

By Hand and Email (tpbsubmission@pland.gov.hk)
18 September 2026

The Secretary
Town Planning Board
15/F, North Point Government Offices
333 Java Road
North Point
Hong Kong

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arup.com

Our ref 312796/00/WLL/ PLML/YVL/05876

Dear Sir/ Madam,

**Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) and Associated Excavation of Land for a Period of Three Years at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories
(Planning Application No. A/NE-LT/794)**

Submission of Further Information

We refer to the comments received from the Planning Department dated 14 and 16 September 2026 regarding the captioned s.16 Planning Application.

We are pleased to submit our Responses to Comments table (**Appendix A**) and supplementary information (**Appendices B to E**) for your consideration.

In addition, as requested by the Planning Department, a supplementary plan illustrating the proposed landscape elements is also submitted for consideration (**Appendix F**).

Softcopy of the Further Information will be uploaded to the hyperlink provided by the Town Planning Board.

The further information submitted involves only editorial changes, minor change in the proposed scheme and technical clarification without any material change, and thus should be exempted from the recounting requirement.

We sincerely seek favourable consideration from the Town Planning Board to agree to this s.16 Application.

Our ref

312796/00/WLL/ PLML/YVL/05876

Date

18 September 2026

Should you have any queries, please contact the undersigned or our Ms. Minnie LAW at [REDACTED] or Ms. Vienne LUNG at [REDACTED].

Yours faithfully,



Wai-Lam LEE
Director of Planning

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Enc - Appendices A-F
cc - Client
- Sha Tin, Tai Po and North District Planning Office – Mr. Kevin LAU (Senior Town Planner/Tai Po 1) (Email: kkwlau@pland.gov.hk)
- Sha Tin, Tai Po and North District Planning Office – Mr. Nicol YU (Town Planner/Tai Po 1) (Email: nwkyu@pland.gov.hk)
- Sha Tin, Tai Po and North District Planning Office – Mr. Jackson CHAN (Town Planning Grad/North 3) (Email: jcschan1@pland.gov.hk)

Appendix A

Responses-to-Comments table

Proposed Temporary Educational Institution (Teaching Farm) and Associated Excavation of Land for a Period of 3 Years in
“Recreation” Zone Various Lots in D.D. 16, Wo Tong Pui, Tai Po

Planning Application No. A/NE-LT/794

Responses to Comments – Departmental Comments (September 2026)

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COMMENTS FROM RELATED DEPARTMENTS

No.	Comments	Responses
1.	Planning Department, Sha Tin, Tai Po and North District Planning Office, dated 14 September 2026 Please find the following comments from this Office on your Further Information (FI) submitted to the Town Planning Board (TPB) on 9.9.2026 and the Supporting Planning Statement: Comments on the FI submitted to the TPB on 9.9.2026: • R to C Table Item No. 6 Response (5) (Page 7) of FI submitted on 9.9.2026: Please advise the details of the pre-arranged tours to local school children and the community, including the traffic arrangement of the tour group, how many tour groups are allowed to visit the Site per year, and the registration mechanism for the tour group. • R to C Table Item No. 6 Response (6) (Page 8) of FI submitted on 9.9.2026: Please further delineate the meaning of “two dump trucks per trip during the site formation stage” by providing the estimated traffic volume per time period for the Site. Comments on the submitted Supporting Planning Statement:	Please be advised that for community outreach purposes, pre-arranged guided tours may be organised upon request for small groups (a maximum of 40 participants per visit) of local school children and community members. Visitors are expected to access the Site by public transport. Where necessary, limited L/UL activity associated with a 28-seat minibus may be accommodated within the Application Site to facilitate safe and convenient access, particularly for school groups. The tour will be scheduled during off-peak periods. Such tours will be limited to a maximum frequency of three visits per month. The registration mechanism for the tour group will be by invitation only. Please refer to Appendix B for the replacement pages of the updated Supporting Planning Statement and Appendix C for the swept path analysis which demonstrate the feasibility of the U/UL activity on the minibus within the Application Site. Please be advised that during the site formation stage, there will be about 12 trips per day, each trip with 2 dump trucks.

No.	Comments	Responses
	Section 4.5.2: Further to the R-to-C table in the FI submitted to TPB on 9.9.2026, please advise whether the statement "the farm is not intended for public visit" is no longer applicable to the application.	Noted. Please be advised that statement in Section 4.5.2 has been deleted from the supporting planning statement, and the detail of the pre-arranged guided tours for local school children and community members have been updated in Section 5.5.9. Please refer to Appendix B for the replacement pages of the updated Supporting Planning Statement.
	Planning Department, Sha Tin, Tai Po and North District Planning Office, dated 16 September 2026 Please find the following comments from this Office on the submitted Supporting Planning Statement: - Section 2.5.1: "The Application Site is accessible via Ngau Kwi Leng Path" should be refers as Ngau Kwu Leng Path. Please rectify/clarify. - Section 4.2.2 and 5.2.2: It is noted that a laboratory is proposed at the Site, and the teaching farm will also raise beef cattle for slaughter. Please clarify whether (i) cattle slaughter; and (ii) cattle dissection (for research/teaching purposes) will take place at the Site. Additionally, please provide further details regarding where the cattle will be slaughtered, including whether they will be transported off-site for slaughter. - Section 5.5.2: It is noted that sick/injured animals will be treated within the barn/moved into the isolation unit. Please further advise on the animal health and hygiene, and biosecurity standards/procedures to be adopted by the teaching farm.	Noted, Section 2.5.1 of the Supporting Planning Statement has been rectified. Please refer to Appendix B for the replacement pages of the updated Supporting Planning Statement. Please be clarified that no cattle slaughter and cattle dissection will take place at the Site. The Cattle will be transported off site to the Sheung Shui slaughterhouse, which is the only slaughterhouse in Hong Kong. Noted, please refer to Appendix D for the Standard Operating Procedure (SOP) which instructs the biosecurity protocols at CityUHK Farm to protect the CityUHK herd from the introduction of infectious disease, protect the cattle from disease transmission within the herd, and protect staff and students from farm-acquired zoonoses.

No.	Comments	Responses
	Please find the following comments from this Office on the submitted Appendix B Tree Survey and Landscape Proposal: - Section 7.7: “Of the 186 nos. trees survey on site, 110 nos. trees will be affected by the new development; including 113 nos. of trees are proposed to be felled and 9 nos. trees are proposed to be transplanted.” The sum of “110 trees will be affected” does not tally with the tree treatment proposal. Please rectify/clarify. Please find the following comments from this Office on your 1st Further Information submitted to the Town Planning Board on 9.9.2026: - R to C Table Item No. 6 Response (7) (Page 9): While Page 14 of the submitted Supporting Planning Statement states that the existing teaching farm holds 57 cows, the response of the R to C Table states 56. Please clarify.	Noted, Section 7.7 has been rectified which the nos. of trees affected by the new development should be 122nos. (including 113 nos. of trees proposed to be felled and 9 nos. trees proposed to be transplanted). Please refer to Appendix E for the replacement page of the updated Tree Survey and Landscape Proposal. Please be advised that the teaching farm is currently holding 56 nos. of cows, and Section 5.2.1 of the Supporting Planning Statement has been updated accordingly. Please refer to Appendix B for the replacement pages of the updated Supporting Planning Statement.

(Last updated 18 September 2026)

Appendix B

Replacement pages of the updated
Supporting Planning Statement

Northeast of the Application Site along the Lam Tsuen River is agricultural land under “Agriculture” (“AGR”) zone of the Approved Kau Lung Hang OZP No. S/NE-KLH/1.

- 2.4.4 To the **immediate Southeast** of the Application Site is a piece of natural woodlands under “GB” zone. Adjacent to the “GB” zone is the clusters of existing recognised Village- Kau Liu Ha Village and Hang Ha Po Village, under the “V” zone. To the **further South** of the Application Site is a piece of “G/IC” zone, which is occupied by existing facilities including the Hong Kong Award for Young People (HKAYP) Jockey Club Duke of Edinburgh Training Camp, the Lions Club Youth Centre, the Lam Tsuen Rural Committee Building, the Lam Tsuen Public School, and the Lam Tsuen Wishing Square.
- 2.4.5 To the **immediate West** of the Application Site across the Ngau Kwu Leng Path is also under the same “REC” zone, which is currently covered by grass with some tree clusters, temporal structures and agricultural land in Chuen Pei Lung. To the **further West** of the Application Site across the Lam Tsuen River is Tam Shui Keng under “AGR” zone.
- 2.4.6 Please refer to **Figures 2.4a-b** for the surrounding uses of the Application Site.

2.5 Accessibility

- 2.5.1 The Application Site is accessible via Ngau **Kwu** Leng Path, connecting to Lam Tuen Heung Kung Sho Road to its South. The Application Site is also accessible from Hang Kai Lane in the North which connects to Lam Kam Road.
- 2.5.2 The Application Site is well served by public transport options, with both franchised bus and green minibus services available in the vicinity. Franchised bus routes such as KMB 64K operate daily between Tai Po Market Station and Yuen Long (West), with services running from 05:20 to 00:10 at intervals of 7 to 20 minutes. KMB 64P connects Tai Po Market Station to Kadoorie Farm on weekdays, departing at 18:30 and 19:45. Additional routes, including KMB 65K and T74, provide weekday services linking Ng Tung Chai (Pak Ngau Shek) to Tai Po Central and Kwun Tong Ferry respectively, with regular departures in the morning and evening. The green minibus service GMB 25K operates between Tai Po Market and Lam Tsuen, offering daily services from 04:45 to 01:15 at intervals of 5 to 12 minutes.
- 2.5.3 The bus and green minibus stops are generally identified at Lam Kam Road in the vicinity of the site. The closest bus and minibus stop is found located at near Hang Ha Po at Lam Kam Road, with a walking distance of about 480m and takes about 7 minutes. This comprehensive network ensures access to and from the Site for students and staff.

4.4 Landscape and Tree Preservation Proposal of the Proposed Development

Landscape Proposal

- 4.4.1 The proposed landscape design integrates high-functioning, durable hard-paved areas with naturalistic perimeter planting to create a cohesive, accessible environment. Key components include a functional roadway for vehicular access, strategically placed planting to blend with surroundings, and connected open spaces designed to support scientific and educational activities.

Tree treatment Proposal

- 4.4.2 Based on the tree survey, there are a total of 186 nos. of existing trees within the Application Site. Trees that will be felled due to direct conflicts with the layout plan will be compensated with a replanting ratio of 1:1 in terms of quantity. Upon review, a total of 113 nos. of new trees will be planted to compensate for the felling of 113 nos. of trees. 9 nos. of trees are proposed to be transplanted due to direct conflicts with the layout plan and the remaining existing trees will be retained. Please refer to **Appendix C** for the Tree Survey Report.

4.5 Traffic Arrangement and Ancillary Transport Facilities

Vehicular and Pedestrian Access

- 4.5.1 The Application Site is accessible from two proposed ingress/ egress. The first ingress/ egress is located at the south-western side of the Application Site, which connects to Ngau Kwu Leng Path. Another ingress/ egress is located at the north-eastern side of the Application Site, which connects to Hang Kai Lane.

Internal Transport Facilities

- 4.5.2 The internal transport facilities within the Application Site are provided in accordance with the high-end requirements of the Hong Kong Planning Standards and Guidelines (HKPSG). 9 nos. of parking spaces (including 1 accessible space) and 3 nos. of loading/unloading bays would be provided on the ground level.
- 4.5.3 Please refer to the **Appendix C** for Swept Path Analysis.

4.6 Proposed Programme

- 4.6.1 The proposed temporary teaching farm at the Application Site is intended to be completed by 2027 tentatively.

5. PLANNING JUSTIFICATIONS

5.1 Contributing to the development of veterinarian studies in Hong Kong

- 5.1.1 According to the 2025 Policy Address, the Chief Executive is committed to enhancing the quality of education in Hong Kong, fostering the all-round development of students, and providing more diverse, high-quality learning opportunities and experiences to nurture a broad pool of competent and knowledgeable talents.
- 5.1.2 The BVM degree programme of CityUHK was approved by the University Grants Committee (UGC) in 2018, which aims to educate future leaders in veterinary medicine who are equipped to advance animal health and welfare. It is the first and only professional veterinary medicine degree in Asia with dual accreditation from the Royal College of Veterinary Surgeons (RCVS) and the Australasian Veterinary Boards Council (AVBC). With the UGC's support, CityUHK is able to offer an affordable programme for local students to study veterinary medicine tailored to the local context in areas including animal welfare, aquatic animal health, emerging infectious diseases and food safety etc.
- 5.1.3 Opening in September 2022, the CityUHK Farm is the only active dairy farm in Hong Kong. It is a required facility under the RCVS and AVBC accreditation to fulfil the programme requirement for offering veterinary students the opportunities to gain hands-on experience in bovine medicine, animal husbandry and farm management. With the potential expansion in Farm2.0 to provide much-needed facilities, as well as upgrades and refurbishment of the existing Farm1.0, the Proposed Development will further facilitate teaching and learning of veterinarian study in Hong Kong, with the aim to become a leading veterinary education and research institution in the region.

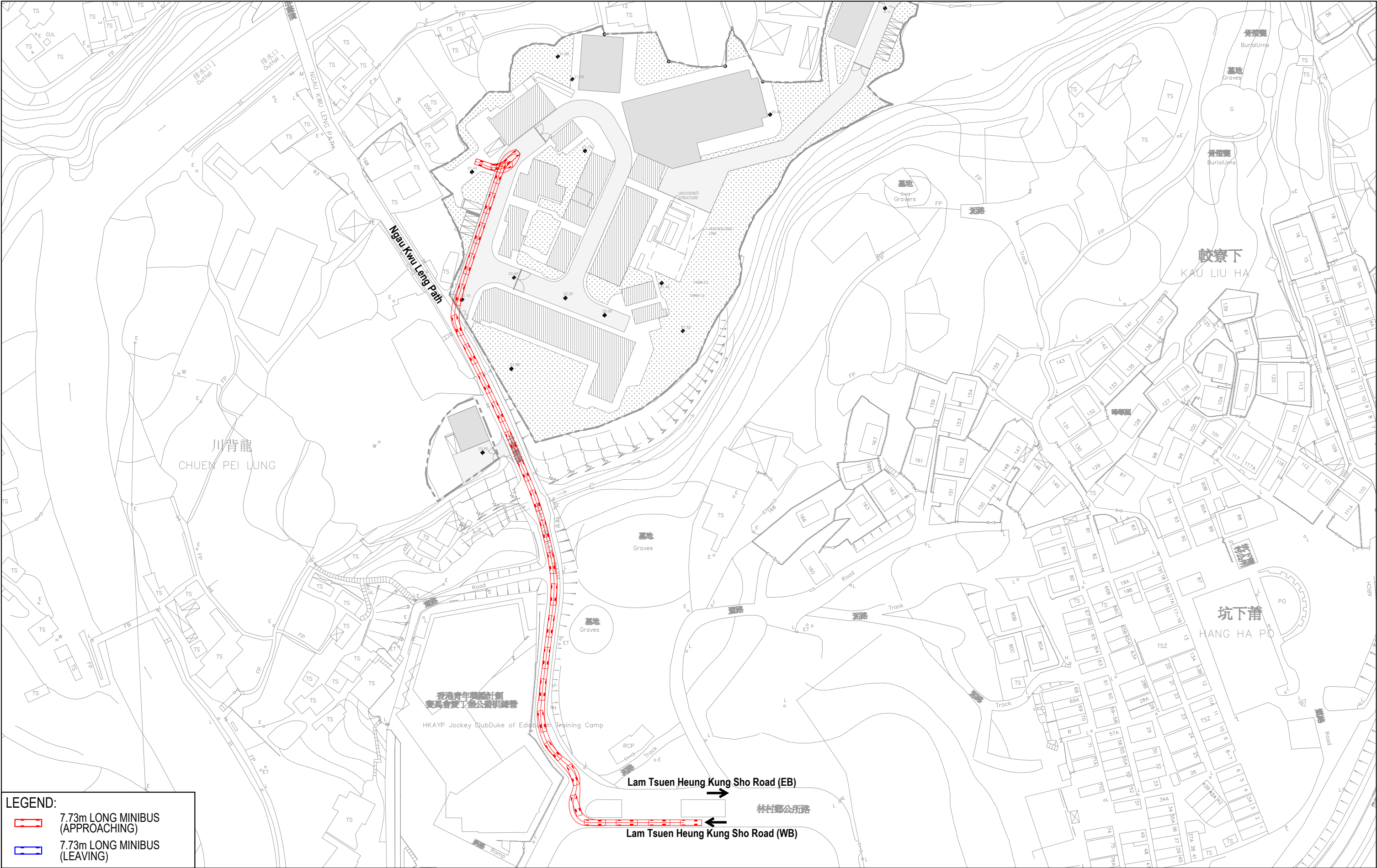
5.2 Providing sufficient space to accommodate essential components for the farm operation

- 5.2.1 The BVM program has been highly successful and has expanded from 12 students enrolled in the leading cohort in 2017 to 46 students admitted in the last academic year. In the next academic year, this number will increase to 60, and the number may further increase to 80 students over the next 10 years. With the increasing number of students, a larger herd size is required to prevent overuse of the existing cattle for training. Currently, the CityUHK farm is holding 56 cows, and the number needs to increase to a total of 100 cows.
- 5.2.2 In addition, dairy cows must calve every year to continue to produce milk, however only 20 – 25 % of these calves are required as dairy replacement heifers to maintain the CityUHK Farm dairy herd. Therefore, the remaining 75 – 80% of calves bred at CityUHK Farm need to be raised as beef cattle for slaughter. Nevertheless, the existing buildings at Farm1.0 only have sufficient space for the dairy herd and dairy replacement heifers.
- 5.2.3 The Proposed Development will therefore be crucial for the provision of additional cattle housing. In particular, it will provide sufficient space to rear the surplus beef crossbred calves from the dairy herd to full slaughter weight. As part of the sustainable agriculture initiative developed by the CityUHK Farm with the assistance of Environmental Protection Department (EPD), these calves will be reared using food co-products and vegetable waste, which will otherwise enter the landfill.

