Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PARC SEABREEZE

For

GROVEHILL PTE LTD

Copy No.	1

Prepared By: Yip Yoke Fun

Authorised By: Loh Fook Yuen

Date: 3 May 2010

TABLE OF CONTENTS

SECTION	DESCRIPTION
-	**TITLE PAGE**
-	**TABLE OF CONTENTS**
1	**QUALITY PLAN CONTROL AND DISTRIBUTION**
1.1	List of Copy Holders
1.2	Revision Record
2	**PROJECT INFORMATION**
2.1	Project Description
2.2	Project Cost
2.3	Scope of Works
3	**ORGANISATION**
3.1	Organisation Chart
3.2	ACEPL's Project Team Member
3.3	Client/Client's Representative
3.4	Other Consultants - Local - Overseas – Not Used
3.5	Contractor/Sub-Contractors
3.6	Authorities
4	**PROGRAMME**
4.1	Overall Programme
4.2	Authority Submission Status for M&E Services – 1st Submission
4.3	Authority Submission Status for M&E Services (Amendment) – 2nd Submission – Not Used
5	**PROJECT RECORDS**
5.1	List of Internal Files
5.2	Filing of Drawings

TABLE OF CONTENTS

SECTION	DESCRIPTION
6	**INTERFACING**
6.1	Method of Interface
6.2	Internal Design Interface – Not Used
6.3	Circulation of Documents to External Parties
7	**WORK AUTHORISATION**
8	**DESIGN INPUT AND METHODOLOGY**
8.1	List of Client's Standards, Reference Documents or Brief – Not Used
8.2	List of Applicable Code of Practice and Regulations
8.3	List of Design Guide or Handbook Used
8.4	List of Applicable Quality System Procedures
8.5	List of Software Used for Design/Analysis
9	**ENVIRONMENTAL CONSIDERATIONS**
9.1	Sustainable Design Features / Criteria – Not Used
9.2	Site PPE Requirement – Not Used
9.3	Site Emergency Preparedness – Not Used
9.4	Reporting of Environmental Non-conformances – Not Used
9.5	List of Applicable Environmental Management System Procedures – Not Used
10	**CLIENT'S REQUIREMENTS**
10.1	List of Output Required by Client
10.2	Specific Procedures Required by Client – Not Used
11	**LIST OF SUB-JOB**
11.1	List of Sub-Job Numbers – Not Used

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6057-PQP	30 May 2008

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	30 May 2008	1 to 11	29	1+ pg (Section 4.1 – Overall Programme)
1	12 June 2009	1 to 11	28	
2	3 May 2010	1 to 11	28	+ 2 pgs (Section 4.1 – Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Residential

Statistics of Development	
Site Area, m²	5,458.33
Nett Floor Area, m²	-
Gross Floor Area, m²	12,593.39
Covered Carpark, m²	3,368.64
No. of Covered Carpark Lots	103
No. of Apartments/Houses	94
No. of Beds (for Hospitals)	NA
No. of Guestroom (for Hotels)	NA
No. of Blocks / No. of Storeys	1 Block / 20-Storey
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)						
Services	EI	ACVI	LEI	FFAI	PSI	SPFI
Estimate	2.6	2.5	0.54	0.44	1.7	0.2
Awarded	-	-	-	-	-	-

