FORM 5

[redacted]

Application No. : [redacted]
Reference No. :
(For official use)

FORM 5
ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE
(CHAPTER 499)
SECTION 13(1)

Application for Variation of an Environmental Permit

PART A PREVIOUS APPLICATIONS

☐ No previous application for variation of an environmental permit.

☒ The environmental permit was previously amended.

Application No. : 2

PART B DETAILS OF APPLICANT

B1. Name : (person or company)

Hong Kong Shooting Association

[Note : In accordance with section 13(1) of the Ordinance, the person holding an environmental permit or a person who assumes responsibility for the designated project may apply for variation of the environmental permit.]

B2. Business Registration No. : (if applicable) [redacted]

B3. Correspondence Address : [redacted]

B4. Name of Contact Person : [redacted]

B5. Position of Contact Person : [redacted]

B6. Telephone No. : [redacted]

B7. Fax No. : [redacted]

B8. E-mail Address : (if any) [redacted]

PART C DETAILS OF CURRENT ENVIRONMENTAL PERMIT

C1. Name of the Current Environmental Permit Holder :

Hong Kong Shooting Association

C2. Application No. of the Current Environmental Permit : EP-307/2008/A

C3. The Current Environmental Permit was Issued in : month / year

0 4 / 2 0 1 4

Important Notes : Please submit the application together with

(a) 3 copies of this completed form; and

(b) appropriate fee as stipulated in the Environmental Impact Assessment (Fees) Regulation

to the Environmental Protection Department at the following address :

The EIA Ordinance Register Office,
27th floor, Southorn Centre,130 Hennessy Road,
Wan Chai, Hong Kong.

RECEIVED
30 APR 2019
EIAO Register Office, E.P.D.

☐ Tick (✓) the appropriate box

PART D PROPOSED VARIATIONS TO THE CONDITIONS IN CURRENT ENVIRONMENTAL PERMIT

D1. Condition(s) in the Current Environmental Permit :	D2. Proposed Variation(s) :	D3. Reason for Variation(s) :	D4. Describe the environmental changes arising from the proposed variation(s) :	D5. Describe how the environment and the community might be affected by the proposed variation(s) :	D6. Describe how and to what extent the environmental performance requirements set out in the EIA report previously approved or project profile previously submitted for this project may be affected :	D7. Describe any additional measures proposed to eliminate, reduce or control any adverse environmental impact arising from the proposed variation(s) and to meet the requirements in the Technical Memorandum on Environmental Impact Assessment Process :
2.7	To minimize noise and air quality impacts during operation of the Project, solid fence wall shall be erected on three sides of all outdoor shooting range shown in Figure 3 (except the rear side of the shooting place). The solid fence wall shall be at least 3.5m high with a material density of at least 20kg/m2 such as timber baffles.	Interim open shooting range has been introduced and with different arrangement on the solid fence wall when compared with the proposed outdoor shooting range. This condition is amended to distinguish the requirement for proposed outdoor shooting range (permanent in nature) from the interim open shooting range.	There is no environmental change.	The environment and community would not be affected by the proposed variation.	The environmental performance requirements set out in the project profile previously submitted will not be affected.	No additional measure is proposed based on the proposed variation.
2.10	To minimise landfill gas hazard during operation of the Project, all enclosed buildings within the Project site shall be raised clear of the ground with a clear separation distance between the floor slab and the ground of at least 100mm.	Based on constructional consideration and air ventilation performance, it is considered that the raised floor of minimum 100mm can serve to allow adequate ventilation to avoid LFG accumulation and minimise the cost of construction.	There is no environmental change	The environment and community would not be affected by the proposed variation.	The environmental performance requirements set out in the project profile previously submitted will not be affected.	No additional measure is proposed based on the proposed variation.
2.14 (additional condition)	The interim open shooting range as shown in Figure 2 will cease operation no later than year 2021 and upon commencement of operation of the proposed outdoor shooting range shown in Figure 3.	Interim open shooting range has been introduced. The condition is added to ensure that the interim open shooting range would not operated concurrently with the proposed outdoor shooting range which is permanent in nature. Otherwise, the cumulative environmental impact due to their concurrent operation will increase.	There is no environmental change	The environment and community would not be affected by the proposed variation.	The environmental performance requirements set out in the project profile previously submitted will not be affected.	No additional measure is proposed based on the proposed variation.
2.15 (additional condition)	Three diesel powered generators will be housed inside E&M Services Block as shown in Figure 3 and operate before commencement of transformer facilities onsite.	Generators have been introduced to serve the proposed outdoor shooting range due to the fact that transformer facilities will be implemented in later phase.	The increased environmental impact on the surrounding due to the operation of generator housed indoors is insignificant.	The environment and community would not be affected by the proposed variation.	The environmental performance requirements set out in the project profile previously submitted will not be affected.	The generators will be housed indoors and will employ diesel with ultra low sulphur content according to relevant regulations.

PART E DECLARATION BY APPLICANT

E1. I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental permit may be suspended, varied or cancelled if any information given above is false, misleading, wrong or incomplete.

[redacted] [redacted] [redacted]

Signature of Applicant | Full Name in Block Letters | Position

on behalf of Hong Kong Shooting Association 29 Apr 2019

Company Name and Chop (as appropriate) Date

NOTES :

1. A person who constructs or operates a designated project in Part I of Schedule 2 of the Ordinance or decommissions a designated project listed in Part II of Schedule 2 of the Ordinance without an environmental permit or contrary to the permit conditions commits an offence under the Ordinance and is liable to a maximum fine of $5,000,000 and to a maximum imprisonment for 2 years.

2. A person for whom a designated project is constructed, operated or decommissioned and who permits the carrying out of the designated project in contravention of the Ordinance commits an offence and is liable to a maximum fine of $5,000,000 and to a maximum imprisonment for 2 years.

Environmental Review for Proposed Shooting Range at Pillar Point Valley Landfill

Prepared by:

Hong Kong Shooting Association

Date:

April 2019

Reference Number:
20190429_R1515_V3.3

Prepared by:

Anna Lee
Project Manager

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1. Introduction

1.1 Background of the Project

1.1.1 A project profile for application for permission to apply directly for an Environmental Permit under Environmental Impact Assessment Ordinance (Application No.: DIR-164/2008) for the proposed shooting range at Pillar Point Valley Landfill (PPVL) (see **Figure 1**) was submitted on 25/3/2008 (hereafter referred as the Project Profile). An Environmental Permit (EP) (No. EP-307/2008) was granted by the Director of Environmental Protection (DEP) to Hong Kong Shooting Association (HKSA) (the Permit Holder) on 11/6/2008.

1.1.2 The proposed shooting range related facilities are distributed in two sites, Site A and Site B. Site A occupies mainly the PPVL waste area (the entire southern platform on the southern side of Tsing Shan Firing Range) and a part of the waste slope (for management by the project proponent assigned by the Government according to the usual practice). The southern portion of the PPVL will be occupied for the construction and operation of the proposed shooting range.

1.1.3 Other facilities including pump house and transformer room are located at Site B between PPVL and the existing EPD's PPVL site office, which is of a separation distance of more than 360m from Site A.

1.1.4 According to the Project Profile, there were three types of shooting ranges and associated facilities included in the proposed development:

- Two numbers of 10m indoor air pistol shooting ranges each with 30 lanes (1 lane for 1 user);
- One number of 25m pistol outdoor shooting range with a total of 60 lanes (1 lane for 1 user);
- One number of 50m rifle outdoor shooting range with a total of 60 lanes (1 lane for 1 user); and
- an office-cum-clubhouse building and lavatory/beverage house

1.1.5 Within the proposed shooting range, there is restriction on types of weapons permitted to be used. Permitted weapons include: air pistol (0.177 inch calibre), pistol (0.22/0.32 inch calibre), rifle (0.22 inch calibre), full bore rifle (7.62 mm calibre). Air pistol will be used inside the indoor shooting range whereas other weapons will be used outdoors in open shooting range. Possible types of shooting positions include standing, kneeling and proneness (shooter lying on the long bench positioned at the shooting location at the raised floor platform).

1.1.6 The proposed shooting range will operate from 7:00 a.m. to 10:30 p.m. (day and evening time). That is, no night-time operation (11:00 p.m. to 7:00 a.m.) will be allowed for the proposed shooting range (including open and indoor shooting range facilities).

1.1.7 Utilities were proposed to be laid on ground or underground (installed by shallow excavation of not more than 300mm and refilling afterwards). No manholes would be provided. In addition to the buildings and utilities, the existing access road would be modified to provide proper access for coach and other smaller vehicles.

1.1.8 The previous master layout plan (MLP) proposed in the Project Profile for Site A is shown in **Appendix A**.

1.2 Background of the Proposed Variation

1.2.1 The shooting range is originally proposed to provide facilities for shooting event in the 2009 East Asian Games and as a permanent venue for training and promotion of shooting activity in Hong Kong. However, due to problem to meet the schedule to apply for funding, the venue cannot be completed in time to cater for the 2009 East Asian Games. Nevertheless, the detailed design of the proposed shooting range as the permanent venue for training and promotion of shooting activity is still ongoing.

1.2.2 Based on the detailed design of the shooting range, the boundary of the application site (Site A) has been fine-tuned and the area of the site is slightly adjusted from 4.4 ha to 4.5 ha based on the land license (see **Appendix B**). Recently, there is further refinement of the detailed design scheme. It is considered that the utilization of the indoor air pistol shooting range will likely be low as there are other existing indoor air pistol shooting ranges in Hong Kong at more convenient locations. Therefore, the provision of indoor air pistol shooting range is not necessary and discarded. In addition, the scale of the outdoor shooting range has been slightly reduced in order to comply with the latest International Shooting Sport Federation (ISSF) standard where the previous MLP in the EP may not accommodate during early stage of design. It is notable that a Section 16 planning application for the revised MLP with the scale of the outdoor shooting range reduced has been submitted. The application was approved by Town Planning Board according to the letter (Ref.: TPB/A/TM/395 dated 5 March 2010).

1.2.3 Moreover, there is a change of permitted weapons for outdoor shooting range according to the latest requirement of HKSA.

1.2.4 On the other hand, a "Detailed Qualitative Landfill Gas Hazard Assessment for Proposed Shooting Range at Pillar Point Valley Landfill" was submitted for the purpose to discharge relevant lease and planning approval condition and approved by EPD (letter ref.: EP 185/01/E-001 dated 8 September 2010). In this detailed assessment report, the recommendations in Section 7.3 of the report titled "Passive Venting of Soil Gases Beneath Buildings Research Report - Guide for Design – Volume I" published by Department of Environment, Transport and the Regions in the UK was taken into account. The depth of an open void ventilation layer of not less than 100mm was considered adequate and proposed for the raised floor design of the proposed enclosed buildings.

1.2.5 In addition, it is notable that Hong Kong Rifle Association (HKRA) will cease operation in Hong Kong soon. After cessation, they will no longer operate the existing outdoor shooting range facilities including 25m and 50m open shooting range. It is anticipated that there will be shortage of open shooting range facilities before the proposed open shooting range at PPVL comes into operation. In order to cater for demand after cessation of existing open shooting range operated by HKRF, two bays of interim open shooting ranges are proposed and will operate until commencement of the proposed shooting range at PPVL (i.e. there will not be simultaneous operation of the interim open shooting range and the proposed shooting range). The interim open shooting range serves to provide shooting facilities before the availability of the proposed shooting range. The permitted weapons of the interim open shooting range are the same as the proposed open shooting range. The operating period is limited to 7:00 – 18:00. This interim open shooting range will cease operation upon the proposed shooting range commences operation and there will be no concurrent operation of the interim and proposed shooting ranges.

1.2.6 During the operation of the proposed shooting range and before the commencement of transformer room, the proposed shooting range (excluding interim open shooting range) will rely on diesel generator to provide electricity. The diesel generator will serve for emergency power supply

purpose afterwards. It is notable that during operation of the interim open shooting range, diesel generator will not be used.

1.3 Objectives of this Environmental Review

1.3.1 While the MLP for the proposed shooting range has been revised, the shooting range facilities still do not have any conflict with existing PPVL facilities. The buffer separation distances between the facilities and environmental sensitive receivers offsite are generally the same. With respect to the Environmental Permit (No. EP-307/2008), all conditions are considered applicable to the latest MLP of the proposed shooting range.

1.3.2 On the other hand, as a result of introduction of interim open shooting range, additional condition should be imposed to limit the operation and ensure that all necessary environmental mitigation measures, similar to those of the proposed shooting range will be implemented upon the construction and operation of this interim open shooting range.

1.3.3 In addition, the permitted weapons are updated and it is necessary to assess if there is any adverse environmental impact under the worst case scenario due to change of permitted weapons.

1.3.4 In order to proceed with the proposed changes for Proposed Shooting Range at Pillar Point Valley Landfill, the Permit Holder should apply for a variation of EP-307/2008 pursuant to Section 13 of the Environmental Impact Assessment Ordinance (EIAO).

1.3.5 In accordance with Section 13(5) of EIAO, DEP may amend the EP without calling for an EIA report if the applicant satisfies him that (a) there is no material change to the environmental impact of the project with mitigation measures in place; and (b) the project complies with the requirements described in the technical memorandum.

1.3.6 Section (6) of the EIAO-TM describes the criteria that are considered in evaluating whether a physical addition or alternation to a designated project is regarded as a material change. The EIAO-TM specified that material change should refer to significant changes only.

1.3.7 This Environmental Review (ER) was prepared to facilitate the Application for Variation of the EP-307/2008.

1.3.8 This ER evaluated the environmental impact due to the introduction of the interim open shooting range, verified and reassessed potential environmental impact due to change of permitted weapons, in order to determine whether the proposed changes of operation would result in a material change to the environmental impacts of the project with additional or revised mitigation measures in place, and whether the criteria and guidelines specified in the EIAO-TM are satisfied.

1.4 Proposed Variation of Environmental Permit

1.4.1 Based on the proposed variation, the project comprises a) two interim outdoor shooting ranges; to be replaced by b) two outdoor 50m rifle shooting range (60 users maximum); and c) one outdoor 25m pistol shooting range (60 users maximum) with 3 bays with 4 sets of targets in each bay.

1.4.2 *Figure 2* of the EP will be added to indicate the interim open shooting range whereas *Figure 3* will be updated to indicate the revised MLP. The scale and scope of work is proposed to be revised as: two interim open shooting range which will be replaced by two outdoor 25m pistol shooting ranges and two outdoor 50m rifle shooting ranges.

1.4.3 Conditions 2.7 and 2.10 are proposed to be revised and additional conditions 2.14 and 2.15 are proposed below where *Figure 2* refers to the interim open shooting range (i.e. **Figure 3** of this report) and *Figure 3* refers to the proposed shooting range comprising two outdoor 25m pistol shooting ranges, 2 outdoor 50m rifle shooting ranges and associated facilities (i.e. **Figure 4** of this report).

2.7	To minimize noise and air quality impacts during operation of the Project, solid fence wall shall be erected on three sides of all outdoor shooting range shown in *Figure 3* (except the rear side of the shooting place). The solid fence wall shall be at least 3.5m high with a material density of at least 20kg/m^2 such as timber baffles.
2.10	To minimise landfill gas hazard during operation of the Project, all enclosed buildings within the Project site shall be raised clear of the ground with a clear separation distance between the floor slab and the ground of at least *100mm*.
2.14	The interim open shooting range as shown in *Figure 2* will cease operation no later than year 2018 and upon commencement of operation of the proposed outdoor shooting range shown in *Figure 3*.
2.15	Three diesel powered generators will be housed inside E&M Services Block as shown in *Figure 3* and operate before commencement of transformer facilities onsite.

2. Proposed Change

2.1 Proposed Shooting Range

2.1.1 The area of the application site is adjusted from about 4.4ha to 4.5ha, which does not have any implication on the details of the shooting range facilities.

2.1.2 On the other hand, according to the latest MLP, the proposed shooting range would exclude the 10m indoor shooting range and include other similar type of facilities as shown in the Project Profile and Environmental Permit (No. EP-307/2008) comprising two outdoor 25m pistol shooting ranges (respectively with 2 bays and 1 bay) with a total of 3 bays to accommodate a maximum of 60 shooters, two outdoor 50m rifle shooting range with a total of 40 lanes to accommodate a maximum of 40 shooters, and supporting facilities to accommodate E&M equipment, office, beverage, etc. The disposition and scale of individual facilities have been revised. Similar as before, all target plates of the outdoor 25m and 50m shooting ranges will be on the eastern side.