- 5.5.2 **Hygiene and Health Perspective** – In the event of a sick/injured animal, it will be treated within the barn/moved into the isolation unit. All barns will be fully fenced and gated, therefore no animal will be able to cause potential hygiene and health problems, such as outbreaks of infectious diseases, for both human beings and animals in surrounding area.
- 5.5.3 **Environmental Perspective** – For Air Quality, 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 specialist consultants. With these measures in place, there would be no adverse odour impact.
- 5.5.4 For Water Quality, 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.
- 5.5.5 For Waste Management, waste will be collected regularly, no adverse waste impacts from handling, transportation or disposal are anticipated during operation with the mitigation measures implemented.
- 5.5.6 For the details, please refer to **Appendix D** for the Environmental Assessment Report.
- 5.5.7 **Sewerage Perspective** – The existing public sewerage system will be upgraded to connect to the public sewerage network, which have adequate capacity to convey the additional sewage flow generated from the farm. The sewage system will also have spare capacity for conveying the potentially contaminated surface runoff from the farm. For the details, please refer to **Appendix E** for the Drainage and Sewerage Impact Assessment.
- 5.5.8 **Drainage Perspective** – The existing public drainage system do have adequate capacity to convey the additional surface runoff generated from the farm. The potential contaminated surface runoff from carriageway and car park area on site will be stored by a holding tank and gradually discharge to the existing sewers utilizing the sewers' spare capacity. For the details, please refer to **Appendix E** for the Drainage and Sewerage Impact Assessment.
- 5.5.9 **Traffic Perspective** - Majority of students and site staff will travel to the Site via public transport. For community outreach purposes, pre-arranged guided tours may be organised upon request for small groups of local school children and community members. Such tours will be limited to a maximum of 40 participants per visit, with a maximum frequency of three visits per month, and will be scheduled during off-peak periods. Visitors are expected to access the Site by public transport. Where necessary, limited L/UL activity associated with a 28-seat minibus may be accommodated within the Application Site to facilitate safe and convenient access, particularly for school groups. Given the small scale, infrequent nature and careful management of these visits, no adverse or significant traffic impact on the surrounding road network is anticipated.
- 5.5.10 **Geotechnical Perspective** – The Proposed Development will not involve extensive land cutting or excavation, only minimal excavation at a depth of 1.3m to 3.6m is required for the raft footing, EVA construction and for constructing the underground facilities. In

Appendix C

Swept Path Analysis of 28-Seater Minibus



LEGEND:

— 7.73m LONG MINIBUS (APPROACHING)

— 7.73m LONG MINIBUS (LEAVING)

Job Title			CityU Farm Traffic			SK-006_SP10		
Date	Scale	Drawing Title					ARUP	
14SEPT26	1:1250@A3							
Drawn	Job No.							
CKTY	312796-07	SWEPT PATH ANALYSIS OF 7.73m LONG 28-SEATER MINIBUS						

Appendix D

CityUHK Farm Standard Operating Procedure



Jockey Club College of Veterinary
Medicine and Life Sciences

香港城市大學
City University of Hong Kong

in collaboration with Cornell University



CityUHK Farm:

Biosecurity, Emergency, Safety Plans and Procedures and Health Management

CityUHK Farm
Document Number SOP-
BIOSECURITY-001
Revision Number 007
Effective Date: 31 August 2025

This document was prepared using as templates the University Veterinary Teaching Hospital of Sydney Australia biosecurity protocols, Standard Operating Procedures for the Penn State University Dairy Barns <https://animalscience.psu.edu/about/facilities/dairy-barns/pdf-dairy-sop> and the Biosecurity Protocols for Canadian Dairy Farms: National Standard <https://inspection.canada.ca/animal-health/terrestrial-animals/biosecurity/standards-and-principles/dairy-farms/eng/1359657658068/1359658301822>

1. PURPOSE

1.1. This Standard Operating Procedure (SOP) instructs farm staff and students on the biosecurity protocols at CityUHK Farm to protect the CityUHK herd from the introduction of infectious disease, protect the cattle from disease transmission within the herd, and protect staff and students from farm-acquired zoonoses.

2. PREPARATION

2.1. This SOP was prepared by Professor Pedro MELENDEZ and incorporates other SOP documents prepared by Dr Eryl DONE, Dr Joyce Ip with further added sections from Dr Eloi GUARNIERI. The document was reviewed by a committee comprising of the aforementioned, as well as the Dean of JCC Prof. Vanessa BARRS, the head of VCS Prof. Stefan HOBI and the BVM Program Leader Prof Kate FLAY in July 2025

3. RESPONSIBILITY

- 3.1. The Farm Manager and Consultants are responsible for reviewing and updating this procedure when required with the oversight of the farm animal faculty staff.
- 3.2. The Farm Manager and Consultants are responsible for ensuring all staff are trained in this procedure and that training is documented.
- 3.3. All personnel and visitors to CityUHK Farm are responsible for reading, adhering and understanding the procedures outlined in this SOP.

4. TRAINING

- 4.1. Training will include directions on practical implementation of biosecurity protocol, SOP overview, animal handling and equipment instruction.

5. LEGISLATION

5.1. Dairies Regulations

In Hong Kong, the Dairies Regulations (Cap 139D) regulates dairy farming,

According to these regulations, the CityUHK Dairy Farm holds a Dairy License (a copy of which is displayed in the reception area of CityUHK Farm). The dairy license contains terms and conditions specifying requirements relating to the keeping of dairy cattle, their housing, milk hygiene, public health and effluent handling.

Under Cap 139D dairy farms may only be operated by a registered dairyman. The Farm Manager (at present Mr Jack DONALDSON) is the registered dairyman at CityUHK Farm. The dairyman's registration is displayed in the registration area at CityUHK Farm.

Reference:

Cap. 139D Dairies Regulations (<https://www.elegislation.gov.hk/hk/cap139D>)

5.2. Environmental Regulations

The disposal of solid animal waste and effluent is regulated by a number of ordinances in Hong Kong, as listed below. However, as part of the town planning process (approval letter dated 29 May 2020, reference TPB/A/NE-LT/662) and the town planning renewal (approval letter dated 19 May 2023, reference TPB/A/NE-LT/756) CityUHK Farm must comply with an approved Environmental Assessment Report detailing the exact disposal procedures that must be adhered.

A copy of this report, the Operations Manual extracted from this report and the associated commercial waste disposal contracts is filed in hard copy at the farm office at CityUHK Farm.

Reference:

Cap. 354 Waste Disposal Regulations

Cap. 358 Water Pollution Control Ordinance

Cap. 499 Environmental Impact Assessment Regulations

5.3. Animal Welfare Regulations

The relevant legislation in Hong Kong is:

Cap. 169 Prevention of Cruelty to Animals Ordinance (elegislation.gov.hk)

General Concepts

6. Introduction to Biosecurity Practices

Putting biosecurity practices in place to keep animals and humans healthy has been a long-standing and successful practice on many dairy farms worldwide. Today's more intensive farm operations are more susceptible to diseases and therefore often demand stricter biosecurity protocols. As production has intensified, the importance of production-limiting diseases, such as contagious mastitis, Johne's disease, enzootic bovine leukosis, and bovine viral diarrhea (BVD), has become more significant. In addition, with intensified production practices, risks of contamination with *E. coli*, *Salmonella*, and other zoonotic diseases have risen.

Medication and vaccination have traditionally played a major role in preventing and treating diseases, but it is now widely accepted that they cannot, in isolation, prevent all the losses due to disease. Modern farming demands a more complete and global approach. A rigorous biosecurity program that is designed to maximize disease resistance and to minimize herd exposure to infectious agents is needed.

Moreover, these new animal health challenges highlight the need for biosecurity:

- increasing numbers of emerging diseases
- more attention to zoonoses
- more attention to traceability
- greater focus on prevention
- changing epidemiology of disease due to intensive farming situations
- globalization and the mass movement of people and goods
- new production practices in agriculture
- Food Safety

Securing a farm is about knowing the risks to the enterprise and the ways in which the cattle and humans can be exposed to disease and then taking steps to minimize the risks. Prevention through biosecurity is the most cost-effective protection for animal diseases and zoonosis, but in itself will not completely eliminate any occurrence of disease.

It is vitally important to the sustainability and profitability of animal agriculture that producers maintain the highest health status possible. The success of agricultural exports of countries is closely linked to the health status of their animals. Future access to all markets will increasingly depend on our ability to demonstrate freedom from serious animal diseases and pests. Purchasers of live animals often require vendor health declarations as an element of their quality assurance programs and good biosecurity. Consumers today expect producers and farm employees to take good care of the health of the animals with which they work.

Biosecurity standards are generally based on disease risk assessments, internationally accepted best practices, and science that can help mitigate disease. They are designed to anticipate and address risks before they occur. Ongoing experience and methods' development will continue to guide practices and priorities in biosecurity programs.

For CityUHK Farm the herd was imported from Australia. 24 pregnant Jersey heifers were imported in September 2022 and 6 yearling Jersey heifers in December 2022. Before importation they entered pre-embarkation quarantine for 30 days and were sourced, treated and tested according to a strict health protocol agreed with the Agriculture, Fisheries and Conservation Department (AFCD) which covered ectoparasites, endoparasites, ticks, leptospirosis, brucellosis, bovine spongiform encephalopathy, haemorrhagic septicaemia, lumpy skin disease, rabies, rinderpest, foot and mouth diseases, contagious bovine pleuropneumonia, bovine tuberculosis, heartwater, rift valley fever, vesicular stomatitis, anthrax, listeriosis, bovine viral diarrhoea, theileriosis, bovine paratuberculosis (Johne's disease), bovine anaplasmosis, bovine genital campylobacteriosis, bluetongue, bovine babesiosis, infectious bovine rhinotracheitis, trichomoniasis and enzootic bovine leucosis. After shipment the heifers entered 28 days post-import quarantine at CityUHK Farm with strict biosecurity procedures including mosquito netting to prevent the risk of vector borne infection between the quarantined heifers and the local feral cattle.

7. Biosecurity and Why it is Important to the CityUHK Farm

The CityUHK Farm serves primarily as a teaching farm and secondarily as a business of producing food for human consumption and research. Thus, we must be confident in the safety and quality of the milk and milk products that the herd produces. Good safe food is what drives the dairy agricultural industry; anything that compromises this priority hurts the overall sector.

The application of biosecurity in the supply chain helps to ensure the viability and sustainability of our farm. When adopted, biosecurity helps to support animal health and welfare, protection of the environment, and the production and marketing of safe, quality-assured products.

Due to the strict pre-import health protocol our naïve herd is free of brucellosis, tuberculosis, Johne's disease and bovine leukaemia virus, bovine viral diarrhoea and several other diseases. These are very important infectious diseases with a large impact for the dairy industry and human health. Our efforts will continue to keep the herd free of these infectious diseases and avoid the introduction of other potential diseases affecting both the animals and people. In this list we must include salmonellosis, leptospirosis, and other foodborne-pathogens contaminating the milk (e.g. *Staphylococcus aureus*, *E. coli*, *Listeria monocytogenes*, etc.).

8.1 Definition of Biosecurity

Biosecurity is managing the herd to prevent the introduction and spread of infectious diseases. Farm-level biosecurity is a series of management practices designed to minimize or prevent and control:

- a. The introduction of infectious disease agents onto a farm;
- b. Spread within a farm production operation; and
- c. Spread of these disease agents beyond the farm that may have an adverse effect on the economy, environment and human health.

Biosecurity is believed by some to be important only in avoiding catastrophic or foreign animal diseases. However, biosecurity is also important in reducing the risks of endemic diseases that may limit productivity of a farm. Biosecurity practices are also designed to be adapted when emerging diseases are discovered.

The economics of modern-day dairy farming means larger herds that are kept in regions of high stock density. Increasing the size of herds under common management, keeping them in multiple premises and/or in livestock-dense areas in which there is increased potential of direct contact with numerous neighbours, not only increases biosecurity risks, but also makes biosecurity management more relevant.

The risk of transmission of both endemic and foreign animal diseases is therefore inherent in animal management and farm management practices and in natural circumstances on livestock farms. The CityUHK Farm biosecurity plan considers the risks of both endemic and foreign animal diseases that occur in dairy cattle. These risks can be influenced by facility designs and farm layouts, and by the activities of service providers and farm visitors.

Overall, these risks from diseases and pest impact the viability of farms and can:

- reduce productivity,
- impact animal welfare,
- increase veterinary and labour costs,
- affect domestic consumption/consumer confidence,
- reduce prices that producers receive for their animals and products,
- close export markets,
- reduce farm incomes, and

In addition to adverse effects on the agricultural economy, infectious diseases can negatively affect the environment and human health.

The CityUHK Farm biosecurity plan addresses the risks associated with infectious diseases by focusing on three key actions:

1. **Exclude:** Prevent the introduction of pathogens to the farm.
2. **Manage:** Prevent the spread of pathogens among cattle within the farm.
3. **Contain:** Prevent the spread of pathogens from the farm to other animal populations and humans.

Biosecurity is a proactive process that addresses risks that **could** exist, whether or not they are immediately evident. An animal infected with a pathogenic organism may or may not show outward signs of clinical disease. Nevertheless, the pathogen can be reproduced in the animal's body, which then sheds the organism through excretions, including saliva, nasal secretions, faeces, urine, milk, or aerosols from its respiratory system. The organisms contained in these excretions may be invisible and contaminate the surfaces in the surrounding environment, including equipment, tools, and other animals.

There are many ways in which diseases can transmit between dairy cattle. Infectious disease agents (viruses, bacteria, and parasites) typically spread through recognised vectors for disease transmission. These include direct transmission via contact with other cattle – including pathogens shed by one cow to another or from a pregnant cow to a foetus, dead or sick animals, and animal products (semen and embryos) – and by indirect transmission, via airborne spread, or contact with contaminated people, clothing, farm and service equipment, vehicles and farm implements, feed and water, faeces and urine, birds, wildlife, pests, and other animals. These vectors for disease transmission, together with the operating procedures and the design of each farm facility, are the subject of a biosecurity risk analysis.

8.2 Objectives and development of the CityUHK Farm Biosecurity Plan

The benefits of implementing on-farm biosecurity practices at the CityUHK Farm are significant. They include:

- improving animal health and welfare in the herd;
- keeping out new diseases and controlling the spread of disease outside the farm;
- cutting the cost of disease prevention and treatment;
- reducing the use of medication, such as antibiotics, with an associated reduction in the risk of emergence of resistant pathogens;
- producing safe, wholesome, and high-quality milk and milk products;
- increasing consumer and buyer confidence;
- protecting human health;
- minimizing the potential for farm income losses;
- enhancing the value of the herd; and
- maintaining and accessing new markets for genetics.

Service providers, feed businesses, and other business partners of the CityUHK Farm also benefit from the implementation of good farm biosecurity. Healthier day-to-day farm performance and the reduced risk of catastrophic disease events that severely impact farm customers protect their markets.

Development of the CityUHK Farm biosecurity plan was based on the potential risks of entry or spread of diseases of concern to Hong Kong and identified practical methods of limiting or mitigating these risks. Creation of this biosecurity plan was conducted in consultation with CityUHK Farm veterinarians and farm personnel and considered the facility design and layout, type, and size of the operation, farm team makeup, herd disease status, and specific animal health and facility management strategies in place.

