"> (a) conducting toolbox talks on safety, environmental protection and waste management in accordance with PS clause () [<i>relevant clause no. in PS for Site Safety⁺</i>] and PS clause () [<i>PS clause 1(4)(d) in Appendix C</i>]; (b) providing necessary training to Safety Supervisors, Environmental Officers or Environmental Supervisors or Assigned Persons or foremen or gangers to conduct such talks; (c) basing such talks on kits published by the Hong Kong Construction Association Ltd., Occupational Safety and Health Council, or kits of comparable standard approved or advised by the *Architect/Engineer;

- (d) preparation of training programme and records, and submission of certified monthly statements to the *Architect/Engineer; and
- (e) administration in connection with (a), (b), (c) and (d) above.

SITE SAFETY CYCLE

ARRANGE AND HOLD PRE-WORK ACTIVITIES

<i>Units</i>	xx.48	The unit of measurement shall be:
	(h)	arrange and hold Pre-work Activities of Site Safety Cycle number.
<i>Measurement</i>	xx.49	Subject to clauses xx.50 to xx.52 below, the measurement for "arrange and hold Pre-work Activities of Site Safety Cycle" shall be the number of persons attending a complete set of the following Pre-work Activities on one day: <ul style="list-style-type: none"> (i) Pre-work Exercise and Safety (PES) meetings; (ii) Hazard Identification Activity (HIA) meetings; and (iii) Pre-work Safety Checks.
	xx.50	Measurement shall only be made for persons employed on the Works (excluding clerical and administrative staff in Site office), irrespective of whether they are in the employment of the Contractor or his sub-contractors. For the avoidance of doubt, persons employed on the Works are those persons whose number of man-hours worked on the Site are to be included in the number of man-hours worked for the Contract.
	xx.51	Measurement shall only be made for a person who has completed the set of Pre-work Activities on one day prior to his/her work on that day. No extra measurement shall be made for a person who has attended more than one set of Pre-work Activities in a day.
	xx.52	A maximum of two numbers for "arrange and hold Pre-work Activities of Site Safety Cycle" shall be measured for the same person in any one calendar week (commencing on Monday) unless prior approval has been obtained from the *Architect/Engineer.
	xx.53	No measurement shall be made for the number of persons who have attended the Pre-work Activities in a group but the *Architect/Engineer or his Representative is dissatisfied with the content and/or the arrangement of the Pre-work Activities for that group. If the *Architect/Engineer or his Representative is only dissatisfied with the content and/or the arrangement of the HIA meeting for a particular group only, then the non-measurement shall be limited to the number of persons for that group which the *Architect/Engineer or his Representative considers unsatisfactory.
	xx.54	No measurement shall be made for the total number of attendees of

Pre-work Activities in a week (commencing on Monday) if the number of individual persons who have attended the Pre-work Activities to the satisfaction of the *Architect/Engineer or his Representative within that week is less than 70% of the average number of persons working at the Site in that week. For the avoidance of doubt, the average number of persons working at the Site in a week (commencing on Monday) shall be the quotient of the total number of man-days worked for the Contract in that week divided by the number of working days within that week.

Itemisation xx.55 Separate items shall be provided for "arrange and hold Pre-work Activities of Site Safety Cycle" in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Arrange and hold Pre-work Activities of Site Safety Cycle

Arrange and hold Pre-work Activities of Site Safety Cycle xx.56 The items for "arrange and hold Pre-work Activities of Site Safety Cycle" shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) arranging and holding PES meetings, HIA meetings and Pre-work Safety Checks all as given in PS clause () to () [relevant clause nos. in ETWB TCW No. 30/2002];
 - (b) providing training to leaders of the PES or HIA meetings as given in PS clause () and () [relevant clause nos. in ETWB TCW No. 30/2002]; and
 - (c) attendance by workers.

PROVIDE SAFETY BULLETIN BOARD

Units xx.57 The unit of measurement shall be:

- (i) provide safety bulletin boardnumber

Itemisation xx.58 Separate items shall be provided for "provide safety bulletin board" in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Provide safety bulletin board

<i>Provide safety bulletin board</i>	xx.59	The items for "provide safety bulletin board" shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		<ul style="list-style-type: none"> (a) providing safety bulletin board in accordance with PS clause () [relevant clause nos. in ETWB TCW No. 30/2002]; (b) relocating safety bulletin board if required from one place to another within the Site during the various stages of the Contract; (c) providing maintenance and necessary reinstatement to keep the bulletin boards in good working condition; and (d) subsequent removal and disposal of, and reinstatement of the affected areas.

USE OF QUALITY POWERED MECHANICAL EQUIPMENT

[Note: Paragraphs xx.60 to xx.63 for the term "use of quality powered mechanical equipment" shall only be included for contracts with an estimated contract sum of \$200M or above]

	xx.60	The unit of measurement shall be:
		(a) use of quality powered mechanical equipment month
<i>Measurement</i>	xx.61	The item for "use of quality powered mechanical equipment" shall be measured once only for each month when during the whole month, all Constructional Plant used on the Site, insofar as they fall under a category of the "Quality Powered Mechanical Equipment (QPME)" as listed in PS clause () [Clause 3(4) & (5) in Appendix C], have at all times been registered with the EPD as a QPME and affixed with a relevant label issued by the EPD. No measurement shall be made for this item if there is no site activity requiring the use of QPME for the month, or if there is site activity requiring the use of QPME for the month but the Contractor has not used QPME for such site activity or any part thereof during the month.
<i>Itemisation</i>	xx.62	Separate items shall be provided for "use of quality powered mechanical equipment" in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. use of quality powered mechanical equipment.

Use of quality powered mechanical equipment xx.63 The item for “use of quality powered mechanical equipment” shall, in accordance with General Preambles paragraph 2, include for:

Item coverage

- (a) affixing the QPME label issued by EPD to the Constructional Plant at all times when working on the Site and making sure that the label is legible;
- (b) maintaining a register of all QPME used on the Site and their servicing period;
- (c) replacement of any QPME that fails to satisfy the criteria pursuant to PS clause [] (*see Clause 3(3) in Appendix C*) under the Contract or which has been deregistered by EPD; and
- (d) any extra cost due to delays to the Works as a result of (c) above.

Sample Method of Measurement for “Environmental Measures” on Nuisance Abatement and Waste Management

- [Notes: 1. Where *Architect/Engineer is denoted in this MoM, it should be selected as appropriate or modified to suit the appropriate title of the contract.
2. The following MoM is to be included under Section 1 (Preliminaries) of the MoM.
3. Contract drafter should also incorporate Appendix D(c) into Section 1 (Preliminaries) of the MoM. It should be noted that Appendix D(c) replaces SMM Corrigendum No. 1/2000 and serves as “catch-all” items for environmental measures that are not separately measured under this Appendix.]