2.1.3 In addition, two interim open shooting ranges are proposed and will operate until the commencement of operation of the permanent shooting range.

2.2 Interim Open Shooting Range

2.2.1 The two interim open shooting ranges (ISR1 & ISR2) are located at the foot hill near to the eastern boundary of Site A. There is no existing monitoring well, vent, settlement marker and other aftercare facilities within the footprint of these two ranges. The locations of these two ranges are bounded by topography on at least 2 sides to act as shielding so that it would not be subject to excessive wind. All target plates are on the eastern side nearest to the foot fill. ISR1 is of 30m long and 20m wide. ISR2 is of 20m long and 15m wide. Each range can cater for not more than 20 people simultaneously. No generator will be used during the operation of the interim open shooting range. Therefore, the operation of the interim open shooting range is restricted to daytime when natural daylight is adequate. It is notable that there is no building structure (e.g. office, arms and ammunition store) built upon operation of the interim open shooting range except for chemical toilets and a container to store wooden planks, target plates and sandbags used for the interim open shooting range.

2.2.2 Each of these two interim open shooting ranges will be erected with wooden planks of maximum 8 feet high on two sides and with sandbag stacked to 8 feet high on the rear side of the target area as backstop to catch the bullets. As existing and planned noise and air sensitive uses are distant apart, the interim open shooting range does not rely on the wooden planks as environmental mitigations against noise and air quality impact. The design loading of not more than 60kN/m^2 will be complied with. The wooden planks will be fixed by means of wooden frame and heavier weight (e.g. sandbag) to withstand natural wind load in normal situation. The wooden planks will be setup daily and laid on ground with sandbag on top at the end of operation of each day. Upon and during adverse weather condition, there will be no operation of the interim open shooting range. The interim open shooting ranges will cease operation no later than year 2021 and upon commencement of operation of the proposed outdoor shooting range.

2.3 Summary of Change

2.3.1 The components included in the previous MLP shown in EP and latest MLP (including the interim open shooting range) are summarized in **Table 1**.

Table 1 Comparison of Components and Operational Details of the Proposed Shooting Range based on Previous and Latest MLP

MLP shown in Project Profile and EP (No. EP-307/2008) (Appendix A refers)	**Interim Open Shooting Range (Figure 3 refers) and Latest MLP (Figure 4 refers)**
Two numbers of indoor 10m air pistol shooting range to accommodate a total of 60 lanes (1 lane for 1 user) near the western side in the application site	No indoor air pistol shooting range provided
One number of outdoor 50m rifle shooting range to accommodate 60 lanes (1 lane for 1 user) near the eastern side in the application site	Two numbers of outdoor 50m rifle shooting ranges to accommodate a total of 40 lanes (1 lane for 1 user) near the western side in Site A
One number of outdoor 25m rifle shooting range to accommodate 60 lanes (1 lane for 1 user) at the central part in Site A	Two numbers of outdoor 25m pistol shooting ranges to accommodate 3 bays (with 4 sets of targets in each bay*) at the south-central part in Site A to comply with latest ISSF standard.
(i) One office-cum-clubhouse building near the northwestern side; and (ii) one lavatory/beverage house at the south-central part in Site A	(i) One reception cum arms & ammunition block near the northwestern side; (ii) one E&M services block near the southern side in Site A
Permitted weapons include: air pistol (0.177 inch calibre), pistol (0.22/0.32 inch calibre), rifle (0.22 inch calibre), full bore rifle (7.62 mm calibre).	Permitted weapons include: pistol (0.22/0.32 inch calibre), rifle (0.22 inch calibre), full bore rifle (7.62 mm calibre); and newly added weapons including pistol (calibre from .177, .38, .40, .41, .44, to .45), shotgun (for shotshells ranged from 0 to 9 (including 00))
Raised floor design adopted for enclosed building with clear separation of 500mm	Raised floor design adopted for enclosed building with clear separation of at least 100mm taking into account uneven ground surface onsite which is based on constructional consideration and air ventilation performance (please refer to para.3.7.4)
No diesel powered generator needed.	Interim diesel powered generator at Site A to provide electricity supply during commissioning of proposed shooting range and before operation of transformer room, and as emergency power supply afterwards.
No interim open shooting range.	Two bays of interim open shooting ranges at Site A (cease operation upon commencement of the proposed shooting range).
** each bay area can cater at most 20 users at one time and targets are shared among the users in the games*	

2.3.2 As observed, the disposition of all these facilities is different from previous one. The 10m indoor shooting range is removed and designed capacity of the 50m outdoor shooting range is reduced. The definition of the outdoor 25m pistol shooting range has been revised according to the

ISSF standard. However, the equivalent capacity of the outdoor 25m pistol shooting ranges is the same as before.

2.3.3 Two interim open shooting ranges will be established on the eastern side of the site (see **Figure 3**). The interim open shooting range will operate during construction of the proposed shooting range and will cease operation upon operation of the proposed shooting range.

2.3.4 Similar as before, all proposed outdoor shooting ranges will be fenced on three sides (except the rear side of the shooting place). All existing landfill facilities (e.g. gas well, extraction well, vent pipe) will not be affected. For the interim shooting range which is of target facing the foot hill, it will be fenced on two sides.

2.3.5 Based on the latest MLP, there will be no gas well underneath the proposed building/structure. There will only be 1 gas well within the open ground area of the outdoor 25m shooting range based on the latest MLP (versus 3 gas wells within the outdoor shooting range in the previous MLP).

2.3.6 On the other hand, additional buildings have been introduced in the detailed design stage to cater for E&M services.

2.3.7 To cater for operation of the proposed shooting range during early phase of the project before the operation of the proposed transformer facilities, diesel-powered electricity generators will be provided onsite. After the operation of the transformer facilities, the generators will be retained for emergency use only. There will be three diesel-power electricity generators to be installed in the proposed E&M services block (location is shown in **Figure 4)**. The concerned generator will include one 24kVA generator, one 80kVA generator, and one 150kVA generator. The proposed 24kVA and 80kVA generators will be for normal use of the shooting range, while the 150kVA generator is reserved for Fire Services loading.

2.3.8 In addition, a detailed qualitative landfill gas hazard assessment was submitted and approved by EPD. According to the detailed assessment, the landfill gas migration mitigation measures have been revised.

2.4 Tentative Implementation Programme

2.4.1 The proposed shooting range will be implemented in phased manner. A tentative programme is shown below.

Table 2: Tentative Planning and Implementation Programme

Planning and Implementation Activities	Period
EPD endorsement on Environmental Matters of Shooting Range	15 Mar 2014 – 30 Mar 2014
Processing of interim shooting range order by Hong Kong Police	30 Mar 2014 – 30 Apr 2014
Granting of environmental permit	30 Mar 2014 – 30 Apr 2014
Construction of interim open shooting range	30 Apr 2014 – 30 May 2014
Detailed Design of proposed outdoor shooting range	30 Mar 2014 – 30 Jul 2014
Fund raising for Phase 1	31 Jul 2014 – 31 Dec 2014
Construction of the proposed outdoor shooting range development (Phase 1) including one number of 25m outdoor shooting ranges*; reception cum arms & ammunition store; E&M services block; open carpark; and EVA in Site A	1 Sep 2015 – 1 Sep 2016
Fund raising for Phase 2	1 Nov 2015 – 1 Sep 2016

Construction of the shooting range development (Phase 2) including 50m outdoor shooting range in Site A	1 Sep 2016 – 1 Jun 2017
Construction of transformer room and pumphouse in Site B.	1 Jun 2017 – 1 Sep 2017
** 2 bays of the 25m outdoor shooting range are planned for Phase 1; other facilities may be provided subject to actual demand*	

3. Appraisal of Individual Environmental Impact due to the Proposed Change

3.1 Construction Phase Environmental Impacts

3.1.1 There is no building constructed and no powered mechanical equipment involved in construction of the interim open shooting range. There is no earthmoving and other dusty activity. The location of the interim open shooting range does not contain any rare and or protected plant species. The construction of the interim open shooting range would involve delivery of wooden planks, target, sandbag, container, chemical toilet, etc. to the site only and therefore is not envisaged to generate any significant environmental impact.

3.1.2 On the other hand, the proposed change may result in longer construction duration due to phased implementation of the proposed outdoor shooting range. In all circumstances, the proposed outdoor shooting range would only involve construction of a few single-storey buildings and will be to a limited extent (especially due to the removal of the 10m indoor shooting range) which would unlikely generate significant noise, air and water quality impact during its construction. Similar to the previous MLP, there will be no net fill materials generated during construction of the project and negligible construction and demolition materials expected. Therefore, the proposed change would unlikely result in any significant environmental impact on the surroundings.

3.1.3 Recommendations in the Project Profile and relevant conditions (2.3 to 2.5 and 2.13) in the Environmental Permit (No. EP-307/2008) regarding construction of the project are still applicable. The Contractor responsible for construction of the proposed shooting range shall observe and comply with relevant ordinance and regulations and devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise, air and water quality impacts on the surrounding environment as well as impact due to waste generation, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.

3.1.4 The implementation schedule of proposed environmental measures in the approved Project Profile is also provided in **Appendix C**. No update of the implementation schedule regarding construction phase environmental mitigation measures is considered necessary.

3.2 Operational Phase Noise Impact

Noise Sensitive Receiver (NSR)

3.2.1 Two NSRs (one existing village and a proposed holiday camp site) were selected for noise assessment in the previously approved Project Profile (locations of the NSRs are shown in Figure 1 in **Appendix A**). According to the approved Project Profile, the nearest existing residential use is the village at Tsing Shan Tsuen San Shek Wan South which is at the western periphery of Tuen Mun district. The village is elevated at about +70 to +80 mPD and is completely shielded from the proposed shooting range by the hill of up to +330 mPD. The horizontal separation distance between the shooting range and the village amounts to about 940m. A Tung Wah Group of Hospital Youth Holiday Camp was previously planned at Siu Lang Shui near the restored Siu Lang Shui landfill to the southwest of the shooting range and is elevated at about +50 to +70 mPD. The horizontal separation distance from the shooting range amounts to nearly 1.1km. Moreover, the holiday camp is also shielded from the shooting range by a hill of up to about +245mPD.

3.2.2 The current status of the above NSRs has been reviewed. Field visit was also undertaken on 29th October 2010. Surrounding environs of the proposed shooting range are found to be similar to the approved Project Profile. Planning status of the holiday camp has also been confirmed with Planning Department in October 2010. Since the concerned planning application is withdrawn, the planned holiday camp is not considered further in this assessment. As there is no other planned noise sensitive uses in the area, the existing Tsing Shan Tsuen San Shek Wan South village is selected for this noise assessment.

Noise Standard

3.2.3 According to the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM), the noise criteria should be (a) 5 dB(A) below the appropriate acceptable noise levels (ANL) shown in Table 3 of the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Site (TM-1), or (b) the prevailing background noise levels (For quiet areas with level 5dB(A) below the ANL). The ANL for a given NSR depends on the time period and area sensitivity rating according to the TM-1.

3.2.4 As discussed earlier, the village at Tsing Shan Tsuen San Shek Wan South is selected for operational noise assessment. Based on field observation, there is no obvious change in the surrounding environs of the village. The standard applied in the approved Project Profile (i.e. Leq(30min) daytime 55dB(A)) is adopted in this study.

Operational Noise Assessment

3.2.5 As discussed in **Section 2** above, the proposed change in the latest MLP would result in reduction of the scale of the shooting range. All other operational characteristics including operation time, frequency of shooting, as well as noise mitigation measures against noise due to gunshots are not affected.

3.2.6 As mentioned, interim open shooting range is introduced in the latest MLP. Similarly, no night time operation is permitted for the interim open shooting range as well. **Appendix D** shows the interim open shooting range order (which should be strictly followed for its operation) which indicates the operation hours of the interim open shooting range. The interim open shooting range will have lower capacity than the proposed shooting range. In addition, there will not be any generator in operation during operation of the interim open shooting range.

3.2.7 Moreover, the interim open shooting range will cease operation upon commencement of operation of the proposed outdoor shooting range so that environmental impact due to the interim open shooting range will be less significant that the proposed shooting range.

3.2.8 On the other hand, the permitted weapons for the interim and proposed outdoor shooting range are updated which include the originally permitted weapons: pistol *(calibre.22, .32)* & rifle *(.177, .22 only)*; and newly added weapons: pistol *(calibre from .177, .38, .40, .41, .44, to .45)* & shotgun *(for shotshells ranged from 0 to 9 (including 00))*.

3.2.9 In previous noise measurement exercises (carried out for air pistol, .22 rifle, 9mm pistol, .45 pistol, .22 pistol, .32 pistol and .38 revolver), pistol of range up to .45 was measured. It means that the noisiest weapon among the newly added pistol has already been covered. Additional gunshot noise measurement exercises were conducted on 18/10/2013 and 25/10/2013 to measure noise generated by newly introduced shotgun not covered in previous noise measurement exercise. **Appendix E** shows details of noise test results.

3.2.10 The consolidated measurement result for gunshot noise is summarized in **Table 3**.

Table 3: Summary of Gunshot Noise Measurement Results

Weapon	Maximum SEL per Shot	Distance of Measurement	Applicable Shooting Range
Air pistol (measured before)	91.7 dB(A)	2m	No indoor 10m shooting range (NA)
.22 rifle (measured before)	**105.0 dB(A)**	2m	50m & interim open shooting range
9mm pistol (measured before)	113.7 dB(A)	2m	25m & interim open shooting range
.45 pistol (measured before)	**114.4 dB(A)**	2m	25m & interim open shooting range
.22 pistol (measured before)	105.4 dB(A)	2m	25m & interim open shooting range
.32 pistol (measured before)	106.3 dB(A)	2m	25m & interim open shooting range
.38 revolver (measured before)	110.5 dB(A)	2m	25m & interim open shooting range
Shotgun (shotshell 00)^	102.8 dB(A)	2m	50m & interim open shooting range
Shotgun (shotshell 6)^	103.7 dB(A)	2m	50m & interim open shooting range
Shotgun (shotshell 7½)^	103.1 dB(A)	2m	50m & interim open shooting range
Shotgun (shotshell 9)^	102.3 dB(A)	2m	50m & interim open shooting range

* bold values are maximum Sound Exposure Level (SEL) adopted for noise assessment for individual shooting ranges; ^ based on additional noise measurement exercise

3.2.11 The effective distance between the proposed shooting range and the representative assessment point for the identified noise sensitive use (i.e Tsing Shan Tsuen San Shek Wan South Village) is 940m as shown in **Figure 1**.

3.2.12 In the approved Project Profile, it has been stated that the 10m indoor air pistol shooting range will be completely shielded so that noise after escaping from the enclosed room will unlikely be significant. Moreover, the indoor shooting range will cater for air pistol only and is much less noisy when compared with other weapons. Thus, noise impact due to the indoor shooting range was considered insignificant and not accounted for in the Project Profile. According to the current MLP, the 10m air pistol shooting range is deleted. Thus, it is not considered further in this noise assessment.

3.2.13 Although the proposed 50m outdoor shooting range will be developed in later phase and 1 out of 3 bays at the outdoor 25m shooting range will be constructed subject to demand in future, (**Table 2** refers), this noise assessment has taken into account the ultimate development scale of these facilities.

3.2.14 The scale of the 50m outdoor shooting range is reduced from 60 lanes to 40 lanes, and the maximum number of shots in 30min would be reduced from 1800 to 1200 numbers accordingly. On the other hand, as the equivalent capacity of the 25m outdoor shooting range is the same as before, the number of shots within 25m outdoor shooting range (based on the worst possible case with all 3 bays in operation) remains unchanged. Therefore, there is no worsened impact due to the proposed change.

3.2.15 It is notable that there will not be any concurrent operation of interim open shooting range and proposed outdoor shooting range. The number of shooters allowed for the interim open shooting range is fewer than the proposed outdoor shooting range. Therefore, the ultimate development scale

of the proposed outdoor shooting range is representative of the worst case scenario for the purpose of assessment.

3.2.16 The proposed outdoor shooting range is planned to rely on electricity supply from CLP Power. The electricity supply, however, cannot be available during earlier phases of the proposed shooting range operation. During such early period of operation, the proposed shooting range will rely on diesel-powered generator set. These generators will be installed inside the proposed E&M Services Block. In addition, the EM&A Services Block is elevated at about +150mPD while the Tsing Shan Tsuen San Shek Wan South Village is elevated at about +70 to +80 mPD and is completely shielded from the shooting range by the hill of up to +330mpD. Given the generators are within an enclosed building structure, and the separation distance between the E&M block and the noise sensitive use is over 940m (**Figure 1** refers) (i.e. outside the 300m radius from the boundary of the proposed shooting range), noise impact due to operation of the generators is expected to be insignificant. Nevertheless, the noise impact is quantified in this study.