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	43.8
Awarded	-	-	-

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

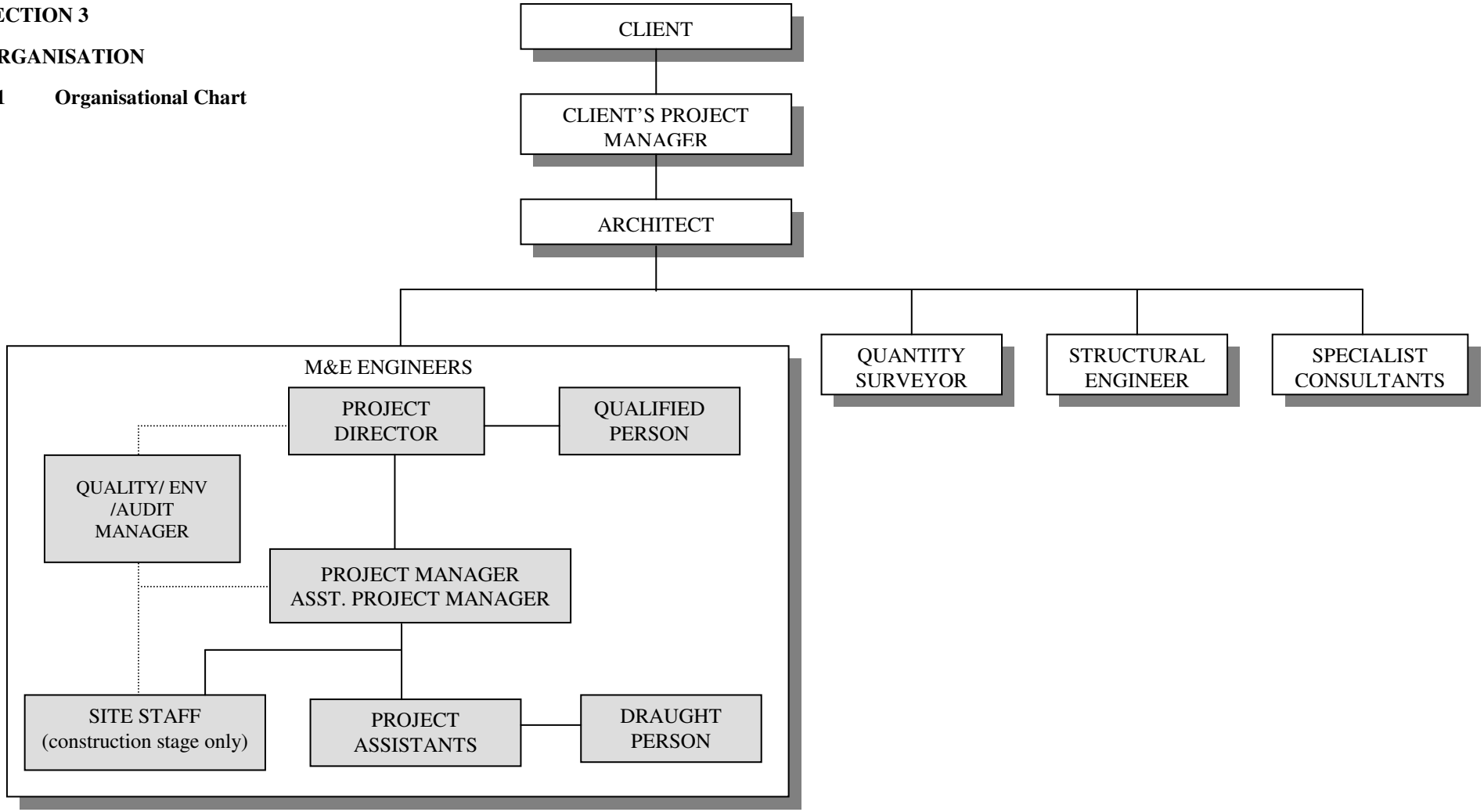
EJECTOR & DIVERTER	✓	SUMP PUMP	✓	FUEL OIL TANK		LIFT	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*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		Yip Yoke Fun (YYF)
Assistant Project Manager		Derek Ong (DO)
Project Assistant (Mech)		-
Project Assistant (Elect)		-
Draughtsperson		Common Pool
Resident Engineer (M&E)		-

3.3 Client/Client's Representatives

Client: (Developer)	GroveHill Pte Ltd	Client: (Main Contractor)	Tiong Aik Construction Pte Ltd
Address:	No. 1 Jalan Berseh #03-03 New World Centre Singapore 209037	Address:	No. 1 Jalan Berseh #03-03 New World Centre Singapore 209037
Tel:	6392 2988	Tel:	6392 2988
Fax:	6392 0988	Fax:	6392 0988

