Appendix VIII

Sewerage Impact Assessment

Issue No. : 1
Issue Date : October 2025
Project No. : 2215

SEWAGE IMPACT ASSESSMENT

FOR

PROPOSED SCAA SPORTS LINK AT SOUTH CHINA ATHLETIC ASSOCIATION, 88 CAROLINE HILL ROAD, HONG KONG

Prepared by

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

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Document Verification

Project Title	Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong	**Project No.**	2215
Document Title	Sewage Impact Assessment		

Issue No.	Issue Date	Description	Prepared by	Checked by	Approved by
1	October 2025	1st Submission	Coco Chin	Joanne Ng	Grace Kwok

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1. Introduction

1.1.1. Allied Environmental Consultants Limited ("AEC") has been commissioned to prepare a Sewerage Impact Assessment ("SIA") in support of the Section 16 Planning Application for the Proposed SCAA Sports Link ("Proposed Development") at South China Athletic Association, 88 Caroline Hill Road, Hong Kong ("Subject Site").

2. Objectives

2.1.1. Main objectives of the study are to review the existing drainage facilities in the vicinity of the Proposed Development at the Subject Site, evaluate potential impacts based on the proposed sewerage drainage, recommend appropriate options for sewerage discharge, if necessary.

3. Site Description

3.1.1. The Proposed Development is a 4-story complex consist of facilities for sports and recreational usage (i.e., Multi-proposed/ activities Rooms, artificial turf pitches, tennis courts and ancillary office & facilities etc.). The site layout plans for the Proposed Development are provided in ***Appendix 3-1***.

3.1.2. Subject Site falls within Wong Nai Chung Inland Lot No. 9041 zoned Other Specified Uses (Sports and Recreation Club) ("OU (Sports and Recreation Club)") on the Approved Wong Nai Chung Outline Zoning Plan No. S/H7/21. The Proposed Development is expected to be operated in Year 2030.

3.1.3. The Subject Site area is approximately 6,132m^2. It is located at the north of the existing South China Stadium of South China Athletic Association, and at the south of the Disciplined Services Sports and Recreation Club. Its surrounding areas are zoned Other Specified Uses ("OU"), Government, Institution or Community ("G/IC"), Commercial ("C"), Open Space ("O"), Residential (Group B) ("R(B)"), Residential (Group C) ("R(C)") and Green Belt ("GB"). ***Figure 3-1*** shows the location of the Subject Site.

4. Relevant Government Standards

4.1.1. Water quality in Hong Kong is legislated by the provisions of the *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. A Technical Memorandum on Standards for Effluents discharged into Drainage and Sewerage Systems, Inland and Coastal Water (TMES) 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 operation stage.

4.1.2. Besides as stipulated in the Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations 41(1), 40(2), 41(1), 90 and recap in ProPECC PN 1/23, domestic sewage should be discharged to a foul water sewer and surface water should be discharged via rainwater pipes to stormwater drains during operation phase.

5. Description of Sewerage System

5.1.1. Drainage record plans were obtained from the drawing office of the Drainage Services Department ("DSD") and the Proposed Development is indicated on the drainage record plans as shown in ***Figure 3-1***. Concerned sewerage network was identified for succeeding estimation of the potential sewerage impact to the downstream sewers associated with the Proposed Development.

5.1.2. The sewerage network of existing gravity sewers along Caroline Hill Road and Leighton Road collects sewage generated from the Proposed Development and the surrounding catchment areas. The sewage discharged from the corresponding catchment areas is conveyed to Wan Chai East Preliminary Treatment Works, and discharged to Stonecutter Island Sewage Treatment Works (SCISTW) for further treatment and ultimate disposal.

5.1.3. The sewage generated from Proposed Development will be conveyed to the existing manhole FMH7019720 as shown in ***Figure 3-1***.

5.1. Design Standard Guideline

5.1.1. This assessment has been prepared in accordance with the following documents:

- For the roughness of sewers, the recommended value in "Sewerage Manual Part 1" published by DSD has been adopted;
- The recommended unit flow factors ("UFF") and peaking factors in "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0 (Report No.:

EPD/TP1/05" ("GESF") published by Environmental Protection Department ("EPD") have been adopted to estimate the sewage generated from the Proposed Development.

