Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED NEW ERECTION OF 3-STOREY NUS SCHOOL OF COMPUTING WITH CANTEEN AND A&A TO EXISTING COM 2 BUILDING ON LOT 05112L MK03 AT RESEARCH LINK, NATIONAL UNIVERSITY OF SINGAPORE (QUEENSTOWN PLANNING AREA)

For

NATIONAL UNIVERSITY OF SINGAPORE

Copy No.	1

Prepared By: Chong Lai Meng/Chin Ching Yi

Authorised By: Loh Fook Yuen

Date: 11 March 2022

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SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6268	11 March 2022

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	10 May 2019	1 to 11	35	+ 1 page (Section 4.1 – Overall Programme)
1	12 January 2021	1 to 11	35	+ 12 pages (Section 4.1 – Overall Programme)
2	11 March 2022	1 to 11	36	+ 13 pages (Section 4.1 – Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Institutional

Statistics of Development	
Site Area, m²	6,444.69
Nett Floor Area, m²	-
Gross Floor Area, m²	17,751.51
Covered Carpark, m²	-
No. of Covered Carpark Lots	-
No. of Apartments/Houses	-
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	1 Block/6 Stories
Green Mark Category	Platinum
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	5.7	7.0	0.4	2.5	1.5	-				
Awarded	5.66	6.98	0.39	2.46	1.49					

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate			56
Awarded			55.4

Site Clearance shall include earth work, soil improvement, service diversion and termination.

2.3 Scope of Works

2.3.1 Scope of Consultancy Services

Conceptual/Schematic Design	✓
Detailed Design	✓
Tender Documentation	✓
Tender Evaluation	✓
Contract Supervision	✓
M&E Costing	✓
Submissions to Authority	✓

(✓*where applicable*)

2.3.2 Scope of M&E Services

ELECTRICAL	✓	AIR CONDITIONING	✓	SPRINKLER	✓	SANITARY	✓	SWIMMING POOL	
LIFT	✓	MECHANICAL VENTILATION	✓	FIRE ALARM	✓	COLD WATER	✓	STEAM BOILER	
ESCALATOR		MECHANICAL SMOKE EXTRACT		HOSEREEL	✓	HOT WATER		FUEL STORAGE	
PABX		COMPUTER A/C	✓	WET RISER		TOWN GAS	✓		
SECURITY	✓	BST CARPARK EXH		DRY RISER	✓	LPG GAS			
TELELIFT		HEATING				MEDICAL GAS			
DATA COMM.	✓								
FLUSHFLOOR TRUNKING									

(✓*where applicable*)