Client's Representatives:-

Name of Company	Contact Person	Contact
GroveHill Pte Ltd	Name: Mr Neo Thiam Boon/Ms Wendy Liong Position: Director / Business Development Executive	Tel: 6392 2988 Fax: 6392 0988 Handphone: - Email: tiamboon@tiongaik.com.sg / wendy@tiongaik.com.sg
Tiong Aik Construction Pte Ltd	Name: Mr Chow Yew Seng Position: General Manager	Tel: 6392 2988 Fax: 6392 0988 Handphone: - Email: yewseng@tiongaik.com.sg
	Name: Position:	Tel: Fax: Handphone: Email:
	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 Park + Associates Pte Ltd	Name: Mr Lim Koon Park Position:	Tel: 6282 0604 Fax: 6288 0604 Handphone: - Email: info@parkassociates.com.sg
Quantity Surveyor NA	Name: Position:	Tel: Fax: Handphone: Email:
Structural Engineer KTP Consultants Pte Ltd	Name: Mr Chen Yen Feng Position: Director	Tel: 6273 5622 Fax: 6273 8454 Handphone: - Email: yfchen@ktp.com.sg
Interior Designer NA	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:
Landscape Architect DLQ Design Pte Ltd	Name: Ms Lena Quek Position: Director	Tel: 6738 0171 Fax: 6738 3124 Handphone: - Email: lenaquek@dlqdesign.com
_____	Name: Position:	Tel: Fax: Handphone: Email:

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

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 Tiong Aik Construction Pte Ltd		Name: Mr Chow Yew Seng Position: General Manager	Tel: 6392 2988 Fax: 6392 0988 Handphone: - Email: yewseng@tiongaik.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Plumbing & Sanitary Installation Sub-Contractor Sani-Flux Resources Pte Ltd		Name: Mr William Wong Position: Managing Director	Tel: 6396 4562 Fax: 6396 4561 Handphone: 9239 5381 Email: william-saniflux@hotmail.com
Electrical Installation Sub-Contractor King Hua Electrical Pte Ltd		Name: Mr Simon Ang Position: Director	Tel: 6251 6786 Fax: 6251 6695 Handphone: 9619 5925 Email: angteowsam@kinghua.com.sg
Lift & Escalator Installation Sub-Contractor Mitsubishi Elevator (Singapore) Pte Ltd		Name: Mr Eric Lee Position: Sales Executive	Tel: 6842 5678 Fax: 6748 2292 Handphone: 9450 9680 Email: eric.lee@mesp.meap.com
Fire Fighting & Alarm Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Swimming Pool Filtration Plant Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Carpark System Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
_____		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) Sub-Station		
(b) Diversion	Mr Francis Chang See Tong	6823 8555
SP Services: (a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC: (a) SCV		
(b) SingTel		
(c) IDA		
BCA: (a) Building Plan		
FSSD: (a) Building Plan	Mrs Ling Yap Kim Har	6325 8649
(b) M&E Plan	Mr Ridzuwan Supari	6848 1418
PUB (Water Supply) Network Dept: (a) Water Conservation		
(b) Plumbing Plan	Mr Toh Tse Teck	6885 2466
(c) Diversion		
PUB Water Reclamation (Network) Dept: (a) Building Plan/CBPU	Mr David Lim	6731 9629
(b) M&E Plan		
(c) Diversion		
City Gas Pte Ltd: (a) Planning/Submission	Mr Liew K B	6578 7603
(b) Installation/Inspection	Mr Lim Teck Seng	9007 5727
PowerGas Pte Ltd (a) Diversion		
NEA (Pollution Control) (a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

