Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

3 STOREY LARGE CHILDCARE CENTRE AT SEGAR RD

For

NTUC FIRST CAMPUS CO-OPERATIVE LTD

Copy No.	1

Prepared By: Syeh Hafiz/ Derek Ong

Authorised By: Loh Fook Yuen

Date: 3 July 2017

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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	6216-602-PQP	3 July 2017

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
1	3 July 2017	1 to 11	29	+ 4 pages (Section 4.1 – Master Programme) + 1 page (Section 9.1 – Sustainable Design Features / Criteria)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Institutional

Statistics of Development	
Site Area, m²	2681.30
Nett Floor Area, m²	-
Gross Floor Area, m²	2483.29
Covered Carpark, m²	-
No. of Covered Carpark Lots	16
No. of Apartments/Houses	-
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	1 Block, 3 Storey
Green Mark Category	Certified
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	0.36	0.42	0.08	0.12	0.29	-				
Awarded	0.23	0.36	0.05	0.086	0.23	-				

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	-
Awarded	-	-	5.929674

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

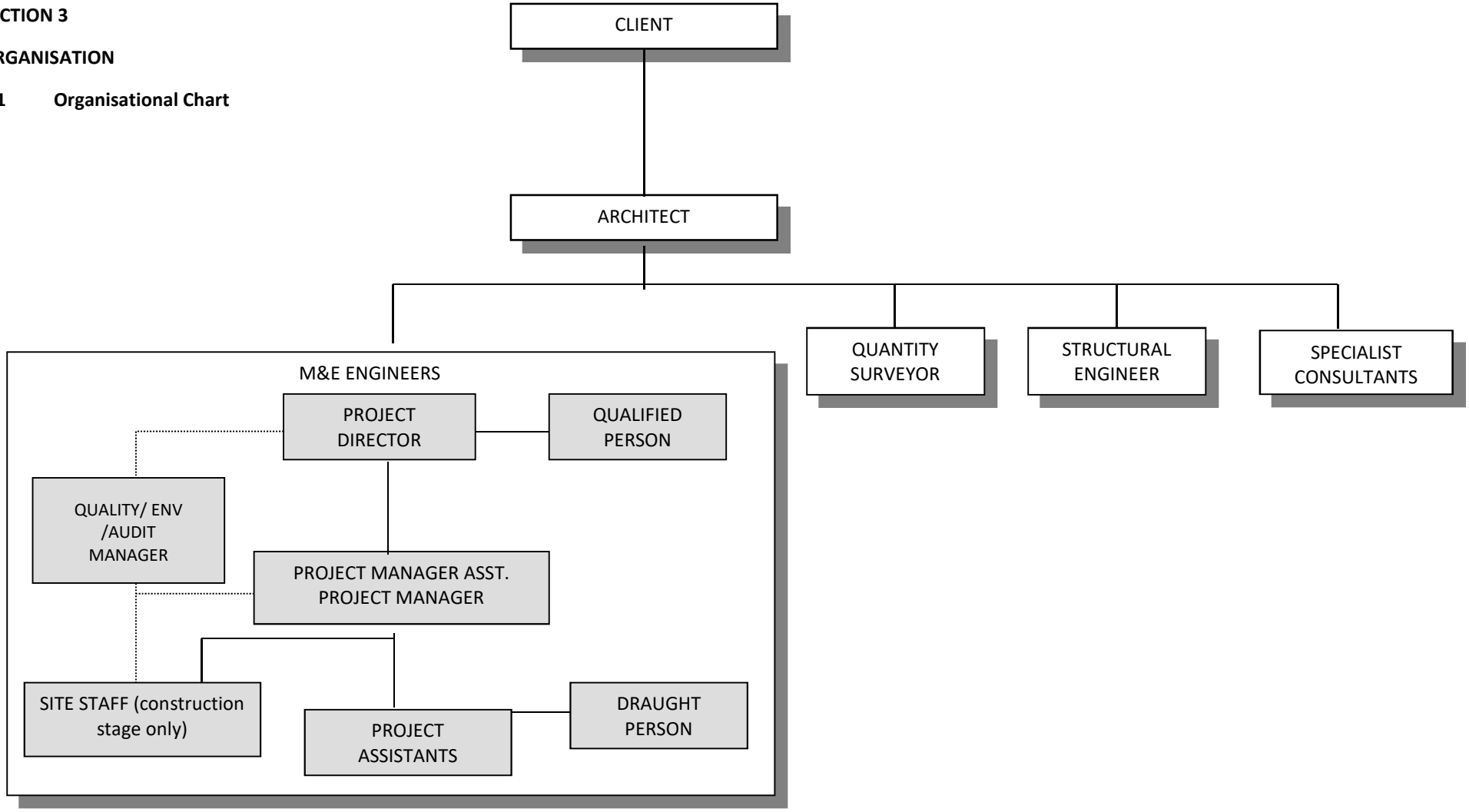
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR		PRESSURE VESSEL		SMOKE CONTROL JET FAN	✓

(✓*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	Tay Wen Chung (TWC)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Derek Ong (DO)
Assistant Project Manager		Kevin Kee (KK)
Project Assistant (Mech)		Syeh Muhammad Hafiz Bin Sahrum (MHS)
Project Assistant (Elect)		-
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client: NTUC First Campus Co-Operative Pte Ltd

