Gammon Construction Limited

Gammon

Waste Management Plan

for

Contract No. HY/2017/10
Tuen Mun Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works

J3728

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1	18 May 2018	Revised WMP per the Engineer's comment dated 17 May 2018	Roy Leung	Kenneth Tai
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APPENDICES

1 INTRODUCTION

1.1 Background

Environmental protection and sustainable development are part and parcel of the daily operations of the Gammon Construction Limited (referred to hereinafter as the GCL). GCL will initiate appropriate actions in order to minimize, and where possible eliminate, the environmental impact arising from the construction of this project.

1.2 Project Descriptions

Gammon Construction Limited (GCL) has been awarded of the Contract *No. HY/2017/10 – Tuen Mun Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works* for the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSARG). The Works comprise the construction of Tunnel buildings, Ancillary Buildings and facilities, tunnel cladding and signage as well as E&M works including the Tunnel Ventilation System, tunnel and approach road lighting system, Toll Collection System, Plumbing and Drainage System in tunnel and approach road, Fire Services Systems in tunnel and approach road.

2 PURPOSE OF THE PLAN

The Waste Management Plan (WMP) has been prepared to describe the arrangements for minimising the generation of construction and demolition (C&D) materials and disposing of the surplus C&D materials during the course of the Works.

This contract-specific WMP shall be deposited to the Director of Environmental Protection in accordance with the Condition 2.10 of the Environmental Permit No. EP-354/2009/D.

The WMP shall address the potential and actual impacts and necessary mitigation measures in light of the preferred construction programme and consists of the following:-

- A review of the ordinances, regulations, codes of practices as well as contractual obligations that are applicable to the wastes arising from the Works;
- An organisation chart setting out the roles and responsibilities of the GCL's personnel responsible for waste management and appropriate mitigation measures;
- An analysis of timing, quantities and types of C&D materials are anticipated to be generated in the course of the execution of the Works;
- A classification of C&D materials into inert portion (Public Fill) and non-inert portion (C&D Waste);
- Proposals for avoiding/minimizing, handling, recycling, reuse, return, storage and disposal of C&D materials, chemical waste and general refuse;
- An appraisal of the potential establishment on-site of a sorting facility, including the identification of potential area on-site to facilitate the waste sorting;
- A proposal for maintaining the site in a clean and tidy condition;
- A monitoring and auditing proposal to ensure that the requirements of the WMP are properly implemented.

3 WASTE MANAGEMENT POLICY AND STRATEGIES

3.1 Principles

The principles of waste management adopted in this project shall be in line with Gammon's environmental management system which follows the requirements of the ISO 14001 and based on a cyclical process comprising policy, planning, implementation & operation, checking and corrective action and management review. A policy statement is given in **Appendix A**. Core elements of waste management are listed in Table 3.1 below and described in the following sections of the WMP:

Table 3.1 Core Elements of Waste Management

Elements	Ref. Section
Legislation and Guidelines	**4.0**
License or Permit Requirements	**5.0**
Project Organisation	**6.0**
Individual Duties and Responsibilities	**7.0**
Classification of Waste & Control Measures	**8.0**
Waste Monitoring and Auditing	**9.0**
Training	**10.0**
Mitigation Measures in EM&A Manual	**11.0**

3.2 Hierarchy

The various waste management options shall be categorised in terms of preference from an environmental viewpoint. The options considered to be more preferable have the least impacts and are more sustainable in the longer term. Hence, the hierarchy of waste management is as follows:

- Avoidance and minimisation, i.e. not generating waste through changing or improving practices and design;
- Reuse of materials, thus avoiding disposal;
- Recovery and recycling, thus avoiding disposal; and
- Treatment and disposal, according to relevant laws, guidelines and good practice.

This hierarchy shall be used to evaluate waste management options, thus allowing maximum waste reduction. Waste reduction measures shall be introduced at the detailed planning stage and carried through the construction activities, whenever possible, by careful purchasing control, reuse of formworks and good site management. By reducing or eliminating over-ordering of construction materials, waste is avoided and costs are reduced both in terms of purchasing of raw materials and in disposing of wastes.

4 LEGISLATION AND GUIDELINES

4.1 Statutory Requirements

The following legislation covers, or has some bearing upon, the storage, collection, treatment and disposal of wastes in Hong Kong:

- Waste Disposal Ordinance (Cap 354);
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Ca.354);
- Waste Disposal (Chemical Waste) (General) Regulation (Cap 354);
- Land (Miscellaneous Provisions) Ordinance (Cap 28); and
- Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-laws.

4.2 Additional Guidelines

Other guiding documents which detail how the GCL should comply with the regulations are as follows:-

- *Waste Reduction Framework Plan, 1998 to 2007*, Planning, Environment and Lands Bureau, Government Secretariat (5 November 1998);
- *2001 Review of the Waste Reduction Framework Plan,* Waste Reduction Committee;
- *Site Practice for Waste Reduction in Construction Industry* (2001), Environmental Protection Department;
- *Environmental Guidelines for Planning in Hong Kong* (1990), Hong Kong Planning and Standards Guidelines, Hong Kong Government;
- *New Disposal Arrangements for Construction Waste* (1992), Environmental Protection Department & Civil Engineering Department;
- *A Guide to the Registration of Chemical Waste Producers* (2001), Environmental Protection Department;
- *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes* (1992), Environmental Protection Department;
- *A Guide to the Control on Import and Export of Waste* (1999), Environmental Protection Department;
- Works Bureau Technical Circular No. 2/93, Public Dumps, Works Bureau;
- Works Bureau Technical Circular No. 2/93B, Public Filling Facilities, Works Bureau;
- Works Bureau Technical Circular No. 16/96, Wet Soil in Public Dumps, Works Bureau;
- Works Bureau Technical Circular No. 4/98 and 4/98A, Use of Public Fill in Reclamation and Earth Filling Projects, Works Bureau;
- Works Bureau Technical Circular No. 25/99, 25/99A and 25/99C, Incorporation of Information on Construction and Demolition Material Management in Public Works Sub-committee Papers, Works Bureau;

- Works Bureau Technical Circular No. 12/00, Fill Management; Works Bureau;
- Works Bureau Technical Circular No. 19/01, Metallic Site Hoardings and Signboards, Works Bureau;
- Works Bureau Technical Circular No. 6/02 and 6/02A, Enhancement Specification for Site Cleanliness and Tidiness, Works Bureau;
- Works Bureau Technical Circular No. 12/2002, Specification Facilitating the Use of Recycled Aggregates, Works Bureau;
- Works Bureau Technical Circular No. 24/2004, Specification Facilitating the Use of the Concrete Paving Units Made of Recycled Aggregates, Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002, Management of Construction and Demolition Material including Rock, Environment, Transport and Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 15/2003, Waste Management on Construction Sites, Environment, Transport and Works Bureau;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 19/2005, Environmental Management on Construction Sites, Environment, Transport and Works Bureau; and
- Development Bureau Technical Circular (Works) No. 6/2010, Trip-ticket System for Disposal of Construction and Demolition Material, Development Bureau.

5 LICENCE OR PERMIT REQUIREMENTS

5.1 Registration as a Chemical Waste Producer

Under the Waste Disposal (Chemical Waste) (General) Regulation, producers of chemical wastes must have registration with Environmental Protection Department. The registration shall be applied for as required.

5.2 Dumping licence to Public Filling Area

The Land (Miscellaneous Provisions) Ordinance requires that dumping licences are obtained by individuals or companies who deliver inert portion of construction and demolition material (i.e. Public Fill) to Public Filling Areas. The licences are issued by Civil Engineering and Development Department under delegated powers from the Director of Lands. The license shall be applied for as required.

5.3 Registration as a Waste Producer under the Construction Waste Disposal Charging Scheme

A billing account shall be opened with EPD prior to using Government waste disposal facilities. Waste shall be handled, transported, disposed and paid for in accordance with the Charging Scheme.

6 PROJECT ORGANISATION

The organisational structure for environmental management are in-line with the project management during the course of the Works is presented in **Appendix B**, which identifies the major parties with environmental responsibilities and illustrates their lines of communication. Descriptions on the roles and responsibilities of these parties are provided in the following sub-sections. The contact list for the representatives of the concerned parties is given in **Appendix C**.

7 INDIVIDUAL DUTIES AND RESPONSIBILITIES

7.1 The Site Agent

He is responsible to GCL's Executive Directors for overall planning, contract review, appointment of Site Health Safety & Environmental (HS&E) Representative and other site members for environmental matters. He will ensure provision of adequate resources to address environmental matters for the Project.

The Site Agent has the following responsibilities in relation to waste management: -

- Approving the WMP;
- Maintaining the overall control of the Contract and oversee the implementation of the WMP;
- Ensuring that adequate resources are provided for the efficient implementation of WMP;
- Reporting to Senior Management of Company on all environmental matters whenever necessary; and
- Ensuring compliance of all relevant waste management legislation throughout the duration of the Contract.