2.3.3 Submission to Relevant Authorities by Others

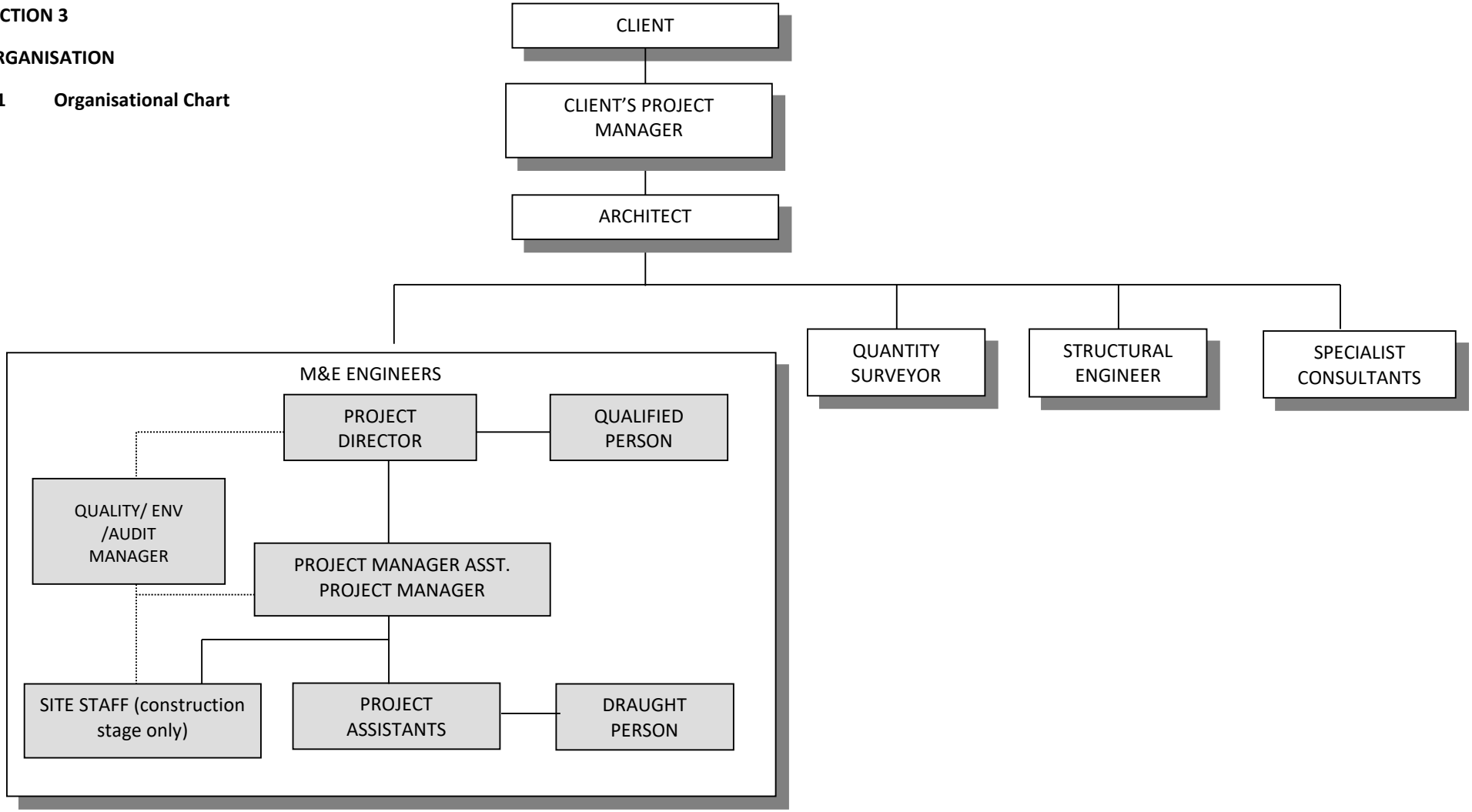
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS	✓	FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Loh Fook Yuen (LFY)
Qualified Person	Mechanical	Choong Choon Guan (CCG)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Chong Lai Meng (CLM)
Assistant Project Manager		–
Project Assistant (Mech)		Chin Ching Yi (CCY)
Project Assistant (Elect)		Koh Kok Siang (KKS)
Draughtsperson		Common Pool
Resident Engineer (M&E)		–
Assistant Resident Engineer (M&E)		–
Clerk-of-Work (M&E)		–
Resident Technical Officer (M&E)		Leong Yew Ming (YML)

3.3 Client/Client's Representatives

Client:- National University of Singapore (NUS)

Address:- 8 Kent Ridge Drive
#02-02 Ventus
Singapore 119246

Tel:- 6601 2502

Fax:- 6778 6031

Client's Representatives:-

Name of Company	Contact Person	Contact
NUS Office of Estate Development (OED)	Name: Ms Tricia Chew Position: Project Director	Tel: 6601 3510 Fax: – Handphone: 9655 5719 Email: triciachew@nus.edu.sg
NUS Office of Estate Development (OED)	Name: Mr Kwan Soon Boon Position: Project Manager	Tel: 9799 2205 Fax: – Handphone: 8233 7667 Email: sb.kwan@nus.edu.sg
NUS Office of Estate Development (OED)	Name: Mr Oong Eng Choon (Wen Yongchun) Position: Technical Manager	Tel: 6516 7091 Fax: – Handphone: 9388 7760 Email: oedoec@nus.edu.sg
NUS Office of Estate Development (OED)	Name: Mr Ong Tso Sheng Position: Associate Director	Tel: 6601 5007 Fax: - Handphone: 9767 9256 Email: oedngts@nus.edu.sg
	Name: Position:	Tel: Fax: Handphone: Email:

3.4 Other Consultants (Local)

Function / Name of Company	Contact Person	Contact
Architect LAUD Architects Pte Ltd	Name: Mr Ho Tzu Yin Position: Architectural QP	Tel: 6259 2122 Fax: 6259 1151 Handphone: 9068 8107 Email: 209-ir@laudarchitects.com
	Name: Ms Faith Wong Position: Proj Architect/BIM Coordinator	Tel: 6259 2122 Fax: 6259 1151 Handphone: 9623 3769 Email: 209-ir@laudarchitects.com
	Name: Ms Phrae Khongtanadith Position: Des Architect	Tel: 6259 2122 Fax: 6259 1151 Handphone: 9391 1252 Email: 209-ir@laudarchitects.com
	Name: Mr Neil Loyola Position: Proj BIM Manager	Tel: 6259 2122 Fax: 6259 1151 Handphone: 8749 8022 Email: 209-ir@laudarchitects.com
Quantity Surveyor Northcroft Lim Consultants Pte Ltd	Name: Ms Yvonne Tho Position: Project Director	Tel: 6220 7188 Fax: 6222 0868 Handphone: 9853 7922 Email: 1827dv@northcroft.sg
	Name: Mr Darren Bong Position: Quantity Surveyor	Tel: 6220 7188 Fax: 6222 0868 Handphone: 9126 9212 Email: 1827dv@northcroft.sg
	Name: Mr Ng Siang Heng Position: Quantity Surveyor	Tel: 6220 7188 Fax: 6222 0868 Handphone: 9180 9209 Email: 1827dv@northcroft.sg
	Name: Mr Anson Goh Zhang Roong Position: Quantity Surveyor	Tel: 6220 7188 Fax: 6222 0868 Handphone: 9180 9209 Email: 1827dv@northcroft.sg

3.4 Other Consultants (Local) (Cont'd)

Function / Name of Company	Contact Person	Contact
Structural Engineer Ronnie & Koh Consultants Pte Ltd	Name: Mr Ronnie Chong Position: Structural QP	Tel: 6225 7128 Fax: 6225 7182 Handphone: 9450 9672 Email: 18103nusdigi@rkconsl.com
	Name: Mr Yee Cheng Chuan Position: Proj Director	Tel: 6225 7128 Fax: 6225 7182 Handphone: 9067 6350 Email: 18103nusdigi@rkconsl.com
	Name: Mr Thusiyanthan Position: Proj Engineer	Tel: 6225 7128 Fax: 6225 7182 Handphone: 8268 2076 Email: 18103nusdigi@rkconsl.com
	Name: Ms Nwe Nwe Win Position: BIM Coordinator	Tel: 6225 7128 Fax: 6225 7182 Handphone: 9240 8481 Email: 18103nusdigi@rkconsl.com
Interior Designer Designphase Dba Pte Ltd	Name: Mr Derek MacKenzie Position: –	Tel: 6339 3677 Fax: 6334 7280 Handphone: 9634 9503 Email: comp-e18@designphasedba.com
	Name: Mr Alexander Hew Position: –	Tel: 6339 3677 Fax: 6334 7280 Handphone: 9758 9193 Email: comp-e18@designphasedba.com
	Name: Ms Sherie Heng Position: –	Tel: 6339 3677 Fax: 6334 7280 Handphone: 9061 1394 Email: comp-e18@designphasedba.com

