Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED REDEVELOPMENT OF SPECIALIST CENTRE AND HOTEL PHOENIX AT 277 ORCHARD ROAD

For

UNITED ENGINEERS DEVELOPMENTS PTE LTD

Copy No.	1

Prepared By: Ong Bee Kuan / Goh Soon Huat

Authorised By: Tan Lai Siong

Date: 14 January 2011

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
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
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
9.2	Site PPE Requirement
9.3	Site Emergency Preparedness
9.4	Reporting of Environmental Non-conformances
9.5	List of Applicable Environmental Management System Procedures
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

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6083-PQP File	14 January 2011

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	2 September 2008	1 to 11	28	
1	14 January 2011	1 to 11	28	+1 pg (Sect 4.1 – Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Shopping Centre & Hotel

Statistics of Development	
Site Area, m²	6,773.60
Nett Floor Area, m²	N.A.
Gross Floor Area, m²	50,057 + (3,480 for Thoroughfare & Plaza areas)
Covered Carpark, m²	10,000
No. of Covered Carpark Lots	238
No. of Apartments/Houses	-
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	522 guestrooms
No. of Blocks / No. of Storeys	1 Block of 21 Storey with 9-storey podium
No. of Phases	3

2.2 Project Cost

M&E Services Cost Plan (S$ x 1K)									
Services	EI	ACVI	LEI	FFAI	PSI	SPFI			
Estimate	33,000	35,000	9,500	6,900	10,900	1,200			
Awarded	27,200	28,755	6,499	4,650	9,157	-			

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	410
Awarded	-	-	473

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

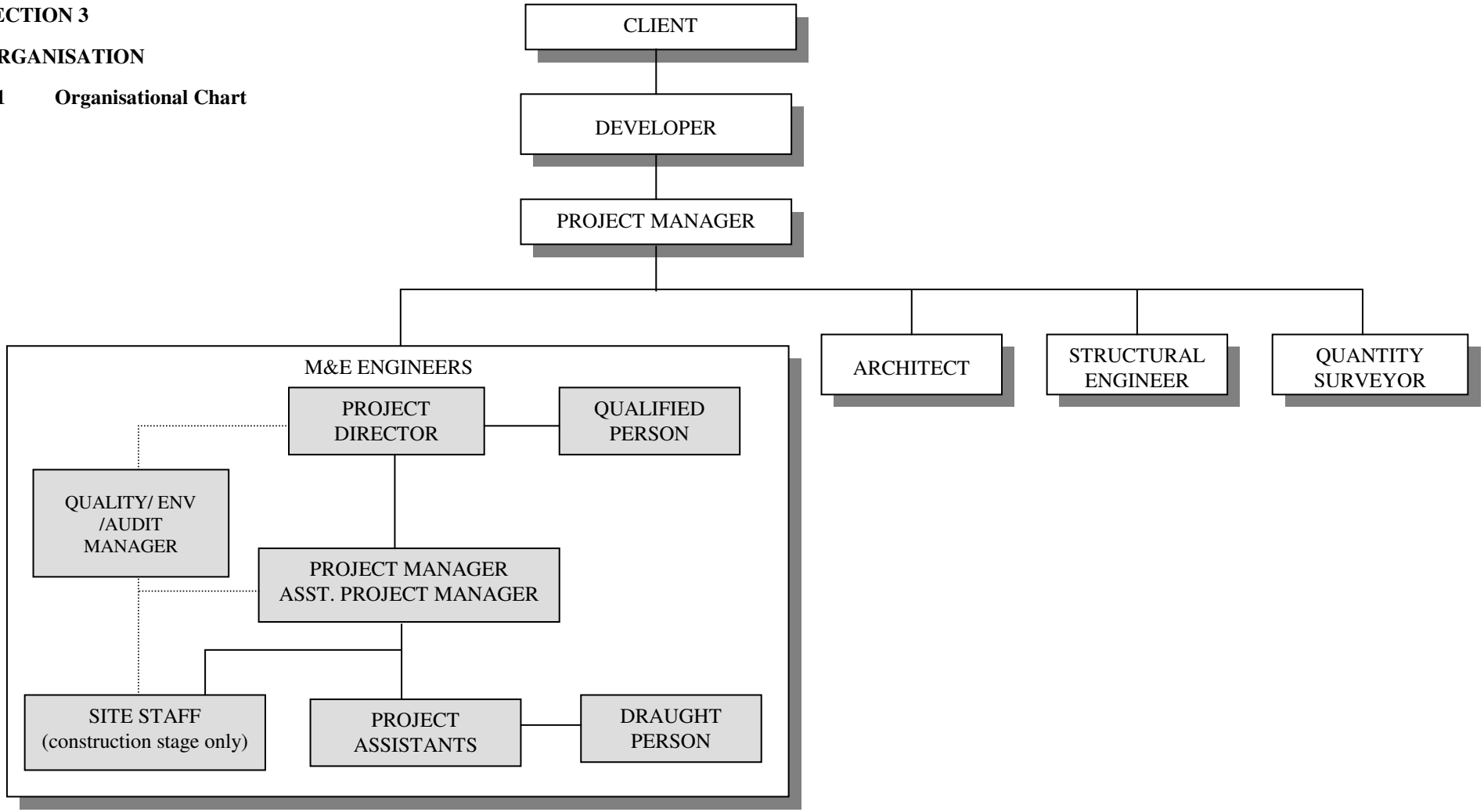
EJECTOR & DIVERTER	✓	SUMP PUMP		FUEL OIL TANK	✓	LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Tan Lai Siong (TLS)
Qualified Person	Mechanical	Choong Choon Guan (CCG)
	Electrical	Tan Lai Siong (TLS)
Project Manager		Goh Soon Huat (GSH)
Assistant Project Manager		Chong Lai Meng (CLM)
Project Assistant (Mech)		Noraini Sairi (NHS)
Project Assistant (Elect)		Ong Bee Kuan (OBK)
Draughtsperson		Common Pool
Resident Engineer (M&E)		Lai Chee Fan (LCF)
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-
Resident Technical Officer (RTO)		Marc Wong (WLC)

3.3 Client/Client's Representatives

Owner:	OCBC Property Services Pte Ltd	Developer:-	UE Orchard Pte Ltd / UE Somerset Pte Ltd
Address:-	18 Cross Street #11-01/03 China Square Central Singapore 048423	Address:-	81A Clemenceau Avenue #05-18 UE Square Singapore 239918
Tel:-	6437 3848	Tel:-	6732 1600
Fax:-	6536 1680	Fax:-	6732 1677