CityUHK Farm Vaccination Schedule

Cattle at CityUHK farm are vaccinated against the following diseases:

Disease	Status	Vaccine used	Target animals	Timing for first vaccination	Frequency of boosters required
Foot and Mouth Disease (FMD)	Vaccinated	Foot and Mouth Disease Bivalent (Type O and A) Vaccine, Inactivated (Strain O/MYA98/BY/2010+ Strain Re-A/WH/09)	All animals	5 months old (After maternal immunity has waned)	6 months
Lumpy Skin Disease (LSD)	Vaccinated	Lumpyvax (Bovilis) Live, attenuated vaccine (Neethling strain)	All animals	5 months old (After maternal immunity has waned)	Annually

CITYUHK FARM GENERAL BIOSECURITY PLAN
Jockey Club College of Veterinary Medicine and Life Sciences
City University of Hong Kong

SECTION 1: BIOSECURITY LEVELS

To fulfil the primary educational function of the CityUHK Dairy Farm and to prevent the transmission of contagious diseases (i.e., to prevent the introduction and spread of pathogens between cattle on the farm and from the CityUHK Dairy Farm to other animal populations and humans), different biosecurity levels have been implemented for suspected or confirmed cases of bovine infectious disease

Biosecurity categorization is based on the susceptible species (e.g., cattle, goats, horses, pigs, etc.), the routes of transmission, the risks to animal and human health, the economic risks to the farm and local trade, the list of reportable diseases in Hong Kong (Cap.139 Public Health (Animals and Birds) Ordinance) and the World Organization for Animal Health listed diseases (see **Supplementary information**).

Category I – Low risk	Category II – Moderate risk	Category III – High risk
Enhanced biosecurity procedures - Level 1	Enhanced biosecurity procedures - Level 2	Enhanced biosecurity procedures - Level 3
• Bluetongue • Bovine anaplasmosis • Bovine babesiosis • Bovine genital campylobacteriosis • Bovine paratuberculosis • Bovine viral diarrhea • Crimean Congo Hemorrhagic Fever • Cryptosporidiosis • Enzootic bovine leukosis • Epizootic hemorrhagic disease • Giardiasis	• Bovine brucellosis • Bovine tuberculosis • Contagious bovine pleuropneumonia • Cowpox • Hemorrhagic septicaemia • Melioidosis • Pseudocowpox • Salmonellosis	• Anthrax • Bovine spongiform encephalopathy • Foot-and-mouth disease • Peste des petits ruminants • Rabies • Rinderpest • Vesicular stomatitis

• Heartwater • Infectious bovine rhinotracheitis • Leptospirosis • Listeriosis • Lumpy skin disease • Malignant Catarrhal Fever • Q fever • Rift Valley fever • Ringworm • Sarcoptic mange • <i>Staphylococcus aureus</i> infection/mastitis • Toxoplasmosis • Theileriosis • Trichomoniasis • Trypanosomiasis		
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Level 0: Routine biosecurity procedures

These routine biosecurity procedures (Level 0) are implemented daily.

If there is **no** suspected or confirmed outbreak of contagious diseases (Categories I, II, and III) in the CityUHK herd,

AND

If staff, students, and external visitors have **not**:

- been in close contact with a ruminant (owned or wild) in the previous 48 hours,
- been in close contact with an equid (owned or wild) in the previous 48 hours,
- been in close contact with swine (owned or wild) in the previous 72 hours,

AND

If staff, students, and external visitors have **not** travelled outside Hong Kong in the previous 14 days,

THEN, staff, students, and external visitors can enter the CityUHK Farm following the routine biosecurity procedures (Level 0). Teaching activities and external visits are allowed.

Level 1: Enhanced biosecurity procedures – Infectious diseases in Category I (Low risk)

If there is a suspected or confirmed outbreak of contagious diseases (Category I – Low risk) in the CityUHK herd, teaching activities are allowed, but external visits will only be authorized on a case-by-case basis by the Biosecurity coordinator.

If staff, students, and external visitors have **not**:

- been in close contact with a clinically healthy or diseased ruminant (Category I – Low risk) in the previous 48 hours
- been in close contact with a clinically healthy or diseased equid (Category I – Low risk) in the previous 48 hours
- been in close contact with a clinically healthy or diseased swine (Category I – Low risk) in the previous 72 hours

AND

If staff, students, and external visitors have **not** travelled outside Hong Kong in the previous 14 days,

THEN, staff, students, and external visitors may enter the CityUHK Farm following the enhanced biosecurity procedures (Level 1).

Level 2: Enhanced biosecurity procedures – Infectious diseases in Category II (Moderate risk)

If there is a suspected or confirmed outbreak of contagious diseases (Category II – Moderate risk) in the CityUHK herd,

OR

If staff and/or students have been in close contact with a diseased ruminant, equid, or swine (Category II – moderate risk) in the previous 72 hours,

THEN, non-essential visits (i.e., teaching and research activities) are **not** allowed. Only authorized visitors can enter the CityUHK Farm following the enhanced biosecurity procedures (Level 2).

Level 3: Enhanced biosecurity procedures – Infectious diseases in Category III (High risk)

If there is a suspected or confirmed outbreak of contagious diseases (Category III – High risk) in the CityUHK herd,

OR

If staff and/or students have been in contact with a diseased ruminant, equid, or swine (Category III – High risk) in the previous 72 hours,

THEN, non-essential visits (i.e., teaching and research activities) are **not** allowed. Staff and students must not enter the CityUHK Farm. Only essential and authorized visitors can enter the CityUHK Farm following the enhanced biosecurity procedures (Level 3).

SECTION 2: GENERAL

2.1. Basic biosecurity measures

Personal Protective Equipment (PPE – All levels)

- It is strictly prohibited to bring personal belongings (e.g., cell phone, pen, watch, stethoscope, thermometer, etc.) into the ‘clean zone.’
- Wear appropriate and clean PPE (see ‘Attire – Before entering the ‘Clean zone’).
- Wear non-sterile gloves when handling an animal.

Prevention of zoonotic transmission (All levels)

- Wear appropriate PPE (including gloves and coveralls).
- Wash your hands after handling an animal, before eating/drinking, and before leaving the farm.
- Long hair should be tied up.
- Do not place any items in the mouth.
- Do not eat or smoke in areas where animals are examined, treated, or housed.
- No food will be permitted in areas where animals are examined, treated, or housed. Food and drinks may be consumed in the caretaker quarters (Block 5), in the changing rooms (Block 4), and in-office areas (Block 3) only.

Before, while and after handling animals (All levels)

- Assemble the equipment and supplies you think you may need prior to starting any examinations or procedures.
- If you need additional items from cabinets or drawers, wash your hands or de-glove them before getting them, or ask someone with clean hands to get them for you.
- Clean and disinfect your work area and equipment. If you are unable to do it, ask someone else to do it for you.

Prevention of disease transmissions (All levels)

- If you think your patient may have something contagious (Category I, II or III), inform the Farm Manager, Senior Dairy officer, or the Biosecurity coordinator immediately.

2.2. Before entering the ‘Clean zone’

Biosecurity procedures (All levels)

- Wash your hands with soap

Attire

- **All levels:** Dress should be professional and appropriate for the type of activity, and follow the biosecurity level. This is a requirement for any person entering the farm regardless of role, title, or position.
- **All levels:** Do not bring personal belongings (e.g., cell phone, pen, watch, stethoscope, thermometer, etc.) in the ‘clean zone.’
- **Level 0:** Staff, students and external visitors can keep their personal normal clothes on under their overalls. Personal normal clothing should be covered by cleaned CityUHK farm overalls or disposal overalls (supplied by the farm) before crossing into the ‘clean zone’ of the farm through the changing rooms (Block 4). All outside footwear must be left in the ‘dirty zone’ (unless covered with disposable boots provided by the farm), and farm boots must be worn inside the clean zone.
- **Level 1:** Staff, students and external visitors should have taken a shower before visiting CityUHK Dairy farm, and washed their bodies and hair with soap and shampoo, respectively. Staff, students and external visitors must not keep their personal normal clothes on under their overalls before crossing into the ‘clean zone’ of the farm through the changing rooms (Block 4). All outside footwear must be left in the ‘dirty zone’ and farm boots worn inside the ‘clean zone’.

In case of potential zoonotic transmissions, at-risk individuals (e.g., pregnancy and immunosuppression) may not be authorized to enter the CityUHK Farm by the Biosecurity coordinator. Authorized staff, students and external visitors must not keep their personal normal clothes on under their overalls, and should wear non-sterile gloves, an N95 mask, and a disposable hat.

- **Level 2:** Non-essential visitors may not enter the CityUHK Farm. Authorised visitors must take a shower before entering and leaving the ‘clean zone’, washing their bodies and their hair with soap and shampoo. Essential authorised visitors must not keep their personal normal clothes on under their overalls. Essential authorised visitors must wear cleaned CityUHK farm overalls, with an N95 mask, non-sterile gloves, and a disposable hat, before crossing into the ‘clean zone’ of the farm through the changing rooms (Block 4). All outside footwear must be disinfected at the entrance of CityUHK Dairy farm, and then, left in the ‘dirty zone’. CityUHK farm boots must be worn inside the ‘clean zone’ (i.e., outside footwear cannot be covered with disposable boots).

In case of potential zoonotic transmissions, additional PPE could be required. At-risk individuals (e.g., pregnancy and immunosuppression) may not be authorised to enter the CityUHK Farm.

- **Level 3:** Unauthorised and/or non-essential visitors must not enter the CityUHK Farm.

Essential authorised visitors must take a shower before entering and leaving the ‘clean zone,’ washing their bodies and their hair with soap and shampoo. Essential authorised visitors must not keep their normal personal clothes and belongings under their overalls. Essential visitors must wear a disposable coverall with a disposable hat, a disposable N95 mask, a pair of safety google, 1 pair of clean gumboots, 2 pairs of disposable cover-boots, and 2 pairs of nitrile gloves closed on the wrist with tape.

In case of potential zoonotic transmissions, at-risk individuals (e.g., pregnancy and immunosuppression) must not be authorized to enter the CityUHK Farm.

2.3. Before leaving the ‘Clean zone’

Biosecurity procedures

- **All levels:** Wash and disinfect your boots before leaving the barn and before entering the changing room (Block 4).
- **All levels:** Take off your boots and your overalls.
- **All levels:** Wash your hands with soap.
- **All levels:** Put on your personal normal clothing and footwear.
- **All levels:** Wash your hands with soaps.
- **Levels 2 & 3:** If staff, students or external visitors have been in close contact with a diseased animal (Category II or III), they must take a shower washing their bodies and hair with soap and shampoo before leaving the ‘clean zone’. They must contact immediately the Biosecurity Coordinator for advice on precautions to be taken.

Attire

- **All levels:** Attire should be removed and not worn outside the farm.
- **Levels 0 & 1:** Attire must be placed in a container provided for on-site laundry.
- **Levels 2 & 3:** Attire must be placed in a sealed ‘Contaminated Laundry bag’ (provided by CityUHK Farm). They will be cleaned and disinfected in accordance with an approved protocol for the suspected pathogen.

SECTION 3: ON-FARM PATIENT BIOSECURITY STATUS

All animals present on the dairy farm will be routinely evaluated to assess contagious disease risk. This will be done by the farm veterinarian(s) in charge but may be delegated to staff or students under the supervision of the responsible veterinarian(s).

3.1. Biosecurity status

The responsibility for assignment of appropriate biosecurity status ultimately rests with the Biosecurity coordinator and/or farm veterinarian(s).

It is the responsibility of the farm veterinarian(s) to see that prescribed biosecurity Standard Operating Procedures (SOPs) are instituted and followed. This responsibility may be delegated to a qualified staff member.

Deliberate deviations from protocol are discouraged but permissible when considered to be in the best interest of the patient or the safety of personnel. Justification for such deviations should be briefly noted in the patient record.

3.1.1. Status 'NAIVE'

NAIVE status is reserved for patients at high risk of acquiring infections due to poor immune status.

Examples: immunocompromised animals, unvaccinated newborn calves, calves with failure of passive transfer immunity, etc.

Housing:

- NAIVE patients may be isolated or housed in separate, well-identified areas.
- The points of entry for personnel to enter livestock barns and disinfect footwear are designated by GREEN signs.

Attire:

- Clean gloves
- Clean overalls. If there is any question regarding the cleanliness of attire, they should be changed or covered with a disposable gown.
- Clean footwear. Footwear must be cleaned and disinfected when moving between groups at the designated boot washes.

Order of care:

- Management of NAIVE animals should be performed first to limit their exposure to potential pathogens,
OR
- Management of NAIVE animals should be performed by a different stockperson from the other groups.

3.1.2. Status 'LOW RISK'

LOW RISK status is reserved for animals without historical, physical or laboratory evidence of a contagious disease OR with historical, physical or laboratory evidence of a contagious disease (Category I – Low risk).

They may have infectious diseases that are considered to be mildly or moderately contagious to other animals or personnel.

- If there is any question regarding the possibility of contagious disease, patients should be considered infectious until appropriate diagnostics can be run.
- Students can be involved in the care of these animals at the discretion of the Biosecurity coordinator and/or farm veterinarian(s) in charge.

Examples: Adult lactating cows without obvious clinical signs, calves/heifers with ringworm lesions, lactating cows with *Staphylococcus aureus* mastitis, etc.

Housing:

- LOW-RISK patients may be housed in the main freestall area or in the separate sick pen depending on the level of monitoring required.
- Milking is managed and handled in this area.

Attire:

- Clean gloves
- Clean overalls
- Disposable barrier gown (impermeable) should be worn when handling patients at the discretion of the Biosecurity coordinator and/or farm veterinarian(s).
- Plastic or rubber boots should be worn in designated areas. Boots may be reused if they are thoroughly washed and disinfected at the designated boot washes.
- Disposable items (gloves, gown, boots) should not be worn outside designated areas/runs.
- Gowns and boots may be reused as long as they remain with the patient or in the designated area and are not torn or perforated.
- Face shields/goggles and masks should be worn when working with suspected zoonotic pathogens.

Order of care:

- Management of LOW-RISK animals should be done second to NAIVE animals and prior to HIGH-RISK animals
OR
- Management of LOW-RISK animals should be done by a separate stockperson from the HIGH-RISK group.

3.1.3. Status 'HIGH RISK'

HIGH RISK status is reserved for patients known or suspected to have highly contagious, notifiable and/or zoonotic diseases (Category II – Moderate risk, or Category III – High risk).

They have infectious diseases that are considered to be highly contagious to other animals or personnel.

- If there is any question regarding the possibility of contagious disease, patients should be considered infectious until appropriate diagnostics can be run.
- No students are involved in the care of these patients.

Examples: Salmonellosis, Tuberculosis (TB), foot-and-mouth disease (FMD), etc.

Housing:

- HIGH-RISK animals should be placed directly into animal isolation without transiting through the sick cow pen.
- HIGH-RISK animals must remain isolated until fully recovered and tested negative to allow return to the main herd. If patients are suspected of being carriers of shedding pathogens, they should be culled rather than returned to the main herd.
- HIGH-RISK animals cannot be walked through dairy facilities. If lactating, they should be milked isolated with the portable milking machine.
- The isolation area is marked with warning signage prohibiting unauthorised entry as contaminated.
- Appropriate cleaning and disinfection procedures must be undertaken.

Attire:

- *During initial examination of a suspected HIGH-RISK animal*, mask, disposable hat, gloves, overalls, and boots must be worn.
- *After confirmation of a HIGH-RISK animal*, overalls and boots worn during the initial examination must be immediately removed and laundered according to the SOPs.
- *In the isolation area*, gloves, masks, disposable suits, and boots must be worn in the isolation area. This attire should never be worn outside of the isolation area.

Order of care:

- Management of HIGH-RISK animals should be performed last.
OR
- Management of HIGH-RISK animals should be performed by separate personnel from the other groups.

3.2. In case of signalment, history, physical findings, and/or laboratory results suggestive of contagious diseases (Category I, II or III)

- Farm staff should be notified immediately.
- Appropriate cleaning and disinfection procedures may be instituted.

- Animals will be assigned a biosecurity status (NAIVE, LOW-RISK and HIGH-RISK) as defined previously, and as soon as possible.

For questions regarding the biosecurity status of an animal:

- Members of the technical / husbandry staff having concerns regarding the biosecurity status of an animal should contact the Biosecurity coordinator and/or the farm veterinarian(s) on site, immediately.
- Students or faculty having concerns regarding the biosecurity status of an animal should contact the Biosecurity coordinator and/or the farm veterinarian(s) on site, immediately.

If you suspect that you may have acquired a zoonotic infection:

- Students should contact their supervisor immediately on site.
- Faculty or staff should contact their supervisor immediately.

SECTION 4: STANDARD OPERATING PROCEDURES BASED ON PATIENT BIOSECURITY STATUS

4.1. NAIVE SOPs (i.e., high risk for acquiring infections)

Order of Care

- Management of NAIVE animals should be performed first to limit their exposure to potential pathogens,
OR
- Management of NAIVE animals should be performed by a different stockperson from the other groups.

Monitoring

- NAIVE animals should be monitored daily for changes in TPR (i.e., rectal temperature, heart beat and respiratory rate), attitude, appetite, faecal consistency, etc.
- Clinical signs suggestive of contagious disease or infection should be brought to the attention of the farm veterinarian(s).

Equipment / Supplies / Medications

- Stethoscopes and thermometers should be wiped clean with 70% isopropyl alcohol between NAIVE animals.

