Gammon Construction Limited

Spill Response Plan

for

Contract No. HY/2012/07
Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section

J3518

Rev. No. : A **Effective Date : 27 Sep 2013**

Prepared by :	Reviewed by :	Approved by :
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REVISION STATUS SHEET

Rev. No.	Effective Date	Summary of Revision	Prepared	Approved
0	3 Sep 2013	First Submission	Roy Leung	Andrew Veness
A	27 Sep 2013	ENPO comment on 17 Sep 13	Roy Leung	Andrew Veness

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APPENDICES

1 INTRODUCTION

1.1 Project Descriptions

Gammon Construction Limited (GCL) has been commissioned to design and construct the Contract *No. HY/2012/07 – Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section* for the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSARG). The Works to be executed comprise the construction of a dual 2-lane elevated carriageway between the HZMB HKBCF and North Lantau Highway (NLH) with associated slip roads, as well as modifications and realignment of sections of the NLH and Cheung Tung Road at North Lantau, and associated works.

2 PURPOSE OF THE PLAN

The Spill Response Plan (SRP) has been developed in accordance with Condition 2.7 of the Environmental Permit (EP-354/2009/A) for the Highways Department Contract namely Contract No. HY/2012/07 – Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section.

The SRP shall describe the actions to be taken in the event of accidental spillage of oil or other hazardous chemicals from construction activities including vessels operating for the Contract, with specific provisions for protecting marine ecology and the Chinese White Dolphins.

3 GENERAL PRECAUTIONS

In order to minimize the possibilities of accidental spillage of oil or other hazardous chemicals at the construction site and on vessels, the following precautionary measures will be implemented on site as far as possible:

- The storage areas of chemicals and chemical wastes on land should be located remote from the coast and any other water bodies as far as practicable.
- Use drip trays for storage containers of chemical oil fuel tanks and / or generators.
- Reduce the danger of stacked containers of oil or chemicals falling.
- Provide tightly closed lids so as to avoid leakage of chemicals and chemical waste especially if accidentally knocked over.
- Store chemicals and chemical waste in separate storage areas.
- Inspect the storage area regularly to detect if any leakage has occurred or if any of the containers become defective on a regular weekly basis.
- Use suitable containers, which are resistant to the stored chemicals or the chemical waste so as to prevent leakage.
- Label the storage containers and the chemical tanks according to the EPD's "Code of Practice on the Package, Labelling and Storage of Chemical Wastes Labelling".
- 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 chemical, chemical waste 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.

4 TRANSFER & TRANSPORT PRECAUTIONS

In order to minimize the chance of accidental spillage occurring during the transportation of chemicals or containers of chemicals to and from the construction site, some precautionary measures will be implemented on site. These precautions are subject to site conditions and constraints. These are:

- Use a suitably sized container so as to avoid overfilling.
- Use pumps to transfer chemical waste instead of manually pouring them.
- Provide a containment structure able to hold any chemical or chemical waste that is accidentally spilled.
- Use proper, safe and suitably labelled containers.
- Use suitable carrying equipment to transfer the chemical and chemical; waste containers from one location to another.
- Only employ and use suitably licensed, trained and responsible chemical waste collection persons to carry out the transportation requirements.
- Small amount of cement will be used for grouting back of sampling core. However, cement bags will be stored up with bunding and covered by tarpaulin all the time when over 20 bags per a location. Spillage would be confined by boom or silt curtain to avoid further dispersion.
- Bentonite will be stored in a silo and the capacity to accommodate 110% of the volume of bentonite or 20% by volume of bentonite stored. Connection pipes shall be check and maintenance frequently to prevent accidental spillage. Spillage would be confined by boom or silt curtain to avoid further dispersion.

5 GENERAL RESPONSE TO SPILL INCIDENTS

The general response to the spill shall be carried out to minimize the amount of oil or hazardous chemicals to the marine environment. The location of the spill is also a consideration. The general responses are classified in difference scenarios and they are illustrated in a flowchart as shown in **Appendix A**.

5.1 Scenario 1 – Spill contained on the deck of a vessel or on land

Workers should be made aware of the emergency telephone numbers, locations of emergency showers, location of spill kits and emergency evacuation routes. Medical emergency response should also be undertaken whenever necessary. The response actions to an incident should include, but not limit to, the following steps:

1. Immediately inform the Emergency Team of the spill incident occurring.
2. Take all possible measures to reduce or stop the spillage, such as shut off the valve.
3. Provided it is safe to do so, the area containing the spill shall have forced ventilation installed in order to make a safe spillage condition.
4. The Emergency Team shall be responsible for organizing the manpower to identify the spill source and stop or cease it.
5. The Emergency Team as the assigned person shall equip all people involved in the clean-up works suitable personal protective equipment prior to the removal of any leaked chemical or chemical waste.
6. If possible and practical, the spilt chemical shall be put back into the containers of origin. Otherwise a suitable material like dry sand or sawdust shall be used to absorb the leakage.
7. Any contaminated sand / sawdust / other materials shall be collected and put into black plastic bags and shall be clearly labelled as "chemical waste".
8. All collected chemical waste shall be placed in an area designated for chemical waste storage.