3.2.17 Gunshots noise calculation is updated with cumulative noise impact due to generator evaluated in **Table 4** below or the worst case scenario (i.e. with the proposed shooting range in operation). According to the result, the overall noise level at the representative assessment point due to gunshots and generator operation will be the same when compared with that in the approved Project Profile.

Table 4 Calculation of Noise Impact at Tsing Shan Tsuen San Shek Wan South Village due to Gunshots and Generator Operation

	Approved Project Profile (DIR-164/2008)		**Current Noise Assessment**	
A. Noise due to Gunshot	**25m shooting range**	**50m shooting range**	**25m shooting range**	**50m shooting range**
Reference SEL for 1 shot	114.4 dB(A)	105.0 dB(A)	114.4 dB(A)	105.0 dB(A)
Reference distance	2m	2m	2m	2m
Number of shots in 30 min	1800	1800	1800 *	1200 *
Distance from NSR	940m	940m	940m	940m
Impulsiveness corr	+3dB(A)	+3dB(A)	+3dB(A)	+3dB(A)
Barrier corr	-15dB(A)	-15dB(A)	-15dB(A)	-15dB(A)
Façade corr	+3 dB(A)	+3 dB(A)	+3 dB(A)	+3 dB(A)
SEL in 30 min at reference distance	147.0 dB(A)	137.6 dB(A)	147.0 dB(A)	135.8 dB(A)
SEL in 30 min at NSR without correction	93.5dB(A)	84.1dB(A)	93.5 dB(A)	82.3 dB(A)
Leq in 30 min at NSR without correction	61.0 dB(A)	51.6 dB(A)	61.0 dB(A)	49.8 dB(A)
Leq in 30 min after impulsiveness, barrier and façade corr	***52.0 dB(A)***	***42.6 dB(A)***	***52.0 dB(A)***	***40.8 dB(A)***
B. Noise due to Generator Operation	No Generator		3 Generators	
Reference Sound Power Level (CNP101)^			108dB(A)	
Number of Generator			3	
Distance from NSR			940m	
Barrier Corr			-15dB(A)	
Corr for qty of generator (3 nos.)			+4.8dB(A)	
Façade Corr			+3dB(A)	
SPL at NSR without correction			40.5dB(A)	

	Approved Project Profile (DIR-164/2008)		Current Noise Assessment	
A. Noise due to Gunshot	**25m shooting range**	**50m shooting range**	**25m shooting range**	**50m shooting range**
SPL at NSR after barrier, qty and façade correction			***33.3dB(A)***	
Overall Leq in 30 min	**52.4 dB(A)**		**52.4 dB(A)**	
Applicable Standard	**55 dB(A)**		**55 dB(A)**	
Compliance with the Standard?	**Yes**		**Yes**	

* Number of shots is derived by the same method used in the approved Project Profile. The number of users that can be catered in the shooting range is multiplied by maximum number of shots per users (i.e. 5 shots in 5-minute period).

^ based on "Technical Memorandum on Noise from Construction Works other than Percussive Piling" by EPD

3.2.18 Based on the above, no unacceptable noise impact due to gunshot activities and operation of generator is anticipated. Recommendations in the Project Profile and relevant conditions in the Environmental Permit (EP-307/2008) regarding the outdoor shooting range are still valid.

3.2.19 Regarding the interim open shooting range which is of lower capacity, the noise impact due to its operation is even lower. Moreover, it is already sited near to the foothill and shielded by topography. The potential noise impact on the noise sensitive uses 940m away is even lower and considered insignificant.

3.2.20 The implementation schedule in **Appendix C** is proposed to address the interim open shooting range and installation requirement of the diesel generator sets. An additional condition shown in **Section 1.4** is recommended for variation of the EP to ensure that relevant noise mitigation measures will be implemented for the additional facilities accordingly.

3.3 Operational Phase Air Quality Impact

3.3.1 Lead-free primer mixture will be adopted for all firearm used within the proposed open shooting range including the interim open shooting range. Fencing will be provided on 3 sides of the proposed open shooting range and backstop of soft materials such as timber baffles and sand bags shall be erected behind the target plate of all outdoor shooting ranges (including interim open shooting range) to collect the bullets from gunshots as recommended in the project profile. As discussed in Section 2 above, the designed capacity of the 50m outdoor shooting range is reduced. The equivalent capacity of the 25m outdoor shooting range is the same as before. On the other hand, the capacity of the interim open shooting range is lower than the proposed one and will not operate concurrently with the proposed open shooting range. As such, air quality impact due to gunshots would unlikely be worsened as compared with the scenario in the approved project profile and EP (No. EP-307/2008). The impact is considered insignificant.

3.3.2 As discussed, the proposed shooting range will rely on diesel-powered generator set in early phase before the availability of electricity supply. There will be three diesel-powered generator sets provided (housed inside the E&M Services Block at the south end of Site A) but only two generators set will operate under normal circumstances and the third generator is reserved for fire services loading purpose only. The generator will employ diesel with ultra-low sulphur content (i.e. 0.005%) which shall be in compliance with the Air Pollution Control (Fuel Restriction) (Amendment) Regulation

2008 so that pollution due to fuel burning is not considered significant. Only limited extent of sulphur dioxide, nitrogen dioxide and particulate matter emission is anticipated from the operation of the generators. The location of the E&M Services Block is open on southeast, southwest and northwest sides and there is no building blockage so that it is considered subject to adequate ventilation so that emissions can be dispersed without hindrance. It is also located farther from the main operation area of the shooting range. In the detailed design of the E&M Services Block, chimney exhaust will be designed. In all circumstances, it is unlikely that emission from chimney would cause any adverse impact on the users. It is also confirmed that there is no existing and planned air sensitive use within 500m from the site boundary. Moreover, the site is elevated higher than nearest air sensitive uses so that pollutants dispersed upwards would unlikely affect any air sensitive uses in significant manner. No unacceptable air quality impact due to operation of the generators is envisaged. After electricity supply from CLP Power is available, the generator will be used for emergency purpose only.

3.3.3 Regarding the interim open shooting range, measures recommended in the implementation schedule in the approved Project Profile for operation of the project (i.e. use of lead free primer mixture; backdrop of soft material) is applicable. Similarly, conditions 2.8 to 2.9 of the EP are applicable as well.

3.3.4 The implementation schedule in **Appendix C** is proposed to address the interim open shooting range and operational requirement of the diesel generator sets. An additional condition shown in **Section 1.4** is recommended for variation of the EP to ensure that relevant air quality mitigation measures will be implemented for the additional facilities accordingly.

3.4 Water Quality Impact

3.4.1 Recommendations in the Project Profile and relevant conditions in the Environmental Permit (No. EP-307/2008) are still applicable.

3.4.2 The mitigation measures required for operation of the interim open shooting range is similar to the proposed shooting range stated in the approved Project Profile. During the operation of the interim open shooting range, holding tank (aboveground) and chemical toilet facilities will be designed and provided. No sewage will be discharged to the surrounding environment. All wastes will be stored using the holding tank and disposed of by waste disposal agents then. Surface channel will be constructed to collect stormwater. No discharge of wastewater will be permitted and no unacceptable water quality impact is envisaged. The holding tank facilities will be designed to have about two times of the maximum daily discharge. Arrangement will be made so that the wastewater will be disposed of daily during peak utilization period. Similarly, conditions 2.5 to 2.6 of the EP are applicable to the interim open shooting range as well.

3.4.3 The implementation schedule in **Appendix C** is proposed to address the concern on water quality impact. An additional condition shown in **Section 1.4** is recommended for variation of the EP to ensure that relevant water quality mitigation measures will be implemented for the interim open shooting range as well.

3.5 Ecological Impact

3.5.1 The proposed shooting range is located at a restored landfill site, which comprises mainly disturbed land. As discussed in Section 1.2, the boundary of the proposed shooting range is generally the same as that in the approved Project Profile. Therefore, the separation from

ecologically sensitive area presented in the Project Profile remains the same (i.e. 500m and 1.4km from the Castle Peak SSSI and Siu Land Shui SSSI).

3.5.2 The interim open shooting range is located near foothill shielded by topography which will minimise impact to offsite area.

3.5.3 The implementation schedule in **Appendix C** is proposed to address the mitigation requirement for the interim open shooting range as well. The proposed change of the project would not affect relevant conditions in the Environmental Permit (No. EP-307/2008) regarding ecological impact.

3.6 Waste Management Implication

3.6.1 As mentioned above, an aboveground sewage tank (without soakaway system) will be provided to collect effluent for disposal and will be disposed of by waste disposal agents. Cartridge casings and other debris will be collected from the shooting range daily. Recommendations in the Project Profile and relevant conditions in the Environmental Permit (No. EP-307/2008) are still applicable.

3.6.2 Regarding the interim open shooting range, measures recommended in the implementation schedule in the approved Project Profile for operation of the project (i.e. collection of cartridge casing and debris; disposal of waste in holding tank by waste disposal agent) is applicable.

3.6.3 The implementation schedule in **Appendix C** is proposed to address the mitigation requirement for the operation of the interim open shooting range as well. The proposed change of the project would not affect any condition in the Environmental Permit (No. EP-307/2008) regarding waste management.

3.7 Landfill Gas Hazard Review

3.7.1 A detailed qualitative landfill gas hazard assessment was submitted and approved by EPD. Landfill gas mitigation measures including passive measures, active measures and detection system have been recommended. There is no further comment and no objection on the recommended mitigation measures from EPD.

3.7.2 Regarding the latest MLP (including the interim open shooting range), no diversion and reprovision of existing facilities of PPVL is anticipated. As stated in the approved Project Profile, the proponent will maintain good communication with the landfill restoration and aftercare contractor, develop contingency plan/evacuation procedure for operation of the shooting range (including the interim open shooting range). The operator of the proposed shooting range will closely liase with EPD and the aftercare contractor to ensure that the construction and operation of the proposed shooting range would not result in adverse impact on the existing landfill facilities. The operator of the proposed shooting range has the responsibility to ensure the safety of EPD and the aftercare contractor staff who will have the right to access the site to carry out their aftercare duties.

3.7.3 Mitigation measures in the detailed assessment are summarized below and should be applied to the interim open shooting range where appropriate. Buildings with landfill gas mitigation measures applied are shown in **Figure 5** which include reception and arms & ammunition store, and E&M Services Block, but excluding outdoor shooting range and structure of outdoor area (e.g. canopy).

- all facilities of the proposed shooting range (including interim open shooting range and associated facilities including container) will sit aboveground and with loading less than 60kN/m^2 to meet the landfill capping design loading requirement. Similarly, vehicles accessing to the site (including oil tanker) will not exceed such requirement.
- monitoring well within open shooting range will be provided with additional protection
- the proposed LFG mitigation measures during the construction of the project will be followed by the operator of the shooting range when the maintenance work during the operation phase (including interim open shooting range) is carried out
- no naked flame and smoking can be allowed onsite. In particular, "No smoking" sign and other signage should be provided close to passive vent
- raised floor design within minimum 100mm clear height is proposed for buildings including reception, arms & ammunition store and E&M services block (passive measure)
- 1mm HDPE geo-membrane or equivalent materials with hydraulic conductivity of 10^{-12}m/s or less will be lined on the floor slab for buildings including reception, arms & ammunition store and E&M services block (passive measure)
- the annulus around any service entry points into the buildings will effectively be blocked by means of sealant, collars or puddle flanges as appropriate to prevent the ingress of gas into a building via service entry points. With collar seal applied, HDPE collar will be fitted around the HDPE pipe (sealed with the pipe entering the building) and welded to the membrane line on floor slab for buildings including reception, arms & ammunition store and E&M services block (passive measure)
- water seal will be provided in water pipes and sewers, if any, to prevent ingress of landfill gas (by retaining water within the section of the "U" tube to block passage of air) (passive measure)
- all utilities connecting to offsite area is proposed to be laid aboveground instead of buried underground, subject to the final design of the utilities service entries to the site (passive measure)
- for arms & ammunition store and E&M services block which adopt typical enclosed building design, they should be equipped with mechanical ventilation (e.g. extraction fan) of 5 air change per hour so as to avoid accumulation of LFG even when it penetrates into the enclosed room (active measure)
- for other buildings with non-enclosed building design adopted (i.e. reception), mechanical ventilation will also be provided. (active measure)
- detection system will be installed at indoor areas (for reception, arms & ammunition store and E&M services block). As the existence of methane and carbon dioxide will indicate migration of LFG generally, methane gas and carbon dioxide will be monitored (detection system)

3.7.4 The proposed mitigations are generally the same as that in the Project Profile except that the clear height of the raised floor design is revised to not less than 100mm. The revised clear height of 100mm already meets the requirement of recommendations in Section 7.3 of the report titled "Passive Venting of Soil Gases Beneath Buildings Research Report - Guide for Design – Volume I" published by Department of Environment, Transport and the Regions in the UK based on constructional consideration and air ventilation performance, and avoids the need of extensive ramp facilities provided onsite. Normally, parameters for landfill gas monitoring include methane, carbon dioxide and oxygen. As detector for one parameter (e.g. methane) only may malfunction, it is proposed that both methane and carbon dioxide should be monitored as stated in the Project Profile.

3.7.5 The implementation schedule in **Appendix C** is proposed to incorporate the revised mitigation measures and address the interim open shooting range as well. An amendment of existing condition 2.10 shown in **Section 1.4** is recommended for variation of the EP to tally with the approved detailed assessment.

4. Concluding Summary

4.1 Comment on the Possible Severity, Distribution and Duration of Environmental Effects

4.1.1 The environmental impacts due to the proposed change of the shooting range have been appraised.

4.1.2 With the proposed mitigation in place, there would be no material change on the environmental impact. The project would be in compliance with relevant environmental requirement stipulated in the EIAO-TM.

4.2 Environmental Protection Measures Provided

Construction

4.2.1 General construction phase environmental mitigation measures are suggested to be implemented by the contractor. The contractor should fully observe all relevant ordinance and regulations, technical memoranda and practice notes, and carry out the works in a manner to comply with all relevant criteria.

Operation

4.2.2 The generators installed within the site will employ diesel with ultra low sulphur content and housed inside E&M Services Block.

4.2.3 The proposed open shooting ranges will be erected with solid fence wall in terms of timber baffles. The fence wall will be 3.5m high of density not less than 20kg/m^2. The proposed measures will provide additional shielding to attenuate potential noise impact on the NSRs, and will further obstruct and depress possible dispersion of the heavier lead dust within the shooting range area. Fence wall will also function to shield the passive gas vents erected outside the shooting range so that bullets cannot hit the passive gas vents by accidents. It will also help avoid disturbance to offsite SSSIs. The interim open shooting ranges are located at the foothill and already shielded by topography. The target area is facing the foothill without any aftercare facilities nearby. Noise, air quality and risk of hitting the passive gas vent for the interim open shooting range should not be a concern as well.

4.2.4 Lead-free primer will be adopted for the firearm permitted in the proposed shooting range (including interim open shooting range) so that lead fume emission impact will not be a concern.

4.2.5 Backstop of soft materials (timber baffles with sand bag) will be erected behind the target plate to collect the bullets so that the bullet would remain intact for the open shooting range (including interim open shooting range). Lead emission when broken into pieces will therefore be avoided. On the other hand, no sparkling will be resulted when hitting the backstop. The risk of explosion if methane concentration reaches the LEL near backstop will be avoided.

4.2.6 All wastes will be stored using the sewage tank and disposed of by waste disposal agents then to avoid causing pollution by discharging to nearby water body. The requirement under the Water Pollution Control Ordinance is observed. No discharge of wastewater will be permitted. Holding tank (aboveground) of adequate capacity and chemical toilet facilities will be designed and provided. No sewage will be discharged to the surrounding environment. Surface channel will be provided to collect stormwater.

4.2.7 All cartridge casings and other debris will be collected from the shooting range (including interim open shooting range) daily to avoid possible contamination.

4.2.8 No naked flame and smoking can be allowed onsite. In particular, "No smoking" sign and other signage should be provided close to passive vent to avoid ignition of landfill gas.

4.2.9 A raised floor design with vertical clearance between the floor slab and the ground not less than 100mm will be adopted for building highlighted (i.e. buildings with landfill gas mitigation measures) in **Figure 4**.