Section 1 - Environmental Measures

[Note: Contract drafter should delete the irrelevant clauses from the sample contract MoM where the measure(s) is/are not applicable to his contract to tally with the PS clauses 2 to 5, in particular the optional items as marked ‘ # ’.]

AIR POLLUTION ABATEMENT

<i>Units</i>	xx.01	The unit of measurement shall be:
		(i) provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities item
		(ii) provision, maintenance and removal of screens or enclosures for smoky activities item
		[#] (iii) provision, maintenance and removal of wheel washing system item
		(iv) provide mechanical covers for dump trucks item
<i>Measurement</i>	xx.02	The item for “provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied that all such covering or air pollution abatement measures are provided on Site in accordance with PS Clause No. 2(1) [**adjust to suit] , properly maintained during the course of the Contract and subsequently removed upon completion of the Works.
	xx.03	No measurement shall be made for the item for “provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities” if no such covering or air pollution abatement measures are provided by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such covering or measures. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.

- xx.04 The item for “provision, maintenance and removal of screens or enclosures for smoky activities” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied that such screens or enclosures are provided for all smoky activities on Site in accordance with PS Clause No. 2(2) [** adjust to suit], properly maintained during the course of the Contract and subsequently removed upon completion of the Works.
- xx.05 No measurement shall be made for the item for “provision, maintenance and removal of screens or enclosures for smoky activities” if no such screens or enclosures are provided by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such screens or enclosures. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.
- [#]xx.06 The item for “provision, maintenance and removal of wheel washing system” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied with the performance of the wheel washing system provided and installed on Site in accordance with PS Clause No. 2(3) [** adjust to suit], and that such system is properly maintained during the course of the Contract and subsequently removed upon completion of the Works.
- [#]xx.07 No measurement shall be made for the item for “provision, maintenance and removal of wheel washing system” if no such system is provided and installed by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such system. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.
- xx.08 The item for “provide mechanical covers for dump trucks” shall be measured once only for the whole Contract when the *Architect/Engineer is satisfied with the operation of the dump trucks used for the transportation of construction and demolition materials into and off the Site in accordance with PS Clause No. 2(4) [** adjust to suit].
- xx.09 No measurement shall be made for the item for “provide mechanical covers for dump trucks” if any dump truck used for the transportation of construction and demolition materials into and off the Site has not been provided with a mechanical cover as specified in the Contract or if no dump truck has been used during the course of the Contract.

Itemisation xx.10 Separate items shall be provided for “air pollution abatement” in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	<ol style="list-style-type: none"> 1. Provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities. 2. Provision, maintenance and removal of screens or enclosures for smoky activities. 3. Provision, maintenance and removal of wheel washing system. 4. Provide mechanical covers for dump trucks.

Provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities xx.11 The item for “provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities” shall, in accordance with General Preambles paragraph 2, include for:

Item coverage (a) provision, maintenance and removal of the means from time to time to ensure that dusty materials are properly contained or covered by tarpaulin or other approved means to the satisfaction of the *Architect/Engineer or his Representative;

(b) provision, maintenance and removal of appropriate air pollution abatement measures for dusty construction activities carried out in the close proximity to the public to the satisfaction of the *Architect/Engineer or his Representative ;

(c) proper handling/disposal of the covering, screening materials and the like for reuse or recycling if they are no longer necessary; and

(d) reinstatement of the Site.

Provision, maintenance and removal of screens or enclosures for smoky activities xx.12 The item for “provision, maintenance and removal of screens or enclosures for smoky activities” shall, in accordance with General Preambles paragraph 2, include for:

<i>Item coverage</i>		<ul style="list-style-type: none"> (a) submission of the construction details of the smoke screens or enclosures to be provided on the Site to the *Architect/Engineer for approval. (b) fixing of the screens or enclosures securely and safely to the satisfaction of the *Architect/Engineer or his Representative; (c) maintenance of the screens or enclosures after erection till removal; and (d) removal of the screens or enclosures and reinstatement of the Site.
<i>Provision, maintenance and removal of wheel washing system</i>	[#] xx.13	The item for “provision, maintenance and removal of wheel washing system” shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		<ul style="list-style-type: none"> (a) submission of the design and layout arrangement of the wheel washing system to the Architect/Engineer* for approval; (b) patent fees and royalties in connection with the design; (c) supply and installation of the system on the Site including all the necessary piping, equipment and facilities for reuse and recycling of water with the system performance to the satisfaction of the *Architect/Engineer; (d) all costs associated with the satisfactory operation and maintenance of the system, including power supply, water supply, repair of any defective parts of the system and the like, to the satisfaction of the *Architect/Engineer or his Representative; (e) modification, relocation and improvement of the system to suit the Site conditions or Works programme; (f) where the Site has more than one exit point for vehicles leaving the Site, provide a wheel washing system covering all exit points unless prior approval has been obtained from the *Architect/Engineer that the provision for one or more of the exit points is/are not necessary; and (g) removal of the system and reinstatement of the Site.
<i>Provide mechanical covers for dump trucks</i>	xx.14	The item for “provide mechanical covers for dump trucks” shall, in accordance with General Preambles paragraph 2, include for:

<i>Item coverage</i>	(a)	maintenance of the mechanical covers in good operating condition, including the replacement of any consumables or wear and tear;
	(b)	ensuring all dump trucks which enter or exit the Site for the execution of the Works are fitted with such mechanical covers in compliance with the Contract requirement;
	(c)	providing sufficient number of dump trucks fitted with such mechanical covers; and
	(e)	allowance of the time required to provide mechanical covers to all dump trucks in the programme for the execution of the Works.

NOISE POLLUTION ABATEMENT

<i>Units</i>	xx.15	The unit of measurement shall be:
	(i)	provision, maintenance and removal of acoustic screens or enclosuresitem
	(ii)	adoption of other noise abatement practices item
<i>Measurement</i>	xx.16	The item for “provision, maintenance and removal of acoustic screens or enclosures” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied that such acoustic screens or enclosures are provided on Site, properly maintained during the course of the Contract as PS clause [] and removed subsequently removed upon completion of the Works.
	xx.17	No measurement shall be made for the item for “provision, maintenance and removal of acoustic screens or enclosures” if no such screens or enclosures are provided by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such screens or enclosures. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.
	xx.18	The item for “adoption of other noise abatement practices” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied that such practices are provided on Site in accordance with the requirements specified in PS clause [] (<i>see Clause 3(1) and 3(2) in Appendix C</i>)).
	xx.19	No measurement shall be made for the item for “adoption of other noise abatement practices” if the Contract does not involve any work as described in PS clause [] (<i>see Clause 3(1) and 3(2) in Appendix C</i>)) requiring the adoption of the stated noise abatement

practices or if any of those noise abatement practices are not adopted by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such noise abatement practices. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.

