MATERIALAB CONSULTANTS LIMITED

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China Harbour Engineering Company Limited 19/F., China Harbour Building, 370-374 King's Road, North Point, Hong Kong Date 2 July 2015 Our Ref. MCL/ED/323/2015/C

MateriaLab

BY HAND

Attn.: Mr. Johnason Ko, Project Manager

Dear Sir,

Spill Response Plan for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities (HY/2013/03)

We refer to your revised Spill Response Plan submitted on 2 July 2015 for the captioned Contract and are pleased to inform you that we have no adverse comment on the captioned plan. We hereby certify the captioned submission in accordance to EP No. EP-353/2009/H Condition 2.7.

Should you require further information, please do not hesitate to contact our Ms Sandra Pang at 3565 4485 the undersigned at 3565 4115.

Assuring you of our best attention at all times.

Yours faithfully, for and on behalf of MATERIALAB CONSULTANTS LIMITED

Arthur Cheng Environmental Team Leader

AC/sp

c.c. AECOM – Mr. P.K. Lee, Mr. W.S. Ng, Ms. Miranda Wong CHEC – Mr. Marko Chan

MCL58/1114



Ref.: HYDHZMBEEM00_0_3120L.15

3 July 2015

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd. The PRE's Offices 5 Ying Hei Road, Tung Chung, Lantau Hong Kong

Attention: Mr. Michael Tovey

Dear Sir,

Re: Agreement No. CE 48/2011 (EP) Environmental Project Office for the HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and Tuen Mun-Chek Lap Kok Link – Investigation

Contract No. HY/2013/03 – HZMB HKBCF – Vehicle Clearance Plazas and Ancillary Buildings and Facilities Spill Response Plan

Reference is made to the Environmental Team's submission of Spill Response Plan certified by the ET Leader (ET's ref.: "MCL/ED/323/2015/C" dated 2 July 2015) and provided to us via e-mail on 3 July 2015.

We are pleased to inform you that we have no adverse comment on the captioned plan. We write to verify the captioned submission in accordance with Condition 2.7 of the Environmental Permit No. EP-353/2009/H.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully, For and on behalf of Ramboll Environ Hong Kong Limited

ayut

Raymond Dai Independent Environmental Checker

c.c.

HyD HyD MateriaLab CHEC Mr. Matthew Fung Mr. Ken Woo Mr. Arthur Cheng Mr. Johnason Ko (By Fax: 3188 6614) (By Fax: 3188 6614) (By Fax: 2450 8032) (By Fax: 2887 3014)

Internal: DY, YH, SL, JM, LP, ENPO Site

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CHINA HAI	RBOUR ENGINEERING COMPANY LIM	ITED
	CONTRACT NO. HY/2013/03	
	HONG KONG-ZHUHAI-MACAO BRIDGE	
	HONG KONG BOUNDARY CROSSING	
CHEC.	FACILITIES –	
	VEHICLE CLEARANCE PLAZAS AND	
	ANCILLARY BUILDINGS AND FACILITIES	
	SPILL RESPONSE PLAN	



SPILL RESPONSE PLAN

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2	02/07/2015	Initial issue	. &	2 high	Dir	Los
Rev.	Date	Status	Prepared By Marko Chan Environmental Officer	Reviewed By Fred Ho Senior Safety Manager	Endorsed By Paul Pui Site Agent	Approved By Johnason Ko Project Manager



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1 INTRODUCTION

CHEC (China Harbour Engineering Company Limited, hereafter CHEC) are the Main Contractor to responsible for the execution of the construction works for the Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities under Highways Department Contract number HY/2013/03.

The works mainly include the construction of vehicle clearance plazas, ancillary buildings and facilities, vehicular bridges, at-grade roads, drainage, sewerage, water supplies, landscape, utilities and electrical and mechanical works, etc. for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities.

The main scope of works under the Contract does not include marine construction or vessel operation related to construction works.

Under the clause 2.7 of Specific Condition of Environmental Permit No. EP-353/2009/H, a Spill Response Plan should be submitted at least 1 month before the commencement of construction of the project. The plan includes the actions to be taken in the event of accidental spillage of oil or other hazardous chemicals aiming to minimize the adverse effects to marine ecology.