3.4 Other Consultants (Local) (Cont'd)

Function / Name of Company	Contact Person	Contact
Lighting Consultant The Lightbox Pte Ltd	Name: Ms Warinya Pintongkam Position: Managing Director	Tel: 6294 6803 Fax: 6324 0868 Handphone: 9741 1599 Email: jui@lightboxlighting.com
	Name: Mr Edwin Chia Position: Project Manager	Tel: 6294 6803 Fax: 6324 0868 Handphone: 9070 5670 Email: edwin@lightboxlighting.com
	Name: Ms Lilian Tham Position: Designer	Tel: 6294 6803 Fax: 6324 0868 Handphone: 8571 1286 Email: lilian@lightboxlighting.com
Acoustic Consultant Alfem Engineering Consultancy Pte Ltd	Name: Mr Alvin Cheong Position: Project Lead	Tel: 6686 4372 Fax: 6570 3200 Handphone: 9690 2285 Email: nus_soc@alfem-engineering.com
	Name: Mr Tim Cheah Position: Project Engineer	Tel: 6686 4372 Fax: 6570 3200 Handphone: 8368 4994 Email: nus_soc@alfem-engineering.com
Landscape Consultant Tinderbox Pte Ltd	Name: Mr Tan Peck Cheong Position: Principal	Tel: 6255 6024 Fax: - Handphone: 8228 0776 Email: project@tinderbox.com.sg
	Name: Ms Zhang Shuhan Position: Associate	Tel: 6255 6024 Fax: – Handphone: 9005 8718 Email: project@tinderbox.com.sg
ESD Consultant Building System & Diagnostics Pte Ltd	Name: Mr Koy Beng Tuang Position: Green Mark Pro	Tel: 6560 0702 Fax: 6795 0020 Handphone: 9488 0311 Email: nuscom3_esd@bsd.com.sg
	Name: Mr John Ong Xin Yang Position: -	Tel: 6560 0702 Fax: 6795 0020 Handphone: 8102 0375 Email: nuscom3_esd@bsd.com.sg
	Name: Ms Liow Hui Wen Position: Executive Engineer	Tel: 6560 0702 Fax: 6795 0020 Handphone: 8790 0832 Email: huiwen.liow@bsd.com.sg

3.4 Other Consultants (Local) (Cont'd)

Function / Name of Company	Contact Person	Contact
WELL Consultant Earth-In-Mind Pte Ltd	Name: Ms Emily Tan Position: WELL Consultant	Tel: 6686 4272 Fax: 6570 3200 Handphone: 9690 1132 Email: emily@earth-in-mind.com
	Name: Mr Alvin Cheong Position: -	Tel: 6686 4272 Fax: 6570 3200 Handphone: 9690 2285 Email: alvin@earth-in-mind.com
DFS Consultant CN2E Consultants Pte Ltd	Name: Ms Ng Lee Chian Position: DfS Professional Director	Tel: – Fax: – Handphone: 9062 0599 Email: nglc@cn2econsult.com
	Name: Ms Koh Yan Nee Position: Associate Director	Tel: – Fax: – Handphone: 9297 5086 Email: yannee@cn2econsult.com
Fire Consultant Cuz Engineers	Name: Mr Sam Lee Position: Fire Safety Engineer (Smoke Control)	Tel: 6291 3775 Fax: 6399 3699 Handphone: 9765 6568 Email: samlee@cuz.com.sg
	Name: Mr Henry FT Ho Position: Proj Smoke Control Consultant	Tel: 6291 3775 Fax: 6399 3699 Handphone: 8121 1231 Email: henryho@cuz.com.sg
	Name: Mr Raffy Retuyan Position: Proj Smoke Control Engineer	Tel: 6291 3775 Fax: 6399 3699 Handphone: 9276 1971 Email: raffy@cuz.com.sg
ABC Consultant Nature Landscape Pte Ltd	Name: Mr Luke Lee Position: Design Director	Tel: 6252 6802 Fax: 6252 6681 Handphone: 8228 6122 Email: luke.lee@naturelandscapes.com
	Name: Ms Eunice Chia Position: Senior LA	Tel: 6252 6802 Fax: 6252 6681 Handphone: 9766 0889 Email: eunice.chia@naturelandscapes.com
	Name: Ms Norizah Hasan Position: LA	Tel: 6252 6802 Fax: 6252 6681 Handphone: 9655 1731 Email: norizah.hassan@naturelandscapes.com

