APPROVED TUEN MUN OUTLINE ZONING PLAN NO. S/TM/41

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone Lingnan University, Castle Peak Road – Lingnan, Tuen Mun (TMTLs 376 and 410 in DD132, Tuen Mun)

TECHNICAL FEASIBILITY STUDY

June 2026

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Approved Tuen Mun OZP No. S/TM/41

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendments to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun (TMTLs 376 and 410 in DD132, Tuen Mun)

Technical Feasibility Study

1. INTRODUCTION

1.1 Purpose

1.1.1 This Technical Feasibility Study ("TFS") is prepared and submitted on behalf of the Lingnan University (the "Proponent" / "LU") in support of the review of Building Height Restriction of Lingnan University Main Campus and North Campus in Tuen Mun (the "Sites") to not more than 120mPD. The Sites are zoned "Government, Institution or Community) ("G/IC") on the approved Tuen Mun Outline Zoning Plan No. S/TM/41.

1.2 Report Structure

1.2.1 Following this Introductory Section, background of existing campus condition and needs will be set out in **Section 2**. The site and planning context is outlined in **Section 3**. The Proposed Campus Master Plan is discussed in **Section 4** while the proposed amendments to the Statutory Notes of the Approved OZP is presented in **Section 5**. The planning merits and justifications for the Planning Application can be found in **Section 6**. **Section 7** concludes and summarizes this TFS.

2. BACKGROUND, EXISTING CAMPUS CONDITIONS AND NEEDS

2.1 Development History of Lingnan University and Recent Achievements

2.1.1 Tracing its roots back to 1888, LU was founded in Guangzhou as Canton Christian College. After facing significant disruption during World War Two and the post-war development period until 1952, the institution was eventually re-established in Hong Kong as Lingnan College in 1967 at the Stubbs Road, Hong Kong. To facilitate its expansion, LU moved to the current campus in Tuen Mun in 1995. It was subsequently granted full university status and officially renamed to Lingnan University in 1999.

2.1.2 Over the years, LU has sustained commitment to liberal arts education and interdisciplinary inquiry has translated into a remarkable academic achievements, high-impact research and global recognition. In June 2025, Lingnan became the first Hong Kong institution to top Times Higher Education ("THE") Impact Rankings for Quality Education (SDG 4), reflecting excellence in teaching, inclusive access and lifelong learning initiatives. This global leadership underscores Lingnan's pedagogical innovations such as free campus-wide access of AI research tool that enhance student engagement and learning outcomes.

2.1.3 The University's focused strengths in Social Sciences and Humanities have earned repeated high placements in QS Subject Rankings. In 2024, Lingnan's Social Policy & Administration and Philosophy both ranked within the top 3 in Hong Kong and top 20 in Asia. By early 2025, the rankings of some subjects improved further, with English Language & Literature placing 15th and Communication & Media Studies placing 19th across the region of Mainland China, Taiwan, Hong Kong and Macau.

2.1.4 Lingnan's emphasis on "research–academia–industry" collaboration has yielded breakthroughs in AI-driven robotics, digital security and sustainability technologies. At the 50th International Exhibition of Inventions Geneva 2025, six projects won five awards—including the first-ever Jury's Congratulations on a Gold Medal—demonstrating Lingnan's rising profile in global innovation. Similarly, at the 4th Asia Exhibition of Innovations Hong Kong 2024, the University secured one Gold and two Silver medals for AI applications in logistics and privacy protection

Integration of Arts and Sciences in the Digital Era

2.1.5 LU is dedicated to enhance its strength in traditional disciplines such as arts, humanities, business and social sciences while embracing the future in the digital era and to build a smart future for sustainability. The University is expanding to emerging fields including data science, artificial intelligence, biological sciences, carbon neutrality, and environmental sustainability. In the

2023/24 academic year, the establishment of the Institute for Advanced Study and School of Data Science was achieved which was one of the key milestones in LU's development history.

2.1.6 In addition, the Wu Jieh Yee School of Interdisciplinary Studies was established in recent years, centred on sustainability and fundamental engineering science. Its translational research and knowledge transfer activities focus on clean energy and energy storage, climate change, carbon neutrality, AI-driven design of smart materials and biomedical networks, and sustainable environments and infrastructure for AI adoption.

2.1.7 The University remains steadfast in its mission to provide a broad-based education while nurturing innovative thinking and adaptability. By integrating the arts and sciences, it is aimed to equip future leaders with the skills needed to thrive in an ever-changing professional landscape.

Forging a New Research-Academia-Industry Innovation Platform

2.1.8 The University views the world through the lens of science, humanities and arts which equip the academics to tackle global challenges such as climate change and sustainability and sees a strategic need in forging a new Research-Academia-Industry Innovation Platform (產學研創新基地).

Answer to Continuous Expansion of the University

2.1.9 Guided by the motto "Education for Service", LU has been providing a holistic and globally connected education with a strong liberal arts foundation through their undergraduate, taught postgraduate and research postgraduate programmes. The University emphasizes the importance of fostering well-rounded individuals equipped to service society effectively. Over the years, the academic and research programmes at LU have been expanding and the student enrolment has increased about 175% in 18 years and the utilization rate of the existing facilities have already reached their full capacity. Offices, teaching/research laboratories are fully utilized, while lecture rooms, theatres and classrooms are more than 80% utilized.

2.1.10 If this trajectory continues, the total student enrolment is expected to significantly increase in future. To accommodate such rapid expansion, relaxing building-height restrictions is imperative: permitting taller academic and residential structures will maximize campus capacity, alleviate land-use constraints, and ensure that infrastructure keeps pace with demand. While plans for a "second campus" in the Northern Metropolis university town remain a long-term aspiration, immediate action on height relaxations on existing Main Campus and North Campus is critical to address current overcrowding condition and support sustained growth.

To support the University's growth in response to the Government's vision to establish Hong Kong as an international Innovation & Technology ("I&T") centre and international hub for tertiary education innovation[1], the University has a long-term vision to gradually accommodate growth in number of students and researchers in future. It is anticipated an approximate additional gross floor area of about 339,340 m^2 for additional of about 13,000 students would be required for the campus development on academic, research, amenity, administrative support and residential venues, etc. It is estimated that the total student enrolment would be increased from about 8,000 at present to about 10,000 by 2028/2029 and the total enrolment is anticipated to reach almost 20,000 in 2038/39, among which the proportion of non-local students is expected to reach about 50%.

2.2 Overview of Existing Campus Conditions

2.2.1 The existing LU Campus comprises 3 lots i.e. TMTL 376 (Main Campus), TMTL 410 (North Campus) and TMTL 482 (Simon and Eleanor Kwok Building ("SEK")) with a total site area of about 11.68 hectares (**Figure 2.1** refers).

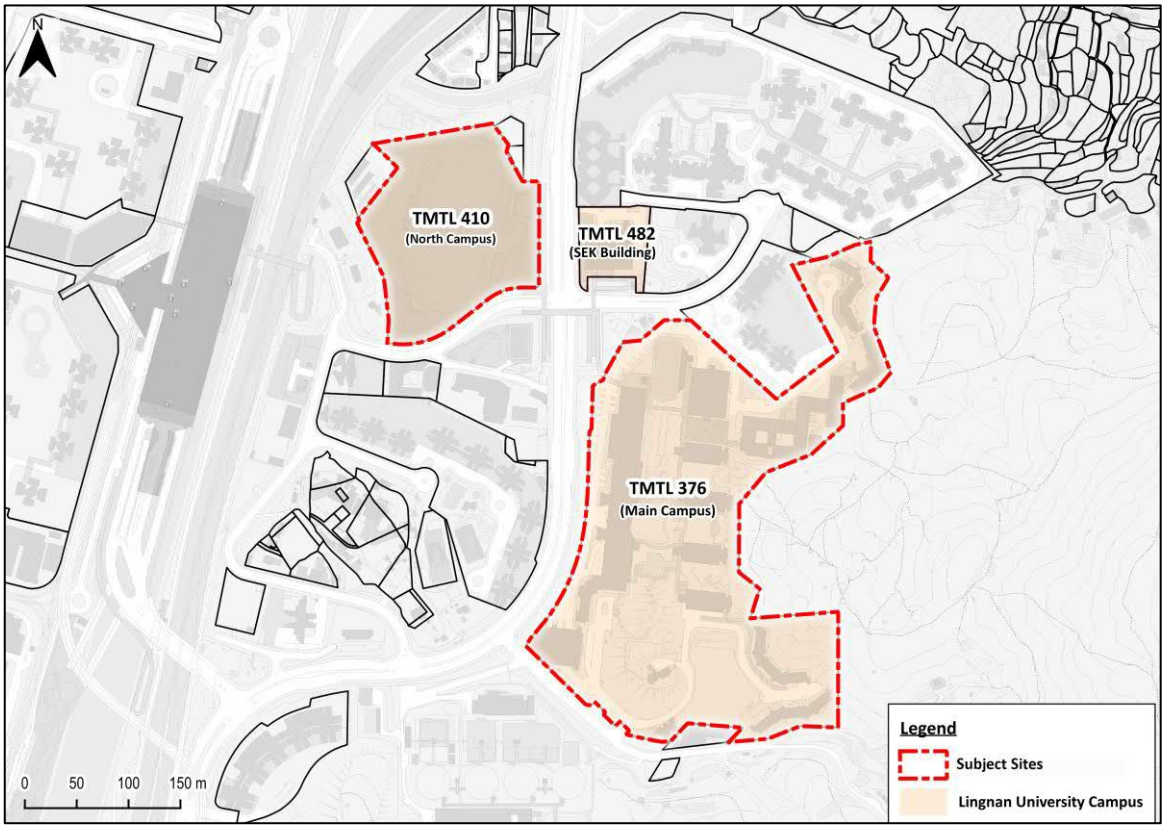

Figure 2.1: Lingnan University Campuses

2.2.2 The existing layout of LU Campus is provided in **Appendix 1** while the existing plot ratio and GFA are provided in **Table 2.1** below:

[1] The Chief Executive's 2024 PA, HKSAR

Table 2.1: Plot Ratio and GFA of Existing LU Campus

	TMTL 376 (Main Campus)	TMTL 410 (North Campus)	TMTL 482 (SEK)	Total
Site Area (about)	8.59 ha	2.63 ha	0.46 ha	**11.68 ha**
Plot Ratio (about)	1.25	0.05	3.89	**1.08**
GFA* (about)	107,377 m^2	1,359 m^2	17,883 m^2	**126,619 m^2**
GFA allowed under lease	110,400 m^2	2,360 m^2	17,883 m^2	**130,643 m^2**
Remaining GFA under lease	3,023 m^2	1,001m^2	0 m^2	**4,024 m^2**

* Including under construction and planned developments

2.2.3 The average plot ratio of the existing campus is about 1.08 only which is on the low side as compared to other universities including Hong Kong Polytechnic University with the planned plot ratio of about 4.62 and Hong Kong Metropolitan University with a plot ratio of about 5.68. As the development potential of the SEK site has already been optimized, the current rezoning proposal would exclude the SEK site.

Building Height

2.2.4 The building height in Main Campus is about 4 storeys in general except for the hostel blocks in the northern and southern portions of the Site with building height of 10 storeys.

2.3 Past and Recent Expansion Initiatives

2.3.1 Over the years, due to the limited space for campus expansion, piecemeal enhancement works within the LU Main Campus were carried out. These works include upgrades of lecture theatres, introduction of new learning space and new laboratories within the existing buildings.

2.3.2 LU had previously submitted two S16 Planning Applications for relaxation of building height restriction to cater for the space demand, which includes addition of one storey at the existing Main Library and the development of the New Science Building near Wing On Plaza with relaxation of building height restriction from 4 to 7 storeys (**Table 2.2** refers). Meanwhile, upon the completion of the New Science Building and Research Annex Building (**Figure 4.1** refers), LU has exhausted nearly all allowable Gross Floor Area (GFA) at the existing campus area to develop better/improved building facilities and environment for their staff and students.

Table 2.2: Previous Planning Applications for Relaxation of Building Height Restriction

Planning Application No.	Details of Application	TPB Approval Date
A/TM/543	Proposed Minor Relaxation of BHR for Permitted Educational Institution Use (Addition of Mezzanine Floor within the Library) (from 4 to 5 storeys)	16.08.2019
A/TM/595	Proposed Minor Relaxation of BHR for Permitted Educational Institution Use (New Science Building) (from 4 storeys to 7 storeys)	28.02.2025

2.4 Relevant Government Policies

2.4.1 Hong Kong is leveraging its unique advantages under "One Country, Two Systems" to transform into a global leader in higher education. This vision, articulated in the 2023 and 2024 Policy Addresses (PAs), integrates academic excellence, talent cultivation, and infrastructure development to position the city as a premier destination for international students and scholars. The relevant polices are briefly discussed below:

Building Hong Kong as an International Post-secondary Education Hub

2.4.2 The Chief Executive's 2023 PA has stated that the Government will build Hong Kong into an international hub for post-secondary education, with measures including doubling the non-local student quota for the taught undergraduate programmes of various University Grants Committee (UGC)-funded institutions to 40% starting from the 2024/25 academic year and further to 50% starting from the 2026/27 academic year under 2025 PA. The universities may, having regard to their own conditions, progressively admit more non-local students, in particular those from ASEAN and Belt and Road countries to study in Hong Kong. With high quality teaching and supporting facilities, they can expand their capacity and enhance their quality. At the same time, this will create a diversified and inclusive international learning environment on university campuses, thereby broadening students' horizons and enriching their learning experience even when they are staying on the local university campuses during their studies.

2.4.3 In his 2024 PA, the Chief Executive has announced that there is a need to further deepening the related work to promote talent nurturing and create the "Study in Hong Kong" brand to continue to attract more overseas students. The Government is also endeavoured to enhance Hong Kong's role in global education through research collaboration, student exchanges and high-impact academic events. It is believed that the development of Hong Kong into an international post-secondary education hub will bring about benefits to Hong Kong by enhancing the quality of the workforce, promoting overall economic

growth, enhancing Hong Kong’s international competitiveness, encouraging cultural exchange and enhancing innovation capabilities in the long run.

2.4.4 LU strongly supports the strategic direction of the Committee on Education, Technology, and Talents, which seeks to establish Hong Kong as a nexus for high-calibre international talent. The University is dedicated to recruiting top-tier academics and researchers while innovating its curriculum to prepare students for an AI-driven future. The establishment of the School of Data Science (SDS) epitomizes this commitment, integrating data science with our liberal arts ethos. This is further exemplified by our pioneering requirement for all first-year students to complete a foundational course in Generative AI, ensuring every graduate possesses critical digital literacy.

2.4.5 Moreover, Lingnan is actively developing and enhancing its programme offerings to nurture professionals in areas of significant societal need. This includes our Bachelor of Science (Hons) in Data Science, the Master of Science in Artificial Intelligence and Business Analytics, and forthcoming postgraduate degrees in Industrial Data Analytics and Smart City Technologies. All these new programmes require large and specialized spaces such as AI laboratories, high-performance computing clusters, data visualisation suites, and innovation incubation hubs for interactive learning, industry collaboration, and advanced simulation.

Improving Hostel Facilities

2.4.6 The Government is actively consolidating Hong Kong’s status as an international hub for post-secondary education. With the increase in enrolment ceiling for non-local students, there would be an increasing demand from non-local students. Apart from non-local students, it is understood there is also a demand from local undergraduate students for student hostels. Hence, the demand for hostel accommodation is expected to increase substantially in the years to come. The Government has launched “The Hostels in the City Scheme” to encourage the market to convert existing commercial buildings and hotels into student hostels in order to speed up the supply in meeting the acute demand for accommodation facilities for students.

2.4.7 LU is committed to provide quality whole-person education as one of the missions, and hostel life plays an important role in fulfilling this mission. LU introduced a "four-year full residential (四年全宿)" arrangement for undergraduates since 2014 and students can accommodate on campus during their study as a tradition. However, to cope with the increase in non-local students and align with the University's development, LU shifted to a "four years, two residential (四年兩宿)" and "two years, one residential (兩年一宿)"" system since 2024/25 academic year, emphasizing that it will still provide undergraduate students of accommodation arrangements based on actual hostel occupancy conditions. The current number of hostel places in 2025/26

academic year is 2,657, which could provide accommodation for about 34% of the total student population (about 7,773 students). The current occupancy rate of the student hostels is over 95%.

2.4.8 In planning for the additional 13,000 students, about 4,000 hostel places will be required to achieve a target of minimum 30% of hostel-to-student ratio. The hostel-to-student ratio and required floor area are provided in the table below:

Table 2.3: Estimated Hostel-to-Student Ratio and Required Floor Area

	No. of students	Area per students (m^2)	Area (m^2)
Additional academic space	13,000	20	260,000
Additional hostel bed-space	4,000*	20	80,000
Total	**-**	**-**	**340,000**

* min. 30% of hostel-to-student ratio. The current number of hostel places is 2,657 (i.e. for about 34% of total student population), which is higher than the proposed hostel-to-student ratio of 30%.

2.4.9 Building height relaxation at Lingnan University is a strategic necessity to unlock on-campus hostel capacity, directly supporting Hong Kong's broader policy of expanding post-secondary infrastructure and nurturing a sustainable education-I&T ecosystem. A BHR cap of not more than 120mPD will enable Lingnan to deliver urgently needed student accommodation, optimize limited land resources, and align with the Government's pilot facilitation scheme—all crucial for maintaining Hong Kong's competitiveness as an international education hub.

Develop New Quality Productive Forces Tailored to Local Conditions

2.4.10 Hong Kong is strategically positioning itself to develop New Quality Productive Forces emphasizing innovation-driven, high-value, and sustainable growth. In the 2024 PA, it is announced that the Government will draw up a medium to long term development plan for new industrialisation in Hong Kong focusing on transitioning toward an innovation-driven, high-value economy through technological empowerment and industrial transformation. The Government will also press ahead with the establishment of the Hong Kong New Industrialisation Development Alliance to promote closer collaboration among the Government and the industry, academia, research and investment sectors, building a cooperative platform for new industrialisation in Hong Kong. This includes providing more financing opportunities and fostering I&T cooperation between newly listed companies in Hong Kong and local universities.

2.5 The Long-term Vision Plan of Lingnan University

2.5.1 In the University Strategic Plan, LU set out how to continue to scale new heights and embrace emerging opportunities. There are in total seven strategic areas:

1) Optimising Liberal Arts Education in the Digital Era;
2) Augmenting Postgraduate Studies;
3) Inspiring Research with Impact;
4) Interfacing Responsible Leadership with Global Entrepreneurship;
5) Bolstering Institutional Advancement, Alumni Development and Branding;
6) Enhancing Campus Infrastructure and Planning Campus Expansion; and
7) Deepening the Connection to the Greater Bay Area and the Rest of the Mainland.

2.5.2 The University Administration has been working closely together with the UGC in achieving results under alignment with the National and Hong Kong's policy priorities. LU will continue to grow and become a world class internationalized campus (世界級國際化校園) and contribute to establish the branding of "Study in Hong Kong" (留學香港品牌) which in-line with Government's latest policies. While safeguarding the quality assurance, there should in parallel be a quantum leap in the scale and diversity of student intakes at all levels from Undergraduate, Taught Postgraduate to Research Postgraduate. LU has managed to ramp up the non-local Undergraduate student admission to reach the 40% limit in the on-going academic year of 2024/25 as soon as the admission quota was lifted. As for the postgraduate offerings, the University also registered noticeable progress in growing the total Postgraduate population by more than 100% in the past triennium and the majority is non-local students. The projection for the coming academic year of 2025/26 is that new record will likely be broken for a total student population (both Undergraduate and Postgraduate) of at least 8,500 for the University.

2.5.3 There is a strategic need in forging a new research-academia-industry innovation platform (產學研創新基地) for establishing collaborative partnerships with leading corporations and research institutions from the Mainland and overseas. The direction is also to position Hong Kong as a strategic launch pad in support of the National Strategy for state-owned and private enterprises to "Go Out" (國家企業出海政策) and realize its goal of building strong multinational companies and increasing China's economic impact globally. LU has been advancing as a comprehensive University in Arts and Sciences in the digital era. With the newly established School of Data Science and the advancement of our School of Interdisciplinary Studies, LU is vigorously striding towards the goal of an innovation hub that cultivates talents and engages in transformative research and development ("R&D") endeavours for societal impacts on areas of data science, artificial intelligence, biological sciences, carbon neutrality, environmental sustainability engineering, etc. The current R&D endeavours include:

Data Science

- AI and Generative AI, Large Language Models, Vision Language Models
- Machine Learning and Deep Learning
- Natural Language Processing and Computational Linguistics
- Computer Vision, Image and Video Processing
- Data Mining, Social Computing
- Mobile Computing and Ubiquitous Computing
- Evolutionary Algorithms
- Smart Manufacturing and Smart Cities, Internet of Things
- Smart Health and Bioinformatics
- Optimisation

Science / Interdisciplinary Studies

- Clean Energy and Energy Storage
- Climate Change and Carbon Neutrality
- AI-Driven Design of Smart Materials and Biomedical Network
- Sustainable Environment / Infrastructure of AI Adoption
- Biological Sciences
- Environmental Sustainability Engineering

2.5.4 The future expanded LU campus can also play a pivotal role along the innovation technology belt in continuum to the future San Tin Technopole and Hong Kong-Shenzhen Innovation and Technology Park, forming a robust I&T ecosystem chain.

2.6 Evolving Space Needs and Estimation of Actual Space Demand

2.6.1 To cater for the campus expansion and to realize the long-term vision of LU, it is estimated that an additional GFA of about 339,340 m^2 would be required. The floor space will be dedicated to research and innovation facilities (including laboratories); teaching facilities and learning venues; office for new faculty and visiting scholars from overseas and Mainland; conferencing venues; innovation and knowledge transfer activity space including makerspaces, entrepreneurship start up zones, incubators and accelerators; joint research and development laboratories with high tech industry partners; as well as other supporting amenities for a much expanded University campus community, etc. New student hostels based on the interdisciplinary liberal arts residential-college system for possible collaborative opportunities with world renowned Mainland and/or international university partners to develop joint campus operations.

2.7 Constraints on Campus Expansion

2.7.1 To meet the growing academic and research needs, LU has been actively exploring ways to expand the campus both vertically and horizontally but is faced with the following constraints:

Building Height Restriction

2.7.2 The whole main campus of LU is subjected to a building height restriction of 4 storeys (main campus) and 10 storeys (in eastern portion for the quarters) while the North Campus is subjected to a building height restriction of 1 storey. The building height restriction is stipulated in the Remarks (a) and (b) of the "G/IC" zone in the Approved OZP:

"No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storey(s) or mPD as stipulated on the Plan, or the height of the existing building, whichever is the greater" and

"In determining the maximum number of storey(s) for the purposes of paragraph (a) above, any basement floor(s) may be disregarded".

2.7.3 Optimizing the use of scarce land resources is a pressing necessity. The LU Campus is characterized by predominantly low-rise buildings. The current blanket building height restriction poses a significant obstacle to achieving this optimization.

Expansion of Site Area is Challenging

2.7.4 To the east of the Main Campus is a large "Green Belt" ("GB") zone while to the west is Castle Peak Road – Lingnan. To its north and northeast is Tuen Kwai Road and a residential development, Beneville. To the south is Fu Tei Road

and the Tuen Mun Water Treatment Works which has posed limitation to the expansion of the campus area. The North Campus is encircled by the surrounding road network including Castle Peak Road – Lingnan, Tuen Fu Road and Yuen Long Highways as well as some graves, existing slope, drainage reserve area, private lots, Lam Tei Raw Water Pumping Station and Staff Quarters. Thus, the opportunity for enlargement of the site area is also limited.

2.8 Previous Efforts in Searching for Land Near the Campus

2.8.1 In addition to the redevelopment option, LU has also explored ways for campus expansion including searching for possible vacant/unallocated sites near the campus. The University has also sought opportunities in the adjacent Tuen mun Waterworks site upon relocation. A written enquiry was made to the Education Bureau; however nil response was received.

Lingnan University has, in the face of pressing space constraints on its Tuen Mun campus, temporarily leased off-campus venues—most notably lecture spaces at M+ in West Kowloon, and floors in a commercial building, Union Park Centre on Nathan Road and Nina Tower in Tsuen Wan - to accommodate expanded teaching and seminars. M+ (12-14F) has floor area of about 2,500 m^2 with utilization rate of about 55%, Union Park Centre (6/F & 9/F) has floor area of about 700m^2, with about 63% utilization rate.

2.8.2 The remoteness of these off-campus facilities has added travelling time and low efficiency on class scheduling, resulting in relatively lower utilization rate.

2.8.3 LU has recently purchased podium floors of T-plus, a nearby residential development in Tuen Mun in meeting the imminent needs for academic floor space. While these arrangements have provided much-needed relief, they fragment campus life and add commuting burdens. A holistic solution lies in enabling modest on-campus expansion through targeted building height relaxation. By bringing all academic, research and residential functions back within a unified campus envelope, Lingnan can foster stronger community cohesion, streamline cross-disciplinary collaboration and deliver a more integrated, student-centred environment—benefits that cannot be realized through dispersed, off-campus facilities alone.

2.8.4 Opportunities for development in the Northern Metropolis have also been explored. However, the process is expected to be lengthy and uncertain, which may not address the imminent short-term space.

3. SITE AND PLANNING CONTEXT

3.1 Site Location and Existing Condition

Main Campus

3.1.1 The Main Campus of LU is located at No. 8 Castle Peak Road – Lingnan (**Figure 3.1** refers). It is bounded by Castle Peak Road – Lingnan to its west, Tuen Kwai Road to its north, a "GB" zone to its east and Fu Tei Road to its south. The existing vehicular access is via Tuen Kwai Road and Fu Tei Road.

North Campus

3.1.2 The North Campus is also located along Castle Peak Road – Lingnan, to the northwest of the Main Campus (**Figure 3.1** refers). It is bounded by Castle Peak Road – Lingnan to its east, a drainage channel to its north, Tuen Mun Road to its west and Tuen Fu Road to its south. The existing vehicular access is via Tuen Fu Road. The North Campus is currently occupied by a student activity centre, 6-lane running track, an artificial turf soccer pitch, field facilities, tennis courts and outdoor fitness corner.

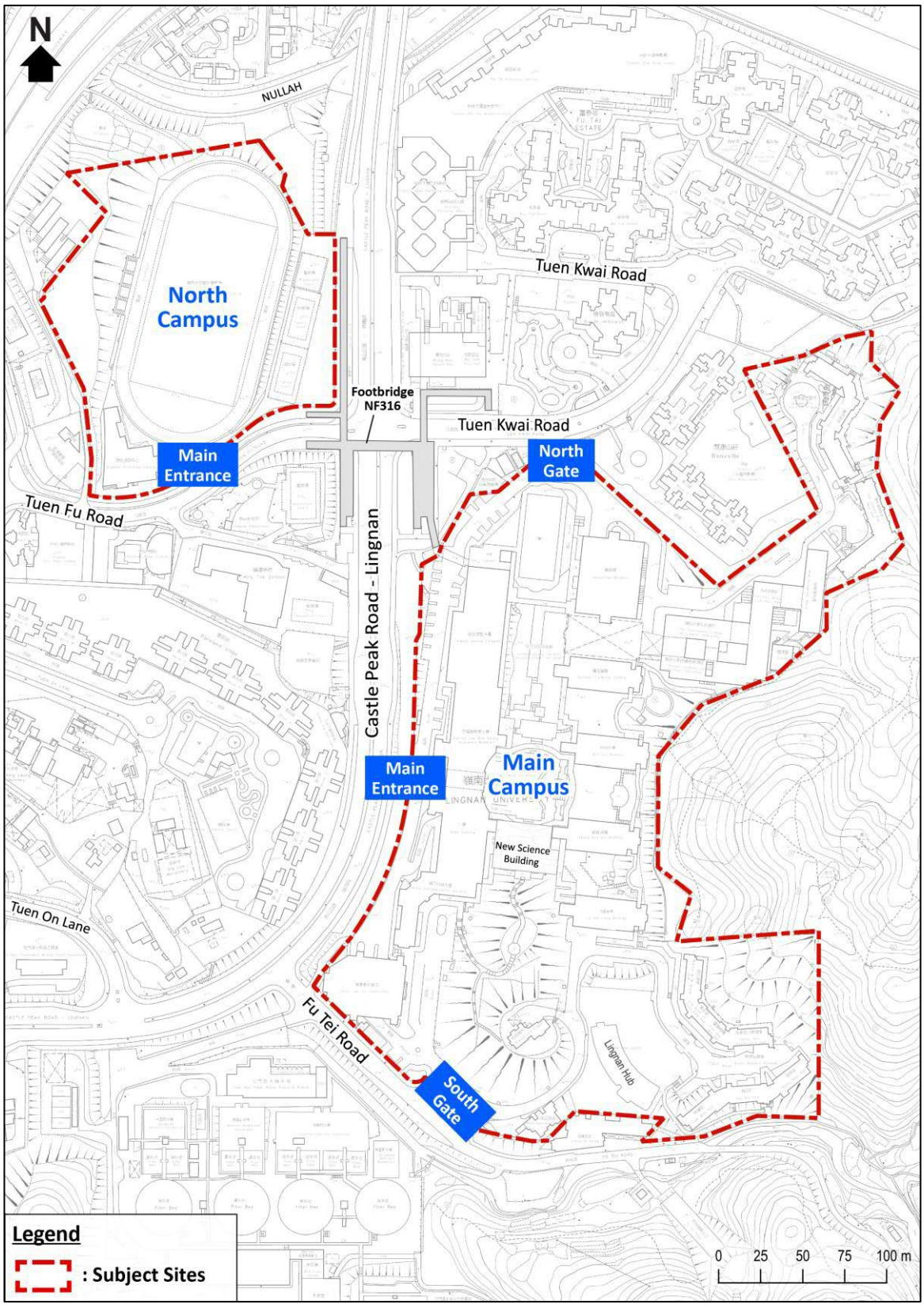

Figure 3.1: Site Location Plan

3.2 Land Lease

3.2.1 The Main Campus of Lingnan University (Lot No. TMTL 376) was originally under new grant No. 376 by the Government with a GFA restriction of 96,000 m^2. The latest permissible GFA based on the approved lease modification in February 2022 is 110,400 m^2.

3.2.2 The North Campus (Lot No. TMTL 410) is governed by a lease executed in 2002 for the use of a student activities centre and an outdoor sports ground with total GFA not exceeding 2,360 m^2.

3.3 Accessibility

3.3.1 The Main Campus and North Campus are well-served by various public transport services. MTR Siu Hong Station is located about 400 - 450m to the west. In addition to railway services, there are bus and GMB services running along Castle Peak Road – Lingnan and Tuen Kwai Road.

3.3.2 The LU Campus is accessible from three entrances. The Main Entrance is located in the west abutting Castle Peak Road – Lingnan, while the South Gate is located at Fu Tei Road and North Gate is located at Tuen Kwai Road (**Figure 3.1** refers). A comprehensive covered walkway system is provided within LU Campus, offering all-weather protection and linking up various blocks and facilities. There is also an existing public footbridge across the Castle Peak Road – Lingnan and Tuen Kwai Road with direct access to the Main Campus.

3.4 Surrounding Context

3.4.1 Both the Main Campus and North Campus are situated in a predominantly "G/IC" and residential neighbourhood.

<u>Main Campus</u>

- To its north and northeast are "Residential (Group B)11" ("R(B)11") and "Residential (Group B) 16" ("R(B)16") zones respectively, currently occupied by various high-rise residential developments including Beneville and South Hillcrest;
- To the further north is a "R(A)" zone where Fu Tai Estate is located.
- To its east is an area zoned "GB" occupied by a vegetated slope;
- To its immediate south is a senior housing, namely Forward Living. Within the same "G/IC" zone, to its further south across Fu Tei Road is the Tuen Mun Water Treatment Works; and

- To its west and northwest across Castle Peak Road – Lingnan is a "R(B)10" zone occupied by Parkland Villas and a "G/IC" zone comprising The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School, Ecclesia Bible College and Government Playground.

North Campus

- To its south across from Tuen Fu Road is The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School, Ecclesia Bible College and Government Playground located in the same "G/IC" zone;

- To its immediate southwest within the same "G/IC" zone is the Lam Tei Raw Water Pumping Station and the Staff Quarter.

- To its immediate northwest is a "R(C)" zone where a residential development, Bowring Height is located;

- To the north of the subject "G/IC" zone is another "R(C)" zone where a residential development, Rosewood is situated.

- To the south of the subject "G/IC" zone is a "R(B)10" zone where a residential development, Parkland Villas is located.

3.5 Statutory Planning Context

3.5.1 The Main Campus falls within an area zoned "G/IC" on the Approved OZP and is subject to a BHR of 4 storeys and 10 storeys or the height of the existing building, whichever is the greater. The North Campus is also zoned "G/IC" with a BHR of 1 storey (**Figure 3.2** refers). According to the Statutory Notes of the Approved OZP, the planning intention of "G/IC" zone is *"primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory"*. It is also intended to *"provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments"*.

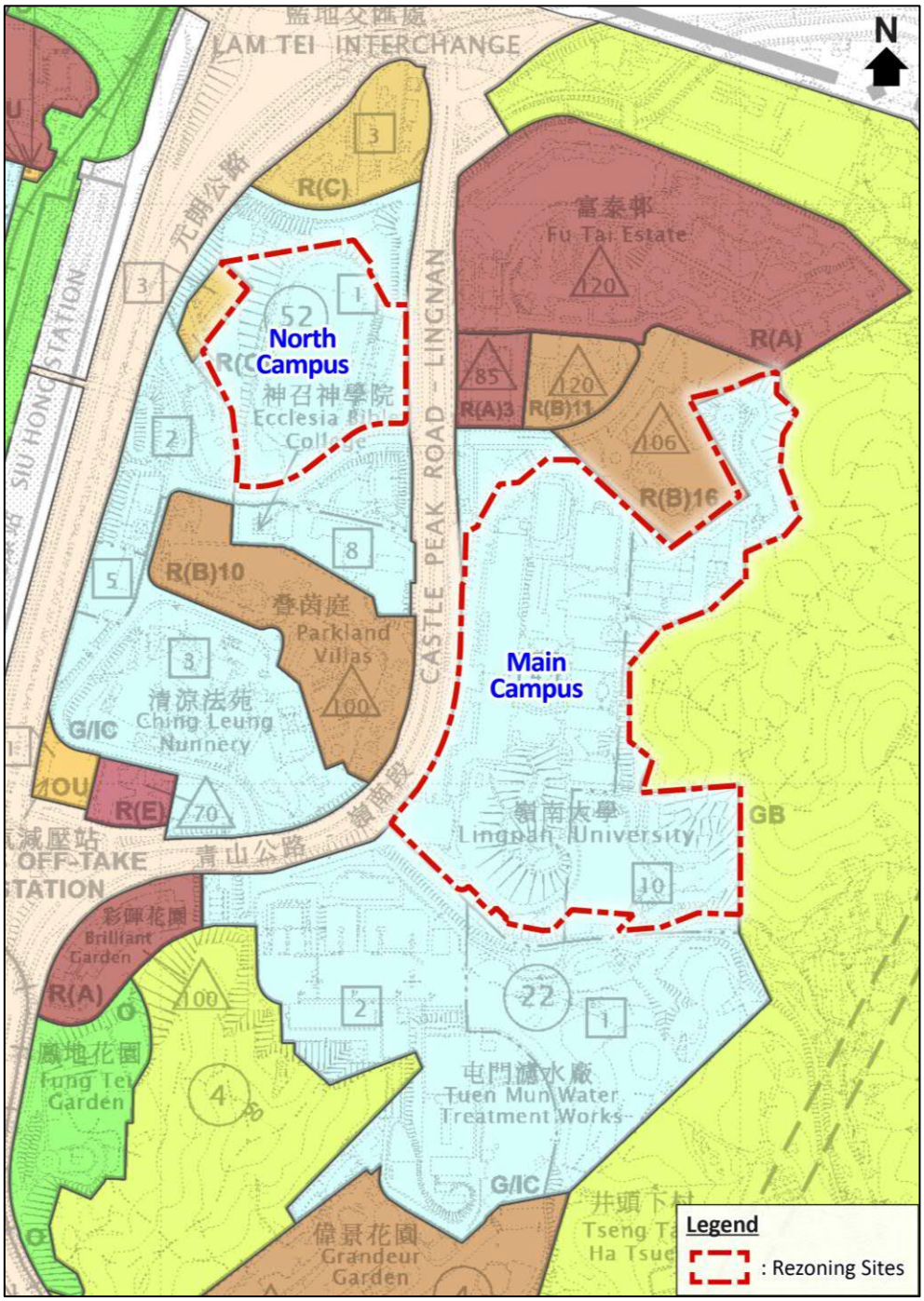

Figure 3.2: Zoning Context Plan

3.6 Rationale of Building Height Restriction on the Approved OZP

3.6.1 According to the Explanatory Statement of the Approved OZP, building height restrictions for various development zones to guide future development was imposed upon the review of the Tuen Mun OZP in 2009. There are in general three main building height bands – 85 metres above Principal Datum (mPD), 100mPD and 120mPD in the Area for the "Commercial" ("C"), "R(A)", and "Industrial" ("I") – increasing progressively from the Tuen Mun waterfront to the inland. According to Chapter 11 of the Hong Kong Planning Standards and

Guidelines ("HKPSG") on Urban Design Guidelines, developments should be highest in the central part of a new town and gradually descending down to medium to low-rise developments at the edges; and where appropriate, landmarks at the civic/commercial centres or focal points should be introduced. Gradually descending height bands from the highest height bands towards the fringe of Tuen Mun New Town are proposed.

3.6.2 In general, the proposed building height bands help preserve views to the ridgelines, achieve a stepped height profile, and maintain visual permeability and wind penetration and circulation. To avoid monotonous townscape and to reflect the existing building height profile, height variations are proposed where appropriate. Moreover, specific building height restrictions for the "G/IC" zones in terms of mPD or number of storey(s), which mainly reflect the existing and planned building heights of developments, have been incorporated into the Plan with a view to maintaining visual and spatial relief to the Area as appropriate.

4. CAMPUS MASTER PLAN

4.1 Planning Principles

4.1.1 LU is an institution with a rich legacy, reflected in its traditions and cultural setting. A set of planning principles has been formulated to define the assumptions and intentions governing the visions and recommendations of the Campus Master Plan.

a) **Supporting the Long-term Vision Plan –** LU is endeavoured to deliver a unique student experience, attract and cultivate excellence as well as to deepen the research efforts and broaden their contribution to the society. Campus re-planning and improvements are required to create a more inclusive, open and adaptable learning and teaching environment for the students and staff.

b) **Respecting the Established Heritage and Maintaining Identity of the University** – The architectural and historical legacy as well as the cultural landscape which are a vital part of the heritage and identity of LU will be preserved. In particular, the Main Building and Wing On Plaza which are the heart and core of LU's community will be respected and maintained (**Photo 1** refers). The four linear blocks at the back, which jointly form the identity of LU, will also be retained (**Figure 4.1** refers).

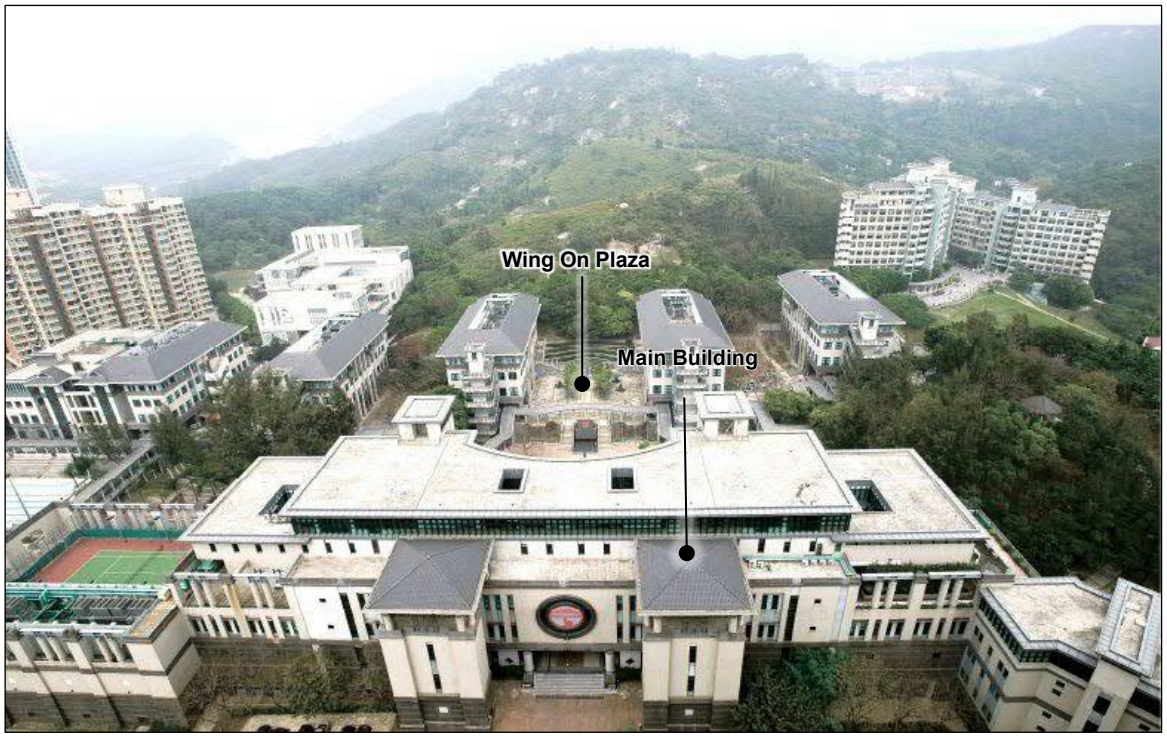

Photo 1: Main Building and Wing On Plaza

c) **Inheriting Lingnan Architectural Composition for a Smart, Green and Sustainable Future Campus** – While the heart and core of LU's community will be respected, the new entities would continue to respond to the natural terrain and existing buildings with building height stepping from the greenery backdrop towards the public road, forming a stepping height profile. Green building technologies will be promoted in the new buildings to foster a more sustainable campus.

d) **Integrating the Campuses with the Surrounding Setting** – The Campus Master Plan aims to enhance the connection with the surrounding setting by adopting sensible design (including low building height areas) responding to the built and natural environment. Out-of-context development will be avoided.

e) **Improving the Quality of Life of the University Community** – Enhancement to the campus experience would be through learning and teaching at the state-of-the-art facilities with the support of various amenity facilities including bookstore, convenience store, canteen, café, common areas, study spaces etc. Moreover, creating various comfortable and inspiring spaces for social interactions and activities would be crucial part of the learning environment. By introducing an interconnected green network integrating the open space, courtyards and walkways, the connectivity and walkability within and outside Campus would be greatly enhanced.

4.2 The Proposed Development Plan

4.2.1 The Campus Master Plan describes and illustrates how the Main Campus and North Campus should be structured in terms of land use, open space provision and connectivity. It also identifies initiatives intended to implement the framework and generally improve the environment and function of the campuses. Upon the campus re-planning, about 335,316 m^2 of GFA will be added and the building height of the new buildings would be not more than 120mPD. The Campus Master Plan, sections, and development schedule are provided in in **Appendix 1** and **Figure 4.1** below, whilst **Table 4.1** illustrates the GFA comparison.

Table 4.1: Proposed GFA and Plot Ratio Increase in Main Campus and North Campus

	Lease (about) (a)	Proposed (about) (b)	Difference (about) (b) - (a)
Main Campus (TMTL 376)			
Site Area	85,940 m^2	85,940 m^2	No Change
GFA	110,400 m^2	343,034 m^2	+232,634 m^2
Plot Ratio	1.29	4.0	+2.71
North Campus (TMTL 410)			
Site Area	26,293 m^2	26,293 m^2	No Change
GFA	2,360 m^2	105,042 m^2	+102,682 m^2
Plot Ratio	0.09	4.0	+3.91
Total			
GFA	112,760 m^2	448,076 m^2	**+335,316 m^2**

4.2.2 The Main Campus is intended to maintain its mixed-use functions supporting a full range of activities including teaching, research, housing (student hostels and staff quarters), and ancillary uses (such as canteen and shop). For the North Campus, in addition to the proposed research and teaching facilities, it will mainly function as the future "Amenity Hub" for LU community with the reprovisioned of Student Activity Centre comprising a sports ground and swimming pool. New student hostels/living quarters and amenity facilities will also be provided at the North Campus.

4.2.3 To accommodate the additional GFA within the existing campus, a comprehensive review of land utilization within the campus has been carried out. The underutilized sites would be the priority for redevelopment to achieve more efficient use of land resources.

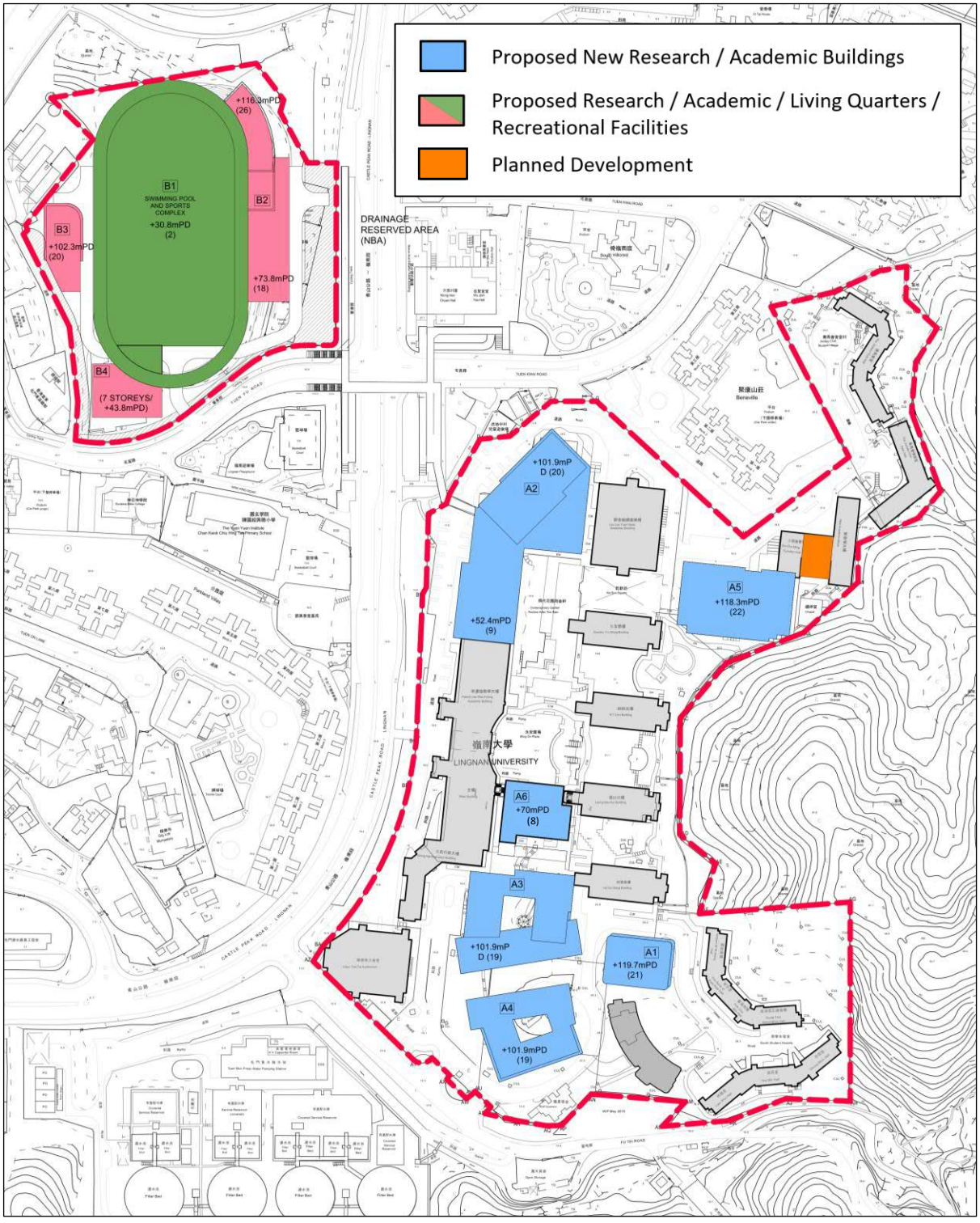

Figure 4.1: Campus Master Plan

4.3 Land Utilization Review

4.3.1 Upon the Land Utilization Review, a Campus Master Plan for LU to align with the current space need has been formulated:

4.3.2 The existing facilities at the North Campus including the Student Activity Centre 6-lane running track, the artificial turf soccer pitch, field facilities, tennis courts, outdoor fitness corner and spectator stand will be removed to allow a thorough restructuring for the provision of a new sports complex with swimming pool as well as 3 blocks of research, academic, student amenities cum living quarters.

4.3.3 In the southern portion of the Main Campus is the Lodge. A buffer distance from the existing buildings is maintained to allow a more tranquil residential setting. The building is recommended to be demolished to make way for the new buildings for data science and R&D at the site and its surrounding area.

4.3.4 The Indoor Sports Complex and swimming pool will be demolished and relocated to the North Campus Site. The Site will be used for the building of new academic buildings.

4.3.5 Lau Chung Him Building, which is located in the northeastern portion of the Main Campus, is recommended to be partially demolished for the proposed new research centre cum living quarters.

4.4 Urban Design Considerations

4.4.1 The following urban design considerations have been taken into account when formulating the Campus Master Plan to ensure the creation of high-quality campus environment responding to the natural topography and surrounding built environment.

Building Design

4.4.2 LU is known for its modernist, functionalist architecture with subtle Lingnan (Southern Chinese) influences, emphasizing a harmonious integration between the natural and built environment in a sustainable way. The new buildings will maintain the continuous horizontal elements of existing buildings at Campus, while also replicating the Lingnan pitch roof element through geometric treatment to the banding. Building materials that are subdued or complementary to the existing buildings will be adopted without changing the character of the LU campuses. The new buildings will also be designed to enhance the environment and contribute to the overall sustainability of the campuses.

Building Façade Length

4.4.3 The existing buildings of Main Campus along Castle Peak Road – Lingnan are offset from the road edge by approximately 25-30m. The new buildings would

be confined within the footprint of existing buildings and will maintain the current building length. The Proposed Development will introduce buildings with height variations which will add visual interest to the area. Carefully thought-out articulation at the building façade responding to the existing architectural character of LU Campus (with Lingnan influences) will be adopted to achieve a harmonious and cohesive campus environment.

Variations in Building Height Profile

4.4.4 The development intensity of the campus development has been devised to create a built form that complements the surrounding residential and GIC settings. The maximum height of the redeveloped buildings would be not more than 120mPD, which is congruous with the building height of surrounding residential development including South Hillcrest (with BHR of 120mPD), Beneville (with BHR of 106mPD), Fu Tai Estate (with BHR of 120mPD), Parkland Villas (with BHR 100mPD) and SEK (with BHR of 85mPD). A general stepped building height profile from the terrain in the east descending towards Castle Peak Road – Lingnan (along the visual axis) will be maintained to provide variations in massing while adding visual interest (**Figure 4.2** refers).

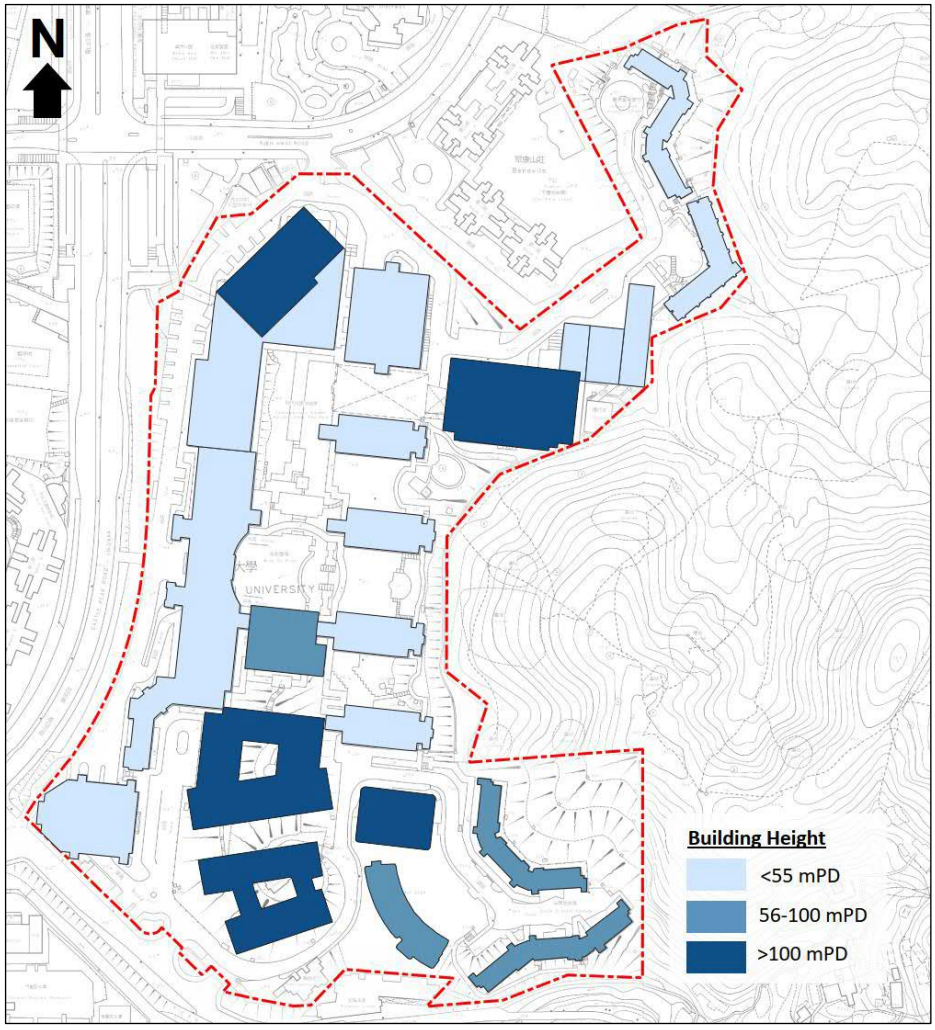

Figure 4.2: Varying Building Height Design Concept Diagram

4.4.5 In addition, the existing skyline along Castle Peak Road – Lingnan is characterized by taller buildings on the two sides (i.e. Fu Tai Estate in the north and Mount Regency and Elegance Garden in the south) with lower building height at the Main Campus and Tuen Mun Water Treatment Works. Upon re-planning of the campus, the addition of new buildings along Castle Peak Road – Lingnan will not change the existing skyline as illustrated in **Figure 4.3** below.

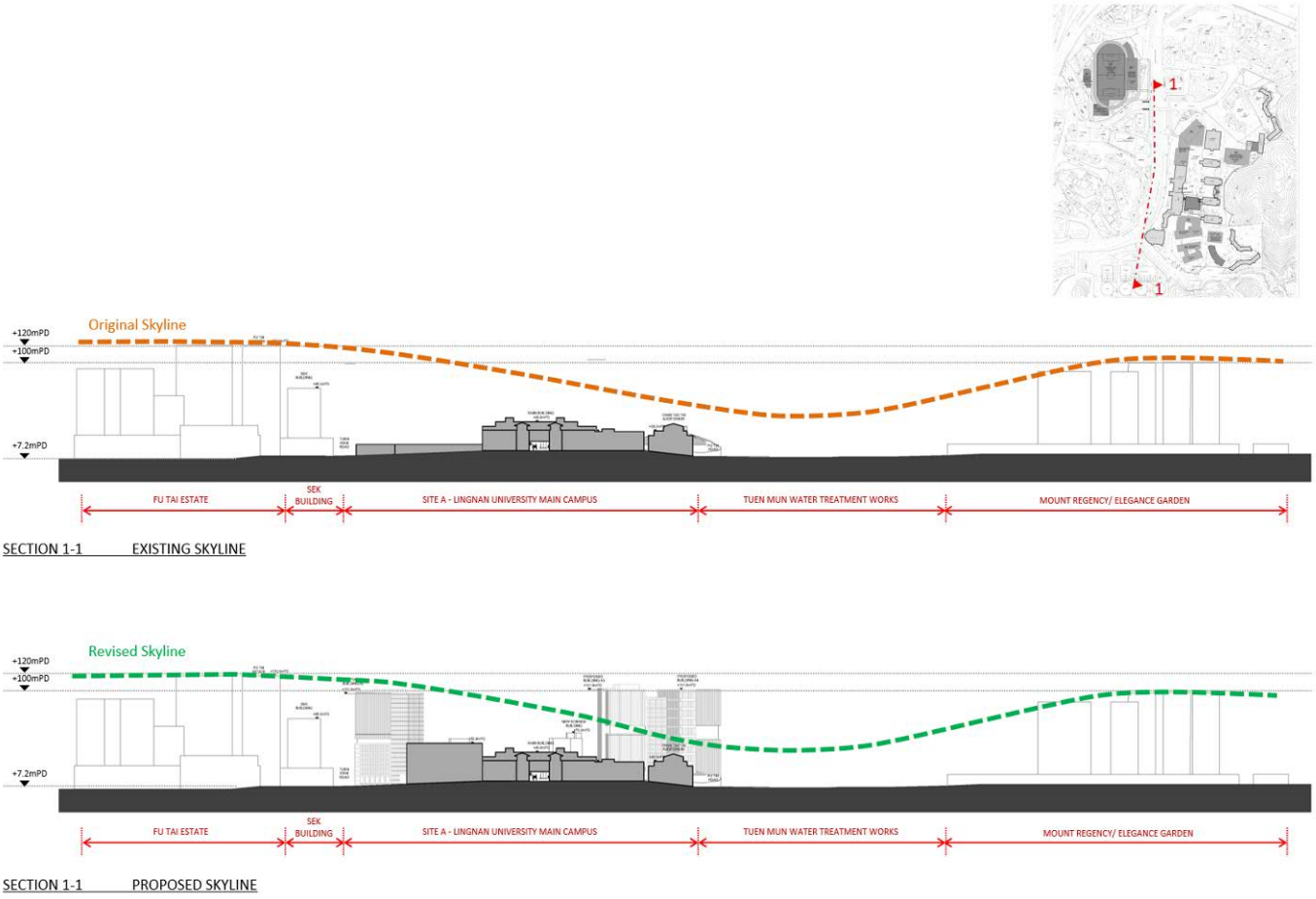

Figure 4.3: Comparison of Existing and Proposed Skyline (along Castle Peak Road - Lingnan)

Maintaining Low Building Height (BH) Areas for Visual and Ventilation Purposes

4.4.6 Integration with the surrounding development context will be achieved through the incorporation of various low BH areas within the Proposed Development. The major low BH strips will be maintained along the east-west axis at the Main Campus to allow the visual access towards the greenery backdrop and pay respect to the iconic Main Building. As the major axis for LU Campus, the low BH areas does not only offer visual openness and permeability but will act as an apparent visual cue signifying the University's entrance with connection to the main social/communal open space (Wing On Plaza), reinforcing the heart and core of the LU (**Figure 4.4** refers). The continuous visual vista across the

north-south axis of the Main Campus will be maintained through the permeable design of the New Science Building (currently under construction).

4.4.7 The existing view of the surrounding residential developments including Beneville (to the northeast of Main Campus), Bowring Height (to the northwest of the North Campus) and Rosewood (to the north of the North Campus) will also be fully respected (**Figure 4.4** refers). With carefully thought-out massing and orientation of the new buildings, provision of adequate setback with ample landscape buffer and incorporation of a number of low BH areas , the new buildings would be able to integrate well with the surrounding development context.

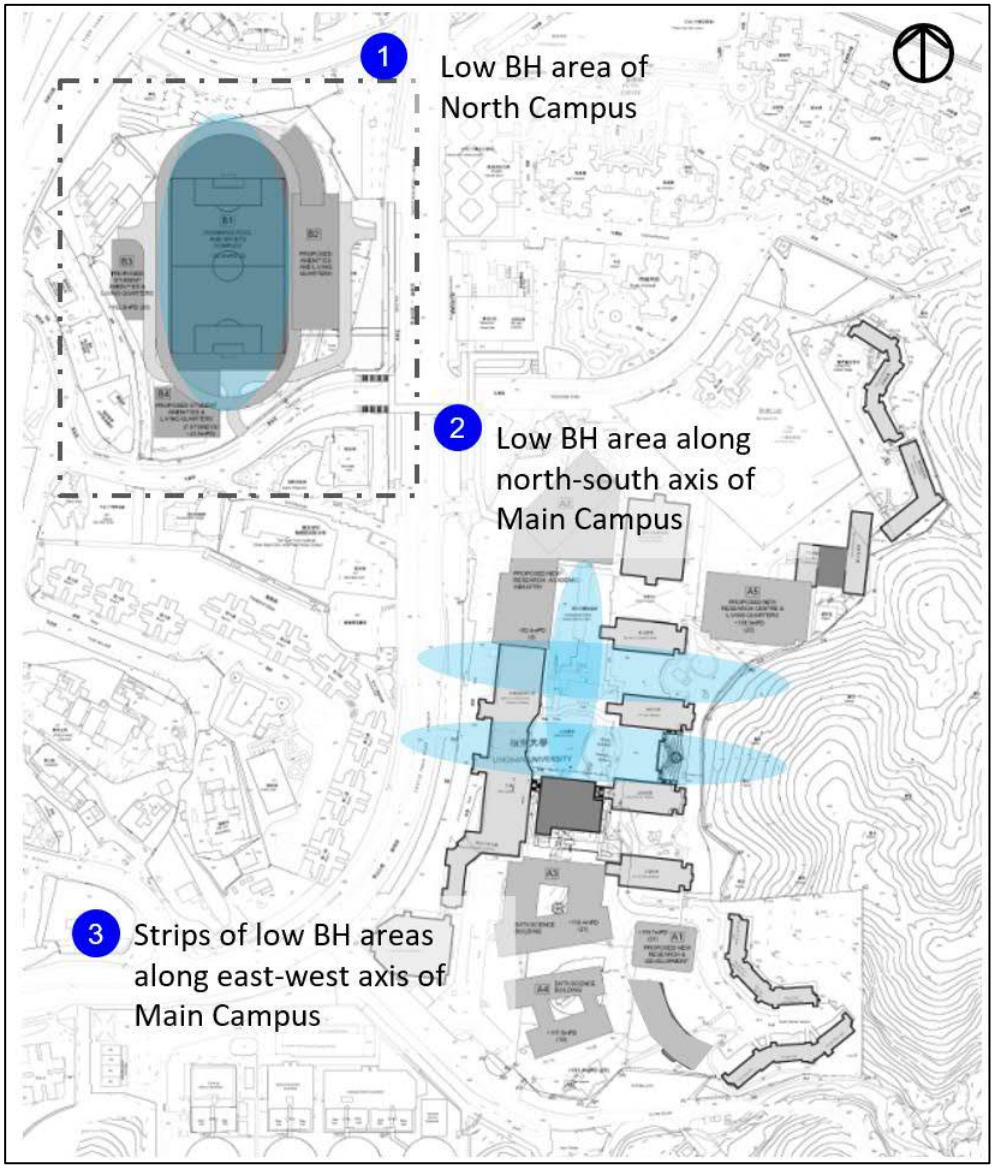

Figure 4.4: Low Building Height Areas in Main Campus and North Campus

Incorporating a Comprehensive Pedestrian Network

4.4.8 Open Space plays a fundamental role in the identity and experience of the campus. An interconnected green network will be provided to reinforce the internal circulation system (walkways) and further enhance the pedestrian network of the surrounding areas, while enhancing the amenity of the campuses (**Figure 4.5** refers). The open space will be an important place to gather and for various activities to take place within the campuses. Moreover, the ground level of academic / research buildings would be reserved for amenities for students and staff such as common areas, study spaces, food stalls, café, convenience store etc. Landscaping would contribute to the campus' green character and enhance the quality of the environment.

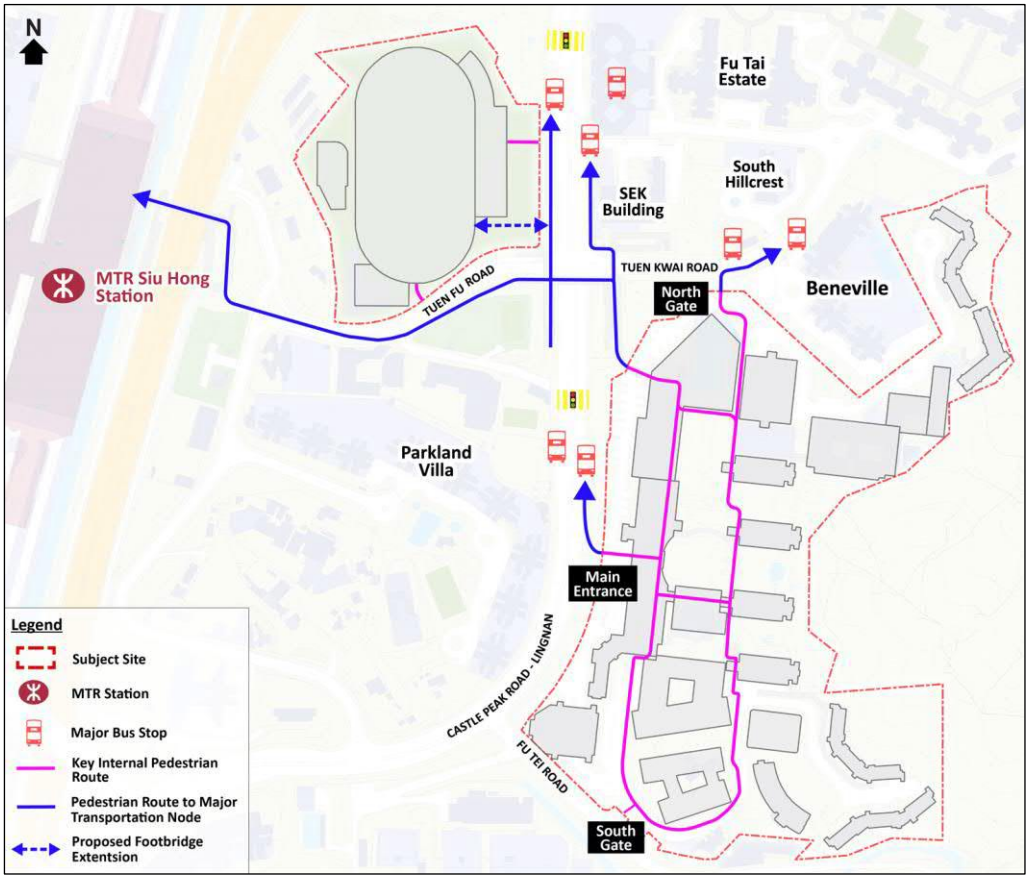

Figure 4.5: Pedestrian Circulation of the Campus and Surrounding Areas

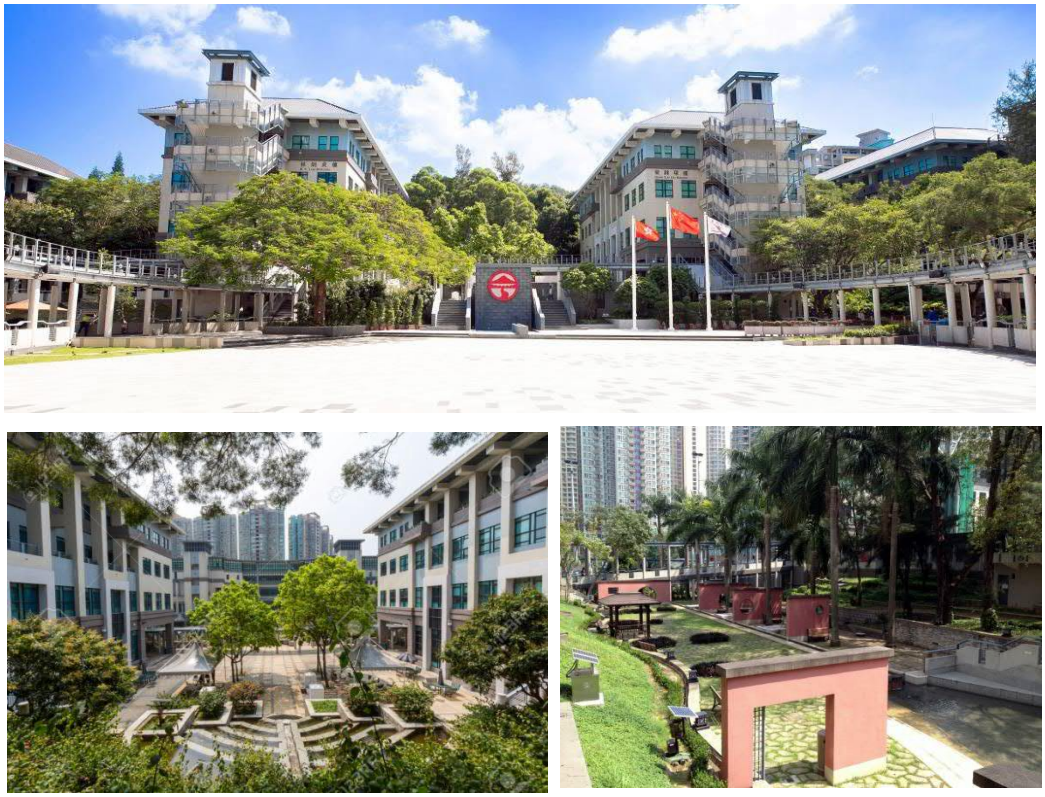

Photo 2: Existing Open Space within Main Campus

Maintaining Visual and Spatial Relief of the "G/IC" Zones

4.4.9 The requirement of "G/IC" zone is to maintain the visual and spatial relief as indicated in the Explanatory Statement of the Approved OZP. Although the proposed building height restriction of 120mPD is on a site-wide basis, the Core of Lingnan University in the Main Campus will be retained as they are a vital part of the heritage and identity of the University. The various open spaces within the Main Campus and the proposed new buildings/open space with lower building height in the core of the North Campus would also contribute to serve as visual and spatial relief. New buildings with taller building height will only be erected in area surrounding the low building zone to maintain the visual openness (**Figure 4.6** refers).

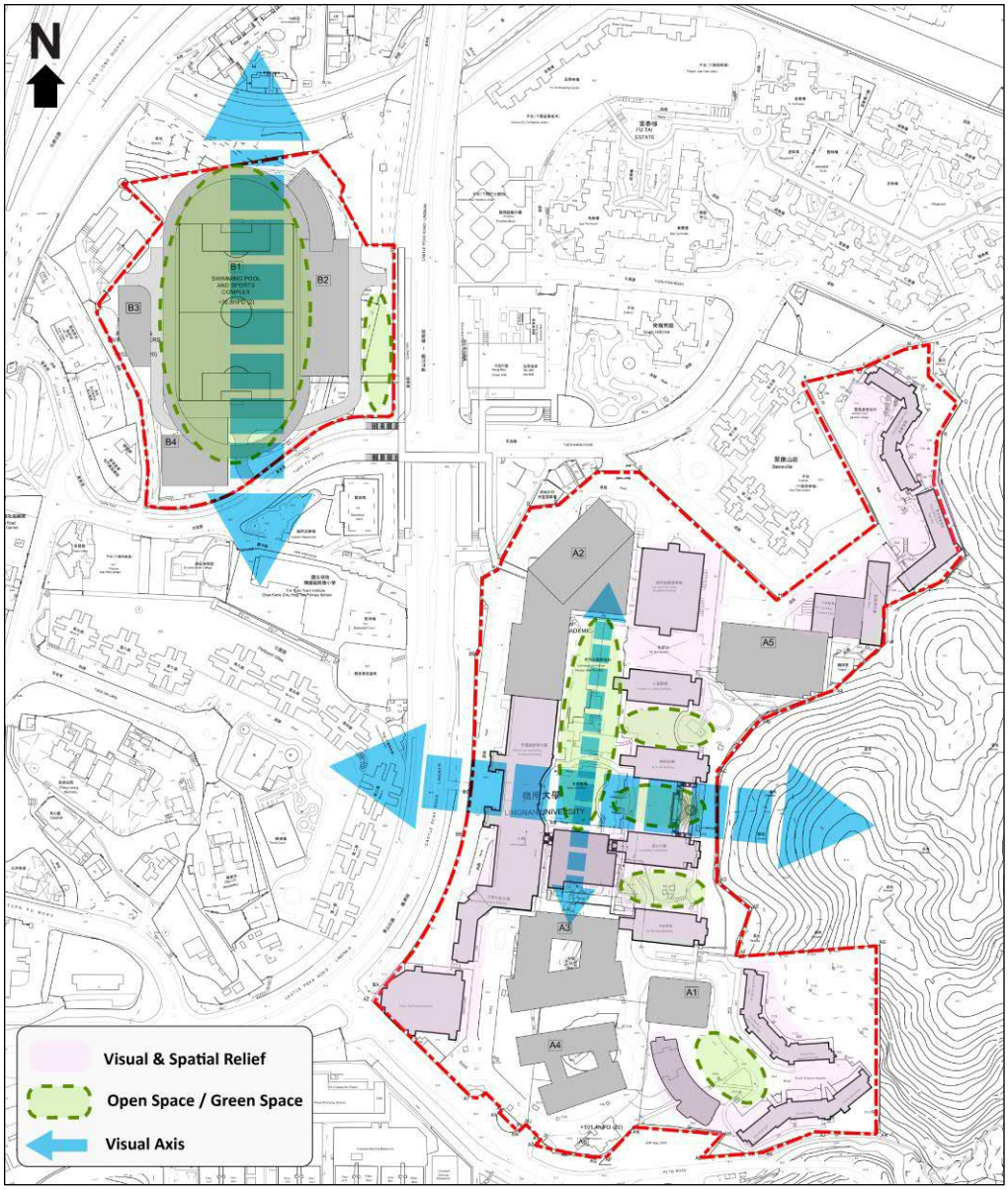

Figure 4.6: Maintaining Visual and Spatial Relief at the Two "G/IC" Sites

Enhancing Pedestrian Connectivity

4.4.10 The LU Campus is connected with a covered walkway system, offering weather protection and linking up various blocks and facilities. The Main Campus is currently linked up by the footbridge across the Castle Peak Road – Lingnan and Tuen Kwai Road. To further enhance the connectivity within the campuses, linkage extended from the existing footbridge along Castle Peak Road – Lingnan connecting with the North Campus has been proposed (**Figure 4.7** and **Appendix 9** refer).

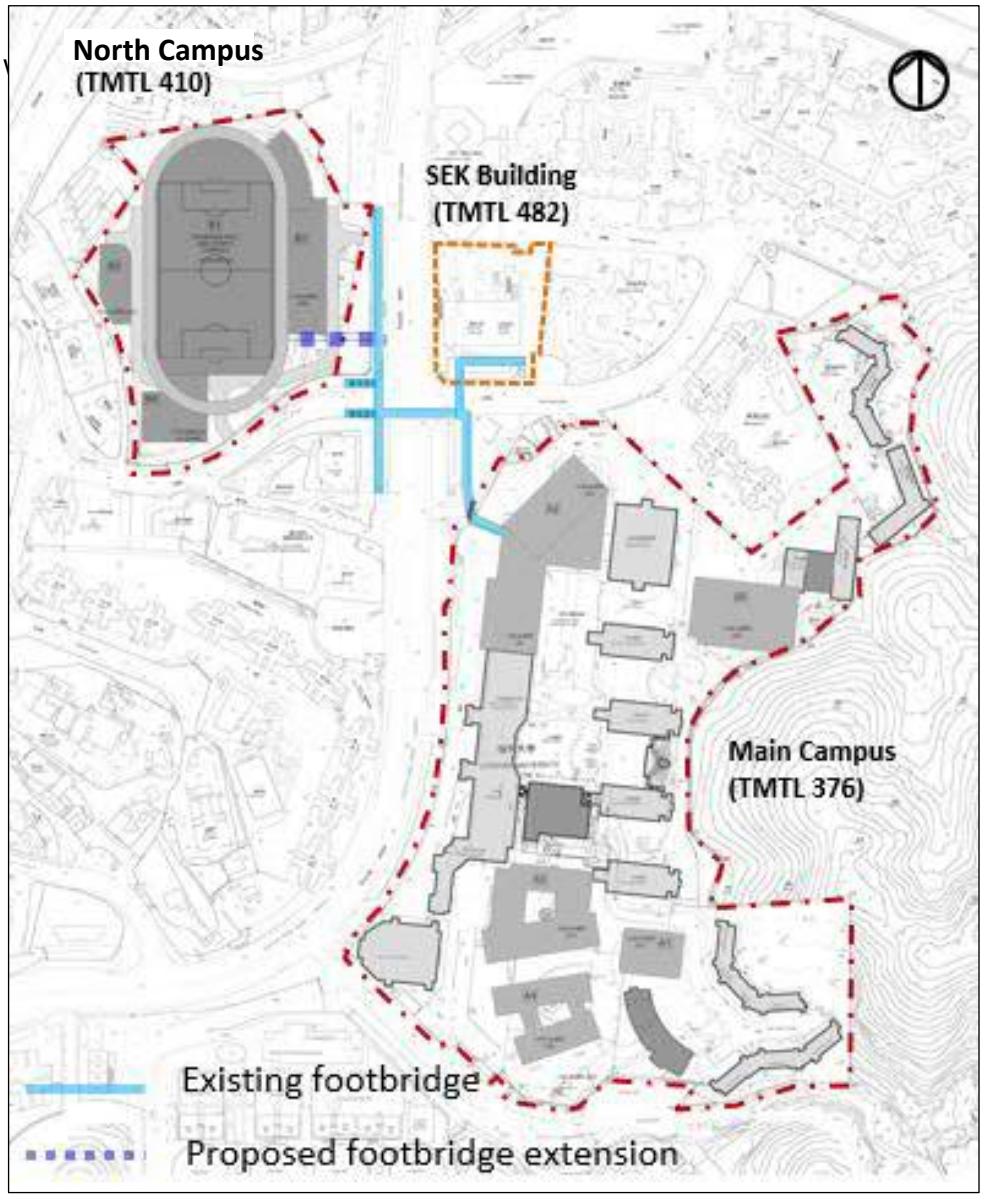

Figure 4.7: Proposed Footbridge Extension

4.5 Tentative Implementation Programme

4.5.1 The LU campus expansion will be carried out in phases. The phasing is as follows:

Phase 1 – North Campus (TMTL 410)

The first phase to be developed is academic, research, amenities and living quarters at the North Campus.

Phase 2 – Southern area of Main Campus (TMTL 376)

New academic and research buildings will be constructed at the southern area of the Main Campus.

Phase 3 – Northern area of Main Campus (TMTL 376)

New academic and research buildings will be constructed at the northern area of the Main Campus.

5. ZONING AMENDMENT PROPOSAL

5.1 The Proposed Amendments

5.1.1 The Sites currently fall within areas zoned "G/IC" on the Approved OZP. It is proposed to amend the BHR of the Sites to not more than 120mPD to facilitate the campus expansion proposal of LU (**Figure 5.1** refers).

5.1.2 The planning intention of the "G/IC" would remain unchanged.

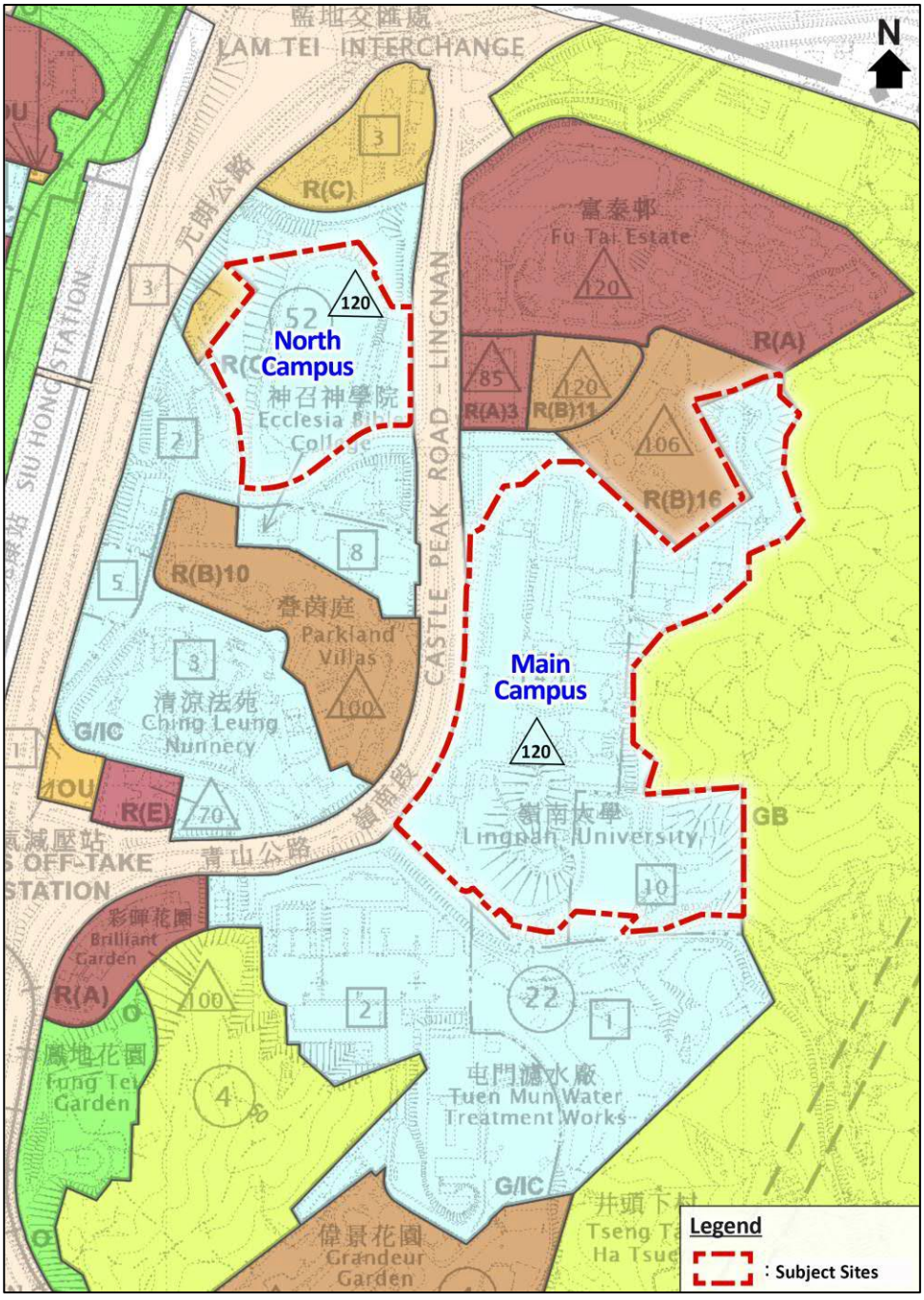

Figure 5.1: Rezoning Proposal

5.1.3 Variations in building height profile will be incorporated to promote visual interest. Proper urban design features including low BH areas, carefully chosen building design and materials, comprehensive open space network and pedestrian connection shall be adopted to ensure better integration with the existing buildings of Lingnan University, natural terrain setting and surrounding development context.

6. PLANNING MERITS AND JUSTIFICATIONS

6.1 Need for the Redevelopment to Accommodate Future Growth

6.1.1 LU is an institution with a rich legacy tracing back to 1888 in Guangzhou. Upon the re-establishment in Hong Kong as Lingnan College in 1967, LU has been providing a holistic education with a strong liberal arts foundation. As the University enters into the new digital era, LU intends to expand its programmes and research focus from liberal arts to emerging fields including data science, artificial intelligence, biological sciences, carbon neutrality and environmental sustainability. The University also sees a strategic need in forging a new Research-Academia-Industry Innovation Platform in response to the Government's vision to nurture talents and establish Hong Kong as an international I&T centre as detailed in its Strategic Plan. It is estimated that about 339,340 m^2 of GFA will be required to cater for the future expansion need.

6.1.2 The new programmes and courses at LU in research, technology, education and innovation would inevitably require significantly larger facilities and space demand. Dedicated research centres, specialized laboratories, multi-functional classrooms, innovation hubs, etc are essential to support and ensure the University remains competitive. The recent advancements and developments have led to a rapid and substantial increase in space demands, particularly in terms of area, headroom and floor loading requirements. These could only be accommodated with the increase in height of individual buildings.

6.1.3 In the past, campus expansion efforts of LU were piecemeal in nature i.e. by acquiring site outside the existing Main Campus (i.e. SEK Building) and through various S16 Planning Applications to relax the building height restriction to allow more floor space within individual sites at the campus. Other works include upgrading of lecture theatres, introduction of new learning space and new laboratories within the existing buildings were also carried out to improve the learning and teaching experience of the students and staff. As compared to campus expansion at off-site locations, in-situ redevelopment at the existing campuses with the academic, research and hostel facilities within a unified campus envelope would foster the agglomeration effect and community cohesion which allows more synergy to be created to allow a more integrated, student centred environment, facilitate cross-disciplinary collaboration and drive innovation.

6.1.4 The site area of the Main Campus and North Campus are constrained by the existing public roads, developments, natural terrain, drainage channel, private lots, Lam Tei Raw Water Pumping Station and Staff Quarters. Thus, the opportunity for enlargement of the site area is limited. Previous efforts in searching for land near the campuses including the adjacent Tuen Mun Waterworks site and other possible unallocated sites in the vicinity are not satisfactory. Redevelopment of the LU Main Campus and North Campus and

optimizing land uses are found to be the unavoidable solution to address the need of future growth. Most of the buildings within the Main Campus have already reached the building height limit and further vertical expansion is not possible yet. Hence, relaxation the building height of the LU campuses will be required to accommodate the new Campus Master Plan for the future expansion of LU.

6.2 In-line with Government's Policies on Building Hong Kong as An International Tertiary Education Hub

6.2.1 The Chief Executive's 2023 PA has stated that the Government will build Hong Kong into an international hub for tertiary education, with measures including doubling the non-local student quota for the taught undergraduate programmes of various UGC-funded institutions to 50% starting from the 2026/27 academic year. The vision of LU is endeavoured to continue to grow and become a world class internationalized campus and contribute to the establishment of the "Study in Hong Kong" branding which in-line with Government's latest policies. As can be seen in the academic year of 2024/25, non-local undergraduate student admission has already reach the 40% limit. As for the postgraduate offerings, the University also registered noticeable progress in growing the total postgraduate population by more than 100% in the past triennium and the majority is non-local students. The projection for the coming academic year of 2025/26 for both Undergraduate and Postgraduate would be at least 8,500.

6.2.2 The proposal to relax the BHR of the Main Campus and North Campus for the comprehensive re-planning of the campuses would be totally in-line with Government's policies to enhance Hong Kong's role in global education. The campus re-planning would allow the provision of high-quality teaching and supporting facilities for the creation of a diversified and inclusive international learning environment at LU.

6.2.3 To cater for the increased demand for student hostels, a portion of the additional GFA will be allocated for the provision of living quarters for students and staff. The provision of hostel facilities within the campuses is also in-line with Government's latest policies to speed up the provision of student hostels to meet the housing need of both local and non-local students.

6.3 In-line with Government's Policies on Developing New Quality Productive Forces

6.3.1 In the 2024 PA, it is announced that the Government will draw up a medium to long term development plan for new industrialisation in Hong Kong focusing on transitioning toward an innovation-driven, high-value economy through technological empowerment and industrial transformation. Local universities would play a key role as the Government is promoting closer collaboration

between the industry, academia, research and investment sectors, to build a cooperative platform for new industrialisation in Hong Kong.

6.3.2 LU has been advancing as a comprehensive university in Arts and Sciences in the digital era. With the newly established School of Data Science and the advancement of the School of Interdisciplinary Studies, LU is vigorously striding towards the goal of an innovation hub that cultivates talents and engages in transformative R&D endeavours. The future expansion of LU campus through relaxation of BHR would play a pivotal role in the development of new quality productive forces in Hong Kong.

6.4 More Efficient Use of Scarce Land Resources

6.4.1 The Government has been trying to make best use of the scarce land resources by reviewing the land uses, increasing development intensity where appropriate, adopting the 'single site, multiple use' model, etc. The total site area of LU Main Campus and North Campus is about 112,200 m^2 and the plot ratio is only about 0.97. Even if SEK site is included, the plot ratio is only about 1.09 which is way below the other Universities in Hong Kong including Hong Kong Polytechnic University (plot ratio of about 4.62) and Hong Kong Metropolitan University (plot ratio of about 5.68).

6.4.2 A Land Utilization study was carried out and has identified sites within the campuses with great opportunities for optimizing their development potential. The buildings at these sites are either deficient for their intended use, have significant physical issues or prevent more substantial development on the sites. Partial or full demolition of these identified buildings will be required to create other substantial sites for new development. By in-situ and partial redevelopment of the underutilized buildings and re-planning of space for more effective uses, the scarce land resources within the campuses will be able to utilize more efficiently.

6.5 The Relaxed Building Height Restriction Helps Lessen the Difficulties of Future Redevelopment Within the Campus

6.5.1 As mentioned earlier, LU had previously submitted two S16 Planning Applications to the TPB for the minor relaxation of BHR for the Main Building and the New Science Building. The relaxed BHR through rezoning would very much help to lessen the pressure at the planning stage of the campus development. Given that each S16 Planning Application is considered by the TPB on a case-by-case basis, this would introduce considerable uncertainties into the campus redevelopment programme. Moreover, additional resources specifically for the S16 Planning Application are required to be allocated. This requirement may create inefficiencies and unnecessary delays in the redevelopment process. Moreover, piecemeal redevelopment often lacks cohesiveness in the overall campus design and planning. Hence, the

relaxation in BHR would allow more flexibility and efficiency in the redevelopment process while achieving a more integrated campus planning process.

6.6 The Proposed Building Height Respects the Building Height Profile of the Area

6.6.1 The form and disposition of the new buildings in the Campus Master Plan have been carefully thought-out to respond to the surrounding residential neighbourhood. Upon consideration of the development context, maximum building height of not more than 120mPD have been adopted. The proposed building height would be congruous to the surrounding development context and create variations in building height profile from South Hillcrest (with BHR of 120mPD), Beneville (with BHR of 106mPD), Fu Tai Estate (with BHR of 120mPD), Parkland Villas (100mPD) and SEK Site (85mPD). The visual axis charactered by low building height will be maintained along the central part of the Main Campus to allow visual access to the terrain in the east from Castle Peak Road – Lingnan. The existing skyline along Castle Peak Road – Lingnan from north to south will remain unchanged upon redevelopment. The variations in the building height would add visual interest to the overall campus planning. Measures including building setback, terraced design, special building articulations, tree plantings and vertical greening will be considered and adopted to mitigate the possible visual impact of the new buildings for all public viewers and adjacent development as far as practicable. Carefully thought-out building design including architectural articulations and façade treatment will be adopted to avoid monotonous development.

6.6.2 Various visual vistas characterized by low building height would be incorporated in the re-planning of Main Campus and North Campus. These visual vistas are made possible by strategically retaining the existing buildings and the open space at the Main Campus as well as erecting new building/open space with lower building height in the central core of the North Campus. Taller new buildings are to be added in the periphery surrounding the low building zone. In this connection, the function of maintaining of the visual and spatial relief for the two "G/IC" zones will remain unchanged.

6.7 Incorporation of Various Design Merits

6.7.1 The iconic Main Building and the cultural landscape and the vital part of the heritage and identity of the University. The architectural and historic legacy of LU will be preserved while the new buildings would employ building materials that are subdued or complementary to the existing buildings without changing the character of the LU campuses. The new buildings will also be designed to minimize any environmental impacts and contribute to the overall sustainability of the campuses. The future Campus Master Plan will ensure that the renewed campus would integrate well with its surrounding settings.

The new buildings will be carefully positioned to allow view corridors to allow visual access towards the green backdrop as well as to respect the existing views of the residential development in the vicinity. Moreover, a comprehensive open space network would strengthen LU's sustainability objectives while reinforcing the circulation system as well as enhance the amenity of the campus environment. Opportunities will be taken to maximize the provision of common areas, study space, amenity and dining facilities at the new buildings for the daily necessities of students and staff. Hence, the relaxation of BHR would enable the incorporation of various design merits in the campus re-planning process and would allow opportunities for green and innovative design for a sustainable campus.

6.8 Enhancing Quality of Life Within the Campuses

6.8.1 The Campus Master Plan aims to promote a greater integration of uses in strategic location to facilitate academic and research interaction while generally improve the quality of life on campus. Enhancement to the campus experience would be through the provision of the state-of-the-art facilities with the support of various amenity facilities for students and staff. Moreover, creating various safe and comfortable spaces for social interaction and activities would be crucial part of the learning environment. By introducing an interconnected green network integrating the open space, courtyards and walkways, the connectivity and walkability within and outside Campus would be greatly enhanced.

6.9 No Insurmountable Impacts

Traffic Aspect (Appendix 2 refers)

6.9.1 A Traffic Impact Assessment ("TIA") has been carried out in support of the Rezoning Exercise. According to the results of the TIA, all identified key junctions and road links would perform within capacity during both morning and evening peak hours at the Reference and Design scenarios in year 2041. Pedestrian impact assessments are also undertaken to assess the performance of the public footpaths along the major pedestrian desire lines in the vicinity of the proposed campus redevelopment. Assessment results indicate that all major pedestrian routes would perform satisfactorily with sufficient spare capacity during the peak hours, even with the proposed campus redevelopment in place.

6.9.2 Based on the assessment, the existing road-based public transport services would have sufficient spare capacity to cope with the additional demand generated from the campus redevelopment. If considered necessary, increase in serving frequency for Bus B3A and GMB 46 would be proposed to cater for the interchanging activities (between the campus and the boundary control point) and travelling to/from Tuen Mun Town Centre. Internal transport

facilities such as parking space will be provided subject to operational needs of the University.

Visual Aspect (Appendix 3 refers)

6.9.3 A Visual Impact Assessment ("VIA") has been conducted to assess any potential visual impact associated with the Proposed Development. The results of the VIA revealed that although the Proposed Development would result in slight to moderate visual change, the overall visual character will remain largely unchanged as a high-rise suburban townscape upon the development. The Proposed Development would be largely congruous to the surrounding visual character and intensity of the adjacent developments, in particular the high-rise developments in the north (e.g. Fu Tai Estate, South Hillcrest, and Beneville). With a view to alleviate the potential visual impacts, the proposed Campus Master Plan has incorporated various low BH areas, carefully thought-out building design, subdue building materials, stepped building height profile and employment of ample landscape treatment. Therefore, the amendment of BHR to not more than 120mPD is unlikely to induce significant impact from visual perspective.

Environmental Aspect (Appendix 4 refers)

6.9.4 An Environmental Assessment covering air quality, traffic, railway and fixed noise, land contamination and waste management aspects has been conducted. No active chimneys and Specified Process License records were identified within 200m from the Proposed Development based on the environmental survey. Adequate buffer separation distance shall be maintained between air-sensitive uses and the major roads to meet the minimum requirement as stipulated in HKPSG. Fugitive dust due to construction works and gaseous emission from construction equipment would make insignificant air quality impacts to the nearby air sensitive receivers, with the implementation of dust suppression measures and good site practice as stipulated under Air Pollution Control (Construction Dust) Regulation and Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation. Hence, no adverse air quality impact is anticipated. If there are any updates after the approval of the Proposal, the Proposed Development will maintain the current recommended design of not relying on openable windows for natural ventilation, subject to future detailed design proposal. The Project Proponent will also ensure the design or mitigation measures in full compliance with the relevant noise criteria and requirements under ProPECC PNs, HKPSG, and NCO during the operational phase of the Proposed Development.

6.9.5 The potential environmental noise impacts from nearby road traffic, railway noise and fixed noise sources on the Proposed Development have been evaluated. Given that the new buildings will rely on air conditioning system ventilation and with the implementation of the proposed mitigation measures for fixed plant noise, it is unlikely that any insurmountable noise impacts will

occur during the construction and operation phases of the Proposed Development.

6.9.6 The Sites are currently used as an educational institution. Based on the information gathered, no chemical manufacturing or dangerous goods storage was expected on the site, and the past and current uses are not considered potential hotspots. According to reply from relevant departments, there are no records of chemical storage/spillage accidents, or submissions relating to land contamination at the Application Site. Thus, no contamination activities are anticipated for the past and current use and no potential sources and signs of contamination have been discovered. No land contamination impact is anticipated.

6.9.7 For waste management, top priority should be given to waste avoidance, followed by minimization, reuse/recycling, treatment and disposal of waste as a last resort during construction and operation phases. Construction and demolition waste, general refuse and chemical waste are expected to be generated from the construction phase, while general refuse will be the major waste generated from operation phase. Provided that all these wastes are reused and recycled if appropriate, handled, stored and disposed of in strict accordance with the relevant legislative requirements and the recommended mitigation measures are properly implemented, no adverse waste impact is anticipated.

Drainage and Sewerage Aspects (Appendix 5 refers)

6.9.8 The sewage generated from the proposed development will be collected by the LU's internal sewerage system, then discharged to public manhole. The assessment results demonstrated that all sewers have sufficient capacity to cater with the sewage flow from catchments and the proposed development, except for 2 segments at downstream of Outlet A and Outlet D. Freeboard calculation was conducted for the sewer segments in question and revealed that there should be sufficient freeboard and will not result in overflowing. Therefore, significant sewerage impact arising from the proposed development on the existing sewers is not expected, and thus mitigation measures are not considered necessary.

The stormwater runoff will be collected by the LU's internal drainage system and discharged to public drainage network. While no major changes in surface properties and gradient are anticipated, at least 20% of greenery area will be maintained. Thus, no adverse drainage impact is anticipated.

Air Ventilation Aspect (Appendix 6 refers)

6.9.9 An Air Ventilation Assessment – Expert Evaluation Study was conducted for the Proposed Development to provide qualitative evaluation of wind performance under the Baseline Scheme and Proposed Scheme.

6.9.10 Under the Proposed Scheme, the building setback from Castle Peak Road - Lingnan would preserve the major N-S flow path for prevailing annual NNE and E wind, as well as summer S wind. Adequate air permeability can be maintained to facilitate the penetration of prevailing annual E wind and summer S, SSW wind through the campus. Also, the stepped height profile transitioning from the high terrain of Tai Lam Country Park towards the Site would facilitate annual E wind flow. Considering major flow path and existing airflow regime will be retained upon development, no significant deterioration in pedestrian-level wind environment is anticipated, and that the air ventilation impact on the downwind areas at pedestrian level is expected to be minimal.

Water Supply Aspect (Appendix 7 refers)

6.9.11 According to the results of the Water Supply Impact Assessment (**Appendix 7** refers), there will be increased fresh water and salt water demands as a result of the proposed development. However, the estimated demand from the proposed development only represents a small proportion of the design capacities of relevant reservoirs, and that the existing main supply systems is anticipated to have adequate spare capacity to cater for the expected increases. Thus, it is concluded that the proposed development will not result in any adverse water supply impact.

Tree Aspect (Appendix 8 refers)

6.9.12 Based on the broad-brush tree survey conducted for the trees within Main Campus and North Campus Sites, the Sites contain approximately 1,164 nos. of existing trees (including trees of poor health condition/form/structure and dead trees). No Registered Old and Valuable Trees ("OVTs") has been identified and that the two nos. of Trees of Particular Interest ("TPIs") will not be affected by the current proposal. The trees with poor condition and dead trees are proposed to be removed in due course. Upon the removal of the trees with poor condition and dead trees, there will be a total of 1,055 nos. of trees within the Sites. It is estimated about 200 nos. of trees will be affected by the expansion.

6.9.13 LU is endeavoured to maintain and enhance the overall amenity of the campus. For the tree compensation arrangement/ratio for any tree felling due to the Campus Expansion, LU will explore the opportunity of achieving a target of not less than 1:1 tree compensation ratio for each development sites in future, subject to technical feasibility and agreement with relevant Government Departments.

6.9.14 A Conceptual Landscape Plan showing the landscape area and open area (including plaza, activity space and sportsground) is enclosed at **Appendix 8**. A green coverage of not less than 20% can be achieved for both Sites while quality activity space for use by the staff and students of LU will be provided in detailed design stage.

7. CONCLUSION AND SUMMARY

7.1.1 LU intends to expand its programmes and research focus from liberal arts to emerging fields including data science, artificial intelligence, biological sciences, carbon neutrality and environmental sustainability in the digital era. There is a strategic need in forging a new Research-Academia-Industry Innovation Platform in response to the Government's vision to nurture talents and establish Hong Kong as an international I&T hub.

7.1.2 In achieving the vision, the new programmes and courses at LU in research, technology, education and innovation would inevitably require significantly larger facilities and space demand. It is estimated that about 339,340 m^2 of GFA will be required to cater for the future expansion need. Dedicated research centres, specialized laboratories, multifunctional classrooms, innovation hubs, etc are essential to support and ensuring the University remains competitive. The recent advancements and developments have led to a rapid and substantial increase in space demands. These could only be accommodated with the increase in height of individual buildings. Redevelopment of the LU Main Campus and North Campus and optimizing land uses are found to be the unavoidable solution to address the need of future growth. Most of the buildings within LU have already reached the building height limit and further vertical expansion is not possible. Hence, relaxation the building height of the LU campuses will be required to accommodate the new Campus Master Plan for the future expansion of LU.

7.1.3 The proposal would be in-line with Government's policies on building Hong Kong as an "International Post-secondary Education Hub" and Developing New Quality Productive Forces.

7.1.4 As compared to campus expansion at off-site locations, in-situ redevelopment at the existing campuses with the academic, research and hostel facilities within a unified campus envelope would foster the agglomeration effect and community cohesion which allows more synergy to be created to allow a more integrated, student centred environment, facilitate cross-disciplinary collaboration and drive innovation.

7.1.5 By in-situ and partial redevelopment of the underutilized buildings and re-planning of space for effective uses, the scarce land resources within the campuses will be able to utilize more efficiently. The relaxation in BHR would allow more flexibility and efficiency in the redevelopment process while achieving a more integrated campus planning process.

7.1.6 The visual axis along the central part of the Main Campus charactered by low building height will be maintained to allow visual access to the terrain in the east from Castle Peak Road – Lingnan. The existing skyline along Castle

Peak Road – Lingnan from north to south will remain unchanged upon redevelopment. The variations in the building height would add visual interest to the overall campus planning. The relaxation of BHR would allow the incorporation of various design merits including the provision of various low BH areas for visual and ventilation proposes to help integrate the LU campuses with the surrounding context.

7.1.7 The Campus Master Plan aims to promote a greater integration of uses in strategic location to facilitate academic and research interaction while generally improve the quality of life on campus. Various technical assessments have been carried out and the results revealed that no insurmountable impact will be resulted.

Appendix 1

Architectural Drawings and Development Schedule

北校園
NORTH CAMPUS

本部校園
MAIN CAMPUS

和富李宗德學生活動中心
WOFOO JOSEPH LEE STUDENT ACTIVITY CENTRE
+22.7mPD

富泰邨
FU TAI ESTATE

倚嶺南庭
SOUTH HILLCREST

郭少明伉儷樓
SEK BUILDING

聚康山莊
BENEVILLE

賽馬會堂
THE JOCKEY CLUB HALL
+48.5mPD

賽馬會博雅堂
THE JOCKEY CLUB NEW HALL
+53.4mPD

劉仲謙樓
LAU CHUNG HIM BUILDING
+48.6mPD

綜合運動大樓
INDOOR SPORTS COMPLEX
+24.6mPD

劉李婉嫻康樂樓
LAU LEE YUEN HAAN AMENITIES BUILDING
+38.0mPD

黃玉蘭樓
DOROTHY Y.L. WONG BUILDING
+38.1mPD

林炳炎樓
B.Y. LAM BUILDING
+39.9mPD

嶺南大學主樓(李運強教學大樓)
LINGNAN UNIVERSITY MAIN BUILDING (PATRICK LEE WAN KEUNG ACADEMIC BUILDING)
+43.8mPD

永安廣場
WING ON PLAZA

新科學大樓
NEW SCIENCE BUILDING
+58.0mPD

梁銶琚樓
LKK BUILDING
+39.9mPD

何善衡樓
HSH BUILDING
+42.9mPD

嶺南大學
LINGNAN UNIVERSITY

黃氏行政大樓
WONG ADMINISTRATION BUILDING
+34.2mPD

陳德泰大會堂
CHAN TAK TAI AUDITORIUM
+34.7mPD

校長寓所
PRESIDENT'S LODGE
+39.1mPD

嶺南坊
LINGNAN HUB
+56.1mPD

學生宿舍 1 & 2
HOSTELS 1 & 2
+66.3mPD

學生宿舍 3 & 4
HOSTELS 3 & 4
+55.5mPD

職員宿舍
STAFF QUARTERS
+36.3mPD

兆康苑
SIU HONG COURT

兆康站
SIU HONG STATION

疊茵庭
PARKLAND VILLAS

屯門食水抽水站
TUEN MUN FRESH WATER PUMPING STATION

屯門公路 TUEN MUN ROAD

青山公路 - 嶺南段 CASTLE PEAK ROAD - LINGNAN

CASTLE PEAK ROAD - LINGNAN

TUEN KWAI ROAD

TUEN FU ROAD

TSING LUN ROAD

SIU HONG ROAD

TSE TIM ROAD

TUEN MUN RIVER CHANNEL

醫院
HOSPITAL

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Subject Sites

Existing Buildings

Existing Open Space / Green Space (Indicative)

Previously Approved S16 Applications

A/TM/543: Patrick Lee Wan Keung Academic Building

A/TM/595: New Science Building

NUMBER /	DATE /	AMENDMENT /

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PROJECT /

LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING /

EXISTING CAMPUS PLAN

SCALE /	JOB NUMBER /
1:1500@A1	6173
DATE /	DRAWING NUMBER /

DESIGNED /	CHECKED /	APPROVED /
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北校園
NORTH CAMPUS

本部校園
MAIN CAMPUS

BLOCK B1
+30.8mPD
(2)

BLOCK B2
+116.3mPD
(26)

BLOCK B2
+73.8mPD
(18)

BLOCK B3
+102.3mPD
(20)

BLOCK B4
+43.8mPD
(7)

26m
(about)

17m
(about)

15m
(about)

BLOCK A1
+119.7mPD
(21)

BLOCK A2
+101.9mPD
(20)

BLOCK A2
+52.4mPD
(9)

BLOCK A3
+101.9mPD
(19)

BLOCK A4
+101.9mPD
(19)

BLOCK A5
+118.3mPD
(22)

BLOCK A6
+70.0mPD
(8)

+48.6mPD

兆康苑
SIU HONG COURT

兆康站
SIU HONG STATION

富泰邨
FU TAI ESTATE

倚嶺南庭
SOUTH HILLCREST

郭少明伉儷樓
SEK BUILDING

聚康山莊
BENEVILLE

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THE JOCKEY CLUB HALL
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賽馬會博雅堂
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+38.0mPD

黃玉蘭樓
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B.Y. LAM BUILDING
+39.9mPD

永安廣場
WING ON PLAZA

KK樓
KK BUILDING
+39.9mPD

何善衡樓
HSH BUILDING
+42.9mPD

黃氏行政大樓
WONG ADMINISTRATION BUILDING
+34.2mPD

陳德泰大會堂
CHAN TAK TAI AUDITORIUM
+34.7mPD

學生宿舍 1 & 2
HOSTELS 1 & 2
+66.3mPD

學生宿舍 3 & 4
HOSTELS 3 & 4
+55.5mPD

嶺南坊
LINGNAN HUB
+56.1mPD

職員宿舍
STAFF QUARTERS
+36.3mPD

疊茵庭
PARKLAND VILLAS

屯門食水抽水站
TUEN MUN FRESH WATER PUMPING STATION

屯門公路 TUEN MUN ROAD

青山公路 – 嶺南段 CASTLE PEAK ROAD – LINGNAN

青山公路 – 錦田段 CASTLE PEAK ROAD – KAM TIN

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- Proposed Research / Academic / Living Quarters / Recreational Facilities
- Planned Development
- Retained Buildings
- Proposed At-grade Setback (about 17m - 26m)
- Existing At-grade Setback (about 15m)
- Proposed 1m footpath-widening
- Open Space / Green Space (Indicative)

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LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING / 圖名

CAMPUS MASTER PLAN

SCALE / 比例	JOB NUMBER / 工程編號
1:1500@A1	6173
DATE / 日期	DRAWING NUMBER / 圖號

DESIGNED / 設計	CHECKED / 審核	APPROVED / 審定
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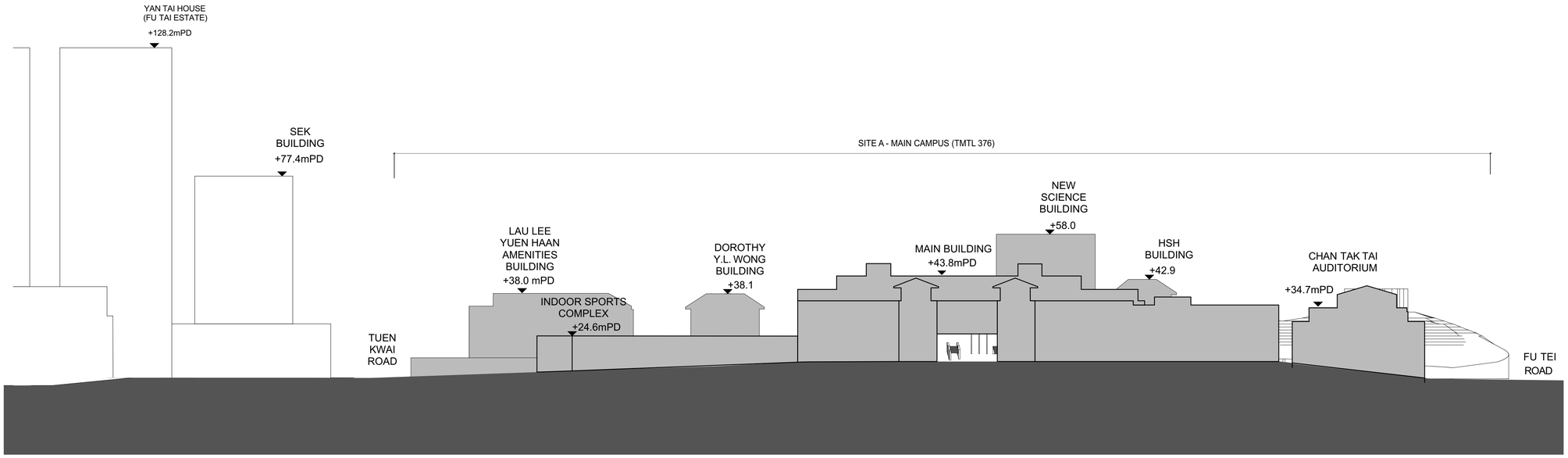
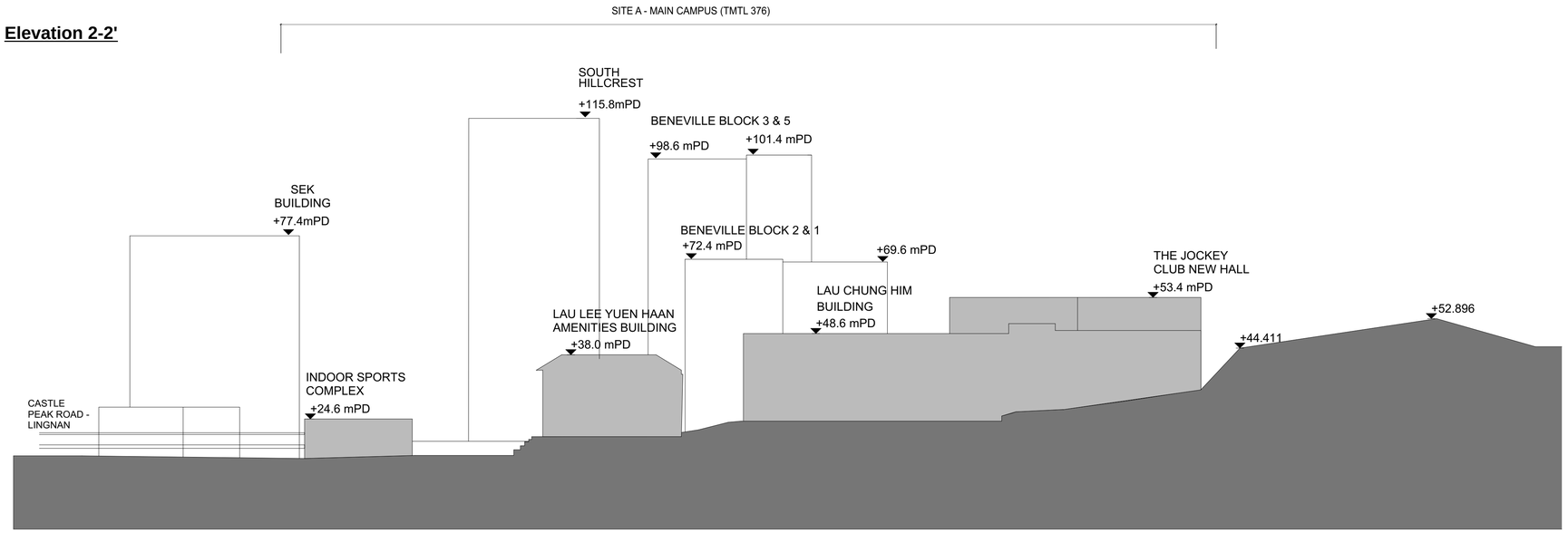
Elevation 1-1'



Elevation 2-2'



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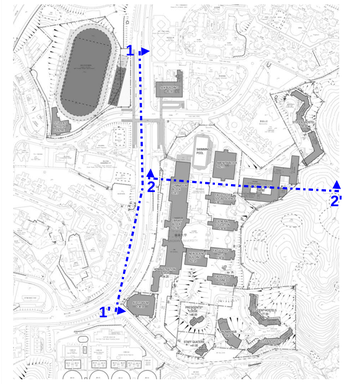
Existing Buildings



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LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING / 圖名

ELEVATION (MAIN CAMPUS) - EXISTING

SCALE / 比例	JOB NUMBER / 工程編號
1:800@A1	6173
DATE / 日期	DRAWING NUMBER / 圖號

DESIGNED / 設計	CHECKED / 審核	APPROVED / 審定
P&T	P&T	P&T

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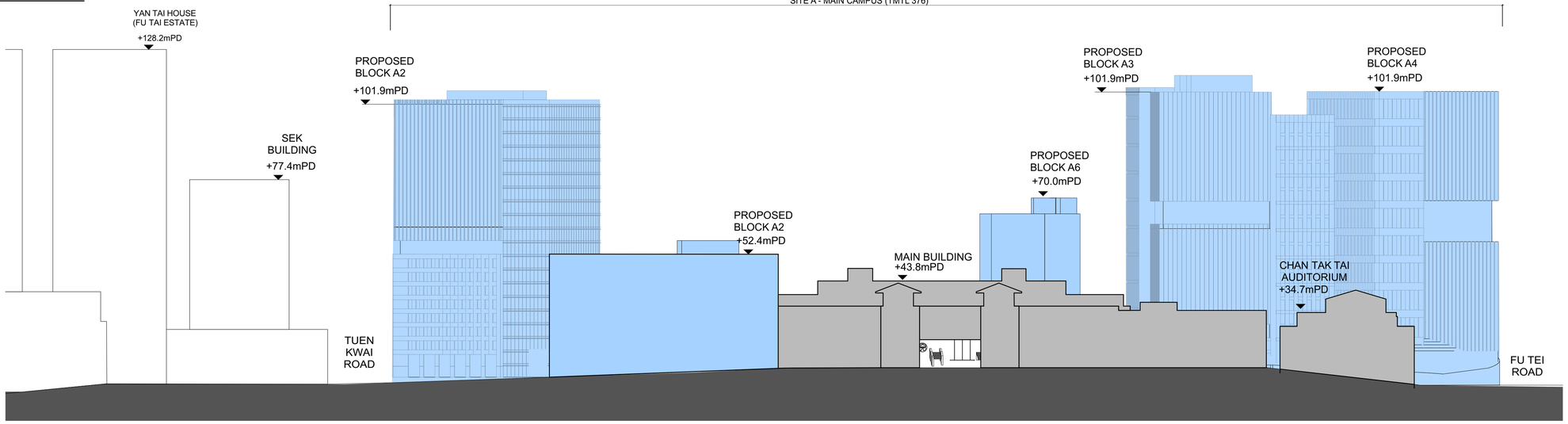
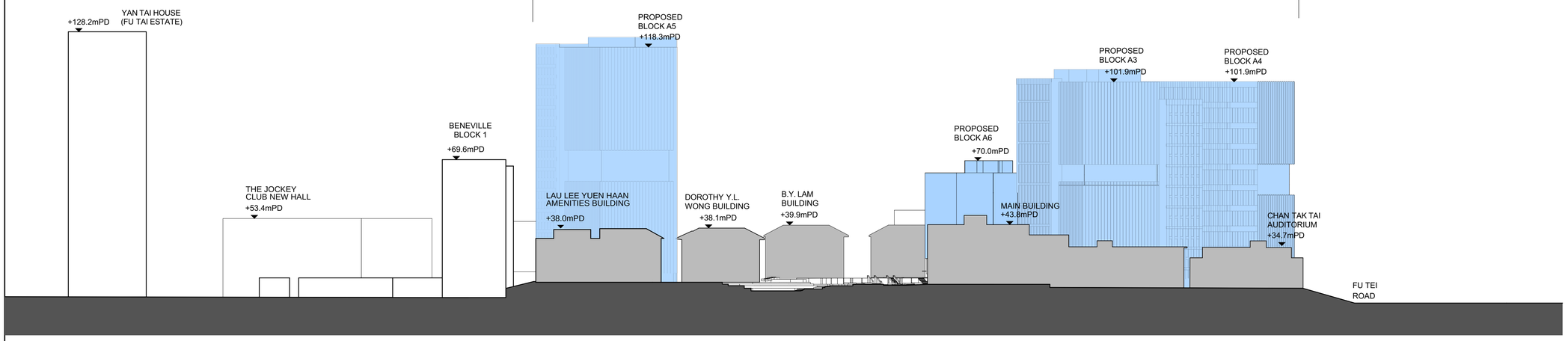
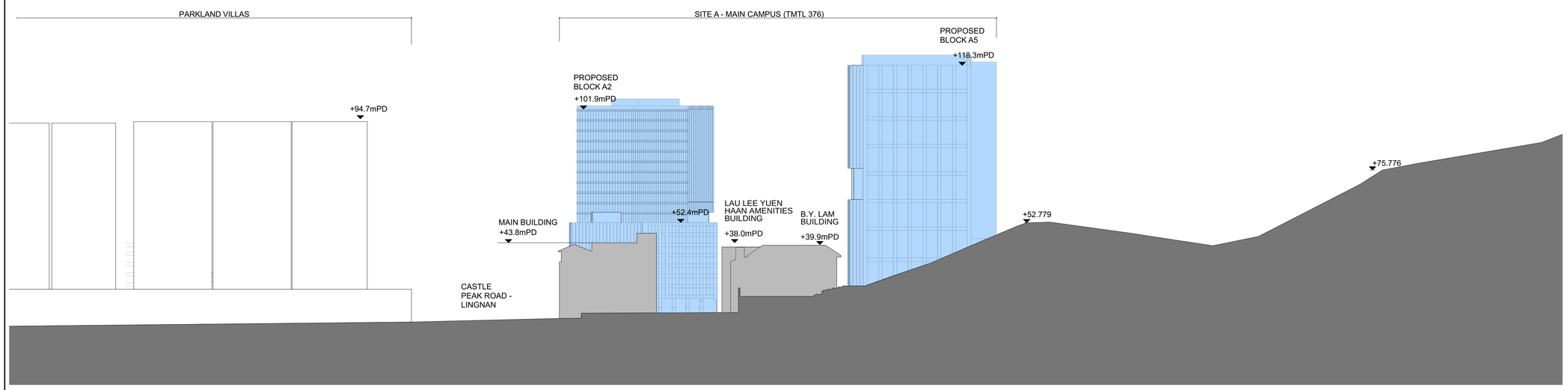
Elevation A-A'



Elevation B-B'



Elevation C-C'



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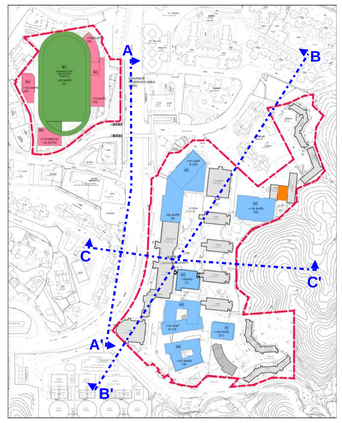
Proposed New Research / Academic Buildings

Retained Buildings



NUMBER / 編號	DATE / 日期	AMENDMENT / 修訂

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PROJECT / 工程項目

LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING / 圖名

ELEVATION (MAIN CAMPUS) - PROPOSED

SCALE / 比例	JOB NUMBER / 工程編號
1:800, 1:1000@A1	6173
DATE / 日期	DRAWING NUMBER / 圖號

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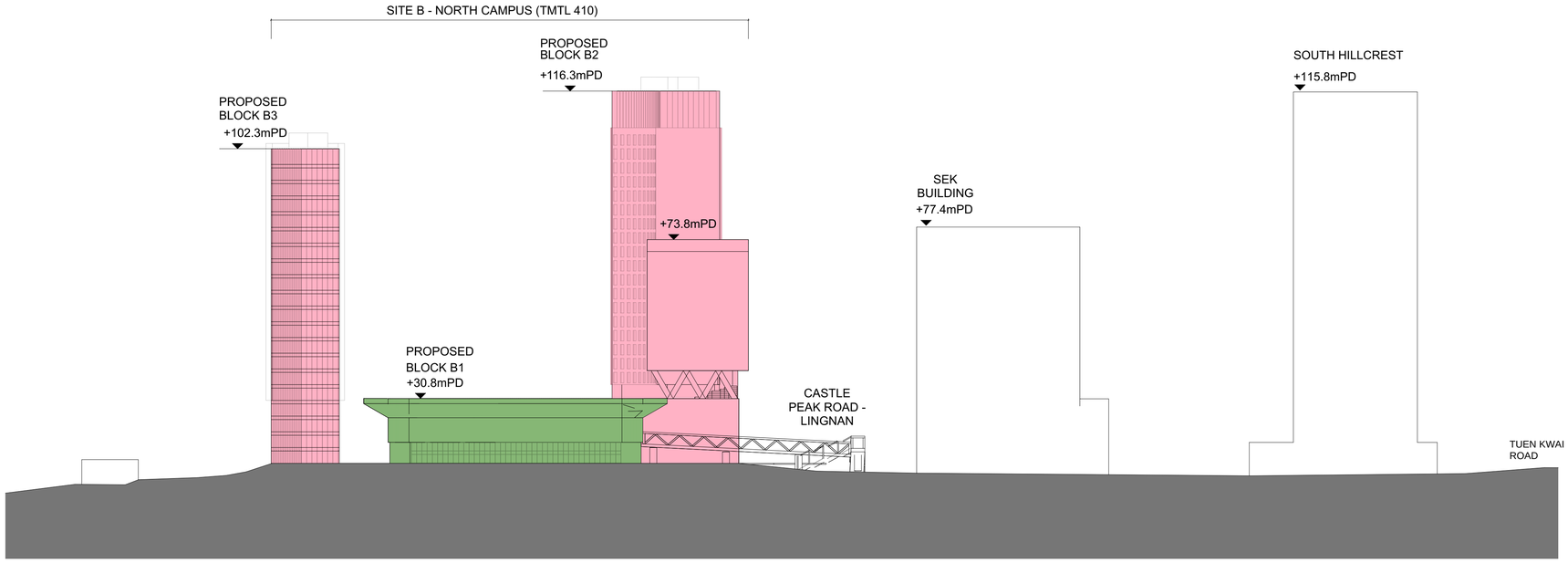
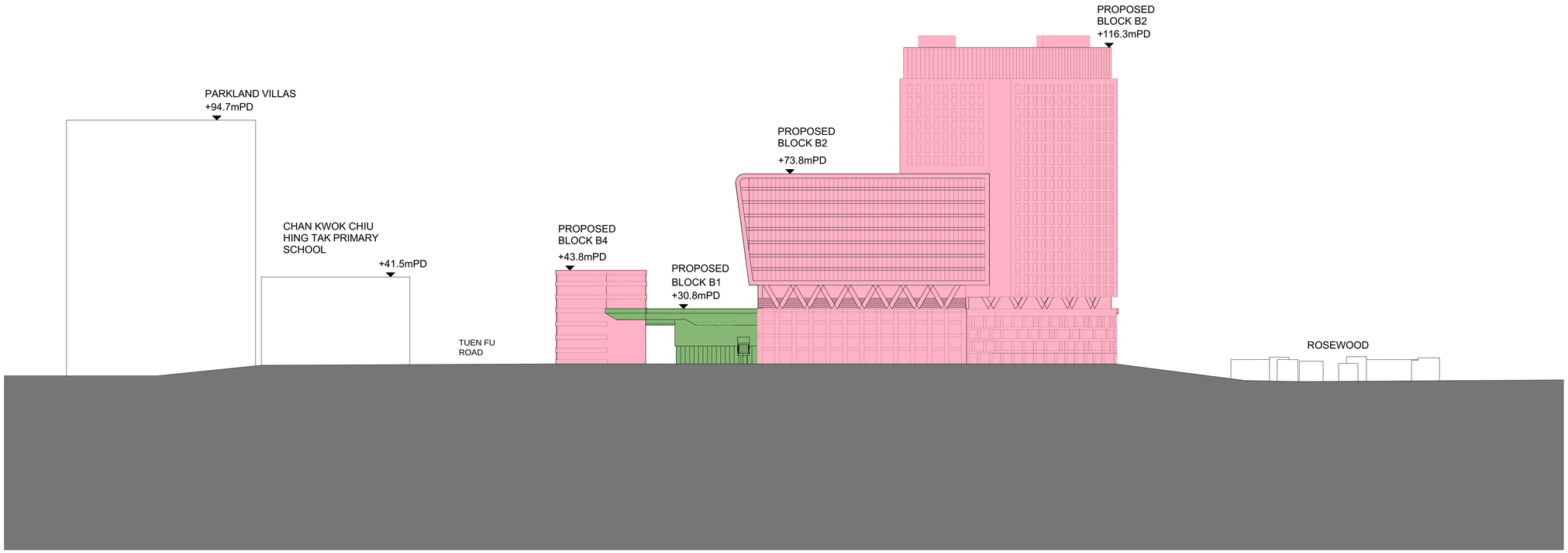


Elevation E-E'



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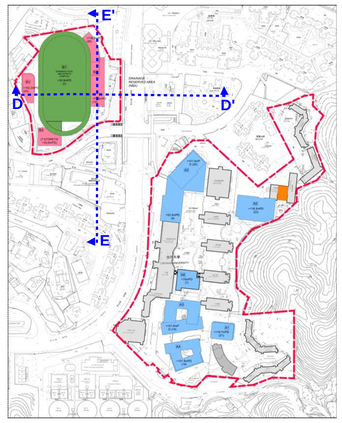

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PROJECT / 工程項目

LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

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DEVELOPMENT SCHEDULE

SITE	NAME OF BUILDING	BUILDING HEIGHT mPD	GFA/m^2
A (MAIN CAMPUS)	A1 - RESEARCH & ACADEMIC BUILDING	119.7	21,013.3
	A2 - RESEARCH & ACADEMIC BUILDING	101.9	104,161.2
		52.4	
	WONG ADMINISTRATION BUILDING	34.2	
	MAIN BUILDING (PATRICK LEE WAN KEUNG ACADEMIC BUILDING)	43.8	
	HO SIN HANG BUILDING	42.9	
	LEUNG KAU KUI BUILDING	39.9	
	B.Y. LAM BUILDING	39.9	
	DOROTHY Y.L. WONG BUILDING	38.1	
	LAU LEE YUEN HAAN AMENITIES BUILDING	38.0	
	YU KAN HING MEMORIAL GARDEN & PAVILIION	-	
	KIN SUN SQUARE (SKYLIGHT)	-	1,115.2
	FOOTBRIDGE	-	88.2
	MULTI-PURPOSE AREA (UPPER PLAZA)	26.7	230.0
	A3 - RESEARCH & ACADEMIC BUILDING	101.9	57,506.8
	A4 - RESEARCH & ACADEMIC BUILDING	101.9	39,894.9
	A6 - NEW SCIENCE BUILDING (LEO BUILDING)	70.0	9,796.9
	HOSTELS 1 & 2	66.3	17,084.2
	HOSTELS 3 & 4	55.5	
	LINGNAN HUB	56.1	5,963.9
	STAFF QUARTERS	36.3	1,019.2
	THE JOCKEY CLUB HALL	48.5	8,106.5
	THE JOCKEY CLUB NEW HALL	53.4	7,819.6
	AUDITORIUM	34.7	3,551.7
	A5 - LAU CHUNG HIM BUILDING	118.3	65,682.7
		48.6	
		TOTAL (SITE A)	**343,034.2**

SITE	NAME OF BUILDING	BUILDING HEIGHT mPD	GFA/m^2
B (NORTH CAMPUS)	B1 - SPORTS COMPLEX & AMENITIES	30.8	26,131.3
	B2 - AMENITIES & ACADEMIC	116.3	53,698.3
		73.8	
	B3 - AMENITIES & ACADEMIC	102.3	18,572.2
	B4 - AMENITIES & ACADEMIC	43.8	6,640.0
		TOTAL (SITE B)	**105,041.8**

DEVELOPMENT SCHEDULE (COMPARISON)

SITE	NAME OF BUILDING	EXISTING BUILDING HEIGHT mPD	EXISTING GFA/m^2	PROPOSED NEW BUILDING		PROPOSED BUILDING HEIGHT mPD	PROPOSED ADDITIONAL GFA/m^2
A (MAIN CAMPUS)	WONG ADMINISTRATION BUILDING	34.2	40,574.5	A1	RESEARCH & ACADEMIC	119.7	21,013.3
	MAIN BUILDING (PATRICK LEE WAN KEUNG ACADEMIC BUILDING)	43.8		A2	RESEARCH & ACADEMIC	101.9 52.4	63,586.7
	INDOOR SPORTS COMPLEX	24.6		A3	RESEARCH & ACADEMIC	101.9	57,506.8
	HO SIN HANG BUILDING	42.9		A4	RESEARCH & ACADEMIC	101.9	39,521.3
	LEUNG KAU KUI BUILDING	39.9					
	B.Y. LAM BUILDING	39.9					
	DOROTHY Y.L. WONG BUILDING	38.1					
	LAU LEE YUEN HAAN AMENITIES BUILDING	38.0					
	YU KAN HING MEMORIAL GARDEN & PAVILIION	-					
	KIN SUN SQUARE (SKYLIGHT)	-	1,115.2				
	FOOTBRIDGE	-	88.2				
	MULTI-PURPOSE AREA (UPPER PLAZA)	26.7	230.0				
	NEW SCIENCE BUILDING (LEO BUILDING)	58.0	9,796.9	A6	NEW SCIENCE BUILDING (DATA CENTRE EXPANSION)	70.0	-
	HOSTELS 1 & 2	66.3	17,084.2				
	HOSTELS 3 & 4	55.5					
	LINGNAN HUB	56.1	5,963.9				
	STAFF QUARTERS	36.3	1,019.2				
	PRESIDENT'S LODGE	39.1	373.5				
	THE JOCKEY CLUB HALL	48.5	8,106.5				
	THE JOCKEY CLUB NEW HALL	53.4	7,819.6				
	AUDITORIUM	34.7	3,551.7				
	LAU CHUNG HIM BUILDING	48.6	11,654.1	A5	RESEARCH & ACADEMIC	118.3	54,028.6
TOTAL (SITE A)			**107,377.4**			**ADDITIONAL GFA**	**235,656.7**
						TOTAL GFA (EXPANSION)	**343,034.2**

SITE	NAME OF BUILDING	EXISTING BUILDING HEIGHT mPD	EXISTING GFA/m^2	PROPOSED NEW BUILDING		PROPOSED BUILDING HEIGHT mPD	PROPOSED ADDITIONAL GFA/m^2
B (NORTH CAMPUS)	STUDENT ACTIVITY CENTRE	22.7	1,151.3	B1	SPORTS COMPLEX & AMENITIES	30.8	24,980.0
	SPECTATOR STAND	-	75.3	B2	AMENITIES & ACADEMIC	116.3 73.8	53,623.0
	SPECTATOR STAND (EAST)	-	132.2	B3	AMENITIES & ACADEMIC	102.3	18,440.0
				B4	AMENITIES & ACADEMIC	43.8	6,640.0
TOTAL (SITE B)			**1,358.8**			**ADDITIONAL GFA**	**103,683.0**
						TOTAL GFA (EXPANSION)	**105,041.8**

Appendix 2

Traffic Impact Assessment

Technical Feasibility Study
for Lingnan University,
No. 8 Castle Peak Road – Lingnan, Tuen Mun

Traffic Impact Assessment
Study Report
May 2026

Ozzo Technology (HK) Ltd
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Technical Feasibility Study
for Lingnan University,
No. 8 Castle Peak Road – Lingnan, Tuen Mun

Traffic Impact Assessment
Study Report
May 2026

Contents Amendment Record

This report has been issued and amended as follows:

Revision	Description	Prepared / Date	Checked / Date	Approved / Date
0	Draft TIA Report	15/07/2025 CSY	17/07/2025 DP	18/07/2025 OC
0a	Draft TIA Report	22/07/2025 CSY	22/07/2025 DP	23/07/2025 OC
0b	TIA Report	07/08/2025 CSY	08/08/2025 DP	08/08/2025 OC
1	TIA Report	30/09/2025 CSY, LBY	25/11/2025 DP	25/11/2025 OC
1a	TIA Report	27/01/2026 CSY, LBY	02/02/2026 DP	03/02/2026 OC
2	TIA Report	17/03/2026 CSY, LBY	18/03/2026 DP	19/03/2026 OC
2a	TIA Report	30/03/2026 CSY, LBY	31/03/2026 DP	31/03/2026 OC
2b	TIA Report	08/04/2026 CSY, LBY	08/04/2026 DP	09/04/2026 OC
2c	TIA Report	27/05/2026 CSY, LBY	27/05/2026 DP	27/05/2026 OC
2d	TIA Report	29/05/2026 CSY, LBY	29/05/2026 DP	29/05/2026 OC

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1 INTRODUCTION

1.1 Background

1.1.1 To support the growth of Lingnan University (hereafter called as “LU”) in the future, LU intends to propose for a campus expansion by maximizing campus capacity and alleviate land-use constraints by seeking Section 5 exercise (hereafter called as “S5”) for amendment of Building Height Restriction. The relevant site includes the Lingnan Main Campus and North Campus.

