Appendix A

Sewage Treatment and Disposal Proposal (STDP) Report

in support of Planning Application No. A/SLC/185

for a Proposed Temporary Holiday Camp for a Period of 5 Years at Various Lots in D.D. 332L and adjoining Government Land, Cheung Sha, Lantau Island

(HT24117)

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[redacted]

CONTENT

FIGURE

1. Introduction

1.1 Ho Tin & Associates Consulting Engineers Limited (HTA) was appointed by the client to prepare a Sewage Treatment and Disposal Proposal (STDP) Report in support of the Planning Application No. A/SLC/185 for a Proposed Temporary Holiday Camp for a Period of 5 Years at Lots 332 (part), 333 (part), 334 (part), 335 (part), 337 (part), 338 (part), 339 (part), 340 (part), 341 (part), 342 (part), 344, 345 (part), 346 (part), 347 (part), 348, 350, 351, 352 (part), 354 (part), 355 (part), 356 (part), 357, 358, 360 (part), 361, 362 (part), 363 (part), 365 (part), and 366 (part) and adjoining Government land in DD332L, Cheung Sha, Lantau Island, New Territories (the 'subject site').

1.2 This report presents a technically feasible STDP for the proposed temporary uses at the subject site.

1.3 The objectives of this STDP are to:-

- indicate any changes in increasing the sewage flow due to the proposed (existing) use in the area;
- assess any potential sewage impact due to the proposed (existing) use on the existing sewerage facilities; and
- propose mitigation measures and sewage treatment and disposal proposal to avoid causing of any potential adverse environmental impact.

1.4 The scope of this STDP includes:-

- general site description;
- identification of existing sewerage facilities for the concerned area;
- estimation of sewage flow of the proposed (existing) use;
- feasibility of connection with existing public sewerage facilities; and
- proposal of sewage treatment and disposal to cater for sewage flow generated by the proposed (existing) use if found necessary.

2. General Site Description and the Proposed Development

2.1 The subject site is currently zoned "Green Belt" on the Approved South Lantau Coast Outline Zoning Plan No. S/SLC/23. It is located at the downhill on the southern toe of Tung Chung Road and is on the eastern side of a watercourse running downhill from Sunset Peak (Tai Tung Shan) toward Sha Tsui. The subject site area is about 6,035m^2 and irregular in shape. It is in terrace form descending southward from about +40.0mPD to +23.7mPD.

2.2 It is proposed to construct a temporary holiday camp accommodating a total of 20 temporary structures (consisting of 6 static camping tents atop raised wooden platforms, 7 one-storey seating out areas with platforms and pavilions, 1 one-storey office/visitor centre, 1 one-storey storeroom, 2 one-storey rain shelters, 1 one-storey stage with cover, 1 one-storey meter room and 1 one-storey washroom (about 11m^2)) with a total GFA of about 780m^2 for a period of 5 years.

2.3 No laundry or kitchen will be provided on the subject site.

2.4 The layout and construction of the proposed development will respect the existing terrain and ground conditions such that no substantial site formation works will be carried out and the vegetated areas will be maintained in general.

3. Existing Sewerage System

3.1 The subject site is located at the downhill side of Tung Chung Road and the uphill area of South Lantau Road. With respect to the currently available Drainage Services Department's drainage records, there is no existing public sewer in the area. At present, developments in the area commonly adopt septic tank and soakaway pit system to treat the generated sewage flows.

4. Evaluation of Sewage Generation

4.1 In this report, sewage generation from the subject proposed development is estimated based on the planning unit flow factors as recommended in the "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning" ("GESF") published by the Environmental Protection Department (EPD) in 2005. The design population is as follows:

Category of design population	*Maximum Population per Day*
Visitors	40
Employees	3 (on shifts)

4.2 The sewage generated by visitors and employees will be the water for flushing and hand washing only.

4.3 In this sewage evaluation, the sewage flow caused by the employee activities is referenced from the planning unit flow factor for commercial employees as recommended in GESF. A unit flow rate of 0.15 m^3/person/day according to Table 3-4 of "Wastewater Engineering Treatment and Reuse" published by Metcalf & Eddy is adopted for the sewage generated from the visitors. The estimation is illustrated as follows:

Description	*Estimated Maximum Daily Sewage Generation*	*Remark*
Sewage flow from Employee Activities (total number of employees = 3 persons)	0.84 m^3/day	Unit flow for Commercial employee + Commercial Activities "General – territorial average" in Table T-2 of GESF = 0.280 m^3/person/day
Sewage flow from Visitors - total no. of visitor = 40 persons	6.00 m^3/day	Referred to the unit flow factor for "Visitor" of Table 3-4 of "Wastewater Engineering Treatment and Reuse (Fourth Edition)" published by Metcalf & Eddy Inc., unit flow = 0.15 m^3/person/day
Estimated maximum daily sewage flow from the Site	6.84 m^3/day	

4.4 The estimated maximum daily sewage generation from the subject proposed development is 6.84 m^3/day.

5. Proposed Sewage Disposal Arrangement

5.1 With respect to the estimation of daily peak sewage flow in the above Section, i.e. 6.84 m^3/day, a septic tank and soakaway pit system in accordance with the ProPECC PN 1/23 is required. With respect to the design requirements as specified in "Drainage Plans subject to comment by the Environmental Protection Department" (ProPECC PN 1/23), a septic tank of about 4.20 m (L) x 1.60 m (B) x 1.20 m (D) with a concrete wall thickness (t) of 0.25 m (capacity approximately 7.58 m^3 > 6.84 m^3, ok) is necessary to cater for the estimated peak daily on-site sewage flow.

5.2 The minimum clearance requirements for a soakaway system are shown in the following table:

Type	*Distance from Soakaway System (m)*	*Remarks*
Building	3	-
Retaining Walls	6	-
Wells	50	-
Stream where the bed is lower than invert of soakaway system	15 (30)	Should the water from the stream or pool is used or likely to be used for drinking or domestic purposes, the distance (30) will be adopted.
Pools	7.5 (30)	
Cuts of Embankments	30	-
Paths	1.5	-
Beaches	100 30	From boundaries of gazette beaches or bathing beach subzones of water control zone From H.W.M. and from nearest watercourses for other cases
Ground Water Table	0.6	Below invert

5.3 The subject site area will be maintained as grassland in general. There are existing watercourses running along the eastern and western sides of the subject site. The soakaway pit would be located at least 15m away from the watercourses. The location of the septic tank and soakaway system is shown in **Figure S1**. The septic tank and soakaway pit system is located in an open space with easy access for desludging.

5.4 The applicant shall implement good house keeping practices to ensure the continuous effective functioning of the septic tank and soakaway pit system, including:

- Avoid the deposit of any oil, chemical and solid waste into the system;
- Inspect and measure the sludge depth of treatment components at least once every 6 months;
- Remove the sludge properly when exceed ¼ of overall water depth;
- Inspect the system immediately when flooding, overflow, odour become noticeable or not flush well; and
- Clean and flush of screens and other sewage handling equipment regularly.

5.5 The septic tank and soakaway pit system should be inspected and desludged regularly.

Desludging should be done by specialist contractor. Content of the septic tank shall be transported properly to sludge treatment facility for further treatment.

5.6 As the area of the subject site is not served by public sewer and the scale of the subject proposed development is small, the use of septic tank and soakaway pit system is considered the most appropriate option for sewage treatment and disposal. It will not cause any adverse sewerage impact on the area.

6. Conclusion

6.1 The subject site will be for a Proposed Temporary Holiday Camp for a Period of 5 Years.

6.2 The sewage flow from the toilets will be conveyed directly into a septic tank and soakaway pit system. The septic tank and soakaway pit system should cater the estimated maximum daily sewage flows from the subject proposed development.

6.3 In conclusion, the proposed temporary campsite development use would not impose any unacceptable adverse sewerage impact on the area.

N

Camping Area
with Raised Platform

Rain Shelter
(80m², Height: 6m)

Seating Out Area
with Platform (219m²)

Stage with Cover
(21m², Height: 6m)

Reception/Office
(42m², Height: 3m)

Washroom (11m², Height: 3m)

Meter Room (2m², Height: 2m)

Existing Track to
the Application
Site

Entrance (2m wide)

Storeroom
(42m², Height: 3m)

Tent with
Raised Platform
(36m² each)

Footpath

Activity Area 1

Rain Shelter
(147m², Height: 6m)

Pond for irrigation
(55m²)

Activity Area 2

Tent Camp
(2.1m x 2.1m)

Free Tent
Camping Area

Rocky Stream Bed

Rocky Stream Bed

Road

House 14

LEGEND:

Application Site (Area = about 6,035m²)

LEGEND:

SEPTIC TANK

SOAKAWAY PIT

SEWER

PROJECT

何田顧問工程師有限公司
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TITLE

SEWERAGE MANAGEMENT PLAN

SCALE

1 : 1000 - A3

DRAWING No.

FIGURE S1