The site areas of Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities are located at the northeast of the Chek Lap Kok. The layout illustrated the location of the site area; please refer to the *Appendix A* for reference.



2 EMERGENCY RESPONSE TEAM

2.1 Emergency Team Organization Structure

The organization structure for waste management is outlined in *Figure 2.1*. This chart outlines the overall site management in relation to the chemical spillage. Details on the roles and responsibilities of staffs responsible for implementation of the spillage response plan are outlined below.

2.2 Roles and Responsibilities

2.2.1 Emergency Team Leader

- Coordinate of all emergency situations at management level;
- Estimate the emergency situation and take appropriate remediate action;
- Supervise the emergency team to provide proper measure to minimize the impact from spillage incidents;
- Allocate resource and manpower for the spillage incidents and emergency procedure;
- Communicate with emergency team member and report to ER for the emergency cases;
- Ensure all members / workers are well trained for the emergency procedures.

2.2.2 Supporting Member (Environmental)

- Review the Spill Response Plan if necessary;
- Assist and advice the Emergency Team Leader to handle spillage cases;
- Ensure the emergency procedures are handled under environmental requirements;
- Provide environmental related training to the all team members and workers for the emergency procedures.

2.2.3 Supporting Member (Safety)

- Assist and advice the Emergency Team Leader to handle spillage cases;
- Ensure the emergency procedures are handled under safety requirements;
- Provide safety equipments and PPE for the emergency procedures if necessary;
- Arrange safety training to the all team members and workers for the emergency procedures.



2.2.4 Supporting Member (Construction Team)

- Monitor the sub-contractors and provide mitigation measure for the spillage;
- Report Emergency Team Leader and communicate with other team members for the emergency cases;
- Assist and advice the Emergency Team Leader to handle spillage cases;
- Arrange the manpower and resource in site level for the spillage incidents and emergency procedure;

2.2.5 Action Member

- Assist the Emergency Team Leader and other team members to handle spillage cases at site level;
- Follow the instruction and emergency procedures for the remediation;
- Ensure spillage is avoided and/or minimized as much as practically possible at site;
- Maintain the inventory and proper storage of oil and chemical on site;
- Proper storage of the spill kits and related equipments;
- Attend the related environmental or safety training for emergency procedures.

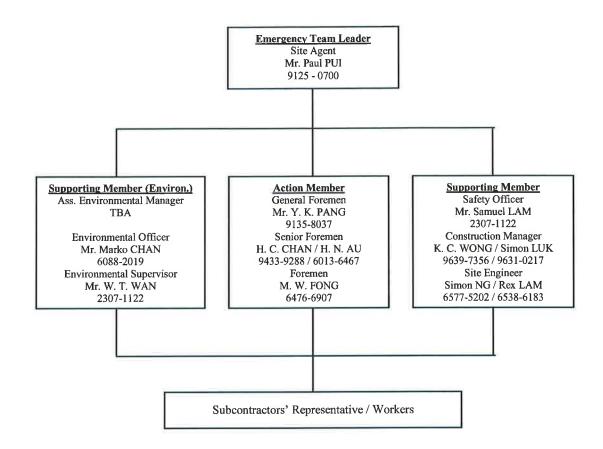


Figure 2.1: The Organizational Structure for Emergency Team

Name	Emergency Position	Post	Telephone No.
Paul PUI	Emergency Team Leader	Site Agent	9386 - 1679
TBA		AEM	
Marko CHAN	Supporting Member (Environ.)	EO	6088 - 2019
W. T. WAN		ES	2307 - 1122
Samuel LAM	Supporting Member (Safety)	SO	2307 - 1122
K. C. WONG		CM	9639 - 7359
Simon LUK	Source atting March on (Construction)	CM	9631 - 0217
Simon NG	Supporting Member (Construction)	SE	6577 - 5202
Rex LAM		SE	6538 - 6183
Y. K. PANG		G. Foreman	9135 - 8037
H. C. CHAN	A stine Manshar	S. Foreman	9433 - 9228
H. N. AU	Action Member	S. Foreman	6103 - 6467
M. W. FONG		Foremen	6476 - 6907

Table 2.1: Contact List of Designated Pers	sons for Emergency Team
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2.3 Notification and Contact of Relevant Parties

This will be the responsibility of the most senior and experienced worker involved and the immediate works supervisor. If the spill is small and contained easily, then the EO shall be informed and information will be given to the Engineer Representative (ER) as soon as practicable. Both may choose to inspect the area if the spill is less than $100m^2$ to confirm that the spill is contained and the correct / most suitable clean up procedure has been implemented. In all cases of spillage, representative photographs shall be taken before and after clean up. If the spillage persists, daily photo records should be taken. The EO shall be responsible for keeping a record of the spill incidence.