Address: 229 Mountbatten Road
#02-08 Mountbatten Square
Singapore 389007

Tel: 6509 7887

Fax: 6509 6323

Client's Representatives:-

Name of Company	Contact Person	Contact
NTUC First Campus Co-Operative Pte Ltd	Name: Mr Nicholas Cheong Position: Head, Operations Development	Tel: 6509 7872 Fax: 6509 6323 Handphone: 9856 7393 Email: nicholascheong@myfirstskool.com
	Name: Mr Danny Goh Position: Senior Manager	Tel: 6509 7505 Fax: - Handphone: 9799 0411 Email: danny.gwk@myfirstskool.com
	Name: Mr Lee Seng How Position: Manager	Tel: 6509 7147 Fax: - Handphone: 9793 5563 Email: senghow@myfirstskool.com
	Name: Position:	Tel: Fax: Handphone: Email:
	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: Director	Tel: 6259 2122 Fax: - Handphone: 9068 8107 Email: 168-mfsbp@laudarchitects.com
	Name: Ms Maria Marivana Neryceka Position: Senior Architectural Assistant	Tel: 6259 2122 (ext 131) Fax: - Handphone: 9765 0804 Email: 168-mfsbp@laudarchitects.com
	Name: Mr Benjamin Yeo Boon Keong Position: Senior Architectural Assistant	Tel: 6259 2122 (ext 118) Fax: - Handphone: 9320 5365 Email: 168-mfsbp@laudarchitects.com
	Name: Mr Nasrul Shafiq Bin Nordin Position: Technical Draftsman	Tel: 6259 2122 (ext 130) Fax: - Handphone: 9838 2617 Email: 168-mfsbp@laudarchitects.com
Quantity Surveyor Infield Projects Pte Ltd	Name: Mr Ronald Sin Position: Managing Director	Tel: 6293 6068 Fax: - Handphone: 8168 0999 Email: Ronald@infieldprojects.com.sg
Structural Engineer LSW Consulting Engineers Pte Ltd	Name: Mr Lauw Su Wee Position: Qualified Person	Tel: 6333 5625 Fax: - Handphone: 9675 1804 Email: LSW-2016-041@lswce.com.sg
	Name: Mr Paul Lee Position: Design Engineer	Tel: 6259 2122 (ext 216) Fax: - Handphone: 9643 8127 Email: LSW-2016-041@lswce.com.sg
	Name: Ms Tan Bee Yen Position: Design Engineer	Tel: 6259 2122 (ext 232) Fax: - Handphone: - Email: LSW-2016-041@lswce.com.sg

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 CKR Contract Services Pte Ltd	DC	Name: Mr Martin Goh Position: Project Director	Tel: 6308 9311 Fax: - Handphone: 9788 5211 Email: martingoh@ckrgroup.com.sg
		Name: Mr Goh Kah Peng Position: Project Manager	Tel: - Fax: - Handphone: 9628 8801 Email: gohkahpeng@ckrgroup.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Atmosphere Airconditioning & Engineering Pte Ltd	DC	Name: Mr Frederick Position: Managing Director	Tel: 6295 7290 Fax: 6295 7232 Handphone: 9834 9323 Email: Frederick@atmosphere-aircon.com
Plumbing & Sanitary Installation Sub-Contractor	DC	Name: Mr Thangavel Chandrasekaran Position:	Tel: 63089300 Fax: 6308 9301 Handphone: 8364 0183 Email: tchandrasekaran.ckrgroup@gmail.com
Electrical Installation Sub-Contractor Transcom Engineering Pte Ltd	DC	Name: Mr Maco Position: Project Engineer	Tel: 6896 9271 Fax: 6896 9011 Handphone: 9688 1867 Email:
Dumbwaiter Installation Sub-Contractor	DC	Name: Mr Marcus Lim Position: Project Manager	Tel: 6841 5683 Fax: - Handphone: 9639 9608 Email: Marcus@asiateck.com.sg
Fire Fighting & Alarm Installation Sub-Contractor	DC	Name: Mr Peter Position: Senior Project Manager	Tel: 6842 0153 Fax: 6482 0553 Handphone: 9635 0216 Email:Peter@ricoeng.com.sg
Swimming Pool Filtration Plant Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Carpark System Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:

** 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) Distribution Planning	Mr Ooi Wenyao	6378 8551/ Wenyao@singaporepower.com.sg
(b) Substation	Mr Goh Li Qing	6916 8679/liqing@spgroup.com.sg
SP Services:		
(a) Customer Supply	Mr Zheng Liren	6916 7200/6304 8289/ install@spgroup.com.sg
TFCC:		
(a) Starhub	Mr Jasper Tan	6825 6245/ jasper.jg.tan@starhub.com
(b) SingTel	Mr Wilson Tan	8340 2035/ tswwil@singtel.com
(c) Netlink Trust	Mr Lee Him Buan	9653 1397/ himbuan.lee@netlinktrust.com
(d) IMDA	Mr Seah Koon Chye	6211 1751/ seah_koon_chye@imda.gov.sg
BCA:		
(a) Building Plan		
(b) Green Mark		
FSSD:		
(a) Building Plan	Mr Nicholas Tang	6848 1743/ Tang_Teck_Chai@scdf.gov.sg
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan	Mr Wang Qiong	6731 3975
(c) Diversion	Mr Selvam Sivasamy	6885 2478/ selvam_sivasamy@pub.gov.sg
(d) NEWater		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU		
(b) M&E Plan	Mr Chua Khai Ting	6571 4080/ Chua_Khai_Ting@pub.gov.sg
(c) Diversion		
City Gas Pte Ltd:		
(a) Planning/Submission		
(b) Installation/Inspection		
PowerGas Pte Ltd		
(a) Diversion		
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

