Alpha
Engineering Consultant

PROJECT QUALITY PLAN

PROPOSED SCIENCE & ENGINEERING BUILDING

For

M/S UNSW ASIA

Copy No.	

Prepared By: Soh Kai Yea

Authorized By: Richard Teo

Date: 6 October 2006

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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	1439-PQP File	25 April 2006
2	Soh Kai Yea	25 April 2006

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	25 April 2006	1 to 10	26	+ 2 pgs (Sect 4.1 – Overall Programme & Sec 4.2 – Authority Submission Status for M&E Services)
1	6 October 2006	1 to 10	26	+ 4 pgs (Sect 4.1 – Overall Programme & Sec 4.2 – Authority Submission Status for M&E Services)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Institution

Statistics of Development	
Site Area, m²	4,000
Nett Floor Area, m²	N.A
Construction Floor Area, m²	12,468
Covered Carpark, m²	N.A
No. of Covered Carpark Lots	N.A
No. of Apartments/Houses	N.A.
No. of Beds (for Hospitals)	N.A
No. of Guestroom (for Hotels)	N.A
No. of Blocks / No. of Storeys	1 block / 4 storeys with 1 basement
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1K)										
Services	EI	ACVI	LEI	FFAI	PSI	RO Water	Vacuum System	Comp Air	Fume Cupboards	IT
Estimate	2,900	3,950	520	920	1,050	200	120	120	300	550
Awarded	-	-	-	-	-	-	-	-	-	-

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	N.A	N.A	32.66
Awarded	N.A	N.A	-

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		VACUUM	✓
SECURITY	✓	BST CARPARK EXH	✓	DRY RISER	✓	LPG GAS		FUME CUPBOARD	✓
TELELIFT		HEATING				MEDICAL GAS			
DATA COMM.	✓	AUTO GATE CONTROL				LAB GAS	✓		
FLUSHFLOOR TRUNKING						COMP AIR	✓		

(✓*where applicable*)

2.3.3 Submission to Relevant Authorities by Others

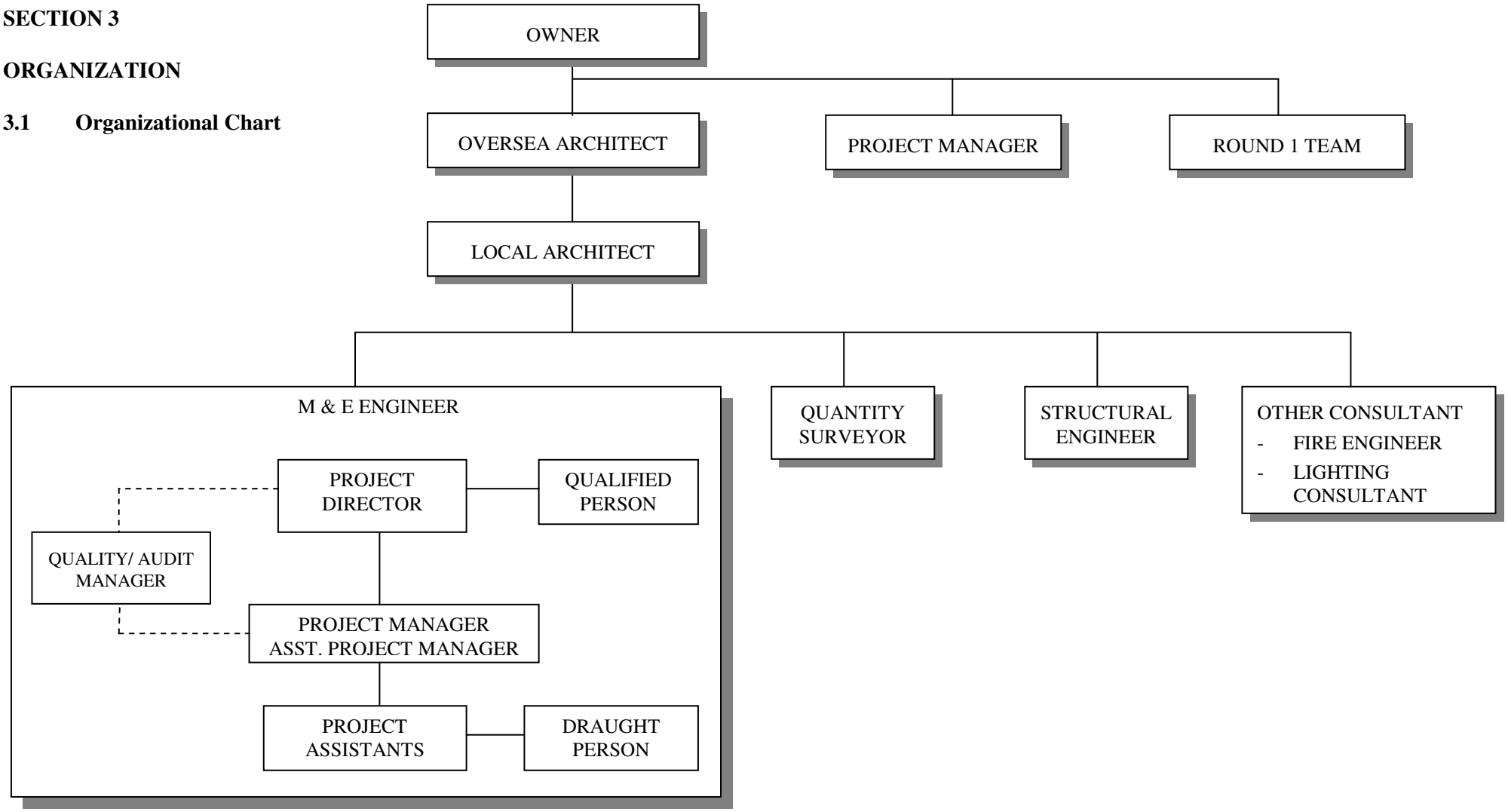
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANIZATION

