Appendix D

Environmental Assessment

ARUP

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories

Environmental Assessment

Final| July 2026
Reference: 312796-ARUP-OE-RP-S16-B-EA-001-0

Job number 312796

Arup Hong Kong Limited

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1. INTRODUCTION

1.1 Project Background

1.1.1 The existing temporary teaching farm located at Lam Tuen, Tai Po is operated by the Jockey Club College of Veterinary Medicine and Life Sciences of the City University of Hong Kong (CityUHK) since 2022 (i.e. Farm 1.0 with a site area of about 9,330m²)[1]. As Hong Kong's only working dairy farm, it is mainly for the milking of Jersey cows for veterinary students to gain hands-on experience with the cattle and for promoting One Health, public health, research into zoonotic diseases, and animal welfare.

1.1.2 The expansion of the existing CityUHK Farm will provide essential facilities for hands-on training in bovine medicine, animal husbandry, and farm management. Covering site area approximately 6,169m² (Farm 2.0), the expansion will include additional dairy barn, caretakers' accommodation and other supporting facilities for long-term operations.

1.1.3 After the expansion, CityUHK Farm (Farm 1.0 + Farm 2.0), with a total site area of 15,444m², will enhance Hong Kong's only active dairy farm in support of the city's sole veterinary medicine degree, delivering public benefits through improved public health and food safety, while strengthening Hong Kong's role as a hub for research and training in veterinary medicine and life sciences.

1.1.4 The Application Site (i.e. Farm1.0 + Farm 2.0) comprises Lots 175 S.A ss.1, 175 S.B, 176, 179 RP, 333, 334, 335 S.B (Part), 336AB, 336C, 337 S.B, 338, 339, 340, 341, 342 RP, 345 S.A, and 346 in D.D. 16, Wo Tong Pui, Tai Po, New Territories. Since the land is zoned for "Recreation" (REC) use in the Outline Zoning Plan (OZP), a Town Planning Town (TPB) application under Section 16 (S16) of the Town Planning Ordinance will be required to obtain approval for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at the Application Site.

1.2 Objectives of this Report

1.2.1 This Environmental Assessment Report (EAR) aims to address the environmental issues in support of the Planning Application under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at various lots in D.D. 16 in Wo Tong Pui, Tai Po ("the Application Site" see the figure below).

1.3 Structure of this Report

1.3.1 The key environmental concerns of the Project would be potential odour emissions, as well as wastewater and solid waste generated from farm activities. As the anticipated

[1] To avoid intrusion to the surrounding "Green Belt" zone, a minor portion of the existing temporary Farm1.0 that falls within the "GB" zone (about 56m²), has been excluded from the Application Site of the subject S16 planning applications.

increase in traffic during operation is negligible, the associated noise impact is also expected to be negligible.

1.3.2 The structure of this EAR is as below:

- **Section 1** describes the Project background and objectives of the report;
- **Section 2** describes the surrounding site condition and preliminary design plan;
- **Section 3** evaluates the air quality/odour impacts and the mitigation measures required;
- **Section 4** evaluates the water quality impacts and the mitigation measures required;
- **Section 5** estimates the waste generated volume by the Project;
- **Section 6** reviews the potential for land contaminant; and
- **Section 7** concludes the findings.

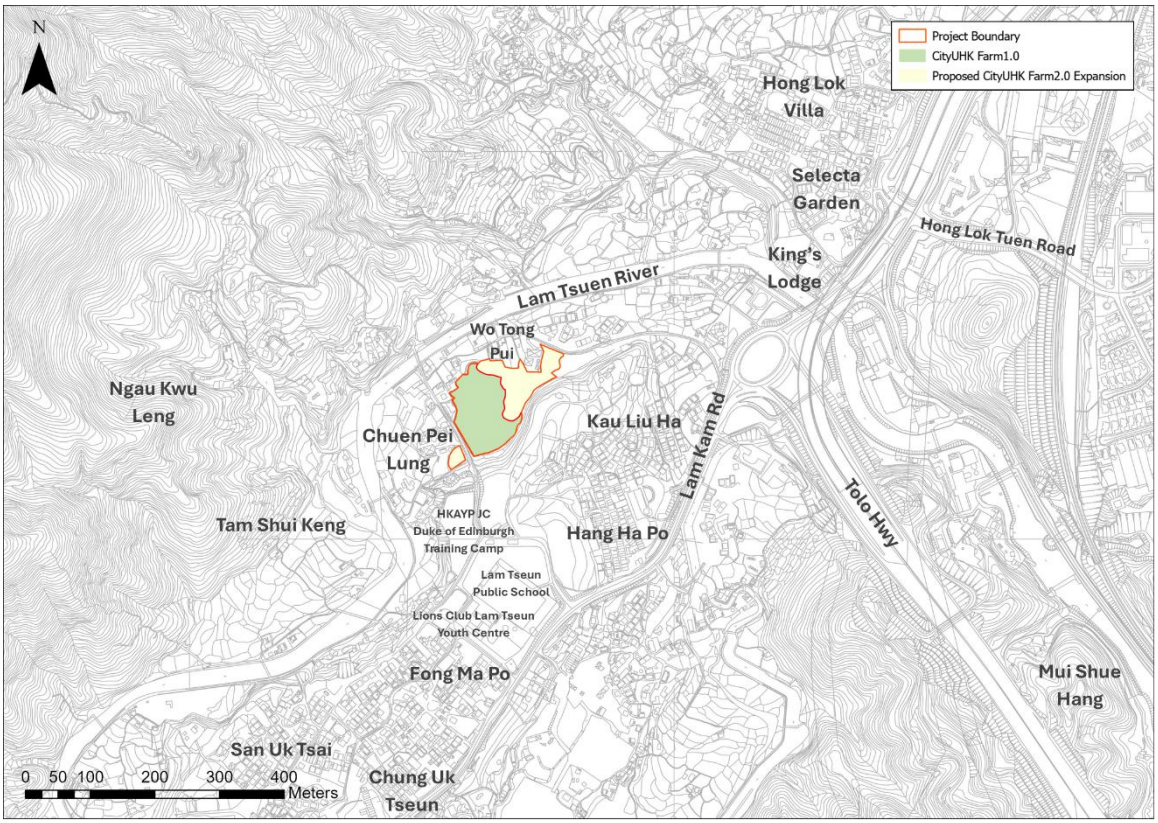


Figure 1.1 Location of the Application Site

2. PROJECT DESCRIPTION

2.1 Existing Environment

2.1.1 As shown in **Figure 1.1**, the surrounding area of the Application Site is predominantly rural, comprising farmland, woodland, village houses, and temporary structures. The site is bordered by the Lam Tsuen River, natural woodland, low-density residential developments, agricultural land, and community and recreational facilities, including villages, schools, training centres, and public amenities.

2.1.2 As shown in **Figure 2.1**, the Application Site is located in Wo Tong Pui, Lam Tsuen and is divided by into two sections:

- CityUHK Farm 1.0: 9,274 m²
- CityUHK Farm 2.0: 591 m² + 5,579 m², total 6,169m².

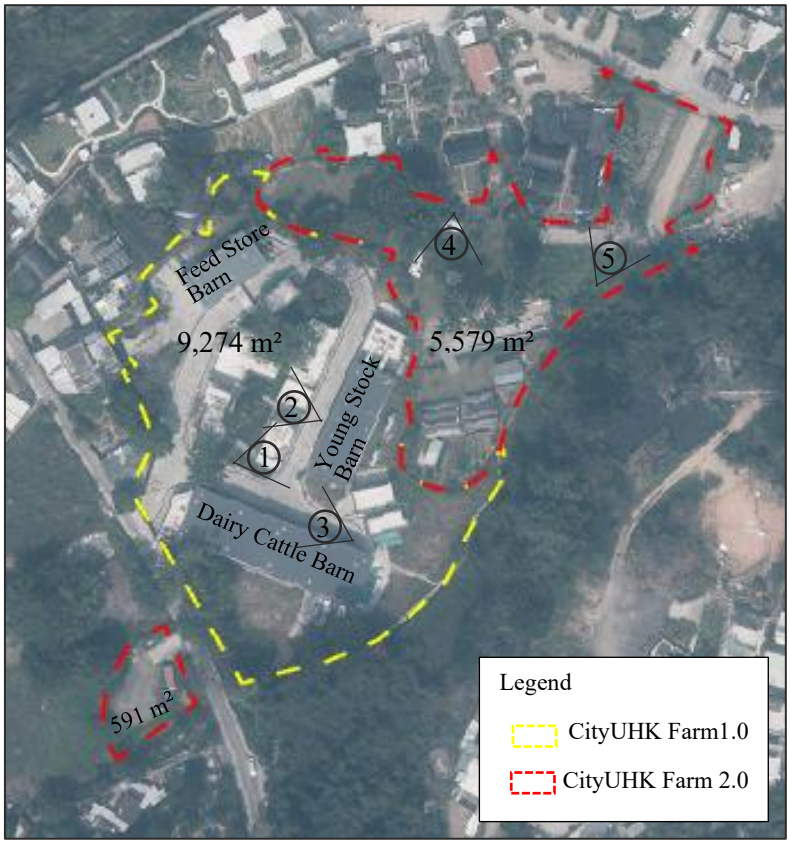
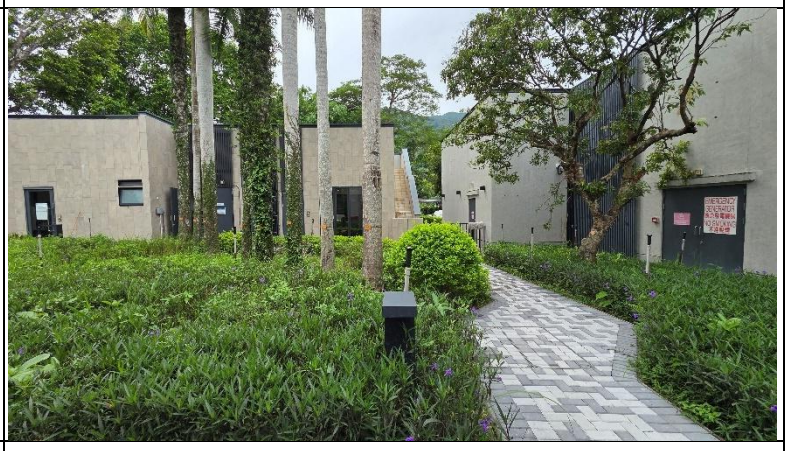


Figure 2.1 Exiting Environment

2.1.3 Site visits were conducted on 24th October 2025 to assess the existing environment in the vicinity of the Application Site. The photo record of the visit is shown in the table below.

Table 2.1 Site Visit Photo Record

Location ID (see Figure 2.1)	Proposed Used in the Design	Photo
1	Young Stock Barn	
2	Laboratory & Pharmacy, No.9 TX & Genset Room; No.10 FS Sprinkler Tank Room; & No. 11 FS Sprinkler Pump Room	
3	Dairy Cattle Barn	

Location ID (see Figure 2.1)	Proposed Used in the Design	Photo
4	Farm 2.0 Proposed Dairy Barn	
5	Proposed Accommodation (The grassland); And the surrounding village house (out of the Application Site site)	

2.1.4 Farm 1.0 is currently used as a temporary teaching farm and comprises a total of 13 single-storey structures, including barns, a main building block, a sewage treatment unit, and other supporting facilities constructed on the Site.

2.1.5 Farm 2.0 is presently vacant with no designated use. The area is generally paved and partially covered with grass, with several clusters of trees. A number of temporary structures are scattered within the central portion of the site.

2.2 Design of the Proposed Scheme

2.2.1 The layout of the proposed scheme and building blocks is illustrated in **Figure 2.2** and summarised in **Table 2.2**. Farm1.0 and 2.0 will consist of total 20 blocks of buildings (including 2 underground structures) with building heights ("BH") of not more than about 9.5m with a total GFA of 4,461m^2. The building blocks will be primarily used for dairy farm operations and associated supporting facilities.

2.2.2 Based on the existing operation practice, farm operations typically commence early each day and require 24-hour on-site caretaker presence to address operational needs such as animal health and equipment issues, particularly during the calving season when extended working hours are common. A domestic building of not more than 3 storeys (9.5m) is also proposed to provide much-needed accommodation for on-farm staff and students.

2.2.3 To enhance wastewater management, all wastewater and sewage generated from Application Site will be collected and discharged to public sewer, with dry-wet separation and pre-treatment process for manure. This represents an improvement over the existing arrangement, under which sewage and wastewater from barns, staff, and visitors at Farm 1.0 are collected and transported off-site by tankers.

2.2.4 In addition, two separate drainage systems will be provided. One system will collect runoff from the roofs of all existing and proposed buildings and landscape area, which are stormwater. Another system will capture the first flush of surface runoff at ground level during storm events, which will be collected in a holding tank and timely diverted to the public sewer. The overflow of the holding tank is also considered stormwater and will be discharged into public drainage directly.

2.2.5 Therefore, under the proposed scheme, the existing 13 buildings within Farm 1.0 (Nos. 1-7, 9-14 in **Figure 2.2**) will be retained with proposed upgrades, or re-purposed to new uses. To support the new drainage system, a new underground holding tank (No. 18 in **Figure 2.2**) and an underground stormwater pump pit (No. 19 in **Figure 2.2**) are proposed within the area of Farm 2.0.

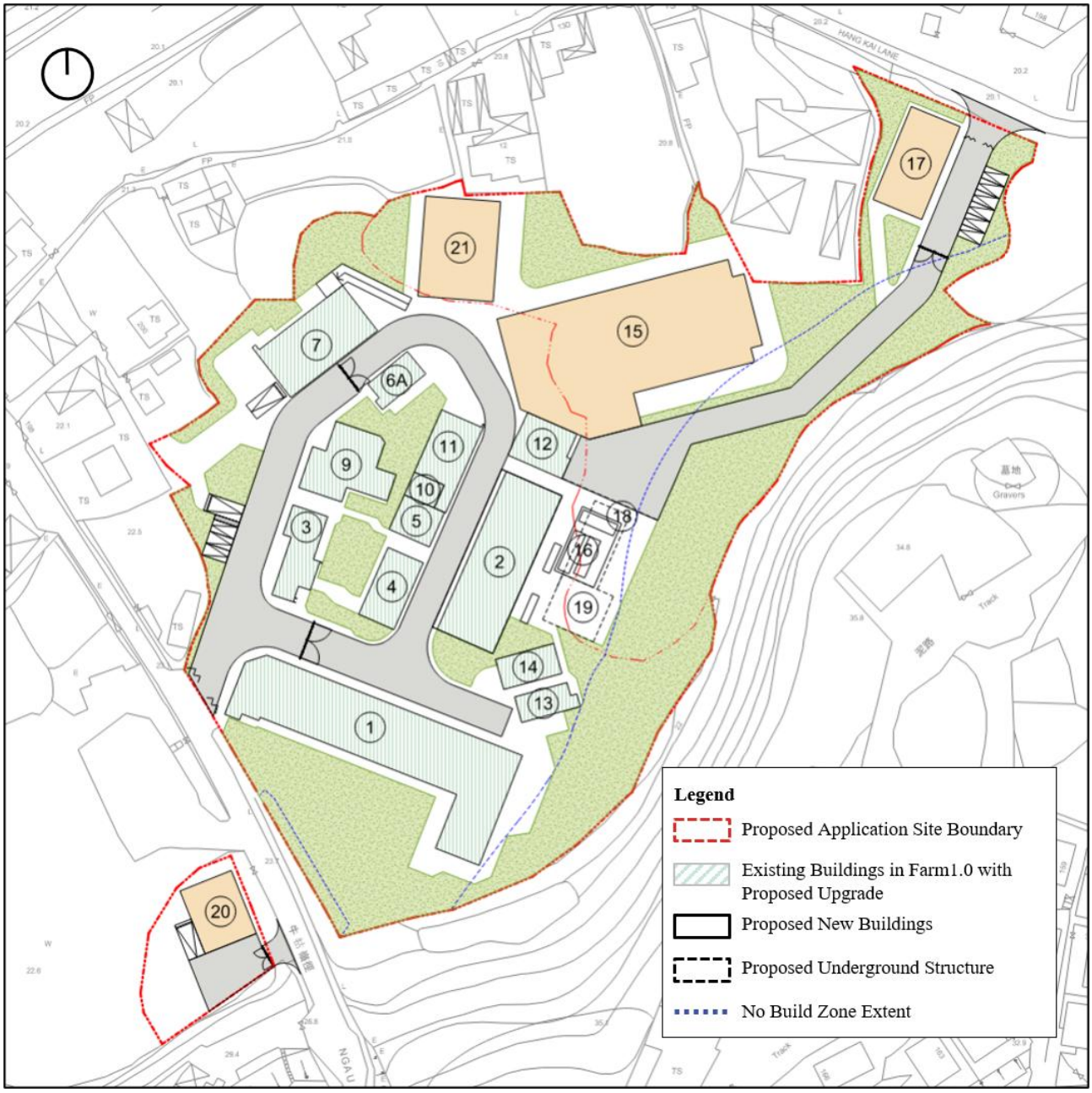


Figure 2.2 Proposed Layout

Table 2.2 Proposed Structures/ Facilities

Farm 1.0/2.0	ID	Building Block
Existing building blocks in Farm1.0 with proposed upgrade	1	Beef Cattle Barn
	2	Young Stock Barn
	3	Main Building Block
	4	Changing Room Block
	5	Laboratory & Pharmacy (1)
	6A	Manure Store (2)
	7	Feed Store Block
	9	Transformer & Generator Room Block