Attire

- Clean gloves. Gloves should be changed between NAIVE animals and removed before touching other items. Hands should be washed before treating another animal.
- Clean overalls. If there is any question regarding the cleanliness of attire, they should be changed or covered with a disposable gown.
- Clean footwear. Footwear must be cleaned and disinfected when moving between groups at the designated bootwashes.

Movement within the Barns

- Biosecurity status should be clearly marked on these areas.

4.2. LOW RISK SOPs (i.e., absence of contagious disease(s) or Category I – Low risk)

Order of Care

- Management of LOW-RISK animals should be done second to NAIVE animals and prior to HIGH-RISK animals
OR
Management of LOW-RISK animals should be done by a separate stockperson from the HIGH-RISK group.

Monitoring

- LOW-RISK animals should be monitored regularly for changes in TPR (i.e., rectal temperature, heart beat and respiratory rate), attitude, appetite, faecal consistency, etc.
- Prior to submission of diagnostic samples specimen containers (tubes, sterile cups, culturettes, etc.) should be wiped down with alcohol, inscribed with patient information, and placed in a zip-lock bag. The biosecurity status and agent should be clearly marked on the laboratory submission form.

Equipment / Supplies / Medications

- Stethoscopes and thermometers should be wiped clean with 70% isopropyl alcohol between LOW-RISK animals.
- Any tool to be used in LOW-RISK animals must be sprayed with 70% isopropyl alcohol.
- Bandage materials and towels should be considered infectious. Use disposable materials when possible. Disposables should be placed in an appropriate biohazard container/bag. Launderable items should be placed in a dedicated 'Contaminated Laundry' bag.
- Dirty procedures (e.g., wound debridement / flushing) should be performed in a separated area whenever possible. Dirty procedures should not be performed in clean areas or isolation areas.

Attire

- Clean gloves. Gloves should be changed between LOW-RISK animals and removed before touching other items. Hands should be washed before treating another patient.
- Clean overalls
- Disposable barrier gown (impermeable) should be worn when handling patients at the discretion of the Biosecurity coordinator and/or farm veterinarian(s).
- Plastic or rubber boots should be worn in designated areas. Boots may be reused if they are thoroughly washed and disinfected at the designated boot washes.
- Disposable items (gloves, gown, boots) should not be worn outside designated areas/runs.
- Gowns and boots may be reused as long as they remain with the patient or in the designated area and are not torn or perforated.
- Face shields/goggles and masks should be worn when working with suspected zoonotic pathogens.

Movement within the farm

- Biosecurity status should be clearly marked on these areas.
- If the animal is being transferred to other areas of the farm (e.g., isolation area), all staff should be notified in advance regarding the biosecurity status. Status should be clearly marked on the animal.

4.3. HIGH RISK SOP (i.e., Category II – Moderate risk and Category III – High risk) – Isolation protocol

Order of care

- Management of HIGH-RISK animals should be performed last.
OR

Management of HIGH-RISK animals should be performed by separate personnel from the other groups.

Monitoring

- HIGH-RISK animals should be monitored daily for changes in TPR (i.e., rectal temperature, heart beat and respiratory rate), attitude, appetite, faecal consistency, etc.
- Prior to submission of diagnostic samples specimen containers (tubes, sterile cups, culturesses, etc.) should be wiped down with alcohol, inscribed with patient information, and placed in a zip-lock bag. The biosecurity status and agent should be clearly marked on the laboratory submission form.

Equipment / Supplies / Medications

- Once personnel are in the anteroom of the isolation area, they must change boots before entering and exiting the isolation area. Boots designated for box 1 and 2 must be used.
- Before entering the isolation area, you must be sure to check that all of the equipment / supplies that you will need are present.
- Following initial examination, stethoscopes and thermometers should be rinsed/wiped with tap water and disinfected again with bleach. Gauze/towels used for cleaning instruments should be considered infectious and disposed of appropriately. A stethoscope and thermometer will be provided for patients once they are in the isolation area.
- Following physical examination, the patient should be maintained in the isolation area. Under no circumstances should it moved or enter other areas. The areas where the HIGH-RISK animal has stayed or transited since a potential pathogenic shedding should be clearly marked as contaminated, cleaned, and completely disinfected with bleach.
- All materials entering the isolation area should be considered contaminated. Disposables should be placed in an appropriate biohazard container/bag. Launderable should be placed in a "Contaminated Laundry" bag. Materials may not leave the isolation area until they have been appropriately bagged and boxed or cleaned and disinfected.
- Disposable supplies or multi-use pharmaceuticals may not be transferred to another patient or area.

Attire

- *During initial examination of a suspected HIGH-RISK animal*, mask, disposable hat, gloves, overalls, and boots must be worn.
- *After confirmation of a HIGH-RISK animal*, overalls and boots worn during the initial examination must be immediately removed and laundered according to the SOPs.
- *In the isolation area*, gloves, masks, disposable suits, and boots must be worn in the isolation area. This attire should never be worn outside of the isolation area.
 - *When entering the isolation area*: in the anteroom of the isolation area, remove your coveralls and immediately put on barrier protection. Barrier protection includes: 1) first pair of gloves, 2) mask, 3) disposable suit, 4) plastic boots or rubber boots, 5) second pair of gloves. They should be put on in the order listed.
 - *When exiting the isolation area*: remove the barrier protection in reverse order. Exit the ward, stepping through the foot bath in the anteroom. Hang the suit on the hook just inside the door. Suits may be used for 24 hrs before disposal. Gloves and mask

should be disposed of in the biohazard container (bag). Clean and disinfect properly the rubber boots. Disinfect the door handle.

Movement within the farm

- Biosecurity status should be clearly marked on these areas.
- In the event that a HIGH-RISK animal requires a procedure that must be performed outside the isolation area, the Biosecurity coordinator and the veterinarians on the service must be informed in advance. **Unless an emergency, such procedures should be avoided.**
- During transfer, clean barrier protection should be worn by those individuals in direct contact with the animal. Plastic disposable boots should be discarded when exiting the isolation area. If you are wearing rubber boots, clean and disinfect them properly. Individuals in direct contact with the patient should not enter other ward areas or have contact with other individuals or patients until the isolation patient has been returned to the ward and barrier protection has been removed. **Unless an emergency, such transfers should be avoided.**
- Cleaning and disinfection with rinsing/wiping with water, followed by two additional disinfections with dilute bleach of equipment and areas where procedures have been performed, should be carried out by farm staff.
- Direct handling of the HIGH-RISK animal should be done by as few individuals as possible.

SECTION 5: ENVIRONMENTAL SURVEILLANCE, CLEANING & DISINFECTION VERIFICATION AND BIOSECURITY AUDITS

The farm manager and/or farm veterinarian(s) will act as biosecurity liaison officer who will observe whether general biosecurity protocols are followed by staff, students, and external visitors. They will report to supervisors if deficits are detected.

It is the responsibility of all trained personnel and veterinary staff to ensure that students, untrained staff, and external visitors are made aware of general procedures SOPs.

Random audits assessing protocol compliance will also be performed by non-farm CityUHK personnel.

New staff will receive the biosecurity protocol as part of their introduction to the farm. Students will be oriented as part of their orientation process when they arrive at the farm.

To assess the environmental pathogen load and the efficacy of cleaning and disinfection procedures, random environmental sampling will be performed. More frequent sampling will be performed in the event of an outbreak of infectious disease or a rise in incidence of drug resistance of cultured bacteria.

CITYUHK FARM SPECIFIC BIOSECURITY PROTOCOLS

Jockey Club College of Veterinary Medicine and Life Sciences

City University of Hong Kong

Defined Areas (see Figure 1)

Dirty (or external) area: from the entry gates into the farm, outside of the biosecurity gates and boundaries (including Block 3).

Biosecurity boundary (marked red and blue on **Figure 1**): black biosecurity gates and fencing, flood panel across the changing rooms (Block 4), and the planter boxes

Clean (or internal) area: everything inside the biosecurity boundary (including cattle sheds (Blocks 1 and 2) and feed store (Block 7))

General Rules

1. Biosecurity gates must be closed at all times unless opened under the explicit instruction of the Farm Manager or Senior Dairy Officer, or in case of an emergency (e.g., fire)
2. Biosecurity boundaries must be observed and must not be crossed at all times.
3. No unauthorised entry into the clean area without express permission of the Farm manager or the Senior Dairy Officer.
4. Authorised entry into the clean area must be through Block 4 (the changing rooms).
5. Feeding of human food to cattle, spitting and smoking are strictly prohibited in the clean area.

Entry of Personnel

Entry of contractors will be notified to the Farm Manager or the Senior Dairy Officer by submission of an “Application form for maintenance works for University Farm” (both in Chinese and English) to the Facility Management Office. Number of people, nature of maintenance work and the date and duration of work must be clearly specified and recorded.

Entry of vehicles would be recorded in a logbook.

When entering the ‘clean zone’ (Block 4)

- **All Biosecurity levels:** Take outside shoes off and place them in the shoe rack or locker.
- **All Biosecurity levels:** Remove the outer layer of clothing (e.g., coats, scarves, etc.) and belongings (e.g., wallet and cellphones) and place them in a locker.
- **Biosecurity levels 1, 2, and 3:** Take off your personal normal clothes.

- **Biosecurity levels 2 and 3:** Take a shower, washing your body and hair with soap and shampoo, respectively.
- **All Biosecurity levels:** Wear appropriate farm attire
 - CityUHK Farm provided overalls (**Levels 0, 1 & 2**)
 - Designated work clothes kept exclusively in ‘Clean area’ (**Levels 0 & 1**)
 - Disposable overalls (**Levels 0, 1 2 & 3**)
- **All Biosecurity levels:** Wash hands and dry hands.
- **All Biosecurity levels:** Cross the boundary (flood panel).
- **All Biosecurity levels:** Put on farm-provided
 - shoe-covers (**Level 0**)
 - wellington boots or gumboots (**Levels 0, 1 & 2**)
 - wellington boots (or gumboots) with 2 pairs of cover boots (**Level 3**)

When leaving the ‘clean zone’ (Block 4)

- **All Biosecurity levels:** Clean and disinfect the farm boots at the boot-wash outside Block 4, first with water to wash off organic materials and then with disinfectant; or discard shoe-cover outside Block 4.
- **All Biosecurity levels:** Take the farm boots off and place them on the rack. No farm boots can be worn in the dirty area.
- **All Biosecurity levels:** Remove your coveralls/disposable coveralls/designated farm working clothes in the clean area of Block 4.
- **All Biosecurity levels:** Place attire in the appropriate container:
 - On-site laundry basket (**Levels 0 & 1**)
 - Sealed ‘Contaminated Laundry bag’ (**Levels 2 & 3**)
- **All Biosecurity levels:** Wash hands with soap, and dry hands.
- **All Biosecurity levels:** Cross the boundary.
- **All Biosecurity levels:** Put on your own shoes.
- **All Biosecurity levels:** Wash hands with soap, and dry hands.
- **All Biosecurity levels:** Put on your coats, etc.

Entry of vehicle and equipment (All Biosecurity levels)

- Only hand tools are to be brought through into the ‘clean zone’ and these must be thoroughly disinfected if to be used near Blocks 1 or 2.
- Except in an extreme emergency (e.g., fire, dangerous or life-threatening situations) vehicles can only enter the clean area for repairs or maintenance with the express permission of the Farm Manager or Senior Dairy Officer.
 - Permitted vehicles must be pressure cleaned and then disinfected with copious amount of disinfectant (Virkon S) by the side of Block 1 under the supervision of designated farm staff – only then it is allowed to enter the farm through the biosecurity gates.
 - Farm personnel or visitors may not follow equipment into the clean area with outside shoes. Equipment must be pushed through the gate, and then the farm may be entered through Block 4 (changing rooms) to receive it.
 - Likewise, no person may follow equipment out of the biosecurity gates with the farm boots.

In the case of an emergency entry

- Inform the Farm Manager or Senior Dairy Officer unless the situation is immediately dangerous/life-threatening.
- Follow the steps and guidelines above.

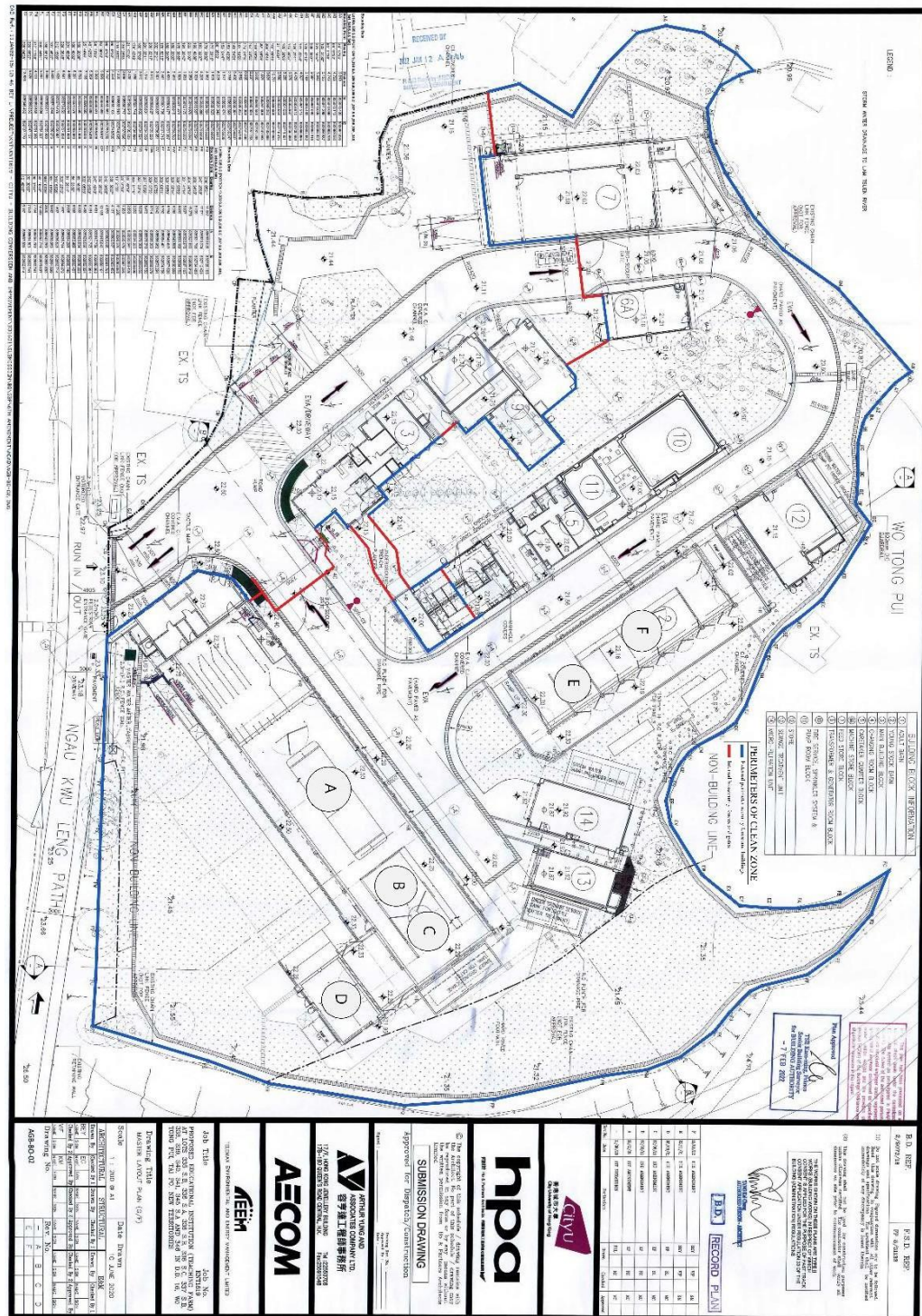


Figure 1. Plan showing livestock housing areas of the CityUHK Farm

**STANDARD OPERATING PROCEDURES (SOP) FOR ROUTINE FARM
MANAGEMENT PRACTICES AND ANIMAL HEALTH**

BEDDING SOP

Weekly Bedding:

- Heifer barn bedded pack - sawdust bedding - alleys scraped daily.
- Cow free stall barn mattresses - sawdust bedding - alleys scraped 2X/day.

Daily Bedding:

- Cow free stall barn mattresses – sawdust bedding - stalls/ barn cleaned out AM and PM.
- Calf barn individual pens - sawdust bedding – clean and disinfect stalls after calf is weaned and moved to group pen.
- Alleys scraped daily.

As Needed:

- Maternity barn bedded with sawdust and clean daily. If at all possible, allow pens to dry out before re-bedding.