5.2. Design Parameters and Assumptions

5.2.1. Based on the above reference documents, the UFF for different types of population as shown in ***Table 5-1*** have been used in calculating the sewerage flow from the Proposed Development.

Table 5-1 Global Unit Flow Factor

Development Type	Unit	UFF (m^3/day)
Commercial Flow[1]		
J11, Community, Social & Personal Services	Employee	0.28
Visitors[2]	Person	0.032

Notes:
[1] Category of UFFs is selected according to Table T-1 and Table T-2 of the GESF.
[2] The unit flow factor for visitors of recreational facility is made reference to Kai Tak Multi-purpose Sports Complex Environmental Impact Assessment Report (AEIAR-204/2017), 0.032 m3/person/d.

6. Evaluation of Sewage Flow Rate

6.1. Predicted Sewage Flow from Proposed Development

6.1.1. The total estimated Average Dry Weather Flow ("ADWF") from the Proposed Development is estimated to be 27.02 m^3/day. The sewage flow estimation for Proposed Development is summarized in ***Table 6-1***. The population estimated ADWF of Proposed Development is summarized in ***Appendix 6-1***.

Table 6-1 Sewage Flow Estimation for The Proposed Development

Type of Occupancy[1]	Population		Category[2]	UFF (m^3/day)	ADWF (m^3/day)
Office	14	Person	Community, Social & Personal Services	0.28	3.92
Visitors	722	Person	Visitors[3]	0.032	23.10
				Total (m^3/day)	**27.02**

Notes:

[1] Information extracted from SoA table received on 13 June 2025.

[2] UFFs for various occupancy types are adopted according to Table T-1 and Table T-2 of the GESF.

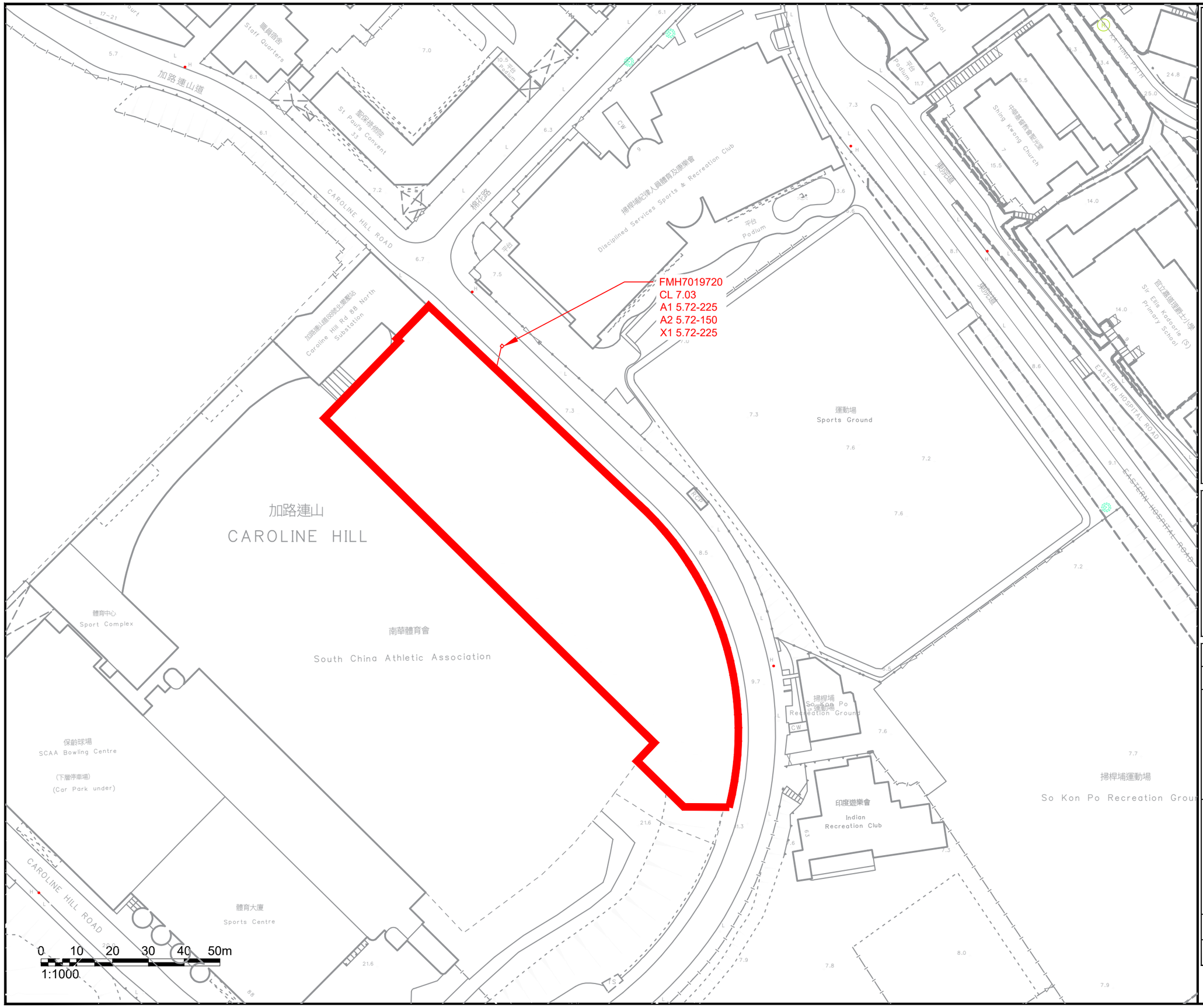
[3] The unit flow factor for visitors of recreational facility is made reference to Kai Tak Multi-purpose Sports Complex Environmental Impact Assessment Report (AEIAR-204/2017), 0.032 m3/person/d.