	10	Fire Service, Sprinkler System & Pump Room Block
	11	Fire Service, Sprinkler System & Pump Room Block
	12	Store
	13	Sewage Treatment Unit
	14	Micro-Filtration Unit
Proposed new building blocks/ structures in Farm2.0	15	Dairy Barn
	16	Pre-Treatment Facilities(2)
	17	Accommodation Block
	18	Holding Tank (U/G) (3)
	19	Stormwater Pump Pit (U/G) (3)
	20	Storage Shed
	21	Isolation Space

Remarks:
(1) The existing Caretaker Quarter in Block 5 will be re-provided in the new Block 17 Accommodation Block.
(2) The proposed Block 16 will be uncovered structures on ground floor.
(3) U/G indicated underground facilities

2.2.6 The proposed development parameters of the Application Site are summarised in the table below.

Table 2.3 Key Development Parameters of the Application Site

Key Development Uses		Parameters
Application Site Area (Approximately)		15,444m^2
Total Gross Floor Area (GFA) (Approximately) (1)		4,461m^2
• Non-domestic GFA (Approximately)		3,992m^2
• Domestic GFA (Approximately)		469m^2
Building Height		
Non-domestic	No. of Storeys	About 1 storey
	Building Height	About 3.4- 9.5m (3)
Domestic	No. of Storeys	Not more than 3 storeys
	Building Height	Not more than 9.5m
No. of Blocks		20
• Non-domestic		19
• Domestic		1
Site Coverage		27%
Ancillary Car Parking Provision		
No. of Car Parking Spaces(2)		9
No. of Motorcycle Parking Space		0
No. of Loading/Unloading (L/UL) Bay		3
Tentative Completion Year		2027

Remarks:

(1) In accordance with Building (Planning) Regulation 23(3)(b) and APP-2, uncovered outdoor facilities (about 440 m^2) and underground facilities (about 460m^2) are proposed to be exempted from GFA calculation.

(2) The car parking spaces to be provided at ground floor level are not included in the GFA calculation.
(3) Excluding 1 uncovered ground floor structures – Block 16.

2.3 Tentative Construction Method and Programme

2.3.1 Minor upgrading works are proposed for the existing buildings within Farm 1.0 (Nos. 1–7, 9-14 in **Figure 2.2**). These works include the installation of separate drainage systems on the building roofs and landscaped areas (as detailed in **Section 4**), minor utilities installation works, and piping works to improve daily barn operations result to reduce the risk of odour impacts and. Except for modification works to the ramps of the existing feed store barn, no significant demolition works are proposed for the other existing buildings.

2.3.2 As shown in **Figure 2.2**, a no-building zone, as delineated by the blue line, has been designated. All buildings would be set back from the slopes to reduce landslide risk. Consequently, no slope works are proposed, thereby minimising heavy construction works under the Application Site. Furthermore, as indicated in **Table 2.3**, the proposed buildings would be limited to a maximum of three storeys. Limited car parking space (total 9) would be provided, and no basement construction is proposed. As such, heavy foundation, excavation works, and superstructure works are not anticipated. Major excavation works would mainly be required for the holding tank (No. 18 in **Figure 2.2**) and the stormwater pump pit (No. 19 in **Figure 2.2**).

2.3.3 Key construction works include:

- Site formation;
- Excavation Works;
- Foundation works;
- Superstructure works; and
- Utility construction.

2.3.4 Construction works of the Application Site is intended to be completed by 2027 tentatively.

2.4 Concurrent Projects

2.4.1 No foreseeable interaction or conflict with other development projects in the vicinity of the Application Site was identified during the preparation of this ER.

2.5 Designated Project Elements

2.5.1 Reclaimed water for use by general public will not be involved in the Project.

2.5.2 No designated project element listed in Schedule 2 and 3 of the Environmental Impact Assessment Ordinance (EIAO).

3. AIR QUALITY ASSESSMENT

3.1 Legislation, Standards and Guidelines

A. General

3.1.1 The relevant legislations, standards and guidelines applicable to the present study for the assessment of air quality impacts include:

- Air Pollution Control Ordinance (APCO) (Cap. 311);
- Air Pollution Control (Construction Dust) Regulation (Cap. 311R);
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (Cap 311Z);
- Air Pollution Control (Fuel Restriction) Regulations (Cap 311I);
- Development Bureau Technical Circular (Works) No. 13/2020 Timely Application of Temporary Electricity and Water Supply for Public Works Contracts and Wider Use of Electric Vehicles in Public Works Contracts;
- Development Bureau Technical Circular (Works) No. 1/2015 Emissions Control of Non-road Mobile Machinery in Capital Works Contracts of Public Works;
- Recommended Pollution Control Clauses for Construction Contracts; and
- Hong Kong Planning Standards and Guidelines (HKPSG).

B. Air Pollution Control Ordinance (APCO) (Cap. 311)

3.1.2 The principal legislation for controlling air pollutants is the Air Pollution Control Ordinance (APCO) (Cap. 311) which provides a statutory framework for establishing the Air Quality Objectives (AQOs). The AQOs stipulate limits on concentrations for 7 pollutants including Sulphur Dioxide (SO_2), Respirable Suspended Particulates (RSP), Fine Suspended Particulates (FSP), Nitrogen Dioxide (NO_2), Photochemical Oxidants (Ozone (O_3)), Carbon Monoxide (CO), and Lead (Pb). The current AQOs which took effect in 2025 are listed in the below table.

Table 3.1 Hong Kong Air Quality Objectives 2025

Pollutants	Limits on Concentration, µg/m^3 [1] (The Number of Exceedance per calendar year allowed is shown in brackets)					
	Peak season	10-min	1-hr	8-hr	24-hr	Annual
NO_2			200 (18)		120 (9)	40
RSP (PM_{10}) [2]					75 (9)	30
FSP ($PM_{2.5}$) [3]					37.5 (18)	15
SO_2		500 (3)			40 (3)	
O_3	100			160 (9)		
CO			30,000 (0)	10,000 (0)	4,000 (0)	

Pollutants	Limits on Concentration, µg/m³ [1] (The Number of Exceedance per calendar year allowed is shown in brackets)					
	Peak season	10-min	1-hr	8-hr	24-hr	Annual
Pb						0.5

Notes:

[1] All measurements of the concentration of gaseous air pollutants, i.e. sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.

[2] Respirable suspended particulates (RSP) mean suspended particles in air with a nominal aerodynamic diameter of 10 µm or less (i.e. PM_{10}).

[3] Fine suspended particulates (FSP) mean suspended particles in air with a nominal aerodynamic diameter of 2.5 µm or less (i.e. $PM_{2.5}$).

C. Hong Kong Planning Standards and Guidelines (HKPSG)

3.1.3 Proposed sensitive uses within the Application Site are residential, recreational, commercial, and government, institution or community uses, etc. According to HKPSG, different buffer distances are required for different types of emission sources as listed in the table below, and no sensitive uses including fresh air intake should be located within the buffer distances.

Table 3.2 HKPSG Recommended Buffer Distances for Different Pollution Sources

Polluting Source	Parameter	Buffer Distance	Permitted Uses [1]
Road and Highways	***Type of Road***		
	Trunk Road and Primary Distributor	>20m	active and passive recreational uses
		3-20m	passive recreational uses
		<3m	amenity areas
	District Distributor	>10m	active and passive recreational uses
		<10m	passive recreational uses
	Local Distributor	>5m	active and passive recreational uses
		<5m	passive recreational uses
	Under Flyovers	-	passive recreational uses
Industrial Area	***Difference in Height between Industrial Chimney Exit and the Site***		
	<20m	>200m	Active and passive recreational uses
		5-200m	Passive recreational uses
	20-30m	>100m	Active and passive recreational uses
		5-100m	Passive recreational uses
	30-40m	>50m	Active and passive recreational uses
		5-50m	Passive recreational uses
	>40m	>10m	Active and passive recreational uses
Construction and earth moving activities	-	<50m	passive recreational uses
		>50m	active and passive recreational uses
Odour sources	-	200m	sensitive uses

Note:
[1] According to HKPSG Chapter 4 - Recreation, Open Space and Greening -

- **Active Open Space:** Recreation open space which contains outdoor recreation facilities, mainly for the core activities including games facilities;
- **Passive Open Space:** Recreation open space which is landscaped as parks, gardens, sitting-out areas, waterfront promenades, paved areas for informal games, children's playgrounds, jogging and fitness circuits etc., where people can enjoy the surroundings in a leisurely manner. Games facilities are normally not provided.
- **Amenity Areas**: A non-statutory land use zone for areas of incidental greenspace which are landscaped for amenity, visual or buffer purposes, but have no potential for recreation use.

3.2 Description of the Environment

A. Existing Ambient Air Quality

3.2.1 The Application Site is located at Wo Tong Pui, positioned between Ngai Kwu Leung Path and Hange Kai Lane within Lam Tsuen, Tai Po. The nearest Air Quality Monitoring Station (AQMS) operated by EPD is the Tai Po AQMS. The latest 5-years monitoring data extracted from EPD's Smart Air Modelling Platform v2.1 (SAMP) are summarised in the below table.

Table 3.3 Concentrations of Pollutants at Tai Po AQMS (Year 2021-2025)

Pollutant	Parameter	Concentrations (µg/m³)						Current AQOs (µg/m³)
		2021	2022	2023	2024	2025	5-year mean	
RSP	10th Highest 24-hour	60	48	53	59	57	55	75 (9)
	Annual	26	21	25	24	24	24	30
FSP	19th Highest 24-hour	32	30	30	33	32	31	37.5 (18)
	Annual	**16**	14	**15**	**16**	**15**	**15**	15
NO_2	19th Highest 1-hour	115	93	95	107	113	105	200 (18)
	10th Highest 24-hour	65	49	51	53	59	55	120 (9)
	Annual	32	27	27	28	29	29	40
SO_2	4th Highest 10-Min	15	12	27	8	16	16	500 (3)
	4th Highest 24-hour	8	5	4	6	8	6	40 (3)
O_3	10th Highest 8-hour	**168**	**188**	**163**	**171**	**169**	**172**	160 (9)
	Peak season	**101**	99	96	**106**	**107**	**102**	100
CO	1st Highest 1-hour	-	-	-	-		-	30000 (0)
	1st Highest 8-hour	-	-	-	-		-	10000 (0)
	1st Highest 24-hour	-	-	-	-		-	4000 (0)

Notes:
[1] Monitoring results exceeding the AQO are in **bold**.
[2] "-" means not measured.
[3] The 5-year mean is the average of the five yearly concentrations. Number of exceedance allowed under the AQOs is shown in ( ).

3.2.2 As seen from the table above, except of FSP and O_3, no exceedance for other parameters. The annual FSP levels were in the range of 14 to 16 μg/m³, with exceedances recorded in 2021, 2023, 2024, and 2025. The 19th highest daily FSP levels were at a level of 30 to 33 μg/m³, and complied with AQO for all 5 years.

3.2.3 The 10th highest 8-hour O_3 concentration ranges from 163 μg/m³ to 188 μg/m³, exceeding the AQO over the past five years. The peak season O_3 concentration ranges from 96 μg/m³-107 μg/m³, averaging around 102 μg/m³ and exceeding the AQO. According to EPD's Air Quality in Hong Kong 2025 Report, O_3 is not a pollutant directly emitted from man-made sources but formed by photochemical reactions of primary pollutants such as NOx and volatile organic compounds (VOCs) under sunlight. As it takes several hours for these photochemical reactions to take place, O_3 recorded in one place could be attributed to VOC and NOx emissions from places afar. Hence, O_3 is more a regional air pollution problem.

B. Future Ambient Air Quality

3.2.4 The construction phase of the Application Site is anticipated to commence in Year 2027 tentatively, while the operation is anticipated in Year 2028. The future ambient air quality in Year 2027 and 2028 is predicted by a regional air quality model named "Pollutants in the Atmosphere and their Transport over Hong Kong" (i.e. PATH v3.0). NO_2, RSP and FSP are generally considered as the key concerned pollutants for development. The committed and planned control measures to be implemented by the Hong Kong Government and Pearl River Delta Economic Zone (PRDEZ) are accounted for in PATH. The PATH grids within the 500m assessment area are shown in **Figure 3.1**. The future ambient air quality within each PATH grid in Year 2027 and 2028 is shown in the table below.

Table 3.4 Future Ambient Air Quality for Concerned PATH Grids (Year 2027)

Pollutant	Averaging Time	Proposed AQO	Data Summary	PATH v3.0 Grid in Year 2027			
				37,49	37,48	36,48	36,49
RSP	24-hour	75 (9)	10th	59	61	62	60
			Exceedance	0	0	2	1
	Annual	30	-	23	24	24	23
FSP	24-hour	37.5 (18)	19th	37	**38**	**38**	37
			Exceedance	17	20	19	16
	Annual	15	-	**15**	**15**	**15**	14
NO_2	1-hour	200 (18)	19th	56	52	45	44
			Exceedance	0	0	0	0
	24-hour	120 (9)	10th	23	22	19	18
			Exceedance	0	0	0	0
	Annual	40	-	16	15	12	12
SO_2	10-Min	500 (3)	4th	26	26	26	27
			Exceedance	0	0	0	0
	24-hour	40 (3)	4th	7	7	7	7
			Exceedance	0	0	0	0
O_3	8-Hour	160 (9)	10th	**172**	**174**	**178**	**179**
			Exceedance	23	23	26	27

Pollutant	Averaging Time	Proposed AQO	Data Summary	PATH v3.0 Grid in Year 2027			
				37,49	37,48	36,48	36,49
	Peak Season	100	-	**120**	**120**	**122**	**123**
CO	1-Hour	30000 (0)	1st	618	618	614	616
			Exceedance	0	0	0	0
	8-Hour	10000 (0)	1st	587	589	572	577
			Exceedance	0	0	0	0
	24-Hour	4000 (0)	1st	539	537	527	528
			Exceedance	0	0	0	0

Notes:
[1] Reference: EPD's SAMP v2.1.
[2] Concentrations exceeding the AQO are in bold.