5.2 Scenario 2 – Spill into the Marine Environment

This type of spill is considered the most serious in terms of the possibility of causing impact to the local cetacean community and other marine organisms. The notification system is separated into two scenarios, as determined by the area of spillage of 100m^2.

Before commencement of marine works, sufficient standard Spill Kits will be available on site up to control marine spillage of up to 100m^2 in size. 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. There are 30 nos. of SOC to be available on site. The pads and pillow are used for absorbing and removing the spillage within the SOC. Standard spill kits are attached in **Appendix B**.

It is the responsibility of all persons observing the spill to report this immediately to their immediate supervisor who shall inform the Emergency Team Leader. A site agent 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.

5.2.1 Scenario 2a – Spillage area exceed 100 m^2

- Emergency Team shall inform all parties such as Environmental Team (ET), Supervisory Officer Representative (SOR), 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 GCL emergency team members immediately. The contacts of the other concerned parties tabulated are in **Appendix C**.

- The Emergency Team shall be responsible for organizing the manpower to identify the spill source and stop or cease it.
- The Emergency Team is the assigned persons who shall 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. They 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 SOR & ENPO/IEC within 2 working days.

5.2.2 Scenario 2b – Spillage area within 100 m^2

- The Emergency Team shall inform the parties such as SOR, ENPO/IEC, ETL and the GCL emergency team members.
- The Emergency Team shall be responsible for organizing the manpower to identify the spill source and stop or cease it.
- The Emergency Team is the assigned persons who shall equip with suitable personal protective equipment to remove of 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. They 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 SOR & ENPO/IEC within 2 working days.

5.2.3 All Reasonable Actions to Keep Dolphins Away from Contaminated Areas

The use of booms is an effective containment method and can also act as a barrier to dolphins. Deployment of such with concomitant visual and acoustic observations is appropriate for small and controllable spills that can be dealt with in the short term.

In the event of larger spills, GCL will provide and deploy physical barriers (such as silt curtains, 1 no. , approx. size in 10m x 3m) would be an effective means of keeping dolphins out of the contaminated area until such times as the area was free of contamination. The physical barrier will be available on working barge or loading platform.

If dolphins were found within spillage areas, Dolphin Specialist or his delegates (refer to Table 1) will be consulted via phone call first for this case. He/she will be on-site to handle such incidence within 2 hours.

6 EMERGENCY TEAM

6.1 Team Structure

An emergency team shall be established for the Contract in order to dealing with spillage cases promptly. The emergency team shall comprise members of an emergency coordinator, emergency safety and environmental representatives and team members. Table 1 lists the members' names and contact numbers of the emergency team.

Table 1 Emergency Team Members

Post	Name	Contact No.
Emergency Team Leader for Marine Section – Construction Manager	Wing Tai HO	6111 2176
Emergency Team Leader for Land Section – Construction Manager	Wing LAW	9655 0672
Emergency Team Leader for Foundation Works	Dennis LEE Ming Tat LEUNG	9274 2660 9803 2011
Emergency Safety Representative	Chun Yu LAU Andy NG	9022 1273 9740 9309
Emergency Environmental Representative	Brian KAM Roy LEUNG	9456 9541 6468 7650
Work Team Members – Senior Site Agent	Cheuk Man LAI	9803 2010
Work Team Members – Senior Foreman	Siu Pong MAK	9207 5590
Environmental Team Leader	Jovy TAM	9674 5552
Dolphin Specialist	Samuel HUNG	2866 2652

This emergency team member list will be maintained and revised from time to time to ensure it is up-to-date and notify SOR, ENPO/IEC and ETL accordingly. The telephone contact numbers shall be displayed on notice boards of all site portions.

6.2 Roles and Responsibilities

Emergency Team Leader

- Co-ordinate of all emergency situations,
- Determine the seriousness of the cases to take appropriate responding actions and to deploy manpower and transportation resources,
- Lead the emergency team to carry out appropriate emergency measures to minimize impacts arising from spillage incidents,
- Inform the emergency safety / environmental representatives, work team members, and the SOR as soon as possible in case of an spillage incidents,
- Ensure that staffs are well trained for emergency procedures.

Emergency Safety Representative

- Assist the Emergency Coordinator in handling of responding actions towards emergency events,
- Design evacuation procedures and routes for emergency events of the tank farm,

- Advice the Emergency Coordinator on hidden danger or unforeseeable situation to be occurred in the contract site arising from emergency events,
- Observe the whole proceeding of the emergency procedures,
- Participate periodical emergency drills, scrutinize the steps taken and give recommendation to the Emergency Coordinator for further improvement,
- Ensure the follow-up safety actions are implemented after emergency drill.