4.1 Overall Programme – (refer to attached master programme)

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																									

Construction Programme: PARC SEABREEZE

ID	Task Name	Duration	Start	Finish
1	**Preliminaries**	**14 days**	**11/25/09**	**12/8/09**
2	Application of factory licence	14 days	11/25/09	12/8/09
3	Pre-condition survey	14 days	11/25/09	12/8/09
4	Instrumentation monitoring	14 days	11/25/09	12/8/09
5	Cable detection	14 days	11/25/09	12/8/09
6	Site clearance/Parameter drain	14 days	11/25/09	12/8/09
7	**Design submission and approval (ST)**	200 days	11/25/09	7/14/10
8	**Pilling work (160)**	74 days	12/9/09	3/4/10
9	**Tower Block**	**584 days**	**3/5/10**	**1/26/12**
10	Excavation	60 days	3/5/10	5/14/10
11	Pile cut off/Check ECC	55 days	3/19/10	5/22/10
12	Pilecap	60 days	3/31/10	6/9/10
13	Backfilling	55 days	4/12/10	6/15/10
14	Underground services	50 days	4/20/10	6/17/10
15	B1 slab	66 days	4/12/10	6/28/10
16	B1 wall	60 days	4/28/10	7/7/10
17	1st sty slab	19 days	7/8/10	7/29/10
18	2nd sty slab	18 days	7/30/10	8/20/10
19	3rd sty slab	14 days	8/21/10	9/6/10
20	4th sty slab	12 days	9/7/10	9/20/10
21	5th sty slab	12 days	9/21/10	10/4/10
22	6th sty slab	12 days	10/5/10	10/18/10
23	7th sty slab	12 days	10/19/10	11/1/10
24	8th sty slab	12 days	11/2/10	11/15/10
25	9th sty slab	12 days	11/16/10	11/29/10
26	10th sty slab	12 days	11/30/10	12/13/10
27	11th sty slab	12 days	12/14/10	12/27/10
28	12th sty slab	12 days	12/28/10	1/10/11
29	13th sty slab	12 days	1/11/11	1/24/11
30	14th sty slab	40 days	1/25/11	3/18/11
31	15th sty slab	18 days	3/19/11	4/8/11
32	16th sty slab	12 days	4/9/11	4/22/11
33	17th sty slab	12 days	4/23/11	5/7/11
34	18th sty slab	12 days	5/9/11	5/21/11
35	19th sty slab	12 days	5/23/11	6/4/11
36	20th sty slab	12 days	6/6/11	6/18/11
37	roof slab	18 days	6/20/11	7/9/11
38	Lift shaft overun	16 days	7/11/11	7/28/11
39	**Architectural work**	**380 days**	**10/19/10**	**1/13/12**
40	Wall	310 days	10/19/10	10/24/11
41	Ceiling work	330 days	10/30/10	11/28/11
42	Wall finishes	330 days	11/11/10	12/9/11
43	Floor finishes	330 days	11/23/10	12/21/11
44	Window work	360 days	10/30/10	1/2/12
45	Door	360 days	11/11/10	1/13/12
46	Wardrobe & kitchen cabinet	350 days	11/23/10	1/13/12
47	Metal works	340 days	12/4/10	1/13/12
48	Kitchen & sanitary accessories	345 days	11/29/10	1/13/12
49	**M&E work**	**391 days**	**10/19/10**	**1/26/12**
50	Sanitary & plumbing	380 days	10/19/10	1/13/12
51	Electrical	370 days	10/30/10	1/13/12
52	Air-con	355 days	11/11/10	1/7/12
53	Fire protection	355 days	11/23/10	1/19/12
54	Lift Installation	125 days	9/3/11	1/26/12
55	Completion	0 days	1/26/12	1/26/12
56	**Existing Show Flat**	**176 days**	**10/19/10**	**5/19/11**
57	Demolition of existing show flat	12 days	10/19/10	11/1/10
58	Balance of pilling work (40)	30 days	11/2/10	12/6/10
59	Excavation	14 days	12/7/10	12/22/10
60	Hacking pile head/Check ECC	14 days	12/23/10	1/7/11
61	Pile cap	18 days	1/8/11	1/28/11
62	Backfilling	10 days	1/29/11	2/16/11
63	Underground services	8 days	2/17/11	2/25/11
64	Basement slab	25 days	2/26/11	3/26/11
65	Basement wall	25 days	3/28/11	4/25/11
66	1st storey slab	20 days	4/26/11	5/19/11
67	**Electrical Sub-Station**	**293 days**	**10/19/10**	**10/4/11**
68	RC	60 days	10/19/10	12/27/10
69	Architechtural work	40 days	12/28/10	2/18/11
70	M&E work	30 days	2/19/11	3/25/11
71	Lead in pipes/draw pit	30 days	3/26/11	4/29/11
72	Powergrid 1st inspection	14 days	4/30/11	5/17/11
73	Powergrid 2nd inspection	14 days	5/18/11	6/2/11
74	Handing over to Power Grid	1 day	6/3/11	6/3/11
75	Powergrid substation energize	60 days	6/4/11	8/13/11
76	Consumer switch room energize	30 days	8/15/11	9/17/11
77	Power turn On	14 days	9/19/11	10/4/11
78	**External work**	**195 days**	**9/3/11**	**4/24/12**
79	Drain	120 days	9/3/11	1/20/12
80	Driveway	85 days	11/12/11	2/25/12
81	Decking	120 days	10/8/11	3/2/12
82	Fence/Boundary wall	120 days	10/25/11	3/19/12
83	Play area	120 days	9/27/11	2/20/12
84	Landscape	75 days	1/21/12	4/24/12