3.1 Organizational Chart



SECTION 3

ORGANIZATION

3.2 AEC's Project Team Member

TITLE		NAME
Project Director		Richard Teo (RT)
Qualified Person	Mechanical	Andrew Loh (LCT)
	Electrical	Richard Teo (RT)
Project Manager		Soh Kai Yea (SKY)
Assistant Project Manager		Tay Wen Chung (TWC)
Project Assistant (Mech)		Tay Chin Meng (TCM)
Project Assistant (Elect)		Jade Bai Yuchen (JB)
Draughtsperson		Common Pool
Resident Engineer		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client: Campus Development UNSW Asia

Address: The University of New South Wales
Sydney NSW 2052
Australia

Tel: 61 (2) 9385 6996

Fax: 61 (2) 9313 7382

Address: 1 Kay Siang Road
Singapore 248922

Tel: 6304 1000

Fax: 6472 4307

Name of Firm	Contact Person	Contact
UNSW Asia	Name: Mr Tony Inglis Position: Project Director	Tel: +65 6304 1392 Fax: +65 6472 4673 Handphone: +65 9118 3819 Email: t.inglis@unswasia.edu.sg
UNSW Asia	Name: Mr Geoff Hanmer Position: Design Project Manager	Tel: - Fax: +65 6472 4673 Handphone: +65 9004 3462 Email: geoff.hanmer@arina.biz
UNSW Asia	Name: Mr Foo Yit San Position: Senior Project Manager	Tel: +65 6304 1392 Fax: +65 6472 4673 Handphone: - Email: YFoo@channotes.chan.unsw.edu.au
UNSW Asia	Name: Mr Ang Chee Meng Position: Project Co-ordinator	Tel: +65 6304 1375 Fax: +65 6472 4673 Handphone: - Email: cm.ang@unswasia.edu.sg

3.4 **Other Consultants** (Local)

Function / Name of Firm	Contact Person	Contact
Project Manager Burns Bridge Asia Pte Ltd	Name: Mr Andrew Wigg Position: Regional Manager	Tel: 6827 9656 Fax: 6827 9655 Handphone: 9159 7229 Email: andrew.wigg@burnsbridge.com.au
Architect Architect Team 3 (Pte)	Name: Mr Terry Tay Position: Director Name: Mr Kevin Cheai Position: Project Associate	Tel: 6467 2233 Fax: 6466 7810 Handphone: - Email: terry_tay@at3.com.sg Email: kevin@at3.com.sg
Quantity Surveyor Rider Hunt Levett & Bailey	Name: Mr Winston Hauw / Ms Patricia Lim Position: -	Tel: 63391500 Fax: 6339 1521 Handphone: - Email: whauw@rhlb.com.sg / patricialim@rhlb.com.sg
Structural Engineer WorleyParsons Pte Ltd	Name: Mr Adrian Billinghurst Position: General Manager	Tel: 6419 8212 Fax: 6735 7444 Handphone: - Email: adrian.billinghurst@worleyparsons.com
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Mr David Skelley Position: -	Tel: - Fax: - Handphone: - Email: d@djcoalition.com
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Fire Engineer Beca Carter Hollings & Ferner (SEA) Pte Ltd	Name: Ms Yeow Mei L Position: Director	Tel: 6512 9309 Fax: 6225 6937 Handphone: 9625 1906 Email: meil.yeow@beca.com

3.4 **Other Consultants** (Overseas)

Function / Name of Firm	Contact Person	Contact
Architect Johnson Pilton Walker	Name: Mr Kiong Lee / Mr Richard Rowell Position: Director	Tel: + 61 292 595900 Fax: +61 292 595999 Handphone: - Email: kiong.lee@jpw.com.au / richard.Rowell@jpw.com.au
M&E Consultant Steensen Varming	Name: Mr Barry Tam Position: Managing Director	Tel: +61 299 672200 Fax: +61 299 672992 Handphone: +61 0407 276539 Email: barry.tam@steensenvarming.com.au
Quantity Surveyor Project Cost Planning	Name: Mr Peter Goh Position: Managing Director	Tel: 2 9689 2322 Fax: 2 9635 6326 Handphone: 411 475747 Email: petergoh@projectcostplanning.com.au
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 – NOT USED

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor		Name: Position:	Tel Fax: Handphone: Email:
Air Conditioning & Ventilation Installation Sub-Contractor	NSC	Name: Position:	Tel: Fax: Handphone: - Email:
Plumbing & Sanitary Installation Sub-Contractor	NSC	Name: Position:	Tel: Fax: Handphone: Email:
Electrical Installation Sub-Contractor	NSC	Name: Position:	Tel: Fax: Handphone: Email:
Lift & Escalator Installation Sub-Contractor	NSC	Name: Position:	Tel: Fax: Handphone: Email:
Fire Fighting & Alarm Installation Sub-Contractor	NSC	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 – NOT USED