In the event of spillage area greater than $100m^2$, both EO and ER shall be required to attend the area to check the spill was contained and for proper cleanup. A photograph record shall be kept, as shall be a record by both the EO and the ER. The Construction Manager / Engineer / Senior Foreman / Foreman shall also be informed of the incident. If there was full containment and no significant quantity entered into the marine environment, then the event shall be documented.

Relevant parties shall be notified if the spillage area is greater than $100m^2$, under such circumstances, responsible personal in the relevant parties shall be notified, if their support is needed. The contact of the relevant parties listed on *Table 2.2*.

Telephone No.
5236 - 6002
5181 - 8401
3565 - 4115
2516 - 1718
999
2723 - 2233
2988 - 1898
2150 - 6882
1823
2181 - 8888
2233 - 7999
2717 - 1717

Table 2.2: Contact List of Others Relevant Parties



3 GENERAL PRACTICE

In order to minimize the charge of accidental spillage occurring during the storage and transportation of chemicals or containers of chemicals to and from the construction site, some precautionary measures will be implemented on site as far as possible:

3.1 Storage

- Drip trays should be provided for oil/hazardous chemicals containers and / or generators;
- Stack oil/hazardous chemical containers properly to prevent falling of such containers;
- Provide tightly closed lids so as to avoid leakage of oil/hazardous chemicals;
- Store compatible chemicals and the waste in the same storage area;
- Inspected the storage area regularly to ensure compliance;
- The storage areas of oil/hazardous chemicals should be located remote from the coast and any other water bodies as far as practicable;
- Label the storage containers and the chemical tanks according to the EPD's "Code of Practice on the Package, Labeling and Storage of Chemical Wastes",
- Provide adequate ventilation in the storage area as necessary;
- Prohibit open flames and smoking near the chemical storage and fuel storage areas;
- Store large and heavy containers on the floor as far as possible and avoid storing these containers higher than 0.75m above the floor level (storage in vessel / barges are exclusive);
- Keep all chemicals, chemical wastes and fuel oil storage containers below eye level for easy inspection;
- Provide adequate space for safe and easy handling and inspection of the containers;
- Maintain an up-to-date log of all chemicals, chemical waste and fuel oil stored at site;
- Separate incompatible chemicals from one another;
- Keep the ingress to the chemical storage area locked and restrict access;
- Provide a bucket of dry sand and a suitable fire extinguisher in the storage area.



3.2 Transportation

- Use a suitably sized container so as to avoid overfilling;
- Use pumps to transfer oil/hazardous instead of manually pouring;
- Label the oil/hazardous chemical containers properly;
- Provide a containment structure able to hold any chemicals or chemical wastes that is accidentally spilled;
- Use suitable carrying equipment to transfer the oil/hazardous chemical containers from one location to another;
- Only employ and use suitably licensed, trained and responsible chemical waste collector to carry out the transportation requirements.



4 GENERAL SPILLAGE RESPONSE

The general response to the spill shall be carried out to minimize the amount of oil or hazardous chemicals to the environment. The location of the spill is also a consideration. The general response includes the following:

4.1 Spill contained on Land

All persons on site shall be responsible for observing the spill and to report their immediate supervisor immediately, immediate supervisor inform the Emergency Team Leader. A safety manager in Emergency Team shall be assigned to lead a working team and to deploy the Spill Kits to the spillage site. Depending on the scale of the spillage area of $100m^2$, there are two scenarios of spill response procedures to be applied.