Client's Representatives:-

Name of Firm	Contact Person	Contact
OCBC Property Services Pte Ltd (Owner)	Name : Ms Lenny Chew Position: Head of Project Development	Tel: 6437 3848 Fax: 6536 1680 Handphone: Email: chewwll@ocbcproperty.com.sg
UE Orchard Pte Ltd / UE Somerset Pte Ltd (Developer)	Name : Mr Ong Beng Kian Position: Associate Director	Tel: 6833 2892 Fax: 6732 1677 Handphone: Email: ong-bk@medicorp.com.sg
United Engineers Developments Pte Ltd (Project Manager)	Name : Ms Catherine Chang Position: Vice-President	Tel: 6833 2811 Fax: 6732 1677 Handphone: 9675 8975 Email: catheringchang@ued-bts.ueltd.sg
	Name: Mr Lim HockSoon Position: Principal Manager	Tel: 6732 1600 Fax: 6732 1677 Handphone: 9827 6580 Email: limhocksoon_schp@ued.ueltd.sg
	Name : Mr Samuel Tai Position: Project Director	Tel: 6833 2891 Fax: 6732 1677 Handphone: 9002 2315 Email: samueltai@uesq.uel.com.sg
	Name: Mr Ng Poh Chuan Position: Senior Project Manager	Tel: 6732 1600 Fax: 6732 1677 Handphone: - Email: ngpohchuan@ued.ueltd
	Name: Mr Fong Kim Whey Position: Chief Engineer	Tel: 6833 2876 Fax: 6732 1677 Handphone: 9820 8284 Email: fongkw@uesq.uel.com.sg

3.4 **Other Consultants** (Local)

Function / Name of Firm	Contact Person	Contact
Architect AWP Pte Ltd	Name: Mr Wong Meng Lin Position: Director	Tel: 6337 6777 Fax: 6339 6956 Email: wmi@awp.com.sg Project email : awp060202@awp.com.sg
Quantity Surveyor KPK Quantity Surveyors (Singapore) Pte Ltd	Name: Ms Cheryl Lai Position: Senior QS	Tel: 6536 3303 Fax: 6536 2633 Handphone: - Email : cheryllai@kpkqs.com.sg Project email: 1495_schp@kpkqs.com.sg
Structural Engineer Meinhardt (Singapore) Pte Ltd	Name: Mr Jeffrey Ng Position : Principal Structural Engineer	Tel: 6377 6777 Fax: 6339 6956 Handphone: 9101 2356 Email: jng@meinhardt.com.sg Project e-mail : mscs078008@meinhardt.com.sg
Facade Consultant Meinhardt Façade Technology (S) Pte Ltd	Name: Mr Johnson Wang Position: Senior Façade Consultant	Tel: 6376 3715 Fax: 6736 1542 Handphone: 9879 3199 Email: johnson@meinhardt.com.sg Website: http://www.mfacade.com
Landscape Architect Peridian Asia Pte Ltd	Name: Mr Ronnie M Lucena Position: Landscape Architect	Tel: 6227 7998 Fax: 6227 0509 Handphone: - Email: Ronnie@peridian.com.sg
Lighting Consultant Tokyo Shomei Consultant	Name: Ms Susan Yee Position: Project Director	Tel: 6830 8446 Fax: 6234 3706 Handphone: 9625 2666 Email: susan.yee@tokyo-shomei.com
Acoustic Consultant CCW Associates Pte Ltd	Name: Mr Cheah Beng Kin Position: Director	Tel: 6278 4918 Fax: 6275 7206 Handphone: 9818 2289 Email: bengkin@ccw.com.sg
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.4 **Other Consultants** (Overseas)

Function / Name of Company	Contact Person	Contact
Architect Tange Associates	Name: Mr Phillipe Iliffe-Moon Position: Associate Director	Tel: 6732 1729 Fax: 6737 1992 Handphone: Email: iliffe-moon@tangeassociates.com Project Email: sin_ocbc@tangeweb.com
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 Tokyo Shomei Consultant	Name: Mr Yasuhiro Nakamura Position: Consultant	Tel: +81-3-3254-1631 Fax: 6234 3706 Handphone: - Email: nacomg@mb.infoweb.ne.jp
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Kitchen Consultant Creative Kitchen Planners International	Name: Mr Vant Tan Position: Director	Tel: +603-2162 6006 Fax: +603-2162 6007 Handphone: Email: vtan@ckpap.com.my

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor Hyundai Engineering & Construction Co Ltd	DC	Name: Mr E S Park Position: Project Director	Tel: 6732 9976 Fax: 6732 7901 Handphone: - Email: spec@hdec.co.kr
Air Conditioning & Ventilation Installation Sub-Contractor United Engineers (S) Pte Ltd	NSC	Name: Mr Tang Teck Ming Position: Project Manager	Tel: 6266 0988 Fax: 6268 6993 Handphone: 9066 8812 Email: tangteckming@uecc.sg
Plumbing & Sanitary Installation Sub-Contractor United Engineers (S) Pte Ltd	NSC	Name: Mr Alan Lai Position: Senior Engineer	Tel: 6266 0988 Fax: 6268 6993 Handphone: 9618 9404 Email: alanlai@uecc.sg
Electrical Installation Sub-Contractor United Engineers (S) Pte Ltd	NSC	Name: Mr Cruz Crisanto III Position: Project Manager	Tel: 6266 0988 Fax: 6268 6993 Handphone: 9183 2395 Email: crisanto@uel.sg
Lift Installation Sub-Contractor Kone Pte Ltd	NSC	Name: Mr Christopher Liew Cher Wui Position: Project Engineer	Tel: 6424 6214 Fax: 6424 6346 Handphone: 8200 1211 Email: Christopher-liew@kone.com
Escalator Installation Sub-Contractor Otis Elevator Co. (S) Pte Ltd	NSC	Name: Mr Melman Goh Position: Project Manager	Tel: 6298 7733 Fax: 6297 2646 Handphone: 9028 8043 Email: melman.goh@otis.com
Fire Fighting & Alarm Installation Sub-Contractor United Engineers (S) Pte Ltd	NSC	Name: Mr Alan Lai Position: Senior Engineer	Tel: 6266 0988 Fax: 6268 6993 Handphone: 9618 9404 Email: alanlai@uecc.sg
Swimming Pool Filtration Plant Installation Sub-Contractor Not appointed yet		Name: Position:	Tel: Fax: Handphone: Email:
_____		Name: Position:	Tel: Fax: Handphone: Email:

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *D&B DSC (Design & Build 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	Mr Chin Yoke Fah	6823 8556
(b) Diversion		
SP Services:		
(a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel		
(c) IDA	Mr Gilbert Ho	gilbertho@singtel.com
BCA:		
(a) Building Plan		
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan	Ms Nazilah Sapuan	6731 3598
(c) Diversion		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU	Mr Philip Tan Fook Hoong	6235 8888
(b) M&E Plan		
(c) Diversion		
City Gas Pte Ltd:		
(a) Planning/Submission	Mr Liew Khee Boon	6578 7603
(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 attached)

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																									

SPECIALISTS' CENTER/HOTEL PHOENIX
HYUNDAI ENGINEERING & CONSTRUCTION CO., LTD.

