Prepared by

Ramboll Hong Kong Limited

PROPOSED SCHOOL AT VARIOUS LOTS IN D.D. 94, 98 & 100 AND ADJOINING GOVERNMENT LAND, KWU TUNG SOUTH, NEW TERRITORIES

WATER SUPPLY IMPACT ASSESSMENT

Date	**January 2026**
Prepared by	**Sally Chiu** **Assistant Environmental Consultant**
Signed	
Approved by	**Tony Cheng** **Senior Manager**
Signed	
Project Reference	**HENKTSISEI00**
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CHAPTERS

FIGURES

APPENDICES

1. INTRODUCTION

1.1 Project Background

1.1.1 The applicants, Global King Investment Limited, Winpost (HK) Investment Limited and Rand Development Limited, seek to rezone the current "Agriculture" zoning with a minor portion of "Green Belt" of the Application Site as outlined in the approved Kwu Tung South Outline Zoning Plan No. S/NE-KTS/22.

1.1.2 The Water Supply Impact Assessment (WSIA) is prepared as a technical supporting document to estimate the water demand arising from the Proposed Development.

1.2 The Application Site and Its Environs

1.2.1 The Application Site is situated along the Sheung Yue River which separate the Application Site into 2 portions (West and East Portions). It is bounded by Sheung Shui Hang Tau Village Sitting Out Area No.2 to the North and Po Shu Garden to the East.

1.2.2 **Figure 1.1** shows the location of the Application Site and its environment.

1.3 Proposed Development

1.3.1 Under the current application, the Application Site is proposed for an International School development. Details of the proposed development schedule are summarised in **Table 1-1** below and the layout plan is shown in **Appendix 1.1**.

Table 1-1 Development Schedule of the Proposed Development

Portions Located	West	East
Site Area (m^2)	~92,616	~35,616
Total GFA (m^2)	~126,850	~44,150
No. of Blocks	18	6
No. of Classrooms	76	65
No. of Students	1,600	1,400
No. of Staff (Including Teaching and Non-Teaching)	338	295
No. of Student/ Staff who can Live in the Accommodation	2243	0
Completion Year	2036	

2. WATER SUPPLY IMPACT ASSESSMENT

2.1 Scope of Work

2.1.1 The aim of this study is to assess whether the capacity of the existing water supply facilities serving the Application Site is sufficient to cope with the water demands from the Proposed Development. Data and record plans from Water Supplies Department (WSD) were obtained to facilitate the WSIA.

2.2 Assessment Criteria and Methodology

2.2.1 The freshwater and the salt water of the Proposed Development is supplied by Kwu Tung Fresh Water Service Reservoir. Although the Kwu Tung Fresh Water Service Reservoir is fully loaded at present, it is understood that the Tong Hang No. 3 Fresh Water Service Reservoir (TH3FWSR) is under construction under Contract No. 3/WSD/18 for taking up part of the supply zone of KTFWSR. The infrastructure project under Public Works Project (PWP) No.: 9355WF, which includes the construction of TH3FWSR, shal be completed by fourth quarter of 2024. Freshwater supply to TH3FWSR will be provided by Tai Po Tau Treatment Works and the storage capacity of TH3FWSR is about 55,000 m^3.

2.2.2 The capacity of Kwu Tung Reservoir is summarized in **Table 2-1**.

Table 2-1 Capacity of Kwu Tung water service reservoirs

	Kwu Tung Fresh Water Service Reservoir
Capacity (m^3)	30,853

2.2.3 The existing fresh water supply network are provided in **Appendix 2.1**.

2.2.4 Reference has been made to the Water Supplies Department's Departmental Instruction 1309 (WSD DI 1309), as well as Environmental Protection Department's (EPD's) Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF). In addition, Planning Department's (PlanD) Commercial and Industrial Floor Space Utilization Survey (CIFUS) have also been used.

2.2.5 WSD DI 1309 sets out the design criteria for water supplies in Hong Kong and includes unit water demands for various classes of consumer. Apart from the above, EPD's GESF includes unit sewage flow factors for various residential development.

2.2.6 For this WSIA, WSD's data from DI 1309 has been referenced to provide unit water demands for the various population categories with the relevant EPD GESF unit sewage flow factors to determine overall unit water demand factors. PlanD's CIFSUS has been also referenced for calculation of the population density where necessary.

2.2.7 The unit water demand has been combined with the relevant development parameters to assess the future water demands, from which the potential impacts have been assessed. Calculations for the water demands of the Proposed Development are included in **Appendix 2.2**.

2.3 Assessment of Water Demand

2.3.1 The water demand from the West and East Portions of the Proposed Development have been assessed in **Table 2-2** and **Table 2-3** below and detailed calculation is shown in **Appendix 2.2**.

Table 2-2 Water Demand from the Proposed Development (West Portion)

	Daily Water Demand (without swimming pool)	Peaking Factor	Peak Water Demand (without swimming pool)	Peak Water Demand (with swimming pool)
	m^3/day		m^3/day	m^3/day
Freshwater	2039.4	3	6118.2	7993.2
Flushing Water	303.2	2	606.4	606.4
			Total	**8599.6 [1]**

[1] Assume both fresh water and flushing water are provided from Kwu Tung Water Service Reservoir

Table 2-3 Water Demand from the Proposed Development (East Portion)

	Daily Water Demand (without swimming pool)	Peaking Factor	Peak Water Demand (without swimming pool)	Peak Water Demand (with swimming pool)
	m^3/day		m^3/day	m^3/day
Freshwater	837.4	3	2512.2	4387.2
Flushing Water	139.7	2	279.4	279.2
			Total	**4666.6 [1]**

[1] Assume both fresh water and flushing water are provided from Kwu Tung Water Service Reservoir

2.3.2 According to **Table 2-2** and **Table 2-3**, the Proposed Development will be taking minor portions of the freshwater reservoirs capacities (i.e. 27.9% from West Portion and 15.1% from East Portion).

2.3.3 Given that the contribution is not significant, the Proposed Development would unlikely pose any adverse impact to existing service reservoir capacity.

2.4 Existing and Proposed Water Supply System

2.4.1 The existing water supply system is provided in **Appendix 2.1**.

2.4.2 5 x 80mm and 8 x 40mm freshwater mains are proposed to connect to the existing water mains 80GIL91 and 40GIL01 located at the West Portion and East Portion of the Proposed Development respectively for freshwater and flushing water supply. The alignment of the existing and proposed freshwater mains is shown in **Figure 2.1**.

2.5 Construction and Maintenance

2.5.1 The Project Proponent will take up the design and construction cost for the future water main connection. The detailed design and assessment will be submitted for comments/ approval at detailed design stage.

2.5.2 The responsibility for operation and maintenance of the proposed waterworks will be discussed and agreed with WSD and relevant departments during detailed design stage.

3. CONCLUSION

3.1.1 The water supply impact assessment has been carried out for the Proposed Development. The assessment results show that the peak water demand from the West and East Portions of the Proposed Development are 8599.6 m^3/day and 4666.6 m^3/day which only accounts for the existing Kwu Tung Fresh Water Service Reservoirs of 27.9% and 15.1% respectively.

3.1.2 Given that the contribution is not significant, the Proposed Development would unlikely pose any adverse impact to existing freshwater supply system.