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
SP PowerGrid:		
(a) Sub-Station		
(b) Diversion		
SP Services		
(a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel		
(c) IDA		
BCA:		
(a) Building Plan		
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water)		
(a) Water Conservation		
(b) Plumbing Plan		
(c) Diversion		
PUB (Sewerage):		
(a) Building Plan/CBPU		
(b) M&E Plan		
(c) Diversion		
City Gas:		
(a) Planning/Submission		
(b) Installation/Inspection		
Power Gas		
(a) Diversion		
ENV (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

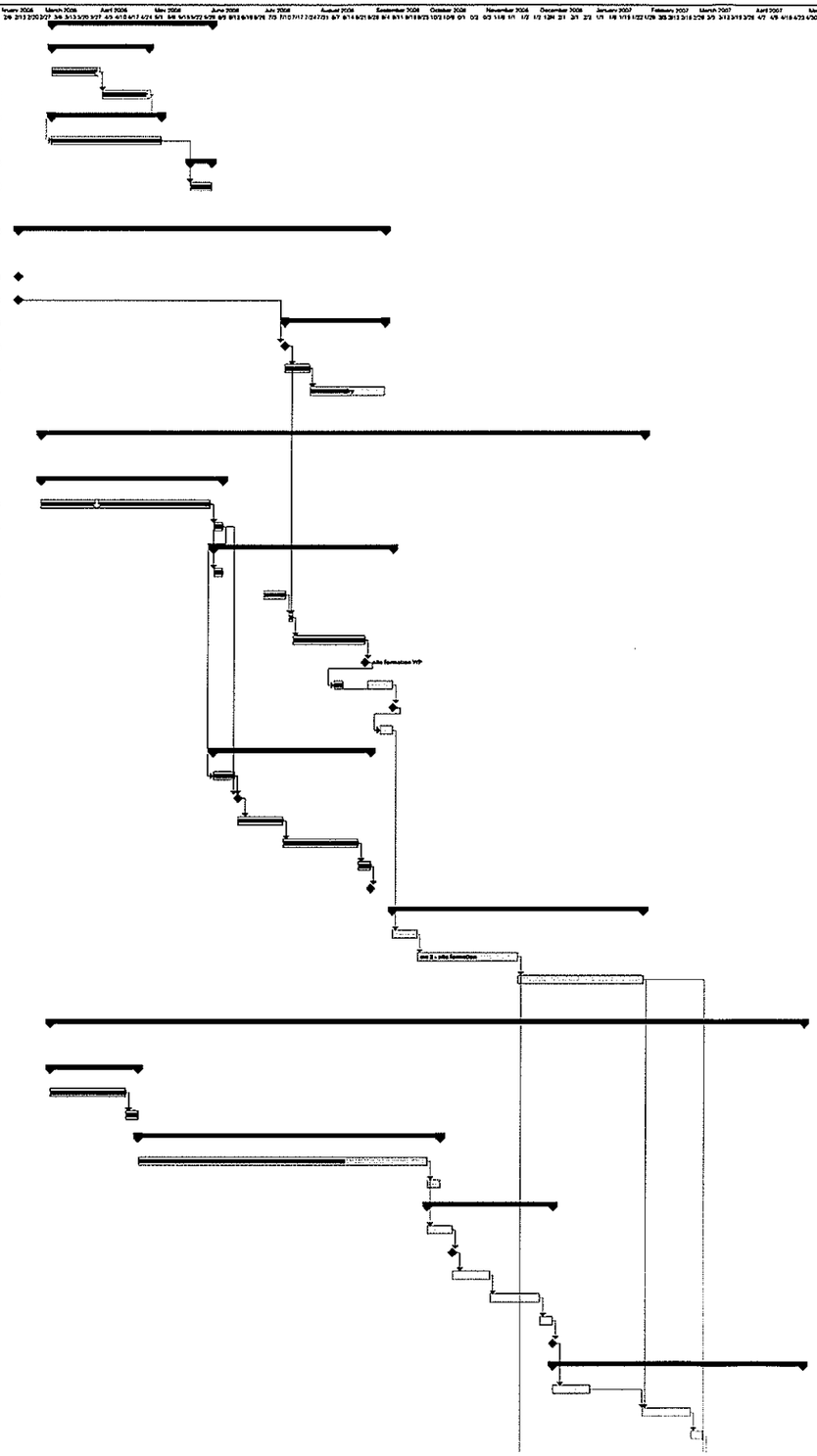
4.1 Overall Programme – (Refer to attached)