6.1.2. According to the previous approved SIA report dated 01 September 2022, the Subject Site was previously proposed for an E-Sport Complex development with ADWF of 198.4 m^3/day. In comparison, the current Proposed Development has a much smaller sewage generation, with an estimated ADWF of 27.02 m^3/day. This represents an approximate reduction of 86% when compared with the previous SIA. Despite the reduction in flow, the sewage from the Proposed Development will continue to discharge to the same terminal manhole as previous approved SIA. The upstream and downstream sewerage systems were also remained the same. Given the reduction in sewage flow by comparing to the previous approved SIA, no adverse sewerage impact is anticipated.

7. Conclusions

7.1.1. According to the sewage flow estimation, the Proposed Development will discharge in a substantially lower ADWF compared to the previous approved SIA.

7.1.2. As the sewerage from the Proposed Development will continue to discharge to the same terminal manhole with unchanged upstream and downstream sewerage systems compared to previous approved SIA, no adverse impact to public sewerage system associated with the Proposed Redevelopment is expected. No immediate upgrading or improvement works to the existing local sewerage system is required.



NOTES :

SUBJECT SITE

EXISTING SEWERAGE SYSTEM

Consultant

Allied Environmental Consultants Limited

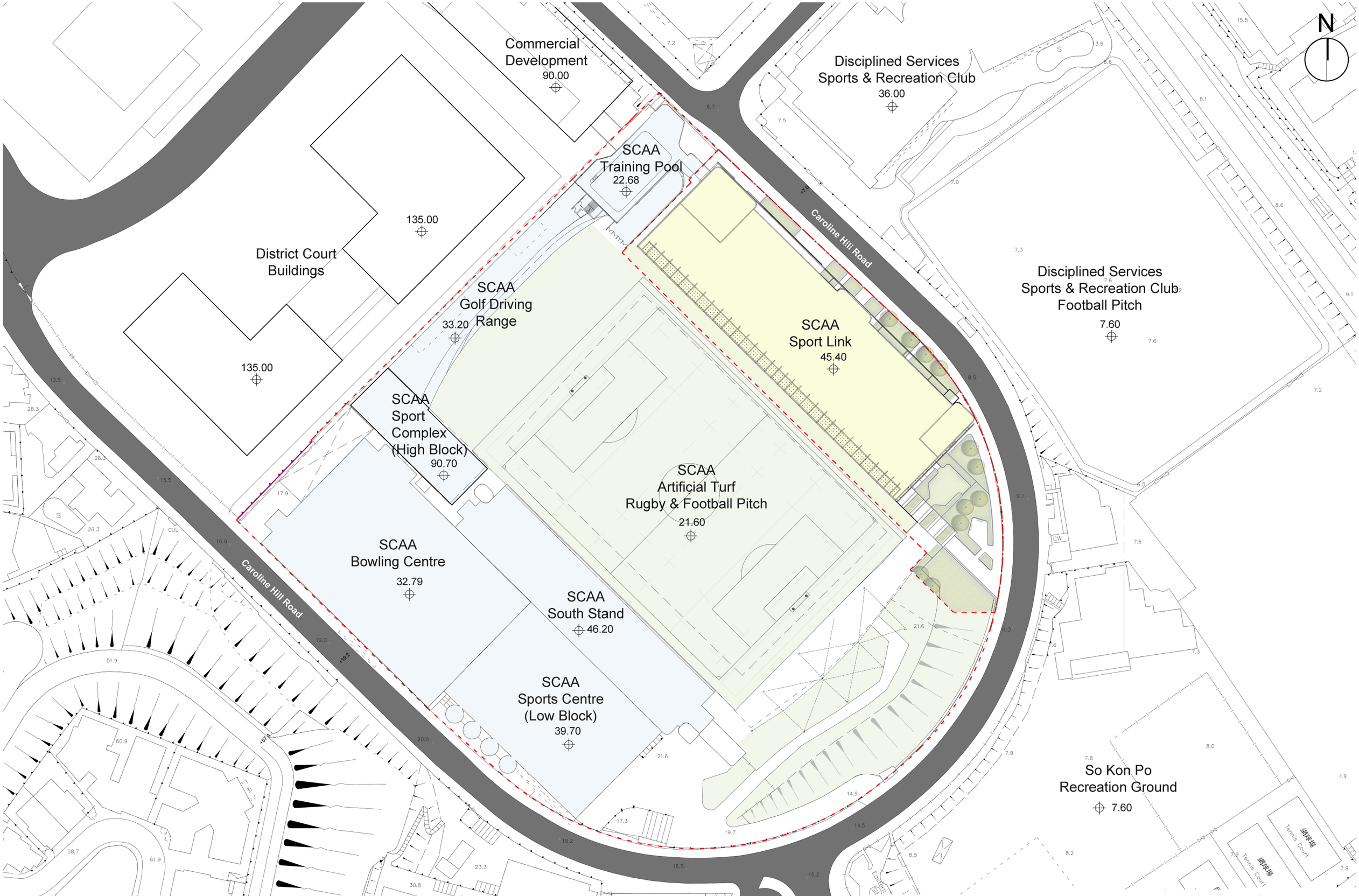
Project No. :	2215
Drawn By :	CC
Project :	PROPOSED SCAA SPORTS LINK AT SOUTH CHINA ATHLETIC ASSOCIATION, 88 CAROLINE HILL ROAD, HONG KONG
Drawing Title :	SUBJECT SITE LOCATION
Drawing No : FIGURE 3-1	Revision : 0
Scale : AS SHOWN	Date : OCT 2025

A3 420 x 297

C:\Users\User\SynologyDrive\2215 SCAA\05 Report\01 AEC Report\SIA\Issue 1\Figure\2215_SCAA_SIA_CC.dwg

Appendix 3-1

Site Layout Plan



Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

Master Layout Plan ◦ 1:1000 (A3) ◦ 13 Oct 2025

m 10 20 30 50 100

Design 2 Architects

N

LEGEND
- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- MAINTENANCE ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

+6.93
+7.46
+7.55
+8.36
+9.46
+10.80
+10.65
+12.23
+14.13
+15.83

STAIRCASE
STAIRCASE
STAIRCASE
LIFT LOBBY
+6.93
LIFT LOBBY
U/UL
LAY-BY AREA
CARPARK
+7.46
E&M
E&M
SCAA TRAINING POOL

UNEXCAVATED AREA

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong
G/F Plan ○ 1 : 500 (A3) ○ 13 Oct 2025