4.1.1 Scenario 1 – Spillage area within 100m²

- The Emergency Team Leader shall inform the parties such as Engineer's Representative (ER), Environmental Team (ET), Independent Environmental Checker (IEC) and the emergency team members;
- The Emergency Team shall be responsible for organizing the manpower and resource to identify the spill source and stop or cease it;
- The Emergency Team who equip with suitable personal protective equipment to remove any leaked chemical or chemical waste;
- The spillage area shall be contained by using secondary oil containment (SOC);
- Pads and pillow of the spill kit shall be applied to absorb and remove the spillage within the SOC;
- The absorbent pads and pillows will be collected by disposal bags as part of the spill kits item;
- The used spill kits will be treated, stored and disposed of as chemical waste according to the necessary procedures; and
- An incident report will be submitted to the ER, ET, IEC and ENPO within 2 working days.

4.1.2 Scenario 2 – Spillage area exceed 100m²

• The Emergency Team Leader shall inform all parties such as ER, ET, Highways Department (HyD), Independent Environmental Checker (IEC), Environmental Protection Department (EPD) and the Project Emergency Team members



immediately. The contacts of the other concerned parties are shown in Table 2.2;

- The weather forecast for the area will also be used to determine the likely direction of movement (if any) of the surface spill;
- The Emergency Team shall be responsible for organizing the manpower and resource to identify the spill source and stop or cease it;
- The Emergency Team who equip with suitable personal protective equipment to remove any leaked chemical or chemical waste;
- The spillage area shall be contained by using secondary oil containment (SOC);
- Pads and pillow of the spill kit shall be applied to absorb and remove the spillage within the SOC;
- The absorbent pads and pillows will be collected by disposal bags as part of the spill kits item;
- The used spill kits will be treated, stored and disposed of as chemical waste according to the necessary procedures;
- An incident report will be submitted to the ER, ET, IEC and ENPO within 2 working days.

4.2 Spill contained into Marine Environment

The main scope of work of the Contract does not include marine construction or vessel operation related to construction works. The handling procedures and notification system is separated into two scenarios, namely within the area of spillage of $100m^2$ and over.

4.2.1 Scenario 1 – Spillage area within 100m²

- The Emergency Team Leader shall inform the parties such as Engineer's Representative (ER), Environmental Team (ET), Independent Environmental Checker (IEC) and the emergency team members;
- The Emergency Team shall be responsible for organizing the manpower and resource to identify the spill source and stop or cease it;
- The Emergency Team who equip with suitable personal protective equipment to remove any leaked chemical or chemical waste;
- The spillage area shall be contained by using secondary oil containment (SOC);
- Pads and pillow of the spill kit shall be applied to absorb and remove the spillage within the SOC;
- The absorbent pads and pillows will be collected by disposal bags as part of the spill kits item;
- The used spill kits will be treated, stored and disposed of as chemical waste



according to the necessary procedures; and

• An incident report will be submitted to the ER, ET, IEC and ENPO within 2 working days.

4.2.2 Scenario 2 – Spillage area exceed 100m²

- The Emergency Team Leader shall inform all parties such as ER, ET, Highways Department (HyD), Independent Environmental Checker (IEC), Marine Department (MD), Fire Services Department (FSD), Agriculture, Fisheries and Conservation Department (AFCD), Environmental Protection Department (EPD) and the Project Emergency Team members immediately. The contacts of the other concerned parties are shown in *Table 2.2*;
- The weather forecast for the area will also be used to determine the likely direction of movement (if any) of the surface spill;
- The Emergency Team shall be responsible for organizing the manpower and resource to identify the spill source and stop or cease it;
- The Emergency Team who equip with suitable personal protective equipment to remove any leaked chemical or chemical waste;
- The spillage area shall be contained by using secondary oil containment (SOC);
- Pads and pillow of the spill kit shall be applied to absorb and remove the spillage within the SOC;
- The absorbent pads and pillows will be collected by disposal bags as part of the spill kits item;
- The used spill kits will be treated, stored and disposed of as chemical waste according to the necessary procedures;
- Implement the Dolphin Contingency Plan as stated in *Section 5 and* the procedures for protection of sensitive receivers as stated in *Section 4.5*.
- An incident report will be submitted to the ER, ET, IEC and ENPO within 2 working days.