4.2.10 1mm HDPE geo-membrane or equivalent materials (with hydraulic conductivity of less than 10^{-12}m/s) will be lined on the floor slab of buildings highlighted (i.e. buildings with landfill gas mitigation measures) in **Figure 4**. Sealing for penetration into building will be provided. Utilities will be laid aboveground to avoid migration of landfill gas along utilities. No manhole will be provided.

4.2.11 For enclosed buildings including arms & ammunition store and E&M service block, mechanical ventilation with at least 5 air change per hour will be provided. For other building not fully-enclosed excluding outdoor shooting range and outdoor area structure, mechanical ventilation will be provided as well.

4.2.12 Detection system in terms of methane and carbon dioxide detectors will be installed at buildings highlighted (i.e. buildings with landfill gas mitigation measures) in **Figure 4**.

4.2.13 Operational practice including maintenance of good communication with landfill restoration and aftercare contractor, development of contingency plan/ evacuation procedure, and to ensure the safety of EPD and the aftercare contractor staff who will have the right to access the site to carry out their aftercare duties will be strictly followed.

4.2.14 An implementation schedule of recommended environmental mitigation measures is shown in **Appendix C**.

FIGURES

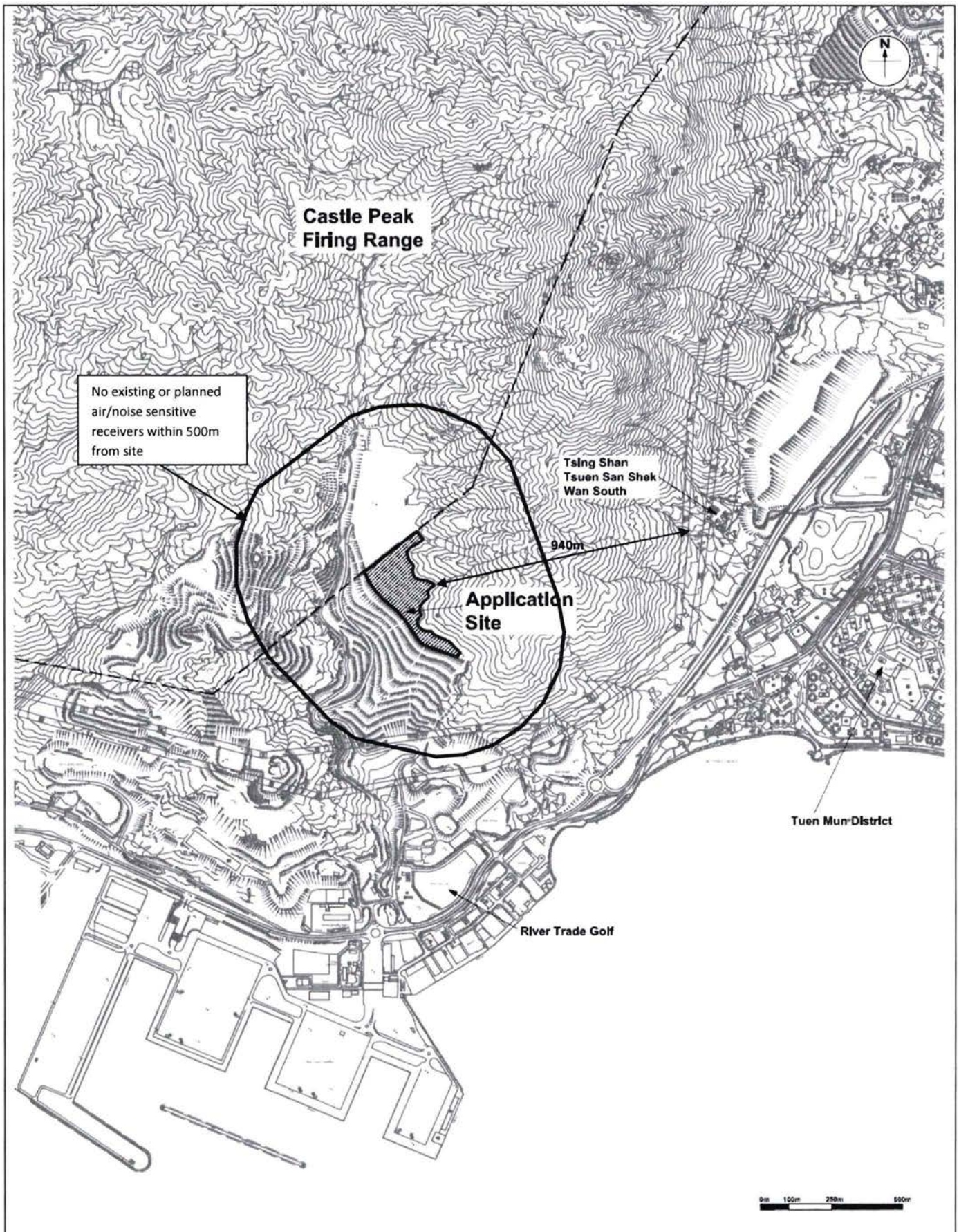


Figure:	1	ENVIRON
Title:	Location of the Application Site (Site A) and its Environs	Drawn by: SL
		Checked by: CC
Project:	Environmental Review for Proposed Shooting Range at Pillar Point Valley Landfill	Rev.: 3.1
		Date: Jan 2014

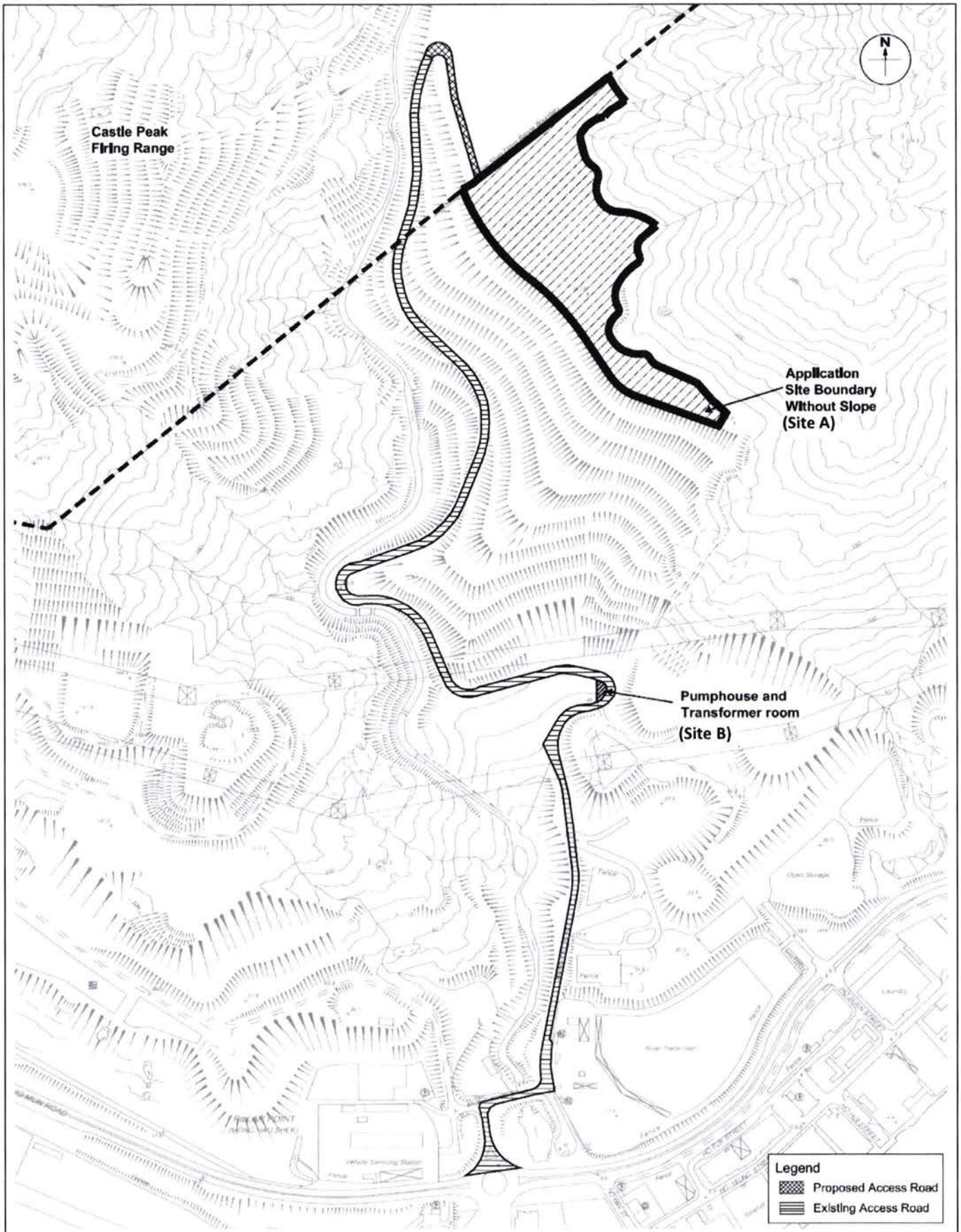


Figure:	2	ENVIRON
Title:	Location of Site A, Site B and Proposed Access Road	Drawn by: SL
		Checked by: CC
Project:	Environmental Review for Proposed Shooting Range at Pillar Point Valley Landfill	Rev.: 3.0
		Date: Aug 2013

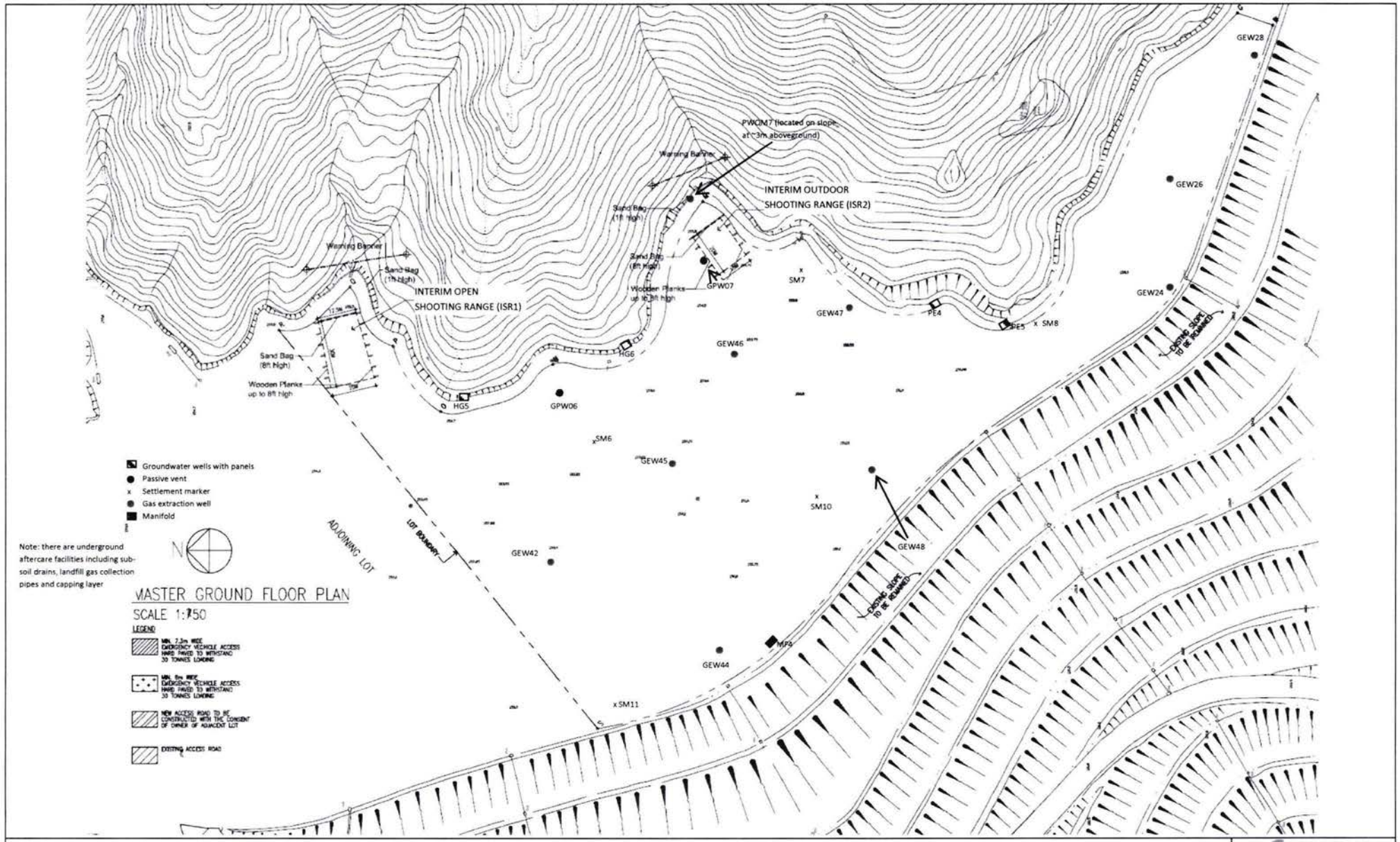


Figure: 3	ENVIRON
Title: **Master Layout Plan of Interim Outdoor Shooting Range**	Drawn by: SL Checked by: CC
Project: **Environmental Review for Proposed Shooting Range at Pillar Point Valley Landfill**	Rev.: 3.2 Date: Mar 2014

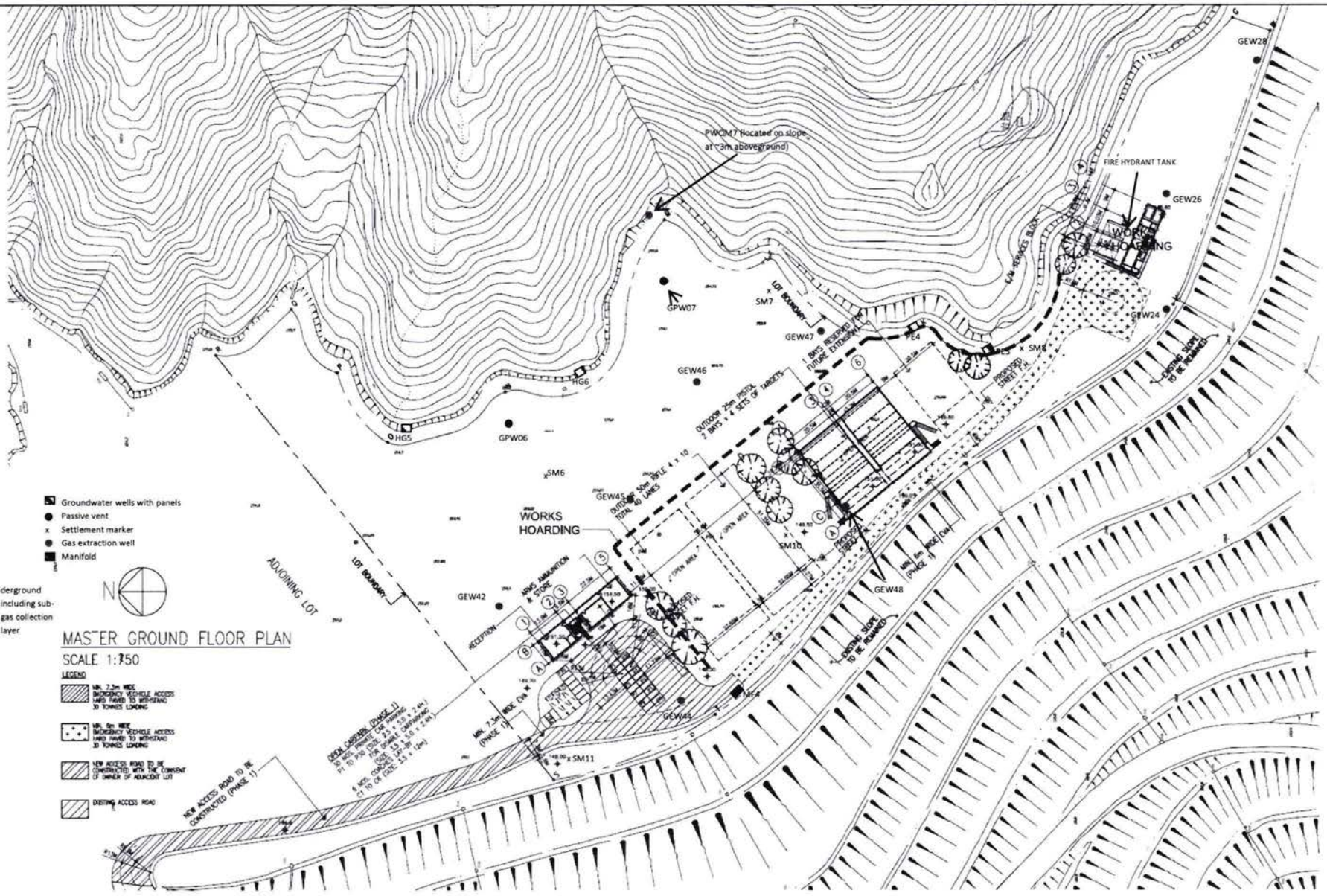


Figure: 4	ENVIRON
Title: **Latest Master Layout Plan of Proposed Shooting Range**	Drawn by: SL Checked by: CC
Project: **Environmental Review for Proposed Shooting Range at Pillar Point Valley Landfill**	Rev.: 3.2 Date: Mar 2014