Figures

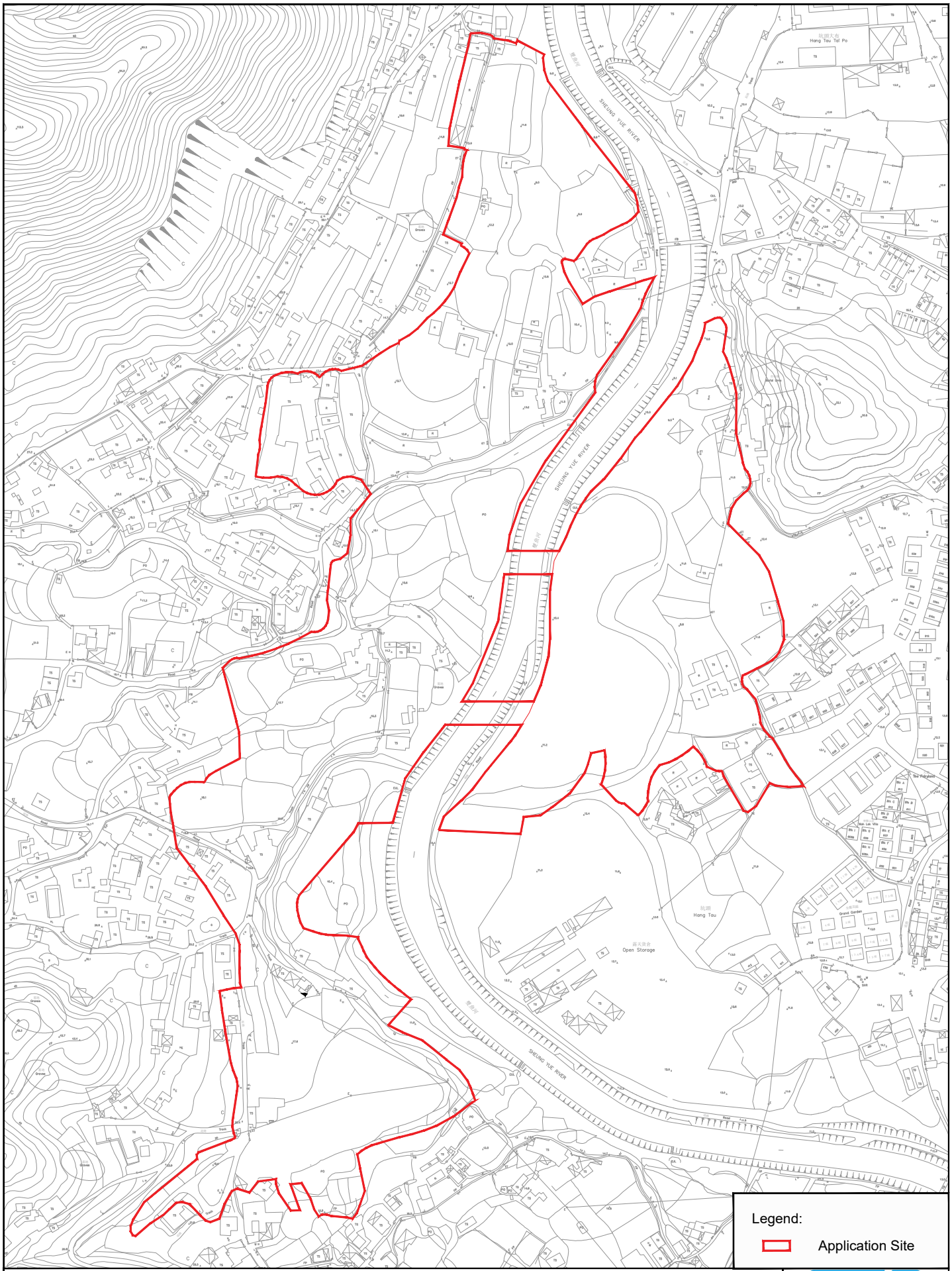

Figure: 1.1

Title: Location of the Application Site and its environs.

Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	TL
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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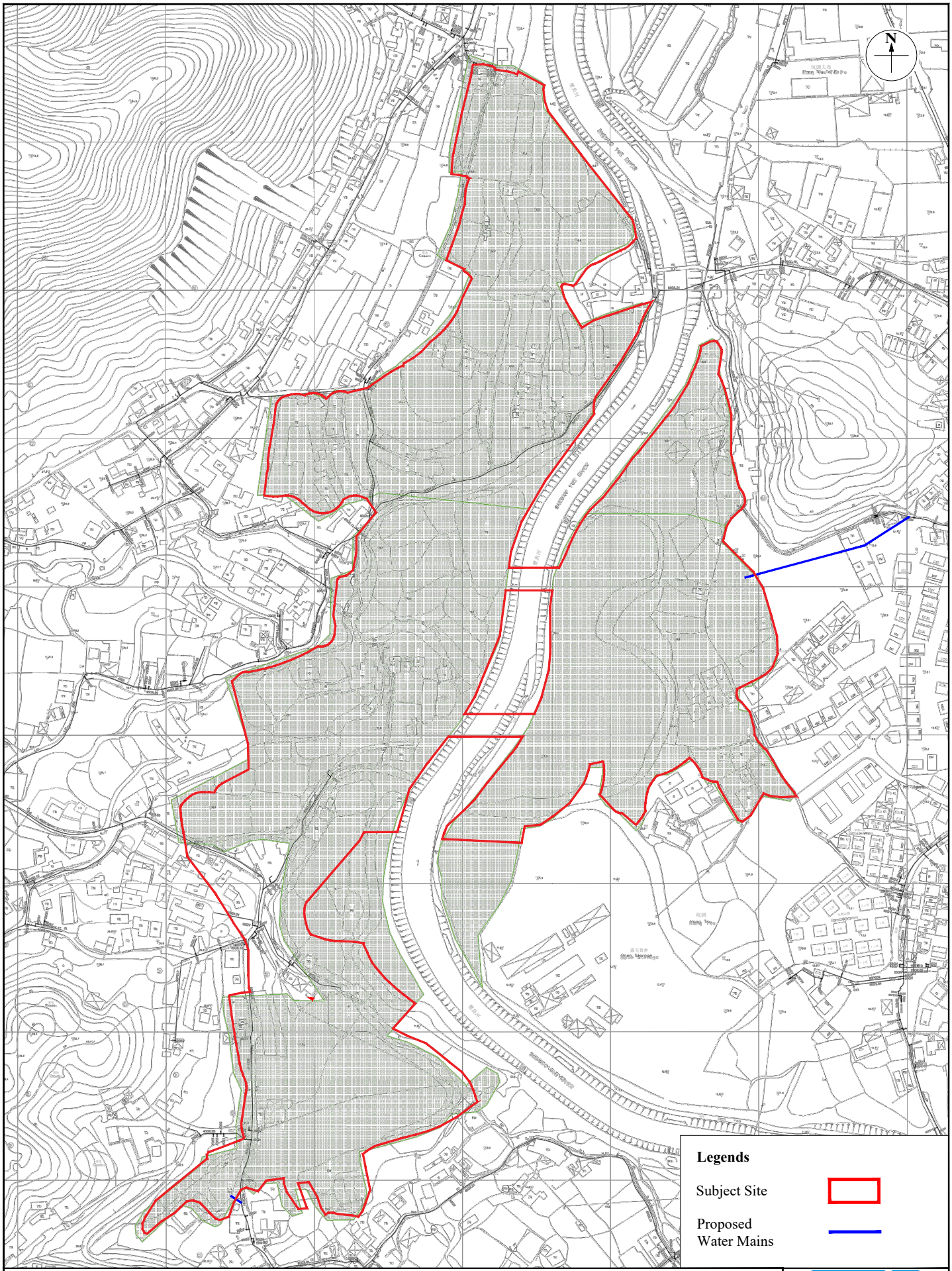

Figure: 2.1a	RAMBOLL
Title: Existing and Proposed Fresh Water Supply System for Proposed Development (Overall)	Drawn by: SC Checked by: TC
Project: Proposed School at Various Lots in D.D.94, 98 & 100 and Adjoining Government Land, Kwu Tung South, New Territories	Rev.: 1.0 Date: Sep 2025