4.3 Spillage Control Equipment / Materials

Sufficient standard Spill Kits will be available on site as stated in *Section 6.3*. The standard Spill Kits includes items such as pads, pillow and Secondary Oil Containment (SOC). SOC is used to enclose the spillage area to contain the spillage spreading outside of the SOC. The pads and pillow are used for absorbing and removing the spillage within the SOC. The standard spill kit detail is shown in *Appendix C*.



4.4 Inventory of hazardous chemicals / compounds

An inventory of the oil and hazardous chemicals that are stored on site will be recorded, maintained and updated regularly. The details, amounts and location of the materials will be recorded. The senior foreman will responsible for maintaining such record on site.

4.5 **Protection of sensitive receivers**

The information that is outlined within this section will be applicable if the site area of spillage of chemical / hazardous compounds more than $100m^2$:

- The location of the spill relative to the sensitive water receivers will be determined;
- Layer of physical absorbent will be deployed and contained the sensitive water receivers for the protection;
- The Contractor will inform the relevant parties as listed on Table 2.2 immediately;
- The on shift senior foreman or Emergency Team Leader's delegates will in-charge all the mitigate measures implement on site in order to minimize the adverse effect;
- Follow the procedures as stated in Appendix B;
- Scope of additional water quality monitoring would be implemented with the agreement of ER, ET and IEC.

5. GENERAL DOLPHIN CONTINGENCY PLAN

It is not known to what ability Chinese White Dolphin (CWD) can detect chemicals within its environment. At best, cetaceans will be able to detect chemicals that float on the water surface that have a high viscosity (*sludge* like) but may not be able to detect more volatile fractions such as petrol / aviation fuel. As such, an emergency spill plan must be provided for keeping CWD away from the affected area.

5.1 Initial Action

Observation from high platforms or aerial surveys to determine the extent of the spill as well as the presence of CWDs in the vicinity of the spill. The weather forecast for the area will be used to determine the likely direction of movement of the surface spill.

The course of action decided on will be related to such factors as the extent of the spill, the proximity of cetaceans to it and the likelihood of contact, e.g., enclosing the spill area or enclosing important habitats.

5.2 Keep dolphins away from contaminated areas

The use of absorbent booms is an effective containment method and can also act as a barrier to dolphins. This shall prevent the spread of spill and to minimize the potential for CWDs to be in contact with the spill. Deployment of such together with observers is appropriate for small and controllable spills that can be dealt with in the short term.



6 IMPLEMENTATION OF THE SPILL RESPONSE PLAN

6.1 Notification to workers and frontier workforces

Frontline workers shall receive information regarding to the Spill Response Plan during the site induction training carried out by the EO / ES at the site because any chemical spill is considered as a safety and environmental issue. All workers involved with handling chemicals and oils shall be supervised. Therefore, it is important that all site supervisors (senior foreman and foreman) are trained to conduct necessary procedures for a spill control practices. Workers that are constantly involved in handling hazardous chemicals and oils shall receive the appropriate training to the handle spill as well.

This training and briefing should be carried out by a member of the EO / ES at the site area.

Trainer	Notified the workers	Participant
Environmental Officer /	Worker safety	All Workers
Environmental Supervisor	Containment	All Supervisors
	Clearing up	All Foreman
	Correct disposal	
	Reporting spills	
	Types of sensitive receivers	Workers usually involved
	Locations of these receivers	with hazardous chemicals
	Methods to protect these	or oil.
	receivers	All Supervisors
	Need for prompt action	All Foreman

In the event of spillage, the worker(s) noticing a spill shall notify his supervisor immediately, who shall contact the Site Engineer / Foreman, EO and ER immediately. Responsible personnel shall instruct Emergency Team Leader or his delegate for any course of action to contain the spill. Responsible person(s) shall report to the spill area and follow up on the action required to contain the spill. The patrol car would dispatch immediately to the site of spill and spillage control kit will be used to contain the spill.

As soon as the spill made known to senior foreman and / or foreman, and if any of the chemical or oil escaped into the marine environment, relevant parties shall be notified for support as needed. Incident report after the incident would be submitted to ER, ET, IEC and ENPO within 2 working days. For the contacts of relevant parties please refer to



Table 2.2 for more details. The Contractor will follow the procedures attached in Appendix B.