Emergency Environmental Representative

- Assist the Emergency Coordinator in handling of responding actions towards emergency events,
- Advice the Emergency Coordinator on hidden danger or unforeseeable situations on environmental aspects to be occurred in the contract site arising from emergency events,
- Notify the Environmental Team Leader the emergency events, and make known to dolphin experts,
- Monitor the marine water quality to identify environmental impacts at sensitive receivers in vicinities,
- Arrange ad hoc site inspections to sensitive receivers,
- Assess the potential impacts on the local environment, Chinese White Dolphins and ecology issues,
- Liaise the SOR for environmental measures in the contract site after emergency events,
- Liaise relevant governmental departments such as EPD and AFCD to deal with environmental consequences arising from emergency events.

Work Team Members – Superintendent and Foreman

- Responsible to the Emergency Coordinator and shall follow the instruction to perform their duties,
- Be familiar with the emergency procedures, uses of spillage kits, and locations of the first-aid points, work areas,
- Inspect and examine the spill kit and associated equipment at regular intervals to ensure the spill kit is in place and in good condition,
- Hasten spill emergency procedure after receiving emergency calls from the Emergency Coordinator,
- Arrange necessary plants, boats or vehicles for cleaning works,
- Control or mitigate hazards at the scene to prevent further damages to the property or injury to person under a safe condition,
- In cases of injuries, provide suitable first aid treatment at scene by certified first aiders,
- Report the latest situation of the injured person to the Emergency Coordinator.

7 IMPLEMENTATION OF SPILL RESPONSE PLAN

7.1 Location of Spill Kits

It is planned to keep 2 sets of Spill Kits in site area of Area 2 and loading platform near Pak Mong where access is feasible to load spill kits on boards for spillage in water or land side. It is worth considering an additional set of spill kit to be stored in a working vessel that consistently travels along the bridge viaduct work areas. The locations of the site areas are shown in **Appendix D**.

7.2 Staff Training

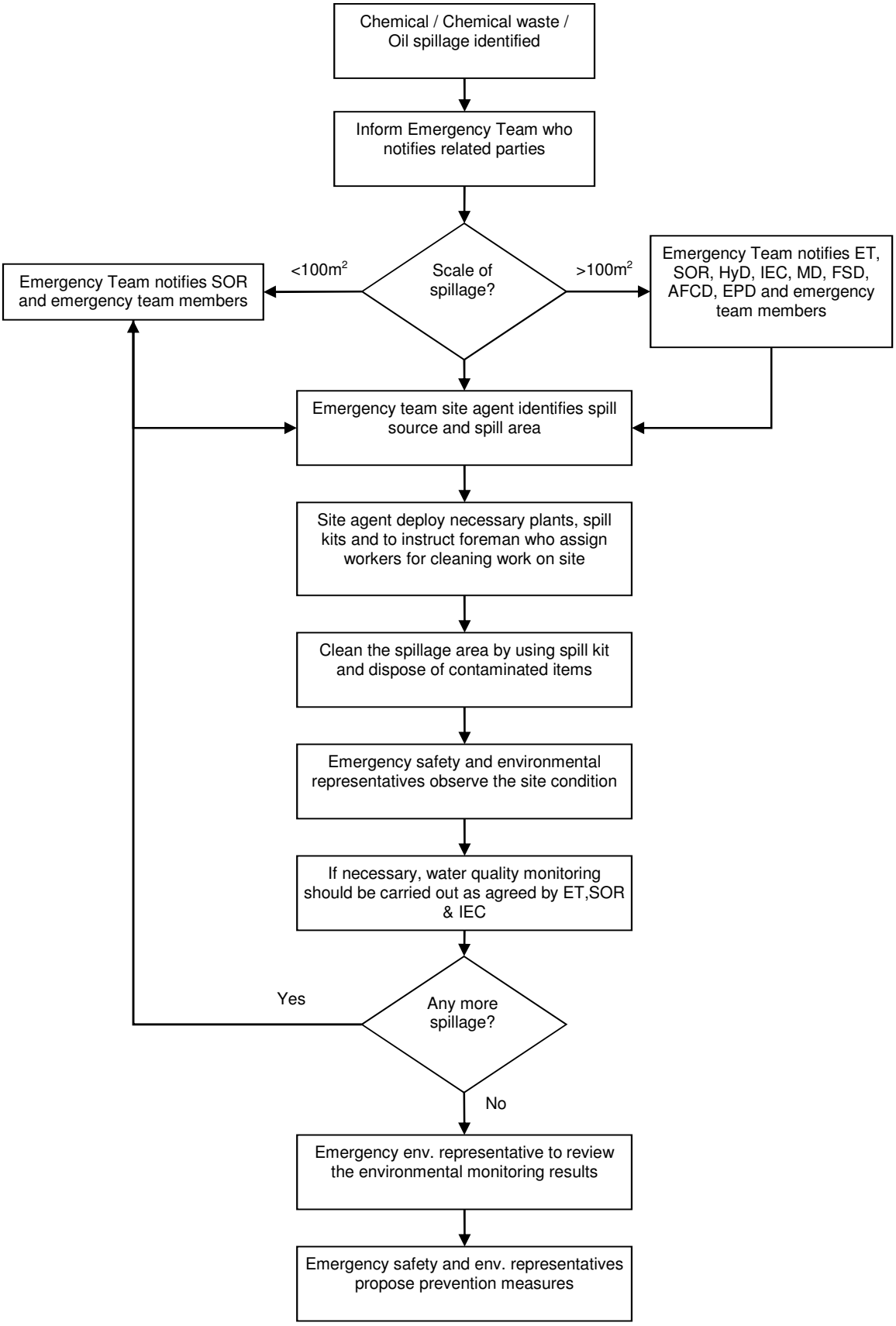
All the workers are briefed for spill prevention and emergency procedures during the mandatory safety and environmental induction training and refresh training per 6 months. The Environmental Officer, or other qualified trainers, shall periodically conduct tool box talks to the site workers. Where appropriate, a demonstration of the spill kit, or similar equipment may be delivered to related Emergency Team members.