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																									

UNSW ASIA - SINGAPORE CAMPUS

MASTER PROGRAM

ID	Task Name	Duration	Start	Finish
1	**Masterplan**	65 days	Mon 3/6/06	Fri 8/2/06
2	**Documentation (report)**	40 days	Mon 3/6/06	Fri 4/28/06
3	prepare documentation	20 days	Mon 3/6/06	Fri 3/31/06
4	review and endorse documentation	20 days	Mon 4/3/06	Fri 4/28/06
5	**Documentation (drawing)**	45 days	Mon 3/6/06	Fri 5/5/06
6	prepare masterplan drawings and tables for submission	45 days	Mon 3/6/06	Fri 5/5/06
7	**Approvals**	10 days	Mon 5/22/06	Fri 6/2/06
8	URA approval	10 days	Mon 5/22/06	Fri 6/2/06
9				
10	**Early works package 1 (nursery)**	148 days	Thu 2/16/06	Thu 9/7/06
11	**Tender**	0 days	Thu 2/16/06	Thu 2/16/06
12	appoint contractor	0 days	Thu 2/16/06	Thu 2/16/06
13	**Construction**	40 days	Fri 7/14/06	Thu 9/7/06
14	sign TOL	0 days	Fri 7/14/06	Fri 7/14/06
15	mobilisation and preliminaries	10 days	Fri 7/14/06	Thu 7/27/06
16	construction	6 wks	Fri 7/28/06	Thu 9/7/06
17				
18	**Early Works Package 2 (Earthworks)**	240 days	Wed 3/1/06	Tue 1/30/07
19	**Documentation**	73 days	Wed 3/1/06	Fri 6/9/06
20	prepare documentation	68 days	Wed 3/1/06	Fri 6/2/06
21	review and approve documentation	5 days	Mon 6/5/06	Fri 6/9/06
22	**Approvals**	72 days	Mon 6/5/06	Tue 9/12/06
23	prepare submission documents	5 days	Mon 6/5/06	Fri 6/9/06
24	submit for JTC & SLA endorsement	10 days	Mon 7/3/06	Fri 7/14/06
25	JTC/SLA issue letter of endorsement	2 days	Mon 7/17/06	Tue 7/18/06
26	URA submission	5.7 wks	Wed 7/19/06	Mon 8/28/06
27	URA approval	0 days	Mon 8/28/06	Mon 8/28/06
28	BCA Submission	2.0 wks	Fri 8/11/06	Tue 9/12/06
29	BCA Approval	0 days	Tue 9/12/06	Tue 9/12/06
30	Permit to Commence Works	5 days	Wed 9/6/06	Tue 9/12/06
31	**Tender**	64 days	Mon 6/5/06	Thu 8/31/06
32	prepare tender documents	10 days	Mon 6/5/06	Fri 6/16/06
33	approval to tender	0 days	Mon 6/19/06	Mon 6/19/06
34	tender	19 days	Mon 6/19/06	Thu 7/13/06
35	negotiation	30 days	Fri 7/14/06	Thu 8/24/06
36	UNSW approval	5 days	Fri 8/25/06	Thu 8/31/06
37	award	0 days	Thu 8/31/06	Thu 8/31/06
38	**Construction**	106 days	Wed 9/13/06	Tue 1/30/07
39	mobilisation	10 days	Wed 9/13/06	Tue 9/26/06
40	excavation (Round 1 & 2 footprint, part main gully)	40 days	Wed 9/27/06	Tue 11/21/06
41	excavation (remainder)	50 days	Wed 11/22/06	Tue 1/30/07
42				
43	**Early Works Package 3 (soft landscape)**	301 days	Tue 3/7/06	Tue 5/1/07
44	**Schematic design**	35 days	Tue 3/7/06	Mon 4/24/06
45	schematic design	30 days	Tue 3/7/06	Mon 4/17/06
46	review and approval	5 days	Tue 4/18/06	Mon 4/24/06
47	**Design Development & Documentation**	120 days	Tue 4/25/06	Mon 10/9/06
48	design development	115 days	Tue 4/25/06	Mon 10/2/06
49	review and approval	5 days	Tue 10/3/06	Mon 10/9/06
50	**Tender**	50 days	Tue 10/3/06	Mon 12/11/06
51	prepare tender documents	10 days	Tue 10/3/06	Mon 10/16/06
52	approval to tender	0 days	Mon 10/16/06	Mon 10/16/06
53	tender	15 days	Tue 10/17/06	Mon 11/6/06
54	negotiation and recommendation	20 days	Tue 11/7/06	Mon 12/4/06
55	UNSW approval	5 days	Tue 12/5/06	Mon 12/11/06
56	award	0 days	Mon 12/11/06	Mon 12/11/06
57	**Construction**	101 days	Tue 12/12/06	Tue 5/1/07
58	procurement of plants	15 days	Tue 12/12/06	Mon 1/1/07
59	landscaping (finger 3 prototype)	20 days	Wed 1/31/07	Tue 2/27/07
60	approval of prototype	5 days	Wed 2/28/07	Tue 3/6/07