1.1.2 Ozzo Technology (HK) Limited is commissioned to undertake a Traffic Impact Assessment (TIA) Study, to assess the potential traffic impact due to the proposed redevelopment of the campus of Lingnan with a view to support the S5 planning exercise.

1.2 Report Structure

1.2.1 Following this introductory chapter, this report is arranged as follow:

- Chapter 2 describes the proposed campus redevelopment;
- Chapter 3 summarizes the existing traffic condition in the vicinity of the site;
- Chapter 4 provides traffic forecast in the future design year;
- Chapter 5 presents the traffic impact assessment results;
- A summary of the findings and conclusion of this TIA study are given in Chapter 6.

2 PROPOSED DEVELOPMENT

2.1 The Proposed Campus Expansion

2.1.1 The existing LU Campus comprises 3 lots i.e. TMTL 376 (Main Campus), TMTL 410 (North Campus) and TMTL 482 (Simon and Eleanor Kwok Building ("SEK")) with a total site area of about 11.68 hectares with average plot ratio of about 1.09.

2.1.2 The average plot ratio of the existing campus is about 1.08 only which is on the low side as compared to other universities including Hong Kong Polytechnic University with the planned plot ratio of about 4.62 and Hong Kong Metropolitan University with a plot ratio of about 5.68. As the development potential of the SEK site has already been optimized, the current rezoning proposal would exclude the SEK site, and include Lingnan Main Campus and North Campus as shown by the plan in **Figure 2-1**.

2.1.3 A site-wide relaxation of building height will enable Lingnan to deliver urgently needed student accommodation, optimize limited land resources, and align with the Government's pilot facilitation scheme—all crucial for maintaining Hong Kong's competitiveness as an international education hub.

2.1.4 It is anticipated that an additional GFA of about 339,500sq.m would be required to cater for the campus expansion to accommodate around 13,000 additional students, and to realize the long-term vision of LU.

2.2 Vehicular and Pedestrian Access Arrangements

2.2.1 As the proposed campus expansion only involves enhanced space to the existing LU Campus, no modifications on the vehicular and pedestrian access is proposed. The vehicles will access the LU Main Campus via the existing vehicular access located at Tuen Kwai Road and Fu Tei Road, and to access of the North Campus via the exiting vehicular access at Tuen Fu Road.

2.2.2 The LU Campus is accessible from three entrances. The Main Entrance is located in the west abutting Castle Peak Road – Lingnan, while the South Gate is located at Fu Tei Road and North Gate is located at Tuen Kwai Road. A comprehensive covered walkway system is provided within LU Campus, offering all-weather protection and linking up various blocks and facilities. There is also an existing public footbridge across the Castle Peak Road – Lingnan and Tuen Kwai Road with direct access to the Main Campus.

2.2.3 The vehicular and pedestrian accesses are shown in **Figure 2-2**.

2.3 Proposed Parking and Loading/ Unloading Provisions

2.3.1 As there are no specific parking and loading / unloading requirements for universities in accordance to Hong Kong Planning Standard and Guidelines (HKPSG), provision of ancillary parking facilities should be designed based on users' requirements to meet operational needs.

2.3.2 There is no specific parking and L/UL requirements for the University in HKPSG. Thus, parking and L/UL provisions should be proposed on demand basis. Having considered there will be an increase in students by around 178% (13,000/7,300 = 1.78), an increase in ancillary parking spaces of 178% is proposed at this stage (i.e. ancillary parking spaces increased from 92 to 256), subjected to further refinement in later stage when more details of the development is available.

3 EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 **Figure 2-1** shows the location of the Application Site and the existing road network in the vicinity of the site.

3.1.2 Castle Peak Road – Lingnan, a dual-2 carriageway, is classified as a District Distributor which connects Castle Peak Road – Lam Tei in the north and Castel Peak Road – San Hui in the south. Acting as a part of the Castle Peak Road network, the capacity carriageway is currently serving considerable public transport services, with bus and GMB stops identified for section near Lingnan University.

3.1.3 Tuen Kwai Road is a single-2 carriageway connecting Fu Tai Estate in the east and Castle Peak Road – Lingnan in the west. Acting as a local road serving adjacent residential site and Lingnan University, bus and GMB stops are generally identified along the carriageway.

3.1.4 Fu Tei Road is a single-2 local carriageway (with a single lane configuration for section east of "Forward Living") connecting Castle Peak Road – Lingnan in the west. The captioned carriageway is currently connected to the southern vehicular entrance of Lingnan University campus.

3.2 Existing Public Transport Services

3.2.1 LU is well served by public transport services including MTR, franchised bus, Green Minibus and Red Minibus services. **Table 3-1** summarized the public transport services serving the area and **Figure 3-1** shows the locations of the bus/GMB stops in the vicinity of the site. MTR Siu Hong Station is located within a distance of about 750 meters (around 11 min walking time) as indicated in **Figure 3-1**.

Table 3-1 Public Transport Services in the Study Area

Route No.	Terminating Points		Remarks
Franchised Bus Services			
KMB 53	YOHO Mall (Yuen Long)	Tsuen Wan (Nina Tower)	Daily services every 25-35 mins
KMB 67A	Tuen Mun (Po Tin Estate)	Kwai Fong (Kwai Tsui Estate)	Daily services every 15-30 mins
KMB 67M	Tuen Mun (Siu Hong Court)	Kwai Fong Station	Daily services every 5-20 mins
KMB 67X	Tuen Mun (Siu Hong Court)	Mong Kok East Station	Daily services every 7-25 mins

Route No.	Terminating Points		Remarks
KMB 258P	Hung Shui Kiu (Hung Fuk Estate)	Lam Tin Station	Weekday services from 06:50 to 10:00 every 12-30 mins, Saturday services from 07:00 to 09:40 every 20-30 mins
KMB 261	Fanling (Cheung Wah)	Tuen Mun (Sam Shing Estate)	Daily services every 15-30 mins
KMB 267X	Tuen Mun (Siu Hong Court)	Lam Tin Station	Weekday services at 07:25, 07:45
KMB 960A	Central	Fu Tai Estate	Weekday services at 18:30
KMB 960C	Tuen Mun (Fu Tai Estate)	Causeway Bay (Victoria Park)	Weekday services at 07:00, 07:15
KMB 960S	Tuen Mun (Fu Tai Estate)	Causeway Bay (Victoria Park)	Weekday services at 07:05, 07:12, 07:18, 07:25, 07:33, 07:45, 08:00 and Saturday services from 07:10-08:00, every 10-15 mins
KMB 960X	Quarry Bay (King's Road)	Hung Shui Kiu (Hung Fuk Estate)	Weekday services from 17:30-19:30, every 10-15 mins
LWB A33X	Tuen Mun (Fu Tai Estate)	Airport (Ground Transportation Centre)	Daily services every 15-30 mins
LWB A33X*	Tuen Mun (Fu Tai Estate)	Cathay Pacific City	Daily services at 06:45, 07:45
LWB E33P	Siu Hong Station (South)	Airport (Ground Transportation Centre)	Daily services every 12-45 mins
LWB E33P*	Blossom Garden	Airport (Ground Transportation Centre)	Weekday services at 05:15
LWB NA33	Tuen Mun (Fu Tai Estate)	Cathay Pacific City	Daily services at 00:17, 00:32, 00:47, 01:07, 01:32, 02:15
CTB B3A	Shenzhen Bay Port	Shan King Estate	Mon–Fri (School Days) service every 20-30 mins; Mon–Fri (School Holidays) service every 20-30 mins from 06:50-08:15 and from 09:30-23:35, an additional service at 09:00; Saturday service every 12-30 mins and Sunday & PH service every 9-30 mins Additional departure to Fu Tai Estate at 08:30
MTR Feeder Bus			
K51	Fu Tai	Tai Lam	Daily services every 6-20 mins
K51A	Fu Tai	So Kwun Wat	Daily services from 07:00-20:00, every 30 mins
K58	Fu Tai	So Kwun Wat	Weekday services at 07:00, 07:08,07:15
Green Minibus Services			
46	Fu Tai Estate	Tuen Mun Town Centre (Circular)	Daily services every 6-30 mins
46X	Fu Tai Estate	Tuen Mun Town Centre (Circular)	Daily services every 5-30 mins
Red Minibus Services			
--	Yuen Long	Chi Lok Fa Yuen	Daily services from 07:00 - 23:00
--	Yuen Long	Jordan Road	24-hour daily service

Route No.	Terminating Points		Remarks
--	Mong Kok (Reclamation Street)	Yuen Long	Daily services from 12:00 - 06:00 (the next morning)

*Note: * Special services*
Information updated as of date 14 January 2026.

3.3 Traffic Surveys

3.3.1 Traffic surveys including vehicular count surveys, pedestrian count surveys, trip generation surveys and public transport surveys were conducted on normal school days between 07:00 to 10:00 (AM peak period) and 16:00 to 19:00 (PM peak period). **Table 3-2** provides a summary of the types of surveys being undertaken and the survey locations are shown in **Figure 3-2** and **Figure 3-3**.

Table 3-2 Summary of Comprehensive Surveys

Survey Type	Location	Figure	Survey Date	Data Collected
Vehicular Count Surveys	J1 to J8	Figure 3-2	2025-11-27 (Thursday)	Manual Classified count in 15 min intervals
	L1 to L3	Figure 3-2	2025-11-27 (Thursday)	Manual Classified count in 15 min intervals
Pedestrian Count Surveys	P1 to P12	Figure 3-3	2025-10-16 (Thursday)	Pedestrian flows in 5-min intervals
Trip Generation Surveys	Pedestrian and Vehicular Access of Lingnan University	Figure 3-3	2025-10-16 (Thursday)	- Nos. of visitors - Nos. of vehicles
Public Transport Surveys	Bus/GMB Stop A to F	Figure 3-3	2026-01-16 (Friday)	- Nos. of buses - Passenger boarding and alighting - Vehicle occupancy

3.4 Existing Vehicular Traffic Conditions

3.4.1 By applying appropriate PCU factors stipulated with TPDM, vehicular traffic flows in PCUs are calculated and the AM peak hour (07:15 – 08:15) and PM peak hour (17:30 – 18:30) traffic flows on the road network in the vicinity of the site. **Figure 3-4** presents the 2025 observed Weekday AM and PM peak hour traffic flows on the road network in the vicinity of the Site.

3.4.2 Based on the existing traffic flows, the peak hour performance of the key junctions in the vicinity of the Site is assessed, with assessment results present in **Table 3-3.** Detailed junction calculation sheets are given in **Annex A**.

Table 3-3 2025 Peak Hour Junction Capacity Assessment

Jn. ID	Location(1)	Type	Capacity Index(2)	2025	
				AM Peak	PM Peak
J1	Castle Peak Road – Lingnan / Fu Tei Road	Priority	DFC	0.07	0.09
J2	Fu Tei Road / Southern Access of Lingnan University	Priority	DFC	0.01	0.03
J3	Tuen Kwai Road / Northern Access of Lingnan University	Priority	DFC	0.01	0.07
J4	Castle Peak Road – Lingnan / Tuen Fu Road / Tuen Kwai Road	Signalized	RC	99.7%	100%+
J5	Lam Tei Interchange	Priority	DFC	0.52	0.50
J6	Castle Peak Road - Lam Tei / Lam Tei Interchange / Castle Peak Road – Lingnan	Signalized	RC	100%+	100%+
J7	Castle Peak Road-Castle Peak Bay / Tuen Hing Road	Signalized	RC	38.1%	70.3%
J8	Castle Peak Road – Lingnan / Slip Road from Yuen Long Highway	Signalized	RC	100%+	100%+

Notes: (1) Refer to Figure 3-2 for junction locations
(2) RC = Reserve Capacity for signal-controlled junction; DFC = Design Flow to Capacity for priority junction

3.4.3 The results reveal that all the key junctions within the Study Area operate satisfactorily during the peak hours.

3.4.4 Locations of the assessed road links are presented in **Figure 3-2**, while the peak hour performances of the key links in the vicinity of the site are assessed, with the results presented in **Table 3-4**.

Table 3-4 2025 Peak Hour Performances of Key Road Links

Link ID.	Section(1)	Direction	Design Capacity (2) (pcu/hr)	Flows (pcu/hr)	2025	
					AM Peak	PM Peak
L1	Castle Peak Road – Lingnan (Section south of Fu Tei Road)	EB	2800	Flows	365	464
				P/Df(2)	0.13	0.17
		WB	2800	Flows	811	587
				P/Df(2)	0.29	0.21

Link ID.	Section[1]	Direction	Design Capacity [2] (pcu/hr)	Flows (pcu/hr)	2025	
					AM Peak	PM Peak
L2	Fu Tei Road	EB	1000	Flows	19	27
				P/Df[2]	0.02	0.03
		WB	1000	Flows	20	36
				P/Df[2]	0.02	0.04
L3	Castle Peak Road – Lingnan (Section between Tuen Kwai Road and Fu Tei Road)	EB	2800	Flows	365	464
				P/Df[2]	0.13	0.17
		WB	2800	Flows	814	586
				P/Df[2]	0.29	0.21

Notes: (1) Refer to Figure 3-2 for locations of the key links
(2) P/Df = Peak Hourly Flows/Design Flow Ratios (P/Df) for road links, with link capacities determined as follows:
L1 and L3 at Castle Peak Road – Lingnan is classified as district distributor of 7.3m 2-lane carriageway.
L2: Fu Tei Road is a local distributor with undivided 2-lane carriageway of 7.6m in width.

3.4.5 The results show that the key road links in the vicinity of the site operate within capacity during peak hours in 2025.

3.5 Existing Pedestrian Flows

3.5.1 **Figure 3-5** shows the observed peak hour pedestrian flows along the main pedestrian routes on a normal weekday (07:00-10:00 and 16:00-19:00) for the AM and PM peak hour respectively).

3.5.2 The levels of services of the above key pedestrian links are assessed based on the highest 5-min pedestrian flows being observed during the survey period, with the results are presented in **Table 3-5** to **Table 3-7**.

Table 3-5 Existing Level of Services (LOS) of Pedestrian Footways

Location[1]	Effective Footway Width[2]	2025 Weekday		
		Peak 5-Min Flow	Peak Min Flows/Metre	Level of Service[3]
P1	2.5m	74	5.9	A
P2	1.0m	85	17.0	B
P4	2.5m	62	5.0	A
P5	2.7m	21	1.6	A
P7	2.1m	91	8.7	A
P8	5.4m	87	3.3	A
P9	2.8m	9	0.6	A
P10	3.2m	39	2.4	A
P11	2.0m	100	10.0	A

Location[1]	Effective Footway Width[2]	2025 Weekday		
		Peak 5-Min Flow	Peak Min Flows/Metre	Level of Service[3]
P12	3.4m	72	4.2	A

Notes:

(1) Refer to Figure 3-3 for locations of key pedestrian links

(2) Effective width = Actual width minus 0.5m shy zone

(3) LOS of footpath refers to Highway Capacity Manual 2000 Exhibit 18-3.

Table 3-6 Capacity Assessment on Cautionary Crossing

Location[1]	Crossing Width	Maximum Capacity[2] (ped/hr)	Demand (ped/hr)	Demand/ Capacity Ratio
P6 (2025AM)	4m	4800	228	0.048
P6 (2025PM)	4m	4800	466	0.097

Notes:

(1) Refer to Figure 3-3 for location of cautionary crossing.

(2) Capacity of pedestrian crossing in accordance with Table 3.7.2.1, Chapter 3.7, Volume 2, TPDM.

Table 3-7 Capacity Assessment on Signalized Crossing

Location[1]	W Crossing Width	PG (sec)	CT (sec)	GTP	PC[2] (ped/hr)	Demand (ped/hr)	Demand / Capacity Ratio
P3 (2025AM)	3.6m	25	118	0.212	1449	791	0.546
P3 (2025PM)	3.6m	25	118	0.212	1449	725	0.500

Notes:

(1) Refer to Figure 3-3 for location of cautionary crossing.

(2) Capacity of pedestrian crossing in accordance with Chapter 3.2.5, Volume 4, TPDM

where PG = Pedestrian Green + Flashing Green

CT = Cycle Time

GTP = Green time proportion (i.e. PG/CT)

PC = Pedestrian crossing capacity = K (1900) x GTP x W

3.5.3 Assessment results show that LOS B are achieved at all the key pedestrian links in the vicinity of the site, while the crossings are operating within capacity.

3.6 Public Transport Surveys

3.6.1 It is noted that visitors access the site are mainly by the bus services at the six nearby bus-stops along Castle Peak Road – Lingnan and Tuen Kwai Road. Hence, bus and GMB surveys were undertaken to record the number of bus and GMB trips and occupancy rate at the six nearby bus/GMB stops (with location shown in **Figure 3-3**). The peak hour bus trips and patronage results are shown in **Table 3-8** and **Table 3-9**.

Table 3-8 2026 Weekday AM Peak Hour Public Transport Trips and Occupancies

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
Weekday AM Peak Hour (07:00 – 08:00)												
A	Castle Peak Road, Lingnan University (North Bound)	Bus	258P	0	0	0	-	0	0	0	0	-
			960S	0	0	0	-	0	0	0	0	-
			A33X	1	119	11	9%	2	0	9	110	92%
			K51	5	620	102	16%	27	4	79	541	87%
			K51A	1	135	22	16%	10	0	12	123	91%
			K58	2	249	56	22%	15	2	43	206	83%
			261	3	434	215	50%	6	25	234	200	46%
			267X	0	0	0	-	0	0	0	0	-
			53	2	118	92	78%	19	0	73	45	38%
			67M	3	398	46	12%	17	3	32	366	92%
			67X	3	408	103	25%	19	2	86	322	79%
			E33P	3	417	53	13%	0	0	53	364	87%
			Total	**23**	**2,898**	**700**	**24%**	**115**	**36**	**621**	**2,277**	**79%**
		GMB	46	21	342	47	14%	15	0	32	310	91%
			46X	1	16	0	0%	0	0	0	16	100%
			Total	**22**	**358**	**47**	**13%**	**15**	**0**	**32**	**326**	**91%**
B	Castle Peak Road, Lingnan University (South Bound)	Bus	258P	5	695	126	18%	7	17	136	559	80%
			960S	6	839	123	15%	0	14	137	702	84%
			A33X	4	476	80	17%	0	7	87	389	82%
			K51	8	997	543	54%	0	10	553	444	45%

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
			K51A	2	240	137	57%	0	3	140	100	42%
			K58	3	368	145	39%	0	5	150	218	59%
			261	3	421	95	23%	7	5	93	328	78%
			267X	2	284	60	21%	0	3	63	221	78%
			53	2	124	80	65%	0	2	82	42	34%
			67M	8	1084	412	38%	3	56	465	619	57%
			67X	8	1111	337	30%	7	23	353	758	68%
			E33P	0	0	0	-	0	0	0	0	-
			Total	**51**	**6,639**	**2138**	**32%**	**24**	**145**	**2259**	**4,380**	**66%**
		GMB	46	20	359	317	88%	1	2	318	41	11%
			46X	1	19	13	68%	0	0	13	6	32%
			Total	**21**	**378**	**330**	**87%**	**1**	**2**	**331**	**47**	**12%**
C	Tuen Kwai Road, Tuen Kwai Road, South Hillcrest (East Bound)	Bus	960A	0	0	0	-	0	0	0	0	-
			960S	0	0	0	-	0	0	0	0	-
			960X	0	0	0	-	0	0	0	0	-
			K51	5	625	55	9%	10	0	45	580	93%
			K51A	1	125	5	4%	0	0	5	120	96%
			K58	2	249	15	6%	3	0	12	237	95%
			A33X	1	119	1	1%	0	0	1	118	99%
			NA33	0	0	0	-	0	0	0	0	-
			Total	**9**	**1,118**	**76**	**7%**	**13**	**0**	**63**	**1,055**	**94%**
		GMB	46	19	334	26	8%	4	0	22	312	93%
			46X	0	0	0	-	0	0	0	0	-
			Total	**19**	**334**	**26**	**8%**	**4**	**0**	**22**	**312**	**93%**
D	Tuen Kwai Road, Beneville (West Bound)	Bus	258P	5	685	88	13%	0	13	101	584	85%
			960C	2	292	5	2%	0	2	7	285	98%
			960S	6	839	106	13%	12	23	117	722	86%
			K51	8	1008	428	42%	0	115	543	465	46%
			K51A	3	375	191	51%	0	18	209	166	44%

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
			K58	4	492	113	23%	1	53	165	327	66%
			A33X	4	476	91	19%	2	14	103	373	78%
			NA33	0	0	0	-	0	0	0	0	-
			Total	**32**	**4,167**	**1022**	**25%**	**15**	**238**	**1245**	**2,922**	**70%**
		GMB	46	19	346	290	84%	0	4	294	52	15%
			46X	1	19	13	68%	0	0	13	6	32%
			Total	**20**	**365**	**303**	**83%**	**0**	**4**	**307**	**58**	**16%**
E	Fu Tai Estate; Castle Peak Road (North Bound)	Bus	53	2	118	30	25%	4	6	32	86	73%
			67A	2	280	20	7%	8	10	22	258	92%
			67M	3	424	30	7%	12	8	26	398	94%
			67X	3	409	30	7%	8	11	33	376	92%
			258P	0	0	0	-	0	0	0	0	-
			261	3	431	220	51%	5	92	307	124	29%
			267X	0	0	0	-	0	0	0	0	-
			960C	2	260	0	0%	0	0	0	260	100%
			B3A	3	417	190	46%	0	37	227	190	46%
			E33P	3	417	4	1%	0	14	18	399	96%
			NA33	0	0	0	-	0	0	0	0	-
			Total	**21**	**2756**	**524**	**19%**	**37**	**178**	**665**	**2091**	**76%**
F	Fu Tai Estate; Castle Peak Road (South Bound)	Bus	53	2	124	30	24%	1	15	44	80	65%
			67A	3	443	140	32%	8	31	163	280	63%
			67M	9	1246	112	9%	0	313	425	821	66%
			960A	0	0	0	-	0	0	0	0	-
			960X	0	0	0	-	0	0	0	0	-
			67X	7	966	75	8%	1	96	170	796	82%
			258P	5	707	85	12%	0	14	99	608	86%
			267X	2	285	7	2%	0	27	34	251	88%
			261	2	278	80	29%	19	12	73	205	74%
			B3A	2	262	150	57%	11	6	145	117	45%

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
			E33P	0	0	0	-	0	0	0	0	-
			NA33	0	0	0	-	0	0	0	0	-
			Total	**32**	**4311**	**679**	-	**40**	**514**	**1153**	**3158**	**73%**
Overall Bus				168	21889	5139	23%	244	1111	6006	15883	73%
Overall GMB				82	1435	706	49%	20	6	692	743	52%
Overall				**250**	**23324**	**5845**	25%	**264**	**1117**	**6698**	**16626**	71%

Notes:

(1) Refer to Figure 3-3 for location of surveyed bus/GMB stops.

Table 3-9 2026 Weekday PM Peak Hour Public Transport Trips and Occupancies

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
Weekday PM Peak Hour (16:15 – 17:15)												
A	Castle Peak Road, Lingnan University (North Bound)	Bus	258P	1	140	30	21%	0	0	30	110	79%
			960S	0	0	0	-	0	0	0	0	-
			A33X	2	248	25	10%	8	0	17	231	93%
			K51	10	1250	290	23%	46	0	244	1006	80%
			K51A	2	250	75	30%	1	0	74	176	70%
			K58	0	0	0	-	0	0	0	0	-
			261	3	418	148	35%	5	37	180	238	57%
			267X	0	0	0	-	0	0	0	0	-
			53	2	121	40	33%	4	0	36	85	70%
			67M	6	809	155	19%	34	0	121	688	85%
			67X	6	829	190	23%	26	2	166	663	80%
			E33P	2	252	26	10%	0	3	29	223	88%
			Total	**34**	**4,317**	**979**	**23%**	**124**	**42**	**897**	**3,420**	**79%**
		GMB	46	16	286	180	63%	19	0	161	125	44%
			46X	2	38	16	42%	0	1	17	21	55%
			Total	**18**	**324**	**196**	**60%**	**19**	**1**	**178**	**146**	**45%**

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
B	Castle Peak Road, Lingnan University (South Bound)	Bus	258P	0	0	0	-	0	0	0	0	-
			960S	0	0	0	-	0	0	0	0	-
			A33X	2	260	7	3%	0	1	8	252	97%
			K51	6	750	65	9%	0	36	101	649	87%
			K51A	2	250	10	4%	0	11	21	229	92%
			K58	0	0	0	-	0	0	0	0	-
			261	4	577	65	11%	4	13	74	503	87%
			267X	0	0	0	-	0	0	0	0	-
			53	2	124	50	40%	0	3	53	71	57%
			67M	5	715	43	6%	0	29	72	643	90%
			67X	4	544	80	15%	0	21	101	443	81%
			E33P	1	119	10	8%	0	0	10	109	92%
			Total	**26**	**3,339**	**330**	**10%**	**4**	**114**	**440**	**2,899**	**87%**
		GMB	46	19	325	143	44%	0	13	156	169	52%
			46X	1	19	5	26%	0	0	5	14	74%
			Total	**20**	**344**	**148**	**43%**	**0**	**13**	**161**	**183**	**53%**
C	Tuen Kwai Road, Tuen Kwai Road, South Hillcrest (East Bound)	Bus	960A	0	0	0	-	0	0	0	0	-
			960S	0	0	0	-	0	0	0	0	-
			960X	0	0	0	-	0	0	0	0	-
			K51	11	1375	283	21%	96	0	187	1188	86%
			K51A	1	125	35	28%	7	0	28	97	78%
			K58	0	0	0	-	0	0	0	0	-
			A33X	3	381	17	4%	11	0	6	375	98%
			NA33	0	0	0	-	0	0	0	0	-
			Total	**15**	**1,881**	**335**	**18%**	**114**	**0**	**221**	**1,660**	**88%**
		GMB	46	18	321	182	57%	23	0	159	162	50%
			46X	2	38	15	39%	4	0	11	27	71%
			Total	**20**	**359**	**197**	**55%**	**27**	**0**	**170**	**189**	**53%**

Location[1]		Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
					Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
D	Tuen Kwai Road, Beneville (West Bound)	Bus	258P	0	0	0	-	0	0	0	0	-
			960C	0	0	0	-	0	0	0	0	-
			960S	0	0	0	-	0	0	0	0	-
			K51	6	750	13	2%	2	54	65	685	91%
			K51A	2	250	2	1%	1	9	10	240	96%
			K58	0	0	0	-	0	0	0	0	-
			A33X	2	260	5	2%	1	3	7	253	97%
			NA33	0	0	0	-	0	0	0	0	-
			Total	**10**	**1,260**	**20**	**2%**	**4**	**66**	**82**	**1,178**	**93%**
		GMB	46	18	318	139	44%	0	6	145	173	54%
			46X	1	19	4	21%	0	1	5	14	74%
			Total	**19**	**337**	**143**	**42%**	**0**	**7**	**150**	**187**	**55%**
E	Fu Tai Estate; Castle Peak Road (North Bound)	Bus	53	2	121	30	25%	10	3	23	98	81%
			67A	3	432	48	11%	22	12	38	394	91%
			67M	6	830	145	17%	61	15	99	731	88%
			67X	5	687	110	16%	63	4	51	636	93%
			258P	1	140	30	21%	10	25	45	95	68%
			261	3	430	170	40%	7	21	184	246	57%
			267X	0	0	0	-	0	0	0	0	-
			960C	0	0	0	-	0	0	0	0	-
			B3A	4	548	105	19%	0	164	269	279	51%
			E33P	2	281	5	2%	0	5	10	271	96%
			NA33	0	0	0	-	0	0	0	0	-
			Total	**26**	**3469**	**643**	**19%**	**173**	**249**	**719**	**2750**	**79%**
F	Fu Tai Estate; Castle Peak Road (South Bound)	Bus	53	2	124	52	42%	5	5	52	72	58%
			67A	3	423	62	15%	21	13	54	369	87%
			67M	5	694	73	11%	0	39	112	582	84%
			960A	0	0	0	-	0	0	0	0	-
			960C	0	0	0	-	0	0	0	0	-

Location[1]	Bus / GMB	Bus Route	Nos. of Trips	Passenger per hour							
				Total Carrying Capacity	On Arrivals	On Arrival Occupancy %	Alighting at stop	Boarding at stop	On Departures	Spare Capacity	Spare Capacity %
		960X	0	0	0	-	0	0	0	0	-
		67X	4	546	40	7%	0	29	69	477	87%
		258P	0	0	0	-	0	0	0	0	-
		267X	0	0	0	-	0	0	0	0	-
		261	4	568	175	31%	38	25	162	406	71%
		B3A	3	427	200	47%	90	2	112	315	74%
		E33P	1	141	5	4%	1	0	4	137	97%
		NA33	0	0	0	-	0	0	0	0	-
		Total	**22**	**2923**	**607**	**21%**	**155**	**113**	**565**	**2358**	**81%**
Overall Bus			133	17189	2914	17%	574	584	2924	14265	83%
Overall GMB			77	1364	684	50%	46	21	659	705	52%
Overall			**210**	**18553**	**3598**	19%	**620**	**605**	**3583**	**14970**	81%

Notes:

(1) Refer to Figure 3-3 for location of surveyed bus/GMB stops.

3.6.2 Survey results indicate that the overall spare capacity for existing public transport services is more than 70% during AM Peak, while the spare capacity is further increased to over 80% during PM peak.

4 TRAFFIC FORECAST

4.1 Design Year

4.1.1 Based on the latest information, the Proposed Scheme is anticipated to be completed by 2038. Thus, the "Design Year" for this TIA study is 2041, i.e. 3 years after the planned full completion of the Proposed Scheme.

4.2 Modelling Methodology

4.2.1 A Local Area Traffic Model (LATM) is developed for this study based on the 2019-based BDTM (NTW1) obtained from the Transport Planning Division of Transport Department, where the future year assumptions under the 2019-based BDTM (including future development, road network, toll assumptions and public transport services) are adopted.

4.2.2 To ensure the robustness of the future year model, validation has been conducted by comparing the 2025 surveyed traffic flows and the LATM 2025 base year modelled flows, at the proposed screenline locations as shown in **Table 4-1**.

Table 4-1 Locations of Screenline for Validation

No.	Location	Direction
L1	Castle Peak Road – Lingnan (Section south of Fu Tei Road)	EB
		WB
L3	Castle Peak Road – Lingnan (Section between Tuen Kwai Road and Fu Tei Road)	EB
		WB

4.2.3 For the purpose of base year model validation, the validation process shall strictly follow the criteria as stated in **Table 4-2**.

Table 4-2 Validation Criteria

Validation Criteria	Validation Target
Total Link Flows at Screenline	100% within 10% of actual counts
Individual Link Flow at Screenline	100% within 20% of actual counts

4.2.4 The future infrastructures assumed in the future year LATM are listed in **Table 4-3** below.

Table 4-3 Network Assumption

2031 Road Network Assumption	Configuration
Road Improvement Works for West Kowloon Reclamation Development	S1
Route 6 (formerly Route 11) – Central Kowloon Route	D3
Route 6 (formerly Route 11) – Trunk Road T2 (Kai Tak – Cha Kwo Ling Link)	D2
Widening of Castle Peak Road – Castle Peak Bay	D2
Improvement to Fan Kam Road	S2
Widening of Gascoigne Road Flyover	D2
Dualling of Hiram's Highway between Marina Cove and Sai Kung Town	D2/S4/S2*
Flyover from Kwai Tsing Interchange Upramp to Kwai Chung Road	S1
Improvement works at Tsuen Tsing Interchange	S1
Widening of Fanling Highway between Pak Shek Au Interchange and Po Shek Wu Interchange	D4
Improvement to So Kwun Po Interchange	S2
Improvement to Po Shek Wu interchange	S1
Lantau Road P1 between Sham Shui Kok and Yam O	D2
Widening of Tai Po Road (existing remaining D2 Shatin section)	D3
Upgrading of Deep Bay Road	S2
Extension Works to Major Roads in Tuen Mun	S1
Nim Wan Road (South)	S2
Upgrading of Nim Wan Road (North)	S2
Upgrading of Remaining Sections of Kam Tin Road and Lam Kam Road	S2
Widening of T6 Bridge of Tate's Cairn Highway	S1
Fanling Bypass	D2
Trunk Road T4 and Associated Works	D2
Tseung Kwan O – Lam Tin Tunnel	D2
Cross Bay Link at Tseung Kwan O	D2
Road P2, D2 and D3 in Kwu Tung North New Development Area	D2/S2*
2036 Road Network Assumption	**Configuration**
Tuen Mun Bypass (TMB)	D2
Widening of Tsuen Wan Road and the Associated Junction Improvement Works	D4/D5*
Improvement of Lion Rock Tunnel	D3
Route 11 (section between Yuen Long and North Lantau)	D2/D3/D4*

Tsing Yi – Lantau Link	D3
Widening of Yuen Long Highway (section between Lam Tei and Tong Yan San Tsuen)	D4
Northern Metropolis Highway - San Tin Section	D2/D3*
Hong Kong Island West-Northeast Lantau Link	D2/D3/D4*
2041 Road Network Assumption	**Configuration**
Northern Metropolis Highway - Tin Shui Wai, Kwu Tung and New Territories North New Town Sections	D2/D3*
Shatin Bypass	D3
Tseung Kwan O-Yau Tong Tunnel	D2

*Note: * The configuration of these proposed highways varies at different sections of the road.*

4.2.5 The planned and committed developments assumed in the future year LATM and the estimated peak hour traffic generated by these developments are listed in **Table 4-4** below.

Table 4-4 Planned Developments and Peak Hour Development Traffic

Location[1]		Use	Traffic Flows (pcu/hour)			
			Weekday AM Peak (pcu/hr)		Weekday AM Peak (pcu/hr)	
			In	Out	In	Out
1	Tuen Mun Area 29 West, Tuen Mun, New Territories [A/TM/547] (1)	PRH (1,020 flats)	33	44	31	24
		Residential Care Homes for the Elderly (2,100m² GFA)	2	2	3	4
		Clinic/ Community Health Centre	11	10	13	17
2	Site 4A (South), Tuen Mun Area 54, New Territories 54, New Territories Site 5, Tuen Mun Area 54, New Territories [A/TM/583]	PRH (1,475 flats) (2)	46	60	42	33
		Kindergarten (1no.) (3)	10	10	10	10
		Neighborhood Elderly Centre (1no.) (3)	1	1	1	1
		PRH (1,020 flats) (2)	43	62	40	30
		Social Welfare Facilities (3)	1	1	1	1
3	Site 4A (East), Tuen Mun Area 54, New Territories (4) Site 4A (West), Tuen Mun Area 54, New Territories (4)	Light Public Housing (5) (Around 5300 units, Total GFA 50,297 m² average flat size 17m²)	25	38	74	59
4	San Hing Road Phase I (6)	PRH (1,500 flats)	49	65	45	36

Location[1]		Use	Traffic Flows (pcu/hour)			
			Weekday AM Peak (pcu/hr)		Weekday AM Peak (pcu/hr)	
			In	Out	In	Out
	San Hing Road Phase II A [6]	PRH (3,600 flats)	117	156	108	85
	San Hing Road Phase II B [6]	PRH (5,800 flats)	189	251	175	137
5	Hong Po Road Development [6]	PRH (9,500 flats)	310	410	286	225
6	Various Lots in D.D. 130 and Adjoining Government Land, Lam Tei, Tuen Mun, New Territories [Y/TM-LTYY/11] [7]	Private Housing (1,385 flats)	59	100	52	40
7	Lot No. 2011 (Part) in D.D. 132, Tuen On Lane, Tuen Fu Road, Fu Tei, Tuen Mun (Gig Lok Monastery) [A/TM/530] [8]	1567 Niches 1089 Tablets	31	33	31	33
8	Lots 220 RP and 221 in D.D.130, San Hing Road, San Hing Tsuen, Tuen Mun, New Territories [Y/TM-LTYY/10] [9]	Private Housing (288 flats)	37	46	30	28
9	Public Housing Site at Tuen Hing Road [10]	PRH (2700 flats)	88	117	81	64
10	Lots 531 RP, 532 S.D RP and 532 RP in D.D. 130 and Adjoining Government Land, Lam Tei, Tuen Mun, New Territories [A/TM-LTYY/502]	Private Housing (336 flats)	24	14	10	12
Total			1,076	1,420	1,033	839

Note: (1) Trip generations and attraction extracted from TIA reports of respective approved planning application A/TM/547.
(2) AM and PM Peak Hour trip rates extracted from TPDM Volume 1, Chapter 3, Annex C
(3) Trip generations and attraction extracted from TIA reports of respective approved planning application A/TM/500
(4) Information is extracted from district council document:
https://www.districtcouncils.gov.hk/tm/doc/2020_2023/en/committee_meetings_doc/dfmehc/23449/dfmehc_2023_002.pdf
(5) Trip generations and attractions are calculated based on TPDM Volume 1 Chapter 3, Appendix, Annex C, Table 1, lower limit of Public Housing (average Flat Size of 30 sqm)
(6) Information is extracted from district council document:
https://www.districtcouncils.gov.hk/tm/doc/2020_2023/en/dc_meetings_doc/23419/dc_2023_019.pdf
(7) Trip generations and attraction extracted from TIA reports of respective approved planning applications Y/TM-LTYY/11.
(8) Trip generations and attraction extracted from TIA reports of respective approved planning applications A/TM/530.
(9) Trip generations and attraction extracted from TIA reports of respective approved planning applications Y/TM-LTYY/10.
(10) Information is extracted from district council document:
https://www.legco.gov.hk/yr2023/english/panels/hg/papers/hg20230306cb1-169-5-e.pdf
(11) Trip generations and attraction extracted from TIA reports of respective planning applications A/TM-LTYY/502 updated by Nov 2025.
** The population intake of Site 1 and 1A, Site 2, Site 3 and 4 (East), Site 3 and 4 (West), Tuen Mun 54, New Territories has been completed, traffic trips of the above developments were taken into account in the existing survey.*

4.3 Validation Results

4.3.1 **Table 4-5** presents the validation results for base year. The results indicated that all individual link flows are within 20% of actual counts, and the total link flows are within 10% of actual counts. The validation criteria for the base year model are well satisfied.

Table 4-5 Validation Results

No.	Location[1]	Direction	2025 Observed Flows (pcu/hr)		2025 Modelled Flows (pcu/hr)		%Diff (Observed-Modelled)	
			AM	PM	AM	PM	AM	PM
L1	Castle Peak Road – Lingnan (Section south of Fu Tei Road)	EB	365	464	430	570	-15.1%	-18.6%
		WB	811	587	738	625	10.0%	-6.1%
L3	Castle Peak Road – Lingnan (Section between Tuen Kwai Road and Fu Tei Road)	EB	365	464	424	524	-13.8%	-11.4%
		WB	814	586	681	576	19.5%	1.7%
Total			2,355	2,101	2,273	2,295	3.7%	-8.5%

Notes: (1) Refer to Figure 3-2 for locations of the key links

4.3.2 Model assumptions in 2041 BDTM (NTW1) such as planned road networks, railway and highway networks, new development area and planned road-based public transport services are adopted in the 2041 LATM for forecasting future traffic flows. Also, any adjustments in deriving the 2025 LATM from the 2019 BDTM are applied to the 2041 LATM as appropriate.

4.3.3 The 2041 Peak Hour Reference Flows (i.e. without the Proposed Scheme) output from the LATM are presented in **Figure 4-1**.

4.4 Development Traffic Generations

4.4.1 To evaluate the future traffic generation by LU due to the campus expansion, the increase in development traffic is derived based on the increase in GFA.

4.4.2 According to the latest development plan, the campus redevelopment will result to an additional about 13,000 students.

4.4.3 To understand the increase in future traffic generation, references have been made for the existing population of Lingnan University–and the additional student number for the proposed campus expansion.

Peak Hour Visitor Flows

4.4.4 With reference to the trip generation survey conducted at the existing Lingnan University–Campus on 16 October 2025, the visitor trips for the proposed campus expansion are presented in **Table 4-6**.

Table 4-6 Visitor Trips for the Proposed Campus Expansion

Site	Observed Peak Hour Visitor Trips (persons / hr)			
	Weekday AM (08:45-09:45)		Weekday PM (17:30-18:30)	
	In	Out	In	Out
Existing Lingnan University (about 7,300 peoples)	1227	75	395	1004
	Observed Peak Hour Visitor Trip Rates (persons / hr / 100 population)			
	Weekday AM	Weekday AM	Weekday AM	Weekday AM
	In	Out	In	Out
	16.804	1.027	5.409	13.750
Proposed Campus Expansion (additional 13,000 students)	Estimated Additional Peak Hour Visitor Trips (persons / hr)			
	Weekday AM		Weekday PM	
	In	Out	In	Out
	2,185	**134**	**704**	**1,788**

4.4.5 It is anticipated that the proposed campus expansion would induce an additional total of 2,319 people (2,185 in and 134 out) and 2492 people (704 in and 1,788 out) in the AM and PM peak hour respectively.

Peak Hour Vehicular Flows

4.4.6 With reference to the trip generation survey conducted at the existing Lingnan University Campus on 16 October 2025, the vehicular trips for the proposed campus redevelopment is presented in **Table 4-7**.

Table 4-7 Vehicular Trips for the Proposed Campus Expansion

Site	Observed Peak Hour Vehicular Trips (pcu / hr)			
	Weekday AM (08:45-09:45)		Weekday PM (17:30-18:30)	
	In	Out	In	Out
Existing Lingnan University (about 7,300 peoples)	115	42	32	88
	Observed Peak Hour Vehicular Trip Rates (pcu / hr / 100 population)			
	Weekday AM	Weekday AM	Weekday AM	Weekday AM
	In	Out	In	Out
	1.580	0.581	0.433	1.200
Proposed Campus Expansion (additional 13,000 students)	Estimated Additional Peak Hour Vehicular Trips (pcu / hr)			
	Weekday AM		Weekday PM	
	In	Out	In	Out
	206	**76**	**57**	**156**

4.4.7 As presented in **Table 4-7**, it is anticipated that additional vehicular trips of a total two-way traffic of 282 pcu's (206 in and 76 out) and 213 pcu's (57 in and 156 out) in the AM and PM peak hour respectively.

4.4.8 In real operation, given the comprehensive public transport services identified in the close vicinity of the site, students and staff are encouraged to take public transport services instead of travelling via private cars. Thus, the estimated trips presented in **Table 4-7** is on the conservative side.

4.5 Future Year Design Peak Hour Traffic Flows

4.5.1 The additional development traffic in **Table 4-7** is then assigned onto the nearby road network. The resulting Peak Hour Project flows are shown in **Figure 4-2**.

4.5.2 By adding the Project Flows in **Figure 4-2** to the 2041 Peak Hour Reference Flows (i.e. without the Proposed Scheme) in **Figure 4-1**, the 2041 Peak Hour Design Flows (i.e. with the Proposed Scheme) are derived and shown in **Figure 4-3**.

5 TRAFFIC IMPACT ASSESSMENT

5.1 Vehicular Traffic Impact Assessment

5.1.1 Based on the 2041 Peak Hour Reference Flows shown in **Figure 4-1** and the Design Flows shown in **Figure 4-3**, junction capacity assessment are undertaken and the results are presented in **Table 5-1** with detailed calculation sheets provided in **Annex B**.

Table 5-1 2041 Peak Hour Junction Capacity Assessment

Jn. ID	Location(1)	Type	Capacity Index(2)	2041 Reference Scenario		2041 Design Scenario	
				AM Peak	PM Peak	AM Peak	PM Peak
J1	Castle Peak Road – Lingnan / Fu Tei Road	Priority	DFC	0.08	0.11	0.14	0.19
J2	Fu Tei Road / Southern Access of Lingnan University	Priority	DFC	0.00	0.03	0.05	0.09
J3	Tuen Kwai Road / Northern Access of Lingnan University	Priority	DFC	0.08	0.21	0.14	0.36
J4	Castle Peak Road – Lingnan / Tuen Fu Road / Tuen Kwai Road	Signalized	RC	100%+	69.6%	82.6%	42.9%
J5	Lam Tei Interchange	Priority	DFC	0.83	0.79	0.84	0.81
J6	Castle Peak Road - Lam Tei / Castle Peak Road – Lingnan / Lam Tei Interchange	Signalized	RC	27.5%	33.1%	26.9%	31.3%
J7	Castle Peak Road-Castle Peak Bay / Tuen Hing Road	Signalized	RC	18.2%	31.6%	16.7%	29.3%
J8	Castle Peak Road – Lingnan / Slip Road from Yuen Long Highway	Signalized	RC	100%+	71.7%	100%+	61.6%

Notes: (1) Refer to Figure 3-2 for junction locations
(2) RC = Reserve Capacity for signal-controlled junction; DFC = Design Flow to Capacity for priority junction

5.1.2 It is indicated in **Table 5-1** that all the key junctions in the vicinity of the Project Site would be operating within capacity during the peak hours for both the Reference and Design scenarios.

5.1.3 Based on the 2041 Peak Hour Reference Flows and Design Flows, link capacity assessments for Design Year 2041 are carried out and the results are presented in **Table 5-2**.

Table 5-2 2041 Peak Hour Performances of Key Road Links

Link ID.	Section[1]	Direction	Design Capacity (pcu/hr)	Flows (pcu/hr)	2041 Reference Scenario		2041 Design Scenario	
					AM Peak	PM Peak	AM Peak	PM Peak
L1	Castle Peak Road – Lingnan (Section south of Fu Tei Road)	EB	2800	Flows	300	561	304	562
				P/Df[2]	0.11	0.20	0.11	0.20
		WB	2800	Flows	659	520	684	555
				P/Df[2]	0.24	0.19	0.24	0.20
L2	Fu Tei Road	EB	1000	Flows	22	32	108	56
				P/Df[2]	0.02	0.03	0.11	0.06
		WB	1000	Flows	23	43	46	73
				P/Df[2]	0.02	0.04	0.05	0.07
L3	Castle Peak Road – Lingnan (Section between Tuen Kwai Road and Fu Tei Road)	EB	2800	Flows	269	525	273	526
				P/Df[2]	0.10	0.19	0.10	0.19
		WB	2800	Flows	612	538	700	567
				P/Df[2]	0.22	0.19	0.25	0.20

Notes: (1) Refer to Figure 3-2 for locations of the key links

(2) P/Df = Peak Hourly Flows/Design Flow Ratios (P/Df) for road links, with link capacities determined as follows:

L1 and L3 at Castle Peak Road – Lingnan is classified as district distributor of 7.3m 2-lane carriageway.

L2: Fu Tei Road is a local distributor with undivided 2-lane carriageway of 7.6m in width.

5.2 Pedestrian Assessment

5.2.1 Growth factor method is proposed for pedestrian traffic forecast.

5.2.2 To gain an understanding of the historical trends of traffic growth on the nearby road network, relevant traffic data over the 5-year period of 2019 to 2024 are extracted from the Annual Traffic Census (ATC) Reports for the ATC stations in the Study Area. **Table 5-3** describes the locations of the ATC stations and provides the corresponding traffic data.

Table 5-3 Average Annual Daily Traffic from Annual Traffic Census

Station	Road	Between		2019	2020	2021	2022	2023	2024	Average Growth Rate p.a. 2019-2024
5025	Yuen Long Highway	Hung Tin Rd INT	Lam Tei INT	126570	117560	123290	117820	125200	134470	1.22%
				--	-7.12%	4.87%	-4.44%	6.26%	7.40%	
5202	Castle Peak Rd – San Hui	Chung Wong Toi INT	Fu Tei Rd	11350	10880	11320	10980	11370	11080	-0.48%
				--	-4.14%	4.04%	-3.00%	3.55%	-2.55%	
5296	Castle Peak Rd – Lingnan	Fu Tei Rd	Lam Tei INT	12140	11550	12120	11580	12250	12270	0.21%
				--	-4.86%	4.94%	-4.46%	5.79%	0.16%	

Station	Road	Between		2019	2020	2021	2022	2023	2024	Average Growth Rate p.a. 2019-2024
5404	Tuen Mun Rd	Chung Wong Toi INT	Lam Tei INT	109220	103100	113690	109410	116440	122600	2.34%
				--	-5.60%	10.27%	-3.76%	6.43%	5.29%	
Total				259,280	243,090	260,420	249,790	265,260	280,420	1.58%
				--	-6.24%	7.13%	-4.08%	6.19%	5.72%	

Source: 2019-2024 Annual Traffic Census (ATC) Reports published by Transport Department

5.2.3 As indicated in **Table 5-3**, an annual growth rate of 1.58% per annum on the road network in the vicinity of the site over the period from 2019 – 2024.

5.2.4 Reference is also made to the 2021-based Territorial Population and Employment Data Matrix (TPEDM) planning data published by Planning Department. **Table 5-4** presents the population and employment data in Northwest New Territories for 2021, 2026 and 2031.

Table 5-4 2021-Based TPEDM for Northwest New Territories

Category	2021	2025(1)	2026	2031	% Growth p.a. 2025 - 2031
Population	1,176,050	1,230,130	1,243,650	1,347,800	1.53%
Employment	286,800	355,560	372,750	413,350	2.54%
Total	1,462,850	1,585,690	1,616,400	1,761,150	1.76%

Source: 2021-based TPEDM published by Planning Department.
Note: (1) 2025 population and employment places are calculated by interpolation between 2021 – 2026

5.2.5 It is anticipated that the population and employment in Northwest New Territories would be increased by 1.53% and 2.54% p.a. respectively, with an overall annual growth rate of 1.76 % between 2025 and 2031.

5.2.6 For the traffic growth of year between Year 2031 to 2041, reference is made to the estimation from "Hong Kong Population Projection 2022-2046" published by Census and Statistics Department (C&SC). **Table 5-5** presents the projected population data in 2031 and 2041.

Table 5-5 Hong Kong Population Projection in 2031 and 2041

Category	2031	2041	% Growth p.a. 2031 - 2041
Projected Population	7,820,200	8,154,900	+0.42%

Source: "Hong Kong Population Projection 2022-2046"

5.2.7 As shown in the above table, the predicted growth of population from 2031 to 2041 is approximately +0.42% per annum. Taking into account the above factors, it is proposed to adopt an average growth rate of 1.76% per annum from 2025 to 2031, and for conservative +0.5% per annum is adopted for 2031 to 2041 to forecast the 2041 background traffic flows.

5.2.8 The additional pedestrian flows by the proposed new building in Section 4.6.1 are then assigned onto the main pedestrian routes and the resulting 2041 Peak Hour Pedestrian Flows with the proposed new building in place are shown in **Figure 5-1**.

5.2.9 Based on the 2025 observed pedestrian flows, the peak 5-min flows are around 14.7% of the peak hour flows. To provide conservative assessment, a factor of 15% is applied to the peak hour pedestrian flows in **Figure 5-1** to derive the peak 5-min flows for the LOS assessment of the major pedestrian links in the vicinity of the site. The results are presented in **Table 5-6** to **Table 5-8**.

Table 5-6 2041 Level of Services (LOS) of Pedestrian Footways

Location(1)	Effective Footway Width(2)	2041 Reference Scenario			2041 Design Scenario		
		Peak 5-Min Flow	Peak Min Flows/M	Level of Service(3)	Peak 5-Min Flow	Peak Min Flows/M	Level of Service(3)
P1	2.5	82	6.6	A	126	10.1	A
P2	1.0	118	23.6	C	160	32.0	C
P4	2.5	92	7.4	A	127	10.2	A
P5	2.7	24	1.8	A	36	2.7	A
P7	2.1	103	9.8	A	116	11.0	A
P8	5.4	107	4.0	A	229	8.6	A
P9	2.8	7	0.5	A	12	0.9	A
P10	3.2	49	3.0	A	146	9.0	A
P11	2.0	120	12.1	A	219	22.1	B
P12	3.4	53	3.1	A	64	3.7	A

Notes:

(1) Refer to Figure 3-3 for locations of key pedestrian links

(2) Effective width = Actual width minus 0.5m shy zone

(3) LOS of footpath refers to Highway Capacity Manual 2000 Exhibit 18-3.

Table 5-7 2041 Capacity Assessment on Cautionary Crossing

Location[1]	Crossing Width	Maximum Capacity[2] (ped/hr)	Demand (ped/hr)	Demand/ Capacity Ratio
Reference Scenario				
P6 (2041AM)	4	4800	228	0.048
P6 (2041PM)	4	4800	466	0.097
Design Scenario				
P6 (2041AM)	4	4800	342	0.071
P6 (2041PM)	4	4800	625	0.130

Notes:

(1) Refer to Figure 3-3 for location of cautionary crossing.

(2) Capacity of pedestrian crossing in accordance with Table 3.7.2.1, Chapter 3.7, Volume 2, TPDM.

Table 5-8 2041 Capacity Assessment on Signalized Crossing

Location[1]	W Crossing Width	PG (sec)	CT (sec)	GTP	PC[2] (ped/hr)	Demand (ped/hr)	Demand / Capacity Ratio
Reference Scenario							
P3 (2041AM)	3.6	25	118	0.212	1449.153	791	0.546
P3 (2041PM)	3.6	25	118	0.212	1449.153	725	0.500
Design Scenario							
P3 (2041AM)	3.6	25	118	0.212	1449.153	1115	0.769
P3 (2041PM)	3.6	25	118	0.212	1449.153	1052	0.726

Notes:

(1) Refer to Figure 3-3 for location of cautionary crossing.

(2) Capacity of pedestrian crossing in accordance with Chapter 3.2.5, Volume 4, TPDM

where PG = Pedestrian Green + Flashing Green

CT = Cycle Time

GTP = Green time proportion (i.e. PG/CT)

PC = Pedestrian crossing capacity = K (1900) x GTP x W

5.2.10 Assessment results show that LOS A are achieved at all the key pedestrian links in the vicinity of the site except P2, while the crossings are operating within capacity.

5.2.11 For conservative assessment purpose, the footpath widening at the most critical section of P2 (i.e. bus stop area) is assessed, with the effective footpath width was reduced by deducting the queuing area (with effective width of the critical area reduced to 1m only, while people waiting at the bus stop is deducted from the assessment). The results indicate that P2 will operate at LOS C with the Redevelopment in place.

5.2.12 To enhance the walkability while to reduce the potential interface between pedestrians and waiting passengers, sensitivity test by allowing footpath widening by 1m at the critical section of P2 (with effective width of the critical area increase to 2m) is conducted (with feasibility of footpath widening subjected to actual site condition). Layout of the proposed footpath widening is presented in **Figure 5-2**. With the proposed improvement works in place, LOS of the pedestrian links in the vicinity of the site are assessed and summarized in **Table 5-9**.

Table 5-9 2041 Level of Services (LOS) of P2 with Footpath Widening in Place

Location(1)	Effective Footway Width	2041 Reference Scenario			2041 Design Scenario		
		Peak 5-Min Flow	Peak Min Flows/M	Level of Service(2)	Peak 5-Min Flow	Peak 5-Min Flow	Peak Min Flows/M
P2	2.0	118	11.8	A	160	16.0	B

Notes:

(1) Refer to Figure 3-3 for locations of key pedestrian links

(2) LOS of footpath refers to Highway Capacity Manual 2000 Exhibit 18-3.

5.2.13 With the implementation of proposed footpath widening, the LOS of P2 is significantly improved (with LOS becomes grade B) even with the Redevelopment in place. LU shall consider the implementation footpath widening works in later stage, subjected to land status of the widening section.

5.3 Public Transport Capacity

5.3.1 As mentioned in Chapter 3.2, LU is currently well served by the public transport services. With reference to Census 2021 (Table C204) as listed in **Annex C**, percentage split of visitors using road based public transport services (i.e. bus and minibus) is 33.8%. For conservative, assume 35% of visitors for the site will travel via road based public transport service.

5.3.2 The anticipated additional demand for the bus services at the nearby bus stops for the Proposed Development are summarized in **Table 5-10**.

Table 5-10 Additional Bus Demand by the Proposed Development

Bus Demand	Weekday AM		Weekday PM	
	In	Out	In	Out
Proposed Development (1)	765	47	247	626

*Notes: (1) Trips derived by 35% x the estimated person number (refer to **Table 4-4**)*

5.3.3 It is estimated that the Proposed Development would induce around 812 additional bus passengers (765 in and 47 out) and 873 additional bus passengers (247 in and 626 out) in the weekday AM and PM peak hour respectively.

5.3.4 To assess the sufficiency of existing public transport services, **Table 5-11** compares the anticipated additional public transport demand by the site against the spare capacities of bus services to be available during the peak hours. Similar to vehicular and pedestrian traffic, the 2041 bus occupancies are derived by applying an average growth rate of 1.76% per annum from 2026 to 2031, and 0.5% per annum is adopted for 2031 to 2041 to the 2026 observed peak hour public transport patronage.

Table 5-11 Peak Hour PT Demand and Spare Capacities

	No. of Bus Trips	Total Capacity (Pax/hr)	Direction	2041 Occupancy (Pax/hr)	Spare Capacity (Pax/hr)	Demand for Public (3)	Demand for Proposed Building (4) (Pax/hr)
Weekday AM Peak	250	23,324	Arrivals	7,479(1)	15,845	Alighting 304	Alighting 765
			Departures	6,410(5)	16,914 (6)	Boarding 1284	Boarding 47
Weekday PM Peak	210	18,553	Arrivals	4,380(2)	14,173	Alighting 713	Alighting 247
			Departures	3,420(5)	15,133 (6)	Boarding 247	Boarding 626

Notes: (1) 2041 Occupancy on arrival = 2026 Occupancy (Table 3-8) x (1+1.76%)^5 x (1+0.5%)^10 + New Building attraction (Table 4-4)
(2) 2041 Occupancy on arrival = 2026 Occupancy (Table 3-9) x (1+1.76%)^5 x (1+0.5%)^10 + New Building attraction (Table 4-4)
(3) 2041 Public Demand = 2026 total Alighting / Boarding (Table 3-9) x (1+1.76%)^5 x (1+0.5%)^10
(4) Refer to Table 4-4.
(5) 2041 Occupancy on departure = 2041 Occupancy on arrival – 2041 public alighting - New Building generation
(6) Spare Capacity = Total Capacity - Occupancy

5.3.5 **Table 5-11** indicates that, there would be sufficient public transport spare capacities to cope with the additional public transport demand.

5.3.6 Based on current observation, a significant amount of students are travelling via feeder bus routes K51, K51A, B3A. Thus, additional assessments in relation to the occupancy of the concerned routes are analysed based on the survey conducted in October 2025.

5.3.7 With the additional population of the development is about 1.8 times of the existing LU population), it is assumed that the future demand of the concerned public transport routes are 1.8 times of the existing demand. Assessment results indicate that existing services of route K51 and K51A are still sufficient to cater for the future public transport demand, while an increase in servicing frequencies is for B3A is proposed. (increase servicing frequency from 30min to 15min during AM peak, and increase servicing frequency from 20min to 10min during PM peak).

5.3.8 In addition, assessment on GMB 46 and 46X is also conducted. Based on the assessment results in **Table 5-12**, existing service of GMB 46x is still sufficient to cater for the future public transport demand. For GMB 46 (Tuen Mun Town Centre Bound), it is proposed to increase the serving frequency from 20 departures to 21 departures during AM peak.

Table 5-12 2041 Estimated GMB Demand

Location	GMB Route	No. of GMB Trips	Total Carrying Capacity	Direction	2041 Occupancy (Pax/hr)	Demand for Proposed Building (4)	Spare Capacity (Pax/hr)
Weekday AM Peak							
Castle Peak Road, Lingnan University (North Bound)	46	21	342	Arrivals	54(2)	Alighting 124	164
				Departures	37(2)	Boarding 0	305
	46X	21	16	Arrivals	0(2)	Alighting 16	0
				Departures	0(2)	Boarding 0	16
Castle Peak Road, Lingnan	46	20	359	Arrivals	364(2)	Alighting 0	-5
				Departures	365(2)	Boarding 5	-11

Location	GMB Route	No. of GMB Trips	Total Carrying Capacity	Direction	2041 Occupancy (Pax/hr)	Demand for Proposed Building (4)	Spare Capacity (Pax/hr)
University (South Bound)	46X	1	19	Arrivals	15(2)	Alighting 0	4
				Departures	15(2)	Boarding 4	0
Weekday PM Peak							
Castle Peak Road, Lingnan University (North Bound)	46	18	286	Arrivals	209(3)	Alighting 26	51
				Departures	185(3)	Boarding 0	101
	46X	2	38	Arrivals	19(3)	Alighting 19	0
				Departures	20(3)	Boarding 0	18
Castle Peak Road, Lingnan University (South Bound)	46	19	325	Arrivals	165(3)	Alighting 0	160
				Departures	179(3)	Boarding 102	44
	46X	1	19	Arrivals	6(3)	Alighting 0	13
				Departures	6(3)	Boarding 13	0

Notes:

(1) Refer to Table 3-8 and Table 3-9.

(2) 2041 Occupancy = 2026 Occupancy (Table 3-8) x (1+1.76%)^5 x (1+0.5%)^10

(3) 2041 Occupancy = 2026 Occupancy (Table 3-9) x (1+1.76%)^5 x (1+0.5%)^10

(4) With reference to Census 2021 (Table C204) as listed in Annex C, percentage split of visitors using bus and minibus (out of the total visitors using bus and minibus) are 81.6% and 18.4% respectively

(5) Spare Capacity =Total Capacity – 2041 Occupancy – Demand for Proposed Building

5.4 Conclusion Statement of Traffic Impact Assessment

5.4.1 To conclude, the capacity of the surrounding road networks and public transport services is anticipated to be sufficient to cater for the campus redevelopment, while enhancement on serving frequencies of route B3A and GMB route 46 will be needed.

6 SUMMARY AND CONCLUSION

6.1 Summary

6.1.1 Lingnan University intends to propose for a campus expansion by maximizing campus capacity and alleviate land-use constraints by seeking Section 5 planning exercise for amendment of Building Height Restriction.

6.1.2 Ozzo Technology (HK) Limited is commissioned to undertake a Traffic Impact Assessment (TIA) Study to assess the traffic impact to be induced by the proposed campus redevelopment on the nearby road networks.

6.1.3 Capacity assessments are undertaken to reveal the 2025 AM and PM peak hour traffic conditions in the vicinity of the proposed campus redevelopment. The assessment results indicate that all the key junctions and road links perform satisfactorily during the AM and PM peak hours on a normal weekday.

6.1.4 The anticipated completion year of the proposed campus redevelopment is 2038. The assessment year for the TIA study is therefore set as 2041 (3 years after the anticipated completion).

6.1.5 With reference to the 2019-based Base District Traffic Model (NTW-1), a Local Area Traffic Model is developed for forecasting the future traffic flows in the Study Area. Based on the forecast 2041 model flows, junction capacity assessments are undertaken to assess both the 2041 AM and PM peak hour conditions. The assessment results indicate that all the key junctions would perform within capacity during the peak hours for both Reference Scenario (i.e. without proposed campus redevelopment) and Design Scenario (i.e. with proposed campus redevelopment).

6.1.6 Link capacity assessments are also undertaken and the assessment results indicate that all the key road links in the Study Area would be operating within capacity during the 2041 AM and PM peak hour for both Reference and Design scenario.

6.1.7 Pedestrian impact assessments are also undertaken to assess the performance of the public footpaths along the major pedestrian desire lines in the vicinity of the proposed campus redevelopment. Assessment results indicate that all major pedestrian routes would perform satisfactorily with sufficient spare capacity during the peak hours, even with the proposed campus redevelopment in place.

6.1.8 With reference to the visitor trips of the campus redevelopment and road based public transport modal split derived from Census 2021, the nearby footpath sections are considered sufficient to cater for the additional pedestrians of footpath links along the LU Campus while enhancement on frequencies of route B3A and 46 are proposed.

6.2 Conclusions

6.2.1 Based on the above findings, the capacity of the surrounding road networks and public transport services is anticipated to be sufficient to cater for the campus redevelopment in traffic point of view.

Figures

Yuen Long Highway

North Campus

Castle Peak Road - Lingnan

Tuen Kwai Road

Tuen Fu Road

Tuen Fu Road

Tuen Mun Road

Main Campus

Tuen Fu Road

Castle Peak Road - Lingnan

Fu Tei Road

0 30 60 90 120

Legend:

Application Site

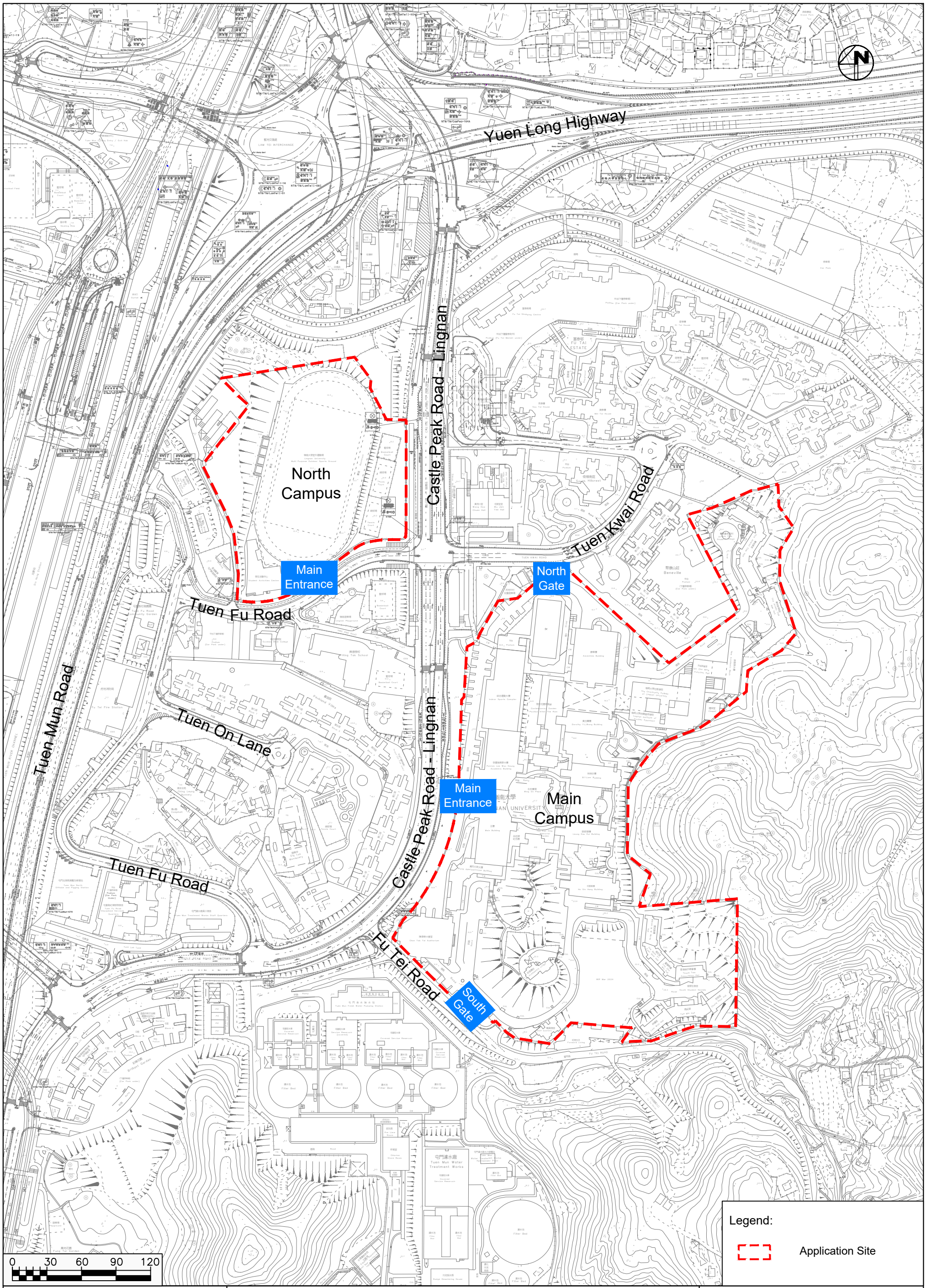
X:\Ozzo\83202_Planning Application for Lingnan University\Data\Dwg\83202_Figure 2-1B.dwg 2026/05/27 15:06:53

OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University, NO.8 Castle Peak Road - Lingnan, Tuen Mun

Proposed Lingnan University Campus Expansion

Date	Scale	Project No.	Rev.
27/05/2026	1:3000	83202	B
		Dwg No. Figure 2-1	



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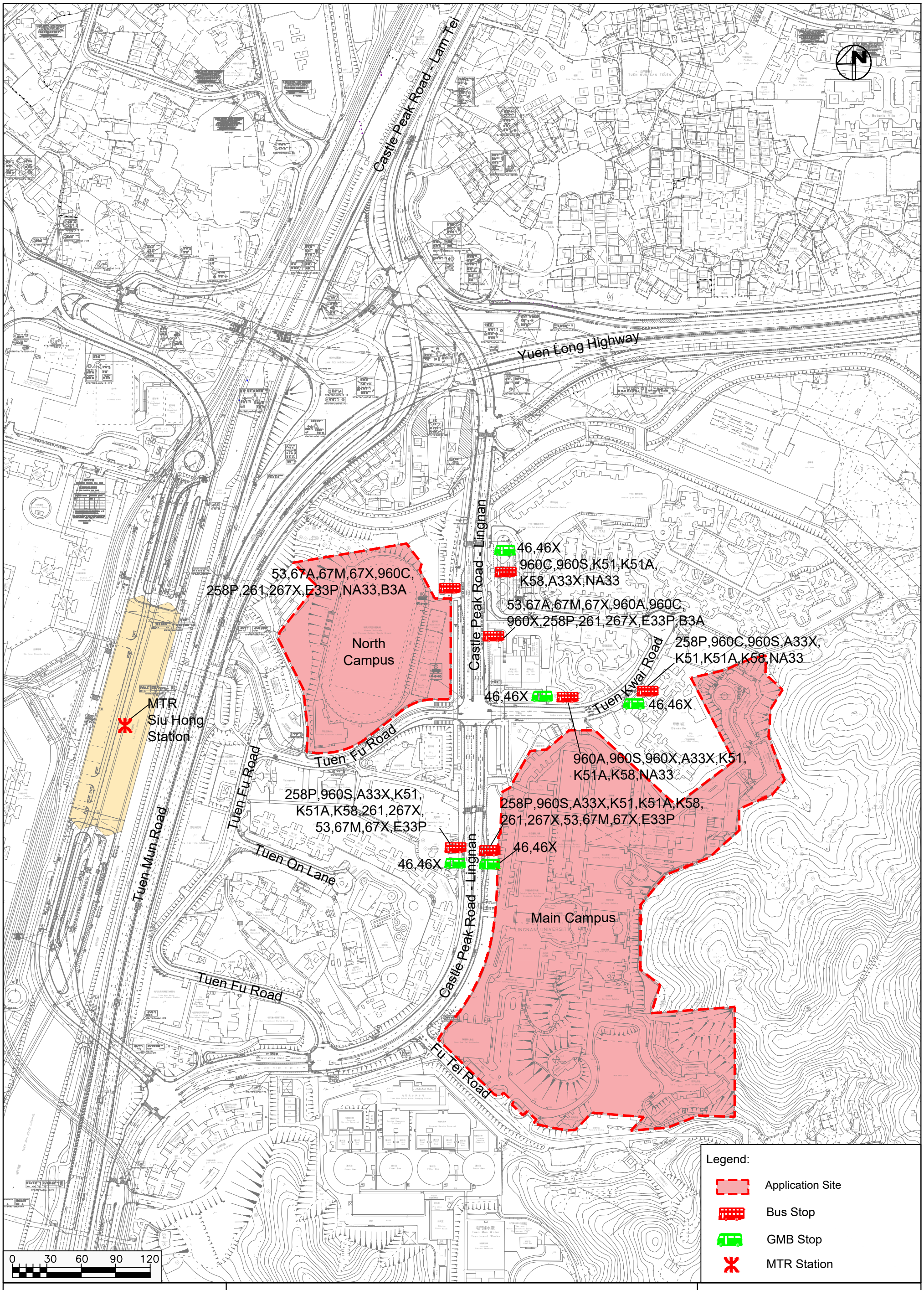
OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

Proposed Vehicular and Pedestrian Access

Date	Scale	Project No.	Rev.
27/05/2026	1:3000	83202	B
		Dwg No. Figure 2-2	



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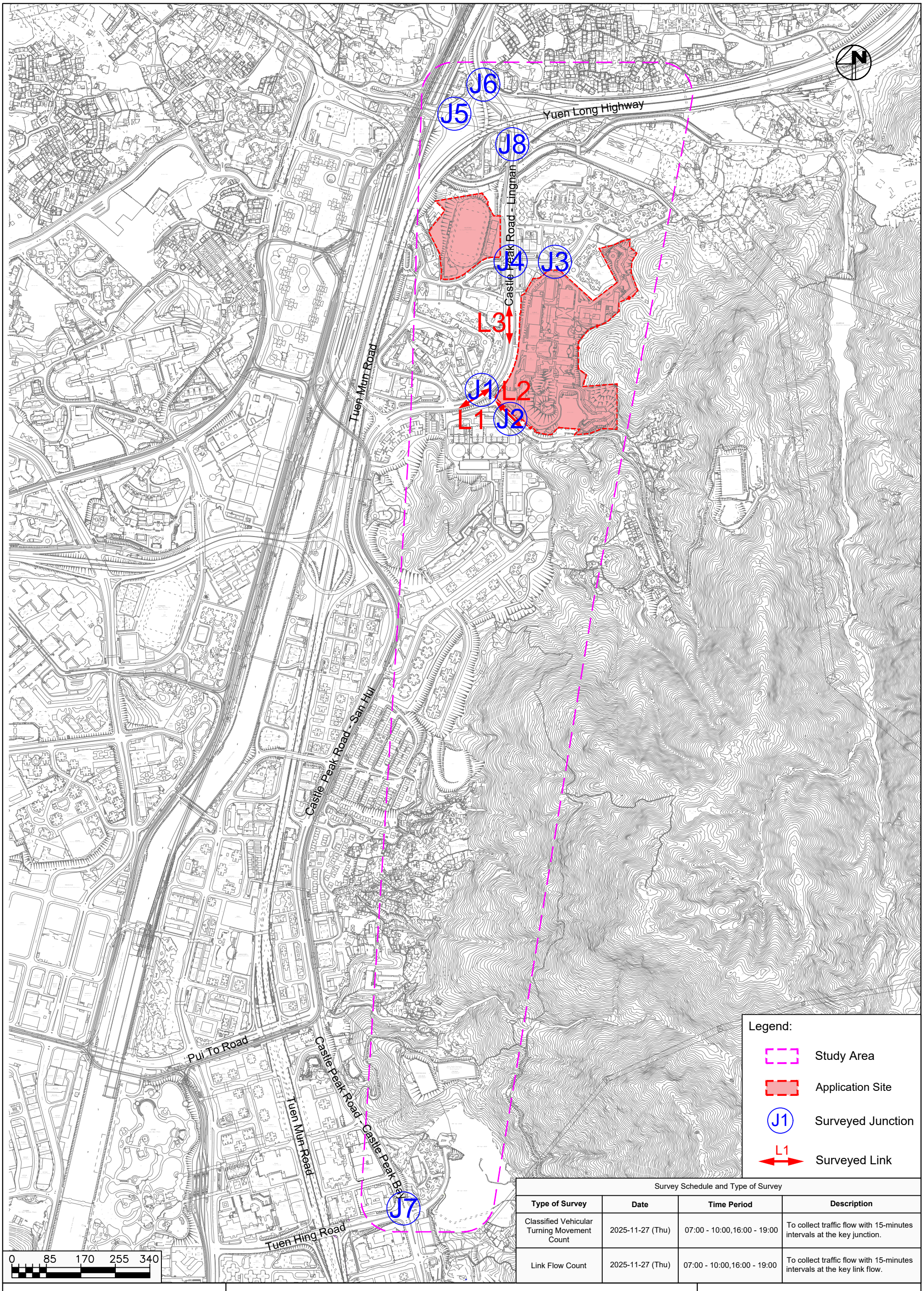
OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

Existing Public Transport Inventory

Date	Scale	Project No.	Rev.
27/05/2026	1:3000	83202	B
		Dwg No. Figure 3-1	



Survey Schedule and Type of Survey

Type of Survey	Date	Time Period	Description
Classified Vehicular Turning Movement Count	2025-11-27 (Thu)	07:00 - 10:00,16:00 - 19:00	To collect traffic flow with 15-minutes intervals at the key junction.
Link Flow Count	2025-11-27 (Thu)	07:00 - 10:00,16:00 - 19:00	To collect traffic flow with 15-minutes intervals at the key link flow.

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Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

Locations of Survey (sheet 1 of 2)

Date	Scale	Project No.	Rev.
20/01/2026	1:8500	83202	C
		Dwg No. Figure 3-2	

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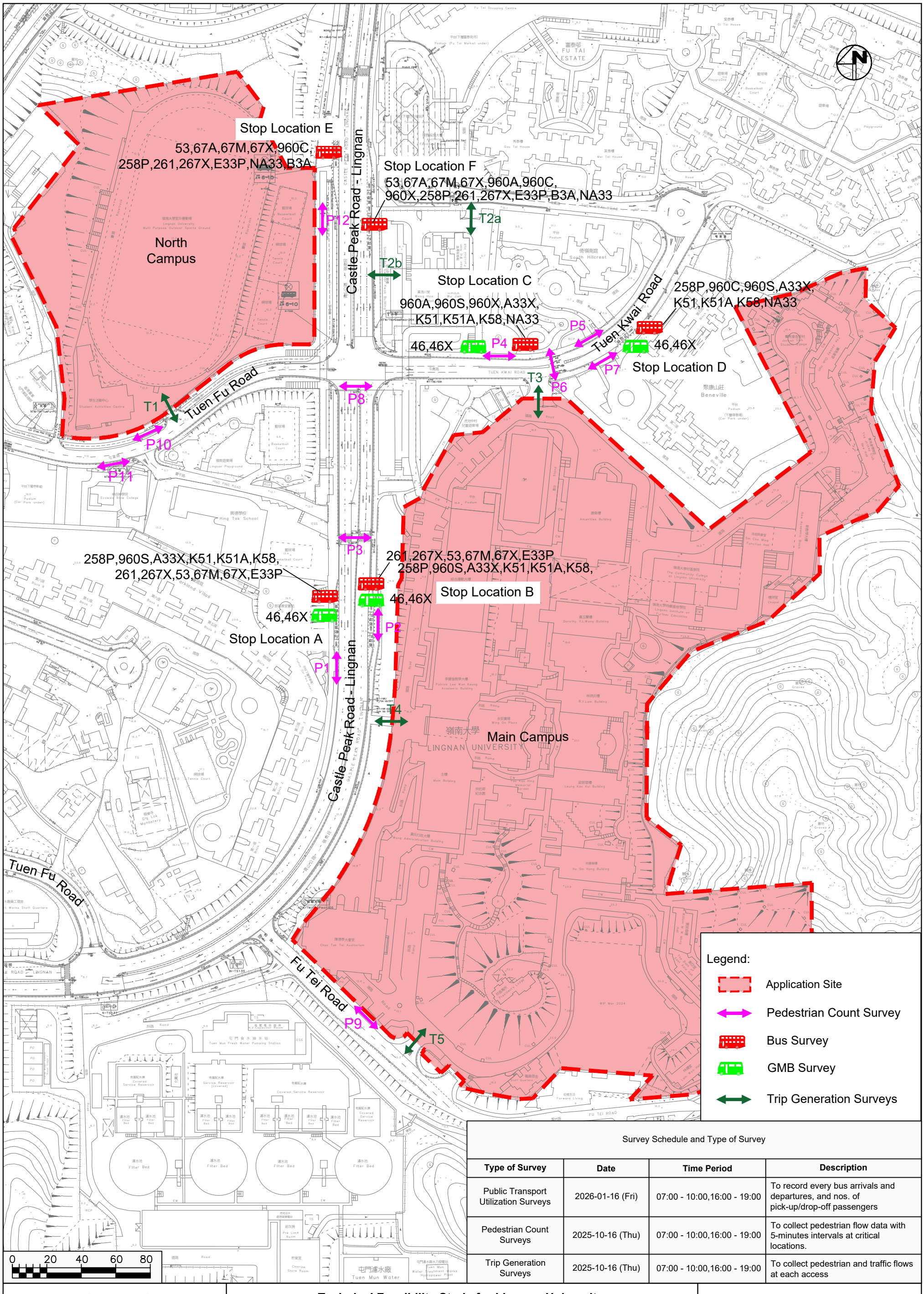

Survey Schedule and Type of Survey

Type of Survey	Date	Time Period	Description
Public Transport Utilization Surveys	2026-01-16 (Fri)	07:00 - 10:00,16:00 - 19:00	To record every bus arrivals and departures, and nos. of pick-up/drop-off passengers
Pedestrian Count Surveys	2025-10-16 (Thu)	07:00 - 10:00,16:00 - 19:00	To collect pedestrian flow data with 5-minutes intervals at critical locations.
Trip Generation Surveys	2025-10-16 (Thu)	07:00 - 10:00,16:00 - 19:00	To collect pedestrian and traffic flows at each access

OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

Locations of Survey (sheet 2 of 2)

Date	Scale	Project No.	Rev.
27/05/2026	1:2000	83202	E
		Dwg No. Figure 3-3	

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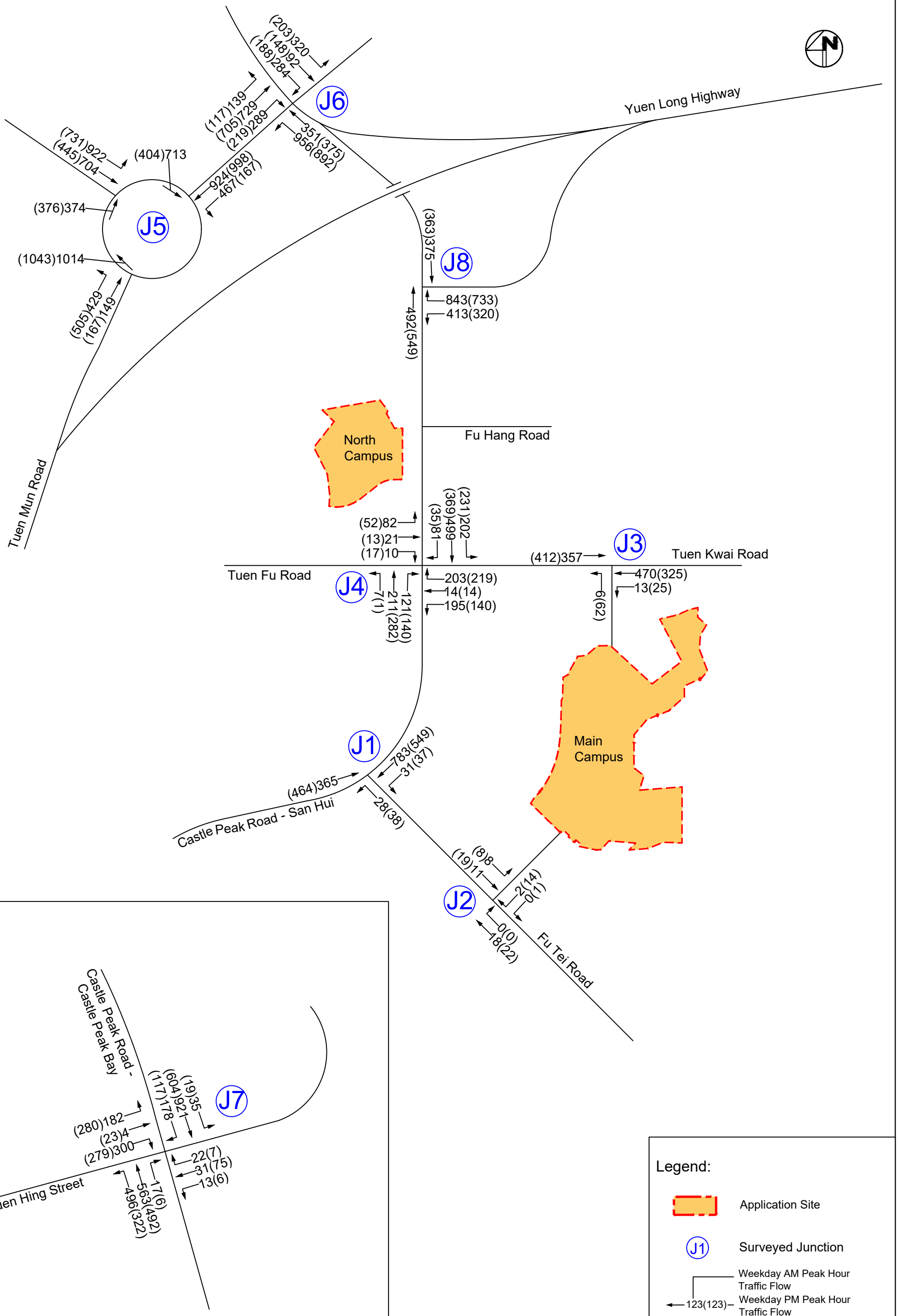

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OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

2025 Observed Peak Hour Traffic Flows

Date	Scale	Project No.	Rev.
27/05/2026	NTS	83202	B
		Dwg No. Figure 3-4	

North Campus

Main Campus

Castle Peak Road - Lingnan

Tuen Kwai Road

Tuen Fu Road

Fu Tei Road

161(302) P12

134(275) P10

678(684) P11

363(605) P8

290(521) P4

113(134) P5

228(466) P6

220(585) P7

791(725) P3

673(540) P2

440(464) P1

50(36) P9

0 20 40 60 80

Legend:

Application Site

AM Peak Hour Pedestrian Flow

123(123) PM Peak Hour Pedestrian Flow

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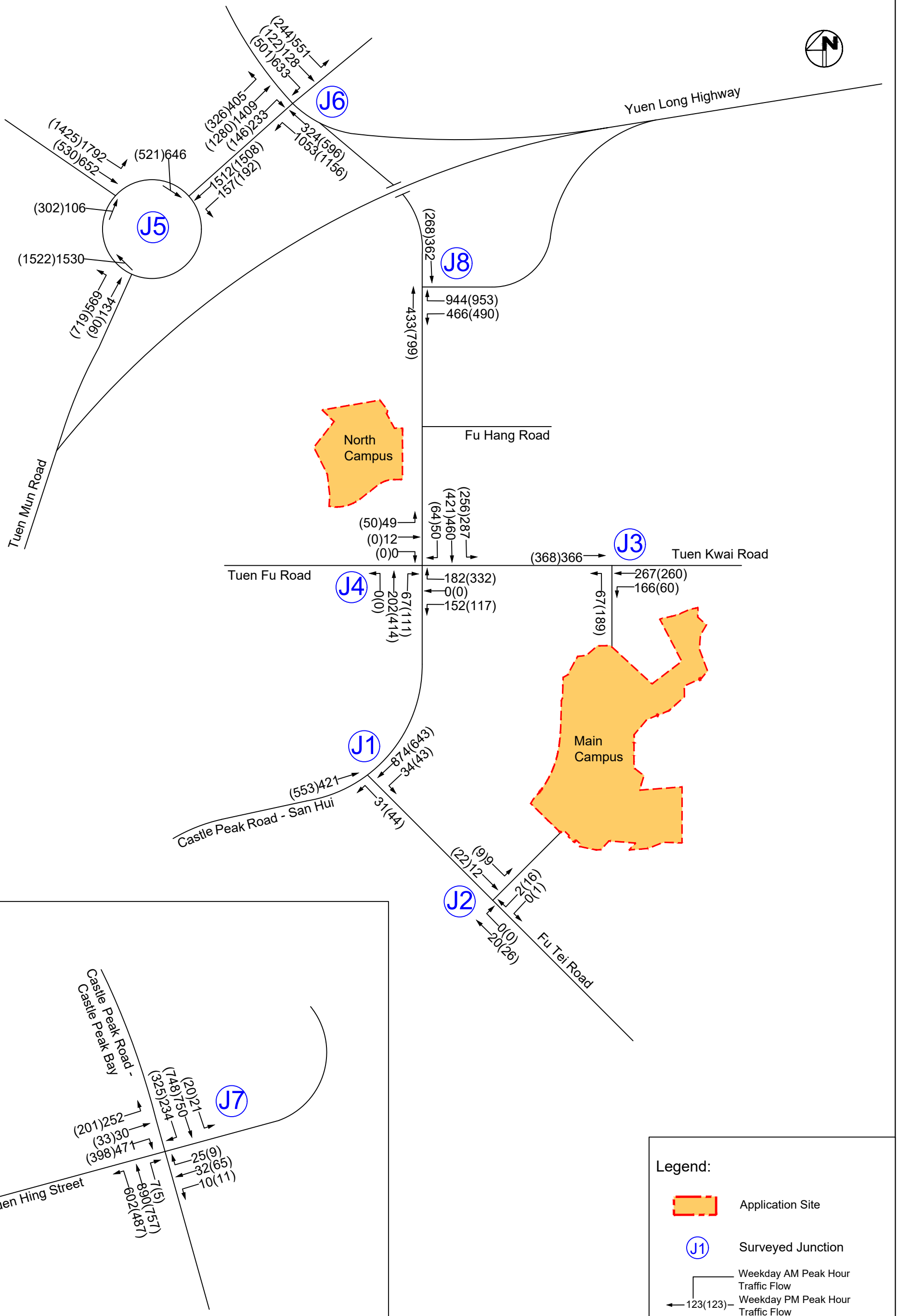
OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University, NO.8 Castle Peak Road - Lingnan, Tuen Mun

2025 Observed Peak Hour Pedestrian Flows

Date	Scale	Project No.	Rev.
27/05/2026	1:2000	83202	B
		Dwg No. Figure 3-5	



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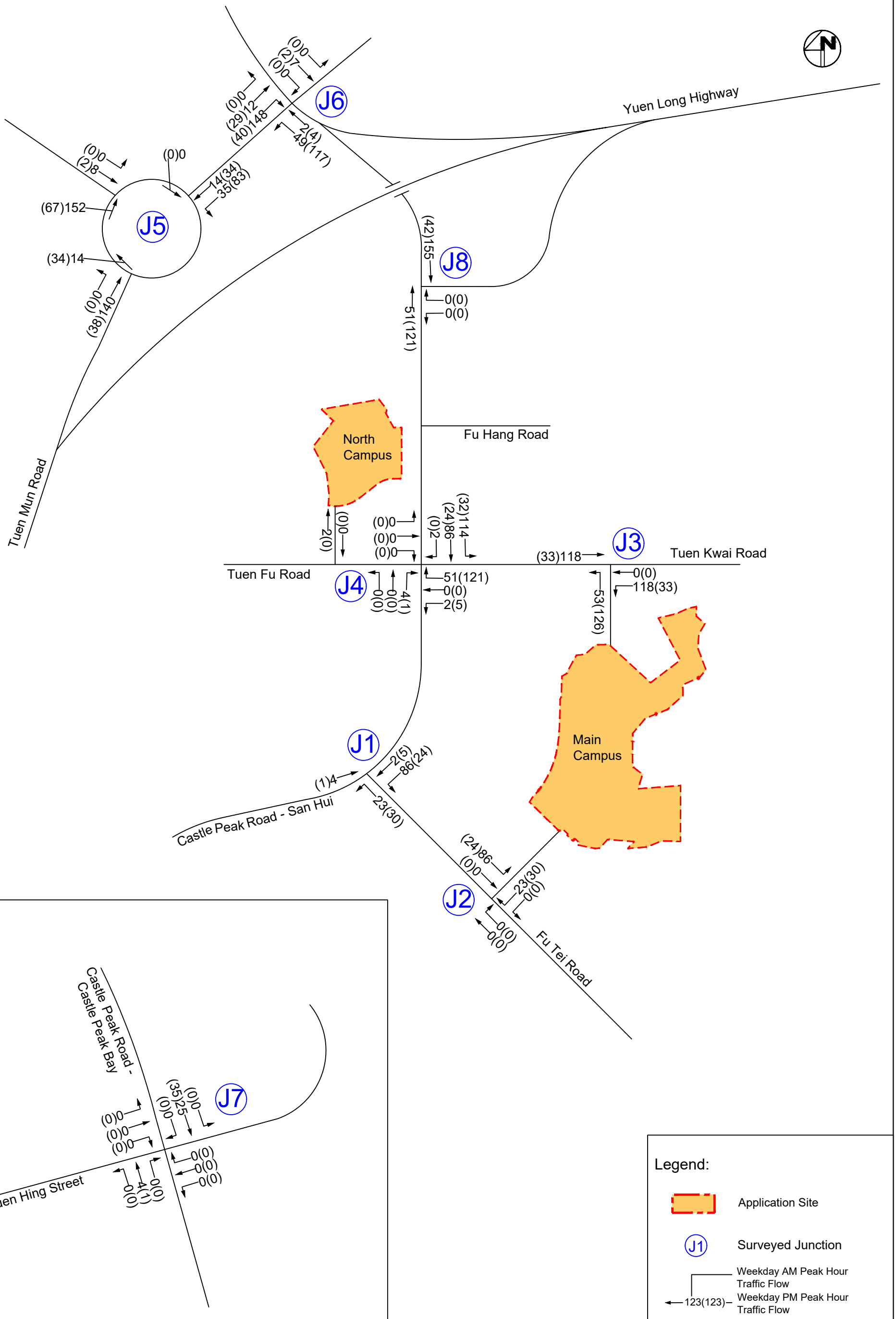
OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

2041 Reference Peak Hour Traffic Flows

Date	Scale	Project No.	Rev.
27/05/2026	NTS	83202	B
		Dwg No. Figure 4-1	



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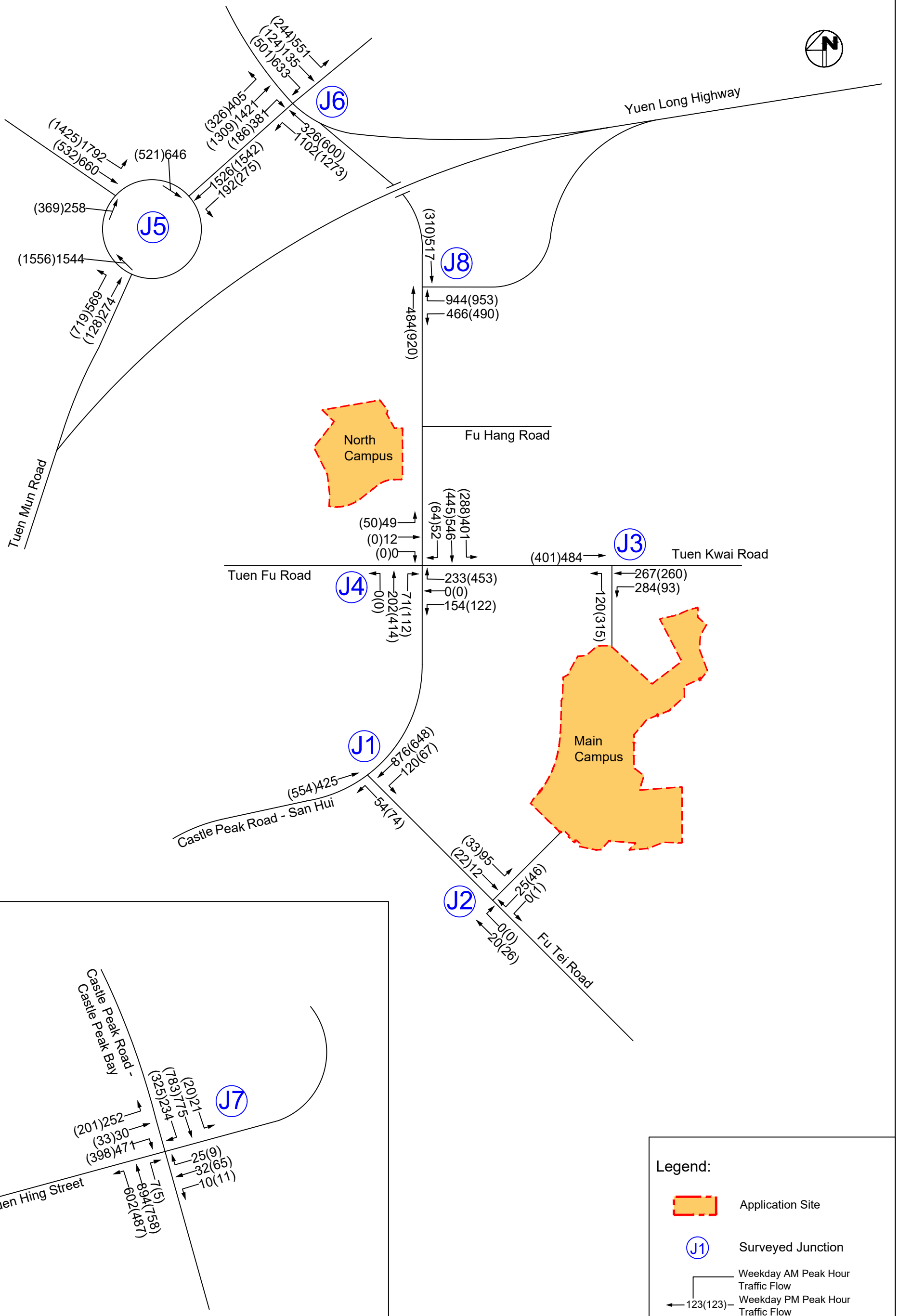
OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

Peak Hour Development Traffic Flows

Date	Scale	Project No.	Rev.
27/05/2026	NTS	83202	A
		Dwg No. Figure 4-2	



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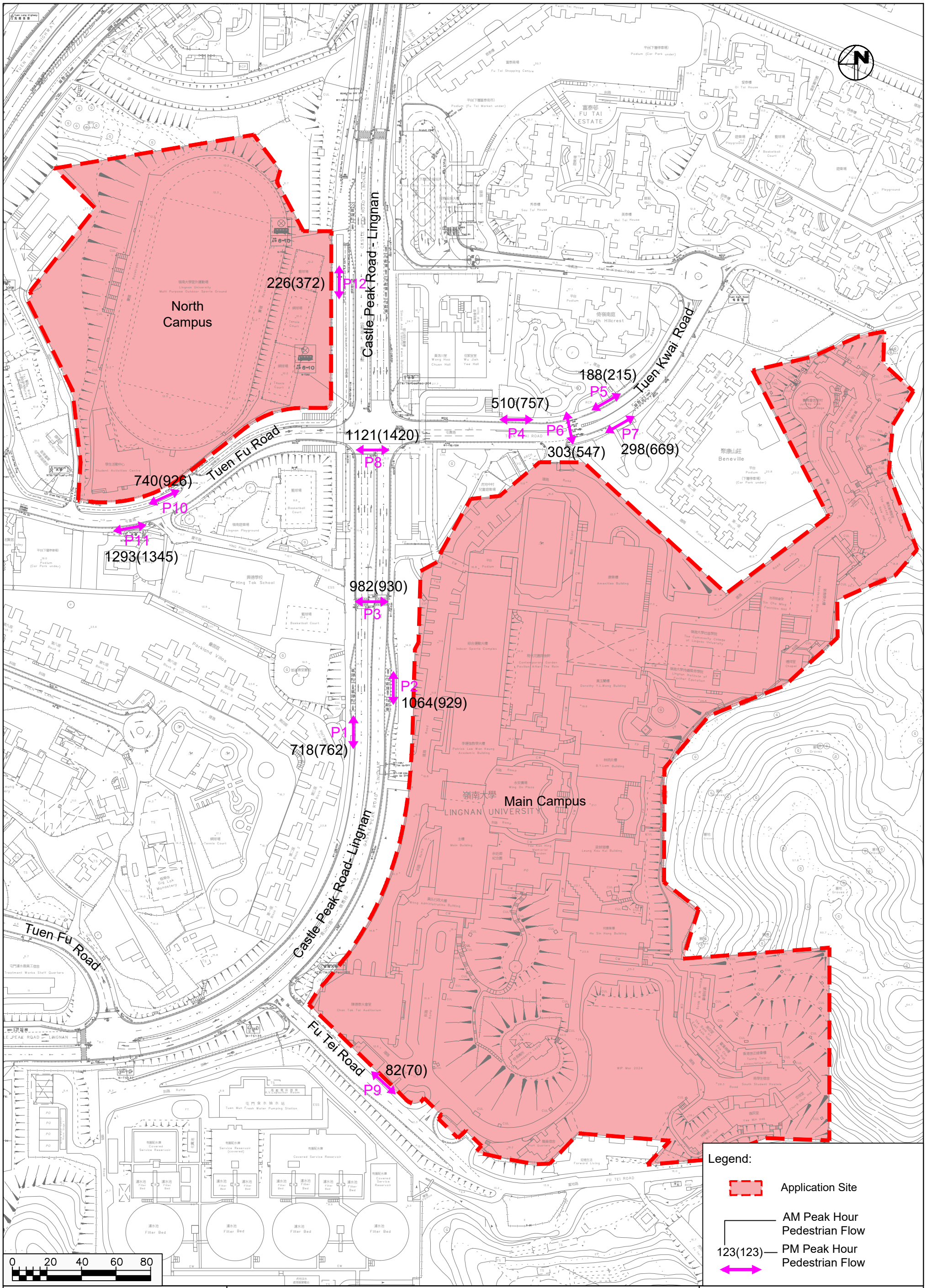
OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

2041 Design Peak Hour Traffic Flows

Date	Scale	Project No.	Rev.
27/05/2026	NTS	83202	B
		Dwg No. Figure 4-3	



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OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University, NO.8 Castle Peak Road - Lingnan, Tuen Mun

Design Scenario Pedestrian Flows

Date	Scale	Project No.	Rev.
27/05/2026	1:2000	83202	B
		Dwg No. Figure 5-1	

Footpath to be widened by 1m

3.1m 1m

Castle Peak Road- Lingnan

CASTLE PEAK ROAD – LINGNAN

籃球場
Basketball Court

綜合運動大樓
Indoor Sports Complex

李運強教學大樓
Patrick Lee Wan Keung Academic Building

嶺南大學
LINGNAN UN

主樓
Main Building

第四座 Block 4

第三座 Block 3

第二座 Block 2

平台(下層停車場)
Podium (Car Park under)

鄧美善堂墓苑

Legend:

Application Site

0 5 10 15 20

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OZZO TECHNOLOGY

Technical Feasibility Study for Lingnan University,
NO.8 Castle Peak Road - Lingnan, Tuen Mun

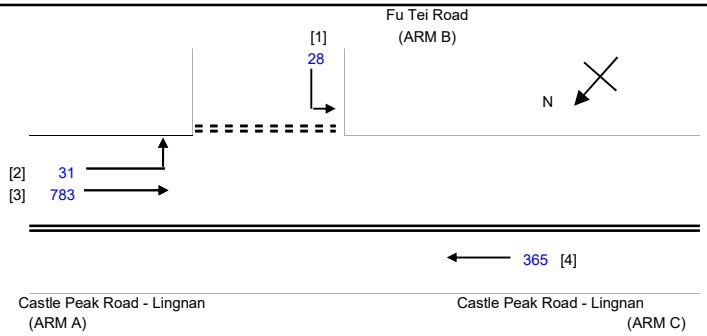
Proposed Extent of Footpath Widening at Castle Peak Road - Lingnan (Southbound)

Date	Scale	Project No.	Rev.
30/03/2026	1:500	83202	-
		Dwg No. Figure 5-2	

Annex A

2025 Junction Calculation Sheets

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J1 : Castle Peak Road - Lingnan / Fu Tei Road	**2025 AM**	FILENAME :	CHECKED BY:	DP	Mar-26
2025 Observed Weekday AM Peak Hour Traffic Flows		J1_Castle Peak Road - Lingnan_Fu Tei Road_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	15.94	(metres)
W cr	=	2.2	(metres)
q a-b	=	31	(pcu/hr)
q a-c	=	783	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	7.45	(metres)
Vr c-b	=	30	(metres)
q c-a	=	365	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.78	(metres)
W b-c	=		(metres)
Vl b-a	=	88	(metres)
Vr b-a	=	78	(metres)
Vr b-c	=	78	(metres)
q b-a	=		(pcu/hr)
q b-c	=	28	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.024809
E	=	0.6320692
F	=	1.2472668
Y	=	0.4502425

THE CAPACITY OF MOVEMENT :

Q b-a	=	502			
Q b-c	=	389	Q b-c (O) =	389	
Q c-b	=	763			

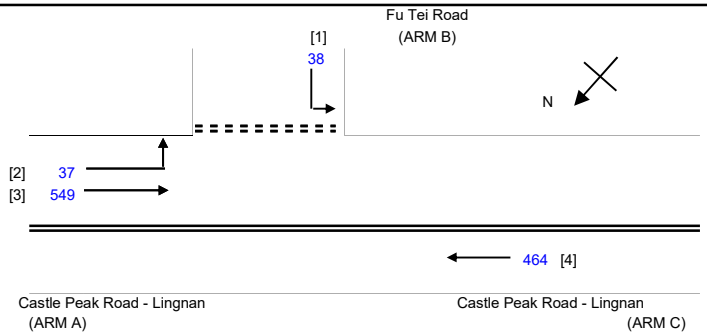
TOTAL FLOW = 842 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0720
DFC c-b	=	0.0000

CRITICAL DFC = 0.07

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J1 : Castle Peak Road - Lingnan / Fu Tei Road	**2025 PM**	FILENAME :	CHECKED BY:	DP	Mar-26
2025 Observed Weekday PM Peak Hour Traffic Flows		J1_Castle Peak Road - Lingnan_Fu Tei Road_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	15.94	(metres)
W cr	=	2.2	(metres)
q a-b	=	37	(pcu/hr)
q a-c	=	549	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	7.45	(metres)
Vr c-b	=	30	(metres)
q c-a	=	464	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.78	(metres)
W b-c	=		(metres)
Vl b-a	=	88	(metres)
Vr b-a	=	78	(metres)
Vr b-c	=	78	(metres)
q b-a	=		(pcu/hr)
q b-c	=	38	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.024809
E	=	0.6320692
F	=	1.2472668
Y	=	0.4502425

THE CAPACITY OF MOVEMENT :

Q b-a	=	530			
Q b-c	=	413	Q b-c (O) =	413	
Q c-b	=	809			

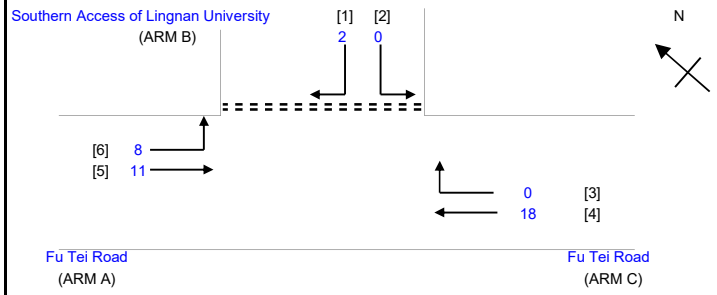
TOTAL FLOW = 624 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0920
DFC c-b	=	0.0000

CRITICAL DFC = 0.09

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL Mar-26
J2: Fu Tei Road / Southern Access of Lingnan University	**2025 AM**	FILENAME :	CHECKED BY:	DP Mar-26
2025 Observed Weekday AM Peak Hour Traffic Flows		_Southern Access of Lingnan University_P.xls	REVIEWED BY:	OC Mar-26



NOTES : (GEOMETRIC INPUT DATA)

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W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.61	(metres)
W cr	=	0	(metres)
q a-b	=	8	(pcu/hr)
q a-c	=	11	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.8	(metres)
Vr c-b	=	30	(metres)
q c-a	=	18	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.3	(metres)
W b-c	=	3.3	(metres)
Vl b-a	=	55	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	2	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8957774
E	=	0.949923
F	=	0.9319579
Y	=	0.737455
F for (Qb-ac)	=	0

THE CAPACITY OF MOVEMENT :

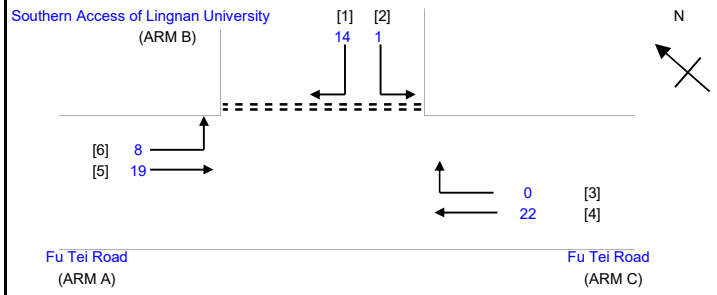
Q b-a	=	556	
Q b-c	=	704	
Q c-b	=	690	
Q b-ac	=	556	
TOTAL FLOW	=	39	(PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0036
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-c (share lane)	=	0.0036

CRITICAL DFC = 0.00

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL Mar-26
J2: Fu Tei Road / Southern Access of Lingnan University	**2025 PM**	FILENAME :	CHECKED BY:	DP Mar-26
2025 Observed Weekday PM Peak Hour Traffic Flows		_Southern Access of Lingnan University_P.xls	REVIEWED BY:	OC Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.61	(metres)
W cr	=	0	(metres)
q a-b	=	8	(pcu/hr)
q a-c	=	19	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.8	(metres)
Vr c-b	=	30	(metres)
q c-a	=	22	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.3	(metres)
W b-c	=	3.3	(metres)
Vl b-a	=	55	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	14	(pcu/hr)
q b-c	=	1	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8957774
E	=	0.949923
F	=	0.9319579
Y	=	0.737455
F for (Qb-ac)	=	0

THE CAPACITY OF MOVEMENT :

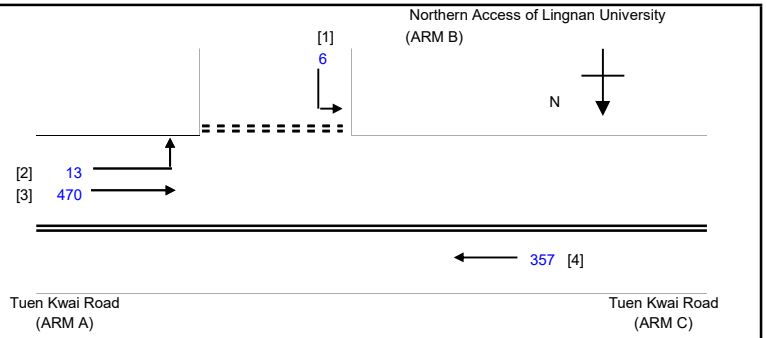
Q b-a	=	553	
Q b-c	=	702	
Q c-b	=	688	
Q b-ac	=	553	
TOTAL FLOW	=	64	(PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0253
DFC b-c	=	0.0014
DFC c-b	=	0.0000
DFC b-c (share lane)	=	0.0271

CRITICAL DFC = 0.03

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J3 : Tuen Kwai Road / Northern Access of Lingnan University	**2025 AM**	FILENAME :	CHECKED BY:	DP	Mar-26
2025 Observed Weekday AM Peak Hour Traffic Flows		Road_Northern Access of Lingnan University_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	10.05	(metres)
W cr	=	2.5	(metres)
q a-b	=	13	(pcu/hr)
q a-c	=	470	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.82	(metres)
Vr c-b	=	20	(metres)
q c-a	=	357	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=		(metres)
W b-c	=	7.42	(metres)
Vl b-a	=	78	(metres)
Vr b-a	=	85	(metres)
Vr b-c	=	85	(metres)
q b-a	=		(pcu/hr)
q b-c	=	6	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6087235
E	=	1.3120205
F	=	0.8390018
Y	=	0.6534475

THE CAPACITY OF MOVEMENT :

Q b-a	=	302			
Q b-c	=	829	Q b-c (O) =	829	
Q c-b	=	529			

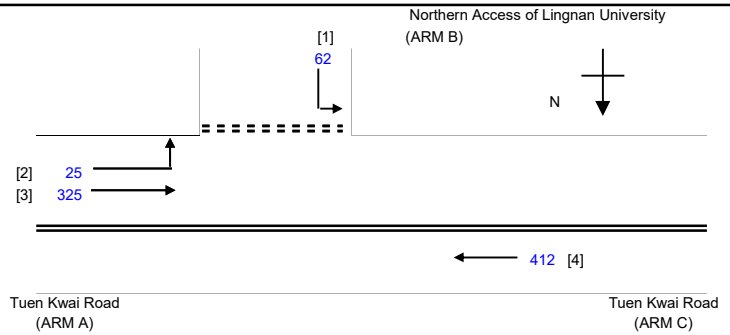
TOTAL FLOW = 489 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0072
DFC c-b	=	0.0000

CRITICAL DFC = 0.01

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J3 : Tuen Kwai Road / Northern Access of Lingnan University	**2025 PM**	FILENAME :	CHECKED BY:	DP	Mar-26
2025 Observed Weekday PM Peak Hour Traffic Flows		Road_Northern Access of Lingnan University_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	10.05	(metres)
W cr	=	2.5	(metres)
q a-b	=	25	(pcu/hr)
q a-c	=	325	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.82	(metres)
Vr c-b	=	20	(metres)
q c-a	=	412	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=		(metres)
W b-c	=	7.42	(metres)
Vl b-a	=	78	(metres)
Vr b-a	=	85	(metres)
Vr b-c	=	85	(metres)
q b-a	=		(pcu/hr)
q b-c	=	62	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6087235
E	=	1.3120205
F	=	0.8390018
Y	=	0.6534475

THE CAPACITY OF MOVEMENT :

Q b-a	=	317			
Q b-c	=	873	Q b-c (O) =	873	
Q c-b	=	555			

TOTAL FLOW = 412 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

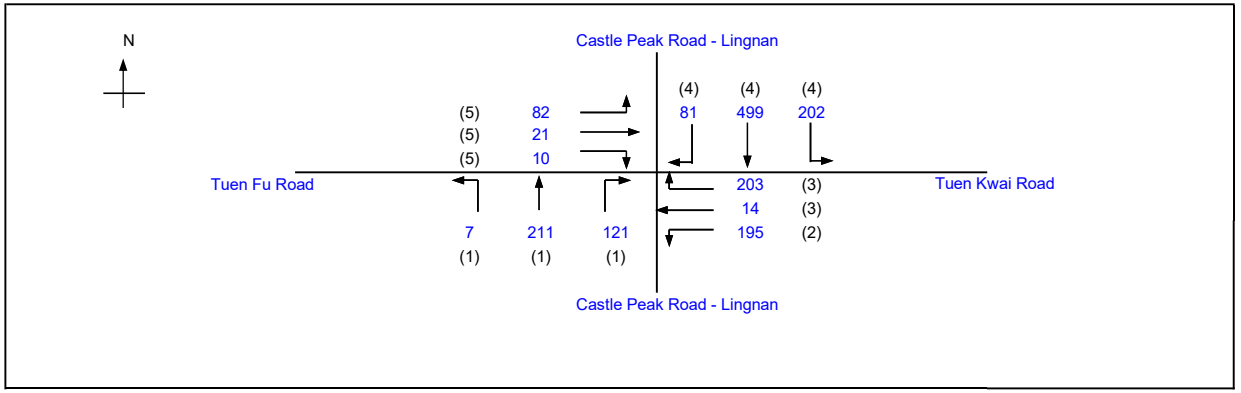
DFC b-a	=	0.0000
DFC b-c	=	0.0710
DFC c-b	=	0.0000

CRITICAL DFC = 0.07

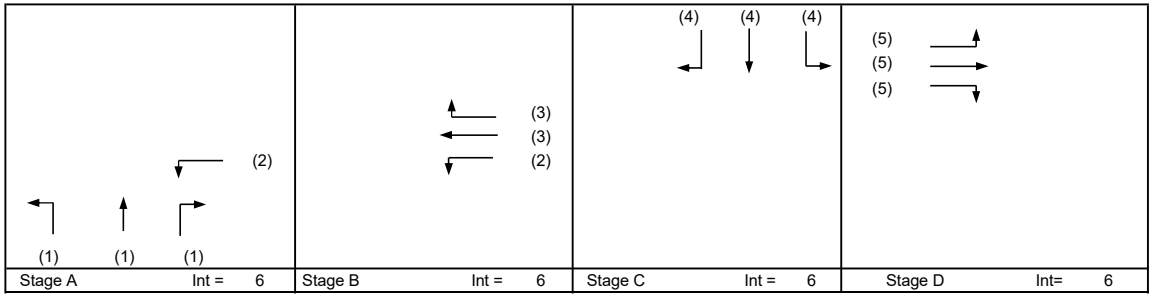
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J4: Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road	FILENAME :	Checked By:	DP	Mar-26
2025 Observed AM Peak Hour Traffic Flows	**2025 AM** J4_Castle Peak Road - Lingnan_Tuen Fu Road_Tuen Kv	Reviewed By:	OC	Mar-26