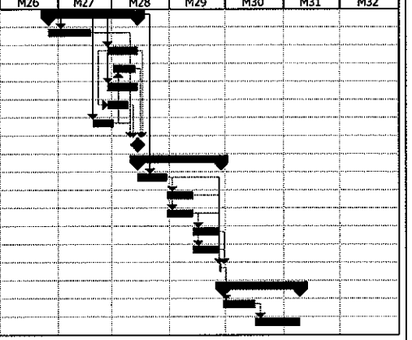


Tiong Aik Construction Pte Ltd
Date: Tue 5/4/10

Task — Progress — Summary — Rolled Up Critical Task — Rolled Up Progress — External Tasks — Group By Summary
Critical Task — Milestone — Rolled Up Task — Rolled Up Milestone — Split — Project Summary — Deadline

Construction Programme: PARC SEABREEZE

ID	Task Name	Duration	Start	Finish
85	**M&E testing**	**35 days**	**1/27/12**	**3/14/12**
86	Power Grid testing	14 days	1/27/12	2/18/12
87	PUB water inspection	14 days	2/28/12	3/14/12
88	Water Turn On	10 days	3/2/12	3/13/12
89	Lift testing	14 days	2/28/12	3/14/12
90	Power Gas inspection	10 days	2/28/12	3/9/12
91	CBPU/ENV(Sewerage)	10 days	2/20/12	3/1/12
92	Completion of M&E Testing	0 days	3/14/12	3/14/12
93	**Authority Inspection**	**39 days**	**3/15/12**	**4/28/12**
94	Prerequisite for RI	14 days	3/15/12	3/30/12
95	M&E RI	12 days	3/31/12	4/13/12
96	Archi RI	12 days	3/31/12	4/13/12
97	Temporary Fire Permit	12 days	4/14/12	4/27/12
98	FSB	12 days	4/14/12	4/27/12
99	Completion of Autholrty Insp	1 day	4/28/12	4/28/12
100	**TOP**	**35 days**	**4/30/12**	**6/9/12**
101	Pre-Top inspection	14 days	4/30/12	5/16/12
102	TOP inspection	21 days	5/17/12	6/9/12