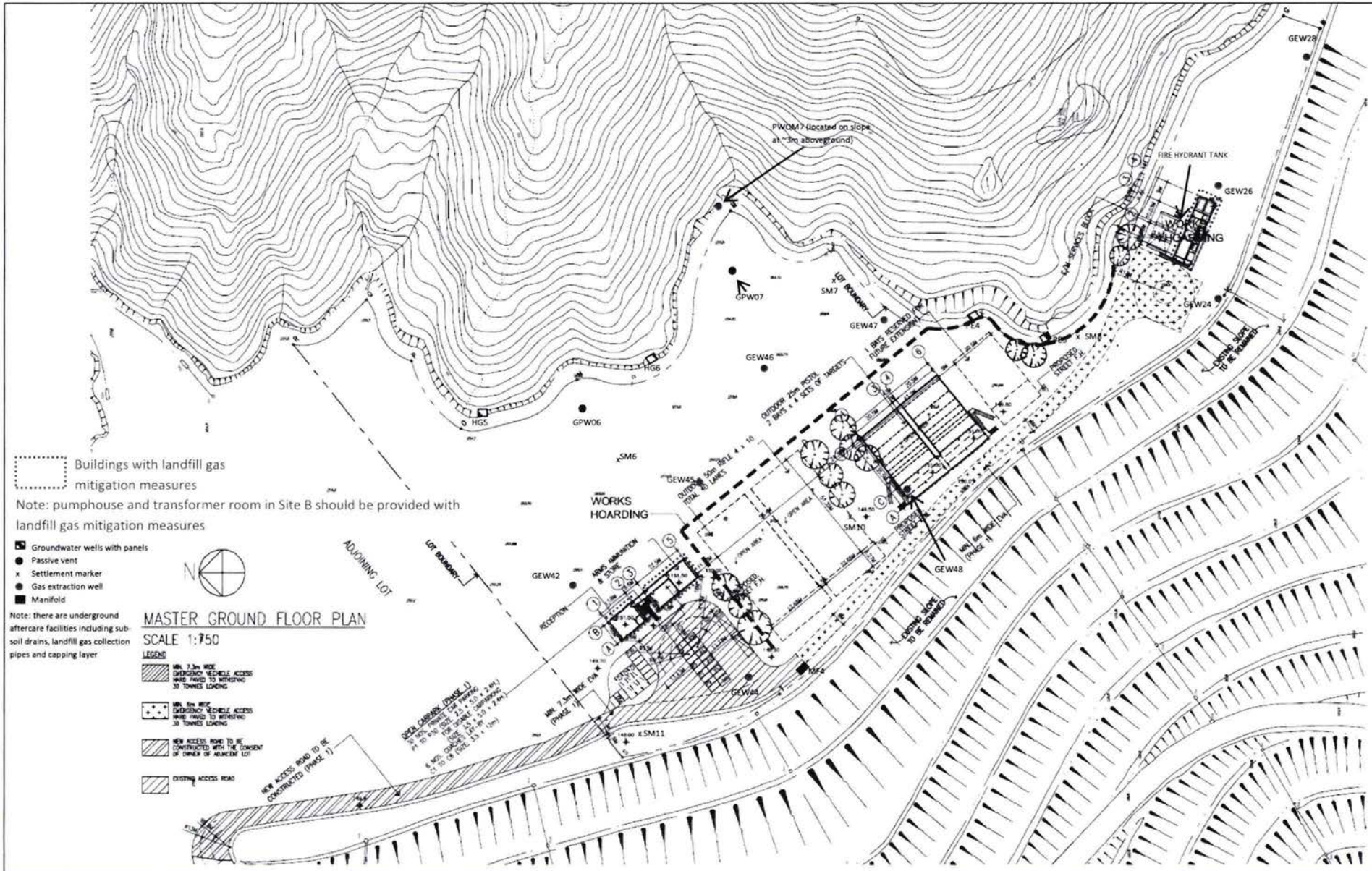
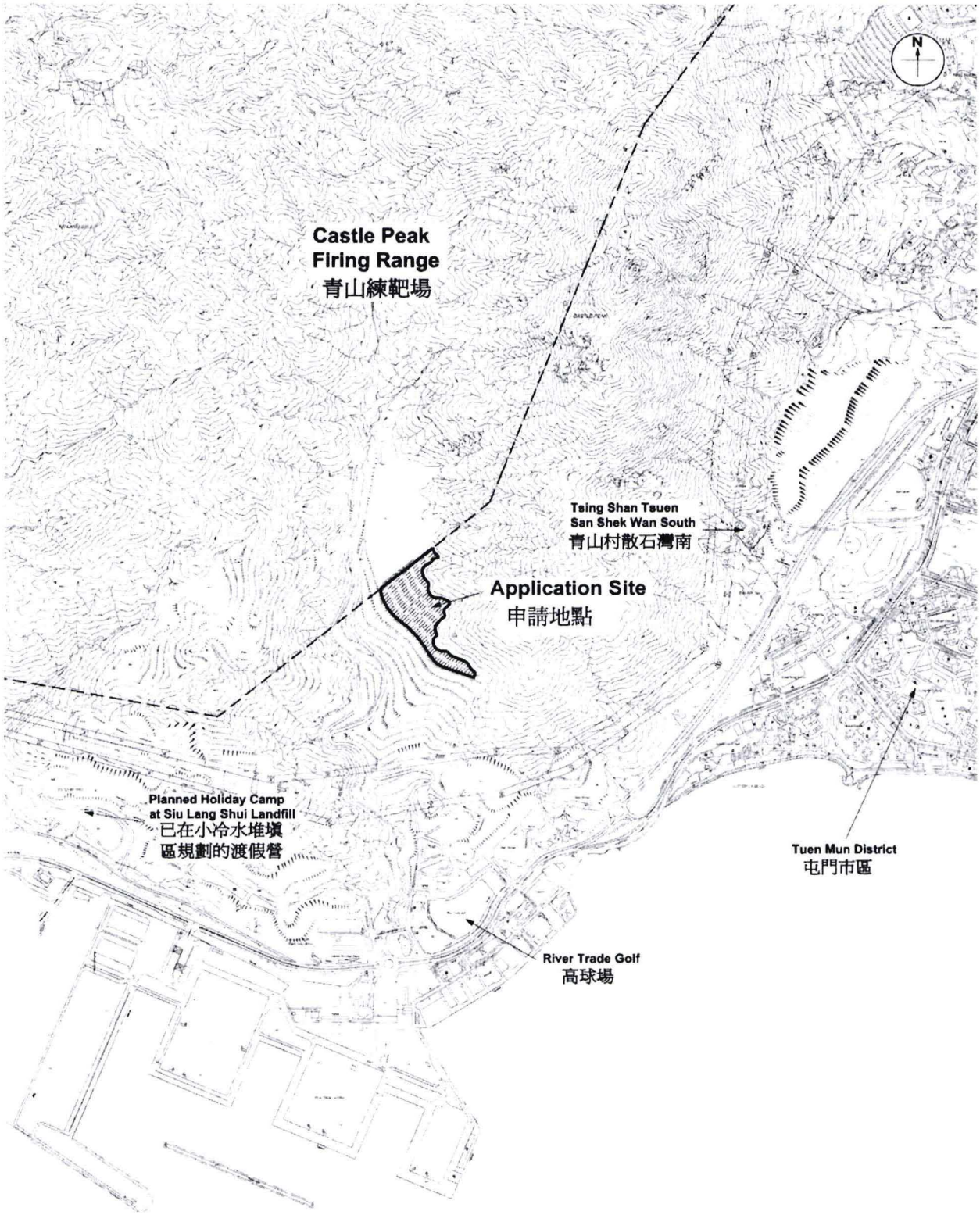
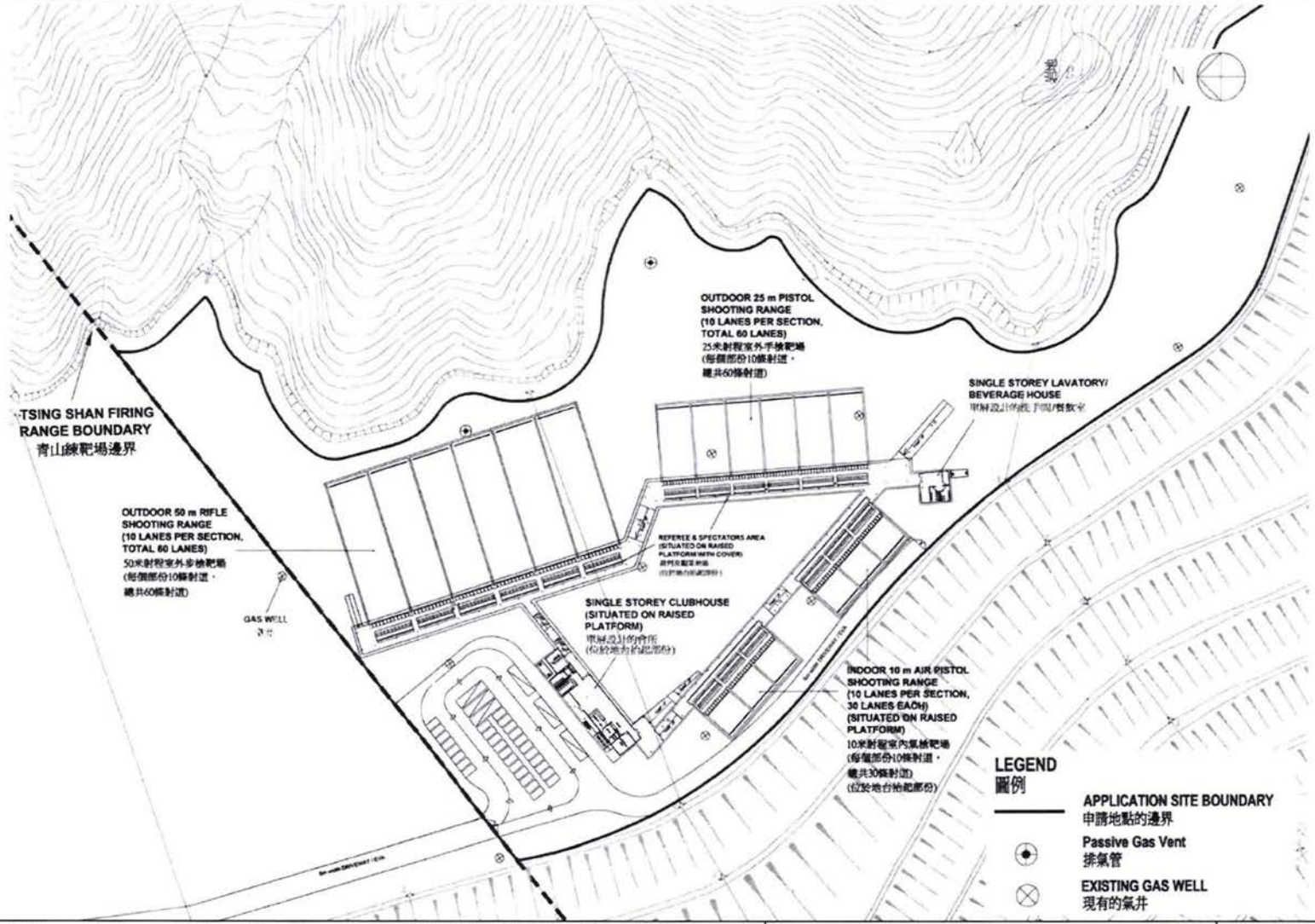


Figure: 5	ENVIRON
Title: **Buildings with Landfill Gas Mitigations Measures Recommended (Site A)**	Drawn by: SL Checked by: CC
Project: **Environmental Review for Proposed Shooting Range at Pillar Point Valley Landfill**	Rev.: 3.2 Date: Mar 2014

APPENDIX A:
EXTRACTS OF FIGURES FROM EP (NO. EP-307/2008)



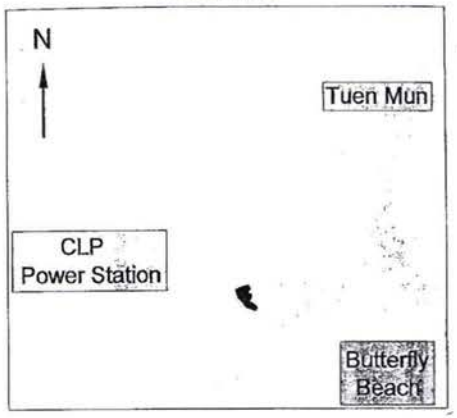
Project Title -Proposed Shooting Range at Pillar Point Valley Landfill 工程名稱 - 於望后石谷堆田區興建的射擊場	Environmental Permit No. EP-307/2008 環境許可證編號： EP-307/2008
Figure 1 - Site Location Plan 圖一 - 選址位置圖	



Project Title - Proposed Shooting Range at Pillar Point Valley Landfill 工程名稱 - 於望后石谷堆田區興建的射擊場	Environmental Permit No.EP-307/2008 環境許可證編號：EP-307/2008
Figure 2 - Layout Plan of the Shooting Range 圖 二 - 射擊場的平面圖	

APPENDIX B:
LICENSE AREAS EXTRACTED FROM LAND LICENSE

LOCATION

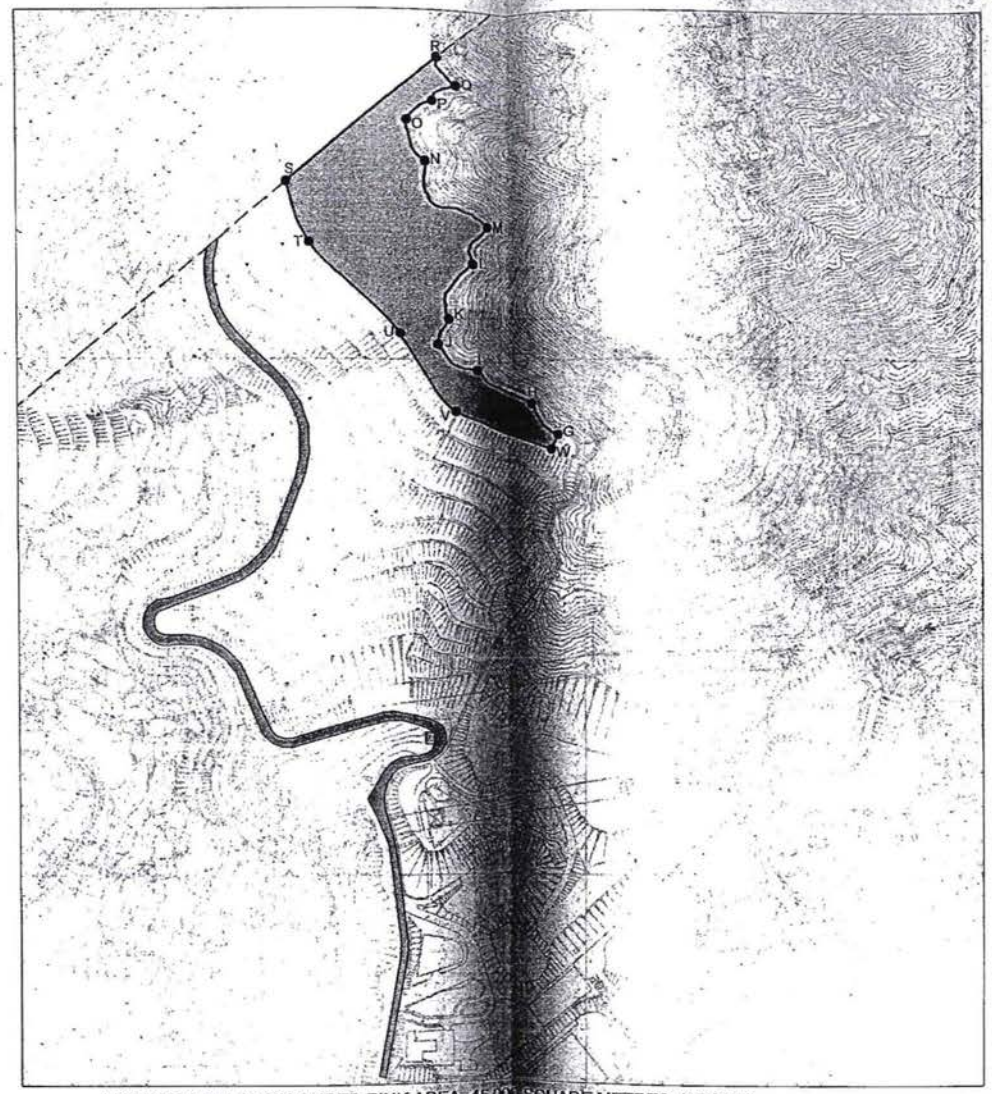


LICENCE CONDITIONS REFER

- LICENCE AREA A COLOURED PINK
- LICENCE AREA B PINK STIPPLED BLACK
- ACCESS ROAD COLOURED BROWN
- DEFENCE LOT NO.16 BOUNDARY LINE

CO-ORDINATES (FOR REFERENCE ONLY)

Point	Northing	Easting	Point	Northing	Easting
G	826314	812718	Q	826714	812590
H	826351	812684	R	826746	812568
I	826389	812614	S	826602	812381
J	826417	812567	T	826533	812416
K	826447	812580	U	826429	812522
L	826511	812609	V	826340	812588
M	826554	812628	W	826297	812709
N	826626	812553			
O	826673	812531			
P	826695	812562			



LICENCE AREA A: COLOURED PINK AREA 45 000 SQUARE METRES (ABOUT)
LICENCE AREA B: PINK STIPPLED BLACK AREA 140 SQUARE METRES (ABOUT)

Scale 1:5000

METERS 50 0 50 100 150 200 METERS

Note: The site boundary of Licence Area A coloured pink is about 6m setback from upslope and excludes the existing surface channel at the south-western end.