MASTER PROGRAMME FOR SPECIALISTS' CENTER/HOTEL PHOENIX (Rev. 0)

20th December 2010

ID	ACTIVITY	DURATION	START	FINISH
1	**Milestone**	**1127 d**	**Thu 08/07/10**	**Wed 07/08/13**
2	Project Commencement	1 d	Thu 08/07/10	Thu 08/07/10
3	**Phase 1**	**90 d**	**Sat 08/12/12**	**Thu 07/03/13**
4	**TOP**	90 d	Sat 08/12/12	Thu 07/03/13
5	**RI Inspection**	60 d	Sat 08/12/12	Tue 05/02/13
6	**Phase 2**	**90 d**	**Sat 08/12/12**	**Thu 07/03/13**
7	**TOP**	90 d	Sat 08/12/12	Thu 07/03/13
8	**RI Inspection**	60 d	Sat 08/12/12	Tue 05/02/13
9	**Phase 3**	**90 d**	**Fri 10/05/13**	**Wed 07/08/13**
10	**TOP**	90 d	Fri 10/05/13	Wed 07/08/13
11	**RI Inspection**	60 d	Fri 10/05/13	Mon 08/07/13
12	C&S Construction Drawing Issuance	**377 d**	**Thu 22/07/10**	**Tue 02/08/11**
13	**Preliminary Structural Framing Plans**	1 d	Thu 22/07/10	Thu 22/07/10
14	**Substructure & Superstructure up to 4th Storey**	1 d	Fri 05/11/10	Fri 05/11/10
15	**Superstructure up to 10th Storey**	1 d	Thu 03/02/11	Thu 03/02/11
16	**Superstructure from 11th Storey to Roof**	1 d	Fri 03/06/11	Fri 03/06/11
17	Orchard Road Underpass and Link Bridge	1 d	Thu 03/02/11	Thu 03/02/11
18	Underground connections to MRT Station, Orchard Central and 313 Som	1 d	Tue 02/08/11	Tue 02/08/11
19	Stamford Canal Underpass	1 d	Thu 22/07/10	Thu 22/07/10
20	NSC Selecion (Architectural)	**450 d**	**Wed 22/09/10**	**Thu 15/12/11**
21	**AL Curtainwall**	1 d	Wed 22/09/10	Wed 22/09/10
22	**Link Bridge**	1 d	Tue 30/11/10	Tue 30/11/10
23	**Stone Work**	1 d	Fri 31/12/10	Fri 31/12/10
24	ID Fit-Out Works	1 d	Fri 31/12/10	Fri 31/12/10
25	Landscaping	1 d	Thu 15/12/11	Thu 15/12/11
26	Exernal Works	1 d	Thu 30/06/11	Thu 30/06/11
27	Shop Drawing Submission (Architectu	**539 d**	**Thu 23/09/10**	**Wed 14/02/12**
28	**AL Curtainwall**	250 d	Thu 23/09/10	Mon 30/05/11
29	**Link Bridge**	290 d	Wed 01/12/10	Fri 16/09/11
30	**Stone Work**	120 d	Sat 01/01/11	Sat 30/04/11
31	ID Fit-Out Works	120 d	Sat 01/01/11	Sat 30/04/11
32	Landscaping	90 d	Fri 16/12/11	Wed 14/03/12
33	Exernal Works	120 d	Fri 01/07/11	Fri 28/10/11
34	Mock-Up Units	**455 d**	**Sun 01/05/11**	**Sat 28/07/12**
35	Material Selection	30 d	Sun 01/05/11	Mon 30/05/11
36	Material Order	7 d	Tue 31/05/11	Mon 06/06/11
37	Material Delivery	45 d	Tue 07/06/11	Thu 21/07/11
38	**Typical Hotel Guest Room(Off Site Mock Up)**	90 d	Fri 22/07/11	Wed 19/10/11
39	Main Entrance Lobby Finishes	90 d	Fri 22/07/11	Wed 19/10/11
40	Typical Public Toilets Fixtures and Finishes	90 d	Fri 22/07/11	Wed 19/10/11
41	Typical Retail Circulation Corridor Floor/Retail/Ceiling	90 d	Fri 22/07/11	Wed 19/10/11
42	Typical Corridor & Typical Lift Lobby	90 d	Wed 08/02/12	Mon 07/05/12
43	Typical Hotel Guest Room and Corridor	90 d	Wed 08/02/12	Mon 07/05/12
44	Typical Hotel Lift Lobby	90 d	Wed 08/02/12	Mon 07/05/12
45	Typical Hotel/Typical Retail Lift Car Interior	30 d	Fri 29/06/12	Sat 28/07/12
46	Tower Crane Operation	**625 d**	**Mon 07/03/11**	**Tue 20/11/12**
47	Installation and operation	618 d	Mon 07/03/11	Tue 13/11/12
48	Dismantling	7 d	Wed 14/11/12	Tue 20/11/12
49	Material/Passenger Hoist Operation	**458 d**	**Wed 20/07/11**	**Fri 19/10/12**
50	**Installation and operation**	451 d	Wed 20/07/11	Fri 12/10/12
51	**Dismantling**	7 d	Sat 13/10/12	Fri 19/10/12
52	Stamford Canal	**724 d**	**Wed 15/12/10**	**Fri 07/12/12**
53	Subcontractor Selecion	32 d	Wed 15/12/10	Sat 15/01/11
54	Design Development and Approval	60 d	Wed 15/12/10	Sat 12/02/11
55	**PC Beam & Slab Installation**	**66 d**	**Wed 15/12/10**	**Fri 18/02/11**
56	Design Development	30 d	Wed 15/12/10	Thu 13/01/11
57	Fabrication	21 d	Fri 14/01/11	Thu 03/02/11
58	Installation	15 d	Fri 04/02/11	Fri 18/02/11
59	Canal Hanging	199 d	Sun 13/02/11	Tue 30/08/11
60	Excavation/Steel Support Installation/Temp. Struting/Soil Improvement	143 d	Wed 31/08/11	Fri 20/01/12
61	Micropile Installation	90 d	Sat 21/01/12	Thu 19/04/12
62	B2 Slab & Precap Casting	60 d	Fri 20/04/12	Mon 18/06/12
63	B2 Wall Casting	29 d	Tue 19/06/12	Sun 08/07/12
64	Support Conc Slab Casting	22 d	Mon 09/07/12	Mon 30/07/12
65	Steel Support Removal & Back Fill	40 d	Tue 31/07/12	Sat 08/09/12
66	Finishings	90 d	Sun 09/09/12	Fri 07/12/12
67	Passway Connection	**493 d**	**Wed 03/08/11**	**Fri 07/12/12**
68	**B2 Floor**	**90 d**	**Wed 03/08/11**	**Mon 31/10/11**
69	To 313 Somerset Central (1 No)	90 d	Wed 03/08/11	Mon 31/10/11
70	To Orchard Centural (1 No)	90 d	Wed 03/08/11	Mon 31/10/11
71	**B1 Floor**	**493 d**	**Wed 03/08/11**	**Fri 07/12/12**
72	**To Somerset MRT Station (2 No)**	**493 d**	**Wed 03/08/11**	**Fri 07/12/12**
73	Preparation of Methodstatement	30 d	Wed 03/08/11	Thu 01/09/11
74	Approval of Methodstatement	60 d	Wed 03/08/11	Sat 01/10/11
75	Soldier Pile JGP Installation	100 d	Sun 02/10/11	Mon 09/01/12
76	Knock Out Panel (D-Wall)	30 d	Tue 10/01/12	Wed 08/02/12
77	Excavation and Temp Struts Installation	60 d	Thu 09/02/12	Sun 08/04/12
78	Micropile Installation	30 d	Mon 09/04/12	Tue 08/05/12
79	B1 Slab Concrete Casting	23 d	Wed 09/05/12	Thu 31/05/12
80	Blast Door Installation	100 d	Fri 01/06/12	Sat 08/09/12
81	Ground Slab Concrete Casting	40 d	Sun 09/09/12	Thu 18/10/12
82	Other Finishing Works	50 d	Fri 19/10/12	Fri 07/12/12
83	To Orchard Central (1 No)	150 d	Wed 03/08/11	Fri 30/12/11
84	**To Orchard Central**	**135 d**	**Thu 28/07/12**	**Fri 07/12/12**