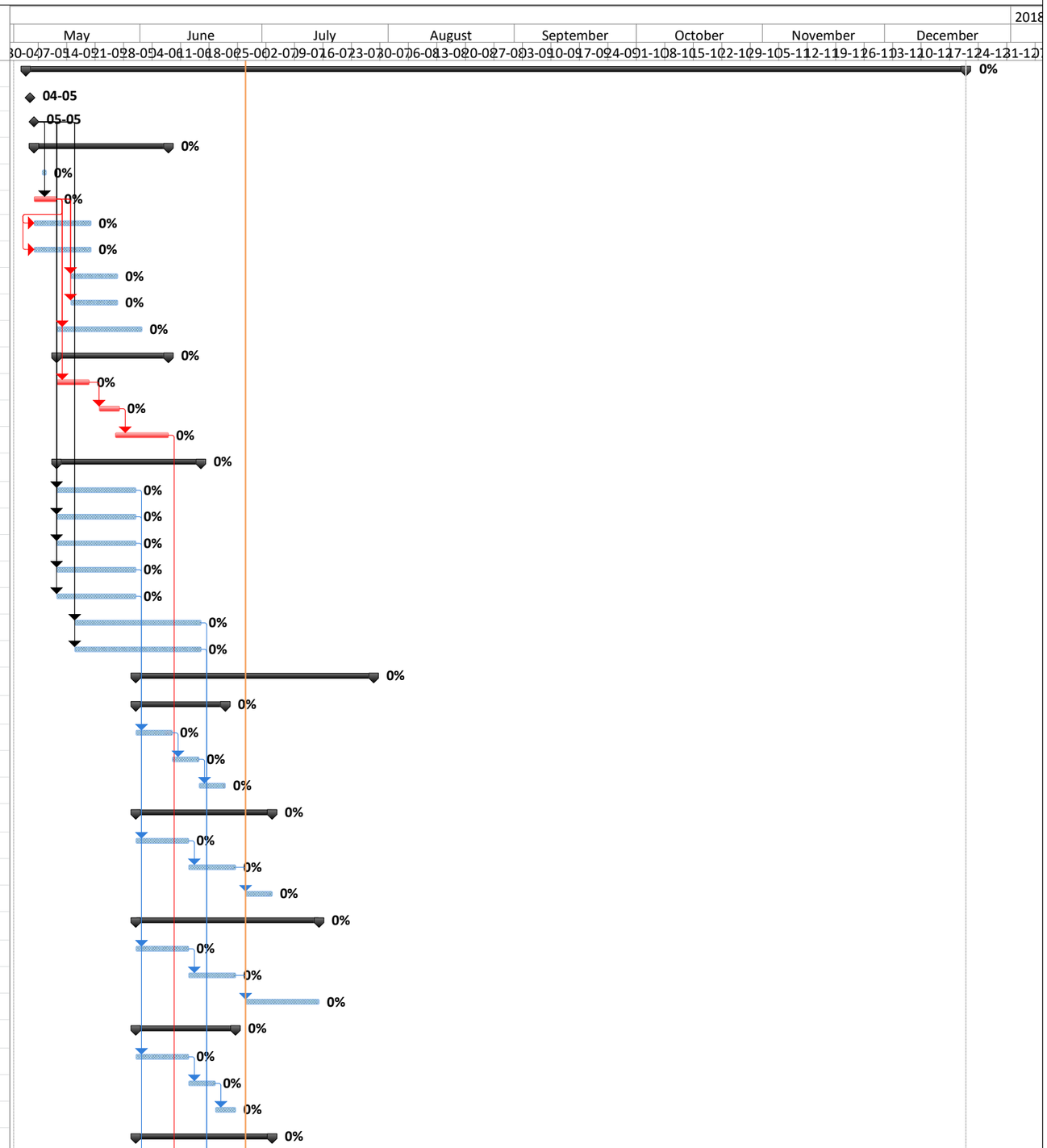
PROGRAMME

4.1 Overall Programme (Refer to attachment)

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																									

PROPOSED NEW ERECTION OF A BLOCK OF 3-STOREY LARGE CHILDCARE CENTRE (TOTAL 380 CHILDREN) WITH CAR PARK AT 1ST STOREY ON LOT 01359K (PT) MK 14 AT SEGAR GARDENS (BUKIT PANJANG PLANNING AREA)