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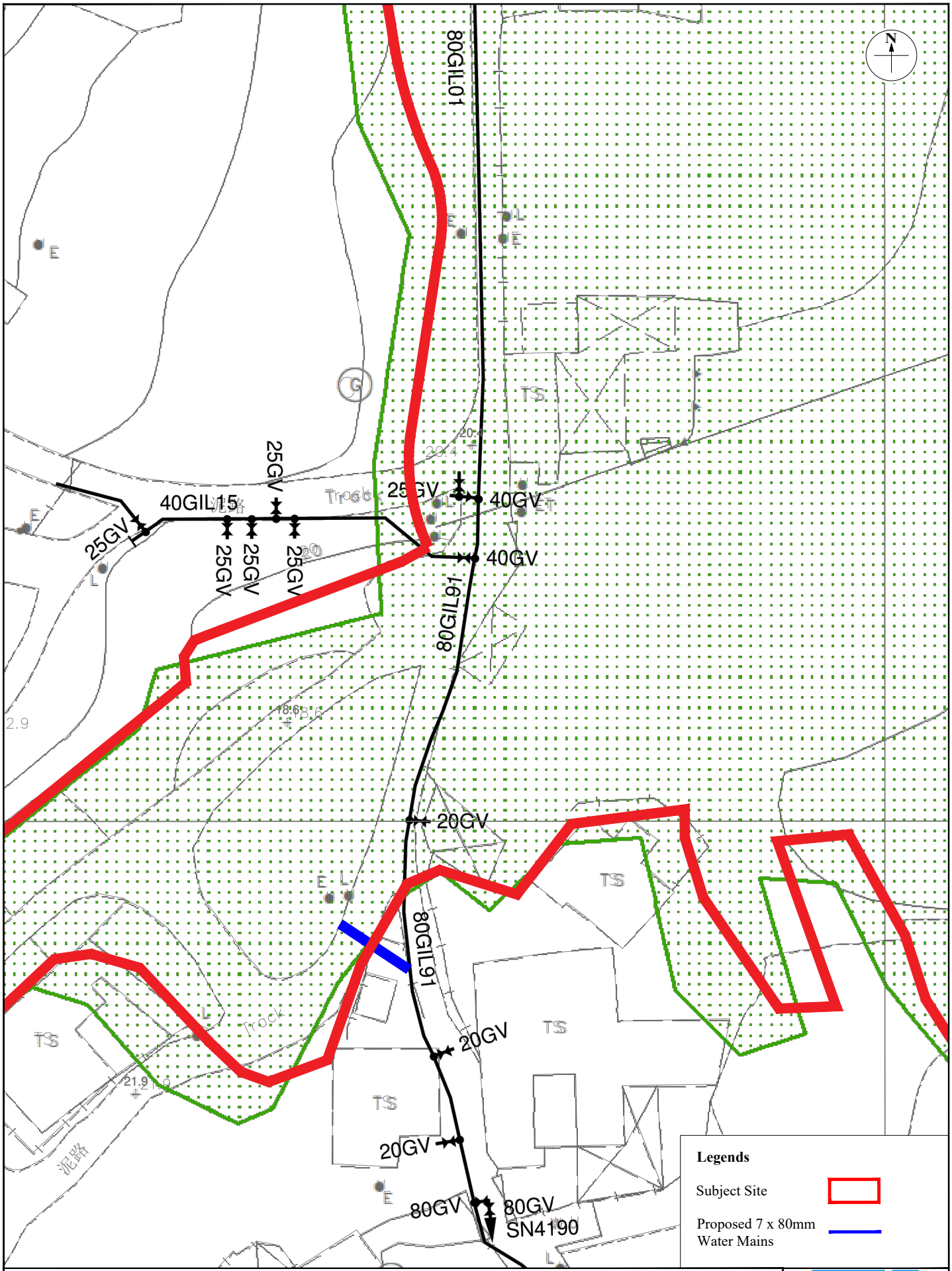

Figure:	2.1b	RAMBOLL
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Project:	Proposed School at Various Lots in D.D.94, 98 & 100 and Adjoining Government Land, Kwu Tung South, New Territories	Rev.: 1.0 Date: Sep 2025

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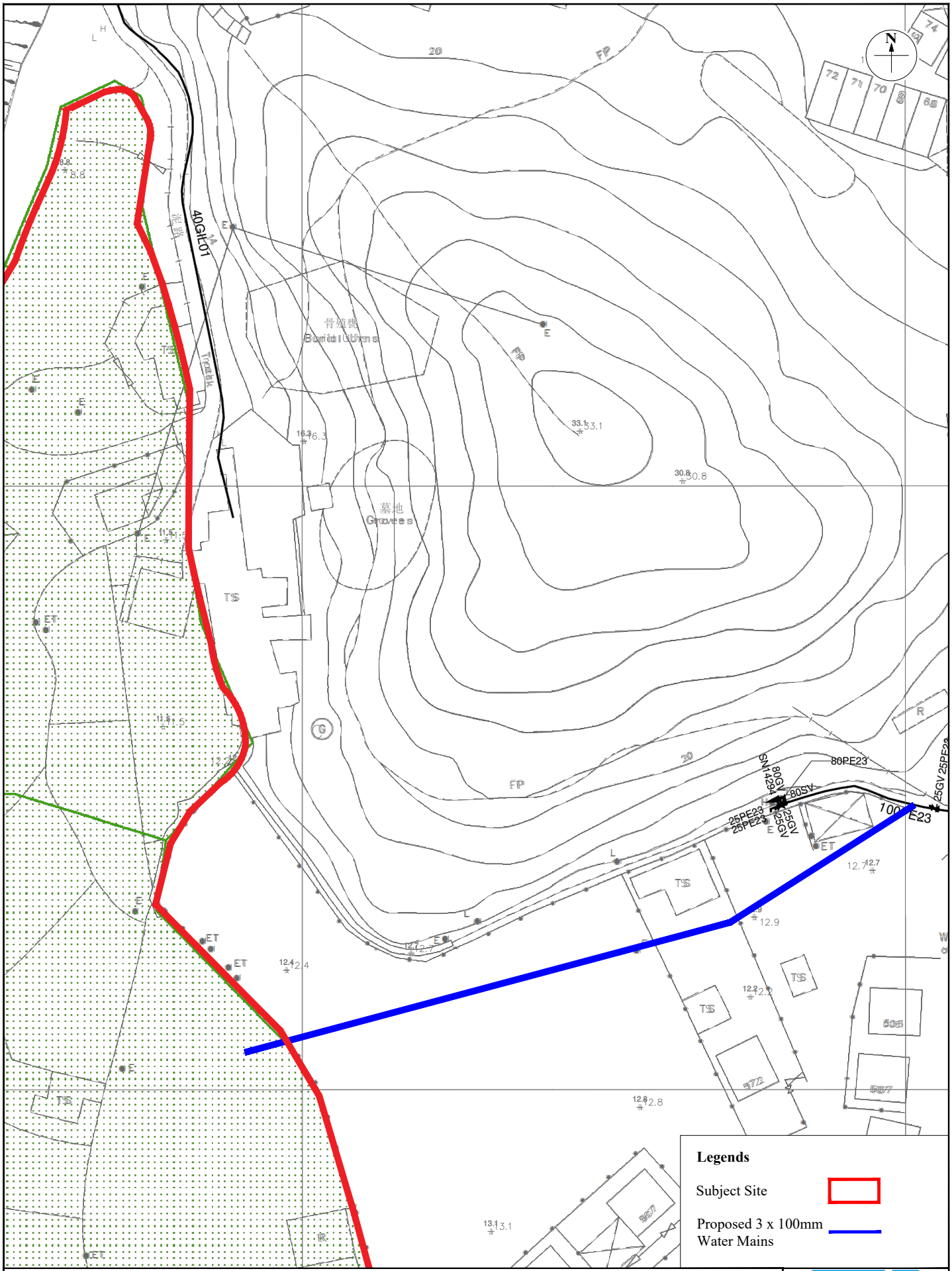

Figure:	2.1c	RAMBOLL
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Project:	Proposed School at Various Lots in D.D.94, 98 & 100 and Adjoining Government Land, Kwu Tung South, New Territories	Rev.: 1.0 Date: Sep 2025