85	1st Floor	25 d	Thu 28/07/12	Sun 19/08/12
86	2nd Floor	25 d	Mon 20/08/12	Thu 13/09/12
87	3rd Floor	25 d	Fri 14/09/12	Mon 08/10/12
88	4th Floor	25 d	Tue 09/10/12	Fri 02/11/12
89	5th Floor	18 d	Sat 03/11/12	Tue 20/11/12
90	6th Floor	17 d	Wed 21/11/12	Fri 07/12/12
91	ERSS	**693 d**	**Wed 08/09/10**	**Tue 31/07/12**
92	ERSS Preparation	50 d	Wed 08/09/10	Wed 27/10/10
93	Getting approval of Authorities(LTA/BCA)	45 d	Thu 28/10/10	Sat 11/12/10
94	Monitoring	588 d	Sun 12/12/10	Tue 31/07/12
95	RC Works	**592 d**	**Mon 27/09/10**	**Thu 10/05/12**
96	Capping Beam	**86 d**	**Wed 27/10/10**	**Thu 20/01/11**
97	Subcontractor Selecion	45 d	Wed 27/10/10	Fri 10/12/10
98	Concrete Casting	40 d	Sun 12/12/10	Thu 20/01/11
99	King Post Connection	**146 d**	**Mon 27/09/10**	**Sat 19/02/11**
100	**Subcontractor Selection**	25 d	Mon 27/09/10	Thu 21/10/10
101	Method Statement Submission and Approval	30 d	Fri 22/10/10	Sat 20/11/10
102	Excavation	45 d	Sun 12/12/10	Tue 25/01/11
103	Connection	40 d	Wed 22/12/10	Sun 30/01/11
104	Testing	45 d	Thu 06/01/11	Sat 19/02/11
105	1st Floor	35 d	Mon 31/01/11	Sun 06/03/11
106	Sub Structure	**176 d**	**Mon 07/03/11**	**Mon 29/08/11**
107	B1 Floor	45 d	Mon 07/03/11	Wed 20/04/11
108	B1 Wall/Column (Including D-Wall Rectification)	45 d	Mon 28/03/11	Wed 11/05/11
109	Elev. Pit Slab	30 d	Thu 21/04/11	Fri 20/05/11
110	Elev. Pit Wall	21 d	Sat 21/05/11	Fri 10/06/11
111	Pile Caps	60 d	Thu 21/04/11	Sun 19/06/11
112	B2 Floor	45 d	Thu 17/05/11	Sat 25/06/11
113	B2 Wall/Column (Including D-Wall Rectification)	45 d	Wed 01/06/11	Fri 15/07/11
114	B1 Skin Wall	90 d	Mon 28/03/11	Sat 25/06/11
115	B2 Skin Wall	90 d	Wed 01/06/11	Mon 29/08/11
116	Super Structure	**386 d**	**Thu 21/04/11**	**Thu 10/05/12**
117	2nd Floor	30 d	Thu 21/04/11	Fri 20/05/11
118	**3rd Floor**	25 d	Sat 21/05/11	Tue 14/06/11
119	4th Floor	20 d	Wed 15/06/11	Mon 04/07/11
120	**5th Floor**	15 d	Tue 05/07/11	Tue 19/07/11
121	**6th Floor**	15 d	Wed 20/07/11	Wed 03/08/11
122	**7th Floor**	15 d	Thu 04/08/11	Thu 18/08/11
123	**8th Floor**	15 d	Fri 19/08/11	Fri 02/09/11
124	**9th Floor**	15 d	Sat 03/09/11	Sat 17/09/11
125	**10th Floor**	20 d	Sun 18/09/11	Fri 07/10/11
126	11th Floor (Transfer Girder)	40 d	Sat 08/10/11	Wed 16/11/11
127	12th Floor	15 d	Thu 17/11/11	Thu 01/12/11
128	13th Floor (Transfer Girder)	40 d	Fri 02/12/11	Tue 10/01/12
129	14th Floor	14 d	Wed 11/01/12	Tue 24/01/12
130	15th Floor	14 d	Wed 25/01/12	Tue 07/02/12
131	16th Floor	10 d	Wed 08/02/12	Fri 17/02/12
132	17th Floor	10 d	Sat 18/02/12	Mon 27/02/12
133	18th Floor	10 d	Tue 28/02/12	Thu 08/03/12
134	19th Floor	20 d	Fri 09/03/12	Wed 28/03/12
135	20th Floor	14 d	Thu 29/03/12	Wed 11/04/12
136	Roof Floor	14 d	Thu 12/04/12	Wed 25/04/12
137	**Lift Mortor Room Roof**	**15 d**	**Thu 26/04/12**	**Thu 10/05/12**
138	Roof Steel Structure	**340 d**	**Sat 08/10/11**	**Tue 11/09/12**
139	Sub Contractor Selection	60 d	Sat 08/10/11	Tue 06/12/11
140	Shop Drawing Development & Approval	90 d	Wed 07/12/11	Mon 05/03/12
141	Structural Steel Fabrication	100 d	Tue 06/03/12	Wed 13/06/12
142	Scaffolding Erection	20 d	Thu 14/06/12	Tue 03/07/12
143	Structural Steel Erection	30 d	Wed 04/07/12	Thu 02/08/12
144	Cladding	40 d	Fri 03/08/12	Tue 11/09/12
145	Roof Finish	**103 d**	**Fri 03/08/12**	**Tue 13/11/12**
146	Waterproofing	30 d	Fri 03/08/12	Sat 01/09/12
147	Water Tightness Test	14 d	Sun 02/09/12	Sat 15/09/12
148	Screeding	19 d	Sun 16/09/12	Thu 04/10/12
149	Finishing	40 d	Fri 05/10/12	Tue 13/11/12
150	AL. Curtain Wall	**586 d**	**Wed 12/01/11**	**Sun 19/08/12**
151	Module Confirmation	30 d	Wed 12/01/11	Thu 10/02/11
152	Cast-in Bracket Design and Layout	30 d	Wed 12/01/11	Thu 10/02/11
153	Sample Submission	45 d	Wed 12/01/11	Fri 25/02/11
154	Visual Mock Up	120 d	Sat 26/02/11	Sat 25/06/11
155	Performance Prototype Test	21 d	Sun 26/06/11	Sat 16/07/11
156	BCA Submission & Approval	30 d	Sun 17/07/11	Mon 15/08/11
157	Fabrication	370 d	Tue 16/08/11	Sun 19/08/12
158	**Installation**	**316 d**	**Sun 25/09/11**	**Sun 05/08/12**
159	Podium	180 d	Sun 25/09/11	Thu 22/03/12
160	Tower	180 d	Wed 08/02/12	Sun 05/08/12
161	BMU	**723 d**	**Thu 16/12/10**	**Fri 07/12/12**
162	Subcon Selection	30 d	Thu 16/12/10	Fri 14/01/11
163	Shop Drawing Development & Approval	150 d	Sat 15/01/11	Mon 13/06/11
164	Manufacturing	150 d	Tue 14/06/11	Thu 10/11/11
165	Delivery	120 d	Fri 11/11/11	Fri 09/03/12
166	Embedment Installation	158 d	Sat 10/03/12	Tue 14/08/12
167	Installaion	115 d	Wed 15/08/12	Fri 07/12/12
168	*Phase 1 (Basement, Retail & Carpark)*	**527 d**	**Tue 31/05/11**	**Wed 07/11/12**
169	Finishing Works	**380 d**	**Tue 25/10/11**	**Wed 07/11/12**
170	Wall Partition	275 d	Tue 25/10/11	Wed 25/07/12
171	Door Frame	275 d	Tue 15/11/11	Wed 15/08/12
172	Plastering/Wall Tile	275 d	Tue 06/12/11	Wed 05/09/12
173	Suspended Ceiling	275 d	Tue 27/12/11	Wed 26/09/12
174	Screed/Floor Tile	275 d	Tue 27/12/11	Wed 26/09/12
175	Misc. Metal Works	275 d	Tue 17/01/12	Wed 11/10/12
176	Paint & Coating	275 d	Tue 07/02/12	Wed 07/11/12
177	Stone Works for Retail	**455 d**	**Tue 31/05/11**	**Tue 28/08/12**
178	Block Production/Fabrication	210 d	Tue 31/05/11	Mon 26/12/11
179	Material Delivery	194 d	Wed 29/03/11	Sun 08/04/12
180	Wall Stone Installation	224 d	Thu 15/12/11	Wed 25/07/12
181	Floor Stone Installation	228 d	Sat 14/01/12	Tue 28/08/12