CALF BARN SOP

- Calves should be transported in the calf cart which should be cleaned with disinfectant and rinsed thoroughly. **DO NOT CLEAN IN THE FEED PREPARATION AREA OF THE YOUNG STOCK BARN (BLOCK 2).** Do the cleaning outside and return the cart to calving barn.
- Upon arrival from the calving barn, a new-born calf should have its navel re-dipped with 10% iodine. Weigh calves and record on calving sheet and in farm diary in farm office.
- Calves are placed in an individual pen and identified in both ears with an ear tag within 36 hours after birth.
- All calves must receive high quality colostrum (> 70 g IgG/L, >22 on Brix refractometer) 10% of calf body weight for the first 2 feedings. First feeding should be received within first 6 hours of life. Then they are fed their dam's milk until day four followed by either fresh cow milk or a proprietary skim milk-based milk powder for the rest of rearing process until weaning. Begin offering a high-quality calf starter (24% CP, 20% fat) at four days of age. Start with 0.5 kg not to exceed 2 kg per day. Hay and clean potable water should be offered and changed daily.
- At 7 weeks of age calves are fed milk once daily (AM). Calves at 8 weeks of age are weaned off milk.
- Move to group pen (MAXIMUM OF 5 CALVES PER PEN).
- ALL calf pens or starter hutches are to be totally cleaned out and disinfected between calves. **NO EXCEPTIONS!**
- Weaned calves are fed 2 kg daily calf starter. Offer timothy hay in feeder or on feed table.
- Dehorn calves at 3 to 4 weeks of age. Calves are injected with 3cc lignocaine or procaine on either side before dehorning. After dehorning a dose of meloxicam should be administered. Calves are moved to next pen at approximately 8 to 10 weeks of age, until they doubled the birth weight.
- Check for extra teats at this time. Remove extra teat. Heifers may develop mastitis with extra teats.
- Check calves daily early in the morning for behaviour, scours, respiration, hydration. If a calf looks sick, take rectal temperature and treat the calf as needed based upon veterinarian recommendations.

PENS ARE BEDDED WITH SAWDUST. ADD SAWDUST AS NEEDED.

CALVING BARN SOP

- Cows and heifers should be moved to the maternity pen when they are close to parturition.
- Once an animal shows signs of calving, they should be monitored every 30 minutes.
- The calving process should progress smoothly. FIRST CALVINGS are a slower process, but please monitor that progress is being made and that the calf presentation is correct (both front legs and head presented together).
- If assistance is needed fill bucket with warm water and a small amount of disinfectant (e.g., chlorhexidine). Place calving ropes or chains in bucket to sanitize. Use proper placement of chains on legs. If calf is in any incorrect position proceed only if you know what you are doing. It is VERY IMPORTANT that you know what you are doing and that you move quickly. If you are unsure of the procedure, PLEASE find the Farm Manager or Senior Dairy Officer to assist you.



Minimum tools to handle a parturition

- When the calf has been delivered make sure that it is breathing. Rub briskly with some straw bedding or dry bath towels and make sure that all amniotic material is away from its facial area. If the calf is not breathing place in 'dog sitting' position and resuscitate. Dip the navel with 10% iodine IMMEDIATELY after birth.
- Allow the cow to rest before attempting to make her stand.
- DO NOT leave area before the cow is up and cleaning the calf. Usually, 5 to 10 minutes are enough time for them to catch their breath. If they lie down too long, possible nerve swelling will cause them to be unable to stand. If all goes well the cow should be standing and cleaning her born calf within 10 minutes after calving.
- Also record all birthing information in the calving notebook that is kept in the farm office. This information is to include the following; date of birth, dam identification, sex of calf,

time of birth, code for calving ease, and person performing these duties. THIS MUST BE FILLED OUT. NO EXCEPTIONS!

- After the cow/heifer calves, provide oral fluids (e.g., Farm-o-San Reviva) in 30 litres of warm water. If the cow/heifer is still thirsty, offer her plain warm water until the cow/heifer is satisfied. If an animal does not drink the oral fluids, give 500 grams of calcium propionate in a drench.
- Record information on amount of yeast, calcium propionate (if applicable) and the number of buckets of plain warm water consumed.
- Fresh cows should not receive any injections immediately after calving. The person in charge of treatments will evaluate animals and make recommendations accordingly. Exceptions to this would be circumstances when the animal is in distress and a specific treatment needs to be administered. (e.g., milk fever).

Note: the calving ease code used is as follows:

0 Abortion

1 No assistance

2 Minor assistance

3 Pull with chain (1 or 2 people)

4 Difficult pull – more than 2 people and/or a come along (calf puller)

5 C-section

- Milk the cow within the next 2 hours. Check colostrum quality using the Brix refractometer. The minimum acceptable Brix reading is 22% – the reading from the scale at the division between the blue and clear areas. Within 2 hours after birth feed calf colostrum, try to offer 2 -3 litres of colostrum during the first 6 hours (10% of birth weight). Record feeding amounts and colostrum quality into the calving record sheet and/or farm diary.
- Make sure that the cow has feed (TMR and hay).
- Move cow to appropriate group.

IF YOU ARE UNSURE OF THESE STEPS....FARM MANAGER OR SENIOR DAIRY OFFICER

Supplemental material on calving:

Signs of calving:

- Distention of the teats and udder
- Ligaments on tail head area loosen (1-3d)
- Vulva becomes enlarged and flabby
- Cow shows uneasiness and irregular movements
- Calf moves into the pelvic girdle
- Act of calving - water bag/bladder appears, if normal, forefeet appear, water bag bursts, followed by muzzle resting on the forelegs.

Proper obstetrical chains and handles, or calving ropes, are very good for assisting with the birth of a calf. They are easy to apply or remove and, most importantly, they are easy to clean and disinfect. The use of dirty ropes or twine should be avoided. Always apply a chain to the leg with a loop above the fetlock (first joint) with a half hitch below the fetlock. Failure to do this may result in a broken limb on the calf which will not heal well even if put in a cast.



Proper way to place the chains (double loop in each member)

DRY COW HANDLING SOP

- At Dry - Off Time: Cows must be dried off based on production level and gestational age (7 months of pregnancy). Body condition score (BCS) must be between 3.0 to 3.25. To reach this BCS cows must be evaluated during mid-lactation to put her on a low or medium energy diet to avoid excessive BCS at dry off.
- Dry-off is accomplished by the abrupt cessation of milking. At time of dry-off, cows must be tested for subclinical mastitis (By sampling individual quarters for somatic cell count or using California Mastitis Test) prior to being dried off and the results must be recorded in their file.
- Selective dry cow therapy should be used with antibiotic dry cow therapy only applied in quarters with subclinical mastitis (SCC >200). All quarters should be sealed with internal teat sealant. If there is evidence of clinical mastitis the cow must be treated accordingly before applying any dry cow therapy and/or teat sealant. After drying off each teat must be dipped with Iodine.
- Vaccination against calf diseases causing microorganisms to improve the quality of colostrum must be provided. Note: All shots must be given either in front of the shoulder, in the tail head, or rear leg next to the udder.
- At all times during the dry period cows must be monitored closely by staff after dry off for quarter flare-ups and during the dry period for any health problems.
- Mature dry cows ideally should be housed separated from springing heifers if practicable. Separation allows feeding the appropriate diet for both groups formulated according to the Feed into Milk (FiM) or NRC or Cornell Net Carbohydrate and Protein system (CNCPS) standards.

MANAGEMENT PROCEDURES TO PREVENT DISEASE TRANSMISSION SOP

Management practices that apply to all animals.

1. Dip ear tagger in disinfectant solution (chlorhexidine) between calves.
2. Use a different A.I. sleeve anytime a cow is examined rectally or to be bred.
3. Use a NEW needle for every injection.
 - a. After the injection to any animal, if blood is visible in the stem of the syringe, discard the syringe and use a new one for the next animal.
 - b. A needle has to be attached to a syringe before inserting it into the vial or bottle.
4. Drenching and bolus guns should be rinsed-off with water and any debris removed between animals. If it was used on an animal suspected of having a respiratory problem, dip it into a solution of disinfectant (chlorhexidine) after it has been cleaned, followed by another rinsing with water.

FRESH COW PROGRAM SOP

FIRST 8 DAYS POSTPARTUM

- Udder Edema Scoring: A chart is used to score all fresh animals on day of calving and between 4-6 days in milk. The implementation of this protocol is to evaluate the incidence and severity of udder edema in the herd. Cows with edema not treated initially need re-evaluation on days 1 and 2.

NORMAL ANIMAL

Behaviour: Cows stay in a group, alert, actively curious.

Eating: Cows come up to the bunk when offered feed. Good appetite.

Comfort: Stand-up eating, lying down resting, chewing cud.

Stance: Stand squarely and stand for long periods of time.

Heart rate: 70-80 beats per minute

Breathing rate: 35-40 breaths per minute

Nose: Wet

Skin pinch: Skin flatten in no more than 1-2 seconds

Eyes: Clear, no excessive tearing

Ears: Warm and moving

Temperature: 38.5 to 39.2 C (102 – 103 F)

Udder: Normal colour and texture, symmetrical, CMT 1 or less in all quarters.

Urine colour: Pale yellow

Urine pH: Slightly alkaline, 7.4

Vagina: Some discharge may be present, normally odourless

Faeces: No constipation or watery diarrhoea

Movement: Normal gait and motion

Day 1 through 8:

- Take rectal temperature early in the morning and record data. Evidence of fever evaluate uterus for metritis, udder for mastitis or lungs for pneumonia. Observe cows daily and monitor milk production
- Any animal showing problems will be checked by the farm staff and the appropriate treatment implemented. The Senior Dairy Officer or Farm Manager will make the assessment. The most prevalent health problems are hypocalcaemia, ketosis, displacement of the abomasum, pneumonia, metritis, mastitis, or lameness.

MILKING ROUTINE AND MASTITIS MONITORING PROGRAM SOP

1. Currently the herd is being milked two times per day. The milking times are 6:00 AM / 4:00 PM.
2. As cows enter the milking stall line check ear tags
3. Cow preparation sequence

Cow 1

- a. With your gloved hand, remove any external organic matter from the udder and teats.
 - b. Pre-dip teats with proprietary pre-dip solution
 - c. Repeat steps a and b for cows 2-4. The goal is to get 10-12 seconds of contact time on the teats.
- Return to cow 1 and strip, wipe and attach milker.
 - Repeat step c for cows 2-4.

After a cow is done milking only reattach the milker if it is an EXTREME case like when the animal is in heat and did not let down her milk. When milked out, dip teats with post dip (1.0% Iodine), making sure entire teat barrel is covered.

*Strip 5-6 squirts of milk from each teat on a black surface. If clinical mastitis is detected consider sample the quarter for microbiological identification while you may treat the case with a broad-spectrum antibiotic.

4. Observe milk meter operation. Record data in parlour log book and notify Farm Manager of a problem.
5. Run CMT once a week/every other week. Any quarter with a CMT > 3, collect a milk sample for bacteria culture and place milk sample in the refrigerator.

IF MASTITIS IS DETECTED:

1. Fresh cows (day 1- 8):
 - a. Prior to milking, culture, and treat only if milk looks abnormal or smells. Be sure to get culture before starting any mastitis treatment.
 - b. A sterile composite sample must be taken to screen for *Staph aureus*, *Prototheca* or any other chronic mastitis producing microorganism (*Nocardia*, *Mycoplasma*).
 - c. Any quarter with a CMT=3 should be sampled for culturing.
 - d. Record in farm diary
 - e. Continue to quarter milk.
 - f. Wait for notification on treatment protocol from the Farm Manager.
 - g. Take temperature according to fresh cow protocol.

- h. If systemic (off feed, temp > 39.5 C, watery or foul odour), treat with systemic antibiotic. Administer oxytocin and strip affected quarter.

Treat symptoms by giving non-steroidal anti-inflammatory, correcting dehydration with hypertonic saline and 500 cc 23% Calcium glutamate IV or subcutaneously.

2. All other cows that are suspected:

- a. CMT and sterile sample for culturing.
- b. Record in parlour book.
- c. Continue to quarter milk.
- d. Wait for notification on treatment protocol from the Farm Manager.
- e.. Acute cases – follow step E under fresh cows.

3. All treated cows are marked with a red leg tape on each of their rear legs. Their milk is dumped down the drain until they have completed their milk withdrawal period or are negative on an Antimicrobial Detection Test (e.g., Delvo test).

4. Cows marked with blue leg tapes signify high somatic cell count or *Staph aureus* infection and must be milked last.

5. All dry cows are marked with a yellow leg tape and should NOT be milked.

6. Cows marked with green leg tape are 3-quartered animals.

Collection of Milk Samples for Microbiological Culture

Materials

- 1. Sterile test tubes with 3 – 5 ml capacity
- 2. Alcohol swabs (70 % isopropanol)
- 3. Latex or nitrile gloves

Protocol

- 1. Label individual test tubes with cow number and quarter (RF, LF, RR, LR) with tape or permanent marker.
- 2. Collect sample prior to a regular milking.
- 3. Put on gloves to prevent bacteria on hands from contaminating the sample.
- 4. Prepare udder as for milking and dry the teats.
- 5. Remove any debris from teat end and wipe with alcohol swab. The teat orifice area should be passed at least 16 times.
- 6. Wait 5 seconds before collecting sample.

7. Discard first 3 – 4 streams of milk.
8. Collect the milk sample (3 – 5 ml, roughly half a tube) in the sterile tube without allowing the container to touch the teat end or any other object. Angle the tube away from the teat to prevent debris from falling into the tube.
9. Do not touch the inside of the cap or the top of the tube.
10. Replace cap immediately after sample is collected.
11. Repeat for other quarters, as needed using a separate alcohol swab and test tube for each quarter.
12. Store sample in refrigerator if it will be delivered to the mastitis lab within 4 hours. Otherwise, place the sample in the freezer.
13. Best results are obtained with samples less than 24 hours old.

Infusion of Antibiotics into the Udder

Materials

1. Antibiotic treatment tube
2. Alcohol swabs (70 % isopropanol)
3. Latex or nitrile gloves

Protocol

1. Antibiotics should be infused after a regular milking (udder and teats should be cleaned prior to milking).
2. Put on gloves to prevent bacteria on hands from infecting the cow.
3. Remove any debris from teat end and wipe with alcohol.
4. Wait 5 seconds before infusion of antibiotic.
5. Insert the cannula (tip) of the infusion syringe only 1/8 inch into the teat canal and infuse antibiotic. It is important to insert the cannula (tip) of the infusion syringe the minimal amount necessary to administer the antibiotic. If the entire length of the cannula is inserted, there is potential to damage the teat end/streak canal and to introduce pathogenic organisms.
6. Withdraw syringe and massage udder while pinching the teat closed to distribute the medication.
7. Repeat for other quarters, as needed.
8. Dip teats.
9. Follow manufacturer's withholding specifications, and perform Antimicrobial Detection Test (e.g., Delvo test) to ensure milk is free of antibiotics before saving the milk.

CITYUHK FARM EMERGENCY PLAN

**Jockey Club College of Veterinary Medicine and Life Sciences
City University of Hong Kong**

In the event of an Animal Emergency:

Call [REDACTED] or

[REDACTED]

In the event of Facility Failures:

Call Farm Security Office [REDACTED]

FIRST AID / EMERGENCY RESPONSE

In all instances of injury, determine the extent of the trauma. Administer first aid as directed below. **In case of emergency and you need assistance from the Police, Fire Services Department or an Ambulance, dial 999 immediately.**

A **first aid kit** is available in the security office (BLOCK 3).

DO NOT PANIC - Determine extent of trauma - uncontrolled gushing blood, unconsciousness, labored breathing, seizures, etc constitutes an [EMERGENCY - SEEK MEDICAL ATTENTION](#).

ALL ACCIDENTS MUST BE REPORTED - NO MATTER HOW SLIGHT.

Bleeding Wound - elevate the wound above the heart level and apply direct pressure to site with a clean cloth or gloved hand. Keep victim warm. Do not attempt to use a tourniquet. If bleeding is serious, [obtain immediate medical assistance](#).

Chemical Splashed in Eyes - Flush immediately with sterile eye wash solution or water at a sink. Remove any contact lenses. While holding the eye(s) open, FLUSH for at least 15 MINUTES. Be sure to flush the area under and around the eyelids. [Obtain medical attention as soon as possible](#). Identification of chemical for medical treatment is critical.

Other Eye Injuries - Do not attempt to remove any particle that may be embedded in the eye. [Obtain immediate medical assistance](#).

Chemical Spilled on Skin - Flush area with lots of water for at least 15 MINUTES. Remove any contaminated clothing, shoes or jewelry on any part of the body affected by the chemical spill. Take care not to spread further the chemical on the skin or in the eyes. Do not apply chemical neutralizing agents or ointments. Do not remove safety goggles until the face and head have been thoroughly washed. [Obtain medical assistance immediately](#) for all but the smallest chemical burns.

Inhalation of Chemicals - After checking for odors - wearing a mask (if available charcoal filtered respirator) - remove person as quickly as possible to an uncontaminated location. Do Not Risk Your Own Safety or Life. If the victim is not breathing, begin mouth-to-mouth resuscitation if you are properly trained. Keep the victim warm. [Obtain medical assistance immediately](#).

Ingestion of Chemicals - A conscious person who has ingested a toxic chemical should drink lots of lukewarm water. Do not induce vomiting unless instructed to do so by a physician. **Never** give an unconscious person anything to drink including milk. Do not give antidotes except for cyanide poisoning. Have information about poison on hand and [obtain medical assistance immediately](#).