Table 3.5 Future Ambient Air Quality for Concerned PATH Grids (Year 2028)

Pollutant	Averaging Time	Proposed AQO	Data Summary	PATH v3.0 Grid in Year 2028			
				37,49	37,48	36,48	36,49
RSP	24-hour	75 (9)	10th	59	61	62	60
			Exceedance	0	0	2	1
	Annual	30	-	23	24	23	23
FSP	24-hour	37.5 (18)	19th	37	**38**	**38**	37
			Exceedance	17	19	19	16
	Annual	15	-	**15**	**15**	**15**	14
NO_2	1-hour	200 (18)	19th	55	51	44	43
			Exceedance	0	0	0	0
	24-hour	120 (9)	10th	22	21	18	17
			Exceedance	0	0	0	0
	Annual	40	-	15	15	12	12
SO_2	10-Min	500 (3)	4th	26	26	26	27
			Exceedance	0	0	0	0
	24-hour	40 (3)	4th	7	7	7	7
			Exceedance	0	0	0	0
O_3	8-Hour	160 (9)	10th	**172**	**174**	**178**	**179**
			Exceedance	23	23	26	27
	Peak Season	100	-	**120**	**120**	**123**	**123**
CO	1-Hour	30000 (0)	1st	618	618	614	616
			Exceedance	0	0	0	0
	8-Hour	10000 (0)	1st	587	589	572	577
			Exceedance	0	0	0	0
	24-Hour	4000 (0)	1st	538	536	527	527
			Exceedance	0	0	0	0

Notes:
[1] Reference: EPD's SAMP v2.1.
[2] Concentrations exceeding the AQO are in bold.

3.2.5 As seen from the table above, except of FSP and O_3, no exceedance for other parameters for both 2027 and 2028 future ambient air quality. The annual FSP levels were in the range

of 14 to 15 μg/m³, with exceedances recorded in Grid (37, 49), Grid (36, 48), Grid (37, 48) in Years 2027 and 2028. The 19th highest daily FSP levels were at a level of 37 to 38 μg/m³, and exceedance are found in Grid (36, 48) and Grid (37, 48) in Years 2027 and 2028. Exceedances of 10th highest 8-hr O_3 and the peak season O_3 concentrations are predicted in Years 2027 and 2028. As discussed in **Section 3.2.3**, O_3 is a regional air pollution problem.

3.3 Air Sensitive Receivers

3.3.1 In accordance with Annex 12 of the EIAO-TM, Air Sensitive Receivers (ASRs) include domestic premises, hotel, hostel, hospital, clinic, nursery, temporary housing accommodation, school, educational institution, office, factory, shop, shopping centre, place of public worship, library, court of law, sports stadium or performing arts centre. Any other premises or places with which, in terms of duration or number of people affected, has a similar sensitivity to the air pollutants as the afforested premises and places would also be considered as a sensitive receiver.

3.3.2 Representative ASRs within the Assessment Area (i.e. 500m from the boundary of the Application Site) have been identified in the table below and shown in **Figure 3.1**. The existing ASRs are identified by means of topographic maps, aerial photos, land status plans and site inspections. No planned ASRs within the assessment area are identified according to the Approved Lam Tsuen OZP No. S/NE-LT/11.

Table 3.6 Representative ASRs for Air Quality Assessment

ASR ID	Description	Uses	No. of Storeys	Approximate Distance from Application Site (m) [1]
Existing ASRs				
ASR01	198 Hang Ha Po	Residential	G/F	7m
ASR02	13D Ngau Kwu Leng	Residential	G/F	20m
ASR03	210 Kau Liu Ha	Residential	2/F	30m
ASR04	198 Kau Liu Ha	Residential	2/F	20m
ASR05	201 Kau Liu Ha	Residential	2/F	40m
ASR06	56 Kau Liu Ha	Residential	2/F	140m
ASR07	52 Kau Liu Ha	Residential	2/F	170m
ASR08	32 Kau Liu Ha	Residential	2/F	210m
ASR09	18 Kau Liu Ha	Residential	2/F	160m
ASR10	139 Han Ha Po	Residential	2/F	140m
ASR11	141 Hang Ha Po	Residential	2/F	120m
ASR12	155 Hang Ha Po	Residential	2/F	100m
ASR13	159 Hang Ha Po	Residential	2/F	80m
ASR14	165 Hang Ha Po	Residential	2/F	70m
ASR15	166 Hang Ha Po	Residential	2/F	70m
ASR16	41 Hang Ha Po	Residential	2/F	40m

ASR ID	Description	Uses	No. of Storeys	Approximate Distance from Application Site (m) [1]
ASR17	HKAYP JC Duke of Edinburgh Training Camp	Office	2/F	40m
ASR18	ZANZI	Open Space	G/F	20m
Planned ASRs				
PASR01	Office	Office	1/F	Within Application Site boundary
PASR02	Accommodation	Residential	2/F	Within Application Site boundary

Notes:
[1] Expect distance for ASR01 is rounded to nearest 1m, other distance is rounded to the nearest 10m.

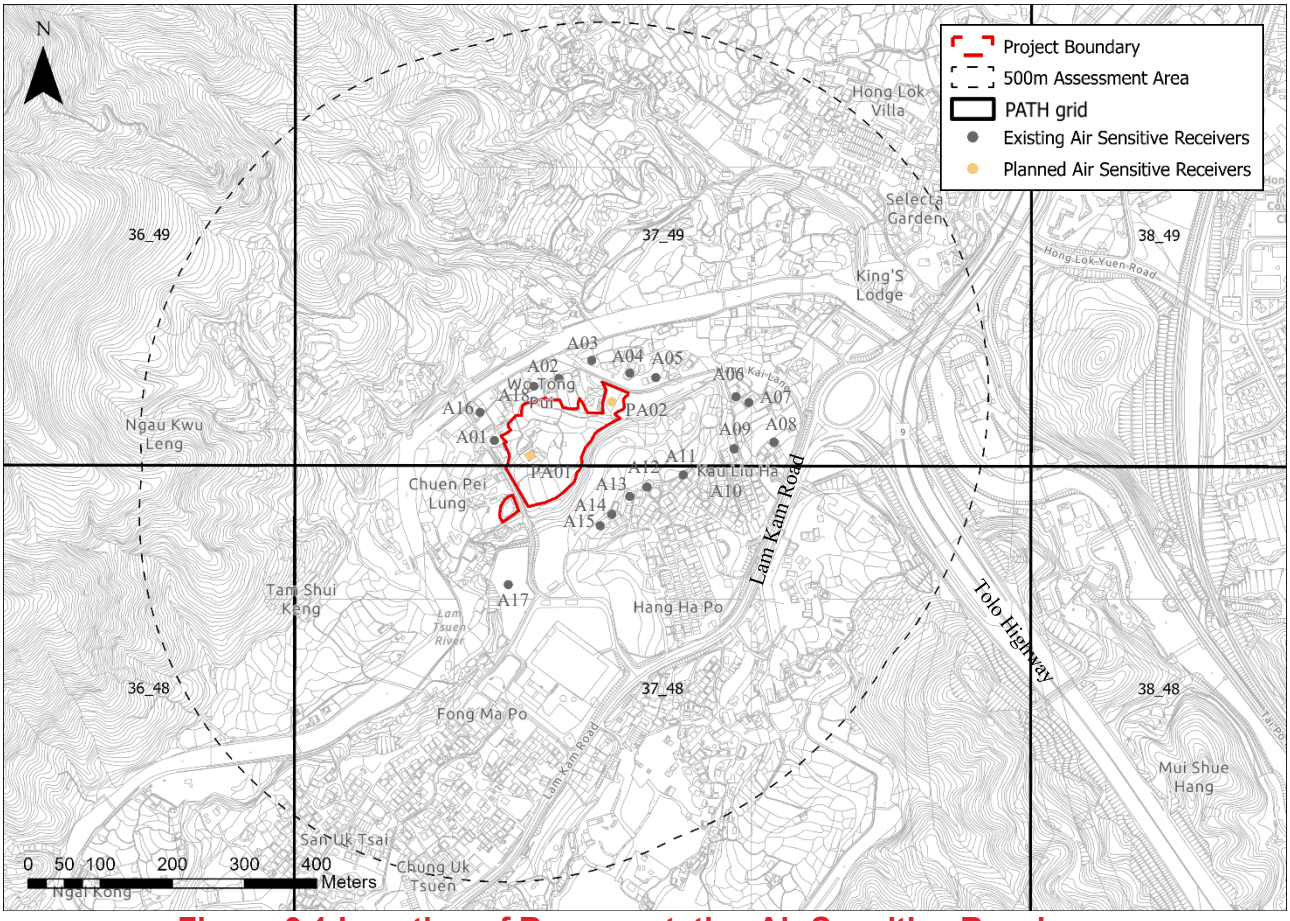


Figure 3.1 Location of Representative Air Sensitive Receivers

3.4 Construction Phase Impact Evaluation and Mitigation Measures

A. Construction Dust

3.4.1 Detailed construction methodology, work site area, works area phasing, and the implementation programme are not available at this stage and will be determined during the subsequent detailed design phase. As discussed in **Section 2.3**, apart from modification works to the ramps of the existing feed store barn, there would be no significant demolition of other existing buildings. In addition, as the proposed buildings will be no more than three storeys in height and will not include basements, heavy foundation works, extensive excavation, or major superstructure works are not anticipated.

3.4.2 In general, during the construction phase, fugitive dust will be generated from construction activities, which mainly include site clearance, soil excavation, site formation, backfilling and wind erosion of open sites. Under current design, the major excavation areas are about 2,653 m² with 1.3 m depth for major proposed buildings; 750 m² with 3.3 to 3.6 m depth for underground holding tanks/pits; and 2,000 m² with 0.6 to 1.4 m depth for piping works. With reference to other similar scale projects, there is likely to be around two dump trucks per trip during the site formation stage. On the other hand, the superstructure works construction of the Application Site would not generate significant dust emission.

3.4.3 Implementation of appropriate dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation to mitigate dust impact is suggested. These measures include fully covering dusty materials like excavated soil or stockpiles with impermeable sheeting or wetting them with water. Vehicle washing facilities would be provided at every designated vehicular exit point so that all vehicles will be washed at exit points, and vehicle loaded with the dusty materials will be covered by clean and impervious sheeting before leaving construction sites. Given the Application Site scale, with implementation of the recommended good practices, no insurmountable impact on air quality during the construction phase is expected.

B. Fuel Combustion

3.4.4 Fuel combustion from the use of Powered Mechanical Equipment (PME) during construction works could be an emission source. With respect to the scale of works, no more than 10 numbers of PME would be operated during the construction phase. Emissions from machines and non-road vehicles are controlled by the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation. Starting from 1st December 2015, only approved or exempted non-road mobile machinery is allowed to be used in construction sites. Ultra-low sulphur diesel (ULSD) with a sulphur content of not more than 0.001% by weight and a viscosity of not more than 6 centistokes at 40°C will be used as much as practicable to minimise SO_2 emissions. The introduction of ultra-low sulphur diesel for vehicle fleet and implementation of the Air Pollution Control (Fuel Restriction) Regulations have also reduced the SO_2 emission from road transport and fuel

combustion in Hong Kong. Hence, the emissions from non-road mobile machinery are considered relatively small.

C. Recommended Good Practices

3.4.5 In order to reduce the possible dust emission from the Application Site, the Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation. The following dust suppression measures and practices to reduce exhaust emission from construction plant and dust emission from construction activities should be incorporated by the Contractor to control the dust nuisance and exhaust emission throughout the construction phase:

- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable for the excavation or unloading;
- Site hoardings of not less than 2.4m high should be provided as far as practicable along the construction extent, ensuring that the existing public crossing remains unobstructed. Subject to site constraints, the Contractor may review the practicability of taller site hoarding for ASRs in close vicinity to the site boundary. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;
- Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;
- Any skip hoist for material transport should be totally enclosed by impervious sheeting;
- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;
- Cement delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;
- Loading, unloading, transfer, handling or storage of bulk cement should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system;
- Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilisers within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies; and

3.4.6 To minimise air quality impact from fuel combustion, PME used in the construction site should be registered under Air Pollution Control (Non-road Mobile Machinery)

(Emission) Regulation with the NRMM label displayed at a conspicuous position of the registered item. Exempted NRMMs shall be avoided to be used as far as practicable.

3.4.7 With the implementation of these mitigation measures during construction phase of the Application Site, no insurmountable air quality impact during construction phase is anticipated.

D. Cumulative Impacts

3.4.8 According to **Section 2**, there are no concurrent projects within the 500m assessment area. Hence, there would not be adverse cumulative impacts during the construction phase.

3.5 Operational Phase Impact Evaluation and Mitigation Measures

A. General

3.5.1 The Application Site is located at Wo Tong Pui, where the surrounding area is predominantly residential, with nearby nursery compounds as observed from site visit on 24th October 2025. The nearest major roads are Lam Kam Road and Tolo Highway, located at approximately 250 m and 350 m away, respectively. Neither industrial zones nor industrial chimneys were observed within the 500 m assessment area. Although local roads such as Hang Kai Lane and Ngau Kwu Leng Path were adjacent to the project boundary, there are sufficient setback of over 5 m from the roads to the air sensitive receivers (buildings). Accordingly, the buffer distances for roads/highways and industrial areas/chimneys recommended in the HKPSG, as listed in **Table 3.2**, are satisfied.

3.5.2 According to the latest design, no chimneys are proposed within the Application Site. Farm operations will involve the use of scissor platforms and tractors, similar to the current operations at Farm 1.0. The scissor platform is electrically powered. Hence, tractor operation would be the only potential emission source. The tractor would be used to transport feed from the feed store barn to the cattle barns at a frequency of fewer than five trips per day. As a result, such emissions would be negligible.

3.5.3 As discussed in **Section 2.2**, all wastewater and sewage generated from Farm 1.0 and Farm 2.0 will be collected and discharged to the public sewer. Compared with the existing arrangement at Farm 1.0, this will reduce traffic associated with regular off-site tanker away. In addition, visits to the farm will be by invitation only for biosecurity reason. Consequently, restrictions on visitor numbers, together with the provision of only 17 parking spaces, indicate that any increase in traffic during future operation will be negligible. As a result, induced traffic emissions from the Application Site would be insignificant.

B. Odour Emission

3.5.4 Toilet facilities are provided within the buildings of Farm 1.0, but the generated sewage is diverted to and stored in an underground sewage holding tank. This holding tank may constitute a potential source of odour emissions, particularly during sewage collection and tanker loading operations. Under the latest design, all domestic sewage generated by the

Application Site will be discharged directly to the public sewer. As a result, odour impacts associated with domestic operations are expected to be negligible.

Odour emission from Manure

3.5.5 Odour emissions may arise from the day-to-day operation of the barns. Under the current operation of Farm 1.0, manure generated by cattle and calves is collected and transported off site by tanker on a daily basis. The primary sources of odour include manure generated by cattle and calves, manure storage areas within the farm, as well as potential odour emissions during manure collection and tanker loading operations.

3.5.6 According to the latest design, manure generated by cattle and calves will be properly collected via the on-site sewerage system and ultimately discharged to the public sewerage system. Prior to discharge, a dry–wet separation process will be implemented, which significantly reduces odour arising from bacterial decomposition of manure during storage. The whole process including the separator, receiving pit, and solid collection points are all situated within a fully enclosed area equipped with automatic rolling doors. The potential odour emissions generated from the separation process would be effectively controlled.

3.5.7 Following removal of solid waste, the wastewater will undergo pre-treatment to meet the relevant discharge requirements before entering the public sewerage system. The solid waste and slurry generated from the pre-treatment process will be properly stored prior to off-site collection and handling. As the pre-treatment processes will be conducted within enclosed conditions, and the slurry will be placed directly into airtight transportable leakproof plastic containers, no adverse odour impact is anticipated. Moreover, the transportation of solid waste and slurry would be handled by licensed waste collectors as detailed in **Section 5**.

3.5.8 The proposed arrangement eliminates the need for regular manure collection by tanker, thereby reducing potential odour emissions associated with manure handling and tanker loading operations.

Odour emission from Barns

3.5.9 Under the current operation of Farm 1.0, cattle and calves are housed within barns rather than being allowed to graze on open farmland. The barns are equipped with mechanical ventilation systems and activated carbon filters to mitigate odour emissions. However, as the barns are semi-enclosed, not all exhaust air passes through the carbon filters.

3.5.10 As an additional measure to reduce odour emissions, the operator has increased the application rate of biochar to the barn floors, particularly during wet weather conditions. Biochar is highly absorbent, with properties comparable to activated charcoal, and is effective in absorbing odour gases from manure at source when applied to floor surfaces.