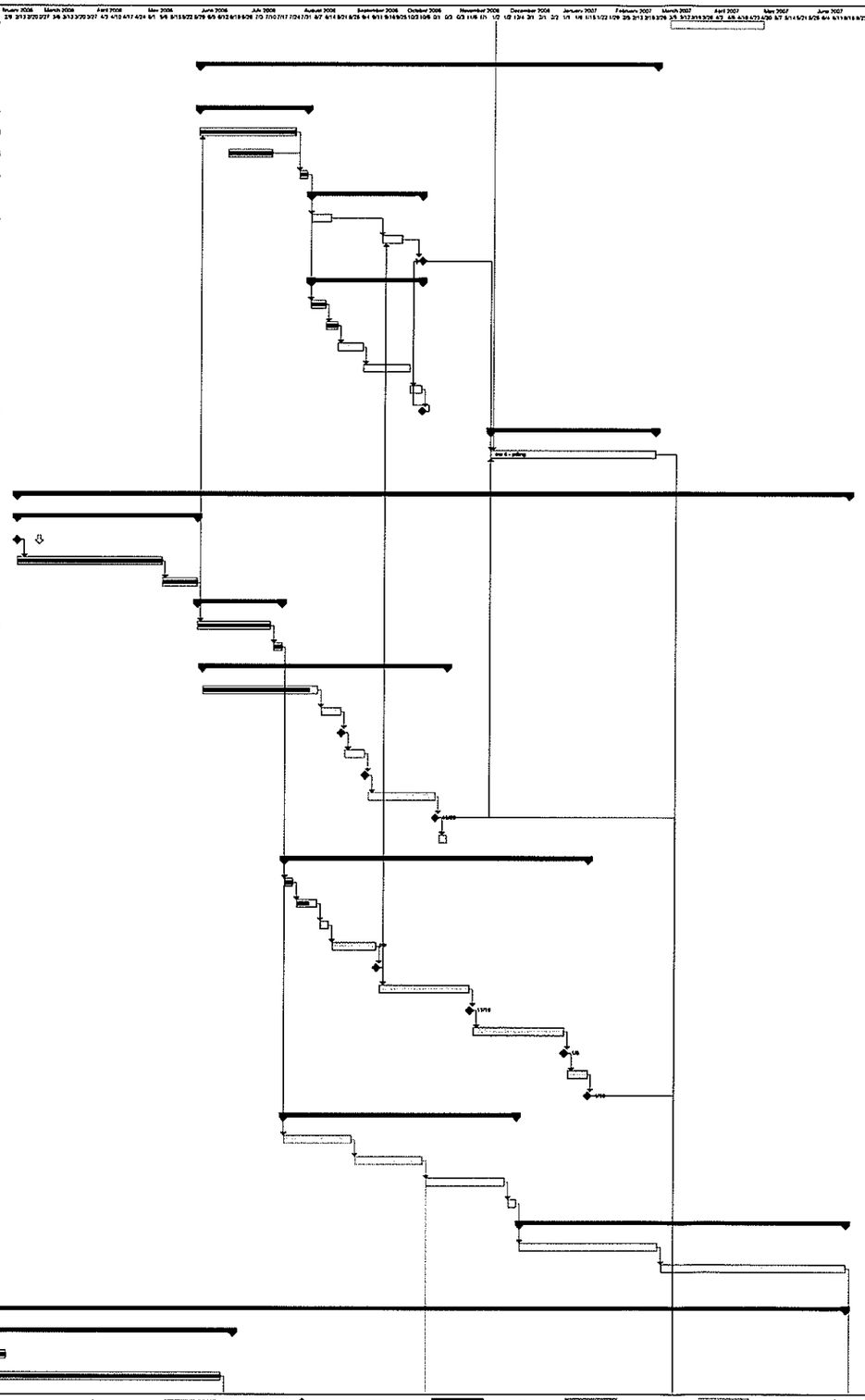


Task | Project Guide Critical Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

UNSW ASIA - SINGAPORE CAMPUS

MASTER PROGRAM

ID	Task Name	Duration	Start	Finish
81	landscaping (remainder)	40 days	Wed 3/7/07	Tue 5/1/07
82				
83	Early Works Package 4 (round 1 & 2 piling)	193 days	Fri 5/2/06	Tue 2/27/07
84	Documentation	48 days	Fri 6/2/06	Fri 8/4/06
85	round 1 pile design	41 days	Fri 6/2/06	Fri 7/28/06
86	round 2 pile design	20 days	Mon 6/19/06	Fri 7/14/06
87	review and approval	5 days	Mon 7/31/06	Fri 8/4/06
88	Approvals	48 days	Mon 8/7/06	Wed 10/11/06
89	accredited checker	10 days	Mon 8/7/06	Fri 8/18/06
79	BCA submission	10 days	Mon 9/18/06	Fri 9/29/06
91	BCA approval to commence piling	0 days	Wed 10/11/06	Wed 10/11/06
72	Tender	48 days	Mon 8/7/06	Wed 10/11/06
73	prepare tender documents	7 days	Mon 8/7/06	Tue 8/15/06
74	approval to tender	5 days	Wed 8/16/06	Tue 8/22/06
75	tender	11 days	Wed 8/23/06	Wed 9/6/06
76	negotiation and recommendation	20 days	Thu 9/7/06	Wed 10/4/06
77	URNSW approval	5 days	Thu 10/5/06	Wed 10/11/06
78	award	0 days	Wed 10/11/06	Wed 10/11/06
79	Construction	70 days	Wed 11/22/06	Tue 2/27/07
80	Piling	14 wks	Wed 11/22/06	Tue 2/27/07
81				
82	Round 1	352 days	Wed 2/15/06	Fri 6/22/07
83	Schematic Design	76 days	Wed 2/15/06	Thu 6/1/06
84	provide finalised library brief	0 days	Wed 2/15/06	Wed 2/15/06
85	prepare 100% schematic design	61 days	Thu 2/16/06	Thu 5/11/06
86	review and sign off schematic design	15 days	Fri 5/12/06	Thu 6/1/06
87	Design Development	38 days	Fri 6/2/06	Fri 7/21/06
88	prepare 100% design development	31 days	Fri 6/2/06	Fri 7/14/06
89	review and sign off 100% design development	5 days	Mon 7/17/06	Fri 7/21/06
90	Southern Boundary	105 days	Mon 6/5/06	Fri 10/27/06
91	confirm southern boundary and road design	50 days	Mon 6/5/06	Fri 8/11/06