7.2 Project Manager

The Project Manager has the following responsibilities in relation to waste management: -

- the day-to-day overview of site practices in relation to waste management;
- directing Site Engineers, Area Site Agents and General Foremen as appropriate in supervising and enforcing the on-site mitigation measures;
- reporting to the Site Agent; and
- ensuring all waste records be promptly available to the Environmental Officer for record and/or action as necessary.

7.3 Site Engineers / Area Site Agents / General Foremen

Site Engineers / Area Site Agents / General Foremen are responsible for the following duties in relation to environmental control:

- coordinating waste management on site, gather data about waste and keep up-dated record of waste movement on and off site;
- obtaining a list of potential buyers or collectors of waste to be reused or recycled; and
- investigating potential re-use and recycle opportunities of waste.

7.4 Foremen

Foremen are responsible for the following duties in relation to environmental control:

- assisting Environmental Officer in all aspects of required waste management on site;
- supervising and monitoring the works of workers including subcontractors in relation to waste management; and
- ensuring all waste containers and storage areas are properly labelled.

7.5 Environmental Officer (EO)

The Environmental Officer shall oversee the implementation and the performance of the WMP and shall also be responsible for:

- disseminate information and requirement to the site operative in connection with the implementation of the waste management on-site;
- applying all necessary licences in relation to waste management;
- reporting to the Project Manager;
- coordinate with the Project Manager to ensure proper implementation of mitigation measures on waste management;
- monitoring the WMP implementation, carrying out site surveillance;
- keeping environmental related documents as well as conducting meeting/briefings/ inductions/tool-box talks with sub-contractors and staff at different levels;
- preparing and submitting the update of the WMP, the Waste Flow Tables (WFT) and the summary table for the use of timber during temporary works construction; and
- working closely with Site Engineers, Area Site Agents and General Foremen to ensure the Contract is carried out in compliance with all waste related contractual and legal requirements.

7.6 Environmental Supervisor

Site-resident Environmental Supervisor (ES) will be appointed by the GCL. The duties of the ES's will include but not limited to the following:

(a) Assist the EO in carrying out his duties;

(b) Carry out daily site environmental inspections based on a checklist approved by the Engineer, and to ensure that follow-up actions have been taken promptly against defects and deficiencies identified;

(c) Advise the EO on the upkeeping of environmental performance and standards of the Site;

(d) Attend the weekly environmental walk;

(e) Supervise and promote the execution of environmental work on the Site;

(f) Attend SSEMC meetings and SSEC meetings; and

(g) Conduct toolbox talks as assigned by the EO after acquiring the necessary.

7.7 Environmental Team (ET) / Environmental Team Leader (ETL)

The ET /ETL shall be an independent environmental consultant from GCL. The ET shall:

- maintaining overall control of the monitoring and professional services;
- reporting directly to the Environmental Officer;
- providing assistance and guidance to the Contractor in the implementation of WMP;
- identifying the potential hazardous waste whenever possible and take proactive actions before problems arise;
- providing briefing to the project team as necessary on the waste management requirements; and
- carrying out Waste Management Audit.

7.8 Subcontractors and other Employees

Every employee and subcontractor has the duty to carry out agreed waste management practices as instructed by the Site Agent / Site Engineer. Their duties are:

- observing and implementing the measures set out by this WMP;
- following all environmental related instructions given by the management staff of GCL;
- reporting any non-compliance of the waste management measures; and
- conducting the rectifying actions as required in a timely and efficient manner.

8 WASTE CLASSIFICATION AND CONTROL MEASURES

The waste generated from the construction activities shall be divided into distinct categories based on their composition, as follows:

(a) Construction and demolition (C&D) materials
  (i) Inert C&D materials
  (ii) Non-inert C&D materials
(b) Chemical wastes
(c) General refuses

The estimated quantities, types of the C&D materials and corresponding disposal grounds will be updated monthly and indicated in the monthly programme for disposal of C&D materials, which will be reported to the Engineer via submissions of monthly waste flow tables as shown in **Appendix D**. All anticipated disposal scenarios and transportation modes are summarized in **Appendix E**.

8.1 Construction and Demolition (C&D) Materials

C&D materials comprise unwanted materials generated during construction, including rejected structures and materials, materials which have been over ordered or are surplus to requirements, and materials used and discarded.

C&D material could be divided into two categories according to whether they are inert or non-inert. Inert C&D material are known as rock, rubble, boulder, earth, soil, sand, concrete, asphalt, brick, tile, masonry and used bentonite, where to be maximized the reuse of these materials within the Contract and to be disposed of the surplus of these materials to other Contracts, subjected to the approval or direction of the Engineer's

Representative. Under any circumstances that no site is able to receive the unsuitable C&D materials for the filling purpose, GCL will apply to CEDD for the public fill reception facilities (PFRF) as a back-up option.

Non-inert C&D material are such as metal, timber, vegetation, packaging waste, organic material and all recyclables and non-recyclables is called “C&D Waste”. C&D waste, excluding recyclables, shall be disposed of at WENT Landfill.

Recyclables are mainly metals, paper/cardboard packaging and plastics. Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material. Recyclables would be collected by relevant recyclers. Non-recyclable materials are treated as general refuse.

The following general low waste construction designs and principles together with careful planning shall be adopted to avoid/minimise C&D material generation. Such measures include: -

(a) Management of construction materials such that over-ordering, poor storage and maintenance, mishandling as well as improper operation procedures shall be avoided.

(b) Restriction on use of hardwood such that softwood, metal props and/or proprietary steel system shall be considered for false work and the shoring of trenches and pits;

(c) The formwork shall be designed to maximise the use of standard wooden panels so that high reuse levels can be achieved. More durable alternatives such as steel formwork or plastic facing shall be considered for repetitive areas to increase the potential for reuse.

(d) C&D materials shall be, as much as possible and practicable, separated into reusable items and materials to be disposed of or recycled. It shall be conducted at the immediate working area to avoid loss/leakage and cross contamination during handling.

(e) All C&D materials arising from or in connection with the construction and demolition work shall be sorted on-site and be separated into different categories for disposal at landfills, public filling areas, or reuse and recycling as appropriate. The sorting area may be revised from time to time in order to suit the construction activities.

(f) Useful materials such as timber, rubble and steel/metal shall be segregated for reuse. For example formwork and timber shall be cleaned for reuse, off-cuts of reinforcement shall be sorted into usable lengths and short off cuts stacked for scrap metal. Where it is no longer reusable, scrap steel and metal items will be collected by recycling companies.

(g) Segregated materials shall be temporarily stored at designated areas for reuse on site. Steel will be stored at the reinforcement yards, timber at the formwork yard and rubble in a stockpile (either covered or sprayed to control dust). Cardboard and paper packaging recovered from site shall be properly stockpiled in dry condition and covered.

(h) In order to avoid over-order of concrete, accurate calculation shall be made prior to concrete pouring. Close supervision shall also be arranged during concrete pouring to avoid over-cast.

(i) Surplus concrete shall be used for paving of temporary road or cast of concrete blocks for bunding etc. as far as practicable. In case immediate use of surplus concrete cannot be identified, the surplus concrete will be temporarily poured into designated surplus concrete pouring areas on site for further disposal to public filling areas.

(j) Entirely cover every stock of more than 20 bags of cement by impervious sheeting and carry out the de-bagging, batching and mixing processes in an area sheltered on the top and the 3 sides. Damp and gather the waste cement bags for proper disposal.

(k) Used bentonite shall only be disposed of at Public Fill area.

GCL designate suitable areas onsite for the storage, sorting and segregation of construction waste. The areas that are designated by GCL will be clearly defined with appropriate signage and barriers (or similar) and allow for easy access by workers and vehicles. As the project progresses it is anticipated that the designated areas will be reviewed depending upon construction program requirements. The areas designated by GCL will be sufficient for the amounts of construction waste that are anticipated to be generated during the course of the contract. The sorting mechanism is shown in Table 8.1. The sorting for inert C&D Materials shall be carried out immediately at the relevant operation area and would dispose to TM38 or TKO137 Fill Bank accordingly or other alternative disposal ground as agreed by the Engineer's Representative. The locations for the temporary storage of C&D waste, such as general refuses and chemical waste are shown in **Appendix F**.

Table 8.1 Sorting of C&D Materials

Type of C&D Material	Required Action
Rock	Reuse on site where possible or recycle off site
Excavated material	Reuse on site where possible or dispose of at approved public fill facility
Concrete	Sorted and segregated onsite, reuse on site where possible or recycle offsite
Asphalt material	Sorted and segregated onsite, dispose of at approved public fill facility
Metal	Segregate and recycle offsite
Paper/Cardboard Materials	Segregate and recycle offsite
Plastics	Use recycling containers and recycle offsite
Aluminium Cans	Use recycling containers and recycle offsite
Timber	Reuse on site if possible, other segregate and recycle off site
Chemical Waste	Store in approved containers and transport offsite for disposal at an approved facility

8.2 Chemical Wastes

Chemical wastes are the substances defined by the *Schedule 1* of the *Waste Disposal (Chemical Waste) (General) Regulation*. Chemical wastes generated from the construction sites will primarily arise from the maintenance of plant and equipment. These may typically include oils, lubricants, paints and solvents. The tentative locations for temporary storage of chemical waste are shown in **Appendix F**. Containers used for the storage of chemical waste shall:

- be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;
- have a capacity of less than 450 litres unless the specification have been approved by the EPD; and
- display a label in English and Chinese in accordance with instruction prescribed in *Schedule 2* of the Waste Disposal (Chemical Waste)(General) Regulation.