182	*Phase 2 (Link Bridge)*	**448 d**	**Sat 17/09/11**	**Fri 07/12/12**
183	Material Procurement	90 d	Sat 17/09/11	Thu 15/12/11
184	Fabrication	160 d	Fri 16/12/11	Wed 23/05/12
185	Connection	45 d	Thu 24/05/12	Sat 07/07/12
186	Aluminum and Glazing	73 d	Sun 08/07/12	Tue 18/09/12
187	Finishing	80 d	Wed 19/09/12	Fri 07/12/12
188	*Phase 3 (Hotel Finishing & ID Fit Out)*	**443 d**	**Wed 22/02/12**	**Thu 09/05/13**
189	Finishing Works	**443 d**	**Wed 22/02/12**	**Thu 09/05/13**
190	Wall Partition	268 d	Wed 22/02/12	Thu 15/11/12
191	Door Sub-Frame	268 d	Fri 09/03/12	Sat 01/12/12
192	Wall Plastering	269 d	Sun 25/03/12	Mon 17/12/12
193	Waterproofing/Water Ponding Test	268 d	Tue 10/04/12	Wed 02/01/13
194	Wall Marble/Tile	268 d	Tue 08/05/12	Wed 30/01/13
195	Ceiling Works	268 d	Fri 25/05/12	Sat 16/02/13
196	Floor Marble/Tile	268 d	Mon 11/06/12	Tue 05/03/13
197	Paint (Primer & 1st Coat)	268 d	Thu 28/06/12	Fri 22/03/13
198	Timber Door Frame	268 d	Sat 14/07/12	Sun 07/04/13
199	Door Leaf	268 d	Mon 30/07/12	Tue 23/04/13
200	Paint (Final Coating)	268 d	Wed 15/08/12	Thu 09/05/13
201	ID Fit Out Works	**740 d**	**Sun 01/05/11**	**Thu 09/05/13**
202	Material Selection	90 d	Sun 01/05/11	Fri 29/07/11
203	Mock Up	90 d	Sat 30/07/11	Thu 27/10/11
204	Material Delivery	90 d	Fri 28/10/11	Wed 25/01/12
205	**Installation**	**428 d**	**Thu 08/03/12**	**Thu 09/05/13**
206	Phase-1	245 d	Thu 08/03/12	Wed 07/11/12
207	Phase-3	238 d	Fri 14/09/12	Thu 09/05/13
208	External Works	**191 d**	**Fri 11/05/12**	**Sat 17/11/12**
209	**Drainage Works**	120 d	Fri 11/05/12	Fri 07/09/12
210	Paving Works	146 d	Mon 25/06/12	Sat 17/11/12
211	Landscaping	**190 d**	**Thu 15/03/12**	**Thu 20/09/12**
212	Soil Filling	90 d	Thu 15/03/12	Tue 12/06/12
213	Installation	100 d	Wed 13/06/12	Thu 20/09/12
214	M&E Installation	**992 d**	**Fri 20/08/10**	**Tue 07/05/13**
215	NSC Selection	**134 d**	**Fri 20/08/10**	**Fri 31/12/10**
216	Plumbing, Sanitary, Gas	1 d	Fri 20/08/10	Fri 20/08/10
217	Fire Fighting	1 d	Fri 20/08/10	Fri 20/08/10
218	ACMV	1 d	Fri 20/08/10	Fri 20/08/10
219	Peumatic waste collection system	1 d	Wed 15/12/10	Wed 15/12/10
220	Electric	1 d	Fri 17/09/10	Fri 17/09/10
221	Lift	1 d	Mon 20/09/10	Mon 20/09/10
222	swimming pool & Water Feature	1 d	Fri 31/12/10	Fri 31/12/10
223	Mobilization	**30 d**	**Thu 16/12/10**	**Fri 14/01/11**
224	All M&E NSC	30 d	Thu 16/12/10	Fri 14/01/11
225	Shop drawing Submission	**360 d**	**Wed 15/09/10**	**Fri 09/09/11**
226	**Plumbing,sanitary,gas,Fire fighting, ACMV, PWCS,Water feature ar**	**360 d**	**Wed 15/09/10**	**Fri 09/09/11**
227	B1~Underground	70 d	Wed 15/09/10	Tue 23/11/10
228	1F~4F	120 d	Wed 24/11/10	Wed 23/03/11
229	5F~10F	100 d	Thu 24/03/11	Fri 01/07/11
230	11F~Roof	70 d	Sat 02/07/11	Fri 09/09/11
231	**Electic , Lift**	109 d	Mon 20/12/10	Thu 07/04/11
232	CSD Submission	**360 d**	**Fri 15/10/10**	**Sat 29/10/11**
233	B1~Underground	90 d	Fri 15/10/10	Wed 12/01/11
234	1F~4F	120 d	Thu 13/01/11	Thu 12/05/11
235	5F~10F	100 d	Fri 13/05/11	Sat 20/08/11
236	11F~Roof	70 d	Sun 21/08/11	Sat 29/10/11
237	CSD Approval from consultant	**380 d**	**Sat 13/11/10**	**Sun 27/11/11**
238	B1~Underground	90 d	Sat 13/11/10	Thu 10/02/11
239	1F~4F	120 d	Fri 11/02/11	Fri 10/06/11
240	5F~10F	100 d	Sat 11/06/11	Sun 18/09/11
241	11F~Roof	70 d	Mon 19/09/11	Sun 27/11/11
242	RAM	**273 d**	**Wed 01/09/10**	**Tue 31/05/11**
243	Plumbing,sanitary,gas,Fire fighting, ACMV, PWCS, Electric.	181 d	Wed 01/09/10	Mon 28/02/11
244	Water feature and pool	151 d	Sat 01/01/11	Tue 31/05/11
245	Lift	59 d	Fri 17/12/10	Sun 13/02/11
246	Plumbing, Sanitary, Gas	**878 d**	**Sun 12/12/10**	**Tue 07/05/13**
247	**Installation**	**833 d**	**Sun 12/12/10**	**Sat 23/03/13**
248	Sleeve installation	516 d	Sun 12/12/10	Thu 10/05/12
249	Piping equipment s. ware installation(Podium & Carpark).	492 d	Wed 15/06/11	Thu 18/10/12
250	Piping equipment and sanitary ware installation(Hotel).	156 d	Fri 19/10/12	Sat 23/03/13
251	**Test & Commissioning.**	**201 d**	**Fri 19/10/12**	**Tue 07/05/13**
252	Phase 1 & 2	50 d	Fri 19/10/12	Fri 07/12/12
253	Phase 3	45 d	Sun 24/03/13	Tue 07/05/13
254	**Sanitary Clearance**	**201 d**	**Fri 19/10/12**	**Tue 07/05/13**
255	Phase 1 & 2	50 d	Fri 19/10/12	Fri 07/12/12
256	Phase 3	45 d	Sun 24/03/13	Tue 07/05/13
257	**Water Turn-on**	**201 d**	**Fri 19/10/12**	**Tue 07/05/13**
258	Phase 1 & 2	50 d	Fri 19/10/12	Fri 07/12/12
259	Phase 3	45 d	Sun 24/03/13	Tue 07/05/13
260	**Gas Turn-on**	**201 d**	**Fri 19/10/12**	**Tue 07/05/13**
261	Phase 1 & 2	50 d	Fri 19/10/12	Fri 07/12/12
262	Phase 3	45 d	Sun 24/03/13	Tue 07/05/13
263	Fire Fighting	**878 d**	**Sun 12/12/10**	**Tue 07/05/13**
264	**Installation**	**798 d**	**Sun 12/12/10**	**Sat 16/02/13**
265	Sleeve installation	516 d	Sun 12/12/10	Thu 10/05/12
266	Piping equipment and finishing acc'y installation(Podium)	462 d	Wed 15/06/11	Tue 18/09/12
267	Piping equipment and finishing acc'y installation(Hotel)	151 d	Wed 19/09/12	Sat 16/02/13
268	Roof Fire Pump Room Finishing	50 d	Thu 26/04/12	Thu 14/06/12
269	Roof Fire Pump Room Hand Over to M&E NSC	1 d	Fri 15/06/12	Fri 15/06/12
270	Roof Fire Pump M&E Works	95 d	Sat 16/06/12	Tue 18/09/12
271	**Individual Test**	**191 d**	**Wed 19/09/12**	**Thu 28/03/13**
272	Phase 1 & 2	40 d	Wed 19/09/12	Sun 28/10/12
273	Phase 3	40 d	Sun 17/02/13	Thu 28/03/13
274	**Combine Test**	**191 d**	**Mon 29/10/12**	**Tue 07/05/13**