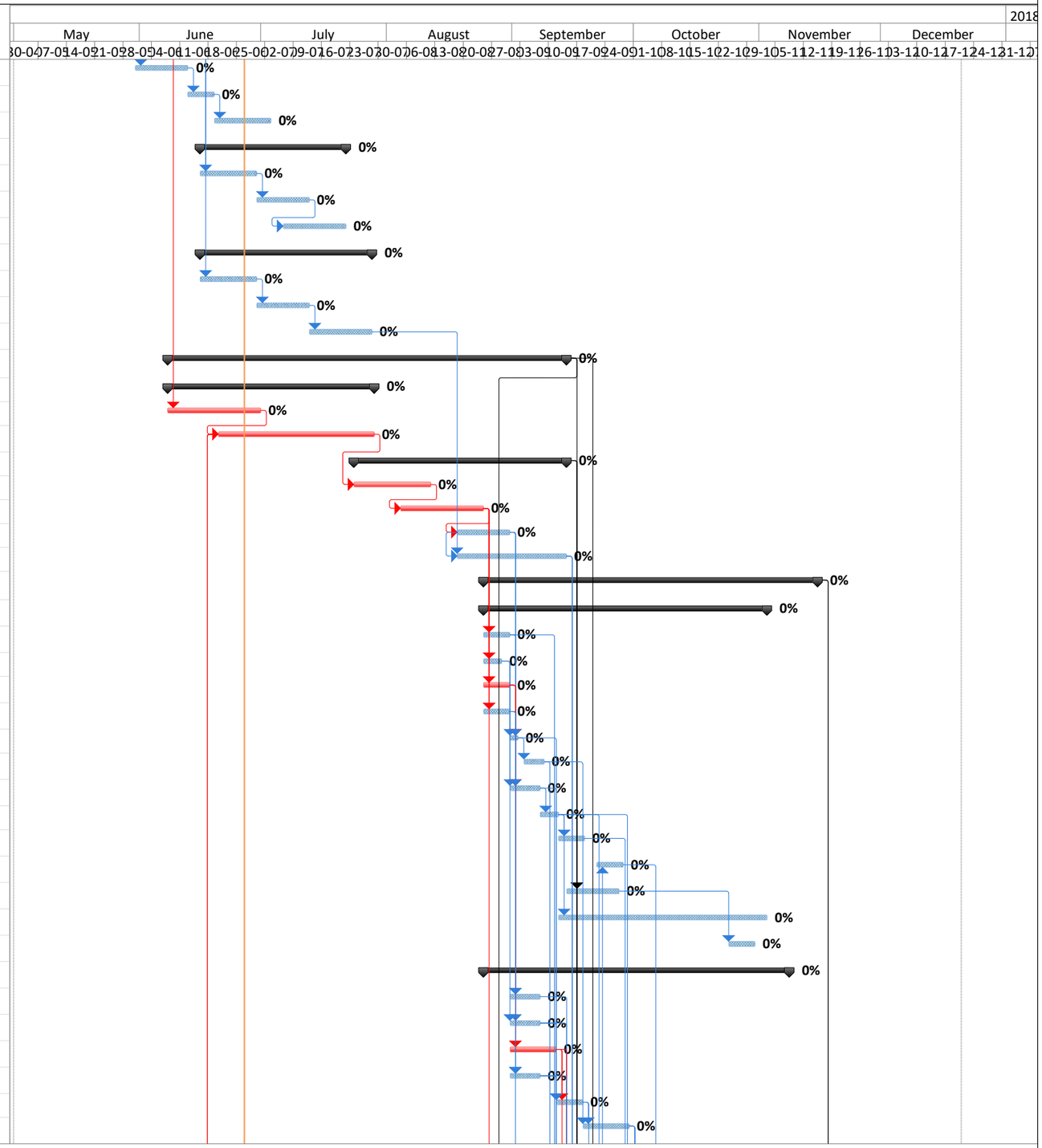
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Large Childcare Centre @ Segar Road**	**176.5 days**	**Thu 04-05-17**	**Wed 20-12-17**	
2		Contract Award	1 day	Thu 04-05-17	Thu 04-05-17	
3		*Site Possession*	1 day	Fri 05-05-17	Fri 05-05-17	
4		**Preliminaries**	**24.5 days**	**Sat 06-05-17**	**Wed 07-06-17**	
5		BCA's Permit to commence work	1 day	Mon 08-05-17	Mon 08-05-17	
6		*Factory Permit License*	*3 days*	*Sat 06-05-17*	*Thu 11-05-17*	*3*
7		Cable detection	2 wks	Sat 06-05-17	Fri 19-05-17	6FS-3 days
8		Road opening--site access submission	2 wks	Sat 06-05-17	Fri 19-05-17	6FS-3 days
9		Pre-conditional survey	2 wks	Mon 15-05-17	Fri 26-05-17	6FS+2 days
10		Pre Con.CCTV sewer line	2 wks	Mon 15-05-17	Fri 26-05-17	6FS+2 days
11		Installation hoarding and main gate	3.3 wks	Thu 11-05-17	Thu 01-06-17	6
12		**ECM submission**	**21.5 days**	**Thu 11-05-17**	**Wed 07-06-17**	
13		*PE calculation & submission*	*1.3 wks*	*Thu 11-05-17*	*Fri 19-05-17*	*6*
14		*ECM approve by PUB*	*1 wk*	*Mon 22-05-17*	*Fri 26-05-17*	*13FS+1 day*
15		Perimeter drain & ECM machine installatic	*2 wks*	*Fri 26-05-17*	*Wed 07-06-17*	*14FS-1 day*
16		**Award of sub-contractor**	**28 days**	**Thu 11-05-17**	**Thu 15-06-17**	
17		Sanitary and plumbing	3 wks	Thu 11-05-17	Tue 30-05-17	3FS+3 days
18		Electrical	3 wks	Thu 11-05-17	Tue 30-05-17	3FS+3 days
19		ACMV	3 wks	Thu 11-05-17	Tue 30-05-17	3FS+3 days
20		Fire protection system	3 wks	Thu 11-05-17	Tue 30-05-17	3FS+3 days
21		Dumbwaiter	3 wks	Thu 11-05-17	Tue 30-05-17	3FS+3 days
22		Louvered glass façade & Aluminium works	5 wks	Tue 16-05-17	Thu 15-06-17	3FS+6 days
23		Steel Structure with Metal Roof	5 wks	Tue 16-05-17	Thu 15-06-17	3FS+6 days
24		**Shop drawing & Material Submission**	**45.5 days**	**Wed 31-05-17**	**Fri 28-07-17**	
25		**Sanitary and plumbing**	**17.5 days**	**Wed 31-05-17**	**Wed 21-06-17**	
26		Shop Drawings Submission	1.5 wks	Wed 31-05-17	Thu 08-06-17	17
27		Drawing approval	1 wk	Fri 09-06-17	Thu 15-06-17	26
28		Basic material sample submission & apprc	1 wk	Thu 15-06-17	Wed 21-06-17	27
29		**Electrical**	**25 days**	**Wed 31-05-17**	**Mon 03-07-17**	
30		Shop Drawings Submission	2 wks	Wed 31-05-17	Mon 12-06-17	18
31		Drawing approval	2 wks	Tue 13-06-17	Sat 24-06-17	30
32		Material sample submission & approval	1 wk	Tue 27-06-17	Mon 03-07-17	31
33		**ACMV**	**35 days**	**Wed 31-05-17**	**Fri 14-07-17**	
34		Shop Drawings Submission	2 wks	Wed 31-05-17	Mon 12-06-17	19
35		Drawing approval	2 wks	Tue 13-06-17	Sat 24-06-17	34
36		Material sample submission & approval	3 wks	Tue 27-06-17	Fri 14-07-17	35
37		**Fire protection system**	**20 days**	**Wed 31-05-17**	**Sat 24-06-17**	
38		Shop Drawings Submission	2 wks	Wed 31-05-17	Mon 12-06-17	20
39		Drawing approval	1 wk	Tue 13-06-17	Mon 19-06-17	38
40		Material sample submission & approval	1 wk	Mon 19-06-17	Sat 24-06-17	39
41		**Dumbwaiter**	**25 days**	**Wed 31-05-17**	**Mon 03-07-17**	



Critical | Split | Finish-only | Baseline Milestone | Manual Summary | Inactive Task
Critical Split | Task Progress | Duration-only | Milestone | Project Summary | Inactive Milestone
Critical Progress | Manual Task | Baseline | Summary Progress | External Tasks | Inactive Summary
Task | Start-only | Baseline Split | Summary | External Milestone | Deadline

PROPOSED NEW ERECTION OF A BLOCK OF 3-STOREY LARGE CHILDCARE CENTRE (TOTAL 380 CHILDREN) WITH CAR PARK AT 1ST STOREY ON LOT 01359K (PT) MK 14 AT SEGAR GARDENS (BUKIT PANJANG PLANNING AREA)