The storage area for chemical wastes shall:

- be clearly labelled and used solely for the storage of chemical waste;
- be enclosed on at least three sides;
- have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area;
- have adequate ventilation;
- be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and
- be arranged so that incompatible materials are adequately separated.

Disposal of chemical waste shall:

- be via a licensed waste collector;
- be to an off-site facility licensed to receive chemical waste, such as a recycling facility located in Yuen Long Industrial Estate or the Chemical Waste Treatment Facility located in Tsing Yi.

8.3 General Refuses

General refuses include food wastes, non-recyclable materials (including waste paper/cardboard packaging, plastics and timber) and other debris arising from various construction activities, site workforce and site housekeeping. Number and location of placement of rubbish bins with the arrangement for on-site sorting of aluminum cans, plastic bottles and papers shall be specified and submitted to ER for approval. The collection and disposal of general refuses insides the skips shall be not less than once in every three days. General refuses shall be disposed of at WENT Landfill.

Measures that encourage waste avoidance/minimization include:

- Reducing the number of photo copies to a minimum and by copying on both sides of paper for internal documents and external documents where appropriate;
- Preventing over-ordering of office equipment and consumables;
- Procuring green office equipment and consumables in terms of energy efficiency, recycled content and durability, etc.;
- Providing drinking facility and encouraging employees to bring their own cup; and
- Discouraging take-out food.

Additional measures that facilitate reuse/recycling and orderly disposal include:

- Deploying sufficient recycle bins at convenient locations to facilitate collection of recyclables including wasted aluminium cans, plastic bottles and cardboard and papers packaging;
- Deploying sufficient refuse collection bin at convenient locations to facilitate collection of non-recyclables for disposal at landfills; and

- Participating local collection scheme (e.g. scheme launched by District Board) if available.

8.4 Use of Timber

The use of timber in Temporary Works construction will be avoided, reduce or minimised as far as possible. A method statement will be submitted to the Engineer for agreement prior to commencement of the relevant Temporary Works if the timber to be used for a Temporary Works construction process/activity exceeds $5m^3$. The method statement will include the justification for and the measures taken to minimise the use of timber in the said Temporary Works.

Instead of traditional formwork, more durable formwork system will be adopted for column, slab and wall construction for ancillary buildings to facilitate reuse onsite and minimize waste.

Sustainable timber procurement policy is setup by the Corporate to material procurement and all subcontractors, to procure timber and timber products only from independently certified legal and sustainable sources, such as the Forest Stewardship Council (FSC) Scheme.

The formworks will be designed to maximise the use of standard wooden panels so that high reuse levels can be achieved. More durable alternatives such as reusable metal formwork, falsework, trench supports and the like shall be optimized for use in repetitive areas to increase the potential for reuse, if applicable.

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 is prepared **Appendix G**.

9 WASTE MONITORING AND AUDITING

9.1 Trip-Ticket System

In accordance with DEVB TC(W) No. 6/2010, with tender invitation was on or after 1 November 2010, the administration of CHIT/ DDF was streamlined. CHIT in lieu of the bar-coded Disposal Delivery Form (DDF) should be used at all prescribed facilities, i.e. public fill reception facilities, sorting facilities, outlying island transfer facilities and landfills. Moreover, under the Construction Waste Disposal Charging Scheme, GCL registered with EPD a disposal account and will adopt the CHIT as the enhanced control of C&D material disposal. The control procedure on off-site disposal of C&D materials is shown in **Appendix H**. The sample of CHIT, purpose-designed trip-tickets are presented in **Appendix I**.

Every C&D material disposal trip to the public fill reception facilities and designated landfill shall be controlled under the trip-ticket system as per the DEVB TC(W) No. 6/2010 in order to avoid fly-tipping. Appendix G gives the site procedure for the TTS operation.

For disposal of chemical wastes, the trip-ticket system as per the Waste Disposal (Chemical Waste) Regulation in which licensed collector will be employed and the chemical wastes will be disposed of at designated chemical waste treatment facility.

GCL will inform all truck drivers engaged for removal of C&D materials from the Site of the following particular points:

- Each truck carrying C&D materials leaving the Site for a disposal ground must bear a duly completed CHIT, irrespective of the location and nature of the disposal ground; and
- The C&D materials must be disposed of at the disposal grounds stipulated in the Contract or directed by the Engineer or alternative disposal grounds approved by the Engineer.

GCL would formulate a guiding protocol for truck drivers being engaged and give all of them a copy for their information. Where necessary, a tool box talk relating to the protocol will be given to all engaged driver. The protocol is shown in **Appendix J.**

9.2 Inspection Programme

GCL shall arrange weekly inspection attended by the Environmental Officer and the Engineer to inspect the site to ensure satisfactory performance on compliance with the WMP with due regards to the followings:

(a) Inert C&D materials suitable for recycling into aggregates are recovered and delivered to Tuen Mun Area 38 or other designated recycling facilities as notified by the Engineer or the Public Fill Committee (Port Works Division of CED);

(b) A disposal recording system is operating satisfactorily for recording C&D materials removed from the Site;

(c) On-site sorting of C&D materials is properly carried out to recover inert C&D materials and reusable and/or recyclable materials before disposal;

(d) Paper/cardboard packaging, and metals including aluminium cans are recovered and collected; and

(e) Plastic bottles/containers or plastic sheets/foam from packaging are collected as far as possible for recycling.

GCL may arrange the weekly inspection on waste management performance to be carried out along with the weekly safety walks for safety or other site inspections.

GCL shall prepare and agree with the Engineer a comprehensive checklist for use during weekly inspections on waste management. The defects or deficiencies identified during the weekly inspection on waste management together with their respective locations and the corresponding due dates for rectification as set by the Engineer nominated site representative should be entered in a summary table of follow-up actions similar to the one established for weekly safety walks for monitoring of the rectification progress. GCL may need to prepare more than one comprehensive checklist to suit the variety of works at various portions of the Site. It is recommended that items covered in the checklist should primarily address:-

(a) the physical conditions of the Site (e.g. housekeeping, site tidiness and cleanliness, etc.);

(b) the adequacy of measures applied to each category of waste; and

(c) the availability/accessibility/maintenance of waste management facilities.

Immediately after the weekly inspection, the summary table of follow-up actions shall be agreed and signed by both the assigned person and the Engineer and a copy should be kept by the Engineer for monitoring of the progress of rectification and for payment. GCL shall take prompt action to rectify the deficiencies identified and shall report the status of action taken before the forthcoming weekly inspection.

Should deficiency with regard to waste management affairs persists, the Event Contingency Plan as detailed below shall be triggered. Non-compliance shall include the following situations:

- Infringement of legal requirements with respect to waste issues.
- Persistent outstanding of control measures stated in the WMP as identified during the site inspection or audit.
- Overloading of dump truck

Table 9.1 Action Plan for Non-Compliance

Step	Day	Action	GCL	the Engineer
1.	1	Create a new non-compliance record within 1 working day after making an observation during a site audit accompanied by Environmental Officer or his delegate. Environmental Officer sends a Notice of Non-Compliance (NNC) to the Project Manager / Site Agent. The NNC would include the observations and the reasons for non-compliance.	■	
2.	2	Propose corrective actions within 1 working day after the receipt of the NNC.	■	□
3.	2	Review and agree with the proposed corrective actions and make additional recommendations as required.	■	□
4.	2	Implement the proposed corrective actions once they have been agreed.	■	
5.	-	Check the implementation of the corrective actions at the next site audit. Close the non-compliance record if the implementation of the corrective actions is satisfactory.	■	□
6.	-	Propose preventive actions within 3 working days after the closure of the non-compliance record.	■	□

■ *Action party*
□ *Comments on the non-compliance record where applicable.*

ET shall check whether GCL has followed the relevant contract specifications and the procedures specified under the laws of Hong Kong. In addition to the site inspections, the ET shall review the documentation procedures prepared by the GCL once a week to ensure proper records are being maintained and procedures undertaken in accordance with the Waste Management Plan. The checklist is given in below Table 9.2:

Table 9.2 Waste Management Checklist

Activities	Timing	Monitoring Frequency	If non-compliance, Action Required
All necessary waste disposal permits or licences have been obtained	Before the commencement of demolition works	Once	Apply for the necessary permits/ licences prior to disposal of the waste. The ET shall ensure that corrective action has been taken.
Only licensed waste haulier are used for waste collection.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to use a licensed waste haulier.