92	JTC road design submission	10 days	Mon 8/14/06	Fri 8/25/06
93	JTC approval	0 days	Fri 8/25/06	Fri 8/25/06
94	LTA road design submission	10 days	Mon 8/28/06	Fri 9/8/06
95	LTA approval	0 days	Fri 9/8/06	Fri 9/8/06
96	JTC southern boundary submission	30 days	Mon 9/11/06	Fri 10/20/06
97	land alienated	0 days	Fri 10/20/06	Fri 10/20/06
98	UNSW sign land lease	5 days	Mon 10/23/06	Fri 10/27/06
99	Approvals	130 days	Mon 7/24/06	Fri 1/19/07
100	prepare submission documents	5 days	Mon 7/24/06	Fri 7/28/06
101	submit for JTC/SLA endorsement	10 days	Mon 7/31/06	Fri 8/11/06
102	receive JTC/SLA letter of endorsement	5 days	Mon 8/14/06	Fri 8/18/06
103	URA submission (PP)	4 wks	Mon 8/21/06	Fri 9/15/06
104	URA approval	0 days	Fri 9/15/06	Fri 9/15/06
105	URA submission (WP)	8 wks	Mon 9/18/06	Fri 11/10/06
106	URA approval	0 days	Fri 11/10/06	Fri 11/10/06
107	URA submission (BP)	8 wks	Mon 11/13/06	Fri 1/5/07
108	URA approval	0 days	Fri 1/5/07	Fri 1/5/07
109	BCA submission	10 days	Mon 1/8/07	Fri 1/19/07
110	BCA approval	0 days	Fri 1/19/07	Fri 1/19/07
111	Documentation	100 days	Mon 7/24/06	Fri 12/8/06
112	prepare 30% documentation	30 days	Mon 7/24/06	Fri 9/1/06
113	prepare 70% documentation	30 days	Mon 9/4/06	Fri 10/13/06
114	prepare 100% documentation	35 days	Mon 10/16/06	Fri 12/1/06
115	review and sign off 100% documentation	5 days	Mon 12/4/06	Fri 12/8/06
116	Documentation and Tender (fitout)	140 days	Mon 12/11/06	Fri 6/22/07
117	prepare 100% documentation	60 days	Mon 12/11/06	Fri 3/2/07
118	tender (fitout)	80 days	Mon 3/5/07	Fri 6/22/07
119				
120	Round 2	385 days	Mon 1/2/06	Fri 6/22/07
121	Schematic design	125 days	Mon 1/2/06	Fri 6/23/06
122	confirm preliminary brief	30 days	Mon 1/2/06	Fri 2/10/06
123	prepare 100% sketch design	120 days	Mon 1/2/06	Fri 6/16/06