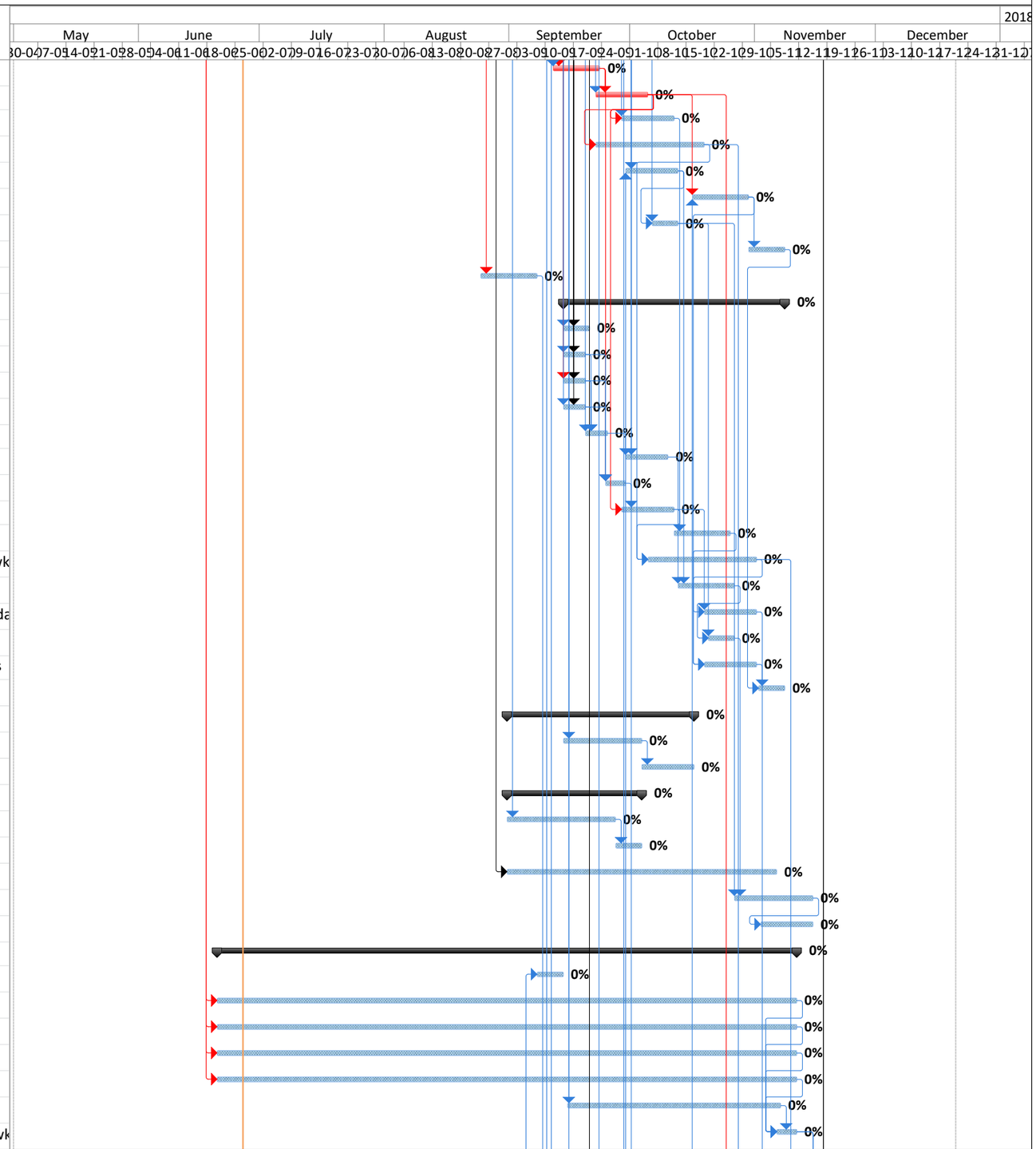
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
42		Shop Drawings Submission	2 wks	Wed 31-05-17	Mon 12-06-17	21
43		Drawing approval	1 wk	Tue 13-06-17	Mon 19-06-17	42
44		Material sample submission & approval	2 wks	Mon 19-06-17	Mon 03-07-17	43
45		**Louvered glass façade & Aluminium works**	**27.5 days**	**Fri 16-06-17**	**Fri 21-07-17**	
46		Shop Drawings Submission	2 wks	Fri 16-06-17	Thu 29-06-17	22
47		Drawing approval	2 wks	Fri 30-06-17	Wed 12-07-17	46
48		Material sample submission & approval	2.5 wks	Thu 06-07-17	Fri 21-07-17	47FS-1 wk
49		**Steel Structure with Metal Roof**	**32.5 days**	**Fri 16-06-17**	**Fri 28-07-17**	
50		Shop Drawings Submission	2 wks	Fri 16-06-17	Thu 29-06-17	23
51		Drawing approval	2 wks	Fri 30-06-17	Wed 12-07-17	50
52		Material sample submission & approval	2.5 wks	Thu 13-07-17	Fri 28-07-17	51
53		**Structural Works**	**74.5 days**	**Thu 08-06-17**	**Thu 14-09-17**	
54		**Sub Structure**	**39.5 days**	**Thu 08-06-17**	**Fri 28-07-17**	
55		*Excavation*	*3.5 wks*	*Thu 08-06-17*	*Fri 30-06-17*	*15*
56		*1st Sty / Ground Floor Slab*	*6 wks*	*Tue 20-06-17*	*Fri 28-07-17*	*55FS-8 days*
57		**Superstructure**	**40 days**	**Mon 24-07-17**	**Thu 14-09-17**	
58		*2nd Sty Slab*	*3 wks*	*Mon 24-07-17*	*Fri 11-08-17*	*56FS-1 wk*
59		*3rd Sty Slab*	*3 wks*	*Fri 04-08-17*	*Thu 24-08-17*	*58FS-1 wk*
60		M&E attic Slab	2 wks	Fri 18-08-17	Thu 31-08-17	59FS-1 wk
61		Metal Roof	4 wks	Fri 18-08-17	Thu 14-09-17	60SS,52
62		**Architectural Works**	**62.5 days**	**Fri 25-08-17**	**Wed 15-11-17**	
63		***1st Sty / Ground Floor--Archi.Finishes***	***53 days***	***Fri 25-08-17***	***Thu 02-11-17***	
64		Ceiling Skim Coat Works	1 wk	Fri 25-08-17	Thu 31-08-17	59
65		Pre-cast Wall	3 days	Fri 25-08-17	Tue 29-08-17	59
66		*Brickwall / Block Wall*	*5 days*	*Fri 25-08-17*	*Thu 31-08-17*	*59*
67		Vent Brick Feature Wall	1 wk	Fri 25-08-17	Thu 31-08-17	59
68		Doors sub-frames or main frames installation	1 day	Thu 31-08-17	Sat 02-09-17	65,66,67
69		Internal plastering works	1 wk	Mon 04-09-17	Fri 08-09-17	68
70		Waterproofing Works	1 wk	Thu 31-08-17	Thu 07-09-17	65,66,67
71		Floor screeding	3 days	Fri 08-09-17	Tue 12-09-17	70
72		Dry/Partition Wall	1 wk	Tue 12-09-17	Mon 18-09-17	71
73		Windows Installation	1 wk	Fri 22-09-17	Thu 28-09-17	147
74		Floor Epoxy Coating	2 wks	Thu 14-09-17	Wed 27-09-17	53
75		Fire Rated Roller Shutter	8 wks	Tue 12-09-17	Thu 02-11-17	71
76		Carpark Marking	1 wk	Tue 24-10-17	Mon 30-10-17	74FS+4 wks
77		***2nd Sty--Archi.Finishes***	***57 days***	***Fri 25-08-17***	***Wed 08-11-17***	
78		Ceiling Skim Coat Works	1 wk	Thu 31-08-17	Thu 07-09-17	60,64
79		Pre-cast Wall	1 wk	Thu 31-08-17	Thu 07-09-17	60,65
80		*Brickwall / Block Wall*	*1.5 wks*	*Thu 31-08-17*	*Mon 11-09-17*	*66*
81		Vent Brick Feature Wall	1 wk	Thu 31-08-17	Thu 07-09-17	60,67
82		Doors sub-frames or main frames installation	1 wk	Tue 12-09-17	Mon 18-09-17	79,80,81,68
83		Internal plastering works	2 wks	Mon 18-09-17	Fri 29-09-17	82,69