Electric Shock - Do Not touch a person who is in contact with a live electrical source. Disconnect the power source. If this cannot be done, use a non-conducting object to separate the victim from the live current. **Obtain medical assistance immediately**. If the victim is not breathing, administer mouth-to-mouth resuscitation. If the heart has stopped, and if trained to do so; administer cardiopulmonary resuscitation (CPR).

Burning Clothing - if clothing is on fire - douse with lots of water or roll victim on floor until fire is out. A fire blanket should be used as a last resort since it tends to hold heat in. Remove loose clothing but not any clothing adhering to the skin. LOOSELY cover the burn area with the cleanest available cloth material. Keep the victim warm by wrapping in a blanket or clean clothing since shock is a very serious complication of burns. **Obtain immediate medical assistance**.

First / Second Degree Burns - reddening of pale skin with few or no small blisters that do not cover the entire burn. Swelling and blistering is sometimes delayed. If burns are not open wounds - immerse immediately in plain cold water. Cool the burn until the pain is reduced and pat dry with sterile gauze. If more than a small area of skin is burned, **obtain medical assistance**.

Third Degree Burns - penetrates all the way through the skin and may involve bone, muscle and other tissue under the skin. May be red and raw with ashy white or black charred areas. Since the nerve endings in the skin are burned away in 3rd degree burns there may be no sensation of pain. For deep burns where skin is broken, do not put burned area directly in water since this could cause an infection to spread. Instead, cover the burn loosely with thick, dry sterile gauze. Do not attempt to remove clothing that is sticking to the wound. **Obtain immediate medical assistance**.

If an injured person is transported to the hospital emergency room, an appropriate faculty or staff member should accompany that person or follow that person to the emergency room.

FIRE

EMERGENCY - ALL PERSONNEL EVACUATE AREA - close doors – MEET OUTSIDE AT THE DESIGNATED MEETING POINT (please refer to Figure 1)

If sparks, smoke, or flames exists and fire system has not activated – **Evacuate building and call 999**

If you are in an area where there is no fire and you are working with or on something that could potentially explode / ignite - do not leave unattended - finish and secure before exiting

GO OUTSIDE AND CALL **999** and give the following information: Your name, and the following address for the barn:

28 Ngau Kwu Leng Path, Lam Tsuen, Tai Po, New Territories.

Also give a description of problem: Example: have a fire on site - IF INJURIES: HAVE THEM DISPATCH MEDICAL ASSISTANCE AS WELL

SITE REPRESENTATIVE REPORT TO FIRE DEPARTMENT AND/OR POLICEMEN ONCE THEY ARRIVE to provide information:

Example:

- A) All staff accounted for
- B) Origin of fire
- C) Animal housing locations
- D) Types and location of chemicals stored that are toxic or explosive

KEEP OUT OF WAY OF FIRE APPARATUS ----- DO NOT RE-ENTER AREA UNTIL SITE IS SECURED AND DEEMED SAFE BY FIRE OFFICIALS

PERSONNEL SAFETY: If injury or burns - administer First Aid until help arrives

ANIMAL SAFETY: If injury or burns - apply First Aid where appropriate - assist Investigators and Veterinarians and if necessary.

CONTACT: [REDACTED]

RELOCATION of ANIMALS

ALL ALTERNATIVES HAVE BEEN EXPLORED AND IT IS CRITICAL THAT THE ONLY CHOICE LEFT IS FOR RELOCATION of the animals. The extent of relocation will be dependent on areas affected.

The following contacts should be made:



For moving animals - CONTACT PEOPLE LISTED ABOVE to provide staff. The BVM Office should be contacted to make certain they are informed to the situation requiring relocation and the possibility of lending assistance with their animals.

TEMPORARY FIX:

Option 1: Partial Facility Evacuation

If one section of the facility is to be evacuated (i.e., gas fumes, chemical spill) - animals are to be moved into corridors or comparable housing areas within the rest of the facility.

Option 2: Entire Facility Evacuation

If the need to evacuate the housing facility exists (i.e., intense smoke, toxic fumes, fire) and the Farm Manager in charge of scene has agreed, animals should immediately be moved directly outside. In case of inclement weather, attempts should be made to provide protection against inclement weather conditions until transport arrives to take animals elsewhere.

PERSONNEL SAFETY:

DO NOT JEOPARDIZE YOUR LIFE. If it is possible to evacuate animals, use protective equipment (i.e. respirator) and work in teams of two (2). ***MUST HAVE APPROVAL FROM FARM MANAGER ON SCENE!***

ANIMAL SAFETY:

If time permits, ***after obtaining approval from the FARM MANAGER on scene***, using protective equipment, evacuate as many animals as possible. Make sure all animals are secured in new site along with fresh food and water. Have Veterinarian(s) check health status of the animals.

VEHICLES - ACCIDENT

When traveling to meetings / seminars or transporting animals: If available, take along a mobile phone in vehicle in case of an emergency.

If involved in an accident - PULL OFF TO SIDE OF THE ROAD IF POSSIBLE - notify nearest Authorities - if personal injuries - request dispatch of medical assistance (Dial 999). If on campus CALL [REDACTED] (*CityUHK 24-hour Security Hotline*). If medical advice is required *during office hours*, contact CityUHK's Young Chung-yee Health Centre at [REDACTED].

Stay at accident site until Authorities arrive and take information.

If possible - contact the Farm Manager or Dairy Farm Officer to report the incident.

If transporting animals - make sure the health status of the animals has not been jeopardized. If animals are injured and need medical attention, have authorities contact local area veterinarian clinic / practice for assistance.

Any questions / advice that local veterinarians need; contact can be made to: [REDACTED]
[REDACTED]

Upon return to University, report accident to the Facilities Management Office (FMO) for insurance notification if using a university fleet vehicle.

FMO CONTACT: [REDACTED]

FLOODING of BUILDING

Contact **Facilities Management Office (FMO)** [REDACTED]

Also contact the **Farm Security Office** [REDACTED]

Description of problem: Example: Water main has broken - water running into animal facility.
Need service immediately.

TEMPORARY FIX: DO NOT ATTEMPT TO UNPLUG ANYTHING THAT IS IMMERSED IN WATER. CALL FOR ELECTRICIAN TO COME OUT, EVALUATE SAFETY AND TURN POWER OFF IF NECESSARY SO CLEANUP CAN BEGIN. Start using a wet vac or mops to remove as much water as possible until assistance has arrived to turn water off, IF A MAIN, and repair. If the water is about to or has reached any electrical supply - go to appropriate Breaker Panel and turn fuse off.

PERSONNEL SAFETY: Do not touch any item supplied by an electrical current.

ANIMAL SAFETY: Animals housed in the area of the flood - remove the animals and relocate to other areas. If any animals have been caught in flood, seek VETERINARY ASSISTANCE for assessment and/or treatment.

Also contact:

[REDACTED]

LOSS of POTABLE WATER

TEMPORARY FIX:

If the barns have a loss of potable water - water can be obtained from a nearby block which has potable water available.

IF WATER TO ENTIRE FACILITY COMPLEX IS AFFECTED - POTABLE WATER TO BE TRANSPORTED IN LARGE CONTAINERS WITH TIGHT FITTING CAPS UNTIL (1) WATER ACCESS IS RE-ESTABLISHED or (2) WATER TANKER IS BROUGHT TO SITE TO PROVIDE POTABLE WATER UNTIL PROBLEM IS RECTIFIED

PERSONNEL SAFETY: No Action Required

ANIMAL SAFETY: No Action Required

Also - CONTACT:

[REDACTED]
[REDACTED]

Farm Security Office [REDACTED]

ELECTRICAL POWER OUTAGE

Contact: Farm Security Office [REDACTED]

PERSONNEL SAFETY: IF FACILITY IS DARK (AT NIGHT) - 2 PEOPLE SHOULD ENTER THE ANIMAL FACILITY TO MAKE SURE ALL ANIMALS HAVE WATER / FEED.

ANIMAL SAFETY: MAKE SURE ANIMALS HAVE WATER / FEED AND PROPER VENTILATION & HEAT MITIGATION IS AVAILABLE

ENSURE THAT THE MILKING MACHINERY IS OPERATING SUFFICIENTLY

Also - CONTACT:

[REDACTED]

SUSPECTED BREAK-IN OR INTRUDER

CALL **999** – provide the address or call Farm Security Office [REDACTED]

Description of problem: Example: Arrived to work and found that the window on front door has been broken

DO NOT ENTER AREA - Intruder(s) may still be on premises

Unless personal safety and / or animals are involved - do not attempt to touch anything

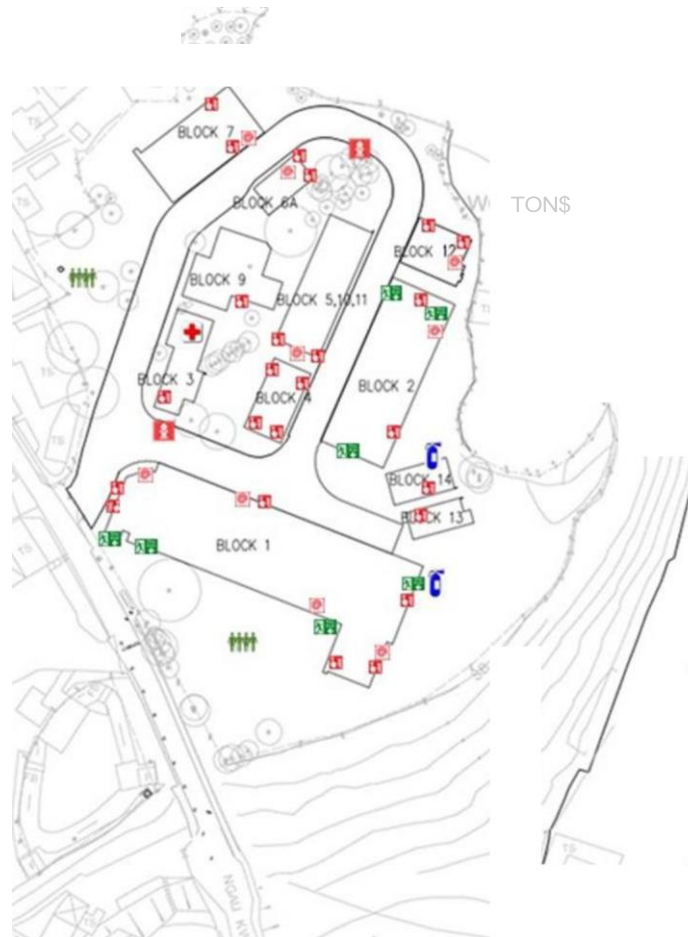
PERSONNEL SAFETY: Do not risk injury or confrontation with unauthorized trespassers.

ANIMAL SAFETY: Check all animals to make sure all are accounted for and are not injured in any way. If animals are missing or injured it is important to immediately LET THE AUTHORITIES KNOW.

Call the Farm Manager or Consultant for immediate Veterinary Assistance and to report the incident.

Figure 2. CityUHK Farm Building

LEGEND	
a,	Fire alarm
Fire hose	
El	Fire hydrant
Fire exit	
Fire extinguisher	
Meeting point	
First aid	



IN JEX PLAN
SCALE 1 : 1000 0 A4

BUILDING BLOCK INFORMATION	
Q)	ADULT BARN
U	YOUNG STOCK BARN
Q)	MAIN BUILDING BLOCK
C	CHANGING ROOM BLOCK
R	CARETAKER QUARTER BLOCK
@	MACHINE STORE BLOCK
U	FEED STORAGE BLOCK
R	TRANSFORMER & GENERATOR ROOM BLOCK
@	FIRE SERVICE, SPRINKLER SYSTEM & PUMP ROOM BLOCK
R	WATER TANK & PUMP ROOM
R	STORE
@	SEWAGE TREATMENT UNIT
R	MICRO-FURATION UNIT

@

SLIPS, TRIPS AND FALLS PREVENTION POLICY

For the CITYUHK FARM

INTRODUCTION

Falls, slips and trips are one of the most common accidents when working in and around the dairy farm. They often happen in the pit during milking, when herding cattle, getting cows in for milking, and during maintenance and cleaning. Refer to Figure 1 and 2 for a map of potential hazards at the CityUHK Dairy Farm.

Slips, trips and falls can occur when:

1. working at height;
2. using ladders;
3. working on uneven or slippery surfaces; and
4. getting on and off tractors.

SCOPE

This guide applies to CityUHK Jockey Club College of Veterinary Medicine and Life Sciences staff, students, employees, contractors, and consultants. This guide outlines potential slip, trip and fall hazards on farms and recommends ways to eliminate, isolate and minimize those hazards.

1. WORKING AT HEIGHT

Examples of working at height at the CityUHK Dairy Farm include working up and down in the milking parlor (Building Block 1), loading platform (Building Block 7), repairing shed roofs, painting buildings and clearing gutters, and climbing fences and gates. Falls from height can cause serious injuries, like broken bones, or even death in severe cases.

MANAGING THE HAZARD:

When working at heights, follow this simple hierarchy of controls:

- People must take care if falls are possible.
- Use a **harness** or other type of fall protection on roofs or at heights.
- A second person must be present to help in the case of a fall and there is dangling in the harness.
- Open and shut gates in the designated areas and do not try to jump over the fences.

2. USING LADDERS

Farm workers use **ladders** when working at height. They are often unstable.

Accidents often happen when workers use unsuitable or unstable ladders, or use ladders unsafely, like overreaching or carrying loads up or down.

MANAGING THE HAZARD:

Where someone has to work from a ladder, follow the steps below to minimize the risk:

- Position the ladder on a level, firm base as close as possible to the work.
- Place ladder feet for single or extension ladders one-quarter of the ladder's working length away from the base structure.
- After placing the ladder, tie the top and bottom of the ladder to secure it. If placing a ladder on soft ground, use stakes or get someone to hold the ladder while you use it.
- Keep three points of contact when climbing up or down ladders – such as two hands and one foot, or two feet and one hand.
- Carry out work at least three steps down from the top of the ladder.
- Do not hang tools and other items from the steps or rungs.

3. WORKING ON UNEVEN OR SLIPPERY SURFACES

Farming involves working with different ground conditions: muddy, slippery, steep, with obstacles and tripping hazards.

Farm workers and students can **slip, trip or fall** because of:

- slippery surfaces: wet, rinsing water, effluent, mud and manure. Particularly in the feeding area of the adult barn (Building Block 1) and Young Stock barn (Building Block 2).
- uneven surfaces: trips and falls can happen while in the adult barn, milking parlor, loading platform, or stepping up and down to resting areas from feeding areas (Building Blocks 1 and 2).

MANAGING THE HAZARD:

- Clean up manure, oil, chemical and feed spills on floors and walkways.
- Provide dry and ventilated walking and working areas where practical, such as covered areas in and around sheds.
 - Slopes in sheds should be gradual, wide and slip-resistant (Blocks 1, 2 and 7).
 - Carry out regular housekeeping and clear up obstacles and spills

as they occur, particularly in unsafe areas (like steps and slopes) and areas with regular foot traffic.

- Have good lighting, especially where there are steps, curbs or obstacles.
- Keep entrances and exits clear of clutter.
- Use appropriate footwear with good grip and coveralls carrying objects over uneven or steep terrain.
- Pay special attention when carrying objects over uneven or steep terrain and do not run or walk quickly.
- Do not stand on the elevated reddish area for feeding just outside the head restraint.
- Keep floors and steps in good condition.
- Trim grass to show potential tripping hazards in the unpaved areas.

4. GETTING ON AND OFF SKID STEER LOADERS

Getting off farm machinery, such as the CityUHK Farm skid steer loaders, is one of the most common causes of slips, trips and falls on farms. Only trained staff should be using the tractors.

MANAGING THE HAZARD:

- When climbing on and off the skid steer loader, always keep three points of contact (e.g., two hands and one foot) with the tractor or ground.
- Get off the skid steer by facing towards the skid steer (the same as you do when mounting).
- Never attempt to exit the skid steer without first lowering the boom to the ground and switching off
- Clean the steps regularly. You are more likely to slip and fall if the skid steer boom is dirty or wet.
- Wear farm footwear with select farm coveralls that fit well and will not snag on machinery.