New Deodorization System for the New Barn

3.5.11 A micro-nano deodorization system, as illustrated in the accompanying schematic diagram (see **Figures 3.2** and **3.3**), is proposed to the third barn under Farm 2.0 (No. 15 in **Figure 2.2**). The entire system is configured on the exhaust side of the exhaust fans, incorporating a deodorization chamber adjacent to the fan exhaust and a primary equipment room situated outside the deodorization area. The system comprises several key components: a water filtration unit, air compressor, oxygen generator, ozone generation system, gas–liquid mixing apparatus, micro-nano generation system, and controller.

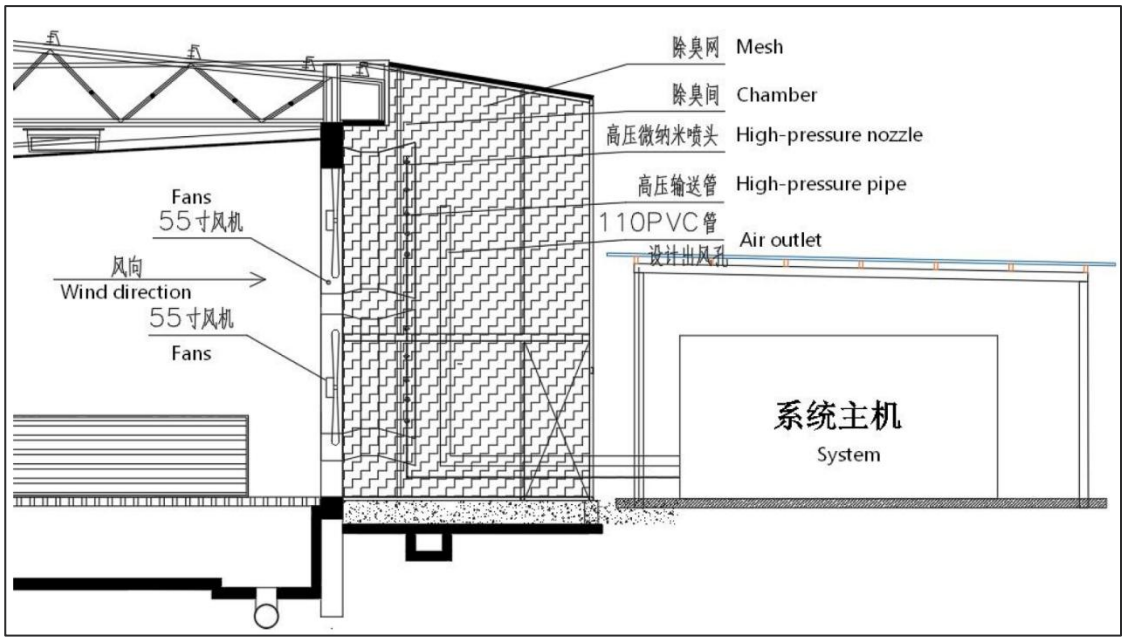


Figure 3.2 Schematic diagram of Deodorization System

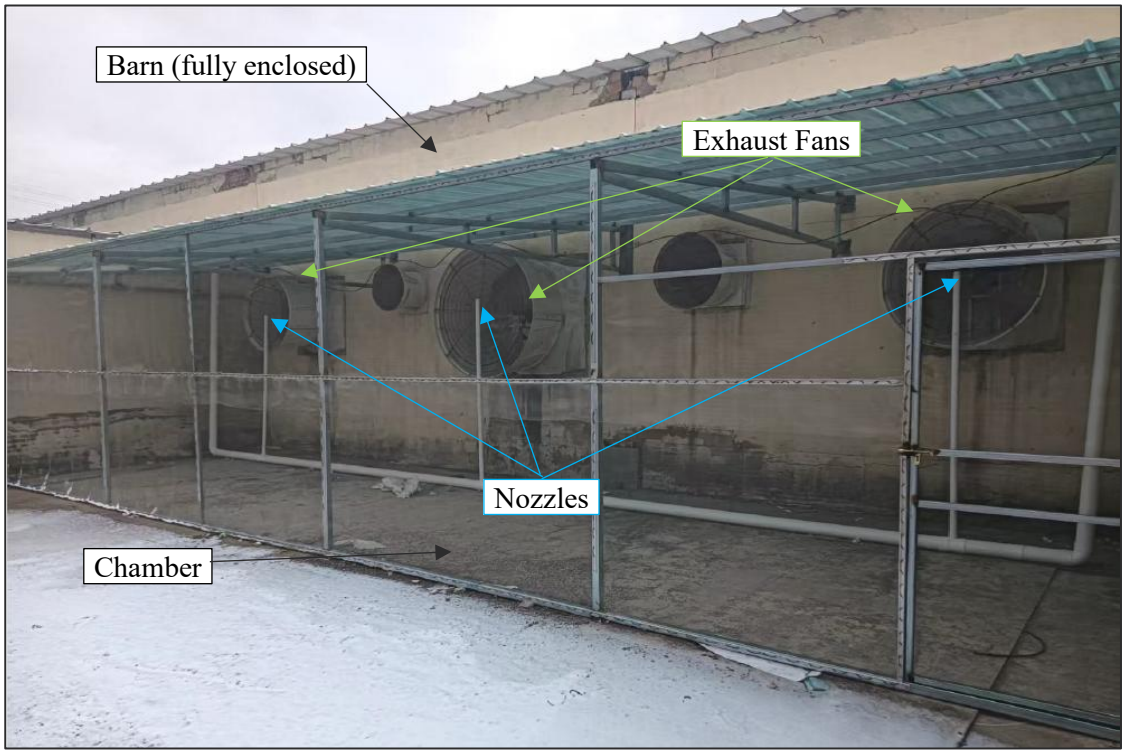


Figure 3.3 Photo of Micro-Nano Deodorization Chamber extracted from another Project[2]

3.5.12 The proposed deodorisation system uses a combination of nano-molecular water and ozone generated from fresh water and atmospheric air. Fresh water is treated by a nano-molecular water generator and stored in a water tank. At the same time, air is drawn in and processed to produce high-purity oxygen, which is then converted into ozone.

3.5.13 The nano-molecular water and ozone are mixed and sprayed through nozzles at the fan exhaust outlets (as shown in **Figure 3.3**), allowing direct contact with the odorous air stream prior to discharge. This treatment process facilitates odour reduction before release to the surrounding environment. Based on operational experience from similar agricultural facilities, barn odours are mainly associated with ammonia, which is highly soluble in water. Measurements obtained from comparable installations indicate that the system can achieve an ammonia removal efficiency in the range of approximately 75% to 90%.

3.5.14 There will be designated farm management personnel to oversee odour management during the daily operation of the barns. The designated farm management personnel will be responsible for reviewing the performance and odour removal efficiency of the proposed deodorisation system to ensure that no odour nuisance is caused to the ambient environment at and beyond the boundary of the Application Site. Routine inspections and maintenance of the deodorisation system, including the cleanliness and condition of the

[2] Exacted from the report of micro-nano deodorization system which is provided by the designated farm management personnel.

deodorisation chambers and exhaust fans, shall be carried out to ensure the system operates effectively and as intended.

Other Odour Mitigation Measures

3.5.15 Additional measures for odour control are recommended as follows in order to prevent odour nuisance during the operation:

- Manure handling and storage facilities, including the manure store and pre-treatment plant, shall be fully enclosed to minimise odour emissions;
- Slurry generated shall be stored in odour-proof containers prior to disposal;
- Feed spillage shall be cleaned up promptly, and spoiled feed shall be removed on a daily basis to avoid the generation of additional odour sources; and
- Good housekeeping practices shall be maintained across the farm, including regular cleaning and prompt repair of leaks from waterers and pipelines.

C. Cumulative Impacts

3.5.16 According to **Section 2**, there are no concurrent projects within the 500m assessment area. Hence, there would not be adverse cumulative impacts during the operational phase.

3.6 Environmental Monitoring and Audit

A. Construction Phase

3.6.1 With the implementation of the control measures and regular audit programme, no adverse environmental impact is anticipated during the construction phase. However, regular site audit for potential air quality impact is recommended to be conducted during the construction phase of the Application Site to ensure the air quality mitigation measures and the mitigation measures stipulated in Air Pollution Control (Construction Dust) Regulation are implemented.

B. Operational Phase

3.6.2 There would be no adverse air quality impact during operational phase. Hence, no environmental monitoring and site inspections are required.

3.6.3 With respect to odour impacts during the operation phase, as discussed in **Section 3.5**, the designated farm management personnel will continue to review the effectiveness of the odour control measures and refine relevant management arrangements where appropriate, with a view to minimizing potential impacts on the surrounding environment as far as practicable.

3.7 Conclusion

3.7.1 Construction works have been minimised under the latest design, such that no slope works, and only minor demolition works to the existing buildings in Farm 1.0 are proposed. In addition, given the restricted building height and the absence of basement construction,

substantial heavy excavation, foundation, or major structural works are not required. With the implementation of proper construction good practices, as described in **Section 3.4**, no adverse air quality impacts arising from the Application Site are expected.

3.7.2 The buffer distances for roads/highways and industrial areas/chimneys recommended in the HKPSG are satisfied. No chimneys are proposed within the Application Site, and the induced road traffic associated with the Application Site is expected to be negligible. Accordingly, there would be no adverse air quality impacts during the operational phase of the Application Site.

3.7.3 With the implementation of the proposed domestic sewerage arrangement for sewage and manure generated by cattle and calves, together with the installation of the new deodorisation system for the barns, the potential odour impact arising from the daily operation of the Application Site will be minimised.

4. WATER QUALITY IMPACT

4.1 Legislation, Standards and Guidelines

A. General

4.1.1 The relevant legislation, standards and guidelines applicable to the present study for the water quality impact assessment of both construction and operational phases include the following:

- Water Pollution Control Ordinance (WPCO) (Cap. 358);
- Technical Memorandum - Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS);
- Hong Kong Planning Standards and Guidelines (HKPSG);
- ProPECC PN 2/24 – Construction Site Drainage;
- ProPECC PN 1/23 – Drainage Plans Subject to Comment by the Environmental Protection Department; and
- ETWB Technical Circular (Works) (ETWB TCW) No. 5/2005 – Protection of Natural Streams / Rivers from Adverse Impact Arising from Construction Works.

B. Water Pollution Control Ordinance

4.1.2 The entire Hong Kong waters are divided into ten Water Control Zones (WCZs) and four supplementary WCZs under the WPCO (Cap. 358). Each WCZ has a designated set of statutory Water Quality Objectives (WQOs) designed to protect the inland and/ or marine environment and its users. The Application Site is located within the Tolo Harbour and Channel WCZ and the corresponding WQOs are summarised in the table below.

Table 4.1 Tolo Harbour and Channel Water Control Zone Statement of Water Quality Objectives for Watercourses

Parameters	Objectives	Sub-zone
Aesthetic Appearance	Waste discharges shall not cause waters of the subzone to contain substances that— (a) settle to form objectionable deposits; (b) float as debris, scum, oil or other matter to form nuisances; (c) produce objectionable colour, odour, taste or turbidity; (d) injure or are toxic or produce adverse physiological responses in humans, animals or plants; or (e) are conducive to undesirable aquatic life or a nuisance to aquatic life.	All Watercourses
Bacteria	Waste discharges shall not cause the level of Escherichia coli to exceed 1 000 per 100 mL in waters of the subzone, levels to be calculated as a	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E)

Parameters	Objectives	Sub-zone
	running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days (or 14 and 42 days).	(e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the level of Escherichia coli to exceed 0 per 100 mL in waters of the subzone, levels to be calculated as a running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days (or 14 and 42 days).	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
Colour	Waste discharges shall not cause the colour of waters of the subzone to exceed 50 Hazen units at any time.	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the colour of waters of the subzone to exceed 30 Hazen units at any time.	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
pH	Waste discharges shall not cause the pH of waters of the subzone to exceed the range of 6.0 to 9.0 at any time.	(a) SM(D) (b) SM(E) (c) SM(I) (d) Other Watercourses
	Waste discharges shall not cause the pH of waters of the subzone to exceed the range of 6.5 to 8.5 at any time.	(a) SM(A) (b) SM(B) (c) SM(C) (d) SM(F) (e) SM(G) (f) SM(H) (g) LT(C) (h) LT(D) (i) TP(A) (j) TP(B) (k) TP(C)
Temperature	Waste discharges shall not cause the natural daily temperature range in waters of the subzone to be extended by greater than ± 2.0 degrees Celsius at any location or time.	All Watercourses
Suspended Solids	Waste discharges shall not cause the annual median of suspended solids in	(a) SM(D) (b) SM(E)

Parameters	Objectives	Sub-zone
	waters of the subzone to exceed 25 milligrams per litre.	(c) SM(I) (d) Other Watercourses
	Waste discharges shall not cause the annual median of suspended solids in waters of the subzone to exceed 20 milligrams per litre.	(a) SM(A) (b) SM(B) (c) SM(C) (d) SM(F) (e) SM(G) (f) SM(H) (g) LT(C) (h) LT(D) (i) TP(A) (j) TP(B) (k) TP(C)
Dissolved Oxygen	Waste discharges shall not cause the level of dissolved oxygen in waters of the subzone to be less than 4 milligrams per litre or 40% saturation (at 15 degrees Celsius) at any time.	All Watercourses
5 Days Biochemical Oxygen Demand	Waste discharges shall not cause the 5 days biochemical oxygen demand in waters of the subzone to exceed 5 milligrams per litre at any time.	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the 5 days biochemical oxygen demand in waters of the subzone to exceed 3 milligrams per litre at any time.	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
Chemical Oxygen Demand	Waste discharges shall not cause the chemical oxygen demand in waters of the subzone to exceed 30 milligrams per litre at any time.	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the chemical oxygen demand in waters of the subzone to exceed 15 milligrams per litre at any time.	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)

Parameters	Objectives	Sub-zone
Ammoniacal Nitrogen	Waste discharges shall not cause the ammoniacal nitrogen in waters of the subzone to exceed 0.5 milligrams per litre at any time.	All Watercourses
Toxicants	Waste discharges shall not cause the toxicants in waters of the subzone to attain such a level as to produce significant toxic effects in humans, fish or any other aquatic organism, with due regard to biologically cumulative effects in food chains and to toxicant inter-actions with each other.	All Watercourses

C. Technical Memorandum - Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS)

4.1.3 Technical Memorandum- Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) was issued to control the physical, chemical and microbial quality of effluent discharges into foul sewers, storm water drains, inland and coastal waters. Specific limits apply to different discharge areas and they are different between surface waters and sewers. The limits vary with the rate of effluent flow. Any effluent discharge during the construction and operation phases of the development should comply with the relevant standards as stipulated in the TM-DSS. The standard for effluent discharged into Group A Inland water (i.e. Lam Tsuen River) and Foul Sewers Leading into Government Sewage Treatment Plants (i.e. public sewer along Hang Kai Lane) are summarised in the two tables below.