Subcontractors are required to ensure the spill preventive measures and emergency procedures are observed by their workers.

Site agents are responsible to check regularly their machineries, equipment or storage for any irregularities such as malfunction, deterioration, operator error, leaks or spills. Any of these that is leaking or in need of repair will be immediately removed from site and repaired prior to resuming work.

APPENDIX A

Responses to Difference Scenarios of Spillage


Chemical / Chemical waste / Oil spillage identified
Inform Emergency Team who notifies related parties
Scale of spillage?
<100m2
Emergency Team notifies SOR and emergency team members
>100m2
Emergency Team notifies ET, SOR, HyD, IEC, MD, FSD, AFCD, EPD and emergency team members
Emergency team site agent identifies spill source and spill area
Site agent deploy necessary plants, spill kits and to instruct foreman who assign workers for cleaning work on site
Clean the spillage area by using spill kit and dispose of contaminated items
Emergency safety and environmental representatives observe the site condition
If necessary, water quality monitoring should be carried out as agreed by ET,SOR & IEC
Any more spillage?
Yes
No
Emergency env. representative to review the environmental monitoring results
Emergency safety and env. representatives propose prevention measures

APPENDIX B

Standard Spill Kits

正昌環保管理有限公司 Dunwell Environmental Management Company Limited

油污/化學品泄漏控制系列
Oil/Chemical Spill Control System

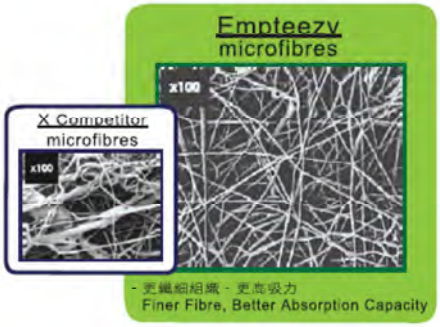
吸油棉及防漏套件
Absorbents & Spill Kits

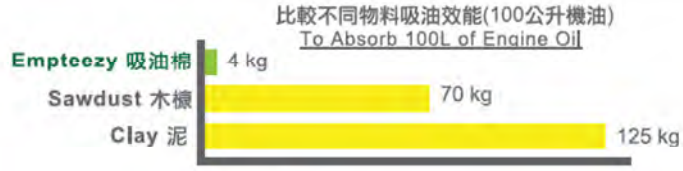
- 只吸油，吸力特強
  Absorb Oil Only, High Absorption Capability
- 快捷、方便及便宜的漏油處理
  Quick, Easy & Inexpensive Spill Control

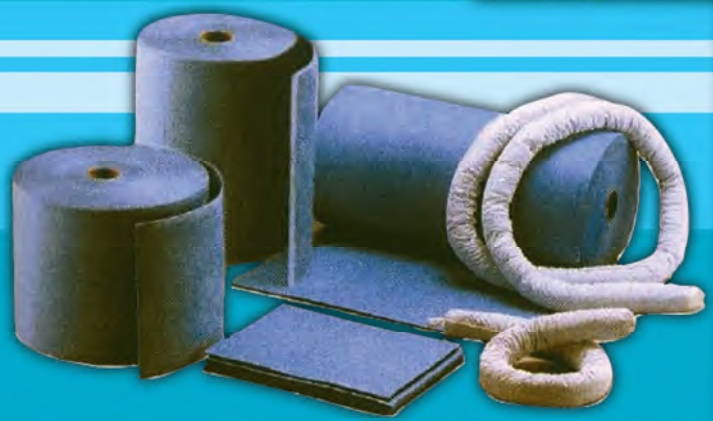
標準系列：適用於快速漏油處理
Standard: for rapid oil spill cleanup.