Itemisation xx.20 Separate items shall be provided for “noise pollution abatement” in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Provision, maintenance and removal of acoustic screens or enclosures. 2. Adoption of other noise abatement practices.

Provision, maintenance and removal of acoustic screens or enclosures xx.21 The item for “provision, maintenance and removal of acoustic screens or enclosures” shall, in accordance with General Preambles paragraph 2, include for:

Item coverage (a) submission of the construction details of the acoustic screens or enclosures to be provided on the Site to the *Architect/Engineer for approval, if the design of such acoustic screens or enclosures has not been adopted for the Contract previously;

(b) fixing of the acoustic screens or enclosures securely and safely to the satisfaction of the *Architect/Engineer or his Representative;

(c) removal of the acoustic screens or enclosures and reinstatement of the Site after removal; and

(d) proper maintenance of the acoustic screens or enclosures after erection till removal.

Adoption of other noise abatement practices xx.22 The item for “adoption of other noise abatement practices” shall, in accordance with General Preambles paragraph 2, include for:

<i>Item coverage</i>	(a) provision, maintenance and removal of all noise abatement practices in accordance with the requirements specified in PS clause [] (<i>see PS Clause 3(1) and 3(2) in Appendix C</i>)) to the satisfaction of the *Architect/Engineer or his Representative.
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WASTEWATER POLLUTION ABATEMENT

Note: “^{##} “The items shall be deleted as appropriate to tally with the PS

<i>Units</i>	xx.23	The unit of measurement shall be:
	(i)	provision, maintenance and removal of wastewater collection systemitem
	^{##} (ii)	provision, maintenance and removal of wastewater treatment facilitiesitem
<i>Measurement</i>	xx.24	The item for “provision, maintenance and removal of wastewater collection system” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied with the performance of the wastewater collection system provided and installed on Site in accordance with PS clause [] (<i>see PS Clause No. 4(1) & 4(2) in Appendix C</i>), and that such system is properly maintained during the course of the Contract and is subsequently removed upon completion of the Works.
	xx.25	No measurement shall be made for the item for “provision, maintenance and removal of wastewater collection system” if no such system is provided by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such system. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.
	^{##} xx.26	The item for “provision, maintenance and removal of wastewater treatment facilities” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied with the performance of the wastewater treatment facilities provided and installed on Site in accordance with PS clause [] (<i>see PS Clause 4(3) & 4(4) in Appendix C</i>), and that such facilities are properly maintained during the course of the Contract and subsequently removed upon completion of the Works.
	^{##} xx.27	No measurement shall be made for the item for “provision, maintenance and removal of wastewater treatment facilities” if no such facilities are provided by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the performance of such facilities. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis according to the period of time during which

such item has been provided by the Contractor to the satisfaction of the *Architect/Engineer.

Itemisation xx.28 Separate items shall be provided for “wastewater pollution abatement” in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Provision, maintenance and removal of wastewater collection system.
	##2. Provision, maintenance and removal of wastewater treatment facilities.

Provision, maintenance and removal of wastewater collection system xx.29 The item for “provision, maintenance and removal of wastewater collection system” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) design of the wastewater collection system and submission of the design to the *Architect/Engineer for approval;
 - (b) provide all necessary dykes, ditches, pipes and fittings of sufficient capacity, and extent for collecting surface run-off and wastewater from all locations of the Site to appropriate treatment facilities, including any approved modification to the Works;
 - (c) modification or improvement of the layout system to suit the change of the Site conditions and Works progress, or if the *Architect/Engineer is dissatisfied with its performance;
 - (d) make all necessary alterations to the Works to suit the system; and
 - (e) removal of the system and reinstatement of the Site.

Provision, maintenance and removal of wastewater treatment facilities ##xx.30 The item for “provision, maintenance and removal of wastewater treatment facilities” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) design of the wastewater treatment facilities and submission of the design to the *Architect/Engineer for approval;
 - (b) setting up, constructing the facilities and extending its capacity to suit the volume of the wastewater generated

from time to time, with reserved capacity meeting the requirement given in Annex [2**] as mentioned in PS Clause () [PS Clause 4(3) in Appendix C];

- (c) provision of all structural supports or modification to the Works to suit the construction of the facilities;
- (d) periodic removal of sediments accumulated in the facilities with proper treatment and disposal;
- (e) provision of all necessary chemicals, power and other resources for the proper operation of the facilities;
- (f) operation and maintenance of the facilities to ensure that the effluent after treatment by the facilities meets with the statutory criteria for discharge into appropriate drainage system;
- (g) taking samples of treated effluent from the facilities at different times of a day to ensure the fulfillment of sub-clause (f) above;
- (h) modification or improvement of the layout system to suit any change of the Site conditions or work progress, or if the *Architect/Engineer is dissatisfied with its performance;
- (j) removal of the system and reinstatement of the Site; and
- (k) any patent fees or royalties.

delete as appropriate

WASTE MANAGEMENT

Units

xx.31 The unit of measurement shall be:

- (i) arrange and conduct on-site sorting of C&D materials item.

Measurement

- (a) The item for “arrange and conduct on-site sorting of C&D materials” shall be measured once only for the whole Contract when the *Architect/Engineer or his Representative is satisfied with the Contractor’s performance in on-site sorting of C&D materials in accordance with PS clause [] (see PS Clause 5(3) in Appendix C); and
- (b) No measurement shall be made for the item for “arrange and conduct on-site sorting of C&D materials” if no such activity is undertaken by the Contractor on Site for the full duration of the Contract or if the *Architect/Engineer is not satisfied with the Contractor’s performance in undertaking such activity. Partial measurement for the item may be made by the *Architect/Engineer on a pro-rata basis

according to the period of time during which such activity has been carried out by the Contractor to the satisfaction of the *Architect/Engineer.

Itemisation xx.32 Separate items shall be provided for “waste management” in accordance with General Principles paragraphs 3 and 4 and the following:

		Group	Feature
		I	1. Arrange and conduct on-site sorting of C&D materials

Arrange and conduct on-site sorting of C&D materials xx.33 The item for “arrange and conduct on-site sorting of C&D materials” shall, in accordance with General Preambles paragraph 2, include for:

Item coverage (a) submission of a detailed work plan for on-site sorting of C&D materials to the *Architect/Engineer;

(b) sorting non-inert portions of C&D materials from inert C&D materials, and further sorting of reusable or recyclable materials such as plastic, paper, timber, etc. from the non-inert portions;

(c) separation of hard rock and broken concrete from the inert portion of C&D materials and delivery to a designated location as instructed by the *Architect/Engineer;

(d) arrangement of recycling contractors to collect the sorted reusable or recyclable materials as mentioned in sub-clause (b) above;

(e) proper handling and storage of chemical wastes for collection and disposal of by specialist contractors; and

(f) thorough sorting of demolition waste for recovering broken concrete, reinforcement bars, mechanical and electrical fittings, hardware etc., and delivery to proper recycling outlets.