6.2 Training - workers and frontier workforces

The onsite workforce will receive training from Environmental Officer or his delegate regarding the measures outlined in this Plan during the Site Specific Environmental Induction Training. The Environmental Officer or his delegate shall conduct Tool Box Talks with the site workers regarding this Plan quarterly. All site workers will be required to receive this training. Refreshment training for the Site Specific Environmental Induction Training is conducted bi-yearly. Emergency drill will be conducted with the Emergency Response Team bi-yearly.

6.3 Location of Spill Kits

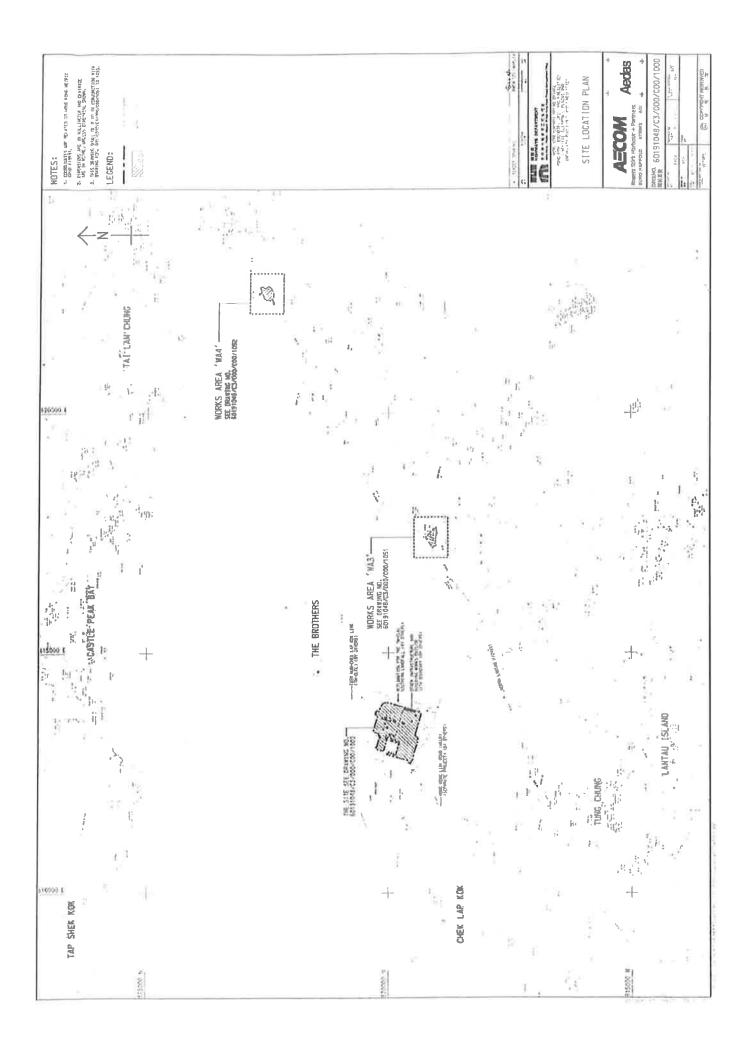
One set of spillage control kit would be provided at site area WA4 and stored at the entrance of the Temporary Chemical Waste Container. Another 2 sets of Spill Kits would be equipped at work places at HKBCF working zone ready for use if spillage occurred. 1 set of Spill Kits would be stored at patrol car and 1 set of Spill Kits would be stored at WA3.