Design 2 (HK) Limited

N

LEGEND

- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- MAINTENANCE ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

SCAA TRAINING POOL

STAIRCASE

LIFT LOBBY

STAIRCASE

MUTI-FUNCTION ROOMS & ANCHILLARY FACILITIES

+14.04

BALLCOURT (TENNIS) & ANCILLARY FACILITIES

+11.06

STAIRCASE

LIFT LOBBY

LANDSCAPE AREA

+11.57

+10.45

+11.06

+10.65

+12.23

+16.69

UNEXCAVATED AREA

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

1/F Plan ◦ 1 : 500 (A3) ◦ 13 Oct 2025

Design 2 (HK) Limited

N

LEGEND
- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- MAINTENANCE ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

STAIRCASE

STAIRCASE

STAIRCASE

LIFT LOBBY

LIFT LOBBY

+22.68

SCAA TRAINING POOL

BALL COURT
(5-A-SIDE SOCCER)
& ANCILLARY FACILITIES

+21.60

E&M

SCAA GOLF DRIVING RANGE

SCAA ARTIFICIAL TURF RUGBY FOOTBALL PITCH

+21.60

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

2/F Plan ◦ 1 : 500 (A3) ◦ 13 Oct 2025

Design 2 (HK) Limited

N

LEGEND
- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- MAINTENANCE ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