275	Phase 1 & 2	40 d	Mon 29/10/12	Fri 07/12/12
276	Phase 3	40 d	Fri 26/03/13	Tue 07/05/13
277	ACMV	**878 d**	**Sun 12/12/10**	**Tue 07/05/13**
278	**Installation**	**798 d**	**Sun 12/12/10**	**Sat 16/02/13**
279	Sleeve installation	516 d	Sun 12/12/10	Thu 10/05/12
280	Piping,ducting, equipment, duct acc'y installation(Podium).	462 d	Wed 15/06/11	Tue 18/09/12
281	Piping,ducting, equipment, duct acc'y installation(Hotel).	151 d	Wed 19/09/12	Sat 16/02/13
282	Chiller Plant Room Finishing	150 d	Sat 08/09/11	Mon 05/03/12
283	Chiller Plant Room Hand Over to M&E NSC	1 d	Tue 06/03/12	Tue 06/03/12
284	Chiller Plant Room M&E Works	196 d	Wed 07/03/12	Tue 18/09/12
285	**Individual Test & Commissioning.**	**191 d**	**Wed 19/09/12**	**Thu 28/03/13**
286	Phase 1 & 2	40 d	Wed 19/09/12	Sun 28/10/12
287	Phase 3	40 d	Sun 17/02/13	Thu 28/03/13
288	**Combine Test**	**191 d**	**Mon 29/10/12**	**Tue 07/05/13**
289	Phase 1 & 2	40 d	Mon 29/10/12	Fri 07/12/12
290	Phase 3	40 d	Fri 26/03/13	Tue 07/05/13
291	PWCS	**878 d**	**Sun 12/12/10**	**Tue 07/05/13**
292	**Installation**	**682 d**	**Sun 12/12/10**	**Tue 23/10/12**
293	Sleeve installation	530 d	Sun 12/12/10	Thu 24/05/12
294	Piping equipment and finishing acc'y installation.	365 d	Tue 25/10/11	Tue 23/10/12
295	**Test & Commissioning.**	**196 d**	**Wed 24/10/12**	**Tue 07/05/13**
296	Phase 1 & 2	45 d	Wed 24/10/12	Fri 07/12/12
297	Phase 3	45 d	Sun 24/03/13	Tue 07/05/13
298	Electrical Installation	**878 d**	**Sun 12/12/10**	**Tue 07/05/13**
299	Elec. Conduit, Trunking & Tray	350 d	Sun 12/12/10	Sat 26/11/11
300	Electrical Cabling	350 d	Mon 11/04/11	Sun 25/03/12
301	Electrical 2nd Fixes	365 d	Tue 25/10/11	Tue 23/10/12
302	Electrical Final Fixes	350 d	Sun 08/04/12	Sat 23/03/13
303	**Test & Commisioning**	**196 d**	**Wed 24/10/12**	**Tue 07/05/13**
304	Phase 1&2	45 d	Wed 24/10/12	Fri 07/12/12
305	Phase 3	45 d	Sun 24/03/13	Tue 07/05/13
306	Decorative Light Fitting	**632 d**	**Mon 15/08/11**	**Tue 07/05/13**
307	Subcon Selection	1 d	Mon 15/08/11	Mon 15/08/11
308	Material Selection	90 d	Sat 15/10/11	Thu 12/01/12
309	Delivery	151 d	Fri 13/01/12	Mon 11/06/12
310	Installation	426 d	Thu 08/03/12	Tue 07/05/13
311	Lift Installation	**597 d**	**Tue 23/08/11**	**Wed 10/04/13**
312	Manufacturing	151 d	Tue 23/08/11	Fri 20/01/12
313	Delivery of Equipment	90 d	Sat 21/01/12	Tue 20/03/12
314	Scaffold erection & Plumbing	30 d	Wed 21/03/12	Thu 19/04/12
315	Guide rail ordering & installation of brackets	86 d	Fri 11/05/12	Sat 04/08/12
316	Guide rail installation & adjustment	86 d	Fri 18/05/12	Sat 11/08/12
317	Entrance jambs installation	86 d	Fri 25/05/12	Sat 18/08/12
318	Hoistway wiring works	86 d	Fri 01/06/12	Sat 25/08/12
319	Jamb brickwork & grouting(by MC)	86 d	Fri 08/06/12	Sat 01/09/12
320	Landing door fixing	86 d	Fri 15/06/12	Sat 08/09/12
321	Traction Machine Installation	86 d	Fri 22/06/12	Sat 15/09/12
322	Car frame, wire rope & c/w fixing	86 d	Fri 29/06/12	Sat 22/09/12
323	Car panels installation with car top wiring work	86 d	Fri 06/07/12	Sat 29/09/12
324	Car interior installation	86 d	Sun 29/07/12	Mon 22/10/12
325	**Test & Commissioning**	**155 d**	**Sun 23/09/12**	**Sun 24/02/13**
326	Phase 1&2	20 d	Sun 23/09/12	Fri 12/10/12
327	Phase 3	45 d	Fri 11/01/13	Sun 24/02/13
328	**Combine Test**	**180 d**	**Sat 13/10/12**	**Wed 10/04/13**
329	Phase 1 & 2	31 d	Sat 13/10/12	Mon 12/11/12
330	Phase 3	45 d	Mon 25/02/13	Wed 10/04/13
331	Escalator Installation	**205 d**	**Thu 17/05/12**	**Fri 07/12/12**
332	Delivery of Equipment	59 d	Thu 17/05/12	Thu 05/07/12
333	Hoisting & Assembly Truss	30 d	Fri 06/07/12	Sat 04/08/12
334	Setting	30 d	Sun 05/08/12	Mon 03/09/12
335	Installation of step, side guard panel & etc	30 d	Tue 04/09/12	Wed 03/10/12
336	Cladding Works	40 d	Thu 04/10/12	Mon 12/11/12
337	Test & Commissioning.	25 d	Tue 13/11/12	Fri 07/12/12
338	Water feature and pool	**829 d**	**Mon 31/01/11**	**Tue 07/05/13**
339	**Installation**	**615 d**	**Mon 31/01/11**	**Sat 06/10/12**
340	Sleeve installation	530 d	Mon 31/01/11	Fri 13/07/12
341	Piping,equipment and acc'y installation.	480 d	Wed 15/06/11	Sat 06/10/12
342	**Test & Commissioning.**	**213 d**	**Sun 07/10/12**	**Tue 07/05/13**
343	Phase 1 & 2	62 d	Sun 07/10/12	Fri 07/12/12
344	Phase 3	62 d	Thu 07/03/13	Tue 07/05/13
345	Retractable Hoist	**467 d**	**Sun 05/12/10**	**Thu 15/03/12**
346	Subcon Selection	60 d	Sun 05/12/10	Wed 02/02/11
347	Material Submission and Approval	77 d	Thu 03/02/11	Wed 20/04/11
348	Installation (Embedment)	150 d	Thu 21/04/11	Sat 17/09/11
349	Material Delivery	150 d	Mon 20/06/11	Wed 16/11/11
350	Installation	120 d	Thu 17/11/11	Thu 15/03/12
351	Sub-Station Hand-over	**249 d**	**Wed 02/11/11**	**Sat 07/07/12**
352	Internal Arch.Work	60 d	Wed 02/11/11	Sat 31/12/11
353	Internal M&E Work	74 d	Sun 01/01/12	Wed 14/03/12
354	Power Grid inspection	7 d	Thu 15/03/12	Wed 21/03/12
355	Rectification Work	21 d	Thu 22/03/12	Wed 11/04/12
356	Power Grid final inspection	7 d	Thu 12/04/12	Wed 18/04/12
357	Hand-over	3 d	Thu 19/04/12	Sat 21/04/12
358	Power Grid installation	75 d	Sun 22/04/12	Thu 05/07/12
359	Power Turn on	2 d	Fri 06/07/12	Sat 07/07/12
360	M & E Room Hand-over to NSC	**267 d**	**Sun 18/09/11**	**Sun 10/06/12**
361	HT & LVSwitch Room, Transformer Room(9F)	10 d	Thu 17/11/11	Sat 26/11/11
362	MDF Room(5F)	10 d	S