		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.376	
Loss time	L =	20	sec
Total Flow	=	1646	pcu
Co = (1.5*L+5)/(1-Y)	=	56.0	sec
Cm = L/(1-Y)	=	32.0	sec
Yult	=	0.750	
R.C.ult = (Yult-Y)/Y*100%	=	99.7	%
Cp = 0.9*L/(0.9-Y)	=	34.3	sec
Ymax = 1-L/C	=	0.833	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	99.7	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

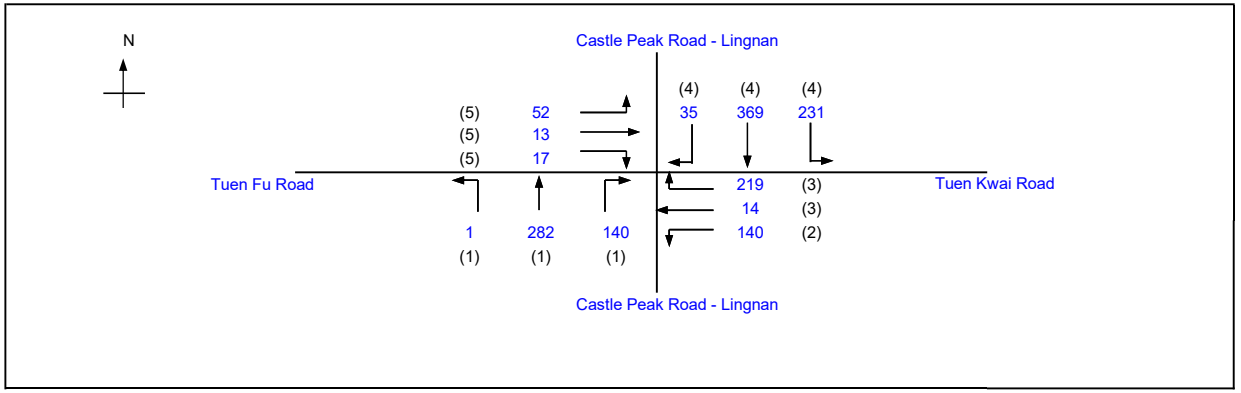
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
LT,SA	A	3.58	1	1	9			2113	7	102		109	0.06	2091			2091	0.052			14	19	0.055	18	43
SA	A	3.53	1	1				2108		109		109	0.00	2108			2108	0.052			14	19	0.055	0	0
RT	A	3.69	1	1	18			2124			121	121	1.00	1961			1961	0.062	0.062		16	19	0.065	18	44
LT	A,B	3.25	2	1	25			2080	195			195	1.00	1962			1962	0.099			26	60	0.033	18	15
SA, RT	B	3.50	3	1	12			2105		14	203	217	0.94	1885			1885	0.115	0.115		31	36	0.064	30	32
LT,SA	C	3.70	4	1	11			2125	81	204		285	0.28	2046			2046	0.139			37	31	0.090	42	38
SA	C	3.59	4	1				2114		295		295	0.00	2114			2114	0.139	0.139		37	31	0.090	0	0
RT	C	3.59	4	1	17			2114			202	202	1.00	1943			1943	0.104			28	31	0.067	24	35
LT,SA,RT	D	3.46	5	1	12			2101	82	21	10	113	0.81	1907			1907	0.059	0.059		16	14	0.085	18	52

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

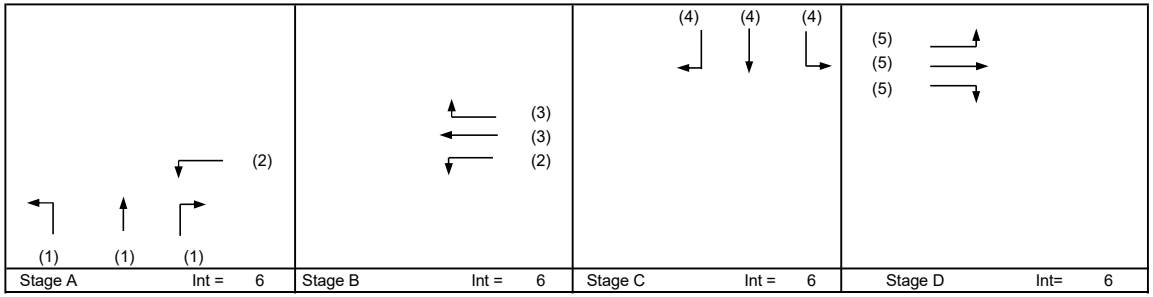
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J4: Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road	**2025 PM**	FILENAME :	Checked By:	DP	Mar-26
2025 Observed PM Peak Hour Traffic Flows		J4_Castle Peak Road - Lingnan_Tuen Fu Road_Tuen Kv	Reviewed By:	SC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	110	sec
Sum(y)		Y =	0.357	
Loss time		L =	20	sec
Total Flow		=	1513	pcu
Co	= (1.5*L+5)/(1-Y)	=	54.4	sec
Cm	= L/(1-Y)	=	31.1	sec
Yult		=	0.750	
R.C.ult	= (Yult-Y)/Y*100%	=	110.0	%
Cp	= 0.9*L/(0.9-Y)	=	33.2	sec
Ymax	= 1-L/C	=	0.818	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	106.2	%

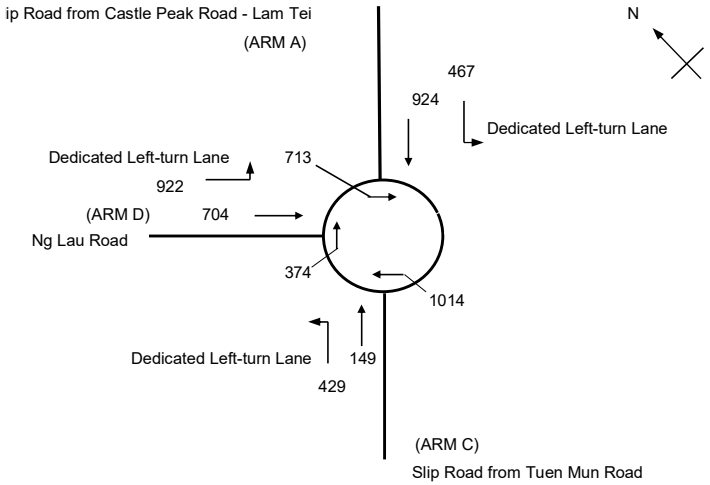


Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
LT,SA	A	3.58	1	1	9			2113	1	141		142	0.01	2111			2111	0.067			17	24	0.056	18	34
SA	A	3.53	1	1				2108		141		141	0.00	2108			2108	0.067			17	24	0.056	0	0
RT	A	3.69	1	1	18			2124			140	140	1.00	1961			1961	0.071	0.071		18	24	0.060	18	34
LT	A,B	3.25	2	1	25			2080	140			140	1.00	1962			1962	0.071			18	50	0.029	12	16
SA, RT	B	3.50	3	1	12			2105		14	219	233	0.94	1884			1884	0.124	0.124		31	21	0.118	30	45
LT,SA	C	3.70	4	1	11			2125	35	165		200	0.17	2076			2076	0.096			24	31	0.062	24	30
SA	C	3.59	4	1				2114		204		204	0.00	2114			2114	0.096			24	31	0.062	0	0
RT	C	3.59	4	1	17			2114			231	231	1.00	1943			1943	0.119	0.119		30	31	0.077	30	31
LT,SA,RT	D	3.46	5	1	12			2101	52	13	17	82	0.84	1901			1901	0.043	0.043		11	14	0.062	12	43

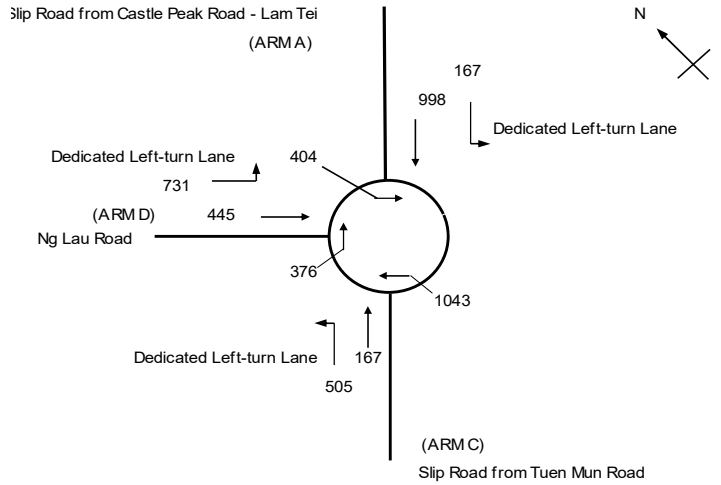
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar/26
J5: Lam Tei Interchange	**2025 AM**	FILENAME :	CHECKED BY:	DP	Mar/26
2025 Observed AM Peak Hour Traffic Flows		J5_Lam Tei Interchange_R.xls	REVIEWED BY:	OC	Mar/26



ARM			A	C	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.0	3.5	6.2			
E	=	Entry width (m)	7.2	3.7	7.2			
L	=	Effective length of flare (m)	4.0	18.0	9.1			
R	=	Entry radius (m)	33.0	77.2	67.5			
D	=	Inscribed circle diameter (m)	50.5	50.5	50.5			
A	=	Entry angle (degree)	19.0	20.0	15.0			
Q	=	Entry flow (pcu/h)	924	149	704			
Qc	=	Circulating flow across entry (pcu/h)	713	1014	374			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.07	0.02	0.19			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.07	1.09			
X2	=	V + ((E-V)/(1+2S))	7.15	3.70	6.94			
M	=	EXP((D-60)/10)	0	0	0			
F	=	303*X2	2166	1121	2102			
Td	=	1+(0.5/(1+M))	1.36	1.36	1.36			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.50	0.68			
Qe	=	K(F-Fc*Qc)	1767	661	2007	Total In Sum =	1777	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.52	0.23	0.35	DFC of Critical Approach =	0.52	

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar/26
J5: Lam Tei Interchange	**2025 PM**	FILENAME :	CHECKED BY:	DP	Mar/26
2025 Observed PM Peak Hour Traffic Flows		J5_Lam Tei Interchange_R.xls	REVIEWED BY:	OC	Mar/26

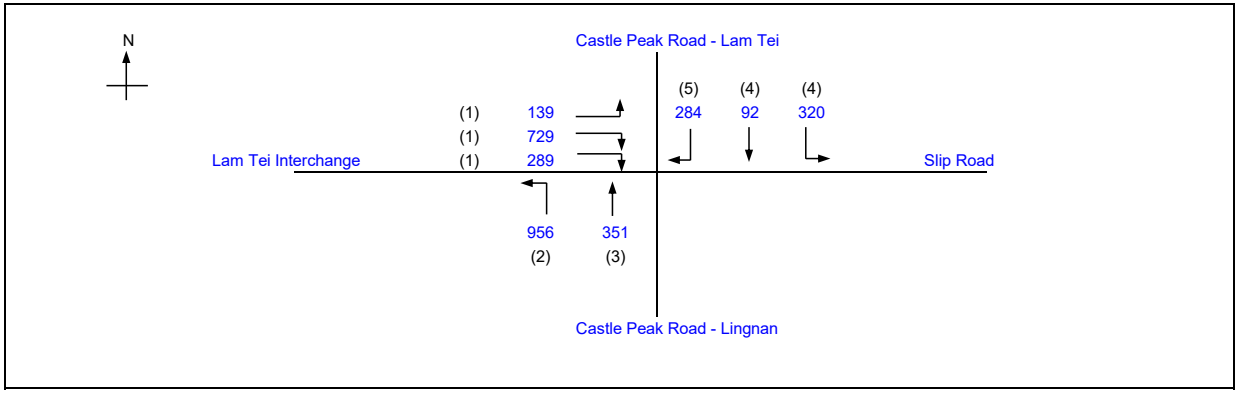


ARM			A	C	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.0	3.5	6.2			
E	=	Entry width (m)	7.2	3.7	7.2			
L	=	Effective length of flare (m)	4.0	18.0	9.1			
R	=	Entry radius (m)	33.0	77.2	67.5			
D	=	Inscribed circle diameter (m)	50.5	50.5	50.5			
A	=	Entry angle (degree)	19.0	20.0	15.0			
Q	=	Entry flow (pcu/h)	998	167	445			
Qc	=	Circulating flow across entry (pcu/h)	404	1043	376			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.07	0.02	0.19			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.07	1.09			
X2	=	V + ((E-V)/(1+2S))	7.15	3.70	6.94			
M	=	EXP((D-60)/10)	0	0	0			
F	=	303*X2	2166	1121	2102			
Td	=	1+(0.5/(1+M))	1.36	1.36	1.36			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.50	0.68			
Qe	=	K(F-Fc*Qc)	1994	645	2005	Total In Sum =	1610	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.50	0.26	0.22	DFC of Critical Approach =	0.50	

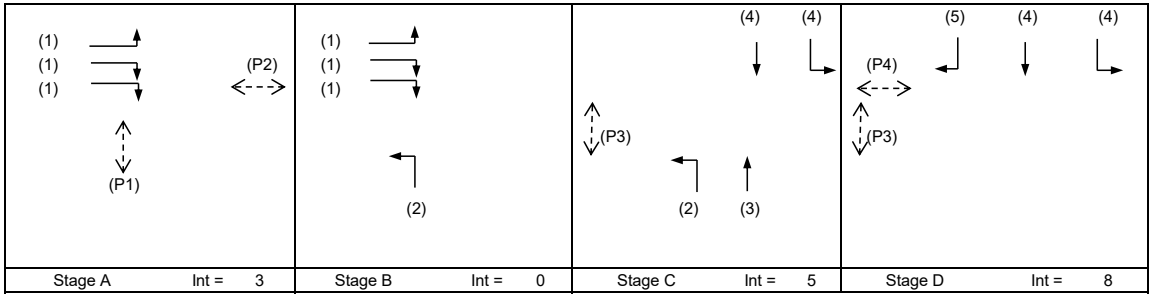
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J6: Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei	FILENAME :	Checked By:	DP	Mar-26
2025 Observed AM Peak Hour Traffic Flows	**2025 AM** Castle Peak Road - Lingnan_Lam Tei Interchange_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	110	sec
Sum(y)		Y =	0.326	
Loss time		L =	27	sec
Total Flow		=	3160	pcu
Co	= (1.5*L+5)/(1-Y)	=	67.5	sec
Cm	= L/(1-Y)	=	40.1	sec
Yult		=	0.698	
R.C.ult	= (Yult-Y)/Y*100%	=	113.9	%
Cp	= 0.9*L/(0.9-Y)	=	42.3	sec
Ymax	= 1-L/C	=	0.755	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	108.2	%



Stage A	Int = 3	Stage B	Int = 0	Stage C	Int = 5	Stage D	Int = 8

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	A	7	5	6	2	5	6
P2	A	7	5	6	2	5	6
P3	C,D	14	6	12	2	36	12
P4	D	8	5	7	2	17	7

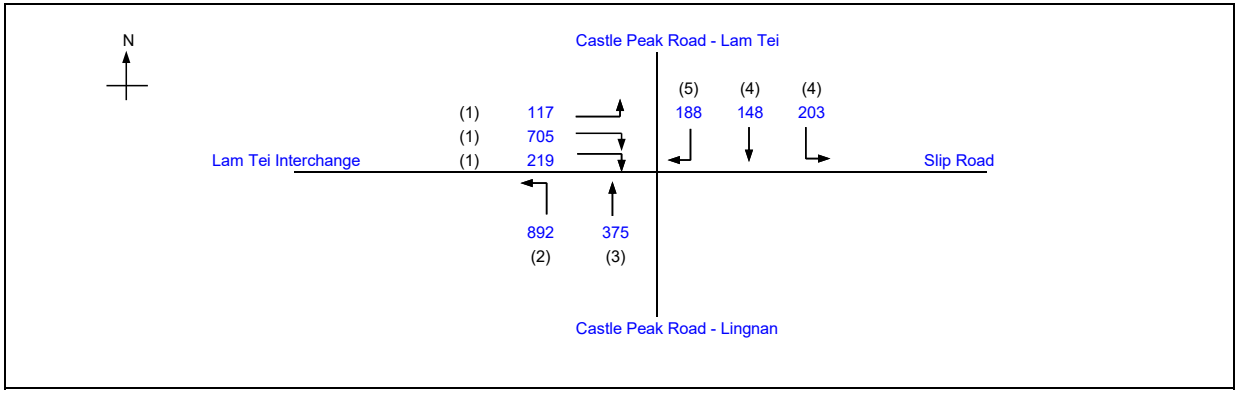
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				14					
LT	A,B	3.40	1	1	15		N	1955	139			139	1.00	1777			1777	0.078			20	47	0.185	12	18
LT,RT	A,B	3.30	1	1	34			2085	0		365	365	1.00	1997			1997	0.183			47	47	0.432	36	22
RT	A,B	3.30	1	1	31			2085			364	364	1.00	1989			1989	0.183			47	47	0.432	36	22
RT	A,B	3.30	1	1	31		N	1945			289	289	1.00	1855			1855	0.156			40	47	0.368	30	21
PED	A																			13					
LT	B,C	3.30	2	2	14			4170	956			956	1.00	3766			3766	0.254	0.254		65	65	0.432	36	12
SA	C	3.30	3	2				4170		351		351	0.00	4170			4170	0.084			21	21	0.432	24	37
LT	C,D	3.30	4	1	100		N	1945	320			320	1.00	1916			1916	0.167			43	43	0.432	30	24
SA	C,D	3.50	4	1				2105		92		92	0.00	2105			2105	0.044			11	43	0.028	6	20
SA,RT	C,D	3.50	5	1	43			2105		0	147	147	1.00	2034			2034	0.072			18	43	0.046	12	21
RT	D	3.50	5	1	40		N	1965			137	137	1.00	1894			1894	0.072	0.072		18	18	0.106	18	41

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

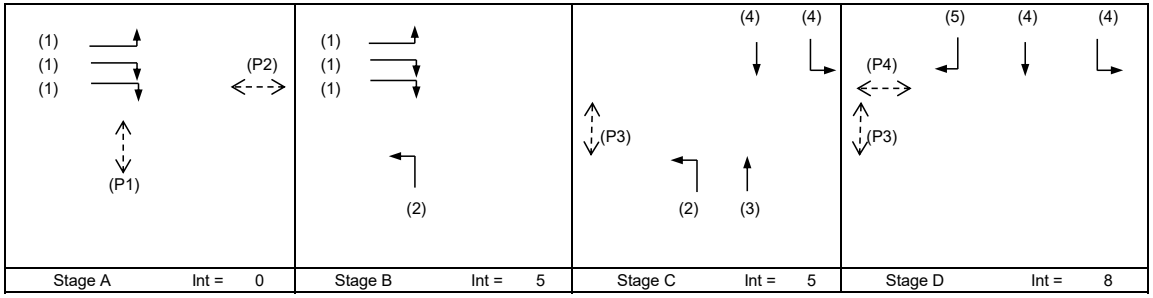
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J6: Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei	FILENAME :	Checked By:	DP	Mar-26
2025 Observed PM Peak Hour Traffic Flows	**2025 PM** Castle Peak Road - Lingnan_Lam Tei Interchange_S.xls	Reviewed By:	OC	Mar-26



		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	110	sec
Sum(y)	Y =	0.322	
Loss time	L =	15	sec
Total Flow	=	2847	pcu
Co = (1.5*L+5)/(1-Y)	=	40.6	sec
Cm = L/(1-Y)	=	22.1	sec
Yult	=	0.788	
R.C.ult = (Yult-Y)/Y*100%	=	144.3	%
Cp = 0.9*L/(0.9-Y)	=	23.4	sec
Ymax = 1-L/C	=	0.864	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	141.1	%



Stage A	Int = 0	Stage B	Int = 5	Stage C	Int = 5	Stage D	Int = 8

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	A	7	5	6	2	6	6
P2	A	7	5	6	2	6	6
P3	C,D	14	6	12	2	40	12
P4	D	8	5	7	2	15	7

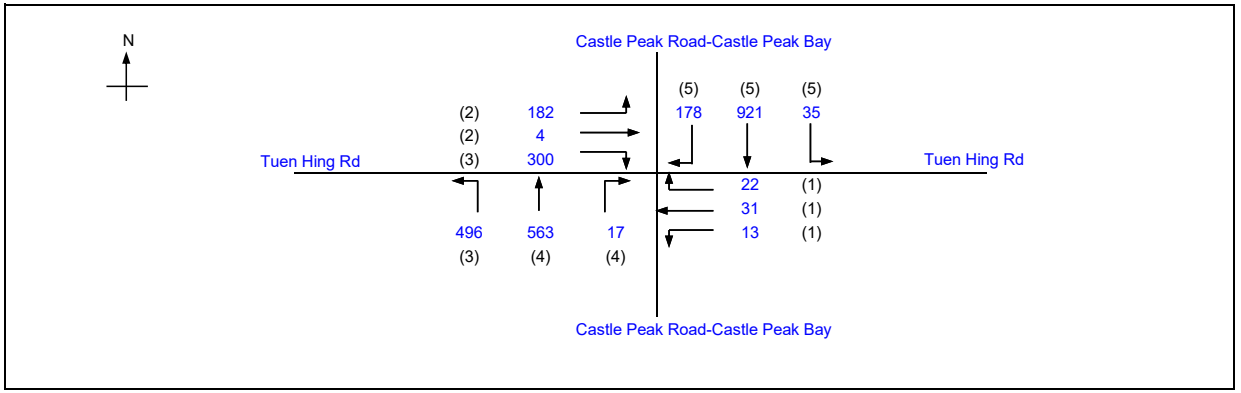
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT	A,B	3.40	1	1	15		N	1955	117			117	1.00	1777			1777	0.066			19	52	0.139	6	15
LT,RT	A,B	3.30	1	1	34			2085	0		353	353	1.00	1997			1997	0.177	0.177		52	52	0.373	30	18
RT	A,B	3.30	1	1	31			2085			352	352	1.00	1989			1989	0.177			52	52	0.373	30	18
RT	A,B	3.30	1	1	31		N	1945			219	219	1.00	1855			1855	0.118			35	52	0.249	18	16
LT	B,C	3.30	2	2	14			4170	892			892	1.00	3766			3766	0.237			70	70	0.373	27	9
SA	C	3.30	3	2				4170		375		375	0.00	4170			4170	0.090	0.090		27	27	0.373	24	32
LT	C,D	3.30	4	1	100		N	1945	203			203	1.00	1916			1916	0.106			31	31	0.373	24	30
SA	C,D	3.50	4	1				2105		117		117	0.00	2105			2105	0.056			16	31	0.027	12	28
SA,RT	C,D	3.50	5	1	43			2105		31	83	114	0.73	2053			2053	0.056			16	31	0.027	12	28
RT	D	3.50	5	1	40		N	1965			105	105	1.00	1894			1894	0.056	0.056		16	16	0.051	12	41

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

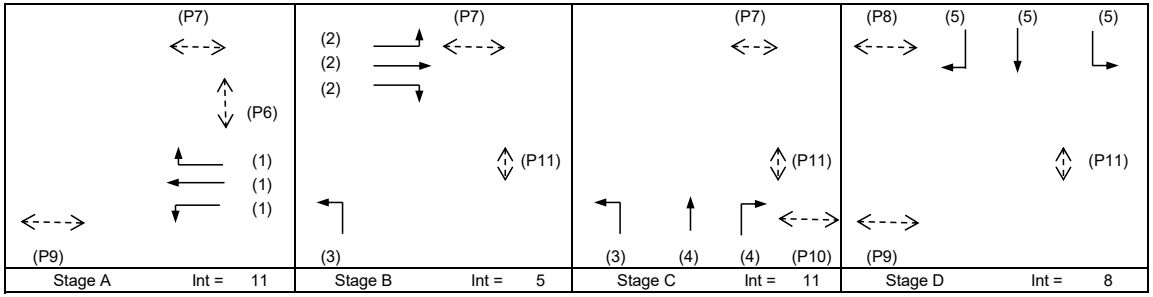
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J7: Castle Peak Road-Castle Peak Bay / Tuen Hing Road	FILENAME :	Checked By:	DP	Mar-26
2025 Observed AM Peak Hour Traffic Flows	**2025 AM** stle Peak Road-Castle Peak Bay_Tuen Hing Road_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.466	
Loss time		L =	37	sec
Total Flow		=	2762	pcu
Co	= (1.5*L+5)/(1-Y)	=	113.3	sec
Cm	= L/(1-Y)	=	69.3	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	33.6	%
Cp	= 0.9*L/(0.9-Y)	=	76.7	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38.1	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P6	A	8	5	7	2	8	6
P7	A,B,C	12	6	10	1	64	10
P8	D	11	6	9	2	43	9
P9	A	8	5	7	3	7	6
P10	C	11	6	9	9	20	9
P11	B,C,D	9	5	8	3	102	8

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				32					
LT,SA	D	3.40	5	1	15		N	1955	35	426		461	0.08	1940			1940	0.237	0.237		47	47	0.657	60	36
SA,RT	D	3.30	5	1	20			2085		495	0	495	0.00	2085			2085	0.237			47	47	0.657	66	35
RT	D	3.30	5	1	20		N	1945			178	178	1.00	1809			1809	0.098			20	47	0.272	24	27
LT,SA	A	3.30	1	1	15		N	1945	13	20		33	0.40	1871			1871	0.018		5	4	6	0.384	6	66
SA,RT	A	3.30	1	1	20		N	1945		11	22	33	0.67	1852			1852	0.018			4	6	0.384	6	66
LT	B,C	3.50	3	2	15		N	4070	496			496	1.00	3700			3700	0.134			27	54	0.323	30	24
SA	C	3.50	4	1				2105		300		300	0.00	2105			2105	0.143	0.143		28	28	0.189	48	49
SA,RT	C	3.50	4	1	20		N	1965		262	17	279	0.06	1956			1956	0.143			28	28	0.189	42	50
LT	B	3.40	2	1	15		N	1955	153			153	1.00	1777			1777	0.086	0.086		17	17	0.657	30	62
LT,SA,RT	B	3.40	2	1	15			2095	29	4	130	164	0.97	1909			1909	0.086			17	17	0.187	30	61
RT	B	3.40	2	1	25			2095			170	170	1.00	1976			1976	0.086			17	17	0.187	0	0

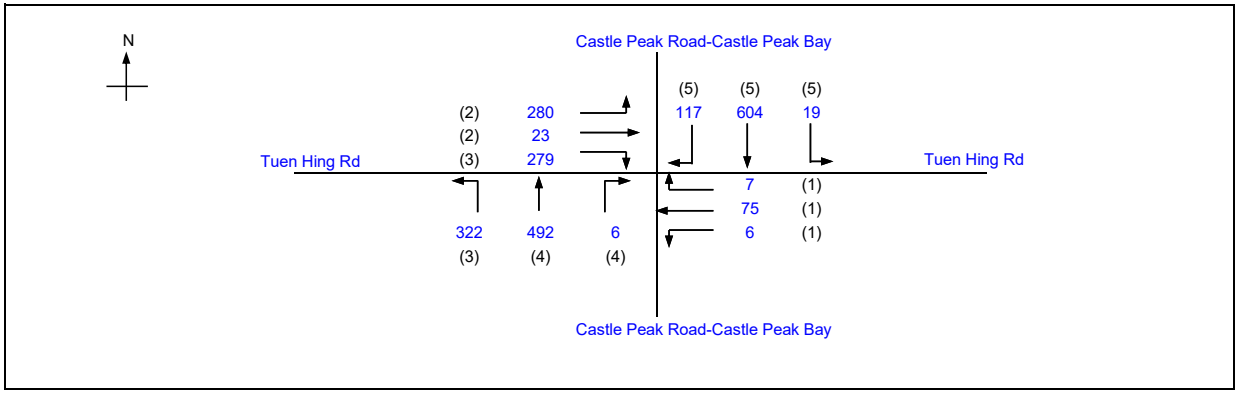
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED

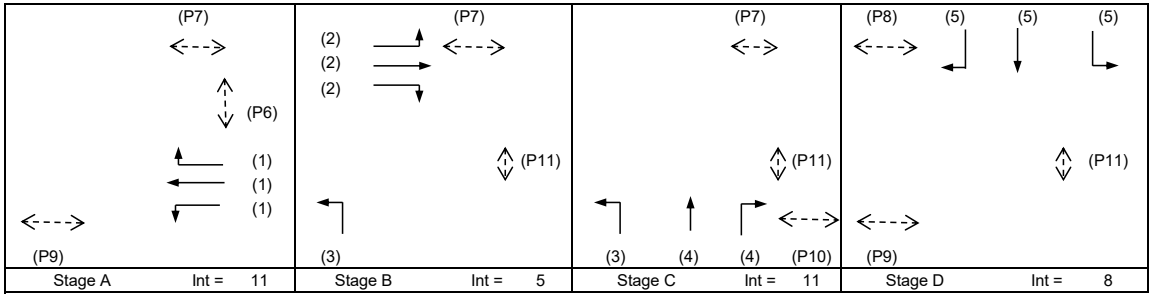
TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J7: Castle Peak Road-Castle Peak Bay / Tuen Hing Road	FILENAME :	Checked By:	DP	Mar-26
2025 Observed PM Peak Hour Traffic Flows	stle Peak Road-Castle Peak Bay_Tuen Hing Road_S.xls	Reviewed By:	OC	Mar-26

2025 PM



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.402	
Loss time		L =	31	sec
Total Flow		=	2229	pcu
Co	= (1.5*L+5)/(1-Y)	=	86.2	sec
Cm	= L/(1-Y)	=	51.9	sec
Yult		=	0.668	
R.C.ult	= (Yult-Y)/Y*100%	=	65.9	%
Cp	= 0.9*L/(0.9-Y)	=	56.1	sec
Ymax	= 1-L/C	=	0.762	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	70.3	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P6	A	8	5	7	2	8	6
P7	A,B,C	12	6	10	1	74	10
P8	D	11	6	9	2	34	9
P9	A	8	5	7	3	7	6
P10	C	11	6	9	9	22	9
P11	B,C,D	9	5	8	3	103	8

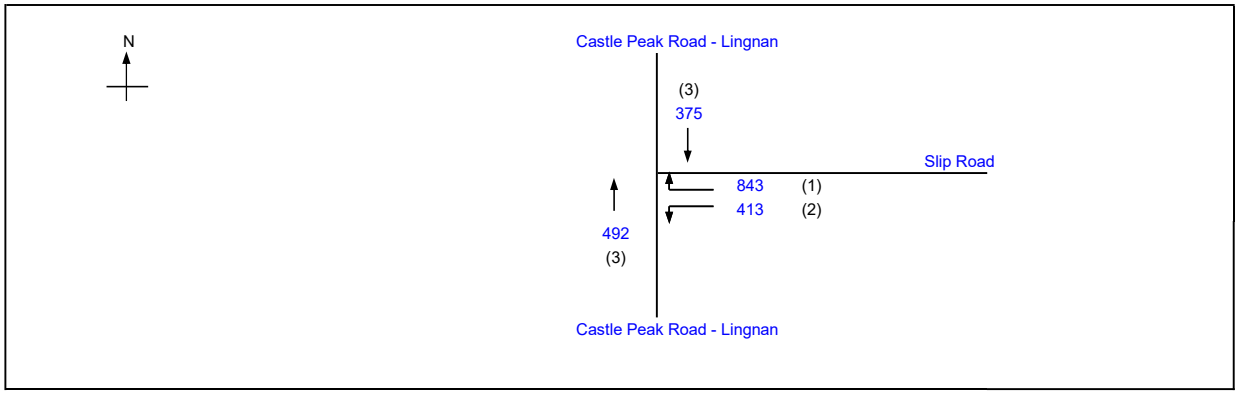
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				31					
LT,SA	D	3.40	5	1	15		N	1955	19	282		300	0.06	1943			1943	0.154	0.154		38	38	0.529	42	38
SA,RT	D	3.30	5	1	20			2085		322	0	322	0.00	2085			2085	0.154			38	38	0.529	48	38
RT	D	3.30	5	1	20		N	1945			117	117	1.00	1809			1809	0.064			16	38	0.221	12	32
LT,SA	A	3.30	1	1	15		N	1945	6	39		44	0.13	1921			1921	0.023	0.023		6	6	0.496	6	72
SA,RT	A	3.30	1	1	20		N	1945		37	7	44	0.16	1922			1922	0.023			6	6	0.496	6	72
LT	B,C	3.50	3	2	15		N	4070	322			322	1.00	3700			3700	0.087			21	64	0.177	15	17
SA	C	3.50	4	1				2105		258		258	0.00	2105			2105	0.123	0.123		30	30	0.127	42	43
SA,RT	C	3.50	4	1	20		N	1965		234	6	240	0.03	1961			1961	0.123			30	30	0.127	36	44
LT	B	3.40	2	1	15		N	1955	182			182	1.00	1777			1777	0.102	0.102		25	25	0.533	30	48
LT,SA,RT	B	3.40	2	1	15			2095	98	23	77	197	0.88	1925			1925	0.102			25	25	0.127	30	48
RT	B	3.40	2	1	25			2095			202	202	1.00	1976			1976	0.102			25	25	0.127	0	0

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

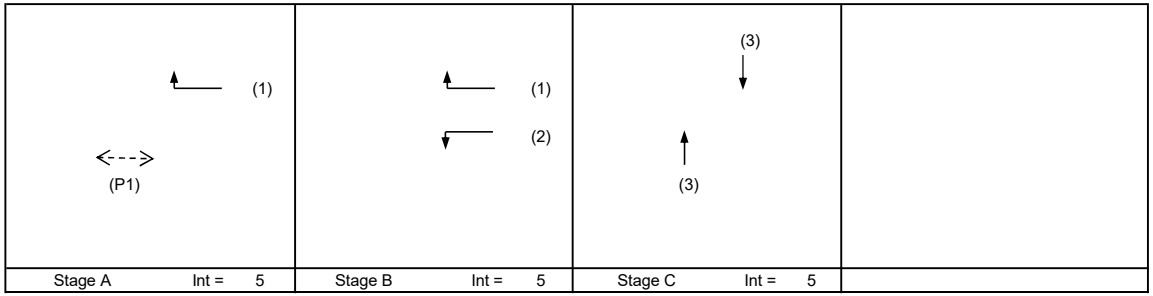
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J8: Castle Peak Road - Lingnan / Slip Road from Yuen Long Highway	FILENAME :	Checked By:	DP	Mar-26
2025 Observed AM Peak Hour Traffic Flows	**2025 AM**	pad - Lingnan_Slip Road from Yuen Long Highway_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	110	sec
Sum(y)		Y =	0.353	
Loss time		L =	13	sec
Total Flow		=	2123	pcu
Co	= (1.5*L+5)/(1-Y)	=	37.9	sec
Cm	= L/(1-Y)	=	20.1	sec
Yult		=	0.803	
R.C.ult	= (Yult-Y)/Y*100%	=	127.0	%
Cp	= 0.9*L/(0.9-Y)	=	21.4	sec
Ymax	= 1-L/C	=	0.882	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	124.5	%



Stage A	Int = 5	Stage B	Int = 5	Stage C	Int = 5

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

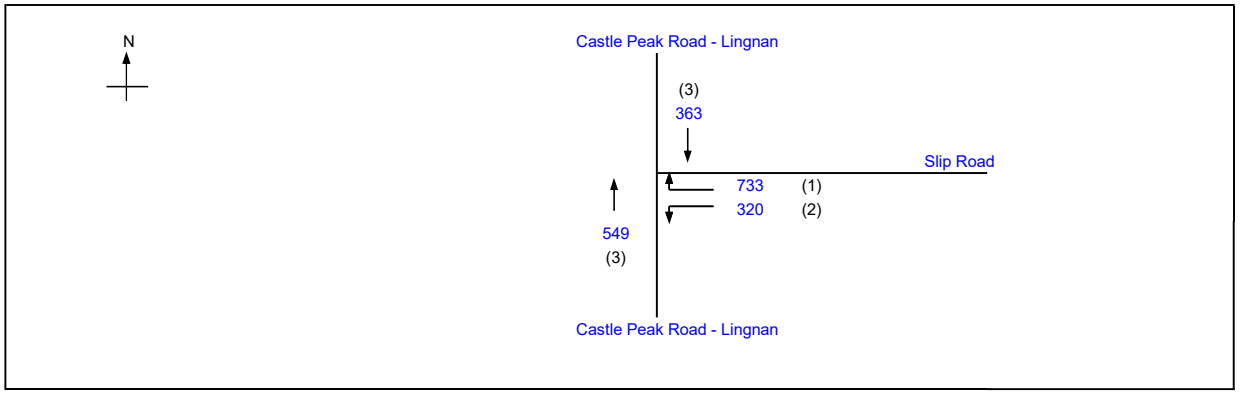
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				13					
LT	B	3.40	1	1	13		N	1955	413			413	1.00	1753			1753	0.235			65	34	0.762	48	40
LT,RT	B	3.10	1	1	13			2065	0		436	436	1.00	1851			1851	0.235			65	34	0.762	54	40
RT	A,B	3.00	1	1	14		N	1915			407	407	1.00	1730			1730	0.235	0.235		65	55	0.471	36	18
SA	C	3.30	3	2				4170		492		492	0.00	4170			4170	0.118	0.118		32	40	0.324	27	23
SA	C	3.50	3	2				4210		375		375	0.00	4210			4210	0.089			24	40	0.029	21	22

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

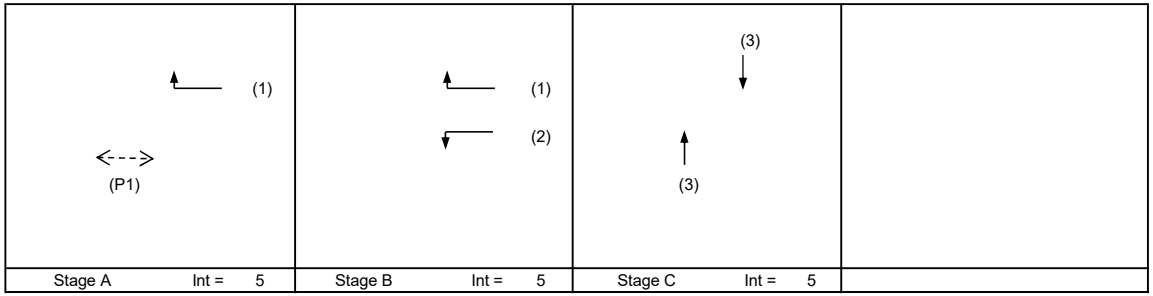
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J8: Castle Peak Road - Lingnan / Slip Road from Yuen Long Highway	**2025 PM**	FILENAME :	Checked By:	DP	Mar-26
2025 Observed PM Peak Hour Traffic Flows		pad - Lingnan_Slip Road from Yuen Long Highway_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	110	sec
Sum(y)		Y =	0.336	
Loss time		L =	13	sec
Total Flow		=	1965	pcu
Co	= (1.5*L+5)/(1-Y)	=	36.9	sec
Cm	= L/(1-Y)	=	19.6	sec
Yult		=	0.803	
R.C.ult	= (Yult-Y)/Y*100%	=	138.6	%
Cp	= 0.9*L/(0.9-Y)	=	20.8	sec
Ymax	= 1-L/C	=	0.882	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	136.0	%



Stage A	Int = 5	Stage B	Int = 5	Stage C	Int = 5

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

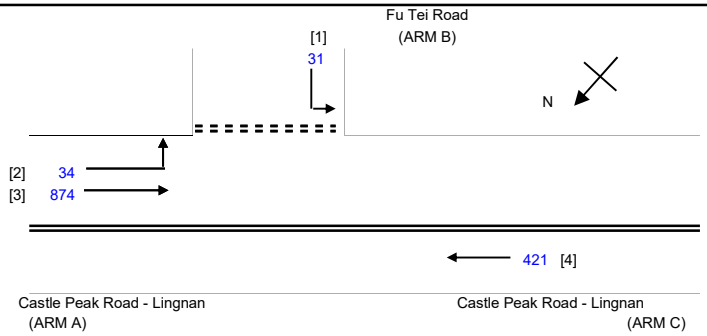
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				13					
LT	B	3.40	1	1	13		N	1955	320			320	1.00	1753			1753	0.183			53	41	0.490	36	26
LT,RT	B	3.10	1	1	13			2065	0		379	379	1.00	1851			1851	0.205			59	41	0.549	42	27
RT	A,B	3.00	1	1	14		N	1915			354	354	1.00	1730			1730	0.205	0.205		59	62	0.363	24	13
SA	C	3.30	3	2				4170		549		549	0.00	4170			4170	0.132	0.132		38	33	0.439	33	29
SA	C	3.50	3	2				4210		363		363	0.00	4210			4210	0.086			25	33	0.034	21	27

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Annex B

2041 Junction Calculation Sheets

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J1 : Castle Peak Road - Lingnan / Fu Tei Road	**2041 Ref_AM**	FILENAME :	CHECKED BY:	DP	Mar-26
2041 Reference Weekday AM Peak Hour Traffic Flows		J1_Castle Peak Road - Lingnan_Fu Tei Road_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	15.94	(metres)
W cr	=	2.2	(metres)
q a-b	=	34	(pcu/hr)
q a-c	=	874	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	7.45	(metres)
Vr c-b	=	30	(metres)
q c-a	=	421.3	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.78	(metres)
W b-c	=		(metres)
Vl b-a	=	88	(metres)
Vr b-a	=	78	(metres)
Vr b-c	=	78	(metres)
q b-a	=		(pcu/hr)
q b-c	=	31	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.024809
E	=	0.6320692
F	=	1.2472668
Y	=	0.4502425

THE CAPACITY OF MOVEMENT :

Q b-a	=	480			
Q b-c	=	379	Q b-c (O) =	379	
Q c-b	=	743			

TOTAL FLOW = 939.9204971 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0820
DFC c-b	=	0.0000

CRITICAL DFC = 0.08

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL Mar-26
J1 : Castle Peak Road - Lingnan / Fu Tei Road	**2041 Ref_PM**	FILENAME :	CHECKED BY:	DP Mar-26
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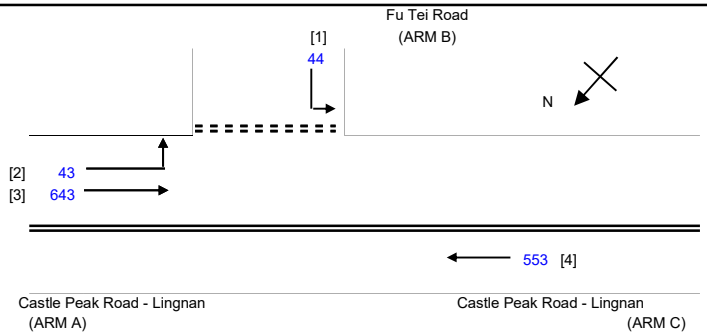

NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	15.94	(metres)
W cr	=	2.2	(metres)
q a-b	=	43	(pcu/hr)
q a-c	=	643	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	7.45	(metres)
Vr c-b	=	30	(metres)
q c-a	=	552.6	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.78	(metres)
W b-c	=		(metres)
Vl b-a	=	88	(metres)
Vr b-a	=	78	(metres)
Vr b-c	=	78	(metres)
q b-a	=		(pcu/hr)
q b-c	=	44	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.024809
E	=	0.6320692
F	=	1.2472668
Y	=	0.4502425

THE CAPACITY OF MOVEMENT :

Q b-a	=	505			
Q b-c	=	403	Q b-c (O) =	403	
Q c-b	=	789			

TOTAL FLOW = 730.295786 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.1101
DFC c-b	=	0.0000

CRITICAL DFC = 0.11

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
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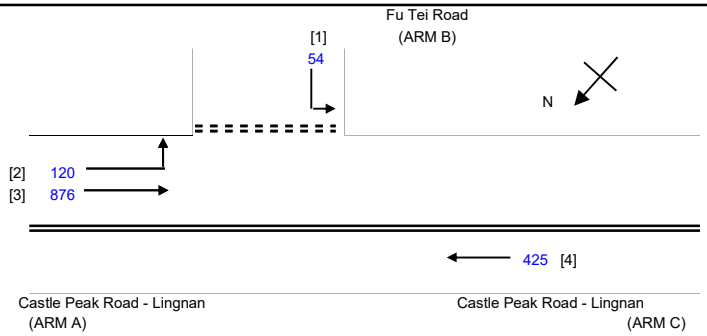
J1 : Castle Peak Road - Lingnan / Fu Tei Road	**2041 Des_AM**	FILENAME :	CHECKED BY:	DP Mar-26
2041 Design Weekday AM Peak Hour Traffic Flows		J1_Castle Peak Road - Lingnan_Fu Tei Road_P.xls	REVIEWED BY:	OC Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	15.94	(metres)
W cr	=	2.2	(metres)
q a-b	=	120	(pcu/hr)
q a-c	=	876	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	7.45	(metres)
Vr c-b	=	30	(metres)
q c-a	=	425.3	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.78	(metres)
W b-c	=		(metres)
Vl b-a	=	88	(metres)
Vr b-a	=	78	(metres)
Vr b-c	=	78	(metres)
q b-a	=		(pcu/hr)
q b-c	=	54	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.024809
E	=	0.6320692
F	=	1.2472668
Y	=	0.4502425

THE CAPACITY OF MOVEMENT :

Q b-a	=	474			
Q b-c	=	375	Q b-c (O) =	375	
Q c-b	=	725			

TOTAL FLOW = 1050.920497 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.1442
DFC c-b	=	0.0000

CRITICAL DFC = 0.14

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
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J1 : Castle Peak Road - Lingnan / Fu Tei Road	**2041 Des_PM**	FILENAME :	CHECKED BY:	DP	Mar-26
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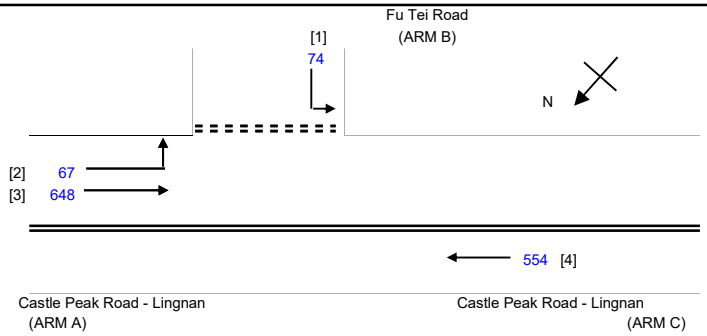


NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	15.94	(metres)
W cr	=	2.2	(metres)
q a-b	=	67	(pcu/hr)
q a-c	=	648	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	7.45	(metres)
Vr c-b	=	30	(metres)
q c-a	=	553.6	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.78	(metres)
W b-c	=		(metres)
Vl b-a	=	88	(metres)
Vr b-a	=	78	(metres)
Vr b-c	=	78	(metres)
q b-a	=		(pcu/hr)
q b-c	=	74	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.024809
E	=	0.6320692
F	=	1.2472668
Y	=	0.4502425

THE CAPACITY OF MOVEMENT :

Q b-a	=	502			
Q b-c	=	401	Q b-c (O) =	401	
Q c-b	=	783			

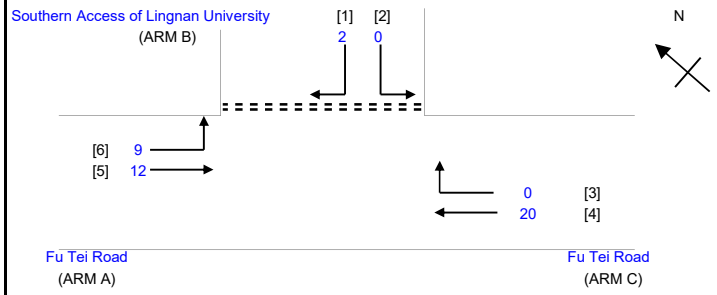
TOTAL FLOW = 789.295786 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.1854
DFC c-b	=	0.0000

CRITICAL DFC = 0.19

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J2: Fu Tei Road / Southern Access of Lingnan University	**2041 Ref_AM**	FILENAME :	CHECKED BY:	DP	Mar-26
2041 Reference Weekday AM Peak Hour Traffic Flows		_Southern Access of Lingnan University_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.61	(metres)
W cr	=	0	(metres)
q a-b	=	8.883	(pcu/hr)
q a-c	=	12.21	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.8	(metres)
Vr c-b	=	30	(metres)
q c-a	=	19.99	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.3	(metres)
W b-c	=	3.3	(metres)
Vl b-a	=	55	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	2.221	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8957774
E	=	0.949923
F	=	0.9319579
Y	=	0.737455
F for (Qb-ac)	=	0

THE CAPACITY OF MOVEMENT :

Q b-a	=	555	
Q b-c	=	704	
Q c-b	=	689	
Q b-ac	=	555	
TOTAL FLOW	=	43.30391851	(PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0040
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-c (share lane)	=	0.0040

CRITICAL DFC = 0.00

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
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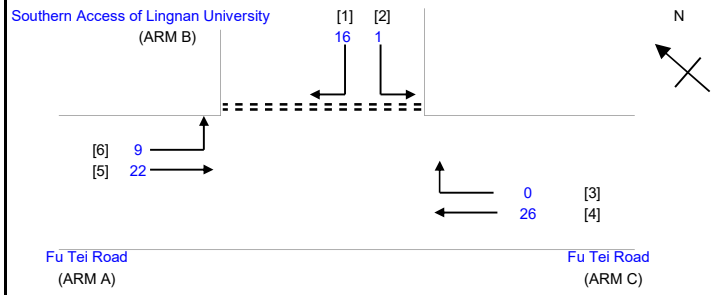

NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.61	(metres)
W cr	=	0	(metres)
q a-b	=	9.337	(pcu/hr)
q a-c	=	22.18	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.8	(metres)
Vr c-b	=	30	(metres)
q c-a	=	25.68	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.3	(metres)
W b-c	=	3.3	(metres)
Vl b-a	=	55	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	16.34	(pcu/hr)
q b-c	=	1.167	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8957774
E	=	0.949923
F	=	0.9319579
Y	=	0.737455
F for (Qb-ac)	=	0

THE CAPACITY OF MOVEMENT :

Q b-a	=	552
Q b-c	=	701
Q c-b	=	686
Q b-ac	=	552
TOTAL FLOW	=	74.69700369 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0296
DFC b-c	=	0.0017
DFC c-b	=	0.0000
DFC b-c (share lane)	=	0.0317

CRITICAL DFC = 0.03

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
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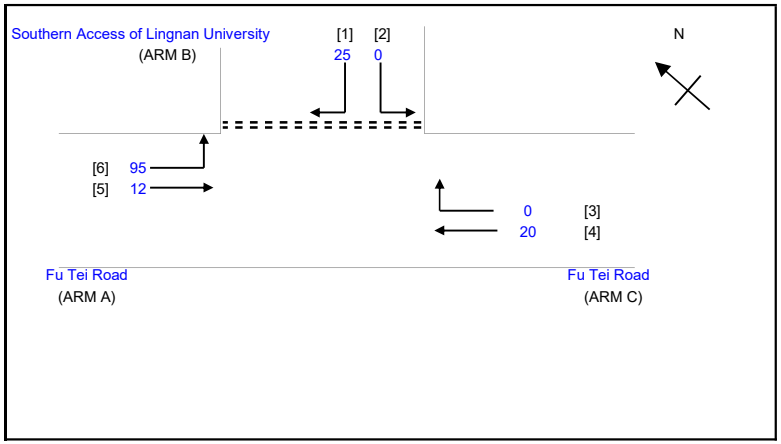


NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.61	(metres)
W cr	=	0	(metres)
q a-b	=	94.88	(pcu/hr)
q a-c	=	12.21	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.8	(metres)
Vr c-b	=	30	(metres)
q c-a	=	19.99	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.3	(metres)
W b-c	=	3.3	(metres)
Vl b-a	=	55	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	25.22	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8957774
E	=	0.949923
F	=	0.9319579
Y	=	0.737455
F for (Qb-ac)	=	0

THE CAPACITY OF MOVEMENT :

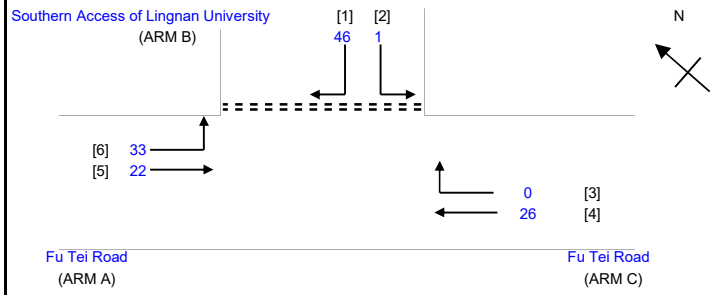
Q b-a	=	547	
Q b-c	=	695	
Q c-b	=	668	
Q b-ac	=	547	
TOTAL FLOW	=	152.3039185	(PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0461
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-c (share lane)	=	0.0461

CRITICAL DFC = 0.05

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J2: Fu Tei Road / Southern Access of Lingnan University	**2041 Des_PM**	FILENAME :	CHECKED BY:	DP	Mar-26
2041 Design Weekday PM Peak Hour Traffic Flows		_Southern Access of Lingnan University_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.61	(metres)
W cr	=	0	(metres)
q a-b	=	33.34	(pcu/hr)
q a-c	=	22.18	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.8	(metres)
Vr c-b	=	30	(metres)
q c-a	=	25.68	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.3	(metres)
W b-c	=	3.3	(metres)
Vl b-a	=	55	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	46.34	(pcu/hr)
q b-c	=	1.167	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.8957774
E	=	0.949923
F	=	0.9319579
Y	=	0.737455
F for (Qb-ac)	=	0

THE CAPACITY OF MOVEMENT :

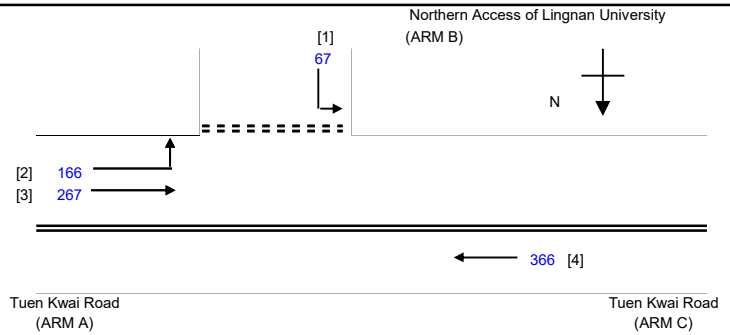
Q b-a	=	549	
Q b-c	=	699	
Q c-b	=	680	
Q b-ac	=	549	
TOTAL FLOW	=	128.6970037	(PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0844
DFC b-c	=	0.0017
DFC c-b	=	0.0000
DFC b-c (share lane)	=	0.0865

CRITICAL DFC = 0.09

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J3 : Tuen Kwai Road / Northern Access of Lingnan University	**2041 Ref_AM (BDTM)**	FILENAME :	CHECKED BY:	DP	Mar-26
2041 Reference Weekday AM Peak Hour Traffic Flows		Road_Northern Access of Lingnan University_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	10.05	(metres)
W cr	=	2.5	(metres)
q a-b	=	166	(pcu/hr)
q a-c	=	267	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.82	(metres)
Vr c-b	=	20	(metres)
q c-a	=	366	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=		(metres)
W b-c	=	7.42	(metres)
Vl b-a	=	78	(metres)
Vr b-a	=	85	(metres)
Vr b-c	=	85	(metres)
q b-a	=		(pcu/hr)
q b-c	=	67	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6087235
E	=	1.3120205
F	=	0.8390018
Y	=	0.6534475

THE CAPACITY OF MOVEMENT :

Q b-a	=	321			
Q b-c	=	874	Q b-c (O) =	874	
Q c-b	=	539			

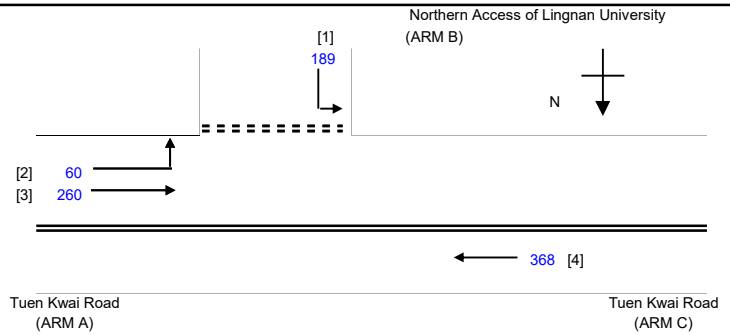
TOTAL FLOW = 500 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0767
DFC c-b	=	0.0000

CRITICAL DFC = 0.08

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar-26
J3 : Tuen Kwai Road / Northern Access of Lingnan University	**2041 Ref_PM (BDTM)**	FILENAME :	CHECKED BY:	DP	Mar-26
2041 Reference Weekday PM Peak Hour Traffic Flows		Road_Northern Access of Lingnan University_P.xls	REVIEWED BY:	OC	Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	10.05	(metres)
W cr	=	2.5	(metres)
q a-b	=	60	(pcu/hr)
q a-c	=	260	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.82	(metres)
Vr c-b	=	20	(metres)
q c-a	=	368	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=		(metres)
W b-c	=	7.42	(metres)
Vl b-a	=	78	(metres)
Vr b-a	=	85	(metres)
Vr b-c	=	85	(metres)
q b-a	=		(pcu/hr)
q b-c	=	189	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6087235
E	=	1.3120205
F	=	0.8390018
Y	=	0.6534475

THE CAPACITY OF MOVEMENT :

Q b-a	=	328			
Q b-c	=	889	Q b-c (O) =	889	
Q c-b	=	561			

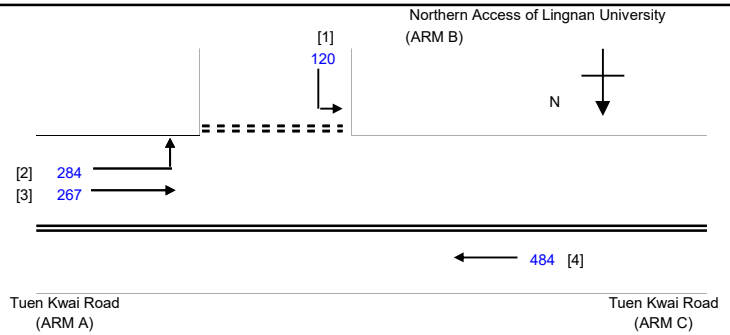
TOTAL FLOW = 509 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.2126
DFC c-b	=	0.0000

CRITICAL DFC = 0.21

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL Mar-26
J3 : Tuen Kwai Road / Northern Access of Lingnan University	**2041 Des_AM (BDTM)**	FILENAME :	CHECKED BY:	DP Mar-26
2041 Design Weekday AM Peak Hour Traffic Flows		Road_Northern Access of Lingnan University_P.xls	REVIEWED BY:	OC Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	10.05	(metres)
W cr	=	2.5	(metres)
q a-b	=	284	(pcu/hr)
q a-c	=	267	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.82	(metres)
Vr c-b	=	20	(metres)
q c-a	=	484	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=		(metres)
W b-c	=	7.42	(metres)
Vl b-a	=	78	(metres)
Vr b-a	=	85	(metres)
Vr b-c	=	85	(metres)
q b-a	=		(pcu/hr)
q b-c	=	120	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6087235
E	=	1.3120205
F	=	0.8390018
Y	=	0.6534475

THE CAPACITY OF MOVEMENT :

Q b-a	=	304			
Q b-c	=	859	Q b-c (O) =	859	
Q c-b	=	515			

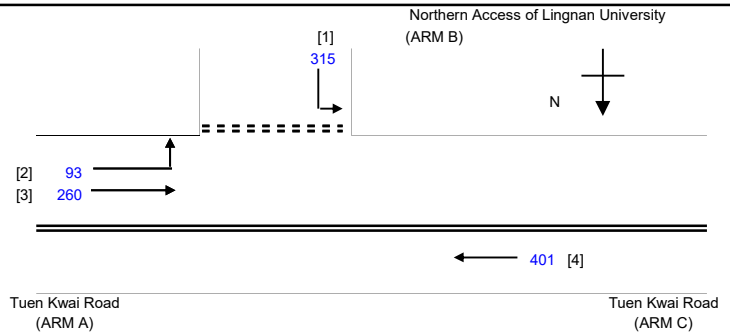
TOTAL FLOW = 671 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.1397
DFC c-b	=	0.0000

CRITICAL DFC = 0.14

OZZO TECHNOLOGY (HK) LIMITED	PRIORITY JUNCTION CALCULATION		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL Mar-26
J3 : Tuen Kwai Road / Northern Access of Lingnan University	**2041 Des_PM (BDTM)**	FILENAME :	CHECKED BY:	DP Mar-26
2041 Design Weekday PM Peak Hour Traffic Flows		Road_Northern Access of Lingnan University_P.xls	REVIEWED BY:	OC Mar-26



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	10.05	(metres)
W cr	=	2.5	(metres)
q a-b	=	93	(pcu/hr)
q a-c	=	260	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.82	(metres)
Vr c-b	=	20	(metres)
q c-a	=	401	(pcu/hr)
q c-b	=		(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=		(metres)
W b-c	=	7.42	(metres)
Vl b-a	=	78	(metres)
Vr b-a	=	85	(metres)
Vr b-c	=	85	(metres)
q b-a	=		(pcu/hr)
q b-c	=	315	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.6087235
E	=	1.3120205
F	=	0.8390018
Y	=	0.6534475

THE CAPACITY OF MOVEMENT :

Q b-a	=	323			
Q b-c	=	885	Q b-c (O) =	885	
Q c-b	=	555			

TOTAL FLOW = 668 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

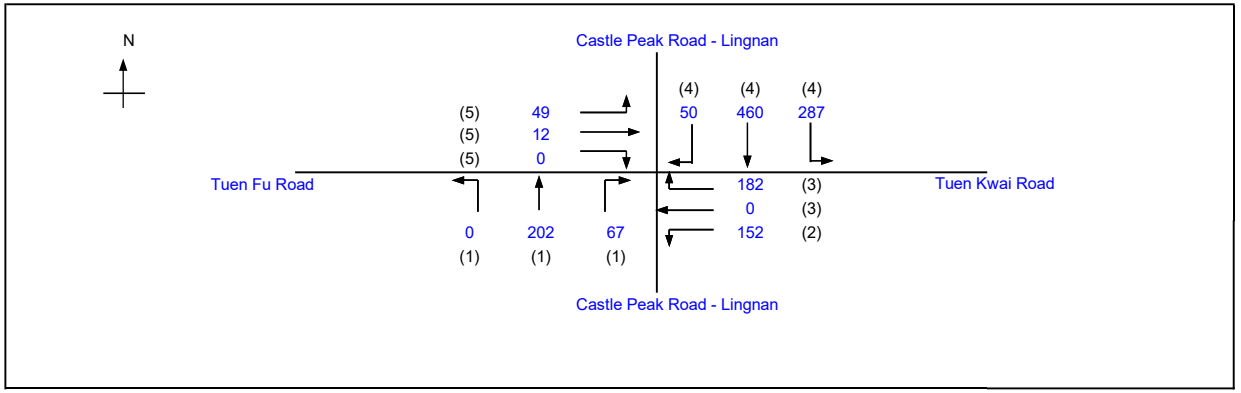
DFC b-a	=	0.0000
DFC b-c	=	0.3559
DFC c-b	=	0.0000

CRITICAL DFC = 0.36

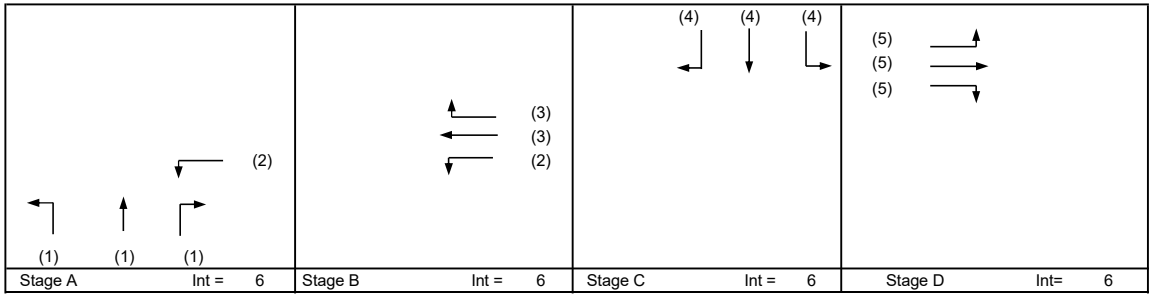
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J4: Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road	**2041 Ref_AM (BDTM)**	Checked By:	DP	Mar-26
2041 Reference Weekday AM Peak Hour Traffic Flows	FILENAME : J4_Castle Peak Road - Lingnan_Tuen Fu Road_Tuen Kv	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.325	
Loss time		L =	20	sec
Total Flow		=	1461	pcu
Co	= (1.5*L+5)/(1-Y)	=	51.8	sec
Cm	= L/(1-Y)	=	29.6	sec
Yult		=	0.750	
R.C.ult	= (Yult-Y)/Y*100%	=	130.9	%
Cp	= 0.9*L/(0.9-Y)	=	31.3	sec
Ymax	= 1-L/C	=	0.833	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	130.9	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

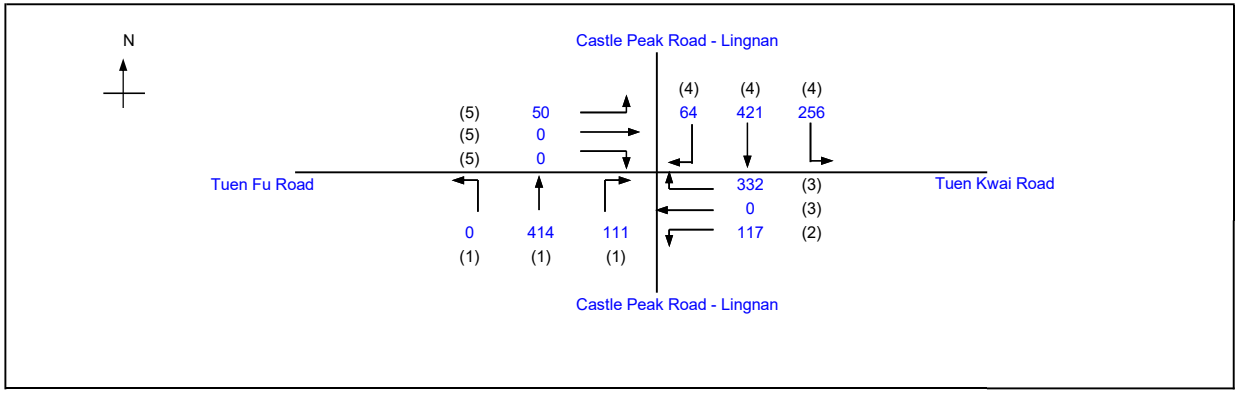
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
LT,SA	A	3.58	1	1	9			2113	0	101		101	0.00	2113			2113	0.048			15	15	0.065	12	48
SA	A	3.53	1	1				2108		101		101	0.00	2108			2108	0.048			15	15	0.065	0	0
RT	A	3.69	1	1	18			2124			67	67	1.00	1961			1961	0.034	0.048		11	11	0.065	12	53
																						0			
LT	A,B	3.25	2	1	25			2080	152			152	1.00	1962			1962	0.077			24	24	0.065	24	40
SA, RT	B	3.50	3	1	12			2105		0	182	182	1.00	1871			1871	0.097	0.097		30	30	0.065	24	36
																						0			
LT,SA	C	3.70	4	1	11			2125	50	202		252	0.20	2069			2069	0.122			38	38	0.065	30	31
SA	C	3.59	4	1				2114		258		258	0.00	2114			2114	0.122	0.148		38	38	0.065	0	0
RT	C	3.59	4	1	17			2114			287	287	1.00	1943			1943	0.148			45	45	0.065	30	26
																						0			
LT,SA,RT	D	3.46	5	1	12			2101	49	12	0	61	0.80	1909			1909	0.032	0.032		10	10	0.065	6	54

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

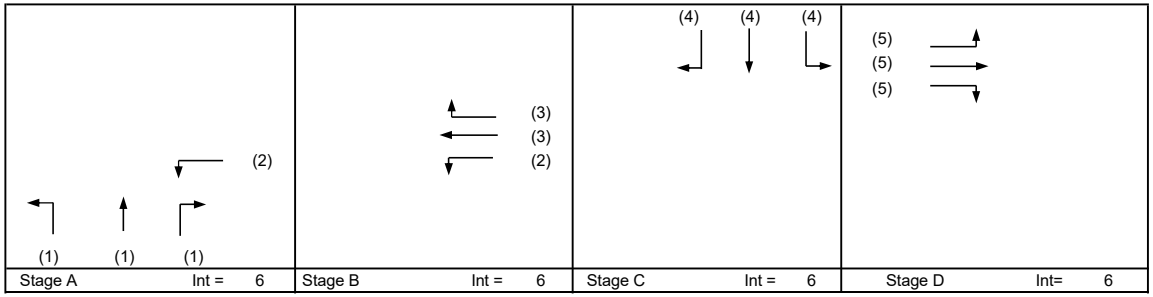
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J4: Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road	**2041 Ref_PM (BDTM)**	Checked By:	DP	Mar-26
2041 Reference Weekday PM Peak Hour Traffic Flows	FILENAME : J4_Castle Peak Road - Lingnan_Tuen Fu Road_Tuen Kw	Reviewed By:	SC	Mar-26



			Existing Cycle Time
No. of stages per cycle	N =		4
Cycle time	C =		110 sec
Sum(y)	Y =		0.434
Loss time	L =		20 sec
Total Flow	=		1765 pcu
Co	= (1.5*L+5)/(1-Y)	=	61.8 sec
Cm	= L/(1-Y)	=	35.3 sec
Yult		=	0.750
R.C.ult	= (Yult-Y)/Y*100%	=	72.8 %
Cp	= 0.9*L/(0.9-Y)	=	38.6 sec
Ymax	= 1-L/C	=	0.818
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	69.6 %



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

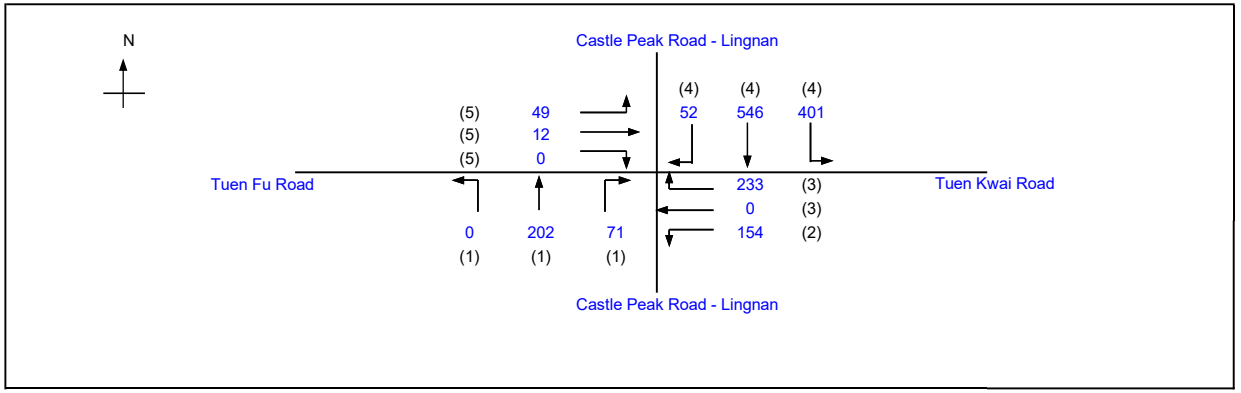
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
LT,SA	A	3.58	1	1	9			2113	0	207		207	0.00	2113			2113	0.098			20	20	0.096	30	41
SA	A	3.53	1	1				2108		207		207	0.00	2108			2108	0.098			20	20	0.096	0	0
RT	A	3.69	1	1	18			2124			111	111	1.00	1961			1961	0.057	0.098		12	12	0.096	18	51
																						0			
LT	A,B	3.25	2	1	25			2080	117			117	1.00	1962			1962	0.060			12	12	0.096	18	50
SA, RT	B	3.50	3	1	12			2105		0	332	332	1.00	1871			1871	0.177	0.177		37	37	0.096	36	30
																						0			
LT,SA	C	3.70	4	1	11			2125	64	175		239	0.27	2050			2050	0.116			24	24	0.096	30	38
SA	C	3.59	4	1				2114		246		246	0.00	2114			2114	0.116			24	24	0.096	0	0
RT	C	3.59	4	1	17			2114			256	256	1.00	1943			1943	0.132	0.132		27	27	0.096	30	36
																						0			
LT,SA,RT	D	3.46	5	1	12			2101	50	0	0	50	1.00	1868			1868	0.027	0.027		6	6	0.096	6	65

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

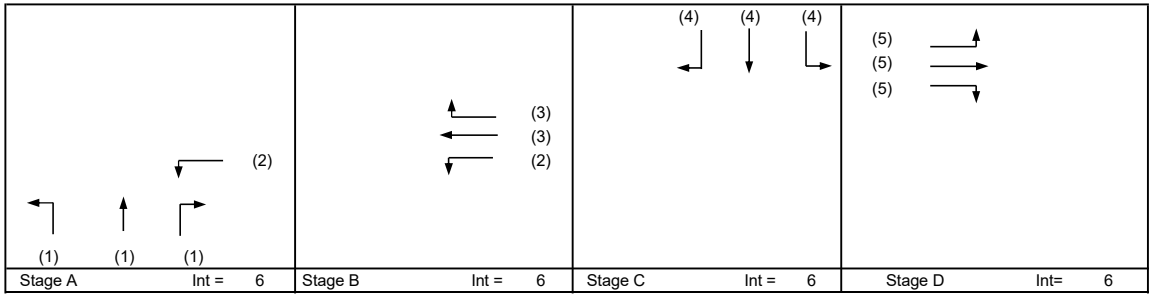
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J4: Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road	**2041 Des_AM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Design Weekday AM Peak Hour Traffic Flows	J4_Castle Peak Road - Lingnan_Tuen Fu Road_Tuen Ky	Reviewed By:	OC	Mar-26



		Existing Cycle Time
No. of stages per cycle	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.411
Loss time	L =	20 sec
Total Flow	=	1720 pcu
Co = (1.5*L+5)/(1-Y)	=	59.4 sec
Cm = L/(1-Y)	=	33.9 sec
Yult	=	0.750
R.C.ult = (Yult-Y)/Y*100%	=	82.6 %
Cp = 0.9*L/(0.9-Y)	=	36.8 sec
Ymax = 1-L/C	=	0.833
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	82.6 %



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

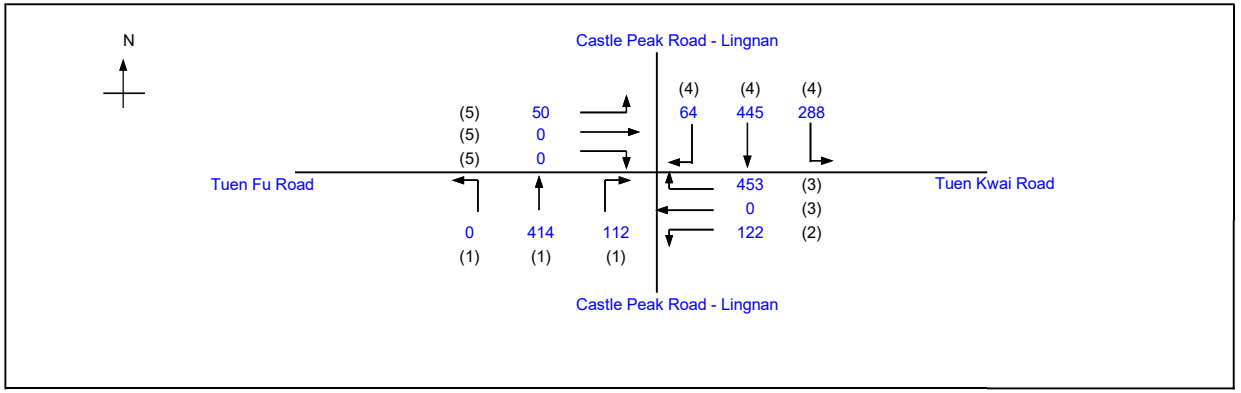
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
LT,SA	A	3.58	1	1	9			2113	0	101		101	0.00	2113			2113	0.048			12	12	0.082	18	54
SA	A	3.53	1	1				2108		101		101	0.00	2108			2108	0.048			12	12	0.082	0	0
RT	A	3.69	1	1	18			2124			71	71	1.00	1961			1961	0.036	0.048		9	9	0.082	12	59
																						0			
LT	A,B	3.25	2	1	25			2080	154			154	1.00	1962			1962	0.078			19	19	0.082	24	46
SA, RT	B	3.50	3	1	12			2105		0	233	233	1.00	1871			1871	0.125	0.125		30	30	0.082	30	38
																						0			
LT,SA	C	3.70	4	1	11			2125	52	244		296	0.18	2075			2075	0.143			35	35	0.082	42	34
SA	C	3.59	4	1				2114		302		302	0.00	2114			2114	0.143	0.206		35	35	0.082	0	0
RT	C	3.59	4	1	17			2114			401	401	1.00	1943			1943	0.206			50	50	0.082	42	25
																						0			
LT,SA,RT	D	3.46	5	1	12			2101	49	12	0	61	0.80	1909			1909	0.032	0.032		8	8	0.082	6	62

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

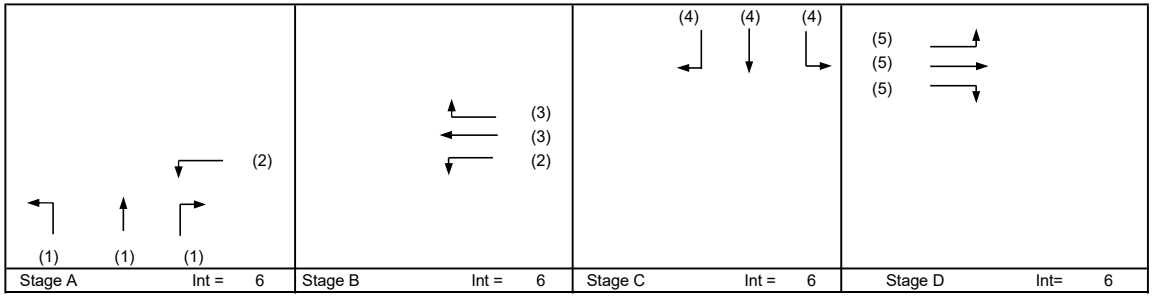
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J4: Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road	**2041 Des_PM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Design Weekday PM Peak Hour Traffic Flows	J4_Castle Peak Road - Lingnan_Tuen Fu Road_Tuen Kv	Reviewed By:	SC	Mar-26



		Existing Cycle Time
No. of stages per cycle	N =	4
Cycle time	C =	110 sec
Sum(y)	Y =	0.515
Loss time	L =	20 sec
Total Flow	=	1948 pcu
Co = (1.5*L+5)/(1-Y)	=	72.2 sec
Cm = L/(1-Y)	=	41.3 sec
Yult	=	0.750
R.C.ult = (Yult-Y)/Y*100%	=	45.6 %
Cp = 0.9*L/(0.9-Y)	=	46.8 sec
Ymax = 1-L/C	=	0.818
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	42.9 %

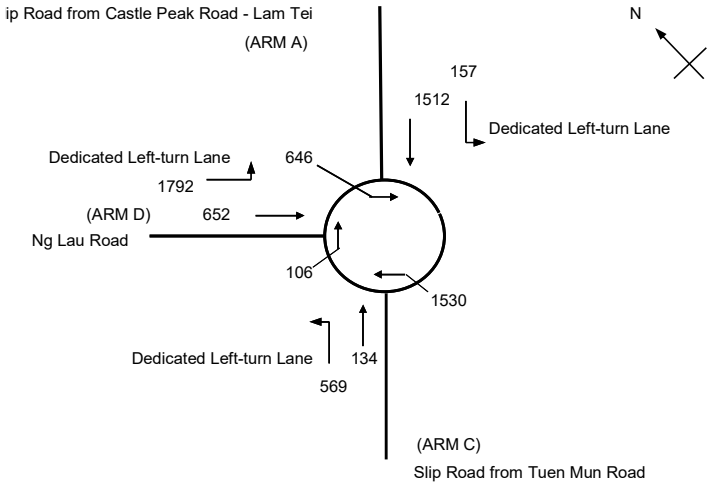


Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				20					
LT,SA	A	3.58	1	1	9			2113	0	207		207	0.00	2113			2113	0.098			17	17	0.114	30	47
SA	A	3.53	1	1				2108		207		207	0.00	2108			2108	0.098			17	17	0.114	0	0
RT	A	3.69	1	1	18			2124			112	112	1.00	1961			1961	0.057	0.098		10	10	0.114	18	59
																						0			
LT	A,B	3.25	2	1	25			2080	122			122	1.00	1962			1962	0.062			11	11	0.114	18	57
SA, RT	B	3.50	3	1	12			2105		0	453	453	1.00	1871			1871	0.242	0.242		42	42	0.114	48	29
																						0			
LT,SA	C	3.70	4	1	11			2125	64	187		251	0.26	2054			2054	0.122			21	21	0.114	36	44
SA	C	3.59	4	1				2114		258		258	0.00	2114			2114	0.122			21	21	0.114	0	0
RT	C	3.59	4	1	17			2114			288	288	1.00	1943			1943	0.148	0.148		26	26	0.114	36	40
																						0			
LT,SA,RT	D	3.46	5	1	12			2101	50	0	0	50	1.00	1868			1868	0.027	0.027		5	5	0.114	6	81

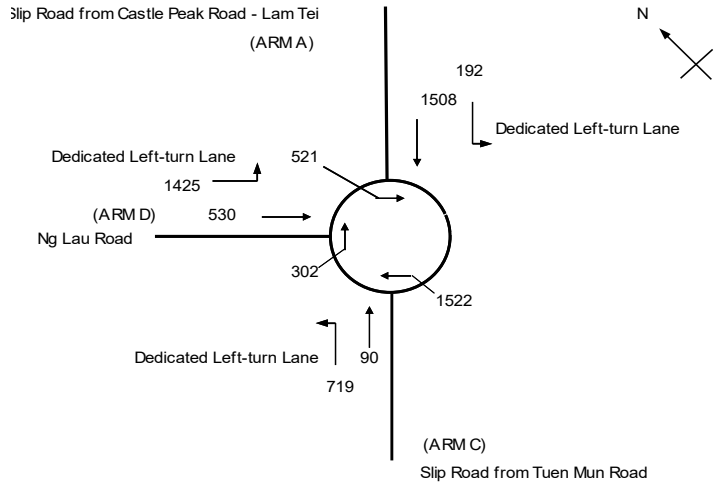
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar/26
J5: Lam Tei Interchange	**2041 Ref AM (BDTM)**	FILENAME :	CHECKED BY:	DP	Mar/26
2041 Reference Weekday AM Peak Hour Traffic Flows		J5_Lam Tei Interchange_R.xls	REVIEWED BY:	OC	Mar/26



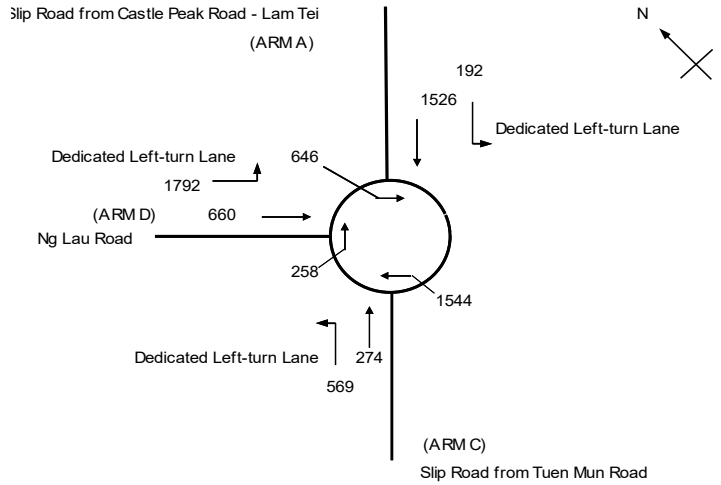
ARM			A	C	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.0	3.5	6.2			
E	=	Entry width (m)	7.2	3.7	7.2			
L	=	Effective length of flare (m)	4.0	18.0	9.1			
R	=	Entry radius (m)	33.0	77.2	67.5			
D	=	Inscribed circle diameter (m)	50.5	50.5	50.5			
A	=	Entry angle (degree)	19.0	20.0	15.0			
Q	=	Entry flow (pcu/h)	1512	134	652			
Qc	=	Circulating flow across entry (pcu/h)	646	1530	106			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.07	0.02	0.19			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.07	1.09			
X2	=	V + ((E-V)/(1+2S))	7.15	3.70	6.94			
M	=	EXP((D-60)/10)	0	0	0			
F	=	303*X2	2166	1121	2102			
Td	=	1+(0.5/(1+M))	1.36	1.36	1.36			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.50	0.68			
Qe	=	K(F-Fc*Qc)	1816	386	2205	Total In Sum =	2298	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.83	0.35	0.30	DFC of Critical Approach =	0.83	

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar/26
J5: Lam Tei Interchange	**2041 Ref PM (BDTM)**	FILENAME :	CHECKED BY:	DP	Mar/26
2041 Reference Weekday PM Peak Hour Traffic Flows		J5_Lam Tei Interchange_R.xls	REVIEWED BY:	OC	Mar/26



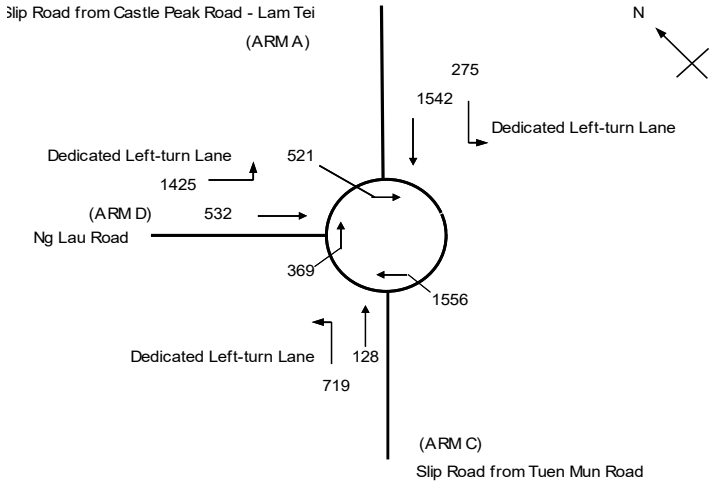
ARM			A	C	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.0	3.5	6.2			
E	=	Entry width (m)	7.2	3.7	7.2			
L	=	Effective length of flare (m)	4.0	18.0	9.1			
R	=	Entry radius (m)	33.0	77.2	67.5			
D	=	Inscribed circle diameter (m)	50.5	50.5	50.5			
A	=	Entry angle (degree)	19.0	20.0	15.0			
Q	=	Entry flow (pcu/h)	1508	90	530			
Qc	=	Circulating flow across entry (pcu/h)	521	1522	302			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.07	0.02	0.19			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.07	1.09			
X2	=	V + ((E-V)/(1+2S))	7.15	3.70	6.94			
M	=	EXP((D-60)/10)	0	0	0			
F	=	303*X2	2166	1121	2102			
Td	=	1+(0.5/(1+M))	1.36	1.36	1.36			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.50	0.68			
Qe	=	K(F-Fc*Qc)	1908	390	2060	Total In Sum =	2128	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.79	0.23	0.26	DFC of Critical Approach =	0.79	

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar/26
J5: Lam Tei Interchange	**2041 Des AM (BDTM)**	FILENAME :	CHECKED BY:	DP	Mar/26
2041 Design Weekday AM Peak Hour Traffic Flows		J5_Lam Tei Interchange_R.xls	REVIEWED BY:	OC	Mar/26



ARM			A	C	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.0	3.5	6.2			
E	=	Entry width (m)	7.2	3.7	7.2			
L	=	Effective length of flare (m)	4.0	18.0	9.1			
R	=	Entry radius (m)	33.0	77.2	67.5			
D	=	Inscribed circle diameter (m)	50.5	50.5	50.5			
A	=	Entry angle (degree)	19.0	20.0	15.0			
Q	=	Entry flow (pcu/h)	1526	274	660			
Qc	=	Circulating flow across entry (pcu/h)	646	1544	258			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.07	0.02	0.19			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.07	1.09			
X2	=	V + ((E-V)/(1+2S))	7.15	3.70	6.94			
M	=	EXP((D-60)/10)	0	0	0			
F	=	303*X2	2166	1121	2102			
Td	=	1+(0.5/(1+M))	1.36	1.36	1.36			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.50	0.68			
Qe	=	K(F-Fc*Qc)	1816	378	2093	Total In Sum =	2460	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.84	0.72	0.32	DFC of Critical Approach =	0.84	

OZZO TECHNOLOGY (HK) LIMITED	TRAFFIC SIGNAL CALCULATION			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		PROJECT NO.: 83202	PREPARED BY:	LL	Mar/26
J5: Lam Tei Interchange	**2041 Des PM (BDTM)**	FILENAME :	CHECKED BY:	DP	Mar/26
2041 Design Weekday PM Peak Hour Traffic Flows		J5_Lam Tei Interchange_R.xls	REVIEWED BY:	OC	Mar/26

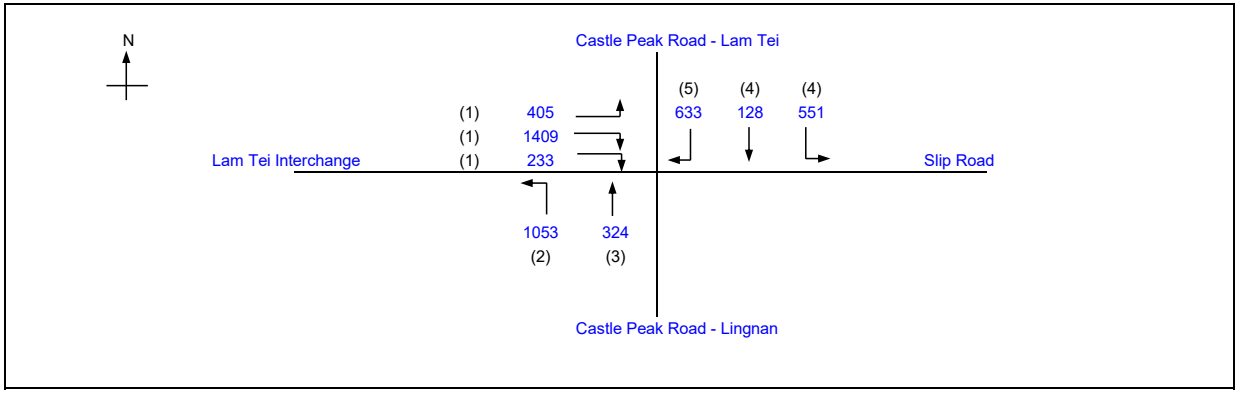


ARM			A	C	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.0	3.5	6.2			
E	=	Entry width (m)	7.2	3.7	7.2			
L	=	Effective length of flare (m)	4.0	18.0	9.1			
R	=	Entry radius (m)	33.0	77.2	67.5			
D	=	Inscribed circle diameter (m)	50.5	50.5	50.5			
A	=	Entry angle (degree)	19.0	20.0	15.0			
Q	=	Entry flow (pcu/h)	1542	128	532			
Qc	=	Circulating flow across entry (pcu/h)	521	1556	369			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.07	0.02	0.19			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.07	1.09			
X2	=	V + ((E-V)/(1+2S))	7.15	3.70	6.94			
M	=	EXP((D-60)/10)	0	0	0			
F	=	303*X2	2166	1121	2102			
Td	=	1+(0.5/(1+M))	1.36	1.36	1.36			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.50	0.68			
Qe	=	K(F-Fc*Qc)	1908	372	2010	Total In Sum =	2202	PCU
DFC	=	Design flow/Capacity = Q/Qe	0.81	0.34	0.26	DFC of Critical Approach =	0.81	

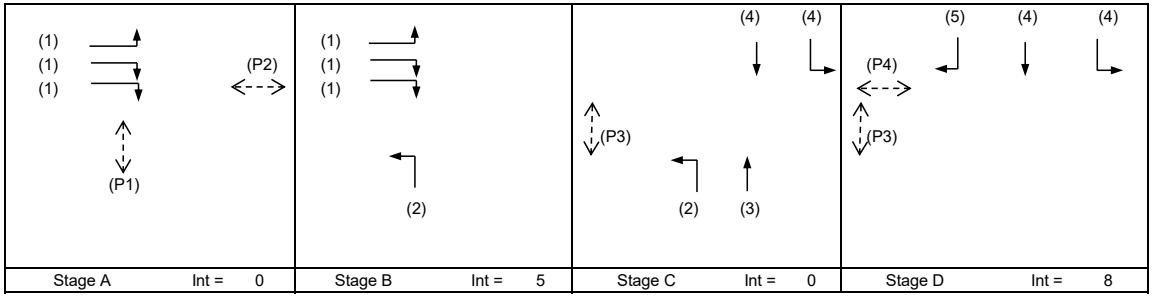
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J6: Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei	FILENAME :	Checked By:	DP	Mar-26
2041 Reference Weekday AM Peak Hour Traffic Flows	**2041 Ref_AM (BDTM)** Castle Peak Road - Lingnan_Lam Tei Interchange_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time
No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.641	
Loss time	L =	11	sec
Total Flow	=	4736	pcu
Co = (1.5*L+5)/(1-Y)	=	59.9	sec
Cm = L/(1-Y)	=	30.6	sec
Yult	=	0.818	
R.C.ult = (Yult-Y)/Y*100%	=	27.5	%
Cp = 0.9*L/(0.9-Y)	=	38.2	sec
Ymax = 1-L/C	=	0.908	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	27.5	%



Stage A	Int = 0	Stage B	Int = 5	Stage C	Int = 0	Stage D	Int = 8

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	A	7	5	6	2	30	6
P2	A	7	5	6	2	30	6
P3	C,D	14	6	12	2	42	12
P4	D	8	5	7	2	23	7

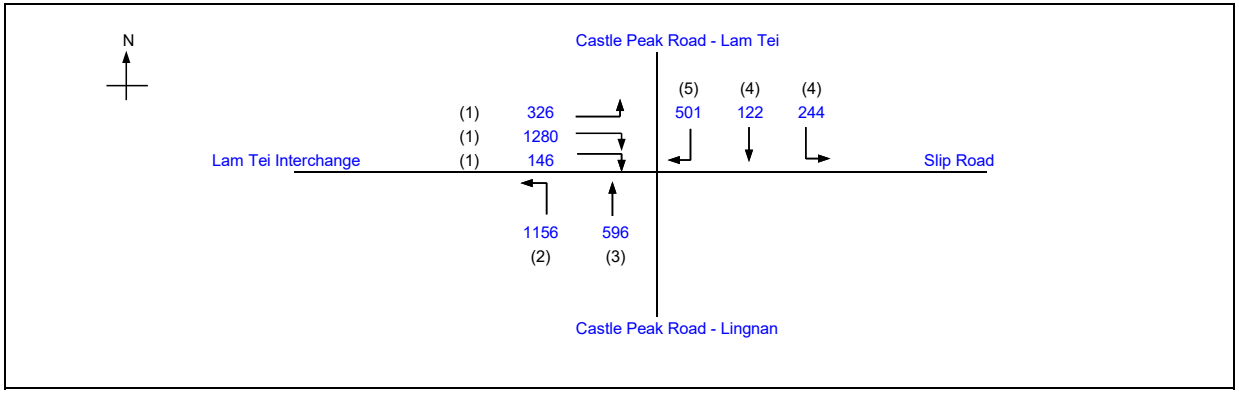
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				11					
LT	A,B	3.40	1	1	15		N	1955	405			405	1.00	1777			1777	0.228			39	60	0.455	36	19
LT,RT	A,B	3.30	1	1	34			2085	0		706	706	1.00	1997			1997	0.354	0.354		60	60	0.706	66	25
RT	A,B	3.30	1	1	31			2085			703	703	1.00	1989			1989	0.354			60	60	0.706	66	25
RT	A,B	3.30	1	1	31		N	1945			233	233	1.00	1855			1855	0.126			21	60	0.251	18	16
LT	B,C	3.30	2	2	14			4170	1053			1053	1.00	3766			3766	0.280			48	48	0.706	63	30
SA	C	3.30	3	2				4170		324		324	0.00	4170			4170	0.078			13	13	0.706	27	55
LT	C,D	3.30	4	1	100		N	1945	551			551	1.00	1916			1916	0.288	0.288		49	49	0.706	60	32
SA	C,D	3.50	4	1				2105		128		128	0.00	2105			2105	0.061			10	49	0.014	12	21
SA,RT	C,D	3.50	5	1	43			2105		0	328	328	1.00	2034			2034	0.161			27	49	0.036	36	24
RT	D	3.50	5	1	40		N	1965			305	305	1.00	1894			1894	0.161			27	27	0.065	42	47

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

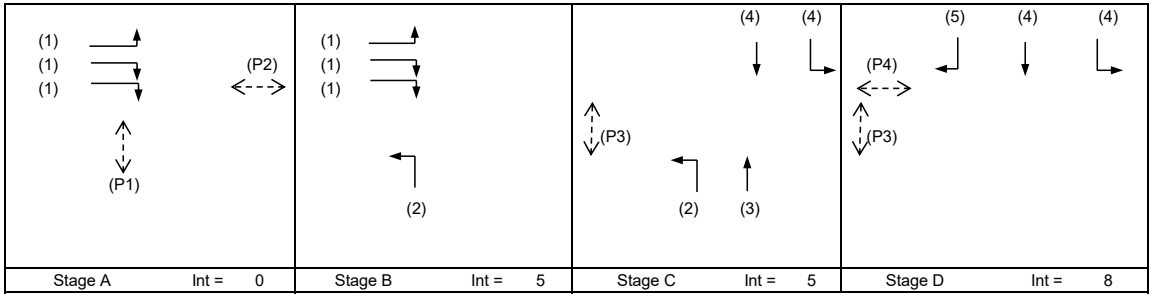
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J6: Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei	**2041 Ref_PM (BDTM)**	Checked By:	DP	Mar-26
2041 Reference Weekday PM Peak Hour Traffic Flows	FILENAME : Castle Peak Road - Lingnan_Lam Tei Interchange_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.592	
Loss time		L =	15	sec
Total Flow		=	4371	pcu
Co	= (1.5*L+5)/(1-Y)	=	67.3	sec
Cm	= L/(1-Y)	=	36.7	sec
Yult		=	0.788	
R.C.ult	= (Yult-Y)/Y*100%	=	33.1	%
Cp	= 0.9*L/(0.9-Y)	=	43.8	sec
Ymax	= 1-L/C	=	0.875	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33.1	%



Stage A	Int = 0	Stage B	Int = 5	Stage C	Int = 5	Stage D	Int = 8

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	A	7	5	6	2	25	6
P2	A	7	5	6	2	25	6
P3	C,D	14	6	12	2	45	12
P4	D	8	5	7	2	21	7

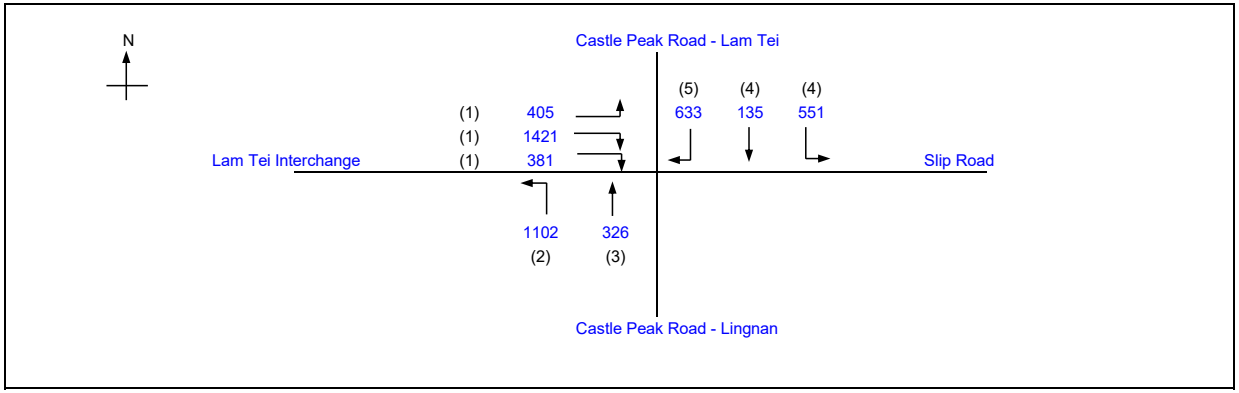
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT	A,B	3.40	1	1	15		N	1955	326			326	1.00	1777			1777	0.183			33	57	0.386	30	19
LT,RT	A,B	3.30	1	1	34			2085	0		641	641	1.00	1997			1997	0.321	0.321		57	57	0.676	66	25
RT	A,B	3.30	1	1	31			2085			639	639	1.00	1989			1989	0.321			57	57	0.676	66	26
RT	A,B	3.30	1	1	31		N	1945			146	146	1.00	1855			1855	0.079			14	57	0.166	12	17
LT	B,C	3.30	2	2	14			4170	1156			1156	1.00	3766			3766	0.307			54	54	0.676	63	25
SA	C	3.30	3	2				4170		596		596	0.00	4170			4170	0.143	0.143		25	25	0.676	45	43
LT	C,D	3.30	4	1	100		N	1945	244			244	1.00	1916			1916	0.127			23	23	0.675	36	50
SA	C,D	3.50	4	1				2105		122		122	0.00	2105			2105	0.058			10	23	0.038	18	40
SA,RT	C,D	3.50	5	1	43			2105		0	259	259	1.00	2034			2034	0.128			23	23	0.085	42	50
RT	D	3.50	5	1	40		N	1965			242	242	1.00	1894			1894	0.128	0.128		23	23	0.085	36	50

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

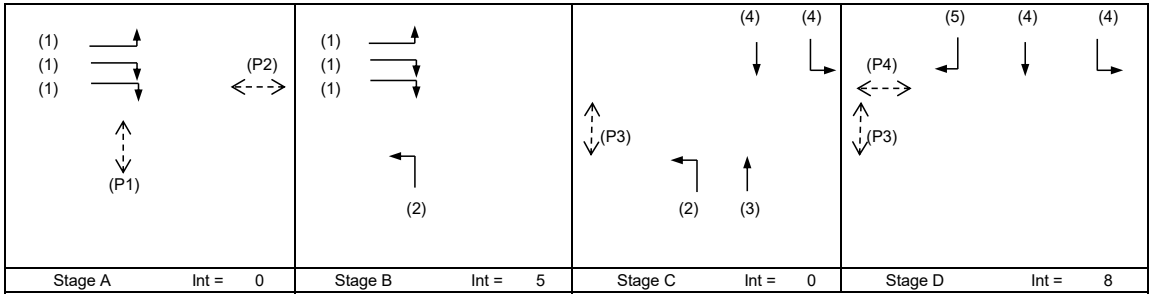
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J6: Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei	**2041 Des_AM (BDTM)**	Checked By:	DP	Mar-26
2041 Design Weekday AM Peak Hour Traffic Flows	FILENAME : Castle Peak Road - Lingnan_Lam Tei Interchange_S.xls	Reviewed By:	OC	Mar-26



		Existing Cycle Time	
No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.644	
Loss time	L =	11	sec
Total Flow	=	4954	pcu
Co = (1.5*L+5)/(1-Y)	=	60.4	sec
Cm = L/(1-Y)	=	30.9	sec
Yult	=	0.818	
R.C.ult = (Yult-Y)/Y*100%	=	26.9	%
Cp = 0.9*L/(0.9-Y)	=	38.7	sec
Ymax = 1-L/C	=	0.908	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	26.9	%



Stage A	Int = 0	Stage B	Int = 5	Stage C	Int = 0	Stage D	Int = 8

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	A	7	5	6	2	29	6
P2	A	7	5	6	2	29	6
P3	C,D	14	6	12	2	42	12
P4	D	8	5	7	2	23	7

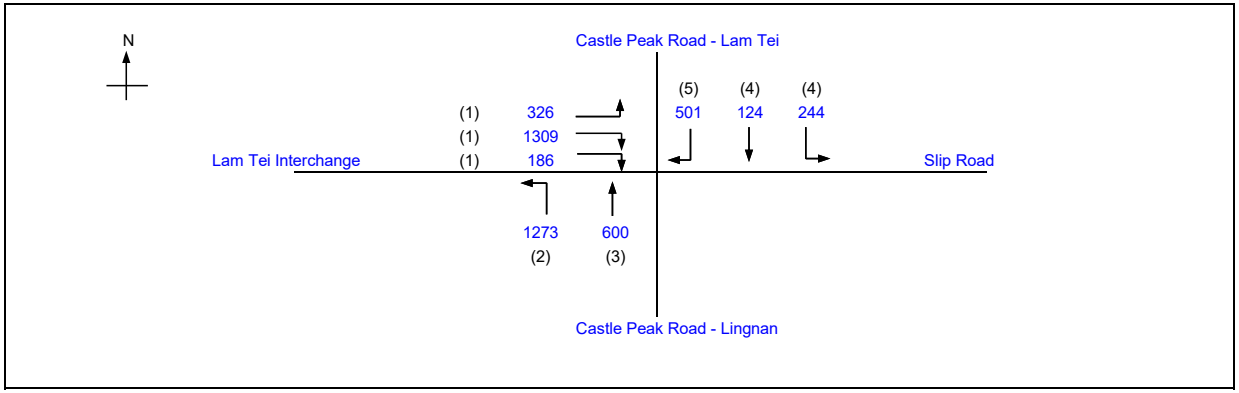
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				11					
LT	A,B	3.40	1	1	15		N	1955	405			405	1.00	1777			1777	0.228			39	60	0.453	36	19
LT,RT	A,B	3.30	1	1	34			2085	0		712	712	1.00	1997			1997	0.357	0.357		60	60	0.709	66	25
RT	A,B	3.30	1	1	31			2085			709	709	1.00	1989			1989	0.357			60	60	0.709	66	25
RT	A,B	3.30	1	1	31		N	1945			381	381	1.00	1855			1855	0.205			35	60	0.408	36	18
LT	B,C	3.30	2	2	14			4170	1102			1102	1.00	3766			3766	0.293			50	50	0.709	63	29
SA	C	3.30	3	2				4170		326		326	0.00	4170			4170	0.078			13	13	0.709	27	55
LT	C,D	3.30	4	1	100		N	1945	551			551	1.00	1916			1916	0.288	0.288		49	49	0.709	60	32
SA	C,D	3.50	4	1				2105		135		135	0.00	2105			2105	0.064			11	49	0.014	12	21
SA,RT	C,D	3.50	5	1	43			2105		0	328	328	1.00	2034			2034	0.161			27	49	0.036	36	24
RT	D	3.50	5	1	40		N	1965			305	305	1.00	1894			1894	0.161			27	27	0.065	42	48

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

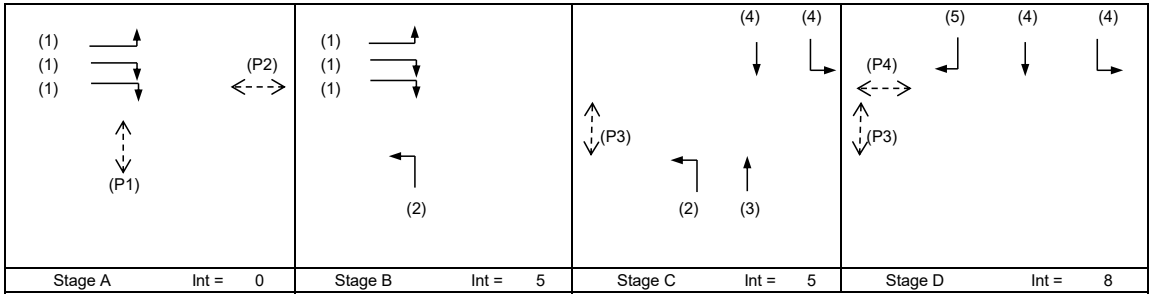
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J6: Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei	FILENAME :	Checked By:	DP	Mar-26
2041 Design Weekday PM Peak Hour Traffic Flows	**2041 Des_PM (BDTM)** Castle Peak Road - Lingnan_Lam Tei Interchange_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time
No. of stages per cycle	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.600	
Loss time	L =	15	sec
Total Flow	=	4563	pcu
Co = (1.5*L+5)/(1-Y)	=	68.7	sec
Cm = L/(1-Y)	=	37.5	sec
Yult	=	0.788	
R.C.ult = (Yult-Y)/Y*100%	=	31.3	%
Cp = 0.9*L/(0.9-Y)	=	45.0	sec
Ymax = 1-L/C	=	0.875	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	31.3	%



Stage A	Int = 0	Stage B	Int = 5	Stage C	Int = 5	Stage D	Int = 8

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P1	A	7	5	6	2	21	6
P2	A	7	5	6	2	21	6
P3	C,D	14	6	12	2	45	12
P4	D	8	5	7	2	21	7

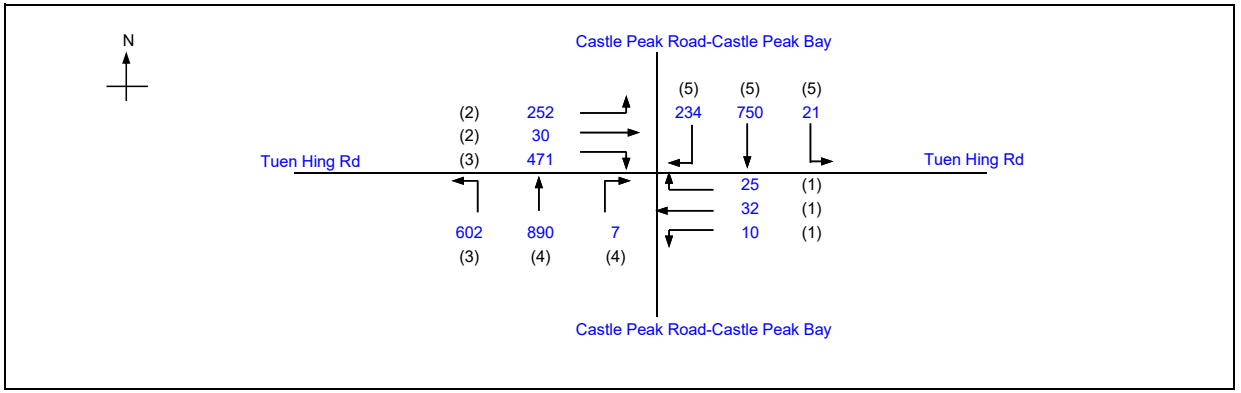
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				15					
LT	A,B	3.40	1	1	15		N	1955	326			326	1.00	1777			1777	0.183			32	57	0.383	30	19
LT,RT	A,B	3.30	1	1	34			2085	0		656	656	1.00	1997			1997	0.328	0.328		57	57	0.686	66	26
RT	A,B	3.30	1	1	31			2085			653	653	1.00	1989			1989	0.328			57	57	0.686	66	26
RT	A,B	3.30	1	1	31		N	1945			186	186	1.00	1855			1855	0.100			18	57	0.209	18	17
LT	B,C	3.30	2	2	14			4170	1273			1273	1.00	3766			3766	0.338			59	59	0.686	63	23
SA	C	3.30	3	2				4170		600		600	0.00	4170			4170	0.144	0.144		25	25	0.686	45	43
LT	C,D	3.30	4	1	100		N	1945	244			244	1.00	1916			1916	0.127			22	22	0.684	36	51
SA	C,D	3.50	4	1				2105		124		124	0.00	2105			2105	0.059			10	22	0.040	18	40
SA,RT	C,D	3.50	5	1	43			2105		0	259	259	1.00	2034			2034	0.128			22	22	0.086	42	50
RT	D	3.50	5	1	40		N	1965			242	242	1.00	1894			1894	0.128	0.128		22	22	0.086	36	51

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

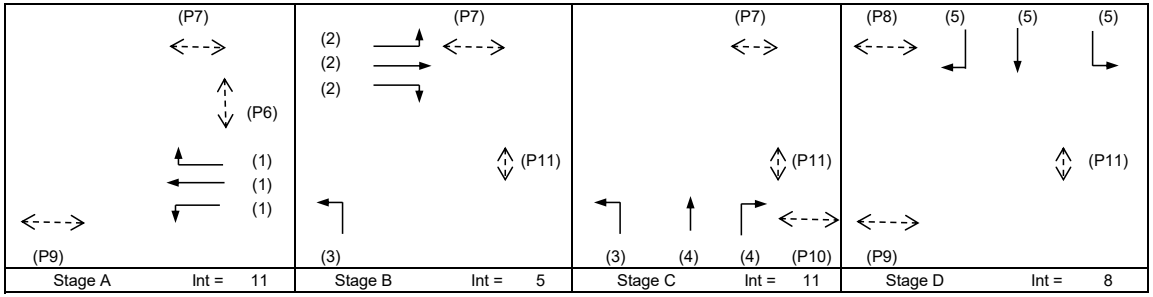
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J7: Castle Peak Road-Castle Peak Bay / Tuen Hing Road	**2041 Ref_AM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Reference AM Peak Hour Traffic Flows	stle Peak Road-Castle Peak Bay_Tuen Hing Road_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.544	
Loss time		L =	37	sec
Total Flow		=	3324	pcu
Co	= (1.5*L+5)/(1-Y)	=	132.8	sec
Cm	= L/(1-Y)	=	81.2	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	14.3	%
Cp	= 0.9*L/(0.9-Y)	=	93.7	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	18.2	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P6	A	8	5	7	2	8	6
P7	A,B,C	12	6	10	1	80	10
P8	D	11	6	9	2	29	9
P9	A	8	5	7	3	7	6
P10	C	11	6	9	9	30	9
P11	B,C,D	9	5	8	3	104	8

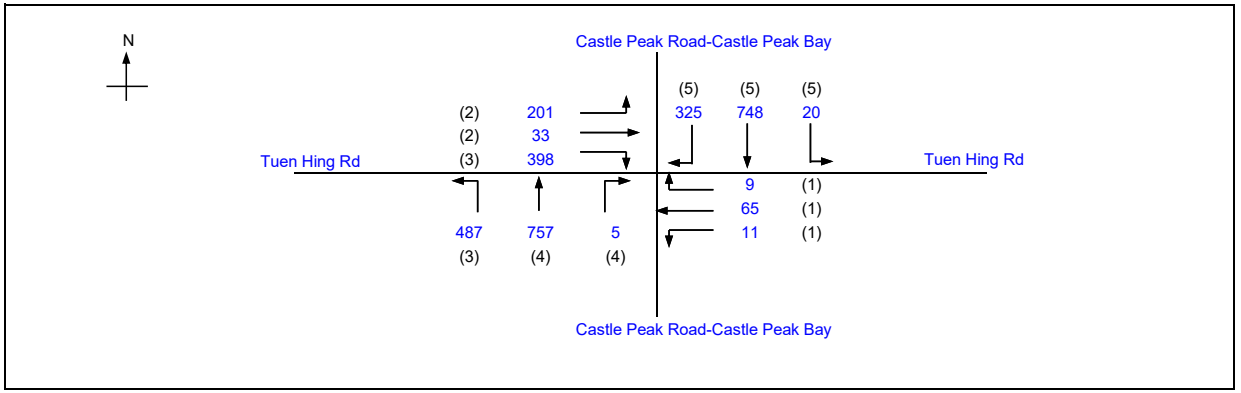
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				32					
LT,SA	D	3.40	5	1	15		N	1955	21	351		372	0.06	1944			1944	0.191	0.191		33	33	0.761	60	51
SA,RT	D	3.30	5	1	20			2085		399	0	399	0.00	2085			2085	0.191			33	33	0.761	60	50
RT	D	3.30	5	1	20		N	1945			234	234	1.00	1809			1809	0.129			22	22	0.761	42	63
LT,SA	A	3.30	1	1	15		N	1945	10	24		34	0.29	1889			1889	0.018		5	3	6	0.389	6	66
SA,RT	A	3.30	1	1	20		N	1945		8	25	33	0.76	1841			1841	0.018			3	6	0.389	6	66
LT	B,C	3.50	3	2	15		N	4070	602			602	1.00	3700			3700	0.163			28	28	0.761	51	50
SA	C	3.50	4	1				2105		464		464	0.00	2105			2105	0.221	0.221		38	38	0.217	66	46
SA,RT	C	3.50	4	1	20		N	1965		426	7	433	0.02	1963			1963	0.221			38	38	0.217	66	47
LT	B	3.40	2	1	15		N	1955	236			236	1.00	1777			1777	0.133	0.133		23	23	0.761	42	63
LT,SA,RT	B	3.40	2	1	15			2095	16	30	209	255	0.88	1925			1925	0.133			23	23	0.217	48	61
RT	B	3.40	2	1	25			2095			262	262	1.00	1976			1976	0.133			23	23	0.217	0	0

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

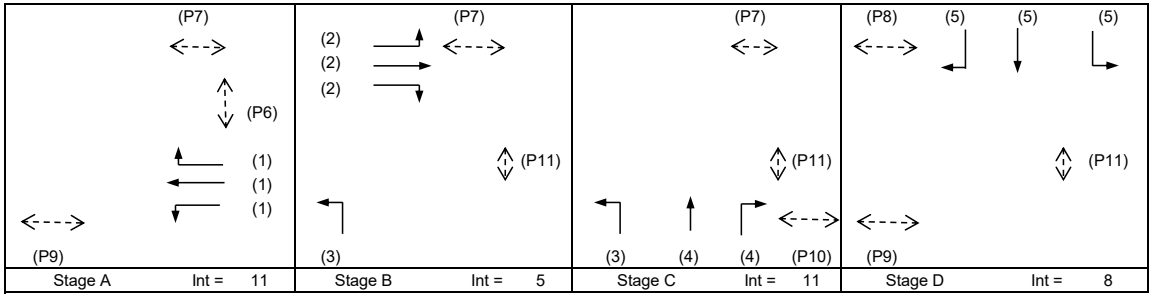
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J7: Castle Peak Road-Castle Peak Bay / Tuen Hing Road	**2041 Ref_PM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Reference PM Peak Hour Traffic Flows	stle Peak Road-Castle Peak Bay_Tuen Hing Road_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.489	
Loss time		L =	37	sec
Total Flow		=	3059	pcu
Co	= (1.5*L+5)/(1-Y)	=	118.4	sec
Cm	= L/(1-Y)	=	72.4	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	27.3	%
Cp	= 0.9*L/(0.9-Y)	=	81.0	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	31.6	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P6	A	8	5	7	2	8	6
P7	A,B,C	12	6	10	1	74	10
P8	D	11	6	9	2	34	9
P9	A	8	5	7	3	7	6
P10	C	11	6	9	9	22	9
P11	B,C,D	9	5	8	3	103	8

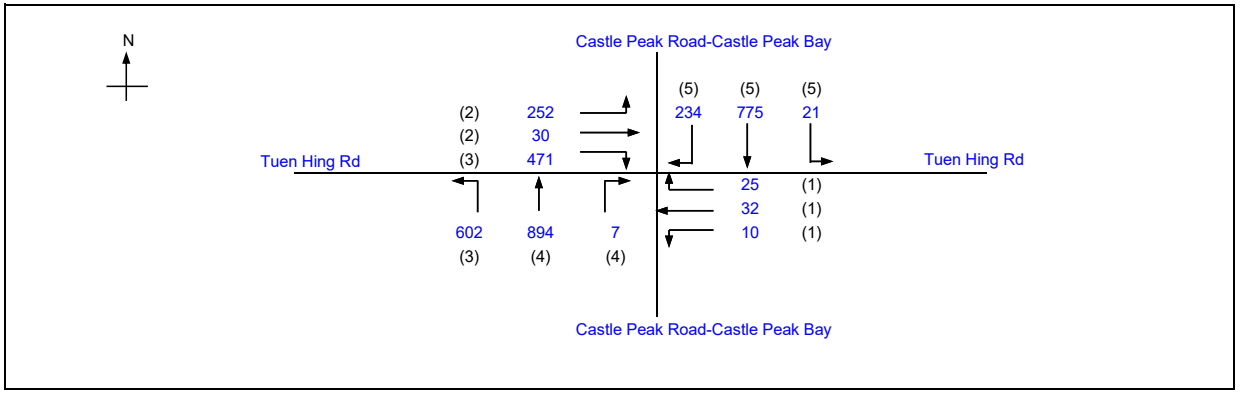
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				32					
LT,SA	D	3.40	5	1	15		N	1955	20	351		371	0.05	1945			1945	0.191	0.191		36	36	0.684	54	44
SA,RT	D	3.30	5	1	20			2085		397	0	397	0.00	2085			2085	0.191			36	36	0.684	60	44
RT	D	3.30	5	1	20		N	1945			325	325	1.00	1809			1809	0.180			34	34	0.684	48	46
LT,SA	A	3.30	1	1	15		N	1945	11	31		42	0.26	1896			1896	0.022		5	4	6	0.483	6	72
SA,RT	A	3.30	1	1	20		N	1945		34	9	43	0.21	1915			1915	0.022			4	6	0.483	6	72
LT	B,C	3.50	3	2	15		N	4070	487			487	1.00	3700			3700	0.132			25	25	0.684	42	49
SA	C	3.50	4	1				2105		394		394	0.00	2105			2105	0.187	0.187		36	36	0.195	60	44
SA,RT	C	3.50	4	1	20		N	1965		363	5	368	0.01	1963			1963	0.187			36	36	0.195	54	44
LT	B	3.40	2	1	15		N	1955	198			198	1.00	1777			1777	0.111	0.111		21	21	0.684	36	58
LT,SA,RT	B	3.40	2	1	15			2095	3	33	178	215	0.85	1932			1932	0.111			21	21	0.195	36	57
RT	B	3.40	2	1	25			2095			220	220	1.00	1976			1976	0.111			21	21	0.195	0	0

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

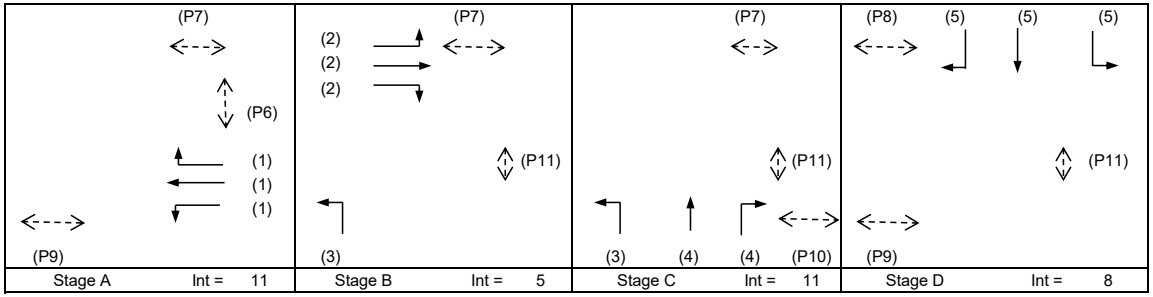
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J7: Castle Peak Road-Castle Peak Bay / Tuen Hing Road	**2041 Des_AM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Design AM Peak Hour Traffic Flows	stle Peak Road-Castle Peak Bay_Tuen Hing Road_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.552	
Loss time		L =	37	sec
Total Flow		=	3353	pcu
Co	= (1.5*L+5)/(1-Y)	=	134.9	sec
Cm	= L/(1-Y)	=	82.5	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	12.8	%
Cp	= 0.9*L/(0.9-Y)	=	95.6	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	16.7	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P6	A	8	5	7	2	8	6
P7	A,B,C	12	6	10	1	78	10
P8	D	11	6	9	2	29	9
P9	A	8	5	7	3	7	6
P10	C	11	6	9	9	29	9
P11	B,C,D	9	5	8	3	102	8