Table 4.2 Standards for Effluents Discharged into Group A Inland Waters

Parameters	Flow Rate (m^3/day)				
	≤10	>10 and ≤100	>100 and ≤500	>500 and ≤1000	>1000 and ≤2000
pH (pH units)	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5
Temperature (°C)	35	30	30	30	30
Colour (lovibond units) (25mm cell length)	1	1	1	1	1
Conductivity (μs/cm at 20 ℃)	1000	1000	1000	1000	1000
Suspended solids	10	10	5	5	5
Dissolved Oxygen	≥4	≥4	≥4	≥4	≥4
BOD	10	10	5	5	5
COD	50	50	20	20	10
Oil & Grease	1	1	1	1	1
Boron	2	2	1	0.5	0.5
Barium	2	2	1	0.5	0.5
Iron	2	2	1	0.5	0.5
Arsenic	0.05	0.05	0.05	0.05	0.05
Total chromium	0.05	0.05	0.05	0.05	0.05
Mercury	0.001	0.001	0.001	0.001	0.001
Cadmium	0.001	0.001	0.001	0.001	0.001
Selenium	0.01	0.01	0.01	0.01	0.01
Copper	0.2	0.2	0.2	0.2	0.1

Parameters	Flow Rate (m^3/day)				
	≤10	>10 and ≤100	>100 and ≤500	>500 and ≤1000	>1000 and ≤2000
Lead	0.1	0.1	0.1	0.1	0.1
Manganese	0.5	0.5	0.5	0.5	0.5
Zinc	1	1	1	1	1
Other toxic metals individually	0.1	0.1	0.1	0.1	0.1
Total Toxic metals	0.3	0.3	0.2	0.2	0.15
Cyanide	0.05	0.05	0.05	0.05	0.02
Phenols	0.1	0.1	0.1	0.1	0.1
Hydrogen sulphide	0.05	0.05	0.05	0.05	0.05
Sulphide	0.2	0.2	0.1	0.1	0.1
Fluoride	1	1	1	1	0.5
Sulphate	800	600	500	400	200
Chloride	800	500	500	200	200
Total reactive phosphorus	1	0.7	0.7	0.5	0.5
Ammonia nitrogen	1	1	1	1	0.5
Nitrate + nitrite nitrogen	15	15	15	10	10
E. coli (count/100mL)	<1	<1	<1	<1	<1

Table 4.3 Standards for Effluents Discharged into Foul Sewers Leading into Government Sewage Treatment Plants

Parameters	Flow Rate (m^3/day)					
	≤10	>10 and ≤100	>100 and ≤200	>200 and ≤400	>400 and ≤600	>600 and ≤800
pH (pH units)	6-10	6-10	6-10	6-10	6-10	6-10
Temperature (°C)	43	43	43	43	43	43
Suspended solids	1200	1000	900	800	800	800
Settleable solids	100	100	100	100	100	100
BOD	1200	1000	900	800	800	800
COD	3000	2500	2200	2000	2000	2000
Oil & Grease	100	100	50	50	50	40
Iron	30	25	25	25	15	12.5
Boron	8	7	6	5	4	3
Barium	8	7	6	5	4	3
Mercury	0.2	0.15	0.1	0.1	0.001	0.001
Cadmium	0.2	0.15	0.1	0.1	0.001	0.001
Copper	4	4	4	3	1.5	1.5
Nickel	4	3	3	2	1.5	1
Chromium	2	2	2	2	1	0.7
Zinc	5	5	4	3	1.5	1.5
Silver	4	3	3	2	1.5	1.5
Other toxic metals individually	2.5	2.2	2	1.5	1	0.7
Total toxic metals	10	10	8	7	3	2
Cyanide	2	2	2	1	0.7	0.5
Phenols	1	1	1	1	0.7	0.5
Sulphide	10	10	10	10	5	5
Sulphate	1000	1000	1000	1000	1000	1000
Total nitrogen	200	200	200	200	200	200
Total phosphorus	50	50	50	50	50	50
Surfactants (total)	200	150	50	40	30	25

D. Hong Kong Planning Standards and Guidelines (HKPSG)

4.1.4 Chapter 9 of the HKPSG outlines environmental requirements that need to be considered in land use planning. The recommended guidelines, standards and guidance cover the selection of suitable locations for the developments and sensitive uses, provision of environmental facilities, and design, layout, phasing and operational controls to minimise adverse environmental impacts. It also lists out environmental factors influencing land use planning and recommend buffer distances for land uses.

4.1.5 Section 5 under Chapter 9 of HKPSG provides broad guidelines on water quality which includes the principal framework for planning against water pollution. The overall objectives for planning against water pollution are:

- Achieving and maintaining the quality of inland waters, coastal waters, marine waters and groundwaters so that they can be used for their legitimate purposes;
- Providing adequate public sewerage, wastewater treatment and disposal facilities for all wastewaters; and
- Putting in place and enforce water pollution control legislation aimed at safeguarding the health and welfare of the community.

E. ProPECC PN 2/24 "Construction Site Drainage"

4.1.6 Professional Persons Environmental Consultative Committee Practice Notes (ProPECC PN2/24) on Construction Site Drainage provides guidelines for the handling and disposal of construction discharges. This note is applicable for control of site runoff and wastewater generated during the construction phase of the Development.

F. Practice Note for Professional Persons on Drainage Plans Subject to Comment by the Environmental Protection Department (ProPECC PN 1/23)

4.1.7 ProPECC PN 1/23 on drainage plans subject to comment by the EPD, provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers during operation phase.

G. ETWB Technical Circular (Works) (ETWB TCW) No. 5/2005 – Protection of Natural Streams / Rivers from Adverse Impact Arising from Construction Works

4.1.8 ETWB TCW No. 5/2005 provides an administrative framework to better protect all natural streams/rivers from the impact of construction works and clarifies and strengthens existing measures for protection of natural streams/rivers from government projects and private developments.

4.2 Description of the Environment

A. Baseline Water Quality Condition

4.2.1 According to the Annual River Water Quality Reports published by EPD, the Water Quality Objectives (WQOs) compliance rates in Year 2025 for Lam Tsuen River is 99%,

with the dissolved oxygen (DO) and suspended solid (SS) WQOs fully met. The locations of the nearest monitoring stations are Stations TR12B and TR12C. The river water quality monitoring data for Stations TR12B and TR12C are presented in the table below.

Table 4.4 River Monitoring Data

Parameters	Water Quality Monitoring Stations in Lam Tsuen River		Key WQOs for River Monitoring Stations
	TR12B	TR12C	
Dissolved Oxygen (mg/L)	8.5	8.0	>4
	(7.9 - 10.2)	(6.2 - 9.5)	
pH	7.4	7.3	6.8-8.5
	(6.9 - 7.6)	(7.1 - 7.7)	
Suspended Solids (mg/L)	2.0	4.5	<20
	(<0.5 - 6.3)	(<0.5 - 9.4)	
5-day Biochemical Oxygen Demand (BOD_5)(mg/L)	0.6	1.1	<3
	(0.1 - 1.3)	(0.1 - 1.7)	
Chemical Oxygen Demand (mg/L)	5	7	<15
	(<2 - 10)	(3 - 16)	
Oil & Grease(mg/L)	<0.5	<0.5	Not Applicable
	(<0.5 - <0.5)	(<0.5 - <0.5)	
E. coli(count/100mL)	428	3,494	Not Applicable
	(160 – 4,100)	(590 – 43,000)	
Faecal Coliforms(count/100mL)	7,636	12,209	Not Applicable
	(720 – 80,000)	(4,300 – 56,000)	
Ammonia Nitrogen (mg/L)	0.041	0.079	Not Applicable
	(0.016 - 0.140)	(0.032 - 0.180)	
Nitrate Nitrogen (mg/L)	0.560	0.650	Not Applicable
	(0.320 - 0.920)	(0.450 - 1.200)	
Total Kjeldahl Nitrogen (mg/L)	0.16	0.28	Not Applicable
	(<0.05 - 0.26)	(0.18 - 0.44)	
Orthophosphate Phosphorous (mg/L)	0.053	0.073	Not Applicable
	(0.024 - 0.088)	(0.031 - 0.120)	
Total Phosphorous (mg/L)	0.07	0.11	Not Applicable
	(0.03 - 0.11)	(0.06 - 0.14)	
Sulphide(µg/L)	<0.02	<0.02	Not Applicable
	(<0.02 - <0.02)	(<0.02 - <0.02)	
Aluminium(µg/L)	<50	<50	Not Applicable
	(<50 - <50)	(<50 - 60)	
Cadmium(µg/L)	<0.1	<0.1	Not Applicable
	(<0.1 - <0.1)	(<0.1 - <0.1)	
Chromium(µg/L)	<1	<1	Not Applicable
	(<1 - <1)	(<1 - <1)	
Copper(µg/L)	<1	<1	Not Applicable
	(<1 - <1)	(<1 - 5)	
Lead(µg/L)	<1	<1	Not Applicable
	(<1 - <1)	(<1 - <1)	
Zinc(µg/L)	<10	<10	Not Applicable

Parameters	Water Quality Monitoring Stations in Lam Tsuen River		Key WQOs for River Monitoring Stations
	TR12B	TR12C	
	(<10 - <10)	(<10 - <10)	
Flow(m^3/s)	0.193	0.071	Not Applicable
	(0.055 - 2.926)	(0.012 - 2.234)	

4.2.2 For *E. coli,* Monitoring data from the Lam Tsuen River Monitoring Station (TR12B) for the period 2016 to 2025, as shown in the figure below, indicate that *E. coli* levels recorded in 2023, 2024 and 2025 are comparable to those in previous years, with no observable change following the commencement of Farm 1.0 in November 2022. This suggests that the observed *E. coli* levels represent long-term background conditions.

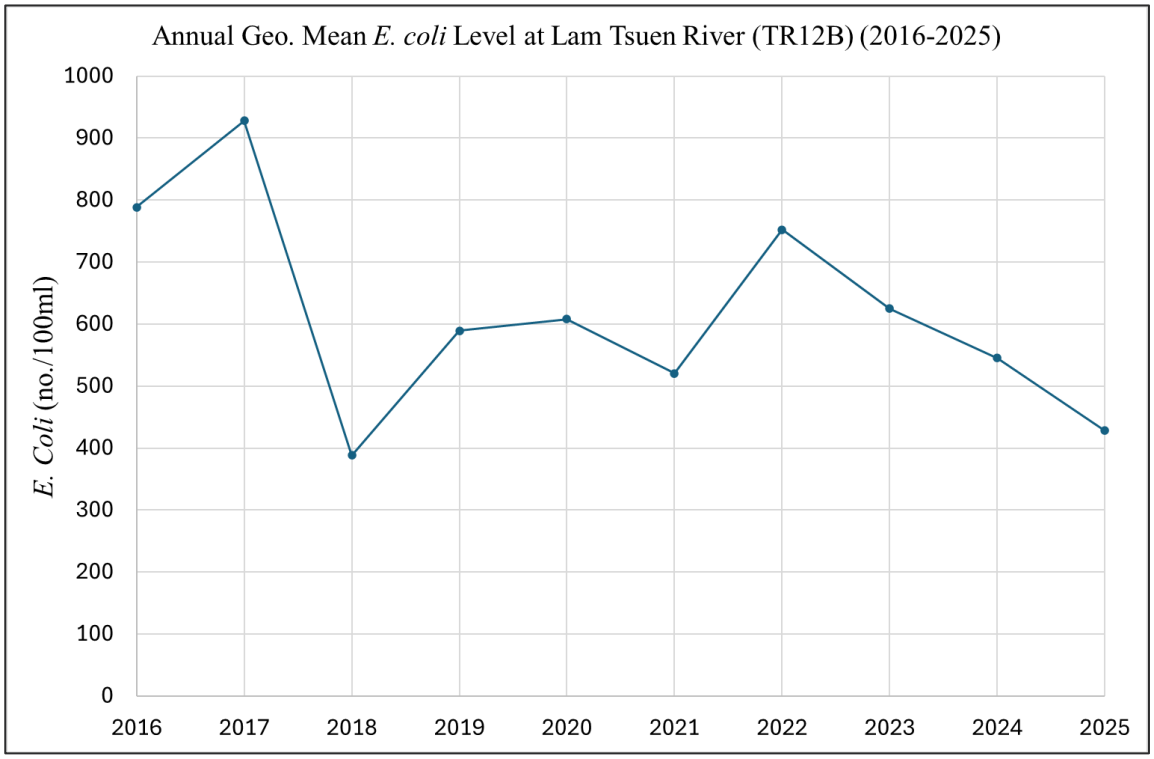


Figure 4.1 *E. coli* Level at TR12B (2016-2025)

4.3 Assessment Area and Water Sensitive Receivers

4.3.1 The assessment area for the water quality impact assessment is defined by a distance of 500m from the boundary of the Application Site. Water Sensitive Receivers (WSRs) have been identified in accordance with the HKPSG. There are few channels and watercourses identified in the vicinity of the Application Site, which are considered as the representative WSRs. The details and location of the WSRs within 500m assessment area are presented in the table below and **Figure 4.2**.

Table 4.5 Water Sensitivity Receivers

ID	Location	Approximate Distance from Application Site (m)
W1	Lam Tsuen River	50
W2	She Shan River	270

ID	Location	Approximate Distance from Application Site (m)
Area	Water Gathering Ground	Within Application Site

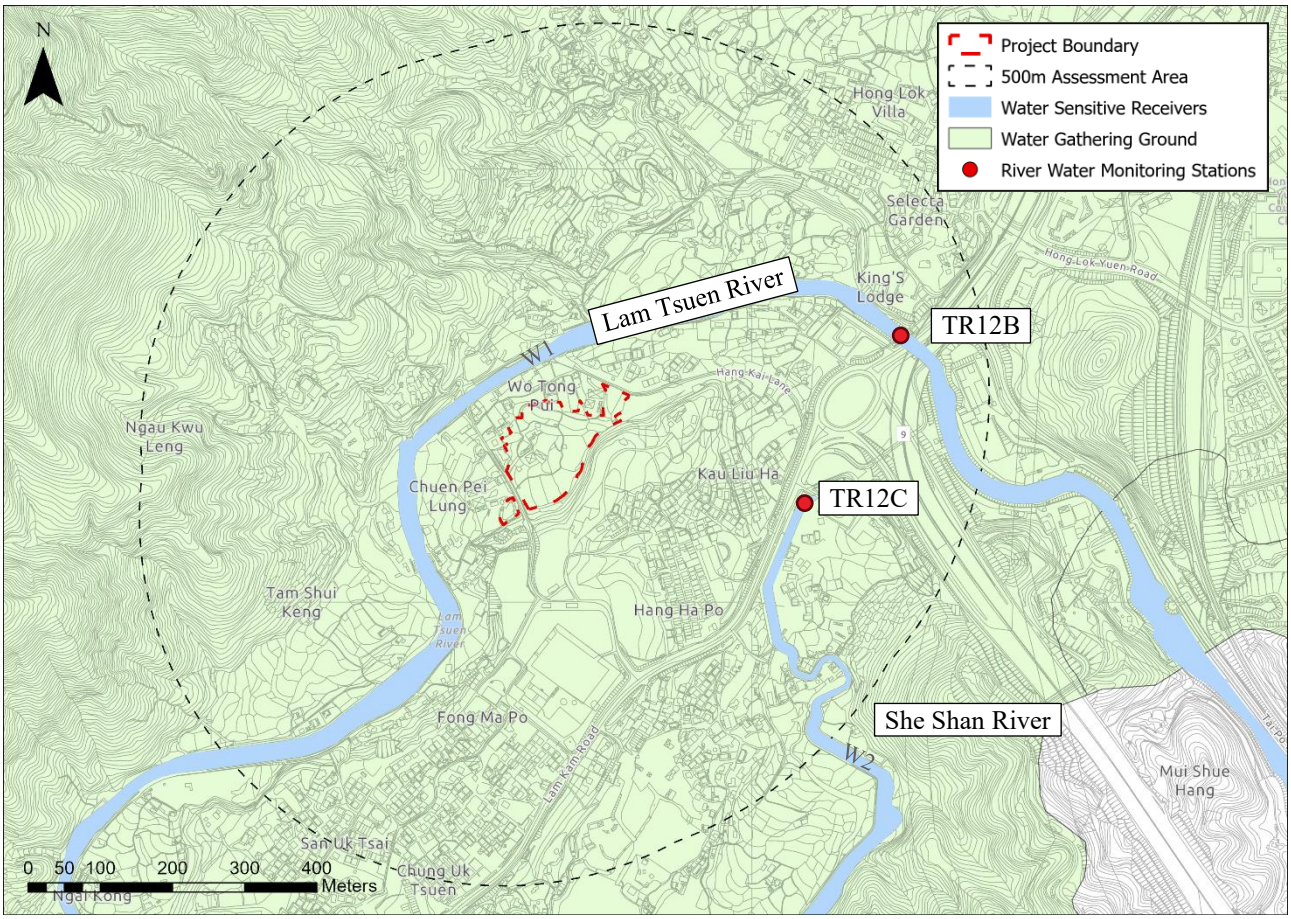


Figure 4.2 Location of Representative Water Sensitive Receivers

4.4 Construction Phase

A. Impact Evaluation

4.4.1 The main potential pollution sources during the construction phase include general construction activities, construction runoff, sewage from the construction workforce, and accidental chemical spillage.