3.4 Other Consultants (Local) (Cont'd)

Function / Name of Company	Contact Person	Contact
Façade Consultant HCCH Consulting Pte Ltd (BFG)	Name: Mr Sani Chang Position: Project Director	Tel: 6222 5451 Fax: 6444 0126 Handphone: 9681 8336 Email: sani@hcch.sg
	Name: Mr Edward Sun Position: Project Leader	Tel: 6222 5451 Fax: 6444 0126 Handphone: 9889 9132 Email: edward@hcch.sg
	Name: Ms Sofrane Farjado Position: Façade Specialist (Design)	Tel: 6222 5451 Fax: 6444 0126 Handphone: – Email: sofrane@hcch.sg
	Name: Ms Farzana Parveen Position: Façade Engineer (Engineering)	Tel: 6222 5451 Fax: 6444 0126 Handphone: - Email: farzana@hcch.sg
	Name: Mr Simon Chung Position: Façade Specialist (Site Phase)	Tel: 6222 5451 Fax: 6444 0126 Handphone: – Email: heng@hcch.sg
Signage Consultant Aecom Signage	Name: Mr Giles Clement Position: Wayfinding Lead	Tel: – Fax: – Handphone: 8508 4897 Email: giles.clement@aecom.com
	Name: Mr Zaidi Lee Position: -	Tel: – Fax: – Handphone: 9168 2001 Email: zaidi.lee@aecom.com

3.4 Other Consultants (Overseas) **– NOT APPLICABLE**

Function / Name of Company	Contact Person	Contact
Architect	Name: Position:	Tel: Fax: Handphone: Email:
M&E Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Quantity Surveyor	Name: Position:	Tel: Fax: Handphone: Email:
Structural Engineer	Name: Position:	Tel: Fax: Handphone: Email:
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.5 Contractors/Sub-Contractors

Function / Name of Company	Contract *	Contact Person	Contact
Main Contractor Kim Seng Heng Engineering Construction Pte Ltd	DC	Name: Mr Gair Huat Kian Position: Sr Proj. Director	Tel: – Fax: – Handphone: 9675 8292 Email: ksh-com3@kimsengheng.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Natural Cool Airconditioning & Engineering Pte Ltd	DSC	Name: Lam Keng Hock Position: Project Manager	Tel: 6454 7810 Fax: 6454 8046 Handphone: 8122 7037 Email: kenghock.lam@naturalcool.com.sg
Plumbing & Sanitary Installation Sub-Contractor Chia Hin Pte Ltd	DSC	Name: Saravana Kumar Position: Project Manager	Tel: 6346 6113 Fax: 6346 6112 Handphone: 8198 0061 Email: savaranakumar@chiahin.com.sg
Electrical Installation Sub-Contractor Bond M&E Pte Ltd	DSC	Name: Tan Wen Siang Position: Project Manager	Tel: 6741 1968 Fax: 6741 6763 Handphone: 9668 7335 Email: wstan.projects@bondgrp.com.sg
Lift & Escalator Installation Sub-Contractor KONE Pte Ltd	DSC	Name: Samuel Pang Position: Project Manager	Tel: 6424 6246 Fax: – Handphone: 9276 6464 Email: Samuel.pang@kone.com
Fire Fighting & Alarm Installation Sub-Contractor Chubb Singapore Pte Ltd	DSC	Name: Venkata Shiva Prasad Position: Project Manager	Tel: 6292 8421 Fax: 6298 7310 Handphone: 9755 8587 Email: VenkataShivaPrasad.Gundu@chubb.com.sg