ENVIRONMENTAL PROTECTION DEPARTMENT

HONG KONG SHOOTING ASSOCIATION 香港射擊聯合總會

Seal of the Licensee and Signature(s) of its Attesting Officers

Witness to the Seal of the Licensee and Signature(s) of its Attesting Officers

Assistant Director (Environmental Infrastructure)

Witness to the Signature of Assistant Director (Environmental Infrastructure)

Dated this 2nd day of October 2008

FOR IDENTIFICATION PURPOSES ONLY

Environmental Protection Department

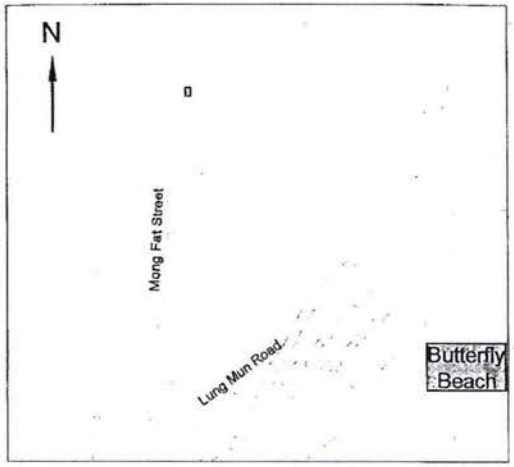
LICENCE AREA SHOOTING RANGE AT PILLAR POINT VALLEY LANDFILL

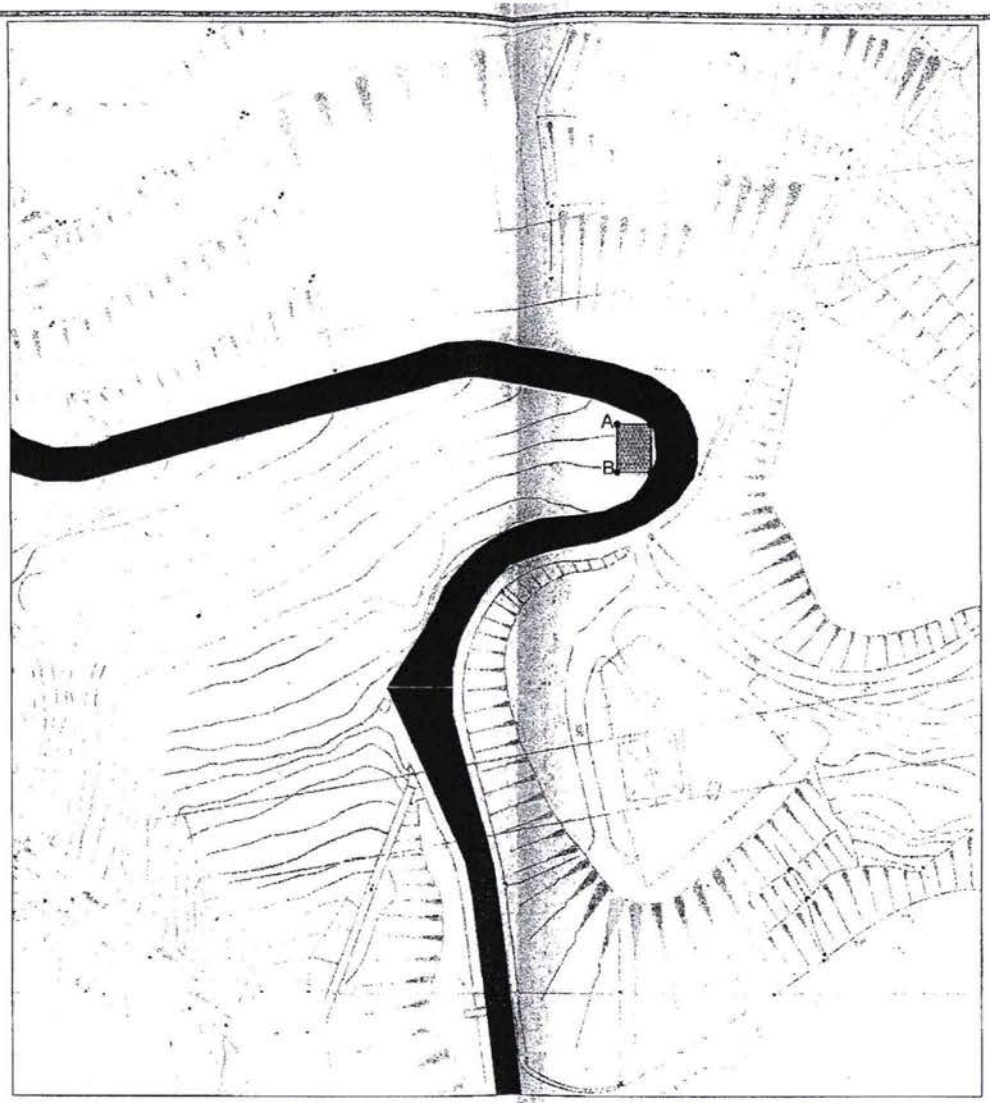
File No. EP184/09/B/01
Survey Sheet No. 5SE14C, 5SE14D, 5SE19A, 5SE19B
Licence Reference No. EP/SP/57/07-A
Reference Plan No. TMM2151-POe

PLAN No. PPVL-A01

Date : 26 Sep 2008 Filename : PPVL_shootscope_licence area A(wor.Sa).dwg

LOCATION





LICENCE CONDITIONS REFER

LICENCE AREA B
PINK STIPPLED BLACK

ACCESS ROAD
COLOURED BROWN

CO-ORDINATES (FOR REFERENCE ONLY)

Point	Northing	Easting
A	825966	812551
B	825952	812551
C	825966	812561
D	825952	812561

LICENCE AREA B: COLOURED PINK STIPPLED BLACK AREA 140 SQUARE METRES (ABOUT)

SCALE 1: 1500

METRES 50 0 50 100 METRES

ENVIRONMENTAL PROTECTION DEPARTMENT

HONG KONG SHOOTING ASSOCIATION 香港射擊聯合總會

Seal of the Licensee and Signature(s) of its Attesting Officers

Witness to the Seal of the Licensee and Signature(s) of its Attesting Officers

Assistant Director (Environmental Infrastructure)

Witness to the Signature of Assistant Director (Environmental Infrastructure)

Dated this 2nd day of October 2008

FOR IDENTIFICATION PURPOSES ONLY

Environmental Protection Department

LICENCE AREA B SHOOTING RANGE AT PILLAR POINT VALLEY LANDFILL

File No. EP184/09/B/01
Survey Sheet No. 5SE19A, 5SE19C
Licence Reference No. EP/SP/57/07-A
Reference Plan No. TMM2151-POe

PLAN No. PPVL-A02

Date : 25 Sep 2008 Filename : PPVL shootrange licence area B(ver 4).dwg

APPENDIX C:
RECOMMENDED IMPLEMENTATION SCHEDULE

Implementation Schedule of the Environmental Mitigation Measures

Ref #	Environmental Protection Measures/ Mitigation Measures	Location/ Timing	Implementation Agent	Stages			Relevant Legislation and Guidelines
				Des	C	O	
Noise							
PP4.2.6	The Noise Control Ordinance and its subsidiary regulations will be observed and complied with. Best management practices will be implemented to control and suppress noise generation from the subject site in order to minimize any adverse impact. All plant and equipment to be used onsite will be properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means, to avoid disturbance to any nearby noise sensitive receivers. The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.	Subject Site/ Construction	Contractor		√		NCO
PP4.2.8 ER3.2.6	No night time operation is permitted for all open shooting range facilities	Subject Site/ Operation*	Operator			√	NCO
ER3.2.7	The interim open shooting range will cease operation upon commencement of operation of the proposed outdoor shooting range	Subject Site/ Operation*	Operator			√	NCO
PP4.2.19	The proposed outdoor shooting ranges will be erected with solid fence wall. Fence wall in terms of timber baffles will be erected on 3 sides of the open firing ranges.	Subject Site/ Operation*	Proponent & Operator	√	√	V	NCO
ER3.2.16	Diesel-powered generators are proposed during the early phase of the project before operation of the proposed transformer facilities. These generators will be installed inside the proposed E&M Services Block.	Subject Site/ Operation*	Proponent & Operator	√	√	V	NCO
Air quality							
PP4.3.6	The Air Pollution Control Ordinance and its subsidiary regulations, particularly the Air Pollution Control (Open Burning) Regulation and Air Pollution Control (Construction Dust) Regulation and Air Pollution Control (Smoke) Regulation will be observed and complied with. Best management practice will be followed at all times to prevent dust nuisance and smoke as a result of the construction activities.	Subject Site/ Construction	Contractor		√		APCO and subsidiary regulations

	That there will be adequate water supply/storage for dust suppression where necessary will be ensured. Methods of working will be devised and arranged and the works will be carried out in such a manner so as to minimise dust impacts on the surrounding environment. Experienced personnel with suitable training will be provided to ensure that these methods are implemented.						
ER3.3.2	Diesel-powered generators are proposed during the early phase of the project before operation of the proposed transformer facilities. The diesel-powered generator sets will employ diesel with ultra-low sulphur content (i.e. 0.005%).	Subject Site/ Operation*	Proponent & Operator			V	APCO and subsidiary regulations
PP4.3.16 ER3.3.3	Lead-free primer mixture will be adopted for the firearm used within the interim open shooting range and proposed outdoor shooting range	Subject Site/ Operation*	Operator			√	APCO
PP4.3.17 ER3.3.3	Backstop of soft materials will be erected behind the target plate (for both interim open shooting range and proposed outdoor shooting range) to collect the bullets so that the bullet would remain intact, thus eliminating lead dust when hitting the target. Timber baffles with sand bag will be used as the backstop. Fence wall of 3.5m aboveground will be provided for proposed outdoor shooting range to further obstruct and depress possible dispersion of the heavier lead dust within the shooting range area.	Subject Site/ Operation*	Operator	√	√	√	APCO
Water quality							
PP4.4.6	The Water Pollution Control Ordinance and its subsidiary regulations will be noted and complied with. Works will be carried out in such a manner as to minimise adverse impacts on the water quality during the execution of the Works and rearrange the working method to minimise water pollution within and outside the site area. The design, construction, operation and maintenance of all the mitigation measures will be carried out in accordance with the practice as specified in the Professional Persons Environmental Consultative Committee Practice Note (ProPECC PN) 1/94 "Construction Site Drainage" issued by the Director of Environmental Protection.	Subject Site/ Construction	Contractor		√		WPCO and subsidiary regulations; ProPECC PN 1/94
PP4.4.7	Holding tank (aboveground) and chemical toilet facilities will be designed and provided. No sewage will be discharged to the surrounding environment. All wastes will be stored using the holding tank and disposed of by waste disposal agents then. Surface channel will be provided to collect stormwater. No discharge of wastewater will be permitted.	Subject Site/ Operation*	Proponent	√	√	√	WPCO and subsidiary regulations
PP4.4.8	The holding tank facilities will be designed to have about two times of the maximum daily discharge. Arrangement will be made so that the wastewater will be disposed of daily during peak utilization period.	Subject Site/ Operation*	Proponent & operator	√	√	√	EIAO-TM

Ecological impact							
PP4.5.2	Shooting activities will be carried out at the outdoor shooting range with fence wall erected on three sides of the proposed outdoor shooting range for shielding purpose.	Subject Site/ Operation*	Operator	√	√	√	EIAO-TM
Waste management							
PP4.6.5	Waste Disposal Ordinance and its subsidiary regulations will be observed and complied with	Subject Site/ Construction	Contractor		√		WDO
PP4.6.5	Contractor shall apply for registration as chemical waste producer	Subject Site/ Construction	Contractor		√		WDO
PP4.6.6	Generation of waste from his work should be avoided and minimized through changing or improving design and practices, careful planning and good site management. Different types of wastes should be segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of waste and, as the last resort, disposal at different outlets as appropriate. The reuse and recycling of waste shall be practised as far as possible. The recycled materials shall include paper/cardboard, timber and metal etc. The C&D waste which comprises metal, timber, paper, glass, junk and general garbage shall be reused or recycled and, as the last resort, disposal of at landfills. The amount of wastes generated, recycled and disposed of (including the disposal sites) should be recorded. A trip ticket system should be used for the disposal of C&D materials, if any, to any designated public filling facility and/or landfill. Training should be provided for workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	Subject Site/ Construction	Contractor		√		EIAO-TM
PP4.6.7 ER3.6.2	All cartridge casings and other debris will be collected from the shooting range daily.	Subject Site/ Operation*	Operator			√	EIAO-TM
PP4.6.8 ER3.6.2	All wastes retained in the holding tank will be disposed of by waste disposal agents.	Subject Site/ Operation*	Operator			√	EIAO-TM
Landfill gas hazard							
PP4.7.28	Precautions should be clearly laid down and rigidly adhered to with respect to trenching and excavation; and creation of confined	Subject Site/	Contractor		√		ProPECC PN

	spaces at, near to or below ground level such that potential hazard on workers from landfill gas/ leachate migration are minimised.	Construction					3/96 & LFGHAGN
PP4.7.29	Gas detection equipment and appropriate breathing apparatus should be available and used where necessary when entering confined spaces without proper ventilation. A properly-trained dedicated person (e.g. Safety Officer) should be present on site throughout the construction stage.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.30	All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of excavations and possibility of asphyxiation in confined area (e.g. deep trench or underground area with only small opening entrance) due to landfill gas migration. Safety notices should be posted warning of the potential hazards.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.31	Those staff who work in, or have responsibility for 'at risk' areas, including all excavation workers, supervisors and engineers working within the Consultation Zone, should receive appropriate training organised by the contractor or other appropriate parties on working in areas susceptible to landfill gas, fire or explosion hazards.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.32	An excavation procedure or code of practice to minimise risks including landfill gas related risk should be devised and carried out by the contractor.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.33	Safe practice should be followed by workers while working in the construction site.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.34 ER3.7.3	Smoking, naked flames and all other sources of ignition should be prohibited within the shooting range area during construction and operation of the project	Subject Site/ Construction	Contractor		√	√	ProPECC PN 3/96 & LFGHAGN
PP4.7.35	Any electrical equipment, such as motors and extension cords, should be intrinsically safe. Construction plant should be fitted with vertical exhaust of sufficient height and with spark arrestors where necessary.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.36	During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation where possible. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping/conduiting should be capped at the end of each working day.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.37	Mobile offices, equipment stores, mess rooms etc. should be located on an area which has been proven to be gas free (by survey with portable gas detectors) and ongoing monitoring should be carried out to ensure that these areas remain gas free. Alternatively, such buildings should be raised clear of the ground with a minimum clear separation distance of 500mm.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.38	During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site. The operator should formulate a health and safety policy, standards and instructions for site personnel to	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN

	follow.						
PP4.7.39	For drilling operations, "Special Advice Relating to the Drilling of Boreholes" in Landfill Gas Hazard Assessment Guidance Note should be referenced to ensure that such operations are properly supervised, and provided with safety equipment and clothing and well-defined working and safety procedures.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.40	Welding, flame-cutting or other hot works, where necessary, should be confined to open areas at least 15m from any trench or excavation if possible. They may only be carried out in trenches or confined spaces when controlled by a 'permit to work' procedure, properly authorized by the Safety Officer or other appropriately qualified person. The 'permit to work' procedure should set down the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person in attendance outside the 'confined area', who shall be responsible for reviewing the gas measurements, and who shall have executive responsibility to suspend the work in the event of unacceptable or hazardous conditions. Only workers who are appropriately trained and fully aware of the potentially hazardous conditions should be permitted to carry out hot works in confined areas.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN
PP4.7.41	For other work in confined space, if any, controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance, the Safety Guide to Working in Confined Spaces should be followed to ensure compliance with the regulations mentioned above. Key issues with regards to confined spaces which are at risk of landfill gas build-up are listed out below: • The entry or access point should be clearly marked with a warning notice (in English and Chinese) which states that there is the possibility of flammable and asphyxiating gases accumulating within. • The warning notice should also give the telephone number of an appropriate competent person who can advise on the safety precautions to be followed before entry and during occupation of the confined space. • Personnel should be made aware of the dangers of entering confined spaces potentially containing hazardous gases and, where appropriate, should be trained in the use of gas detection equipment. • Prior to entry, the atmosphere within the chamber should be checked for oxygen, methane and carbon dioxide concentrations. The chamber may then only be entered if oxygen is greater than 18% by volume, methane is less than 10% of the Lower Explosive Limit (LEL), which is equivalent to 0.5% by volume (approximately), and carbon dioxide is less than 0.5% by volume.	Subject Site/ Construction	Contractor		√		ProPECC PN 3/96 & LFGHAGN