Task | Project Guide Critical Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

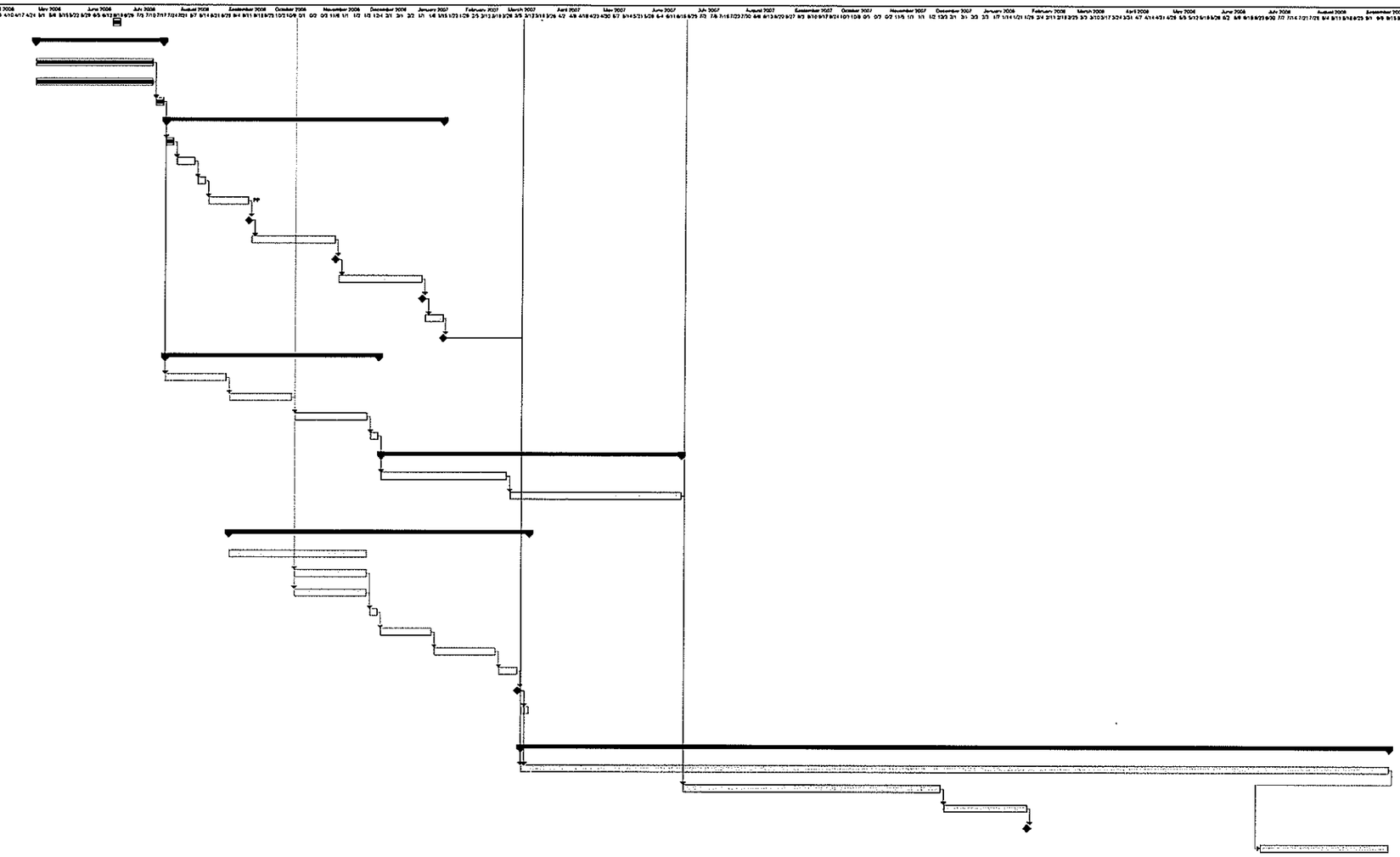
417 UNSWA programRev6b-290606

UNSW ASIA - SINGAPORE CAMPUS

MASTER PROGRAM

Burns Bridge Asia

ID	Task Name	Duration	Start	Finish
124	review and sign off schematic design	5 days	Mon 6/19/06	Fri 6/23/06
125	Design development	60 days	Mon 5/1/06	Fri 7/21/06
126	base building design development	55 days	Mon 5/1/06	Fri 7/14/06
127	laboratory fitout design development	55 days	Mon 5/1/06	Fri 7/14/06
128	review and sign off 100% design development	5 days	Mon 7/17/06	Fri 7/21/06
129	Approvals	130 days	Mon 7/24/06	Fri 1/19/07
130	prepare submission documents	5 days	Mon 7/24/06	Fri 7/28/06
131	submit for JTC endorsement	10 days	Mon 7/31/06	Fri 8/11/06
132	obtain letter of endorsement	5 days	Mon 8/14/06	Fri 8/18/06
133	URA submission (PP)	4 wks	Mon 8/21/06	Fri 9/15/06
134	URA approval	0 days	Fri 9/15/06	Fri 9/15/06
135	URA submission (WP)	8 wks	Mon 9/18/06	Fri 11/10/06
136	URA approval	0 days	Fri 11/10/06	Fri 11/10/06
137	URA submission (BP)	8 wks	Mon 11/13/06	Fri 1/5/07
138	URA approval	0 days	Fri 1/5/07	Fri 1/5/07
139	BCA submission	10 days	Mon 1/8/07	Fri 1/19/07
140	BCA notice of approval	0 days	Fri 1/19/07	Fri 1/19/07
141	Documentation	100 days	Mon 7/24/06	Fri 12/8/06
142	prepare 30% documentation	30 days	Mon 7/24/06	Fri 9/1/06
143	prepare 70% documentation	30 days	Mon 9/4/06	Fri 10/13/06
144	prepare 100% documentation	35 days	Mon 10/16/06	Fri 12/1/06
145	review and sign off 100% documentation	5 days	Mon 12/4/06	Fri 12/8/06
146	Documentation (fitout)	140 days	Mon 12/11/06	Fri 6/22/07
147	prepare 100% documentation	60 days	Mon 12/11/06	Fri 3/2/07
148	tender (fitout)	80 days	Mon 3/5/07	Fri 6/22/07
149				
150	Tender (round 1 & 2 main contract)	140 days	Mon 9/4/06	Fri 3/16/07
151	Pre-qualification	65 days	Mon 9/4/06	Fri 12/1/06
152	rd 1. prepare tender documents	35 days	Mon 10/16/06	Fri 12/1/06
153	rd 2. prepare tender documents	35 days	Mon 10/16/06	Fri 12/1/06
154	approval to tender	5 days	Mon 12/4/06	Fri 12/8/06
155	tender	25 days	Mon 12/11/06	Fri 1/12/07
156	negotiation and recommendation	30 days	Mon 1/15/07	Fri 2/23/07
157	UNSW approval	10 days	Mon 2/26/07	Fri 3/9/07
158	award	0 days	Fri 3/9/07	Fri 3/9/07
159	novation of EWP3 contractor	5 days	Mon 3/12/07	Fri 3/16/07
160				
161	Construction	400 days	Mon 3/12/07	Fri 9/19/08
162	construction (main contract)	80 wks	Mon 3/12/07	Fri 9/19/08
163	fitout	8 mons	Mon 6/25/07	Fri 12/7/07
164	testing, commissioning and setup	2 mons	Mon 12/10/07	Fri 2/1/08
165	occupation	0 days	Fri 2/1/08	Fri 2/1/08
166	landscaping (EWP3 formal)	3 mons	Mon 6/30/08	Fri 9/19/08



Task | Project Guide Critical Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