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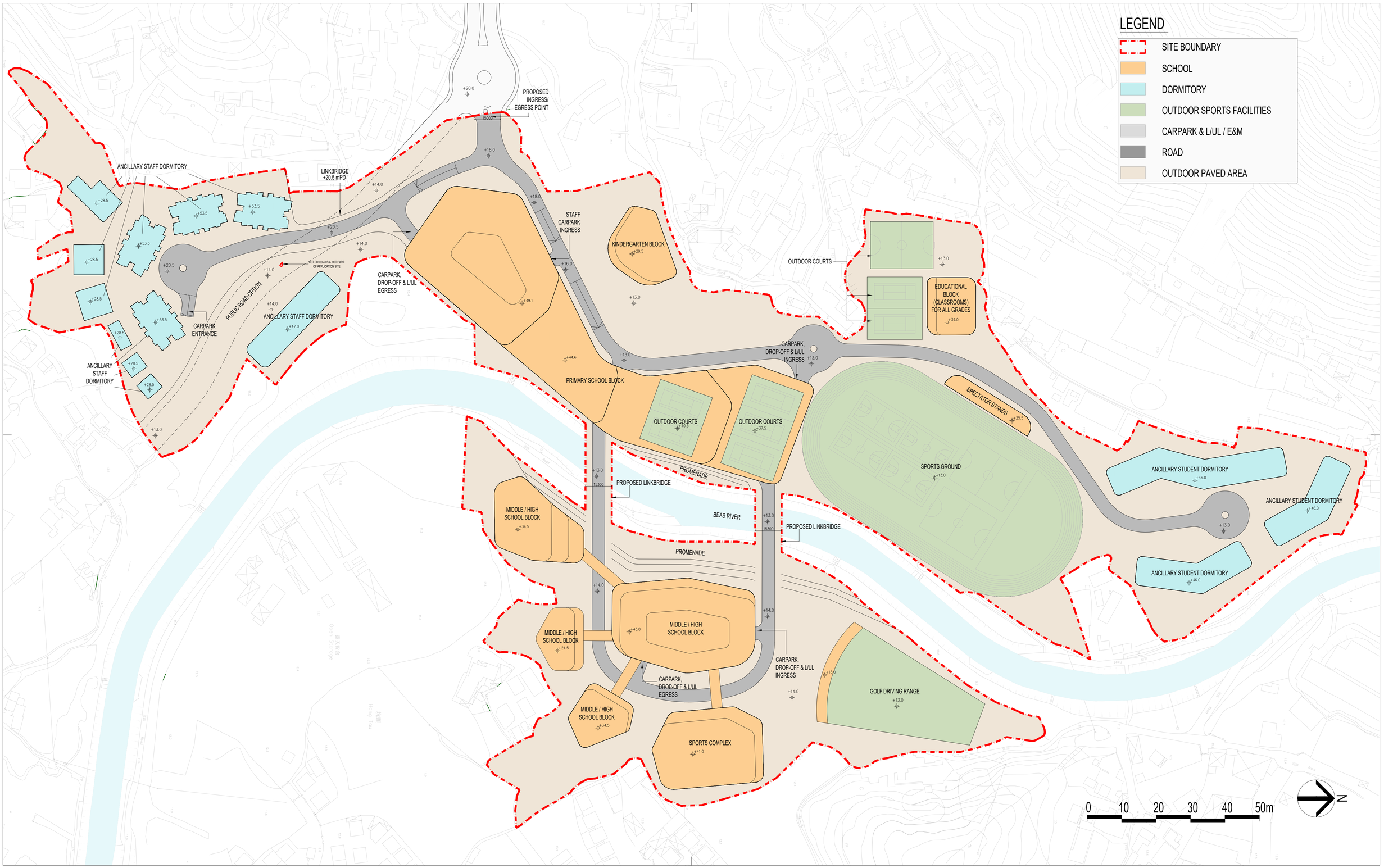
Appendix 1.1 Master Layout Plan



Rev.	Description	Drawn	Checked	Approved	Date
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A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

Rev.	Description	Drawn	Checked	Approved	Date

Check all measurements on site. Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

B.D. Ref. _
F.S.D. Ref. _
D.L.O. Ref. _

Drawn HKO Date 11-2025
Checked JHK Date 11-2025
Approved JHY Date 11-2025

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呂元祥建築師事務所

Project Title
PROPOSED INTERNATIONAL SCHOOL DEVELOPMENT AT KWU TUNG SOUTH

Drawing Title
FULL PHASE – MASTER LAYOUT PLAN

Project No. 25018NT
Scale 1 : 1000 Issue Date NOV 2025
Drawing No. A/GBP_01_

Drawing Purpose

LEGEND

- SITE BOUNDARY
- SCHOOL
- DORMITORY
- OUTDOOR SPORTS FACILITIES
- CARPARK & L/UL / E&M
- ROAD
- OUTDOOR PAVED AREA

UNEXCAVATED

UNEXCAVATED

CARPARK,
LAY-BY & L/UL/ E&M
+14.0

PUBLIC ROAD OPTION

+14.0

+14.0

LOT DD100 41 S.A NOT PART OF APPLICATION SITE

DORMITORY
+14.0

CARPARK,
DROP-OFF & L/UL
EGRESS

+13.0

STAFF
CARPARK
INGRESS

+16.0

CARPARK,
LAY-BY & L/UL/ E&M
+14.0

SCHOOL (KINDERGARTEN)
+13.0

OUTDOOR COURTS

+13.0

SCHOOL
(CLASSROOM)
+13.0

+13.0

+13.0

CARPARK,
LAY-BY & L/UL/ E&M
+13.0

CARPARK,
DROP-OFF & L/UL
INGRESS

+13.0

SPECTATOR STANDS +13.0

SCHOOL (SPORTS GROUND)
+13.0

DORMITORY
+13.0

+13.0

DORMITORY
+13.0

DORMITORY
+13.0

PROMENADE +9.0

PROPOSED LINKBRIDGE

SCHOOL (CLASSROOM)
+14.0

PROMENADE +9.0

PROPOSED LINKBRIDGE

+14.0

SCHOOL
(CLASSROOM)
+14.0

ANCILLARY
TUCK
SHOP
+14.0

CARPARK,
LAY-BY & L/UL
+14.0

CARPARK,
DROP-OFF & L/UL
EGRESS

CARPARK,
DROP-OFF & L/UL
INGRESS

+14.0

GOLF DRIVING RANGE
+14.0

SCHOOL (CLASSROOM)
+14.0

SCHOOL (SWIMMING POOL)
+14.0

E&M BASEMENT
BELOW AT +10.0

0 10 20 30 40 50m

N

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_	PLANNING SUBMISSION	HKO	JHK	JHY	9-2025
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Project Title