Critical — Split — Finish-only — Baseline Milestone — Manual Summary — Inactive Task
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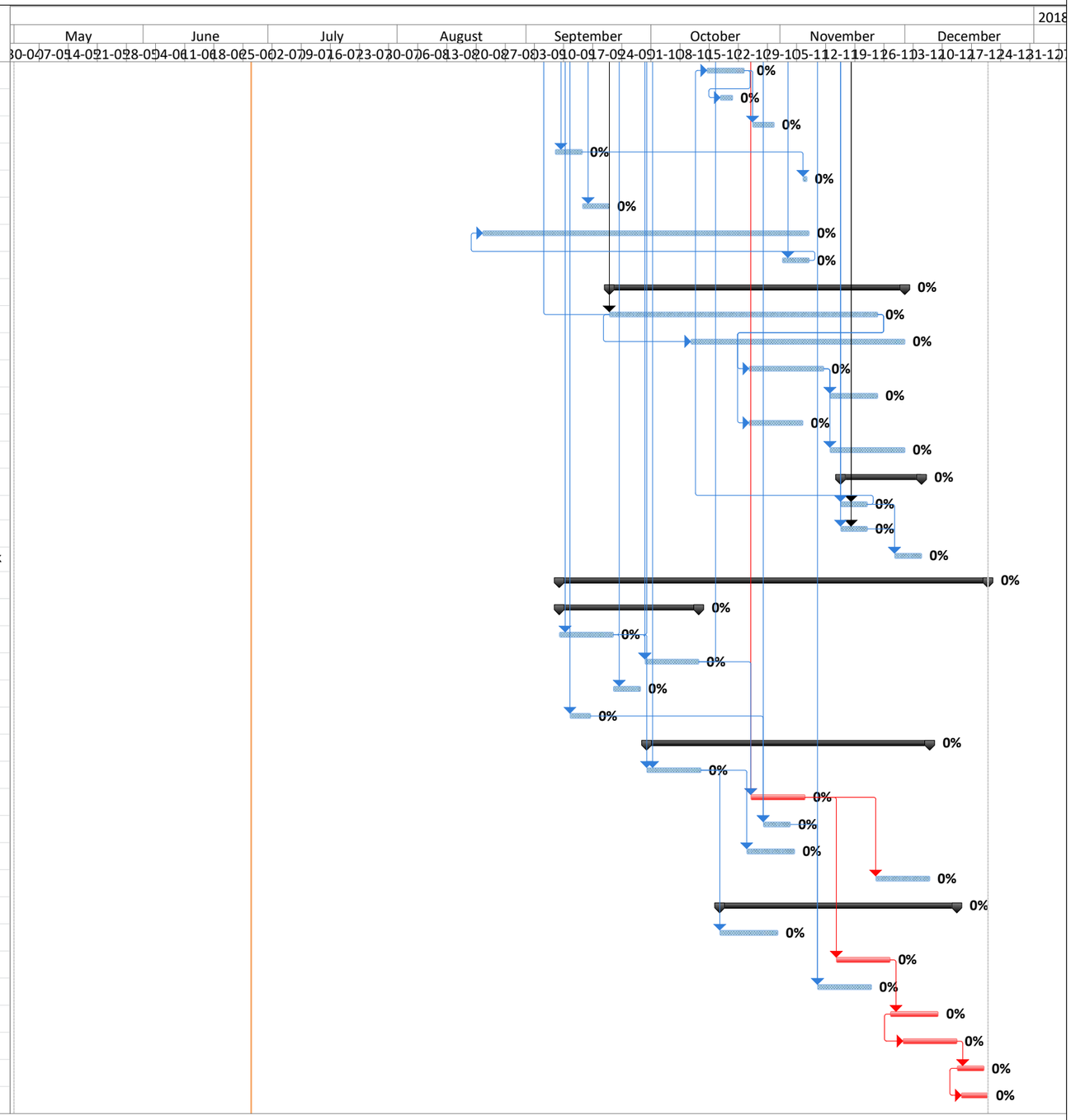
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
84		*Waterproofing Works*	*2 wks*	*Tue 12-09-17*	*Sat 23-09-17*	*79,80,81,70*
85		*Floor screeding*	*2 wks*	*Fri 22-09-17*	*Thu 05-10-17*	*84FS-1 day,71*
86		Dry/Partition Wall	2 wks	Fri 29-09-17	Wed 11-10-17	85FS-1 wk,72
87		False Ceiling Works	4 wks	Fri 22-09-17	Thu 19-10-17	85FS-2 wks
88		Wall Finish	2 wks	Sat 30-09-17	Thu 12-10-17	83,147
89		Floor Finish	2 wks	Mon 16-10-17	Mon 30-10-17	85FS+8 days,148
90		Windows Installation	1 wk	Fri 06-10-17	Thu 12-10-17	88FS-1 wk,73
91		Sanitary Wares & Fixtures	1.5 wks	Mon 30-10-17	Wed 08-11-17	89
92		CSR	2 wks	Fri 25-08-17	Thu 07-09-17	59
93		***3rd Sty--Archi.Finishes***	***42 days***	***Thu 14-09-17***	***Wed 08-11-17***	
94		Ceiling Skim Coat Works	1 wk	Thu 14-09-17	Wed 20-09-17	57,78
95		Pre-cast Wall	4 days	Thu 14-09-17	Tue 19-09-17	57,79
96		Brickwall / Vent Block	4 days	Thu 14-09-17	Tue 19-09-17	57,80
97		Vent Brick Feature Wall	4 days	Thu 14-09-17	Tue 19-09-17	57,81
98		Doors sub-frames or main frames installation	4 days	Wed 20-09-17	Mon 25-09-17	95,96,97,82
99		Internal plastering works	1.5 wks	Sat 30-09-17	Tue 10-10-17	98,83
100		Waterproofing Works	1 wk	Mon 25-09-17	Fri 29-09-17	95,96,97,84
101		Floor screeding	2 wks	Fri 29-09-17	Wed 11-10-17	100FS-1 day,85FS-1 wk
102		Dry/Partition Wall	2 wks	Thu 12-10-17	Wed 25-10-17	101FS-1.5 wks,86
103		False Ceiling Works	4 wks	Thu 05-10-17	Wed 01-11-17	101FS-2 wks,87FS-2 wk
104		Wall Finish	2 wks	Fri 13-10-17	Thu 26-10-17	99,88
105		Floor Finish	2 wks	Thu 19-10-17	Wed 01-11-17	101FS-6 days,89FS-8 da
106		Windows Installation	1 wk	Fri 20-10-17	Thu 26-10-17	104FS-1 wk,90
107		FCU Installation	2 wks	Thu 19-10-17	Wed 01-11-17	102FS-1 wk,103FS-2 wks
108		Sanitary Wares & Fixtures	1 wk	Thu 02-11-17	Wed 08-11-17	91FS-1 wk,105
109		***M&E attic--Archi.Finishes***	**35 days**	**Thu 31-08-17**	**Mon 16-10-17**	
110		Roof Waterproofing	3 wks	Thu 14-09-17	Tue 03-10-17	61
111		Roof M & E equipment installation works	2 wks	Wed 04-10-17	Mon 16-10-17	110
112		**RC Water Tank**	**25 days**	**Thu 31-08-17**	**Tue 03-10-17**	
113		Waterproofing Works	4 wks	Thu 31-08-17	Wed 27-09-17	60
114		Tiling Works	1 wk	Wed 27-09-17	Tue 03-10-17	113
115		Louvered glass façade & Aluminium works	10 wks	Thu 31-08-17	Mon 06-11-17	53FS-2 wks
116		External Plastering Works	3 wks	Fri 27-10-17	Wed 15-11-17	90,106
117		External Finishes	2 wks	Thu 02-11-17	Wed 15-11-17	116FS-2 wks
118		**M&E Works**	**110 days**	**Tue 20-06-17**	**Sat 11-11-17**	
119		Sewer Connection and inspection	1 wk	Fri 08-09-17	Thu 14-09-17	135SS-10 days
120		Plumbing & Sanitary	22 wks	Tue 20-06-17	Sat 11-11-17	*56SS*
121		Electrical	22 wks	Tue 20-06-17	Sat 11-11-17	*56SS*
122		Fire Protection	22 wks	Tue 20-06-17	Sat 11-11-17	*56SS*
123		ACMV	22 wks	Tue 20-06-17	Sat 11-11-17	56SS
124		Dumbwaiter	8 wks	Fri 15-09-17	Tue 07-11-17	61FS+1 day
125		Testing and Commissioning	1 wk	Mon 06-11-17	Sat 11-11-17	122FS-1 wk,124FS-1 wk