防纖維脫落型：適用於高檔及抗磨要求
Anti-pilling: for high-end & heavy duty requirement.

* 另有專為處理化學物品、多用途吸棉及緊急漏油處理工具可供選擇。
Models for Chemical Absorption, All Purpose Absorption & Spill Kits are also available.







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DUNWELL GROUP

Sole distributor for: EMPTEEZY Hong Kong working for the environment

DUNWELL GROUP

Valid From: Feb 05, 2008
Supersedes All Previous Price List

Dunwell Oil/Chemical Spill Control Kit

		qty
Bag		
Box		1
List of Components		1
Waste bag		5
Gloves		2
Goggles		2
Pad SHB 200 (0.39m x 0.53m)		25
Boom SHB1207 ECO (dia: 0.07m x 1.2m)		3
Pillow SHB45 (0.4m x 0.52m)		0
Pad SHC 200 (0.39m x 0.53m)		25
Boom SHC1507 ECO (dia: 0.07m x 1.2m)		3
Pillow SHC45 (0.4m x 0.52m)		0
Chemical Waste Label		5
Oil Spill Control Instruction		1

Proposed SOC

APPENDIX C

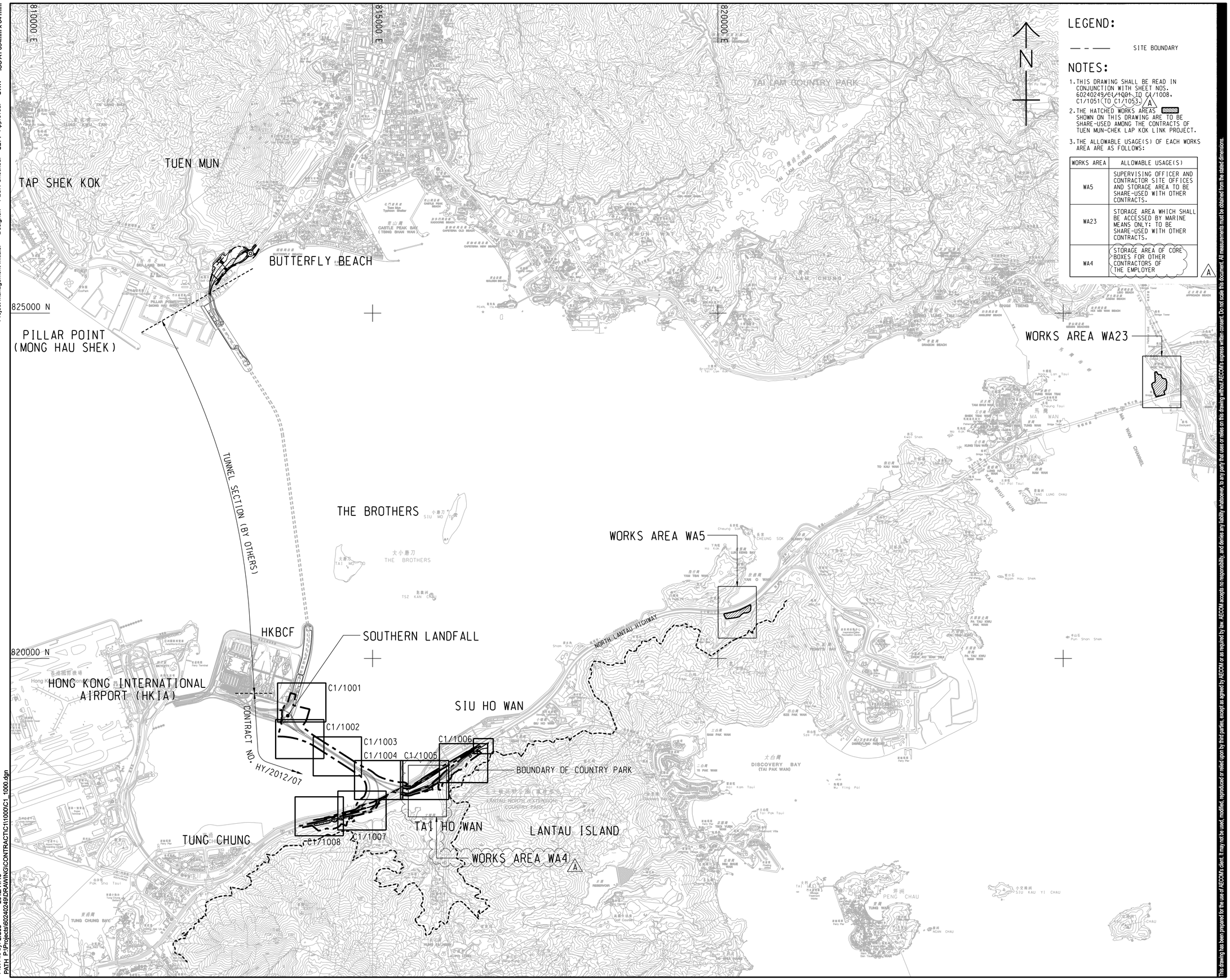
Contacts of Emergency Coordinators and Other Concerned Parties