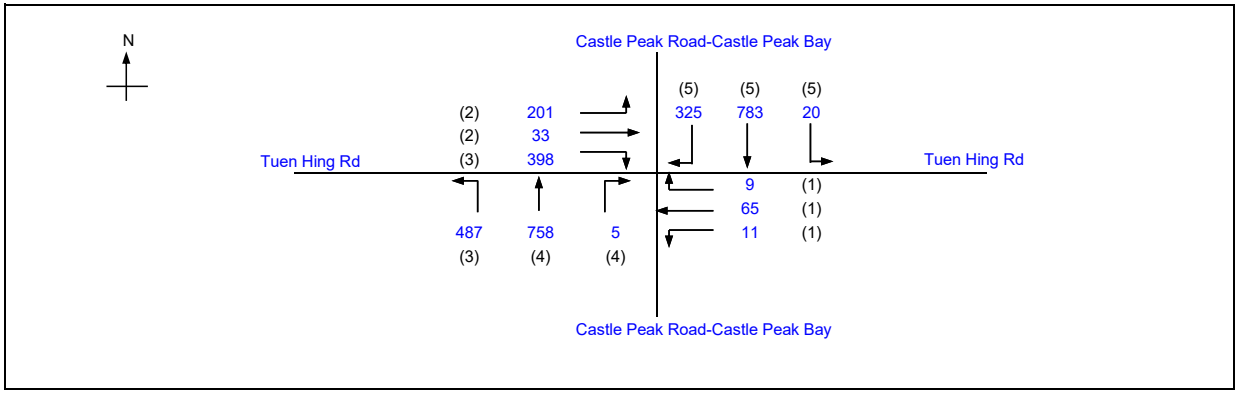
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				32					
LT,SA	D	3.40	5	1	15		N	1955	21	363		384	0.05	1944			1944	0.198	0.198		33	33	0.771	60	51
SA,RT	D	3.30	5	1	20			2085		412	0	412	0.00	2085			2085	0.198			33	33	0.771	66	51
RT	D	3.30	5	1	20		N	1945			234	234	1.00	1809			1809	0.129			22	22	0.771	42	65
LT,SA	A	3.30	1	1	15		N	1945	10	24		34	0.29	1889			1889	0.018		5	3	6	0.389	6	66
SA,RT	A	3.30	1	1	20		N	1945		8	25	33	0.76	1841			1841	0.018			3	6	0.389	6	66
LT	B,C	3.50	3	2	15		N	4070	602			602	1.00	3700			3700	0.163			27	27	0.771	51	50
SA	C	3.50	4	1				2105		466		466	0.00	2105			2105	0.222	0.222		37	37	0.219	72	47
SA,RT	C	3.50	4	1	20		N	1965		428	7	435	0.02	1963			1963	0.222			37	37	0.219	66	48
LT	B	3.40	2	1	15		N	1955	236			236	1.00	1777			1777	0.133	0.133		22	22	0.771	42	64
LT,SA,RT	B	3.40	2	1	15			2095	16	30	209	255	0.88	1925			1925	0.133			22	22	0.219	48	63
RT	B	3.40	2	1	25			2095			262	262	1.00	1976			1976	0.133			22	22	0.219	0	0

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

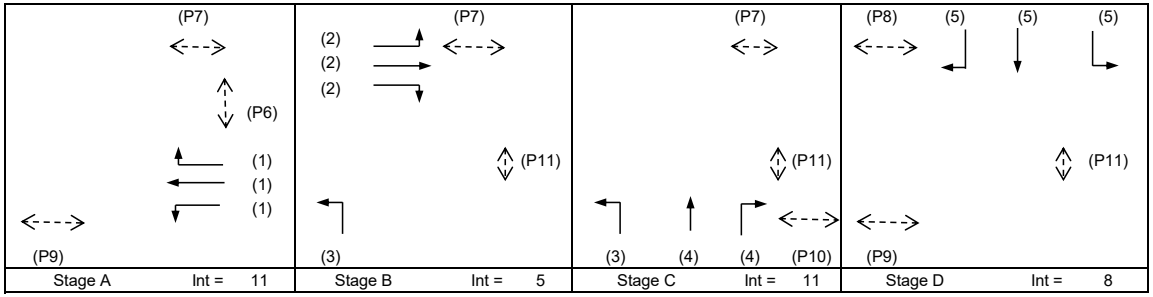
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

			INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J7: Castle Peak Road-Castle Peak Bay / Tuen Hing Road	**2041 Des_PM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Design PM Peak Hour Traffic Flows	stle Peak Road-Castle Peak Bay_Tuen Hing Road_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	4	
Cycle time		C =	130	sec
Sum(y)		Y =	0.498	
Loss time		L =	37	sec
Total Flow		=	3095	pcu
Co	= (1.5*L+5)/(1-Y)	=	120.5	sec
Cm	= L/(1-Y)	=	73.7	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	25.0	%
Cp	= 0.9*L/(0.9-Y)	=	82.8	sec
Ymax	= 1-L/C	=	0.715	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	29.3	%



Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG
P6	A	8	5	7	2	8	6
P7	A,B,C	12	6	10	1	75	10
P8	D	11	6	9	2	33	9
P9	A	8	5	7	3	7	6
P10	C	11	6	9	9	27	9
P11	B,C,D	9	5	8	3	103	8

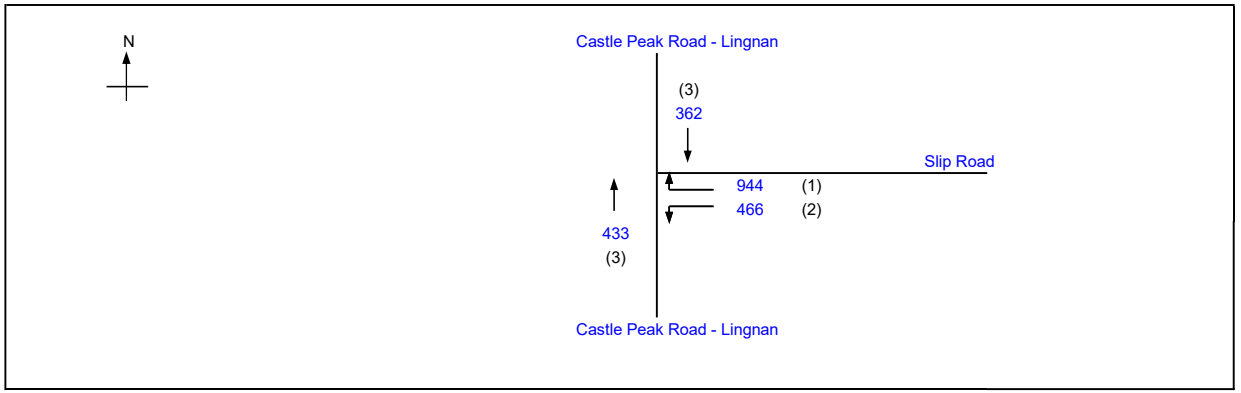
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				32					
LT,SA	D	3.40	5	1	15		N	1955	20	368		388	0.05	1945			1945	0.199	0.199		37	37	0.696	54	44
SA,RT	D	3.30	5	1	20			2085		415	0	415	0.00	2085			2085	0.199			37	37	0.696	60	43
RT	D	3.30	5	1	20		N	1945			325	325	1.00	1809			1809	0.180			34	34	0.696	48	47
LT,SA	A	3.30	1	1	15		N	1945	11	31		42	0.26	1896			1896	0.022		5	4	6	0.483	6	72
SA,RT	A	3.30	1	1	20		N	1945		34	9	43	0.21	1915			1915	0.022			4	6	0.483	6	72
LT	B,C	3.50	3	2	15		N	4070	487			487	1.00	3700			3700	0.132			25	25	0.696	42	50
SA	C	3.50	4	1				2105		395		395	0.00	2105			2105	0.188	0.188		35	35	0.198	60	45
SA,RT	C	3.50	4	1	20		N	1965		363	5	368	0.01	1963			1963	0.188			35	35	0.198	54	45
LT	B	3.40	2	1	15		N	1955	198			198	1.00	1777			1777	0.111	0.111		21	21	0.696	36	60
LT,SA,RT	B	3.40	2	1	15			2095	3	33	178	215	0.85	1932			1932	0.111			21	21	0.198	36	59
RT	B	3.40	2	1	25			2095			220	220	1.00	1976			1976	0.111			21	21	0.198	0	0

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

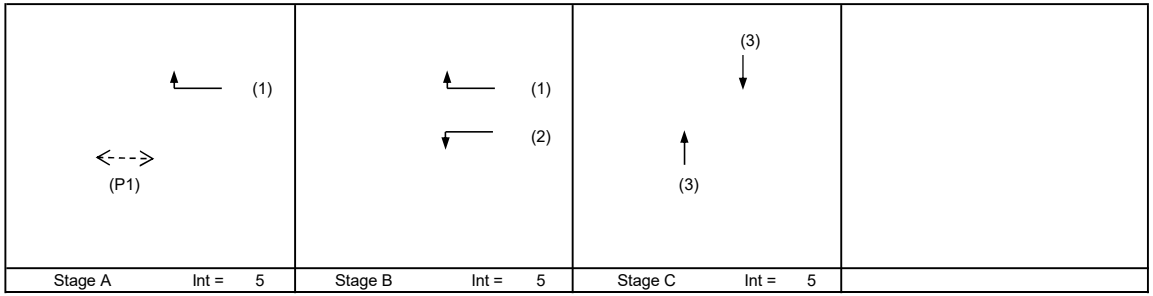
OZZO TECHNOLOGY (HK) LIMITED

TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun	PROJECT NO. 83202	Prepared By:	LL	Mar-26
J8: Castle Peak Road - Lingnan / Slip Road from Yuen Long Highway	**2041 Ref_AM (BDTM)**	FILENAME :	Checked By:	DP	Mar-26
2041 Reference AM Peak Hour Traffic Flows		pad - Lingnan_Slip Road from Yuen Long Highway_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	110	sec
Sum(y)		Y =	0.368	
Loss time		L =	13	sec
Total Flow		=	2205	pcu
Co	= (1.5*L+5)/(1-Y)	=	38.8	sec
Cm	= L/(1-Y)	=	20.6	sec
Yult		=	0.803	
R.C.ult	= (Yult-Y)/Y*100%	=	118.0	%
Cp	= 0.9*L/(0.9-Y)	=	22.0	sec
Ymax	= 1-L/C	=	0.882	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	115.6	%



Stage A	Int = 5	Stage B	Int = 5	Stage C	Int = 5

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				13					
LT	B	3.40	1	1	13		N	1955	463			463	1.00	1753			1753	0.264			70	70	0.418	30	10
LT,RT	B	3.10	1	1	13			2065	3		487	489	1.00	1851			1851	0.264			70	70	0.418	30	10
RT	A,B	3.00	1	1	14		N	1915			457	457	1.00	1730			1730	0.264	0.264		70	70	0.418	30	10
SA	C	3.30	3	2				4170		433		433	0.00	4170			4170	0.104	0.104		27	27	0.418	27	32
SA	C	3.50	3	2				4210		362		362	0.00	4210			4210	0.086			23	23	0.049	24	35

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

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TRAFFIC SIGNAL CALCULATION

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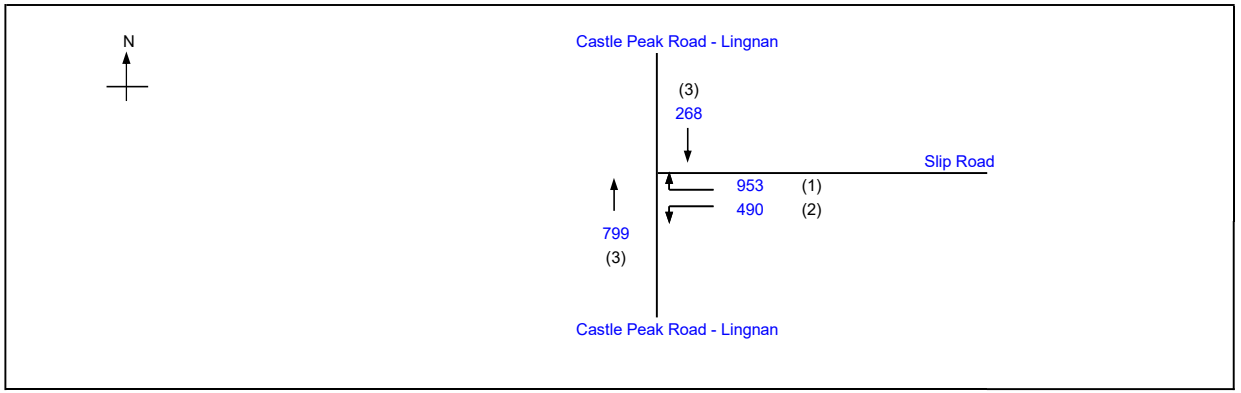
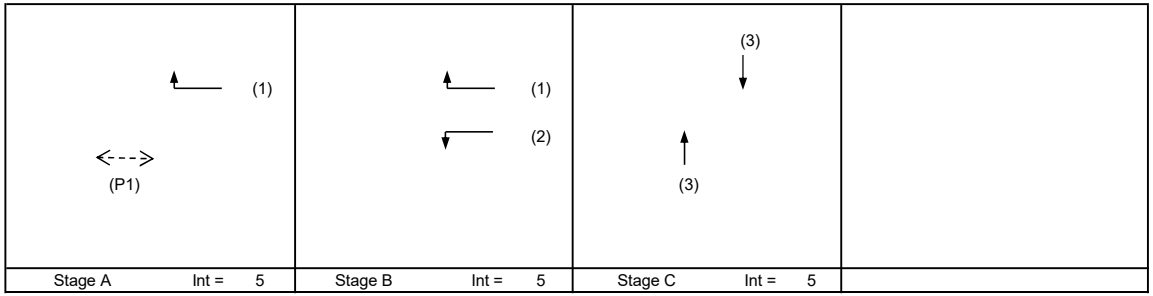
Technical Feasibility Study for Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun		
PROJECT NO. 83202	Prepared By: LL	Mar-26
J8: Castle Peak Road - Lingnan / Slip Road from Yuen Long Highway	FILENAME :	Checked By: DP	Mar-26
2041 Ref_PM (BDTM)	pad - Lingnan_Slip Road from Yuen Long Highway_S.xls	Reviewed By: OC	Mar-26
2041 Reference PM Peak Hour Traffic Flows			



		Existing Cycle Time	
No. of stages per cycle	N =	3	
Cycle time	C =	110	sec
Sum(y)	Y =	0.462	
Loss time	L =	13	sec
Total Flow	=	2510	pcu
Co = (1.5*L+5)/(1-Y)	=	45.6	sec
Cm = L/(1-Y)	=	24.2	sec
Yult	=	0.803	
R.C.ult = (Yult-Y)/Y*100%	=	73.6	%
Cp = 0.9*L/(0.9-Y)	=	26.7	sec
Ymax = 1-L/C	=	0.882	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71.7	%



Stage A	Int = 5	Stage B	Int = 5	Stage C	Int = 5

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				13					
LT	B	3.40	1	1	13		N	1955	474			474	1.00	1753			1753	0.271			57	57	0.524	42	18
LT,RT	B	3.10	1	1	13			2065	16		485	501	1.00	1851			1851	0.271			57	57	0.524	42	18
RT	A,B	3.00	1	1	14		N	1915			468	468	1.00	1730			1730	0.271	0.271		57	57	0.524	36	18
SA	C	3.30	3	2				4170		799		799	0.00	4170			4170	0.192	0.192		40	40	0.524	45	26
SA	C	3.50	3	2				4210		268		268	0.00	4210			4210	0.064			13	13	0.062	21	44

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

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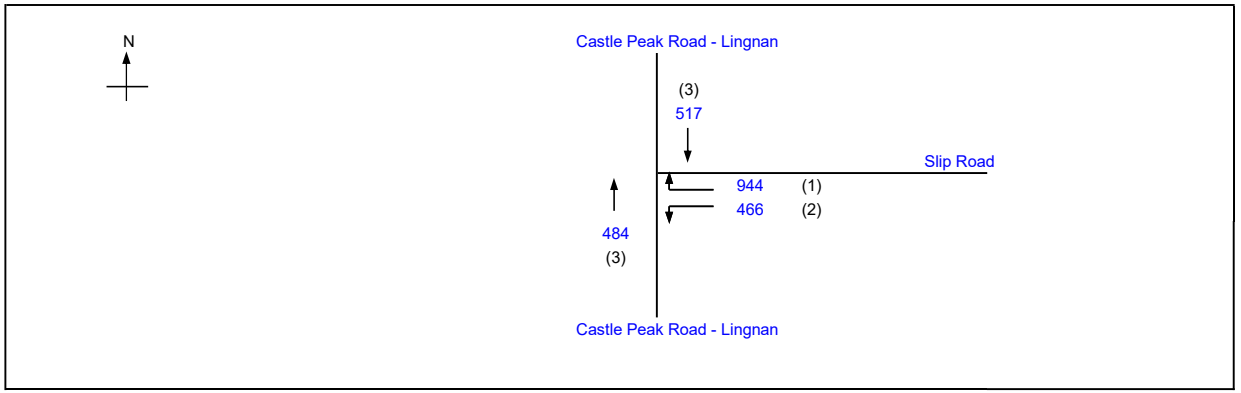
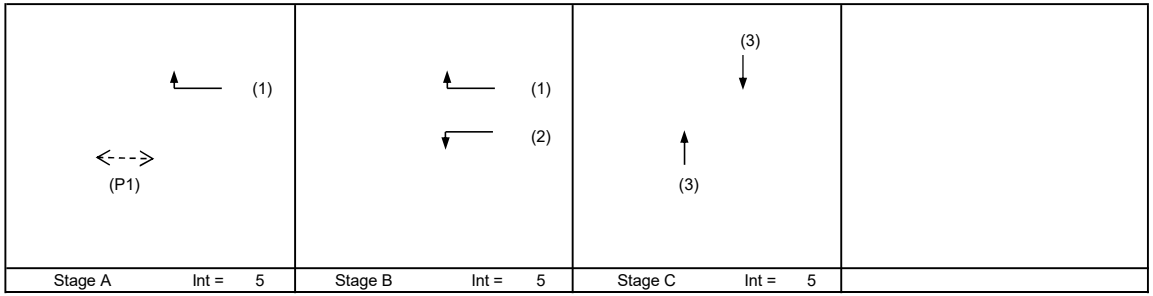
J8: Castle Peak Road - Lingnan / Slip Road from Yuen Long Highway	**2041 Des_AM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
2041 Design AM Peak Hour Traffic Flows	pad - Lingnan_Slip Road from Yuen Long Highway_S.xls	Reviewed By:	OC	Mar-26



			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	110	sec
Sum(y)		Y =	0.380	
Loss time		L =	13	sec
Total Flow		=	2411	pcu
Co	= (1.5*L+5)/(1-Y)	=	39.5	sec
Cm	= L/(1-Y)	=	21.0	sec
Yult		=	0.803	
R.C.ult	= (Yult-Y)/Y*100%	=	111.0	%
Cp	= 0.9*L/(0.9-Y)	=	22.5	sec
Ymax	= 1-L/C	=	0.882	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	108.6	%



Stage A	Int = 5	Stage B	Int = 5	Stage C	Int = 5

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				13					
LT	B	3.40	1	1	13		N	1955	463			463	1.00	1753			1753	0.264			67	67	0.431	30	11
LT,RT	B	3.10	1	1	13			2065	3		487	489	1.00	1851			1851	0.264			67	67	0.431	30	11
RT	A,B	3.00	1	1	14		N	1915			457	457	1.00	1730			1730	0.264	0.264		67	67	0.431	30	11
SA	C	3.30	3	2				4170		484		484	0.00	4170			4170	0.116	0.116		30	30	0.431	30	31
SA	C	3.50	3	2				4210		517		517	0.00	4210			4210	0.123			31	31	0.051	33	30

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

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TRAFFIC SIGNAL CALCULATION

		INITIALS	DATE
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J8: Castle Peak Road - Lingnan / Slip Road from Yuen Long Highway	**2041 Des_PM (BDTM)** FILENAME :	Checked By:	DP	Mar-26
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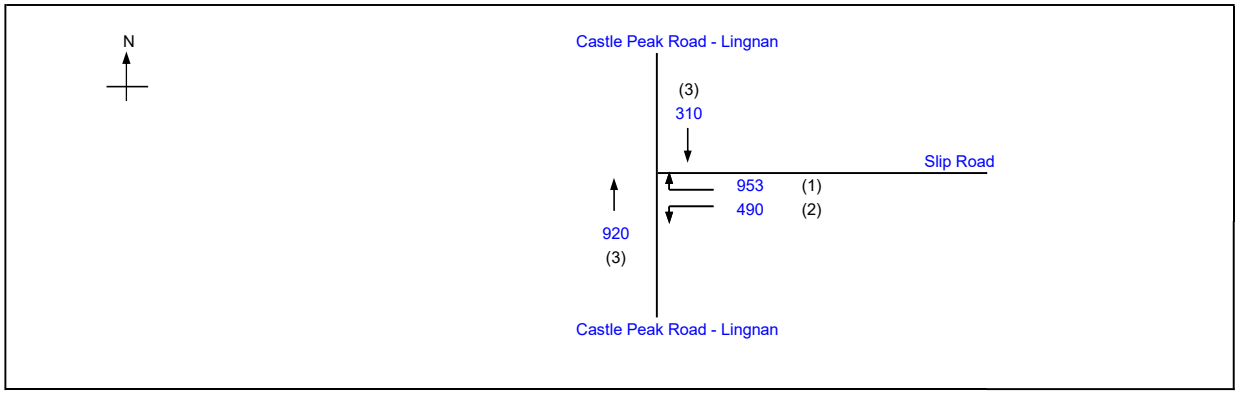
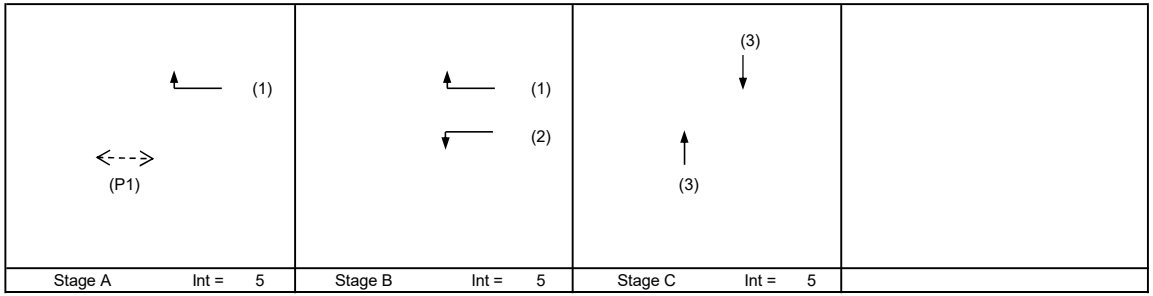


			Existing Cycle Time	
No. of stages per cycle		N =	3	
Cycle time		C =	110	sec
Sum(y)		Y =	0.491	
Loss time		L =	13	sec
Total Flow		=	2673	pcu
Co	= (1.5*L+5)/(1-Y)	=	48.1	sec
Cm	= L/(1-Y)	=	25.5	sec
Yult		=	0.803	
R.C.ult	= (Yult-Y)/Y*100%	=	63.4	%
Cp	= 0.9*L/(0.9-Y)	=	28.6	sec
Ymax	= 1-L/C	=	0.882	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	61.6	%



Stage A	Int = 5	Stage B	Int = 5	Stage C	Int = 5

Pedestrian Phase	Stage	Length (m)	Green Time Required (s) SG	FG	Delay	Green Time Provided (s) SG	FG

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
																				13					
LT	B	3.40	1	1	13		N	1955	474			474	1.00	1753			1753	0.271			53	53	0.557	42	20
LT,RT	B	3.10	1	1	13			2065	16		485	501	1.00	1851			1851	0.271			53	53	0.557	42	20
RT	A,B	3.00	1	1	14		N	1915			468	468	1.00	1730			1730	0.271	0.271		53	53	0.557	42	20
SA	C	3.30	3	2				4170		920		920	0.00	4170			4170	0.221	0.221		44	44	0.557	48	24
SA	C	3.50	3	2				4210		310		310	0.00	4210			4210	0.074			15	15	0.066	24	44

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Annex C

Census 2021 Table C204

Table C204 : Working Population with Fixed Place of Work in Hong Kong by District Council District, Place of Work, Year and Main Mode of Transport to Place of Work

		Working Population with Fixed Place of Work in Hong Kong											
		Number of Persons											
Year		2021											
Main Mode of Transport to Place of Work		Mass Transit Railway (Local line) (1)	Bus (2)	On foot only	Private car/ Passenger van	Public light bus (3)	Company bus/ van	Mass Transit Railway (Light Rail)	Taxi	Residential coach service	Ferry/ Vessel	Others	Total
Land	Work in the same district (4)	95 251	90 455	250 820	26 729	55 635	10 339	24 764	10 395	4 132	1 032	16 635	586 187
	Work in another district (Hong Kong Island)	389 950	166 391	2 920	34 576	14 105	11 651	18	11 642	6 545	12 513	6 827	657 138
	Work in another district (Kowloon)	412 213	206 911	8 099	56 464	33 037	14 851	--	9 730	5 968	3 460	5 187	755 920
	Work in another district (New Towns)	208 568	144 779	12 452	56 763	39 615	18 035	17 308	5 108	4 202	516	5 953	513 299
	Work in another district (Other areas in the New Territories)	43 912	55 022	4 700	15 295	6 807	8 142	3 786	980	1 465	3 522	2 898	146 529
	Total	1 149 894	663 558	278 991	189 827	149 199	63 018	45 876	37 855	22 312	21 043	37 500	2 659 073

Note(s) :

(1) Mass Transit Railway (Local line) includes Kwun Tong Line, Tsuen Wan Line, Island Line, Tung Chung Line, Tseung Kwan O Line, East Rail Line, Tuen Ma Line, Disneyland Resort Line, South Island Line and Airport Express Line.

(2) Buses include Kowloon Motor Bus, New World First Bus, Citybus, New Lantao Bus, Long Win Bus, Mass Transit Railway Feeder Buses and shuttle buses running between commercial/ office developments and railway stations.

(3) Public light buses include green and red minibuses.

(4) Persons who work in the same district include: (a) those who live on Hong Kong Island or in Kowloon and work in the same District Council district; (b) those who live in a new town and work in the same new town; and (c) those who live in other areas in the New Territories and work in areas other than new town areas of the same District Council district. Persons who work at home and marine population are excluded.

(5) The boundaries of the Wan Chai district and Eastern district adopted in the 2016 Population By-census and the 2021 Population Census are not comparable with those adopted in the 2011 Population Census. Therefore, figures of the Wan Chai and Eastern districts for 2016 and 2021 are not strictly comparable with those for 2011.

-- denotes nil or data not available

Source :
2021 Population Census Office
Census and Statistics Department
The Government of the Hong Kong Special Administrative Region
Enquiry telephone no. : 3428 2744
Enquiry e-mail : census2021@censtatd.gov.hk

Release date :
15 July 2022

Appendix 3

Visual Impact Assessment

APPROVED TUEN MUN
OUTLINE ZONING PLAN NO. S/TM/41

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone Lingnan University, Castle Peak Road – Lingnan, Tuen Mun (TMTLs 376 and 410 in DD132)

VISUAL IMPACT ASSESSMENT

June 2026

Project Proponent:
Lingnan University

Prepared by:
KTA Planning Limited

S3161_VIA_V08

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Approved Tuen Mun OZP No. S/TM/41

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun (TMTLs 376 and 410 in DD132, Tuen Mun)

Visual Impact Assessment

1. INTRODUCTION

1.1 Purpose

1.1.1 This Visual Impact Assessment ("VIA") report is prepared on behalf of Lingnan University (the "Proponent" / "LU") in support of Proposed Amendment to the Building Height Restriction ("BHR") of Lingnan University Main Campus and North Campus in Tuen Mun (the "Sites") to not more than 120mPD (**Figure 1.1** refers). The Sites are zoned "Government, Institution or Community" ("G/IC") on the Approved Tuen Mun Outline Zoning Plan ("Approved OZP") No. S/TM/41.

1.1.2 This VIA evaluates, in accordance with the "*Town Planning Board Guidelines on Submission of Visual Impact Assessment for Planning Applications to TPB*" ("TPB PG-No. 41A"), the anticipated visual impact of the Proposed Development on public viewers relevant to the Site and concludes with recommendation on mitigation measures if necessary.

1.2 Report Structure

1.2.1 Following this introductory section, the methodology adopted in this assessment will be set out in **Section 2**. The baseline review of the assessment area is included in **Section 3**. **Section 4** includes the Proposed Campus Master Plan and discussion on the planning and urban design considerations. Visual envelope, public viewers and their representative principles will be identified and analyzed in **Section 5**, followed by assessment of the visual impacts, if any, in **Section 6**. **Section 7** concludes this VIA.

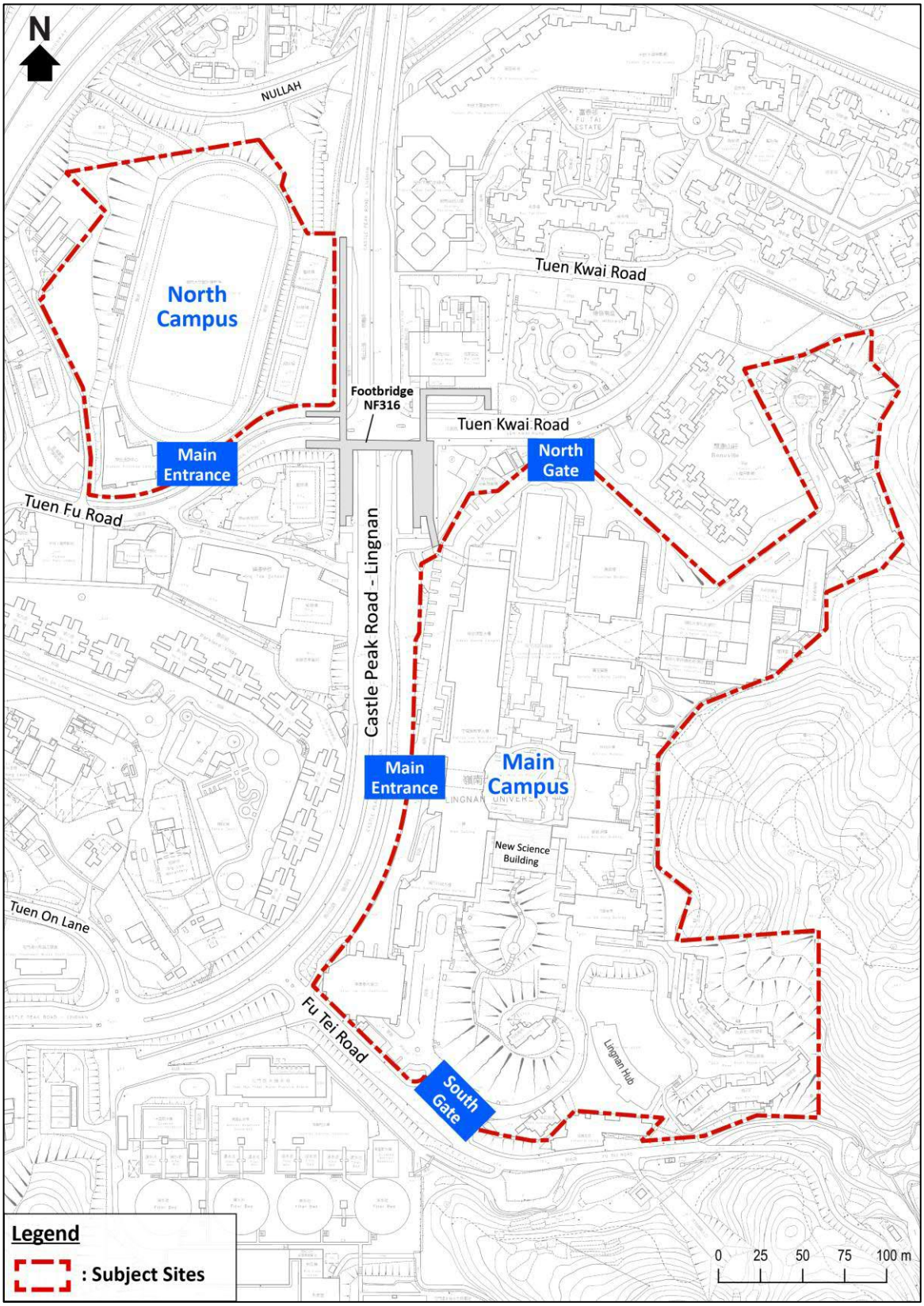


Figure 1.1: Site Location Plan

2. Methodology

2.1 Visual Impact Assessment Approach

2.1.1 This VIA aims at evaluating the potential visual impact of increasing the building height restriction ("BHR") from 4 & 10-storey (Main Campus) and 1-storey (North Campus) to not more than 120mPD by evaluating the visual impact of the Proposed Development on public viewers as compared with the existing buildings.

2.1.2 According to TPB PG-No. 41A, the overall visual impact shall be assessed based on i) the sensitivity of the key public viewers; ii) visual resources and visual amenities likely to be affected; iii) the magnitude, extent and duration of impact and any resultant improvement or degradation in the visual quality and character of the surrounding area; and iv) the planning intention and known planned developments of the area.

2.1.3 Visual sensitivity of public viewers is determined taking into account the activity/type of the public viewers, and the public perception of the value attached to the view being assessed. It is typically qualitatively graded from high, medium, or low.

2.1.4 Visual changes could be positive or negative and they are not necessarily mutually exclusive. In considering the effect of visual change, it covers the following three aspects:

- The total effect on the **visual composition** of the surrounding context;
- The degree of **visual obstruction** to key public viewing points ("VPs"); and
- The effects of **visual change** from key public VPs.

2.1.5 The magnitude of visual changes will be qualitatively graded as Substantial, Moderate, Slight or Negligible.

2.1.6 The VIA will be undertaken in the following steps:

- A baseline review will be conducted to capture the existing visual elements in the surroundings and the planning context of the site.

- The Proposed Campus Master Plan for the site will be briefly presented.

- The visual envelope ("VE") will be determined based on the size and distance of the proposed development and appropriate VPs to represent the view from public viewers will be identified.

- Each VP and potential visual impact of the Proposed Campus Master Plan on the public viewers will be analysed based on the photomontages prepared from the selected VPs.

- The overall visual impact will be assessed and conclusion on the visual acceptability of the proposed development will be made.

3. Baseline Review

3.1 Site Location And Existing Condition

3.1.1 The Sites are located at Tuen Mun Town Lot 376 (Main Campus) and 410 (North Campus), Tuen Mun. While the Main Campus is bounded by Kwun Yam Shan (east), vegetated knoll & Tuen Mun Water Treatment Works (south), Castle Peak Road – Lingnan (west), and residential clusters at Fu Tai Estate (north), the North Campus is bounded by Castle Peak Road – Lingnan (east), Tuen Fu Road (south), Tuen Mun Road/Yuen Long Highway (west), and nullah (north) (**Figure 3.1** refers). The Sites are currently occupied by the Lingnan University as Main Campus and North Campus uses (**Figure 3.1** refers).

Figure 3.1: Aerial & Surrounding Context Plan

3.2 Existing Visual Elements In The Surrounding Context

3.2.1 The visual outlook of an area is shaped by a combined composition of all the visual elements which come into sight of the viewers. The Sites are located in an suburban setting predominated by high-rise residential developments, intermixed with G/IC developments, open spaces and vegetated slopes. Key visual elements in the surrounding context of the site are included in **Figure 3.2** and summarized below:

- The immediate north of Main Campus (east of North Campus) are various high-rise residential buildings, comprising SEK building, South Hillcrest, and Beneville, with building height ranging from +70mPD to +116mPD. To its further north (east of North Campus) is the high-rise public housing development, namely Fu Tai Estate (about +97mPD to +131mPD). These high-rise residential towers together would affect the visual openness of the area and create visual obstruction to the greenery in the area;

- Kwun Yum Shan, with a top level of about +287mPD, is situated to the immediate east of Main Campus (further east of North Campus). Its ridgeline and vast greenery serve as a natural green backdrop, which is a key visual resource in the surrounding area, offering visual relief to the locals;

- To the south of the Main Campus (south-east of North Campus) is the Tuen Mun Water Treatment Works, which is a low-rise G/IC facility with building height ranging from approx. +10mPD to +30mPD. Its low-rise nature contributes to the visual openness of the area;

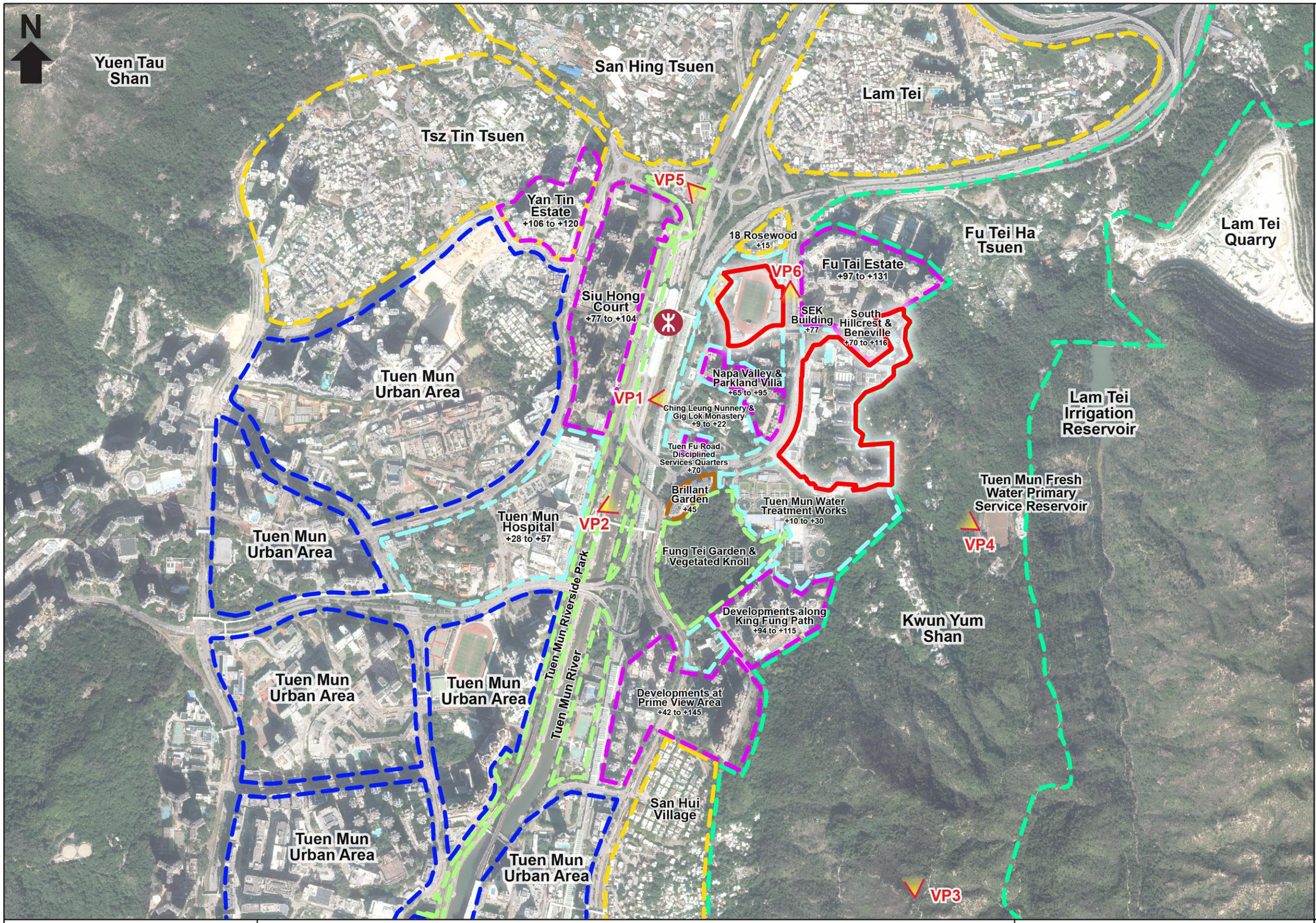
- To the further south and south-west of the Main Campus (south-east of North Campus) are a local open space (Fung Tei Garden) and a vegetated knoll, sandwiched by a medium-rise private residential estate (i.e. Brilliant Garden; about +45mPD) and a high-rise private residential clusters along King Fung Path, comprising Mount Regency, Grandeur Garden, Elegance Garden, SkyeHi and Noble Place with building height ranging from +94mPD to +115mPD). While the local open space and vegetated slope serve as landscape buffer and offers visual relief and visual openness for the surrounding area, the high-rise residential developments would create some degree of visual obstruction to the greenery in the area;

- The immediate west of Main Campus (south of North Campus) is a cluster of low-rise G/IC developments and high-rise private residential estates namely Napa Valley (about +65mPD) and Parkland Villa (about +95mPD). These low-rise G/IC buildings scattered across the "G/IC" zone. While the northern portion mainly comprises North Campus and two schools (i.e. Ecclesia Bible College (about +34mPD) and Hing Tak School (about +42mPD), the southern portion includes Ching Leung Nunery and Gig Lok Monastery (about +9mPD to +22mPD). Their low-rise nature, combined with open-air design of North Campus and schools, contribute to the visual openness for the area.

- Siu Hong Court is situated further west to the Main Campus (west of North Campus) and MTR Siu Hong Station. It is a large-scale housing estate with building height ranging from +77mPD to +104mPD, which create visual obstruction to the surrounding areas;

- To the north-west of Main Campus (north of North Campus) is a low-rise villa-type developments namely 18 Rosewood (about +15mPD).

3.2.2 The existing visual quality of the Sites can be regarded as fair in general. The Development Sites are located in suburban setting predominated by high-rise residential developments, intermixed with G/IC developments, open spaces and vegetated slopes. The existing roadside trees and greenery at open spaces provide certain degree of visual relief to the area.



Legend

- The Sites
- VP1 PTI (South) of MTR Siu Hong Station
- VP2 Rooftop Garden of Tuen Mun Riverside Park
- VP3 Kwun Yum Shan
- VP4 Tuen Mun Fresh Water Services Reservoir
- VP5 Tuen Mun Cycling Entry/Exit Hub
- VP6 Fu Tai Estate Bus Stop (Northbound)
- Viewing Point

Visual Element / Resource / Detractors

- High-rise Residential Developments
- Medium-rise Residential Developments
- Low-rise Residential/ Village-type Developments
- Low to Medium-rise GIC Development
- Open Space
- Mountain Backdrop
- Other

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Key Visual Elements

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun

Visual Impact Assessment

Figure: 3.2

Scale: 1:5000

Date: 7 July 2025

3.3 Statutory Zoning Context

3.3.1 Both the Main Campus and North Campus fall primarily within areas zoned "G/IC"[1] on the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 (**Figure 3.3** refers) and subject to maximum BHR of 4 & 10-storey and 1-storey respectively, both excluding basement.

3.3.2 According to the Statutory Notes of the Approved OZP, the planning intention of the "G/IC" zone is *"primarily for the provision of Government, institution or community (GIC) facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments".*

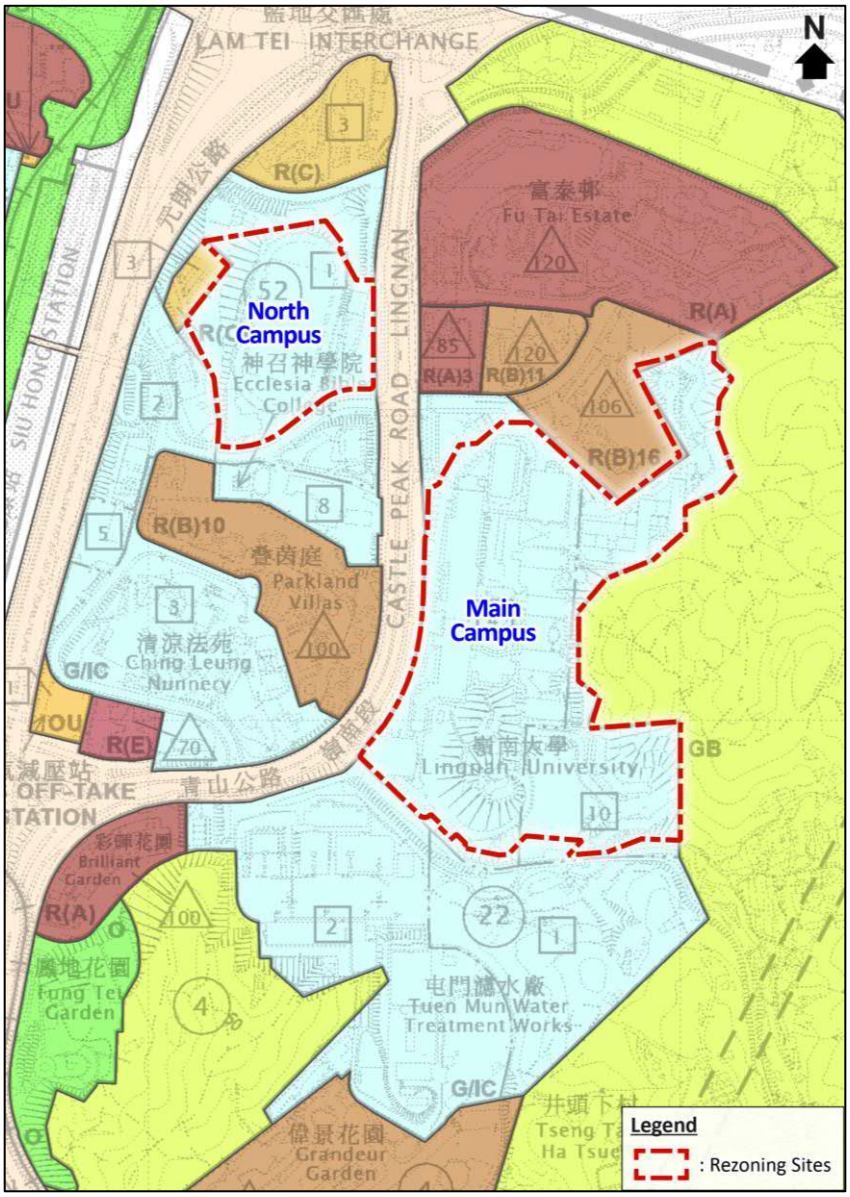


Figure 3.3: Zoning Context Plan

[1] Minor portions of Main Campus and North Campus encroach onto the adjoining "Residential (Group B)" and "Residential (Group C)" zone respectively.

4. The Proposed Campus Master Plan

4.1 Planning Principles

4.1.1 LU is an institution with a rich legacy, reflected in its traditions and cultural setting. A set of planning principles has been formulated to define the assumptions and intentions governing the visions and recommendations of the Campus Master Plan.

a) Supporting the Long-term Vision Plan – LU is endeavoured to deliver a unique student experience, attract and cultivate excellence as well as to deepen the research efforts and broaden their contribution to the society. Campus re-planning and improvements are required to create a more inclusive, open and adaptable learning and teaching environment for the students and staff.

b) Respecting the Established Heritage and Maintaining Identity of the University – The architectural and historical legacy as well as the cultural landscape which are a vital part of the heritage and identity of LU will be preserved. In particular, the Main Building and Wing On Plaza which are the heart and core of LU's community will be respected and maintained (**Photo 1** refers). The four linear blocks at the back, which jointly form the identity of LU, will also be retained.

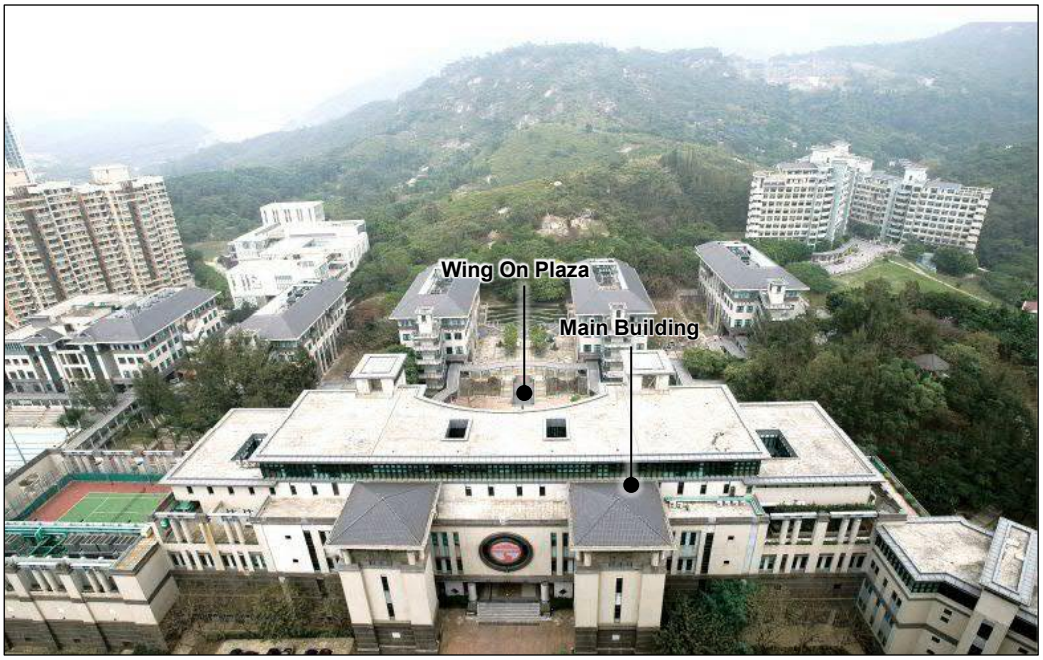


Photo 1: Main Building and Wing On Plaza

c) Inheriting Lingnan Architectural Composition for a Smart, Green and Sustainable Future Campus – While the heart and core of LU's community will be respected, the new entities would continue to respond to the natural terrain and existing buildings with building height stepping from the greenery backdrop towards the public road, forming a stepping height profile. Green building

technologies will be promoted in the new buildings to foster a more sustainable campus.

d) **Integrating the Campuses with the Surrounding Setting** – The Campus Master Plan aims to enhance the connection with the surrounding setting by adopting sensible design (including various low building height areas) responding to the built and natural environment. Out-of-context development will be avoided.

e) **Improving the Quality of Life of the University Community** – Enhancement to the campus experience would be through learning and teaching at the state-of-the-art facilities with the support of various amenity facilities including bookstore, convenience store, canteen, café, common areas, study spaces etc. Moreover, creating various comfortable and inspiring spaces for social interactions and activities would be crucial part of the learning environment. By introducing an interconnected green network integrating the open space, courtyards and walkways, the connectivity and walkability within and outside Campus would be greatly enhanced.

4.2 The Proposed Development Plan

4.2.1 The Campus Master Plan describes and illustrates how the Main Campus and North Campus should be structured in terms of land use, open space provision and connectivity. It also identifies initiatives intended to implement the framework and generally improve the environment and function of the campuses. Upon the campus re-planning, about 335,316 sq.m of GFA will be added and the building height of the new buildings would be not more than 120mPD. The Campus Master Plan, sections, and development schedule are provided in **Appendix 1** and **Figure 4.1** below, whilst **Tables 4.1** and **4.2** illustrate the GFA comparison and building height for Main Campus and North Campus.

Table 4.1: Proposed GFA and Plot Ratio Increase in Main Campus and North Campus

	Lease (about) (a)	Proposed (about) (b)	Difference (b) – (a)
Main Campus (TMTL 376)			
Site Area	85,940 m^2	85,940 m^2	No Change
GFA	110,400 m^2	343,034 m^2	+232,634 m^2
Plot Ratio	1.29	4.0	+2.71
North Campus (TMTL 410)			
Site Area	26,293 m^2	26,293 m^2	No Change
GFA	2,360 m^2	105,042 m^2	+102,682 m^2
Plot Ratio	0.09	4.0	+3.91
Total			
GFA	112,760 m^2	448,076 m^2	**+335,316 m^2**

Table 4.2: Building Height of Proposed Buildings in Main Campus and North Campus

	Proposed Building Height	
	No. of Storey	mPD
Main Campus (TMTL 376)		
A1 - Research & Academic Building	21	119.7
A2 - Research & Academic Building	9/20	52.4/101.9
A3 - Research & Academic Building	19	101.9
A4 - Research & Academic Building	19	101.9
A5 - Research & Academic Building	22	118.3
A6 - New Science Building	8	70
North Campus (TMTL 410)		
B1 - Sports Complex & Amenities Building	2	30.8
B2 - Amenities & Academic Building	18/26	73.8/116.3
B3 - Amenities & Academic Building	20	102.3
B4 - Amenities & Academic Building	7	43.8

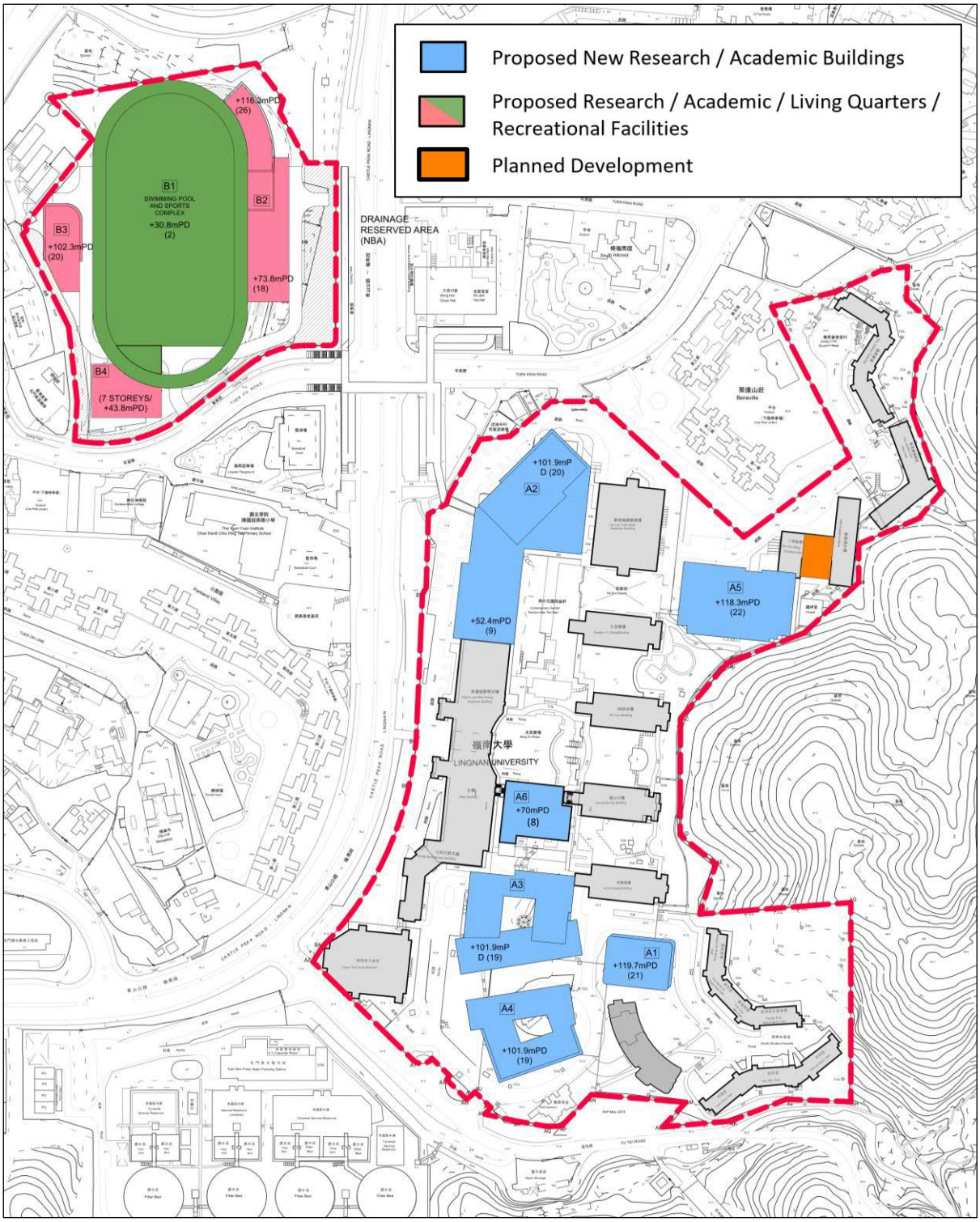


Figure 4.1: Campus Master Plan

4.2.2 The Main Campus is intended to maintain its mixed-use functions supporting a full range of activities including teaching, research, housing (student hostels and staff quarters), and ancillary uses (such as canteen and shop). For the North Campus, in addition to the proposed research and teaching facilities, it will mainly function as the future "Amenity Hub" for LU community with the reprovisioned of Student Activity Centre comprising a sports ground and swimming pool. New student hostels/living quarters and amenity facilities will also be provided at the North Campus.

4.2.3 To accommodate the additional GFA within the existing campus, a comprehensive review of land utilization within the campus has been carried out. The underutilized sites would be the priority for redevelopment to achieve more efficient use of land resources.

4.3 Urban Design Considerations

4.3.1 The following urban design considerations have been taken into account when formulating the Campus Master Plan to ensure the creation of high-quality campus environment responding to the natural topography and surrounding built environment.

Building Design

4.3.2 LU is known for its modernist, functionalist architecture with subtle Lingnan (Southern Chinese) influences, emphasizing a harmonious integration between the natural and built environment in a sustainable way. The new buildings will maintain the continuous horizontal elements of existing buildings at Campus, while also replicating the Lingnan pitch roof element through geometric treatment to the banding. Building materials that are subdued or complementary to the existing buildings will be adopted without changing the character of the LU campuses. The new buildings will also be designed to enhance the environment and contribute to the overall sustainability of the campuses.

Building Façade Length

4.3.3 The existing buildings of Main Campus along Castle Peak Road – Lingnan are offset from the road edge by approximately 25-30m. The new buildings would be confined within the footprint of existing buildings and will maintain the current building length. The Proposed Development will introduce buildings with height variations which will add visual interest to the area. Carefully thought-out articulation at the building façade responding to the existing architectural character of LU Campus (with Lingnan influences) will be adopted to achieve a harmonious and cohesive campus environment.

Variations in Building Height Profile

4.3.4 The development intensity of the campus development has been devised to create a built form that complements the surrounding residential and GIC settings. The maximum height of the redeveloped buildings would be not more than 120mPD, which is congruous with the building height of surrounding residential development including

South Hillcrest (with BHR of 120mPD), Beneville (with BHR of 106mPD), Fu Tai Estate (with BHR of 120mPD), Parkland Villas (with BHR 100mPD) and SEK (with BHR of 85mPD). A general stepped building height profile from the terrain in the east descending towards Castle Peak Road – Lingnan (along the visual axis) will be maintained to provide variations in massing while adding visual interest (**Figure 4.2** refers).

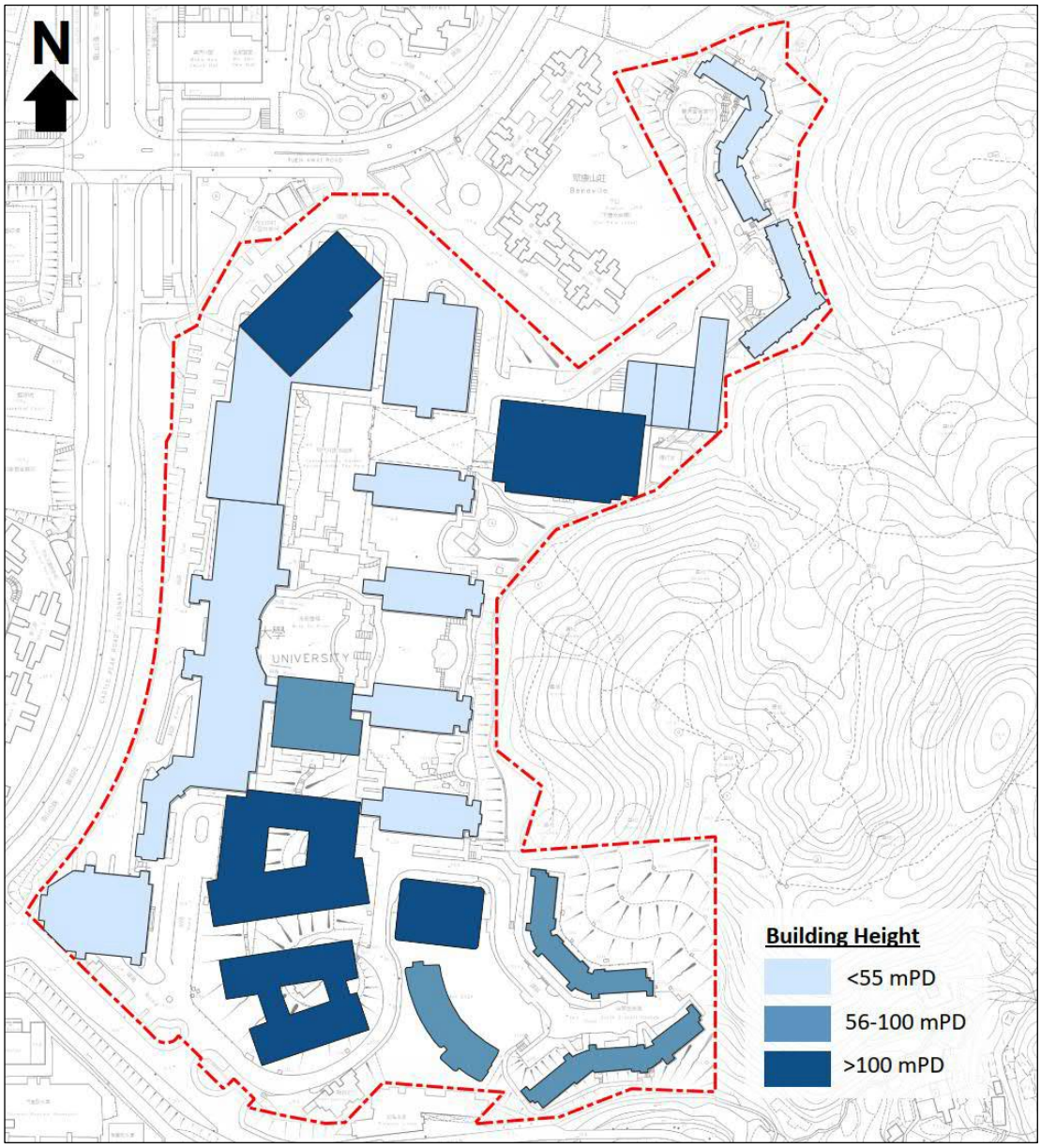


Figure 4.2: Varying Building Height Concept Diagram

4.3.5 In addition, the existing skyline along Castle Peak Road – Lingnan is characterized by taller buildings on the two sides (i.e. Fu Tai Estate in the north and Mount Regency and Elegance Garden in the south) with lower building height at the Main Campus and Tuen Mun Water Treatment Works. Upon re-planning of the campus, the addition of new buildings along Castle Peak Road – Lingnan will not change the existing skyline as illustrated in **Figure 4.3** below.

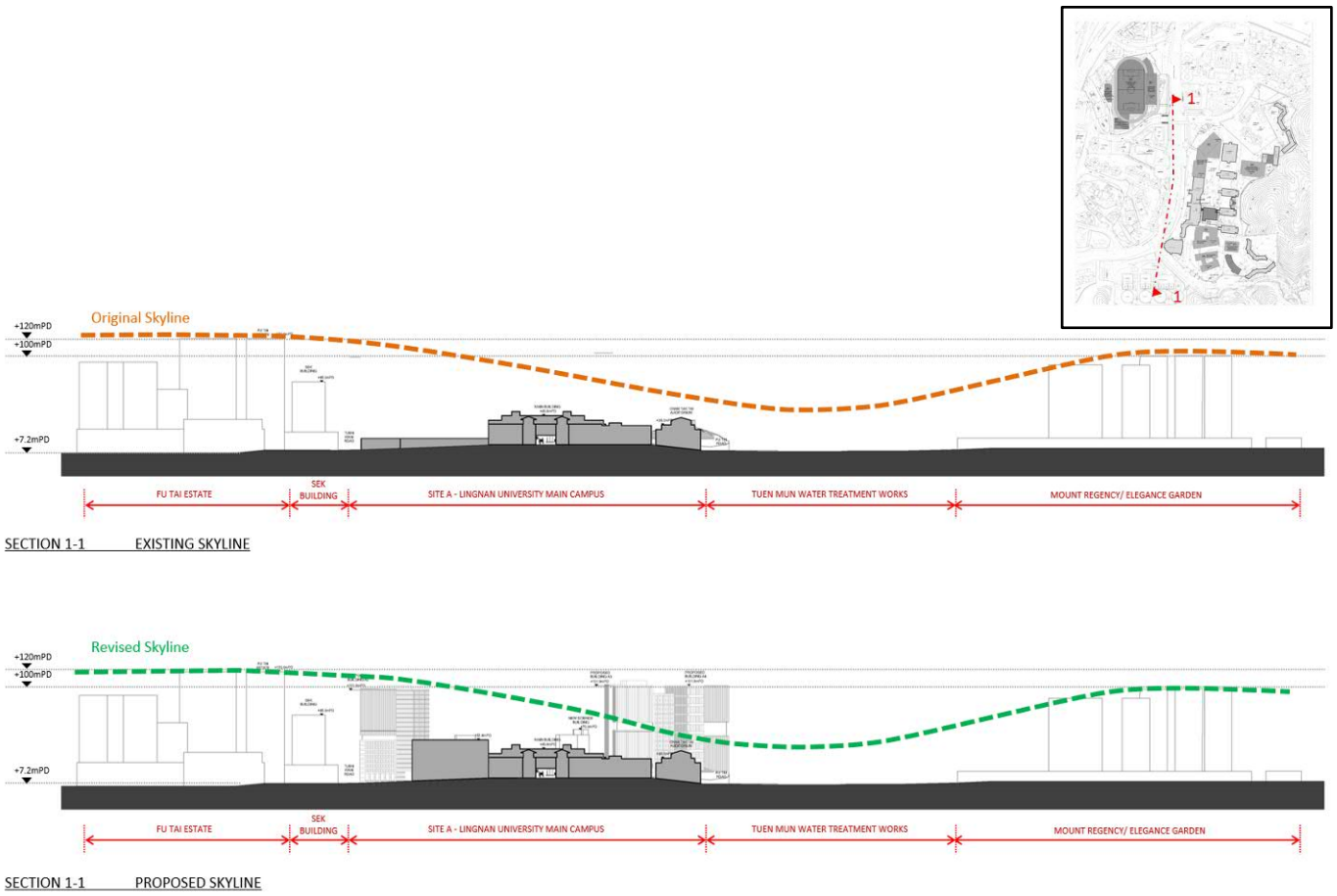


Figure 4.3: Comparison of Existing and Proposed Skyline (along Castle Peak Road)

Maintaining Low Building Height (BH) Areas for Visual and Air Ventilation Purposes

4.3.6 Integration with the surrounding development context will be achieved through the incorporation of various low BH areas within the Proposed Development. The major low BH strips will be maintained along the east-west axis at the Main Campus to allow the visual access towards the greenery backdrop and pay respect to the iconic Main Building. As the major axis for LU Campus, the low BH areas does not only offer visual openness and permeability but will act as an apparent visual cue signifying the University's entrance with connection to the main social/communal open space (Wing On Plaza), reinforcing the heart and core of the LU (**Figure 4.4** refers).

4.3.7 The existing view of the surrounding residential developments including Beneville (to the northeast of Main Campus), Bowring Height (to the northwest of the North Campus) and Rosewood (to the north of the North Campus) will also be fully respected (**Figure 4.4** refers). With carefully thought-out massing and orientation of the new buildings, provision of adequate setback with ample landscape buffer and incorporation of a number of low BH areas, the new buildings would be able to integrate well with the surrounding development context.

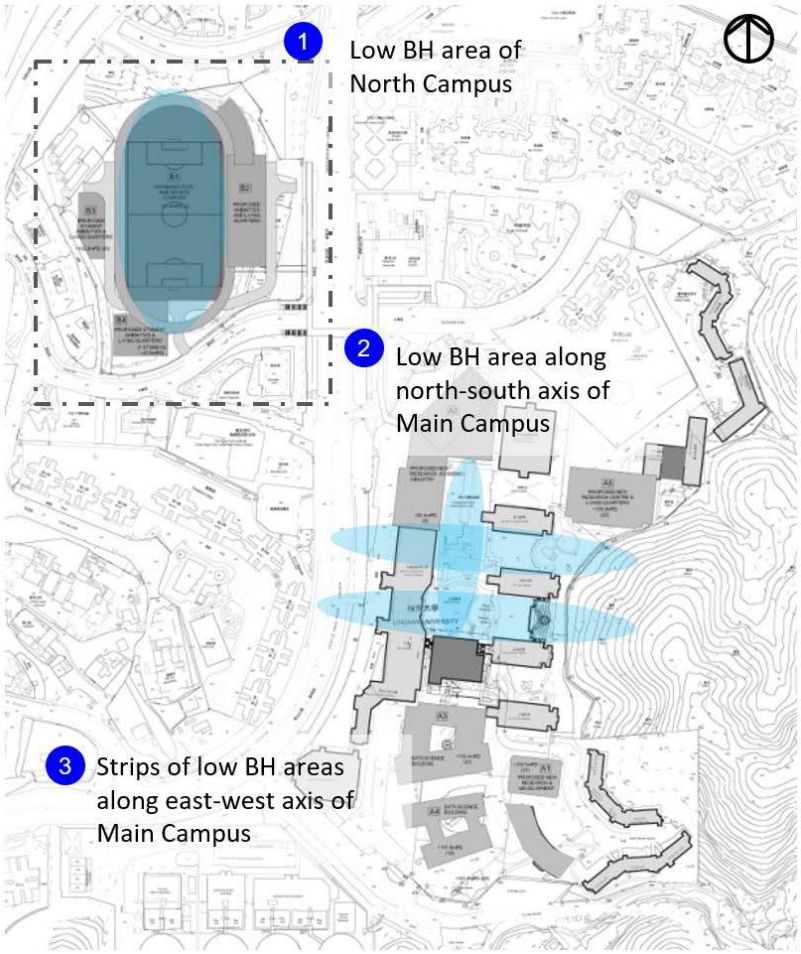


Figure 4.4: Low Building Height Areas in Main Campus and North Campus

Incorporating a Comprehensive Open Space Network

4.3.8 Open Space plays a fundamental role in the identity and experience of the campus. An interconnected green network will be provided to reinforce the circulation system (walkways) while enhancing the amenity of the campuses. The open space will be an important place to gather and for various activities to take place within the campuses. Moreover, the ground level of academic / research buildings would be reserved for amenities for students and staff such as common areas, study spaces, food stalls, café, convenience store etc. Landscaping would contribute to the campus' green character and enhance the quality of the environment.

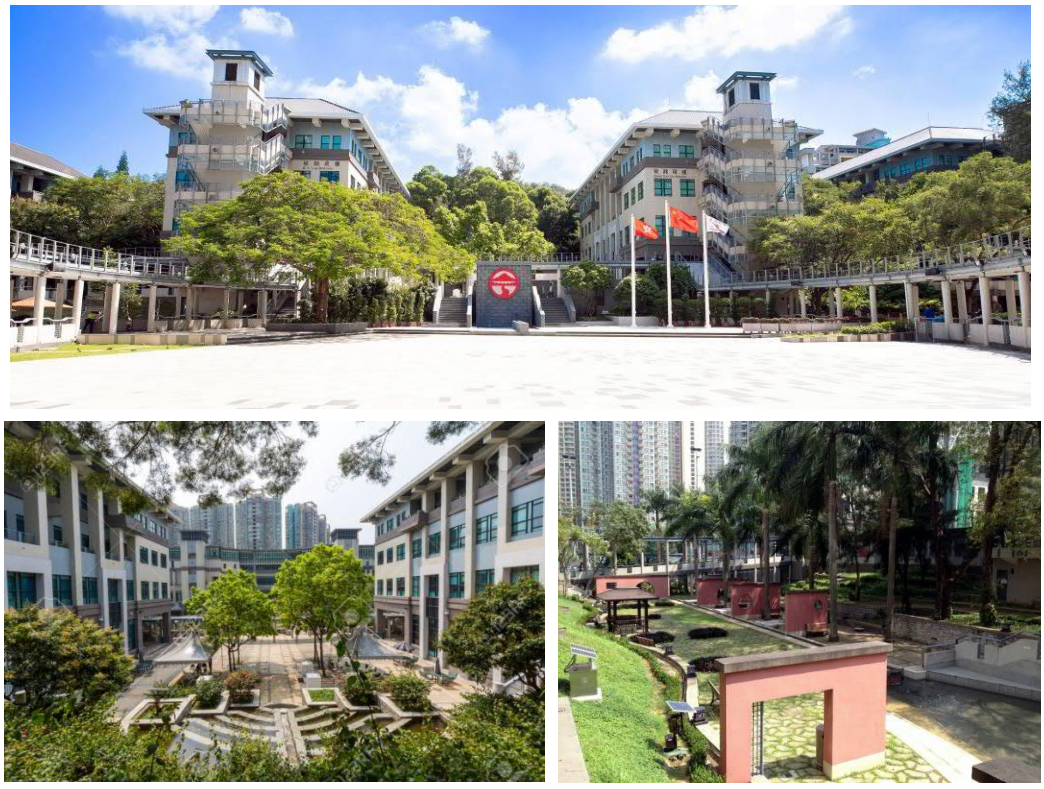


Photo 2: Existing Open Space within Main Campus

Maintaining Visual and Spatial Relief of the "G/IC" Zones

4.3.9 The requirement of "G/IC" zone is to maintain the visual and spatial relief as indicated in the Explanatory Statement of the Approved OZP. Although the proposed building height restriction of 120mPD is on a site-wide basis, the Core of Lingnan University in the Main Campus will be retained as they are a vital part of the heritage and identity of the University. The various open spaces within the Main Campus and the proposed new buildings/open space with lower building height in the core of the North Campus would also contribute to serve as visual and spatial relief. New buildings with taller building height will only be erected in area surrounding the low building zone to maintain the visual openness (**Figure 4.5** refers).

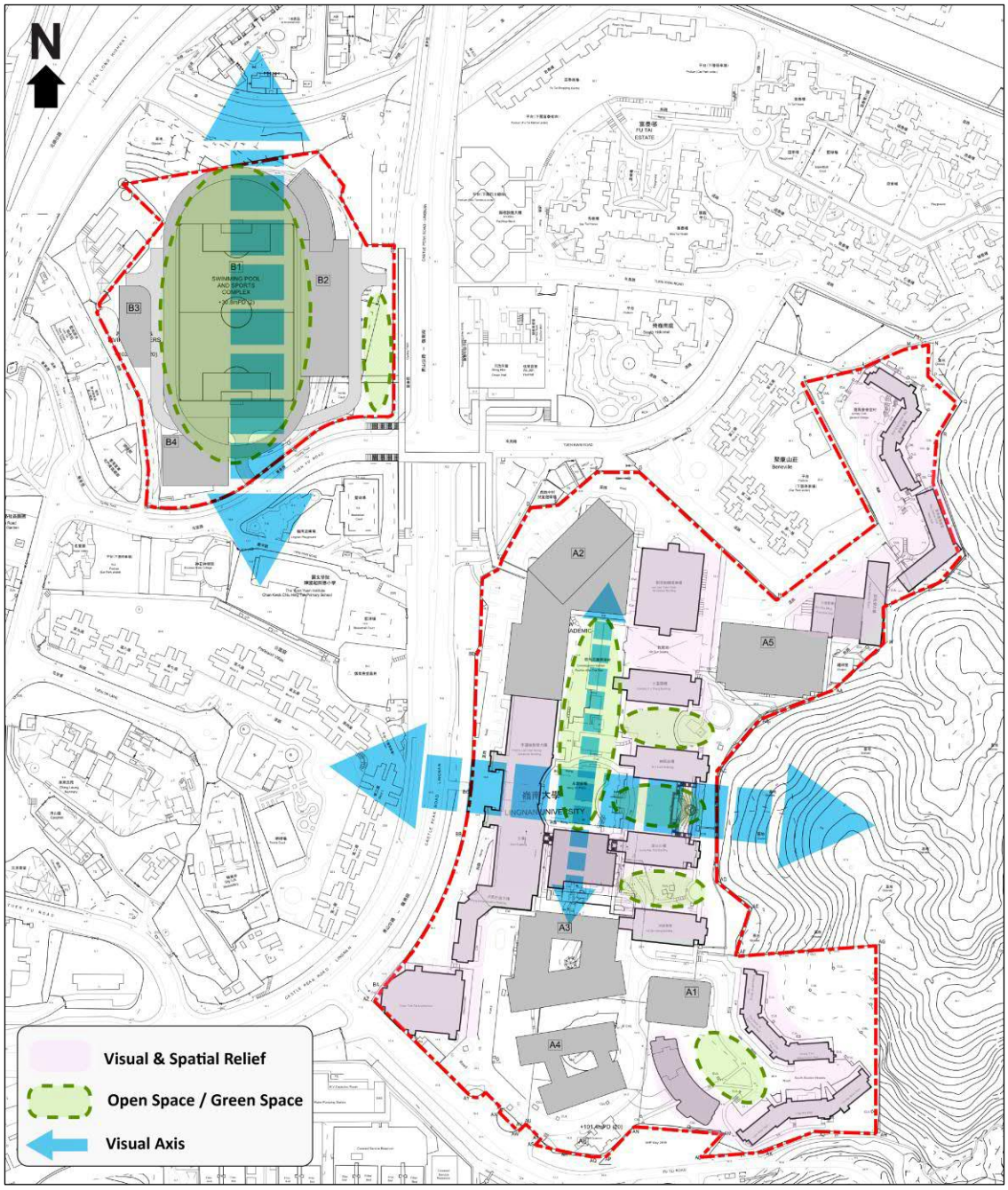


Figure 4.5: Maintaining Visual and Spatial Relief at the Two "G/IC" Sites

Enhancing Pedestrian Connectivity

4.3.10 The LU Campus is accessible from three entrances and a comprehensive covered walkway system is provided within LU Campus, offering weather protection and linking up various blocks and facilities. The Main Campus is currently linked up by the footbridge across the Castle Peak Road – Lingnan and Tuen Kwai Road. To further enhance the connectivity within the campuses, linkage extended from the existing footbridge along Castle Peak Road – Lingnan connecting with the North Campus has been proposed.

5. Identification of Public Viewers And Selection of Viewing Points

5.1 Identifying Visual Envelope and Public Viewers

5.1.1 The visual envelope ("VE") or the zone of visual influence of the Proposed Campus Master Plan is determined by the existing topography and building in the vicinity of the Sites. As prescribed in the TPB PG-No. 41A, the viewers will tend to see the building as part of a group rather than as a single building when the viewing distance equals to three times the height of the building from the Site. (i.e. the 3H zone). Therefore, the 3H zone could be used as a starting reference in determining the assessment area. Since the actual maximum building height will be about 108.0m (Main Campus) and 104.1m (North Campus), the assessment area covers a radial area of about 324m and 312.3m from the façade of the proposed buildings in Main Campus and North Campus respectively (**Figure 5.1** refers).

5.1.2 As the Sites are located in an suburban setting and predominantly surrounded by high-rise residential towers, existing and planned development may block most of the view from close-up public viewers while buildings of similar height may hide the development even from distant. Therefore, the identification of public viewers in local scale is largely constrained by the existing built environment. For Main Campus, public viewing points on the north, west and south are mainly defined by the existing built environment as existing buildings may have totally blocked or partially hid the proposed buildings in distant scale, whereas only public viewers to the east may have exposed view to the proposed buildings in a close-up distance. As for North Campus, public viewing points on the east and south are mainly defined by the existing built environment, whilst public viewers to the north and west may have exposed view in a close-up distance.

5.1.3 The VE covers the area where direct sight towards the proposed buildings is available and the identified public viewers within the assessment area is presented in **Figure 5.1**. Since protecting private view is not the purview of the TPB, this VIA focuses primarily on public viewers only and no private public viewers, such as residents of private development and users of developments with restricted/exclusive accesses, will be identified.

5.2 Selection of Key Public Viewing Points

5.2.1 Representative VPs within the VE were selected for assessing the visual impact to the public viewers. Selected VPs shall cover public views from easily accessible and popular area from different directions. When selecting VPs, priority shall be given to major public open space, public focal points, open spaces, existing/future pedestrian node, key pedestrian/vehicular corridor, and existing major vistas will be considered as key public viewing points.

5.2.2 In this VIA, a total of six VPs are selected for further assessment on the visual impact of the Proposed Campus Master Plan, which are summarized in **Table 5.1** and shown in **Figure 5.1**. The VPs included both close-up and distant views which cover the

views from different directions.

Table 5.1: Selected Public Viewing Points

Viewing Point	Description
VP1	Public Transport Interchange (South) of MTR Siu Hong Station
VP2	Rooftop Garden of Tuen Mun Riverside Park
VP3	Kwun Yum Shan
VP4	Tuen Mun Fresh Water Services Reservoir
VP5	Tuen Mun Cycling Entry/Exit Hub
VP6	Fu Tai Estate Bus Stop (Northbound)

VP1 – Public Transport Interchange (South) of MTR Siu Hong Station

5.2.3 VP1 is taken at the southern part of Public Transport Interchange (PTI) of MTR Siu Hong Station to the west of Main Campus (about 400m) and south-west of North Campus (about 240m). This PTI is one of the popular transport interchange point for residents of Tuen Mun, providing intra-Tuen Mun feeder bus services. At the level of about +17.5mPD, this VP mainly captures the view of residential developments such as the Napa Valley, Parkland Villa, Tuen Fu Road Disciplined Services Quarters, with lush vegetation along Tuen Mun Road in the foreground. The potential public viewers at this VP will mainly be passengers waiting for public transportation services or pedestrians walking towards Siu Hong Station.

VP2 – Rooftop Garden of Tuen Mun Riverside Park

5.2.4 The Tuen Mun Riverside Park is a popular promenade and recreational destination along the west bank of Tuen Mun River. VP2 is taken from the Rooftop Garden of Tuen Mun Riverside Park to the south west of the Main Campus (about 490m) and North Campus (about 550m) respectively. With the level of about +15.3mPD, this VP captures the view of residential developments (e.g. Parkland Villa, Tuen Fu Road Disciplined Services Quarters, and Brillant Garden), as well as plantations on the rooftop garden and elevated MTR viaduct in the foreground. The public viewers of this VP will mainly be joggers and visitors of the Garden.

VP3 – Kwun Yum Shan

5.2.5 Located to the south (about 1,110m) and south-east (about 1,550m) of the Main Campus and North Campus respectively, Kwun Yum Shan defines the outer limit of the Tuen Mun new town with a popular family hiking trail. VP3 is a distant viewpoint taken at the hiking trail near the Pavillion. At the elevated level of about +287.2mPD, this VP captures a panoramic view over the Tuen Mun North, Lam Tei, Hung Shui Kiu NDA and even glimpse of Shenzhen Bay at a distance. The townscape of northern Tuen Mun and various major residential development clusters (e.g. Siu Hong Court, Mount Regency, Elegance Garden, Noble Place, Parkland Villa, Fu Tai Estate), as well

as the Main Campus and North Campus of Lingnan University, can be seen from this vantage point. The potential public viewers will be mainly hikers engaging in active and passive recreational activities.

VP4 – Tuen Mun Fresh Water Services Reservoir

5.2.6 VP4 is taken at the Tuen Mun Fresh Water Service Reservoir, a popular mid-way stop to Tuen Mun Trail and Fu Tei Country Trail. It is located about 270m to the east of Main Campus and 750m to the southeast of North Campus. At the level of about +98.0mPD, this VP captures the view of buildings located in the southern half of Main Campus (including Forward Living, Student Hostels, and Main Building (from left to right)), residential development (e.g. Parkland Villa, Fu Tai Estate, South Hillcrest and Beneville) and lush greenery in the foreground. The public viewers of this VP would be visitors and hikers to the Lam Tei Irrigation Reservoir, engaging in passive and active recreational activities. This VP also represents recreational users of Tuen Mun Trail and Fu Tei Country Trail located to the further east.

VP5 – Tuen Mun Cycling Entry/Exit Hub

5.2.7 The Tuen Mun Cycling Entry/Exit Hub is situated adjacent to the MTR Siu Hong station, with provision of bicycle practising area, sitting facilities (with arbour), toilets and first aid room etc., designed for both active and passive recreational uses. Together with other supporting facilities (e.g. resting stations and cycling entry/exit hub) along the "Tuen Mun to Ma On Shan Cycle Track" and "Tuen Mun to Yuen Long Section", it forms the "New Territories Cycle Track Network". VP5 is taken near the main entrance area with a distance of about 550m and 250m to the north-west of Main Campus and North Campus respectively. With the level of about +7.6mPD, this VP captures the view of the elevated MTR viaduct in the foreground, with the high-rise residential developments (i.e. Parkland Villa and Napa Valley) and open sky-view forming the backdrop. The public viewers will be mainly cyclist and visitors of the open space.

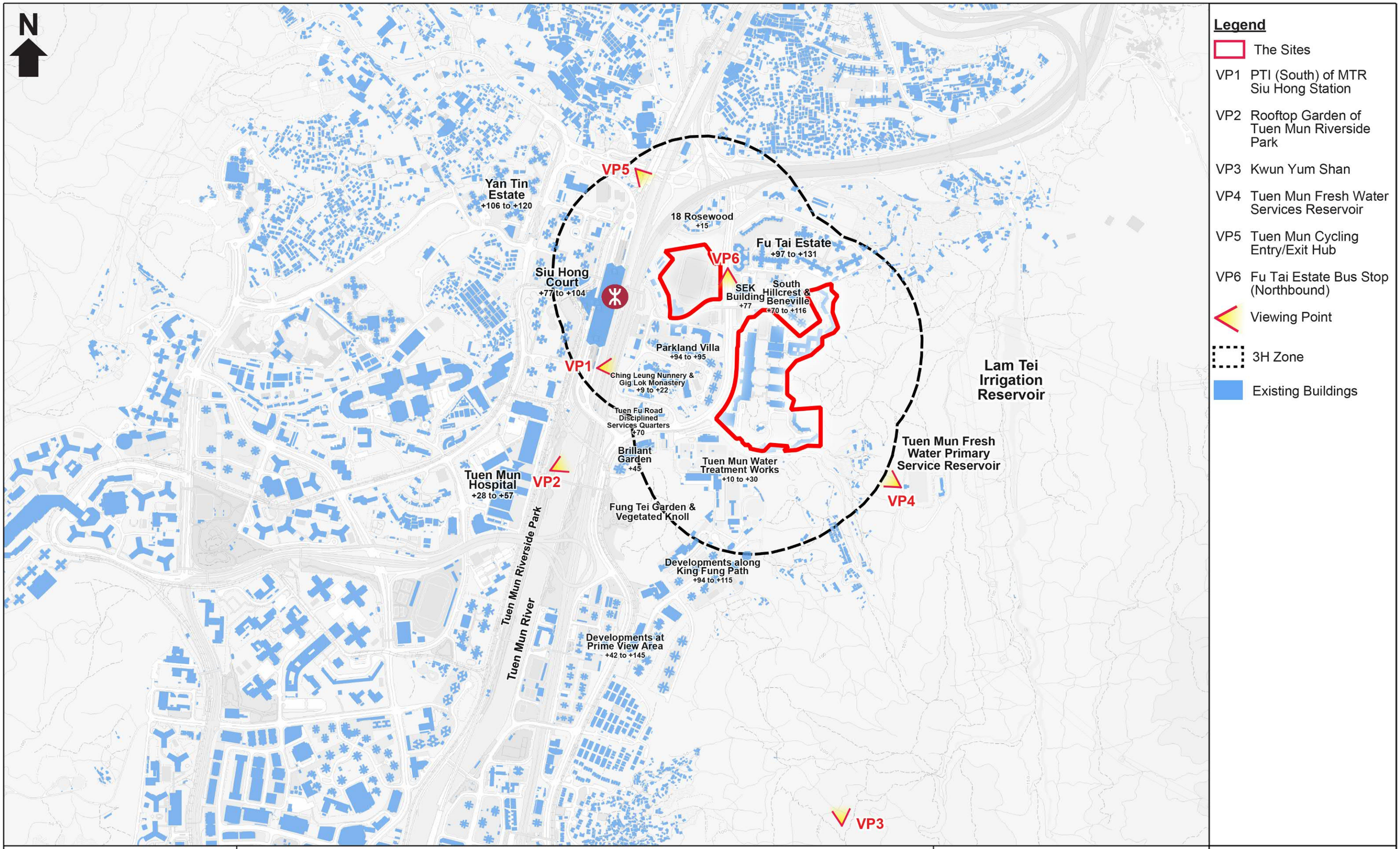
VP6 – Fu Tai Estate Bus Stop (Northbound)

5.2.8 This VP is located at the Fu Tai Estate Bus Stop adjacent to the North Campus and ramp of footbridge No. NF319, which is a major footbridge at the junction of Castle Peak Road and Tuen Kwai Road/Tuen Fu Road, providing elevated connection between the Main Campus, North Campus, SEK Building and Fu Tai Estate, and further to the MTR Siu Hong Station. At the level of about +9.1mPD, this VP captures the view of the SEK Building, Castle Peak Road, footbridge No. NF319 and southern portion of North Campus, as well as the Parkland Villa in the background. This VP is selected as a close-up VP to assess the possible impact of the public viewers (i.e. passengers waiting for public transportation services at the bus stop and drivers along Castle Peak Road).

Table 5.2: Identified Public Viewing Points with Preliminary Analysis

Viewing Point	Distance / Direction (Approx.)		Height (mPD) (Approx.)	Nature of VP	Popularity by Public	Visual Sensitivity[2]
	Main Campus	North Campus				
VP1 PTI of MTR Siu Hong Station	400m / West	240m / South-west	+17.5	Transient	Frequent	Low
VP2 Rooftop Garden of Tuen Mun Riverside Park	490m / South-west	550m / South-west	+15.3	Passive Recreation	Frequent / Transient	Medium to High
VP3 Kwun Yum Shan	1,110m / South	1,550m / South-east	+287.2	Active / Passive Recreation	Frequent / Transient	High
VP4 Tuen Mun Fresh Water Services Reservoir	270m / East	750m / South-east	+98.0	Active / Passive Recreation	Frequent / Transient	Medium to High
VP5 Tuen Mun Cycling Entry/Exit Hub	550m / North-west	250m / North-west	+7.6	Active / Passive Recreation	Occasional	Medium
VP6 Fu Tai Estate Bus Stop (Northbound)	160m / North-west	20m / East	+9.1	Transient	Transient	Medium

[2] Visual sensitivity is determined by the types of activities the public viewers are engaging in. For example, people engaging in active recreational activities such as playing basketball or football at the VP are less sensitive to visual change than passive recreational activities.



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Visual Envelope & Locations of Viewpoints

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun

Visual Impact Assessment

Figure: 5.1

Scale: 1:5000

Date: 7 July 2025

6. Assessment of Visual Impacts

6.1 General

6.1.1 Since the primary objective of this VIA is for evaluating the visual impact of the proposed Campus Master Plan involving the increase of BHR to not more than 120mPD, the assessment will focus on evaluating the potential visual impact of the proposed Campus Master Plan as compared with the existing condition. Hence, the relevant assessments in relation to visual composition, visual obstruction, and visual change are focused on the changes to be brought about by the proposed relaxation of BHR.

6.2 VP1 – PTI of MTR Siu Hong Station

Visual Composition

6.2.1 Situated in an open-air environment, VP1 captures a rather open view towards the Parkland Villa, Tuen Fu Road Disciplined Services Quarters, ridgeline of Kwun Yum Shan and the open sky-view. While the foreground is dominated by the lush vegetation on both sides of Tuen Mun Road, various to high-rise residential developments (including Fu Tai Estate, Napa Valley, Beneville, Parkland Villa and Tuen Fu Road Disciplined Services Quarters) take up the middle-ground of the view, with a natural blend of Kwun Yum Shan and the open sky-view forming the natural backdrop. The proposed buildings A4 & B2 will be visible from the VP, forming an extension to the Parkland Villa and Napa Valley respectively. Although the visual composition would be slightly altered, the Proposed Development would nonetheless blend in with the nearby adjacent residential developments of similar intensity.

Visual Obstruction

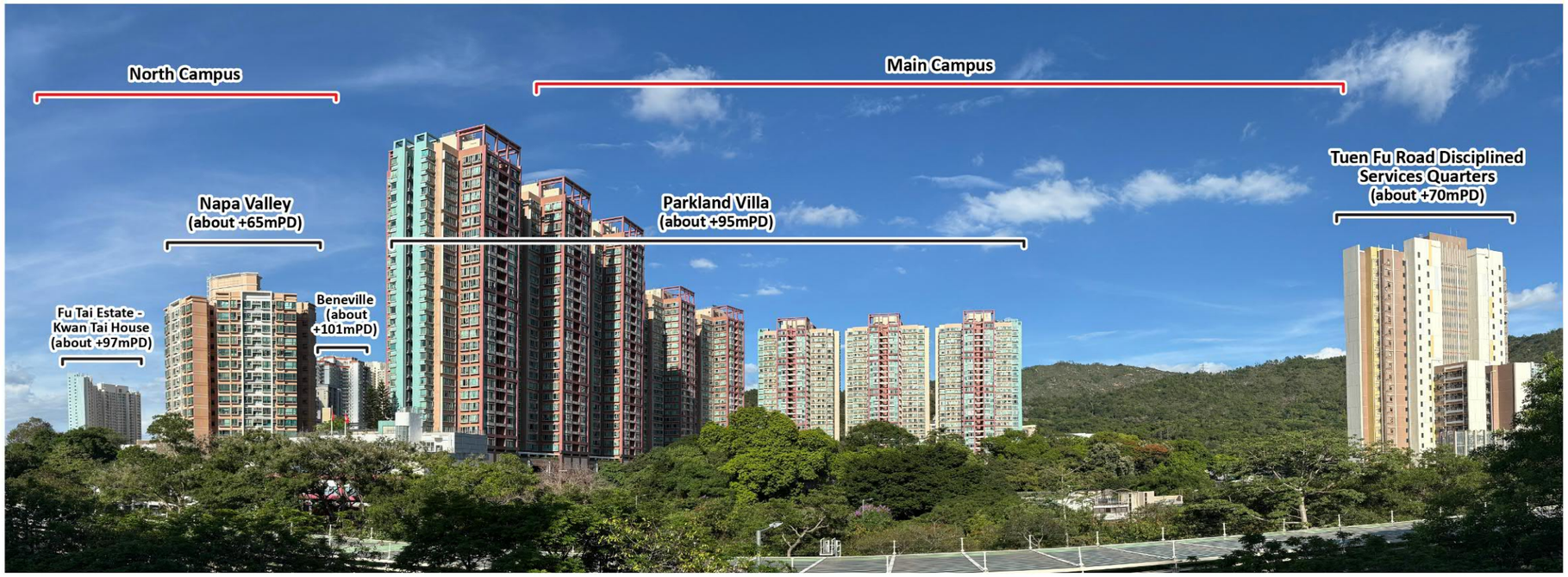
6.2.2 From **Figure 6.1**, while the proposed buildings A4 & B2 would inevitably lead to partial obstruction to the ridgeline of Kwun Yam Shan and the sky view respectively, the open sky view is still largely preserved and that the visual openness of this VP would generally remain intact. They will form part of the urban fabric for this VP. Not least, visual access towards the lush greenery in the foreground will not be affected.

Visual Change

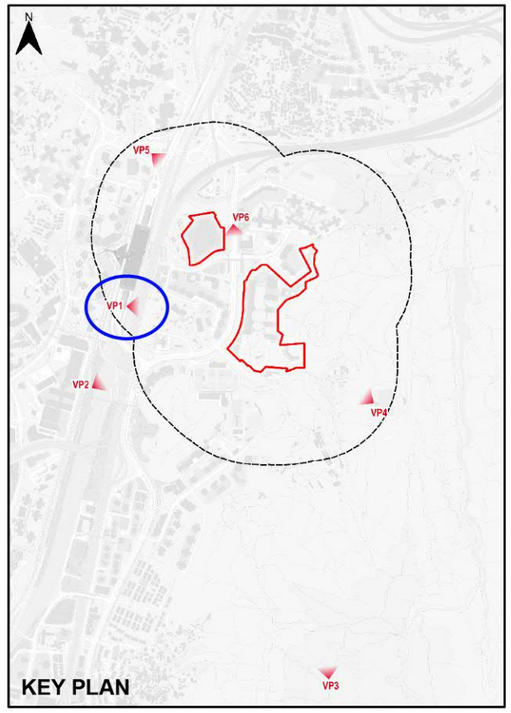
6.2.3 Key public viewers identified at VP1 are passengers waiting for public transportation services or pedestrians walking towards Siu Hong Station, which are transient in nature and with a short duration. Given the transient nature of the public viewers and the distance from this VP to the Sites, the sensitivity will be low in general. While the proposed buildings A4 & B2 will be visible from this VP, it will form part of the urban context to the commuters. Hence, the effect on the visual experience will be slight.

Overall Visual Impact

6.2.4 In view of the assessments above, it is concluded that the overall visual impact would be slight.



EXISTING CONDITION



PROPOSED DEVELOPMENT

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Viewpoint 1 - PTI of MTR Siu Hong Station

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun

Visual Impact Assessment

Figure 6.1

Date: 19 May 2026

6.3 VP2 – Rooftop Garden of Tuen Mun Riverside Park

Visual Composition

6.3.1 VP2 is a mid-range viewpoint taken from the rooftop garden along the west bank of Tuen Mun River to the south west of the Main Campus (about 490m) and North Campus (about 550m). It captures an rather open view, with the elevated MTR viaduct and existing greenery in the foreground, the suburban landscape (consisting of Napa Valley, Parkland Villa, Tuen Fu Road Disciplined Services Quarters and Brilliant Garden) in the middle-ground, and an open sky-view and glimpse of Kwun Yam Shan in the background. While the proposed building A4 will be largely concealed by Brillant Garden, the proposed buildings A1 & A3 will be visible from this VP. The visual composition will largely remain unchanged as the view has already been dominated by the suburban townscape.

Visual Obstruction

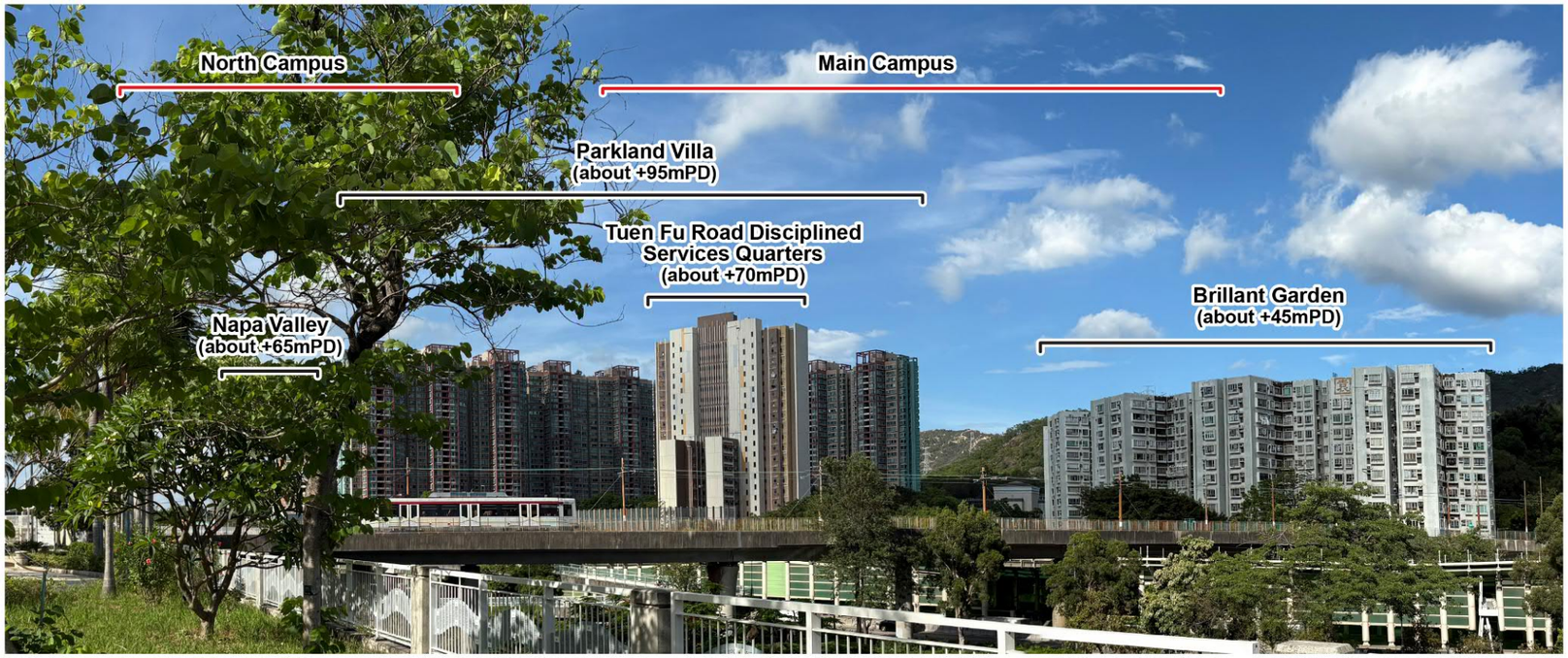
6.3.2 According to **Figure 6.2**, while the proposed buildings A1, A3 & A4 would inevitably lead to partial visual obstruction to the Kwun Yam Shan, the open sky view will be largely preserved. In addition, the proposed buildings will form part of the urban fabric for the VP, and that the visual access towards the existing greenery in the foreground will also not be affected. Therefore, it is concluded that the visual obstruction caused by the Proposed Development would be slight.

Visual Change

6.3.3 The public viewers of this VP will mainly be joggers and visitors of the Garden. Therefore, the visual sensitivity will be medium to high in general. Although the proposed buildings A1, A3 & A4 will be visible from this VP, they will would not appear out-of-context among the adjoining medium and high-rise residential developments. The Proposed Development at the North Campus will be completely shielded by existing greenery in the foreground. Hence, the effect on the visual experience will be slight.

Overall Visual Impact

6.3.4 Based on the assessments above, it is anticipated that there will be a slight visual impact for VP2.



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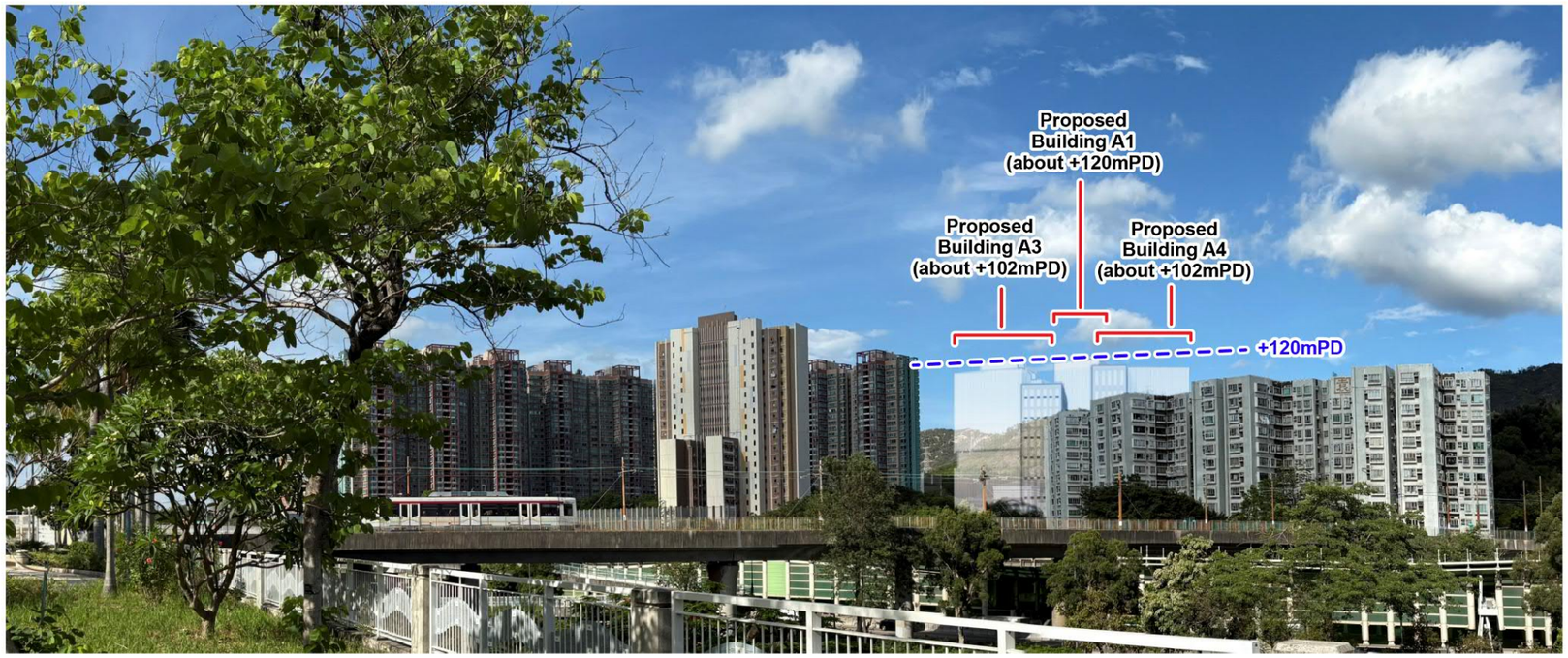
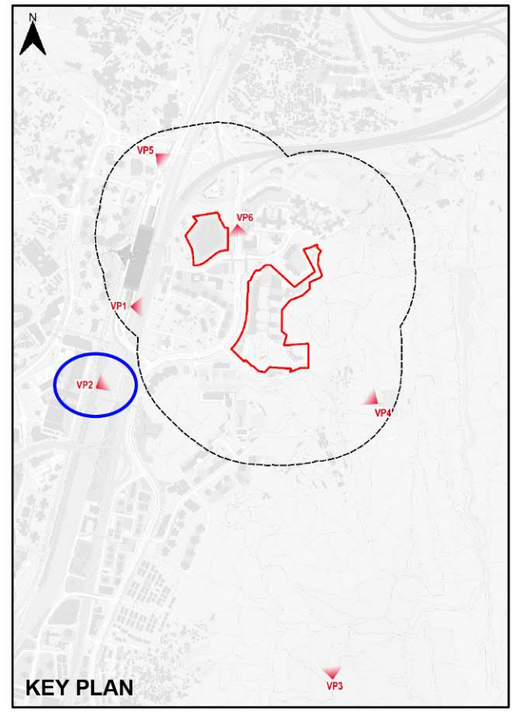


PROPOSED DEVELOPMENT



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Viewpoint 2 - Rooftop Garden of Tuen Mun Riverside Park

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun

Visual Impact Assessment

Figure 6.2

Date: 19 May 2026

6.4 VP3 – Kwun Yam Shan

Visual Composition

6.4.1 At the level of +287.2mPD, VP3 captures an elevated panoramic view over Tuen Mun North, particularly the residential development cluster along King Fung Path, Fu Tai, Castle Peak, Lam Tei even with glimpse view of Shenzhen Bay at a distant. The Proposed Development will be seen mostly in front of the Fu Tai Estate as part of the high-rise townscape. The visual composition will remain similar in nature, which would still present the townscape of the northern Tuen Mun New Town and Lam Tei as the Proposed Development will seamlessly blend in with the existing townscape.

Visual Obstruction

6.4.2 As illustrated in **Figure 6.2**, although the Proposed Development can be clearly seen from this elevated VP, inevitably leading to some loss in visual openness, the magnitude of change is relatively minor under this panoramic city-view. The balance of urban and natural landscapes is still well-preserved with high visual permeability to the ridgeline of Castle Peak and the skyline of Shenzhen Bay in the further north-west. The existing lush greenery in the foreground will be preserved as well.

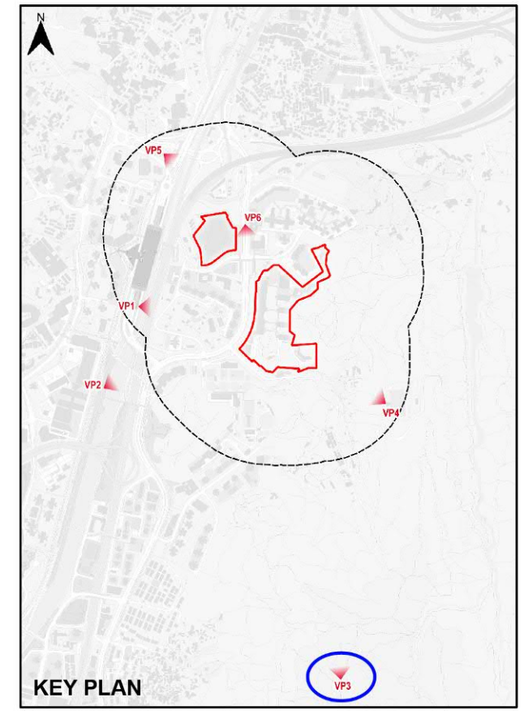
Visual Change

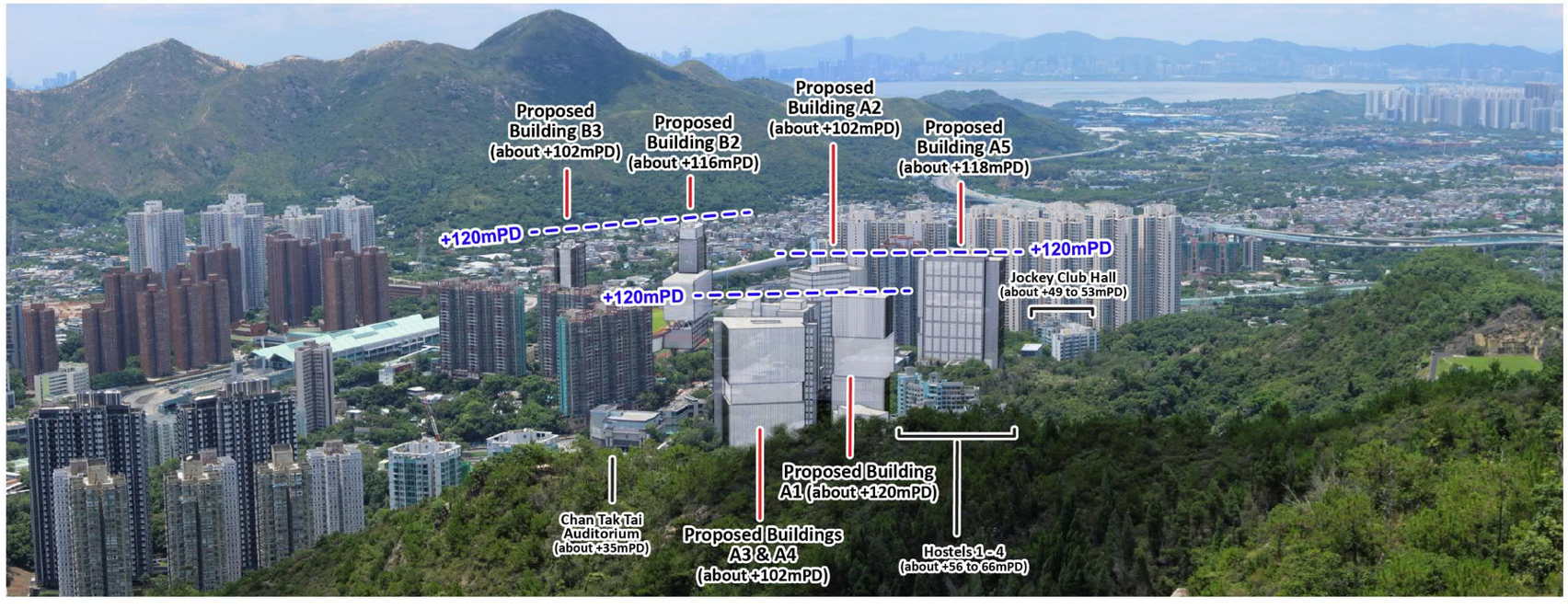
6.4.3 The Key public viewers of this VP will be mainly hikers engaging in active and passive recreational activities. The public viewers might stop during their hiking activities to seek for panoramic view of Tuen Mun and thus their visual sensitivity will be high. As the Proposed Development would bring the existing suburban townscape of Tuen Mun North forward, the overall effect on these viewers would be slight.

Overall Visual Impact

6.4.4 Therefore, it is anticipated that, from an elevated angle, this VP will result in moderate visual impact.

EXISTING CONDITION





PROPOSED DEVELOPMENT

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Viewpoint 3 - Kwun Yum Shan

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun

Visual Impact Assessment

Figure 6.3

Date: 19 May 2026

6.5 VP4 – Tuen Mun Fresh Water Service Reservoir

Visual Composition

6.5.1 At the level of about +98.0mPD, VP4 captures the views of Main Campus and Forward Living at the front, and various high-rise residential clusters in the back, including Parkland Villa, Siu Hong Court, SEK building, South Hillcrest, Beneville, and Fu Tei Estate. The open sky-view and mountain together form a natural backdrop for this VP. While the Proposed Development can be seen mostly in front of Parkland Villa as part of the high-rise townscape, the visual composition will still remain similar in nature, as the Proposed Development would blend in seamlessly with the existing suburban landscape of Tuen Mun North. As a result, the visual composition would only be slightly altered.

Visual Obstruction

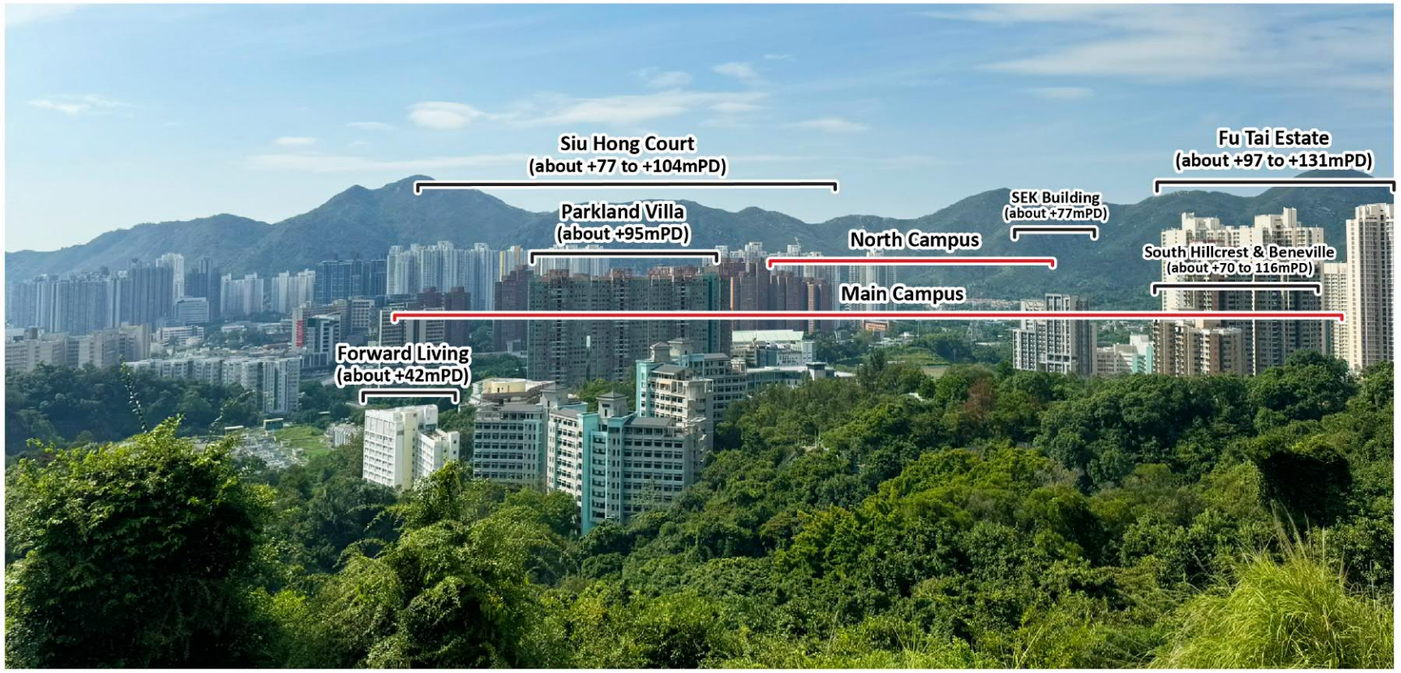
6.5.2 The Proposed Development will be pronouncedly visible from this viewpoint, especially those on the Main Campus would obstruct part of the view to the mountain backdrop, inevitably leading to noticeable reduction in visual openness. There will be moderate visual obstruction upon completion. That being said, the Proposed Development are congruous with the adjacent high-rise residential developments. The balance of the urban and natural landscapes would still be preserved with visual access to the ridgeline in the background and the lush vegetation in the foreground.

Visual Change

6.5.3 The Key public viewers of this VP would be mainly visitors and hikers to the Lam Tei Irrigation Reservoir, engaging in passive and active recreational activities. Thus, their visual sensitivity will be medium to high. While the Proposed Development would blend in well with the suburban landscape of Tuen Mun North, it would inevitably obstruct part of the view to the mountain backdrop. With the provision of low BH strips along the east-west axis of the Main Campus, the visual permeability of the Proposed Development would be greatly enhanced. The overall effect on these viewers would be slight.

Overall Visual Impact

6.5.4 Having considered the assessments above, VP4 is concluded to have a moderate visual impact.



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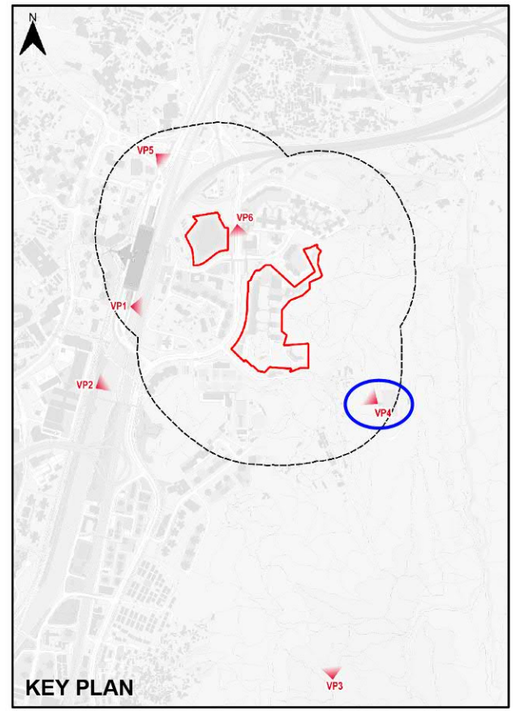
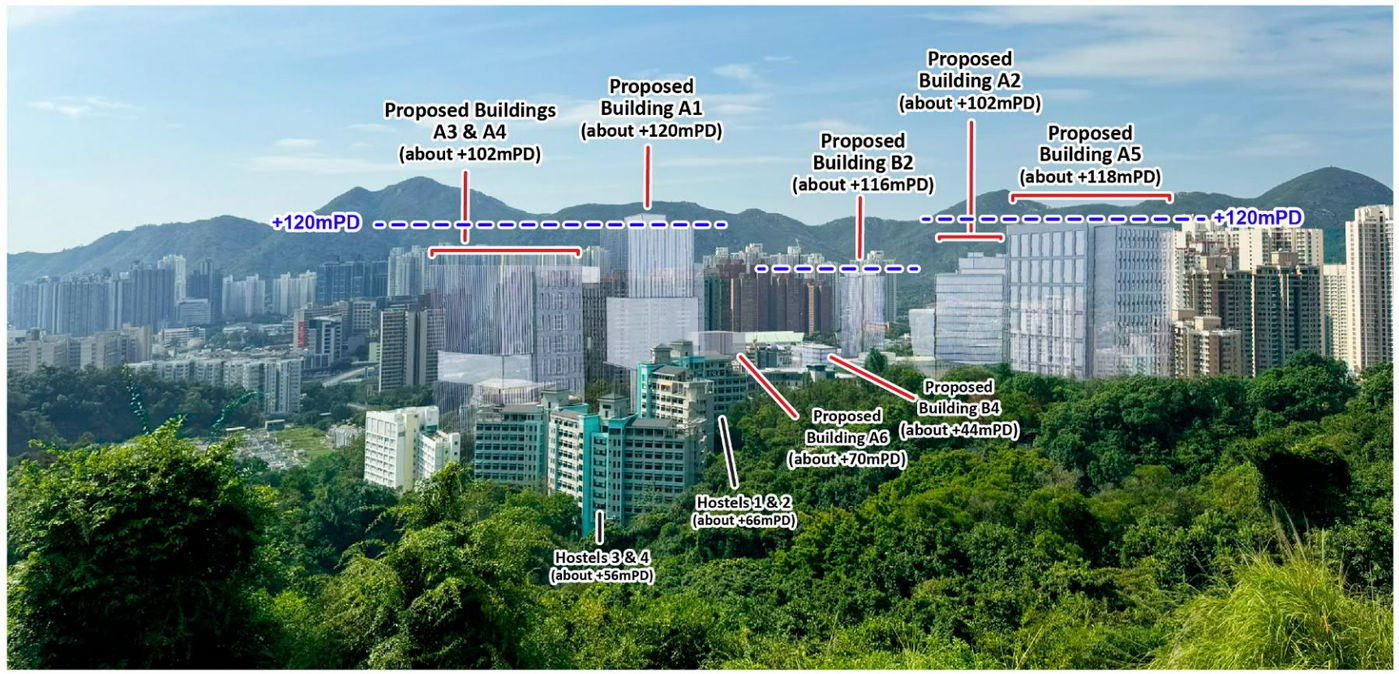




PROPOSED DEVELOPMENT

KTA PLANNING LIMITED 規劃顧問有限公司	Viewpoint 4 - Tuen Mun Fresh Water Service Reservoir	Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun	Figure 6.4
		Visual Impact Assessment	Date: 19 May 2026

6.6 VP5 – Tuen Mun Cycling Entry/Exit Hub

Visual Composition

6.6.1 VP5 is taken near the main entrance at a viewing distance of about 550m and 250m to the north-west of Main Campus and North Campus. As illustrated in the photomontage at **Figure 6.5**, the visual composition comprises existing greenery and elevated MTR viaduct in the foreground, and high-rise residential development cluster (i.e. Parkland Villa and Napa Valley) with open sky-view at the background. Upon completion, the lower portion of the proposed buildings B2 & B3 will be concealed behind the elevated MTR viaduct, while the upper portion will be visible from this VP. The Proposed Development is considered visually compatible with the surrounding development and that the visual composition of this VP will only be slightly altered.

Visual Obstruction

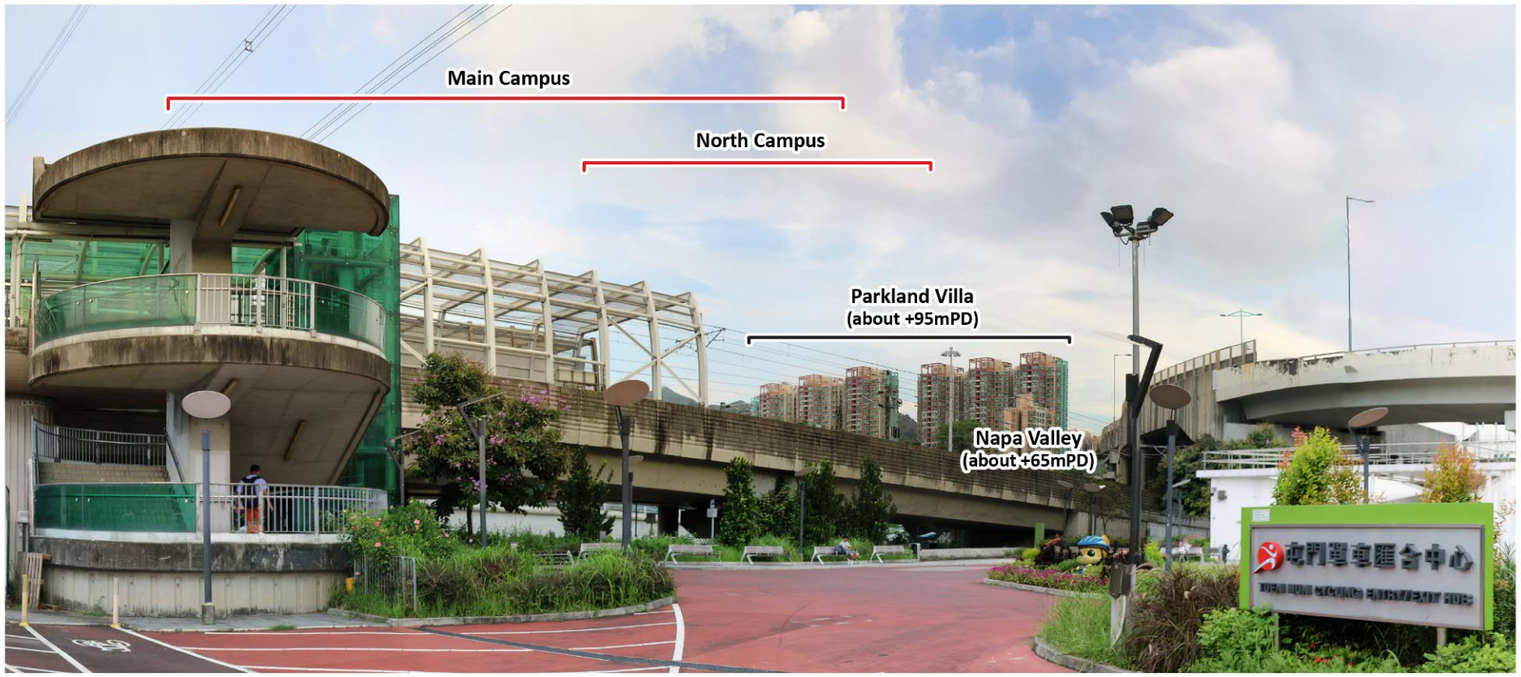
6.6.2 The Proposed Development will inevitably lead to some degree of visual obstruction towards the existing open sky-view. Yet, it will blend in seamlessly with the residential towers in the vicinity and form part of the high-rise suburban townscape. The existing greenery in the foreground will also not be affected.