	• If either carbon dioxide or methane are higher, or oxygen lower, than the values given above, then entry to the chamber should be prohibited and expert advice sought. • Even if conditions are safe for entry, no worker should be permitted to enter the chamber without having another worker present at the surface. The worker who enters the chamber should wear an appropriate safety/recovery harness and, preferably, should carry a portable methane, carbon dioxide and oxygen meter. • In general, when work is being undertaken in confined spaces sufficient approved resuscitation equipment, breathing apparatus and safety torches should be available. Persons involved in or supervising such work should be trained and practised in the use of such equipment. A permit-to-work system for entry into confined spaces should be developed by an appropriately qualified person and consistently employed.						
PP4.7.48 ER3.7.3	The proposed LFG mitigation measures during the construction of the project (4.7.28-4.7.41) will be followed by the operator of the shooting range when the maintenance work during the operation phase is carried out.	Subject Site/ Operation*	Operator			√	ProPECC PN 3/96 & LFGHAGN
PP4.7.49 ER3.7.3	The design loading on capping would amount to 60kN/m^2. Such requirement will be observed in design of the facilities. In order not to affect the capping system, there will be no piling for foundation construction. No basement will be constructed and all buildings will have foot rest on ground. All buildings will have single storey only and the loading will be minimized wherever possible and the loading requirement will be met in all circumstances to avoid any damage to the capping layer and other sub-soil piping facilities. The disposition of the facilities will be designed in such a way that the existing landfill site facilities will not be affected. In other words, no demolition, diversion and reprovision of the existing facilities is required. All monitoring and extraction wells located within the 25m/50m shooting range open area will have additional protection provided (e.g. shield at wellhead) to avoid damage due to shooting activities.	Subject Site/ Operation*	Proponent	√	√	√	ProPECC PN 3/96 & LFGHAGN
PP4.7.50 ER3.7.3	No naked flame and smoking can be allowed onsite. In particular, "No smoking" sign and other signage should be provided close to passive vent.	Subject Site/ Operation*	Operator	√	√	√	ProPECC PN 3/96 & LFGHAGN
PP4.7.52 ER3.7.3	A raised floor design will be adopted for the arms and ammunition store, E&M services block and reception, with vertical clearance between the floor slab and the ground not less than 100mm.	Subject Site/ Operation	Proponent	√	√	√	ProPECC PN 3/96 & LFGHAGN
PP4.7.53	1mm HDPE geo-membrane or equivalent materials (with hydraulic conductivity of less than 10^{-12}m/s) will be lined on the floor slab of the arms and ammunition store, E&M services block and reception to minimize possibility of landfill gas (LFG) migration into enclosed rooms.	Subject Site/ Operation	Proponent	√	√	√	ProPECC PN 3/96 & LFGHAGN

	The annulus around any service entry points into the buildings will effectively be blocked by means of sealant, collars or puddle flanges as appropriate to prevent the ingress of gas into a building via service entry points. With collar seal applied, HDPE collar will be fitted around the HDPE pipe (sealed with the pipe entering the building) and welded to the membrane line on floor slab. Water seal will be provided in water pipes and sewers, if any, to prevent ingress of landfill gas (by retaining water within the section of the "U" tube to block passage of air). All utilities connecting to offsite area is proposed to be laid aboveground instead of buried underground, subject to the final design of the utilities service entries to the site.						
PP4.7.54 ER3.7.3	For enclosed buildings including arms & ammunition store and E&M services block, mechanical ventilation of 5 air change per hour will be provided so as to avoid accumulation of LFG even when it penetrates into the enclosed room.	Subject Site/ Operation	Operator	√	√	√	ProPECC PN 3/96 & LFGHAGN
PP4.7.55 ER3.7.3	Detection system will be installed at enclosed building area including reception, arms & ammunition store and E&M services block. Methane and carbon dioxide will be monitored.	Subject Site/ Operation	Operator	√	√	√	ProPECC PN 3/96 & LFGHAGN
PP4.7.56 ER3.7.2	The project proponent will maintain good communication with the landfill restoration and aftercare contractor with respect to landfill gas management at the restored landfill.	Subject Site/ Operation*	Proponent & Operator			√	ProPECC PN 3/96 & LFGHAGN
PP4.7.57 ER3.7.2	A contingency plan/evacuation procedure to deal with LFG incidents should be developed	Subject Site/ Operation*	Proponent & Operator			√	ProPECC PN 3/96 & LFGHAGN
PP4.7.60 ER3.7.2	The operator of the proposed shooting range will closely liase with EPD and the aftercare contractor to ensure that the construction and operation of the proposed shooting range would not result in adverse impact on the existing landfill facilities. The operator of the proposed shooting range has the responsibility to ensure the safety of EPD and the aftercare contractor staff who will have the right to access the site to carry out their aftercare duties.	Subject Site/ Construction & Operation*	Proponent, Contractor & Operator		√	√	ProPECC PN 3/96 & LFGHAGN

EIAO-TM – Technical Memorandum on Environmental Impact Assessment Process

NCO – Noise Control Ordinance

APCO – Air Pollution Control Ordinance

WPCO - Water Pollution Control Ordinance

WDO – Waste Disposal Ordinance

FAR - Firearms and Ammunition Regulations (Cap. 238A)

ProPECC PN 1/94 - ProPECC PN 1/94 "Construction Site Drainage"

ProPECC PN 3/96 - ProPECC PN 3/96 "Landfill Gas Hazard Assessment for Development Adjacent to Landfill"

LFGHAGN – Landfill Gas Hazard Assessment Guidance Note

Operation* = operation of the shooting range including interim open shooting range

PP (reference to approved Project Profile); ER (reference to this Environmental Review)

APPENDIX D:
INTERIM SHOOTING RANGE ORDER

Pillar Point Range Interim Open Range Order (ISR1) (draft version)

Name of Shooting Range : Hong Kong Shooting Association Pillar Point Range (ISR1)

Location of Range : Pillar Point, Tuen Mun

Name of Shooting Club : Hong Kong Shooting Association ("HKSA")

Officer in Charge : Arms Licensee or his Agent(s) of Hong Kong Shooting Association

Related Rules : General Safety Rules and Bye-laws of HKSA

Technical Rules and Regulations of Practical Pistol Combat ("PPC") and International Shooting Sports Federation ("ISSF")

Description of the Shooting Range (ISR1):

1) This Range is set up for :-

a) handgun, calibre from .177, .22, .32, .38, .40, .41, .44, .45;

b) shotgun, for shotshells ranged from 0 to 9,

c) rifle for .177, .22 only.

2) Location of this Range (ISR1) and boundary is shown on the sketch plan at Appendix "A".

3) Position of Warning signs and Red Flags is shown on the sketch plan at Appendix "A".

4) Firing Point (Up Range) and Bullet Catcher (Down Range) are shown on sketch plan at Appendix "A".

5) Type of targets – paper targets not exceeding 2m in height be mounted on wooden stands.

6) Limitation of Arcs of Fire is shown on sketch plan at Appendix "B".

Firearms & Ammunitions to be used:

7) Only firearms & ammunitions as approved by the Commissioner of Police.

8) Air Gun, Handguns, shotguns, & smallbore rifles (manual/semi-automatic only)

9) The following ammunitions are prohibited.

a. Muzzle velocity exceeding 1,500 ft/ps.

b. Armour piercing

c. Tracer

Security of the Shooting Range :

10) All members and visitors must acknowledge the office of HKSA for registering their entering the range for shooting engagement at least 24 hours beforehand.

11) All members MUST get the approval from Licensee of HKSA at least 24 hours before shooting engagement to take place at the range with their own gun.

12) Any shooter must register their arrival, gun details and arms license (if any) at the range in the logbook stored in the container. The key to open the container is kept by the Duty Range Officer.

Safety of the Shooting range :

13) Eyes and ears protection should be worn at all time at all firing engagement.

14) The Duty Range Officer has full discretion and authority to manage the operation of the range for safety sake.

15) No cross firing is allowed. Shooters must be aware of the Arc of Fire in relation to their targetries and background.

16) Firearms must be kept in gun case at all times except in a designated Safety Area or on the firing line, where arms could be holstered.

17) Dry firing practice or gun cleaning must take place inside the designated Safety Area.

18) No ammunition can be carried inside the Safety Area.

Range Staff :

19) Range Officer(s) and Arms Instructor(s) as approved by the Commissioner of Police.

20) Job description of Range Officer is listed in Appendix "C".

Display of Range Order:

21) Copies of the Range Orders and Safety Rules in both English and Chinese are posted against the container before shooting activities are to commence.

Accident & Incident Procedures :

22) Please refer to procedures as listed in Appendix "D".

Additional Information:

23) In the event of any inconsistencies between the English and Chinese versions of this Range Order, the English version shall prevail.

Operation of Shooting Range :

24) Hours of Operation : 0700 hrs to 1800 hrs

25) All shooting activities are to be abided by the conditions stipulated in Chapter 238, the Firearms & Ammunition Ordinance.

26) All shooters must follow the range order and instructions given by the Duty Range Officer.

27) A qualified Range Officer has to be on duty to supervise any shooting activities in progress.

Normal Safety Precautions (General Safety Rules)

1. Treat all guns as if they are LOADED at all times.

2. NEVER point a gun at anybody or let anybody point a gun at you.

3. NEVER leave a gun unattended.

4. NEVER load a gun unless you are at the firing point and are ready to fire.

5. Unless your gun is on aim and you are ready to fire, NEVER touch the trigger with your finger(s).

6. All guns must be carried in gun cases and should only be drawn at the firing points with muzzle kept pointing down range.

7. Before you fire any shot, make sure that the target and its backstop will not cause ricochet.

8. Before you fire a shot, make sure that the gun barrel is not blocked.

9. ALWAYS keep the action open unless you are ready to fire or when you store away your gun (for shotgun / rifle / pistol only) after practicing.

10. When you received a gun, ALWAYS check that it is not loaded.

11. When checking a gun, ALWAYS point the muzzle at the target area or at a safe direction.

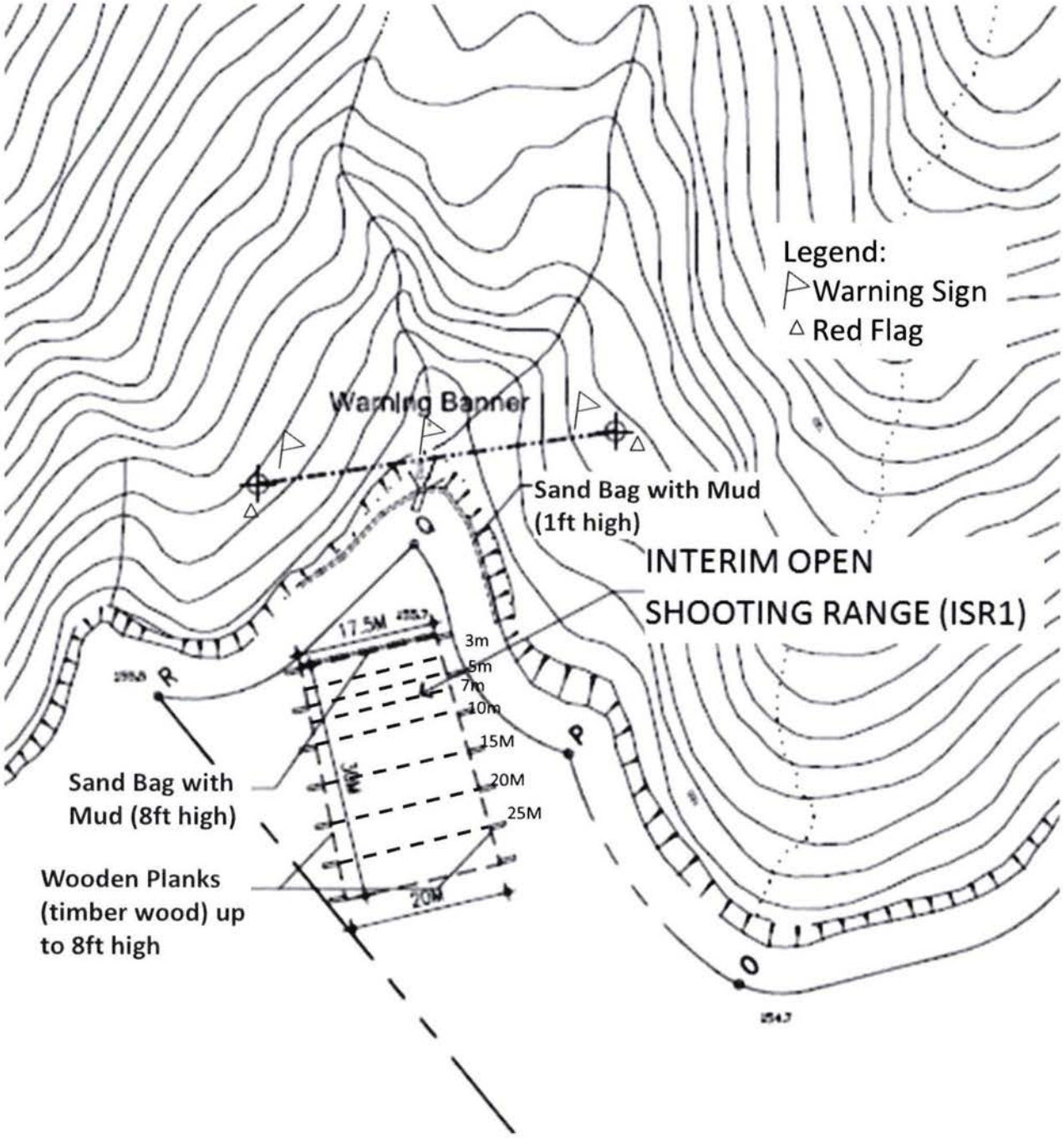
12. When you are holding a loaded gun at the firing point, ALWAYS keep the muzzle pointed at the target area.