Activities	Timing	Monitoring Frequency	If non-compliance, Action Required
			The Contractor shall temporarily suspend waste collection of that particular waste until a licensed waste haulier is used. Corrective action shall be undertaken within 48 hours.
Records of quantities of wastes generated, recycled and disposed are properly kept. For demolition material/waste, the number of loads for each day shall be recorded (quantity of waste can then be estimated based on average truck load. Should landfill charging be implemented, the receipts of the charge could be used for estimating the quantity).	Throughout the works	Weekly	The Contractor shall estimate the missing data based on previous records and the activities carried out. The ET shall audit the results and forward to the ER and IEC for approval.
Wastes are removed from site in a timely manner. General refuse is collected on a daily basis.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to remove waste accordingly.
Waste storage areas are properly cleaned and do not cause windblown litter and dust nuisance.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to clean the storage area and/or cover the waste.
Different types of waste are segregated in different containers or skip to enhance recycling of material and proper disposal of waste.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to provide separate skips/ containers. The Contractor shall ensure the workers place the waste in the appropriate containers.
Chemical wastes are stored, handled and disposed of in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes, published by the EPD.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to rectify the problems immediately. Warning shall be given to the Contractor if corrective actions are not taken within 24 hrs and the Waste Control Group of the EPD shall be identified.
Demolition material/waste in dump trucks are properly covered before leaving the site.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall instruct the Contractor to comply. The Contractor shall prevent trucks shall leaving the site until the waste are properly covered.
Wastes are disposal of at licensed sites.	Throughout the works	Weekly	The ET shall inform the ER and IEC of the noncompliance. The ER shall warn the Contractor and instruct the Contractor to ensure the wastes are disposed of at the licensed sites. Should it involve chemical waste, the Waste Control Group of EPD shall be notified.

9.3 Record Keeping and Reporting

GCL shall keep adequate and proper records such as delivery dockets and measurement records relating to the implementation of the WMP. The records shall include trip-ticket, completed inspection checklists and training records. A comprehensive register of the CHIT, purpose-designed trip-tickets of which sample forms are presented in **Appendix I**.

9.3.1 Daily Record Summary

Daily Record Summary (DRS) shall be filled by designated persons.to record every truck for delivery of C&D materials. The sample of DRS is given in **Appendix K**.

9.3.2 Monthly Summary Waste Flow Table

As part of the WMP, a mechanism shall be established to record the quantities of C&D materials generated each month, using the monthly summary "Waste Flow Table" (WFT) as given in **Appendix D**. The mechanism for recording the quantities of C&D materials is given in **Appendix H**.

9.3.3 Performance Monitoring

To ensure the effectiveness of the Trip-Ticket System, the following item will be discussed at every Site Safety and Environmental Management Committee meeting, and Site Safety and Environmental Committee meeting or ad-hoc meetings on as-needed basis:

1. Review the site management plan and implementation of the TTS, and identify areas for improvement;
2. Audit the quantity of C&D materials removed from the Site (based on the DRS and survey records) against the quantities of C&D materials delivered to the disposal ground designated in the Contract (e.g. based on EPD website) and directed or approved by the Supervising Officer;
3. Review incidents of non-compliance and discuss the necessary follow-up actions for TTS; and
4. Monitor the follow-up action on defects and deficiencies identified.

10 TRAINING

The Environmental Officer and other site personnel (if they have not attended similar course before) shall be arranged to attend training on waste management organised by training institutes or organisations as considered appropriate.

The Environmental Officer shall arrange and provide training on waste management in the site-specific induction and its refresher training for all persons employed by the GCL or his subcontractor on the Works or in connection with the Contract. The training should cover the waste management policy, targets, measures for on-site sorting of C&D materials and measurement on waste management performance on the Site. According to ER requirement, induction training shall be carried out within first 2 days of the employment and refreshment training shall be carried out by every 6 months.

The Environmental Officer is allowed to develop and provide toolbox talks for the topic on on-site sorting of C&D materials to promote the workers' awareness on handling, sorting, reuse and recycling of C&D materials. Training material for environmental toolbox talks with regard to waste management shall be prepared by the Environmental Officer and disseminated to supervisor/foremen and subcontractor's representatives for conducting tool-box talks to all workers or labourers at regular intervals.

11 MITIGATION MEASURES IN EM&A MANUAL

The Section 8.1.2 of the EM&A Manual gives recommendations on mitigation measures of waste management, which are:

- The waste management hierarchy (**Appendix B**) should be strictly followed. This hierarchy should be adopted to evaluate the waste management options in order to maximise the extent of waste reduction and cost reduction. The records of quantities of waste generated, recycled and disposed (locations) should be properly documented.

- A trip-ticket system should be established in accordance with DEVB TC(W) No. 6/2010 and Waste Disposal (Charges for Disposal of Construction Waste) Regulation to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. A trip-ticket system would be included as one of the contractual requirements for the Contractor to strictly implement. The Engineer would also regularly audit the effectiveness of the system.
- A recording system for the amount of waste generated, recycled and disposed (locations) should be established. The future Contractor should also provide proper training to workers regarding the appropriate concepts of site cleanliness and waste management procedures, e.g. waste reduction, reuse and recycling all the time.
- The CEDD should be timely notified of the estimated spoil volumes to be generated and the Public Fill Committee should be notified and agreement sort on the disposal of surplus inert C&D materials e.g. good quality rock during detailed design of the TM-CLKL project. Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and to ensure acceptability at public filling areas or reclamation sites.
- The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.
- The surplus surcharge should be transferred to a fill bank.
- The site and surroundings shall be kept tidy and litter free.
- No waste shall be burnt on site.
- Make provisions in contract documents to allow and promote the use of recycled aggregates where appropriate.
- Prohibit the Contractor to dispose of C&D materials at any sensitive locations e.g. natural habitat, etc. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.
- Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust and surface run off.
- Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.
- Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.

- Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork or plastic facing for construction works should also be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should be carefully planned in order to avoid over-ordering and wastage.
- The Contractor should recycle as many C&D waste as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.
- All falsework will be steel instead of wood, as far as possible.
- Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:
  - Suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed;
  - Having a capacity of <450L unless the specifications have been approved by the EPD; and
  - Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations.
  - Clearly labelled and used solely for the storage of chemical wastes;
  - Enclosed with at least 3 sides;
  - Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;
  - Adequate ventilation;
  - Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and
  - Incompatible materials are adequately separated.
- Waste oils, chemicals or solvents shall not be disposed of to drain;
- Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them. Night soil should be regularly collected by licensed collectors.
- General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared not less than once in every three days and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.
- All waste containers shall be in a secure area on hard standing. Aluminium cans are usually collected and recovered from the waste stream by individual collectors if they are segregated and easily accessible. Separately labelled bins for their deposition should be provided as far as practicable.
- Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc. should be provided on-site.

- Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.

APPENDIX A

Gammon's Health, Safety and Environmental Policy

Policy on Health, Safety, Environment and Quality

We are committed to being a World Class organization, and to be the contractor of choice in Hong Kong, Singapore, China and Southeast Asia. We believe that Quality, Safety, Efficiency and Good Value are interrelated aspects of the excellent engineering upon which the Gammon business is based.

Over all business considerations, Safety will always take priority and nothing should compromise safety and our total commitment to Zero Harm.

We aim to work actively with Customers to provide added value, making best use of our abilities and resources to develop innovative solutions and manage risk such that delivery will be incident, accident and environmental occurrence free.

From the Executive Committee, Directors and our senior teams, the commitment to Health, Safety, Environment and Quality (HSEQ) will be highly visible, consistent and under regular review.

To underpin our philosophy and approach in HSEQ, we will set objectives (Bold Commitment) and engage with the industry and stakeholders to challenge ourselves and the trade practices to continually "raise the bar" by improving standards for health, safety, environmental and quality performance.

We will adopt the four principles of :

Strong and Visible Leadership

- Leaders will be mindful of risks and informed as to how these are being addressed.
- They will maintain a fair and just culture that allows all of our stakeholders to engage in the delivery of this policy yet holds everyone accountable for their actions, the teams are resourced and competent to manage and mitigate risk.

Structured and Risk Based Approach

- In planning of operations, we will identify the specific risks, opportunities and consider life cycle stages relevant to each task and provide safe and healthy working conditions to achieve Zero Harm; prevent work-related injury, ill health, environmental occurrence and defects of products; improve outputs and to enhance quality, effectiveness, efficiency and preserve the environment.
- Practical and resilient methods will be developed to fully control these risks, otherwise work will not proceed. Method shall be reassessed where circumstances or operational controls change.
- Construction methods will be based upon best practice to eliminate and manage occupational health and safety risks, quality defects and environmental impacts with the Layers of Protection,
  - Design and Engineering
  - Plant and Equipment
  - Process
  - People

Effective Implementation and Supervision

- Frontline staff and managers are responsible for the implementation of agreed methods
- Compliance with legislation, contractual requirements to which Gammon subscribes is a fundamental minimum requirement.
- The Gammon HSEQ Management System procedures and the Book of Safety Standard define our minimum requirements including duties and responsibilities.
- We will maintain clean and tidy work fronts, clear access to all locations and effective emergency response process.
- Should any operation depart from the requirements of this policy, managers and supervisors must stop work and institute rectification and improvement measures.
- Senior managers will regularly monitor and support their staff to ensure that all operations are being conducted in accordance with this policy.