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*

3.6 Authorities

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
SP PowerGrid:		
(a) Sub-Station		
(b) Diversion		
SP Services:		
(a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel	Mr Jamaluddin Bin Aziz	6514 4195/9653 1398 jamal@singtel.com
(c) IDA	Mr John Voon	9615 6467/ 6342 5942 john.voon@singtel.com
BCA:		
(a) Building Plan		
(b) Green Mark		
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan	Mr Ow Zhao Hui	6885 2551 / 9380 2963 ow_zhao_hui@pub.gov.sg
(c) Diversion		
(d) NEWater		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU		
(b) M&E Plan	Ms Hafizah Bte Abdul Karim	6731 3093 hafizah_abdul_karim@pub.gov.sg
(c) Diversion		
City Gas Pte Ltd:		
(a) Planning/Submission	Mr Michael Wang Yew Yin	6578 7884 michaelwong@citygas.com.sg
(b) Installation/Inspection	Mr Suhaimi	6578 7818/ 8332 6263 suhaimi@citygas.com.sg

3.6 Authorities (Cont'd)

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
PowerGas Pte Ltd		
(a) Diversion		
(b) Installation	Mr Muhammad Raimi bin Ramli	muhdraimi@spgroup.com.sg
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

4.1 Overall Programme (Refer to attached program)

ID	TASK NAME	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.	Preliminary Planning																									
2.	Planning Submission																									
3.	Detail Design																									
4.	BP Submission																									
5.	BP Submission (Amendments)																									
6.	Tender Period for Piling																									
7.	Tender Period for Sub-Structure																									
8.	Tender Period for Super-Structure																									
9.	Piling Period																									
10.	Sub-Structure Construction Period																									
11.	Super-Structure Construction Period																									
12.	TOP																									
13.	CSC																									

SECTION 4

PROGRAMME

4.2 Authority Submission Status for M&E Services – 1st Submission

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd	NA								
Power Supply Substation	SP PowerGrid Ltd	NA								
Metering Layout	SP Services Ltd	NA								
Sanitary Installation	PUB Water Reclamation (Network) Dept	Jul 2019	16 Sept 2019							18 Sept 2019
Domestic Water Supply	PUB (Water Supply) Network Dept	Aug 2019	16 Sept 2019	4 Nov 2019						4 Nov 2019
Gas Supply Installation	City Gas Pte Ltd	Aug 2019	23 Aug 2019	27 Aug 2019	5 Sept 2019	11 Sept 2019	20 Sept 2019	27 Sept 2019	1 Oct 2019	11 Oct 2019
Air Conditioning & Ventilation Inst.	FSSD	Feb 2021	20 Aug 2021							30 Aug 2021
Fire Fighting & Alarm Installation	FSSD	Feb 2021	20 Aug 2021							30 Aug 2021
Telephone Installation	TFCC	Aug 2019	16 Sept 2019	27 Sept 2019	18 Feb 2020					10 March 2021
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision	NA								
Emergency Voice Communication System (EVC)	FSSD	Feb 2021	2 Sept 2021							13 Sept 2021

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments) – 2nd Submission

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd									
Power Supply Substation	SP PowerGrid Ltd									
Metering Layout	SP Services Ltd									
Sanitary Installation	PUB Water Reclamation (Network) Dept									
Domestic Water Supply	PUB (Water Supply) Network Dept									
Gas Supply Installation	City Gas Pte Ltd	-	27 Oct 2020	12 Nov 2020	1 Dec 2020	16 Dec 2020				
Air Conditioning & Ventilation Inst.	FSSD									
Fire Fighting & Alarm Installation	FSSD									
Telephone Installation	TFCC									
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision									
Fuel Storage	FSSD									
	NEA (Pollution Control)									

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
- Owner	✓	- Architect	✓
- Authorities	✓	- Other Consultants	✓
- Contractors	✓	- CC	✓
- CF	✓	- PQP/QSP	✓

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
MC/EC	✓				

(✓*where applicable*)

SECTION 5

PROJECT RECORDS

5.2 Filing of Drawings

The following team members shall take charge of filing of drawings, stamping "SUPERSEDED" drawings, etc.