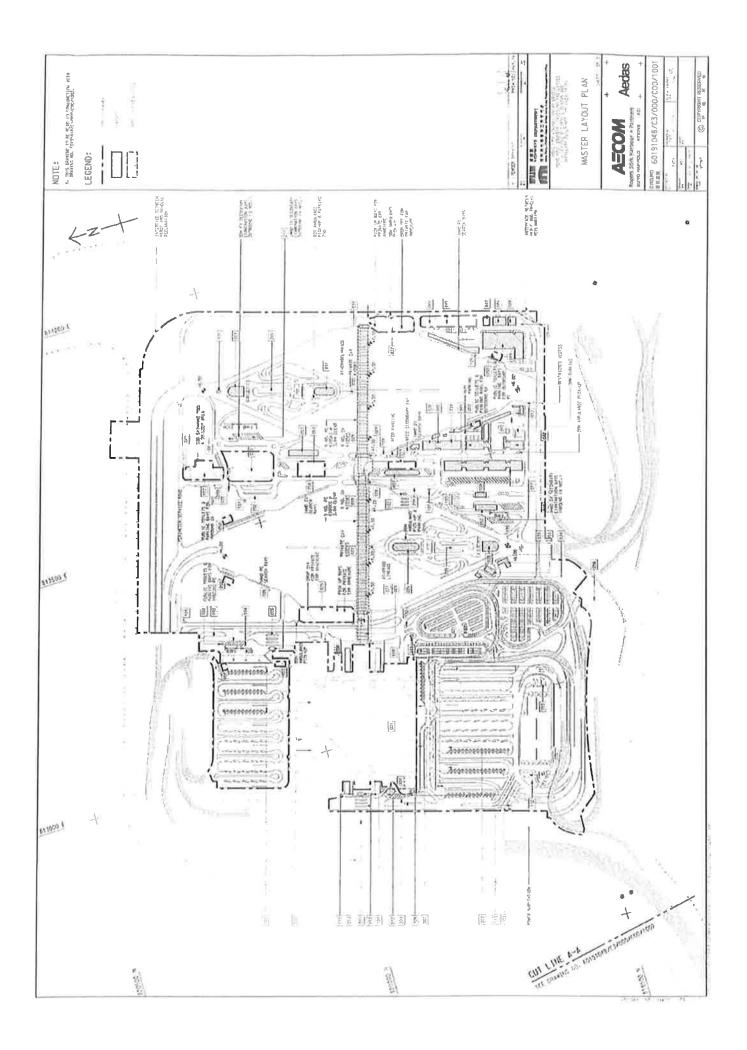
Foremen and engineers would be notified by EO of the locations of the spillage control kits.



Appendix A

Site Layout Plan





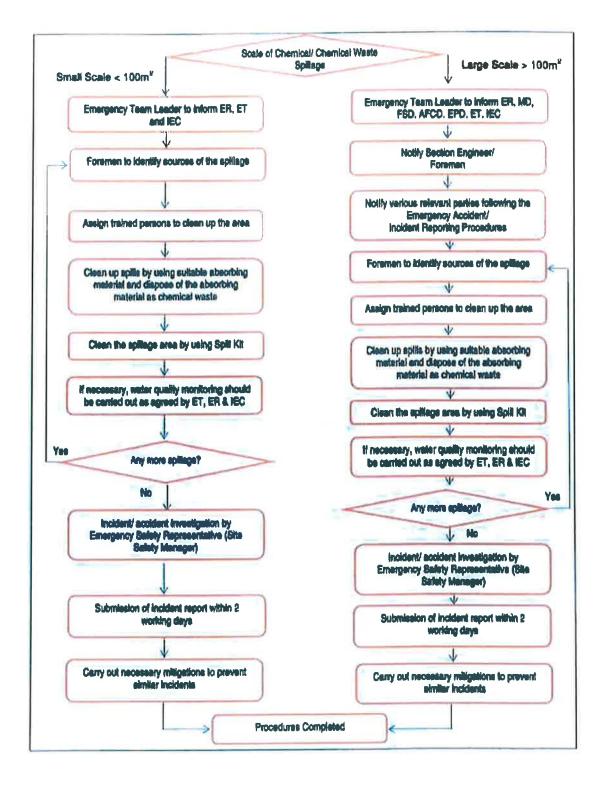


Spill Response Plan Contract No.: HY/2013/03

Appendix B

Flow Diagram of Spillage Procedure







Spill Response Plan Contract No.: HY/2013/03

Appendix C

Information of Spill Kits



Spill Response Plan Contract No.: HY/2013/03

SPC Environmental Spill Kit



Home > Safety Producta > Soill Control / Containment > Abaorbent Soill Kita > Overpack Soill Kita > Brady Corp. - SPC Brand







Reviewe Related Items Shipping
h, secure and highly visible, the kit absorbs up to 82 g
, secure and highly visible, the kit absorbs up to 62 g jality screw-top overpack drum meets UN and DOT s sponding to larger spills.