Races and crushes (Block 1: Handling Area)

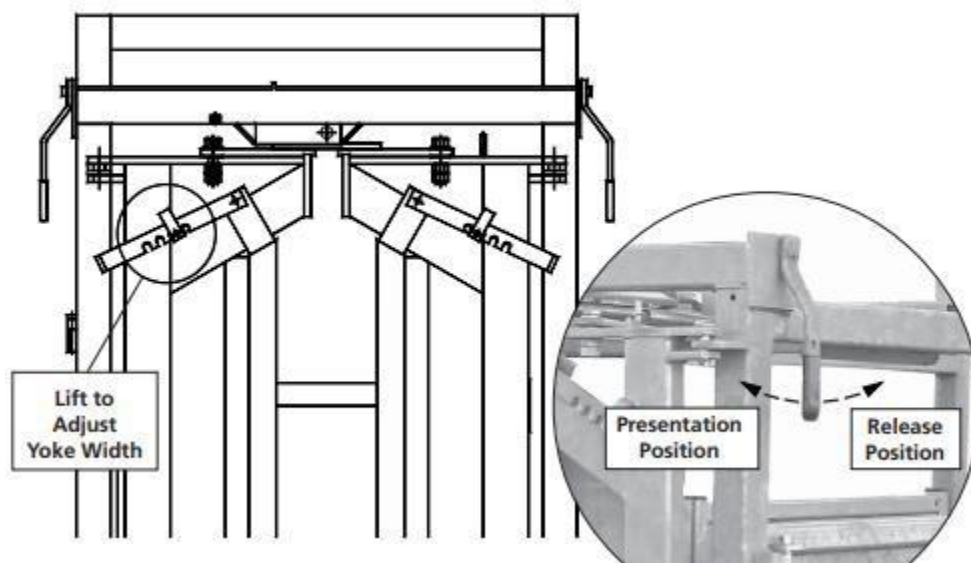
SAFETY NOTES AND WARNINGS

- STUDENTS AND INEXPERIENCED STAFF MUST NOT OPERATE CRUSHES UNLESS UNDER THE DIRECT INSTRUCTION AND SUPERVISION OF A SENIOR MEMBER OF THE FARM STAFF
- Ensure the operator in charge of each crush is an experienced stock person who can maintain a high standard of animal welfare.
- Ensure that there is no clutter around crushes and sufficient space in the area designated for the crush to allow the operator to work safely and efficiently.
- Open one side door at a time.
- Always make sure the area in front of the exit gate/yoke is clear when animals are entering and exiting the crush.
- Should an animal become distressed whilst in the crush and a fast release is required, increase the yoke width before opening the doors as this will relieve any pressure from the neck and can facilitate easier opening of the exit gate/yoke.
- When handling animals with a neck size larger than its head, always use a head halter. Never rely on the neck yoke only
- Keep your hands, fingers and limbs well clear of any pivots, hinges or other pinch points on your crush for example, the gates, yokes, head bails and other moving mechanisms.
- Keep clear of the swing area of the rump bar if fitted
- Do not enter the area in front of the crush until you have checked that the animal is fully secured. It is safe work practice to keep clear of this area.
- Whenever possible do not work alone.
- Make sure you read and understand the correct operating procedure for the crush before you use it.

Ritchie Continental cattle crate

OPERATION

**** ONLY TO BE OPERATED BY EXPERIENCED MEMBERS OF FARM STAFF OR UNDER THEIR DIRECT SUPERVISION AND INSTRUCTION ****



Before handling cattle,

- Operate the yoke doors through the operating sequence and yoke width adjustment mechanism a few times to familiarise yourself with it
- Ensure that the system and the doors are running free

Operating Instructions

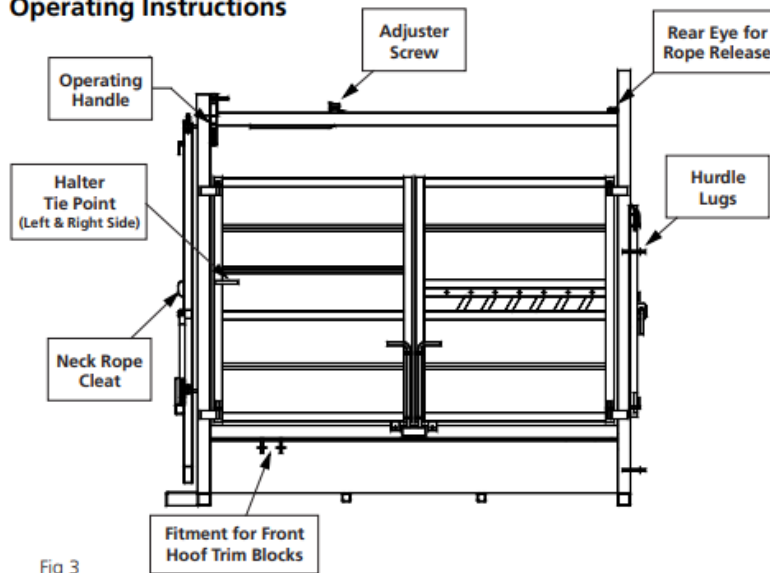
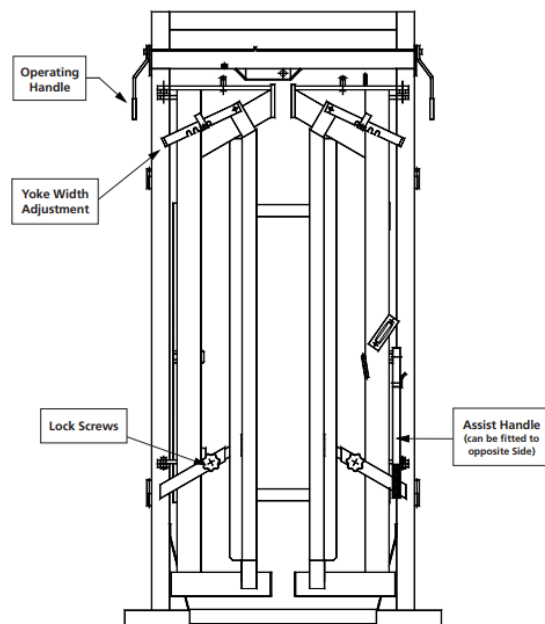


Fig 3

Adjust the width of the yoke doors whilst in the locked position to suit the size of cattle to be handled. Ensure that the yoke will not be too tight on the neck of the animal as this may reduce the blood supply to the head and result in animal collapse. To prepare the yoke doors for holding an animal, push forward the control lever and allow the yoke doors to return to the presentation position. Turn the adjuster screw if required to vary the presentation width of the yoke. This will not alter the width of the yoke in the locked position. Herd the animal into the crate ensuring the animal pushes far enough forward to secure the self-locking catch.

Locate the rump bar/close the rear gate (whichever preferred). The rump bar can be used to help force a reluctant animal forward in the crate. A halter may be used to restrain the animal's head using the halter tie points provided. A side door may now be opened to offer access to the side of the animal for treatment.

To release the animal, pull the control lever rearwards or alternatively use a rope. The animal can only travel forward and cannot reverse. If you require to reverse the animal through the crate push the control lever forward. Should an animal be reluctant to leave the crate when the catch is released, the assist handle can be used to force open the yoke doors.



Te Pari Cattle Crush

OPERATION

**** ONLY TO BE OPERATED BY EXPERIENCED MEMBERS OF FARM STAFF OR UNDER THEIR DIRECT SUPERVISION AND INSTRUCTION ****



For best operation open the doors to the approximate width of the animal's head but less than the shoulders.

Always ensure you stand on the head-bail side of the pipe when you are inserting the anti-backing ratchet pipe behind the animal if the animal suddenly moves backwards it will flick the pipe away from the operator. Always ensure the anti-backing ratchet collar is engaged in the track to stop it sliding out sideways as the animal moves.

1. Loading and securing the animal

In the interests of safety before commencing a session we recommend checking the head-bail operation and testing that its locking mechanism.

- Open the sliding gate and allow the animal to enter.
- Once the animal has entered close the sliding gate.
- Close the head-bail (**A**). *Note - the head-bail doors should be set to allow the animals head to fit through but not its shoulders, this is a gap of about 300mm.*
- Lower the rump bar down behind the animal (**B and C**).
- Fit the belly straps one at a time (**D**). Slip each strap under the animal and attach it to its winch with the clips. Wind up each winch to take the weight of the animal. *Important note: do not lift the animal with the belly straps. The animal is now restrained and ready to process further as required.*



Notes on the belly straps:

Belly straps only ratchet up when wound clockwise.

Tension the belly straps up close to and fitting snugly to, the animals belly this will help ensure the animal does not go down. Don't tension the belly straps up too tight as this will encourage the animal to kick and/or slump down onto the straps.

Belly straps are designed to take a portion of the animals weight only so that extra stress is not placed on the standing limbs while one leg is raised to be worked on. They are not for lifting the animal.

The hooves of the animal that are not being worked on should remain firmly grounded.

2. Front hoof trimming - front leg restraint

- Load and secure the animal as described in 1.
- **(A)** For protection insert the front kick bar into the highest slot possible. If not installed already, fit the hoof block and fix it in place to suit the size of the animal using the hoof block fixing pin **(B)**.
- Attach the winch rope around the bottom of the animal's leg and winch the hoof up onto the hoof block **(C)** - sometimes it helps to gently bend the animal's knee **(D)**.
- Secure the animal's lower leg behind and beneath the knee by attaching the forward hoof block rope **(E)**.
- The hoof is now secure and ready to work on **(F)**.
- Process, then remove the front leg restraints in reverse sequence.



3. Rear hoof trimming - rear leg restraint

- Load and secure the animal as described in 1.
- **(A)** For protection fit the rear kick bar as high as possible. Place the ratchet bar in position. It is easy to adjust this out to a position that suits the animal and you, so start a little closer as the final position will vary depending on the size of the animal - refer to the position in **(B)**.
- Loop the rear hoof rope around the animal's ankle first **(C)**, then up to and around the ratchet bar once **(D)**. Then up to attach the free end to the rear hoof rope winch **(E)**.
- Raise the animal's leg with the winch **(F)** to rest gently against the ratchet bar and adjust the bar out to slightly extend the animals leg and reduce kicking.
- The hoof is now secure and ready to work on **(G)**.
- Process, then remove the leg restraints in reverse sequence.



4. General release:

When your work is complete and all the leg restraints have been removed: Release the tension on the belly straps, unclip them from under the animal and stow them. Use the rump bar release lever to release and raise the rump bar. Release and or draft the animal through the head-bail.

Tip: You can release the animal before raising the rump bar, this can help because it prevents the animal backing.

5. Calving:

**** CALVING ANIMALS MUST NOT BE RESTRAINED IN THIS CRUSH: THEY MUST REMAIN ON PACKBEDS AND BE RESTRAINED WITH THE RITCHIE CALVING GATE OR BY HALTER****

1. Foot trimming crush/ tipping crush (Block 1: Foot trimming pen)
SAFETY FEATURES AND PRECAUTIONS

**** ONLY TO BE OPERATED BY EXPERIENCED MEMBERS OF FARM STAFF
TRAINED ON THE OPERATION OF THIS CRUSH****

- It is highly important only trained operators should operate Tipping Crush, all maintenance and repairs should be performed by a person familiar with the Operator's Manual. To maintain a high standard of animal welfare, ensure the operator in charge of the Crush is also an experienced livestock person.
- Before operating the Crush, a visual inspection should be carried out, searching for any abnormalities or anomalies. There should also be sufficient lighting and space in the area designated for the Crush to allow the operator to work safely and efficiently and free from obstruction.
- Always make sure the area in front of the doors is clear when animals are entering and exiting the Crush.
- Allow only one animal in the Crush at a time.
- Make sure everyone is clear of head and tailgates before operating the Crush. Keep hands and body clear of moving parts during operation of the machine.
- Always ensure doors are completely fastened (see warning decals on machine) before operating the tipper.
- All personnel should remain outside the Crush whilst it is in operation- there is a fast release cord on the lintel of the front door as an extra safety precaution should the need to get out of the Crush immediately arise.
- When handling bulls or animals with a neck size larger than its head, always use a head halter and tie it to the Head Restraint. Never rely on the neck lock only. Remember- Always ensure that the neck lock (and head restraint) holds the animal securely without bruising.
- The squeeze side should be used to hold the animal securely without bruising. Excessive pressure should not be used in order to speed up processing of an animal.
- At the end of operation, the power to the Crush should be turned off at the rump rail switch.
- Ensure the machine is not left unattended and switched on. Only authorized personnel to use controls.



OPERATION

- 1) Turn power on to Crush and ensure pathway into and out of Crush is clear. Open back door and make sure squeeze gate (using appropriate lever) is fully retracted.
- 2) Fully extend rump rail (using the lever on the rump rail) making sure the rump bar is tucked away to allow animal to enter Crush. Motor can now be switched off to allow experienced personnel to herd animal towards the Crush.
- 3) Herd the animal into the Crush until the rump rail bar is able to be lifted and dropped down. Using the lever on the rump rail to retract the rump rail until it gently pushes the animal into the correct position within the Crush. To get the animal's head in the correct position (through the front door lock of the Crush) you can use the side squeeze gate to narrow the space ensuring the animal cannot lower its head and will be in the appropriate position. Then use the neck lock lever to lock the animal's head into this position. (Make sure the animal's neck is secured tight enough to stop all movements of its head)
- 4) Whilst holding the back gate and observing the animal's feet we recommend you slightly (approximately 5- 10° from the vertical) tip the Crush and then bring the side squeeze gate in to meet the animal- this narrowing helps to settle the animal- we recommend to tighten the side squeeze gate until the animal is tight but comfortable.

WARNING- When using the side squeeze gate, it is vital that you DO NOT over-squeeze- the gate mechanism will be stronger than any animal and it is important that this is used responsibly and by an experienced animal handler

- 5) Close back gate and commence tipping (using the tipper lever) so that Crush is approximately 45° to the horizontal- the animal may kick so it is best if only the operator is near the Crush at this time.
- 6) Start with the upper back leg (this is the most likely to kick) and lash it securely to the Crush using the ratchet mechanism to tighten. Next bind the lower back leg, followed by the upper front leg and finally the lower front leg.

NOTE – the preceding order when lashing the feet is recommended as this should help minimise risk to the operator

- 7) Once animal is securely fastened then increase the tipping until animal is horizontal. The animal is now safely held to carry out medicinal/preventative work.
- 8) To remove the animal, reset the tip to approximately 45° to the horizontal (see step 5) and unbind the animal's feet (in reverse order to step 5). Continue resetting the Crush to vertical position.
- 9) *NOTE- check that the animal's feet are not at awkward angles as you approach vertical reset- if that occurs, stop tipping and wait for the animal to correct its footing before attempting to put weight back on the feet.*
- 10) At the vertical position; unlock neck lock (using the first lever) loosen the squeeze gate gradually allowing the animal to recover its footing.
- 11) Turn off motor and open front gate to the Crush allowing the animal to walk out of the crush. Repeat from step 2 as many times as required.
- 12) When completely finished Switch off voltage to the stationary crush and clean and oil the Crush as per servicing instructions.

2. Calving Gate (Block 1: Maternity Pen)

OPERATION

**** ONLY TO BE OPERATED BY EXPERIENCED MEMBERS OF FARM STAFF OR UNDER THEIR DIRECT SUPERVISION AND INSTRUCTION ****

Operation of the Calving Gate should only be by an experienced, competent stockperson who has read and understood the instructions within the operator's manual.

1. Automatic Head Yoke

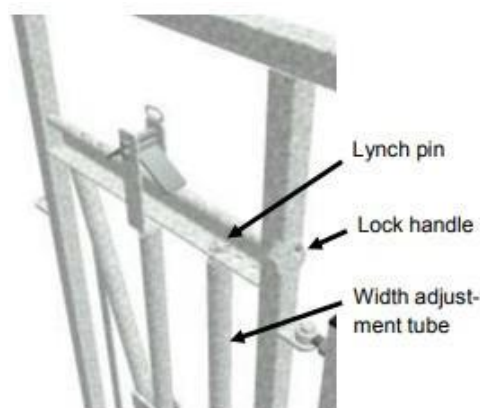
First, adjust the width of the automatic head yoke to suit the head size/build of cow. To do this, remove the lynch pin securing the width adjustment tube, whilst holding the weight of the tube. Lower the tube so clear of top rail, tilt to one side and lift clear of bottom rail. Reposition in desired hole in bottom rail then align with corresponding hole in top rail and lift so pin locates in hole. Secure with lynch pin.

Note: the width adjustment tube should always be aligned vertically to help prevent choking in the event of cow going down.

Setting the head yoke for auto closing: If the yoke is already closed, turn the lock handle clockwise to release the pivoting yoke tube. Now turn the lock handle anti-clockwise to make head yoke ready.

Catching the cow in the yoke: The cow should be lured or guided into the head yoke. The yoke will automatically lock when the cow puts its neck down on the pivoting tube. A chain link is positioned on the top of the pivoting tube for attaching a rope to assist with yoke locking. The rope can be passed through a second chain link positioned on the yoke frame and a third chain link at the end of the side restraining gate, allowing the rope to be operated from the rear of the cow.

Releasing the head yoke: to release the head yoke, turn the lock handle clockwise. This will allow the pivoting tube to move freely.