Visual Change

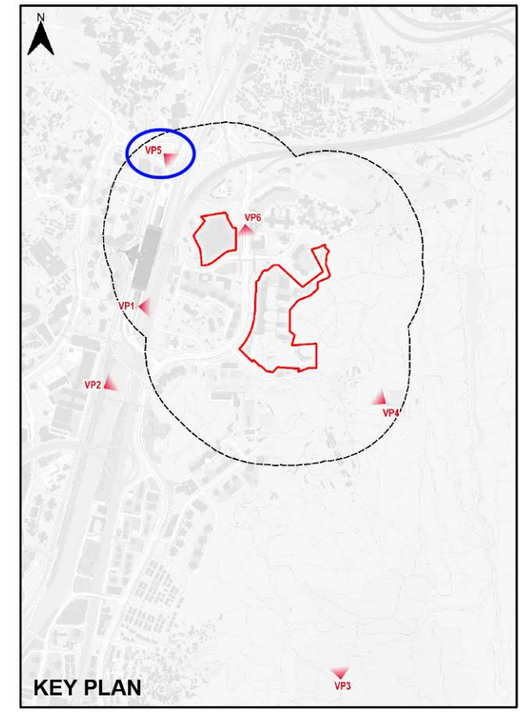
6.6.3 The public viewers of this VP would mainly be cyclist engaging in active recreational activities and visitors of the open space. Given the nature of their activities, the sensitivity of the public viewers will be low to medium. The proposed buildings will be new visual feature from this VP after amendment of BHR. Yet, a typical suburban townscape view from this VP would remain unchanged and the proposed buildings will blend in with the existing high-rise residential buildings. Therefore, the effect on the visual experience of the public viewers will be slight.

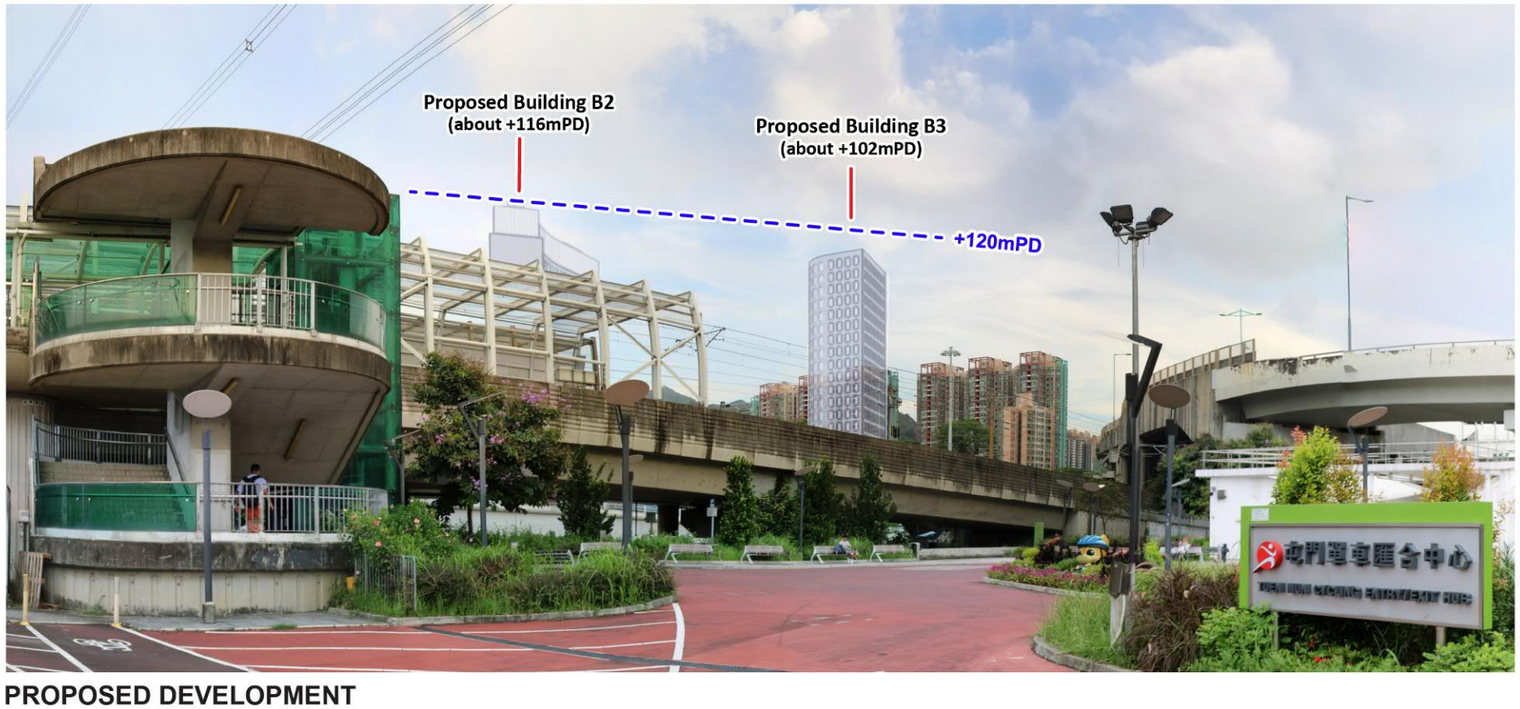
Overall Visual Impact

6.6.4 To conclude, there will only be a slight visual impact for this VP.



EXISTING CONDITION





PROPOSED DEVELOPMENT

KTA PLANNING LIMITED 規劃顧問有限公司	Viewpoint 5 - Tuen Mun Cycling Entry/Exit Hub	Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun	Figure 6.5
		Visual Impact Assessment	Date: 19 May 2026

6.7 VP6 – Fu Tai Estate Bus Stop (Northbound)

Visual Composition

6.7.1 VP6 is a close-up viewpoint taken at Fu Tai Estate Bus Stop (Northbound) with a viewing distance of about 160m north-west to Main Campus and 20m east to North Campus. It captures the SEK building, footbridge No. NF319 and existing vegetations along Castle Peak Road and North Campus in the foreground, with Parkland Villa and the open sky-view forming the backdrop. While the lower portion of proposed building B2 will be screened off by roadside vegetation in the front, the visual composition to this VP will be moderately altered. That being said, the Proposed Development is considered visually compatible with the surrounding high-rise developments.

Visual Obstruction

6.7.2 As illustrated in **Figure 6.6**, the Proposed Development will inevitably lead to partial visual obstruction to the existing open sky-view upon amendment of BHR, as well as a considerable loss in visual openness. However, the view towards the existing roadside greenery will not be affected.

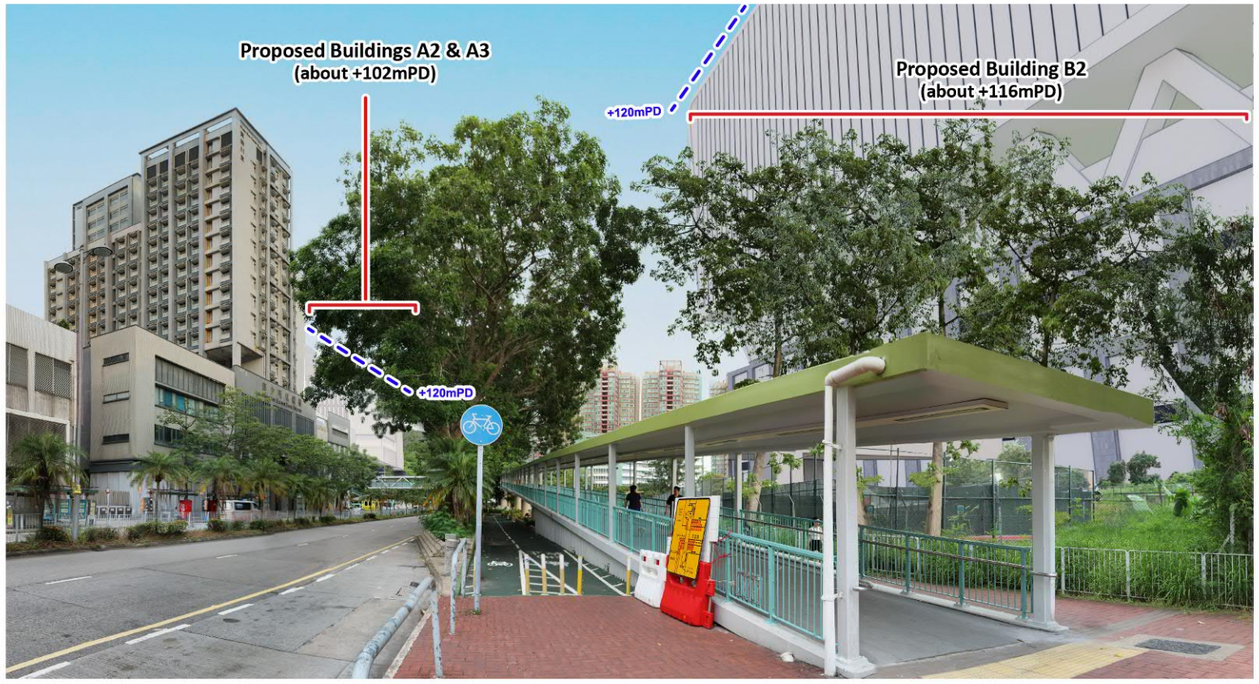
Visual Change

6.7.3 The public viewers of this VP would be passengers waiting for public transportation services at the bus stop and drivers driving along Castle Peak Road. The visual sensitivity of the public viewers will be medium considering its transient nature and close distance to Proposed Development. With the building setback of about 25m from the road kerb and incorporation of at-grade tree plantings at the North Campus along the footpath of Castle Peak Road - Lingnan, the lower level of the building structure will be screened off with reduced sense of encroachment for the pedestrians. Hence, the effect on the visual experience on the public viewers of this VP will be slight to moderate.

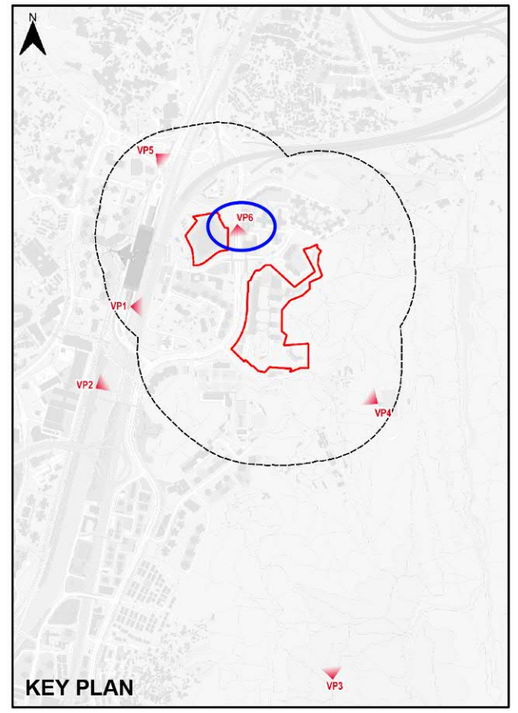
Overall Visual Impact

6.7.4 As a close-up viewpoint, VP6 will unavoidably experience some visual change upon completion, owing much to its close proximity to the Proposed Development at North Campus. The overall visual impact would be moderate as a result.

EXISTING CONDITION



PROPOSED DEVELOPMENT



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Viewpoint 6 - Fu Tai Estate Bus Stop (Northbound)

Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction of the "Government, Institution or Community" Zone, Lingnan University, Castle Peak Road – Lingnan, Tuen Mun

Visual Impact Assessment

Figure 6.6

Date: 19 May 2026

7. Conclusion

7.1.1 Based on the analysis on the appraisal of visual impact on visual composition, visual obstruction, and visual change, **Table 7.1** below presents the overall visual impact caused by the proposed amendment of BHR to the identified to the public viewers represented in each VP.

Table 7.1: Summary of Assessment of Visual Impact at The Viewpoints

Viewpoint	Description	Overall Visual Impact
VP1	PTI (South) of MTR Siu Hong Station	Slight
VP2	Rooftop Garden of Tuen Mun Riverside Park	Slight
VP3	Kwun Yum Shan	Moderate
VP4	Tuen Mun Fresh Water Services Reservoir	Moderate
VP5	Tuen Mun Cycling Entry/Exit Hub	Slight
VP6	Fu Tai Estate Bus Stop (Northbound)	Moderate

7.1.2 VP1, VP2 and VP5 provided mid-range views to the Proposed Development from the south, south-west and north-west direction. Upon the amendment of BHR, the Proposed Development will inevitably lead to partial visual obstruction to the views of the mountain backdrop and skyline. Yet, it would blend in well with the existing high-rise residential developments in close proximity (e.g. Fu Tai Estate and Parkland Villa) from these viewpoints and considered compatible with the existing visual character dominating by high-rise residential towers.

7.1.3 VP3 and VP4 illustrated distant and relatively distant views to the Proposed Development from the south and south-east direction respectively. From both VPs, while there will be some inevitable reduction in visual openness from the elevated angles, only minimal loss of visual access to the mountain backdrop will be resulted after the amendment of BHR, and that the open sky-view and lush greenery in the foreground will be not be affected at all. The overall visual character will remain largely unchanged as high-rise urban townscape. The visual impact by the Proposed Development from these VPs will be moderate.

7.1.4 VP6 provided close-up views to the Proposed Development. After the amendment of BHR, the proposed building on North Campus will inevitably replace the existing open sky-view and reduce the visual openness noticeably from this VP. Yet, it would still be compatible with the visual character of the surrounding area which is dominated by high-rise residential towers, such as Fu Tai Estate. The incorporation building setback of about 25m from the road kerb will reduce the sense of encroachment for pedestrians and the provision of at-grade landscape plantings will help to shield off the low zone of the proposed building and provide necessary visual relief. As a close-up viewpoint, VP6 will inevitably experience more significant visual impact owing to its close proximity, hence resulting in moderate visual impact for this VP.

7.1.5 In view of the above, it is considered that the Proposed Development would be largely congruous to the surrounding visual character and intensity of the adjacent developments, in particular the high-rise developments in the north (e.g. Fu Tai Estate, South Hillcrest, and Beneville). With a view to alleviate the potential visual impacts, the proposed Campus Master Plan has incorporated various low BH areas, carefully thought-out building design, building materials, variations in building height profile and employment of ample landscape treatment. Therefore, the amendment of BHR to not more than 120mPD is unlikely to induce significant impact from visual perspective.

Appendix 1

Architectural Drawings and Development Schedule

北校園
NORTH CAMPUS

本部校園
MAIN CAMPUS

和富李宗德學生活動中心
WOFOO JOSEPH LEE STUDENT ACTIVITY CENTRE
+22.7mPD

富泰邨
FU TAI ESTATE

倚嶺南庭
SOUTH HILLCREST

郭少明伉儷樓
SEK BUILDING

聚康山莊
BENEVILLE

賽馬會堂
THE JOCKEY CLUB HALL
+48.5mPD

賽馬會博雅堂
THE JOCKEY CLUB NEW HALL
+53.4mPD

劉仲謙樓
LAU CHUNG HIM BUILDING
+48.6mPD

綜合運動大樓
INDOOR SPORTS COMPLEX
+24.6mPD

劉李婉嫻康樂樓
LAU LEE YUEN HAAN AMENITIES BUILDING
+38.0mPD

黃玉蘭樓
DOROTHY Y.L. WONG BUILDING
+38.1mPD

林炳炎樓
B.Y. LAM BUILDING
+39.9mPD

嶺南大學主樓(李運強教學大樓)
LINGNAN UNIVERSITY MAIN BUILDING (PATRICK LEE WAN KEUNG ACADEMIC BUILDING)
+43.8mPD

永安廣場
WING ON PLAZA

新科學大樓
NEW SCIENCE BUILDING
+58.0mPD

梁銶琚樓
LKK BUILDING
+39.9mPD

何善衡樓
HSH BUILDING
+42.9mPD

嶺南大學
LINGNAN UNIVERSITY

黃氏行政大樓
WONG ADMINISTRATION BUILDING
+34.2mPD

陳德泰大會堂
CHAN TAK TAI AUDITORIUM
+34.7mPD

校長寓所
PRESIDENT'S LODGE
+39.1mPD

嶺南坊
LINGNAN HUB
+56.1mPD

學生宿舍 1 & 2
HOSTELS 1 & 2
+66.3mPD

學生宿舍 3 & 4
HOSTELS 3 & 4
+55.5mPD

職員宿舍
STAFF QUARTERS
+36.3mPD

兆康苑
SIU HONG COURT

兆康站
SIU HONG STATION

疊茵庭
PARKLAND VILLAS

屯門食水抽水站
TUEN MUN FRESH WATER PUMPING STATION

屯門公路 TUEN MUN ROAD

青山公路 - 嶺南段 CASTLE PEAK ROAD - LINGNAN

CASTLE PEAK ROAD - LINGNAN

TUEN KWAI ROAD

TUEN FU ROAD

TSING LUN ROAD

SIU HONG ROAD

TSE TIM ROAD

TUEN MUN RIVER CHANNEL

醫院
HOSPITAL

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Subject Sites

Existing Buildings

Existing Open Space / Green Space (Indicative)

Previously Approved S16 Applications

A/TM/543: Patrick Lee Wan Keung Academic Building

A/TM/595: New Science Building

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PROJECT /

LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING /

EXISTING CAMPUS PLAN

SCALE /	JOB NUMBER /
1:1500@A1	6173
DATE /	DRAWING NUMBER /

DESIGNED /	CHECKED /	APPROVED /
P&T	P&T	P&T

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北校園
NORTH CAMPUS

本部校園
MAIN CAMPUS

BLOCK B1
+30.8mPD
(2)

BLOCK B2
+116.3mPD
(26)

BLOCK B2
+73.8mPD
(18)

BLOCK B3
+102.3mPD
(20)

BLOCK B4
+43.8mPD
(7)

26m
(about)

17m
(about)

15m
(about)

BLOCK A1
+119.7mPD
(21)

BLOCK A2
+101.9mPD
(20)

BLOCK A2
+52.4mPD
(9)

BLOCK A3
+101.9mPD
(19)

BLOCK A4
+101.9mPD
(19)

BLOCK A5
+118.3mPD
(22)

BLOCK A6
+70.0mPD
(8)

+48.6mPD

兆康苑
SIU HONG COURT

兆康站
SIU HONG STATION

富泰邨
FU TAI ESTATE

倚嶺南庭
SOUTH HILLCREST

郭少明伉儷樓
SEK BUILDING

聚康山莊
BENEVILLE

賽馬會堂
THE JOCKEY CLUB HALL
+48.5mPD

賽馬會博雅堂
THE JOCKEY CLUB NEW HALL
+53.4mPD

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黃玉蘭樓
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B.Y. LAM BUILDING
+39.9mPD

永安廣場
WING ON PLAZA

KK樓
KK BUILDING
+39.9mPD

何善衡樓
HSH BUILDING
+42.9mPD

黃氏行政大樓
WONG ADMINISTRATION BUILDING
+34.2mPD

陳德泰大會堂
CHAN TAK TAI AUDITORIUM
+34.7mPD

學生宿舍 1 & 2
HOSTELS 1 & 2
+66.3mPD

學生宿舍 3 & 4
HOSTELS 3 & 4
+55.5mPD

嶺南坊
LINGNAN HUB
+56.1mPD

職員宿舍
STAFF QUARTERS
+36.3mPD

疊茵庭
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屯門食水抽水站
TUEN MUN FRESH WATER PUMPING STATION

屯門公路 TUEN MUN ROAD

青山公路 – 嶺南段 CASTLE PEAK ROAD – LINGNAN

青山公路 – 錦田段 CASTLE PEAK ROAD – KAM TIN

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- Proposed New Research / Academic Buildings
- Proposed Research / Academic / Living Quarters / Recreational Facilities
- Planned Development
- Retained Buildings
- Proposed At-grade Setback (about 17m - 26m)
- Existing At-grade Setback (about 15m)
- Proposed 1m footpath-widening
- Open Space / Green Space (Indicative)

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LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING / 圖名

CAMPUS MASTER PLAN

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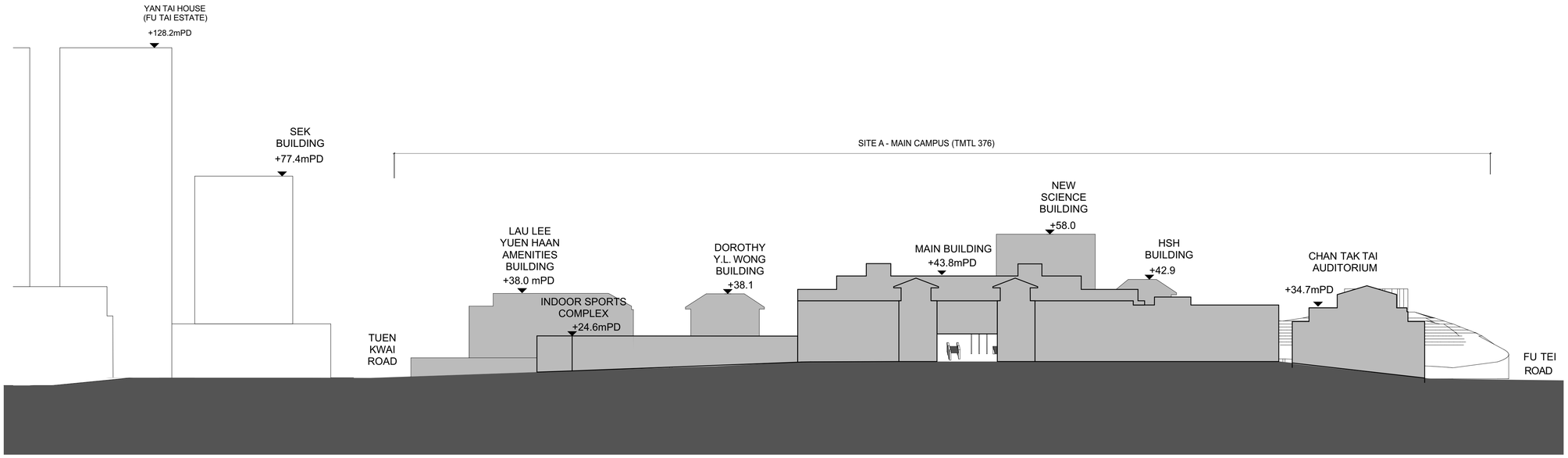

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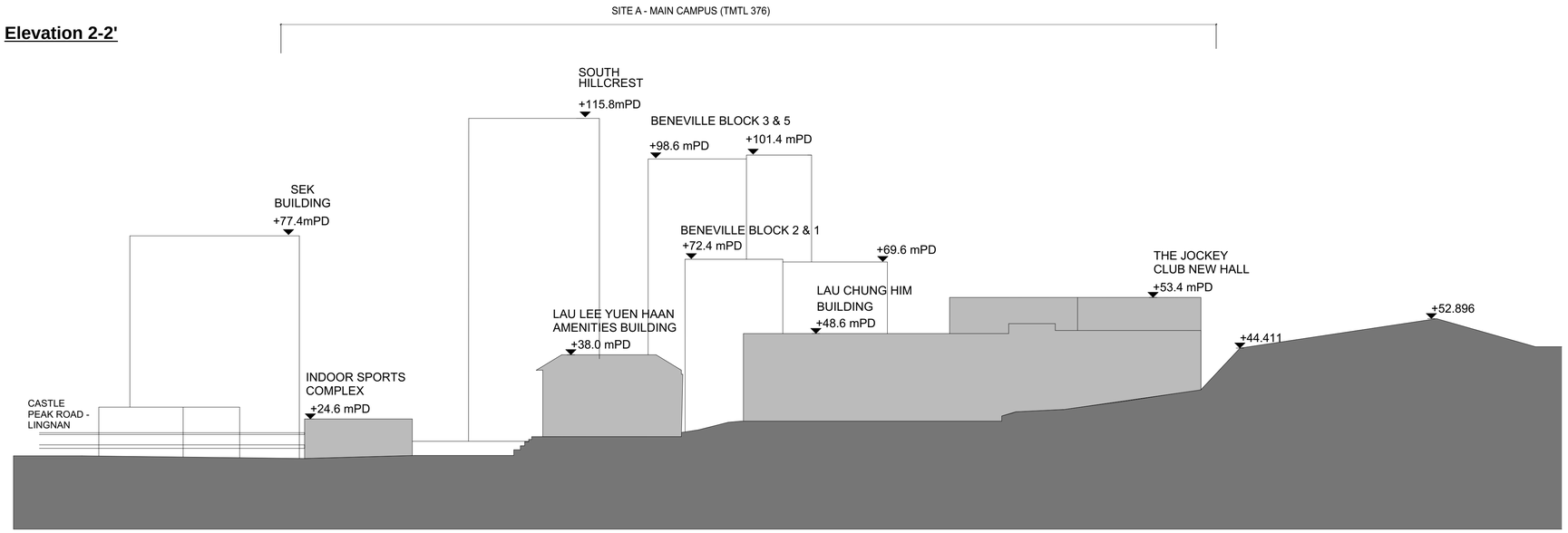

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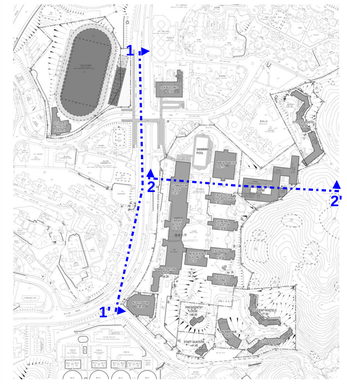

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DRAWING / 圖名

ELEVATION (MAIN CAMPUS) - EXISTING

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1:800@A1	6173
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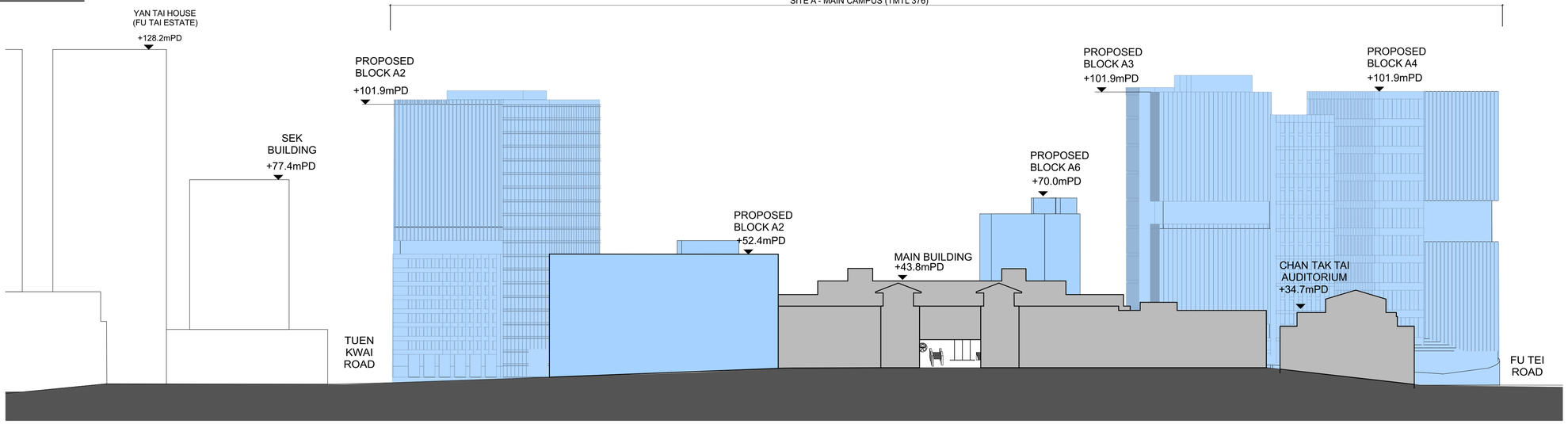
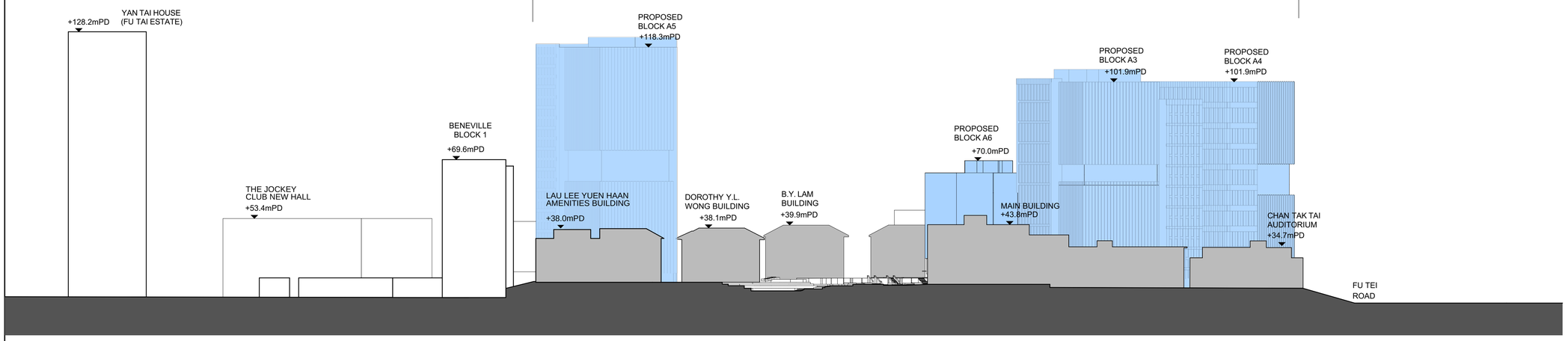
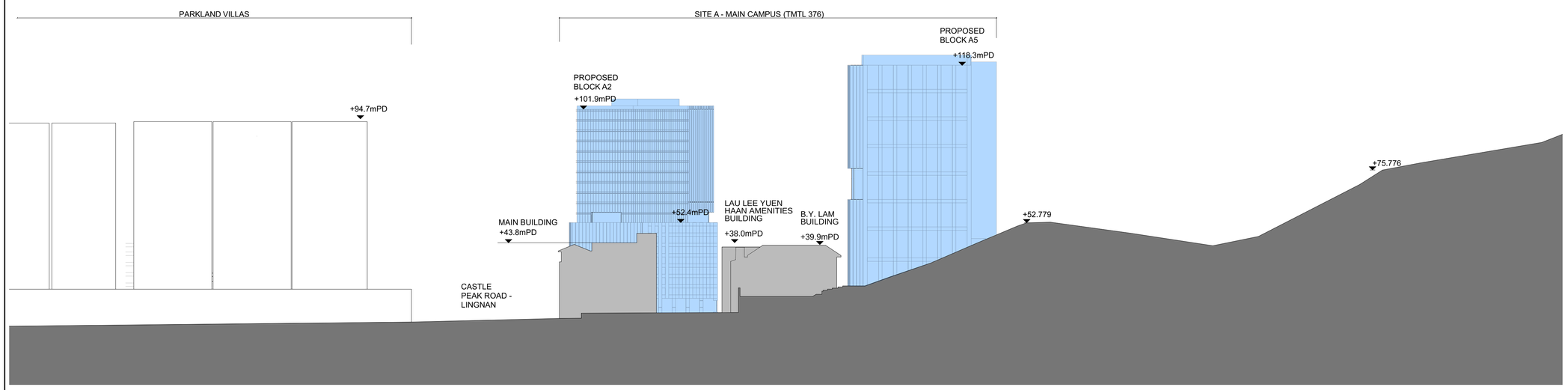


Elevation B-B'



Elevation C-C'



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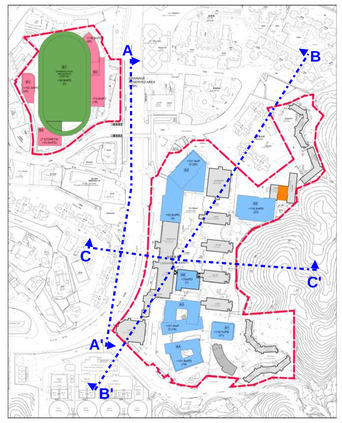
Proposed New Research / Academic Buildings

Retained Buildings



NUMBER / 編號	DATE / 日期	AMENDMENT / 修訂

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PROJECT / 工程項目

LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

DRAWING / 圖名

ELEVATION (MAIN CAMPUS) - PROPOSED

SCALE / 比例	JOB NUMBER / 工程編號
1:800, 1:1000@A1	6173
DATE / 日期	DRAWING NUMBER / 圖號

DESIGNED / 設計	CHECKED / 審核	APPROVED / 審定
P&T	P&T	P&T

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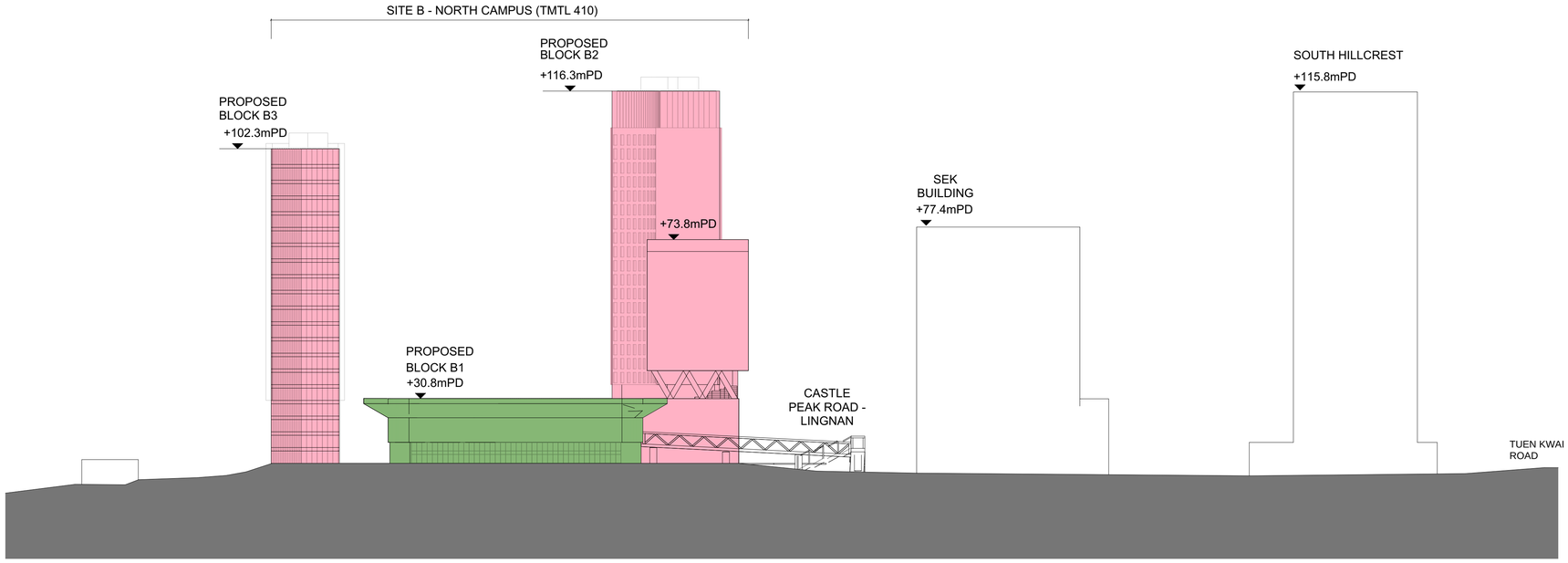

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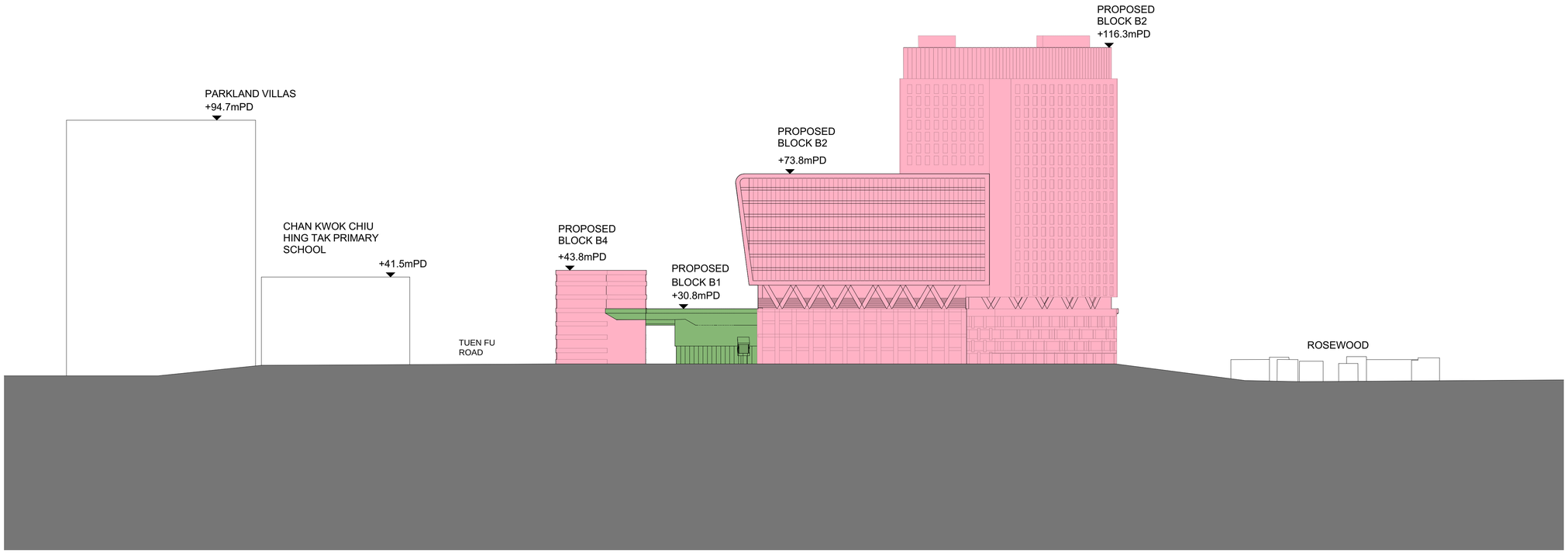

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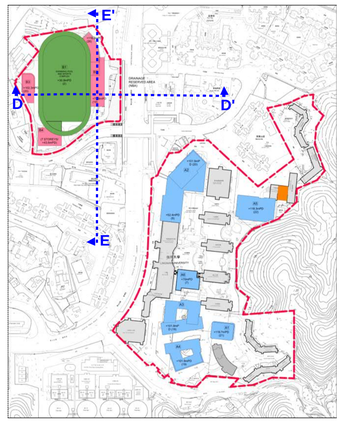

NUMBER / 編號	DATE / 日期	AMENDMENT / 修訂

P&T Architects and Engineers Limited
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PROJECT / 工程項目

LINGNAN UNIVERSITY
Proposed Amendments to the Approved Tuen Mun Outline Zoning Plan No. S/TM/41 for the Amendment to the Building Height Restriction

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DEVELOPMENT SCHEDULE

SITE	NAME OF BUILDING	BUILDING HEIGHT mPD	GFA/m^2
	A1 - RESEARCH & ACADEMIC BUILDING	119.7	21,013.3
A (MAIN CAMPUS)	A2 - RESEARCH & ACADEMIC BUILDING	101.9	104,161.2
		52.4	
	WONG ADMINISTRATION BUILDING	34.2	
	MAIN BUILDING (PATRICK LEE WAN KEUNG ACADEMIC BUILDING)	43.8	
	HO SIN HANG BUILDING	42.9	
	LEUNG KAU KUI BUILDING	39.9	
	B.Y. LAM BUILDING	39.9	
	DOROTHY Y.L. WONG BUILDING	38.1	
	LAU LEE YUEN HAAN AMENITIES BUILDING	38.0	
	YU KAN HING MEMORIAL GARDEN & PAVILIION	-	
	KIN SUN SQUARE (SKYLIGHT)	-	1,115.2
	FOOTBRIDGE	-	88.2
	MULTI-PURPOSE AREA (UPPER PLAZA)	26.7	230.0
	A3 - RESEARCH & ACADEMIC BUILDING	101.9	57,506.8
	A4 - RESEARCH & ACADEMIC BUILDING	101.9	39,894.9
	A6 - NEW SCIENCE BUILDING (LEO BUILDING)	70.0	9,796.9
	HOSTELS 1 & 2	66.3	17,084.2
	HOSTELS 3 & 4	55.5	
	LINGNAN HUB	56.1	5,963.9
	STAFF QUARTERS	36.3	1,019.2
	THE JOCKEY CLUB HALL	48.5	8,106.5
	THE JOCKEY CLUB NEW HALL	53.4	7,819.6
	AUDITORIUM	34.7	3,551.7
	A5 - LAU CHUNG HIM BUILDING	118.3	65,682.7
		48.6	
		TOTAL (SITE A)	**343,034.2**

SITE	NAME OF BUILDING	BUILDING HEIGHT mPD	GFA/m^2
B (NORTH CAMPUS)	B1 - SPORTS COMPLEX & AMENITIES	30.8	26,131.3
	B2 - AMENITIES & ACADEMIC	116.3	53,698.3
		73.8	
	B3 - AMENITIES & ACADEMIC	102.3	18,572.2
	B4 - AMENITIES & ACADEMIC	43.8	6,640.0
		TOTAL (SITE B)	**105,041.8**

DEVELOPMENT SCHEDULE (COMPARISON)

SITE	NAME OF BUILDING	EXISTING BUILDING HEIGHT mPD	EXISTING GFA/m^2	PROPOSED NEW BUILDING		PROPOSED BUILDING HEIGHT mPD	PROPOSED ADDITIONAL GFA/m^2
A (MAIN CAMPUS)	WONG ADMINISTRATION BUILDING	34.2	40,574.5	A1	RESEARCH & ACADEMIC	119.7	21,013.3
	MAIN BUILDING (PATRICK LEE WAN KEUNG ACADEMIC BUILDING)	43.8		A2	RESEARCH & ACADEMIC	101.9 52.4	63,586.7
	INDOOR SPORTS COMPLEX	24.6		A3	RESEARCH & ACADEMIC	101.9	57,506.8
	HO SIN HANG BUILDING	42.9		A4	RESEARCH & ACADEMIC	101.9	39,521.3
	LEUNG KAU KUI BUILDING	39.9					
	B.Y. LAM BUILDING	39.9					
	DOROTHY Y.L. WONG BUILDING	38.1					
	LAU LEE YUEN HAAN AMENITIES BUILDING	38.0					
	YU KAN HING MEMORIAL GARDEN & PAVILIION	-					
	KIN SUN SQUARE (SKYLIGHT)	-	1,115.2				
	FOOTBRIDGE	-	88.2				
	MULTI-PURPOSE AREA (UPPER PLAZA)	26.7	230.0				
	NEW SCIENCE BUILDING (LEO BUILDING)	58.0	9,796.9	A6	NEW SCIENCE BUILDING (DATA CENTRE EXPANSION)	70.0	-
	HOSTELS 1 & 2	66.3	17,084.2				
	HOSTELS 3 & 4	55.5					
	LINGNAN HUB	56.1	5,963.9				
	STAFF QUARTERS	36.3	1,019.2				
	PRESIDENT'S LODGE	39.1	373.5				
	THE JOCKEY CLUB HALL	48.5	8,106.5				
	THE JOCKEY CLUB NEW HALL	53.4	7,819.6				
	AUDITORIUM	34.7	3,551.7				
	LAU CHUNG HIM BUILDING	48.6	11,654.1	A5	RESEARCH & ACADEMIC	118.3	54,028.6
TOTAL (SITE A)			**107,377.4**			**ADDITIONAL GFA**	**235,656.7**
						TOTAL GFA (EXPANSION)	**343,034.2**

SITE	NAME OF BUILDING	EXISTING BUILDING HEIGHT mPD	EXISTING GFA/m^2	PROPOSED NEW BUILDING		PROPOSED BUILDING HEIGHT mPD	PROPOSED ADDITIONAL GFA/m^2
B (NORTH CAMPUS)	STUDENT ACTIVITY CENTRE	22.7	1,151.3	B1	SPORTS COMPLEX & AMENITIES	30.8	24,980.0
	SPECTATOR STAND	-	75.3	B2	AMENITIES & ACADEMIC	116.3 73.8	53,623.0
	SPECTATOR STAND (EAST)	-	132.2	B3	AMENITIES & ACADEMIC	102.3	18,440.0
				B4	AMENITIES & ACADEMIC	43.8	6,640.0
TOTAL (SITE B)			**1,358.8**			**ADDITIONAL GFA**	**103,683.0**
						TOTAL GFA (EXPANSION)	**105,041.8**

Appendix 4

Environmental Assessment

Issue No. : 3

Issue Date : Mar 2026

Project No. : 2292 EA

ENVIRONMENTAL ASSESSMENT

FOR

TECHNICAL FEASIBILITY STUDY FOR LINGNAN UNIVERSITY AT NO. 8 CASTLE PEAK RD - LINGNAN, TUEN MUN

Prepared by

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

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Document Verification

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Document Title	Environmental Assessment		

Issue No.	Issue Date	Description	Prepared by	Checked by	Approved by
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2	Oct 2025	2nd Submission	Various	Cathy Man	Grace Kwok
3	Mar 2026	3rd Submission	Various	Cathy Man	Grace Kwok

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1. Introduction

1.1.1. Allied Environmental Consultants Limited (AEC) has been appointed to conduct an Environmental Assessment (EA) for the proposed Lingnan University at No. 8 Castle Peak Rd-Lingnan, Tuen Mun under Section 5 of Town Planning Ordinance for amendment of building height restriction at i) the current Lingnan Main Campus and ii) the North Campus (herein-after called "Proposed Development").

1.1.2. The Proposed Development is currently zoned as "Government, Institution or Community" ("G/IC") on the Approved Tuen Mun Outline Zoning Plan (No.: S/TM/41). The Project Proponent proposes to develop the Application Site for construction of new academic spaces and living quarters/hostel to provide more floor space for university expansion. The Proposed Development will consist of the demolishment of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

1.1.3. Indicative drawings and other technical information on the Proposed Development are provided by the Project Architect (P&T Architects Limited).

2. Objectives

2.1.1. An Environmental Assessment for the Proposed Development is required in support of Section 5 planning exercise to assess the potential air quality, noise, land contamination and waste management based on the Proposed Development scheme and recommend relevant mitigation measures where necessary.

3. The Site Environ

3.1.1. The Proposed Developments consists of 2 sites, namely Site A and Site B, located at No.8 Castle Peak Road- Lingnan, Tuen Mun. Site A is the main campus of Lingnan University and it is bounded by Tuen Kwai Road to the north and Castle Peak Road-Lingnan to the west, immediately adjoining the Green Belt (GB) zone to the east and facing Fu Tei Road and Tuen Mun Water Treatment Works to the south.

3.1.2. Site B is currently occupied by an existing multipurpose outdoor sports ground and Wofoo Joseph Lee Student Activity Centre. It is bounded by Castle Peak Road-Lingnan to the east, Tuen Fu Road to the south, Tuen Mun Road to the west and 18 Rosewood to the north. The location of the Application Site and its surroundings are presented in ***Figure 3.1***.

3.1.3. The Application Site is zoned as "Government, Institution or Community" ("G/IC") on the Approved OZP. The surrounding areas are mainly zoned G/IC, Residential (Group B) ("R(B)10" "R(B)11" and "R(B)16" zone), Residential (Group A) ("R(A)3"), Residential (Group C)(("R(C)"). A strip of area zoned "Green Belt ("GB") are respectively located to the East of the Application Site.

4. The Proposed Development

4.1. Project Planning and Programme

4.1.1. The Proposed Development comprises 2 sites, with a total site area of around 112,233m^2. With reference to the Proposed Development potential study, the Proposed Development will consist of the demolition of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

5. Implication of Environmental Impact Assessment

5.1.1. The proposed usage of the Proposed Development is for educational institution and there are no ecological valuable locations, country parks, conservation area within 500m study area of the Proposed Development. In view of the project nature and the location of proposed site, therefore it is not a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). This EA has been undertaken with reference to the guidance for environmental considerations provided in Chapter 9 "Environment" of the Hong Kong Planning Standards and Guidelines (HKPSG). This EA presents a study of the potential environmental impacts, with respect to air quality, noise, waste management and land contamination aspects. Drainage and sewerage impact assessments are presented separately.

6. Air Quality Impact Assessment

6.1. Introduction

6.1.1. This section assesses the potential air quality impacts in association with the Proposed Development by taking into account the following considerations:

- Road traffic emissions from nearby roads in the proximity;
- Industrial emissions;
- Potential cumulative air quality impacts from concurrent projects during construction stage;
- Air quality impact from proposed construction and demolition

6.2. Environmental Legislation, Standards and Guidelines

General

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

- Air Pollution Control Ordinance (APCO) (Cap. 311);
- Air Pollution Control (Construction Dust) Regulation;
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation; and
- Air Pollution Control (Fuel Restriction) Regulations.

Air Pollution Control Ordinance: Hong Kong Air Quality Objectives (AQOs)

6.2.2. Air quality in Hong Kong is governed under the Air Pollution Control Ordinance ("APCO") (Cap. 311). Under this legislation, the Government has designated various Air Control Zones for the whole territory, and the new Air Quality Objectives ("AQOs") was taken into effect on 11 April 2025. The AQOs stipulate the statutory limits for seven pollutants and dictate the maximum number of allowable exceedances over specified periods as shown in ***Table 6-1***.

Table 6-1 Hong Kong Air Quality Objectives

Pollutant	Averaging Time	Concentration Limit (ug/m^3)[i]	Number of Exceedances to be allowed
Sulphur Dioxide (SO_2)	10-minute	500	3
	24-hour	40	3
RSP or PM_{10}[ii]	24-hour	75	9
	Annual	30	N/A
FSP or $PM_{2.5}$[iii]	24-hour	37.5	18
	Annual	15	N/A
Nitrogen Dioxide (NO_2)	1-hour	200	18
	24-hour	120	9
	Annual	40	N/A
Ozone (O_3)	8-hour	160	9
	Peak season	100	N/A
Carbon monoxide (CO)	1-hour	30,000	0
	8-hour	10,000	0
	24-hour	4,000	0
Lead (Pb)	Annual	0.5	N/A

Note:
[i] All measurements of the concentration of gaseous air pollutants, i.e., sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.
[ii] Respirable suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 10 μm or less.
[iii] Fine suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less.

Hong Kong Planning Standards and Guidelines

6.2.3. The Hong Kong Planning Standards and Guidelines (HKPSG) also provide guidance for all private and public development projects. A summary of relevant environmental design guidelines extracted from Table 3.1 of the HKPSG Chapter 9 is provided below.

Table 6-2 Recommended Buffer Distance for Land Uses (Table 3.1 of HKPSG Chapter 9)

Polluting Uses	Parameters	Permitted Uses	Buffer Distance
Road and Highways	Trunk roads and Primary Distributor	(a) Active and passive recreational uses (b) Passive recreational uses (c) Amenity areas	> 20m 3 - 20m < 3m
	District Distributor	(a) Active and passive recreational uses (b) Passive recreational uses	> 10m < 10m
	Local Distributor	(a) Active and passive recreational uses (b) Passive recreational uses	> 5m < 5m
Industrial Areas	Difference in Height between Industrial Chimney Exit and the Site		
	< 20m	(a) Active and passive recreational uses (b) Passive recreational uses	> 200m 5 - 200m
	20 - 30m	(a) Active and passive recreational uses (b) Passive recreational uses	> 100m 5 - 100m
	30 - 40m	(a) Active and passive recreational uses (b) Passive recreational uses	> 50m 5 - 50m
	> 40m	Active and passive recreational uses	> 10m
Construction and earth moving Activities	-	(a) Passive recreational uses (b) Active and passive recreational uses	> 50m

Air Pollution Control (Fuel Restriction) Regulations

6.2.4. The Air Pollution Control (Fuel Restriction) Regulations was enacted in 1990 to impose legal control on the type of fuels allowed for use and their sulphur contents in commercial and industrial processes to reduce sulphur dioxide (SO_2) emissions. In October 2008 and April 2025, the Regulation was amended to tighten the control requirements of liquid fuels.

6.3. Ambient Air Quality

Existing Air Quality in Tuen Mun District

6.3.1. The nearest EPD air quality monitoring station (AQMS) is Tuen Mun Monitoring Station which is adopted to represent the ambient air quality of the area. The latest 5 available years of air quality data, i.e., 2020 to 2024, are summarised in **Table 6-3** to depict local air quality trends.

Table 6-3 Ambient Air Quality at Tuen Mun Monitoring Station

Pollutant	Averaging time	Concentration 2020-2024 (μg/m³)[1][2]					AQO (μg/m³)
		2020	2021	2022	2023	2024	
SO_2	4th peak 10-min	98	22	29	23	18	500
	4th peak 24-hr	10	9	11	7	9	40
PM_{10}	10th peak 24-hr	**84**	**87**	65	**76**	**76**	75
	Annual Average	**34**	**36**	**32**	**34**	**34**	30
$PM_{2.5}$	19th peak 24-hr	**41**	**42**	39	**38**	**43**	37.5
	Annual Average	**20**	**19**	**18**	**19**	**20**	15
NO_2	19th peak 1-hr	166	172	128	160	144	200
	10th peak 24-hr	80	92	71	85	75	120
	Annual Average	40	**44**	39	40	40	40
O_3	10th peak 8-hr	**166**	**161**	**195**	155	**173**	160
	Peak season	88	82	91	84	92	100
CO	1st peak 1-hr	1,650	1,720	1,480	1,370	1,470	30,000
	1st peak 8-hr	1,513	1,450	1,345	1,143	1,424	10,000
	1st peak 24-hr	1,105	1,205	1,090	973	1,115	4,000

Notes:

[1] Monitoring result(s) exceeding the AQO is/are bolded and underlined.

[2] All air quality data were extracted from EPD's Environmental Protection Interactive Centre.

6.3.2. Exceedance of concentration of $PM_{2.5}$, PM_{10}, NO_2 and O_3 in the AQO has been recorded at Tuen Mun Monitoring Station. The exceedance of $PM_{2.5}$, PM_{10}, NO_2 are likely due to the influence from exhaust emission from traffic on the busy networks (e.g. Tuen Mun Rd) in Tuen Mun Area, whereas the exceedance of O_3 is mainly caused by regional air pollution and it is not directly emitted from man-made sources. In general, the results show a decreasing trend in the concentration of most pollutants in these 5 years.

Future Background Air Quality Condition

6.3.3. In view of the occupation year is subjected to further detailed design, background air quality

concentrations of Level 1 extracted from the PATH v3 data at Grid (21, 43) in Year 2026 represents background air quality concentrations at the Application Site area. A summary of background air quality concentration in Year 2026 is shown in ***Table 6-4***.

Table 6-4 Background Air Quality Concentration of Pollutants

Pollutant	Averaging time	AQOs Concentration limit (μg/m³)	No. of Exceedance in Grid (21,43)	Background (21,43)
SO_2	4th peak 10-min	500	0	28.43
	4th peak 24-hr	40	0	7.70
PM_{10}	10th peak 24-hr	75	0	56.62
	Annual Average	30	-	20.88
$PM_{2.5}$	19th peak 24-hr	37.5	11	33.27
	Annual Average	15	-	13.10
NO_2	19th peak 1-hr	200	0	84.80
	10th peak 24-hr	120	0	34.22
	Annual Average	40	-	18.47
O_3	10th peak 8-hr	160	24	**185.76**
	Peak Season	100	-	**117.72**
CO	1st peak 1-hr	30,000	0	592.60
	1st peak 8-hr	10,000	0	576.72
	1st peak 24-hr	4,000	0	525.21

Notes:
[1] Prediction result(s) exceeding the AQO is/are bolded and underlined.

6.3.4. These data have demonstrated that the background concentrations of pollutants are below the AQOs, except for O_3. O_3 is not directly emitted from an emission source. It is formed by the chemical reactions of NOx and VOCs under the presence of sunlight and a regional pollution problem. O_3 is therefore not evaluated in this assessment.

6.4. Identification of Assessment Area and Air Sensitive Receivers

6.4.1. In general, the assessment area for an air quality impact assessment (AQIA) is defined by a distance of 500m from the site boundary which is presented in ***Figure 6.1***.

6.4.2. Representative air sensitive receivers (ASRs) were identified and the separation distance between ASRs and Application Site are shown in ***Figure 6.1*** and summarized ***Table 6-5***.

6.4.3. The existing ASRs were identified with reference to the latest best available information at the time of preparation of this report, including those earmarked on relevant OZP (approved Tuen Mun OZP No.: S/TM/41), Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land used plans, including plans and drawings published by the Lands Department and any land use and development applications approved by the Town Planning Board.

Table 6-5 Representative Air Sensitive Receivers

ASR ID	Location	Land Use	Shortest Horizontal Distance (m)		Maximum Building Height (mPD)	Ground Level (mPD)
			Site A	Site B		
ASR01	Main Building- Lingnan University Campus	Educational	-	292	43.8	12.1
ASR02	Fu Tai Estate	Residential	29	297	123.9	10.9
ASR03	Beneville	Residential	20	236	72.4	14.5
ASR04	South Hillcrest	Residential	64	157	123.0	9.0
ASR05	18 Rosewood	Residential	291	41	13.7	6.7
ASR06	To Yuen Wai	Residential	> 300	285	16.0	9.6
ASR07	Siu Cheong House	Residential	> 300	205	87.3	7.7
ASR08	The Yuen Yuen Institute	Education	133	41	41.5	11.8
ASR09	Ecclesia Bible College	Place of Worship	179	26	33.7	11.4
ASR10	Parkland Villas	Residential	43	208	94.7	22.8
ASR11	Brilliant Gardens	Residential	190	> 300	44.7	9.0
ASR12	Mount Regency	Commercial	305	> 300	115.2	20.3
ASR13	Gig Lok Monastery	Place of Worship	95	232	17.8	14.0
ASR14	Tuen Mun Treatment Works Staff Quarters	Residential	150	283	15.0	7.0
ASR15	Tuen Fu Road Disciplined Services Quarters	Residential	205	271	70.1	6.7
ASR16	Forward Living	GIC [i]	2	> 300	41.9	14.3
ASR17	South Student Hostels	Residential	-	> 300	68.0	29.0
ASR18	Leung Kau Kui Building	Educational	-	> 300	40.5	18.2
ASR19	Ho Sin Hang Building	Educational	-	> 300	42.1	23.9
ASR20	Fu Tei Chung Tsuen Children's Playground	Recreational	8	98	-	-
ASR21	Fu Tei Village Office	GIC [i]	7	115	14.4	10.4
ASR22*	Outdoor sports ground at Site B	Recreational	150	-	30.8	12.3
ASR23	Lam Tei Raw Water Pumping Station Staff Quarters	Residential	246	19	16.3	10.8
ASR24	Diamond Jubilee Building	GIC [i]	219	7	17.0	10.5
ASR25	Lingnan Playground and Basketball Court	Recreational	113	28	-	-

Note: [i] Government, Institution or Community
** Planned ASRs*

6.5. Potential Air Quality Impact - Construction Phase

6.5.1. During the construction phase, the potential air quality impacts include the dust and exhaust emissions arising from the construction activities. The construction works of the Proposed Development will be carried out in phased to minimize fugitive dust emissions. The size of excavation, volume of excavation material and number of dump truck are subjected to future construction arrangement and study in detail design stage.

6.5.2. Contractor(s) will be required to transport the excavated materials out from the site to avoid the cumulation of materials on site. Excavated materials will be reused as fill materials within the site to minimize dust emission due to transportation of materials. In case temporary stockpiling of dusty materials is required, the stockpiling location will be covered by tarpaulin sheets and backfilled as soon as possible. In addition, dust potentially generated from concreting works could be minimized with the use of prefabrication construction method where structures are prefabricated offsite whenever possible.

6.5.3. With the implementation of air quality mitigation measures as stipulated under the Air Pollution Control (Construction Dust) Regulation and good site practices, adverse air quality impact generated from the construction of the Proposed Development is not anticipated. Mitigation measures to control construction emission listed below are recommended to be incorporated into the future contractor specifications for the contractor's implementation:

- Wetting by water spraying or dust suppression chemical on dusty material before loading and unloading, stockpile of dusty materials, area where breaking, excavation or earth moving activities works is carried out, and unpaved main haul road.
- Providing hoarding of not less than 2.4m high from ground level along the site boundary which is next to a road or other public area.
- Providing effective dust screens, sheeting or netting to enclose any scaffolding built around the perimeter of a building.
- Covering or sheltering any stockpile of dusty materials.
- Disposing of any dusty materials collected by fabric filters or other pollution control system in totally enclosed containers.
- Properly treating any exposed earth, such as by compacting or hydroseeding, within 6 months after the last construction activity.
- Providing vehicle washing facilities at all site exits to wash away any dusty materials from vehicles body and wheels before they leave the site.
- Covering of dust load on vehicles before they leave the site.
- Use of fuel with ultra-low sulphur content for on-site generators to minimize black smoke emission.
- Providing water spraying system where available and applicable.
- Restricting heights from which materials are to be dropped, as far as practicable, to minimise the fugitive dust arising from unloading / loading.

- Where the public can be affected by exhaust fumes or smoke emission from any construction plants or activities, shielding the related activities by an incombustible screen such as corrugated sheet of at least 2m in width and 1.8m in height.

- Using enclosed chutes for dropping construction materials to ground level and the chutes are dampened regularly, if applicable.

- The foundation work can be carried out either by percussive piling method or non–percussive pilling method. For this project, adoption of non–percussive piling method is anticipated which helps generating lower dust emissions.

- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore.

- Vehicles within the site are restricted to a maximum speed of 10 kph.

- Vehicles are inspected regularly and well maintained to ensure that they are operating efficiently and that exhaust emissions are not causing nuisance.

- Vehicle engines are turned off when they are not in use.

- Haul road of the Application Site is located as far as possible from nearby ASRs.

- Provide electric power supply for on-site machinery as far as practicable and diesel generators and machinery shall be avoided to minimise the gaseous and PM emissions

- Erect higher hoarding at the locations with ASRs in immediate proximity to the project site boundary

- Avoid using exempted non-road mobile machinery (NRMMS)

6.5.4. Contractors shall also implement the recommended air pollution control measures set out in "Recommended Pollution Control Clauses for Construction Contracts" available on EPD website. An EM&A program should be implemented to regularly monitor and audit the dust impact arising from the construction activities associated with the project.

6.5.5. The types and number of on-site construction machinery is subjected to further details in later stage. As stipulated in the Air Pollution Control (non-road Mobile Machinery) (Emission) Regulation, only approved or exempted non-road mobile machineries with a proper label are allowed to be used in the construction site. Diesel-fueled machinery operating on-site may be a potential source of air quality impact. According to the Air Pollution Control (Fuel Restriction) Regulations, ultra-low Sulphur diesel (ULSD) with Sulphur content not exceeding

0.001% by weight is required to be used as fuel to minimize the SO_2 emissions. The aforementioned regulations will be fully complied with, and appropriate control measures will be implemented to mitigate any adverse air quality impacts arising from the operation of on-site construction machinery.

Interfacing with Other Projects

6.5.6. Based on the best available information, there are 3 concurrent projects have been identified within 500m assessment area, as shown in ***Table 6-6*** and ***Figure 6.3***.

Table 6-6 Concurrent Project

Project	Construction Programme	Approximate Distance from Application Site	Potential Cumulative Impacts
Construction of New Science Building at Lingnan University	The works will tentatively complete in 2028	-	×
Improvement of footpath and drainage channel at Fu Tei Ha Tsuen	The works will tentatively commence in 2026	142 m	×
Slope upgrading works at access road to Castle Peak 6 M.G. Service Reservoir Fu Tei Road	The works will tentatively complete in 3rd quarter of 2027	246 m	×

6.5.7. The construction of New Science Building is located within the Application Site and is expected to be completed in year 2028. The detailed construction programme of the Proposed Development will be determined at later stage, the construction activities will be efficiently scheduled through careful programme management and liaison to prevent concurrent works at nearby interfacing locations. Appropriate mitigation measures for air quality impact are also expected to be implemented by the contractors of the concurrent project.

6.5.8. The improvement works of footpath and drainage at Fu Tei Ha Tsuen, located approximately 142m from the Application Site, is expected to commence in year 2026. The completion date of the improvement works is currently unavailable. The scale of the improvement works is expected to be small and the duration is expected to be short. Similarly, the construction activities will be efficiently scheduled through careful programme management and liaison to prevent concurrent works at nearby interfacing locations.

6.5.9. The Slope upgrading works at access road to Castle Peak 6 M.G. Service Reservoir Fu Tei Road is located approximately 246m from Application Site and expected to be completed in 3rd

quarter of year 2027. The scale of the slope upgrading works is expected to be small. As there are substantial separation distance between the Application Site and the concurrent project, adverse cumulative air quality impact is not expected.

6.5.10. With the consideration of construction programme management, and the implementation of the mitigation measures, adverse cumulative air quality impact during construction phase of the proposed development is not expected.

6.6. Potential Air Quality Impact - Operation Phase

Industrial Emissions from Chimney

6.6.1. Desktop study was carried out and site survey was conducted on 11 September 2025 to identified the industrial chimneys within 200m from the Application Site. It has confirmed that no industrial chimney is being located within 200m from the Application Site so that the horizontal buffer distance requirement is deemed complied with. The records of specified process licenses (SP-license) were reviewed in June 2025. The nearest premise with SP-license (A0852/R0661) is located at approximately 780m away from the Application Site. It has confirmed that no SP-licensed chimney is being located within 200m from the Application Site.

6.6.2. Chemical testing will be carried out in the Wet Laboratory of the New Science Building located within the Application Site. The chemical testing is served as educational purposes only and will be comparable to other tertiary institutes in Hong Kong. Chemical fume hood with an exhaust vent will be installed in the laboratories and the volatile chemicals will be emit and discharged by the chemical fume hood with filter. The discharge point of the exhaust vent is located at least 3m above the parapet wall of the highest point of the New Science Building. The exhaust vent is designed to faced away from the fresh air intake of the nearby ASRs. In this connection, impact due to the volatile chemical emission of the Proposed Development is considered negligible.

Odour Emission

6.6.3. Based on the results of environmental survey in June 2025, no existing and proposed slaughterhouses, village incinerators, odour sources and industrial uses are found within 500m radius of the Application Site. The site survey is also conducted on September 2025, no odour sources were found in the vicinity of the Application Site. It is also found that no odour emission from the Tuen Mun water Treatment Works located to the south of the Application Site. Based on the information from EPD as presented in ***Appendix 6.2***, no air and odour complaint related to Tuen Mun Water Treatment Works have been received in the past five years. Thus, no significant odour emission impact on the Proposed Development is

anticipated.

Industrial Emissions from Other Specified Uses

6.6.4. Based on desktop study and site survey on Sep 2025, no factory or industrial zone is identified within 200m from the Application Site. Thus, air quality impact from the industrial activity on the Application Site during operation phase is not expected.

Vehicular Emissions from Open Road Traffic

6.6.5. Another potential air pollution source in the vicinity of the site during operational phase would be tailpipe emission generated from road traffic along open road.

6.6.6. For Site A, Lingnan University Campus is bounded by Castle Peak Road-Lingnan to the west, which is classified as a district distributor, source from Traffic Census 2024. The University Campus is also bounded by Fu Tei Road and an access road within Lingnan campus to the South and by Tuen Kwai Road to the North. As confirmed by Transport Department (TD), Fu Tei Road and Tuen Kwai Road are classified as local distributor. The replies from TD are attached in ***Appendix 6.1***.

6.6.7. For Site B, it is also bounded by Tuen Fu Road to the South which is classified as local distributor confirmed by TD, and Tuen Mun Road to the West which is classified as urban trunk road. Castle Peak Road-Lingnan is located to the east of Site B. The road type, buffer distance between the site and the nearby road is shown in **Figure 6.2** and summarized in **Table 6-7**.

Table 6-7 Buffer distance between the Proposed Development and Nearby Road

Road Name	Road Type	HKPSG Guideline Buffer Distance Requirement	Minimum Horizontal Distance between Proposed Development Site Boundary and nearby road	
			Site A	Site B
Fu Tei Road	Local Distributor	> 5m	4m	> 300m
Tuen Fu Road	Local Distributor	> 5m	92m	8m
Tuen Kwai Road	Local Distributor	> 5m	11m	49m
Castle Peak Road-Lingnan	District Distributor	> 10m	16m	11m
Tuen Mun Road	Urban Trunk	> 20m	> 300m	23m

6.6.8. The south west portion of Site A is partially encroached into the 5m buffer zone of Fu Tei Road as shown in **Figure 6.2**. Chan Tak Tai Auditorium is located in this area and encroaching

into the buffer zone. It is equipped with mechanical ventilation and air conditioning system (MVAC) systems and not rely on openable window for ventilation. The fresh air intake of mechanical ventilation shall be carefully designed and not encroach on the buffer zone as recommended in the HKPSG. The southern portion of Site A is also falls within the 5m buffer zone of Fu Tei Road as shown in **Figure 6.2**, there is no existing or planned building nor air sensitive uses are located within this area. No planned air sensitive uses, including openable windows, fresh air intake of mechanical ventilation and open space of recreation use will be provided within the buffer zone. There will be no other sensitive active and passive recreational uses located within the minimum buffer zone. Therefore, adverse air quality impact due to vehicular emission is not expected.

Vehicular Emissions from Bus Terminus

6.6.9. Fu Tai Estate Bus Terminus is located in close proximity to Site B. Based on Desktop study and site inspection; the exhaust outlets are located at the west façade of the Bus Terminus with minimum separation distance of 64m to the nearest proposed living quarters. The minimum separation distance from bus terminus to Site B boundary is approximately 37.2m and is presented in ***Figure 6.2***. Besides, Location of ASRs, including fresh air intakes within Site B would be carefully positioned to stay away from the bus terminus exhaust outlets as far as practicable. Thus adverse air quality impacts are not anticipated.

Air quality impact arising from the Proposed Development

6.6.10. The nature of the Proposed Development is not environmental polluting. The use of the Proposed Development is similar to other typical institutional uses in Hong Kong, including offices and lecture rooms. The potential air pollutant and odour emission sources within the development includes wet laboratory, carparks, canteens, commercial kitchens for canteens and refuse collection points.

6.6.11. Wet Laboratory is provided in the proposed New Science Building located within the Application Site. The chemical testing is served as educational purposes only and will be comparable to other tertiary institutes in Hong Kong. As discussed in *Section 6.6.2*, design consideration and control measures will be implemented in laboratories to mitigate the volatile chemical emission.

6.6.12. For emissions from carparks, canteens, commercial kitchens and refuse collection points, relevant guidelines will be fully complied with and appropriate mitigation measures will be implemented when necessary to prevent air quality or odour nuisance to ASRs within the proposed development and in the surrounding area. No adverse air quality impacts from the proposed development are thus expected.

6.7. Conclusions

6.7.1. With the implementation of air quality mitigation measures and provision of good site practice as stipulated under the Air Pollution Control (Construction Dust) Regulation and Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, air quality impact to the nearby air sensitive receivers due to construction works are not expected to be adverse.

6.7.2. For vehicular emission impact, a sufficient buffer distance between Castle Peak Rd – Lingnan, Tuen Fu Road and Tuen Mun Road to the site shall be provided in accordance with the requirements set out in the HKPSG. Given the fresh air intake of Chan Tak Tai Auditorium is designed to be located outside the buffer zone of Fu Tei Road and no air sensitive uses, including openable windows, fresh air intake of mechanical ventilation and open space of recreation use shall be located within the buffer zones, no adverse air quality impact due to vehicular emission on the Proposed Development is anticipated.

6.7.3. In accordance to the site survey conducted in 11 Sep 2025 and desktop review of the best available information, no additional emission sources in the surrounding area likely to cause air quality or odour nuisances for the proposed development were identified. No chimney was identified within 200m from the project site boundary. In addition, no odour emission sources were found in the vicinity of Application Site, particularly Tuen Mun Water Treatment Works, from the site survey conducted. Thus, no adverse air quality impact with respect to industrial chimney emission and odour emission from the vicinity of the Application Site on the future users in the Proposed Development is anticipated.

6.7.4. Wet Laboratory is provided in the proposed New Science Building located within the Application Site. Chemical fume hood with an exhaust vent will be installed in the laboratories and the volatile chemicals will be emit and discharged by the chemical fume hood with filter. For other potential air pollutant and odour sources, relevant guideline will be fully complied with. With the design consideration and control measures implemented, no adverse air quality impacts are expected from the Proposed New Science Building.

7. Noise Impact Assessment

7.1. Environmental Legislation, Standards and Guidelines

Construction Noise

7.1.1. The statutory legislation controlling construction noise is the Noise Control Ordinance (NCO) (Cap.400). The following construction activities are subjected to statutory control under the NCO, as listed in the Practice Notes for Professional Persons (ProPECC) PN 1/24 "Minimizing Noise from Construction Activities".

- Percussive piling; and
- Construction works other than percussive piling using powered mechanical equipment (PME) between the hours of 19:00 and 07:00 or at any time on a general holiday (i.e. restricted hours)
- Use of hand-held percussive breakers and air compressors.

7.1.2. The carrying out of percussive piling is prohibited between 1900 and 0700 hours or at any time on a general holiday (including Sunday). A valid construction noise permit (CNP) is required for the carrying out of percussive piling during the permitted hours. The "Technical Memorandum on Noise from Percussive Piling" (PP-TM) sets out the requirements for working and determination of the permitted hours of operations.

7.1.3. Other than the abovementioned construction activities or construction activities outside restricted hours, ProPECC PN 1/24 stipulates noise criteria of 65 – 75 dB(A) for daytime construction activities, as shown in the ***Table 7-1***.

Table 7-1 Noise Criteria for Daytime Construction Activities

Noise Sensitive Receivers	Leq $_{(30\ mins)}$ * dB(A)
All domestic premises Temporary housing accommodation Hostels Convalescences homes Homes for the aged	75
Places of public worship Courts of law Hospital and medical clinics	70
Educational institutions (including kindergartens and nurseries)	70 (65 during examinations)
*Note: Leq(30mins) is a standard measure of noise level which means the continuous equivalent noise level over a 30 minutes interval.	

Road Traffic Noise

7.1.4. Noise standards are recommended in Chapter 9, "Environment" of the HKPSG for planning

against noise impact from sources such as road traffic, railway and aircraft. The applicable road traffic noise standards based on the proposed use are L10(1-hour) 65dB(A) and 70dB(A) for educational institutions and domestic use respectively. The noise standard applies to users which rely on openable windows for ventilation only.

Fixed Plant Noise

7.1.5. Legislation, standards, guidelines and criteria relevant to the consideration of planning against possible fixed noise impact under this assessment include the following:

- Noise Control Ordinance (NCO) Cap. 400
- Chapter 9 of HKPSG
- Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)

7.1.6. Existing Fixed noise sources is controlled under the NCO's Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM), which shall not exceed the Acceptable Noise Level (ANL) for a Noise Sensitive Receiver.

7.1.7. More stringent criteria are applicable to planned fixed plants, as stipulated in the Chapter 9, "Environment" of the HKPSG. The noise level shall be at least 5dB(A) below the appropriate ANLs specified in the IND-TM, or in the case where the prevailing background noise being 5dB(A) lower than the ANL, the noise level from the fixed noise sources shall not exceed the background noise level.

7.1.8. The ANLs for the Representative Noise Sensitive Receivers (NSRs) are based on the Area Sensitivity Rating (ASR), which is defined in the IND-TM issued under NCO. The ASR depends on the type of area and the degree of impact that Influencing Factors (IFs) have on the NSRs and as illustrated in below ***Table 7-2***. Industrial area and major road shall be considered to be an IF. For the given ASR, the ANL, in dB(A), is given in ***Table 7-3***.

Table 7-2 Area Sensitive Ratings (ASR) of NSRs

Type of Area Containing NSR	**Degree to which NSR is affected by Influencing Factors (Ifs)**		
	Not affected	*Indirectly affected*	*Directly affected*
i. Rural area, including country parks, or village type developments	**A**	**B**	**B**
ii. Low density residential area consisting of low-rise or isolated high-rise developments	**A**	**B**	**C**
iii. Urban area	**B**	**C**	**C**
iv. Area other than those above	**B**	**B**	**C**

Table 7-3 Acceptable Noise Level for Fixed Noise Source

Time Period	ANL, dB(A)		
	ASR "A"	ASR "B"	ASR "C"
Day (0700 to 1900 hours)	60	65	70
Evening (1900 to 2300 hours)	60	65	70
Night (2300 to 0700 hours)	50	55	60

7.1.9. According to the Traffic Census 2023, the Annual Average Daily Traffic (AADT) flow of Tuen Mun Road is 125,200 veh/day. By definition, Tuen Mun Road with AADT flow higher than 30,000 veh/day is considered as Influencing Factors (IF) within the study area in accordance with the IND-TM.

7.1.10. The Project Site is located in a low-rise and low-density campus area. The type of area contained by the concerned NSRs is considered as "iv. Area other than those above". As mentioned above, Tuen Mun Road is considered IF. For Site A of the proposed development, the facades of buildings will not have a direct line of sight to the Tuen Mun Road. Site A is therefore considered not to be affected by IF. Thus, the noise criteria stipulated in the IND-TM for an ASR of "B" are adopted for Site A.

7.1.11. For Site B of the proposed development, the west facades of buildings are directly exposed to Tuen Mun Road. As such, these facades are considered to be directly affected by the IF and hence and ASR of "C" is assigned for Site B.

Rail Noise

7.1.12. Rail noise generated from the MTR Siu Hong Station and Siu Hong Light Rail Station are expected to be the dominant rail noise source to Proposed Development which is about 103m and 178m respectively from the site boundary of Site B.

7.1.13. Noise planning standards for rail noise have been specified in Table 4.1 of the HKPSG Chapter 9, i.e. $L_{eq(24hr)}$ of 65 dB(A) and $L_{max(2300\text{-}0700hours)}$ of 85 dB(A). Besides, ANL are also stipulated in the IND-TM issued under the NCO as shown in table below.

Table 7-4 Noise Criteria for Rail Noise

Area Sensitivity Rating	Time Period [1]	Acceptable Noise Levels, $L_{eq(30mins)}$, dB(A) under IND-TM	Maximum A-weighted SPL, $L_{max(2300\text{-}0700hrs)}$ dB(A), under HKPSG	A-weighted equivalent continuous SPL, $L_{eq(24hrs)}$ dB(A), under HKPSG
A	Daytime & Evening	60	85	65
	Night-time	50		
B	Daytime &	65		

Area Sensitivity Rating	Time Period [1]	Acceptable Noise Levels, $L_{eq(30mins)}$, dB(A) under IND-TM	Maximum A-weighted SPL, $L_{max(2300-0700hrs)}$ dB(A), under HKPSG	A-weighted equivalent continuous SPL, $L_{eq(24hrs)}$ dB(A), under HKPSG
	Evening			
	Night-time	55		
C	Daytime & Evening	70		
	Night-time	60		

Note: [1] Daytime: 0700 to 1900 hours, Evening: 1900 to 2300 hours, Night-time: 2300 to 0700 hours

7.1.14. As stated in Sections 7.1.10 to 7.1.11, the ASR "B" and ASR "C" are proposed for Site A and Site B respectively. The ASR assigned in this report is for assessment purpose only and shall not prejudice the Authority's decision on enforcement based on contemporary conditions.

7.2. Identification of Noise Sensitive Receivers

7.2.1. NSRs within 300m assessment area of the Project Site have been with reference to the latest best available information at the time of preparation of this report are summarized in ***Table 7-5***. The assessment area and representative NSRs in the vicinity are summarized in and illustrated in ***Figure 7.1***.

Table 7-5 Representative NSRs

NSR ID	Location	Land Use	Shortest Horizontal Distance (m)
Site A			
NSR01	Ning Tai House	Residential	90
NSR02	Yan Tai House	Residential	28
NSR03	Beneville	Residential	20
NSR04	South Hillcrest	Residential	64
NSR05	The Jockey Club New Hall	Residential	-
NSR06	William M.W.Mong Hall The Bank of East Asia Hall	Residential	-
NSR07	Forward Living	Residential	2
NSR08	Block E, Brilliant Garden	Residential	190
NSR09	Tuen Mun Treatment Works Staff Quarters	Residential	150
NSR10	Tuen Fu Road Disciplined Services Quarters	Residential	205
NSR11	Gig Lok Monastery	Worship Place	95
NSR12	Block 3, Parkland Villas	Residential	43
NSR13	Fu Tei Sheung Tsuen	Residential	82
Site B			
NSR14	The Yuen Yuen Institute	Educational	41

NSR ID	Location	Land Use	Shortest Horizontal Distance (m)
	Chan Kwok Chiu Hing Tak Primary School	Institution	
NSR15	Siu Wai House	Residential	281
NSR16	Siu Cheong House	Residential	206
NSR17	18 Rosewood	Residential	41
NSR18	Sau Tai House	Residential	93
NSR19	Lam Tei Raw Water Pumping Station Staff Quarters	Residential	20
NSR20	Napa Valley	Residential	34

7.3. Construction Noise Impact Assessment

7.3.1. Potential source of noise impact arising from construction phase will be the use of Powered Mechanical Equipment (PME) during various construction phase, including excavation and foundation works, substructure and superstructure construction and utilities installation in the Project Site PME likely to be used include excavator, hand-held breaker, concrete lorry mixer, air compressor and generator etc.

7.3.2. No percussive piling works will be carried out within the Project Boundary during the working hours, Drilling method such as pre-boring or other quieter construction methods will be selected specifically to minimize construction noise during the construction phase.

7.3.3. Construction works in restricted hours, i.e. between 1900 and 0700 hours or any time on a general holiday including Sundays are not anticipated for this Proposed Development in general.

Prediction and Evaluation of Noise Impact

7.3.4. The potential sources of noise impact during the construction phase of the Proposed Development are the use of PME for various construction activities. The extent of construction noise impacts depends on the type and number of PME to be used in different construction activities and hence may vary throughout the construction phase, which is subject to the selection of Contractor to minimize the construction noise impact upon nearby NSRs.

7.3.5. NSR05 (The Jockey Club New Hall) and NSR06 (William M.W.Mong Hall The Bank of East Asia Hall) are the closest representative NSR to the application site, which is within the site boundary.

7.3.6. With reference to the EPD's Recommended Pollution Control Clauses for Construction Contracts and Practices Note for Professional Persons (ProPECC PN 1/24) Minimizing Noise from Construction Activities, recommended noise mitigation measures include

implementation of good site practices, use of quieter PME, avoidance of concurrent construction activities within an active construction site, siting of facilities and application of acoustic screen would be adopted to minimize the construction noise impact.

Implementation of Good Site Practices and Mitigation Measures

7.3.7. The following noise mitigation measures should be implemented to minimize the construction noise impact, e.g. "Recommended Pollution Control Clauses for Construction Contracts" available on EPD's website. A noise control plan should be set up to ensure regular maintenance of all plant and equipment, reduce noise generation at source, and that appropriate silencing applications are in use based upon the best reasonable practice. Typical noise mitigation measures include:

- Good site practice to limit noise emission at source;
- Scheduling of construction works outside school examination periods;
- Use of silenced equipment;
- Use of noise enclosure/ acoustic shed;
- Reduction in the number of items of PME operation at any given time; and
- Avoidance of works in restricted hours etc.

7.3.8. The Contractor should closely liaise with the school to schedule noisy construction works outside examination periods. The Contractor should ensure there will be no exceedance of the noise criterion of 65 dB(A) during the examination period.

Summary

7.3.9. With the implementation of recommended noise mitigation measures as detailed (e.g. scheduling noisy activities, use of silenced equipment/movable noise barrier, etc.), the construction noise impact to the nearby NSRs is anticipated to be insignificant.

7.4. Road Traffic Noise Impact Assessment

7.4.1. Based on the current scheme, the dominant road traffic noise sources affecting Site A are anticipated to be Castle Peak Road – Lingnan, Fu Tei Road, and Tuen Kwai Road. The proposed Research & Development, Research Academic Industry and Data Science Buildings are used for academic purposes and will be installed with air conditioning systems. These buildings are expected to have closed windows and will not rely on natural ventilation when used.

7.4.2. The proposed Research Centre & Living Quarters will be positioned at the east of Dorothy Y.L.Wong Building and Lau Lee Yuen Haan Amenities Building, with Beneville residential towers to the north. Given the proposed new building is surrounded by residential towers and academic buildings, road traffic noise from Tuen Kwai Road and Castle Peak Road – Lingnan shall be shielded. The proposed Research Centre & Living Quarters are expected to

have closed windows and will not rely on natural ventilation. Therefore, adverse road traffic noise impact arising from nearby roads to Site A is not expected.

7.4.3. For Site B, Castle Peak Road – Lingnan, Tuen Fu Road and Tuen Mun Road are the dominant noise sources. Site B is mainly surrounded by residential developments including Parkland Villas to the south, Rosewood 18 to the north and Fu Tai Estate to the east. Based on the current scheme, the new Swimming Pool & Sports Complex shall be located centrally within Site B, surrounded by three new Student Amenities & Living Quarters buildings, as shown in **Figure 3.1.** The Student Amenities & Living Quarters will be installed with air conditioning system and will not rely on openable window for natural ventilation. Therefore, it is anticipated that new Student Amenities & Living Quarters will not subject to road traffic noise impact from the nearby roads.

Summary

7.4.4. With the provision of air conditioner, the proposed new developments at Site A and Site B will not rely on openable windows for air ventilation. Therefore, it is anticipated that the noise sensitive uses of Proposed Development will not be subject to adverse road traffic noise impact.

7.5. Fixed Plant Noise Impact Assessment

Potential Fixed noise impacts from the Proposed Development on the NSRs in the vicinity

7.5.1. Potential fixed noise source associated with the Proposed Development will arise from the operation of outdoor chiller water tank and pump, cooling tower, mechanical ventilation and air-conditioning (MVAC), building services equipment and mechanical ventilation provisions for the plant rooms in the Proposed Development or developments nearby. Based on the layout plan of Proposed Development, the outdoor chiller water tank & pump area and cooling tower will be located on the roof floor. The air handling unit, transformer and chiller pump room will be located in the plant room of respective floors.

7.5.2. The fixed noise source will be designed to comply with the noise standards as stipulated in Chapter 9 of the HKPSG during operation phase.

7.5.3. In general, building services equipment, such as pump units, AHU and chiller will be placed in enclosed plant rooms with concrete building envelope, therefore no fixed plant noise will be anticipated at NSRs from the operation of such plant. The outdoor chiller water tank and pump and colling tower will be placed on the roof floor. The opening of all the plant room will be provided with typical acoustic treatment such as acoustic louvre when necessary and carefully designed to avoid direct facing to the sensitive receivers.

7.5.4. It is expected that the proposed new Student Amenities and Living Quarters will be operated for daytime and nighttime operation, whereas the proposed Research & Development, Research Academic Industry and Data Science Buildings and existing academic buildings at Site A will operate during daytime and evening time only. However, air conditioning, chiller plants, lift, pump systems and other building services system will not operate in full capacity during nighttime operation. As a conservative approach, the fixed plant will be designed to meet the noise criteria for night time operation in later detailed design stage. Typical acoustic treatment such as acoustic louvers and silencers will be provided at the fixed plant on the roof floor whenever necessary. Therefore, significant impact on noise level is not expected.

7.5.5. The choice of equipment and the requirement of noise control measures, such as acoustic treatments by silencers and enclosures, will be determined to ensure that the noise level at potentially affected NSRs will comply with statutory requirement under NCO stipulated in IND-TM. For the design of plant noise control treatment, the plant noise shall be controlled and designed to meet the HKPSG requirement, i.e. 5 dB below ANL or the prevailing background noise level. The design requirement for the compliance of HKPSG criteria shall be stated in the tender specification for implementation.

7.5.6. A new Swimming Pool & Sports Complex is proposed at Site A within the Proposed Development. Compared to fixed plant and road traffic noise sources, nuisance from the proposed Swimming Pool & Sports Complex is not expected to result in significant noise issues. The sports complex will primarily be used by students, and the crowd noise will occur only in event-based for sports activities, mitigation measures are therefore not proposed.

Evaluation of Noise Impact from Fixed Noise Source towards Project

7.5.7. The proposed Student Amenities and Living Quarter (B2) at Site B is located approximately 93m away from Sau Tai House (Fu Tai Estate) to the east. The proposed new Research Centre & Living Quarters, Research & Development, Research Academic Industry and Data Science Buildings at Site A are surrounded by existing academic buildings. Given the proposed new developments will be installed with air conditioning system and will not rely on openable window for natural ventilation, it is expected that these buildings will not be subject to fixed noise source from the surrounding buildings.

7.5.8. The proposed Research & Development, Research Academic Industry and Data Science Buildings at Site A are not expected to rely on openable windows for ventilation and will be equipped with MVAC systems. Therefore, it is anticipated that the Proposed Development will not be subject to adverse fixed plant noise impact from the surrounding buildings.

Summary

7.5.9. The potential fixed noise impact has been assessed. With the incorporation of appropriate mitigation measures including the of enclosure of building service equipment within building structures, installation acoustic louvre, silencer for ventilation, acoustic absorptive material for planned fixed plants where necessary, and provision of acoustic window for noise sensitive rooms. It is anticipated that the Proposed Development will not subject to any additional and significant adverse noise impact from fixed noise sources.

7.5.10. To ensure that the noise level at potentially affected NSRs will comply with the statutory requirement under Noise Control Ordinance stipulated in IND-TM, all on-site planned fixed noise source within the Proposed Development shall be controlled and designed to meet the HKPSG requirement, i.e. 5 dB below ANL or the prevailing background noise level, whichever is the lower.

7.6. Rail Noise Impact Assessment

7.6.1. Rail noise generated from the MTR Siu Hong Station and Siu Hong Light Rail Station are expected to be the dominant rail noise source to Proposed Development which is about 103m and 178m respectively to the west of Site B.

7.6.2. For Site A, the residential blocks (Parkland Villas) located between the railway and Project Site which could provide partial noise screening to the Proposed Development. Given the large separation distance between Site A and the railway, adverse rail noise impact arising from the railway to Site A is not expected.

7.6.3. Given the proposed new developments at Site A and Site B will not rely on openable window for ventilation and will be equipped with air conditioning system. Therefore, no adverse air rail noise impact on the Proposed Development is anticipated.

7.7. Conclusion

7.7.1. Noise Impact Assessment has been conducted based on the schematic layout plan. Potential noise sources were identified during construction phase and operation phase.

7.7.2. With the implementation of the recommended mitigation measures such as the use of QPME, limiting the number of construction plants operating concurrently, using movable noise barriers and adopting good site practices, it is feasible to reduce the construction noise to comply with the noise criteria, adverse construction noise impact is not anticipated at all NSRs.

7.7.3. For traffic and rail noise impact, given the Proposed Development will rely on air conditioning system and not rely on openable window for ventilation. It is anticipated that the Proposed Development will not be subject to adverse road traffic noise and rail noise impacts.

7.7.4. For fixed noise impact, with the proposed mitigation measures such as enclosed the building service equipment in the plant rooms, provision of acoustic treatment and detailed design of the noise control measures, the fixed plant noise impact due to Proposed Development to the vicinity is not anticipated.

7.7.5. It is concluded that with the implementation of the recommended mitigation measures, it is unlikely to cause any insurmountable noise impact during construction and operation phases of the Proposed Development.

8. Water Quality Assessment

8.1. Introduction

8.1.1. This section presents an assessment of the potential water quality impacts associated with the construction and operation of the Project. Recommendations for mitigation measures have been provided, where necessary, to minimize the identified water quality impacts to an acceptable level.

8.2. Environmental Legislation, Standards and Guidelines

8.2.1. The water quality impact assessment is carried out with reference to the following:

- Water Pollution Control Ordinance (Cap. 358);
- Hong Kong Planning Standards and Guideline;
- Water Supplies Department (WSD) Water Quality Criteria;
- Professional Persons Environmental Consultative Committee Practice Note 2/24 "Construction Site Drainage" (ProPECC PN 2/24); and
- Professional Persons Environmental Consultative Committee Practice Note 1/23 "Drainage Plans subject to Comment by the Environmental Protection Department" (ProPECC PN1/23)
- ETWB TC (Works) No. 5/2005 "Protection of Natural Streams/rivers from Adverse Impacts arising from Construction Works"
- AFCD's "Safe Use of Pesticides on Turf and Landscapes"
- EPD's "Preventing Artificial Turf Infill from Entering the Aquatic Environment"

Water Pollution Control ordinance (Cap. 358) ("WPCO")

8.2.2. Water quality in Hong Kong is legislated by the provisions of Water Pollution Control Ordinance (Cap 358), 1980 ("WCPO"). Territorial Water has been subdivided into ten Water Control Zones ("WCZ") and four supplementary water control zones. The study area lies within the North Western WCZ and the respective WQOs are summarized in ***Table 8-1***.

Table 8-1 Summary of Water Quality Objectives for the North Western WCZ

Parameters	Objectives	Sub-Zone
Aesthetic appearance	a) Waste discharges shall cause no objectionable odours or discolouration of the water. b) Tarry residues, floating wood, articles made of glass, plastic, rubber or of any other substances should be absent. c) Mineral oil should not be visible on the surface. Surfactants should not give rise to a lasting foam. d) There should be no recognisable sewage-derived debris.	Whole Zone

Parameters	Objectives	Sub-Zone
	e) Floating, submerged and semi-submerged objects of a size likely to interfere with the free movement of vessels, or cause damage to vessels, should be absent. f) Waste discharges shall not cause the water to contain substances which settle to form objectionable deposits.	
Bacteria	a) The level of Escherichia coli should not exceed 610 per 100 mL, calculated as the geometric mean of all samples collected in a calendar year.	Secondary Contact Recreation Subzones
	b) The level of Escherichia coli should be less than 1 per 100 mL, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Tuen Mun (A) and Tuen Mun (B) Subzones and Water Gathering Ground Subzones
	c) The level of Escherichia coli should not exceed 1 000 per 100 mL, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Tuen Mun (C) Subzone and other inland waters
	d) The level of Escherichia coli should not exceed 180 per 100 mL, calculated as the geometric mean of all samples collected from March to October inclusive. Samples should be taken at least 3 times in one calendar month at intervals of between 3 and 14 days.	Bathing Beach Subzones
Colour	a) Waste discharges shall not cause the colour of water to exceed 30 Hazen units.	Tuen Mun (A) and Tuen Mun (B) Subzones and Water Gathering Ground Subzones
	b) Waste discharges shall not cause the colour of water to exceed 50 Hazen units	Tuen Mun (C) Subzone and other inland waters
Dissolved Oxygen	a) Waste discharges shall not cause the level of dissolved oxygen to fall below 4 mg per litre for 90% of the sampling occasions during the whole year; values should be calculated as water column average (arithmetic mean of at least 3 measurements at 1 m below surface, mid-depth and 1 m above seabed). In addition, the concentration of dissolved oxygen should not be less than 2 mg per litre within 2 m of the seabed for 90% of the sampling occasions during the whole year.	Marine waters
	b) Waste discharges shall not cause the level of dissolved oxygen to be less than 4 mg per litre.	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones, Water Gathering Ground Subzones and other inland waters
pH	a) The pH of the water should be within the range of 6.5–8.5 units. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.2 unit.	Marine waters excepting Bathing Beach Subzones

Parameters	Objectives	Sub-Zone
	b) Waste discharges shall not cause the pH of the water to exceed the range of 6.5–8.5 units.	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering Ground Subzones
	c) The pH of the water should be within the range of 6.0–9.0 units.	Other inland waters
	d) The pH of the water should be within the range of 6.0–9.0 units for 95% of samples collected during the whole year. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.5 unit.	Bathing Beach Subzones
Temperature	a) Waste discharges shall not cause the natural daily temperature range to change by more than 2.0℃.	Whole Zone
Salinity	Waste discharges shall not cause the natural ambient salinity level to change by more than 10%	Whole Zone
Suspended Solids	a) Waste discharges shall neither cause the natural ambient level to be raised by more than 30% nor give rise to accumulation of suspended solids which may adversely affect aquatic communities.	Marine waters
	b) Waste discharges shall not cause the annual median of suspended solids to exceed 20 mg per litre.	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering Ground Subzones
	c) Waste discharges shall not cause the annual median of suspended solids to exceed 25 mg per litre.	Other inland waters
Ammonia	The un-ionized ammoniacal nitrogen level should not be more than 0.021 mg per litre, calculated as the annual average (arithmetic mean).	Whole Zone
Nutrients	a) Nutrients shall not be present in quantities sufficient to cause excessive or nuisance growth of algae or other aquatic plants.	Marine waters
	b) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.3 mg per litre, expressed as annual water column average (arithmetic mean of at least 3 measurements at 1 m below surface, mid-depth and 1 m above seabed).	Castle Peak Bay Subzone
	c) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.5 mg per litre, expressed as annual water column average (arithmetic mean of at least 3 measurements at 1 m below surface, mid-depth and 1 m above seabed).	Marine waters excepting Castle Peak Bay Subzone
5-Day Biochemical Oxygen Demand	a) Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 3 mg per litre	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering

Parameters	Objectives	Sub-Zone
		Ground Subzones
	b) Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 mg per litre.	Other inland waters
Chemical Oxygen Demand	a) Waste discharges shall not cause the chemical oxygen demand to exceed 15 mg per litre.	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering Ground Subzones
	b) Waste discharges shall not cause the chemical oxygen demand to exceed 30 mg per litre.	Other inland waters
Toxins	a) Waste discharges shall not cause the toxins in water to attain such levels as to produce significant toxic, carcinogenic, mutagenic or teratogenic effects in humans, fish or any other aquatic organisms, with due regard to biologically cumulative effects in food chains and to toxicant interactions with each other.	Whole Zone
	b) Waste discharges shall not cause a risk to any beneficial use of the aquatic environment.	Whole Zone
Phenol	Phenols shall not be present in such quantities as to produce a specific odour, or in concentration greater than 0.05 mg per litre as C_6H_5OH.	Bathing Beach Subzones
Turbidity	Waste discharges shall not reduce light transmission substantially from the normal level.	Bathing Beach Subzones

Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters

8.2.3. Discharge of effluents is subject to control under the WPCO. The Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) gives guidance on the permissible effluent discharges based on the type of receiving waters (foul sewers, stormwater drains, inland and coastal waters).To ensure compliance with WPCO requirements, any discharges from both the construction and operation phases must undergo pre-treatment where necessary to meet the required standards. Furthermore, all discharge points should be carefully sited away from natural watercourses to prevent contamination. The limits control the physical, chemical and microbial quality of effluents. Any sewage from the proposed construction and operation activities must comply with the standards for effluents discharged into the foul sewers, inland waters and coastal waters of Deep Bay WCZ, as given in the TM-DSS.

Practice Note for Professional Persons on Construction Site Drainage (ProPECC Note PN 2/24)

8.2.4. A practice note for professional persons was issued by the EPD to provide guidelines for handling and disposal of construction site discharges. The Practice Note for Professional

Persons on Construction Site Drainage (ProPECC Note PN 2/24) provides good practice guidelines for dealing with various types of discharge from a construction site. Practices outlined in ProPECC Note PN 2/24 should be followed as far as possible during construction to minimise the water quality impact due to construction site drainage.

Protection of Natural Streams/Rivers from Adverse Impacts Arising from Construction Works (ETWB TC (Works) No. 5/2005)

8.2.5. ETWB TC (Works) No. 5/2005 provides an administrative framework to better protect all natural streams/rivers from the impacts of construction works. The procedures promulgated under this Circular aim to clarify and strengthen existing measures for protection of natural streams/rivers from government projects and private developments. The guidelines and precautionary mitigation measures given in the ETWB TC (Works) No. 5/2005 should be followed as far as possible to protect the inland watercourses at or near the Project area during the construction phase.

8.3. Assessment Area and Water Sensitive Receivers

8.3.1. The assessment area for the water quality assessment shall generally include areas within 500m from the boundary of the Project. This has been identified accordingly and is shown in ***Figure 8.1***.

8.3.2. The Proposed Development is located in a developed campus site. 4 representative WSRs are identified within 500m from the Application Site. No water intakes, ecological valuable locations, country parks, water gathering grounds, beaches or water uses for agriculture within 500m study area of the proposed development. Representative WSRs within 500m from the boundary of the Application Site were identified in ***Table 8-2*** below and their respective locations are illustrated in ***Figure 8.1***.

Table 8-2 Summary of Representative Water Sensitive Receivers

ID	Location	Nature	Shortest Distance to Site Boundary	Description
WSR1	Within Application Site A	Channelised Watercourse	-	The open channel is located at the upstream of Lingnan University near Ho Sin Hang Building and lead to the northeast part of Lingnan University near the Jockey Club New Hall.
WSR2	South of Application Site A	Channelised Watercourse	7m to Site A	The open channel is located at the south of Lingnan University, flowing from southeast of Lingnan University near the Fu Tei Sheung Tsuen, along Fu Tei Road and lead to the

ID	Location	Nature	Shortest Distance to Site Boundary	Description
				southwest of Lingnan University near the Tuen Mun Water Treatment Works.
WSR3	North of Application Site B	Nullah	19m to Site B	The nullah is located at the north of Lingnan University North campus, at the upstream from the east near Fu Tei Ha Tsuen and lead to the nullah at Tuen Mun River Channel.
WSR4	West of Application Site B	Nullah	85m to Site B	The Nullah is located at the west of the Lingnan University North campus channeling water at Tuen Mun River Channel.

8.4. Construction Phase Assessment

Construction Site Runoff

8.4.1. The surface runoff from construction works areas may contain increased loads of suspended solids (SS) and contaminants. Potential sources of pollution from construction site drainage include:

- General Construction Activities;
- Wash water from vehicles, equipment and dust suppression sprays;
- Potential minor oil leaks or spills from vehicles and plants;
- Site surface runoff and erosion of exposed bare soil and earth, drainage channels, earth working areas and stockpiles;
- Sewage generated from on-site workforce; and
- Accidental spillage of chemicals.

8.4.2. Construction site runoff may cause physical, biological and chemical effects. The physical effects include potential blockage of watercourses and drainage channels and increase of SS levels. Local flooding risk may be increased in heavy rainfall situations. The chemical and biological effects caused by the construction runoff are highly dependent upon its SS levels and pH values. Runoff containing significant amounts of concrete and cement-derived material may cause primary chemical effects e.g. increasing turbidity and discoloration, elevation in pH, and accretion of solids. A number of secondary effects may also result in toxic effects to water biota due to elevated pH values, and reduced decay rates of faecal micro-organisms and photosynthetic rate due to the decreased light penetration.

General Construction Activities

8.4.3. General construction activities can introduce pollutants into surface runoff, including sediment and other construction debris. The movement of materials, cutting, drilling, and demolition can release dust, fine particles, and SS into the environment, which may be carried away by stormwater or site runoff.

8.4.4. Debris and rubbish generated on site shall be collected, handled, and disposed of properly. All fuel tanks shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open storm water drains and culverts near the works area shall be covered to block the entrance of large debris and refuse.

Wash Water from Vehicles, Equipment and Dust Suppression Sprays

8.4.5. Vehicles and equipment operating on the construction site are often washed down to remove dirt and debris, and dust suppression systems are frequently used to minimize airborne particles. The wash water generated from these activities can contain grease, sediment, and other contaminants. If not properly managed or treated, this water may enter the drainage system, increasing the concentration of pollutants in surface runoff.

Potential Minor Oil Leaks or Spills from Vehicles and Plants

8.4.6. The use of engine oil and lubricants, and their storage as waste materials has the potential to create impacts on the water quality of adjacent water courses if spillage occurs and enters watercourses. Waste oil may infiltrate into the surface soil layer, or run-off into local water courses, increasing hydrocarbon levels.

Site Surface Runoff and Erosion of Exposed Bare Soil and Earth, Drainage Channels, Earth Working Areas, and Stockpiles

8.4.7. During construction, large areas of bare soil and earth are often exposed, increasing the risk of soil erosion. Heavy rainfall or construction site runoff can carry eroded soil and sediment into the site drainage system. Runoff from earth working areas and stockpiles of materials may contribute to higher levels of suspended solids and cause siltation of nearby water bodies.

Sewage Generated from On-Site Workforce

8.4.8. Sewage generated by construction workforce also requires proper collection and treatment. Portable toilets and other sanitary facilities need to be provided and adequately maintained

to avoid leakage or overflow, which could result in untreated sewage entering the drainage system.

Accidental Spillage of Chemicals

8.4.9. Chemicals used on construction sites, such as paints, solvents, cleaning agents present risk of accidental spillage. If these chemicals are not stored and handled properly, they may be spilled or leaked, contaminating the soil or runoff. In the event of heavy rainfall, spilled chemicals can be washed into nearby watercourses or drainage systems.

Mitigation Measures and Good Site Practice

8.4.10. Runoff and drainage shall be avoided or minimised with the implementation of mitigation measures and good site practices outlined in ProPECC PN 2/24 which shall include but not limited to the following.

- Providing perimeter channels to intercept storm runoff from outside the site. These shall be constructed in advance of site formation works and earthworks.
- Providing sand/silt removal facilities such as sand traps, silt traps and sediment basins to remove sand/silt particles from runoff to meet the requirements of the standard in Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters under the WPCO. These facilities shall be properly and regularly maintained. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct storm water to such silt removal facilities.
- Minimising soil excavation works by careful programming of works during rainy seasons.
- Protecting exposed soil surface by paving as practical to reduce the potential of soil erosion
- Protecting temporary access roads by crushed gravel and exposed slope surfaces shall be protected when rainstorms are likely to occur
- Avoiding trench excavation in the wet season as far as practicable, and, if necessary, these trenches shall be excavated and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.
- Covering the open stockpiles of construction materials on site with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- Vehicle wheel washing facilities should be provided at the site exit such that mud, debris, etc. attached to the vehicle wheels or body can be washed off before the vehicle leaves the work site". Settling out the sand and silt in the wash water from the vehicles leaving the wheel washing facility, which ensures no earth, mud and debris is deposited

on the road, before discharging into the storm drain. The section of the road between the wheel washing bay and the public road shall be paved with a back-fall to prevent wash water or other site runoff from entering the public area.

- Planning ahead the temporary site drainage management and wastewater treatment system for collection, treatment, reuse and discharge of surface runoff and wastewater before the construction works start.
- Groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction should be discharged into storm drains after the removal of silt in silt removal facilities.

Evaluation of Impact

8.4.11. The construction phase of the Project will be land-based which does not involve any marine works or works at the streams identified. Therefore, it is unlikely that the Project will have any adverse water quality impact from construction work, given good site practices properly implemented on site by Contractor.

8.4.12. The mitigation measures and good site practices will be included in the contract for contractor's implementation. With the provision and implementation of abovementioned mitigation measures, adverse water quality impact during construction phase is not anticipated.

8.5. Potential Impacts During Operation Phase

8.5.1. During the operation phase of the Proposed Development, surface run-off and sewage generated by the residents and staff are the main sources of water quality impacts. Surface run-off on site will be properly collected via stormwater drains and discharged to existing drainage system. The design of site drainage and disposal of various site effluents generated with the Proposed Development should follow the relevant guidelines and practices as given in the ProPECC PN1/23. Effluent arising from proposed development is subject to the control of WPCO, and the effluent discharge should be in compliance with the WPCO-TM and WPCO discharge license conditions.

Surface Runoff

8.5.2. The Application Site is located on a gentle slope terrain with high ground at the east of the Site. Both Site A and Site B are currently paved with concrete with some greenery across the project Site. There will be no major changes in surface properties and gradient of the Site after the redevelopment.

8.5.3. currently a gentle flat, mainly comprising fish pond, vegetation, concrete paved landscape

garden and concrete bridge. There will be no major changes in surface properties and gradient, which will not significantly alter the overall catchment characteristics.

8.5.4. Surface runoff within the Project Site will be collected by internal manhole within Lingnan University campus and discharged to existing public stormwater drainage network. The Project will consist of at least 20% of greenery. The greenery area will be maintained as at least 20% of the Site Area. With the unchanged in topography and greenery area, increase in the surface runoff is not anticipated.

Sewerage generated from Population of Proposed Development

8.5.5. An ADWF of 2,066.37 m^3/day and 881.99 m^3/day is expected to generated from Site A and Site B respectively. The daily peak sewage generated by the Site A and Site B is estimated to be 0.1315 m^3/s and 0.0674 m^3/s respectively.

8.5.6. The generated sewage will be collected by the internal sewerage system within Lingnan University, and subsequently discharged into the existing public sewers via 4 outlets in Site A and 1 outlet in Site B. The hydraulic calculation of sewerage flow and the pathway of the internal sewerage system to public drainage are shown in the SIA report.

Sports Ground

8.5.7. As confirmed by Lingnan University, the proposed sports ground will be rebuilt and surfaced with artificial turf rather than natural grass or soil. Application of agricultural chemicals such as pesticides or herbicides will not be required for the maintenance of the sports ground. The daily operations and maintenance of the proposed sports ground will be in compliance with EPD's guideline of Preventing Artificial Turf Infill from Entering the Aquatic Environment.

Mitigation Measures during operation Phase

8.5.8. In order to minimize the pollution loading, silt/sand traps should be provided for the drainage systems of open areas. Moreover, the pollution loading of runoff could be controlled by best management practices. The operator should manage the cleaning of roads and open areas within the Site before heavy rain. To further minimise pollution loading, cleaning should be carried out during low traffic periods. Cleaning methods for road/open areas, such as manual cleaning or mechanical methods and including street sweepers are recommended to be adopted. The substances during cleaning should be collected as far as practicable for off-site disposal at landfill sites. After the removal of the substances, the pollution loading of runoff would be reduced.

8.5.9. The sewage generation after development is tabulated in SIA report. The results

demonstrated that 2 no. sewer segments do not have sufficient sewer capacity to cater with the sewage flow from the catchments nearby and the proposed development. Based on freeboard calculation, there should be sufficient freeboard and no overflowing will occur. Therefore, significant sewerage impact arising from the proposed development on the existing sewers is not expected, no mitigation measures are considered necessary for the existing sewers.

8.5.10. During operational phase, regular inspection and maintenance of sewer within Project Site should be conducted by property management office to ensure proper performance.

8.6. Conclusion

8.6.1. WSR 1 is located downstream of the Proposed Development. The minimum separation distance from the Application site is 55m and the Proposed Development would not involve any construction works at/ within the above identified watercourses. Therefore, the water source of the existing WSRs is not expected to be affected during the construction and operation phases of the Project.

8.6.2. For construction phase, water quality impact is expected to be minimal when appropriate guidelines and mitigation measures stated in ETWB TC (Works) No. 5/2005 and good site practice outlined in ProPECC PN 2/24 are implemented to properly discharge site run-offs.

8.6.3. The contractor shall apply for a Discharge License from EPD under the WPCO. All site discharges should be treated as necessary in accordance with the terms and conditions of the Discharge License.

8.6.4. The contractor shall install silt traps and sedimentation tanks to manage surface runoff and prevent sediment pollution. Wheel washing facilities shall be placed at site exits and construction near natural rivers/streams must implement erosion control measures and be inspected regularly by contractor.

8.6.5. With the abovementioned mitigation measures, no adverse impacts on water quality are anticipated during construction phase.

8.6.6. For operation phase, efficient drainage management system shall be implemented to ensure runoff from building rooftops and paved areas are adequately managed. The generated sewerage from proposed development will be collected by proposed terminal manhole and conveyed towards Lingnan University's internal sewerage system, then discharges to public manhole for convetance to appropriate treatment facility. The effluent discharge should be in compliance with the WPCO-TM and WPCO discharge license conditions. Regular maintenance of drainage system shall be carried out to prevent blockage and ensure ongoing compliance with water quality regulations.

8.6.7. With the implementation of drainage management system, proper pre-treatment facilities and good management measures, the potential water quality impact is anticipated to be insignificant. Thus, no adverse water quality impact would be anticipated during operation phase.

9. Land Contamination Assessment

9.1. Guidelines

9.1.1. This assessment is prepared in accordance with the following guidance:

- Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management (Guidance Manual), dated December 2007, Revised in April 2023;
- Guidance Note for Contaminated Land Assessment and Remediation (Guidance Note), dated 15 August 2007, Revised in April 2023; and
- Practice Guide for Investigation and Remediation of Contaminated Land (Practice Guide) dated August 2011, Revised in April 2023.

9.2. Objectives

9.2.1. The objectives of this Site Appraisal for Land Contamination are

- to assess the potential land contamination impact at the Application Site due to current and historical land uses, activities that could result in contamination of the site through desktop review (e.g. site's land use history, historical aerial photographs etc.);
- and to propose forthcoming actions in case the potential land contamination identified.

9.3. Review of Historical Aerial Photographs and Past Land Use

9.3.1. The earliest aerial photograph records of 1949 obtained from Lands Department (LandsD) of the Application Site for Site A and Site B showed that it was a Bowring Camp, a military camp, and the Application Site was located on the parade ground of the military camp. It is a bare ground without structure. In 1985, the Bowring Camp was converted into a refugee camp, no change on the Application Site is observed. In 1993, the refugee camp was demolished and Lingnan University was subsequently constructed in Site A in 1994 and completed in 1996. For Site B, the area became vacant land in 1994 and was later developed into North Campus since 2002 until now.

9.3.2. The historical aerial photographs are attached in ***Appendix 9.1***. A summary of the land use of the Application Site is given in ***Table 9-1***.

Table 9-1 Summary Table of Land Use

Period / Year	Site A	Site B	Sources of Information
1949	The Application Site was a military camp (Bowring Camp) parade ground. It is	The Application Site was a military camp (Bowring Camp) parade ground. It is a	Aerial photo from LandsD
1956			

Period / Year	Site A	Site B	Sources of Information
1961	a bare ground without structure.	bare ground without structure.	
1977			
1984			
1985	The Application Site was converted into a refugee camp, no change in the Application Site. (Condition at site similar to that in 1949 – 1984)	The Application Site was converted into a refugee camp, no change in the Application Site. (Condition at site similar to that in 1949 – 1984)	
1994	Construction site for Lingnan University	Vacant Land	
1996	Construction works for the Lingnan University was completed in 1996.		
2001			
2002		Construction site for North Campus	
2007		Construction works for North Campus was completed until now	
2024			

9.3.3. In view of the activities observed from the historical aerial photographs, the past and current land use were not polluting uses, and no activities that may have caused contamination was observed. Therefore, land contamination is expected to be unlikely.

9.4. Information from Government Departments

9.4.1. The following HKSAR Government Departments have been enquired on the latest update on the availability of land use status and records of land contamination and/or spillage for the site. The summary of correspondence is presented in ***Table 9-2*** below. Copy of the letters replied from various Government Departments are included in ***Appendix 9.2*** for reference.

Table 9-2 Enquiries and Responses on Land Contamination Related Records in the Application Site

Gov. Department	Response Letter Ref.	Response Date	Summary
EPD	By email	24 June 2025	1. Seven registered chemical waste producers were found in the subject site record 2. No records of waste disposal and accidental spillage were found. 3. No submissions relating to land contamination assessment were identified.
FSD	(17) in FSD GR 6-5/4 R	23 June 2025	1. No Dangerous Goods License was issued. 2. A total of 2 incident records were found at the

<table>
<tr><th>Gov. Department</th><th>Response Letter Ref.</th><th>Response Date</th><th>Summary</th></tr>
<tr><td></td><td>Pt.59</td><td></td><td>subject location.

<u>Request for Information of Dangerous Goods & Incident Records</u>

<table><tr><th>No.</th><th>Date</th><th>Type of Incident</th><th>Address</th></tr><tr><td>1</td><td>1/4/2025</td><td>Lock-in Case</td><td>Beneville, 18 Tuen Wai Road</td></tr><tr><td>2</td><td>11/8/2023</td><td>Late Call Fire</td><td>1/F, Lau Lee Yuan Haan Amenities Building, Lingnan University, 8 Castle Peak Road – Lingnan</td></tr></table></td></tr>
<tr><td>LandsD</td><td>By email</td><td>3 July 2025</td><td>Does not keep a record on the spillage accidents or any land contamination reports at Lingnan University main campus and the outdoor sports ground.</td></tr>
<tr><td>PlanD</td><td>By email</td><td>11 July 2025</td><td>For the past record of land uses at the captioned sites, you are advised to visit the Statutory Planning Portal of Town Planning Board (https://www.ozp.tpb.gov.hk/?lang=en)
Or one of our Planning Enquiry Counters. (https://www.pland.gov.hk/pland_en/access_to_info/pec/index.html).</td></tr>
</table>

9.4.2. The application site falls within an area zoned "Government, Institution and Community" ("G/IC") on the approved Tuen Mun Outline Zoning Plan (OZP) No. S/TM/41. As per reply from LandsD that no record spillage accidents or any land contamination reports at Lingnan University main campus and the outdoor sport ground are kept, further enquiry from EPD and FSD on past record have been sought and elaborated in this section. Further desktop study is also conducted, no additional information for our enquiry can be given from the websites provided by PlanD. Based on the record identified on Town Planning Board's website as advised by PlanD, no potential contamination use was found in the past land use records.

9.4.3. Four valid registered chemical waste producers and three invalid chemical waste producers at the Application Site were identified based on the information provided from territory-wide register of chemical waste producers maintained at the Territory Control Office in Wan Chai. Details of the chemical waste producers are provided in ***Appendix 9.3.***

9.4.4. For the valid registered chemical waste producers, based on information available on public domain, "Jetford Engineering and Trading Company is expected to carry out works outside the Application Site, which involved whole campus lighting replacing, regular electrical installation inspection and air change testing. "Science Unit Lingnan University" and "Lingnan University" are the registered chemical waste producers located within Application Site. For "Penta-Ocean Construction CO. LTD.", it is the contractor for the construction of Lingnan hub, which is within the Application Site.

9.4.5. As for the invalid chemical waste producers, which include "Lingnan College", "Penta-Ocean Construction CO. LTD." (expired license), and "China Overseas Building Construction Limited". No potential land contamination activities and chemical spillage or leakage records were found from the invalid chemical waste producers.

9.4.6. Based on the available information and also as advised by EPD, no chemical waste disposal record or accidental spillage record was found at the Application Site. In addition, no chemical spillage and potential land contamination incident was reported from the construction activities of Lingnan hub by Penta-Ocean Construction CO. LTD. Given that it is assumed that good site practices have been implemented properly at the construction site and the absence of any such incidents, it is unlikely that the chemical waste producers have caused any significant land contamination.

9.4.7. Based on reply from FSD, no dangerous good licenses at the Application Site were issued and 2 no. incident records are not related chemical use or chemical spillage. No potential contamination was identified.

9.4.8. Given the nature of the Application Site usage as an educational institution, no potential contamination activities are expected. As confirmed by Lingnan University, the sports ground within the Application Site is surfaced with artificial turf rather than natural grass or soil. As such, the application of agricultural chemicals is not required, it is confirmed that no pesticides or herbicides have been used in the maintenance of the sports ground. In addition, no records of chemical spillage or leakage were identified. Based on the historical and current land uses, no adverse land contamination impacts are expected at the Application Site.

9.5. Summary

9.5.1. According to the desktop study, the Site A has been occupied by Lingnan University since its establishment in 1996 while Site B is developed as North Campus in 2002. No chemical manufacturing or dangerous goods storage was expected on the site.

9.5.2. Since the Application Site is used for educational purposes, it is not identified as potential hotspots for contamination based on this land uses, no potential contamination sources were anticipated. As artificial turf will be used for the surface of sport grounds within Application Site, no agricultural chemicals will be used for maintenance of the sport ground. Therefore, no potential contamination issues are anticipated from the past and current uses of the Application Site.

9.5.3. Based on the response from EPD, there are no record of chemical waste disposal record, accidental spillage record, or submissions relating to land contamination assessment at the Application Site, according to the available records. The findings from the review of historical aerial photographs are consistent with the information provided and therefore, it is not anticipated that there would be any land contamination impact due to past land uses.

10. Waste Management Implications

10.1. Legislation and Standards on Waste Management

Waste Disposal Ordinance (WDO) (Cap. 354)

10.1.1. Waste Disposal Ordinance, Cap. 354 provides legislative control on pollution caused by all forms of wastes such as livestock wastes, chemical waste etc. It provides the statutory framework for the planning, management and control of wastes in Hong Kong.

Public Health and Municipal Services Ordinance (Cap.132)

10.1.2. The Public Cleansing and Prevention of Nuisances Regulation provides control on illegal tipping of waste on unauthorized (unlicensed) sites.

Waste Disposal (Chemical Waste) (General) Regulation (Cap.354C)

10.1.3. Under the WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap.354C) provides regulations for chemical waste control, and administers the possession, storage, collection, transport and disposal of chemical waste. EPD has also issued the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (1992), which details how the chemical waste producers should comply with the regulations on chemical waste.

Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap.354N)

10.1.4. Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert material; construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert material; and construction waste delivered to a public fill reception facility for disposal must consist entirely of inert material.

10.1.5. Other Environmental Regulations / Guidelines

- Land (Miscellaneous Provisions) Ordinance (Cap. 28)
- ETWB TC(W) No. 22/2003 and 22/2003A, Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites
- Works Bureau TC No. 12/2002, Specifications Facilitating the Use of Recycled Aggregates
- Trip Ticket System for Disposal of Construction & Demolition Materials (DEVB TC(W) No. 6/2010)
- Practice Note for Authorized Persons and registered Structural Engineers 243 (PNAP No.243) ADV-19
- Public Dumps (WBTC No. 2/93)
- Public Filling Facilities (WBTC No. 2/93B)

- Fill Management (WBTC No. 12/2000)
- Code of Practice on the Packaging, Labeling and Storage of Chemical Waste
- DevB TCW No. 8/2010 "Enhanced Specification for Site Cleanliness and Tidiness
- Management of Construction and Demolition Materials (Technical Circular No. 11/2019) published by CEDD
- CEDD's Project Administration Handbook for Civil Engineering Works
- Hong Kong Planning Standards and Guidelines, 2024 (Planning Department (PlanD))
- Monitoring of Solid Waste in Hong Kong – Waste Statistics for 2023

10.2. Assessment Approach and Criteria

10.2.1. The assessment of waste management implications from the construction and operation of the Project includes the following tasks:

- Identification of types and quantities of waste arising from various construction activities based on the latest understandings;
- Evaluation of opportunities for waste reduction, re-use and recycling on-site or off-site;
- Identification of disposal options for each type of waste;
- Evaluation of potential impacts from the handling (including stockpiling, labelling, packaging and storage), collection, transportation and reuse/disposal of waste with respect to potential hazards, air and odour emissions, noise, wastewater discharges and public transport; and
- Proposing mitigation measures and evaluation of residual impact.

10.3. Potential Impacts during Construction Phase

Construction & Demolition (C&D) Materials

10.3.1. The construction works of the Project mainly include demolition, clearance and mobilization, excavation and foundation works, superstructure and fitting out works. C&D materials generated from the construction works comprises of inert and non-inert materials.

10.3.2. For inert C&D materials (or public fills), such as soil, rock, concrete, etc., could be reused on-site as filling materials or off-site as public fill at public fill reception facilities (e.g. Tuen Mun Area 38 Fill Bank). The delivery site of inert C&D materials is subject to the designation by the PFC according to the DEVB TC(W) No.6/2010. Based on the early estimation, the quantities of inert C&D materials generated is expected to be 45,500 m^3, and about 20% is expected to be reused for backfilling.

10.3.3. For non-inert C&D materials, such as topsoil, dead vegetative materials, glass, steel, plastics, paper, timber/woody materials etc., would be sorted for reuse/recycle as far as possible before disposal which should only be considered as the last resort for waste handling. Non-recyclable non-inert C&D materials are proposed to be disposed at West New Territories

(WENT) Landfill at Nim Wan. If timber waste is generated during construction phase, it will be delivered to available recycling facilities for recycling purpose. The disposal of non-inert C&D materials at the designated landfill shall be subject to agreement with the relevant section of EPD. It is expected that 4,500 m^3 of non-inert C&D materials will be generated.

10.3.4. The quantities of C&D materials will be subject to further design development and contractor's operation procedure/practices. The early estimation of the total quantities of C&D materials generated is expected to be approximately 50,000 m^3. The Contractor shall develop and implement their Environmental Management Plan (EMP) and Waste Management Plan (which is part of the EMP) to control any potential adverse impact associated with the construction waste as far as possible. It is targeted that about 20% of the inert materials can be reused onsite. The Contractor shall develop and implement their EMP and Waste Management Plan (which is part of the EMP) to control any potential adverse impact associated with the construction waste as far as possible.

Chemical Waste

10.3.5. Chemical waste is defined in the Cap 354C Waste Disposal (Chemical Waste) (General) Regulation. Where the construction processes produce chemical waste, the contractor must register with EPD as a chemical waste producer. Chemical waste that is likely to arise from the construction activities for the Project includes:

- Used paints, engine oils, hydraulic fluids and waste fuel;
- Spent mineral oils / cleansing fluids from machineries; and
- Spent solvent / solutions, some of which may be halogenated, from equipment cleansing activities.

10.3.6. Accidental spillages of chemicals in the works area may contaminate the top soils on exposed ground/ earth. The contaminated soil particles may be washed away by construction runoff causes water pollution.