MONITORING THE USE OF ULTRA LOW SULPHUR DIESEL

Units xx.34 The unit of measurement shall be:

(i) arrange and conduct testing of fuel sample by laboratory number

Measurement xx.35 The measurement of the item for “arrange and conduct testing of fuel sample by laboratory” shall be made for every fuel sample collected from the Constructional Plant or storage facilities on the Site and sent to a HOKLAS accredited laboratory, which name is agreed by the *Architect/Engineer or his Representative, for confirming that only ultra low sulphur diesel is used pursuant to SCC clause () [SCC X 2(2) &2(3) in Appendix B]. If the result of the test on a fuel sample shows that it is not ULSD, no measurement shall be made for the item for “arrange and conduct testing of fuel sample by laboratory” for such a fuel sample.

Itemisation xx.36 Separate items shall be provided for “monitoring the use of ultra low sulphur diesel” in accordance with General Principles paragraphs 3 and 4 and the following:

Group		Feature
I	1.	Arrange and conduct testing of fuel sample by laboratory.

Arrange and conduct testing of fuel sample by laboratory xx.37 The item for “arrange and conduct testing of fuel sample by laboratory” shall, in accordance with General Preambles paragraph 2, include for:

- Item coverage*
- (a) preparation of the sample including the security measures;
 - (b) arrangement and delivery of the fuel sample to the laboratory as agreed by the *Architect/Engineer;
 - (c) all the testing fees charged by the laboratory;
 - (d) delivery charges; and
 - (e) arrangement to have a certified copy of the test report delivered to the *Architect/Engineer.

(* Delete or amend as appropriate to suit departmental contract arrangements)

[+ Relevant clauses in PS for Site Safety are currently given in Construction Site Safety Manual (Appendix 3 of Chapter 3) which will be re-titled to “Construction Site Safety and Environmental Manual” in future.]

Sample Method of Measurement for “Environmental Mitigation Measures” and “Environmental Monitoring Measures”

- [Notes:
1. Where *Architect/Engineer is denoted in this MoM, it should be selected as appropriate or modified to suit the appropriate title of the contract.
 2. The following MoM for Environmental Mitigation Measures and Environmental Monitoring Measures should be incorporated under Section 1 of MoM (Preliminaries)].
 3. This MoM replaces SMM Corrigendum No. 1/2000 and serves as “catch-all” items for the environmental measures that are not separately measured under Appendix D(b).
 4. For project specific requirements on environmental monitoring and mitigation measures specified either under the Environmental Permit (EP) (for designated projects) or by EPD for non-designated projects, such requirements should be incorporated under a new PS Section 26 for ease of reference.

Section 1 - Environmental Mitigation Measures

[Note: Contract drafter should delete or amend the item coverage, such as the description of the Environmental Specialists, details of the stated advices, services etc., where such measure(s) is/are not applicable to the contract in order to tally with the PS.]

ENVIRONMENTAL MITIGATION MEASURES

- Units* xx.01 The units of measurement shall be:
- (i) provision, maintenance and removal of environmental mitigation measures which are not separately measured under any other items of workitem.
- Itemisation* xx.02 Separate items shall be provided for environmental mitigation measures in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	<ol style="list-style-type: none"> 1. Provision of environmental mitigation measures which are not separately measured under any other items of work. 2. Maintenance of environmental mitigation measures which are not separately measured under any other items of work. 3. Removal of environmental mitigation measures which are not separately measured under any other items of work.
II	<ol style="list-style-type: none"> 1. Air related measures. 2. Noise related measures. 3. Water quality related measures.

[Note : The list in Group II may be expanded to include other measures as considered appropriate but corresponding BQ items need to be provided.]

Provision of environmental mitigation measures which are not separately measured under any other items of work

xx.03 The items for “provision of environmental mitigation measures which are not separately measured under any other items of work” shall, in accordance with General Preambles paragraph 2, include for:

Item coverage

- (a) engagement of [Environmental Specialists]* to provide advice and service on the environmental mitigation measures;
- (b) provision of environmental mitigation measures in accordance with PS section 26*;
- (c) provision of those environmental mitigation measures in accordance with PS section 1 which are not separately measured under any other items of work;
- (d) complying with the requirements on environmental mitigation;
- (e) provision and setting up of equipment, facilities, instruments, operatives and technicians;
- (f) attending meetings, District Council meetings etc. by the [Environmental Specialists]* as and when requested by the *Architect/Engineer or his Representative;
- (g) modification of environmental mitigation measures as recommended by the [Environmental Specialists]*; and
- (h) set up waste management facilities as described in PS section 1.

*[*Note : The description of the Environmental Specialists and the details of the above stated advices and services should be amended where appropriate for compatibility with the related Particular Specification.]*

<i>Maintenance of environmental mitigation measures which are not separately measured under any other items of work</i>	xx.04	The items for “maintenance of environmental mitigation measures which are not separately measured under any other items of work” shall, in accordance with General Preambles paragraph 2, include for:
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- | | |
|----------------------|---|
| <i>Item coverage</i> | <ul style="list-style-type: none"> (a) maintenance of environmental mitigation measures in accordance with PS section 26*; (b) maintenance of those environmental mitigation measures in accordance with PS section 1 which are not separately measured under any other items of work; (c) maintenance of equipment, facilities and instruments and equivalent replacement of equipment, facilities and instruments when the original equipment, facilities and instruments are unserviceable; (d) replenishment of consumables; (e) operatives; (f) power supply; (g) cleaning; and (h) operate the waste management facilities according to PS section 1. |
|----------------------|---|

<i>Removal of environmental mitigation measures which are not separately measured under any other items of work</i>	xx.05	The items for “removal of environmental mitigation measures which are not separately measured under any other items of work” shall, in accordance with General Preambles paragraph 2, include for:
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- | | |
|----------------------|--|
| <i>Item coverage</i> | <ul style="list-style-type: none"> (a) removal of environmental mitigation measures in accordance with PS section 26*; (b) removal of those environmental mitigation measures in accordance with PS section 1 which are not separately measured under any other items of work; (c) dismantling all equipment, facilities and instruments for environmental mitigation measures; |
|----------------------|--|

- (d) removing all equipment, facilities and instruments off Site;
- (e) reinstatement of the Site; and
- (f) remove all waste management facilities.