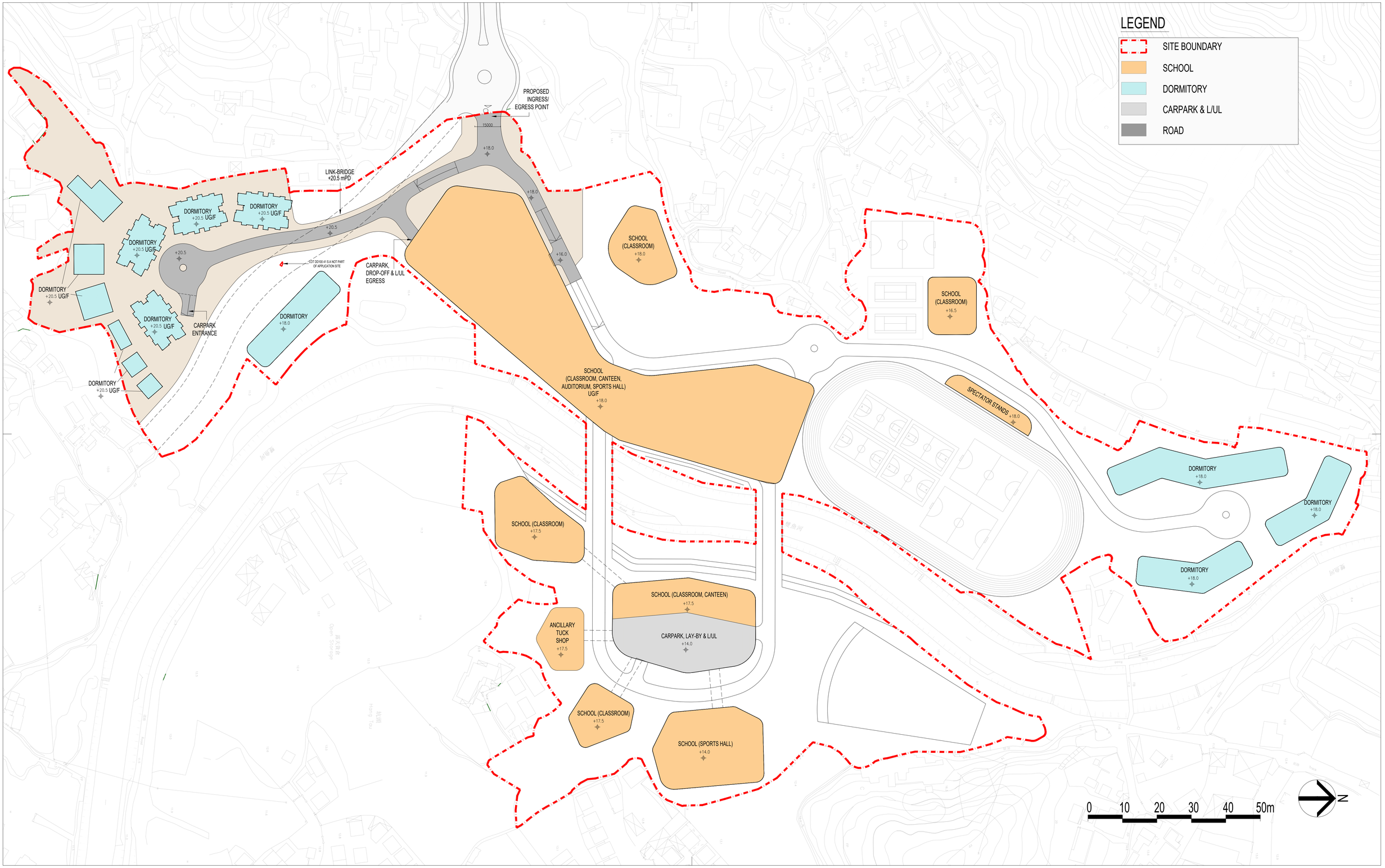
Drawing Title
FULL PHASE –
GROUND FLOOR PLAN

Project No. 25018NT

Scale 1 : 1000 Issue Date NOV 2025

Drawing No. A/ GBP_02

Drawing Purpose



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A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

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F.S.D. Ref. _
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Drawn HKO Date 11-2025
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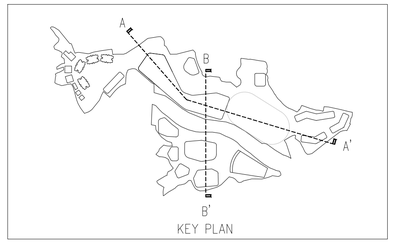
Project Title

Drawing Title
FULL PHASE –
FIRST FLOOR PLAN

Project No. 25018NT
Scale 1 : 1000 Issue Date NOV 2025
Drawing No. A/GBP_03

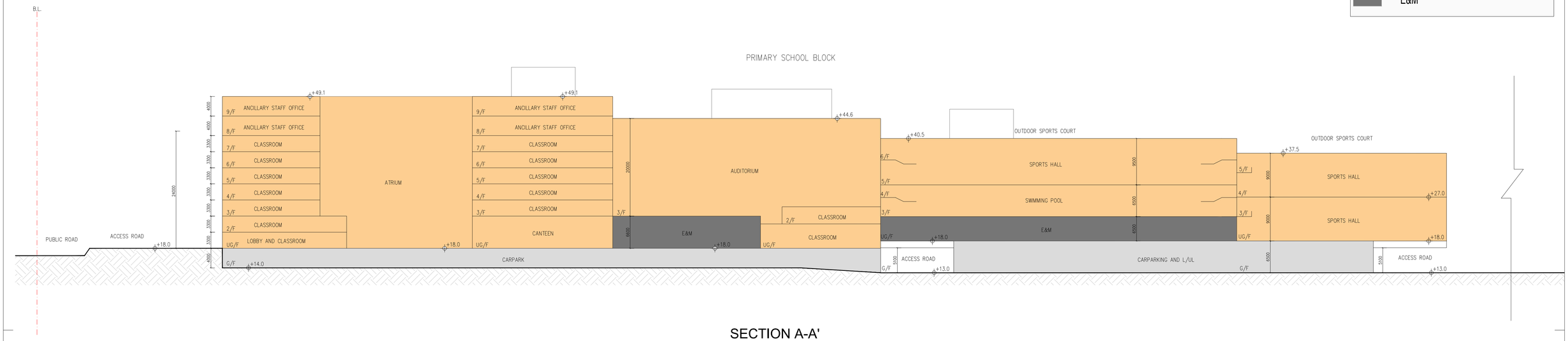
Drawing Purpose



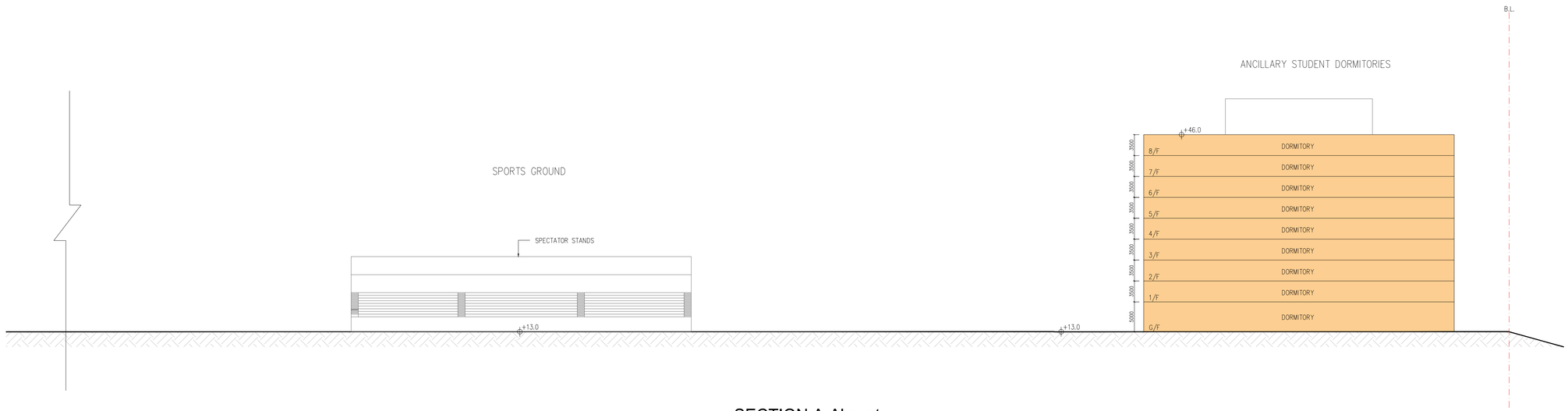
KEY PLAN

LEGEND

- SITE BOUNDARY
- SCHOOL
- DORMITORY
- OUTDOOR SPORTS FACILITIES
- CARPARK & L/UL
- E&M



SECTION A-A'



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A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

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Project Title

Drawing Title
SECTION A-A

Project No. 25018NT
Scale 1:400 Issue Date NOV 2025
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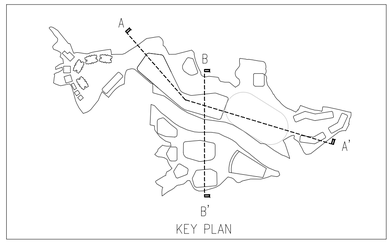
Drawing Purpose