4.4.2 As discussed in **Sections 2 and 3**, construction works have been minimised under the latest design, with no slope works and only minor demolition of existing buildings in Farm 1.0 proposed. In addition, due to the restricted building height and no basement construction, no major excavation, foundation, or heavy structural works are anticipated. The limited extent of construction activities will therefore reduce the potential for suspended solids generation from surface runoff.

4.4.3 Sewage arising from the on-site construction workforce is likely to cause water pollution if it is discharged improperly. Given that sufficient temporary sanitary facilities, e.g. portable chemical toilets, and sewage holding tanks will be provided at the construction

site and the control measures proposed in following sections, no adverse water quality impacts are anticipated.

4.4.4 The use of chemicals such as engine oil and lubricants, and their storage as waste materials has the potential to cause adverse water quality impacts if spillage occurs and enters the adjacent water bodies. Waste oil may infiltrate the surface soil layer, or discharge into the nearby water environment, increasing hydrocarbon levels. However, adverse impacts can be mitigated by implementing best management and site practices as described in the following section.

B. Mitigation Measures

General Good Site Practice

4.4.5 In accordance with the ProPECC PN 2/24, good site practices should be implemented as far as practicable to control construction site runoff, potentially contaminated surface runoff and drainage from the works areas, and to prevent runoff and drainage water with high levels of SS from entering the nearby water bodies, listed as below:

- At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities;
- The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimise polluted runoff. Sedimentation tanks with sufficient capacity are recommended as a general measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped;
- The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/ sediment trap. The silt/ sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates;
- The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 2/24. The detailed design of the sand/ silt traps should be undertaken by the contractor prior to the commencement of construction;
- All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means;
- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas;

- If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- All open stockpiles of construction materials (for example, aggregates, sand and fill material) should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system;
- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers;
- Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 2/24. Attention should be paid to the control of silty surface runoff during storm events;
- All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient back fall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;
- If vehicle and plant services areas, vehicle wash bays, lubrication bays or other activities which have the potential to incur oil leakage or spillage are provided within the site, then the Contractor shall make suitable provisions in accordance with the EPD practice notes, for example but not limited to locating in roofed areas and connecting the drainage for this area to the foul sewer via oil interceptor. Any oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for oil interceptors to prevent flushing during heavy rain;
- Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts;
- All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby; and
- Regular environmental audit on the construction site should be carried out to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the water bodies, marsh and ponds.

4.4.6 By adopting the best management practices in accordance with ProPECC PN 2/24, it is anticipated that the potential water quality impacts from general site operation and surface runoff will be properly mitigated and reduced to satisfactory levels before discharges, and

therefore no adverse water quality impact. The details of best management practices will be highly dependent to actual site condition and Contractor shall apply for a discharge license under WPCO. Wastewater shall be properly treated to meet the discharge standards set out in the discharge licence. No direct discharge of site runoff into any surrounding water bodies shall be allowed.

Sewage from Construction Workforce

4.4.7 To mitigate the water quality impacts of sewage arising from the on-site construction workers, the following measures should be implemented:

- Sufficient portable chemical toilets shall be provided to serve the construction workers at the construction site to prevent direct disposal of sewage into the water environment. A licensed contractor should be employed to be responsible for appropriate disposal to a suitable government sewage treatment facility offsite and to maintain the cleanliness and operations of the portable toilets; and
- Post notices at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment during the construction phase.

4.4.8 With the implementation of the above control measures, potential water quality impact during construction phase is not anticipated.

Accidental Spillage of Chemicals

4.4.9 All chemical waste shall be handled and disposed of in accordance with the Waste Disposal Ordinance (Cap. 354) and its subsidiary regulations, including the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) and the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

4.4.10 The Contractor shall establish appropriate chemical management and emergency spillage procedures, including contingency measures for accidental spillage and heavy rainfall events. Service, maintenance, and chemical storage areas shall be located on hard-paved, bunded areas equipped with sumps and oil interceptors, and shall be sited away from watercourses to prevent contamination.

Condition for Working within Water Gathering Ground

4.4.11 As the Application Site located within the Water Gathering Ground, it should follow the measures listed in the guideline "Conditions of Working within Water Gathering Ground" by Water Supplies Department (WSD) as far as applicable.

(a) Adequate measures shall be taken to ensure that no pollution or siltation occurs to the catchwater and catchments.

(b) No earth, building materials, fuel oil or toxic materials and other materials which may cause contamination to the water gathering grounds are allowed to be stocked or stored on site.

(c) All surplus spoil shall be removed from water gathering ground as soon as possible.

(d) Temporary drains with silt traps shall be constructed at the boundary of the site prior to the commencement of any earthwork.

(e) Regular cleaning of the silt traps shall be carried out to ensure that they function properly at all time.

(f) All excavated or filled surfaces which have the risk of erosion shall be protected from erosion at all time.

(g) Facilities for washing the wheels of vehicles before leaving the site shall be provided.

(h) Any construction plant which causes pollution to catchwater or catchment due to leakage of oil or fuel shall be removed off site immediately.

(i) Any soil contamination with fuel leaked from plant shall be removed off site and the voids arising from removal of potentially contaminated soil shall be replaced by suitable material to the approval of the Director of Water Supplies.

(j) Provision of temporary toilet facilities is to be subject to the approval of the Director of Water Supplies.

(k) All waterworks access roads must be maintained unobstructed at all time.

(l) Site formation plans shall be submitted to W.S.D. for approval prior to commencement of work.

(m) No structure or temporary works shall be erected in the catchwaters without prior approval of W.S.D.

(n) The Contractor shall be responsible for cleaning frequently any waterworks roads and associated drainage works of mud and debris.

(o) The Contractor shall limit the gross weight of the vehicles imposed on the waterworks access along catchwaters to 5 tonnes and the axle load to 3 tonnes. He shall apply to W.S.D. with details of his vehicles for using the access.

(p) The approval for using the access may be withdrawn on written notice to the Contractor by W.S.D. at their absolute discretion.

(q) The Contractor shall recover immediately his vehicle which fill into the catchwater or stream bed or pay to Government on demand the cost of recovery that may be necessary through the occurrence of any incident cause by the Contractor.

(r) The Contractor shall carry out repair or reinstatement works to the satisfaction of W.S.D. or pay to Government on demand the cost of repair and reinstatement to any waterworks installations that shall or may be necessary at any time as a result of damage caused by the Contractor or others under his charge.

(s) No chemicals including fertilizers shall be used without the prior approval form W.S.D.

(t) Use of pesticides is not allowed within the water gathering grounds. The storage and discharge of pesticide or toxicant, flammable or toxic solvents, petroleum oil or tar and other toxic substances are strictly prohibited within the water gathering ground.

4.5 Operational Phase

A. Impact Evaluation

Sewage from Barn, Staff and Visitors

4.5.1 Under the current operation of Farm 1.0, sewage and wastewater generated from the barns, staff, and visitors are collected and transported off site by tanker. Under the latest design, the existing 200 mm to 225 mm diameter public sewers along Hang Kai Lane, which are located adjacent to Farm 2.0, will be utilised to convey sewage and potentially contaminated surface runoff generated from the site. Sewage arising from the proposed barns, as well as from staff and visitors of the Application Site, will be properly collected by the on-site sewerage system and discharged to the public sewerage system.

4.5.2 A separate wastewater discharge licence under the WPCO will be obtained for the discharges from animal wastewater. Wastewater generated from the daily operation of the three barns (i.e. cattle and calf urine and manure after removal of solid waste), together with wash-down water, will be properly collected in enclosed containers and conveyed for pre-treatment prior to discharge to the public sewerage system. The treated effluent will comply with the discharge standards specified in **Table 4.3** and/or the requirements stipulated in the wastewater discharge licence. Under current design, the pre-treatment facility would be a small-scale sewage treatment plant with sufficient daily capacity (more than 13.12 m^3/day), including an equalization tank, an anaerobic tank, and a composite moving-bed biofilm reactor (C-MBBR). Detail of the pre-treatment facility will be finalised and submitted at a later stage as part of the application for the wastewater discharge licence.

4.5.3 Based on the current development parameters, the average dry weather flow to be generated from the Application Site is estimated to be about 13m^3/day. The dry weather flows are shown in the table below. The hydraulic capacity of the sewers downstream to the proposed connections would be sufficient. A separated drainage and sewerage impact (DSIA) assessment report is submitted to ensure all sewage from the Application Site could be collected and treated before discharge. According to the SIA findings, no sewer update is needed. With proper discharges to public sewers, there should be no adverse water quality impact due to the wastewaters from the Application Site during operational phase.

Table 4.6 Water Sensitivity Receivers

Type		Unit Flow Factor (m^3/day)	ADWF (m^3/day)	
			Subtotal	Total
Animal Wastewater [1]		-	-	9.71
Human Wastewater	9 Staff	0.28 [2]	2.52	3.41
	59 Visitors	0.015 [3]	0.885	
Animal wastewater + Human wastewater		-	-	13.12

Notes:

[1] Total animal waste including total manure, urine and wastewater is estimated by cattle specialist.

[2] Unit flow factor = 0.08m³/day (commercial employee) +0.2m³/day (General territorial average) =0.28 m³/day based on EPD's GESF Table T-2.
[3] Unit flow factor = 0.015m³/day for visitors as refer to West Kowloon Station.

4.5.4 The Laboratory & Pharmacy (No. 5 in **Table 2.2**) will be used solely for dry storage purposes, consistent with the current practice under Farm 1.0. As no wet processes are involved, no wastewater generation is anticipated.

Surface Runoff

4.5.5 During the operational phase, the Application Site will increase the area of impermeable surfaces and hence the peak surface runoff rates. Polluting substances from the Site such as dust and lubricant oil deposited and accumulated on the road surfaces may be washed into the drainage system during rainfall or road surface cleaning. To manage the potentially contaminated, a specific drainage system is designed as shown in the figure below.

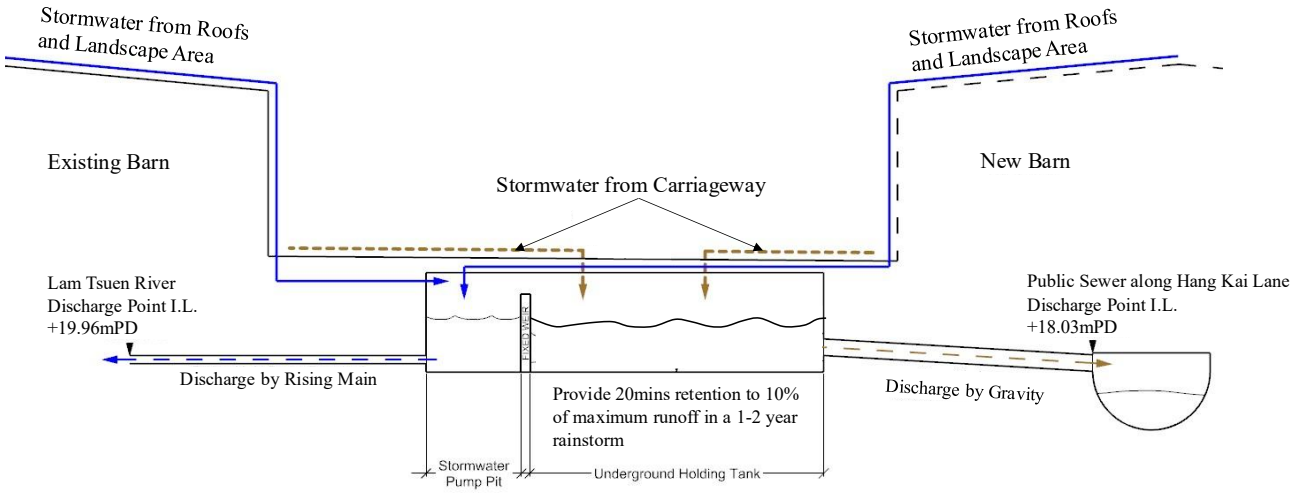


Figure 4.3 Proposed Stormwater Management Diagram

4.5.6 As shown in **Figure 4.3**, surface runoff generated from the carriageway and car park areas will be managed by a holding tank incorporated into the site drainage system. The holding tank is designed to capture runoff from impervious surfaces during rainfall events, thereby providing controlled management of potentially polluted water.

4.5.7 The holding tank has sufficient capacity to store the first 20 minutes of runoff from a 1-in-2-year rainstorm, targeting the interception of the more polluted first flush, which may contain higher concentrations of contaminants such as dust and lubricating oil. As pollutant concentrations generally decrease with continued rainfall, all potentially contaminated runoff collected in the holding tank will be diverted to the public sewer along Hang Kai Lane, preventing pollution of natural watercourses.

4.5.8 During heavy rainfall events where runoff exceeds the holding tank capacity, any excess flow will be directed to a stormwater pump pit and discharged to Lam Tsuen River, ensuring effective drainage without adverse environmental impacts. Stormwater from roof

and landscaped areas, which is not considered contaminated, will be collected separately and discharged directly to Lam Tsuen River. The separated DSIA report confirms that the downstream drainage system has sufficient capacity and that no flooding risk is anticipated due to the Application Site.

4.5.9 As discussed in **Section 3.5**, a deodorisation system will be installed to serve the third barn (i.e. Dairy Barn, No. 15 in **Figure 2.2**). The system does not generate wastewater; however, a small amount of water accumulation may occur due to high-pressure spraying. Under 24-hour operation, approximately 5 m^3 of water per day will be used, with no more than 0.5 m^3 per day expected to remain on the floor. The deodorisation chambers will be designed with an adequate floor gradient and dedicated drainage channels to direct any accumulated water to the underground holding tank and subsequently to the public sewer. No contaminated runoff from the deodorisation system will be discharged directly into the drainage system.

4.5.10 With proper collection of surface runoff and implementation of best management practices, no adverse water quality impacts are anticipated during operation.

B. Mitigation Measures

Sewage from Barn, Staff and Visitors

4.5.11 Sewage generated from the barns, staff, and visitors will be properly collected and conveyed to the public sewerage system.

4.5.12 A wastewater discharge licence would be obtained for animal wastewater. Appropriate pre-treatment will be implemented to ensure compliance with the discharge standards specified in **Table 4.3** and/or the requirements of the discharge licence prior to discharge.

Surface Runoff

4.5.13 Best Management Practices (BMPs) recommended in ProPECC PN1/23 for storm water discharge shall be implemented to ensure that surface runoff generated during the operation phase does not cause water pollution.

4.5.14 Sand traps should be installed in proximity to cattle and calf barns to prevent sand from entering the piping system.

4.5.15 The drainage system shall be inspected regularly to ensure proper operation. Dual pumps will be provided to minimise the risk of system failure.

4.5.16 No pesticides or fertilisers will be used for vegetation management. Relevant practices under the "Good Agricultural Practices for Crop Production" issued by AFCD will be observed. With the implementation of these measures, no adverse water quality impact is anticipated.

Measures within Water Gathering Ground

4.5.17 As the Application Site located within the Water Gathering Ground, it should follow the measures by Water Supplies Department (WSD) as far as applicable listed below:

(a) No discharge of effluent or foul water into adjoining land, storm water drain, channel, stream or river course is allowed. Such foul water or effluent shall be collected and disposed of outside WGG.

(b) Oil leakage and spillage shall be prevented within WGG at all time.

(c) Vehicle parking spaces shall be surrounded by kerbs and drains. Drainage traps such as grease traps and petrol interceptors shall be installed at each of the drainage outlets and shall be under proper maintenance. All such drainage traps shall have sufficient capacity to ensure the proper collection and disposal of fuel and lubricants.

(d) Oil and grease decontamination kit such as absorbent pads shall be made available to decontaminate any possible oil leakage or spillage.

(e) Besides vehicle parking, other activities such as on-site vehicle inspection, maintenance, repairing and washing activities shall not be allowed in the proposed development.

4.6 Needs of Environmental Monitoring and Audit

Construction Phase

4.6.1 During construction phase, there would be no adverse water quality impact with the implementation of control measures. Nevertheless, regular site audits will be conducted during construction to ensure the proper implementation and effectiveness of the measures.

Operational Phase

4.6.2 During the operation phase, no adverse water quality impacts are anticipated with the implementation of the proposed control measures. Therefore, EM&A is not required during the operation phase.