ENVIRONMENTAL MONITORING MEASURES

Units xx.06 The units of measurement shall be:

(i) provision, maintenance and removal of environmental monitoring measures which are not separately measured under any other items of work item.

Itemisation xx.07 Separate items shall be provided for environmental monitoring measures in accordance with General Principles paragraphs 3 and 4 and the following:

Group	Feature
I	1. Provision of environmental monitoring measures which are not separately measured under any other items of work. 3. Maintenance of environmental monitoring measures which are not separately measured under any other items of work. 3. Removal of environmental monitoring measures which are not separately measured under any other items of work.
II	1. Air related measures. 2. Noise related measures. 3. Water quality related measures.

[Note : The list in Group II may be expanded to include other measures as considered appropriate but corresponding BQ items need to be provided.]

Provision of environmental monitoring measures which are not separately measured under any other items of work

xx.08 The items for “provision of environmental monitoring measures which are not separately measured under any other items of work” shall, in accordance with General Preambles paragraph 2, include for:

Item coverage

- (a) engagement of [Environmental Specialists]* to provide advice and service on the environmental monitoring measures;
- (b) provision of environmental monitoring measures in accordance with PS section 26*;
- (c) provision of those environmental monitoring measures in accordance with PS section 1 which are not separately measured under any other items of work;
- (d) provision of access to monitoring and control stations;
- (e) complying with the requirements on environmental monitoring;
- (f) maintaining the service of [Environmental Specialists]*;
- (g) work boats including operatives;
- (h) provision and setting up of equipment, facilities and instruments, attendants and technicians;
- (i) setting out and marking sampling locations;
- (j) carrying out monitoring works at designated monitoring and control stations;
- (k) calibration of all equipment including sampling, testing and monitoring equipment;
- (l) provision of training to personnel for operation of the equipment;
- (m) all sampling and testing in an approved laboratory;
- (n) taking readings, measurements and recording;
- (o) reporting of monitoring data, including submission of reports;
- (p) identifying any environmental deficiency, proposing rectification measures, rectification of such deficiency as approved and including additional environmental monitoring works;
- (q) arranging and attending environmental site inspections;
- (r) overtime work outside normal working hours;
- (s) attending meetings, District Council meetings etc. by the [Environmental Specialists]* as and when requested by the *Architect/Engineer or his Representative; and
- (t) set up the waste monitoring and recording measures according

to PS section 1.

*[*Note : The description of the Environmental Specialists and the details of the above stated advices and services should be amended where appropriate for compatibility with the related Particular Specification.]*

<i>Maintenance of environmental monitoring measures which are not separately measured under any other items of work</i>	xx.09	The items for “maintenance of environmental monitoring measures which are not separately measured under any other items of work” shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		<ul style="list-style-type: none"> (a) maintenance of environmental monitoring measures in accordance with PS section 26*; (b) maintenance of those environmental monitoring measures in accordance with PS section 1 which are not separately measured under any other items of work; (c) maintenance of access to monitoring and control stations; (d) maintenance of equipment, facilities and instruments and equivalent replacement of equipment, facilities and instruments when the original equipment, facilities and instruments are unserviceable; (e) replenishment of consumables; (f) operatives; (g) power supply; (h) cleaning; and (i) operate the waste monitoring and recording measures according to PS section 1.
<i>Removal of environmental monitoring measures which are not separately measured under any other items of work</i>	xx.10	The items for “removal of environmental monitoring measures which are not separately measured under any other items of work” shall, in accordance with General Preambles paragraph 2, include for:
<i>Item coverage</i>		<ul style="list-style-type: none"> (a) removal of environmental monitoring measures in accordance

with PS section 26*;

- (b) removal of those environmental and waste monitoring measures in accordance with PS section 1 which are not separately measured under any other items of work;
- (c) dismantling all equipment, facilities and instruments for environmental monitoring measures;
- (d) removing all equipment, facilities and instruments off Site;
and
- (e) reinstatement of the Site.

APPENDIX E

SAMPLE BILLS OF QUANTITIES

Note : The sample BQs in this Appendix shall take precedence over those in ETWB TCW 30/2002 for contracts with Site Safety Cycle. For contracts without Site Safety Cycle, the corresponding items for payment of such shall be deleted and the saving should not be redistributed to increase the rate for other items.

**Appendix E1 - Sample Bills of Quantities for Contracts
Included in the Pay for Safety and Environment Scheme
(Based on \$20M contract value for a contract period of 18 months)**

Item no.	Description	Quantity	Unit	Rate (\$)	Amount (\$)
1*	Complete Safety Plan	-	item	4,800	4,800
2*	Complete Environmental Management Plan	-	item	4,800	4,800
3	Update Safety Plan	18	month	500	9,000
4	Update Environmental Management Plan	18	month	500	9,000
5	Provide Safety Officer	18	nr-month	4,500	81,000
6	Attend Site Safety and Environmental Management Committee	18	month	500	9,000
7	Attend Site Safety and Environmental Committee	18	month	500	9,000
8**	Arrange and attend weekly safety walk	78	nr	1,000	78,000
9**	Arrange and attend weekly environmental walk	78	nr	1,000	78,000
	<u>Provide safety and environmental training in the form of:</u>				
10#	safety training for specified trade workers:				
	(i) 1 day course (for 1 st attendance)	10	nr	650	6,500
	(ii) ½ day revalidation course	20	nr	350	7,000
11#	site specific induction training	100	nr	100	10,000
12#	toolbox talks	1,000	nr	30	30,000
	<u>Provisional Sum</u>				
13##	Participate in promotional campaign as instructed by the ***Architect/Engineer Site Safety Cycle	-	sum	-	30,000
14#	Arrange and hold Pre-work Activities of Site Safety Cycle	4,000	nr	30	120,000
15#	Provide safety bulletin board	1	nr	10,000	10,000
Total to Collection Sheet					<u>496,100</u>

Notes:

Items 2, 4 and 9 should be deleted for contracts exempted from the full requirement of environmental management. The saving should not be redistributed to increase the rate of other items.

Add an item for “Provide Environmental Officer” with a pre-fixed rate of \$3,000/month if such person is specified in the contract, but not for “Assigned Person”.

* The cost for completion of Safety Plan or the Environmental Management Plan should not be greater than 1.0% of the estimates of total payment under the Scheme.

The rate for this item is fixed irrespective of the contract value, but the quantities can be adjusted to suit the content of works for a particular contract.

** The weekly safety walk and the weekly environmental walk can be conducted simultaneously by the same team subject to the agreement of the Architect/Engineer/Supervising Officer.

The amount for this item should not be adjusted.