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	1/12/08	12/5/08							22/5/08
Power Supply Substation	SP PowerGrid Ltd	1/3/09	1/7/08	29/7/08	12/8/08	-	25/1/11			1/9/08
Metering Layout	SP Services Ltd	15/6/11								
Sanitary Installation	PUB Water Reclamation (Network) Dept	30/11/10	10/12/10	15/12/10						Pending Architect's DC Clearance
Domestic Water Supply	PUB (Water Supply) Network Dept	15/11/10	9/11/10	22/12/10	25/1/11					
Gas Supply Installation	City Gas Pte Ltd	25/9/10	21/9/10	3/12/10 29/12/10	20/12/10 4/1/11	7/1/11	13/1/11			
Air Conditioning & Ventilation Inst.	FSSD	15/6/11								
Fire Fighting & Alarm Installation	FSSD	29/4/11								
Telephone Installation	TFCC	10/9/10	8/9/10	3/9/10	7/9/10					17/9/10
Broadband Co-axial Cable System (BCS)	TFCC	10/9/10	8/9/10	3/9/10	7/9/10					17/9/10
Fuel Storage (By Sub-contractor)	FSSD	TBA								
	NEA (Pollution Control)									

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)	TFCC									
Fuel Storage	FSSD									
	NEA (Pollution Control)									