KEY PLAN

LEGEND

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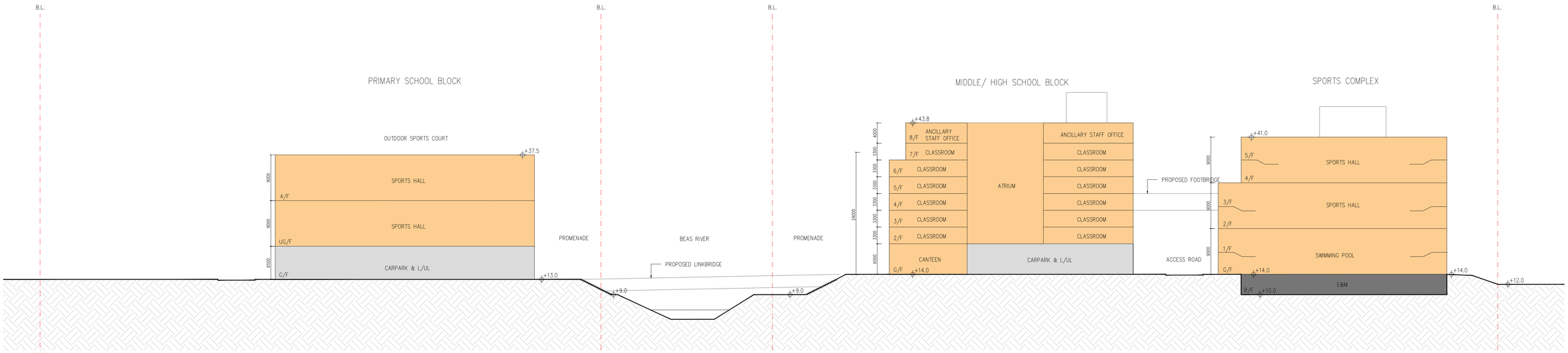
- SCHOOL
- DORMITORY
- OUTDOOR SPORTS FACILITIES
- CARPARK & L/UL
- E&M



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A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

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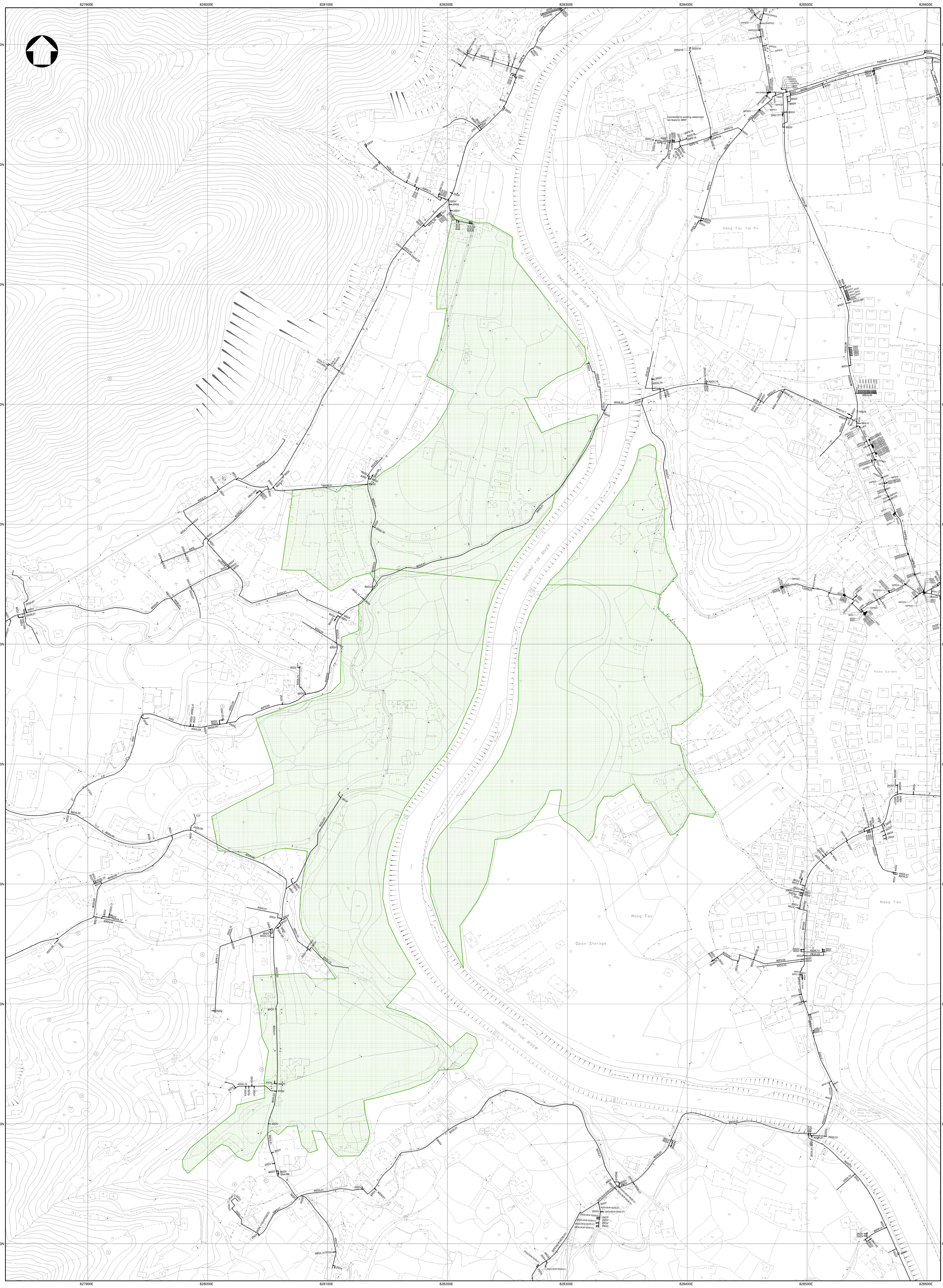
Project Title

Drawing Title
SECTION B-B

Project No. 25018NT
Scale 1:400 Issue Date NOV 2025
Drawing No. A/GBP_06

Drawing Purpose

Appendix 2.1 Records Obtained from Water Supplies Department



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. NO EXISTING SALT WATER MAINS IN THE VICINITY OF THE SITE.
6. NO PROPOSED WATER MAINS IN THE VICINITY OF THE SITE.
7. NO EXISTING WSD CABLE IN THE VICINITY OF THE SITE.
8. NO PROPOSED WSD CABLE IN THE VICINITY OF THE SITE.
9. THE SITE IS NOT WITHIN WSD GATHERING GROUNDS.
10. NO WSD LAND ALLOCATION / WWR WITHIN THE SITE AREA.
11. NO WSD SLOPES ARE AFFECTED IN THE VICINITY OF THE SITE.
12. ASBESTOS CEMENT / UNKNOWN MATERIALS MAINS WAS FOUND IN THE VICINITY OF THE SITE.
13. NO CATHODIC PROTECTION MAINS ON THE VICINITY OF THE SITE.

PART COPY OF FRESH WATER MAINS RECORD PLAN(S)

W67880/2-SE-9D, 10C, 14B, 14D, 15A & 15C

FILE REF: WSIA

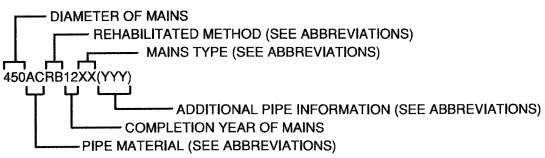
REF. CODE: 33W25M	SHEET 1 OF 1	SCALE 1:1000