Contact	Telephone No.
Marine Department (VTC, Maritime Rescue & Oil Spill) (24 hrs)	2233 7801
Tuen Mun Hospital (switchboard) (24 hrs)	2468 5111
Environmental Protection Department (For marine spill, LI Kim Man (S(WP)1) / Leung Hing-biu, Joseph (E(WP)13)	2411 9604 / 2594 6152
Environmental Protection Department (Regional South Office)	2516 1718
Agriculture, Fisheries and Conservation Department	2150 6882
Hong Kong Flying Services	2305 8212
Airport Authority (Integrated Airport Centre)	2910 1108
Drainage Services Department	2300 1110
Water Services Department	2824 5000
Fire Services Department / Tung Chung Fire Station	2723 2233 / 2988 1898
HK & China Gas	2880 6999
PCCW	109
Typhoon Enquiry (Hotline)	2835 1473
Weather Enquiry (Hotline)	187 8200
Thunderstorm Enquiry (Hotline)	2926 8473

APPENDIX D

General Site Layout Plan

Project Management Initials: Designer: PLCK Checked: SLYY Approved: CWN Checked: CWN ISO A1 594mm x 841mm



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SHEET NOS. 60240249/C1/1001 TO C1/1008, C1/1051 TO C1/1053. A
2. THE HATCHED WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARE-USED AMONG THE CONTRACTS OF TUEN MUN-CHEK LAP KOK LINK PROJECT.
3. THE ALLOWABLE USAGE(S) OF EACH WORKS AREA ARE AS FOLLOWS:

WORKS AREA	ALLOWABLE USAGE(S)
WA5	SUPERVISING OFFICER AND CONTRACTOR SITE OFFICES AND STORAGE AREA TO BE SHARE-USED WITH OTHER CONTRACTS.
WA23	STORAGE AREA WHICH SHALL BE ACCESSED BY MARINE MEANS ONLY; TO BE SHARE-USED WITH OTHER CONTRACTS.
WA4	STORAGE AREA OF CORE BOXES FOR OTHER CONTRACTORS OF THE EMPLOYER

A

AECOM

PROJECT
項目

TUEN MUN -
CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
業主

路政署
HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge
Hong Kong Project Management Office

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
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SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核
			CWN
			CWN
			CWN
			CWN
A	NOV. 12	TENDER ADDENDUM NO.1	CWN
-	OCT. 12	TENDER DRAWING	CWN