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

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

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
PP / VO	✓				

(✓*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	NHS
Incoming Architectural Sketches/Details	NHS
Incoming Structural Drawings	NHS
M&E Drawings	
- Electrical Installation	OBK
- Lift & Escalator Installation	OBK
- Air Conditioning & Ventilation Installation	NHS
- Fire Fighting & Alarm Installation	NHS
- Plumbing & Sanitary Installation	NHS
- Swimming Pool & Filtration Installation	NHS
Other Drawings	
- Interior Design	OBK
- Landscape/Waterscape	OBK

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	C	I	I	
b.	Project Administration	-	A	C	I	I	
c.	Project Cost Estimate/Contract Cost	-	A	-	-	I	
2.	**Drawings**						
a.	Outline Design Drgs.	-	A	C	I	I	
b.	Sketch Design Drgs.	-	A	C	I	I	
c.	Final Design Drgs.	-	A	C	I	I	
d.	Shop Drawings	-	C	C	C	-	
e.	As Built Drgs.	-	C	C	C	-	
3.	**Other Document**						
a.	Specification	-	A	C	C	C	
b.	Tender Document	-	A	C	C	C	
c.	Design Report	-	A	C	I	I	
d.	Tender Evaluation Report	-	A	-	-	C	
e.	Progress Report	-	-	-	-	-	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	-	I	I	I	I	
h.	Inspection Report	-	I	I	-	-	
i.	Testing & Comm. Report	-	I	I	-	-	
j.	O & M Manual	-	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 Questionaires	✓	✓	✓		
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
Employer's Requirements and Tender Drawings from Belmacs	CCG (Mech) /GSH (Elect)

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~~	SS	~~AS~~	
Mechanical Smoke Control System	~~BS~~	~~NFPA~~	SS	~~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	2.30	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.	✓
Gensize 2	2.1	Onan	Generator sizing	✓
Lift Traffic	-	Alpha Consulting Engineers Pte Ltd	Lift traffic calculation	✓
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	✓
Fault Level Calculation	-	Alpha Consulting Engineers Pte Ltd	Calculation of voltage drop and fault level	✓
Dialux	4.80	Philips	Lighting design	✓

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features / Criteria

Item	Remarks
Green Mark	Platinum
Green Design Features	Energy Efficiency Index, Electrical Sub-metering, Energy Efficient Features, Water Usage, CO monitoring, Luminance Level, Innovation

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:	Nil

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	By Previous M&E Consultant
M&E Cost Estimate Report	By Previous M&E Consultant
Pre-Qualification of Tenderers	By Previous M&E Consultant
Tender Documents	By Previous M&E Consultant
Tender Report	C, A
Payment Valuation for QS	By KPK
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 USED

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers

Sub Job No	Description	Allocation Details
6083-610	Underground Pedestrian Walkway	NHS / OBK
6083-608	Displacement Air-Conditioning System	NHS / OBK
6083-607	Chilled Beam for Hotel Guestroom	NHS / OBK
6083-606	Hotel ID Consultant's Requirements/Changes	NHS / OBK
6083-605	Retail ID Consultant's Requirements/Changes	NHS / OBK
6083-604	Lighting Consultant's Requirements/Changes	NHS / OBK
6083-603	Retail Consultant's Requirements/Changes	NHS / OBK
6083-602	Hotel Operator's Requirements/Changes	NHS / OBK
6083-601	Feasibility Study on Relocation of Existing 7-11 Retail at Somerset MRT Station	NHS / OBK