13. Live firing course can ONLY start with the duty range officer's permission.

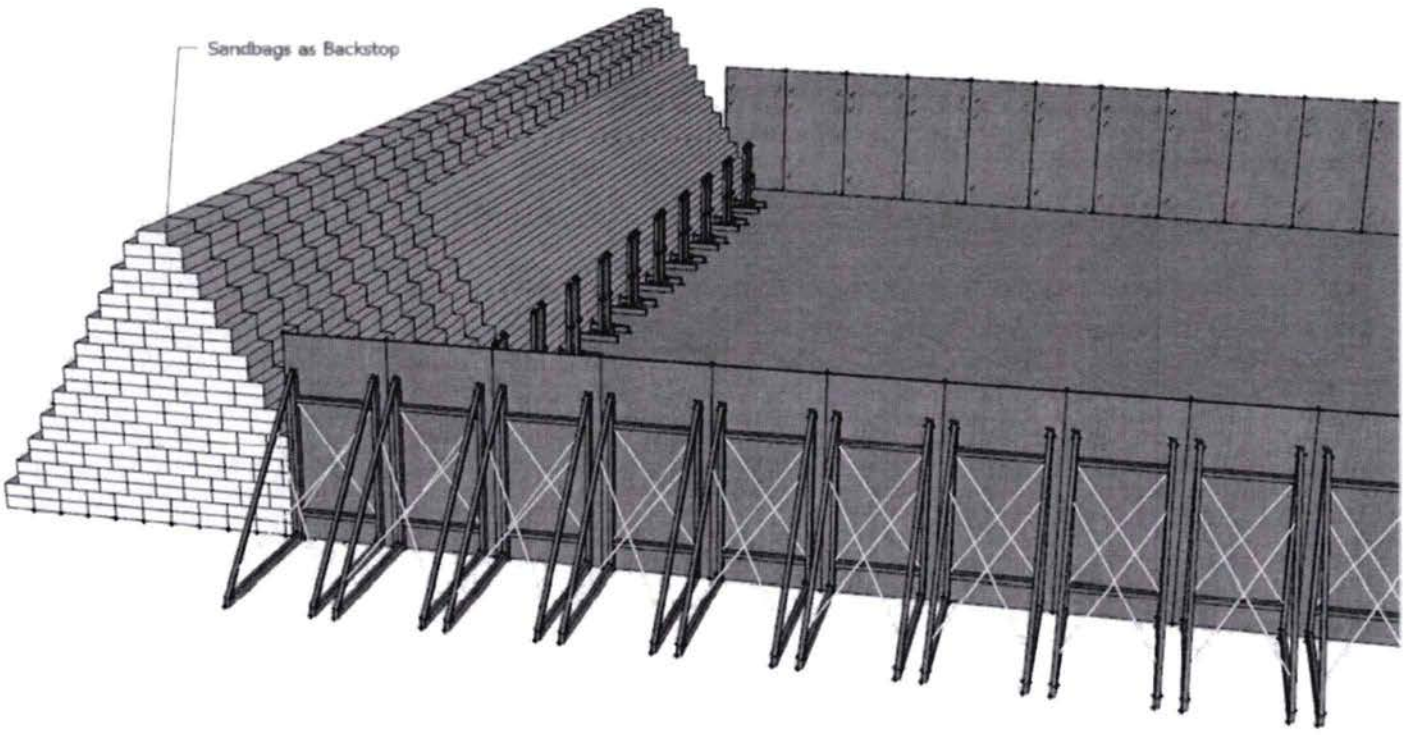
14. Protective eye-glasses and earmuff are to be used when engaging with live firing.

15. When you have finished shooting activities, ALWAYS check that your gun is clear and proof it clear to the duty range officer.

Appendix "A"


Legend:
Warning Sign
Red Flag
Warning Banner
Sand Bag with Mud
(1ft high)
INTERIM OPEN
SHOOTING RANGE (ISR1)
17.5M
3m
5m
7m
10m
15M
20M
25M
20M
Sand Bag with
Mud (8ft high)
Wooden Planks
(timber wood) up
to 8ft high

Appendix "B"



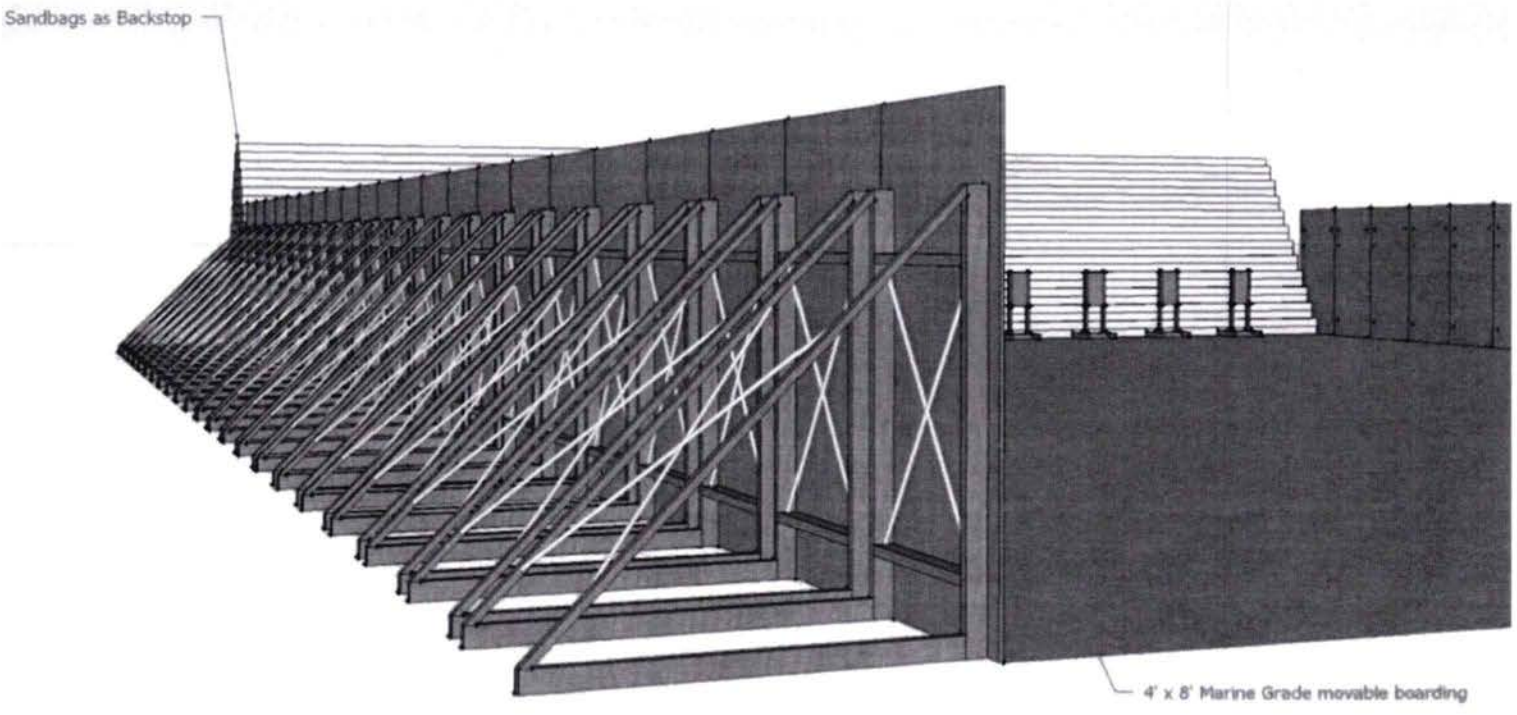


Illustration only (not to scale)

DUTY OF RANGE OFFICER (RO)

The Range Officer (RO) on duty should conduct all shooting activities in the following manner:

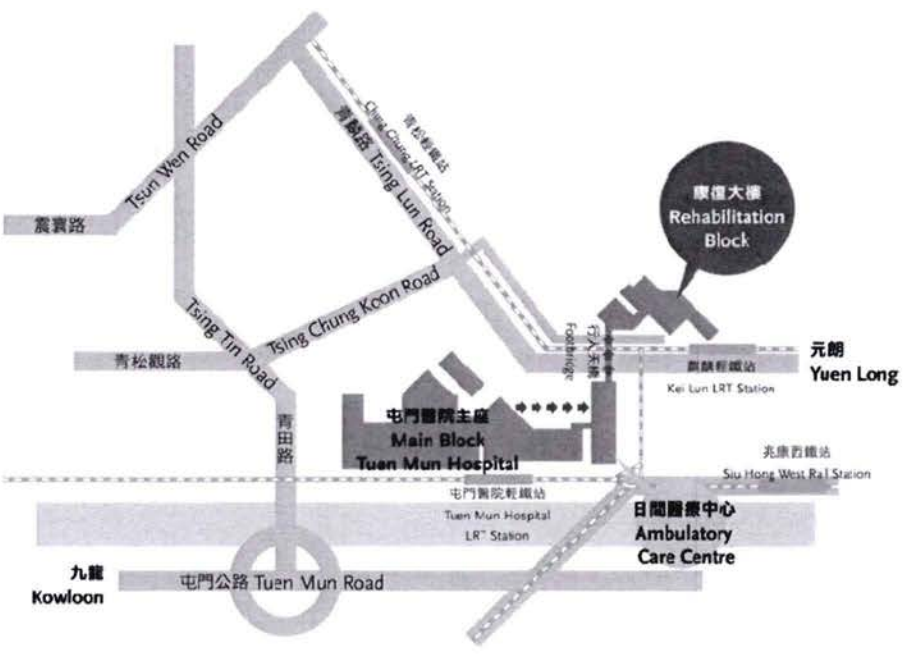
1. Conduct all shooting activities in accordance with, General Safety Rules, Range Order and Specific Rules of the Association as appropriate.
2. Check and make sure all range facilities have been set up and are safe before shooting.
3. Control entry to the range for both shooter(s) and visitor(s), especially within the area of firing point around or beyond the firing point.
4. Check that all firearms and ammunition are suitable for use at the range.
5. Check that all details of the firearms in use are complied with the Arms Licencing conditions of the Licensee.
6. Remind all shooters that no shooting is allowed if they have taken alcoholic drinks or drugs on that day.
7. Remind all persons at the range to use eyes and ears protection when shooting is in progress.
8. Make sure all shooters at the range understand the Normal Safety Precautions (NSP) before shooting.
9. Brief all shooters and range staff about the firing points, targets and range command in use for shooting on that day.
10. Brief all shooters about the arrangement of shooting practice for that day.
11. Brief all shooters about their firing points & Arc of Fire for all shooting events.
12. Brief all novice shooters on actions to be taken in the event of Misfire, Hang Fire, and Squid Load.
13. Handle all accidents and incidents at the range in accordance with the Accident and Incident Procedures (Appendix D)
14. Before closing a range after shooting, check and ensure no ammunition and firearms are left at the range.
15. Report any damage of range facilities to the Association immediately.

By Order of the Council of HKSA

ACCIDENT OR INJURY

1. In case of FIRE:
   a. Do not panic; follow instruction of the Range Staff.
2. In case of ACCIDENT:
   a. Stop all shooting activities at once.
   b. In the event of any injury or damage involved, the Duty Range Officer shall report such to the management of the shooting centre and the Police as soon as possible.
3. In case of MINOR INJURY:
   a. Inform Duty Range Officer immediately.
   b. A first-aid-box is available in the container office for appropriate action.
   c. Call for ambulance if needed
   d. If any arms and/or ammunition is/are involved in the accident, Range Officer MUST report to the Police and such arms and ammunition of the same batch must be kept separately for examination as required by the police.
4. In case of SEVERE INJURY:
   a. Inform Duty Range Officer immediately and report to Police.
   b. Do not move the injured person unless the place is unsafe for him.
   c. Keep people away from the injured person.
   d. Notify all concerned parties.
   e. Call police for alarming medical assistance (ambulance) as quickly as possible.
   f. If any arms and/or ammunition is/are involved in the accident, MUST report to the Police and such arms and ammunition of the same batch must be kept separately for examination as required by the police.

THE NEAREST MEDICAL FACILITY TO THE RANGE IS "**Tuen Mun Hospital**"
ON 23 Tsing Chung Koon Road, Tuen Mun, N.T.
TEL: (852) 2468 5111



APPENDIX E:
GUNSHOT NOISE TEST RESULT FOR ADDITIONAL WEAPONS PERMITTED

Noise Measurement Record

Project: Proposed Shooting Range at Pillar Point
Date: 18-Oct-13
Time: 13:00-13:30
Venue: Hong Kong Gun Club
Subect: Shotgun using shotshell 9 and 7½

Record ID	Description	Parameter	Noise Level
1	Shotgun using shotshell 9, measurement distance=2m, at 12:00 direction	SEL	84.3 dB(A)
2	Shotgun using shotshell 9, measurement distance=2m, at 1:30 direction	SEL	87.7 dB(A)
3	Shotgun using shotshell 9, measurement distance=2m, at 10:30 direction	SEL	89.9 dB(A)
4	Shotgun using shotshell 9, measurement distance=2m, at 7:30 direction	SEL	102.3 dB(A)
5	Shotgun using shotshell 9, measurement distance=2m, at 4:30 direction	SEL	101.9 dB(A)
6	Shotgun using shotshell 7½, measurement distance=2m, at 12:00 direction	SEL	84.4 dB(A)
7	Shotgun using shotshell 7½, measurement distance=2m, at 1:30 direction	SEL	89.1 dB(A)
8	Shotgun using shotshell 7½, measurement distance=2m, at 10:30 direction	SEL	92.1 dB(A)
9	Shotgun using shotshell 7½, measurement distance=2m, at 7:30 direction	SEL	103.1 dB(A)
10	Shotgun using shotshell 7½, measurement distance=2m, at 4:30 direction	SEL	101.8 dB(A)
11	Background noise at shooting location	Leq	59.7 dB(A)

Remark: 12:00 direction - in front of the shooter
1:30 direction - front right hand side of the shooter
4:30 direction - rear right hand side of the shooter
7:30 direction - rear left hand side of the shooter
10:30 direction - front left hand side of the shooter

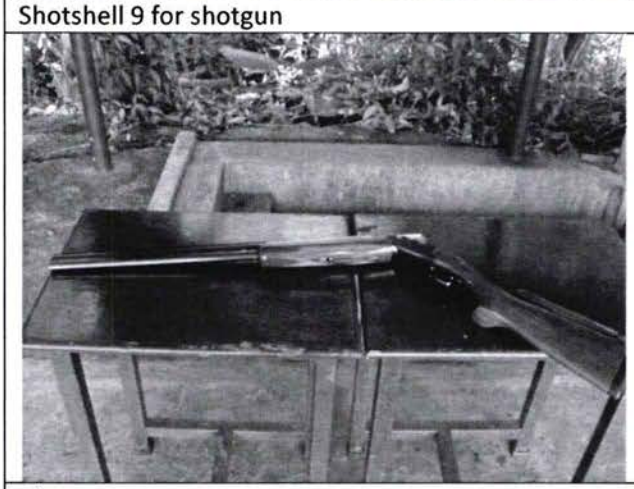
Photo taken during measurement exercise (18/10/2013)

Hong Kong Gun Club

During shotgun noise measurement

Shotshell 9 for shotgun

Shotshell 7½ for shotgun



Shotgun

Noise Measurement Record

Project: Proposed Shooting Range at Pillar Point
Date: 25-Oct-13
Time: 11:30-12:30
Venue: Hong Kong Gun Club
Subect: Shotgun using shotshell 6 and 00

Record ID	Description	Parameter	Noise Level
1	Shotgun using shotshell 6, measurement distance=2m, at 12:00 direction	SEL	91.4 dB(A)
2	Shotgun using shotshell 6, measurement distance=2m, at 1:30 direction	SEL	93.7 dB(A)
3	Shotgun using shotshell 6, measurement distance=2m, at 10:30 direction	SEL	91.6 dB(A)
4	Shotgun using shotshell 6, measurement distance=2m, at 7:30 direction	SEL	102.8 dB(A)
5	Shotgun using shotshell 6, measurement distance=2m, at 4:30 direction	SEL	103.7 dB(A)
6	Shotgun using shotshell 00, measurement distance=2m, at 12:00 direction	SEL	94.0 dB(A)
7	Shotgun using shotshell 00, measurement distance=2m, at 1:30 direction	SEL	94.3 dB(A)
8	Shotgun using shotshell 00, measurement distance=2m, at 10:30 direction	SEL	94.8 dB(A)
9	Shotgun using shotshell 00, measurement distance=2m, at 7:30 direction	SEL	102.3 dB(A)
10	Shotgun using shotshell 00, measurement distance=2m, at 4:30 direction	SEL	102.8 dB(A)
11	Background noise at shooting location	Leq	51.9 dB(A)
			Shotgun

Remark: 12:00 direction - in front of the shooter
1:30 direction - front right hand side of the shooter
4:30 direction - rear right hand side of the shooter
7:30 direction - rear left hand side of the shooter
10:30 direction - front left hand side of the shooter

Photo taken during measurement exercise (18/10/2013)

Hong Kong Gun Club

Shotshell 6 for shotgun

Shotshell 00 for shotgun