4.7 Conclusion

4.7.1 During the construction phase, potential pollution sources include surface runoff, sewage from the construction workforce, and accidental chemical spillage. With proper implementation of the recommended control measures recommended in ProPECC PN 2/24, PN 1/23, ETWB TCW No. 5/2005 and condition for working with gathering ground by WSD, it is anticipated that there will be no adverse water quality impact during the construction phase.

4.7.2 During the operation phase, potential pollution sources include sewage from the barns, staff, and visitors, as well as potentially contaminated surface runoff. Wastewater arising from waste handling processes and sewage generated by staff and visitors will be properly collected and discharged to the public sewerage system. A dedicated drainage system is designed to divert first-flush runoff to the public sewerage system, while the remaining uncontaminated surface runoff will be discharged via the stormwater drainage system.

This arrangement ensures that no contaminated runoff is discharged into Lam Tsuen River. With the implementation of the recommended control measures in ProPECC PN 1/23 and the "Good Agricultural Practices for Crop Production" issued by AFCD, there would be no adverse water quality impacts during the operation phase.

5. WASTE MANAGEMENT

5.1 Environmental Legislation, Policies, Plans, Standards and Criteria

5.1.1 Reference has been made to the following legislation and guidelines that are relevant to waste management:

- Waste Disposal Ordinance (WDO) and subsidiary Regulations;
- Annex 7 and Annex 15 of the Technical Memorandum of Environmental Impact Assessment Ordinance (EIAO-TM);
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation;
- Waste Disposal (Clinical Waste) (General) Regulation;
- Waste Disposal (Chemical Waste) (General) Regulation;
- Land (Miscellaneous Provisions) Ordinance (Cap 28); and
- Other relevant guidelines (as listed out in the table below).

Table 5.1 Other relevant documents and information

Bureau / Department	Documents / Guidelines / Technical Circulars
Development Bureau	Works Branch Technical Circular (WBTC) No. 2/93, Public Dumps WBTC No 2/93B, Public Filling Facilities WBTC No. 16/96, Wet Soil in Public Dumps WBTC Nos. 4/98 and 4/98A, Use of Public Fill in Reclamation and Earth Filling Project WBTC No. 12/2000, Fill Management WBTC No. 19/2001, Metallic Site Hoardings and Signboards WBTC No. 12/2002, Specification Facilitating the Use of Recycled Aggregates ETWBTC (Works) No. 19/2005, Environmental Management on Construction Sites DEVB TCW No. 06/2010, Trip-ticket System for Disposal of Construction and Demolition Material DEVB TCW No. 08/2010, Enhanced Specification for Site Cleanliness and Tidiness DEVB TCW No. 02/2011, Encouraging Use of Recycled and other Green Materials in Public Works Projects DEVB TCW No. 09/2011, Enhanced Control Measures for Management of Public Fill DEVB TC (W) No. 4/2020, Tree Preservation Guidelines on Yard Waste Reduction and Treatment
CEDD	CEDD TC No. 11/2019, Management of Construction and Demolition Materials Project Administration Handbook (PAH) for Civil Engineering Works, Chapter 4
EPD	A Guide to the Chemical Waste Control Scheme A Guide to the Registration of Chemical Waste Producers

Bureau / Department	Documents / Guidelines / Technical Circulars
	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes Monitoring of Solid Waste in Hong Kong 2024
PlanD	Hong Kong Planning Standards and Guidelines, Chapter 9 (Section 6 – Waste Management)

5.2 Identification of Potential Impacts

A. Construction Phase

5.2.1 Potential construction waste will be generated from below sources during construction phase of the proposed redevelopment:

- Inert Construction and Demolition (C&D) materials
- Non-inert C&D Materials (or C&D waste)
- General refuse generated from construction workers
- Chemical Waste (e.g. spent lubricants for equipment and waste batteries).

Inert C&D materials

5.2.2 Inert C&D materials refers to the construction waste that do not decompose, such as concrete, rubble, earth and rubble and suitable for land reclamation and site formation. It shall be taken to public filling area and should not be disposed of to landfill.

5.2.3 As discussed in **Sections 2.2**, no slope works are required as a sufficient buffer no-building zone will be adopted. Moreover, the existing buildings within Farm 1.0 will be retained, and only minor demolition works are anticipated. Under the latest design, heavy foundation works, large-scale excavation, and major superstructure works are not required. Refer to the excavation plan, a total of 6,757 m^3 inert C&D will be excavated and disposed of within the first quarter of commencement of the construction.

5.2.4 In addition to excavated material, building waste will also be generated during construction. This includes inert C&D waste includes but no limited to, broken concrete, granular materials, waste from blockwork and brickwork, waste from screening and plastering; and non-inert C&D materials (or C&D waste) from timber formwork, packaging waste and other wastes. A local reference of "A Guide for Managing and Minimizing Building and Demolition Waste[3]" published by The Hong Kong Polytechnic University has been made to estimate the building waste generation in Hong Kong. Section 3.2 of the guide provided a "waste index" to estimate the building waste generation in Hong Kong based on the GFA of three different building types listed as below:

- Private Housing Projects 0.250 m^3/m^2 of GFA

[3] *A Guide for Managing and Minimizing Building and Demolition Waste*, C. S. Poon, T.W. Yu and L. H. Ng, Research Centre for Urban Environmental Technology and Management, Department of Civil and Structural Engineering, The Hong Kong Polytechnic University, May 2001.

- Government Housing Projects 0.174 m^3/m^2 of GFA
- Commercial Office Projects 0.200 m^3/m^2 of GFA

5.2.5 The most conservative index of private housing projects will be adopted to estimate the building waste from the Application Site. Estimation of inert C&D building waste is listed in the table below.

Table 5.2 Inert C&D Material in Building Waste

Approx. GFA [1] (m^2)	Waste index (m^3/ m^2 of GFA)	Assumed Proportion of inert C&D material[2]	Volume of inert C&D material (m^3)
4,461	0.25	92%	1,026

Notes:

[1] Refer to **Table 2.3**.

[2] The assumption of 92% inert C&D material is adopted to be consistent with that used in Environmental Assessment Report under Farm 1.0 S16 application.

5.2.6 The total estimated inert C&D material generated during the construction phase of the Application Site is summarised in the table below.

Table 5.3 Summary of the Inert C&D Material During Construction Phase

	Estimated Inert C&D Material
	Volume (m^3)
Stage: Site Formation	
Excavated Earth	6,757
Stage: Infrastructural Works	
Building Waste	1,026
Total	7,783

5.2.7 As such, the inert C&D materials may be generated are dominantly from the site formation which is expected to last for about 3 months. A total of 6,757m^3 of inert C&D materials might arise from during the 3 months peak period. In other words, it is 87m^3 per day on average assuming 26 workings days per month.

5.2.8 Reusing the inert C&D material on-site shall be considered first wherever possible and good site practice and mitigation measure as recommended in **Section 5.3** shall be implemented. Remaining inert C&D material shall be disposed of at public fill reception facilities and the nearest facility is Tuen Mun Area 38 Fill Bank, which is about 25km away from the Site.

5.2.9 As the amount of inert C&D material to be reused on-site cannot be determined at this stage, it is assumed that 10% of inert C&D material can be reused on site for backfill and other need to be disposed of at public fill reception facilities for assessment.

5.2.10 Given the above analysis, waste impact due the generation of inert C&D material from the construction phase of the proposed farm is not anticipated. However, mitigation measure as recommended in **Section 5.3** shall be implemented.

Non-Inert C&D materials

5.2.11 Non-Inert C&D materials refers to the construction waste that can decompose, such as timber formwork, plastic packaging, bamboo scaffolding and vegetation and not suitable for land reclamation and site formation.

5.2.12 As the Site is covered by vegetation, non-inert vegetation waste will be generated from site clearance. Assuming the vegetation is approximately 0.2m depth and the proposed excavation area, including proposed area is approximate 6,603m^2, a total of 1,321m^3 of vegetation waste will be generated from the site clearance. Meanwhile, all non-inert C&D materials should be recycled whenever possible and be disposed of at the landfill as a last resort. For any timber anticipated to be generated during construction phase, it should be recycled at Y·PARK prior to landfill disposal.

5.2.13 The non-inert C&D material in building waste from the construction phase can be estimated by the "waste index" developed by the local guide.

5.2.14 Estimation of non-inert C&D building waste is provided as below the table below:

Table 5.4 Non-inert C&D Material in Building Waste

Approx. GFA [1] (m^2)	**Waste index (m^3/ m^2 of GFA)**	**Assumed Proportion of inert C&D material**	**Amount of Non-inert C&D material (m^3)**
4,461	0.25	8%	89.2

Notes:

[1] The GFA is assumed as the same with Total Floor Area for conservative estimation

5.2.15 The total estimated non-inert C&D material generated during the construction phase of the proposed redevelopment is summarised in the table below.

Table 5.5 Summary of non-Inert C&D Material During Construction Phase

	Estimated non-Inert C&D Material
	Volume (m^3)
Stage: Site Clearance	
Excavated Earth	1,321
Stage: Infrastructural Works	
Building Waste	89.2
Total	1,410

5.2.16 It is estimated that approximately 1,410 m^3 of non-inert construction and demolition (C&D) materials will be generated over the 12-month construction period. This

corresponds to an average generation rate of about 4.5 m³ per day, based on 26 working days per month throughout the construction period.

5.2.17 On-site sorting shall be carried out for non-inert C&D materials to recover the recyclable material such as metal, paper, timber and plastic and to be collected by the recyclers for recycling if possible.

5.2.18 As the amount of non-inert C&D material to be reused or recycled cannot be accurately determined at this stage, it is expected that no more than 10% of the non-inert C&D material can be reused or recycled in view of the scale of the Proposed Farm. Under this assumption, it is estimated that the quantity of non-inert C&D materials to be on-site reused/recycled is 141m³.

5.2.19 Non-inert C&D materials will be disposed of at landfill. The nearest landfill is North East New Territories Landfill (NENT), which is around 14km from the Site.

5.2.20 Given the above analysis, waste impact due the generation of non-inert C&D material from the construction phase of the proposed farm is not anticipated. However, mitigation measure as recommended in **Section 5.3** shall be implemented.

General Refuse from Construction Workforces

5.2.21 General refuse from construction workforces will be generated during construction period and it usually is packaging waste, domestic food waste and other organic waste.

5.2.22 In view of the scale of the proposed farm, construction workforces to be engaged in the construction phase is expected to be limited, but the number of construction workforces will depend on the many factors such as construction schedule and construction methods. For assessment purpose, it is assumed that the maximum number of construction workforces for a project of such size would be less than 100 per day over 15 months construction period.

5.2.23 Generation rate of general refuse from workforces would be similar to domestic waste. Plate 2.7 of EPD's Waste Statistic for 2024 recorded the domestic waste disposal rate in 2024 was 0.86kg/person/day in Hong Kong. The general refuse generation rate will be likely less than this rate, but it is adopted to conservatively estimate the general refuse generation by construction workers as the table below:

Table 5.6 General Refuse Generation

Estimated number of construction workforces	per capita generation rate (kg/person/day)	General Refuse per day (kg)	Estimated Construction period	Total General Refuse	
				(kg)	(m³)
100	0.86	86	26 workings days per month × 15 months	33,540	108[1]

Notes:

[1] The bulk density of general refuse is assumed to be 312kg/m³ with reference to Palanivel, T. M., & Sulaiman, H. (2014). Generation and composition of municipal solid waste (MSW) in Muscat, Sultanate of Oman. APCBEE Procedia, 10, 96-102.

5.2.24 It is estimated that 108m^3 of general refuse will be generated during 15 months of construction period. In order words, it is 0.028 m^3 per day on average.

5.2.25 On-site sorting shall be carried out for general refuse to recover the recyclable material such as metal, paper, timber and plastic and to be collected by the recyclers for recycling if possible.

5.2.26 Given the above analysis, waste impact due to the generation of general refuse from the construction phase of the proposed farm is not anticipated. However, mitigation measure as recommended in **Section 5.3** shall be implemented.

Chemical Waste

5.2.27 Chemical waste should be handled in accordance with the "Code of Practice on Packaging, Labelling and Storage of Chemical Wastes" published by EPD. Chemical waste containers should have the following properties:

- They are suitable for the substance that they hold and are resistant to corrosion;
- They should be maintained in a good condition and are securely closed; and
- Labels in English and Chinese are displayed in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.

5.2.28 Apart from the containers, there are other recommended properties for the storage area of chemical waste:

- The area is clearly labelled, and the sole use is storage of chemical waste;
- The area is enclosed on at least three sides;
- The area has an impermeable floor and bunding. The bunding should have the capacity of 110% of the volume of the largest container stored within, or 20% by volume of the chemical waste stored in the area;
- The area has adequate ventilation;
- The area is covered to prevent entering of rainfall;
- Water collected within the bund must be tested and, if necessary, disposed as chemical waste; and
- They are arranged in a way that incompatible materials are adequately separated.

5.2.29 The future Contractor shall be registered as a "Chemical Waste Producer" with EPD. The chemical wastes shall be collected by a licensed chemical waste collector for subsequent

disposal at the Chemical Waste Treatment Centre (CWTC) at Tsing Yi or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

Summary

5.2.30 Based on the above analysis, the waste generation during the tentative construction period is summarized in the table below.

Table 5.7 Summary of Waste Generation During Construction Phase

Waste Type	Estimated Waste Quantity	Estimated Waste Quantity to be reused on site	Handling Methods	Handling Methods
	m^3	m^3		
Inert C&D Materials	7,783	739.9	Reuse on site if possible	Disposed of at Tuen Mun Area 38 Fill Bank
Non-inert C&D Materials	1,410	138.5	Segregation the recyclable and recycle and reuse if possible	Disposed of at NENT
General Refuse	108	10.8	Segregation the recyclable and recycle and reuse if possible	Disposed of at NENT
Chemical Waste	A few hundred litre/kg	reuse as far as possible	Chemical Waste Collector to e.g. CWTC for Treatment	

Notes:

[1] Assuming 10% of inert and non-inert C&D waste and general refuse will be reused on site for assessment purpose

5.2.31 In summary, a total of of 9,301 m³ of waste may be generated during the 15 months construction period. Given that good practices as recommended in **Section 5.3** are implemented, adverse waste impact from handling, transportation or disposal of inert C&D materials, non-inert C&D materials, general refuse or chemical waste during the construction of the proposed farm is not anticipated.

B. Operational Phase

5.2.32 Potential waste will be generated from below sources during operation phase of the proposed farm:

- General refuse from the operator and visitor;
- Manure and sawdust from Barns; and
- Clinical waste.

General Refuse from the Operator and Visitor

5.2.33 According to Plate 2.7 of the EPD Waste Statistics for 2024, the most recent municipal solid waste (MSW) generation rate in Hong Kong is 1.40 kg/person/day. The Application

Site is expected to accommodate a total of approximately 68 occupants, comprising 9 staff and up to 59 visitors. Based on this generation rate, the quantity of MSW generated is estimated to be about 0.3m³/day, considering a bulk density of general refuse of 312kg/m³.

5.2.34 The nearest disposal facility for MSW is the North East New Territories (NENT) Landfill. All MSW generated by the Application Site will be collected regularly by registered waste collectors and disposed of at EPD-managed landfill facilities. Given the relatively small quantity of waste generated and the established collection and disposal arrangements, no adverse waste impacts associated with waste handling, transportation, or disposal are anticipated. Nevertheless, the mitigation measures recommended in **Section 5.3** will be implemented to further minimise waste generation.

Manure and Sawdust from Barns

5.2.35 Under the current operation of Farm 1.0, all solid animal waste is collected on a regular basis by a licensed waste collector and disposed of at landfill as special waste. Under the latest design, however, animal manure will be treated and discharged to the public sewer, thereby substantially reducing the quantity of solid animal waste requiring off-site disposal by tanker. Compared with the existing operation, the amount of solid waste (i.e. sludge drying) to be collected and transported off site will therefore be significantly reduced.