Description	Team Member
Incoming Architectural Floor Plans	Softcopy saved in the server
Incoming Architectural Sketches/Details	
Incoming Structural Drawings	
M&E Drawings - Electrical Installation - Lift & Escalator Installation - Air Conditioning & Ventilation Installation - Fire Fighting & Alarm Installation - Plumbing & Sanitary Installation - Swimming Pool & Filtration Installation	
Other Drawings	

SECTION 6

INTERFACING

6.1 Method of Interface

Description	Method of Interface	
Client's Review & Approval	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface With External Design Teams	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface Between Internal Design Teams	Telephone	✓
	Email	✓
	Internal Project Team Meeting	✓
	Circulation of Information	✓

(✓*where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface – NOT APPLICABLE

Item No.	Description*	Required From	Required By	Date Required	Remarks

** Information required by INTERNAL DESIGN TEAM MEMBERS*

SECTION 6

INTERFACING

6.3 Circulation of Documents to External Parties

	Code: A - Approval Required C - For Comments I - For Information Only	Client/ Client Rep.	* Client's Project Manager	Architect	Structural Engineer	Quantity Surveyor	
1.	**Letters/Fax:**						
a.	Project Design	A	I	I	-	-	
b.	Project Administration						
c.	Project Cost Estimate/Contract Cost	A	I	I	-	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	I	C	I	I	
b.	Sketch Design Drgs.	A	I	C	I	I	
c.	Final Design Drgs.	A	I	C	I	I	
d.	Shop Drawings	I	I	A	-	-	
e.	As Built Drgs.	I	I	I	-	-	
3.	**Other Document**						
a.	Specification	A	I	I	I	I	
b.	Tender Document	A	I	I	I	I	
c.	Tender Evaluation Report	A	I	I	I	I	
d.	Design Report	A	I	I	-	-	
e.	Progress Report	-	-	-	-	-	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	A	I	I	-	-	
h.	Inspection Report	I	I	I	-	-	
i.	Testing & Comm. Report	I	I	I	-	-	
j.	O & M Manual	I	I	I	-	-	

*Note: Applicable only, if the client engaged a Project Manager.

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	AE	SS
General Correspondences with Client			√	√	
General Correspondences with Other Consultants			√	√	
M&E Cost Estimate Report	√	√	√		
M&E Design Report	√	√	√		
Check Prints		√			
Tender Drawing Approval	√	√	√		
Tender Specification Approval	√	√	√		
List of Tenderers	√	√	√		
Tender Questionnaires	√	√	√		
Tender Reports	√	√	√		
Draft Letter of Award	√	√	√		
Review of Contractor's Shop Drawing			√	√	
Review of Contractor's Technical Submittal			√	√	
Review of Contractor's Sample Submittal			√	√	
Contractor's Request for Deviation		√	√		
Progress Payment Valuation Form	√		√		
Final Account Valuation	√		√		
Draft Variation Order	√		√		
Engineer/Architect's Instruction/Direction	√		√		
Site Instruction/Direction			√		
Correspondence/Submission to Authorities	√	√			

(✓*where authorised*)

Key to abbreviations:-

PD : Project Director
QP : Qualified Person
PM : Project Manager/Assistant Project Manager
AE : Assistant Engineer
SS : ACEPL Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

8.1 List of Client's Standards, Reference Documents or Brief

ITEM	KEPT BY

8.2 List of Applicable Code of Practice and Regulations

Services	Title of Code of Practice/Standard
Electrical Wiring	CP 5: 1998
Lightning Protection System	SS 555: 2010
Emergency Voice Communication System	SS 546: 2009
Telephone Installation	COPIF: 2013
Air Conditioning & Ventilation Installation	SS 553: 2016
Lift & Escalator Installation	SS 550: 2009
Sprinkler System	CP 52: 2004
Wet Riser System	–
Automatic Fire Alarm System	CP 10: 2005
Sanitary System	Code of Practice on Sewerage & Sanitary Works
Plumbing System	CP 48: 2005
Town Gas/LPG Supply System	SS 608: 2015 (Formerly CP 51)
Boiler and Steam Supply System	–
Mechanical Smoke Control System	–

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

ASHRAE Handbooks

Institute of Plumbing's Plumbing Services Design Guide

8.4 List of Pre-Consultation and Waiver – NOT APPLICABLE

S/N	Description	Date of Application	Date of Approval	Remarks
1	*Clause number in Code of Practice for (Services) which require clarification or waiver. Consultation Ref No. Waiver Ref. No.			
2	*Clause number in Code of Practice for (Services) which require clarification or waiver. Consultation Ref No. Waiver Ref. No.			
3	*Clause number in Code of Practice for (Services) which require clarification or waiver. Consultation Ref No. Waiver Ref. No.			