*** Delete or amend as appropriate to suit the appropriate title of the contract.

nr number

**Appendix E2 - Sample Bills of Quantities for Contracts
Included in the Pay for Safety and Environment Scheme**
(Based on \$50M contract value for a contract period of 24 months)

Item no.	Description	Quantity	Unit	Rate (\$)	Amount (\$)
1*	Complete Safety Plan	-	item	10,000	10,000
2*	Complete Environmental Management Plan	-	item	10,000	10,000
3	Update Safety Plan	24	month	1,000	24,000
4	Update Environmental Management Plan	24	month	1,000	24,000
5	Provide Safety Officer	24	nr-month	4,500	108,000
6	Provide Environmental Officer	24	nr-month	3,000	72,000
7	Attend Site Safety and Environmental Management Committee	24	month	1,000	24,000
8	Attend Site Safety and Environmental Committee	24	month	1,000	24,000
9**	Arrange and attend weekly safety walk	104	nr	2,000	208,000
10**	Arrange and attend weekly environmental walk	104	nr	2,000	208,000
	<u>Provide safety and environmental training in the form of:</u>				
11#	safety training for specified trade workers:				
	(i) 1 day course (for 1 st attendance)	30	nr	650	19,500
	(ii) ½ day revalidation course	40	nr	350	14,000
12#	site specific induction training	350	nr	100	35,000
13#	toolbox talks	2,500	nr	30	75,000
	<u>Provisional Sum</u>				
14##	Participate in promotional campaign as instructed by the ***Architect/Engineer Site Safety Cycle	-	sum	-	30,000
15#	Arrange and hold Pre-work Activities of Site Safety Cycle	10,000	nr	30	300,000
16#	Provide safety bulletin board	1	nr	20,000	20,000
Total to Collection Sheet					<u>1,205,500</u>

Notes:

Items 2, 4, 6 and 10 should be deleted for contracts exempted from the full requirement of environmental management. The saving should not be redistributed to increase the rate of other items.

* The cost for completion of Safety Plan or the Environmental Management Plan should not be greater than 1.0% of the estimates of total payment under the Scheme.

The rate for this item is fixed irrespective of the contract value, but the quantities can be adjusted to suit the content of works for a particular contract.

** The weekly safety walk and the weekly environmental walk can be conducted simultaneously by the same team subject to the agreement of the Architect/Engineer/Supervising Officer.

The amount for this item should not be adjusted

*** Delete or amend as appropriate to suit the appropriate title of the contract.

nr number

**Appendix E3 - Sample Bills of Quantities for Contracts
Included in the Pay for Safety and Environment Scheme**
(Based on \$100M contract value for a contract period of 24 months)

Item no.	Description	Quantity	Unit	Rate (\$)	Amount (\$)
1*	Complete Safety Plan	-	item	15,000	15,000
2*	Complete Environmental Management Plan	-	item	15,000	15,000
3	Update Safety Plan	24	month	2,000	48,000
4	Update Environmental Management Plan	24	month	2,000	48,000
5	Provide Safety Officer	24	nr-month	9,000	216,000
6	Provide Environmental Officer	24	nr-month	6,000	144,000
7	Attend Site Safety and Environmental Management Committee	24	month	2,000	48,000
8	Attend Site Safety and Environmental Committee	24	month	2,000	48,000
9**	Arrange and attend weekly safety walk	104	nr	3,500	364,000
10**	Arrange and attend weekly environmental walk	104	nr	3,500	364,000
	<u>Provide safety and environmental training in the form of:</u>				
11#	safety training for specified trade workers:				
	(i) 1 day course (for 1 st attendance)	70	nr	650	45,500
	(ii) ½ day revalidation course	80	nr	350	28,000
12#	site specific induction training	700	nr	100	70,000
13#	toolbox talks	4,000	nr	30	120,000
	<u>Provisional Sum</u>				
14##	Participate in promotional campaign as instructed by the ***Architect/Engineer Site Safety Cycle	-	sum	-	30,000
15#	Arrange and hold Pre-work Activities of Site Safety Cycle	16,000	nr	30	480,000
16#	Provide safety bulletin board	1	nr	20,000	20,000
Total to Collection Sheet					<u>2,103,500</u>

Notes:

Items 2, 4, 6 and 10 should be deleted for contracts exempted from the full requirement of environmental management. The saving should not be redistributed to increase the rate of other items.

* The cost for completion of Safety Plan or the Environmental Management Plan should not be greater than 1.0% of the estimates of total payment under the Scheme.

The rate for this item is fixed irrespective of the contract value, but the quantities can be adjusted to suit the content of works for a particular contract.

** The weekly safety walk and the weekly environmental walk can be conducted simultaneously by the same team subject to the agreement of the Architect/Engineer/Supervising Officer.

The amount for this item should not be adjusted

*** Delete or amend as appropriate to suit the appropriate title of the contract.

nr number

**Appendix E4 - Sample Bills of Quantities for Contracts
Included in the Pay for Safety and Environment Scheme**
(Based on \$200M contract value for a contract period of 24 months)

Item no.	Description	Quantity	Unit	Rate (\$)	Amount (\$)
1*	Complete Safety Plan	-	item	20,000	20,000
2*	Complete Environmental Management Plan	-	item	20,000	20,000
3	Update Safety Plan	24	month	3,000	72,000
4	Update Environmental Management Plan	24	month	3,000	72,000
5	Provide Safety Officer	48	nr-month	9,000	432,000
6	Provide Environmental Officer	24	nr-month	9,000	216,000
7	Attend Site Safety and Environmental Management Committee	24	month	4,500	108,000
8	Attend Site Safety and Environmental Committee	24	month	4,500	108,000
9**	Arrange and attend weekly safety walk	104	nr	7,000	728,000
10**	Arrange and attend weekly environmental walk	104	nr	7,000	728,000
	<u>Provide safety and environmental training in the form of:</u>				
11#	safety training for specified trade workers:				
	(i) 1 day course (for 1 st attendance)	100	nr	650	65,000
	(ii) ½ day revalidation course	130	nr	350	45,500
12#	site specific induction training	1200	nr	100	120,000
13#	toolbox talks	8,000	nr	30	240,000
	<u>Provisional Sum</u>				
14##	Participate in promotional campaign as instructed by the ***Architect/Engineer Site Safety Cycle	-	sum	-	60,000
15#	Arrange and hold Pre-work Activities of Site Safety Cycle	32,000	nr	30	960,000
16#	Provide safety bulletin board	2	nr	20,000	40,000
17#	Use of quality powered mechanical equipment	24	month	7,000	168,000
Total to Collection Sheet					<u>4,202,500</u>

Notes:

Items 2, 4, 6 and 10 should be deleted for contracts exempted from the full requirement of environmental management. The saving should not be redistributed to increase the rate of other items.