STAIRCASE

STAIRCASE

STAIRCASE

E&M

LIFT LOBBY

LIFT LOBBY

+22.68

SCAA TRAINING POOL

BALLCOURT (TENNIS) & ANCILLARY FACILITIES

+33.50

E&M

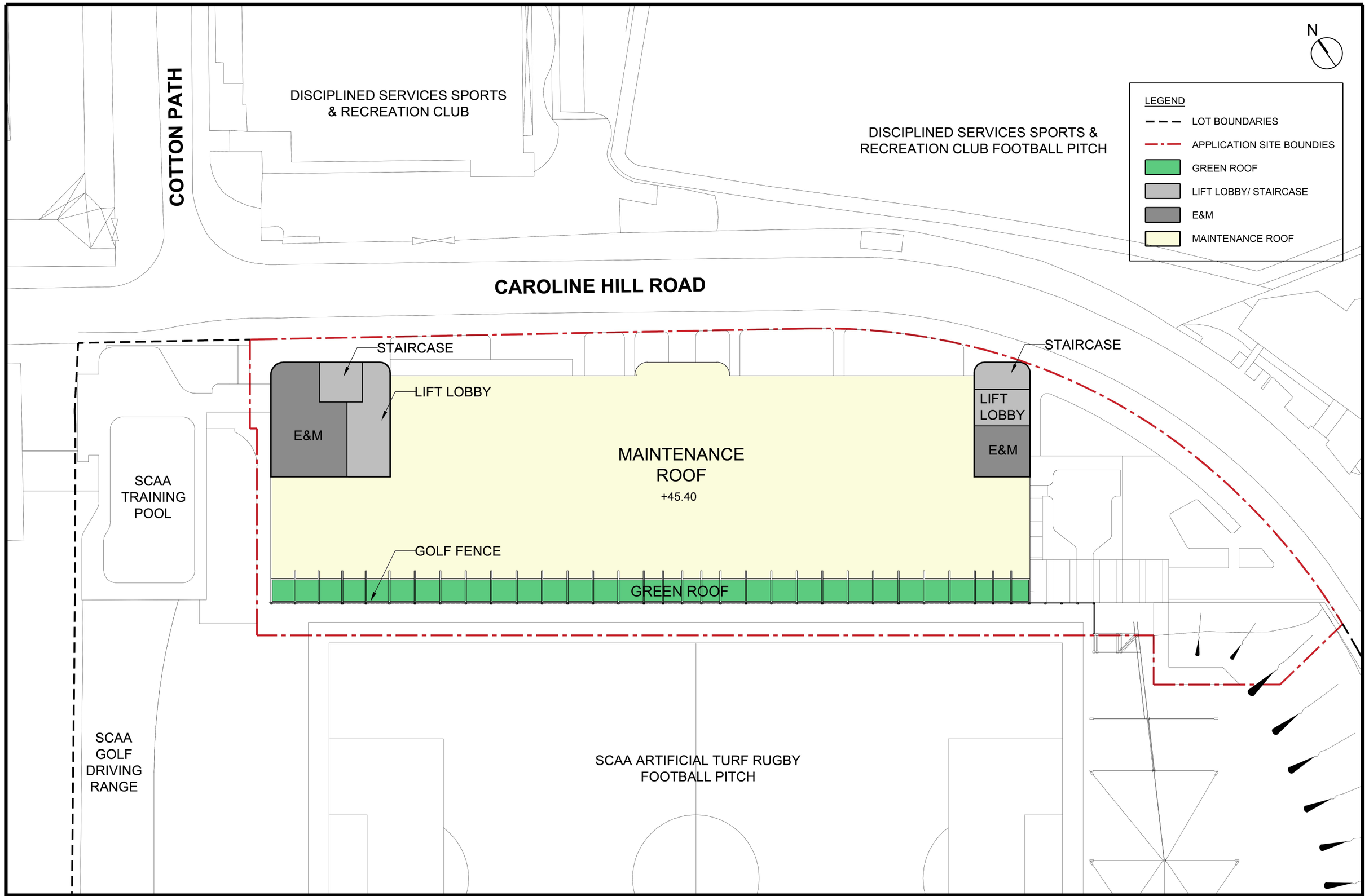
SCAA GOLF DRIVING RANGE

SCAA ARTIFICIAL TURF RUGBY FOOTBALL PITCH

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

3/F Plan ◦ 1 : 500 (A3) ◦ 13 Oct 2025

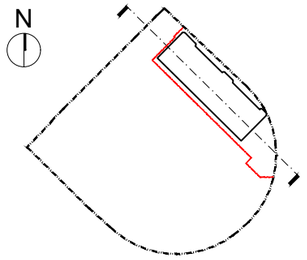
Design 2 (HK) Limited



Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

Design 2 (HK) Limited

UR/F Plan ◦ 1 : 500 (A3) ◦ 13 Oct 2025



Key Plan

LEGEND

- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPE AREA
- CARPARK
- LIFT LOBBY
- E/M
- SPORT FACILITIES
- MULTI-FUNCTION AREAS
- MAINTENANCE ROOF