*To fill in actual information

8.5 List of Applicable Quality System Procedures

Alpha Consulting Engineers Pte Ltd's Quality Management System Procedures

Section	Title	✓ where applicable
M1	Preparation of Consultancy Offer	✓
M2	Project Commissioning and Service Agreement	✓
M3	Design Control	✓
M4	Design Change Control	✓
M5	Tender Process and Evaluation	✓
M6	Authority Submission	✓
M7	Construction Process Control	✓
M8	Testing and Commissioning	✓
S1	Document Control	✓
S2	Documentation of Quality & Environmental Management System Procedure	✓
S3	Documentation of Project Quality Plan	✓
S4	Specification Control	✓
S5	Library Control	✓
S6	Archive Control	✓
S7	Filing Control	✓
S8	Drawing Control	✓
S9	Administration Control	✓
S10	Purchasing Control	✓
S11	Training Control	✓
S12	Computer Control	✓
S13	Non-Conformity and Corrective Action Procedures	✓
S14	Quality & Environmental System Audit	✓
S15	Feedback Reporting	✓
S16	Clients Feedback	✓
S17	Management Review	✓
S18	Risk Identification, Assessment & Control	✓

8.6 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	✓
Gensize 2	2.1	Onan	Generator sizing	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	
Dialux	4.11	Freeware	Lighting design	✓
Lift Traffic	7.18	Elevate	Lift traffic calculation	
Fault Level Calculation	11.11	ETAP	Calculation of fault level and voltage drop	
Revit	2018.3	Autodesk	Modelling of Services	✓

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features/Criteria

Item	Remarks
Green Mark criteria	Platinum
Green Design Features	–

9.2 Site PPE Requirement

The necessary Personal Protective Equipment (detailed below) shall be provided by the main contractor/Company in accordance to the site EHS requirements prior to the site monitoring.

PPE	✓ where applicable
Safety Helmet	✓
Safety Shoes	✓
Eye Protection	✓
Ear Protection	✓
Safety Harness / Belt	✓
Others:	

9.3 Site Emergency Preparedness

Site staff shall comply with the site emergency preparedness and response procedure, established by the main contractor/owner, which shall include the following details.

Items	✓ where applicable
Evacuation Route	✓
Emergency Exit	✓
Assembly Point	✓
Emergency Contact List / Person	✓
Alarm system / methods	✓

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.4 Reporting of Environmental Non-conformances

When encountering environmental non-conformances, Site Staff shall be responsible to feedback to the main contractor.

9.5 List of Applicable Environmental Management System Procedures

Alpha Consulting Engineers Pte Ltd's Environmental Management System Procedures

Section	Title	✓ where applicable
E1	Aspect / Impact Identification, Risk Assessment & Risk Control	✓
E2	Identifying Legal & Other Requirements	✓
E3	Objectives, Targets & Programmes	✓
E4	Communication	✓
E5	Emergency Preparedness & Response	✓
E6	Monitoring & Measurement	✓
E7	Control of Air & Noise Pollution	✓
E8	Management of Wastes	✓

SECTION 10

CLIENT'S REQUIREMENTS

10.1 List of Output Required by Client:-

Item	* Remarks
M&E Design Report	A
M&E Cost Estimate Report	A
Pre-Qualification of Tenderers	A
Tender Documents	A
Tender Report	A
Payment Valuation for QS	A
Certificates of Supervision for TOP/CSC	Re

* *Remarks*

A: for approval *C: for comment* *I: for Information* *Re: for record*

Other purposes and for action: please specify.

10.2 Specific Procedures Required By Client *(If applicable)*

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers

Sub Job No	Description	Allocation Details