Engagement and Communication

We will :

- Monitor the needs of our business partners and be proactive in addressing their needs.
- Enhance customer satisfaction by providing a consistently high quality of services and products that satisfy applicable legal requirements; fulfill compliance obligations; meets and exceed customers' expectations.
- Engage frequently and proactively with local communities and the industry to find ways in which we can prevent pollution; protect ecosystems; use sustainable resource; mitigate climate change; minimize impacts and add value to the quality of life of those affected by our operations when we consider different life cycle stages.
- Ensure effective participation and consultation of employees and workers' representatives in the HSEQ management system.
- Seek continual improvement of HSEQ management system to enhance the performance through regular performance monitoring, System Assurance Validation (SAV), and by setting challenging Bold Commitments, objectives, targets and Gammon standards.

This policy, together with our management system, will be reviewed regularly and updated as appropriate to ensure continuing suitability and effectiveness.

This policy will be issued and explained to all staff through departmental briefings shall be displayed on company notice boards and will be available on our intranet.

Thomas HO, JP
Chief Executive
Gammon Construction Limited

January 2017

金門建築

ZERO HARM
MAKE SAFETY PERSONAL

健康，安全，環保和品質政策

我們決意達致世界級水平，成為香港、新加坡、中國內地和東南亞地區的首選承建商。我們相信，品質、安全、效率和良好價值是相互關連，這亦是金門業務的核心價值所在。

金門業務的各樣核心價值中，安全始終凌駕於所有業務的考慮。我們對於安全施工及「零傷害」的承諾是絕對堅定不移的。

為配合我們的堅持及理念，杜絕事故，意外及環境影響，我們會與客戶攜手合作，善用彼此的豐富經驗及資源，發展創新的方案，妥善管理風險。

行政委員會，部門董事及其高層管理團隊，對健康，安全，環保和品質的承諾，必須是清晰可見，並會定期檢討。

我們會制定「堅決承諾」，作為落實政策及目標的基石。不斷與業界和相關持分者結盟，接受挑戰，在現有行業規範中不斷「提高水平」，改善健康，安全，環保和品質的表現，務求精益求精。

我們運用以下列四項原則：

強而有力及可見的領導

- 領導人員會對風險保持警覺，全面通報，全盤考慮及謹慎處理。
- 他們將維持「公平」及「公正」的企業文化，使所有相關的持分者都可參與推動這個政策，並使每個人都為自己的行為負責。在管理風險時，他們亦須確保會投放足夠的資源及聘用勝任的員工。

結構化和按風險進行的方法

- 在規劃工程時，我們會識別工作的有關風險、契機，考慮產品的生命週期，及提供安全及健康的工作環境，預防工傷、患病、環境事故、產品不良並提高工程產量、質量、服務效能及保護環境，從而奉達致「零傷害」的目標。
- 發展實用和具彈性的方法，全面控制這些風險，否則不會施工。任何環境或控制措施出現改變時，便立即重新審視施工方法。
- 制定建築方法時，會建基於最佳做法及四重保障模式以消除及管理各職安健的風險、質量缺陷及環境影響，排序如下：
  - 設計和工程
  - 機械及設備
  - 施工程序
  - 工人管理

有效執行和監督

- 前線工作人員及經理負責執行獲批准的施工方案。
- 金門的最低要求是遵守法例法規及合約規定。
- 金門的健康，安全，環保和品質管理系統，程序，和安全標準手冊將列明我們的基本要求及員工職責。
- 我們會維持衛生整潔的工作環境，各通道暢通及有效的緊急應變程序。
- 若發現任何工作程序偏離本政策，管理人員必須暫停工作，並制定糾正措施。
- 高級經理會定期監察及支援員工，以確保所有程序都符合本政策的規範。

參與及溝通

我們會：

- 關注並積極主動回應業務伙伴的需求。
- 提供一貫的高質工程和高效服務，以符合相關法例法規和合約規定，完成工程；達到並甚至超越客戶的期望，從而提高客戶滿意度。
- 經常主動與社區及業界保持溝通，盡量尋找方法預防污染，保護生態，使用可持續資源以減低氣候變化及產品不同生命週期所帶來的影響，並提升受工程影響人士的生活質素。
- 確保員工及工人代表在健康、安全、環保和品質管理系統上，能積極參與及提供意見。
- 通過定期「系統驗證」監控表現，及制定具挑戰性的「堅決承諾」、目標、指標和金門標準；尋求健康、安全、環境和品質系統各表現的持續改善。

我們會定期檢討本政策和其他相關管理系統，並適時作出更新，以確保其為合適和有效。

本政策將會透過部門簡介會發佈給所有員工，並張貼於公司告示板及上載至內聯網。

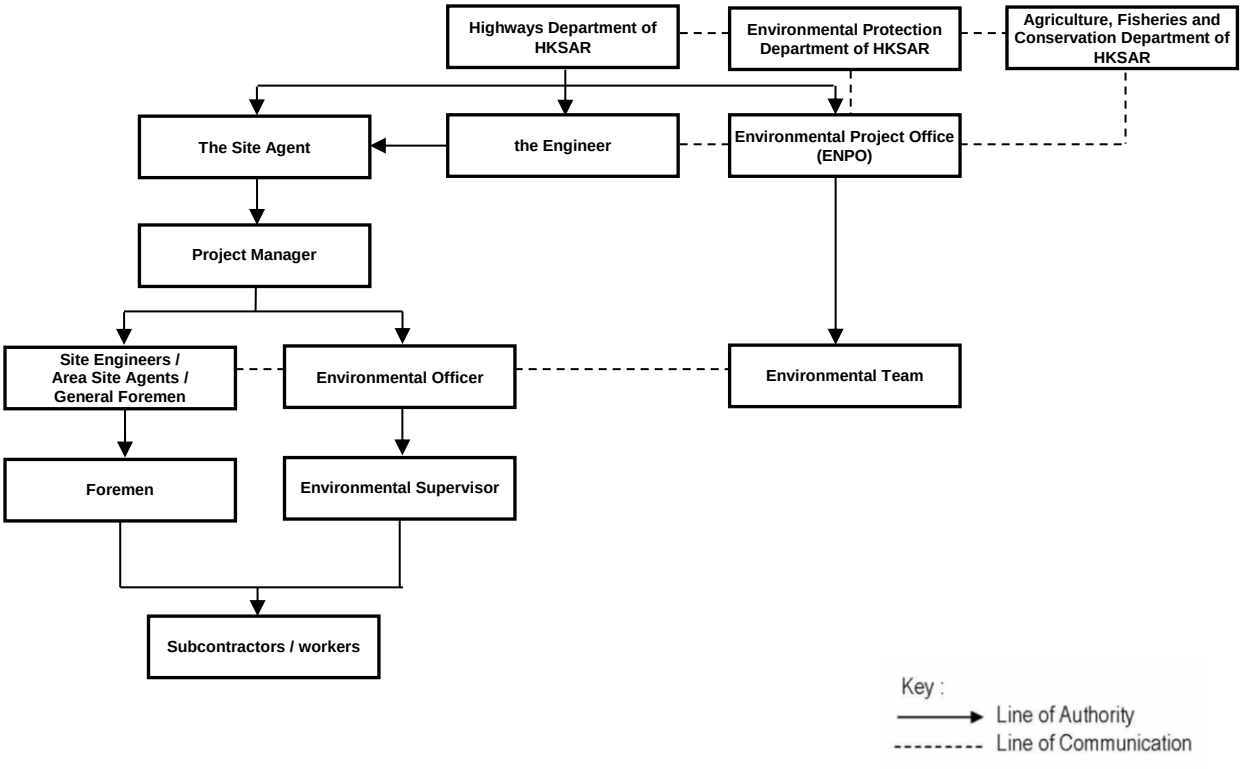
何安誠

金門建築有限公司
總裁
何安誠，太平紳士
2017年1月

〈此乃中文譯本，以英文原稿為準〉

APPENDIX B

Organisation Structure for Environnemental Management


Highways Department of HKSAR
Environmental Protection Department of HKSAR
Agriculture, Fisheries and Conservation Department of HKSAR
The Site Agent
the Engineer
Environmental Project Office (ENPO)
Project Manager
Site Engineers / Area Site Agents / General Foremen
Environmental Officer
Environmental Team
Foremen
Environmental Supervisor
Subcontractors / workers
Key :
Line of Authority
Line of Communication