STATUS
階段

SCALE 比例
A1 1:25000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60240249

CONTRACT NO. 合約編號
HY/2012/07

SHEET TITLE
圖紙名稱

LOCATION PLAN AND KEY PLAN

SHEET NUMBER
圖紙編號

60240249/C1/1000A

Plot File by: LIUJ3 2012/11/15
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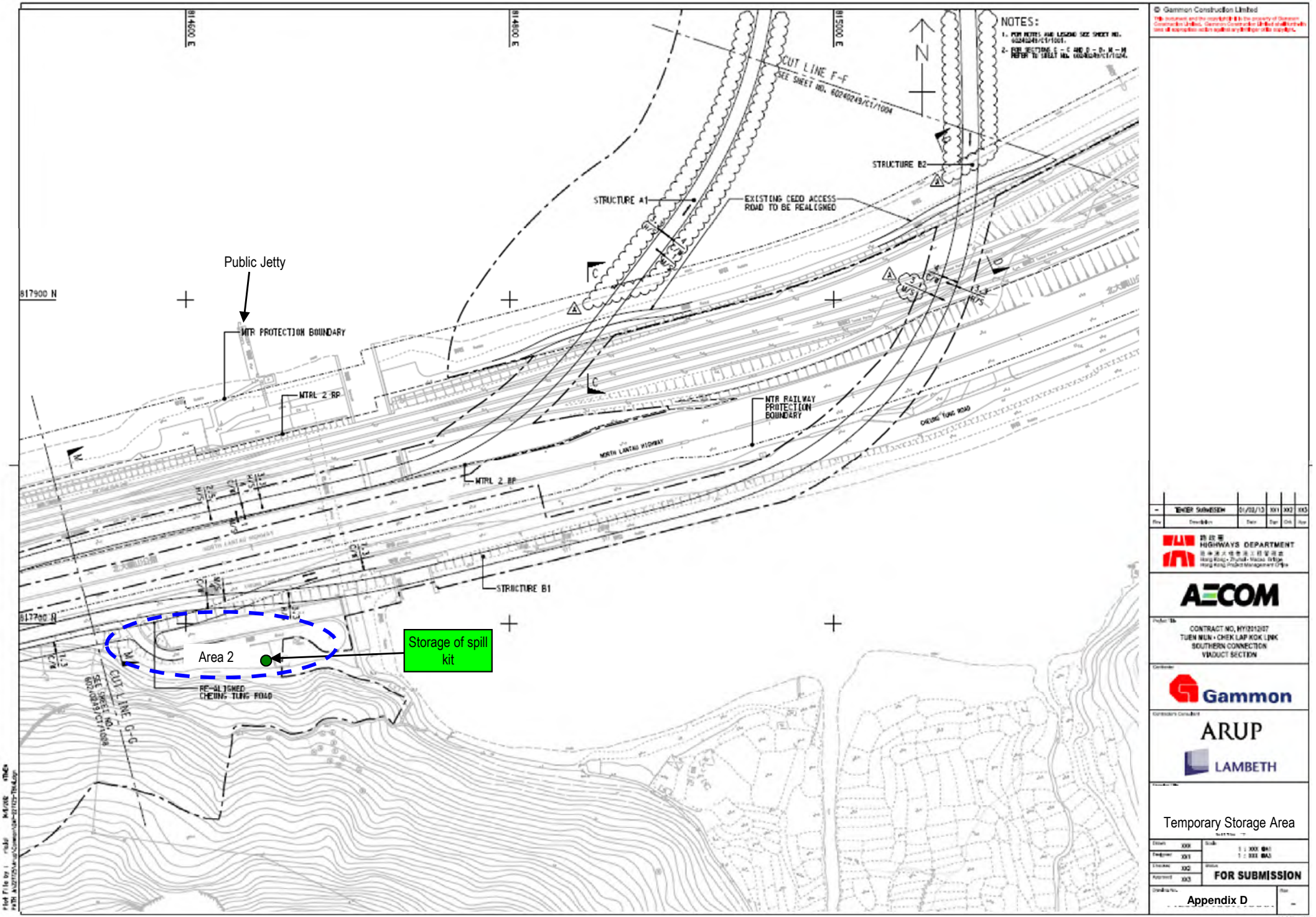
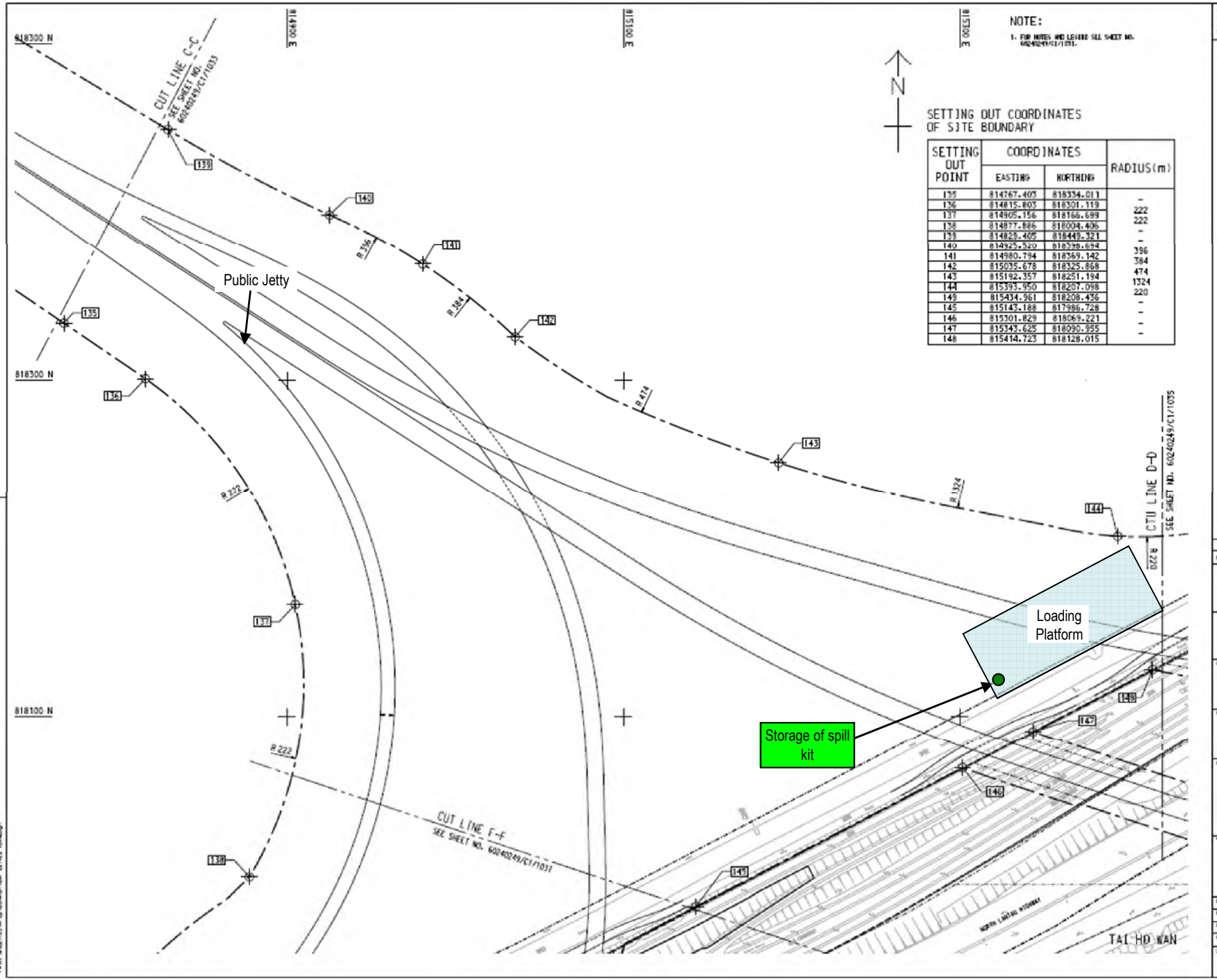