10.3.7. Chemical wastes pose environmental and health and safety hazards if not stored and disposed of in an appropriate manner as outlined in the Waste Disposal (Chemical Waste) (General) Regulation. These hazards include:

- Toxic effects to workers;
- Adverse effects on water quality from spills; and
- Fire hazards.

10.3.8. The amount of chemical waste to be generated throughout construction phase cannot be accurately predicted at this stage since it largely depends on the contractor's housekeeping measures. It is expected the quantities of chemical waste will be small and estimated to be less than 100L per month. The amount of chemical waste to be generated would be

quantified in the Waste Management Plan (WMP) as part of the EMP to be prepared by the Contractors. All chemical waste generated during the construction phase will be handled, stored, collected, transported and disposed of regularly by licensed collectors in accordance with the Waste Disposal (Chemical Waste) (General) Regulation, with subsequent disposed at Tsing Yi Chemical Waste Treatment centre or other licensed chemical disposal facilities. Impacts such as potential hazard and spillage will not be anticipated.

General Rufuse

10.3.9. General refuse such as food scraps, waste paper, empty containers, etc. would be generated from the workforce during the construction phase. Number of workers would be working on-site per day will be subject to further design development and contractor's operation procedure/practices. The early estimation of that a maximum of 100 workers would be working on-site per day. Based on the general refuse generation rate of 0.65 kg/worker/day, it is estimated that the quantities of general refuse generated will be 65 kg/day (0.65 kg/worker/day x 100 workers). Therefore, estimated no more than 65 kg general refuse per day would be generated from the construction of the Project.

10.3.10. General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Enclosed and covered areas should be provided for general refuse collection to prevent waste materials being blown around by wind, flushed or leached into nearby waters, or creating an odour nuisance or pest and vermin problem. Also, routine cleaning for these areas should be implemented to keep areas clean, so that intentional or accidental release to the surrounding environment does not occur with proper management.

10.3.11. Types and quantities of waste arise from various construction activities and the corresponding handling arrangement and outlets are identified and summarized in ***Table 10-1***.

Table 10-1 Summary of Quantities of waste Generated during Construction Phase

Type of Waste	Quantity	Handling Arrangement and Outlets	Remarks
Inert C&D Materials	45,500 m^3	- Estimated 20% (9,100m^3) of inert C&D materials will be reused for backfilling on site. - Delivered to the public fill reception facilities (i.e. Tuen Mun Area 38 Fill Bank).	Estimated inert C&D materials: = 50,000 - 4,500 = 45,500 m^3
Non-inert C&D Materials	4,500 m^3	- Recycled and reused as much as practicable - Disposed of at Landfill (i.e. WENT) - Timber waste generated will be	According to Hong Kong Waste Statistics for 2024, 9% of C&D waste was disposed of at landfill.

Type of Waste	Quantity	Handling Arrangement and Outlets	Remarks
		delivered to available recycling facilities for recycling purpose.	Estimated non-inert C&D materials: = total C&D materials x 9% =50,000 x 0.09 = 4,500 m^3
Chemical Waste	Less than 100L per month.	- Handled, stored, collected, transport and disposed of regularly by licensed chemical waste collector - Disposal of at licensed treatment facilities (e.g. Tsing Yi Chemical Waste Treatment Centre (CWTC))	-
General Refuse	65 kg/day	- Recycled as much as practicable - Disposed of at the Landfill (i.e. WENT)	Assumed waste generation rate is 0.65 kg/worker/day

10.4. Potential Impact during Operation phase

Chemical Waste

10.4.1. Chemical waste generated from the daily operation of the Proposed Development is expected. The amount of chemical waste to be generated throughout operation phase cannot be accurately predicted at this stage and it is subjected to the operational needs in later stage. The chemical waste is expected to be generated by the wet-laboratory and the quantity of chemical waste is expected to be minimum, i.e. not more than 5L per month.

10.4.2. All chemical waste arising from the operation of the proposed Project will be regularly removed and transported away by licensed collectors for subsequent disposal of at Tsing Yi Chemical Waste Treatment Centre or other licensed chemical waste disposal facilities. Provided that proper management procedures can be followed according to the Waste Disposal (Chemical Waste) (General) Regulation and the Code of Practice of the Packaging, Labelling and Storage of Chemical Waste, significant impacts would not be anticipated.

General Refuse

10.4.3. The major type of waste generated from the operation phase is general refuse. As advised by project team, number of estimated population for the new development in Application Site is currently unavailable at this stage and will be subject to further design development.

10.4.4. General refuse will be removed on regular basis to minimize odour, pest and litter impacts. To promote the recycling of waste paper, aluminium cans and plastic bottles, the 3-coloured waste separation bins for the collection of recyclable municipal waste will be clearly labelled

and placed at convenient locations. The recyclable materials will then be collected by reliable waste recycling agents on a regular basis. Waste generated will be disposed of at government waste disposal facilities such as WENT Landfill. Hence, adverse waste management implication is not anticipated during the operation phase.

10.5. Mitigation Measures during Construction Phase

General

10.5.1. All C&D materials shall be sorted on-site into inert and non-inert C&D materials, and where the materials can be recycled or reused shall be re-used on site as far as possible. Inert C&D materials shall be delivered to the public fill reception facilities as far as practicable. Any remaining non-inert C&D materials shall be delivered to sorting facilities and landfills. In order to facilitate process of transferring the C&D waste to Government waste disposal facilities (e.g. public fill reception facilities, sorting facilities and landfills), waste sorting and segregation shall be carried out on site in accordance with the following categories:

- Hard rock and large broken concrete suitable for reuse on the Site or recycling;
- Metals (i.e. aluminium can, steel metal, ferrous metal, and non-ferrous metal);
- Plastic (i.e. plastic bag, plastic bottle, plastic packaging, etc.)
- Paper;
- Chemical waste;
- Materials suitable for disposal at public fill reception facilities, sorting facilities and landfills

10.5.2. In addition, the Contractor is required to implement good EMP and practices on handling and disposal of waste, including but not limited to:

- Handle, store and dispose of all wastes in accordance with the Waste Disposal Ordinance;
- Handle, store and dispose of chemical waste in accordance with the EPD recommended Codes of Practice on the Packaging, Labelling & Storage of Chemical Wastes and Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance;
- Store general refuse in enclosed bins or compaction units separate from C&D materials and chemical wastes. A reputable waste collector should be employed to collect and dispose of general refuse from the site on a daily or every second day basis;
- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;
- Waste storage areas within the project site should be well maintained and cleaned regularly to prevent cross-contamination;
- Cover trucks with tarpaulin and transporting waste in enclosed containers to minimize windblown litter and dust during transportation;
- Maintain temporary stockpiles and ensure with well cover to prevent inclement weather

(e.g. heavy rain).

10.5.3. To clearly spell out the types and amount of waste generated and its associated mitigation measures, a WMP, as part of EMP should be prepared in accordance with PNAP No.243 ADV-19 and submitted to the Project / Site Engineer for approval. The recommended mitigation measures should form the basis of the WMP.

C&D Materials

10.5.4. Waste management planning is needed prior to the commencement of construction works. Construction waste management strategy is to avoid, minimize, reuse, re-cycle and finally dispose of waste with the desirability descending in this order. Contractor(s) will be required to implement effective waste management measures to ensure their practices are in line with the strategies. In order to minimize the generation of wood waste, steel is recommended to be used for formworks. Apart from optimizing the construction programme, alternative designs and construction methods have been duly considered. Use of BIM and MiC will be considered, subject to detailed design.

10.5.5. It is presently anticipated that most of the C&D materials/waste will need to be transported off-site for re-use, recycling and disposal by trucks. With the implementation of the recommended dust and noise control / mitigation measures presented in the air quality and noise sections, such as covering and stockpiling materials to avoid dust and other nuisance impacts from truck movements, these secondary environmental factors are not expected to be a concern.

10.5.6. C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public fill reception facilities or reclamation site. The following mitigation measures should be implemented in handling the excavated and C&D materials:

- Maintain temporary stockpiles and ensure with well cover to prevent inclement weather;
- Reuse excavated fill material for backfilling;
- Carry out on-site sorting; and
- According to the DEVB TC(W) No. 6/2010, implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials/waste is properly documented and verified.

10.5.7. Where waste generation is unavoidable, the potential for recycling or reuse shall be considered. If waste cannot be recycled, disposal routes described in the EMP shall be followed. The amount of waste generated, recycled, and disposed shall be recorded. Trip-ticket system shall also be implemented in accordance with Development Bureau TC(W) No. 6/2010 to monitor the disposal of C&D material and control fly-tipping. The delivery site of inert C&D materials shall be subjected to designation by the PFC in accordance with DEVB

TC(W) No. 6/2010, while the disposal of non-inert C&D materials at designated landfill facilities shall be subject to the agreement and approval of the EPD.

Chemical Waste

10.5.8. If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. Chemical waste should be collected by a licensed chemical waste collector and to be disposed of at a licensed chemical waste treatment and disposal facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

10.5.9. Mitigation measures will also include the provision of protective gloves and clothing to site workers, use of bulk earth movers to remove contaminated materials to prevent any possible human contact, provision of adequate washing facilities and the use of licensed chemical waste collectors to ensure legal disposal of waste, etc.

General Refuse

10.5.10. Recycling bins should also be placed to encourage recycling. Enclosed and covered areas should be provided for general refuse collection to prevent waste materials from being blown around by the wind, flushed or leached into nearby waters, or creating an odour nuisance or pest and vermin problem. Also, routine cleaning for these areas should be implemented to keep areas clean, so that intentional or accidental release into the surrounding environment does not occur without proper management.

10.5.11. Particularly, food waste is the main source of generating unpleasant odour and causing environmental hygiene concerns. The Project Team will explore the feasibility for providing separate recycling bins for food waste to facilitate the recycling of food waste on-site or off-site in a hygienic manner in detailed design stage.

10.5.12. With the implementation of good waste management practices, and the abovementioned mitigation measures at the Project Site, adverse environmental impacts are not expected to arise from the storage, handling and transportation of C&D materials, chemical waste and general refuse generated during construction phase.

10.6. Mitigation Measures during Operation Phase

10.6.1. The major type of waste generated from the operation phase is general refuse and chemical waste. As advised by project team, number of estimated population for the new development in Application Site is currently unavailable at this stage and will be subject to further design development.

10.6.2. General refuse will be removed on regular basis to minimize odour, pest and litter impacts. To promote the recycling of waste paper, aluminium cans and plastic bottles, the 3-coloured waste separation bins for the collection of recyclable municipal waste will be clearly labelled and placed at convenient locations. The recyclable materials will then be collected by reliable waste recycling agents on a regular basis. Waste generated will be disposed of at government waste disposal facilities such as WENT Landfill. Hence, adverse waste management implication is not anticipated during the operation phase.

10.6.3. Chemical waste will be handled in accordance with the "Code of Practice on the Packaging, Handling and Storage of Chemical Wastes". Chemical waste producers should be registered by the operators of the lab with EPD. Good quality containers compatible with the chemical wastes should be used and maintained in good conditions and securely closed with incompatible chemicals be stored separately. Appropriate labels should be securely attached on each chemical waste container. A licensed collector to transport and dispose of the chemical wastes should be employed by the Contractor, to either the Chemical Waste Treatment Centre at Tsing Yi or any other licensed facilities.

10.7. Conclusion

10.7.1. During the construction phase, the major waste types generated by the construction activities for this project will include C&D materials from the excavation and foundation works, substructure and superstructures work; chemical waste from maintenance and servicing of construction site and equipment; general refuse from the workforce. Provided that all these identified wastes are reused and recycled if appropriate, handled, transported and disposed of in strict accordance with the relevant legislative and recommended requirements and that the recommended good site practices and mitigation measures are properly implemented, no adverse environmental impact is expected during the construction phase.

10.7.2. During the operation phase, the key waste types generated will be general refuse. Provided that all these wastes are reused and recycled if appropriate, handled, transported and disposed of in strict accordance with the relevant legislative requirements and the recommended mitigation measures are properly implemented, no adverse environmental impact is expected during the operation phase.

11. Conclusion

11.1.1. Air quality impact (including emissions from vehicles, chimney, construction and demolition activities), road traffic noise, rail noise, fixed plant noise, land contamination and waste management are evaluated in this Environmental Assessment Report for the Application Site.

11.1.2. No active chimneys and SP License records were identified within 200m from the Proposed Development based on the site survey conducted. In addition, no odour emission sources were found in based on the site survey results. Wet Laboratory is provided in the Proposed New Science Building located within the Application Site. Chemical fume hood with an exhaust vent will be installed in the laboratories and the volatile chemicals will be emit and discharged by the chemical fume hood with filter. With the design consideration and control measures implemented, no adverse air quality impacts are expected from the Proposed New Science Building. Adequate buffer separation distance shall be maintained between air-sensitive uses and the open roads to meet the requirement as stipulated in HKPSG. Fugitive dust due to construction works and emission from construction equipment would not expect to cause significant air quality impacts to the nearby air sensitive receivers, with the implementation of dust suppression measures and good site practice as stipulated under Air Pollution Control (Construction Dust) Regulation and Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation. Hence, no adverse air quality impact is anticipated.

11.1.3. The potential environmental noise impacts from nearby road traffic, rail noise and fixed noise sources on the Proposed Development have been evaluated. Given that the proposed new developments will rely on air conditioning system ventilation and with the implementation of the proposed mitigation measures for fixed plant noise, it is unlikely that any insurmountable noise impacts will occur during the construction and operation phases of the Proposed Development.

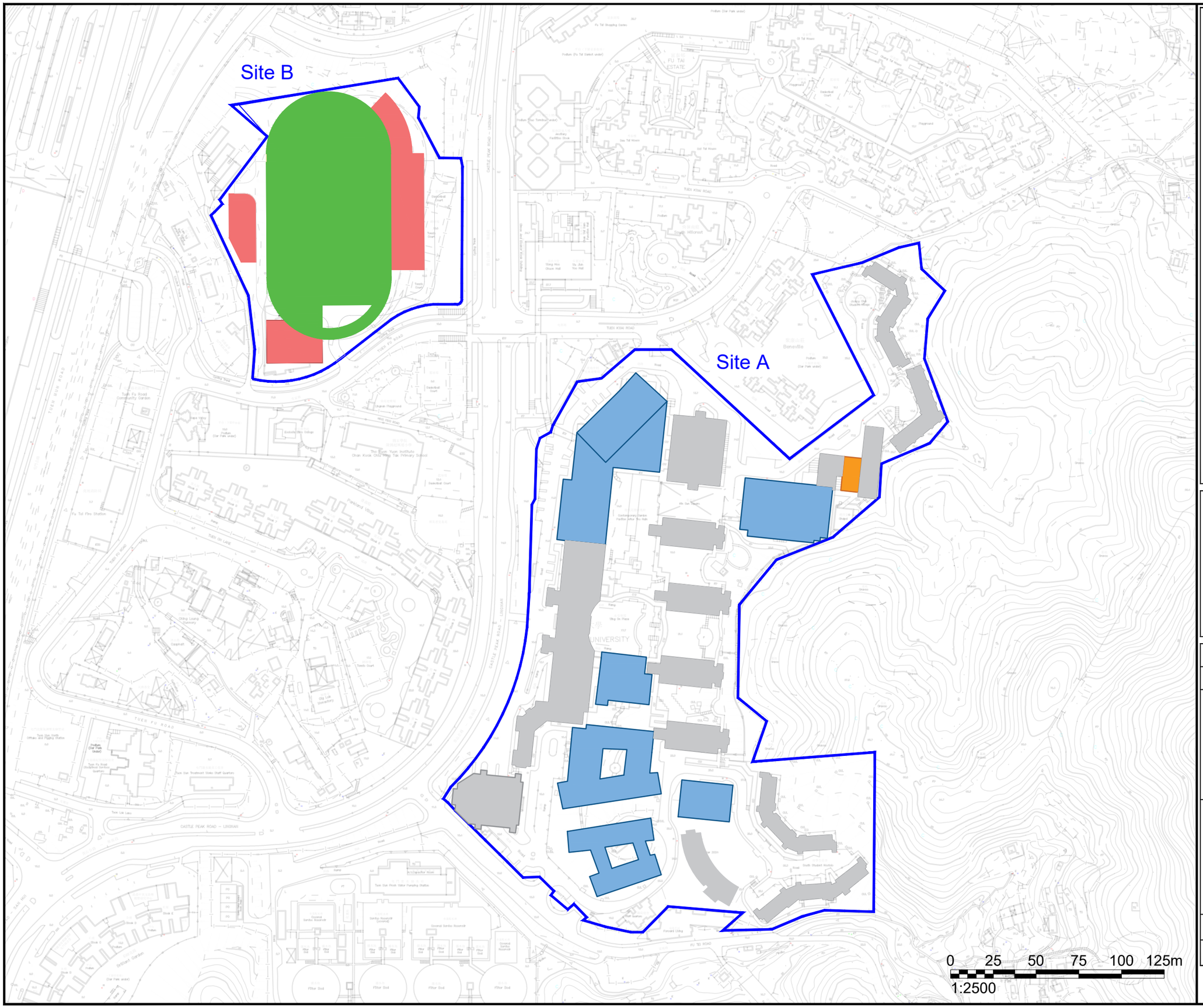
11.1.4. For water quality impact during construction phase, it is expected to be minimal when appropriate guidelines and mitigation measures stated in ETWB TC (Works) No. 5/2005 and good site practice outlined in ProPECC PN 2/24 are implemented to properly discharge site run-offs. For operation phase, efficient drainage management system shall be implemented to ensure runoff from building rooftops and paved areas are adequately managed. The generated sewerage from proposed development will be collected by proposed terminal manhole and conveyed towards Lingnan University's internal sewerage system, then discharges to public manhole for convetance to appropriate treatment facility.

11.1.5. The Application Site is currently used as an educational institution. Based on the information gathered, no chemical manufacturing or dangerous goods storage was expected on the site, and the past and current uses are not considered potential hotspots. According to reply from

EPD, there are no records of chemical storage/spillage accidents, or submissions relating to land contamination at the Application Site. Thus, no contamination activities are anticipated for the past and current use and no potential sources and signs of contamination have been discovered. No land contamination impact is anticipated.

11.1.6. For waste management, top priority should be given to waste avoidance, followed by minimization, reuse/recycling, treatment and disposal of waste as a last resort during construction and operation phases. C&D material, general refuse and chemical waste are expected to be generated from the construction phase, while general refuse and chemical waste will be the major waste generated from operation phase. Provided that all these wastes are reused and recycled if appropriate, handled, stored and disposed of in strict accordance with the relevant legislative requirements and the recommended mitigation measures are properly implemented, no adverse waste impact is anticipated.

Figures



NOTES :

- PROJECT SITE
- EXISTING BUILDING
- PROPOSED NEW RESEARCH/ACADEMIC BUILDING
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT

Consultant

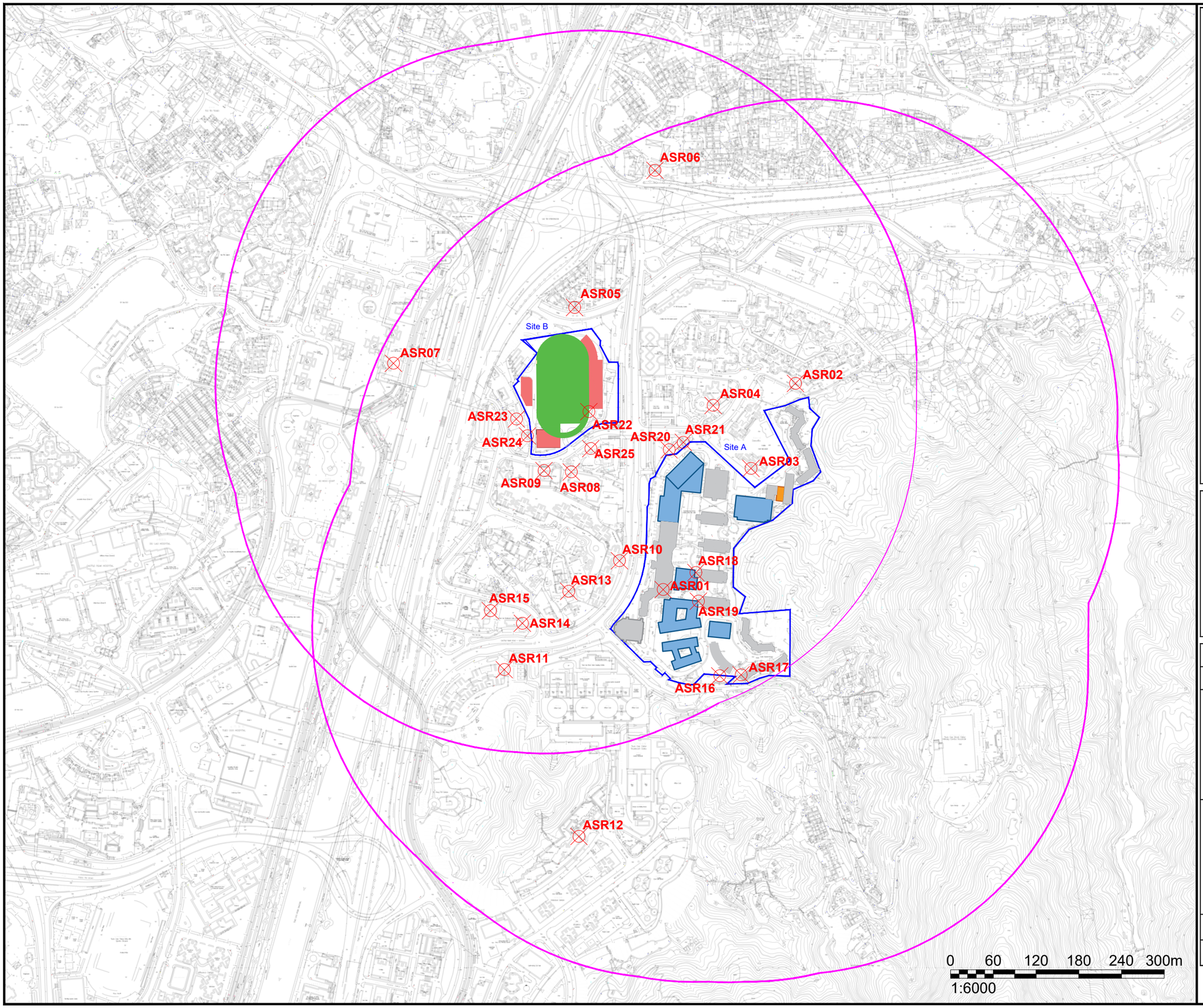
Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	CS
Project :	SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN
Drawing Title :	PROJECT SITE LOCATION
Drawing No : FIGURE 3.1	Revision : 2
Scale : AS SHOWN	Date : APR 2026

DO NOT SCALE OFF DRAWING. THIS DRAWING IS NOT FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY STATED. ALL RIGHTS RESERVED AND REPRODUCTION IN ANY FORM MUST BE APPROVED BY ALLIED ENVIRONMENTAL CONSULTANTS LIMITED.

A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\ISSUE 4\EA\EA\2292 LINGNAN U SECTION 5 EA FIG.DWG



NOTES :

PROJECT SITE

EXISTING BUILDING

PROPOSED NEW RESEARCH/ACADEMIC BUILDING

PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES

PLANNED DEVELOPMENT

500M ASSESSMENT AREA

REPRESENTATIVE AIR SENSITIVE RECEIVERS

Consultant

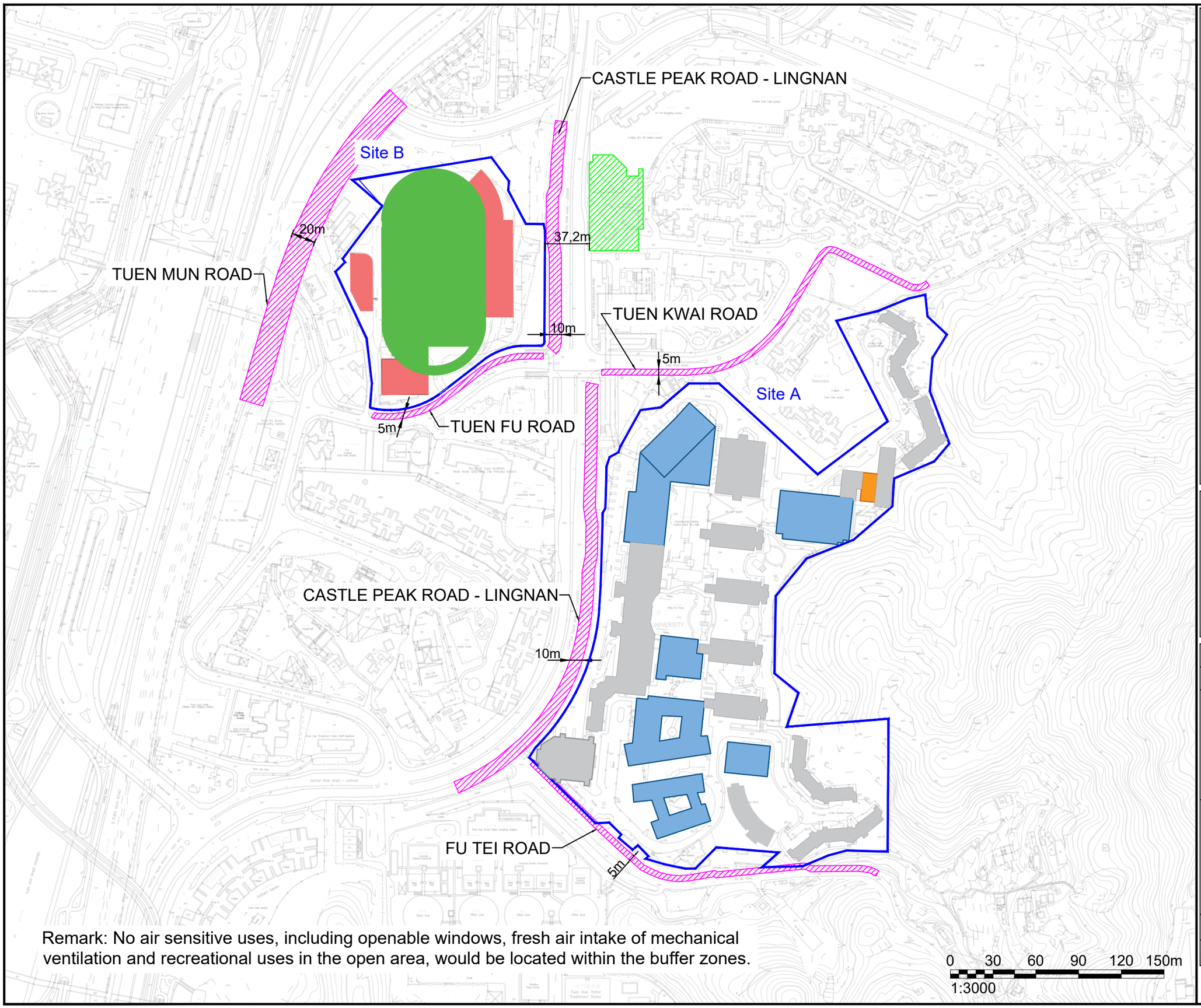
Allied Environmental Consultants Limited

Project No. : 2292	
Drawing By : VA	
Project : SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN	
Drawing Title : 500M ASSESSMENT AREA AND REPRESENTATIVE AIR SENSITIVE RECEIVERS	
Drawing No : FIGURE 6.1	Revision : 2
Scale : AS SHOWN	Date : APR 2026

DO NOT SCALE OFF DRAWING. THIS DRAWING IS NOT FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY STATED. ALL RIGHTS RESERVED AND REPRODUCTION IN ANY FORM MUST BE APPROVED BY ALLIED ENVIRONMENTAL CONSULTANTS LIMITED.

A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\ISSUE 4\EA\EA\2292 LINGNAN U SECTION 5 EA FIG.DWG



Remark: No air sensitive uses, including openable windows, fresh air intake of mechanical ventilation and recreational uses in the open area, would be located within the buffer zones.

0 30 60 90 120 150m

1:3000

NOTES :

- PROJECT SITE
- EXISTING BUILDING
- PROPOSED NEW RESEARCH/ACADEMIC BUILDING
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT
- BUFFER DISTANCE OF ADJACENT ROADS
- FU TAI ESTATE BUS TERMINUS

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	VA

Project :
SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :
BUFFER DISTANCE FROM NEARBY ROADS AND POLLUTION SOURCE

Drawing No : FIGURE 6.2	Revision : 0
Scale : AS SHOWN	Date : APR 2026

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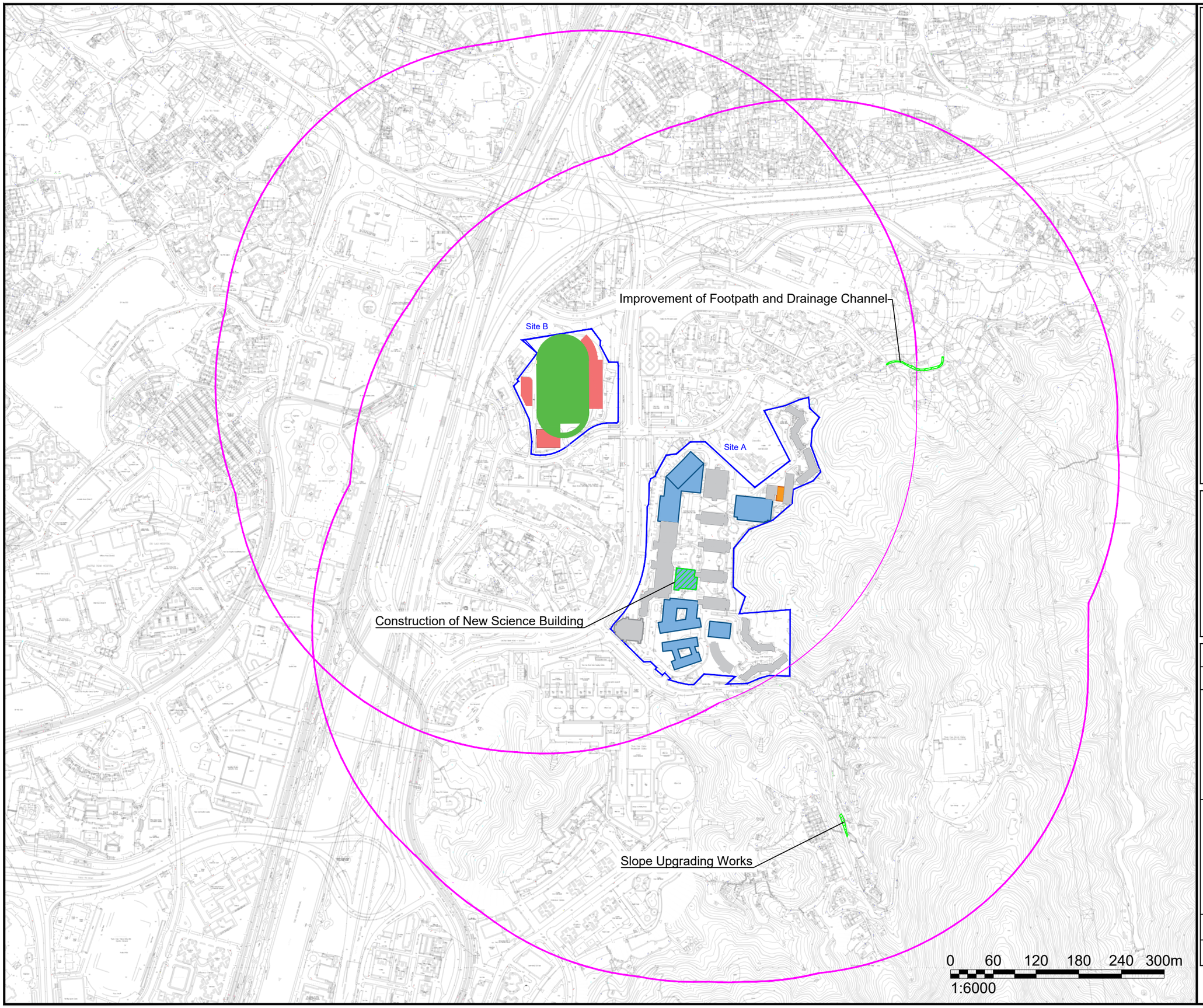
A3 420 x 297



NOTES :

- PROJECT SITE
- EXISTING BUILDING
- PROPOSED NEW RESEARCH/ACADEMIC BUILDING
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT
- 500M ASSESSMENT AREA
- CONCURRENT PROJECT

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	CS

Project :

SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :

500M ASSESSMENT AREA AND LOCATION OF CONCURRENT PROJECT

Drawing No : FIGURE 6.3	Revision : 0
Scale : AS SHOWN	Date : SEP 2025

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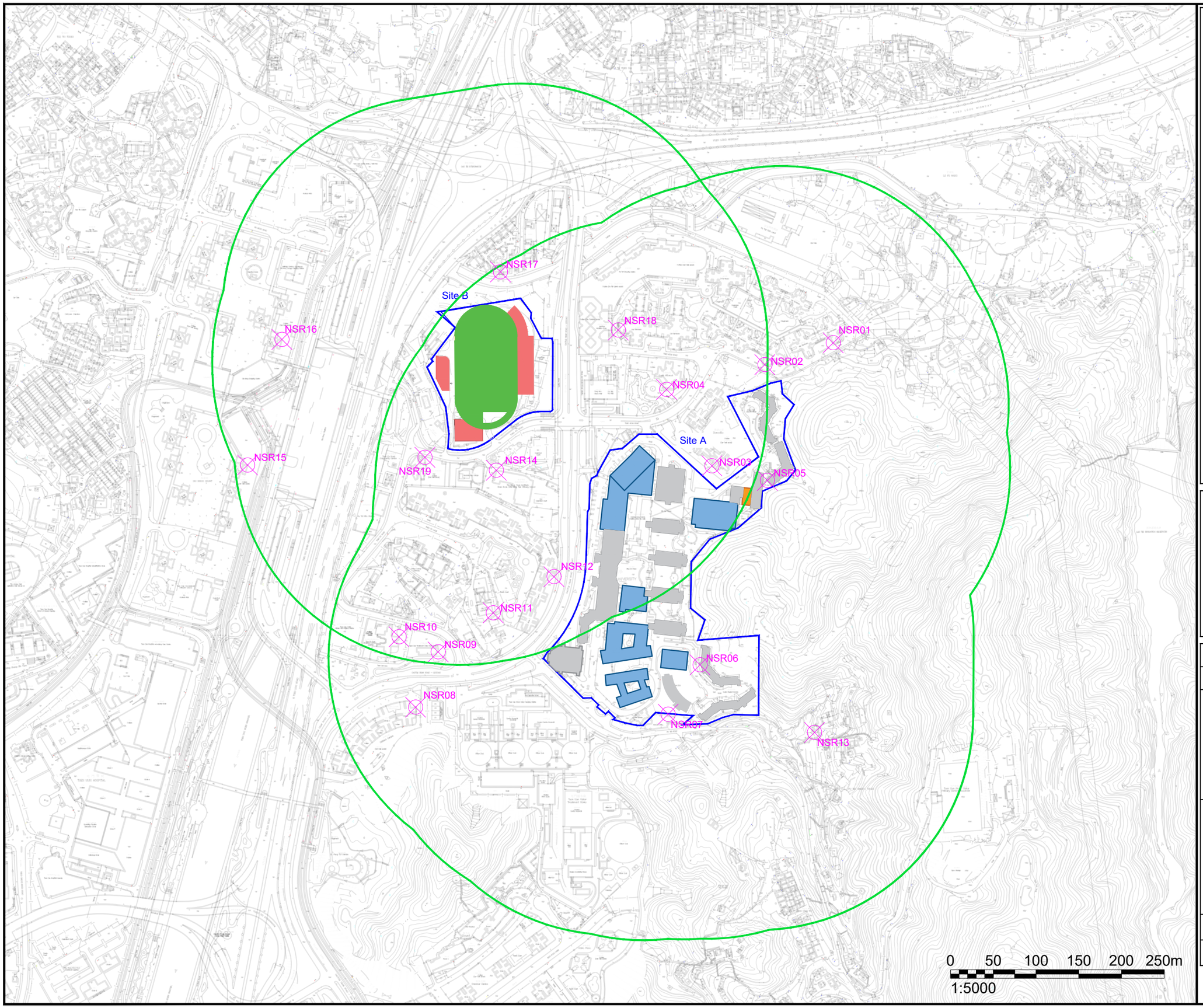
A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\ISSUE 4\EA\EA\2292 LINGNAN U SECTION 5 EA FIG.DWG



NOTES :

- PROJECT SITE
- EXISTING BUILDING
- PROPOSED NEW RESEARCH/ACADEMIC BUILDING
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT
- 300M ASSESSMENT AREA
- REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	VA

Project :

SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :

REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Drawing No :	Revision :
FIGURE 7.1	1
Scale : AS SHOWN	Date : DEC 2025

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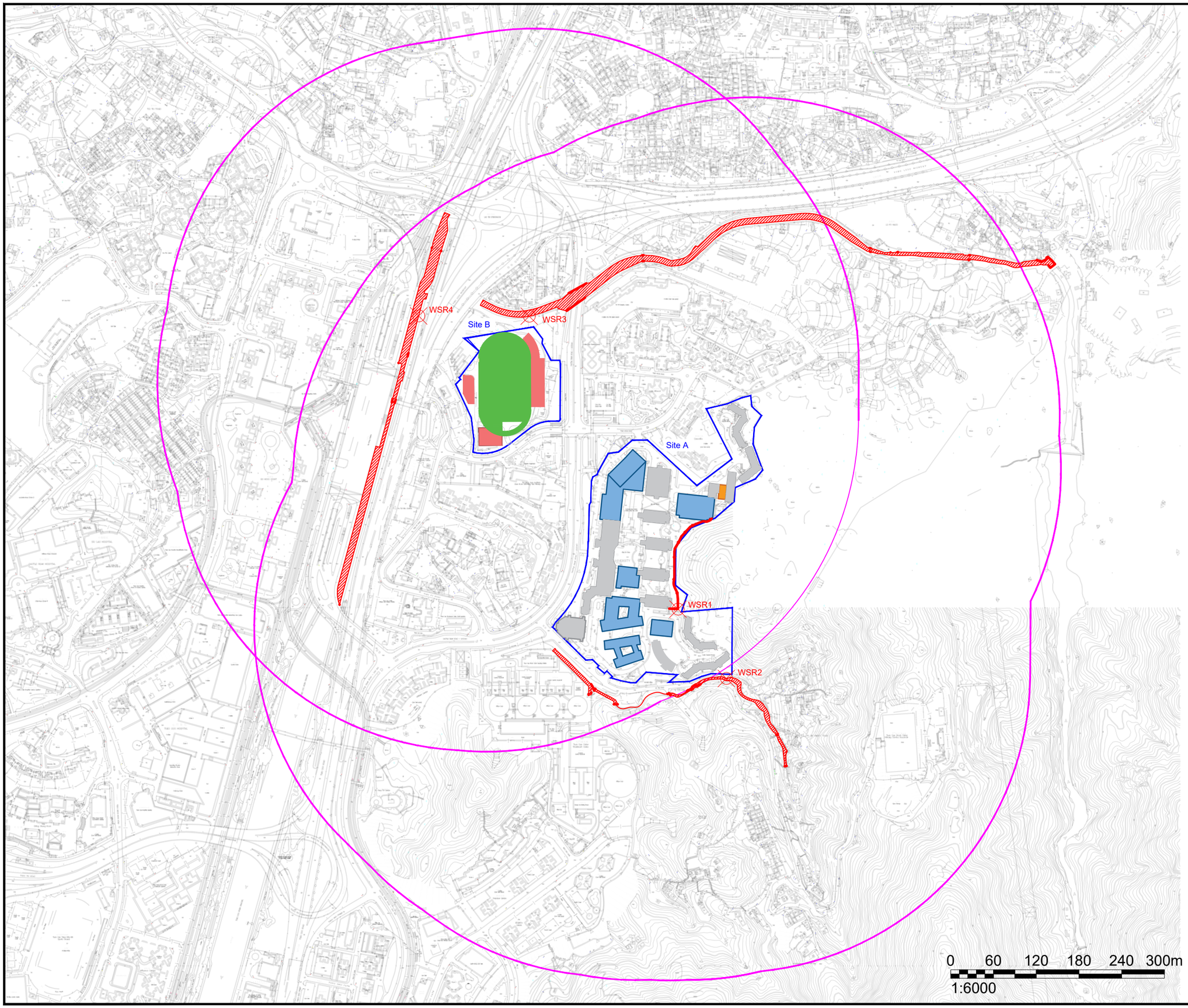
A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\ISSUE 4\EA\EA\2292 LINGNAN U SECTION 5 EA FIG.DWG



NOTES :

PROJECT SITE

EXISTING BUILDING

PROPOSED NEW RESEARCH/ACADEMIC BUILDING

PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES

PLANNED DEVELOPMENT

500M ASSESSMENT AREA

REPRESENTATIVE WATER SENSITIVE RECEIVERS

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	CS

Project :

SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :

500M ASSESSMENT AREA AND REPRESENTATIVE WATER SENSITIVE RECEIVERS

Drawing No :	Revision :
FIGURE 8.1	0
Scale : AS SHOWN	Date : SEP 2025

DO NOT SCALE OFF DRAWING. THIS DRAWING IS NOT FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY STATED. ALL RIGHTS RESERVED AND REPRODUCTION IN ANY FORM MUST BE APPROVED BY ALLIED ENVIRONMENTAL CONSULTANTS LIMITED.

A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\ISSUE 4\EA\EA\2292 LINGNAN U SECTION 5 EA FIG.DWG

Appendix 3.1

Master Layout Plan of the Proposed Development
(Refer to Technical feasibility Study)

Appendix 6.1

Confirmation from TD regarding the Road Type

From:	Tik Wai WONG
To:	lillian.sylin@ozzotec.com
Cc:	dickson.cnpoon@ozzotec.com
Subject:	Re: [Pre-submission for TMOZP Amendment under s.5 of TPO] Review of Building Height Restriction for Lingnan University - Technical Feasibility Study
Date:	Thursday, 18 September, 2025 2:40:56 PM
Attachments:	未命名的附件 00025.png 未命名的附件 00028.png 未命名的附件 00031.png 未命名的附件 00034.png 未命名的附件 00037.jfif

---

Dear Lily,

I have no comment to the proposed road type of Tuen Fu Road and Tuen Kwai Road as local distributor.

Thanks and regards,
Dicky Wong
E/TMC, TE(NTW), TD
Tel: 2399 2225

From: <lillian.sylin@ozzotec.com>
To: "'Tik Wai WONG'" <tikwaiwong@td.gov.hk>
Cc: <dickson.cnpoon@ozzotec.com>
Date: 10/09/25 18:11
Subject: [Pre-submission for TMOZP Amendment under s.5 of TPO] Review of Building Height Restriction for Lingnan University - Technical Feasibility Study

---

Dear Mr. Wong,

We are the traffic sub-consultant commissioned by the Lingnan University for the captioned planning application. As requested by EPD anyway, we would like to seek your confirmation on the road type of Tuen Fu Road and Tuen Kwai Road.

Justification of road types for the concerned road links are provided as the followings for your consideration:

Tuen Fu Road: According to TPDM Volume 2 Chapter 3.2, Local Distributors are defined as “Roads within Districts linking developments to the District Distributor Roads”. Tuen Fu Road is a single-2 carriageway (two-way) linking a bunch of developments like “Napa Valley”, “Fu Tei Fire station” to the District Distributor Road (i.e. Castle Peak Road - Lingnan). Therefore, it is proposed that Tuen Fu Road is a local distributor.

Tuen Kwai Road: Similarly, Tuen Kwai Road is a single-2 carriageway (two-way) linking a bunch of developments like “South Hillcrest”, “Fu Tai Estate” to the District Distributor Road (i.e. Castle Peak Road - Lingnan). Therefore, it is also proposed that Tuen Kwai Road is a local distributor.

It would be grateful if you can advise.
Should there be any enquiries, please feel free to contact us.
Thank you.

Best Regards,
Lily LIN
OZZO Technology (HK) Ltd.

15/F, Heng Shan Centre, 145 Queen's Road East, Wan Chai, Hong Kong
T: (852) 3590 4467 / T: (852) 3488 5449 / F: (852) 3020 0370
www.ozzotec.com

From:	Tik Wai WONG
To:	lillian.sylin@ozzotec.com
Cc:	dickson.cnpoon@ozzotec.com; Wai Ka LAW
Subject:	Re: 轉寄: S.16 Pre-submission Enquiry for Proposed Minor Relaxation of Building Height Restriction for the Permitted Educational Institution (New Science Building) at Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun
Date:	Friday, 17 January, 2025 8:17:21 PM
Attachments:	未命名的附件 00023.png 未命名的附件 00026.png 未命名的附件 00029.png 未命名的附件 00032.jfif 未命名的附件 00035.png 未命名的附件 00038.png 未命名的附件 00041.png 未命名的附件 00044.png 未命名的附件 00047.jfif

---

Dear Lily,

I have no objection to the proposed road type of Fu Tei Road as Local Distributor.

Thanks and regards,
Dicky Wong
E/TMC, TE(NTW), TD
Tel: 2399 2225

From: <lillian.sylin@ozzotec.com>
To: <tikwaiwong@td.gov.hk>
Cc: <dickson.cnpoon@ozzotec.com>
Date: 10/01/25 15:55
Subject: 轉寄: S.16 Pre-submission Enquiry for Proposed Minor Relaxation of Building Height Restriction for the Permitted Educational Institution (New Science Building) at Lingnan University, No. 8 Castle Peak Road – Lingnan, Tuen Mun

---

Dear Mr. Wong,

As per our discussion over phone, grateful if you may help us confirm the road type of Fu Tei Road.

Many thanks!

Best Regards,
Lily LIN

T: (852) 3590 4467 / T: (852) 3488 5449 / F: (852) 3020 0370

寄件者: lillian.sylin@ozzotec.com <lillian.sylin@ozzotec.com>
寄件日期: 2024年10月28日 17:47
收件者: 'tikwaiwong@td.gov.hk' <tikwaiwong@td.gov.hk>
副本: 'dickson.cnpoon@ozzotec.com' <dickson.cnpoon@ozzotec.com>
主旨: S.16 Pre-submission Enquiry for Proposed Minor Relaxation of Building Height Restriction for the Permitted Educational Institution (New Science Building) at Lingnan

University, No. 8 Castle Peak Road – Lingnan, Tuen Mun

Dear Mr. Wong,

We are the traffic sub-consultant commissioned by the Lingnan University for the captioned planning application. We would like to seek your advice on the road type of Fu Tei Road.

Considering Fu Tei Road is a single-2 carriageway serving local traffic only (and with 2-way peak hour traffic < 100pcu/hr), it is proposed that Fu Tei Road is a local distributor. As requested by EPD anyway, we would like to seek your confirmation in Fu Tei Road should be classified as Local Distributor. If not, it would be grateful if you can advise on the road type of Fu Tei Road.

Should there be any enquiries, please feel free to contact us.
Thank you.

Best Regards,
Lily LIN
OZZO Technology (HK) Ltd.

15/F, Heng Shan Centre, 145 Queen's Road East, Wan Chai, Hong Kong
T: (852) 3590 4467 / T: (852) 3488 5449 / F: (852) 3020 0370
www.ozzotec.com

Appendix 6.2

Reply from EPD regarding odour complaint

From:	HY CHEUNG/EPD
To:	NGAN Chun Sang
Cc:	Cathy Man; HY CHEUNG/EPD; HW WONG/EPD
Subject:	Fw: [2292] [Pre-submission for TMOZP Amendment under s.5 of TPO] Lingnan University Environmental Assessment - Odour Emission Complaint Record
Date:	Friday, 10 April, 2026 11:13:46 AM
Attachments:	image005.png image006.png image007.png image008.png image009.png image010.png

---

Allied Environmental Consultants Limited
Mr. NGAN,

As per your enquiry dated 9 April 2026, please be informed that no air/ odour complaint records related to Tuen Mun Water Treatment Works have been received in the past five years.

Thanks and Regards,
CHEUNG Hiu-yan, Yan
E(RW)14/ EPD
Tel: 2417 6139

From: NGAN Chun Sang <nganchunsang@aecasia.io>
Sent: Thursday, April 9, 2026 4:51 PM
To: HY CHEUNG/EPD <hycheung@epd.gov.hk>
Cc: Cathy Man <cm@aechk.com>
Subject: [2292] [Pre-submission for TMOZP Amendment under s.5 of TPO] Lingnan University Environmental Assessment - Odour Emission Complaint Record

Dear Madam CHEUNG,

We are conducting an Environmental Assessment (EA) for the proposed Lingnan University at No. 8 Castle Peak Rd- Lingnan, Tuen Mun under Section 5 Planning Application. As per comment from EPD regarding air quality impact, the air/odour complaint records related to the Tuen Mun Water Treatment Works in the past 5 years are required to complete the assessment as stated below.

Comments from Environmental Protection Department (received on 8 January 2026) (Contact Person: Ms. Cindy TSANG, Tel: 2835 1107)	
1. Air	
1.1. **Section 6.6.3** - Please check if there are any air/odour complaint records related to the Tuen Mun Water Treatment Works in the past five years.	

1.4. **Section 6.6.3 & RtoC#1.11 -** Please follow up and supplement Section 6.6.3 with information on any complaint records to substantiate the claim that no odour impacts are anticipated from the Tuen Mun Water Treatment Works.	

In support of the assessment, we would be grateful if you could provide information on any recorded odour complaints associated with the Tuen Mun Water Treatment Works for the past five (5) years.
The Project Site location is attached for your ease reference.
Thank you very much for your kind attention and assistance.

Should you have any queries, please feel free to contact me at 5290 3688.

Regards,

NGAN Chun Sang – Consultant
Environmental Consultancy | Green & Healthy Building
T: (852) 5290 3688 | **E:** nganchunsang@aecasia.io

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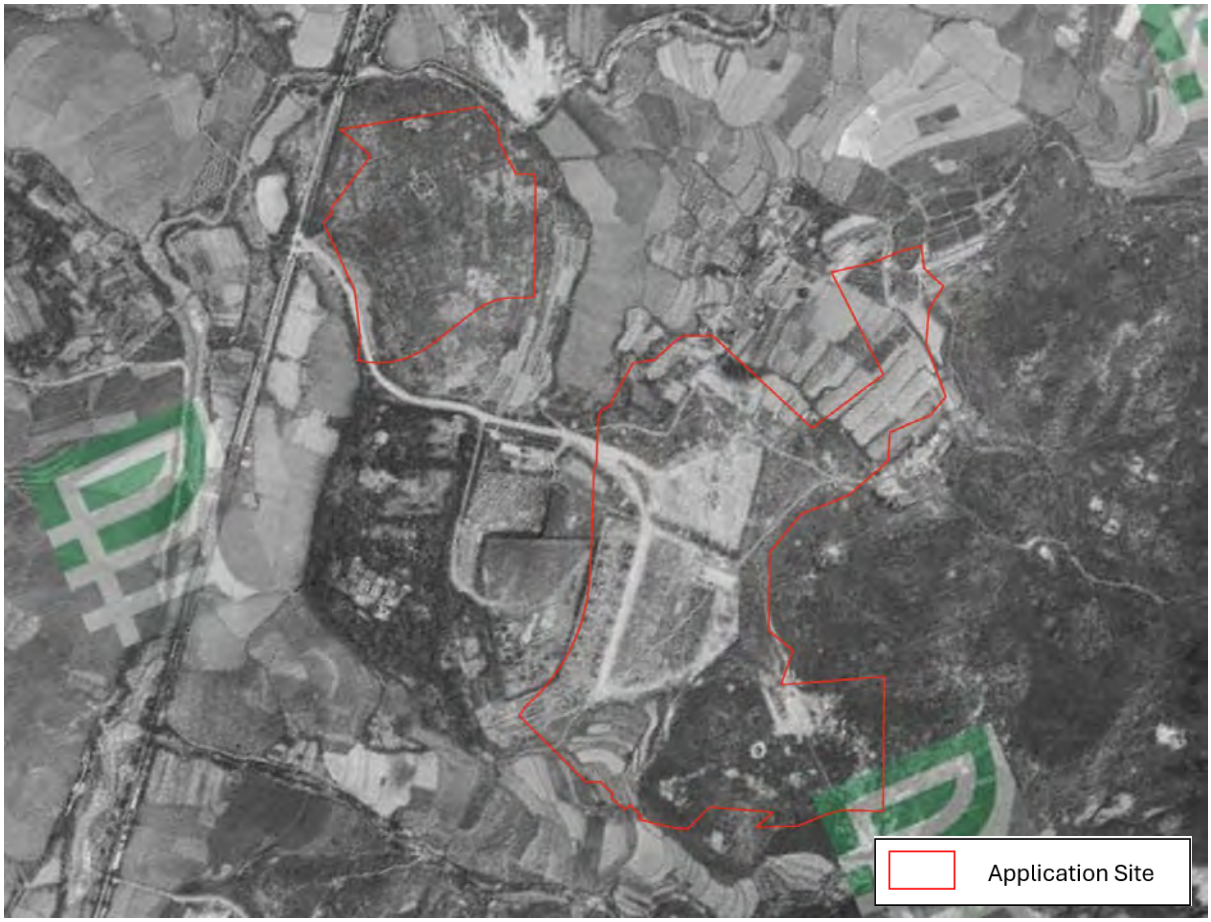
27/F, Overseas Trust Bank Building, 160 Gloucester Road, Wan Chai, Hong Kong
Follow us www.asecg.com

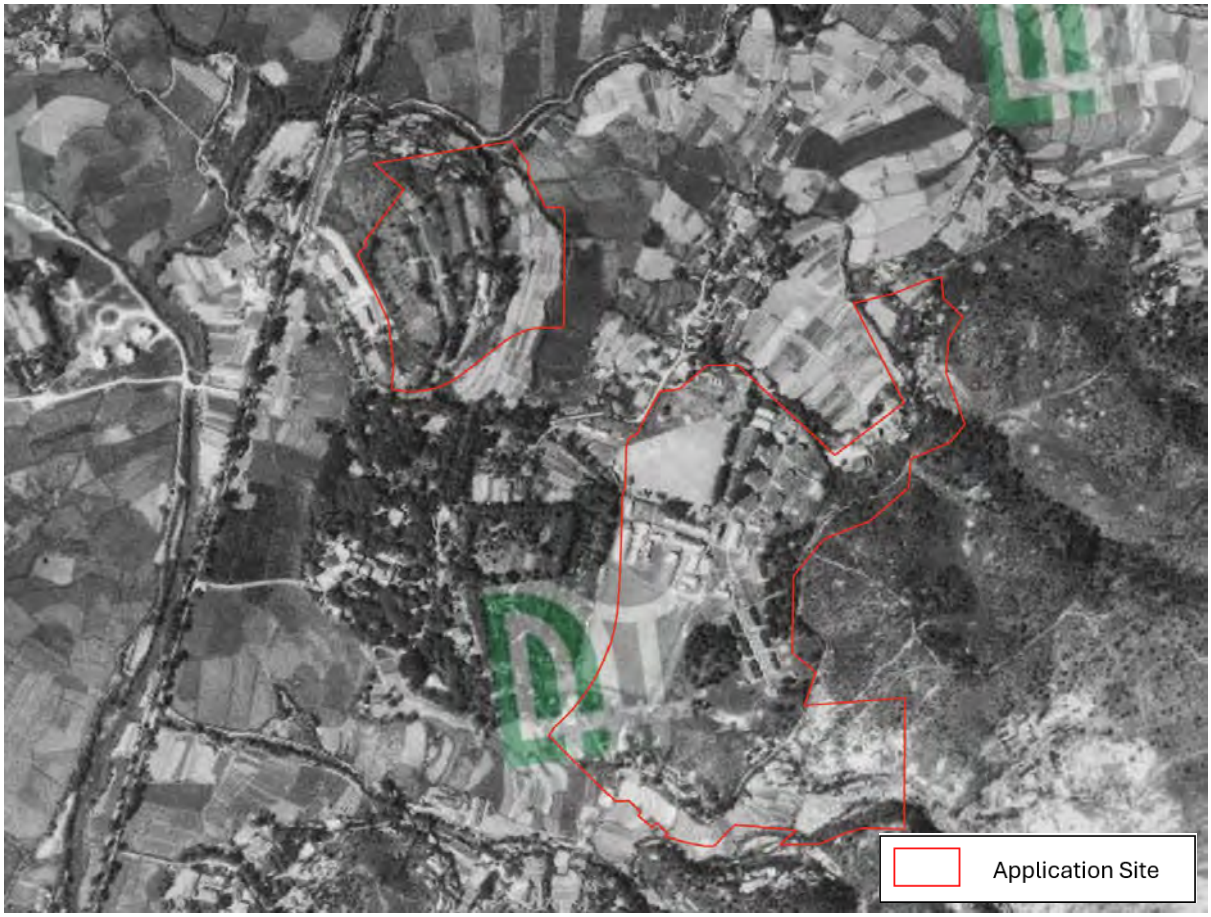
Appendix 9.1

Historical Aerial Photographs

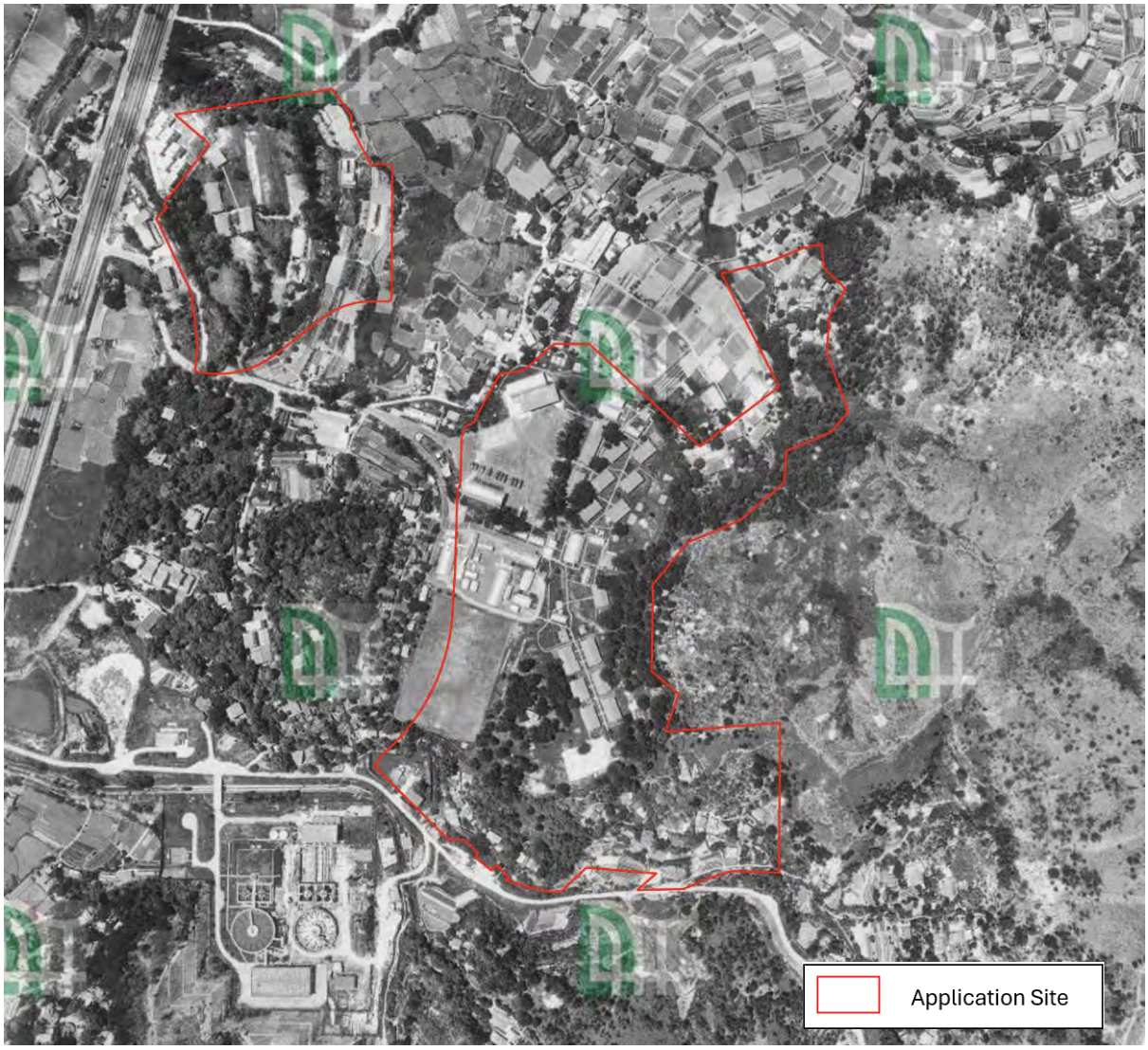


Year: 1949

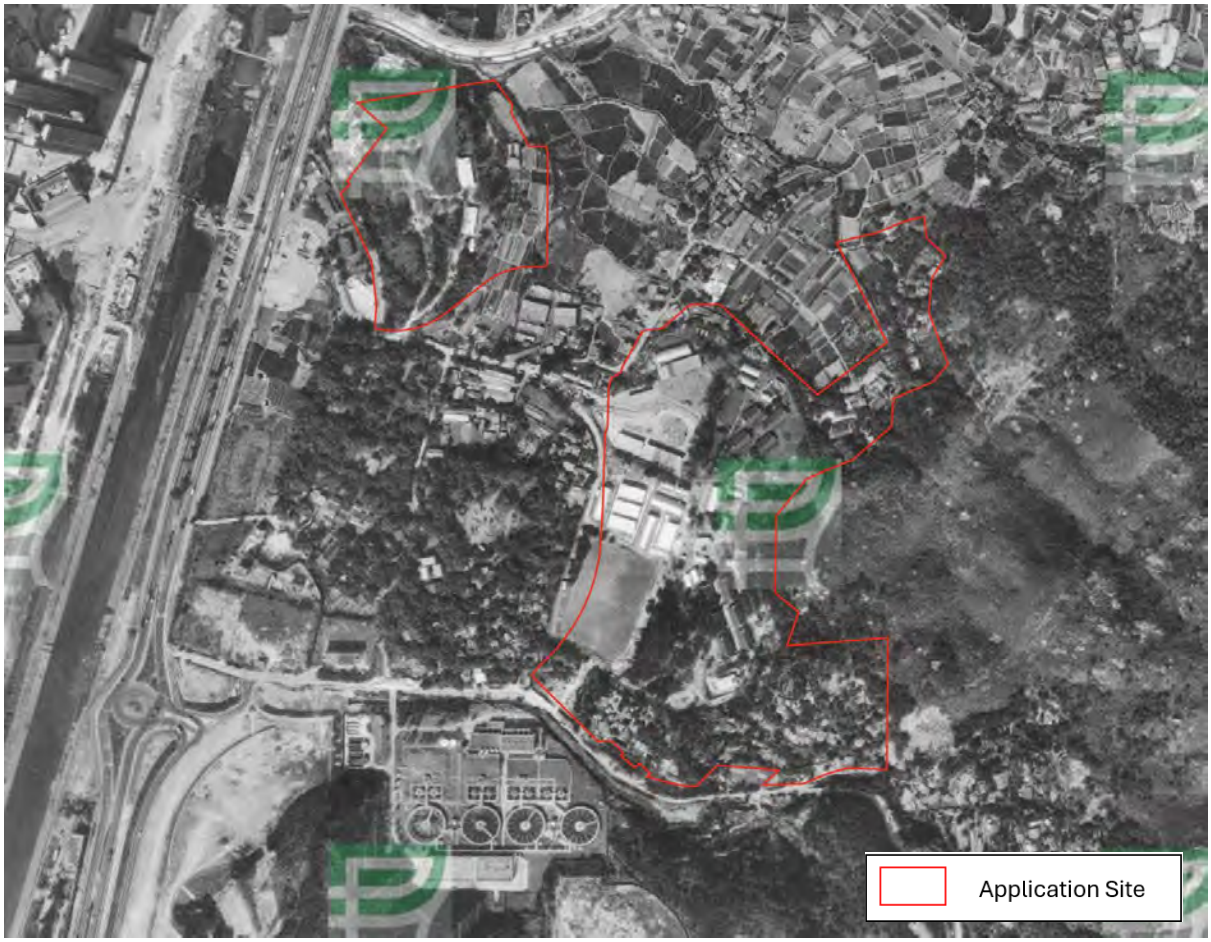
Year: 1956



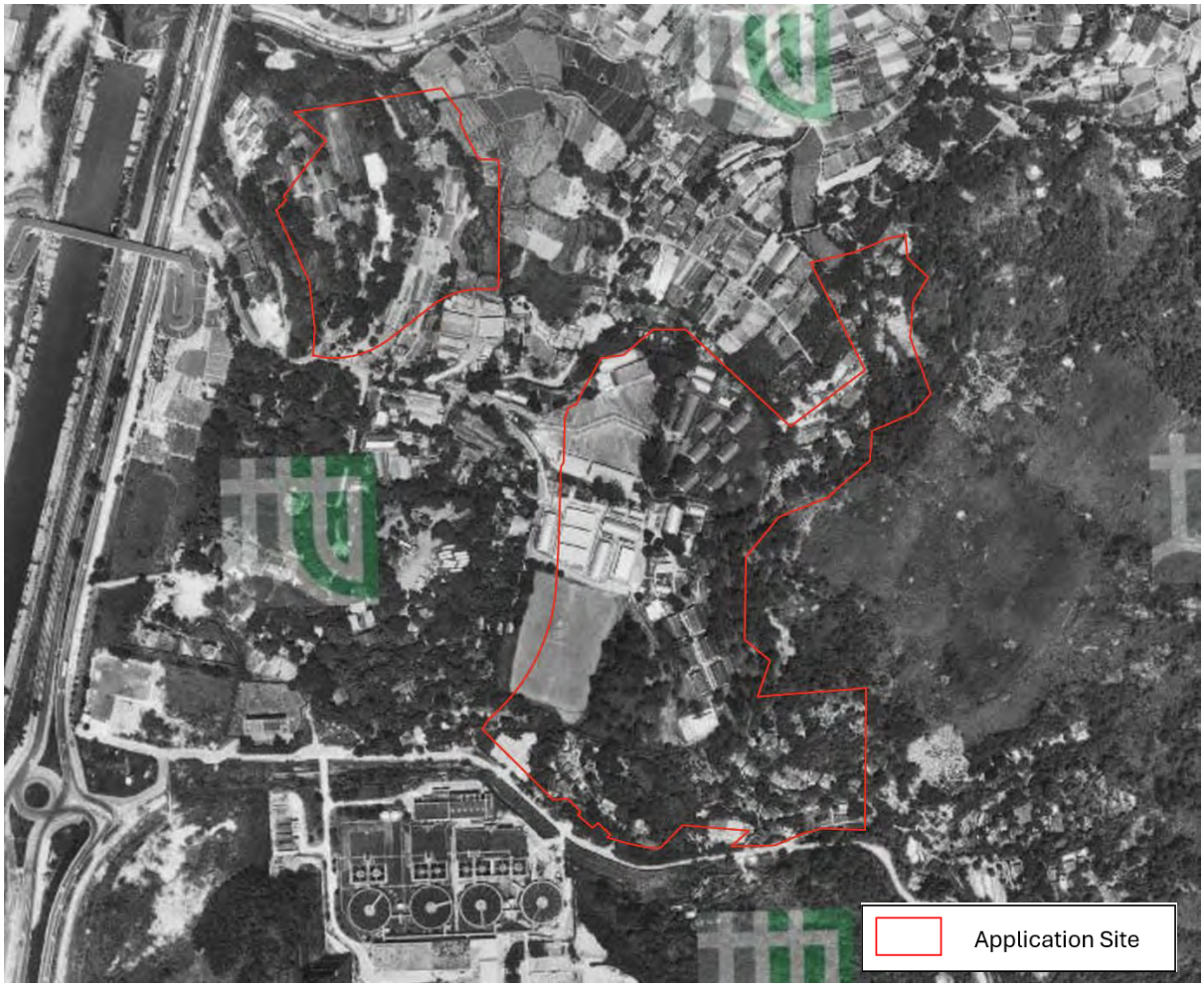
Year: 1961



Year: 1977

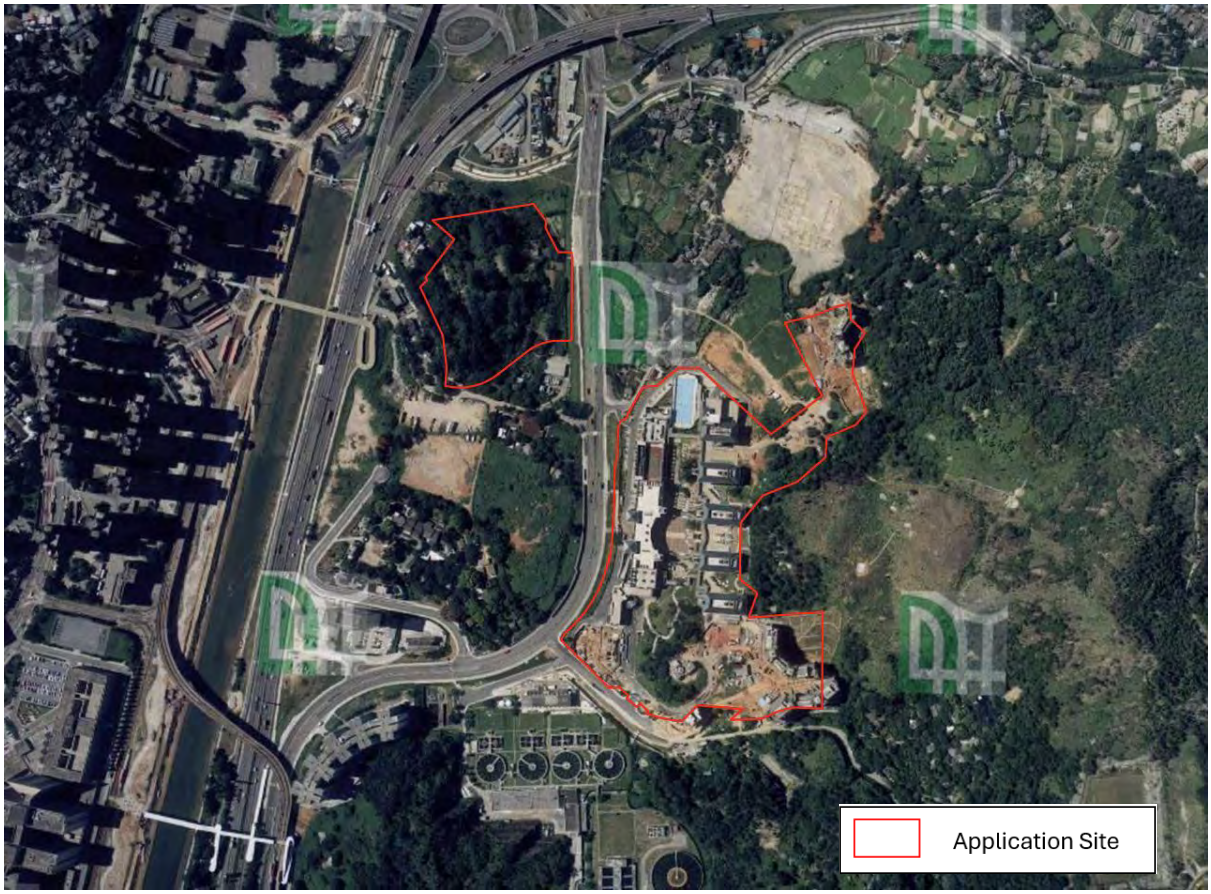


Year: 1984



Year: 1985

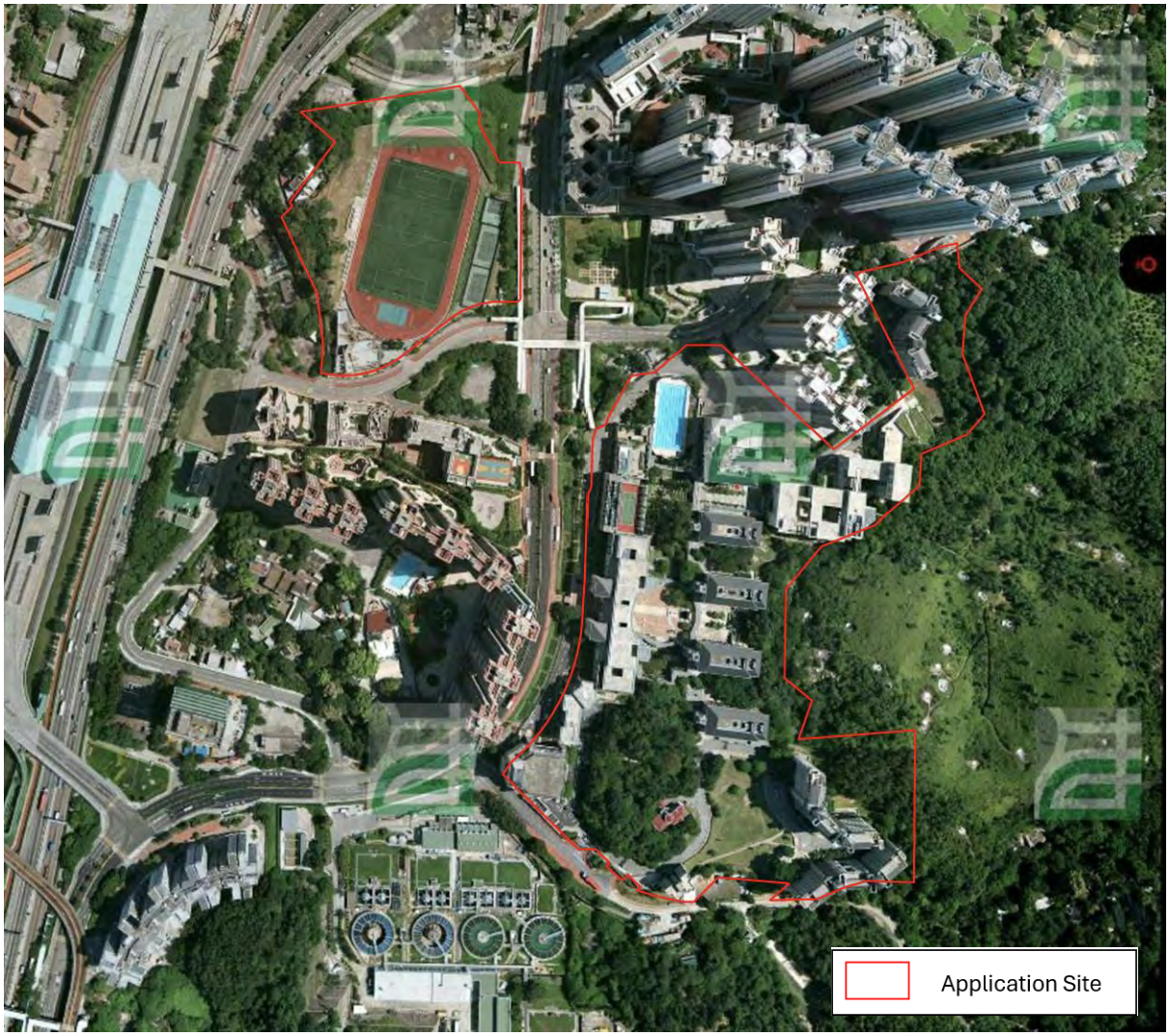
Year: 1994



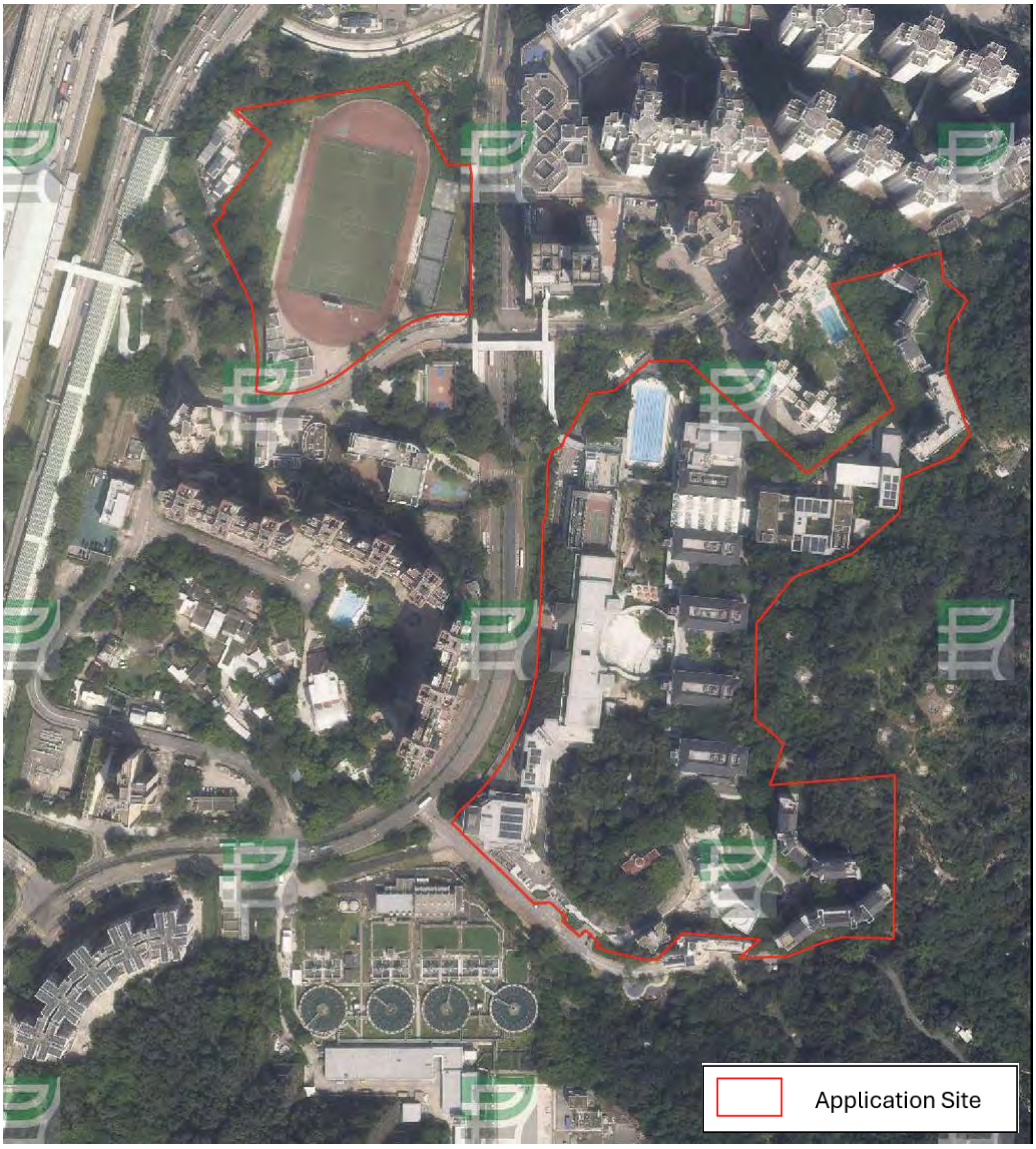
Year: 1996

Year: 2001

Year: 2002



Year: 2007



Year: 2024

Appendix 9.2

Copy of Letter Replies from Various Government Departments

FSD's reply dated 2026.02.10

Cathy Man

From: NGAN Chun Sang
Sent: Friday, 13 February 2026 6:12 pm
To: Cathy Man
Cc: Ho Min Yi (Amber)
Subject: FW: Fw: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U
Attachments: (17)_Pt 59_ MC-incident_appendix A.pdf

Reply from FSD Lingnan University Land Contamination

From: ado_lea_cs@hkfsd.gov.hk <ado_lea_cs@hkfsd.gov.hk>
Sent: Tuesday, 10 February, 2026 9:23 AM
To: NGAN Chun Sang <nganchunsang@aecasia.io>
Cc: OE8 CS/FSD <oe_cs_8@hkfsd.gov.hk>
Subject: Re: Fw: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

Our reference: (17) in FSD GR 6-5/4 R Pt. 59
Your reference: -

Dear Sir / Madam

Section 5 Planning Application for Proposed Lingnan University at No.8 Castle Peak Road – Lingnan, Tuen Mun
Request for Information of Dangerous Goods & Incident Records

I refer to the email exchange of 20.6.2025 and 9.2.2026 regarding the captioned request and reply below in response to your questions:-

1. No Dangerous Goods Licence was issued in respect of the captioned address.

2. A total of 2 incident records were found at the subject location. Please refer to Appendix A for details.
[See attachment "(17)_Pt 59_ MC-incident_appendix A.pdf"]
(File-Checksum-00000001)

If you have further questions, please feel free to contact the undersigned.

FSD's reply dated 2026.02.10

Appendix A

Section 5 Planning Application for Proposed Lingnan University at No.8 Castle Peak Road – Lingnan, Tuen Mun

Request for Information of Dangerous Goods & Incident Records

No.	Date	Type of Incident	Address
1	1/4/2025	Lock-in Case	Beneville, 18 Tuen Wai Road
2	11/8/2023	Late Call Fire	1/F, Lau Lee Yuan Haan Amenities Building, Lingnan University, 8 Castle Peak Road – Lingnan

Email reply from EPD dated 24 June 2025

Outlook

Fw: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

From hwwong@epd.gov.hk <hwwong@epd.gov.hk>
Date Tue 24/06/2025 09:41
To Christine Goh Siew Yinn <christinegoh@aecasia.io>
Cc laichiwong@epd.gov.hk <laichiwong@epd.gov.hk>

Dear Christine,

Record in the Subject Site:
1. Registered chemical waste producers: 7 nos
2. Waste disposal record, nil
3. Accidental spillage record, nil
4. Submission relating to land contamination assessment, nil

Regards,

HW WONG
Senior Environmental Protection Inspector
Regional Office (West)
Environmental Protection Department
Tel: 24176103 / 97510284

----- Forwarded by HW WONG/EPD/HKSARG on 24/06/2025 09:23 -----

From: Lai Chi WONG/EPD/HKSARG
To: SI[RW]12
Cc: I[RW]17
Date: 23/06/2025 11:48
Subject: Fw: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

Dear Wah

For your follow up and directly reply pls.

Regards

LC

----- Forwarded by Lai Chi WONG/EPD/HKSARG on 23/06/2025 11:44 -----

From: "Christine Goh Siew Yinn" <christinegoh@aecasia.io>
To: "laichiwong@epd.gov.hk" <laichiwong@epd.gov.hk>
Cc: "Cathy Man" <cm@aechk.com>, "NGAN Chun Sang" <nganchunsang@aecasia.io>
Date: 23/06/2025 09:28
Subject: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

Dear Mr WONG,

Section 5 Planning Application for Proposed Lingnan University at No. 8 Castle Peak Rd - Lingnan, Tuen Mun

Request for Information for Land Contamination Assessment

We are conducting an Environmental Assessment of the Section 5 Planning Application for Proposed Lingnan University (LU) at No. 8 Castle Peak Rd - Lingnan, Tuen Mun (Subject Site). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Subject Site are required as part of the vetting process.

Of particular interests is whether there are any registered chemical waste producers under your record in the Subject Site, any waste disposal record, any accidental spillage record, any submission relating to land contamination assessment and any information you could provide which might be useful for our study. We enclosed herewith a site map showing the location of the Subject Site for your reference.

Due to tight schedule, it is highly appreciated if the above information could be available and returned to us via either fax (Fax No. 2815 5399) or email by **4 July 2025**. Thank you very much for your kind attention and assistance. Should you have any queries, please feel free to contact me at 5290 3688.

Yours sincerely,

Christine Goh – Assistant Consultant
Environmental Consultancy | Green & Healthy Building
T: (852) 5290 3688 | **E:** christinegoh@aecasia.io

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Email reply from FSD dated 23 June 2025

Outlook

Re: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

From yin_hei_chow@hkfsd.gov.hk <yin_hei_chow@hkfsd.gov.hk>
on behalf of
ado_lea_cs@hkfsd.gov.hk <ado_lea_cs@hkfsd.gov.hk>
Date Mon 23/06/2025 13:40
To Christine Goh Siew Yinn <christinegoh@aecasia.io>
Cc OE8 CS/FSD <oe_cs_8@hkfsd.gov.hk>

Our reference: (17) in FSD GR 6-5/4 R Pt. 59
Your reference: -

Dear Ms. GOH

Section 5 Planning Application for Proposed Lingnan University at No.8 Castle Peak Road – Lingnan, Tuen Mun
Request for Information of Dangerous Goods & Incident Records

I refer to your email on 20.6.2025 regarding the captioned subject.

Your case is being handled, and a reply will be furnished to you as soon as possible. Please be advised that due to time lapse, this Department can only provide the following information for your requested information:

(i) Dangerous Goods Licence Record: from the year of 1990 to present moment.

(ii) Incident Record: Past three years of fire and special services incidents. Lift incidents will be excluded unless otherwise required.

Please also submit the appointment letter from your client for record.

Should you have further questions, please feel free to contact the undersigned.

Best regards,

CHOW Yin-hei
Assistant Divisional Officer (Legal Affairs)
Corporate Services Division
Fire Services Department

Tel.: 2733 7896

----- Forwarded by FSD Enquiry/FSD/HKSARG on 20/06/2025 18:07 -----

[2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

20/06/2025 17:37

From: "Christine Goh Siew Yinn" <christinegoh@aecasia.io>

To: "FSD Enquiry/FSD" <hkfsdenq@hkfsd.gov.hk>

Cc: "Cathy Man" <cm@aechk.com>, "NGAN Chun Sang" <nganchunsang@aecasia.io>

Dear Sir/Madam,

Section 5 Planning Application for Proposed Lingnan University at No. 8 Castle Peak Rd - Lingnan, Tuen Mun

Request for Information for Land Contamination Assessment

We are conducting an Environmental Assessment of the Section 5 Planning Application for Proposed Lingnan University (LU) at No. 8 Castle Peak Rd - Lingnan, Tuen Mun (Subject Site). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Subject Site are required as part of the vetting process.

Of particular interests are spill and incident reports (including records of fire at the Subject Site) that we believe your Department might have record of. Furthermore, we would also like to know whether anywhere of the subject site had applied or possessed license for dangerous goods storage. We enclosed herewith a site map showing the location of the Subject Site for your reference.

Due to tight schedule, it is highly appreciated if the above information could be available and returned to us via either fax (Fax No. 2815 5399) or email by **4 July 2025**.

Thank you very much for your kind attention and assistance. Should you have any queries, please feel free to contact me at 5290 3688.

Yours sincerely,

Christine Goh – Assistant Consultant
Environmental Consultancy | Green & Healthy Building
T: (852) 5290 3688 | **E:** christinegoh@aecasia.io

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[attachment "Figure 1_Project Site & Its Environ.pdf" deleted by yin_hei CHOW/FSD/HKSARG]

Email reply from LandsD dated 3 July 2025

Outlook

Re: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

From estmc2@landsd.gov.hk <estmc2@landsd.gov.hk>
Date Thu 03/07/2025 09:37
To Christine Goh Siew Yinn <christinegoh@aecasia.io>
Cc cotmblr@landsd.gov.hk <cotmblr@landsd.gov.hk>

1 attachment (2 MB)
Figure 1_Project Site & Its Environ.pdf;

Dear Christine,

I refer to your email below.

Please appreciate that this office does not keep a record on the spillage accidents or any land contamination reports at Lingnan University main campus and the outdoor sports ground. That being said, I believe you as the consultant of the study, will conduct the research using multiple approaches including but not limited to seeking information from the lot owner (i.e. Lingnan University) direct or studying the historical aerial photos. Thank you.

Regards,

Spencer LEE
ES/C2, DLO/TM
Tel : 2451 3321

cc- BR, please file to DLOs-002-TM-001-TMTL301 to 400-TMTL376. Thanks.

From: "Christine Goh Siew Yinn" <christinegoh@aecasia.io>
To: "estmc2@landsd.gov.hk" <estmc2@landsd.gov.hk>
Cc: "Cathy Man" <cm@aechk.com>, "NGAN Chun Sang" <nganchunsang@aecasia.io>
Date: 20/06/2025 17:36
Subject: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

Dear Spencer,

Section 5 Planning Application for Proposed Lingnan University at No. 8 Castle Peak Rd - Lingnan, Tuen Mun

Request for Information for Land Contamination Assessment

We are conducting an Environmental Assessment of the Section 5 Planning Application for Proposed Lingnan University (LU) at No. 8 Castle Peak Rd - Lingnan, Tuen Mun (Subject Site). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Subject Site are required as part of the vetting process.

Of particular interests are information on spillage accidents, illegal/contaminating land uses or uncontrolled dumping uses, current and historical land use information, and any information you could provide which might be useful for our study. We enclosed herewith a site map showing the location of the subject site for your reference.

Due to tight schedule, it is highly appreciated if the above information could be available and returned to us via either fax (Fax No. 2815 5399) or email by **4 July 2025**.

Thank you very much for your kind attention and assistance. Should you have any queries, please feel free to contact me at 5290 3688.

Yours sincerely,

Christine Goh – Assistant Consultant
Environmental Consultancy | Green & Healthy Building
T: (852) 5290 3688 | **E:** christinegoh@aecasia.io

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(File-Checksum-00000001)

Email reply from PlanD dated 11 July 2025

From:	Chris Shut Ming LEUNG/PLAND
To:	Christine Goh Siew Yinn
Cc:	Ling Chi CHEUNG/PLAND; Cathy Man; NGAN Chun Sang
Subject:	Re: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U
Date:	Friday, 11 July, 2025 9:45:59 AM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png image008.png

---

Dear Christine,

I refer to your emails below.

For the past record of land uses at the captioned sites, you are advised to visit the Statutory Planning Portal of Town Planning Board (https://www.ozp.tpb.gov.hk/?lang=en) or one of our Planning Enquiry Counters (https://www.pland.gov.hk/pland_en/access_to_info/pec/index.html). Thanks you.

Best Regards,
Chris Leung
TP/TM2, PlanD
Tel.: 2158 6293

From: Christine Goh Siew Yinn <christinegoh@aecasia.io>
Sent: Wednesday, July 9, 2025 12:20 PM
To: Chris Shut Ming LEUNG/PLAND <csmleung2@pland.gov.hk>
Cc: Cathy Man <cm@aechk.com>; NGAN Chun Sang <nganchunsang@aecasia.io>
Subject: Re: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

Dear Chris,

Section 5 Planning Application for Proposed Lingnan University at No. 8 Castle Peak Rd - Lingnan, Tuen Mun

Request for Information for Land Contamination Assessment

I am writing to follow up on our earlier request dated 23 June 2025, regarding the Section 5 Planning Application for the Proposed Lingnan University at No. 8 Castle Peak Road – Lingnan, Tuen Mun.

We are conducting an Environmental Assessment of the captioned project. As required by the “Practice Guide for Investigation and Remediation of Contaminated Land” published by the Environmental Protection Department of the HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Subject Site are required as part of the vetting process.

We would be grateful if you could kindly assist in providing any available records on past land uses, changes in site activities, or any incidents/accidents relating to the subject site.

We understand your schedule may be busy. Given the tight timeline of our submission, we would appreciate it greatly if the requested information could be provided at your earliest convenience. For ease of reference, please find the enclosed location map of the subject site.

Should you require any clarification or further details, please do not hesitate to contact me at 5290 3688 or return by email.

Thank you very much for your kind assistance.

Best regards,

Christine Goh – Assistant Consultant
Environmental Consultancy | Green & Healthy Building
T: (852) 5290 3688 | **E:** christinegoh@aecasia.io

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Follow us www.asecg.com

From: Christine Goh Siew Yinn
Sent: 23 June 2025 09:32
To: csmleung2@pland.gov.hk <csmleung2@pland.gov.hk>
Cc: Cathy Man <cm@aechk.com>; NGAN Chun Sang <nganchunsang@aecasia.io>
Subject: [2292] Information Request for Land Contamination Assessment - Section 5 Planning Application Lingnan U

Dear Chris,

Section 5 Planning Application for Proposed Lingnan University at No. 8 Castle Peak Rd - Lingnan, Tuen Mun

Request for Information for Land Contamination Assessment

We are conducting an Environmental Assessment of the Section 5 Planning

Application for Proposed Lingnan University (LU) at No. 8 Castle Peak Rd - Lingnan, Tuen Mun (Subject Site). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Subject Site are required as part of the vetting process.

Of particular interests are current and historical site information, any change on the land use and any information you could provide that might be useful for our study. We enclosed herewith a site map showing the location of the subject site for your reference.

Due to tight schedule, it is highly appreciated if the above information could be available and returned to us via either fax (Fax No. 2815 5399) or email by **4 July 2025.**

Thank you very much for your kind attention and assistance. Should you have any queries, please feel free to contact me at 5290 3688.

Best regards,

Christine Goh – Assistant Consultant
Environmental Consultancy | Green & Healthy Building
T: (852) 5290 3688 | **E:** christinegoh@aecasia.io

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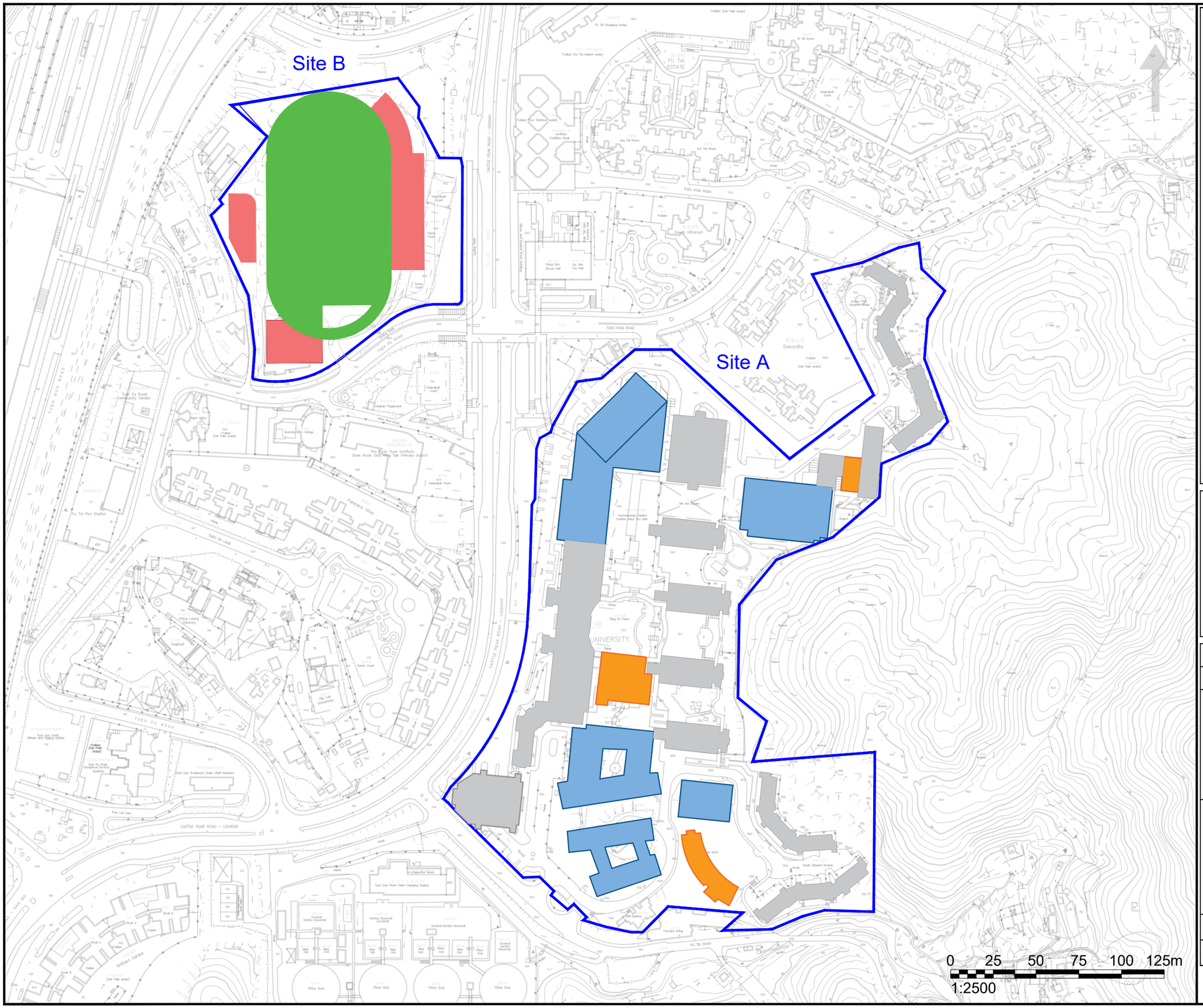

NOTES :

PROJECT SITE

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	CS

Project :
SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :
PROJECT SITE LOCATION

Drawing No :	Revision :
FIGURE 3.1	0
Scale :	Date :
AS SHOWN	JULY 2025

DO NOT SCALE OFF DRAWING. THIS DRAWING IS NOT FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY STATED. ALL RIGHTS RESERVED AND REPRODUCTION IN ANY FORM MUST BE APPROVED BY ALLIED ENVIRONMENTAL CONSULTANTS LIMITED.

A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\EA\DRAFT 4\FIG\2292 LINGNAN U SECTION 5 EA FIG.DWG

Appendix 9.3

Chemical Waste Producer Record

Invalid

Lingnan Collage	Comptroller's Office Lingnan College No.8 Castle Peak RD. Tuen Mun NT	Educational Establishment
Penta-Ocean Construction CO. LTD.	Construction site of Lingnan University, Junction of Tuen Kwai Road and Castle Peak RD. Tuen Mun NT	Construction
China Overseas Building Construction Limited	New Campus Development (Community College) Lingnan University TMTL 410 Tuen Mun NT	Construction

Valid

Jetford Engineering and Trading Company	Lingnan University, No.8 Castle Peak RD. Tuen Mun NT	Educational
Science Unit Lingnan University	Room LCH 113, Lau Chung Him Building, Lingnan University, Tune Mun NT	Educational and Research
Lingnan University	No.8 Castle Peak RD. Tuen Mun NT	Educational Establishment
Penta-Ocean Construction CO. LTD.	Lingnan University, 8 Castle Peak RD. Tuen Mun NT	Construction

Appendix 5

Drainage and Sewerage Impact Assessment

Issue No. : 4

Issue Date : Apr 2026

Project No. : 2292EA

DRAINAGE AND SEWERAGE IMPACT ASSESSMENT

FOR

TECHNICAL FEASIBILITY STUDY FOR LINGNAN UNIVERSITY AT NO. 8 CASTLE PEAK RD - LINGNAN, TUEN MUN

Prepared by

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

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沛然環境評估工程顧問有限公司
沛然環保集團成員（港交所股份代號：8320.HK）
香港灣仔告士打道 160 號海外信託銀行大廈 27 樓

Document Verification

Project Title	Technical Feasibility Study for Lingnan University at No. 8 Castle Peak Rd - Lingnan, Tuen Mun	**Project No.**	2292EA
Document Title	Drainage and Sewerage Impact Assessment		

Issue No.	Issue Date	Description	Prepared by	Checked by	Approved by
1	Aug 2025	1st Submission	Various	Cathy Man	Grace Kwok
2	Sep 2025	2nd Submission	Various	Cathy Man	Grace Kwok
3	Mar 2026	3rd Submission	Various	Cathy Man	Grace Kwok
4	Apr 2026	4th Submission	Various	Cathy Man	Grace Kwok

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沛然環境評估工程顧問有限公司
沛然環保集團成員（港交所股份代號：8320.HK）
香港灣仔告士打道 160 號海外信託銀行大廈 27 樓

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Appendix E Calculation of Flow Capacity of Proposed Development
Appendix F Calculation of Flow Capacity and Freeboard of Proposed Development

1. Introduction

1.1. Project Background

1.1.1. Allied Environmental Consultants Limited (AEC) has been appointed to conduct a Drainage and Sewerage Impact Assessment (DSIA) for the proposed Lingnan University at No. 8 Castle Peak Rd- Lingnan, Tuen Mun under Section 5 of Town Planning Ordinance for amendment of building height restriction at i) the current Lingnan Main Campus and ii) the North Campus. (hereinafter called "Proposed Development").

1.1.2. The Proposed Development is currently zoned as "Government, Institution or Community" ("G/IC") on the Approved Tuen Mun Outline Zoning Plan (No.: S/TM/41). The Project Proponent proposes to develop the Application Site for construction of new academic spaces and living quarters/hostel to provide more floor space for university expansion. The Proposed Development will consist of the demolishment of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

1.1.3. Indicative drawings and other technical information on the Proposed Development are provided by the Project Architect (P&T Architects Limited).

1.2. Objectives of the DSIA

1.2.1. The objectives of this DSIA are to review the existing/proposed sewage and drainage facilities in the vicinity of the Proposed Redevelopment and to evaluate the potential impacts on the current sewage and drainage system due to the additional discharge from the proposed redevelopment, and proposed mitigation measures where appropriate to mitigate potential impacts.

1.3. Report Structure

1.3.1. The remaining chapters of this report are shown below:

Chapter 2 – Legislation, Standards and Guidelines
Chapter 3 – The Proposed Development
Chapter 4 – Sewerage Impact Assessment
Chapter 5 – Drainage Impact Assessment
Chapter 6 – Liability
Chapter 7 – Conclusion

2. Legislation, Standards and Guidelines

2.1.1. Water quality in Hong Kong is legislated by the provisions of *Water Pollution Control Ordinance (Cap 358), 1980 ("WPCO")*. Territorial Water has been subdivided into ten Water Control Zones ("WCZ") and four supplementary water control zones. The study area lies within the Deep Bay WCZ. A Technical Memorandum on Standards for Effluents discharged into Drainage and Sewerage Systems, Inland and Coastal Water (TM-DSS) has been issued, which requires licensing of all discharges into all public sewers and drains. The water quality standards will have to be met during the construction and operation stages.

2.1.2. With reference to Table 7 of the Technical Memorandum, as the Proposed Redevelopment is located within Deep Bay WCZ, the pollutant loading for effluents discharged into coastal waters of the respective WCZ shall be considered. The standards of effluents discharge of Biochemical Oxygen Demand (BOD) and Suspended Solids (SS) are extracted below.

Table 2-1 Standards for Effluent Discharge under TM

Load Type	Standards for Effluent Discharge (mg/L)	
	Flow rate <=1000 m^3/day	**Flow Rate >1000 m^3/day and <=6000 m^3/day**
BODs	20	10
SS	50	25

2.1.3. With reference to *ProPECC PN 1/23 Drainage Plans Subject to Comment by the Environmental Protection Department ("EPD")*, foul water should be discharged to a foul sewer under the Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations 40(1) and 41(1).

2.1.4. The following standards and guidelines are adopted for estimation, assessment and evaluation of sewerage implication of the proposed development:

- "Water Pollution Control Ordinance" ("WPCO");
- "Hong Kong Planning Standards and Guidelines" issued by the Planning Department;
- "Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS)";
- "Sewerage Manual Part 1" published by DSD; and

- "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0 (Report No.: EPD/TP1/05)" ("GESF") published by Environmental Protection Department ("EPD").

3. The Proposed Development

3.1. Site Location and Its Environs

3.1.1. The Proposed Developments consists of 2 sites, namely Site A and Site B, located at No.8 Castle Peak Road- Lingnan, Tuen Mun. Site A is the main campus of Lingnan University and it is bounded by Tuen Kwai Road to the north and Castle Peak Road-Lingnan to the west, immediately adjoining the Green Belt (GB) zone to the east and facing Fu Tei Road and Tuen Mun Water Treatment Works to the south.

3.1.2. Site B is currently occupied by an existing multipurpose outdoor sports ground and Wofoo Joseph Lee Student Activity Centre. It is bounded by Castle Peak Road-Lingnan to the east, Tuen Fu Road to the south, Tuen Mun Road to the west and 18 Rosewood to the north. The location of the Application Site and its surroundings are presented in ***Figure 3.1***.

3.1.3. The Application Site is zoned as "Government, Institution or Community" ("G/IC") on the Approved OZP. The surrounding areas are mainly zoned G/IC", Residential (Group B) ("R(B)10" "R(B)11" and "R(B)16" zone), Residential (Group A) ("R(A)3"), Residential (Group C) ("R(C)"). A strip of area zoned "Green Belt ("GB") are respectively located to the East of the Application Site.

3.2. Proposed Development Scheme

3.2.1. The Proposed Development comprises 2 sites, with a total site area of around 112,233 m^2. With reference to the proposed development potential study, the Proposed Development will consist of the demolition of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

3.3. Existing Sewerage and Drainage Condition

3.3.1. Sewerage and drainage information were obtained from the GeoInfo Map services of the Lands Department in Sep 2025 to gather background information on infrastructure in the vicinity of the Project Site. Concerned sewage network was identified for estimation of the

potential sewage impact to the downstream sewers associated with the proposed development. A series of public sewers with diameters range from 225 mm to 450mm were found along Castle Peak Road – Lingnan, and a series of public sewers with diameters of 225mm were found along Fu Tei Road. At Site B, a series of public sewers with diameters of 300mm were found along Tuen Fu Road. Sewage generated from the Project Site will be conveyed through existing Lingnan University's internal sewage system and discharged to public sewer manhole via different outlet. Drainage Record Plan within Lingnan University is given in ***Appendix B1***.

3.3.2. Concerned sewage network was identified in the vicinity of the Project Site. A series of public drainage system were found along the Castle Peak Road – Lingnan and Fu Tei Road. A series of box culvert were found along the eastern and southern site boundary of the Site B along the Castle Peak Road – Lingnan and Tuen Fu Road.

3.4. Drainage Reserve Area

3.4.1. As shown in the DSD's drainage record plan as given in ***Appendix B2***, existing DSD's drainage/ sewerage facilities located within and in the vicinity of both sites. No structure or support for any structure should be erected on Drainage Reserve Area without written consent of DSD. The Drainage Reserve Area should be free and unrestricted for access at all times for construction, repairs and maintenance.

4. Sewerage Impact Assessment

4.1. Assessment Methodology and Assessment

4.1.1. The sewage generated from the proposed development will be discharged through the Lingnan University's internal manhole, and connected to the existing public sewer manhole. Based on the sewerage information from Geoinfo map and the Lingnan University Drainage Record plan, there are 4 sewerage outlets connected from Site A, and 1 outlet connected from Site B to the existing public sewer manhole, which are indicated in ***Figure 4.1a*** and ***Figure 4.1b*** respectively.

4.1.2. ***Figure 4.1*** illustrates an overview of corresponding catchment areas and existing sewerage network for this study. There are 14 catchments from the surrounding environs to facilitate estimation of sewage discharge.

- **Catchment A**: Parkland Villas Block 1-3, Parkland Villas Block 4-6, Swimming pool in Parkland Villas
- **Catchment B**: Fu Tei Village Office
- **Catchment C**: Beneville, South Hill Crest, Fu Tei Estate
- **Catchment D**: Forward Living
- **Catchment E**: Tuen Mun Water Treatment Works
- **Catchment F**: Tuen Mun Treatment Works Staff Quarters, Tuen Fu Road Disciplined Services Quarters
- **Catchment G**: The Yuen Yuen Institute Chan Kok Chiu Hing Tak Primary School
- **Catchment H**: Ecclesia Bible Collage
- **Catchment I**: Napa Valley
- **Catchment J**: Tuen Fu Road Community Garden
- **Catchment K**: Fu Tei Fire Station
- **Catchment L**: Parkland Villas Block 7-9
- **Catchment M**: Simon and Eleanor Kwok Building, Wong Hoo Chuen Hall, Wu Jieh Yee Hall
- **Catchment N**: Fu Tai Shopping Centre, Bus Terminal under Fu tai Shopping Centre

4.1.3. The sewage flow from Site A of proposed development is expected to discharge to outlet A (FTH1003559), outlet B (FMH1015209), Outlet C (FTH1003556) and outlet D (FMH1015194). The sewage flow from outlet A, outlet B, outlet C and Catchment A will be collected by the sewer range from 225mm to 450mm diameter along the Castle Peak Road – Lingnan. The sewage flow from outlet D and Catchment B will be collected by the 225mm diameter sewer along the Fu Tei Road. The sewage flow from Site B of proposed development is expected to discharged to outlet E (FTH1003577) and collected by the 300mm diameter sewer along Tuen Fu Road.

4.1.4. A hydraulic assessment, which will take into account of the sewage discharge from proposed development as well as the surrounding developments will be conducted.

4.1.5. According to the "Sewerage Manual – Key Planning issues and Gravity Collection System" published by DSD in 2013, the capacities of respective sewers have been calculated based on Colebrook-White equation for circular pipes:

$$V = -2\left(2gDS\right)^{0.5}\log\left(\frac{k}{3.7D}+\frac{2.5\nu}{D\left(2gDS\right)^{0.5}}\right)$$

Where,
V = mean velocity (m/s)
g = gravitational acceleration (m/s^2)
D = pipe diameter (m)
ks = hydraulic pipeline roughness (m) (0.006m is adopted for the "poor" condition of concrete slimed sewers as worst-case scenario)
v = kinematic viscosity of fluid (m^2/s)
s = frictional slope (energy gradient due to frictional loss)

4.1.6. The detailed calculations of sewage generation have been provided in ***Appendix C*** and ***Appendix D*** for reference.

4.2. Methodology for Estimation of Average Dry Weather Flow

4.2.1. The global unit flow factors as recommended in the *Guideline for Estimating Sewage Flows for Sewage Infrastructure Planning* (hereafter as "GESF") published by EPD in 2005 has been adopted in the assessment to estimate sewage flow. Relative unit flow factors applied for the

sewage generation estimation are tabulated in ***Table 4-1*** below.

Table 4-1 Unit Flow Factors Adopted for the Assessment

Type of People	Unit Flow Factor [2]	Category [1]
Within Proposed Development		
Staff of University	0.28 m^3/person/day	Commercial Employee + Commercial activities (J11 Community, Social & Personal Services)
Student	0.04 m^3/person/day	School Student
Hostel / Living Quarters	0.19 m^3/person/day	Domestic (housing type specific) – Institutional and special class
Restaurant / Canteen	1.58 m^3/person/day	Commercial Employee + Commercial activities (J10 Restaurants & Hotels)
Surrounding Catchments		
Residents of the Residential Development	0.27 m^3/person/day	Domestic (housing type specific) – R2
Residents of RCHE	0.19 m^3/person/day	Domestic (housing type specific) – Institutional and special class
Staff of RCHE	0.28 m^3/person/day	Commercial Employee + Commercial activities (J11 Community, Social & Personal Services)
Staff of Water Treatment Works	0.33 m^3/person/day	Commercial Employee + Commercial activities (J2 Electricity gas & Water)
Staff of Shopping Centre	0.28 m^3/person/day	Commercial Employee + Commercial activities (J4 Wholesale and Retail)
Staff of F&B	1.58 m^3/person/day	Commercial Employee + Commercial activities (J10 Restaurants and Hotels)
Staff of Bus Terminal	0.18 m^3/person/day	Commercial Employee + Commercial activities (J3 Transport, Storage and Communication)

Notes:
[1] Environmental Protection Department, HKSARG [EPD] (2005). Guidelines for estimating sewage flows for sewage infrastructure planning (EPD/TP 1/05). Hong Kong
[2] UFF for various occupancy types are adopted according to Table T-1 and Table T-2 of the GESF.

4.3. Estimation of Sewage Flow from Proposed Development

4.3.1. The sewage generated from the proposed development will be discharged into the existing public sewers via 4 outlets in Site A and 1 outlet in Site B, as shown in ***Figure 4.1***. Site A and Site B are expected to have an estimated GFA of 343,760 m^2 and 105,172 m^2 respectively after the proposed development. The estimated sewerage generated from proposed

development is given in ***Table 4-2*** and ***Appendix C***.

4.3.2. With reference to ***Table 4-2***, the total estimated Average Dry Weather Flow ("ADWF") from the Site A and Site B is 2,066.37 m^3/day and 410.18 m^3/day respectively. The peak flow is 0.1315 m^3/s for Site A and 0.0313 m^3/s for Site B.

Table 4-2 Sewage Flow Estimation for the Proposed Development and Existing

Generation		**Remark**
Existing Development		
Total Number of Student	6,218 persons	Based University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Unit Flow Factor [2]	0.04 m^3/person/day	School Student in Table T-2 of GESF
Average Dry Weather Flow	248.72 m^3/day	
Total Number of Staff	883 persons	Based University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Unit Flow Factor [2]	0.28 m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
Average Dry Weather Flow	247.24 m^3/day	
Existing Hostel / Living Quarters		
Total Number of Student	2,600 persons	Referred to information from Lingnan University Website https://www.ln.edu.hk/osa/residential-life/student-hostel
Unit Flow Factor [2]	0.19 m^3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
Average Dry Weather Flow	494.00 m^3/day	
Existing Staff Quarters in Lingnan Hub		
Total number of staff quarters units	21 units	Referred to the information from Lingnan University Website https://www.ln.edu.hk/ocdm/facilities/accomodation/lingnan-hub
Total number of staff	84 persons	Assumed 4 person in a unit
Unit Flow Factor [2]	0.19 m^3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
Average Dry Weather Flow	15.96 m^3/day	
Restaurants		
Canteen		
Total Floor Area	875.50	GF Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen

Generation		**Remark**
Worker Density per GFA (in 100 m^2)	5.1 person/100 m^2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of persons	45 persons	
Unit Flow Factor [2]	1.58 m^3/person/day	Referred to the planning unit flow for Commercial Employee + Restaurants & Hotels J10 in Table T-2 of GESF.
Average Dry Weather Flow	71.1 m^3/day	
Lingnan House		
Total Floor Area	875.50	1F Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
Worker Density per GFA (in 100 m^2)	5.1 person/100 m^2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of persons	45 persons	
Unit Flow Factor [2]	1.58 m^3/person/day	Referred to the planning unit flow for Commercial Employee + Restaurants & Hotels J10 in Table T-2 of GESF.
Average Dry Weather Flow	71.1 m^3/day	
Proposed Development		
Future Student Enrollment	13,000 persons	Additional student estimate based on the Potential Study
Unit Flow Factor [2]	0.04 m^3/person/day	School Student in Table T-2 of GESF
Average Dry Weather Flow	520.00 m^3/person/day	
Total Number of Staff	1,858 persons	Based on ratio of staff to student:https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Unit Flow Factor [2]	0.28 m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
Average Dry Weather Flow	520.24 m^3/day	
Proposed Hostel / Living Quarters		
Total Number of Student	4,000 persons	
Unit Flow Factor [2]	0.19 m^3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
Average Dry Weather Flow	760.00 m^3/day	
Total ADWF	**2,948.36 m^3/day**	
ADWF from Site A	**2066.37 m^3/day**	
Catchment Inflow Factor (Tuen Mun)	1.1	
Revised ADWF	2,273.00 m^3/day	
Peaking Factor	5	
Peak Flow	0.1315 m^3/s	

Generation	**Remark**
ADWF from Site B	**881.99 m^3/day**
Catchment Inflow Factor (Tuen Mun)	1.1
Revised ADWF	970.19 m^3/day
Peaking Factor	6
Peak Flow	0.0674 m^3/s

4.4. Estimation of Sewage Flow from Catchment Areas

4.4.1. Different catchment areas are defined as shown in ***Figure 4.1*** to consider existing sewage generation.

4.4.2. Sewage generated from Catchment Areas are presented in ***Appendix D***, and the manhole collected the sewage discharge from each catchment are presented in ***Appendix E***.

4.5. Estimation of Peak Discharge

4.5.1. Catchment inflow factor ("P_{CIF}") caters for the net overall ingress of wastewater to the sewerage system. They are catchment-dependent and applicable to major sewerage facilities of a catchment.

4.5.2. In accordance with Table T-4 of the GESF, P_{CIF} of 1.10 is adopted for existing sewerage as concerned sewerage system is identified in "Tuen Mun".

4.5.3. Revised average dry weather flow ("revised ADWF") is determined by production of average dry weather flow and catchment inflow factor. Contributing population is then calculated by dividing the revised ADWF by 0.27. The calculated contributing population is finally used for selection of peaking factors.

4.5.4. Based on ***Table 4-3*** which is also presented in Table T-5 in GESF, the peaking factors for each sewer are chosen in the hydraulic calculation for peak flow estimation.

Table 4-3 Peaking Factors

Population Range for Sewers [1] [2]	**Peaking Factor (including storm water allowance) for facility with existing upstream sewerage**	**Peaking Factor (excluding storm water allowance) for facility with new upstream sewerage**
< 1000	8	6
1000 - 5000	6	5

Population Range for Sewers [1] [2]	Peaking Factor (including storm water allowance) for facility with existing upstream sewerage	Peaking Factor (excluding storm water allowance) for facility with new upstream sewerage
5000 - 10000	5	4
10000 - 50000	4	3
> 50000	Max (7.3 / $N^{0.15}$, 2.4)	Max (6 / $N^{0.175}$, 1.6)

4.6. Sewerage Capacity

4.6.1. According to the "Sewerage Manual – Key Planning Issues and Gravity Collection System" (Sewerage Manual) published by DSD in 2013, the capacities of respective sewers have been calculated based on the Colebrook White's equation. The roughness coefficients (ks) of 3.0mm for clayware slimed sewer in poor condition are adopted in the assessment in accordance with Table 5 of DSD's "Sewerage Manual Part 1".

4.6.2. The sewerage impact on various segments of the sewer were evaluated by comparing the estimated peak flow against the capacity of the respective sewer segments. The detailed calculations are provided in ***Appendix E***.

4.7. Results and Discussion

4.7.1. The total estimated daily flow from the Site A and Site B is tabulated in ***Table 4-4***.

Table 4-4 Sewage Generated from Existing and Proposed Development

Site	Daily Flow (m^3/day)	Peak Flow (m^3/s)
Site A	2066.37	0.1315
Site B	881.99	0.0674

4.7.2. The capacity of each segment for the existing sewers between each manhole has been evaluated and is summarized in ***Table 4-5***. The percentages of used capacity for sewers with existing condition range from 30.3% to 165.3%. The detailed calculation of flow estimation and capacity are presented in ***Appendix E***. insufficient capacity is identified at 2 segments at downstream of Outlet A and Outlet D respectively (Outlet A: FMH1015266 - FMH1015215, Outlet D: FMH1015189 - FMH1015188).

Table 4-5 Used Capacity of sewers (Existing Development + Proposed Development)

Pipe Segments	Maximum Capacity of Sewer (m^3/s)	Total Discharge through Manhole (m^3/s)	Used Capacity (%) After Development
Outlet C			
FTH1003556 – FMH1015204	0.038	0.035	92.2%
FMH1015204 – FMH1015205	0.086	0.081	93.3%
FMH1015205 – FMH1015206	0.090	0.081	89.3%
FMH1015206 – FMH1015207	0.092	0.081	87.4%
FMH1015207 – FMH1015208	0.100	0.081	80.3%
Outlet B			
FMH1015209 – FMH1015208	0.091	0.028	30.3%
FMH1015208 – FMH1015211	0.215	0.151	70.4%
Outlet A			
FTH1003559 – FMH1015210	0.094	0.064	68.0%
FMH1015210 – FMH1015211	0.071	0.064	90.4%
FMH1015211 – FMH1015214	0.251	0.173	69.2%
FMH1015214 - FMH1015265	0.252	0.173	68.9%
FMH1015265 - FMH1015266	0.266	0.173	65.2%
FMH1015266 - FMH1015215	0.253	0.270	**106.8%**
FMH1015215 - FMH1015216	0.299	0.283	94.7%
FMH1015216 - FMH1015263	0.297	0.283	95.2%
FMH1015263 - FMH1015262	0.626	0.283	46.7%
Outlet D			
FMH1015194 – FMH1015195	0.046	0.036	77.2%
FMH1015195 – FMH1015196	0.041	0.036	86.9%
FMH1015196 - FMH1015197	0.040	0.036	89.7%
FMH1015197 - FMH1015198	0.040	0.036	90.4%
FMH1015198 - FMH1015191	0.060	0.036	59.6%
FMH1015191 - FMH1015189	0.061	0.036	58.4%
FMH1015189 - FMH1015188	0.027	0.044	**165.3%**
FMH1015188 - FMH1015187	0.044	0.044	99.8%
FMH1015187 - FMH1015186	0.057	0.044	77.8%
Outlet E			
FTH1003577 – FMH1015281	0.207	0.067	32.6%
FMH1015281 – FMH1015280	0.079	0.067	84.8%

Pipe Segments	Maximum Capacity of Sewer (m^3/s)	Total Discharge through Manhole (m^3/s)	Used Capacity (%) After Development
FMH1015280 – FMH1015279	0.080	0.071	88.2%
FMH1015279 - FMH1015278	0.144	0.071	49.3%
FMH1015278 - FMH1015277	0.179	0.076	42.7%
FMH1015277 - FMH1015276	0.189	0.076	40.4%
FMH1015276 - FMH1015275	0.088	0.076	86.7%
FMH1015275 - FMH1015274	0.092	0.076	82.9%
FMH1015274 - FMH1015273	0.108	0.089	83.0%

4.7.3. The results of the assessment as presented in ***Table 4-5*** and ***Appendix E*** have indicated that there are 2 no. sewer segments that will exceed the capacity after the discharged of proposed development (Outlet A: FMH1015266 - FMH1015215, Outlet D: FMH1015189 - FMH1015188).

4.8. Freeboard Calculation

4.8.1. It is noted that downstream sewers (FMH1015266 - FMH1015215) of Outlet A and (FMH1015189 - FMH1015188) of Outlet D have insufficient capacities to cater the sewage discharge from nearby catchments and the Project Site (Site A) with the proposed development. freeboard calculation at the concerned manholes is demonstrated to ensure the overflow would not occur at peak flow due to the additional sewage flow from the proposed development. it is assumed that the downstream boundary condition is the sewage level at the downstream manhole in freeboard calculation (i.e. the total hydraulic head).

4.8.2. The detailed freeboard calculation of all the manholes is illustrated in ***Appendix F***. The calculation of the concerned manholes is summarized in ***Table 4-6*** below.

Table 4-6 Summary of Flow Capacity Check and Freeboard Calculation of Concerned Manholes

(a) A minimum freeboard of 1m				
Pipe Segments	**Used Capacity (%)**	**Upstream Sewage Level, mPD**	**Upstream Manhole Cover Level, mPD**	**Freeboard (m) (Criteria: >1m)**
FMH1015266 - FMH1015215	106.8%	6.11	9.70	3.59
FMH1015189 - FMH1015188	165.3%	5.47	6.60	1.13

(b) A minimum factor of safety against overflowing of 1.15				
Pipe Segments	**Used Capacity (%)**	**Upstream Sewage Level, mPD**	**Upstream Manhole Cover Level under FOS of 1.15, mPD**	**Sewage Level below Cover Level (m) (Criteria: >0m)**
FMH1015266 - FMH1015215	106.8%	6.96	9.70	2.74
FMH1015189 - FMH1015188	165.3%	5.80	6.60	0.80

4.8.3. In accordance with Section 5.1.1 of the DSD's Sewerage Manual Part 1, implementation of improvement proposals will not be accorded a high priority only if both the criteria on (a) minimum freeboard and (b) minimum factor of safety against overflowing respectively could be satisfied. For the surcharged segments, the calculation shows that there is sufficient freeboard and no overflowing will occur. As such, there will be no insurmountable sewerage impact due to the sewage flow from the proposed development, sewer upgrading or improvement works is not required for these segments.

5. Drainage Impact Assessment

5.1. Existing Site and Drainage System

5.1.1. According to the information from Geoinfo map, public stormwater drains are available at the western and southern boundary of the Site A along the Castle Peak Road – Lingnan and Fu Tei Road respectively, and the existing box culvert at the eastern and southern boundary of the Site B along the Castle Peak Road – Lingnan and Tuen Fu Road, as shown in ***Figure 5.1***.

5.1.2. The nearest stormwater manhole is SMH3000029 which is located at the south of Site A. 2 nearest catchpit SCH1009302 and SCH1009303, and 1 inlet SIH1002197 are located at the west of the Site A. A series of box culvert is flow along the east and south of the Site B.

5.1.3. The Project Site is located on a gentle slope terrain with high ground at the east of the Site. Both Site A and Site B are currently paved with concrete with some greenery across the project Site. There will be no change of gradient of the Site after the redevelopment. The greenery area will be maintained as at least 20% of the Site Area. With the unchanged in topography and greenery area, increase in the surface runoff is not anticipated.

5.2. Potential Impact on Public Stormwater System due to Surface Runoff

5.2.1. The Project Site is currently a gentle slope terrain mostly paved with concrete surface. There will be no major changes in surface properties and gradient, which will not significantly alter the overall catchment characteristics.

5.2.2. Surface runoff within the Project Site will be collected by Lingnan University's internal drainage and discharged to existing public stormwater drainage network. Surface runoff from Site A will be collected at the catchpit SCH1009302, SCH1009303, manhole SMH1024745 and SMH3000029 and discharged to the public stormwater drainage network along Castle Peak Road – Lingnan and Fu Tei Road. Surface runoff from Site B will be discharged into the box culvert flow along the east and south of the Site B.

5.2.3. The provision of a greenery area of at least 20% will maintained the filtration of stormwater and minimize surface runoff. There will be no changed of paving condition within the Site.

5.2.4. Adverse impact to the public drainage system is thus not anticipated. Upgrading works is considered not necessary.