APPENDIX C

Contact List

Contact List	**Telephone No.**
Project Proponent – Highway Department – HZMB Office	
Employer's Rep. – Mr. Chun Wah CHOW, HyD, Prin Project Coordinator	2762 4182
Employer's Rep. – Mr. Joseph WONG, HyD, SE	2762 3413
Employer's Rep. – Mr. Tony PANG, HyD, SE	2762 3423
The Engineer Office – AECOM Asia Co. Ltd.	
The Engineer's Rep. – Mr. Sheung Wai FOK, PRE	6463 3088
SRE (S&E) – Mr. Kam Piu WONG	5588 3969
RE(S&E) – Mr. Desmond Fung	9384 3116
Environmental Project Office – Ramboll Hong Kong Ltd.	
ENPO Leader – Mr. Y.H. HUI	3465 2850
IEC – Mr. Fan Cheong TSANG	3465 2851
ESS – Mr. Manson YEUNG	3465 2899
Environmental Team – Environmental Resources Management	
ET Leader – Dr. Jasmine NG	2271 3311
Deputy ET Leader – Mr. Raymond CHOW	2271 3314
Gammon Construction Ltd.	
Project Director – Mr. Kin Wah KO, Max	3192 2302
The Site Agent – Mr. Kenneth Tai	3520 0388
Senior Project Manager – Mr. Kowk Yee LAW	2859 6802
Senior Project Manager – Mr. Man Chung YUI, Alex	3556 3046
Senior Planning Manager – Mr. King For WONG, Terry	3904 9609
Construction Manager – Mr. Ho Hang LEE	6096 6281
Safety Manager – Mr. Chun Yu LAU	3520 0380
Site Admin Manager – Mr. Kam Chuen AU	3520 0488
Environmental Officer – Mr. Yu Ho NG, Henry	2516 8619
Environmental Supervisor – Mr. Wai Tang LAM	9212 0300
Environmental Supervisor – Ms. Wing Kar LAM, Wing	6603 0843
Environmental Protection Department Mega Project Team	
Senior Environmental Protection Officer – Mr. Victor YEUNG	2187 3984
Environmental Protection Officer – Mr. Alfred LO, EPO-RS(52)	2516 1782
Senior Environmental Protection Inspector – Ms. Dionne LIANG	2516 1727
Sub-contractor Representatives	
Tung Lee Electrical Co., Ltd. – Mr. Marco CHAN	6745 8916

APPENDIX D

Proforma for Monthly Summary Waste Flow Table

Gammon

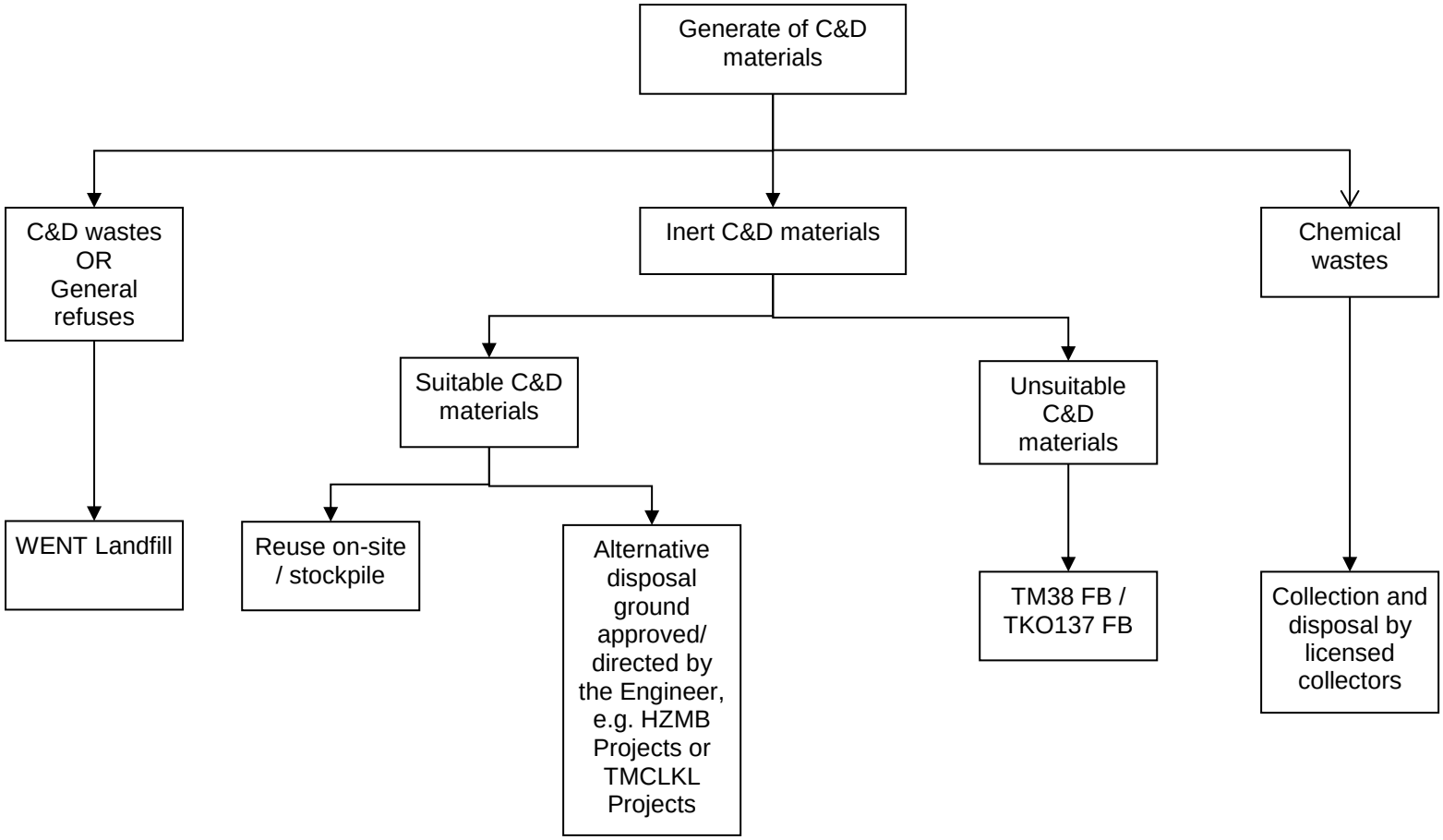
Contract No. : HY/2017/10
Tuen Mun-Chek Lap Kok Link – Northern Connection Tunnel Buildings, Electrical and Mechanical Works
Monthly Summary Waste Flow Table for _____ (Year)

Month\Material	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation		Actual Quantities of Recyclables Generation		
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Chemical Waste	General Refuse	Metals	Paper/ cardboard packaging	Plastics
Unit	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan											
Feb											
Mar											
Apr											
May											
Jun											
SUB-TOTAL											
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
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.