NOTES:
1. FOR NOTES AND LEGEND SEE SHEET NO. 60240249/CT/1001.
2. FOR SECTIONS C - C AND D - D, M - M REFER TO SHEET NO. 60240249/CT/1004.
CUT LINE F-F
SEE SHEET NO. 60240249/CT/1004
STRUCTURE A1
STRUCTURE B2
EXISTING CEDD ACCESS ROAD TO BE REALIGNED
Public Jetty
MTR PROTECTION BOUNDARY
MTRL 2 RP
MTR RAILWAY PROTECTION BOUNDARY
CHEUNG TUNG ROAD
NORTH LANTAU HIGHWAY
STRUCTURE B1
817900 N
817700 N
Area 2
Storage of spill kit
RE-ALIGNED CHEUNG TUNG ROAD
CUT LINE G-G
SEE SHEET NO. 60240249/CT/1008
HIGHWAYS DEPARTMENT
AECOM
CONTRACT NO. HY/2012/07
TUEN MUN - CHEK LAP KOK LINK
SOUTHERN CONNECTION
VIADUCT SECTION
Gammon
ARUP
LAMBETH
Temporary Storage Area
FOR SUBMISSION
Appendix D


NOTE:
1. FOR NOTES AND LEGEND SEE SHEET NO. 6024024 9/C1/1031.
SETTING OUT COORDINATES OF SITE BOUNDARY
SETTING OUT POINT | COORDINATES EASTING | COORDINATES NORTHING | RADIUS(m)
135 | 814767.405 | 818334.011 | -
136 | 814815.803 | 818301.119 | 222
137 | 814905.156 | 818166.699 | 222
138 | 814877.886 | 818004.406 | -
139 | 814825.405 | 818449.321 | -
140 | 814925.520 | 818398.694 | 396
141 | 814980.794 | 818369.142 | 384
142 | 815035.678 | 818325.868 | 474
143 | 815192.357 | 818251.194 | 1324
144 | 815393.950 | 818207.098 | 220
145 | 815434.361 | 818208.456 | -
146 | 815143.188 | 817986.728 | -
147 | 815301.829 | 818069.221 | -
148 | 815343.625 | 818090.955 | -
148 | 815414.723 | 818128.015 | -
818300 N
818100 N
814900 E
815100 E
815300 E
CUT LINE C-C SEE SHEET NO. 6024024 9/C1/1033
CUT LINE D-D SEE SHEET NO. 6024024 9/C1/1035
CUT LINE F-F SEE SHEET NO. 6024024 9/C1/1031
Public Jetty
Loading Platform
Storage of spill kit
TAI HO WAN
R 396
R 384
R 474
R 1324
R 220
R 232
R 222
135
136
137
138
139
140
141
142
143
144
145
146
147
148
N
© Gammon Construction Limited
- TENDER SUBMISSION 01/02/13 XX1 XX2 XX3
HIGHWAYS DEPARTMENT
AECOM
CONTRACT NO. HY/2012/07
TUEN MUN - CHEK LAP KOK LINK
SOUTHERN CONNECTION
VIADUCT SECTION
Gammon
ARUP
LAMBETH
Temporary Storage Area
FOR SUBMISSION
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