Critical	Split	Finish-only	Baseline Milestone	Manual Summary	Inactive Task
Critical Split	Task Progress	Duration-only	Milestone	Project Summary	Inactive Milestone
Critical Progress	Manual Task	Baseline	Summary Progress	External Tasks	Inactive Summary
Task	Start-only	Baseline Split	Summary	External Milestone	Deadline

PROPOSED NEW ERECTION OF A BLOCK OF 3-STOREY LARGE CHILDCARE CENTRE (TOTAL 380 CHILDREN) WITH CAR PARK AT 1ST STOREY ON LOT 01359K (PT) MK 14 AT SEGAR GARDENS (BUKIT PANJANG PLANNING AREA)

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
126		PUB Water inspection	1 wk	Sat 14-10-17	Mon 23-10-17	142FS-5.75 wks
127		PUB BPU sanitory audit	2 days	Tue 17-10-17	Fri 20-10-17	126FS-3 days
128		PUB Water turn on	4 days	Wed 25-10-17	Mon 30-10-17	126FS+2 days
129		CSR Room handover	1 wk	Fri 08-09-17	Thu 14-09-17	92
130		Electricity Turn-on	1 day	Mon 06-11-17	Tue 07-11-17	129FS+8 wks
131		Tel closet handover	1 wk	Thu 14-09-17	Wed 20-09-17	61
132		Noise Report (1st Submission)	3 mons	Mon 21-08-17	Tue 07-11-17	133FS-3 mons
133		Noise Report (Final Submission)	1 wk	Wed 01-11-17	Tue 07-11-17	107
134		**External Works**	**55 days**	**Thu 21-09-17**	**Thu 30-11-17**	
135		External Drain & Box Culvert	10 wks	Thu 21-09-17	Fri 24-11-17	53FS+1 wk
136		Boundary wall & fence	8 wks	Tue 10-10-17	Thu 30-11-17	135SS+3 wks
137		Driveway & Ramp Access	3 wks	Tue 24-10-17	Sat 11-11-17	135FS-5 wks
138		Pedestrian pathway	2 wks	Mon 13-11-17	Fri 24-11-17	137
139		Bin centre	2 wks	Tue 24-10-17	Mon 06-11-17	135FS-5 wks
140		Landscape works	3 wks	Mon 13-11-17	Thu 30-11-17	137
141		**Autority Inspections**	**15 days**	**Wed 15-11-17**	**Mon 04-12-17**	
142		***RI (M&E)***	1 wk	Wed 15-11-17	Tue 21-11-17	125,62
143		**RI (Archi)**	1 wk	Wed 15-11-17	Tue 21-11-17	62,125
144		**BCA TOP inspection**	1 wk	Tue 28-11-17	Mon 04-12-17	143FS+1 wk,142FS+1 wk
145		**ID Works**	**79.5 days**	**Sat 09-09-17**	**Wed 20-12-17**	
146		***1st Sty / Ground Floor***	**26 days**	**Sat 09-09-17**	**Thu 12-10-17**	
147		Wall Finish	2 wks	Sat 09-09-17	Thu 21-09-17	69
148		Floor Finish	2 wks	Fri 29-09-17	Thu 12-10-17	147,71FS+14 days
149		Carpentary Works	1 wk	Fri 22-09-17	Thu 28-09-17	147
150		Ceiling finishes	1 wk	Mon 11-09-17	Sat 16-09-17	64FS+7 days
151		***2nd Sty--ID.Finishes***	**52 days**	**Sat 30-09-17**	**Wed 06-12-17**	
152		Wall Finish	2 wks	Sat 30-09-17	Thu 12-10-17	83,147
153		*Floor Finish*	*2 wks*	*Wed 25-10-17*	*Mon 06-11-17*	*148,85FS+14 days*
154		Ceiling finishes	1 wk	Sat 28-10-17	Fri 03-11-17	150,87FS+7 days
155		Carpentary Works	2 wks	Tue 24-10-17	Sat 04-11-17	152FS+7 days
156		System Furniture	2 wks	Fri 24-11-17	Wed 06-12-17	153FS+14 days
157		***3rd Sty--ID.Finishes***	**44 days**	**Tue 17-10-17**	**Wed 13-12-17**	
158		Wall Finish	2 wks	Tue 17-10-17	Tue 31-10-17	152FS+3 days
159		*Floor Finish*	*2 wks*	*Tue 14-11-17*	*Mon 27-11-17*	*153FS+6 days*
160		Ceiling finishes	2 wks	Fri 10-11-17	Wed 22-11-17	154,103FS+7 days
161		*Carpentary Works*	*2 wks*	*Mon 27-11-17*	*Fri 08-12-17*	*159*
162		*System Furniture*	*2 wks*	*Thu 30-11-17*	*Wed 13-12-17*	*161SS+3 days*
163		*Handing over inspection*	*1 wk*	*Wed 13-12-17*	*Tue 19-12-17*	*162*
164		*Clear the comments*	*1 wk*	*Thu 14-12-17*	*Wed 20-12-17*	*163SS+1 day*