- * The cost for completion of Safety Plan or the Environmental Management Plan should not be greater than 1.0% of the estimates of total payment under the Scheme.
- # The rate for this item is fixed irrespective of the contract value, but the quantities can be adjusted to suit the content of works for a particular contract.
- ** The weekly safety walk and the weekly environmental walk can be conducted simultaneously by the same team subject to the agreement of the Architect/Engineer/Supervising Officer.
- ## The amount for this item should not be adjusted
- *** Delete or amend as appropriate to suit the appropriate title of the contract.
- nr number

**Appendix E5 - Sample Bills of Quantities for Contracts
Included in the Pay for Safety and Environment Scheme**
(Based on \$500M contract value for a contract period of 36 months)

Item no.	Description	Quantity	Unit	Rate (\$)	Amount (\$)
1*	Complete Safety Plan	-	item	30,000	30,000
2*	Complete Environmental Management Plan	-	item	30,000	30,000
3	Update Safety Plan	36	month	3,000	108,000
4	Update Environmental Management Plan	36	month	3,000	108,000
5	Provide Safety Officer	90	nr-month	9,000	810,000
6	Provide Environmental Officer	36	nr-month	9,000	324,000
7	Attend Site Safety and Environmental Management Committee	36	month	6,000	216,000
8	Attend Site Safety and Environmental Committee	36	month	6,000	216,000
9**	Arrange and attend weekly safety walk	156	nr	9,000	1,404,000
10**	Arrange and attend weekly environmental walk	156	nr	9,000	1,404,000
	<u>Provide safety and environmental training in the form of:</u>				
11#	safety training for specified trade workers:				
	(i) 1 day course (for 1 st attendance)	120	nr	650	78,000
	(ii) ½ day revalidation course	130	nr	350	45,500
12#	site specific induction training	1500	nr	100	150,000
13#	toolbox talks	13,000	nr	30	390,000
	<u>Provisional Sum</u>				
14##	Participate in promotional campaign as instructed by the ***Architect/Engineer Site Safety Cycle	-	sum	-	90,000
15#	Arrange and hold Pre-work Activities of Site Safety Cycle	52,000	nr	30	1,560,000
16#	Provide safety bulletin board	3	nr	20,000	60,000
17#	Use of quality powered mechanical equipment	36	month	7,000	252,000

Total to Collection Sheet 7,275,500

Notes:

Items 2, 4, 6 and 10 should be deleted for contracts exempted from the full requirement of environmental management. The saving should not be redistributed to increase the rate of other items.

* The cost for completion of Safety Plan or the Environmental Management Plan should not be greater than 1.0% of the estimates of total payment under the Scheme.

The rate for this item is fixed irrespective of the contract value, but the quantities can be adjusted to suit the content of works for a particular contract.

** The weekly safety walk and the weekly environmental walk can be conducted simultaneously by the same team subject to the agreement of the Architect/Engineer/Supervising Officer.

The amount for this item should not be adjusted

*** Delete or amend as appropriate to suit the appropriate title of the contract.

nr number

**Appendix E6 - Sample Schedule of Rates for Lump Sum Contracts
with Drawings and Specifications
for the Pay for Safety and Environment Scheme**

(Based on an estimated total expenditure \$100M for a contract period of 24 months)

[Notes : This type of contracts is usually adopted by ArchSD for building projects.]

Item no.	Description	Quantity	Unit	Scheduled Rate (\$)	Amount (\$)
1*	Complete Safety Plan	-	item	15,000	15,000
2*	Complete Environmental Management Plan	-	item	15,000	15,000
3	Update Safety Plan	24	month	2,000	48,000
4	Update Environmental Management Plan	24	month	2,000	48,000
5	Provide Safety Officer	24	nr-month	9,000	216,000
6	Provide Environmental Officer	24	nr-month	6,000	144,000
7	Attend Site Safety and Environmental Management Committee	24	month	2,000	48,000
8	Attend Site Safety and Environmental Committee	24	month	2,000	48,000
9**	Arrange and attend weekly safety walk	104	nr	3,500	364,000
10**	Arrange and attend weekly environmental walk	104	nr	3,500	364,000
	<u>Provide safety and environmental training in the form of:</u>				
11#	safety training for specified trade workers:				
	(i) 1 day course (for 1 st attendance)	50	nr	650	32,500
	(ii) ½ day revalidation course	50	nr	350	17,500
12#	site specific induction training	700	nr	100	70,000
13#	toolbox talks	4,000	nr	30	120,000
	<u>Site Safety Cycle</u>				
14#	Arrange and hold Pre-work Activities of Site Safety Cycle	16,000	nr	30	480,000
15#	Provide safety bulletin board	1	nr	20,000	20,000
16	Participate in promotional campaign as instructed by the ***Architect/Engineer/ Supervising Officer	-	sum	-	30,000
Total to Collection Sheet					<u>2,080,000</u>

Notes:

Items 2, 4, 6 and 10 should be deleted for contracts exempted from the full requirement of environmental management. The saving should not be redistributed to increase the rate of other items. Reference can be made to E1 to E5 in preparing the Schedule of Rates for other estimated total expenditure or Contract Period.

* The cost for completion of Safety Plan or the Environmental Management Plan should not be greater than 1.0% of the estimates of total payment under the Scheme.

The rate for this item is fixed irrespective of the contract value, but the quantities can be adjusted to suit the content of works for a particular contract.

** The weekly safety walk and the weekly environmental walk can be conducted simultaneously subject to the agreement of the Architect/Engineer/Supervising Officer.

nr number

*** Delete or amend as appropriate.

Appendix E7 - Sample Summary of Tender for Lump Sum Contracts (with Drawings and Specifications) for the Pay for Safety and Environment Scheme

	Page	\$	¢
1. SPECIFICATION PRELIMINARIES		()*	
2. SCHEDULE OF RATES (to be submitted by the Contractor)			
Section A – Contractor’s Designed piled Foundations		()*	
Section B – Contractor’s Designed Pile Caps and Strap Beams		()*	
Section C – Ancillary Work		()*	
3. PROVISIONAL SUM			
<i>[Provide the following sum to be expended in part or in whole as directed by the ⁺Architect/Engineer or wholly deducted from the Contract Sum if not required.]</i>			
Provide the Provisional Sum of \$ 2,130,000 for implementing site safety and environmental management system and conducting the Site Safety Cycle as required under the Contract, and participating in safety promoting campaign. The Contractor shall be paid in accordance with the Method of Measurement and the pre-fixed rates for the items included in the Schedule of Rates for “Site Safety and Environmental Management” as given in Appendix () to the Specification.	sum	***2,130,000	00
4. CONTINGENCY SUM			
Contingency Sum	sum	**2,000,000	00
TOTAL CARRIED TO FORM OF TENDER	\$		

Notes:

- * Amount to be inserted by tenderers
- ** Amount fixed by the contract drafter
- *** This sum shall match with that in the SOR (which is to be prepared by the contract drafter based on the sample BQ in Appendix E6) and provided to the tenderers.
- + Delete or amend as appropriate.