水 務 署
Water Supplies Department

SIGN CONVENTIONS

TYPE	LEGEND
MAINS	
FRESH / SALT WATER MAINS	
RAW / UNTREATED WATER MAINS / CONDUIT	
WASHOUT PIPE / OVERFLOW PIPE	
SLUDGE PIPE	
TREATED EFFLUENT MAINS	
WATER MAINS REQUIRE REGULAR FLUSHING	
PIPE LAID IN SLEEVE	
PIPE LAID IN TROUGH	
PIPE LAID INSIDE TUNNEL	
BEING LAID MAINS	
WATER TUNNEL	
PROPOSED MAINS	
PRIVATE MAINS (SEE NOTE 2)	
MAINS OF OTHER DEPARTMENTS (SEE NOTE 3)	
FIRE SERVICE	
PEDESTAL FIRE HYDRANT	PH
GROUND FIRE HYDRANT	GH
HEAVY DRAW-OFF FIRE HYDRANT	HD
SWAN NECK FIRE HYDRANT	SN
TWIN OUTLET SWAN NECK FIRE HYDRANT	SN
VALVE	
VALVE (SEE ABBREVIATIONS)	
NORMALLY CLOSED VALVE	
FLAP VALVE	FV
FLOW REGULATING VALVE	FRV
NON RETURN / REFLUX VALVE	NRV
PRESSURE CONTROL / REDUCING / RELIEF VALVE	PRV
AIR VALVE	
AIR VALVE (SEE ABBREVIATIONS)	
AIR VALVE ON INSPECTION TEE (SEE ABBREVIATIONS)	
METER	
METER (SEE ABBREVIATIONS)	
VENTURI TUBE	VEN
CRITICAL PRESSURE POINT	PP
OTHERS	
CHANGE IN PIPE	
BLANK FLANGE / END CAP	
EXTENTS SHOWING FEATURES OF WATER MAINS	
INSPECTION TEE (SEE ABBREVIATIONS)	
PIPES CONNECTED	
STANDPIPE	STP
STRAINER	STR
CATHODIC PROTECTION INSTALLATION (SEE ABBREVIATIONS)	
LEAK NOISE CORRELATION POINT	LNC
LEAKAGE COLLECTION CHAMBER	LCC
FLOW MEASUREMENT CHAMBER	FMC
INSPECTION MANHOLE	IMH
MULTI - PURPOSE INSERTION CHAMBER	MIC
ESSENTIAL VALVE REFERENCE NUMBER (ALPHABET SEE ABBREVIATIONS)	C 888888
PIPES CROSS OVER	

DESIGNATIONS



NOTES

1. WSD MAINS INCLUDE:
   (a) MAINS LAID AND MAINTAINED BY WSD.
   (b) MAINS LAID BY OTHER DEPARTMENTS OR PRIVATE PARTIES BUT MAINTAINED BY WSD AT WSD'S COST.
2. PRIVATE MAINS INCLUDE MAINS IN PRIVATE ROADS, PRIVATE HOUSING ESTATES, ETC. NOT MAINTAINED BY WSD.
3. MAINS OF OTHER DEPARTMENTS INCLUDE MAINS LAID BY OTHER GOVERNMENT DEPARTMENTS NOT MAINTAINED BY WSD.

ABBREVIATIONS

PIPE MATERIAL

AC	ASBESTOS CEMENT
CI	CAST IRON
CONC	CONCRETE
COPP	COPPER ALLOY
DI	DUCTILE IRON
GI	GALVANIZED IRON
GIL	LINED GALVANIZED IRON
GMS	GALVANIZED MILD STEEL
GRP	GLASS FIBRE REINFORCED PLASTIC
MDPE	MEDIUM DENSITY POLYETHYLENE
MS	MILD STEEL
PE	POLYETHYLENE
S	STEEL
SS	STAINLESS STEEL
UPVC	UNPLASTICISED POLYVINYL CHLORIDE

REHABILITATION METHOD

RA	CURED IN PLACE PIPE
RB	CLOSED FIT (FOLD AND FORM SYSTEM)
RD	SLIP LINING / SLIP INSERTION
RE	CLOSE FIT (SWAGELINING SYSTEM)
RF	FIBRE REINFORCED PLASTIC SYSTEM
RG	INTERNAL LINING REPAIRED
RH	EXTERNAL COATING REPAIRED
RK	COMBINATION OF INTERNAL LINING REPAIRED AND EXTERNAL COATING REPAIRED
RL	PIPE BURSTING
RM	EXTERNAL FIBRE REINFORCED PLASTIC (FRP) SYSTEM
RN	JOINT SEALANT WORKS
RP	PRIMUS LINE
RS	SPRAY POLYURETHANE SYSTEM

MAINS TYPE

F	FIRE SERVICE MAINS
OF	OVERFLOW PIPE
WO	WASHOUT PIPE

INSPECTION TEE

IT	INSPECTION TEE
MIT	MULTI - PURPOSE INSPECTION TEE

ADDITIONAL PIPE INFORMATION

(400)	OUTSIDE DIAMETER OF THE INSERTED PE PIPE FOR SPECIFIED REHABILITATED MAINS
(CPS10)	CATHODIC PROTECTION SYSTEM NO. 10
(DRY)	DRY MAINS
(E)	MAINS LAID UNDER ENTRUSTMENT WORKS
(EXPOSED)	EXPOSED PIPE
(IRRIGATION)	IRRIGATION PIPE
(L)	MAINS WITH LEAKAGE COLLECTION SYSTEM
(PC)	PENDING COMMISSIONED MAINS
(SCM100)	SHALLOW COVERED MAINS NO. 100
(SUBMARINE)	SUBMARINE PIPE
(TE)	TREATED EFFLUENT MAINS
(TMF)	TEMPORARY MAINS FOR FLUSHING
(W20163)	DRAWING REFERENCE
(WSD 437/....)	WSD FILE REFERENCE

METER

EMFM	ELECTROMAGNETIC FLOWMETER
FM	FLOWMETER
WDM	WASTE DETECTION METER
DM	DISTRICT METER

VALVE

BV	BUTTERFLY VALVE
GV	GATE VALVE
SC	STOP COCK
SV	SLUICE VALVE
V	GENERIC VALVE
WOV	WASHOUT VALVE

AIR VALVE

AV	GENERIC AIR VALVE
SAV	SINGLE AIR VALVE
DAV	DOUBLE AIR VALVE
MDAV	MULTI - PURPOSE DOUBLE AIR VALVE
ATV	GENERIC AIR VALVE ON INSPECTION TEE
STV	SINGLE AIR VALVE ON INSPECTION TEE
DTV	DOUBLE AIR VALVE ON INSPECTION TEE

ALPHABET OF ESSENTIAL VALVE REFERENCE NUMBER

FRESH WATER NETWORK SYSTEM

B	CONTROL VALVES OF DIRECT TEEING OFF TO SUPPLY FROM FRESH WATER TRUNK MAINS
C	CUT- LINE VALVES
D	ALL OTHER ESSENTIAL VALVES
M	DISTRICT BOUNDARY VALVES FOR DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS
S	SCOUR VALVES
T	TRUNK MAIN VALVES INCLUDING THOSE AT TEES
V	VALVES UNDER CHINA WATER SCHEME, HIGH ISLAND WATER SCHEME AND PLOVER COVE WATER SCHEME

SALT WATER NETWORK SYSTEM

X	ESSENTIAL VALVES

CATHODIC PROTECTION INSTALLATION

TS1	TEST STATION NO.1
HA2(1)	HORIZONTAL ANODE NO. 2 (1 GROUP OF ANODE)
VA3(2)	VERTICAL ANODE NO. 3 (2 GROUPS OF ANODE)

編號 no.	日期 date	摘 要 description	簽署 initial
C	6/12/19	GENERAL REVISION	SE/PGIS
B	11/02/11	GENERAL REVISION	(Signed) L.H. LAM SE/Dev(SD)
A	16/06/05	GENERAL REVISION	(Signed) K.T. CHAN SE/AM

修 訂 REVISION

圖則名稱 drawing title	簽署 initial	日期 date	圖則編號 drawing no. / 比例 scale
MAINS RECORDS SIGN CONVENTIONS AND DESIGNATIONS	繪製 drawn N.I. CHEUNG	03/03/98	SK 3988C / NOT APPLICABLE
	核對 checked		
	加簽 endorsed		
	核准 approved (Signed) C.C. CHAN CE/RA	12/03/98	

水 務 署
Water Supplies Department

A4 210 X 297

CAD REF. SK3988C.DWG
PLOTTING SCALE 1 : 1

Appendix 2.2 Detailed Water Supply Impact Assessment Calculations

Table 1a - Population Estimation for Proposed Development (Overall)