6. Liability

6.1.1. The project proponent will be responsible for the construction works for the pipe convey sewerage from terminal manhole to existing public sewer. All drainage facilities shall be designed and constructed to conform to the requirements laid down in below while future maintenance of the sewers outside the Project Site boundary will be carried out by the DSD.

a. The Stormwater Drainage Manual, DSD

b. The General Specification for Civil Engineering Works, Hong Kong Government

c. The DSD Standard Drawings

6.1.2. During operational phase, regular inspection of the sewers within the Project Site should be conducted by the property management office to ensure proper performance. Regular maintenance should also be carried out in accordance with standard practices stated in the DSD's "Sewerage Manual Part 1".

7. Conclusion

7.1.1. The DSIA has been conducted to evaluate the possible impacts on the public sewerage and drainage network due to the proposed development.

7.2. Sewerage Impact Assessment

7.2.1. The sewage generated from the proposed development will be collected by the Lingnan University's internal sewerage system, then discharged to public manhole. An ADWF of 2,066.37 m^3/day and 881.99 m^3/day is expected to generated from Site A and Site B respectively. The daily peak sewage generated by the Site A and Site B is estimated to be 0.1315 m^3/s and 0.0674 m^3/s respectively.

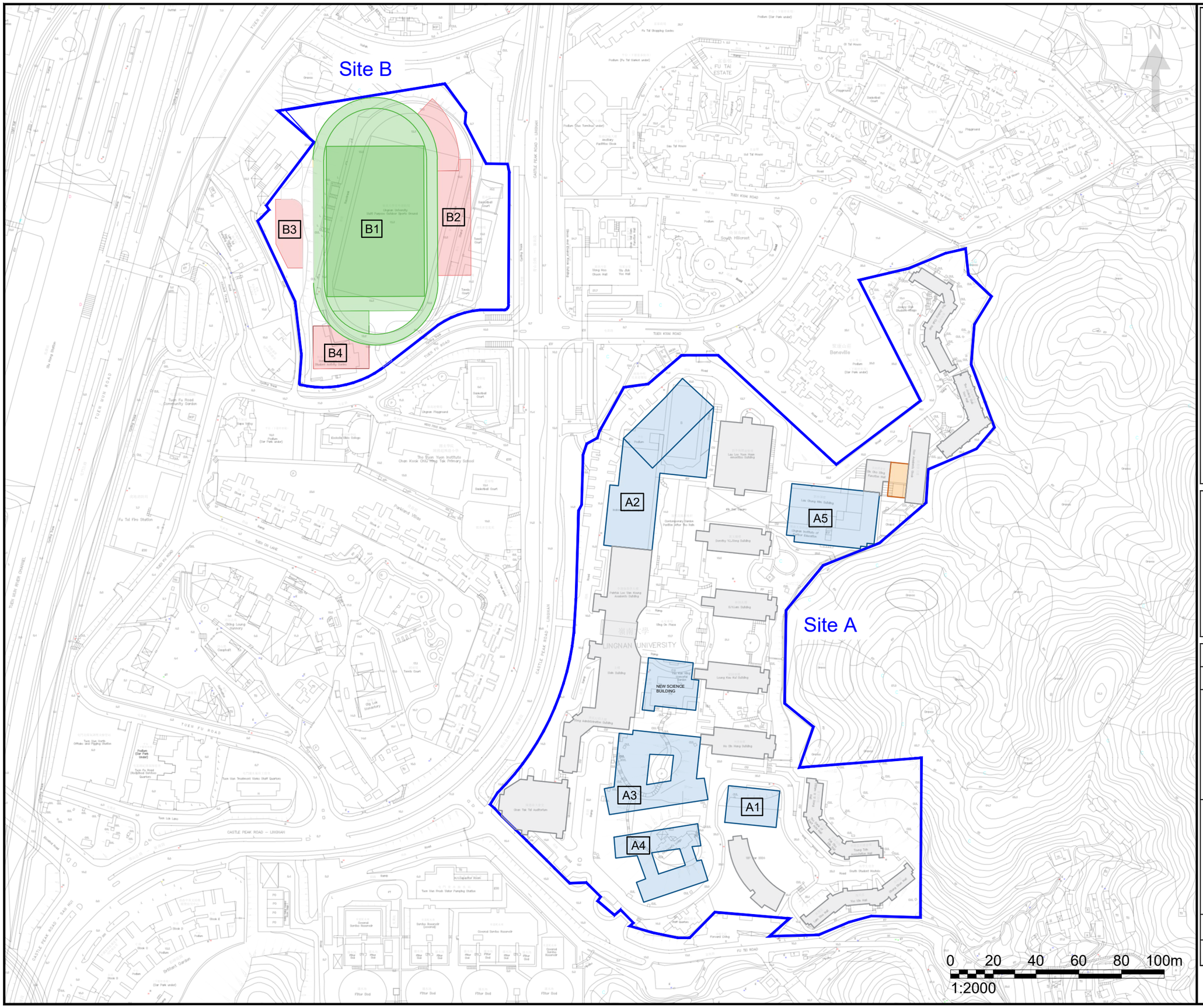
7.2.2. The assessment results demonstrated that 2 no. sewer segments do not have sufficient sewer capacity to cater with the sewage flow from the catchments nearby and the proposed development. based on freeboard calculation, there should be sufficient freeboard and no overflowing will occur. Therefore, significant sewerage impact arising from the proposed development on the existing sewers is not expected, no mitigation measures are considered necessary for the existing sewers.

7.3. Drainage Impact Assessment

7.3.1. The stormwater runoff to be collected by the Lingnan University's internal drainage system and discharged to public drainage network. No changes in surface properties and gradient is anticipated, with the provision of greenery and insignificant contribution of stormwater surface runoff associated with the proposed development, no potential drainage impact is anticipated. No mitigation measures are considered necessary for the existing drainage.

7.3.2. Based on the above, it is concluded that the sewerage impact and drainage impact arising from the proposed development should be acceptable.

Figures



NOTES :

- PROJECT SITE
- RETAINED BUILDINGS
- PROPOSED NEW RESEARCH / ACADEMIC BUILDINGS
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	CS

Project :

SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :

PROJECT SITE LOCATION

Drawing No :	Revision :
FIGURE 3.1	2
Scale : AS SHOWN	Date : APR 2026

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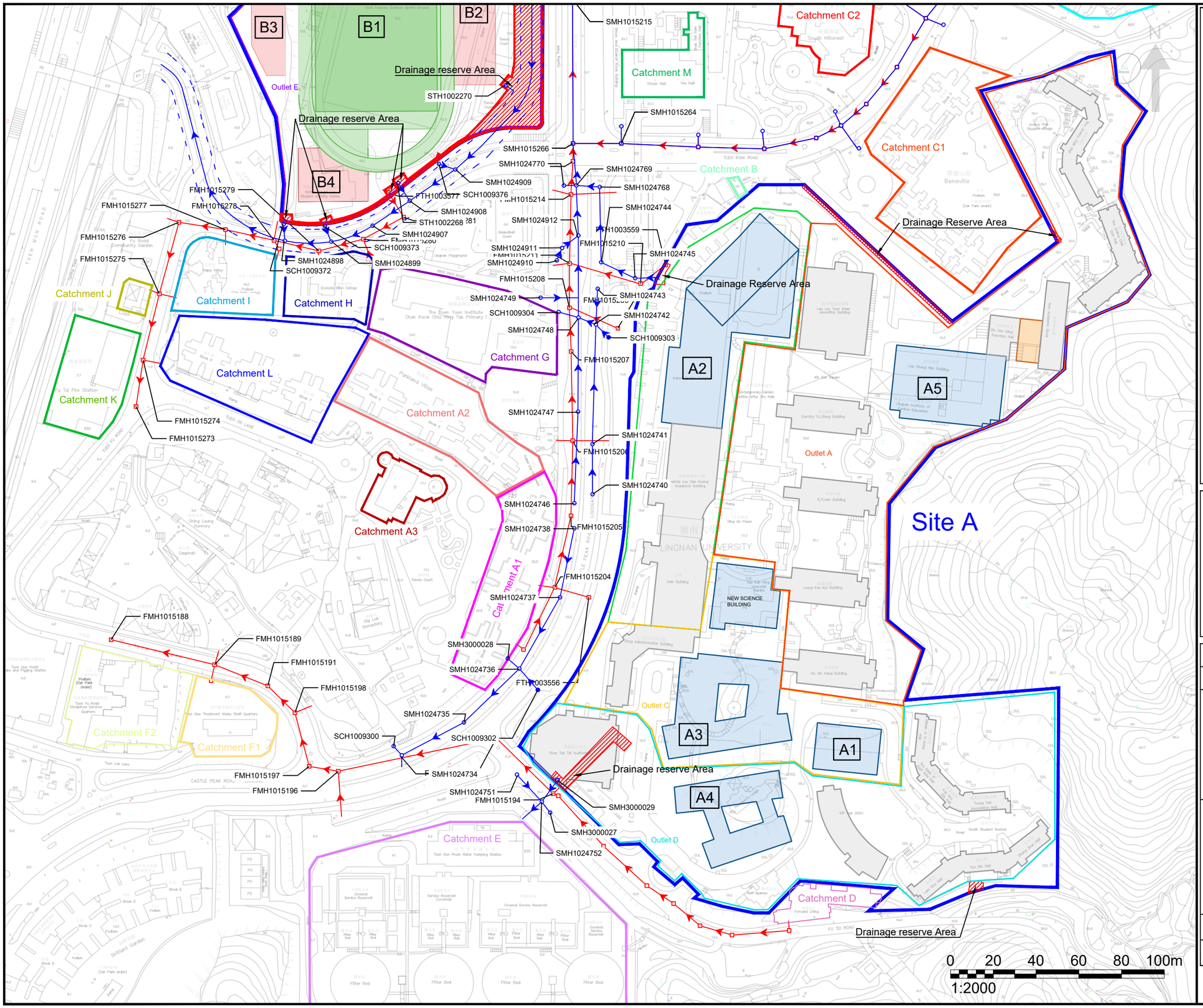

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- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT
- EXISTING SEWER & MANHOLE

CATCHMENT A1	CATCHMENT F2
CATCHMENT A2	CATCHMENT G
CATCHMENT A3	CATCHMENT H
CATCHMENT B	CATCHMENT I
CATCHMENT C1	CATCHMENT J
CATCHMENT C2	CATCHMENT K
CATCHMENT C3	CATCHMENT L
CATCHMENT D	CATCHMENT M
CATCHMENT E	CATCHMENT N1
CATCHMENT F1	CATCHMENT N2

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Project No. : 2292	
Drawing By : CS	
Project : SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN	
Drawing Title : OVERVIEW OF EXISTING SEWERS AND CATCHMENTS AREA FOR SITE A	
Drawing No : FIGURE 4.1a	Revision : 2
Scale : AS SHOWN	Date : APR 2026

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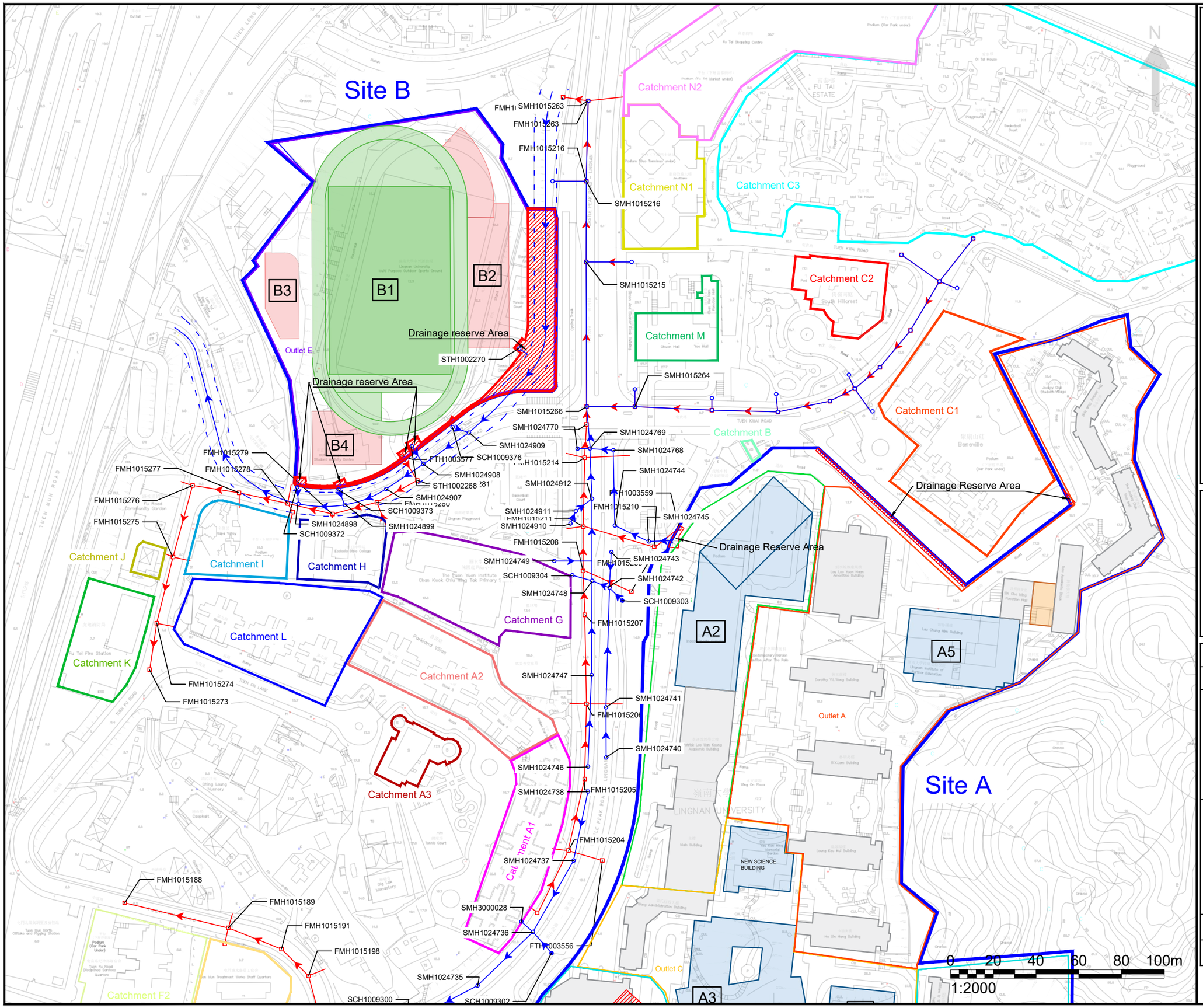

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- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT
- EXISTING SEWER & MANHOLE

CATCHMENT A1	CATCHMENT F2
CATCHMENT A2	CATCHMENT G
CATCHMENT A3	CATCHMENT H
CATCHMENT B	CATCHMENT I
CATCHMENT C1	CATCHMENT J
CATCHMENT C2	CATCHMENT K
CATCHMENT C3	CATCHMENT L
CATCHMENT D	CATCHMENT M
CATCHMENT E	CATCHMENT N1
CATCHMENT F1	CATCHMENT N2

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Drawing By : CS

Project :
SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :
OVERVIEW OF EXISTING SEWERS AND CATCHMENTS AREA FOR SITE B

Drawing No :	Revision :
FIGURE 4.1b	2
Scale :	Date :
AS SHOWN	APR 2026

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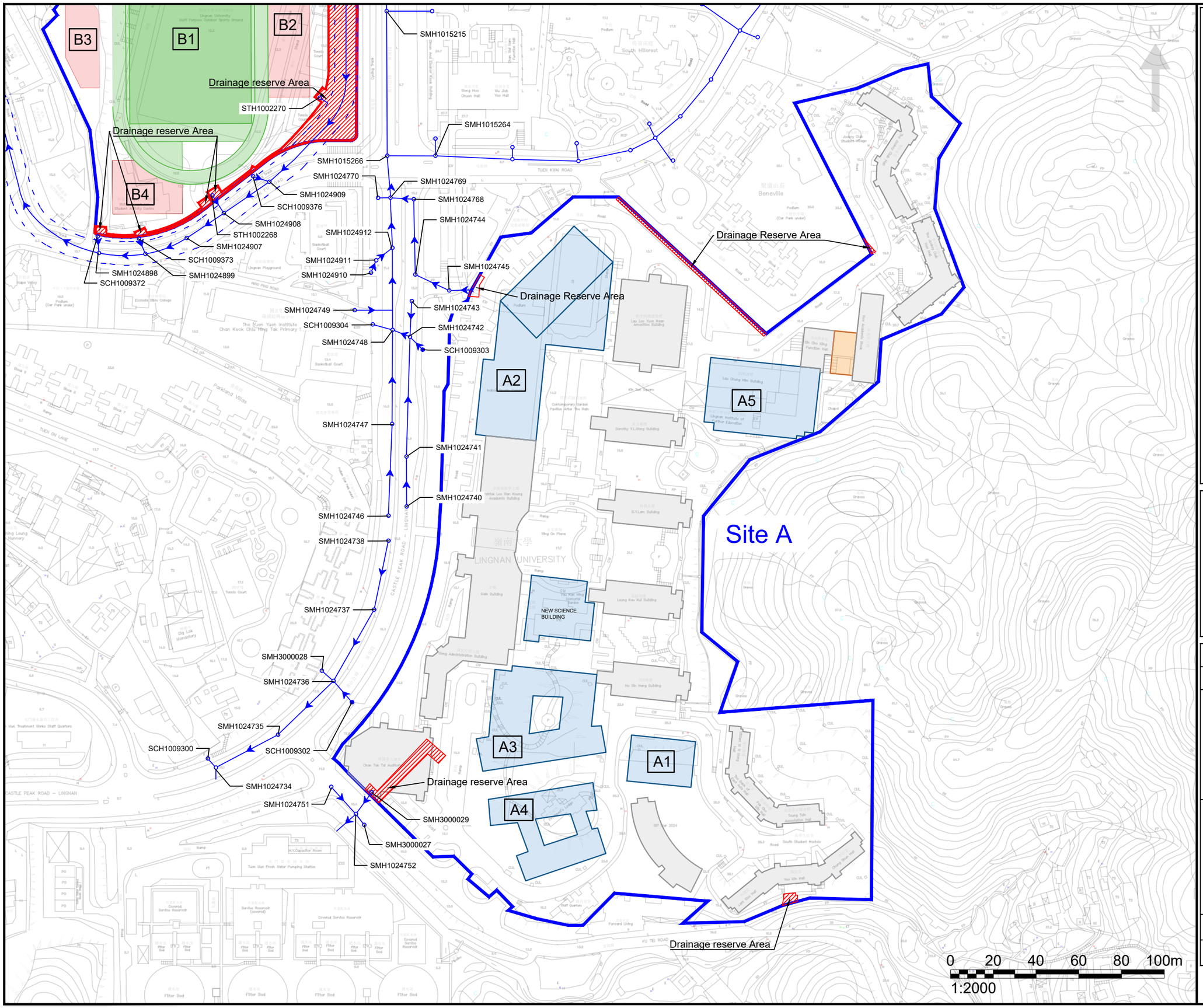

NOTES :

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- EXISTING BUILDINGS
- PROPOSED NEW RESEARCH / ACADEMIC BUILDINGS
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT
- EXISTING DRAINAGE AND CATCHPIT
- EXISTING DRAINAGE AND MANHOLE
- BOX CULVERT

Consultant

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Project No. : 2292	
Drawing By : CS	
Project : SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN	
Drawing Title : OVERVIEW OF EXISTING DRAINAGE FOR SITE A	
Drawing No : FIGURE 5.1a	Revision : 2
Scale : AS SHOWN	Date : APR 2026

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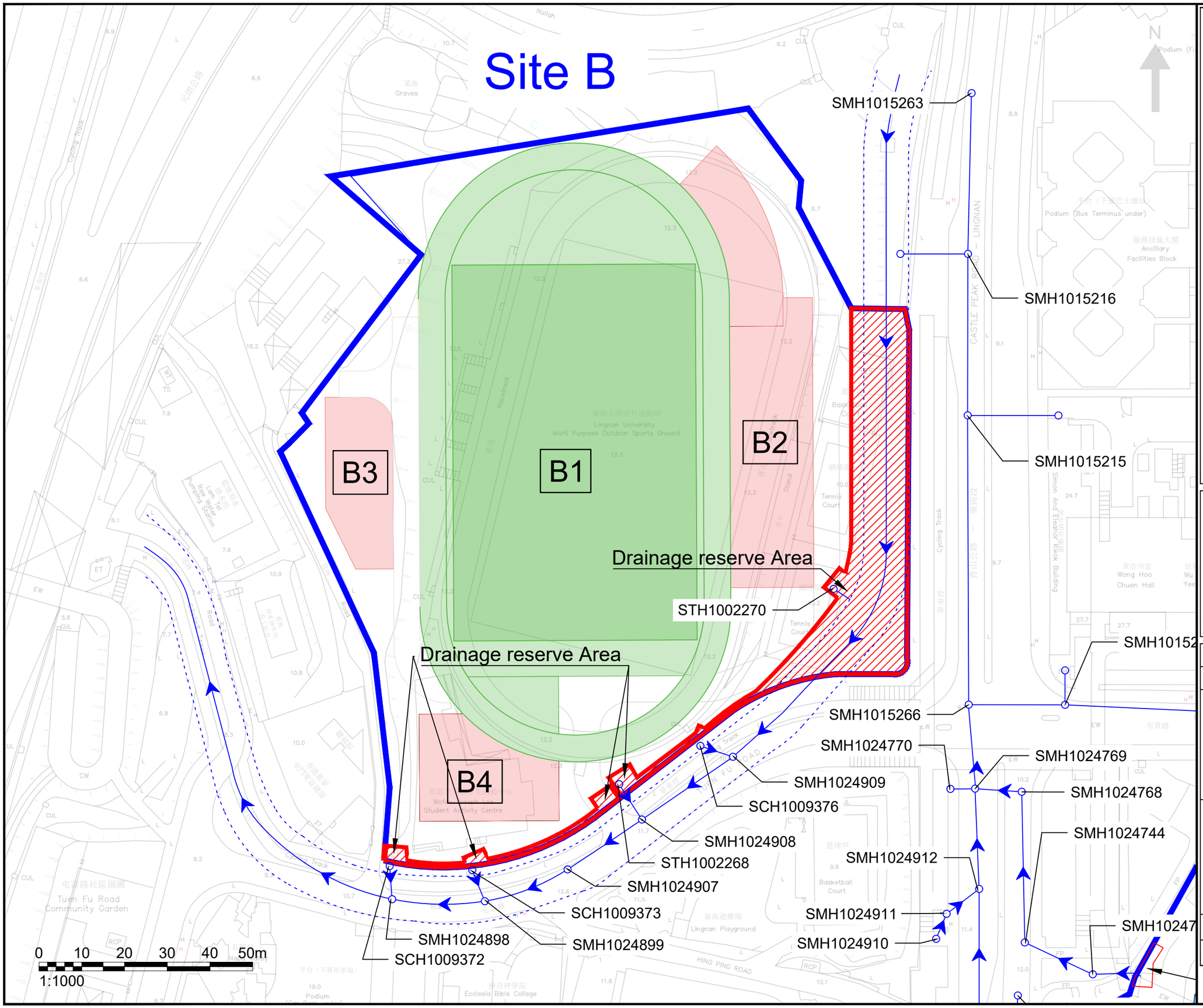
Site B



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- EXISTING BUILDINGS
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- PLANNED DEVELOPMENT
- EXISTING DRAINAGE AND CATCHPIT
- EXISTING DRAINAGE AND MANHOLE
- BOX CULVERT

Consultant

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Project No. :	2292
Drawing By :	CS

Project :
SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :
OVERVIEW OF EXISTING DRAINAGE FOR SITE B

Drawing No :	Revision :
FIGURE 5.1b	2
Scale :	Date :
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Appendix A

Proposed Development Potential Study
(Refer to Technical Feasibility Study)

Appendix B1

Lingnan university Internal Drainage Record Plan

NOTE:
- EXACT MANHOLE COVER LEVEL TO BE CHECKED ON SITE UNLESS OTHERWISE AS SHOW
- ** CATCH PIT / SAND TRAP INVERT LEVEL DEPEND ON CHANNEL GRADIENT, EXACT LEVEL TO BE CHECKED ON SITE

STUDENT HOSTELS 3
STUDENT HOSTELS 2
STUDENT HOSTELS 1
STUDENT HOSTELS
FACULTY OF BUSINESS BLOCK
SITE 1
SITE 2a
SITE 2b & 2c
REFER DWG. NO. 9331/PD-3002(2)
SITE 1
REFER DWG. NO. 9213/PD-3002
1500 WIDE PAVEMENT
FOOTPATH
WATER COURSE
FIRE LINE
K.C. COVERED CHANNEL R/C PAVEMENT / FOOTPATH
EXISTING 600 mm (WIDE) BOUNDARY CHANNEL CENTRE BOTTOM LEVEL +19.648 TO BE ABANDONED AND REMOVED
PROPOSED 450 DIA. SURFACE WATER STORM PIPE CONNECT TO EXISTING WATER COURSE (COST BY GOV'T AT OWNER'S COST)
LAST SURFACE WATER MANHOLE NO. S.W.
R.C.L. 16.60
I.L. 10.57
INVERT. 10.15
(COST BY GOV'T AT OWNER'S COST)
MIN. RIM C.L. 9.2 FOR LAST SURFACE WATER MANHOLE (UPSTREAM) S.W.M. BEFORE ENTERING STORM. TANK (BY MAIN CONTRACTOR)
EXISTING 1200 DIA. R.C. SURFACE WATER DRAIN

NOTE :
* EXACT MANHOLE COVER LEVEL TO BE CHECKED ON SITE UNLESS OTHERWISE AS SHOW
** CATCH PIT / SAND TRAP INVERT LEVEL DEPEND ON CHANNEL GRADIENT, EXACT LEVEL TO BE CHECKED ON SITE

SITE 2a
REFER DWG. NO. 9331/PD-3002(2)

SITE 1
REFER DWG. NO. 9213/PD-3002

SITE 2b

SITE 2c

SITE 1 AREA

FACULTY OF BUSINESS BLOCK

STUDENT HOSTELS 1

6M WIDE EVA

1500 WIDE PAVEMENT

FOOTPATH

RAMP UP

RAMP DOWN

R O A D

PRESIDENT'S LODGE (REFER DWG.NO. 9331/PD-3003)

OPERATION STAFF QUARTERS (REFER DWG. NO. 9331/PD-3009)

SOFT LANDSCAPE AREA

WATER COURSE

COPY
NG Ka-chun.
17 FEB 1997
A person authorized by the Building Authority in carrying out the purpose of Section 26(3)(i) of the Buildings Ordinance

BERNARD V. LIM
Authorized Person (List 1)
24 DEC 1996

NO.	DATE	AMENDMENT
B	DEC 96	REVISED AS PER AS BUILT DRAWING ARRANGED TO SUIT SITUATION
A	JAN 96	REVISED SURFACE WATER DRAINAGE SYSTEM FOR PHASE CONNECTION
	JUL 95	FORMER DWG. NO.-9331/PD-3002

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AUSTRALIA: P&T CONSULTANTS AUSTRALIA 69 WALKER ST., NORTH SYDNEY, N.S.W. 2060 — TEL: 02-929-8255
TAIWAN: P&T TAIWAN LTD. 600 MIN CHUAN EAST ROAD, TAIPEI — TEL: 717-1777 FAX: 717-1779

Plan Approved
H. K. Yoon
Chief Building Surveyor
for BUILDING AUTHORITY
22 JAN 1997

TITLE
LINGNAN COLLEGE
NEW CAMPUS DEVELOPMENT
AT T.M.T.L. 376
TUEN MUN
SITE 2

DRAWING
SITE PLAN II
(DRAINAGE)

SCALE 1:200	NUMBER 9331
DATE JULY '94	PD-3002(2)
DRAWN W.C.WU	A B
DESIGNED W.C.WU	CHECKED P.CHENG — APPROVED D.YIP

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RECEIVED BY BUILDING DEPARTMENT 08 JAN 10 53 AM '96

COPY
NG Ka-chun
17 FEB 2017
A public officer authorized by the Building Authority in writing for the purpose of Section 36(1) of the Buildings Ordinance

LEGEND

LOW FENCE WALL
REFER TO DETAIL SD1-82

HIGH FENCE WALL
REFER TO DETAIL SD1-80

CHAIN LINK FENCE
REFER TO DETAIL SD1-43

- ROAD SIDE GULLY (WITH Ø150 UPVC PIPE CONNECT TO MANHOLE)
- GULLY SUMP (WITH Ø225 C.I. PIPE CONNECT TO MANHOLE)
- 150 D.T.G. (WITH C.I. GRATING)
- 225 D.T.G. (WITH C.I. GRATING)
- STORM WATER DRAIN PIPE
- FOUL WATER DRAIN PIPE
- 250mm WIDE HALF ROUND CHANNEL WITH REINFORCE CONCRETE COVER
- EXISTING DRAIN PIPE
- EXISTING CHANNEL
- S.T. SAND TRAP
- C.P. CATCH PIT

SITE 3
REFER DWG. NO.
9331/P3-3002
TO BE SUBMITTED SEPARATELY

SITE 2 AREA
REFER TO DWG. NO.
9331/P2-3002
TO BE SUBMITTED SEPARATELY

SITE 4
AUDITORIUM
REFER DWG NO.
9325/P3-3002
TO BE SUBMITTED SEPARATELY

PART PLAN AT LEVEL +12.00
(CONSTRUCT AT SITE 1 DRAINAGE TO BE SHOWN)

ROOF PLAN

PLAN

TYPICAL GUARD HOUSE DETAIL
scale 1:50

NOTES:
1. A FRONT MANHOLE COVER LEVEL TO BE CARRIED OUT ONSITE UNLESS OTHERWISE AS SHOWN.
2. CATCH PIT/SAND TRAP INVERT LEVEL DEPEND ON CHANNEL GRADIENT, EXACT LEVEL TO BE CHECKED ON SITE

B.D. COPY

BERNARD V. LIM
Authorised Person (List 1)

1'2 APR 1995

NO.	DATE	AMENDMENT
L.	31/3/95	1. GENERAL : REVISION TO B.D. FINAL AMENDMENT
K.	19/3/96	1. REVISED DRAINAGE LAYOUT AT BLOCK 1 (EXCEPT CLUBS, CHILD CARE) & 2 AND FOOTING DETAILS
J.	19/4/96	1. GENERAL REVISED THE SITE 3 PLANNING, ENGINEERING
K.	7/11/96	A. REVISED "U" CHANNEL WITH AT AXIS 12A-14/A
G.	16/9/96	5. REVISED DRAINAGE LAYOUT AT AXIS 12A-14/A
F.	30/8/96	7. REVISED UNDER GROUND FOUL PIPE FROM 1 TO 2
E.	2/6/96	1. ADDED SUBS. ROOM ROOM WORKS, DOWN THE SITE 2
P.	11/9/96	5. CHANGE SOME PIPE DIA. AT AXIS 12A, 14A/A-C
		1. GENERAL REVISION
		2. REVISED PIPING ARRANGEMENT, AP-A
		3. GENERAL REVISION
		4. ARCHITECTURAL LAYOUT 30/9/96
		5. ADDED 3m dia. 3 TYP. MANH. ALONG ACCESS RD.
G.	18/6/99	1. ADDED 150 GULLY SUMP DETAIL
B.	26/9/99	1. REVISED TYP. MANHOLE FOR ROADSIDE GULLY SUMP.
A.	7/9/00	1. GENERAL REVISED

P&T Architects and Engineers Ltd

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HONG KONG: P&T (HAK) LTD. — TEL: 5-734734
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2003-5 CENTRO COMERCIAL DA PRAIA GRANDE — FAX: 853-314204
SINGAPORE: P&T ARCHITECTS/P&T ENGINEERS PTE. LTD — TEL: 5350201
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66 WALKER ST., NORTH SYDNEY, N.S.W. 2060
TAIWAN: P&T TAIWAN LTD. — TEL: 717-1777
5/20 MIN CHUAN EAST ROAD,/ TAIPEI — FAX: 717-1778

TITLE
LINGNAN COLLEGE
NEW CAMPUS DEVELOPMENT
AT T.M.T.L. 376
TUEN MUN

DRAWING
SITE PLAN , SITE 1
(DRAINAGE)

SCALE 1 : 500	NUMBER 2538
DATE JAN 93	PD-3002
DRAWN C.K.MAK	J K L - - - I
	A B C D E F G H
DESIGNED C.K.MAK	CHECKED — APPROVED

Plan Approved
for Chief Building Surveyor
for BUILDING AUTHORITY
11 MAY 1995

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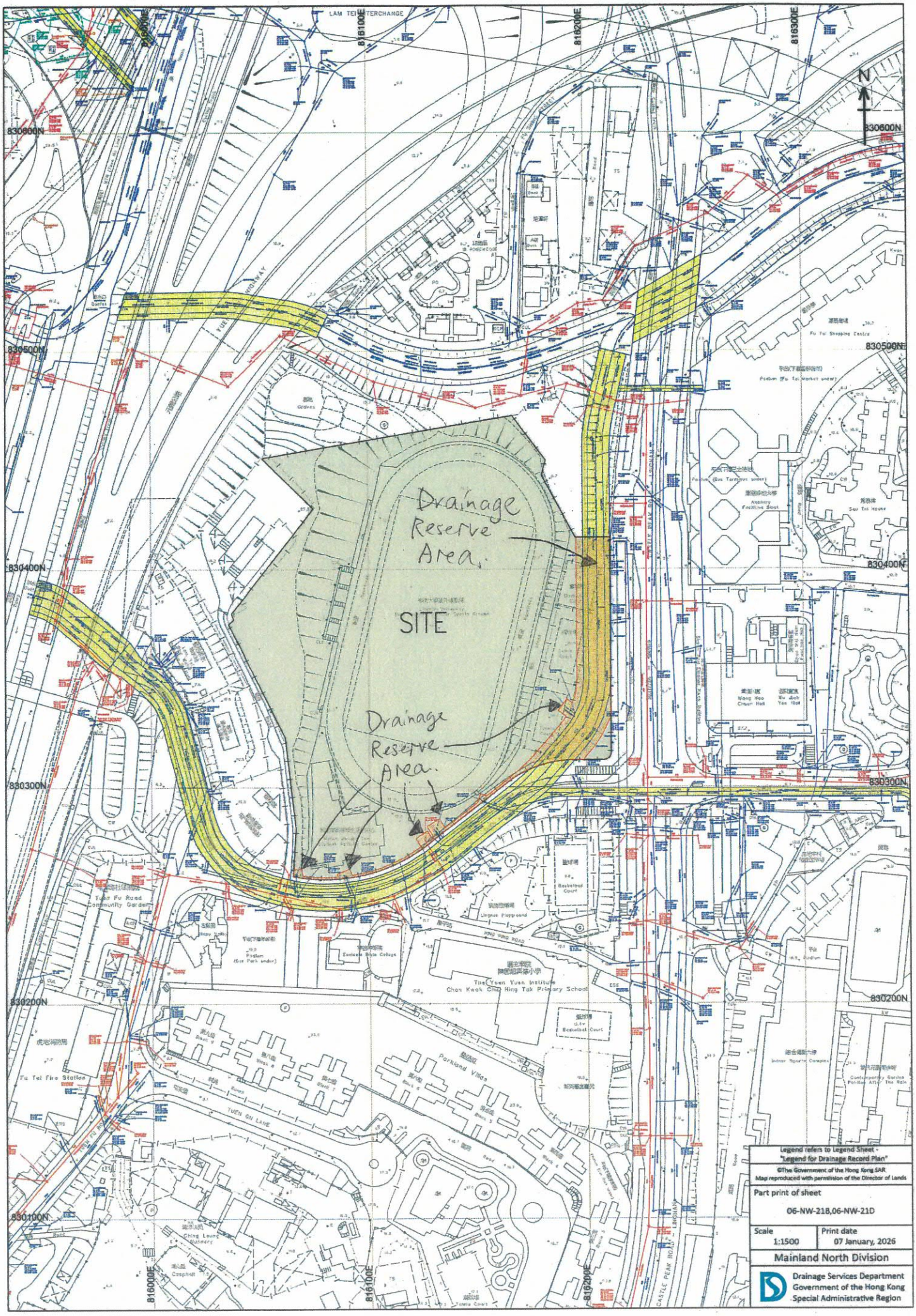
Appendix B2

DSD's Drainage Record Plan showing Drainage Reserve Area



Legend refers to Legend Sheet - "Legend for Drainage Record Plan"

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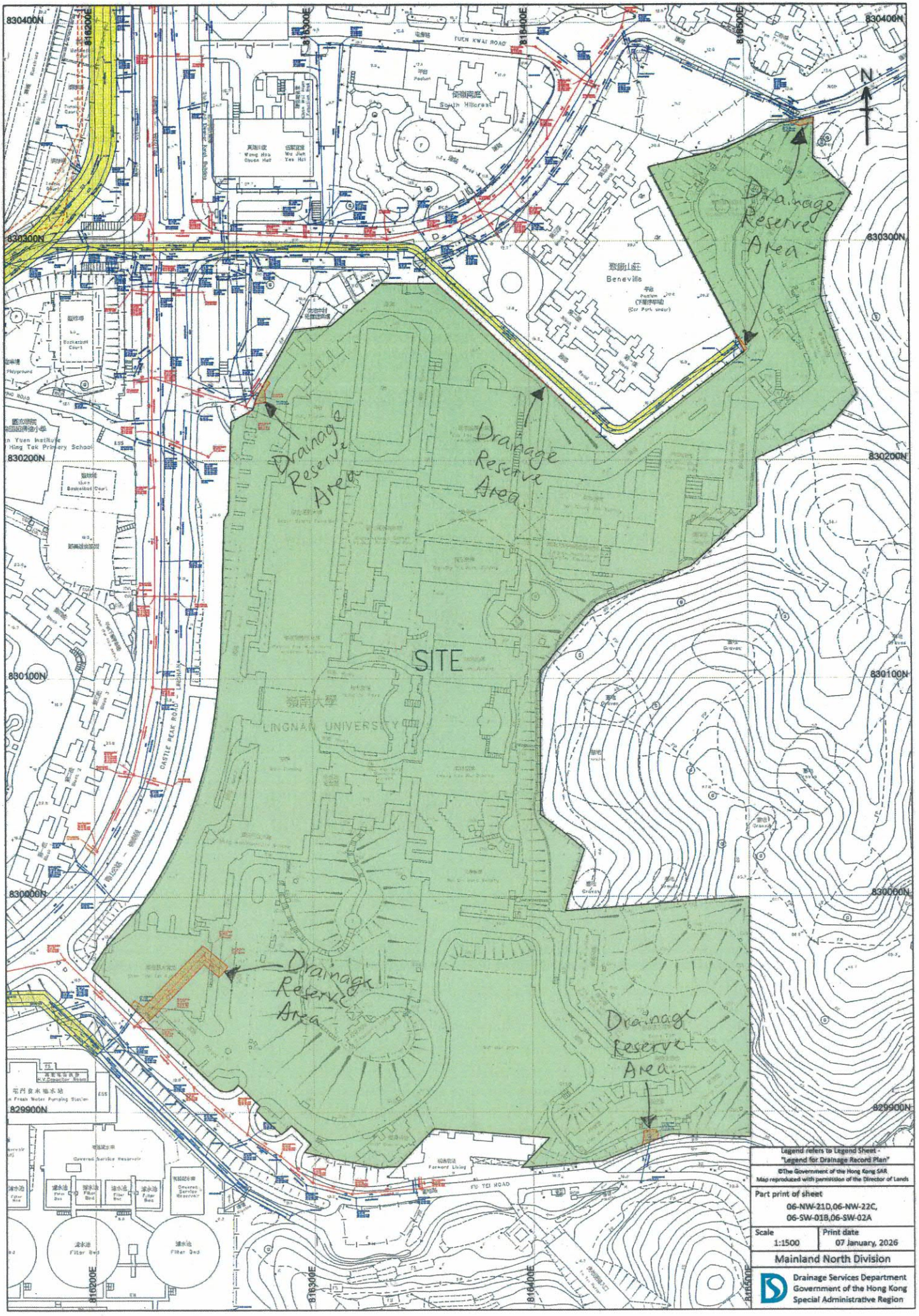
Part print of sheet

06-NW-218,06-NW-21D

Scale	Print date
1:1500	07 January, 2026

Mainland North Division

Drainage Services Department
Government of the Hong Kong Special Administrative Region



Legend refers to Legend Sheet - "Legend for Drainage Record Plan"

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Part print of sheet
06-NW-21D,06-NW-22C,
06-SW-01B,06-SW-02A

Scale	Print date
1:1500	07 January, 2026

Mainland North Division

Drainage Services Department
Government of the Hong Kong Special Administrative Region

Appendix C

Estimation of Sewage Discharge from the Site

Table 1 Total Average Sewage Discharge from Proposed Development

	Existing Development			
a	Total Number of Student	6218	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
b	Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
c	Average Dry Weather Flow	248.72	m^3/day	
d	Total Number of Staff	883	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
e	Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
f	Average Dry Weather Flow	247.24	m^3/day	
	Existing Hostel / Living Quarters			
a	Total Number of Student	2600	persons	Referred to information from Lingnan University Website https://www.ln.edu.hk/osa/residential-life/student-hostel
b	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
c	Average Dry Weather Flow	494.00	m^3/day	
	Existing Staff Quarters in Lingnan Hub			
a	Total number of staff quarters units	21	units	Referred to information from Lingnan University Website https://www.ln.edu.hk/ocdm/facilities/accomodation/lingnan-hub
b	Total Number of person	84	persons	Assumed 4 person per unit
c	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
d	Average Dry Weather Flow	15.96	m^3/day	
	Restaurant			
	Canteen			
a	Total Floor Area	875.50	m^2	Located at GF of Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
b	Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
c	Total number of person	45	persons	
d	Unit flow Factor	1.58	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Restaurants & Hotels J10 in Table T-2 of GESF.
e	Average Dry Weather Flow	71.1	m^3/day	
	Lingnan House			
a	Total Floor Area	875.50	m^2	Located at 1F of Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
b	Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
c	Total number of person	45	persons	
d	Unit flow Factor	1.58	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Restaurants & Hotels J10 in Table T-2 of GESF.
e	Average Dry Weather Flow	71.1	m^3/day	
	Proposed Development			
a	Future additional student enrollment	13000	persons	Estimate based on the Development Plan
b	Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
c	Average Dry Weather Flow	520.00	m^3/day	
d	Total Number of Staff	1858	persons	Estimated based on ratio of staff to student:https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
e	Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
f	Average Dry Weather Flow	520.24	m^3/day	
	Proposed Hostel / Living Quarters			
a	Total Number of Additional Student	4000	persons	Advised by client
b	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
c	Average Dry Weather Flow	760.00	m^3/day	
	Total ADWF (Existing + Proposed)	**2948.36**	**m^3/day**	

SITE A

1 **Outlet C**

Wong Administration Building + New Science Building + Proposed Academic Building A1 + Proposed Academic Building A3

a	Number of Student	5706	persons	Estimated based on GFA ratio of the existing and proposed building
b	Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
c	Average Dry Weather Flow	228.22	m^3/day	
d	Number of Staff	814	persons	Estimated based on GFA ratio of the existing and proposed building
e	Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
f	Average Dry Weather Flow	227.86	m^3/day	

Total ADWF to Outlet C **456.08** **m^3/day**

2 **Outlet B**

Main Building + Patrick Lee Wan Keung Academic Building + Proposed Academic Building A2

a	Number of Student	4505	persons	Estimated based on GFA ratio of the existing and proposed building
b	Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
c	Average Dry Weather Flow	180.18	m^3/day	
d	Number of Staff	642	persons	Estimated based on GFA ratio of the existing and proposed building
e	Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
f	Average Dry Weather Flow	179.89	m^3/day	

Total ADWF to Outlet B **360.07** **m^3/day**

3 **Outlet A**

Ho Sin Hang Building + Leung Kau Kiu Building + B.Y. Lam Building + Dorothy Y.L. Wong Building + Lau Lee Yuen Haan Amenities Building + Proposed Academic Building A5

a	Number of Student	4850	persons	Estimated based on GFA ratio of the existing and proposed building
b	Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
c	Average Dry Weather Flow	194.01	m^3/day	
d	Number of Staff	692	persons	Estimated based on GFA ratio of the existing and proposed building
e	Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
f	Average Dry Weather Flow	193.69	m^3/day	

Hostel / Living Quarter

Student Hostel 1 & 2

a	Number of Student	570	persons	Estimated based on GFA ratio of the existing student hostel
b	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
c	Average Dry Weather Flow	108.27	m^3/day	

Student Hostel 5 & 6

a	Number of Student	541	persons	Estimated based on GFA ratio of the existing student hostel
b	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
c	Average Dry Weather Flow	102.75	m^3/day	

The Jockey Club New Hall

a	Number of Student	522	persons	Estimated based on GFA ratio of the existing student hostel
b	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
c	Average Dry Weather Flow	99.11	m^3/day	

	Restaurant			
	Canteen			
a	Total Floor Area	875.50	m^2	Located at GF of Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
b	Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
c	Total number of person	45	persons	
d	Unit flow Factor	1.58	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Restaurants & Hotels J10 in Table T-2 of GESF.
e	Average Dry Weather Flow	71.1	m^3/day	
	Lingnan House			
a	Total Floor Area	875.50	m^2	Located at 1F of Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
b	Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
c	Total number of person	45	persons	
d	Unit flow Factor	1.58	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Restaurants & Hotels J10 in Table T-2 of GESF.
e	Average Dry Weather Flow	71.1	m^3/day	
	Total ADWF to Outlet A	**840.04**	**m^3/day**	

4	**Outlet D**			
	Chan Kai Tak Auditorium + Proposed Academic Building A4			
	Number of Student	2632	persons	Estimated based on GFA ratio of the existing and proposed building
	Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
	Average Dry Weather Flow	105.26	m^3/day	
	Number of Staff	375	persons	Estimated based on GFA ratio of the existing and proposed building
	Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Average Dry Weather Flow	105.09	m^3/day	
	Hostel / Living Quarter			
	Student Hostel 3 & 4			
	Number of Student	570	persons	Based on total number of student referred to University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
	Average Dry Weather Flow	108.27	m^3/day	
	Lingnan Hub			
	Number of Student	398	persons	Estimated based on GFA ratio of the existing student hostel
	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
	Average Dry Weather Flow	75.59	m^3/day	
	Total number of staff quarters units	21	units	Referred to the information from Lingnan University Website https://www.ln.edu.hk/ocdm/facilities/accomodation/lingnan-hub
	Total Number of Staff	84	persons	Assumed 4 person in a unit
	Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
	Average Dry Weather Flow	15.96	m^3/day	
	Total ADWF to Outlet D	**410.18**	**m^3/day**	

SITE B

Outlet E

Proposed Sport Complex and Amenities			
Number of Student	1526	persons	Estimated based on GFA ratio of the existing and proposed building
Unit Flow Factor [1]	0.04	m^3/person/day	School Student in Table T-2 of GESF
Average Dry Weather Flow	61.05	m^3/day	
Number of Staff	218	persons	Based on total number of staff referred to University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Unit Flow Factor [1]	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
Average Dry Weather Flow	60.95	m^3/day	
Proposed Hostel / Living Quarters			
Total Number of Additional Student	4000	persons	Assuming 20% of additional students to be accommodated on campus
Unit Flow Factor [1]	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
Average Dry Weather Flow	760.00	m^3/day	
Total ADWF to Outlet E	**881.99**	**m^3/day**	

Total

Total Sewage Generation Rate (DWF)	**2948.36**	**m^3/day**	
Sewage Generation Rate from Site A	**2066.37**	**m^3/day**	Estimated based on total GFA, assumed 77% of total ADWF generated from Site A
Catchment Inflow Factlor (Tuen Mun)	1.1		Reference from Table T-4 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
Revised Dry Weather Flow	2273.00	m^3/day	
Contributing Population	8419		
Peaking Factor	5		Refer to Table T-5 of GESF
Peak Flow	0.1315	m^3/s	
Sewage Generation Rate from Site B	**881.99**	**m^3/day**	Estimated based on total GFA, assumed 23% of total ADWF generated from Site B
Catchment Inflow Factlor (Tuen Mun)	1.1		Reference from Table T-4 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
Revised Dry Weather Flow	970.19	m^3/day	
Contributing Population	3593		
Peaking Factor	6		Refer to Table T-5 of GESF
Peak Flow	0.0674	m^3/s	

Notes:

[1] The unit flow factor is made reference to "*Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (Version 1.0)* ", published by EPD.

Appendix D

Estimation of Sewage Discharge from Catchment Areas

Population Estimation for Catchment Areas

Catchment	Description	Magnitude	Unit	Remark
A1	**Parkland Villas Block 1-3**			
	Residential Building			
	Total number of units	576	units	Refer to https://hk.centanet.com/estate/en/Parkland-Villas/2-KEPPWPPHPB
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	1498	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**404.5**	m^3/day	
A2	**Parkland Villas Block 4-6**			
	Residential Building			
	Total number of units	576	units	Refer to https://hk.centanet.com/estate/en/Parkland-Villas/2-KEPPWPPHPB
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	1498	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**404.5**	m^3/day	
A3	**Generation from swimming pool**			
	Volumn of Swimming Pool	413.7	m^3	Area:142m2 , assume average height of 1.5m
	Turnover Rate	6	hr	General Specification for Swimming Pool Water Treatment Installation in Government Buildings of The Hong Kong Special Administrative Region (6 hr for outdoor swimming pool)
	Surface Loading Rate of Filter	30	$m^3/m^2/hr$	Swimming Pools: Design and Construction, Fourth Edition By Philip H. Perkins (30 m3/m2/hr adopted)
	Required Filter Area	2.2983	m^2	
	Backwash Duration	7	mins/day	With reference to Section B8.5.5 of General Specification for Swimming Pool Water Treatment Installation in Government Buildings of the HKSAR published by the ArchSD, "the water velocity chosen shall be effective in cleaning the filter in duration of 7 minutes for sand filter"
	Backwash Flow Rate	30	$m^3/m^2/hr$	Technical Paper - Domestic Swimming Pool Filtration by European Union of Swimmingpool and Spa Associations
	Maximum backwash volume	20.110417	m^3/day	
	Peak Flow	0.047882	m^3/s	
	Total ADWF of Catchment A	**829.0**	**m^3/day**	
B	**Fu Tei Village Office**			
	Total Area	36.89	m^2	Referred to Geoinfo Map
	Worker Density	3.3	person/100 m^2	Community, Social & Personal Services (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	2	person	
	Unit flow	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Average dry weather flow	0.56	m^3/day	
	Total ADWF of Catchment B	0.56	**m^3/day**	
C1	**Beneville Block 1, 2, 3 & 5**			
	Total number of units	684	units	Refer to https://hk.centanet.com/estate/en/Beneville/2-KEPPWPPVPB
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	1779	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**480.3**	m^3/day	
C2	**South Hill Crest**			
	Total number of units	310	units	Refer to https://hk.centanet.com/estate/en/Beneville/2-KEPPWPPVPB
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	806	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**217.6**	m^3/day	

Population Estimation for Catchment Areas

Catchment	Description	Magnitude	Unit	Remark
C3	**Fu Tai Estate**			
	Total number of units	5100	units	Refer to Housing Authority website https://www.housingauthority.gov.hk/en/global-elements/estate-locator/detail.html?propId=1&id=1321348400475&dist=4
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	13260	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**3580.2**	m^3/day	
	Total ADWF of Catchment C	4278.2	**m^3/day**	
D	**Forward Living (9 Fu tei Rd, Tuen Mun)**			
	Number of Residential Places	229	person	Included subsidised and non-subsidized residual places, referred to SWD Elderly Info website: https://www.elderlyinfo.swd.gov.hk/en/content/forward-living
	Unit flow	0.19	m^3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
	Total number of employee	42	person	Included all staffs, referred to SWD Elderly Info website: https://www.elderlyinfo.swd.gov.hk/en/content/forward-living
	Unit flow	0.28	m3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
	Average dry weather flow	**55.3**	m^3/day	
	Total ADWF of Catchment D	**55.3**	**m^3/day**	
E	**Tuen Mun Water Treatment Works**			
	Total number of person	10	person	Referred to EIA report ESB-220/2011 In-situ Reprovisioning of Sha Tin Water Treatment Works project, assumed 10 staff will work in the water treatment works per day. (https://www.epd.gov.hk/eia/register/report/eiareport/eia_2242014/EIA/text_pdf/S12_Hazard.pdf)
	Unit flow	0.33	m3/person/day	Referred to the planning unit flow for Commercial Employee + Electricity Gas & Water J2 in Table T-2 of GESF.
	Average dry weather flow	**3.3**	m^3/day	
	Total ADWF of Catchment E	**3.3**	m^3/day	
F1	**Tuen Mun Treatment Works Staff Quarters**			
	Total number of units	15	units	Refer to Geoinfo map
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	39	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (Private R2) in Table T-1 of GESF.
	Average dry weather flow	**10.5**	m^3/day	
F2	**Tuen Fu Rd Disciplined Services Quarters**			
	Total number of units	140	units	Referred to ALKF website: https://www.alkf.com/en/projects/project-detail/?pid=4790
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	364	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (Private R2) in Table T-1 of GESF.
	Average dry weather flow	**98.3**	m^3/day	
	Total ADWF of Catchment F	**108.8**	m^3/day	
G	**The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School**			
	Total Number of Student	554	person	Referred to School Annual Report 2023-2024 https://www.ckcps.edu.hk/sites/default/files/files/2023-2024zhou_nian_xiao_wu_bao_gao_.pdf
	Unit flow	0.04	m^3/person/day	School Student in Table T-2 of GESF
	Average dry weather flow	22.16	m^3/day	
	Total Number of Staff	72	person	Referred to School Annual Report 2023-2024 https://www.ckcps.edu.hk/sites/default/files/files/2023-2024zhou_nian_xiao_wu_bao_gao_.pdf
	Unit flow	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Average dry weather flow	20.16	m^3/day	
	Total ADWF of Catchment G	42.32	m^3/day	

Population Estimation for Catchment Areas

Catchment	Description	Magnitude	Unit	Remark
H	**Ecclesia Bible Collage**			
	Total Number of Student	70	person	
	Unit flow	0.04	m^3/person/day	School Student in Table T-2 of GESF
	Average dry weather flow	2.8	m^3/day	
	Total Number of Staff	14	person	Assume staff:student ratio is 1:5
	Unit flow	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Average dry weather flow	3.92	m^3/day	
	Total ADWF of Catchment H	6.72		
I	**Napa Valley**			
	Residential Building			
	Total number of units	98	units	Refer to Centanet website https://hk.centanet.com/estate/en/Napa%20Valley/2-KEPPWWPYWB
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	255	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**68.9**	m^3/day	
	Total ADWF of Catchment I	68.9		
J	**Tuen Fu Road Community garden**			
	Total Area	115.47	m^2	Referred to Geoinfo Map
	Worker Density	3.3	person/100 m^2	Community, Social & Personal Services (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	4	person	
	Unit flow	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Average dry weather flow	1.12	m^3/day	
	Total ADWF of Catchment J	1.12		
K	**Fu tei Fire Station**			
	Total Area	2276.3	m^2	Referred to Geoinfo Map
	Worker Density	3.3	person/100 m^2	Community, Social & Personal Services (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	76	person	
	Unit flow	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Average dry weather flow	21.28	m^3/day	
	Total ADWF of Catchment K	21.28		
L	**Parkland Villas Block 7-9**			
	Residential Building			
	Total number of units	576	units	Refer to https://hk.centanet.com/estate/en/Parkland-Villas/2-KEPPWPPHPB
	Average Household Size	2.6	persons	Refer to Average Domestic Household Size of Tuen Mun District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
	Total number of residents	1498	persons	
	Unit flow	0.27	m3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF.
	Average dry weather flow	**404.5**	m^3/day	
	Total ADWF of Catchment L	404.5	m^3/day	

Population Estimation for Catchment Areas

Catchment	Description	Magnitude	Unit	Remark
M1	**Simon and Eleanor Kwok Building**			
	Total Area	5178	m^2	https://www.ln.edu.hk/giving/giving-news/topping-out-ceremony-of-simon-and-eleanor-kwok-building-at-lingnan-university
	Worker Density	3.3	person/100 m^2	Community, Social & Personal Services (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	171	person	
	Unit flow	0.28	m^3/person/day	Commercial Employee + Community, Social and Personal Services - J11 in Table T-2 of GESF.
	Total Number of Student	1197	person	Estimated based on ratio of staff to student:https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
	Unit Flow	0.04	m^3/person/day	School Student in Table T-2 of GESF
	Average dry weather flow	95.76	m^3/day	
M2	**Wong Hoo Chuen Hall**			
	Total number of hostel space	375	persons	https://www.ugc.edu.hk/doc/eng/qac/publication/progress/lu201201.pdf
	Unit Flow Factor	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
	Wu Jieh Yee Hall			
	Total number of hostel space	375	persons	https://www.ugc.edu.hk/doc/eng/qac/publication/progress/lu201201.pdf
	Unit Flow Factor	0.19	m3/person/day	Referred to the planning unit flow for Domestic (Institutional & special class) in Table T-1 of GESF.
	Average dry weather flow	142.5	m^3/day	
	Total ADWF of Catchment M	238.26	m^3/day	
N1	**Fu Tai Shopping Centre**			
	Total Area	3985.7	m^2	Assumed 70% accupied by shoplot, https://www.linkreit.com/en/business/properties/fu-tai-shopping-centre/
	Retail Floor Area	2989.2	m^2	Assumed 75% shop are retail
	Worker Density	3.5	person/100 m^2	Retail Trade (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	105	person	
	Unit flow	0.28	m^3/person/day	Commercial Employee + Wholesale and Retail - J4 in Table T-2 of GESF.
	F&B Floor Area	996.4	m^2	Assumed 25% shop are F&B
	Worker Density	5.1	person/100 m^2	Restaurants (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	51	person	
	Unit flow	1.58	m^3/person/day	Commercial Employee + restaurants and Hotels - J10 in Table T-2 of GESF.
	Average dry weather flow	109.98	m^3/day	
N2	**Bus Terminal under Fu Tai Shopping Centre**			
	Total Area	1900	m^2	Estimated
	Worker Density	3.8	person/100 m^2	Transport (All Types) in Table 8 of CIFSUS.
	Total Number of Staff	73	person	
	Unit flow	0.18	m^3/person/day	Commercial Employee + Transport, Storage & Communication - J3 in Table T-2 of GESF.
	Average dry weather flow	73.18	m^3/day	
	Total ADWF of Catchment N	183.16	m^3/day	

Appendix E

Calculation of Flow Capacity of Proposed Development

Calculation of Flow Capacity of Proposed Development

Sewer No.				Material	Internal Diameter (m) [a]	Cross-section Area (m^2)	Length (m)	Inlet mPD (m) [a]	Outlet mPD (m) [a]	Hydraulic pipeline roughness (m) [b]	Hydraulic Gradient	Mean Velocity (m/s) [c]	Max Capacity of Sewer (m^3/s)	Total Average Dry Weather Flow	Catchment Inflow Factor	Revised Total Average Dry Weather Flow [g]	Contributing Population	Peaking Factor	Peak Discharge from Project Site m^3/day	Peak Discharge through Manhole m^3/s	Swimming Pool Discharge through Manhole m3/s	Total Discharge through Manhol m3/s	Utility	Proposed Development Contribution	Remark
Stream C																									
Outlet C	FTH1003556	S1	FMH1015204	Clayware	0.225	0.040	17.4	11.45	11.30	0.003	0.00863	0.95	0.038	456.1	1.1	501.7	1858	6.0	3010.1	0.035	-	0.035	92.2%	92.2%	Site A Outlet C
S1	FMH1015204	S2	FMH1015205	Clayware	0.300	0.071	39.4	11.20	10.82	0.003	0.00965	1.22	0.086	1265.0	1.1	1391.5	5154	5.0	6957.5	0.081	0.048	0.081	93.3%	40.4%	Site A Outlet C + Catchment A
S2	FMH1015205	S3	FMH1015206	Clayware	0.300	0.071	39.9	10.72	10.30	0.003	0.01053	1.28	0.090	1265.0	1.1	1391.5	5154	5.0	6957.5	0.081	0.048	0.081	89.3%	38.6%	Site A Outlet C + Catchment A
S3	FMH1015206	S4	FMH1015207	Clayware	0.300	0.071	48.2	10.09	9.56	0.003	0.01099	1.30	0.092	1265.0	1.1	1391.5	5154	5.0	6957.5	0.081	0.048	0.081	87.4%	37.8%	Site A Outlet C + Catchment A
S4	FMH1015207	S5	FMH1015208	Clayware	0.300	0.071	23.0	9.55	9.25	0.003	0.01304	1.42	0.100	1265.0	1.1	1391.5	5154	5.0	6957.5	0.081	0.048	0.081	80.3%	34.7%	Site A Outlet C + Catchment A
Stream B																									
Outlet B	FMH1015209	S5	FMH1015208	Clayware	0.300	0.071	26.3	8.12	7.84	0.003	0.01067	1.28	0.091	360.1	1.1	396.1	1467	6.0	2376.5	0.028	-	0.028	30.3%	30.3%	Site A Outlet B
S5	FMH1015208	S6	FMH1015211	Clayware	0.450	0.159	23.1	7.64	7.48	0.003	0.00691	1.35	0.215	1625.1	1.1	1787.6	6621	5.0	8937.9	0.103	0.048	0.151	70.4%	16.3%	Site A Outlet B & C + Catchment A
100%																									
	FMH1015264		FMH1015266	Clayware	0.375	0.110	25.8	5.70	5.55	0.003	0.00581	1.10	0.121	1905.3	1.1	2095.8	7762	5.0	10479.0	0.121	-	0.121	100%		Assume 100%
Stream A																									
Outlet A	FTH1003559	S7	FMH1015210	Clayware	0.300	0.071	10.4	6.47	6.35	0.003	0.01154	1.33	0.094	840.0	1.1	924.0	3422	6.0	5544.2	0.064	-	0.064	68.0%	68.0%	Site A Outlet A
S7	FMH1015210	S6	FMH1015211	Clayware	0.300	0.071	42.8	6.34	6.06	0.003	0.00654	1.00	0.071	840.0	1.1	924.0	3422	6.0	5544.2	0.064	-	0.064	90.4%	90.4%	Site A Outlet A
S6	FMH1015211	S8	FMH1015214	Clayware	0.450	0.159	37.3	6.04	5.69	0.003	0.00938	1.58	0.251	2465.1	1.1	2711.6	10043	4.0	10846.5	0.126	0.048	0.173	69.2%	31.8%	Site A Outlet A - C + Catchment A
S8	FMH1015214	S9	FMH1015265	Clayware	0.450	0.159	15.8	5.66	5.51	0.003	0.00948	1.58	0.252	2465.7	1.1	2712.2	10045	4.0	10848.9	0.126	0.048	0.173	68.9%	31.7%	Site A Outlet A - C + Catchment A, B
S9	FMH1015265	S10	FMH1015266	Clayware	0.450	0.159	8.5	5.51	5.42	0.003	0.01058	1.67	0.266	2465.7	1.1	2712.2	10045	4.0	10848.9	0.126	0.048	0.173	65.2%	30.3%	Site A Outlet A - C + Catchment A, B
S10	FMH1015266	S11	FMH1015215	Clayware	0.450	0.159	79.4	5.42	4.66	0.003	0.00957	1.59	0.253	4370.9	1.1	4808.0	17808	4.0	19232.2	0.223	0.048	0.270	106.8%	31.6%	Site A Outlet A - C + Catchment A, B, C
S11	FMH1015215	S12	FMH1015216	Clayware	0.450	0.159	42.9	4.08	3.51	0.003	0.01330	1.88	0.299	4609.2	1.1	5070.1	18778	4.0	20280.5	0.235	0.048	0.283	94.7%	27.7%	Site A Outlet A - C + Catchment A, B, C, M
S12	FMH1015216	S13	FMH1015263	Clayware	0.450	0.159	43.3	3.49	2.92	0.003	0.01316	1.87	0.297	4609.2	1.1	5070.1	18778	4.0	20280.5	0.235	0.048	0.283	95.2%	27.8%	Site A Outlet A - C + Catchment A, B, C, M
S13	FMH1015263	S14	FMH1015262	Clayware	0.750	0.442	12.8	2.77	2.72	0.003	0.00389	1.42	0.626	4792.4	1.1	5271.6	19524	4.0	21086.4	0.244	0.048	0.292	46.7%	25.6%	Site A Outlet A - C + Catchment A, B, C, M, N
Stream D																									
Outlet D	FMH1015194	S12	FMH1015195	Clayware	0.225	0.040	43.0	8.34	7.79	0.003	0.01280	1.16	0.046	465.4	1.1	512.0	1896	6.0	3072.0	0.036	-	0.036	77.2%	68.0%	Site A Outlet D + Catchment D
S12	FMH1015195	S13	FMH1015196	Clayware	0.225	0.040	88.0	7.21	6.32	0.003	0.01011	1.03	0.041	465.4	1.1	512.0	1896	6.0	3072.0	0.036	-	0.036	86.9%	76.6%	Site A Outlet D + Catchment D
S13	FMH1015196	S14	FMH1015197	Clayware	0.225	0.040	13.5	6.18	6.05	0.003	0.00963	1.00	0.040	468.7	1.1	515.6	1910	6.0	3093.7	0.036	-	0.036	89.7%	78.5%	Site A Outlet D + Catchment D, E
S14	FMH1015197	S15	FMH1015198	Clayware	0.225	0.040	29.6	6.04	5.76	0.003	0.00948	1.00	0.040	468.7	1.1	515.6	1910	6.0	3093.7	0.036	-	0.036	90.4%	79.1%	Site A Outlet D + Catchment D, E
S15	FMH1015198	S16	FMH1015191	Clayware	0.225	0.040	19.3	5.76	5.34	0.003	0.02174	1.51	0.060	468.7	1.1	515.6	1910	6.0	3093.7	0.036	-	0.036	59.6%	52.2%	Site A Outlet D + Catchment D, E
S16	FMH1015191	S17	FMH1015189	Clayware	0.225	0.040	30.8	5.33	4.63	0.003	0.02271	1.54	0.061	468.7	1.1	515.6	1910	6.0	3093.7	0.036	-	0.036	58.4%	51.1%	Site A Outlet D + Catchment D, E
S17	FMH1015189	S18	FMH1015188	Clayware	0.225	0.040	57.9	4.63	4.38	0.003	0.00432	0.67	0.027	577.6	1.1	635.3	2353	6.0	3811.9	0.044	-	0.044	165.3%	117.4%	Site A Outlet D + Catchment D, E, F
S18	FMH1015188	S19	FMH1015187	Clayware	0.300	0.071	51.0	4.38	4.25	0.003	0.00255	0.63	0.044	577.6	1.1	635.3	2353	6.0	3811.9	0.044	-	0.044	99.8%	70.9%	Site A Outlet D + Catchment D, E, F
S19	FMH1015187	S20	FMH1015186	Clayware	0.300	0.071	23.9	4.25	4.15	0.003	0.00418	0.80	0.057	577.6	1.1	635.3	2353	6.0	3811.9	0.044	-	0.044	77.8%	55.3%	Site A Outlet D + Catchment D, E, F
Stream E (Site B)																									
Outlet E	FTH1003577	S12	FMH1015281	Clayware	0.300	0.071	14.5	10.00	9.20	0.003	0.05517	2.92	0.207	882.0	1.1	970.2	3593	6.0	5821.2	0.067	-	0.067	32.6%	32.6%	Site B
S12	FMH1015281	S13	FMH1015280	Clayware	0.300	0.071	24.4	8.60	8.40	0.003	0.00818	1.12	0.079	882.0	1.1	970.2	3593	6.0	5821.2	0.067	-	0.067	84.8%	84.8%	Site B
S13	FMH1015280	S14	FMH1015279	Clayware	0.300	0.071	24.1	8.40	8.20	0.003	0.00831	1.13	0.080	924.3	1.1	1016.7	3766	6.0	6100.5	0.071	-	0.071	88.2%	84.2%	Site B + Catchment G
S14	FMH1015279	S15	FMH1015278	Clayware	0.300	0.071	24.2	8.20	7.55	0.003	0.02692	2.04	0.144	931.0	1.1	1024.1	3793	6.0	6144.8	0.071	-	0.071	49.3%	46.7%	Site B + Catchment G, H
S15	FMH1015278	S16	FMH1015277	Clayware	0.300	0.071	25.9	7.55	6.48	0.003	0.04134	2.53	0.179	999.9	1.1	1099.9	4074	6.0	6599.2	0.076	-	0.076	42.7%	37.7%	Site B + Catchment G, H, I
S16	FMH1015277	S17	FMH1015276	Clayware	0.300	0.071	24.5	6.48	5.35	0.003	0.04622	2.68	0.189	999.9	1.1	1099.9	4074	6.0	6599.2	0.076	-	0.076	40.4%	35.6%	Site B + Catchment G, H, I
S17	FMH1015276	S18	FMH1015275	Clayware	0.300	0.071	39.7	5.35	4.95	0.003	0.01007	1.25	0.088	999.9	1.1	1099.9	4074	6.0	6599.2	0.076	-	0.076	86.7%	76.5%	Site B + Catchment G, H, I
S18	FMH1015275	S19	FMH1015274	Clayware	0.300	0.071	36.3	4.95	4.55	0.003	0.01103	1.30	0.092	1001.0	1.1	1101.1	4078	6.0	6606.6	0.076	-	0.076	82.9%	73.1%	Site B + Catchment G, H, I, J
S19	FMH1015274	S20	FMH1015273	Clayware	0.300	0.071	24.6	4.55	4.18	0.003	0.01504	1.52	0.108	1405.5	1.1	1546.0	5726	5.0	7730.0	0.089	-	0.089	83.0%	62.5%	Site B + Catchment G, H, I, J, K

[a] Reference from GeoInfo Map
[b] For all the public sewers, assumed clayware slimed sewers in "poor" condition, ks value of 3.0mm is adopted.
[c] The velocity is calculated using the Colebrook-White Formula:

$$V = -2(2gDS)^{0.5}\log\left(\frac{k}{3.7D} + \frac{2.5\nu}{D(2gDS)^{0.5}}\right)$$

where
k = Colebrook-White roughness coefficient, in meter
V = mean velocity (m/s)
D = circular cross-section pipe, inside diameter (m)
S = slope, in meters per meter
v = kinematic viscosity of water, in meter per second (0.000001306 m/s)
g = gravitational acceleration (m/s2) (9.807m/s2)

[d] The Contributing Population is defined as:

$$\text{Contributing Population} = \frac{\text{Calculated total average flow } (m^3/\text{day})}{0.27\ (m^3/\text{person/day})}$$

[e] Reference from Table T-5 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
[f] Reference from Table T-4 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
[g] Revised Total Average Dry Weather Flow = Total Average Dry Weather Flow x Catchment Inflow Factor
[h] Pipe segment that exceeded 100% used capacity are bolded and underlined
[i] Assume upstream section FMH1015264 to FMH1015266 is 100% occupied for worst case scenario

Appendix F

Calculation of Flow Capacity and Freeboard of Proposed Development

Calculation of Freeboard of Proposed Development

V=Q/Aw $\quad \mathrm{Re} = \frac{DV}{\nu}$ $\quad \frac{1}{\sqrt{f_1}} = -4.0\log\left[\frac{\varepsilon/D}{3.7} + \frac{1.26}{\mathrm{Re}\sqrt{f_0}}\right]$ $\quad h_f = f\left(\frac{L}{D}\right)\left(\frac{V^2}{2g}\right)$ $\quad h_f = K\left(\frac{V^2}{2g}\right)$

Sewer No.				Percentage of capacity	Peak Discharge through Manhole (m3/s)	Length (m)	Internal Diameter (m)	Inlet mPD US_IL (m)	Outlet mPD DS_IL (m)	Wetted Area (m^2)	Flow Velocity (m/s)	Reynolds Number [5]		Hydraulic pipeline roughness (m) [6]	Fanning Friction Factor					Frictional Loss [7]	Entry Loss K=0.5 [8]	Exit Loss K=1	Downstream Sewage Level (mPD) [1]	Upstream Sewage Level (mPD) [2]	Upstream Manhole Cover Level (mPD) [3]	Criteria 1: freeboard >1m Freeboard after Development (m)	Remark
ID	From	ID	To			L	D			Aw	V	Re		ε	f0	f1	f2	f3	f4								
Stream A																											
Outlet A	FTH1003559	S7	FMH1015210	68.0%	0.064	10.4	0.300	6.47	6.35	0.071	0.908	238898.177	Turbulent Flow	0.003	1	0.009482179	0.009539841	0.009539648	0.009539649	0.0556	0.0210	0.0420	6.95	7.07	11.90	4.83	Site A Outlet A
S7	FMH1015210	S6	FMH1015211	90.4%	0.064	42.8	0.300	6.34	6.06	0.071	0.908	238898.177	Turbulent Flow	0.003	1	0.009482179	0.009539841	0.009539648	0.009539649	0.2289	0.0210	0.0420	6.66	6.95	9.37	2.42	Site A Outlet A
S6	FMH1015211	S8	FMH1015214	69.2%	0.173	37.3	0.450	6.04	5.69	0.159	1.090	430419.224	Turbulent Flow	0.003	1	0.008303138	0.008345488	0.00834537	0.00834537	0.1678	0.0303	0.0606	6.40	6.66	11.69	5.03	Site A Outlet A - C + Catchment A
S8	FMH1015214	S9	FMH1015265	68.9%	0.173	15.8	0.450	5.66	5.51	0.159	1.091	430490.006	Turbulent Flow	0.003	1	0.008303137	0.00834548	0.008345363	0.008345363	0.0712	0.0303	0.0606	6.24	6.40	10.28	3.88	Site A Outlet A - C + Catchment A, B
S9	FMH1015265	S10	FMH1015266	65.2%	0.173	8.5	0.450	5.51	5.42	0.159	1.091	430490.006	Turbulent Flow	0.003	1	0.008303137	0.00834548	0.008345363	0.008345363	0.0383	0.0303	0.0606	6.11	6.24	10.20	3.96	Site A Outlet A - C + Catchment A, B
S10	FMH1015266	S11	FMH1015215	**106.8%**	0.270	79.4	0.450	5.42	4.66	0.159	1.701	671308.866	Turbulent Flow	0.003	1	0.008301607	0.008328813	0.008328764	0.008328764	0.8667	0.0737	0.1474	5.02	6.11	9.70	3.59	Site A Outlet A - C + Catchment A, B, C
S11	FMH1015215	S12	FMH1015216	94.7%	0.283	42.9	0.450	4.08	3.51	0.159	1.777	701423.863	Turbulent Flow	0.003	1	0.00830149	0.008327531	0.008327487	0.008327487	0.5105	0.0805	0.1609	4.27	5.02	9.19	4.17	Site A Outlet A - C + Catchment A, B, C, M
S12	FMH1015216	S13	FMH1015263	95.2%	0.283	43.3	0.450	3.49	2.92	0.159	1.777	701423.863	Turbulent Flow	0.003	1	0.00830149	0.008327531	0.008327487	0.008327487	0.5158	0.0805	0.1609	3.51	4.27	9.09	4.82	Site A Outlet A - C + Catchment A, B, C, M
S13	FMH1015263	S14	FMH1015264	46.7%	0.292	12.8	0.750	2.77	2.72	0.442	0.661	434744.680	Turbulent Flow	0.003	1	0.007109463	0.007169453	0.00716918	0.007169181	0.0109	0.0111	0.0223	3.47	3.51	8.82	5.31	Site A Outlet A - C + Catchment A, B, C, M, N
Stream D																											
Outlet D	FMH1015194	S12	FMH1015195	77.2%	0.036	43.0	0.225	8.34	7.79	0.040	0.894	176491.512	Turbulent Flow	0.003	1	0.010477199	0.010541547	0.010541328	0.010541329	0.3281	0.0204	0.0408	7.18	7.57	10.26	2.69	Site A Outlet D + Catchment D
S12	FMH1015195	S13	FMH1015196	86.9%	0.036	88.0	0.225	7.21	6.32	0.040	0.894	176491.512	Turbulent Flow	0.003	1	0.010477199	0.010541547	0.010541328	0.010541329	0.6722	0.0204	0.0408	6.44	7.18	12.34	5.16	Site A Outlet D + Catchment D
S13	FMH1015196	S14	FMH1015197	89.7%	0.036	13.5	0.225	6.18	6.05	0.040	0.901	177742.828	Turbulent Flow	0.003	1	0.010477147	0.010541044	0.010540829	0.01054083	0.1046	0.0207	0.0413	6.28	6.44	8.75	2.31	Site A Outlet D + Catchment D, E
S14	FMH1015197	S15	FMH1015198	90.4%	0.036	29.6	0.225	6.04	5.76	0.040	0.901	177742.828	Turbulent Flow	0.003	1	0.010477147	0.010541044	0.010540829	0.01054083	0.2289	0.0207	0.0413	5.99	6.28	8.43	2.15	Site A Outlet D + Catchment D, E
S15	FMH1015198	S16	FMH1015191	59.6%	0.036	19.3	0.225	5.76	5.34	0.040	0.901	177742.828	Turbulent Flow	0.003	1	0.010477147	0.010541044	0.010540829	0.01054083	0.1497	0.0207	0.0413	5.77	5.99	7.21	1.22	Site A Outlet D + Catchment D, E
S16	FMH1015191	S17	FMH1015189	58.4%	0.036	30.8	0.225	5.33	4.63	0.040	0.901	177742.828	Turbulent Flow	0.003	1	0.010477147	0.010541044	0.010540829	0.01054083	0.2388	0.0207	0.0413	5.47	5.77	6.81	1.04	Site A Outlet D + Catchment D, E
S17	FMH1015189	S18	FMH1015188	**165.3%**	0.044	57.9	0.225	4.63	4.38	0.040	1.110	219002.118	Turbulent Flow	0.003	1	0.010475769	0.010527679	0.010527537	0.010527537	0.6796	0.0314	0.0628	4.70	5.47	6.60	1.13	Site A Outlet D + Catchment D, E, F
S18	FMH1015188	S19	FMH1015187	99.8%	0.044	51.0	0.300	4.38	4.25	0.071	0.624	164251.588	Turbulent Flow	0.003	1	0.009485018	0.009568669	0.009568265	0.009568267	0.1293	0.0099	0.0199	4.54	4.70	6.14	1.44	Site A Outlet D + Catchment D, E, F
S19	FMH1015187	S20	FMH1015186	77.8%	0.044	23.9	0.300	4.25	4.15	0.071	0.624	164251.588	Turbulent Flow	0.003	1	0.009485018	0.009568669	0.009568265	0.009568267	0.0606	0.0099	0.0199	4.45	4.54	5.91	1.37	Site A Outlet D + Catchment D, E, F

Note:

[1] Downstream Sewage Level is the maximum of upstream water level of the next pipe or downstream invert level + diameter of the pipe
[2] Upstream Sewage Level is the downstream sewage level + frictional loss+entry/exit loss
[3] Information from GeoInfo Map and the Drainage Layout Plan
Manhole cover level in red is estimated from the ground level referred to basemap
[4] Minimum factor of safety against overflowing of 1.15, i.e. overflow will not occur at a flow rate of 1.15 times peak flow stated in DSD's "Sewerage Manual" is adopted
[5] Kinetic viscosity (v) = 1.14E-04 m2/s for water at 15°C.
[6] For Sewer S1 to S14, assumed clayware slimed sewers in "poor" condition, ks value of 3mm is adopted.
For New Sewer P1 to S5, assumed uPVC slimed sewers in " poor" condition, ks value of 1.5mm is adopted.
[7] Gravitational acceleration (g) = 9.81 m/s2.
[8] Head Loss Coefficient is referenced from Table 7 of DSD's Sewerage Manual, K = entry loss sharp-edged entrance (0.5) & Exit loss sudden enlargement (1)

Calculation of Freeboard of Proposed Development

V=Q/Aw $\quad Re = \frac{DV}{\nu}$ $\quad \frac{1}{\sqrt{f_t}} = -4.0\log\left[\frac{\varepsilon/D}{3.7} + \frac{1.26}{Re\sqrt{f_c}}\right]$ $\quad h_f = f\left(\frac{L}{D}\right)\left(\frac{V^2}{2g}\right)$ $\quad h_f = K\left(\frac{V^2}{2g}\right)$

Factor = 1.15

Criteria 2: sewerage level below cover level with 1.15 times peak flow

Sewer No.				Percentage of capacity	Requested Loading (m3/s) [4]	Length (m)	Internal Diameter (m)	Inlet mPD US_IL (m)	Outlet mPD DS_IL (m)	Wetted Area (m^2)	Flow Velocity (m/s)	Reynolds Number [5]		Hydraulic pipeline roughness (m) [6]	Fanning Friction Factor					Frictional Loss [7]	Entry Loss K=0.5 [8]	Exit Loss K=1	Downstream Sewage Level DS_TWL (mPD) [1]	Upstream Sewage Level US_TWL (mPD) [2]	Upstream Manhole Cover Level US_GL (mPD) [3]	Surcharge condition under the flow with a FoS of 1.15	Remark
ID	From	ID	To		Q	L	D			Aw	V	Re		ε^{-6}	f0	f1	f2	f3	f4								
Stream A																											
Outlet A	FTH1003659	S7	FMH1015210	68.0%	0.074	10.4	0.300	6.47	6.35	0.071	1.044	274733	Turbulent Flow	0.003	1	0.009481	0.009532	0.009531	0.009531	0.0734	0.0278	0.0556	8.07	8.23	11.90	3.67	Site A Outlet A
S7	FMH1015210	S6	FMH1015211	90.4%	0.074	42.8	0.300	6.34	6.06	0.071	1.044	274733	Turbulent Flow	0.003	1	0.009481	0.009532	0.009531	0.009531	0.3024	0.0278	0.0556	7.69	8.07	9.37	1.30	Site A Outlet A
S6	FMH1015211	S8	FMH1015214	69.2%	0.199	37.3	0.450	6.04	5.69	0.159	1.254	494982	Turbulent Flow	0.003	1	0.008303	0.008339	0.008339	0.008339	0.2218	0.0401	0.0801	7.35	7.69	11.69	4.00	Site A Outlet A - C + Catchment A
S8	FMH1015214	S9	FMH1015265	68.9%	0.199	15.8	0.450	5.66	5.51	0.159	1.254	495064	Turbulent Flow	0.003	1	0.008303	0.008339	0.008339	0.008339	0.0941	0.0401	0.0802	7.13	7.35	10.28	2.93	Site A Outlet A - C + Catchment A, B
S9	FMH1015265	S10	FMH1015266	65.2%	0.199	8.5	0.450	5.51	5.42	0.159	1.254	495064	Turbulent Flow	0.003	1	0.008303	0.008339	0.008339	0.008339	0.0506	0.0401	0.0802	6.96	7.13	10.20	3.07	Site A Outlet A - C + Catchment A, B
S10	FMH1015266	S11	FMH1015215	**106.8%**	0.311	79.4	0.450	5.42	4.66	0.159	1.956	772005	Turbulent Flow	0.003	1	0.008301	0.008325	0.008325	0.008325	1.1457	0.0975	0.1950	5.52	6.96	9.70	2.74	Site A Outlet A - C + Catchment A, B, C
S11	FMH1015215	S12	FMH1015216	94.7%	0.325	42.9	0.450	4.08	3.51	0.159	2.043	806637	Turbulent Flow	0.003	1	0.008301	0.008324	0.008324	0.008324	0.6748	0.1064	0.2128	4.53	5.52	9.19	3.67	Site A Outlet A - C + Catchment A, B, C, M
S12	FMH1015216	S13	FMH1015263	95.2%	0.325	43.3	0.450	3.49	2.92	0.159	2.043	806637	Turbulent Flow	0.003	1	0.008301	0.008324	0.008324	0.008324	0.6819	0.1064	0.2128	3.53	4.53	9.09	4.56	Site A Outlet A - C + Catchment A, B, C, M
S13	FMH1015263	S14	FMH1015264	46.7%	0.336	12.8	0.750	2.77	2.72	0.442	0.760	499956	Turbulent Flow	0.003	1	0.007109	0.007161	0.007161	0.007161	0.0144	0.0147	0.0294	3.47	3.53	8.82	5.29	Site A Outlet A - C + Catchment A, B, C, M, N
Stream D																											
Outlet D	FMH1015194	S12	FMH1015195	77.2%	0.041	43.0	0.225	8.34	7.79	0.040	1.028	202965	Turbulent Flow	0.003	1	0.010476	0.010532	0.010532	0.010532	0.4336	0.0270	0.0539	8.05	8.57	10.26	1.69	Site A Outlet D + Catchment D
S12	FMH1015195	S13	FMH1015196	86.9%	0.041	88.0	0.225	7.21	6.32	0.040	1.028	202965	Turbulent Flow	0.003	1	0.010476	0.010532	0.010532	0.010532	0.8882	0.0270	0.0539	7.08	8.05	12.34	4.29	Site A Outlet D + Catchment D
S13	FMH1015196	S14	FMH1015197	89.7%	0.041	13.5	0.225	6.18	6.05	0.040	1.036	204404	Turbulent Flow	0.003	1	0.010476	0.010532	0.010532	0.010532	0.1382	0.0273	0.0547	6.86	7.08	8.75	1.67	Site A Outlet D + Catchment D, E
S14	FMH1015197	S15	FMH1015198	90.4%	0.041	29.6	0.225	6.04	5.76	0.040	1.036	204404	Turbulent Flow	0.003	1	0.010476	0.010532	0.010532	0.010532	0.3025	0.0273	0.0547	6.48	6.86	8.43	1.57	Site A Outlet D + Catchment D, E
S15	FMH1015198	S16	FMH1015191	59.6%	0.041	19.3	0.225	5.76	5.34	0.040	1.036	204404	Turbulent Flow	0.003	1	0.010476	0.010532	0.010532	0.010532	0.1977	0.0273	0.0547	6.20	6.48	7.21	0.73	Site A Outlet D + Catchment D, E
S16	FMH1015191	S17	FMH1015189	58.4%	0.041	30.8	0.225	5.33	4.63	0.040	1.036	204404	Turbulent Flow	0.003	1	0.010476	0.010532	0.010532	0.010532	0.3156	0.0273	0.0547	5.80	6.20	6.81	0.61	Site A Outlet D + Catchment D, E
S17	FMH1015189	S18	FMH1015188	**165.3%**	0.051	57.9	0.225	4.63	4.38	0.040	1.276	251852	Turbulent Flow	0.003	1	0.010475	0.010520	0.010520	0.010520	0.8981	0.0415	0.0830	4.78	5.80	6.60	0.80	Site A Outlet D + Catchment D, E, F
S18	FMH1015188	S19	FMH1015187	99.8%	0.051	51.0	0.300	4.38	4.25	0.071	0.718	188889	Turbulent Flow	0.003	1	0.009484	0.009557	0.009556	0.009556	0.1708	0.0131	0.0263	4.57	4.78	6.14	1.36	Site A Outlet D + Catchment D, E, F
S19	FMH1015187	S20	FMH1015186	77.8%	0.051	23.9	0.300	4.25	4.15	0.071	0.718	188889	Turbulent Flow	0.003	1	0.009484	0.009557	0.009556	0.009556	0.0801	0.0131	0.0263	4.45	4.57	5.91	1.34	Site A Outlet D + Catchment D, E, F
					=peak discharge x 1.15						=request loading / pipe area												=DS_IL + Diameter	=DS_TWL + frictional loss + entry/exit loss		=US_GL - US_TWL	

Note:

[1] Downstream Sewage Level is the maximum of upstream water level of the next pipe or downstream invert level + diameter of the pipe
[2] Upstream Sewage Level is the downstream sewage level + frictional loss+entry/exit loss
[3] Information from GeoInfo Map and the Drainage Layout Plan
[4] Minimum factor of safety against overflowing of 1.15, i.e. overflow will not occur at a flow rate of 1.15 times peak flow stated in DSD's "Sewerage Manual" is adopted
[5] Kinetic visscosity (v) = 1.14E-04 m2/s for water at 15°C.
[6] For Sewer S1 to S14, assumed clayware slimed sewers in "poor" condition, ks value of 3mm is adopted.
For New Sewer P1 to S5, assumed uPVC slimed sewers in " poor" condition, ks value of 1.5mm is adopted.
[7] Gravitational acceleration (g) = 9.81 m/s2.
[8] Head Loss Coefficient is referenced from Table 7 of DSD's Sewerage Manual, K = entry loss sharp-edged entrance (0.5) & Exit loss sudden enlargement (1)

Appendix 6

Air Ventilation Assessment (Expert Evaluation)

Issue No. : 5

Issue Date : May 2026

Project No. : 2292

AIR VENTILATION ASSESSMENT - EXPERT EVALUATION

FOR

TECHNICAL FEASIBILITY STUDY FOR PROPOSED LINGNAN UNIVERSITY AT NO. 8 CASTLE PEAK RD - LINGNAN, TUEN MUN

Prepared by

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COMMERCIAL-IN-CONFIDENCE

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1. Executive Summary

1.1.1. An Air Ventilation Assessment (AVA) study was conducted for Lingnan University at No. 8 Castle Peak Rd- Lingnan, Tuen Mun under Section 5 of Town Planning Ordinance for the Amendment to the Building Height restriction of the "Government, Institution or Community" Zone, at i) the current Lingnan Main Campus and ii) the North Campus. (hereinafter called "Proposed Development")

1.1.2. The Proposed Development will consist of the demolition of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

1.1.3. The proposed BHR of 120 mPD (Main Campus and North Campus) is congruous and comparable with the building heights of surrounding building. The layout of Proposed Development will be designed to maintain the existing flow path. Also, the design of proposed building will be setback from along major corridor or major flow path.

1.1.4. As such, it is considered that an AVA in the form of Expert Evaluation (EE) is necessary to assess the potential air ventilation impacts due to the Proposed Development. As evaluated, with the provision of abovementioned design features, no significant adverse impact to the wind environment in the surrounding area associated with the Proposed Development is anticipated.

2. Introduction

2.1.1. Allied Environmental Consultants Limited (AEC) has been appointed to conduct the AVA-EE for the Proposed Development.

2.1.2. The Proposed Development is currently zoned as "Government, Institution or Community" ("G/IC") on the Approved Tuen Mun Outline Zoning Plan (No.: S/TM/41). The Project Proponent proposes to develop the Application Site for construction of new academic spaces and living quarters/hostel to provide more floor space for university expansion. The Proposed Development will consist of the demolishment of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

2.1.3. Indicative drawings and other technical information on the Proposed Development are provided by the Project Architect (P&T Architects Limited).

3. Objectives

3.1.1. The main objectives of this AVA-EE study are:

- To conduct a qualitative review and to evaluate potential air ventilation impact on the pedestrian wind environment within and in the vicinity of the Application Site;
- To identify any potentially air ventilation issues in affected areas due to the proposed building design including building heights, layout and deposition;
- To provide recommendations of appropriate design and mitigation measures for alleviating the potential air ventilation impact identified.

3.1.2. The methodology framework of this study is set out in the Technical Circular No. 1/06 and its Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong. The Technical Circular is jointly issued by Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Work Bureau (ETWB) in July 2006 (Technical Guide).

4. Assessment Methodology

4.1. Wind Availability Data

Hong Kong Observatory

4.1.1. The Hong Kong Observatory records the metrological data in Hong Kong. Among all the weather stations in Hong Kong, the nearest weather station to the Application Site is Tuen Mun Weather Station shown in ***Figure 4-1***. Thus, the wind data from Tuen Mun Weather Station shall be used for the discussion on overall wind environment in the region.

4.1.2. According to the wind availability data from Tuen Mun Weather Station from 1988-2024, the annual wind rose revealed winds flowing from NNE, N, SSE, S while summer wind rose revealed winds flowing from SSE, S, SSW, as shown in ***Figure 4-2***.

Figure 4-1 Location of Hong Kong Observatory Weather Station

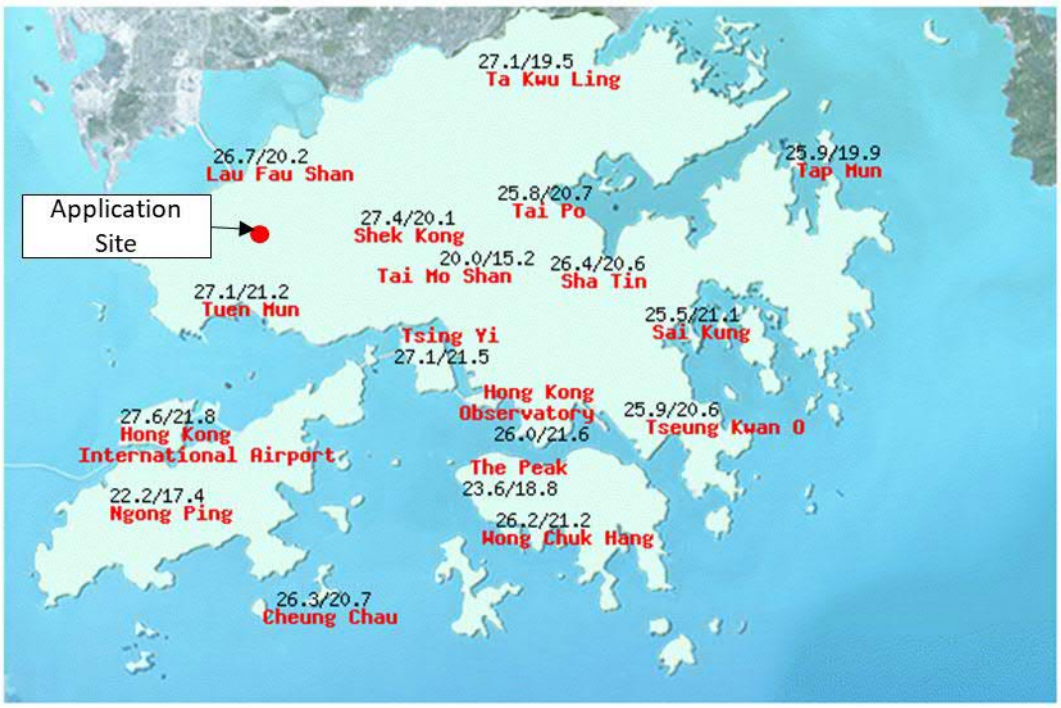
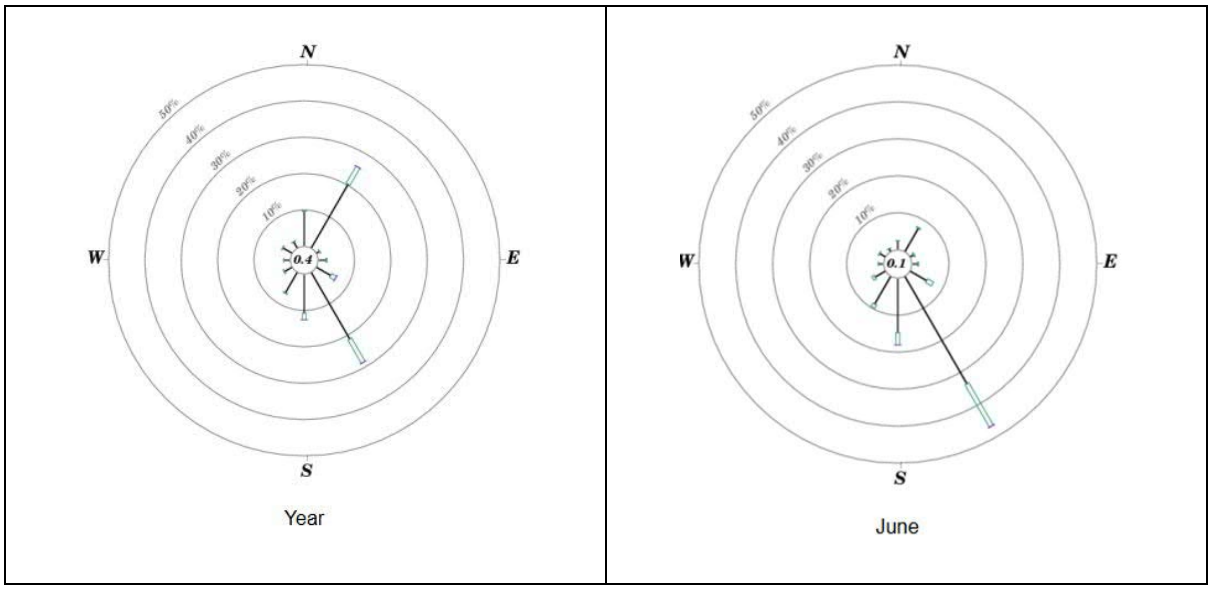
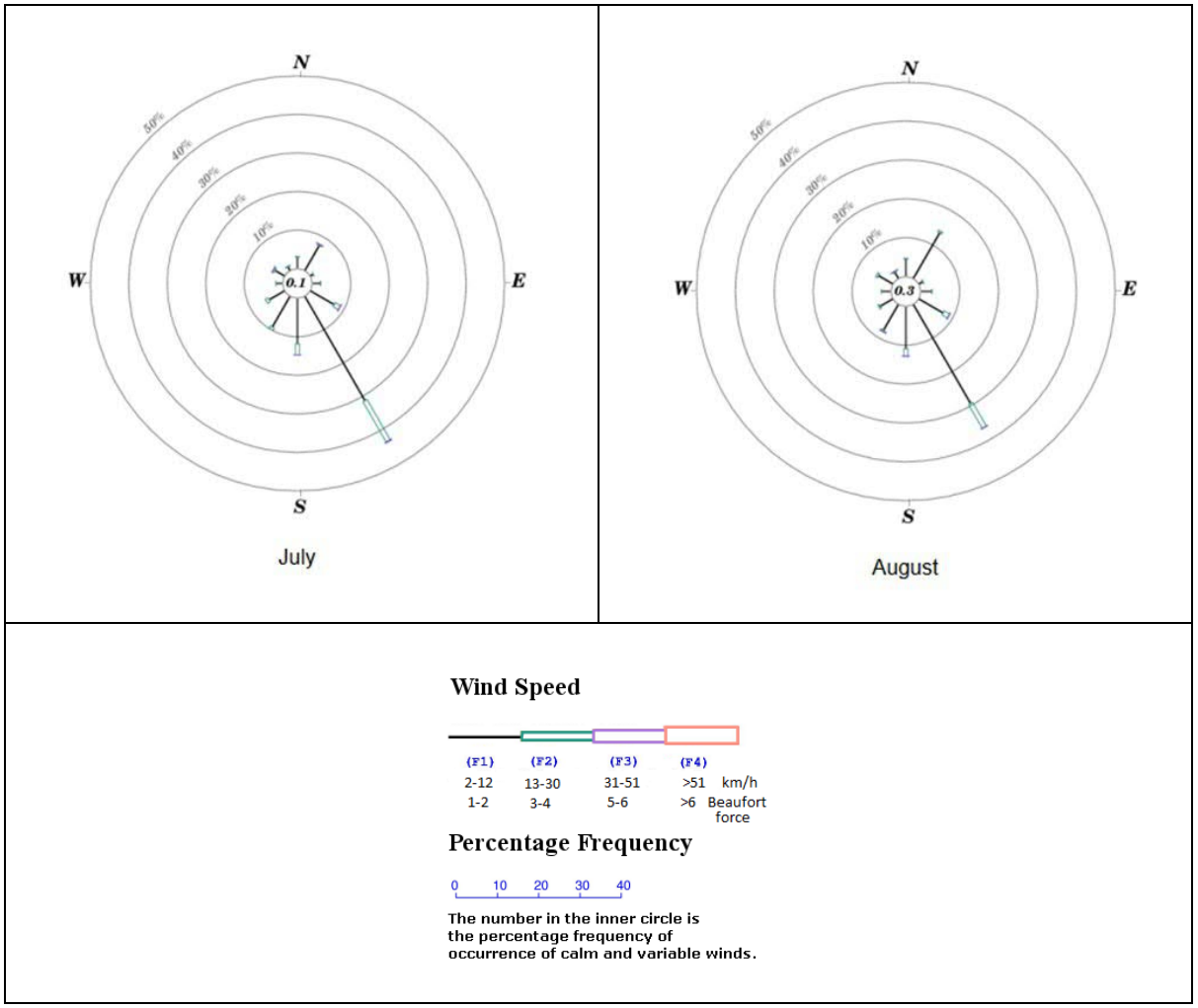


Figure 4-2 Annual and Summer Wind Rose of Tuen Mun Weather Station between 1988-2024





Regional Atmospheric Modelling System (RAMS)

4.1.3. Wind availability to the Application Site is evaluated with reference to the "Consultancy Study on Establishment of Simulated Site Wind Availability Data for Air Ventilation Assessments in Hong Kong" simulated by the meso-scale model of Regional Atmospheric Modelling System (RAMS) Version 6.0 at the horizontal resolution of 0.5km * 0.5km.

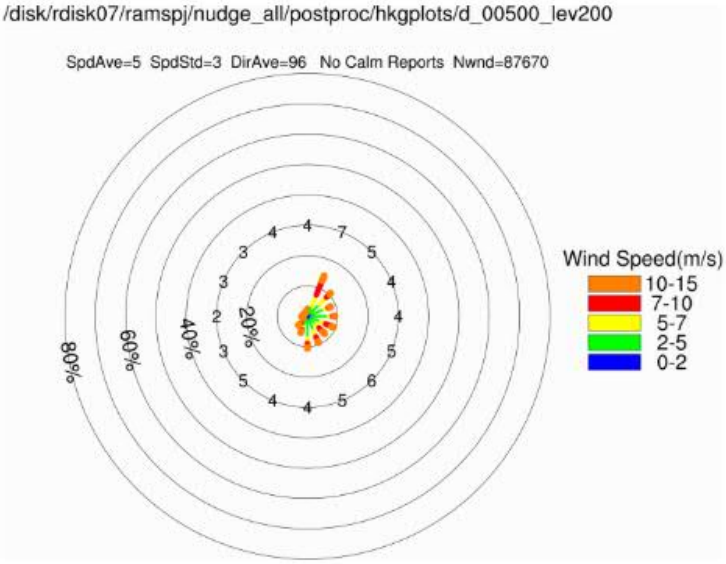
4.1.4. The Application Site is located within grid (040, 063), grid (041, 062) and grid (041, 063) in Tuen Mun. Wind availability data at 200m was adopted in this assessment. According to Planning Department's simulated data, wind roses, wind direction and wind probability data are provided in ***Figure 4-3***, ***Figure 4-4*** and ***Figure 4-5.*** The simulated windroses are shown in ***Table 4-1***.

Table 4-1 Summary of RAMS Data and Wind Direction

Wind Direction	Grid (040, 063)		Grid (041, 062)		Grid (041, 063)	
	Probability of Annual Condition	Probability of Summer Condition	Probability of Annual Condition	Probability of Summer Condition	Probability of Annual Condition	Probability of Summer Condition
N	2%	1%	2%	1%	3%	1%
NNE	14%	2%	13%	2%	14%	2%
NE	11%	2%	12%	2%	11%	2%
ENE	8%	3%	8%	3%	8%	4%
E	9%	6%	11%	6%	10%	6%
ESE	9%	7%	9%	7%	10%	7%
SE	8%	8%	8%	8%	8%	8%
SSE	9%	15%	9%	15%	9%	14%
S	11%	20%	9%	18%	9%	18%
SSW	6%	13%	7%	15%	7%	16%
SW	4%	11%	4%	11%	4%	11%
WSW	2%	3%	2%	3%	2%	3%
W	2%	4%	2%	4%	2%	4%
WNW	1%	2%	1%	2%	1%	2%
NW	1%	2%	1%	2%	1%	2%
NNW	2%	1%	1%	1%	1%	1%

Figure 4-3 Wind Rose at Grid (040, 063)

Wind Rose – Annual (200m)



Wind Rose – Summer (200m)

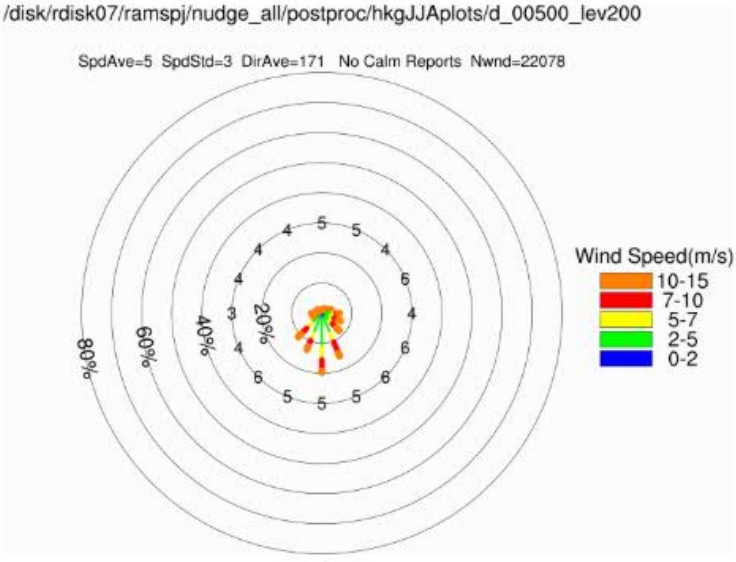
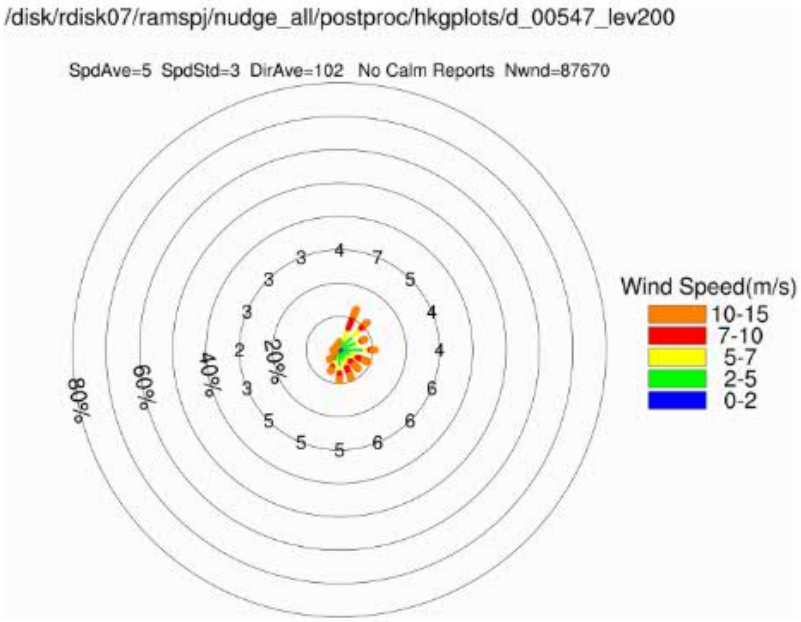


Figure 4-4 Wind Rose at Grid (041, 062)

Wind Rose – Annual (200m)



Wind Rose – Summer (200m)

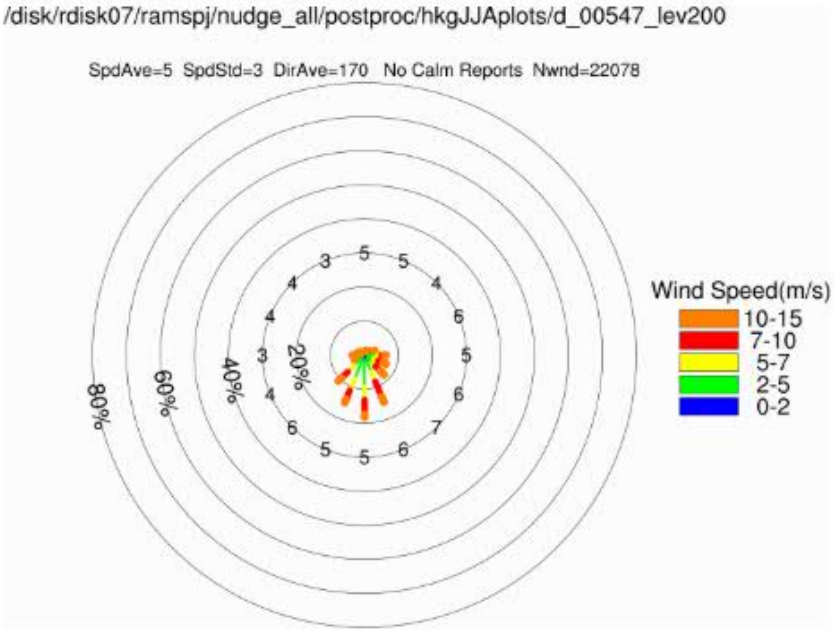
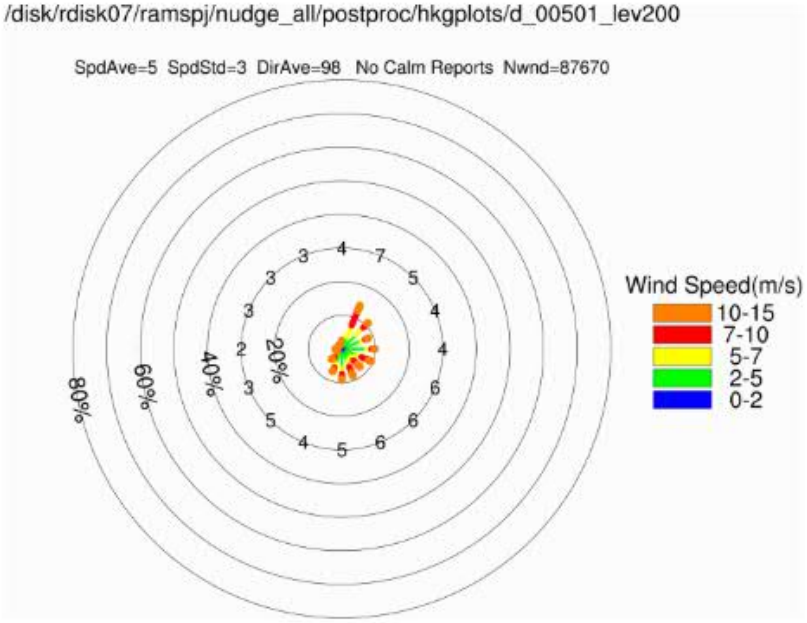
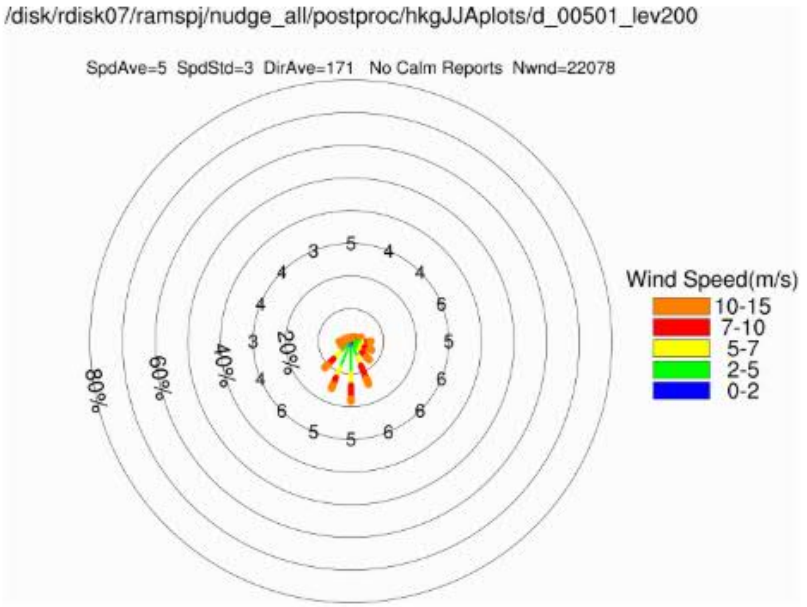


Figure 4-5 Wind Rose at Grid (041, 063)

Wind Rose – Annual (200m)



Wind Rose – Summer (200m)



Reference from Previous Study

4.1.5. There are several air ventilation assessments in Tuen Mun area. In conducting this AVA-EE the following AVA studies conducted in 2009 for Tuen Mun New Town Area have been made reference to:

- Cat A – Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment (PLNQ 37-A14/2007) - Tuen Mun New Town Area (Project Ref.: AVR/G/43)
- Cat A1 – Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment (PLNQ 56/2012) - Final Report Tuen Mun New Town

Summary

4.1.6. In summary, different wind data reference have been reviewed, ***Table 4-2*** summarises the identified prevailing wind conditions of Application Site. For a comprehensive discussion on air ventilation performance of the Application Site and the wind environment at pedestrian level, RAMS data is more appropriate as it is the most updated. In view of the close proximity of the HKO Tuen Mun Weather Station to the Application Site, the wind data from HKO Tuen Mun Weather Station is also adopted in this AVA-EE.

Table 4-2 Wind Data Summary

Sources		Annual Wind	Summer Wind
RAMS Data	Grid (X040, Y063)	NNE, NE, S	S, SSE, SSW
	Grid (X041, Y062)	NNE, NE, E	S, SSW, SSE
	Grid (X041, Y063)	NNE, NE, E	S, SSW, SSE
HKO Tuen Mun Weather Station		NNE, SSE, S	SSE, S, SSW
Summary		**NNE, NE, E**	**S, SSE, SSW**

5. Project Description

5.1. Site Location and Proposed Development

5.1.1. The Application Site is zoned as "Government, Institution or Community" ("G/IC") on the Approved OZP. The surrounding areas are mainly zoned "G/IC", Residential (Group B) ("R(B)10", "R(B)11" and "R(B)16" zone), Residential (Group A) ("R(A)3"), Residential (Group C) ("R(C)"). A strip of area zoned "Green Belt ("GB") are respectively located to the East of the Application Site.

5.1.2. The Proposed Developments comprises 2 sites, namely Site A and Site B, with a total site area of around 112,233 m^2 is located at No.8 Castle Peak Road- Lingnan, Tuen Mun.

Baseline Scheme

5.1.3. The Baseline Scheme refers to the existing site condition. The whole Main Campus of Lingnan University is subjected to a building height restriction of 4 storeys (main campus) and 10 storeys (in eastern portion for the quarters) while the North Campus is subjected to a building height restriction of 1 storey, under Approved Tuen Mun OZP No.: S/TM/41.

5.1.4. Site A is the main campus of Lingnan University which consisted of the existing academic building, student hostels and living quarters and existing indoor sports complex. It is bounded by Tuen Kwai Road to the north and Castle Peak Road-Lingnan to the west, immediately adjoining the Green Belt (GB) zone to the east and facing Fu Tei Road and Tuen Mun Water Treatment Works to the south.

5.1.5. Site B is currently occupied by an existing multipurpose outdoor sports ground and Wofoo Joseph Lee Student Activity Centre. It is bounded by Castle Peak Road-Lingnan to the east, Tuen Fu Road to the south, Tuen Mun Road to the west and 18 Rosewood to the north. (hereinafter called "Baseline Scheme")

Proposed Scheme

5.1.6. The Proposed Development consists of the demolition of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities. Amendments to the BHR of the Application Site are proposed to 120 mPD for the Main Campus and the North Campus, (hereinafter

referred to as the "Proposed Scheme").

5.1.7. Although the proposed maximum BHR under the Proposed Scheme is 120 mPD, the proposed developments do not uniformly adopt the maximum BHR across site. Instead, the variations in building heights are intentionally introduced to create a built form that complements the surrounding developments, topography, existing urban context, visual corridor considerations and air ventilation performance.

5.1.8. The details of proposed new buildings are shown in ***Table 5-1***. The Application Site under its baseline scheme and proposed scheme are presented in ***Figure 5-1*** and ***Figure 5-2*** respectively.

Figure 5-1 Existing BH within the Application Site (Baseline Condition)

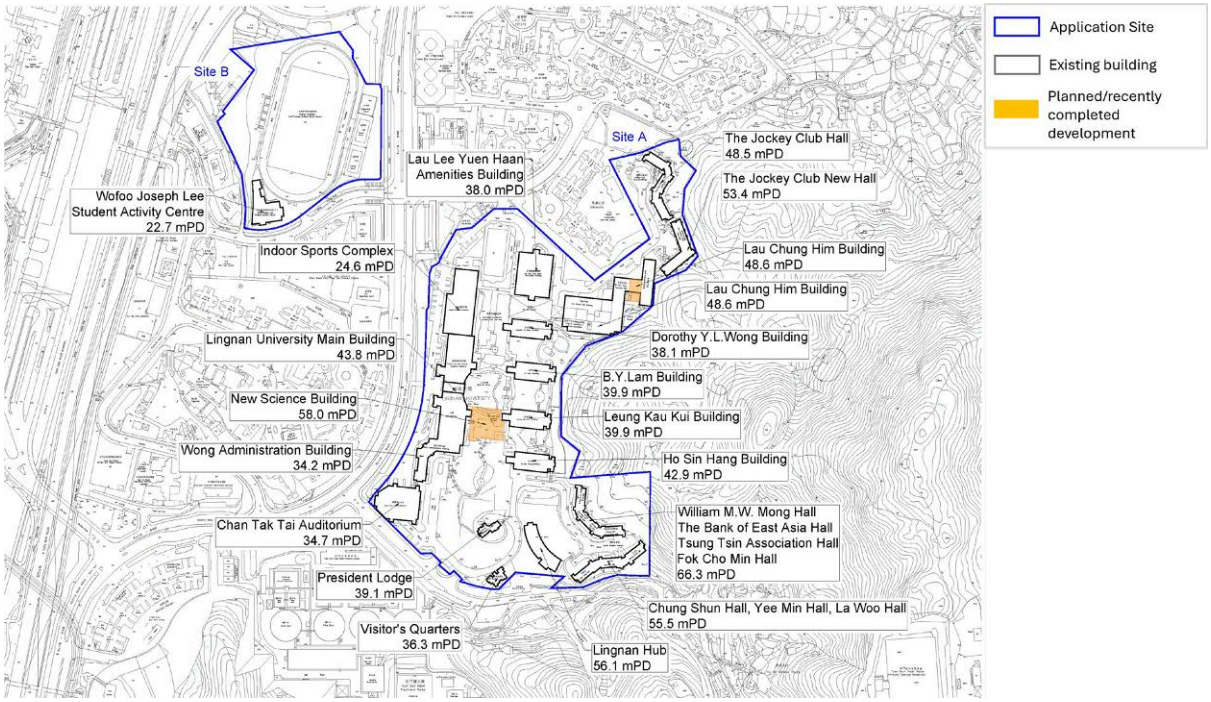


Figure 5-2 Proposed BH within the Application Site (Proposed Condition)

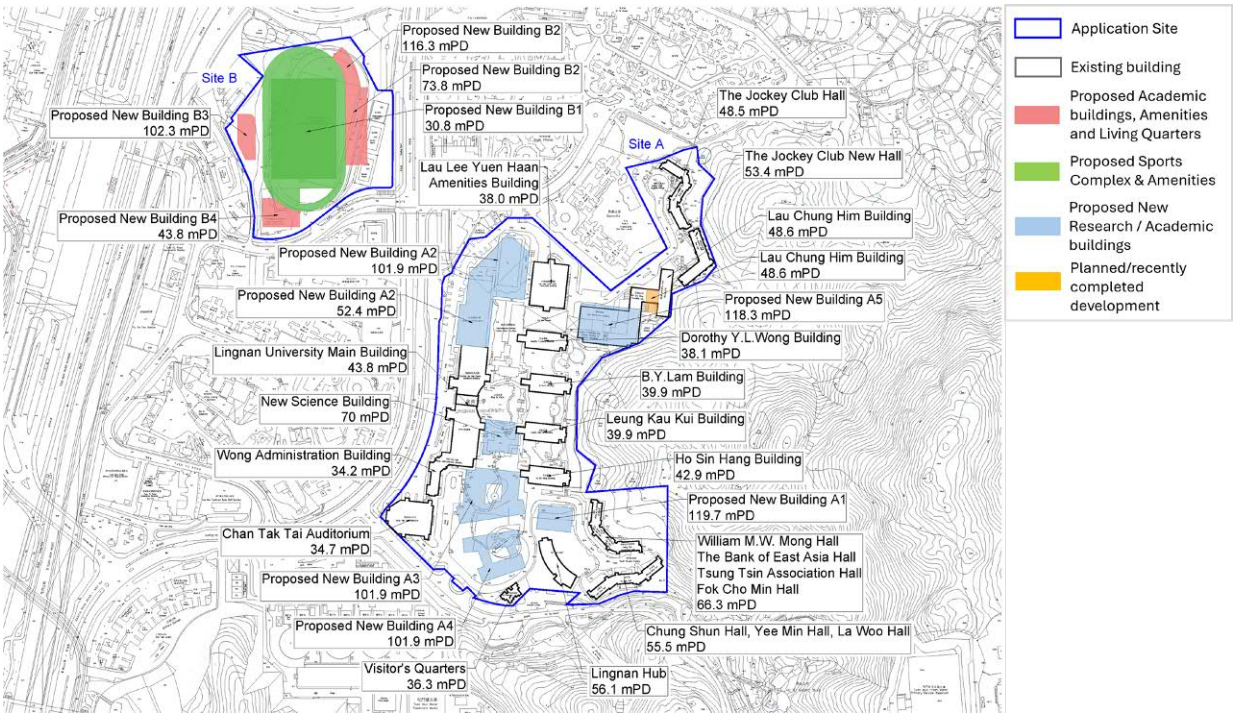


Table 5-1 Summary of Proposed New Buildings

Proposed New Building		Proposed Building Height	
		Storeys	mPD
Site A			
A1	Research & Academic Building	21	119.7
A2	Research & Academic Building	20	101.9
		9	52.4
A3	Research & Academic Building	19	101.9
A4	Research & Academic Building	19	101.9
A5	Amenities & Academic Building	22	118.3
A6	New Science Building	8	70
Site B			
B1	Sports Complex & Amenities	2	30.8
B2	Amenities & Academic	26	116.3
		18	73.8
B3	Amenities & Academic	20	102.3
B4	Amenities & Academic	7	43.8

5.2. Surrounding Environment and Wind Characteristics

Urban Morphology

5.2.1. Both Application Site A and B are currently occupied by the low- to mid- rise academic building and student hostels. The building height of existing buildings within the Application Site is presented in ***Figure 5-1***. There is a planned building which under construction within Site A, namely the New Science Building, presented in ***Figure 5-1***. This building under construction is considered in the existing condition for evaluation in this report.

5.2.2. As mentioned in *Section 5.1*, the Application Site is surrounding by "G/IC", "GB" and Residential Zone with different building height. There are several existing developments with high-rise building blocks located at the immediate north of the Application Site, such as Fu Tai Estate, South Hillcrest, Beneville and SEK Building. Parkland Villas, Napa Valley, Tuen Fu Road Disciplined Services Quarters and Brilliant Garden are located at the west and southwest of the Application Site A. There are two educational institutions located at the south of the Site B, namely Ecclesia Bible College and The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary school.

5.2.3. The Fu Tei Chung Tsuen Children's Playground is located at the northwest of the Site A, and Lingnan Playground with a basketball court located at the south of Site B. The low-rise G/IC cluster, including Ching Leung Nunnery, Gig Lok Monastery and Casphalt, with the height of around 13.6 to 21.8 mPD are located at the further west of the Site A.

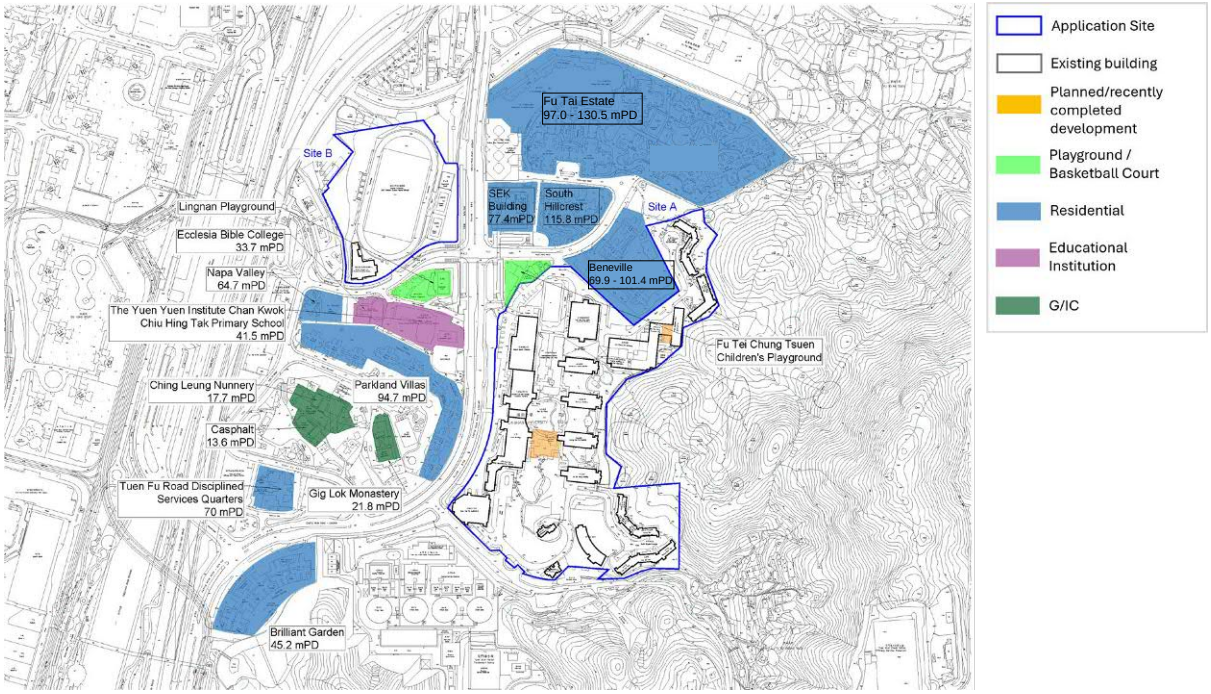
5.2.4. ***Figure 5-3*** and ***Table 5-2*** show the location of the surrounding development and the relevant building height respectively.