Critical	Split	Finish-only	Baseline Milestone	Manual Summary	Inactive Task
Critical Split	Task Progress	Duration-only	Milestone	Project Summary	Inactive Milestone
Critical Progress	Manual Task	Baseline	Summary Progress	External Tasks	Inactive Summary
Task	Start-only	Baseline Split	Summary	External Milestone	Deadline

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	3/3/17	28/2/17							3/4/17
Power Supply	SP PowerGrid Ltd	-	24/11/16							2/12/16
Lead in Pipes	SP Group Ltd	-	12/5/17	30/5/17	30/5/17					19/6/17
Sanitary Installation	PUB Water Reclamation (Network) Dept	19/5/17	16/5/17							18/5/17
Domestic Water Supply	PUB (Water Supply) Network Dept	19/5/17	19/5/17	1/6/17						
Air Conditioning & Ventilation Inst.	FSSD	26/5/17								
Fire Fighting & Alarm Installation	FSSD	23/6/17								
Telephone Installation	TFCC	1/5/17	5/5/17							29/5/17

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments) - 2nd Submission – Not Applicable

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									
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:	

(✓*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	
Incoming Architectural Sketches/Details	
Incoming Structural Drawings	
M&E Drawings	
- Electrical Installation	All project drawings in softcopy to be saved in server
- Lift & Escalator Installation	
- Air Conditioning & Ventilation Installation	
- Fire Fighting & Alarm Installation	
- Plumbing & Sanitary 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	-	A	I	I	
b.	Project Administration	A	-	C	I	I	
c.	Project Cost Estimate/Contract Cost	A	-	I	-	C	
2.	**Drawings**						
a.	Outline Design Drgs.	A	-	A	C	-	
b.	Sketch Design Drgs.	A	-	A	C	-	
c.	Final Design Drgs.	A	-	A	C	-	
d.	Shop Drawings	I	-	C	C	-	
e.	As Built Drgs.	I	-	I	I	-	
3.	**Other Document**						
a.	Specification	A	-	I	I	-	
b.	Tender Document	A	-	I	I	I	
c.	Tender Evaluation Report	A	-	I	-	I	
d.	Design Report	A	-	I	I	I	
e.	Progress Report	A	-	A	-	I	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	I	-	I	I	-	
h.	Inspection Report	I	-	I	-	-	
i.	Testing & Comm. Report	I	-	I	-	-	
j.	O & M Manual	I	-	I	-	-	

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
Guide to Setting Up a Child Care Centre	TWC (Softcopy)

8.2 List of Applicable Code of Practice and Regulations

Services	Title of Code of Practice/Standard
Electrical Wiring	CP5: 1998
Lightning Protection System	SS 555: 2010
Emergency Voice Communication System	SS 546: 2009
Air Conditioning & Ventilation Installation	SS 553: 2016
Lift & Escalator Installation	SS 550: 2009
Sprinkler System	CP 52: 2004
Fire Hydrant and Hosereel Systems	SS 575: 2012
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
Boiler and Steam Supply System	N.A
Mechanical Smoke Control System	N.A

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

S/N	Description	Date of Application	Date of Approval	Remarks
1	*Clause 8.2.1 of COPIF Provision of MDF room Waiver Ref. No. IMDA.INTC.96.0701/SKC	24/11/16	27/12/16	Waiver for provision of MDF room
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	
QE1	Quality & Environmental System Audit	✓
QE2	Feedback Reporting	✓
QE3	Clients Feedback	✓
QE4	Management Review	✓

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	4.61	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	

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features / Criteria

Item	Remarks
Green Mark criteria	Certified
Green Design Features	Refer to attached list

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	N.A.
Ear Protection	N.A.
Safety Harness / Belt	N.A.
Others:	N.A.

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	✓

LIST OF GREEN FEATURES

- T5 light fittings are used in basement & multi-storey car park
- LED light fitting are used in common areas
- Natural ventilation to units and common areas
- Variable frequency variable voltage (VVVF) drive lifts. The lights and fans in the lifts will be switched off after a predetermined time delay when there are no hall calls.
- Car park is provided with natural ventilation
- Multi-storey are naturally ventilated
- 2 ticks for water efficient fittings
- Motion sensors are provided in common toilets
- Automatic water efficient irrigation system with rain sensor
- Building users guide

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	-
M&E Cost Estimate Report	A
Pre-Qualification of Tenderers	A
Tender Documents	A
Tender Report	A
Payment Valuation for QS	-
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)*

Not Applicable

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers - Not Applicable

Sub Job No	Description	Allocation Details