5.2.36 All leak proof containers with wheels will be stored in an enclosed refuse collection storage room and the solid animal waste, including the solid waste generated from the dry-wet separation process, will be collected by waste collector and disposed to landfill as special waste on daily basis with EPD authorization under the Admission Ticket System. On the other hand, sludge generated from the pre-treatment system will be properly collected, stored, and transported off-site to T·Park for treatment and disposal. Additional leak proof containers with wheels will be stored on-site if the waste collection service is suspended due to adverse weather.

Clinical Waste

5.2.37 Small quantities of clinical waste (such as used veterinary sharps, expired diagnostic reagents, and treatment consumables) will be generated during routine bovine care and hands-on veterinary student clinical training. The total daily generation is estimated to be minimal. All clinical waste will be strictly segregated at source, stored in high-density puncture-proof yellow biohazard containers within a locked, designated storage zone, and collected by a licensed clinical waste contractor for high-temperature incineration at the Chemical Waste Treatment Centre (CWTC) in Tsing Yi.

5.2.38 Clinical waste is produced but will be collected by specialist collector and disposed outside of Farm area.

5.3 Mitigation Measure

A. Construction Phase

5.3.1 To minimise the generation of construction waste, the use of precast elements or prefabricated construction methods shall be considered as far as practicable. Inert and non-inert C&D materials shall be reused on site where feasible. Any surplus inert C&D materials shall be transported to public filling reception facilities for reuse in other projects.

5.3.2 On-site reuse and recycling of materials and wastes shall be prioritised, as far as practicable, before considering off-site reuse, recycling, or disposal options.

5.3.3 Recycling of waste paper, aluminium cans, and plastic bottles shall be encouraged. Clearly labelled recycling bins shall be provided on site to facilitate segregation of recyclable materials from other general refuse generated by the workforce.

5.3.4 The mitigation measures stipulated in Practice Note for Registered Contractors No. 17 – Control of Environmental Nuisance from Construction Sites shall be fully implemented during the construction phase..

5.3.5 Stockpiling of wastes and materials on site shall be avoided as far as practicable. Where temporary stockpiling is unavoidable, the materials shall be fully covered with impervious sheeting. The integrity of the impervious covering shall be inspected regularly, particularly before anticipated inclement weather, to prevent leakage, runoff, or wind dispersion.

5.3.6 Chemical wastes shall be provided with secondary containment to prevent leakage and shall be properly packaged, labelled, and stored within designated chemical waste storage areas in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. The chemical waste storage areas shall be checked before and after anticipated inclement weather to ensure proper containment and integrity.

5.3.7 Throughout the construction phase of the Application Site, all construction activities shall be carried out in accordance with the Recommended Pollution Control Clauses for Construction Contracts promulgated by the EPD.

B. Operational Phase

5.3.8 The farm management shall adopt the waste management hierarchy to manage waste in a sustainable manner. The waste management hierarchy is a concept to show the desirability of waste management measures and the following hierarchy in order of preference:

- Avoidance
- Minimisation
- Recycling/reuse

5.3.9 Recycling of waste paper, aluminium cans, and plastic bottles shall be encouraged. Clearly labelled recycling bins shall be provided on site for the collection of such recyclables.

Non-recyclable general refuse shall be collected separately in designated bins to prevent cross-contamination with recyclable materials. A licensed waste collector shall be engaged to remove general refuse on a daily basis to minimise potential odour, pest, and litter impacts.

5.3.10 Sludge dried from the barns shall be collected by the farm management on an as-needed basis and transferred to the designated storage area using leak-proof, wheeled containers. The containers shall be properly closed when not in use and thoroughly cleaned after each use to prevent leakage, odour nuisance, and secondary contamination.

5.3.11 Good housekeeping practices shall be adopted for the proposed pretreatment system to further minimise potential waste-related impacts. These practices shall include, but not be limited to, the following measures:

- Screens should be cleaned regularly to remove accumulated debris
- Sludge and solid waste generated from the pretreatment system shall be collected and transferred using leak-proof, wheeled containers;
- The leak-proof containers shall be properly closed when not in use to prevent leakage, odour nuisance, and secondary contamination; and
- Proper maintenance shall be provided for the proposed pretreatment system.

5.4 Conclusion

5.4.1 With implementation of the good site practice, waste generation during construction phase can be significantly reduced. All types of waste generated from the construction can be properly handle and transported to appropriate location and the amount of waste is insignificant. No adverse waste management, handling and transportation impact is anticipated during the construction phase.

5.4.2 During the operation phase, municipal solid waste (MSW) will be generated by users of the facilities. The quantity of domestic waste generated is estimated to be approximately 0.3 m^3 per day. With the implementation of the proposed arrangement whereby animal waste will be treated and discharged to the public sewer, the quantity of solid waste (i.e. dried sludge) requiring off-site collection and transportation will be substantially reduced compared with the existing operation.

5.4.3 As waste will be collected regularly, no adverse waste impacts from handling, transportation or disposal are anticipated during operation.

6. LAND CONTAMINATION

6.1 Legislation, Standards and Guideline

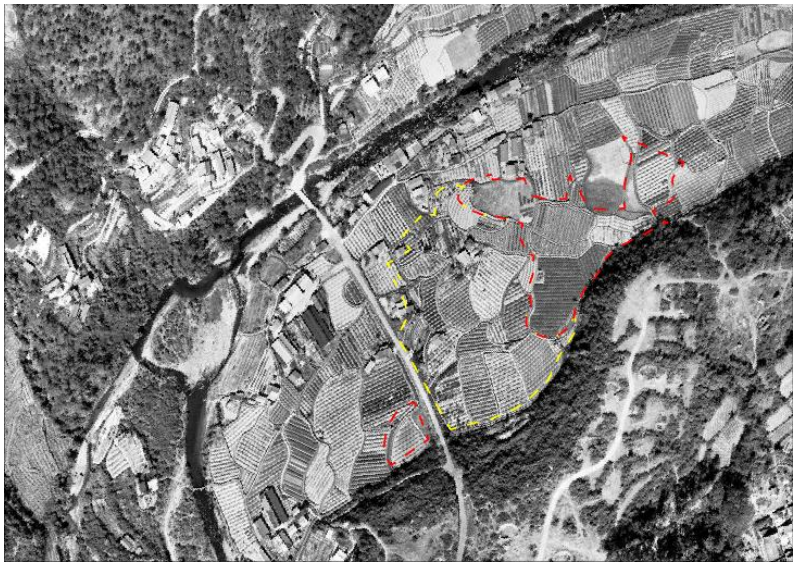
6.1.1 Reference has been made to the following legislation, standards and guideline that are relevant to land contamination include:

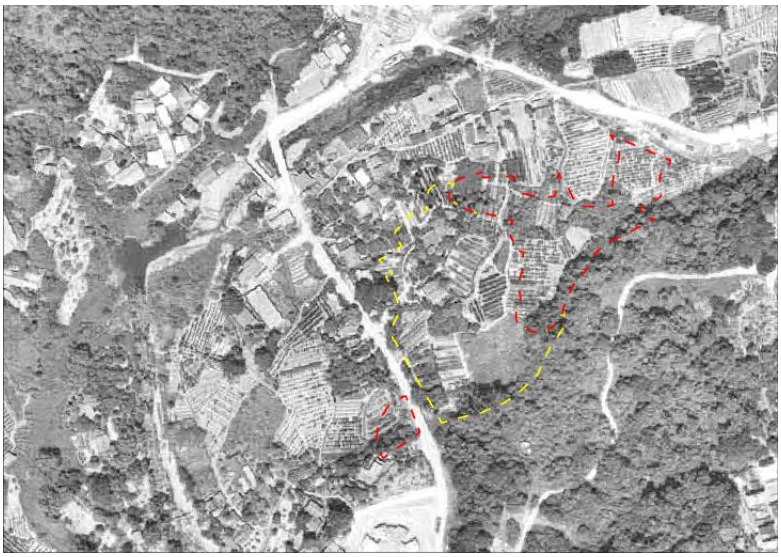
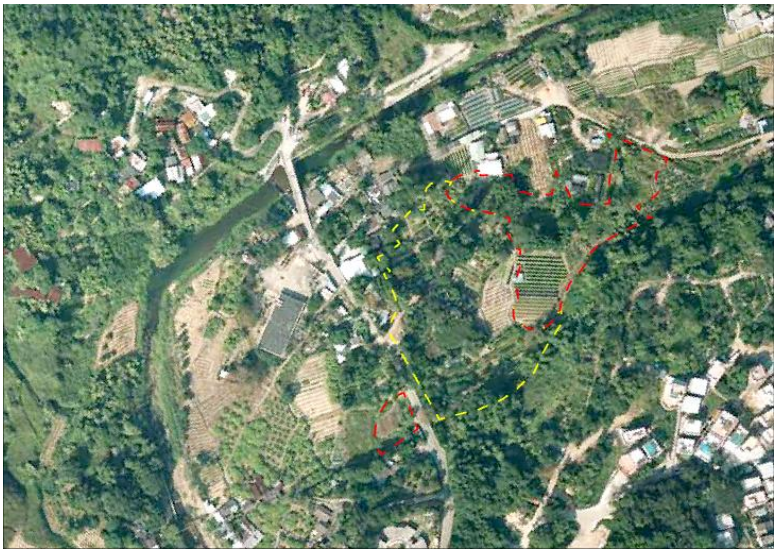
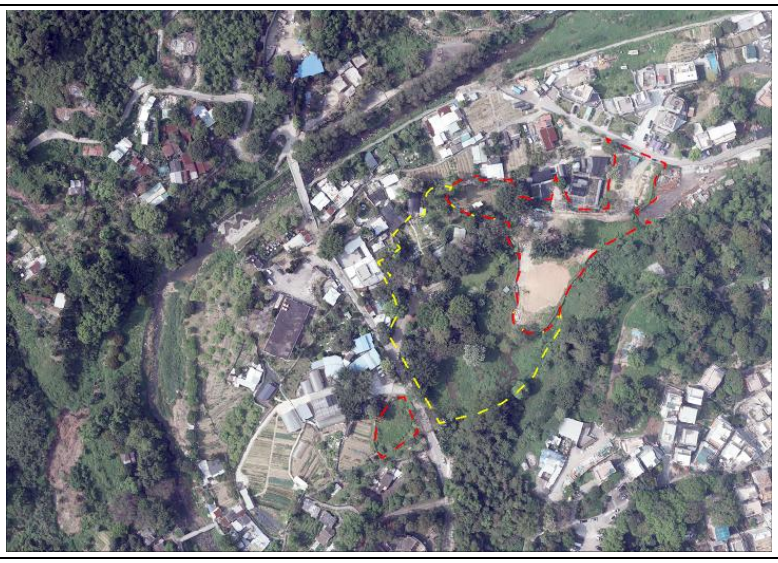
- Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management;
- Guidance Notes for Contaminated Land Assessment and Remediation; and
- Practice Guide for Investigation and Remediation of Contaminated Land.

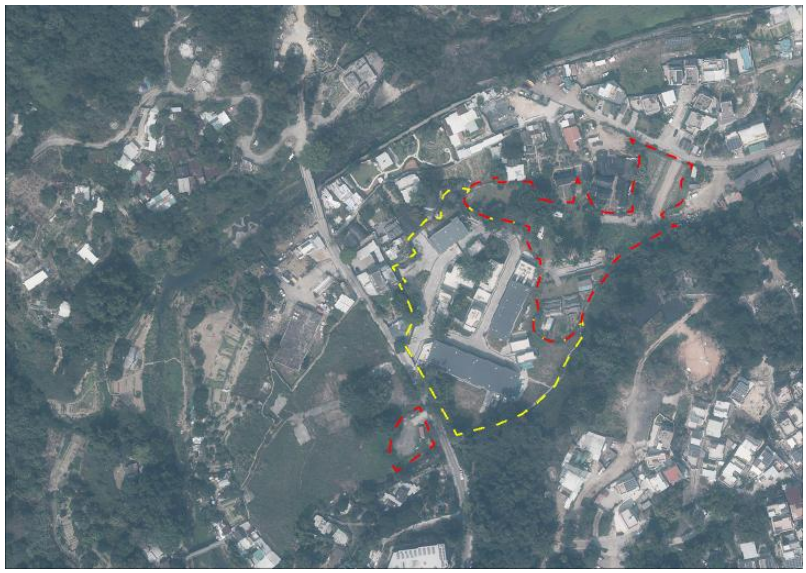
6.2 Land Use Review from Historical Information

6.2.1 The historical land use of the Site is reviewed based on the historic aerial photographs record obtained from Survey and Mapping Office (SMO) of Lands Department. The historical land use of the Site identified from aerial photography is summarised in the table below.

Table 6.1 The Historical Land Use with Aerial Photography

Year	Land use	Aerial Photo
1964	Agricultural use	

Year	Land use	Aerial Photo
1986	Agricultural use	
2003	Agricultural use	
2017	Vacant	

Year	Land use	Aerial Photo
2023	Farm 1.0	

6.2.2 Historic aerial photos and images from the Lands Department for the years 1964, 1986, 2003, 2007, and 2017 were reviewed, and no signs of industrial development were observed in the historical records. The land use during the periods mentioned was mainly agricultural or comprised greening areas, and no potential for land contamination was identified from the historical land use of the site as observed in the aerial photography.

6.2.3 A site visit took place on 24th October 2025 to assess the Application Site's condition and identify possible land contamination risks from current and past uses. According to the photo record of the visit shown in the **Table 2.1**, there is no evident for the presence of potentially contaminated land within the Application Site from present use.

6.3 Conclusion

6.3.1 In conclusion, there is no evident to suspect the presence of potentially contaminated land within the Application Site from past or present use. Potential sources of land contamination were not identified from the historical records and the site visit. As such, there is no recommendation to carry out any further investigation into land contamination issues at the Application Site .

7. CONCLUSION

7.1 General

7.1.1 The Application Site (Farm 1.0 and Farm 2.0) is not classified as a Designated Project (DP) under Schedules 2 or 3 of the Environmental Impact Assessment Ordinance (EIAO).

7.1.2 Under the latest design, construction works have been minimised with no slope works, only minor demolition, and no major excavation or foundation works.

7.1.3 The sewerage system will be upgraded to connect to the public sewerage network. In addition, a new drainage system and enhanced deodorisation management measures are proposed to improve the surrounding environmental conditions.

7.1.4 As the anticipated increase in traffic during operation is negligible, the associated noise impact is also expected to be negligible. The key environmental concerns of the Project would be potential odour emissions, as well as wastewater and solid waste generated from farm activities.

7.2 Air Quality Impact

7.2.1 With the implementation of good construction practices, there would be no adverse air quality impacts during construction.

7.2.2 During operation, the Application Site complies with the HKPSG buffer distance requirements, involves no chimneys, and will generate negligible additional traffic; hence, no adverse air quality impacts are anticipated. Potential odour impacts will be minimised through the proposed sewerage arrangement and barn deodorisation system, supported by ongoing oversight from designated farm management personnel. With these measures in place, there would be no adverse odour impact.

7.3 Water Quality Impact

7.3.1 During construction, potential pollution sources include surface runoff, workforce sewage, and accidental chemical spillage. With the implementation of the recommended control measures, no adverse water quality impacts are anticipated.

7.3.2 During operation, sewage and potentially contaminated runoff will be properly collected and managed through the public sewerage and a dedicated drainage system that diverts first-flush runoff to the sewer. With these arrangements and the implementation of relevant best management practices, there would be no adverse water quality impacts during the operational phase.

7.4 Waste Management

7.4.1 With implementation of the good site practise recommended in **Section 5.3**, waste generation during construction phase can be significantly reduced. All types of waste

generated from the construction can be properly handle and transported to appropriate location and the amount of waste is insignificant. No adverse waste management, handling and transportation impact is anticipated during the construction phase.

7.4.2 As waste will be collected regularly, no adverse waste impacts from handling, transportation or disposal are anticipated during operation. However, mitigation measure as recommended in **Section 5.3** shall be implemented.

7.5 Land Contamination

7.5.1 There is no evident for the presence of potentially contaminated land within the Site from past or present use. Potential source of land contamination was not identified from the historical records and the site visit. As such, it is not necessary to carry out any further investigation into land contamination issues at the Application Site.