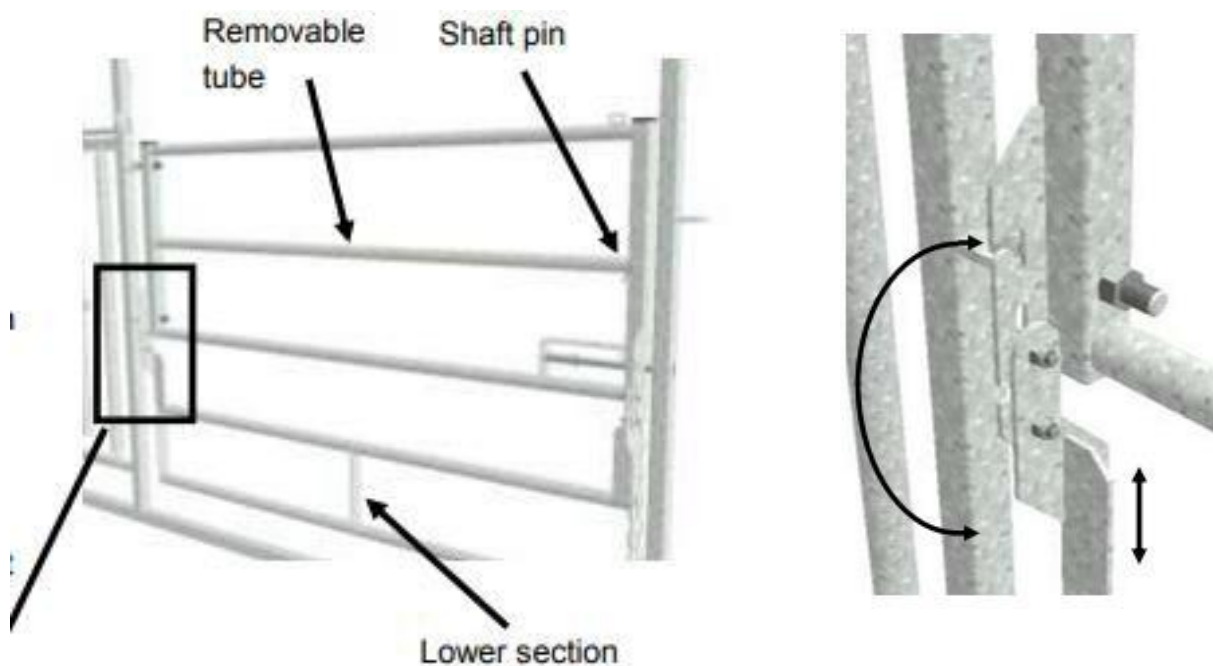


1. Side Restraining Gate

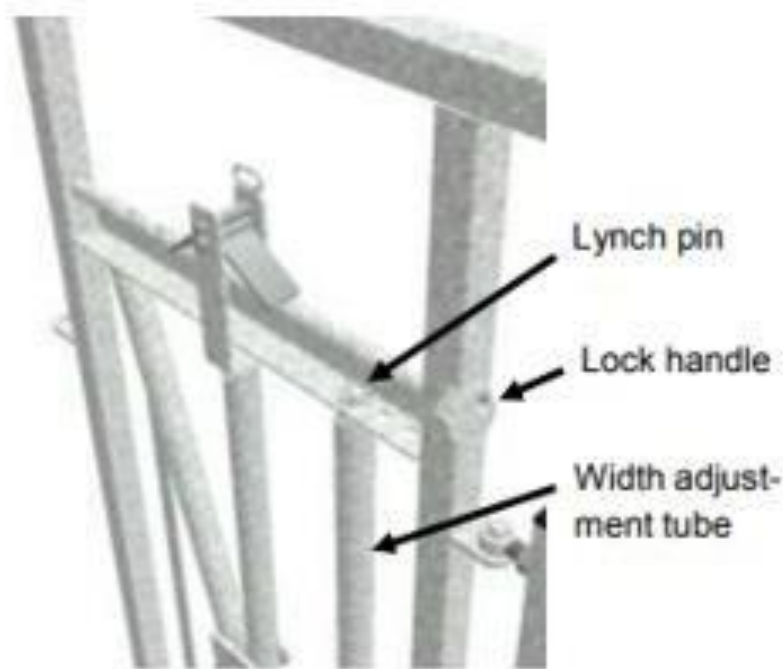
Once the cow is held in the head yoke, the side restraining gate can be swung round across the side of the cow. A chain c/w clip is attached for securing gate to side of the pen. If inspecting or assisting calving at rear, ensure chain is positioned so that it doesn't obstruct access.

If Caesarean Section is required, the 2nd from the top tube on the side restraining gate can be removed for better access whilst still restricting side-to-side movement. To remove the tube, take out shaft pin and weave tube either way to free each end. (Replacement is the opposite of removal). If using the Calving Gate to suckle a calf, the lower 2 tubes of the side restraining gate can be raised for better access (whilst the gate is secured against the side of the cow). To raise the lower section, firstly raise the lower section vertically up until at the top of the slots in which it hangs (see Fig 2c). Whilst holding it up, swing lower bar away from cow and upwards through 180 degrees. Ensure bolts will engage with bracket and lower vertically down until resting in bottom of hanging slots. (Reverse this procedure for lowering).

Note: the side restraining gate should be set with removable bar in place and lower section in the downward position until the cow is restrained. Failure to do so may lead to the cow using a gap as an escape route which could result in animal injury and/or damage to the gate.



2. Head bails/ head locking yoke (Block 2: Handling Area)



First, adjust the width of the automatic head yoke to suit the head size/build of cow. To do this, remove the lynch pin securing the width adjustment tube, whilst holding the weight of the tube. Lower the tube so clear of top rail, tilt to one side and lift clear of bottom rail. Reposition in desired hole in bottom rail then align with corresponding hole in top rail and lift so pin locates in hole. Secure with lynch pin.

Note: the width adjustment tube should always be aligned vertically to help prevent choking in the event of cow going down.

Setting the head yoke for auto closing: If the yoke is already closed, turn the lock handle clockwise to release the pivoting yoke tube. Now turn the lock handle anti-clockwise to make head yoke ready.

Catching the cow in the yoke: The cow should be lured or guided into the head yoke. The yoke will automatically lock when the cow puts its neck down on the pivoting tube. A chain link is positioned on the top of the pivoting tube for attaching a rope to assist with yoke locking. The rope can be passed through a second chain link positioned on the yoke frame and a third chain link at the end of the side restraining gate, allowing the rope to be operated from the rear of the cow.

Releasing the head yoke: to release the head yoke, turn the lock handle clockwise. This will allow the pivoting tube to move freely.

3. Headlocks/ self-locking yokes (Blocks 1 and 2)

Self-service position

The nuts of the pawls must be on the top when the pawls are horizontal



Detail lever

Work position (locked)

Self-service position



Work position (locked)



Position before locking arm



To Lock in the cattle:

- Lift the latch and rotate the lever locked at the work position (vertically upwards)
- Allow animals to put head through and lock themselves in

To release the cattle:

- Lift and latch and rotate the lever away from the animal, allow the animal to reverse away from the gate.
- DO NOT put your hand anywhere near the yoke.
- Keep the lever locked in the self-service position after procedures.

Safety notes:

When locking a group of cattle in, lock ALL cattle in the same group. When releasing, release the WHOLE group.

Be aware of the range of motion, do not put your fingers between mobile parts and non-mobile parts.

Always turn the lever AWAY from the cattle when locking in the self-service position.

**** AS THE LAST ACTION AFTER FINISHING WORK BEFORE LEAVING ALWAYS CHECK THAT ALL HEADLOCKS ARE SAFELY SECURED IN THE UNLOCKED POSITION AND NO CATTLE ARE TRAPPED – FAILURE TO DO SO CAN CAUSE SERIOUS INJURY OR DEATH OF CATTLE ****

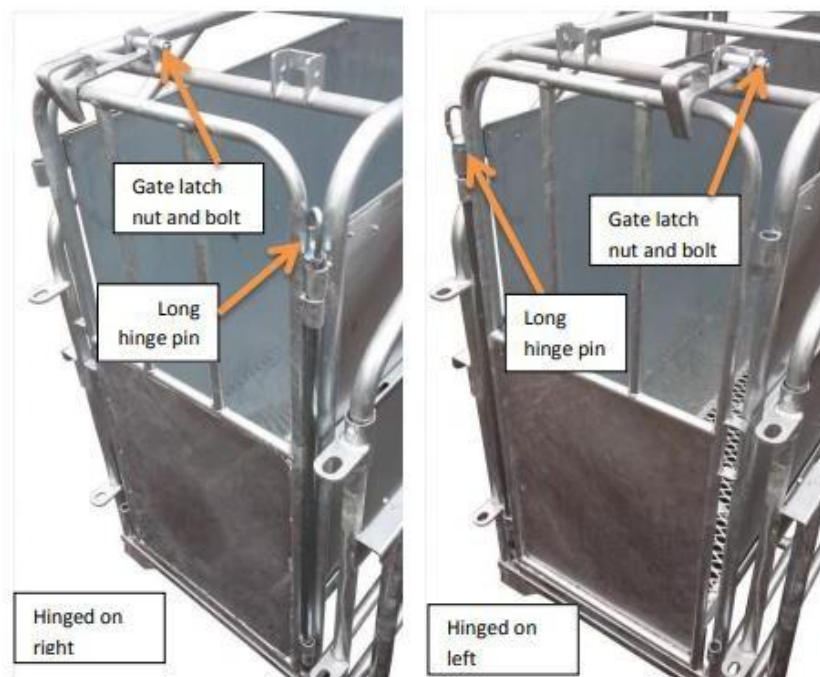
4. Calf weighing crate (Block 2: Calf handling area)

OPERATION

To admit an animal: Lift the entry gate catch and swing the gate open. Allow the animal to enter and close the gate behind it. Lower the gate catch to lock the gate.

To weigh an animal: Use the digital scales / Tru-test indicator to weigh the animal. Complete any other operations required.

To release an animal: Lift the exit gate catch and swing the gate open. Allow the animal to exit and close the gate behind it. Lower the gate catch to lock the gate.





Appendix E

Replacement pages of the updated
Tree Survey and Landscape Proposal

1. INTRODUCTION

- 1.1 This Landscape Proposal is prepared and submitted on behalf of the City University of Hong Kong in support of the temporary educational institution (teaching farm) and associated excavation of land for a period of three years of the site in Lam Tseun (hereafter refer to as the “Subject Site”) for the development of CityUHK Farm Extension (hereafter refer to as the “Proposed Development”).
- 1.2 Located at 28 Ngau Kwu Leng Path, New Territories in Lam Tsuen, Tai Po, CityUHK Farm 1.0 is a groundbreaking facility for training students in areas of veterinary medicine and for promoting One Health, public health, research into zoonotic diseases, and animal welfare. This Project comprises the construction of the facilities at the Farm 2.0 site and the enhancement works at Farm 1.0.
- 1.3 In preparation for the expansion with an objective to expand the farm teaching facilities to facilitate teaching and learning, the deal to acquire new farmland was completed in July 2024. 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 to use the land as an temporary education farm.
- 1.4 This Landscape Proposal is in support of the lot owner’s aim to obtain S16 approval for CityUHK Farm Expansion (i.e. Farm 1.0+2.0 combined site development).
- 1.5 The Landscape Layout Plan is presented as **Figure 1**; Tree Survey Plan and Tree Treatment Plan as **Figure 3.1-3.2**, Tree Planting Plan as **Figure 3.3**.

2. EXISTING SITE CONDITIONS

- 2.1 The Subject Site of CityUHK Farm Expansion Lot (Farm 2.0) with a gross site area of about 6,170 m² is located at Lam Tseun. The existing CityUHK Farm 1.0 with a site area of 9,274 m² is located adjacent to Farm 2.0. The total area of the Subject Site is approximately 15,444 m².
- 2.2 The Tree Survey for Farm 1.0 and Farm 2.0 was completed on 04 December 2025, 11 February 2026, 8 May 2026 and 5 June 2026. The surveys has covered the existing trees with DBH at or over 95mm within boundary and 2 meters offset from the boundary of the Subject Site. A total of 186 nos. of trees are surveyed within the Subject Site.
- 2.3 **Summary of Existing Trees Surveyed**

Items	Quantity
Trees Surveyed withing Subject Site boundary	186 nos.

- 7.7 Of the 186 nos. trees survey on site, 122 nos. trees will be affected by the new development; including 113 nos. of trees are proposed to be felled and 9 nos. trees are proposed to be transplanted. The trees proposed to be transplanted are palm trees which have been determined to be suitable for transplanting with a good survival rate:

- *Archontophoenix alexandrae*
- *Livistona chinensis*
- *Phoenix dactylifera*
- *Roystonea regia*

- 7.8 It is proposed that 64 nos. of trees are proposed to be retained; including a large existing tree T79 (*Ficus benjamina*).

Table 7.1: Summary of the tree treatment strategy for Farm 1.0 and Farm 2.0

Items	Quantity
Trees to be Retained	64 nos.
Trees Proposed to be Transplanted	9 nos.
Trees Proposed to be Felled	113 nos.
Total Trees	186 nos.

- 7.9 The targeted compensation ratio shall be 1:1. Given there are 113 nos. trees proposed to be felled, this equates to 113 nos. trees to be compensated.
- 7.10 New tree planting is proposed as a mitigation measure for tree loss. For details, please refer to **Figure 3.3** and the below Table 7.2 for the compensatory tree sizes.
- 7.11 The location of compensatory trees has been optimized to preserve the visual quality of the existing vegetation, which consists of a south-east facing greenery area of groundcovers and trees of common species mainly located along the site boundary. A combination of heavy standard trees and light standard trees are proposed within site as compensatory planting to achieve 1:1 in quantity while preserving the overall visual quality of the landscape.

Table 7.2: New Tree Planting as Mitigation for Tree Loss

Items	Quantity
Total Proposed New Trees (Compensatory)	113 nos.
Proposed New Trees in Heavy Standard	73 nos.
Proposed New Trees in Light Standard	40 nos.

Soil Depth for Planting Areas

- 7.12 In order to ensure that these planting proposals are feasible, adequate planting soil depth will be provided for all planting areas. For example, the tree planting in planter or planting area will utilise a minimum 1200mm depth of planting medium, 600mm depth of soil will be required for shrub areas and a minimum soil depth of 300mm for lawn. These are minimum soil depths in planting areas exclusive of structural and drainage layers to ensure healthy plant establishment.

Irrigation and Drainage

- 7.13 The proposed irrigation system will be via automatic or manual water point operation, covering the entire planting area within the site. The proposed source of water supply is subject to final approval from the Water Services Department. Subsoil drainage shall be provided for all planting areas.

Lighting

- 7.14 The lighting design for the landscaped areas will contribute to the quality of the development in nocturnal views providing an aesthetically pleasing environment through the creation of mood and highlighting of landscape elements. All access paths will be provided with sufficient illumination.

8. LANDSCAPE RESOURCES & BROAD IMPACT ASSESSMENT

- 8.1 The Broad Landscape Impact Assessment provides a general description of the landscape assessment methodology, identification of the baseline landscape conditions & Landscape Resources (LRs), potential sources of landscape impact, and provides a broad assessment of the landscape impact to the area due to the Proposed Development.
- 8.2 The broad landscape impact assessment is conducted for the area, the landscape resources (LR) is identified as follows: -

LR Code	Name	Description
LR1	Group of Existing Trees	The Proposed Development falls within an area of natural vegetation which contains a groups of trees within Farm 1.0 and Farm 2.0, with a total site area of approximately 15,444 m². 186 nos. of trees are surveyed within the LR site. All of them are common species found in Hong Kong such as <i>Moringa oleifera</i>, <i>Artocarpus heterophyllus</i>, <i>Roystonea regia</i>, <i>Ficus macrocarpa</i> and <i>Archontophoenix alexandrae</i>. Comprising a developed zone (Farm 1.0) and a vacant expansion zone (Farm 2.0) that hosts only common tree species, the site's overall landscape sensitivity to change is considered Low.

- 8.3 The identified LR will be affected by the Proposed Development within the rezoning area.
- 8.4 The magnitude of landscape change incurred by the Proposed Development is assessed. During construction phase, works such as excavation and various building works will affect the identified LR1; during operation phase, LR1 will also be directly and indirectly affected by temporary works, traffic and daily human activities. Potential Landscape Impact during the construction and operation phase of the Proposed Development is identified as follows:

LR Code	Name	Description	Magnitude of Change		Impact Significance	
			Construction	Operation	Construction	Operation
LR1	Group of Existing Trees	The Proposed Development is proposed within this LR, directly affecting both Farm 1.0 and Farm 2.0, comprising a total site area of 15,444 m². According to the Tree Assessment Schedule (Appendix A), and due to the proposed elevated levels, structures and necessary works area for construction, there are approximately 113 nos. permanent tree loss. Accounting the proposed building construction and affected areas, the magnitude of change of this LR is considered Low.	Slight	Medium	Slight	Moderate

- 8.5 While the Proposed Development will have an impact on the identified LR's portion of the existing trees, the design incorporates landscape elements such as new tree planting and amenity planting as mitigation measures for the anticipated landscape impacts.
- 8.6 The anticipated residual impact significance after implementing mitigation measures are as follows: -

LR Code	Anticipated Residual Impact Significance after Mitigation	
	Construction	Operation
LR1	Slight	Slight

Appendix F

Landscape Element Plan