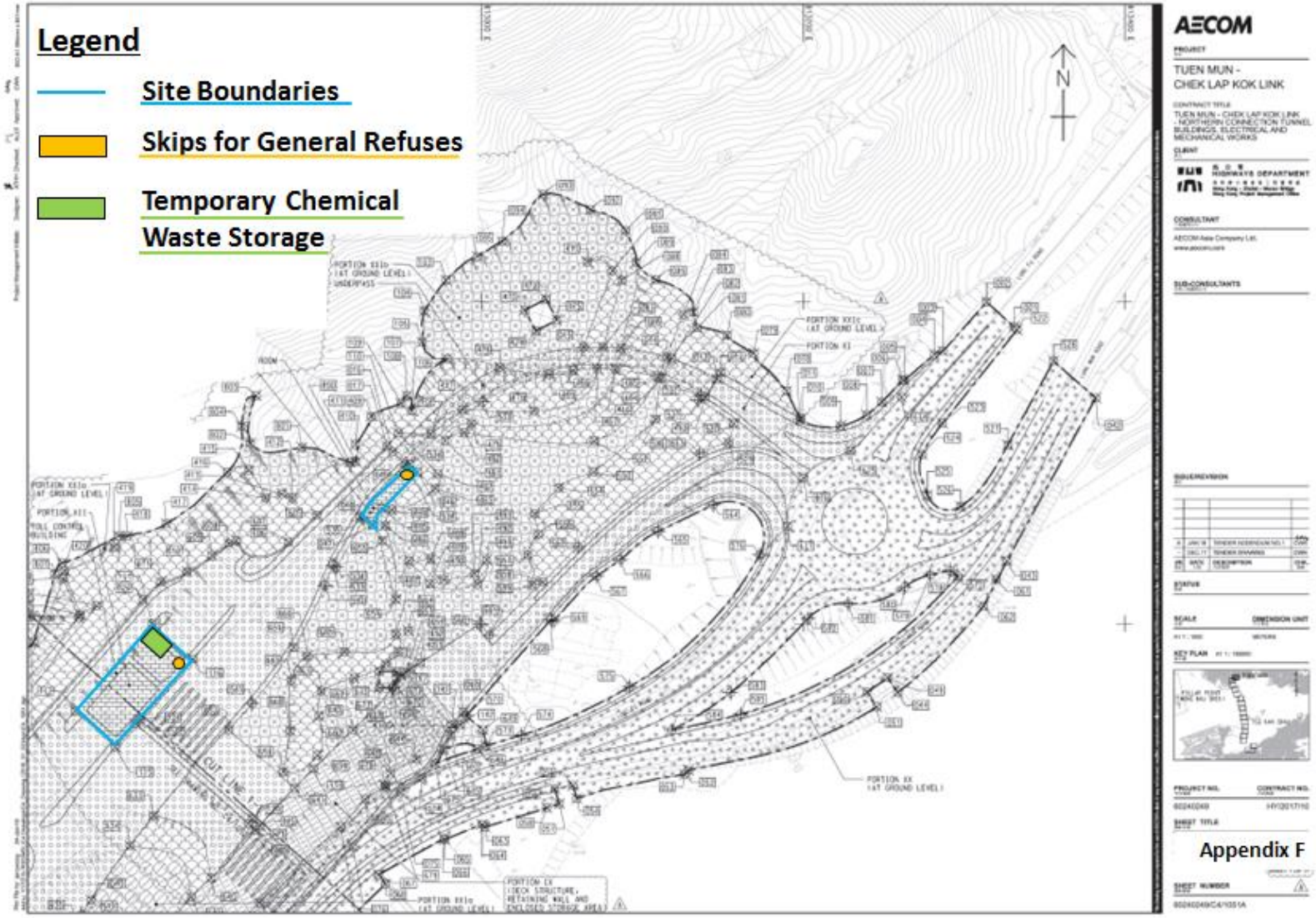
APPENDIX E

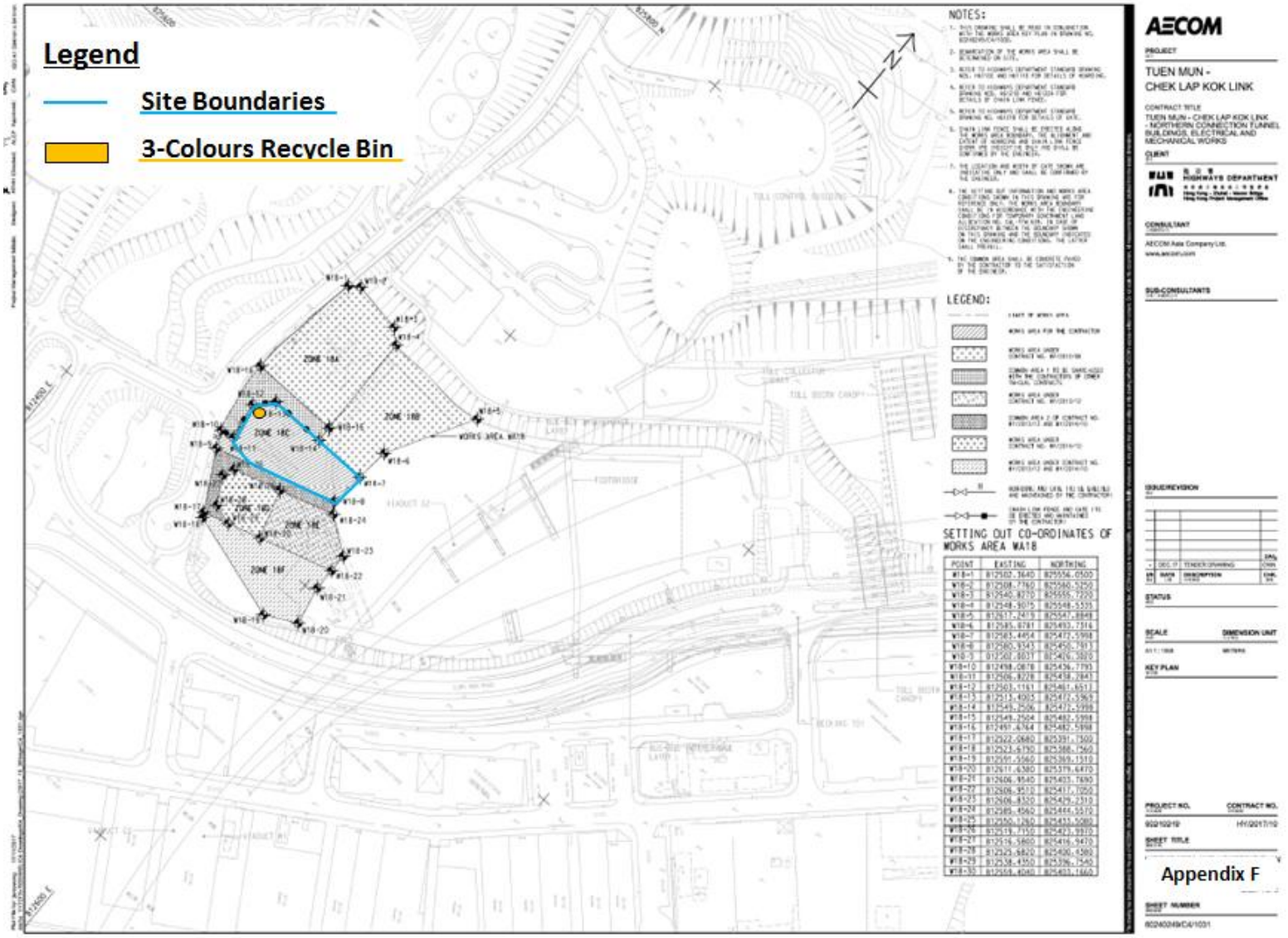
Disposal Scenario and Transportation Models


Generate of C&D materials
C&D wastes OR General refuses
Inert C&D materials
Chemical wastes
Suitable C&D materials
Unsuitable C&D materials
WENT Landfill
Reuse on-site / stockpile
Alternative disposal ground approved/ directed by the Engineer, e.g. HZMB Projects or TMCLKL Projects
TM38 FB / TKO137 FB
Collection and disposal by licensed collectors
(By CHIT form)
(By Internal Material Transfer Form (IMTF))
(By Material Delivery Form (MDF))
(By CHIT form)
(TTS provided by the licensed collector)

APPENDIX F

On-site Storage Area for General Refuses and Chemical Waste


Legend
Site Boundaries
Skips for General Refuses
Temporary Chemical Waste Storage
N
AECOM
TUEN MUN - CHEK LAP KOK LINK
Appendix F


Legend
Site Boundaries
3-Colours Recycle Bin
NOTES:
LEGEND:
SETTING OUT CO-ORDINATES OF WORKS AREA WA1B
POINT
EASTING
NORTHING
AECOM
TUEN MUN - CHEK LAP KOK LINK
HIGHWAYS DEPARTMENT
Appendix F

APPENDIX G

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

Gammon

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

Contract No.: HY/2017/10
Contract Title: Tuen Mun-Chek Lap Kok Link – Northern Connection Tunnel Buildings E&M Works
Period:

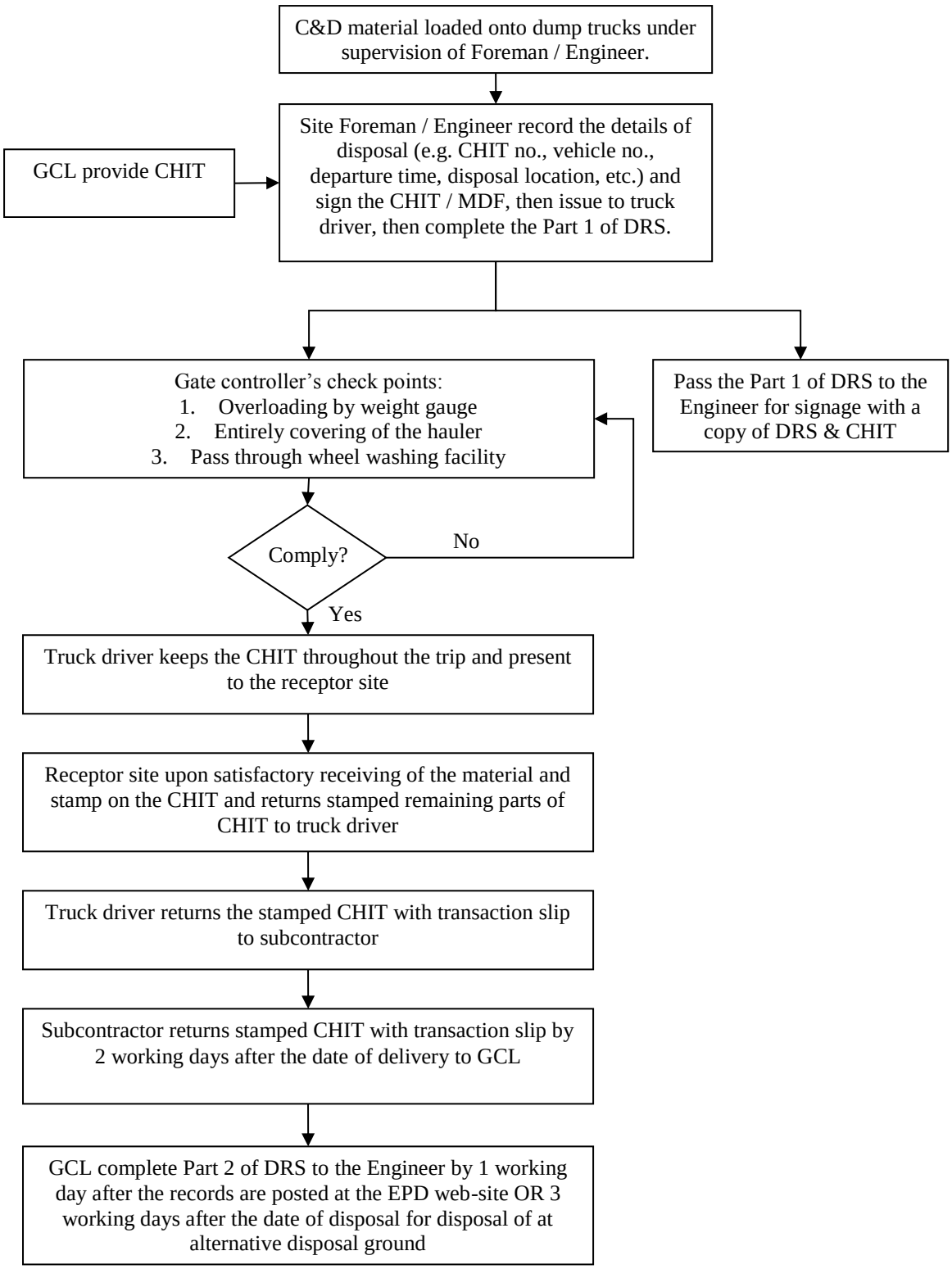
Item No.	Description of Works Process or Activity [see note (a) below]	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber Used (m^3)	Actual Quantities used (m^3)	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
		Total Estimated Quantity of 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 Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with PS Section 1 Clause 1.99 (5).