Table 5-2 Building Height of Major Development in the Surrounding

	Surrounding Building	Building Heights (mPD)
1	Fu Tai Estate	97.0 - 130.5
2	South Hillcrest	115.8
3	Beneville	69.6 - 101.4
4	SEK Building	77.4
5	Parkland Villas	94.7
6	Napa Valley	64.7
7	Ecclesia Bible College	33.7
8	The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School	41.5
9	Tuen Fu Road Disciplined Services Quarters	70.1

	Surrounding Building	Building Heights (mPD)
10	Brilliant Garden	45.2
11	Ching Leung Nunnery	17.7
12	Gig Lok Monastery	21.8
13	Casphalt	13.6

Figure 5-3 Existing Urban Morphology near Application Site



Topography

5.2.5. The Application Site is located on a gentle slope terrain with high ground of Tai Lam Country Park on the northeast and east of the Site A. The hill area to the east of the Site is elevated about 130 mPD. Katabatic (downhill) wind is expected from the vegetative hill. Furthermore, it is expected that portion of the annual prevailing E, NE wind and summer prevailing SSE wind will be moderated by the terrain. Site B is located on a relatively flat terrain, the prevailing wind is expected to approach Site B without significant terrain blockage. The topography around the Application Site is illustrated in ***Figure 5-4***.

Road / Street Pattern

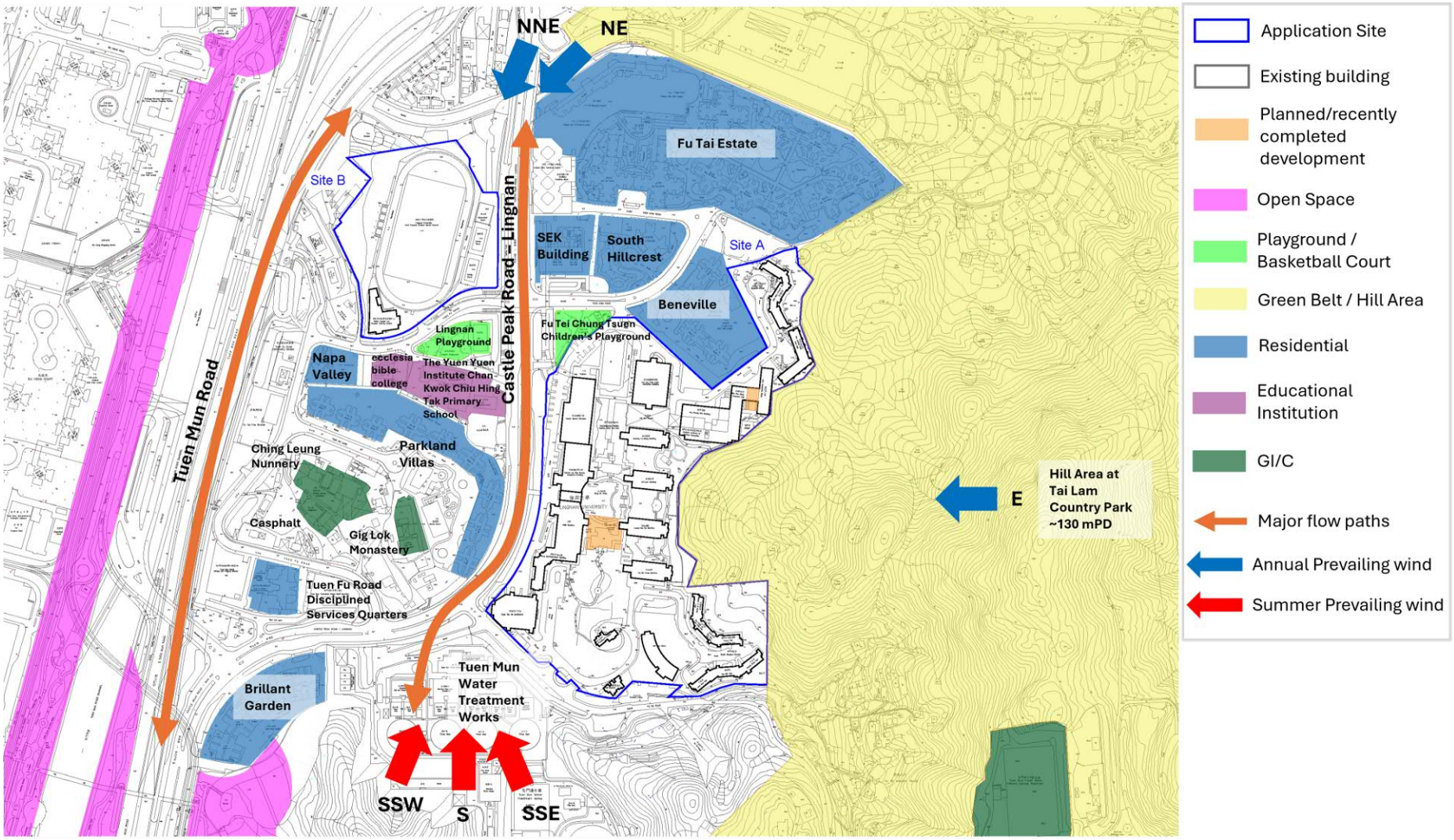
5.2.6. There are several road networks surrounding the Application Site facilitates wind penetration to the Application Site and the surrounding areas in different direction. According to the reference from previous study stated in *Section 4.1.5*, Term Consultancy for Expert Evaluation

and Advisory Services on Air Ventilation Assessment PLNQ 37-A14/2007 and PLNQ 56/2012, there are two identified major flow paths, which is Tuen Mun Road and Castle Peak Road – Lingnan, aligned to N-S direction to facilitate the annual prevailing NNE, NE wind and summer prevailing SSW, S, SSE wind. Further to the north of Application Site, there is Lam Tei Interchange with a height of approximately 15.2 mPD. Therefore, annual prevailing NNE and NE wind are likely to skim over the intersection before reaching the Application Site. The major flow paths around the Application Site are illustrated in ***Figure 5-4.***

Current Site Wind Environment

5.2.7. Refer to *Section 3.1* and ***Table 4-2***, the wind availability in the Application Site mainly come from NNE, NE and E direction in annual condition while winds from S, SSE and SSW direction are available in summer condition. The Application Site is currently occupied by the existing academic building, amenities building, auditorium, sport complex, student hostels and living quarters within Lingnan University. There is a strip of open space located along the Tuen Mun River Channel which running along the west of the Site B, together with Tuen Mun Road, created a wide major flow path in N-S direction. As discussed in *Section 4.1.5* and *Section 5.2.6*, the Castle Peak Road – Lingnan and Tuen Mun Road also identified as the major flow path in previous study of Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment PLNQ 37-A14/2007 and PLNQ 56/2012. The wind environment is presented in ***Figure 5-4***.

Figure 5-4 Prevailing Wind Environment and Major Flow Path in Application Site



6. Evaluation of Air Ventilation Performance

6.1. Sensitive Receivers

6.1.1. The sensitive area that frequently assessed by public in the vicinity of the Application Site A and Site B are identified as following:

Site A

- South Hillcrest
- Fu Tai Estate
- Beneville
- Parkland Villa
- Fu Tei Chung Tsuen Children's Playground
- Lingnan Playground
- The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School
- Ching Leung Nunnery
- Gig Lok Monastery
- Casphalt

Site B

- Rosewood
- Fu Tai Estate
- Lingnan Playground
- Tuen Fu Road Community Garden
- The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School
- Ecclesia Theological Seminary
- Napa Valley
- The Scout Association of Hong Kong Diamond Jubilee Memorial Hall

6.2. Assessment Methodology

6.2.1. *Section 3.1* and ***Table 4-2*** describes the wind availability at the Application Site and the prevailing wind flows during annual and summer conditions. It is noted that the annual prevailing wind directions for the site are from NNE, NE and E direction. The summer prevailing wind directions would be from S, SSE and SSW direction.

6.2.2. The ventilation performance of the proposed development at the Application Site on the nearby areas frequently assessed by public will be evaluated by comparing the baseline scheme before the proposed development and the proposed scheme of the area after the proposed development, with respect to the identified dominant wind directions stated in ***Table 4-2***.

6.3. Annual Condition

NNE and NE Wind

6.3.1. As discussed in *Section 5.2.6* and *Section 5.2.7*, Tuen Mun Road and Castle Peak Road – Lingnan is identified as a major flow path. Under the annual prevailing wind conditions, the incoming NNE and NE winds flow along Castle Peak Road – Lingnan and Portion of them penetrate through Application Site B and reach Tuen Mun Road, which serves as a major flow path.

6.3.2. Under the Baseline Scheme, high-rise residential buildings (i.e. Fu Tai Estate, South Hillcrest, and Beneville) located to the north of Application Site A pose obstructions to the incoming winds, preventing them from penetrating the site. As a result, the incoming NNE and NE winds mainly flow along Castle Peak Road – Lingnan and reach the downwind areas of Brilliant Garden and the Tuen Mun Water Treatment Works. There is limited wind penetration into Application Site A due to the presence of upstream high-rise buildings. In addition, the planned and committed development (i.e. New Science Building) is obstructs the wind flow along the N-S aligned internal road within Site A. As a results, only limited NNE and NE wind is anticipated to penetrate through Application Site A under baseline scenario.

6.3.3. For Application Site B, the existing condition with no obstruction is beneficial to wind flow from the northerly direction to penetrate through the site, allowing it to reach Tuen Mun Road and downwind area (i.e. Napa Valley, Ecclesia Bible College, The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School, Lingnan Playground and Parkland Villas). The NNE and NE wind will be then obstructed by the high-rise building of Napa Valley and Parkland Villas, causing limited wind flow to the further downstream (i.e. Ching Leung Nunnery, Casphalt and Gig Lok Monestery).

6.3.4. Under the Proposed Scheme, the incoming NNE and NE wind flows across Application Site A would already be obstructed by the existing high-rise buildings and planned development (i.e. New Science Building), as discussed in *Section 6.3.3*, only limited NNE and NE winds is anticipated to penetrate through Application Site A. Although wind wake effects will be induced by the proposed new Building A2, A3 and A4 at the surrounding (i.e. Tuen Mun Water Treatment Works) is inevitable, the major breezeway along Castle Peak Road – Lingnan would be maintained. Potential localised air ventilation impacts may occur at the Tuen Mun Water Treatment Works. However, this area is not frequently accessed by pedestrians. Based on the above assessment, the Proposed Scheme would not impose additional adverse air ventilation impacts on the surrounding pedestrian wind environment, the adverse air

ventilation impact on the downwind area is expected to be minimal.

6.3.5. For Application Site B, part of the incoming NNE and NE wind flow would skim over the low-rise swimming pool and sports complex. Meanwhile, part of the incoming wind flow would encounter the proposed building B3, which may induce partial obstruction and diversion of the incoming wind flow. The diverted wind flow is expected to continue towards the major breezeway along Tuan Mun Road. The immediate downwind areas of Site B under NNE and NE wind directions (i.e. Lingnan Playground, The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School, Ecclesia Theological Seminary and the Scout Association of Hong Kong Diamond Jubilee Memorial Hall), may experience potential air ventilation impacts due to the wind wake effect induced by proposed new buildings in Site B. Nevertheless, the incoming wind wound be able to skim over the low-rise proposed sports complex and pass through the gap between the proposed new building. In addition, the major breezeway towards Tuen Mun Road would be maintained. Therefore, adverse impact along downwind receivers and Tuen Mun Road is expected to be minimal.

6.3.6. The prevailing annual wind flow under baseline scheme and proposed scheme are presented in ***Figure 6-1*** and ***Figure 6-2*** respectively.

Figure 6-1 NNE and NE Wind Flow under Annual Condition (Baseline Scheme)

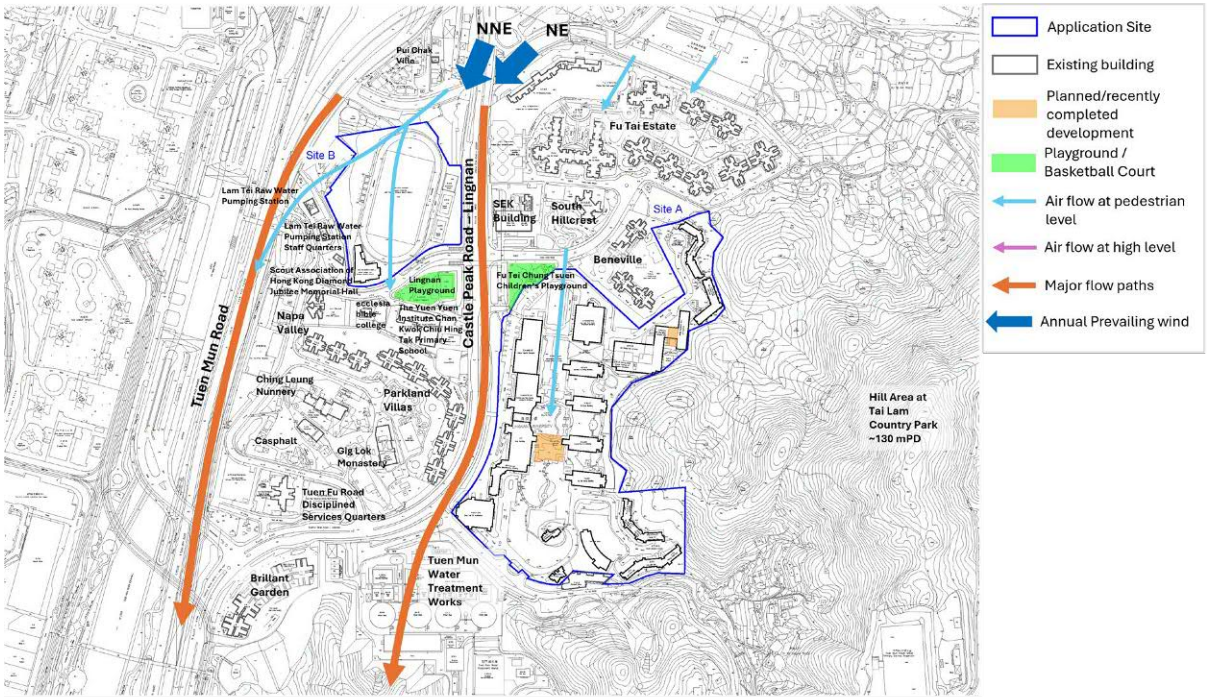
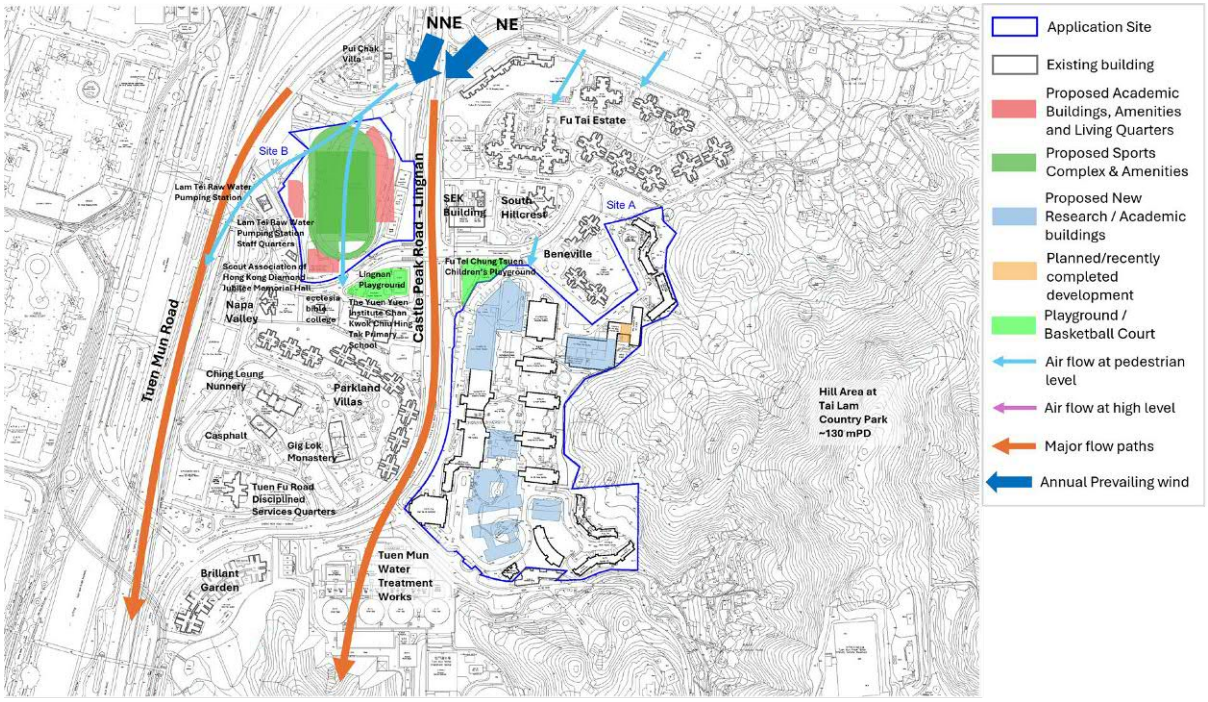


Figure 6-2 NNE and NE Wind Flow under Annual Condition (Proposed Scheme)



E Wind

6.3.7. Under the Baseline Scheme, the incoming E wind flow from the hilly terrain of Tai Lam Country Park and reach the Application Site A. As the existing buildings within Lingnan University (i.e. Lingnan University Main Building, Indoor Sports Complex and Wong Administration Building) within the Application Site A is mid-rise structures, which pose obstructions to the wind flow. As a result, there will be limited wind penetration at the pedestrian level towards the downwind area (i.e. Parkland Villas and The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School). The incoming E wind flows is expected to skim over the mid-rise buildings at Lingnan University, and reaches the downwind areas. Therefore, it is anticipated that the E wind would mainly flow at high level.

6.3.8. The incoming E wind towards Application Site B is substantially obstructed by the high-rise residential buildings (i.e. Fu Tai Estate, South Hillcrest, Beneville and SEK building) located to the east of Application Site B. As a result, only limited E wind is expected to reach and penetrate across Site B. Nevertheless, the existing condition of Application Site B with no obstruction is beneficial to the limited incoming wind flow from the easterly direction to penetrate through the site.

6.3.9. Under the Proposed scheme, the increase in the building height restriction at Application Site

A will inevitably induce some wind blockage under these prevailing winds for areas to the west of Site A, including Parkland Villas and The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School. While part of the prevailing winds will be obstructed by the proposed high-rise academic buildings, the central portion of the site will remain unchanged to preserve the existing airflow within the site and minimize adverse ventilation impacts on the downwind areas. The incoming E wind could skim over the mid-rise buildings and reach the downwind areas of Parkland Villas at pedestrian level. By maintaining a stepped height profile transitioning from the hilly terrain to the existing buildings within Site A, it is anticipated that adverse wind ventilation impacts can be alleviated.

6.3.10. As discussed in Section 6.3.8, the incoming E wind flows towards Application Site B would already be substantially obstructed by the existing high-rise buildings located to the east of the site. Therefore, only limited E wind flow is anticipated to reach and penetrate through Site B. Under the Proposed Scheme, part of the incoming wind would be blocked by the proposed new Building B2. The wind wake effects induced by the proposed new building at Site B towards the downwind areas (i.e. Lam Tei Raw Water Pumping Station and its staff quarters) is expected. As Lam Tei Raw Water Pumping Station is not an area frequently accessed by pedestrians, potential pedestrian level air ventilation impact is expected to be limited. While localised air ventilation impact may occur at the staff quarters, the residual E wind would be able to skim over the low-rise sport complex and pass through the gap between the proposed new Building B3 and B4. Thus, significant adverse air ventilation impact on the downwind areas is not anticipated.

6.3.11. The prevailing annual wind flow under baseline scheme and proposed scheme are presented in ***Figure 6-3 E*** and ***Figure 6-4*** respectively.

Figure 6-3 E Wind Flow under Annual Condition (Baseline Scheme)

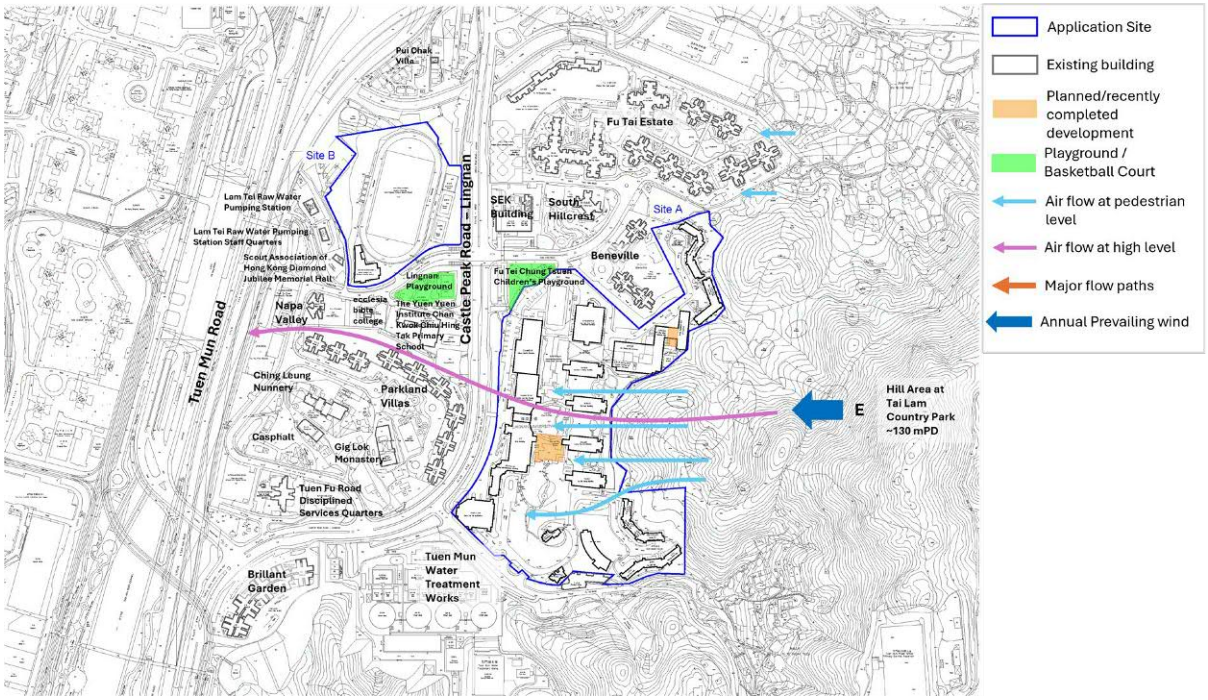
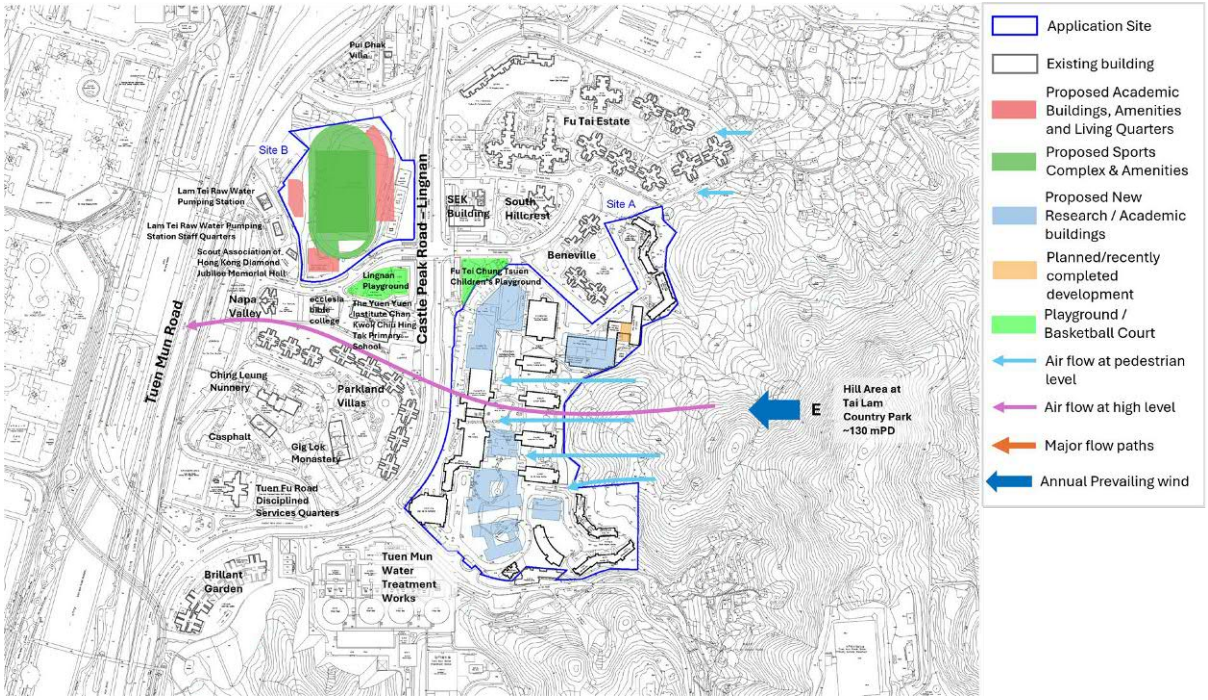


Figure 6-4 E Wind Flow under Annual Condition (Proposed Scheme)



6.4. Summer Condition

S, SSE and SSW Wind

6.4.1. Under the summer prevailing wind conditions, the incoming SSW, S, and SSE winds flow along Castle Peak Road – Lingnan and reach the downwind areas of high-rise residential developments (i.e. Fu Tai Estate, South Hillcrest, and Beneville). On the other hand, the incoming winds also flow along Tuen Mun Road, with a portion of the wind reaching Application Site B.

6.4.2. Under the Baseline Scheme, existing high-rise buildings (i.e. Parkland Villas, Napa Valley and Tuen Fu Road Disciplined Services Quarters) located at upstream of Application Site B is expected to substantially obstruct the incoming wind, resulting limited wind to arrive Site B. Nevertheless, the existing condition of Application Site B with no obstruction is beneficial to wind flow from the southerly direction, allowing the wind to reach the downwind areas (i.e. Pui Chak Villa).

6.4.3. For Application Site A, the existing mid-rise buildings and planned development (i.e. New Science Building) at Lingnan University pose obstructions to the incoming winds, particularly along the N-S aligned internal road within Site A, preventing them from penetrating the site. As a result, it is expected limited wind flow towards downwind areas (i.e. Fu Tei Chung Tsuen Children's Playground, Beneville, South Hillcrest and Fu Tai Estate). The incoming wind mainly flow along Castle Peak Road – Lingnan.

6.4.4. As discussed in Section 6.4.2, only limited southerly wind flow is expected to reach Application Site B. Under the Proposed Scheme, part of the incoming wind flow would skim over the low-rise swimming pool and sports complex of Application Site B. Meanwhile, part of the incoming wind would encounter the proposed quarters, which may pose some obstruction to the incoming SSW, S, and SSE winds. The potential pedestrian-level air ventilation impacts may affect the downwind areas (i.e. Pui Chak Villa). However, as the incoming winds would still be able to diverted and skim over the low-rise proposed sports complex, pass through the gap in between proposed new building B4 and B2 and reach the downwind residential areas. Thus, significant adverse air ventilation impact on the downwind areas is not anticipated.

6.4.5. For Site A, the existing mid-rise buildings pose obstructions to the incoming winds. The proposed academic buildings A1, A2, A3 and A4 will inevitably induce some wind blockage under these prevailing wind conditions toward the downwind areas of Fu Tei Chung Tsuen Children's Playground, Fu Tai Estate, South Hillcrest, and Beneville. The wind wake area is

expected to increase surrounding the proposed new buildings under the proposed Scheme. While part of the prevailing winds will be obstructed by the proposed high-rise academic buildings, an airflow path within the site will preserve the existing high-level airflow skimming over the mid-rise buildings.

6.4.6. A setbacks of approximately 18m and 25m from Castle Peak Road – Lingnan will be provided for the proposed academic building in Site A and the proposed living quarters in Site B respectively, to maintain the existing major flow path. The provision of setback would pose less obstruction to the incoming SSW, S, and SSE winds along Castle Peak Road – Lingnan, thereby alleviating potential adverse ventilation impacts. In addition, a further setback at pedestrian level (ground floor) of the proposed Building A2 will be considered to provide at the building profile near the sensitive area (i.e. Fu tei Chung Tsuen Children's Playground).

6.4.7. The prevailing annual wind flow under baseline scheme and proposed scheme are presented in ***Figure 6-5*** and ***Figure 6-6*** respectively.

Figure 6-5 Wind Flow under Summer Condition (Baseline Scheme)

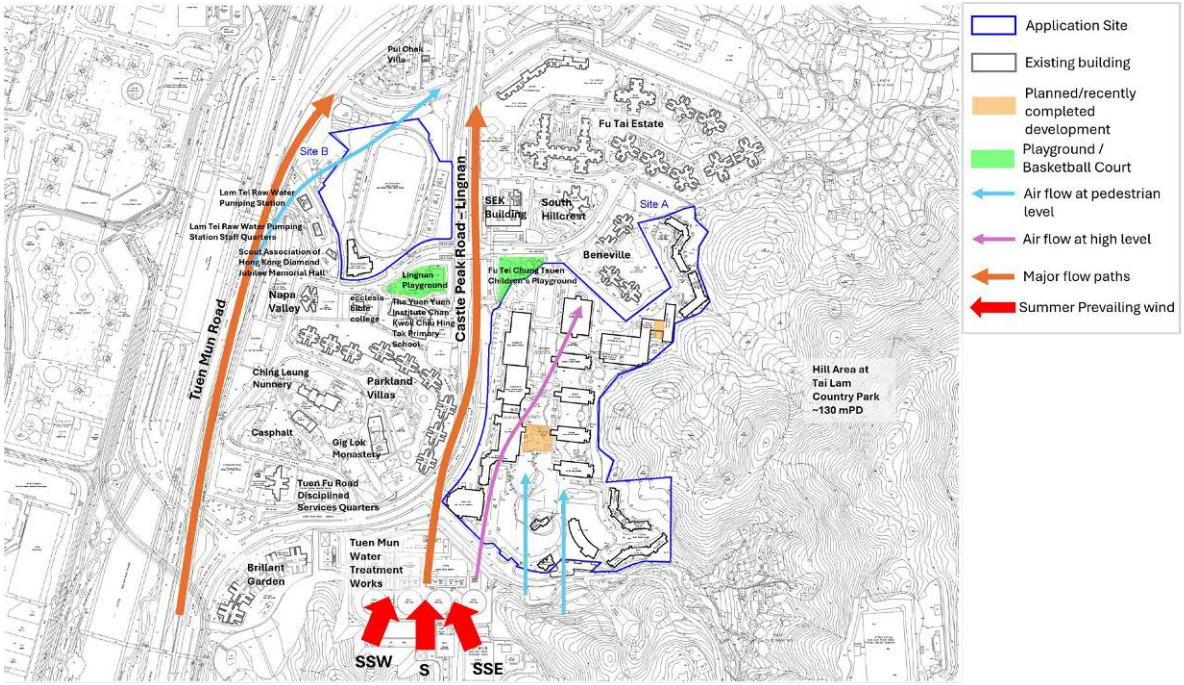
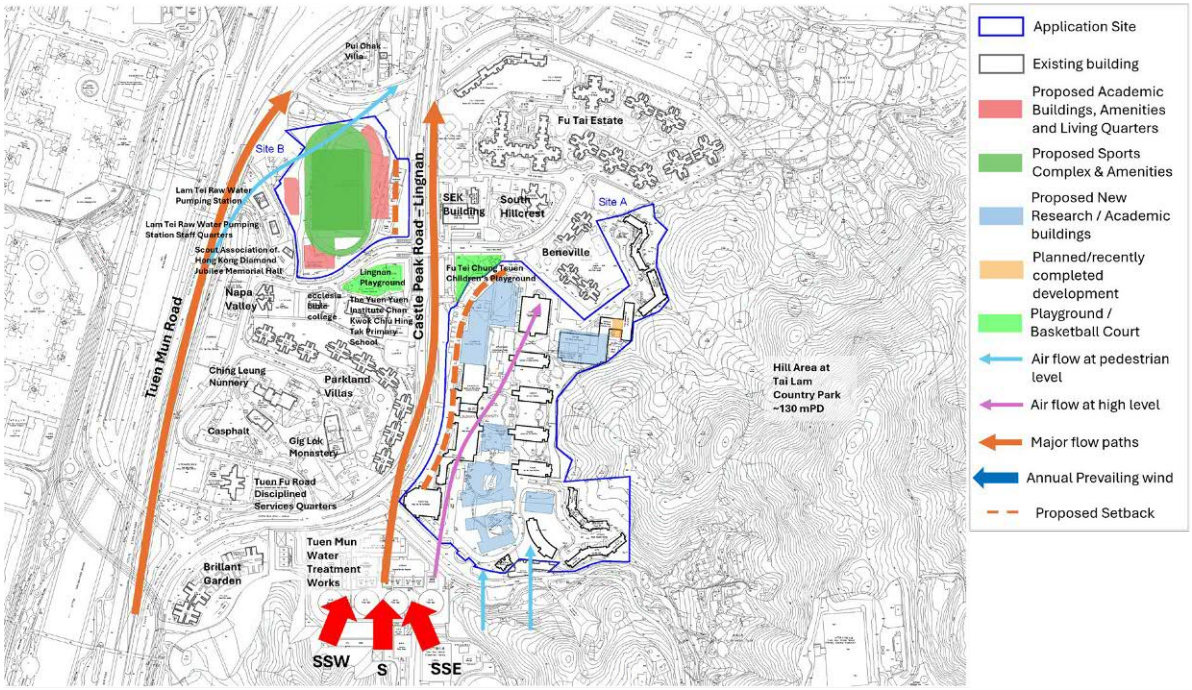


Figure 6-6 Wind Flow under Summer Condition (Proposed Scheme)



7. Mitigation Measures

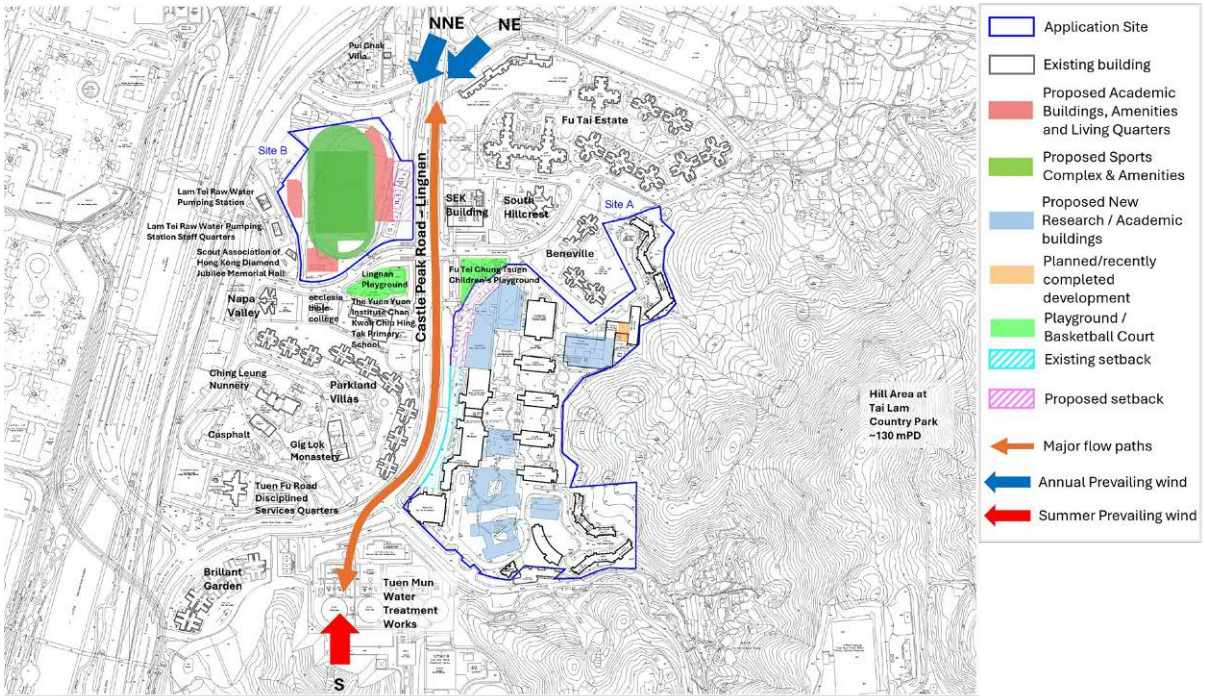
7.1. Good Design Features

Building Setback

7.1.1. Under the proposed scheme, building setback have been adopted to maintain the air ventilation performance by preserving major flow path along vehicular roads, particularly along Castle Peak Road - Lingnan. The proposed academic buildings in Site A are proposed with a setback of minimum 17m from the site boundary along Castle Peak Road – Lingnan. The setback of the existing building along the Castle Peak Road – Lingnan are approximately 15m, the proposed setback in Site A will be comparable or more than the existing setback. Meanwhile the proposed living quarters in Site B are setback by approximately 26m from the site boundary.

7.1.2. Although the wind wake effect around the proposed Building A2 would cause potential air ventilation impacts to the surrounding area and downwind area (i.e. Fu Tei Tsung Chuen Children's Playground, SEK Building, South Hillcrest, Beneville and Fu Tai Estate), a further setback at pedestrian level of the proposed Building A2 will be considered to provide at the building profile near the sensitive area, in order to reduce the wind wake effect induced by the proposed new buildings. These setbacks maintained the openness of the road corridor, allowing it to function as a flow path for prevailing annual NNE, NE wind and summer S winds. The illustration of building setback is indicated in ***Figure 7-1.***

Figure 7-1 Layout of Building Setback with Major Flow Path

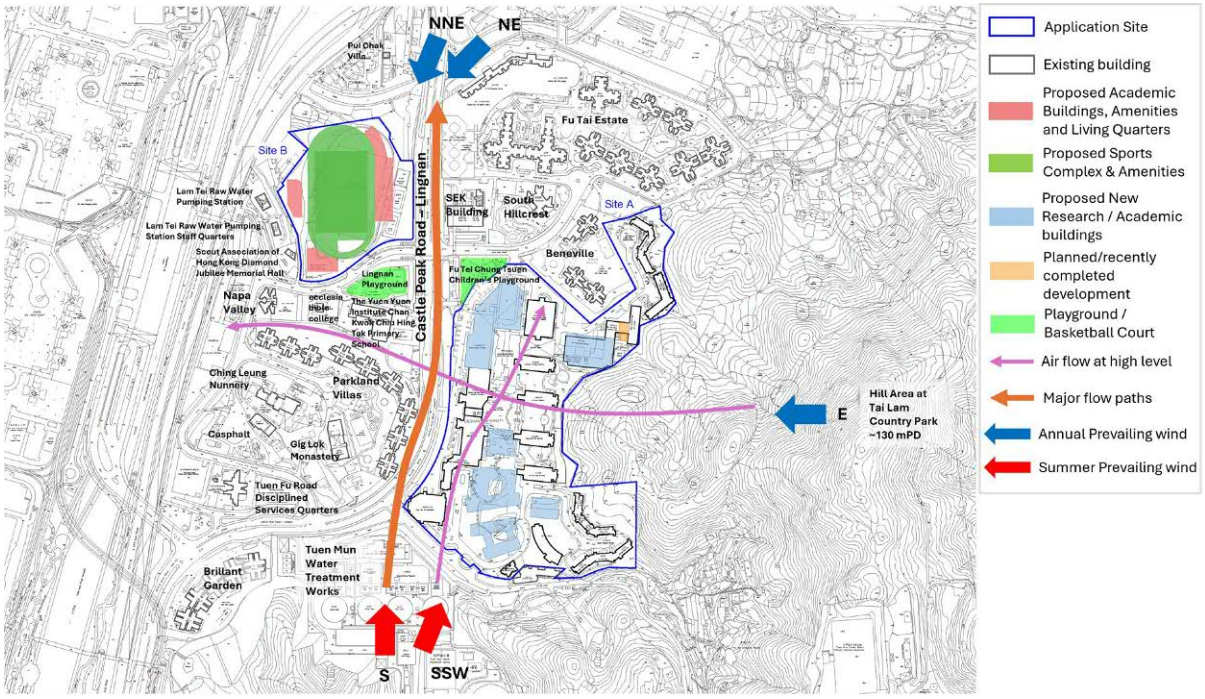


Maintained Prevailing Wind Flow Path

7.1.3. The building height of the central area of the Application Site A will be remained unchanged to preserve the prevailing annual easterly wind flow within the site and minimize adverse ventilation impacts on the downwind areas, such as Parkland Villas. It is anticipated to allow E wind flow at high level skim over the mid-rise buildings, reaching the downwind areas of Parkland Villas at pedestrian level.

7.1.4. In addition, an airflow path of summer prevailing S and SSW wind within the site will be preserved. The major flow path along Castle Peak Road – Lingnan are preserved to facilitate the S wind. In addition, the high-level SSW airflow are allowed to skim over the mid-rise buildings that are remained unchanged in the central area of the Application Site, and reaching pedestrian level of the downwind areas. As such, potential adverse air ventilation impacts on the downwind areas are expected to be minimised.

Figure 7-2 Wind Flow Path maintained within Application Site



8. Conclusion

8.1.1. An AVA-EE study was conducted for the proposed development at Lingnan University at No. 8 Castle Peak Road - Lingnan, Tuen Mun to provide qualitative evaluation of wind performance under the baseline scheme and proposed scheme

8.1.2. Based on the assessment, the wind wake effect and potential air ventilation impact due to increase in BHR and the development of proposed new building would be inevitable. The increase in wind wake area induced by proposed Building A2 would bring potential impacts towards downwind area includes Fu Tei Chung Tsuen Children's Playground, Parkland Villas and The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School. While the proposed Building A3 and A4 would bring potential impacts towards downwind area of Parkland Villas and Tuen Mun Water Treatment Works. In addition, the proposed Building B2, B3 and B4 would bring potential air ventilation impacts towards the downwind areas such as Napa Valley, Ecclesia Bible College, The Yuen Yuen Institute Chan Kwok Chiu Hing Tak Primary School, Lingnan Playground, the Scout Association of Hong Kong Diamond Jubilee Memorial Hall, Lam Tei Raw Water Pumping Station staff quarters and Pui Chak Villa.

8.1.3. There are some good design features provided in the proposed development, such as the building setback to maintain the major air path, and maintain the building height profile at the central area of the Application Site A to preserve the existing wind flow path within Site, would be adopted in the proposed development.

8.1.4. The building setback of proposed academic building in Site A and proposed living quarters in Site B are expected to reserve the wide openness of Castle Peak Road – Lingnan as the major flow path in N-S direction, facilitate the prevailing annual NNE and E wind, as well as summer S wind. With the implementation of building height control in the central portion of Site A, with the existing building remained unchanged, the Proposed Development maintains adequate air permeability to facilitate the penetration of prevailing annual E wind and summer S, SSW wind through the site. The adoption of a stepped height profile transitioning from the high terrain of Tai Lam Country Park towards the Application Site will also facilitate annual E wind flow. With the reservation of the major flow path and existing airflow regime, it is expected that no significant deterioration in pedestrian-level wind environment is anticipated.

8.1.5. In conclusion, despite the potential air ventilation impact induced by the proposed development, the wideness of Tuen Mun Road and castle Peak Road – Lingnan will be

maintained to preserve the major flow path. The adverse air ventilation impacts on the downwind areas on pedestrian level after the construction of proposed development is expected to be minimal.

Appendix 7

Water Supply Impact Assessment

Issue No. : 2

Issue Date : Apr 2026

Project No. : 2292

WATER SUPPLY IMPACT ASSESSMENT

FOR

TECHNICAL FEASIBILITY STUDY FOR LINGNAN UNIVERSITY AT NO. 8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Prepared by

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

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Document Verification

Project Title	Technical feasibility Study for Lingnan University at No. 8 Castle Peak Road - Lingnan, Tuen Mun	**Project No.**	2292
Document Title	WATER SUPPLY IMPACT ASSESSMENT		

Issue No.	Issue Date	Description	Prepared by	Checked by	Approved by
1	Mar 2026	1st Submission	Various	Cathy Man	Grace Kwok
2	Apr 2026	2nd Submission	Various	Cathy Man	Grace Kwok

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1. INTRODUCTION

1.1.1. Allied Environmental Consultants Limited (AEC) has been appointed to conduct a Water Supply Impact Assessment (WSIA) for the proposed Lingnan University at No. 8 Castle Peak Rd- Lingnan, Tuen Mun under Section 5 of Town Planning Ordinance for amendment of building height restriction at i) the current Lingnan Main Campus and ii) the North Campus (hereinafter called "Proposed Development").

1.1.2. The Proposed Development is currently zoned as "Government, Institution or Community" ("G/IC") on the Approved Tuen Mun Outline Zoning Plan (No.: S/TM/41). The Project Proponent proposes to develop the Application Site for construction of new academic spaces and living quarters/hostel to provide more floor space for university expansion. The Proposed Development will consist of the demolishment of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities.

1.1.3. Indicative drawings and other technical information on the Proposed Development are provided by the Project Architect (P&T Architects Limited).

1.2. Objectives

1.2.1. The WSIA is prepared in response to the request from the Water Service Department ("WSD") to evaluate the adequacy of water supply to cater for the proposed development within the service area supplied by the distribution network concerned. It examines the potential impact on the distribution network, including any constraints on operational and maintenance for the distribution system in the future.

1.2.2. The report outlines the assessment results of the potential water supply impacts caused by the Proposed Development. The main objectives of the study include the following:

- Review the existing supply condition of the Project Site;
- Estimate the water demand of the Proposed Development;
- Identify any potential impact on the current water supply system due to the additional water supply demand from the proposed development;
- Propose water supply mitigation measures where appropriate to mitigate the potential water supply impact.

1.3. Report Structure

1.3.1. The remaining chapters of this report are shown below:

Chapter 2 – Site Context

Chapter 3 – Assessment Methodology

Chapter 4 – Water Supply Impact Assessment

Chapter 5 – Result and Discussion

Chapter 6 – Conclusion

2. SITE CONTEXT

2.1. Site Location and Its Environs

2.1.1. The Proposed Developments consists of 2 sites, namely Site A and Site B, located at No.8 Castle Peak Road- Lingnan, Tuen Mun. Site A is the main campus of Lingnan University and it is bounded by Tuen Kwai Road to the north and Castle Peak Road-Lingnan to the west, immediately adjoining the Green Belt (GB) zone to the east and facing Fu Tei Road and Tuen Mun Water Treatment Works to the south.

2.1.2. Site B is currently occupied by an existing multipurpose outdoor sports ground and Wofoo Joseph Lee Student Activity Centre. It is bounded by Castle Peak Road-Lingnan to the east, Tuen Fu Road to the south, Tuen Mun Road to the west and 18 Rosewood to the north. The location of the Application Site and its surroundings are presented in ***Figure 2.1***.

2.1.3. The Application Site is zoned as "Government, Institution or Community" ("G/IC") on the Approved OZP. The surrounding areas are mainly zoned G/IC, Residential (Group B) ("R(B)10" "R(B)11" and "R(B)16" zone), Residential (Group A) ("R(A)3"), Residential (Group C)(("R(C)"). A strip of area zoned "Green Belt ("GB") are respectively located to the East of the Application Site.

2.2. Proposed Development

2.2.1. The Proposed Development comprises 2 sites, with a total site area of around 112,233m^2. With reference to the Proposed Development potential study, the Proposed Development will consist of the demolition of existing buildings and construction of new Research/Academic Buildings, Student Amenities and Living Quarters and a relocated new Sports Complex and Recreation Facilities. The tentative completion year of the Proposed Development is expected to be year 2038.

2.3. Existing Water Supply Condition

2.3.1. The Project Site is within the fresh water supply zone of Tuen Mun East Fresh Water Service Reservoir (TMEFWSR) and the salt water supply zone of Lok On Pai Salt Water Pumping Station (LOPSWPS) and Tan Kwai Tsuen Salt Water Service Reservoir (TKTSWSR) salt water supply system. The design storage capacity of TMEFWSR and TKTSWSR is 47,309 m^3 and 18,100 m^3 respectively.

2.3.2. Based on the water mains record plan provided by WSD, there is an existing 400mm freshwater distribution main running along Castle Peak Road – Lingnan to the west of the Site A and along Tuen Fu Road to the south of Site B. As for the flush water mains, there is an existing 400mm flush water distribution main running along Castle Peak Road – Lingnan to the west of the Site A and along Tuen Fu Road to the south of Site B. The existing water supply condition is shown in ***Appendix A***.

3. ASSESSMENT METHODOLOGY

3.1. Design Guidelines

3.1.1. The following approach is adopted in carrying out this WSIA:

a) Review interface projects which may have bearing on the development;
b) Identify existing and planned water supply systems within the study area;
c) Assess the water demands for the development;
d) Propose the water supply scheme arising from the development including preparation of a hydraulic analysis;
e) Examine the short- and long-term impacts on existing water mains and any interface projects;
f) Recommend suitable mitigation measures and/or diversion schemes and arrangement to mitigate the permanent impacts on existing water supply system and minimize the disturbance to the normal operation of the system during construction stage.

3.1.2. The estimation of water demands for the proposed development is primarily based on unit water demands as outlined in WSD Departmental Instruction (DI) No. 1309.

3.2. Unit Demand

3.2.1. Assumptions have been made for the unit daily demand (UDD) for each type of land use, for both freshwater and flush water. The UDD is used for estimating the total demand of the proposed development and the required water supply capacity to support the development.

3.2.2. The water supply demand estimation is presented in ***Appendix B***. The unit flow factors adopted for water demand estimation and calculation are summarized in ***Table 3-1***.

Table 3-1 Unit Daily demand Adopted in Water Supply Impact Assessment

Development Type	Consumer Type	Freshwater UFF	Flush Water UFF
Academic Building	Students & Staff	0.025 m^3/h/d [1]	0.025 m^3/h/d [1]
Restaurant & Canteen	Workers & daily operation activities	0.200 m^3/h/d	0.104 m^3/h/d
Sport Complex & Amenities	Student & Staff	0.180 m^3/h/d	0.025 m^3/h/d [1]
Hostel or Living Quarters	Residential	0.230 m^3/h/d	0.104 m^3/h/d

Note:
[1] Referred to Table 1 & Table 2 of WSD DI. No. 1309

3.3. Peaking factors

3.3.1. The peaking demand factors below shall be adopted for design:

- Peak flow rate in freshwater distribution mains = 3 x mean daily demand
- Peak flow in flushing water distribution mains = 2 x mean daily demand
- Peak flow rate in freshwater trunks mains = 1.5 x mean daily demand
- Peak flow rate in flushing water trunks mains = 1.2 x mean daily demand

3.4. Fire-fighting

3.4.1. In addition to the aforementioned facilities of the Proposed Development, water supply for fire-fighting service has been considered in this WSIA. The fire-fighting requirements for the proposed development are based on the residential and industrial zone requirements outlined in WSD DI. No. 1309. The minimum freshwater supply required is 6,000 m^3 per day, with a discharge pressure of 17m head. The fire hydrants should be of standard pattern with a minimum output pressure of not less than 25 psi. When multiple hydrants are operating simultaneously, the total output should be not less than 4,000 L/min and should last for 60 minutes. ***Table 3.2*** summarizes the fire-fighting requirements.

Table 3-2 Fire-Fighting Requirements

Requirements	Minimum Values
Minimum freshwater supply	6000 m^3/day
Discharge pressure	17 m
Minimum output not less than 25 psi	Not less than 4,000 L/min to last for an hour

3.5. Residual heads

3.5.1. The minimum residual heads at extremely of the freshwater and flush water supply systems for the Proposed Development are adopted as follow:

- Fresh Water: 30 m
- Flush Water: 15 m

3.6. Design Velocity

3.6.1. The desirable flow velocities for hydraulic checking are as follows:

Maximum velocity (under peak flow condition)

Freshwater mains:

>DN700	≤ 3 m/s
DN700 – DN525	≤ 2.5 m/s
DN450 – DN375	≤ 2 m/s
DN300 – DN200	≤ 1.5 m/s

Flush water mains:

>DN1000	≤ 3 m/s
DN900 – DN800	≤ 2.5 m/s
DN700 – DN300	≤ 2 m/s
DN450 – DN300	≤ 1.5 m/s

Minimum velocity (under peak flow condition)

Freshwater mains: ≥ 0.9 m/s

Flush water mains: ≥ 0.9 m/s

3.6.2. The pipeline shall have a minimum gradient of 1:400. Pipes shall be laid at a minimum separation of 300mm away from existing utilities and underground structures.

4. WATER SUPPLY IMPACT ASSESSMENT

4.1. Estimation of Water Demand for Proposed Development

4.1.1. The estimated existing freshwater demand for Site A and Site B is 798.75 m^3/day and 101.25 m^3/day respectively. Meanwhile, the corresponding flush water demand is approximately 451.92 m^3/day and 14.10 m^3/day respectively.

4.1.2. With the proposed development, additional water demand will be generated within the Application Site. The estimated additional fresh water demand for Site A and Site Bis approximately 377.75 m^3/day and 1132.40 m^3/day respectively. The corresponding additional flushing water demand is approximately 360.57 m^3/day and 445.50 m^3/day respectively. The detailed calculation of water demand estimation is shown in ***Table 4-1***, ***Table 4-2*** and ***Appendix B***.

Table 4-1 Summary of Estimated Fresh Water Demand of Proposed Development

Fresh Water Demand	Site A	Site B	Total
	m^3/day	**m^3/day**	**m^3/day**
Existing	798.75	101.52	900.27
Proposed (additional demand)	377.75	1,132.40	1,510.15
Total Water Demand (existing + proposed development)	**1,176.50**	**1,233.92**	**2,410.42**

Table 4-2 Summary of Estimated Flushing Water Demand of Proposed Development

Flushing Water Demand	Site A	Site B	Total
	m^3/day	**m^3/day**	**m^3/day**
Existing	451.92	14.10	495.52
Proposed (additional demand)	360.57	445.50	806.07
Total Water Demand (existing + proposed development)	**812.49**	**489.10**	**1,301.59**

4.1.3. The peaking factor adopted for the sizing of distribution main is 3 for freshwater and 2 for flush water. According to the calculation, the total fresh water demand for Site A and Site B is 1,176.50 m^3/day and 1,233.92 m^3/day respectively, corresponding to peak flow rates of 0.041 m^3/s and 0.043 m^3/s. The total flushing water demand for Site A and Site B is 812.49 m^3/day and 459.60 m^3/day respectively, with the corresponding peak flow rates of 0.019 m^3/s and 0.011 m^3/s.

5. RESULTS AND DISCUSSION

5.1. Evaluation of Water Supply Impact

5.1.1. The design storage capacity of TMEFWSR and TKTSWSR are approximately 47,309 m^3/day and 18,100 m^3/day respectively. The estimated fresh water demand of the proposed development is approximately 2,410 m^3/day, which will utilize about 3.8% of the design storage capacity of TMEFWSR. The estimated flushing water demand is approximately 1,301 m^3/day, which will utilize about 1.8% of the design storage capacity of TKTSWSR.

5.1.2. Besides, the estimated peak fresh water demand from Site A and Site B would be occupied approximately 18% and 19% respectively of the flow capacity of the existing DN400 public fresh water distribution main. Meanwhile, the peak flushing water demand would utilize approximate 11% and 6% respectively of the flow capacity of existing DN400 public salt water distribution main.

5.1.3. The detailed hydraulic calculation is shown in ***Appendix C***.

5.1.4. Based on the water mains record plans presented in ***Appendix A***, the fresh and flushing water supplies for Site A will be connected via tee-off from the existing DN400 fresh water and DN400 salt water supply main along the Castle Peak Road – Lingnan. For Site B, the water supply will be connected via tee-off from the existing DN400 fresh and salt water supply main along Tuen Fu Road, with appropriate lead-in valve was provided.

5.1.5. Based on the water mains record plans presented provided by WSD, an existing WWR for pipeline at Tuen Fu Road was identified within the southwest portion of Site B. The proposed development will ensure that the WWR is fully preserved and will not be encroached by any structures. A strip of land with minimum 1.5m in width will be maintained for the access for staff of WSD to carry out construction, inspection, operation, maintenance and repair works.

5.2. Liability

5.2.1. The Applicant shall be responsible for the construction works, including all internal water mains and water supply-in valves, regular inspection, and maintenance management of the water facilities strictly within the Application Site boundary.

6. CONCLUSION

6.1.1. The WSIA has been carried out to evaluate the potential impact on the existing water supply system due to the proposed development at Site A and Site B. The Application Site falls within the fresh water supply zone of TMEFWSR and the salt water supply zone of LOPSWPS and TKTSWSR salt water supply system. The proposed development will be supplied by existing DN400 fresh water and DN400 salt water distribution mains located along Castle Peak Road – Lingnan and Tuen Fu Road.

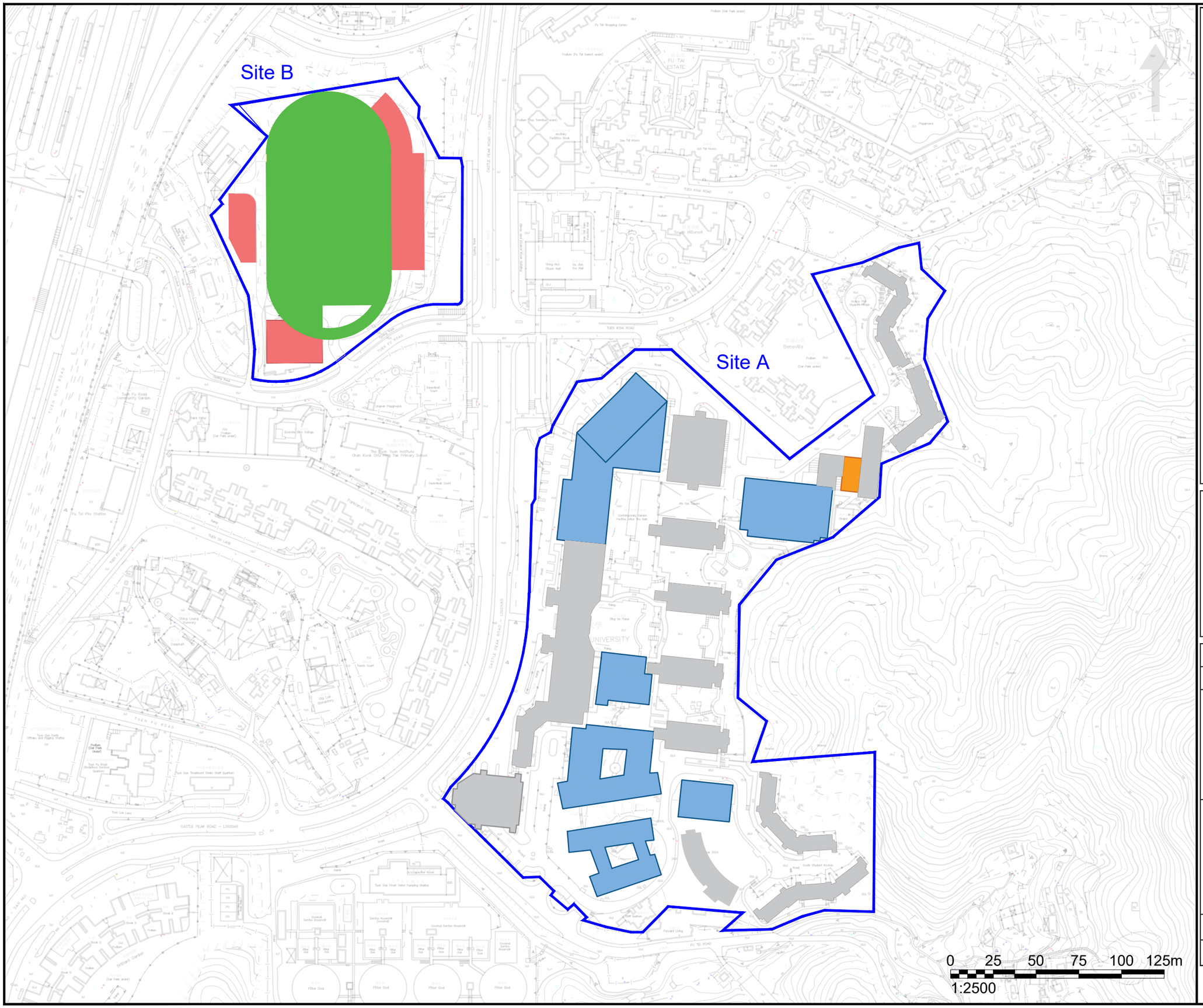
6.1.2. Based on the assessment, the total fresh water demand for Site A and Site B is estimated to be 1,176.50 m^3/day and 1,233.92 m^3/day respectively, with corresponding peak flow rates of 0.041 m^3/s and 0.043 m^3/s. The total flushing water demand for Site A and Site B is estimated to be 812.49 m^3/day and 459.60 m^3/day respectively, with corresponding peak flow rates of 0.019 m^3/s and 0.011 m^3/s.

6.1.3. The water demand from the proposed development represents only a small proportion of the design storage capacities of the TMEFWSR and TKTSWSR, at approximately 3.8% and 1.8% respectively. In terms of distribution, the fresh water demand of Site A and Site B would utilise approximately 18% to 19% of the capacity of the existing DN400 fresh water mains respectively, and approximately 6% to 11% of the capacity of the existing DN400 salt water mains.

6.1.4. Given that fresh water supply from TMEFWSR and salt water supply from LOPSWPS and TKTSWSR are enough to cater with the addition water demand due to proposed development. It is concluded that no adverse impact on the local water supply network is anticipated, no mitigation measures are considered necessary.

6.1.5. Based on the above, it is concluded that the water supply impact arising from the proposed development should be acceptable.

Figures



NOTES :

- PROJECT SITE
- EXISTING BUILDING
- PROPOSED NEW RESEARCH/ACADEMIC BUILDING
- PROPOSED RESEARCH / ACADEMIC / LIVING QUARTERS / RECREATIONAL FACILITIES
- PLANNED DEVELOPMENT

Consultant

Allied Environmental Consultants Limited

Project No. :	2292
Drawing By :	CS

Project :
SECTION 5 PLANNING APPLICATION FOR LINGNAN UNIVERSITY AT NO.8 CASTLE PEAK ROAD - LINGNAN, TUEN MUN

Drawing Title :
PROJECT SITE LOCATION

Drawing No :	Revision :
FIGURE 2.1	2
Scale : AS SHOWN	Date : APR 2026

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A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2292 LINGNAN U_SECTION 5\05 REPORT\01 AEC REPORT\ISSUE 4\EA\EA\2292 LINGNAN U SECTION 5 EA FIG.DWG

Appendix A

Water Mains Record Plans

Attachment Ia

816000E 816100E 816200E 816300E 816400E 816500E 816600E

830600N 830500N 830400N 830300N 830200N 830100N 830000N 829900N 829800N

6m WWR FOR TAN KWAI TSUEN SOUTH F.W. S/R (CONSTRUCTION DIVISION)

PROPOSED 6m WWR FOR TAN KWAI TSUEN F.W. P/S

PROPOSED 8m WWR FOR TAN KWAI TSUEN F.W. P/S

PROPOSED WWR FOR LAM TEI F.W. P/S (RAW WATER)

WWR FOR PIPELINE AT TUEN FU ROAD

WSD ACCESS ROAD (ITEM NO. NT 17) MAINTAINED BY CEH/NT

WSD LAND ALLOCATION FOR TUEN MUN T/W STAGE 1 & 2 & STAFF QUARTERS

WWR FOR TUEN MUN T/W

PROPOSED WWR FOR MAINLAYING FROM TUEN MUN F.W. P/S TO SIU LANG SHUI

WSD LAND ALLOCATION FOR TUEN MUN T/W STAGE 1 & 2 & STAFF QUARTERS

WSD LAND ALLOCATION FOR PUMP HOUSE & HEADER TANK FOR H.L. W/S TO FU TAI SHEUNG TSUEN

WWR FOR TUEN MUN T/W & EXTENSION

WSD LAND ALLOCATION FOR TUNNELS/ PORTALS & PIPELINES FROM TLC RESR. TO TUEN MUN T/W

WSD LAND ALLOCATION FOR TUEN MUN T/W & EXTENSION

120m TUNNEL RESERVE

WSD ACCESS ROAD (ITEM NO. NT 48) MAINTAINED BY WSD

PROPOSED WWR FOR TUEN MUN PRIMARY S/R

PROPOSED WSD LAND ALLOCATION FOR TUEN MUN PRIMARY S/R

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL LEVELS ARE IN METRES ABOVE PRINCIPAL DATUM.
3. INFORMATION ON ALIGNMENT OF MAINS IS OF INDICATIVE VALUE ONLY. WHERE POSITIONAL ACCURACY MAY BE OF IMPORTANCE, DETAILS SHOULD BE SITE CHECKED.
4. FOR MAINS RECORDS SIGN CONVENTIONS AND DESIGNATIONS SEE SKETCH NO. 3988.
5. THE SITE IS NOT WITHIN WSD GATHERING GROUNDS.

SUBJECT SITE

PRIVATE LOT BOUNDARY (FOR REF. ONLY)

PART COPY OF SALT WATER MAINS RECORD PLAN(S)

W67881/6-NW-21B, 21D, 22A, 22C, 6-SW-1B & 2A

FILE REF: (9) IN WSD/M/SP 3051/77/1S/99 PT.1

REF. CODE: 35W25M	SHEET 1 OF 1	SCALE 1:1200

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Water Supplies Department

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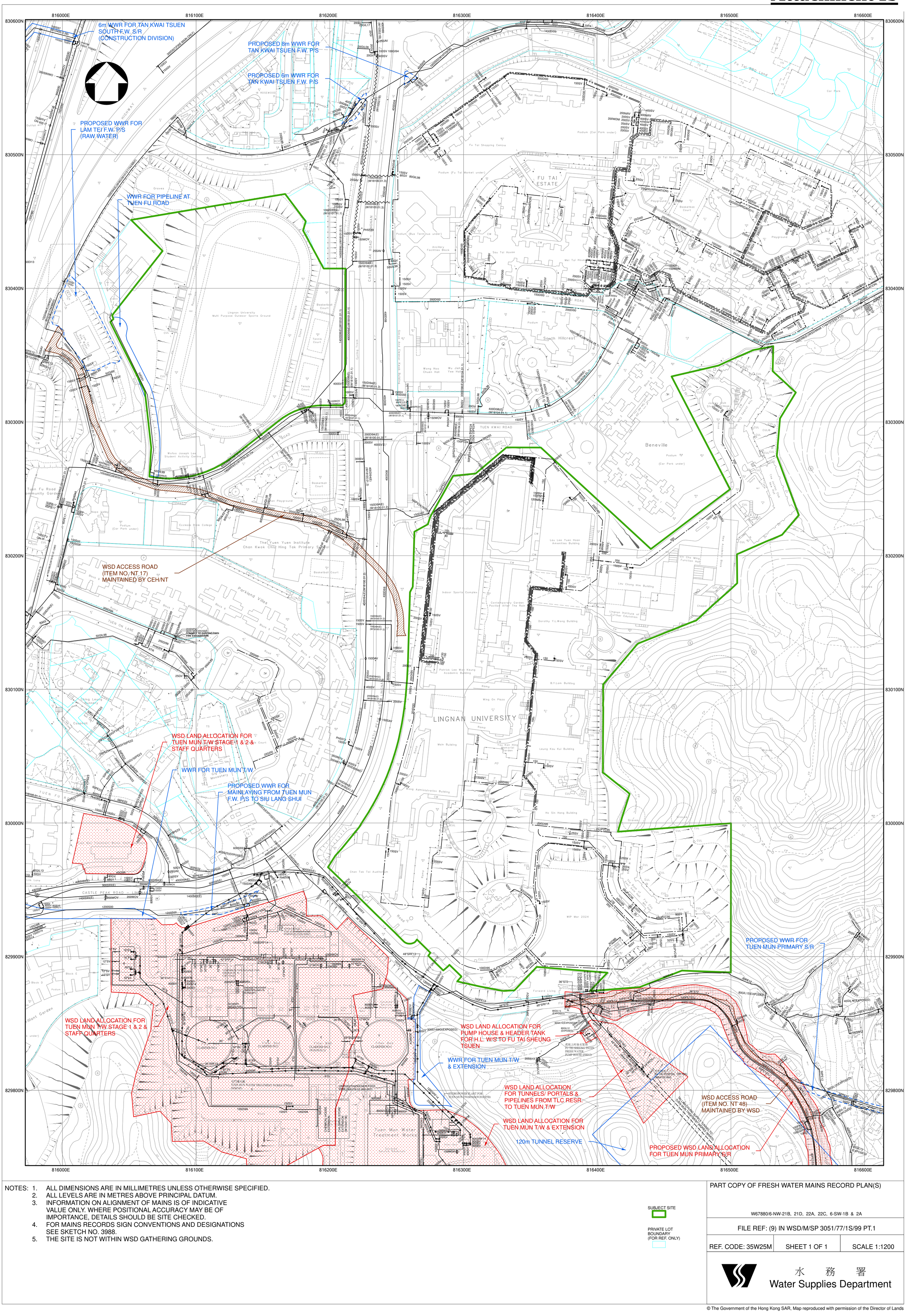
Attachment Ib



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2. ALL LEVELS ARE IN METRES ABOVE PRINCIPAL DATUM.
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4. FOR MAINS RECORDS SIGN CONVENTIONS AND DESIGNATIONS SEE SKETCH NO. 3988.
5. THE SITE IS NOT WITHIN WSD GATHERING GROUNDS.

SUBJECT SITE

PRIVATE LOT BOUNDARY (FOR REF. ONLY)

PART COPY OF FRESH WATER MAINS RECORD PLAN(S)

W67880/6-NW-21B, 21D, 22A, 22C, 6-SW-1B & 2A

FILE REF: (9) IN WSD/M/SP 3051/77/1S/99 PT.1

REF. CODE: 35W25M	SHEET 1 OF 1	SCALE 1:1200

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Appendix B

Water Demand Estimation

Project No. 819.5958

Water Demand Estimation of Existing Development

Existing Development

Fresh Water

Site A			
Academic Building			
Total number of student	5724	persons	Existing number of student, based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Fresh Water Unit Daily Demand	0.025	m^3/person/day	Referred to WSD DI No.1309 Table 1 - Fresh Water for School
Total number of staff	813	persons	Existing number of staff, based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Fresh Water Unit Daily Demand	0.025	m^3/person/day	Assumed to be same as student
Average Fresh Water Demand	**163.43**	**m^3/day**	
Hostel / Living Quarters			
Total number of student	2600	persons	Existing number of student accomodated within campus
Fresh Water Unit Daily Demand	0.23	m^3/person/day	Referred to WSD's comment dated 4 Mar 2026
Total number of staff quarters units	21	units	Referred to the information from Lingnan University Website https://www.ln.edu.hk/ocdm/facilities/accomodation/lingnan-hub
Total Number of Staff	84	persons	Assumed 4 person in a unit
Fresh Water Unit Daily Demand	0.23	m^3/person/day	Assumed to be same as student
Average Fresh Water Demand	**617.32**	**m^3/day**	
Restaurant			
Canteen			
Total Floor Area	875.5	m²	GF Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of person	45	persons	
Lingnan House			
Total Floor Area	875.5	m²	1F Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of person	45	persons	
Fresh Water Unit Daily Demand	0.200	m^3/person/day	Based on daily operation activities of restaurant (such as food preparing, dish washing, cooking, cleaning etc.) Assumed to be more than academic building and slightly less than residential.
Average Fresh Water Demand	**18.00**	**m^3/day**	
Site A Total Fresh Water Demand	**798.75**		
Site B			
Proposed Sport Complex and Amenities			
Total number of student	494	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Fresh Water Unit Daily Demand	0.180	m^3/person/day	Assumed based on activities that consumed water (such as personal hygiene, showering, facilities maintenance, cleaning etc.) The water demand is expected to be less than residential.
Total number of staff	70	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Fresh Water Unit Daily Demand	0.180	m^3/person/day	Assumed to be same as student
Average Fresh Water Demand	**101.52**	**m^3/day**	
Site B Total Fresh Water Demand	**101.52**		

Flush Water

Site A			
Academic Building			
Total number of student	5724	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Flush Water Unit Daily Demand	0.025	m^3/person/day	Referred to WSD DI No.1309 Table 1 - Flush Water for School
Total number of staff	813	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Flush Water Unit Daily Demand	0.025	m^3/person/day	Assumed to be same as student
Average Flushing Water Demand	**163.43**	**m^3/day**	
Hostel / Living Quarters			
Total number of student	2600	persons	Assuming 50% of students accommodated on campus
Flush Water Unit Daily Demand	0.104	m^3/person/day	Referred to WSD's comment dated 4 Mar 2026
Total number of staff quarters units	21	units	Referred to the information from Lingnan University Website https://www.ln.edu.hk/ocdm/facilities/accomodation/lingnan-hub
Total Number of Staff	84	persons	Assumed 4 person in a unit
Flush Water Unit Daily Demand	0.104	m^3/person/day	Assumed to be same as student
Average Flushing Water Demand	**279.14**	**m^3/day**	
Restaurant			
Canteen			
Total Floor Area	875.5	m²	GF Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of person	45	persons	
Lingnan House			
Total Floor Area	875.5	m²	1F Lau Lee Yuen Haan Amenities Building, assumed half of the floor area are canteen
Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of person	45	persons	
Flush Water Unit Daily Demand	0.104	m^3/person/day	Flushing water consumption are only for lavatory use by the staff, assumed to be same as the residential
Average Flushing Water Demand	**9.36**	**m^3/day**	
Site A Total Flush Water Demand	**451.92**		
Site B			
Proposed Sport Complex and Amenities			
Total number of student	494	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Flush Water Unit Daily Demand	0.025	m^3/person/day	Referred to WSD DI No.1309 Table 1 - Flush Water for School
Total number of staff	70	persons	Based on University Statistic: https://www.ln.edu.hk/about-lu/facts-and-figures/university-statistics-booklet
Flush Water Unit Daily Demand	0.025	m^3/person/day	Assumed to be same as student
Average Flushing Water Demand	**14.10**	**m^3/day**	
Site B Total Flush Water Demand	**14.10**		
Total Fresh Water Demand	**900.27**	**m^3/day**	
Total Flush Water Demand	**466.02**	**m^3/day**	
Total Water Demand	**1366.29**	**m^3/day**	

Additional Water Demand Estimation of Proposed Development

Proposed Development

Fresh Water

Site A			
Academic Building			
Total number of student	11968	persons	Estimated based on GFA ratio of the proposed building
Fresh Water Unit Daily Demand	0.025	m^3/person/day	Referred to WSD DI No.1309 Table 1 - Fresh Water for School
Total number of staff	1710	persons	Estimated based on GFA ratio of the proposed building
Fresh Water Unit Daily Demand	0.025	m^3/person/day	Assumed to be same as student
Average Fresh Water Demand	**341.95**	**m^3/day**	
Restaurant			
Canteen			
Total Floor Area	3500.0	m²	Prorated estimation based on additional student
Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of person	179	persons	
Fresh Water Unit Daily Demand	0.200	m^3/person/day	Based on daily operation activities of restaurant (such as food preparing, dish washing, cooking, cleaning etc.) Assumed to be more than academic building and slightly less than residential.
Average Fresh Water Demand	**35.80**	**m^3/day**	
Site A Total Fresh Water Demand	**377.75**		
Site B			
Proposed Sport Complex and Amenities			
Total number of student	1032	persons	Estimated based on GFA ratio of the proposed building
Fresh Water Unit Daily Demand	0.180	m^3/person/day	Assumed based on activities that consumed water (such as personal hygiene, showering, facilities maintenance, cleaning etc.) The water demand is expected to be less than residential.
Total number of staff	148	persons	Estimated based on GFA ratio of the proposed building
Fresh Water Unit Daily Demand	0.18	m^3/person/day	Assumed to be same as student
Average Fresh Water Demand	**212.40**	**m^3/day**	
Hostel / Living Quarters			
Total number of student	4000	persons	
Fresh Water Unit Daily Demand	0.23	m^3/person/day	Referred to WSD's comment dated 4 Mar 2026
Average Fresh Water Demand	**920.00**	**m^3/day**	
Site B Total Fresh Water Demand	**1132.40**		

Flush Water

Site A			
Academic Building			
Total number of student	11968	persons	Estimated based on GFA ratio of the proposed building
Flush Water Unit Daily Demand	0.025	m^3/person/day	Referred to WSD DI No.1309 Table 1 - Flush Water for School
Total number of staff	1710	persons	Estimated based on GFA ratio of the proposed building
Flush Water Unit Daily Demand	0.025	m^3/person/day	Assumed to be same as student
Average Flushing Water Demand	**341.95**	**m^3/day**	
Restaurant			
Canteen			
Total Floor Area	3500.0	m²	Prorated estimation based on additional student
Worker Density per GFA (in 100m2)	5.1	person/100 m2	Referred to the worker density of Restaurants (All Types) in Table 8 of CIFSUS
Total number of person	179	persons	
Flush Water Unit Daily Demand	0.104	m^3/person/day	Flushing water consumption are only for lavatory use by the staff, assumed to be same as the residential
Average Flushing Water Demand	**18.62**	**m^3/day**	
Site A Total Flush Water Demand	**360.57**		
Site B			
Proposed Sport Complex and Amenities			
Total number of student	1032	persons	Estimated based on GFA ratio of the proposed building
Flush Water Unit Daily Demand	0.025	m^3/person/day	Referred to WSD DI No.1309 Table 1 - Flush Water for School
Total number of staff	148	persons	Estimated based on GFA ratio of the proposed building
Flush Water Unit Daily Demand	0.025	m^3/person/day	Assumed to be same as student
Average Flushing Water Demand	**29.50**	**m^3/day**	
Hostel / Living Quarters			
Total number of student	4000	persons	
Flush Water Unit Daily Demand	0.104	m^3/person/day	Referred to WSD's comment dated 4 Mar 2026
Average Flushing Water Demand	**416.00**	**m^3/day**	
Site B Total Flush Water Demand	**445.50**		
Total Fresh Water Demand	**1510.15**	**m^3/day**	
Total Flush Water Demand	**806.07**	**m^3/day**	
Total Water Demand	**2316.22**	**m^3/day**	

Appendix C

Hydraulic Review of Water Main

Calculation of Flow Capacity of Proposed Development (Fresh Water)

Water Main	Internal Diameter (m) [a]	Cross-section Area (m^2)	Mean Velocity (m/s) [c]	Peak Flow rate of existing pipe (m^3/s)	Total Fresh Water Demand	Peaking Factor	Total Water Demand	Peak Flow Rate	Percentage of Contribution by Development	Remark
	D	A	V		m^3/day		m^3/day	m^3/s		
Site A										
Existing DN400 Fresh Water Main	0.382	0.115	2.00	0.229	1176.5	3.0	3529.5	0.041	18%	Fresh Water Demand from Site A
Site B										
Existing DN400 Fresh Water Main	0.382	0.115	2.00	0.229	1233.9	3.0	3701.8	0.043	19%	Fresh Water Demand from Site B

Calculation of Flow Capacity of Proposed Development (Flush Water)

Water Main	Internal Diameter (m) [a]	Cross-section Area (m^2)	Mean Velocity (m/s) [c]	Peak Flow rate of existing pipe (m^3/s)	Total Flush Water Demand	Peaking Factor	Maximum Water Demand	Peak Flow Rate	Percentage of Contribution by Proposed Development	Remark
	D	A	V		m^3/day		m^3/day	m^3/s		
Site A										
Existing DN400 Salt Water Main	0.382	0.115	1.50	0.172	812.5	2.0	1625.0	0.019	11%	Flush Water Demand from Site A
Site B										
Existing DN400 Salt Water Main	0.382	0.115	1.50	0.172	459.6	2.0	919.2	0.011	6%	Flush Water Demand from Site B

Calculation of Water Supply Capacity of Proposed Development

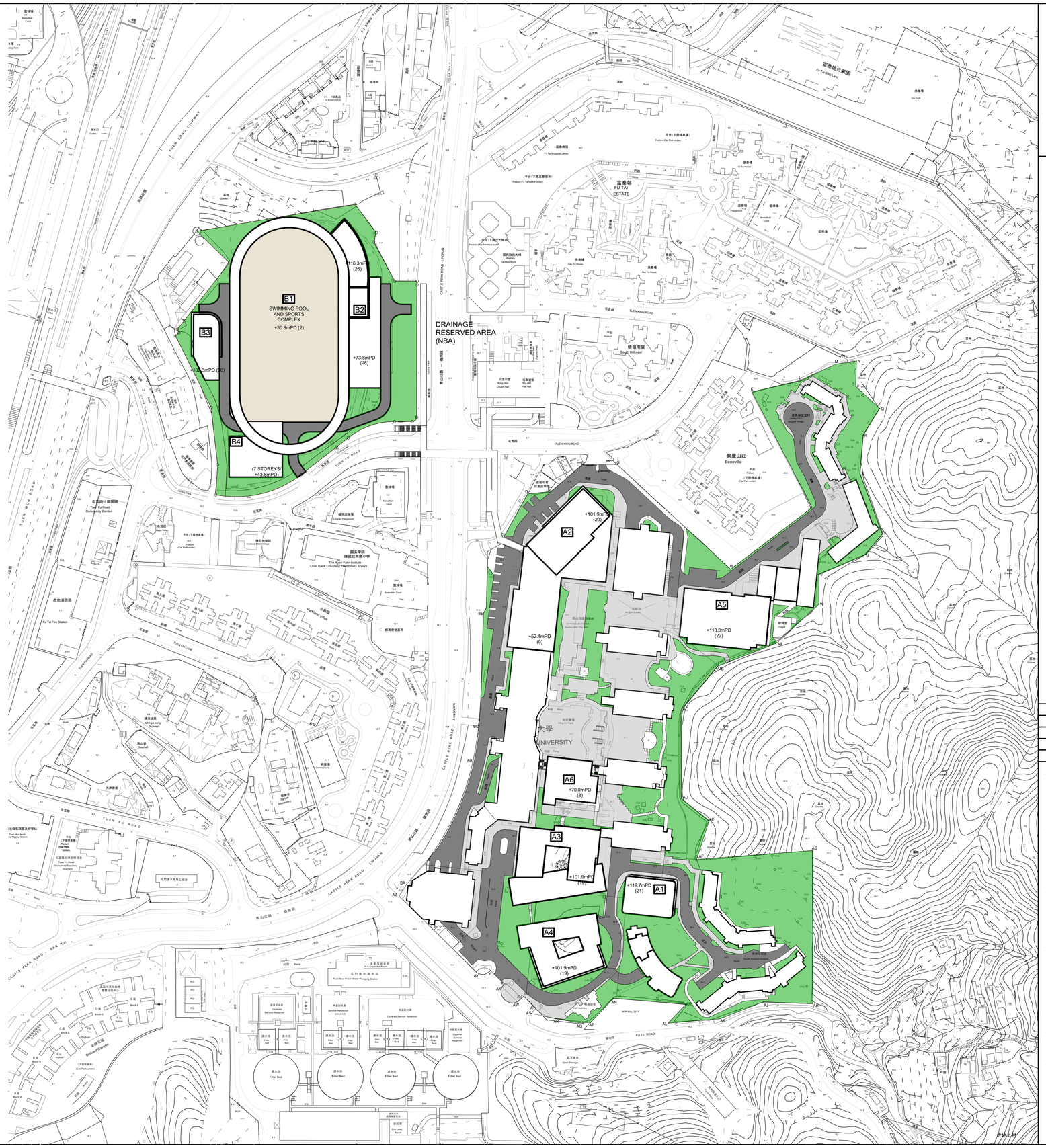
Reservoir / Pumping Station	Type	Water Demand	Design Storage Capacity	Design Mean Daily Demand	Percentage of Contribution by Development	Remark
		m^3/day	m^3/day	m^3/day		
Tuen Mun Water Treatment Works	Freshwater	2410.4	47309.0	63079.0	3.8%	Fresh water demand from Site A + Site B
Lok On Pai Salt Water Pumping Station	Saltwater	1272.1	18100.0	72400.0	1.8%	Flushing water demand from Site A + Site B

Appendix 8

Broad-brush Tree Survey Report and Conceptual Landscape Plan

GREEN AREA CALCULATION

	SITE AREA	GREEN AREA	%
SITE A (TMTL 376)	85,940	17,200	>20%
SITE B (TMTL 410)	26,293	5,300	>20%



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LEGEND

- LANDSCAPE AREA
- DRIVEWAY
- HARD PAVING AREA (OPEN AREA)
- SPORTS GROUND (OPEN AREA)

NUMBER / 編號	DATE / 日期	AMENDMENT / 修訂

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PROJECT / 工程項目

LINGNAN UNIVERSITY
NEW RESEARCH & ACADEMIC BUILDING

DRAWING / 圖名

LANDSCAPE PLAN

SCALE / 比例	JOB NUMBER / 工程編號
1:1500@A1	6173
DATE / 日期	DRAWING NUMBER / 圖號
MARCH 2024	6173-LA-002

DESIGNED / 設計	CHECKED / 審核	APPROVED / 審定
P&T	P&T	P&T

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- ALL MEASUREMENTS SHOULD BE VERIFIED ON SITE
  在特尺寸須在現場核對準確

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Provision of Tree Risk Assessment - Tree Group Inspection (Form 1) for Lingnan University

Ref: CA20250515

Client	:	Lingnan University
Venue	:	Lingnan University
Contractor	:	Baguio Landscaping Services Limited
Date of survey	:	3rd, 13th, 24th March 2025 and 11th April 2025
Date of submission	:	15th April 2025
Submitted by	:	Qualified Arborist： Cheung Chun (TE6216)

Table of Content

Content

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Section 2 - Site Description
Section 3 - Tree Survey Methodology
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Appendix D – Photographic record

Section 1

Introduction

Baguio Landscaping Services Limited (BLSL) has been appointed to provide ground visual tree survey for trees located at Lingnan University (named "the site" thereafter). This report highlights the findings of inspections conducted on 3rd , 13th and 24th March 2025. Objectives of this report are as follows:

- To conduct a tree risk assessment in accordance with Government's technical circulars, related publications and professional practices;

- To comment on the health and structural condition of the existing trees and recommend treatments if necessary.

Section 2

Site Location

The site is located at Lingnan University, 8 Castle Peak Road, Tuen Mun, New Territories, Hong Kong. The site location plan shall refer to figure 1 to figure 3 below.

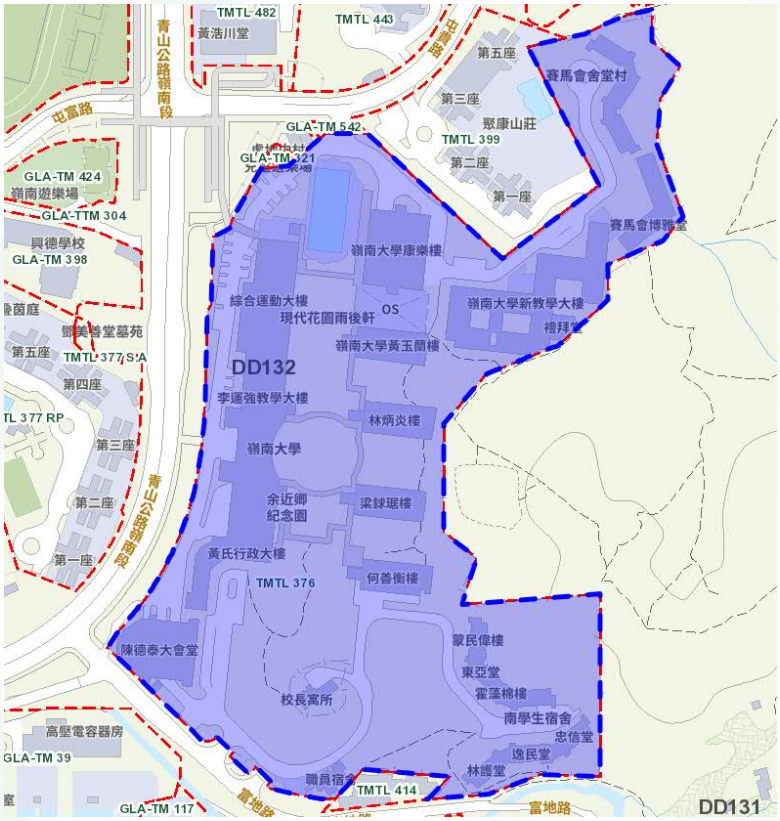


Figure 1. Zone A to Zone E is shown in the above map bounded with blue line.

Figure 2. Zone F is shown in the above map bounded with blue line.

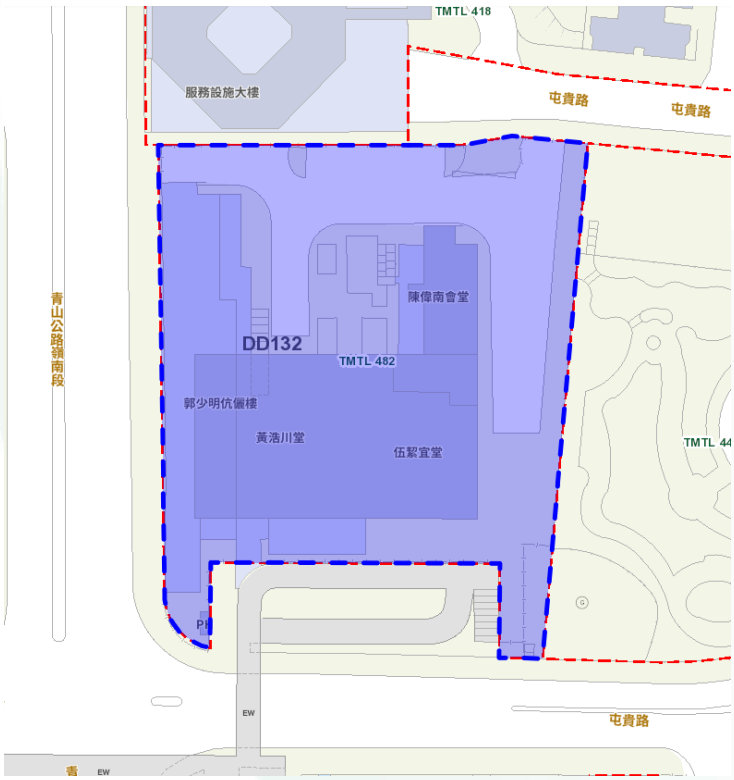


Figure 3. Zone G is shown in the above map bounded with blue line.

No. of Trees Identified according To Potential Risk Zone

Intensity of Use in Target Area	Tree Risk Management Zone	Priority for Tree Risk Management	No. of Trees
Intensive use - Areas of high traffic flow and/or high pedestrian flow, i.e. areas having traffic flow and/or pedestrian flow for at least a large portion of a day or a week.	High (Category I)	Top priority	1004
Infrequent use - Areas of low traffic flow and/or low pedestrian flow, i.e. target is present infrequently or irregularly within the areas.	Medium (Category II)	Second priority	174
Rare use - Areas of rare access such as inaccessible areas, i.e. target is not commonly present within the areas.	Low (Category III)	Low priority	0

TRIAGE CLASSIFICATION AND COLOURS

Black	
Criteria	▪ Dead trees; or ▪ Non-OVTs confirmed with BRR disease infection.
Action	1. Tree removal within 4 weeks after completion of Form 1 inspection; or 2. If removal cannot be completed in 4 weeks, departments have to provide appropriate temporary mitigation measures as far as practicable to ensure public safety.
Monitoring Requirement	1. For Non-OVTs confirmed with BRR disease infection, (a) Undertake Form 2 assessment every 3 months to monitor the tree condition until the removal of the tree; and (b) Upload the completed Form 2 report to the TMCP.

RED	
Criteria	▪ OVTs / SWTs; or ▪ Large trees with individual trunk(s) DBH ≥ 500mm or overall height at 9 metres or above and with crown spread within dripline of confirmed BRR disease infected tree; or ▪ Large trees with individual trunk(s) DBH ≥ 500mm or overall height at 9 metres or above having one or more major structural defects or health problems. (please refer to 2.4.3).
Action	1. Undertake Form 2 assessment and complete appropriate mitigation measures within 6 weeks as far as practicable after completion of Form 1 inspection. 2. Upload the completed Form 1 and Form 2 reports to the TMCP.
Monitoring Requirement	1. Close monitoring by Form 2 assessment: (a) Every 3 months for BRR disease infected OVTs. (b) Every 6 months for remaining 'Red' category trees; and 2. Upload the completed Form 2 report to the TMCP; and 3. Undertake emergency inspection within 7 calendar days as far as practicable after the lowering of: (a) Typhoon Signal No. 8 or above; and

RED	
	(b) Red or Black Rainstorm Signal. The emergency inspection should focus on the damage, stability and potential hazard that the tree poses to the public.
Downgrading Mechanism	1. To downgrade a 'Red' category tree to "Orange" or 'Yellow' category, tree maintenance department needs to: (a) Undertake all the mitigation measures as recommended in Form 2 assessment to alleviate the residual risk rating to "moderate" or below. (b) Confirm the major structural defects or health problems have been mitigated. (c) Record the recommendation for downgrading the tree to "Orange" or 'Yellow' category in Form 2. (d) Upload the completed Form 2 report to the TMCP.

ORANGE	
Criteria	▪ Large trees with individual trunk(s) DBH ≥ 500mm or overall height at 9 metres or above; and ▪ Trees are growing in confined site, i.e. tree pits or tree rings or growing on unstable foundation, i.e. large rock or thin soil layer with root ball exposed; and ▪ Trees are not genera or species of the family Arecaceae (Palmae)
Action	1. Undertake Form 2 assessment and upload the completed Form 2 report to the TMCP; and 2. Undertake appropriate mitigation measures.
Monitoring Requirement	1. Undertake Form 2 assessment every 12 months; and 2. Undertake appropriate mitigation measures within 6 weeks after Form 2 assessment as far as practicable; and 3. Upload the completed Form 2 report to the TMCP.

YELLOW	
Criteria	▪ Triage trees that are not classified in 'Black', 'Red' and 'Orange' categories.
Action	1. Undertake Form 2 assessment and provide appropriate mitigation measures to trees that have no visible or with minor structural defects or health problems if resources permit. 2. Upload the completed Form 2 report to the TMCP
Monitoring Requirement	1. Undertake Form 2 assessment and provide appropriate mitigation measures if resource permit; and 2. Upload the completed Form 2 report to the TMCP.

Section 3

Tree Survey Methodology

All living trees (in some cases large tree-form shrubs) with a trunk diameter greater or equal to 95mm measured at 1.3m above ground were included in the tree survey.
The tree risk assessment is conducted with reference to the "Guidelines for Tree Risk Assessment and Management Arrangement (10th Edition)" issued by Greening, Landscape and Tree Management Section, Development Bureau, HKSARG.

Tree Numbering System

Every tree has been assigned an individual reference number for easy recognition. They were then identified in different species or in some cases to genus if full identification was not possible. Measurements were taken for its trunk diameter, height and spread, with a photograph taken.

General Description and Assessment of Trees

General conditions for each species will be shown on Form 1. Visual tree assessment (VTA) was conducted by a qualified Arborist/Tree Risk Assessors at ground level where appropriate, a hammer with rubber head used to test internal hollow caused by wood decay by tapping along the accessible trunks and branches. During the assessment, no tree climbing for inspection was performed. No direct inspection of the internal wood structure of trees, for which the information can only be obtained by use of specific detecting device (such as Resistograph and Tomograph), was conducted during the assessment.

The following information about each tree surveyed is included in The Tree Assessment Schedule in Appendix C:

a) Tree number (numbers allocated to each surveyed trees);
b) Tree Species (Scientific Name & Chinese Name);
c) DBH (mm);
d) Height (m);
e) Spread (m);
f) Health Condition (Normal/Fair/Poor/Dead)
g) Structural Condition (Normal/Fair/Poor/Very Poor/Dead);
h) Tree form (Normal/Fair/Poor);
i) TRIAGE Colour (Yellow/Oragne/Red/Black/No);
j) Remarks.
k) Recommendation.
l) Anticipated Completion Date

Legend

Tree removal	
Pruning	
Re-inspection/ Further inspection	
Removed trees/Duplicate tree no.	
Pruning/Others	
Other	
Within construction site	

Tree health and Tree structure will be evaluated independently, as they focus on different aspects of a tree's condition. Each tree was evaluated in terms of health and structure and the justification was based on the following:

Health conditions:

Normal: Tree health and structural conditions are similar to other healthy tree of the same species in the area, for example, leaf size and color, crown density, tree height and crown spread. The growth of the tree inspected is in general vigor in comparison to a healthy tree of the same species in the area

Fair: Health conditions of the tree inspected are considered not as vigor as a normal tree by comparison to a healthy tree of the same species in the area.

(1) Minor dieback twigs (less than 5%)

(2) Sparse foliage (Crown density is estimated to be 10-30% lower than normal conditions.)

(3) Minor signs of pest and/or disease infestations.

Poor: Health conditions of the tree inspected are significantly poor than a normal tree of the same species in the area,

(1) Dieback twigs over 25% of total canopy,

(2) Severe sparse foliage (Crown density is estimated to be lower than 40% compared to normal conditions.)

(3) Significant pest and/or disease infestations are observed.

(4) Tree growth was considered adversely restricted by health defects or other environmental conditions.

Very poor: The tree is considered under a very poor condition if either one of the following is observed:

(1) Many or significant health defects are observed, where mitigation measures cannot stop deterioration of tree health from curing the defects,

(2) Fallen leaves or die back twigs over 50% of total canopy (except deciduous trees and semi-deciduous trees),

(3) Severe pest and/or disease infestation that existing pest and disease control measures are considered ineffective to the infestation, tree health conditions is continuously deteriorating.

Dead: Dead tree.

Structure conditions:

Normal: The tree has no major structural problems, no mechanical damage, and no noteworthy aesthetic, insect, or disease problems.

Fair: A fair tree has minor problems that may be corrected with time or corrective action. (Wound on branch/trunk, Asymmetric crown, Leaning, restricted root growth etc.)

(1) One or two or structural defects were observed in crown, branches, trunk or root zone (i.e. old wounds, cavity with entire defensive wood, etc.),

(2) Defects can be mitigated by pruning or other tree treatments,

(3) Tree failure is not foreseeable.

Poor: Significant structural defects were observed on crown, branch, trunk or root zone, including large old wounds with signs of decay, large cavities with signs of decay, large dead branches, hanging branches, etc.,
Mitigation measures are considered cannot completely remedy the structural defects. Tree failure is expected in the long-run.

Very Poor: including old wounds with significant decay, large cavities with significant decay, etc., where mitigation measures cannot stop deterioration of tree health from curing the defect

(1) Broken of main branch,

(2) Large portion of tear off tree barks in main trunk (over 50%)

These health and structural defects are detrimental to the tree being inspected and tree removal is highly recommended.

Dead: Dead tree.

Section 4

Tree Risk Assessment Disclaimer

The condition of the tree(s) assessed may change over time due to factors including, but not limited to, weather events, disease, pest infestations, structural changes, or environmental conditions. Regular monitoring and reassessment are recommended to ensure ongoing safety and tree health. This assessment reflects the tree's condition at the time of inspection only, and no guarantees are made regarding future conditions or risks. Consult a Qualified Arborist for updated evaluations as needed.

Section 5

Tree Survey Findings

622 nos. of trees were recorded in Zone A. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Acacia auriculiformis 耳果相思	2
Acacia confusa 台灣相思	58
Albizia lebbeck 大葉合歡	2
Aleurites moluccana 石栗	7
Aporosa dioica 銀柴	1
Araucaria heterophylla 異葉南洋杉	11
Artocarpus nitidus subsp. *Lingnanensis* 紅桂木	2
Bauhinia variegata var. *candida* 白花洋紫荊	1
Bauhinia variegata 宮粉羊蹄甲	1
Bauhinia x *blakeana* 洋紫荊	4
Bauhinia spp.羊蹄甲屬	55
Bischofia javanica 秋楓	11
Callistemon viminalis 串錢柳	6
Canarium album 白欖	5
Caryota ochlandra 魚尾葵	6
Cassia siamea 鐵刀木	2
Casuarina equisetifolia 木麻黃	79
Celtis sinensis 朴樹	4
Cinnamomum burmannii 陰香	62
Cinnamomum camphora 樟	4
Citrus maxima 柚	1
Citrus reticulata 柑橘	2
Clausena lansium 黃皮	4
Crateva trifoliata 鈍葉魚木	3
Crateva unilocularis 樹頭菜	19
Delonix regia 鳳凰木	25
Dimocarpus longan 龍眼	16
Elaeocarpus decipiens 杜英	1
Elaeocarpus dubius 顯脈杜英	1
Elaeocarpus hainanensis 水石榕	5

Tree Species	Quantity
Eriobotrya japonica 枇杷	1
Eucalyptus citriodora 檸檬桉	2
Ficus altissima 高山榕	17
Ficus benjamina 垂葉榕	1
Ficus celebensis 柳葉榕	12
Ficus hispida 對葉榕	52
Ficus microcarpa 細葉榕	5
Ficus virens 大葉榕	11
Handroanthus chrysanthus 黃花風鈴木	4
Ilex rotunda 鐵冬青	1
Khaya senegalensis 非洲楝	14
Lagerstroemia speciosa 大花紫薇	15
Ligustrum sinense 山指甲	1
Liquidambar formosana 楓香	6
Litchi chinensis 荔枝	8
Litsea glutinosa 潺槁樹	4
Litsea monopetala 假柿樹	4
Livistona chinensis 蒲葵	1
Macaranga tanarius var. *tomentosa* 血桐	14
Magnolia grandiflora 荷花玉蘭	2
Mangifera indica 芒果	1
Melia azedarach 苦楝	1
Michelia x *alba* 白蘭	6
Microcos nervosa 布渣葉	4
Pinus massoniana 馬尾松	4
Podocarpus macrophyllus 羅漢松	2
Roystonea regia 王棕	10
Syzygium jambos 蒲桃	15
Terminalia mantaly 小葉欖仁	2
Tetradium glabrifolium 楝葉吳茱萸	1
Xanthostemon chrysanthus 金蒲桃	1
Total	622

273 nos. of trees were recorded in Zone B. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Acacia confusa 台灣相思	64
Albizia lebbeck 大葉合歡	1
Casuarina equisetifolia 木麻黃	56
Cinnamomum camphora 樟	12
Dead tree 死樹	4
Delonix regia 鳳凰木	10
Dimocarpus longan 龍眼	2
Ficus benjamina 垂葉榕	6
Ficus hispida 對葉榕	1
Ficus microcarpa 細葉榕	35
Ligustrum sinense 山指甲	1
Livistona chinensis 蒲葵	15
Macaranga tanarius var. *tomentosa* 血桐	9
Microcos nervosa 布渣葉	4
Pinus massoniana 馬尾松	47
Plumeria rubra 雞蛋花	3
Tetradium glabrifolium 楝葉吳茱萸	3
Total	273

67 nos. of trees were recorded in Zone C. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Cinnamomum camphora 樟	4
Clausena lansium 黃皮	1
Ficus benjamina 垂葉榕	10
Ficus microcarpa 細葉榕	45
Livistona chinensis 蒲葵	1
Magnolia grandiflora 荷花玉蘭	3
Tabebuia chrysantha 黃花風鈴木	3
Total	67

74 nos. of trees were recorded in Zone D. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Aporosa dioica 銀柴	1
Canarium pimela 烏欖	1
Caryota ochlandra 魚尾葵	2
Celtis sinensis 朴樹	1
Cinnamomum camphora 樟	1
Clausena lansium 黃皮	1
Delonix regia 鳳凰木	1
Dimocarpus longan 龍眼	13
Ficus microcarpa 細葉榕	44
Macaranga tanarius var. *tomentosa* 血桐	2
Rhus succedanea 野漆樹	1
Roystonea regia 王棕	5
Zanthoxylum avicennae 簕欓花椒	1
Total	74

90 nos. of trees were recorded in Zone E. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Araucaria heterophylla 異葉南洋杉	26
Bauhinia x *blakeana* 洋紫荊	8
Bischofia javanica 秋楓	4
Bombax ceiba 木棉	1
Chrysalidocarpus lutescens 散尾葵	1
Cinnamomum camphora 樟	3
Delonix regia 鳳凰木	6
Dimocarpus longan 龍眼	14
Ficus elastica 印度橡樹	3
Ficus microcarpa 細葉榕	4
Grevillea robusta 銀樺	6
Lichi chinensis 荔枝	2
Macaranga tanarius var. *tomentosa* 血桐	2
Michelia x *alba* 白蘭	9
Plumeria rubra 雞蛋花	1
Total	90

38 nos. of trees were recorded in Zone F. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Acacia mangium 大葉相思	4
Albizia lebbeck 大葉合歡	2
Aleurites moluccana 石栗	1
Artocarpus nitidus 紅桂木	1
Bombax ceiba 木棉	1
Delonix regia 鳳凰木	1
Dimocarpus longan 龍眼	6
Eucalyptus citriodora 檸檬桉	17
Leucaena leucocephala 銀合歡	4
Melia azedarach 苦楝	1
Schima superba 木荷	4
Total	38

14 nos. of trees were recorded in Zone G. Species composition of the area is summarized in the following table:

Tree Species	Quantity
Acacia auriculiformis 耳果相思	1
Acacia confusa 台灣相思	2
Artocarpus heterophyllus 波羅蜜	1
Bombax ceiba 木棉	2
Delonix regia 鳳凰木	9
Ficus microcarpa 細葉榕	1
Total	14

SECTION 5

RECOMMENDATION

General health and structural condition of the trees assessed within the site are fair. All trees requiring mitigation measures are listed below:

<u>Zone A</u>

Tree removal (39 nos.):

A070, A071, A072, A107, A133A, A151, A156, A189, A227, A240, A264, A270, A315, A385, A427, A446, A464, A484, A490, A553, A554, A555, A556, A576, A651, A816, A835, A853, A862, A869, A870, A882, A883, A887, A919, A932, A1050, A1056, A1057

Pruning (Crown cleaning / Removal of defective branches) (89 nos.):

A025, A030, A079, A082, A097, A099, A108, A121, A144, A185, A187, A192, A194, A198, A202, A238, A248, A250, A307, A313, A314, A384, A387, A400, A403, A405, A412, A428, A439, A453, A474, A508, A509, A569, A586, A591, A592, A593, A596, A598, A603, A604, A605, A610, A612, A618, A619, A621, A626, A628, A629, A631, A632, A633, A634, A658, A660, A666, A672, A696, A702, A708, A753, A767, A768, A772, A775, A778, A847, A863, A896, A897, A899, A900, A905, A912, A924, A925, A946, A965, A968, A970, A971, A1019, A1021, A1023, A1027A, A1048, A1055

Pruning (Crown reduction / Crown raising / Regular crown size control) (45 nos.):

A173, A187, A192, A249, A281, A284, A286, A301, A314, A327, A401, A403, A434, A492, A544, A585, A591, A596, A608, A616, A617, A618, A629, A640, A653, A655, A672, A691, A718, A767, A770, A776, A812, A841, A867, A890, A905, A912, A1008, A1010, A1016, A1017, A1018, A1019, A1025

Re-inspection / Keep monitoring (11 nos.):

A209, A250, A259, A265, A709, A768, A769, A770, A771, A929, A1043

Tomographic/ Resistographic test (5 nos.):

A601, A714, A716, A718, A969

Pest control (4 nos.):

A249, A292, A791, A792

Zone B

Tree removal (45 nos.):

B042, B045, B101, B102, B141A, B143, B152, B161, B178, B180, B180A, B194, B196, B197, B202, B203, B205, B207, B208, B211, B212, B216, B216A, B217, B221, B224, B227, B231, B232, B236, B237, B238, B248, B249, B251, B252, B253, B260, B260A, B262, B266, B287, B309, B320, B337

Pruning (Crown cleaning / Removal of defective branches) (25 nos.):

B002, B004, B005, B006, B017, B018, B032, B040, B047, B048, B053, B055, B056, B058, B059, B060, B063, B064, B074, B085, B089, B092, B096, B100, B106

Pruning (Crown reduction / Crown raising / Regular crown size control) (6 nos.):

B007, B017, B068, B077, B085, B100

Re-inspection / Keep monitoring (3 nos.):

B012, B056, B084

Tomographic/ Resistographic test (1 no.):

B031

Pest control (1 no.):

B089

Zone C

Tree removal (1 no.):

C032

Pruning (Crown cleaning / Removal of defective branches) (19 nos.):

C005, C011, C012, C017, C020, C028, C031, C037, C038, C049, C050, C058, C059, C062, C064, C068, C072, C084, C085

Pruning (Crown reduction / Crown raising / Regular crown size control) (11 nos.):

C001, C002, C022, C034, C049, C055, C084, C085, C093, C094, C095

Re-inspection / Keep monitoring (5 nos.):

C003, C057, C071, C072, C073

Tomographic/ Resistographic test (1 no.):

C069

Lab Test (BRRD) (1 no.):

C083

Zone D

Tree removal (2 nos.):

D037, D055

Pruning (Crown cleaning / Removal of defective branches) (11 nos.):

D009, D013, D014, D016, D017, D031, D032, D036, D074, D083, D094

Pruning (Crown reduction / Crown raising / Regular crown size control) (3 nos.):

D003, D004, D029

Pest control (1 no.):

D001

Zone E

Tree removal (3 nos.):

E059, E107, E151

Pruning (Crown cleaning / Removal of defective branches) (17 nos.):

E001, E002, E022, E027, E030, E038, E039, E056, E058, E091, E104, E106, E108, E118, E141

Pruning (Crown reduction / Crown raising / Regular crown size control) (4 nos.):

E022, E044, E055, E106

Re-inspection / Keep monitoring (3 nos.):

E037, E139, E140

Resistograph test (1 no.):

E035

Zone F

Tree removal (19 nos.):

F016, F017, F041, F042, F043, F044, F044B, F044C, F046, F047, F047B, F048, F049, F050, F050A, F051, F052, F053, F057

Pruning (Crown cleaning) (2 nos.):

F034, F059

Pruning (Crown reduction) (1 no.):

F007

Zone G

Pruning (Crown cleaning) (2 nos.):

G008, G015

Pruning (Crown reduction) (1 no.):

G019

Re-inspection / Keep monitoring (1 no.):

G004

SECTION 6

REFERENCES

Ordinances and Circulars

LANDS DEPARTMENT Practice Note 6/2023	*Tree preservation and tree removal application for building development in private projects*
GLTMS, DevB (10th edition, 2023)	*Guidelines for Tree Risk Assessment and Management Arrangement*

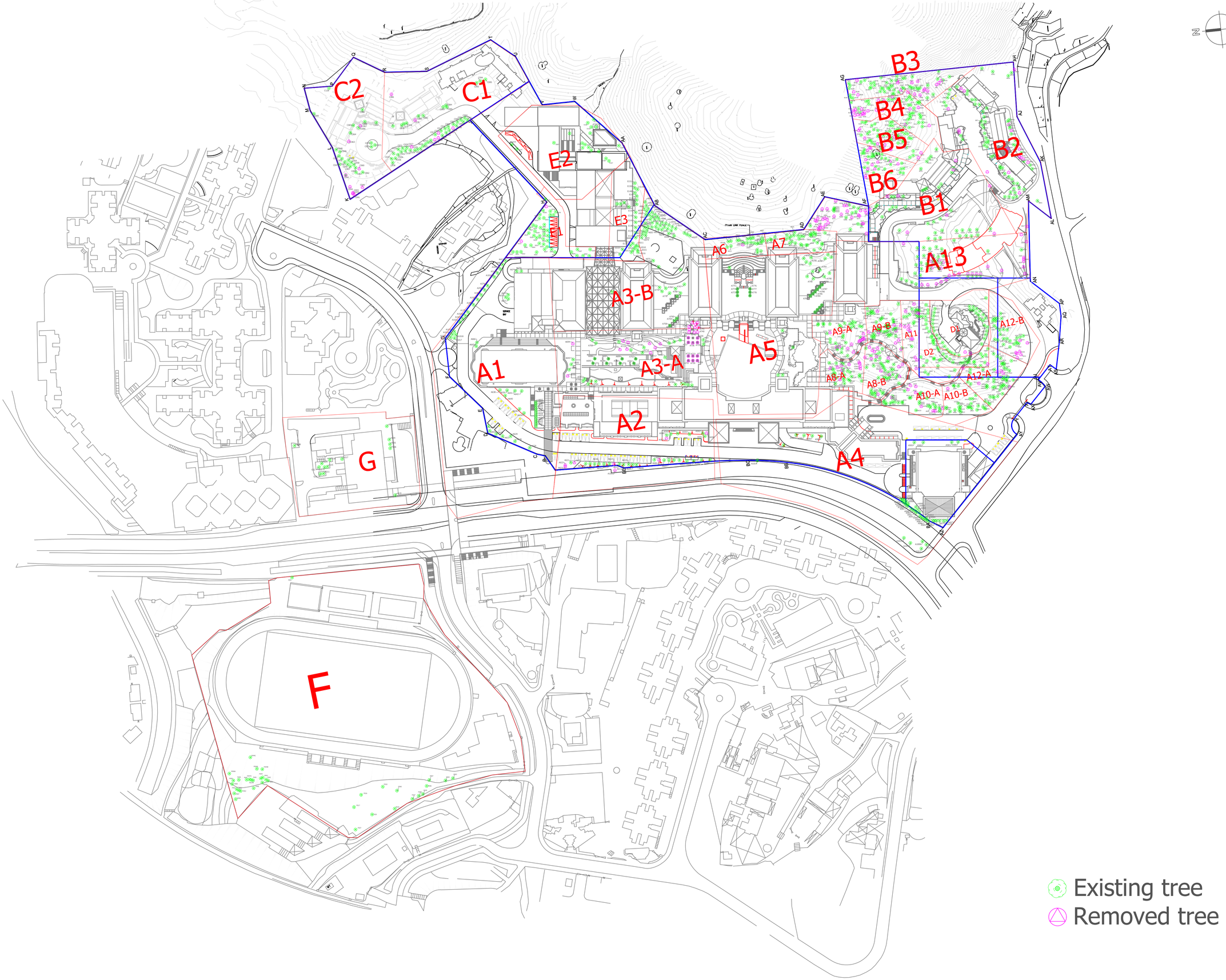
The end.

Section 8

Appendices

Appendix A – Form 1
Appendix B – Tree Location Plan
Appendix C – Tree Risk Assessment Schedule
Appendix D – Photographic record

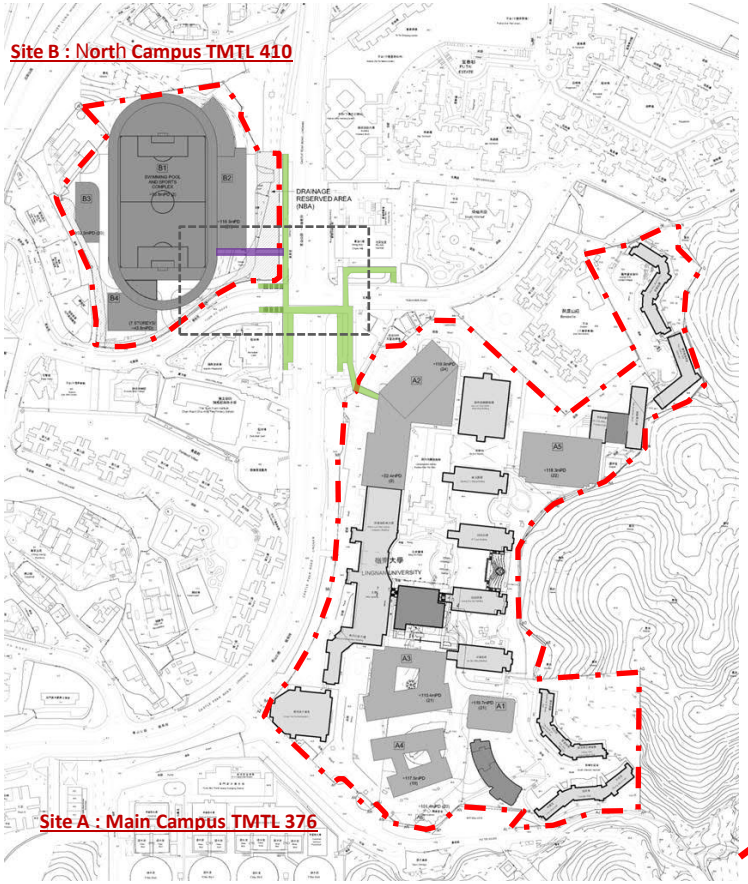
End.


C2
C1
E2
E3
A6
A7
B3
B4
B5
B6
B2
B1
A13
A3-B
A1
A3-A
A5
A2
A4
A9-A
A9-B
A11
A8-A
A8-B
A10-A
A10-B
A12-B
A12-A
D1
D2
G
F
N
Existing tree
Removed tree

Appendix 9

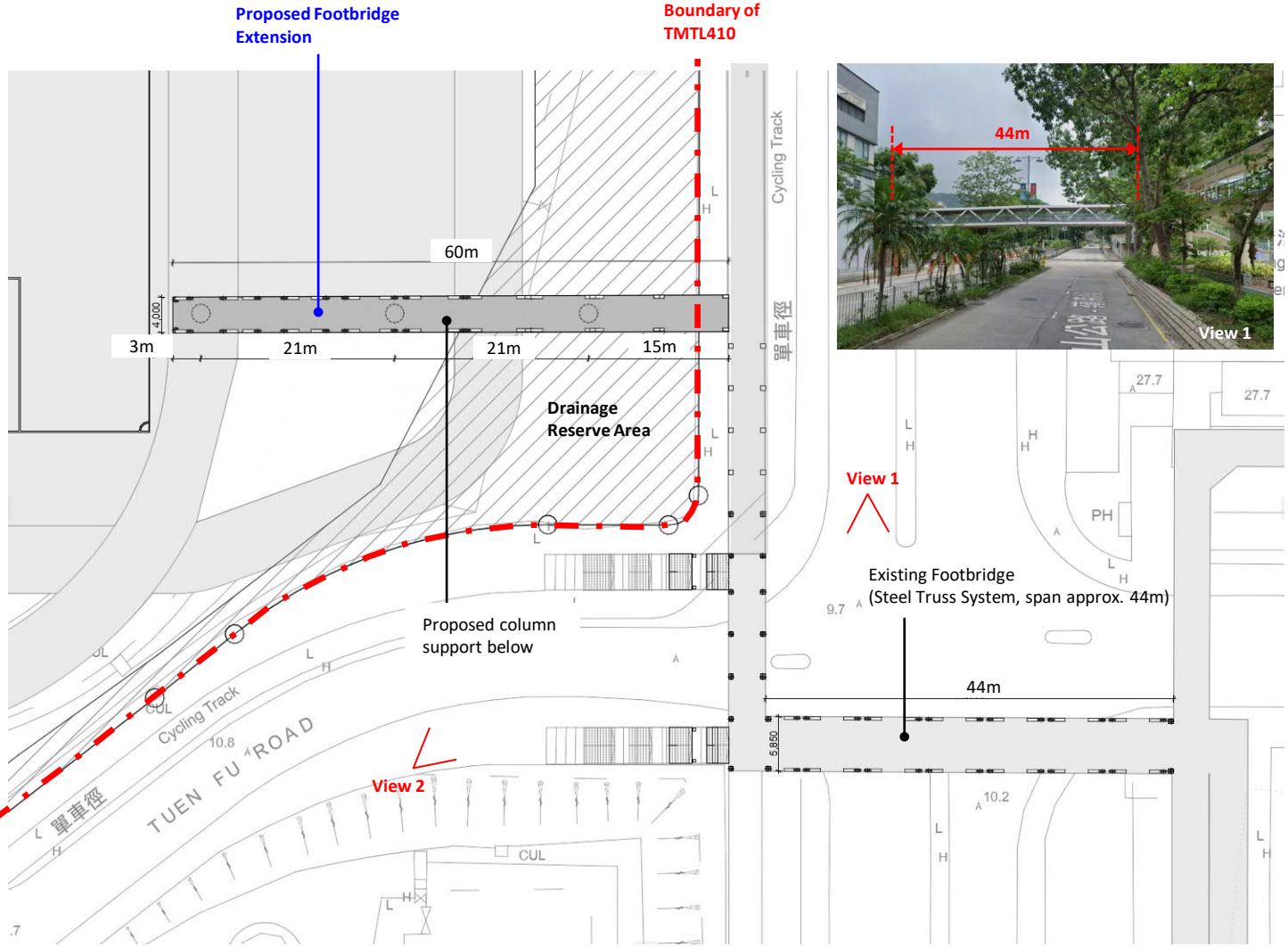
Proposed Footbridge Extension

Proposed Footbridge Extension



Existing Footbridge

Proposed New Connection

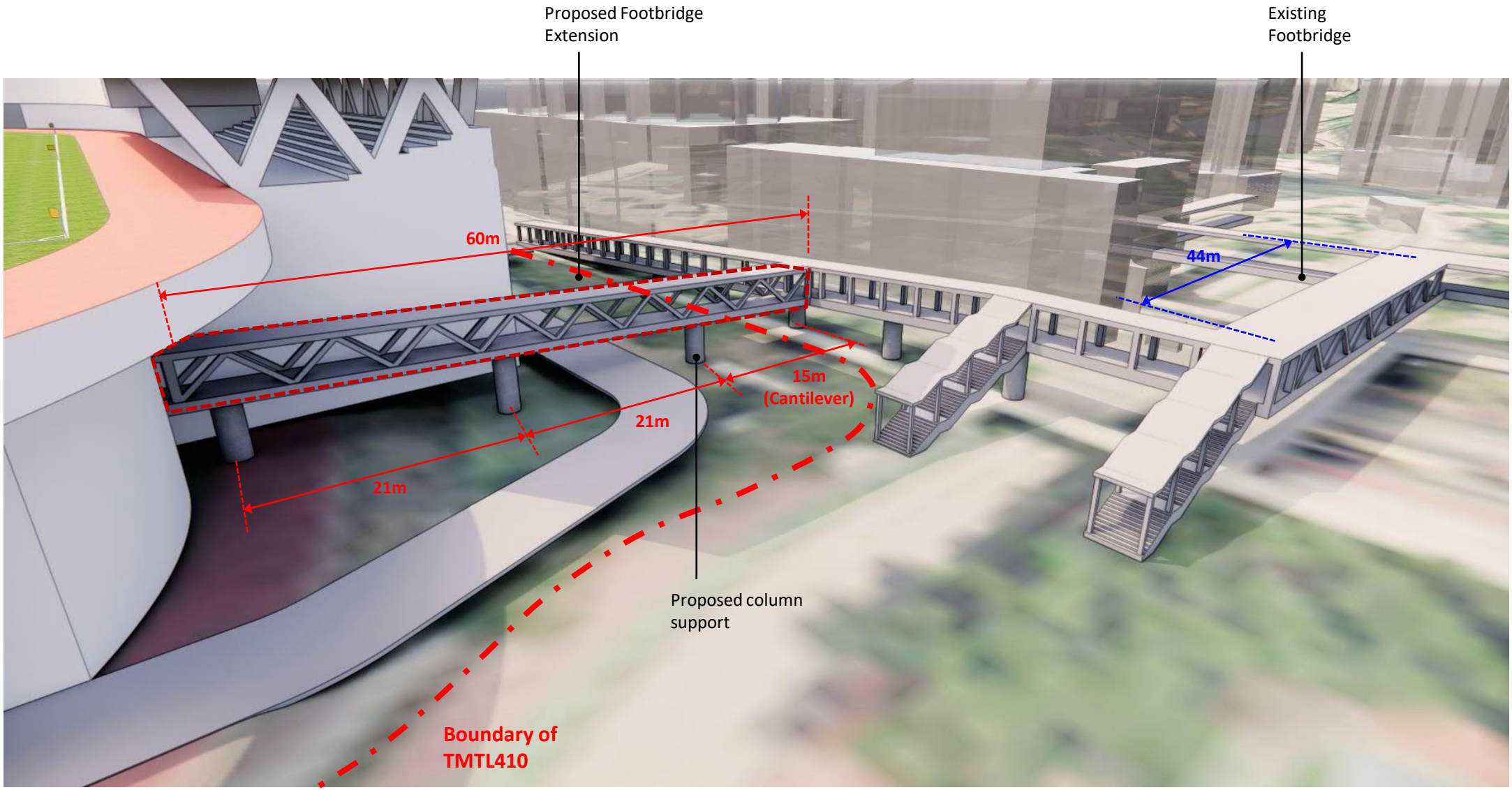


* The footbridge extension is design intent indication only, actual design and location subject to future detailed design development.

- Proposed extension to connect existing footbridge network to new campus development at TMTL 410
- Steel truss structure to be adopted, making reference to the structure of existing footbridge
- Total length of extension approx. 60m
- No supporting structure is proposed at Public Footpath

Possible Campus Development Study

Proposed Footbridge Extension



* The footbridge extension is design intent indication only, actual design and location subject to future detailed design development.