**Appendix E8 - Sample Bills of Quantities for
“Environmental Measures” on Nuisance Abatement and Waste Management**

Item No.	Description	Quantity	Unit	Rate	Amount
	PRELIMINARIES				
	<u>Environmental Measures</u> <i>[Contract drafter shall ensure that the appropriate PS and MoM are included in the contract]</i>				
	<u>Air Pollution Abatement</u>				
A	Provision, maintenance and removal of covering for dusty materials or air pollution abatement measures for dusty activities	-	item		
B	Provision, maintenance and removal of screens or enclosures for smoky activities	-	item		
C#	Provision, maintenance and removal of wheel washing system	-	item		
D	Provide mechanical covers for dump trucks	-	item		
	<u>Noise Pollution Abatement</u>				
E	Provision, maintenance and removal of acoustic screens or enclosures	-	item		
F	Adoption of other noise abatement practices	-	item		
	<u>Wastewater Pollution Abatement</u>				
G	Provision, maintenance and removal of wastewater collection system	-	item		
H##	Provision, maintenance and removal of wastewater treatment facilities	-	item		
	<u>Waste Management</u>				
I	Arrange and conduct on-site sorting of C&D materials	-	item		
	<u>Monitoring the Use of Ultra Low Sulphur Diesel</u>				
J	Arrange and conduct testing of fuel sample by laboratory (Note: The quantity for this item should be estimated based on the assumption that 3 fuel samples are tested per month (i.e. 3 no. of tests per month for the Contract as a whole)		nr		

Notes:

- (1) Separate BQ items should be provided for Environmental Mitigation Measures and Environmental Monitoring Measures, where necessary (see MoM under Appendix D(c)).
- (2) “#” denotes optional items. See PS clauses 2(3) and associated MoM clauses xx.01, xx.06, xx.07 & xx.13 in Appendix D(b).
- (3) “##” denotes optional items. See PS clauses 4(3) & 4(4) and associated MoM clauses xx.23, xx.26, xx.27 & xx.30 in Appendix D(b).

APPENDIX F

PARTICULAR SPECIFICATION ON ENVIRONMENTAL MANAGEMENT WHERE PFSES IS NOT APPLICABLE

Particular Specification on Environmental Management where PFSES is Not Applicable

[Note : The following specification on Environmental Management shall be included in Section 1 of the PS for the Contract. The project specific requirements on environmental mitigation measures from EPD should be included in a new PS Section 26.]

The following clauses should be incorporated in the Particular Specification for contracts either not included under the Pay for Safety and Environment Scheme or exempted from the full requirement for environmental management:

1 Nuisance Abatement Measures

The Contractor shall provide the following nuisance abatement measures for the Works:

- (1) For Air Pollution Control
 - (a) Provide covering and containment of dusty materials;
 - (b) Where the public is affected by the dust or exhaust fumes from a plant, provide screens or enclosures for the dusty and smoky operations;
 - (c) Provide vacuum cleaners for dusty operations; and
 - (d) Use Ultra-low-sulphur diesel (ULSD) (defined as diesel fuel containing not more than 0.005% by weight of sulphur) in all diesel-operated plants and equipment on the Site. The Contractor shall demonstrate his compliance by maintaining a summary record of all the delivery notes of ULSD delivered to the Site, including those ordered by his sub-contractors, together with the details of replenishment of such fuel by the individual plant and equipment on the Site. The record shall be supported by the original receipts of delivery notes from the oil companies. A proforma of the summary record is attached at Annex [1**].

*[** Amend the annex no. as appropriate]*

- (2) For Noise Pollution Control
 - (a) Provide acoustic screens or enclosures for noisy operations; and
 - (b) Wrap up the tips of the percussion breaker for hard rock and concrete breaking works by excavators.
- (3) For Wastewater Pollution Control
 - (a) Provide measures such as sand bags to prevent ingress of surface run-off into the Site;
 - (b) Avoid slope erosion and exposure of soil on the Site where appropriate; and
 - (c) Arrange a licensed contractor to collect the sewage generated from the Site where connection to a public sewerage system is not available.

2 Waste Management

- (1) Measures to Reduce/Minimize Generation of C&D materials

- (a) Sort and deliver hard rocks and broken concrete to _____
[designated recycling facility or location as advised by CEDD] or a location as notified by the *Architect/Engineer/Supervising Officer/Maintenance Surveyor;
 - (b) Sort and dispose of paper and cardboard packaging to recycling contractors;
 - (c) Properly handle and dispose of chemical waste by a specialist contractor;
 - (d) Conduct thorough sorting of demolition waste for recovering broken concrete, reinforcement bars, mechanical and electrical fittings, hardware etc., and deliver to proper recycling outlets.
- (2) The Contractor shall complete the record for the quantities of C&D materials generated using the table in Annex [2**] attached, and submit to the *Architect/Engineer's Representative by no later than the 15th day of the subsequent month following the quarter ending on the last day of February, May, August and November.

*[** Amend the annex no. as appropriate]*

- (3) The Contractor shall implement a trip ticket system to ensure proper disposal of C&D materials.

(* delete or amend to suit departmental contract arrangements)

Proforma for Monthly Recording Delivery and Consumption of Ultra Low Sulphur Diesel on Site

Contract No.: _____

Contract Title: _____

Name of Person completing the Proforma: _____

Name of Person responsible for audit checking: _____

Date	Intake			Consumption			
	Name of Contractor/ Sub-contractor	Details of Ordering Fuel	Quantity of Fuel Delivered (in litre)	Details of Plant belong to the Contractor/ Sub-contractor	Date of Arrival	Date of Departure	Quantity of Fuel Consumed (in litre)
		- name of oil company - delivery note no. and reference		- plant name and serial no.			
Total Delivered				Total Consumed			

[N.B. The total for the month is for checking the relative order of quantity of fuel delivered and consumed on the Site and need not necessarily be balanced.]

Name of Department: ArchSD/CEDD/DSD/EMSD/HyD/WSD

Contract No.: _____

(Notes: The following Waste Flow Table should be used for contracts either not included under the Pay for Safety and Environment Scheme or exempted from the full requirement for environmental management)

Waste Flow Table

Quarter ending	Actual Quantities of Inert C&D Materials Generated Quarterly						Actual Quantities of C&D Wastes Generated Quarterly				
	Total Quantity Generated	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 '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in'000 kg)	(in'000 kg)	(in'000 kg)	(in'000 kg)	(in'000m ³)
Feb											
May											
Aug											
Nov											
Total											

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
 - (3) Broken concrete for recycling into aggregates.