APPENDIX H

Control Procedures on Off-Site Disposal of C&D Materials

CONTROL PROCEDURES ON OFF-SITE DISPOSAL OF C&D MATERIALS



APPENDIX I

Sample of CHIT Form, Purpose-Designed Trip-Tickets

入帳票編號:
Chit No.:

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:

- ☐ 堆填區 Landfills
- ☐ 篩選分類設施 Sorting Facilities
- ☐ 公眾填料接收設施 Public Fill Reception Facilities
- ☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark:

使用日期:
Date of Use:

簽發人:
Issued by:

建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

帳戶編號:
Account No.:

甲部份：由帳戶戶主保留
Part A: retained by Account-holder

入帳票編號:
Chit No.:

選擇「✓」一個訂明設施:
Tick (✓) One Prescribed Facility:

- ☐ 堆填區 Landfills
- ☐ 篩選分類設施 Sorting Facilities
- ☐ 公眾填料接收設施 Public Fill Reception Facilities
- ☐ 離島廢物轉運設施 Outlying Islands Transfer Facilities

車牌號碼 Vehicle Registration Mark:

使用日期:
Date of Use:

簽發人:
Issued by:

建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

帳戶編號:
Account No.:

乙部份：由廢物運輸商保留
Part B: retained by Waste Hauler

香港法例第354章廢物處置條例
廢物處置(建築廢物處置收費)規例
Waste Disposal Ordinance (Chapter 354)
Waste Disposal (Charges for Disposal of Construction Waste) Regulation

載運入帳票
CHIT

車牌號碼:
Vehicle Registration Mark:

有效期至:
Valid Until:

建築廢物產生地點:
Construction Waste Generated Site:

帳戶名稱:
Name of the Account-holder:

丙部份：由政府保留
Part C: retained by Government

E 199279

Gammon

Gammon

Internal Material Transfer Form
物 料 內 運 記 錄 表

IN-012345

工作編號： J3728

合約編號/名稱： 屯門至赤鱲角連接路 – 北面連接路隧道大樓及機電工程

有關分判: _____

日期: _____ 車牌: _____

物料: 泥 / 石 / 瀝青皮 / 石矢頭 / 其他: _____

盛載量: 全滿 / 四分三滿 / 半滿 / 四分一滿

泥 口	泥 尾
分區：1 / 2 / 3 / 4 / 5 / 6 / Fdn/Rm/WA1/WA3/WA4	分區：1 / 2 / 3 / 4 / 5 / 6 / Fdn/Rm/WA1/WA3/WA4

簽發 /簽收蓋印: _____

（白色） 泥口 正本	（粉紅） 司機/ 分判 副本	（黃色） 泥尾 副本	（綠色） 顧問公司 副本

註: 分區 1 - 青龍頭　分區 3 - 三號幹線　分區 5 - 汀九橋及油柑頭橋
分區 2 - 深井　分區 4 - 德福橋　分區 6 - 荃灣

8001 Rev 2　Feb 2010

Gammon

Material Delivery Form
物 料 運 載 記 錄 表

Serial No. 序號： EX-012345

Contract No./Title : 合約編號/名稱：	HY/2017/10 Tuen Mun Chek Lap Kok Link – Northern Connection Buildings, E&M Works HY/2017/10 屯門至赤鱲角連接路 – 北面連接路隧道大樓及機電工程				
Main Contractor : 總承建商：	Gammon Construction Limited 金門建築有限公司				
Date 日期：		Vehicle No.車牌:		Vehicle Type 類別:	24 / 30 Tonne噸
Material Type 物料類別：	Excavated materials/ broken concrete/ broken asphalt/ rocks/_____ 挖掘物料/ 石矢頭/ 瀝青皮/ 石料/_____				
Approx. load 盛載量：	Full / three quarter / half / one quarter 全滿 / 四分三滿 / 半滿 / 四分一滿				

	Generation Spot 出泥點		Reception Site 收泥點
Sub-Contractor 分判商：		Sub-Contractor 分判商：	
From 由：	WA4 stockpile/ LT Quarry/_____ 小欖存放區/ 藍地礦場/ _____	To 到：	LT Quarry /_____ 藍地礦場/_____
Departure Time 出車時間：		Arrival Time 到達時間：	
Authorized Stamp / Signature (Name) 授權蓋印 / 簽名 (姓名)		Authorized Stamp / Signature (Name) 授權蓋印 / 簽名 (姓名)	

(白色 white) Original Copy 正本	(綠色 green) ER's Copy 顧問公司副本	(粉紅 pink) S/C's Copy 分判商副本	(黃色 yellow) Receptor's Copy 接收者副本	(藍色 blue) Issuer's Copy 簽發者副本

APPENDIX J

Protocol of Guidelines to Dump Truck Drivers

合約編號 HY/2017/10
屯門至赤鱲角連接路 –
北面連接路隧道大樓及機電工程
泥車離開地盤環保要點

運泥車於離開地盤前，司機需注意事項：

1. 運泥車上的建築廢物已經篩選分類；
2. 離開地盤範圍前必須確保機動蓋掩或使用帆布完全蓋好車斗。否則需卸下物料並離開地盤；
3. 離開地盤範圍前檢查磅錶，切勿超越負荷；
4. 離開地盤範圍前必先沖洗車轆；
5. 已填好運載記紀錄票上的所有資料；及
6. 必須將運載記錄票上的第一聯交給駐地盤監工人士，方可離開。

本人明白上述環保要點，並會遵守。

簽名：
司機姓名：
公司名稱：
車牌：
日期：

APPENDIX K

Sample of Daily Record Summary

A sample of "Daily Record Summary" to record daily disposal of construction & demolition (C&D) materials from the Site

(1) Contract no. & title: HY/2017/10 - Tuen Mun Chek Lap Kok Link – Northern Connection Tunnel Buildings, E&M Works

(2) Date of disposal: _____

(3) Designated disposal ground(s): (a)
(b)
others

(4) Approved alternative disposal grounds: _____

CHIT / DDF Serial no.	Vehicle registration mark	Approx. vol. (e.g. Full/ Three Quarter/ Half/ One Quarter	C&D material type (e.g. inert or non inert)	Disposal ground	Signature & Name of the GCL's Designated person before departure	Departure time from site	Signature & Name of the Engineer's staff before departure or other time as agreed between Engineer's Representative and the GCL[1]	Actual disposal ground	Arrival time at disposal ground	Remark

←----------Part 1 [2] ----------→ ←----------Part 2 [3] ----------→

Submitted by: _____ Name of GCL's Designated Person
Signature: _____
Date: _____
Received by: _____ Name and Signature of the Engineer
Post: _____
Date & Time _____

Remark:

1) For the term contract, if there are no full time site supervisory staff, the Engineer's Representative should spot check and then sign as appropriate in accordance with paragraph 25 of DEVB TC(W) 6/2010.
2) Part 1 - The GCL shall complete Part 1 in duplicate and a copy should be kept by the Engineer's Representative.
3) Part 2 - The GCL shall complete Part 2 and submit the whole summary to the Engineer's Representative within 1 working days after the records are posted at the EPD website.