SCAA Sports Link

SCAA Training Pool

Adjoining Commercial Development

Boundary Line

Application Boundary

Boundary Line

Golf Fence +61.60

Golf Fence +61.60

Golf Fence +61.60

16200

11900

11900

10540

3600

37940

R/F +45.40

3/F +33.50

2/F +21.60

1/F +11.06

G/F +7.46

+48.90

Entrance Lobby / E&M

Main Roof (for maintenance only) +45.40

+48.90

Entrance Lobby / E&M

Ball Court (Tennis Court) +33.50

Ball Court (Tennis Court) +33.50

Ball Court (5-A-Side Soccer) +21.60

Ball Court (5-A-Side Soccer) +21.60

Ball Court (Tennis Court) +11.06

Multi-Function Room(s) / Office / E&M +14.04

Carpark +7.46

Entrance Lobby +6.93

E&M

E&M

Carpark

Linkage with Training Pool

Linkage with Adjoining Development

Training Pool +22.68

+18.60

7560

6580

Caroline Hill Road

Existing Slope

Approx. +10.65

Landscape Garden

+10.65

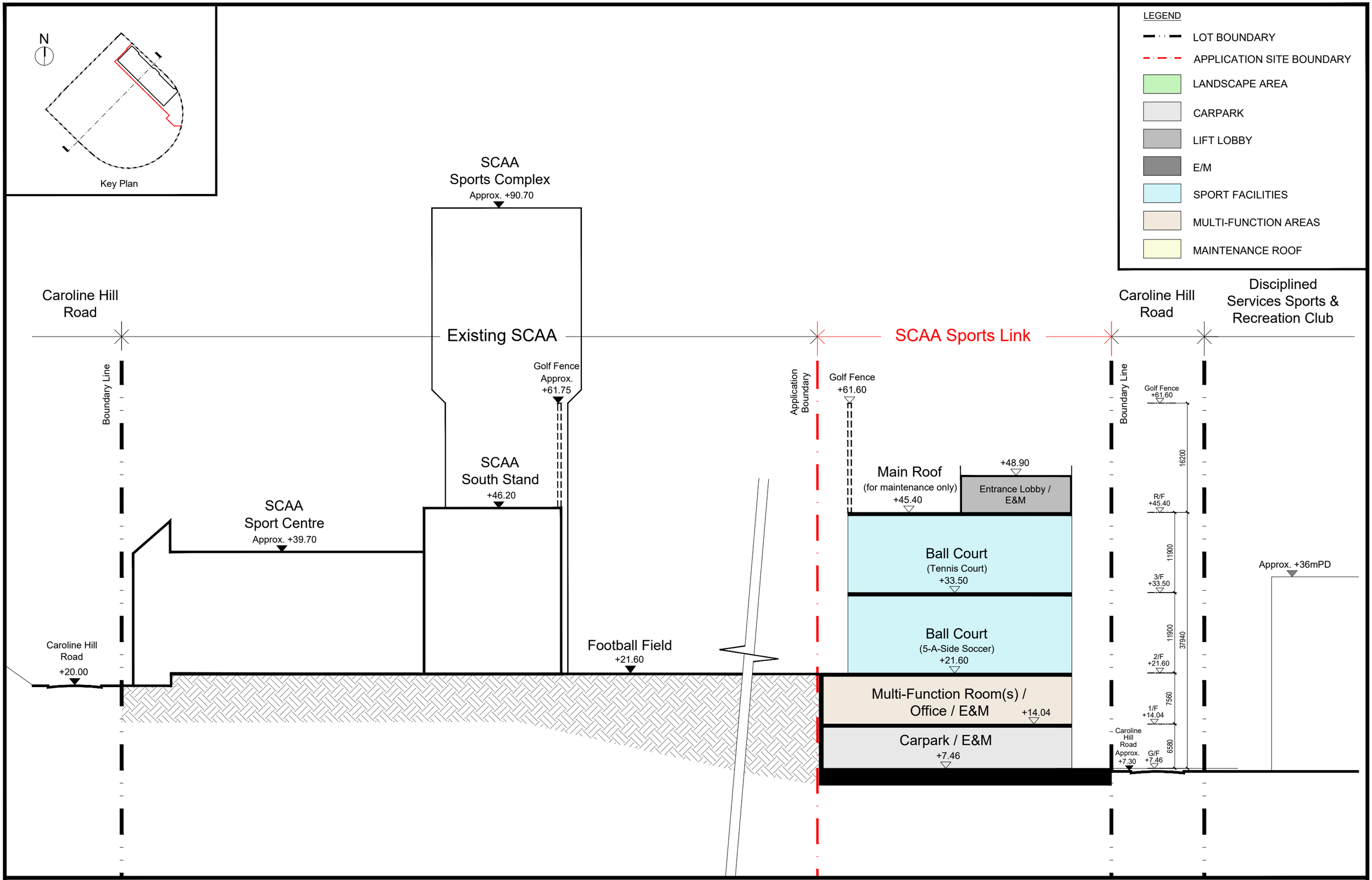
+8.811

Mean Street Level of North Site

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

Section A-A ○ 1 : 500 (A3) ○ 13 Oct 2025

Design 2 (HK) Limited



Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

Section B-B ○ 1 : 500 (A3) ○ 13 Oct 2025

Design 2 (HK) Limited

Appendix 6-1

Estimation of Sewerage Flow from Proposed Redevelopment

Appendix 6-1 : Estimation of Sewage Flow from the Proposed Development

Proposed Development

Type of Occupancy[1]	No. of Occupancy	Unit Flow Factor[2]		Total Average Sewage Discharge (m^3/day)
		Category	m^3/day	
Office	14	Community, Social & Personal Services	0.28	3.92
Visitors	722	Visitors	0.032	23.10
Total	**736**			**27.02**
				0.0003 (m3/s)

Note:

[1] The information is extracted from SoA table received on 13 June 2025

[2] The unit flow factor is made reference to "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (Version 1.0)", published by EPD.