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		21/7/08							28/7/08
Power Supply Substation	SP PowerGrid Ltd	-	12/9/08	23/9/08	21/10/08					4/11/08
Metering Layout	SP Services Ltd									
Sanitary Installation	PUB Water Reclamation (Network) Dept	-	30/6/10							
Domestic Water Supply	PUB (Water Supply) Network Dept	-	30/7/10							
Gas Supply Installation	City Gas Pte Ltd	-	28/8/08							29/9/08
Air Conditioning & Ventilation Inst.	FSSD	-	31/8/10							
Fire Fighting & Alarm Installation	FSSD	-	30/9/10							
Telephone Installation	TFCC	-	31/5/10							

SECTION 4

PROGRAMME

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

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	
- CC/CF	✓	- PQP/QSP	✓

Project Files to be initiated by PM as and when required

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

(✓*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	YYF
Incoming Architectural Sketches/Details	YYF
Incoming Structural Drawings	YYF
M&E Drawings	
- Electrical Installation	DO
- Lift & Escalator Installation	DO
- Air Conditioning & Ventilation Installation	YYF
- Fire Fighting & Alarm Installation	YYF
- Plumbing & Sanitary Installation	YYF
- Swimming Pool & Filtration Installation	YYF
Other Drawings	
- Landscape Drawings	YYF
- FSSD Approval Building Plan	YYF

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 USED

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	C	C	I	
b.	Project Administration	A	A	C	C	I	
c.	Project Cost Estimate/Contract Cost	A	A	C	C	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	A	C	C	-	
b.	Sketch Design Drgs.	A	A	C	C	-	
c.	Final Design Drgs.	A	A	C	C	-	
d.	Shop Drawings	I	I	A/C	C	-	
e.	As Built Drgs.	I	I	I	I	-	
3.	**Other Document**						
a.	Specification	A	A	A	I	I	
b.	Tender Document	A	A	A	I	I	
c.	Tender Evaluation Report	A	A	A	I	I	
d.	Design Report	C	C	I	-	-	
e.	Progress Report	-	-	-	-	-	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	I	I	I	I	-	
h.	Inspection Report	I	I	I	-	-	
i.	Testing & Comm. Report	I	I	I	-	-	
j.	O & M Manual	I	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 – NOT USED

ITEM	KEPT BY

8.2 List of Applicable Code of Practice and Regulations

Electrical Wiring	~~BS~~	SS	IEE	~~NFPA~~	
Lightning Protection System	~~BS~~	SS			
~~Emergency Voice Communication System~~	~~BS~~	~~SS~~	~~NFPA~~		
Air Conditioning & Ventilation Installation	~~BS~~	~~AS~~	~~NFPA~~	SS	~~MS~~
Lift ~~& Escalator~~ Installation	~~BS~~	SS			
~~Sprinkler System~~	~~BS~~	~~SS~~	~~NFPA~~	~~AS~~	~~LPC~~
~~Wet Riser System~~	~~BS~~	~~SS~~	~~NFPA~~	~~AS~~	~~MS~~
Automatic Fire Alarm System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Sanitary System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Plumbing System	BS	SS	~~NFPA~~	~~AS~~	~~MS~~
Town Gas/~~LPG Supply System~~	~~BS~~	SS	~~NFPA~~	~~AS~~	
~~Boiler and Steam Supply System~~	~~ASME~~	~~BS~~	~~AS~~		
~~Mechanical Smoke Control System~~	~~BS~~	~~NFPA~~	~~AS~~		

(Delete where necessary)

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 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	

8.5 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Calculux	5.0b	Philips	Lighting design	✓
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	
Lift Traffic	-	Alpha Consulting Engineers Pte Ltd	Lift traffic calculation	✓
Ecodial	3.37	Schneider	Low voltage network calculation, cable sizing, fault level estimation and circuit breaker selection	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features / Criteria – NOT USED

Item	Remarks
Green Mark criteria	
Green Design Features	

9.2 Site PPE Requirement – NOT USED

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 – NOT USED

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 – NOT USED

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 – NOT USED

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	NA
Tender Documents	A
Tender Report	NA
Payment Valuation for QS	NA
Certificates of Supervision for TOP/CSC	I

** 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 USED

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers – NOT USED

Sub Job No	Description	Allocation Details