Table 4b- Mains Capacity Calculation for Proposed Development (East Portion)	**Dormitory**				
	Total number of residents	=	2243	people	
	Total	**=**	**2243**	**people**	
Non-Domestic (School)	**1. International School**				
	Total number of Students	=	3000	people	
	Total number of Teachers & Staff	=	633	people	
	Total	**=**	**3633**	**people**	
	2. Canteen				
	Total Area	=	4500	m^2	
	3. Swimming Pool				
	Volume	=	3750	m^3	(2 x 1250 m^2 x 1.5m depth)
	4. Irrigation				
	Area	=	25400	m^3	(Assume 20% of Site Area)

Table 1b - Population Estimation for Proposed Development (West)

Table 4b- Mains Capacity Calculation for Proposed Development (East Portion)	**Dormitory**				
	Total number of residents	=	2243	people	
	Total	**=**	**2243**	**people**	
Non-Domestic (School)	**1. International School**				
	Total number of Students	=	1600	people	
	Total number of Teachers & Staff	=	338	people	
	Total	**=**	**1938**	**people**	
	2. Canteen				
	Total Area	=	1500	m^2	
	3. Swimming Pool				
	Volume	=	1875	m^3	(1250 m^2 x 1.5m depth)
	4. Irrigation				
	Area	=	18400	m^3	(Assume 20% of Site Area - West)

Table 1c - Population Estimation for Proposed Development (East)

Table 4b- Mains Capacity Calculation for Proposed Development (East Portion)	**Dormitory**				
	Total number of residents	=	0	people	
	Total	**=**	**0**	**people**	
Non-Domestic (School)	**1. International School**				
	Total number of Students	=	1400	people	
	Total number of Teachers & Staff	=	295	people	
	Total	**=**	**1695**	**people**	
	2. Canteen				
	Total Area	=	3000	m^2	
	3. Swimming Pool				
	Volume	=	1875	m^3	(1250 m^2 x 1.5m depth)
	4. Irrigation				
	Area	=	10500	m^3	(Assume 20% of Site Area - East)

Table 2a - Daily Water Demands Calculation for Proposed Development (Overall)

Type	Population (head)	Freshwater		Flushing Water	
		Daily Unit Demand (m^3/head/day)	Daily Demand (m^3/day)	Daily Unit Demand (m^3/head/day)	Daily Demand (m^3/day)
Non-Domestic (Dormitory) [1]	2,243	0.300	672.90	0.070	157.01
Non-Domestic - International School	1695	0.025	42.38	0.07	118.65
Type	**GFA (m^2)**	**Freshwater**		**Flushing Water**	
		Daily Unit Demand (m^3/m^2/day)	Daily Demand (m^3/day)	Daily Unit Demand (m^3/m^2/day)	Daily Demand (m^3/day)
Non-Domestic - Canteen	4,500	0.020	90.00	0.007	31.50
Non-Domestic - Swimming Pool [2]	-	-	3750	-	-
Non-Domestic - Irrigation	25400	0.070	1778	-	-
		Total for Proposed Development	**6333.3**		**307.2**

[1] The residential R2 Type consideres all students and staff living in the Dormitory

[2] Two 1250 m2 x 1.5m depth of swimming pool are provided

Table 2b - Daily Water Demands Calculation for Proposed Development (West Portion)

Type	Population (head)	Freshwater		Flushing Water	
		Daily Unit Demand (m^3/head/day)	Daily Demand (m^3/day)	Daily Unit Demand (m^3/head/day)	Daily Demand (m^3/day)
Non-Domestic (Dormitory) [1]	2,243	0.300	672.90	0.070	157.01
Non-Domestic - International School	1938	0.025	48.45	0.07	135.66
Type	**GFA (m^2)**	**Freshwater**		**Flushing Water**	
		Daily Unit Demand (m^3/m^2/day)	Daily Demand (m^3/day)	Daily Unit Demand (m^3/m^2/day)	Daily Demand (m^3/day)
Non-Domestic - Canteen	1,500	0.020	30.00	0.007	10.50
Non-Domestic - Swimming Pool	-	-	1875	-	-
Non-Domestic - Irrigation	18400	0.070	1288	-	-
		Total for Proposed Development	**3914.4**		**303.2**

[1] The residential R2 Type consideres all students and staff living in the Dormitory

Table 2c - Daily Water Demands Calculation for Proposed Development (East Portion)

Type	Population (head)	Freshwater		Flushing Water	
		Daily Unit Demand (m^3/head/day)	Daily Demand (m^3/day)	Daily Unit Demand (m^3/head/day)	Daily Demand (m^3/day)
Non-Domestic (Dormitory) [1]	0	0.300	0.00	0.070	0.00
Non-Domestic - International School	1695	0.025	42.38	0.07	118.65
Type	**GFA (m^2)**	**Freshwater**		**Flushing Water**	
		Daily Unit Demand (m^3/m^2/day)	**Daily Demand (m^3/day)**	**Daily Unit Demand (m^3/m^2/day)**	**Daily Demand (m^3/day)**
Non-Domestic - Canteen	3,000	0.020	60.00	0.007	21.00
Non-Domestic - Swimming Pool	-	-	1875	-	-
Non-Domestic - Irrigation	10500	0.070	735	-	-
		Total for Proposed Development	**2712.4**		**139.7**

[1] The residential R2 Type consideres all students and staff living in the Dormitory

Table 3a- Mains Capacity Calculation for Proposed Development (East Portion)

Site Demand	Mean Daily Demand (without swimming pool)	Peak Factor	Peak Flow (without swimming pool)	Peak Flow (with swimming pool)
	m^3/day	-	m^3/day	m^3/day
Fresh Water	2583.3	3	7749.9	11499.9
Flushing Water	307.2	2	614.4	614.4
			Total* =	12114.3

* Assume both fresh water and flushing water are provided from Kwu Tung Water Service Reservoir

Table 3b- Mains Capacity Calculation for Proposed Development (West Portion)

Site Demand	Mean Daily Demand (without swimming pool)	Peak Factor	Peak Flow (without swimming pool)	Peak Flow (with swimming pool)
	m^3/day	-	m^3/day	m^3/day
Fresh Water	2039.4	3	6118.2	7993.2
Flushing Water	303.2	2	606.4	606.4
			Total* =	8599.6

* Assume both fresh water and flushing water are provided from Kwu Tung Water Service Reservoir

Table 3c- Mains Capacity Calculation for Proposed Development (East Portion)

Site Demand	Mean Daily Demand (without swimming pool)	Peak Factor	Peak Flow (without swimming pool)	Peak Flow (with swimming pool)
	m^3/day	-	m^3/day	m^3/day
Fresh Water	837.4	3	2512.2	4387.2
Flushing Water	139.7	2	279.4	279.4
			Total* =	4666.6

* Assume both fresh water and flushing water are provided from Kwu Tung Water Service Reservoir

Table 4a- Mains Capacity Calculation for Proposed and Existing Development (West Portion)

(A) Proposed Main Capacity

Pipe Designation	Diameter	Area	Peak Flow [1]	Velocity	Peak Flow within
	mm	sqm	m3/day	m/s	0.9 to 3.0m/s ?
7 New Fresh Water Mains	80	0.005027	1228.5	2.8288	yes
1 Existing Fresh Water Main	80	0.005027	1228.5	2.8288	yes

[1] The total peak flow is 8599.6 m3/day. As 7 new fresh water mains are proposed, the peak flow for each water main = 8599.6 /7 = 1228.5 m3/day.

Table 4b- Mains Capacity Calculation for Proposed and Existing Development (East Portion)

(A) Proposed Main Capacity

Pipe Designation	Diameter	Area	Peak Flow	Velocity	Peak Flow within
	mm	sqm	m3/day	m/s	0.9 to 3.0m/s ?
3 New Fresh Water Mains	100	0.007854	1555.5	2.2923	yes
1 New Existing Water Main	100	0.007854	1555.5	2.2923	yes

[1] The total peak flow is 4666.6 m3/day. As 3 new fresh water mains are proposed, the peak flow for each water main = 4666.6 /3 = 1555.5 m3/day.