Thu 9/21/06 6:04 PM

SECTION 4

PROGRAMME

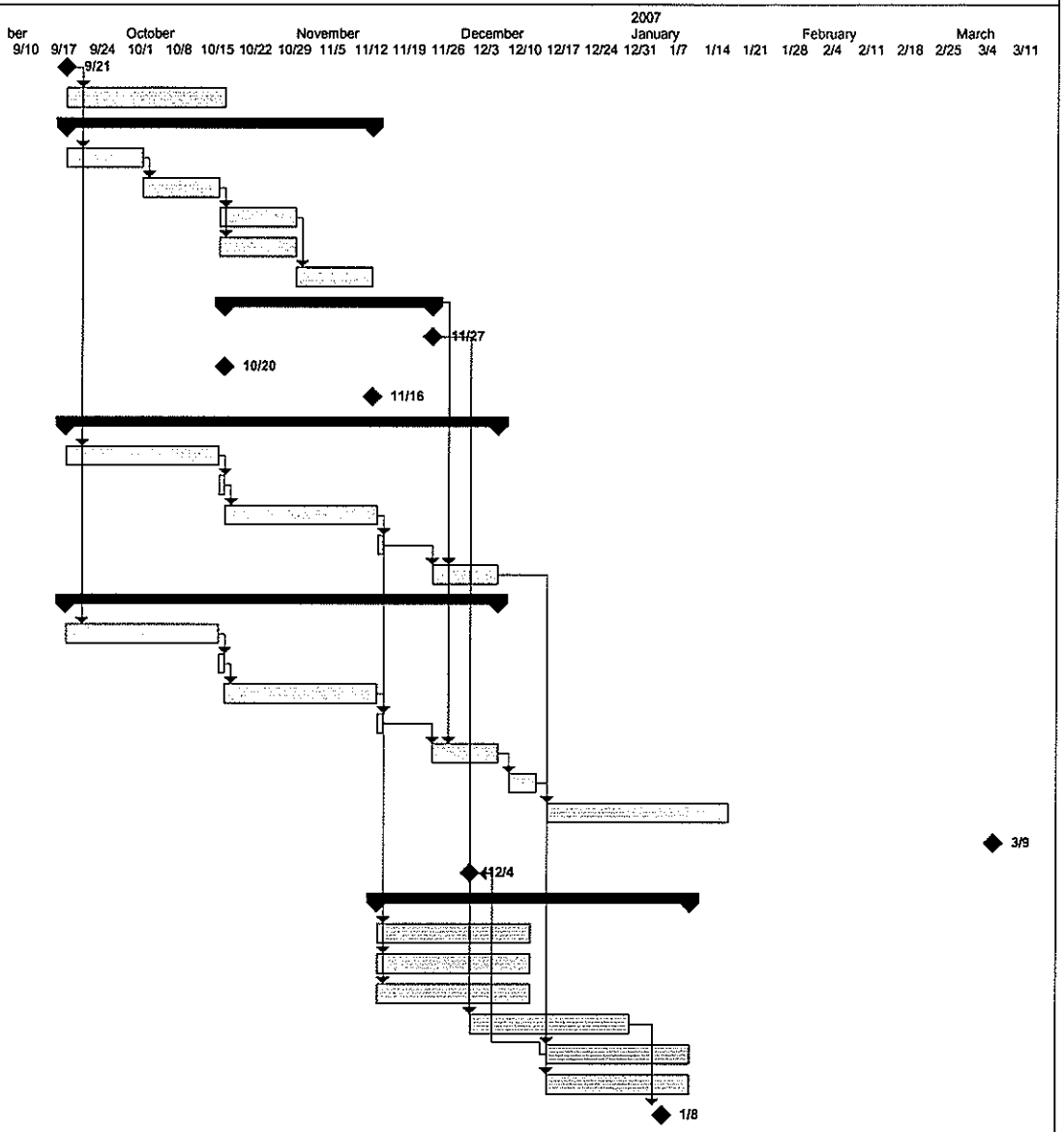
4.2 Authority Submission Status for M&E Services - 1st Submission (Refer to attached)

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)									

UNSW ASIA SCIENCE & ENGINEERING BUILDING

Working Program for M & E Services

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Frozen Architectural Layouts (JPW)**	0 days	Thu 9/21/06	Thu 9/21/06	
2	**Confirmation of User Requirements (GH)**	21 days	Thu 9/21/06	Thu 10/19/06	1
3	**Services Coordination**	40 days	Thu 9/21/06	Wed 11/15/06	
4	Coordinated Ceiling Plans (JPW)	10 days	Thu 9/21/06	Wed 10/4/06	1
5	Structures (WP)	10 days	Thu 10/5/06	Wed 10/18/06	4
6	Data/IT (UNSW)	10 days	Thu 10/19/06	Wed 11/1/06	5
7	Laboratory Layouts (UNSW/JPW)	10 days	Thu 10/19/06	Wed 11/1/06	5
8	Infrastructure (BECA)	10 days	Thu 11/2/06	Wed 11/15/06	6
9	**Final Design/Input required by**	26 days	Fri 10/20/06	Mon 11/27/06	
10	Façade details (JPW)	0 days	Mon 11/27/06	Mon 11/27/06	
11	Façade lighting (DK)	0 days	Fri 10/20/06	Fri 10/20/06	
12	Lift Finishes (JPW)	0 days	Thu 11/16/06	Thu 11/16/06	
13	**Tender Drawings**	57 days	Thu 9/21/06	Fri 12/8/06	
14	30% Production	4 wks	Thu 9/21/06	Wed 10/18/06	1
15	Review (JPW/AT3)	1 day	Thu 10/19/06	Thu 10/19/06	14
16	70% production	4 wks	Fri 10/20/06	Thu 11/16/06	15
17	Review (UNSW/JPW/AT3)	1 day	Fri 11/17/06	Fri 11/17/06	16
18	100% production	2 wks	Mon 11/27/06	Fri 12/8/06	17,9
19	**Tender Specification**	57 days	Thu 9/21/06	Fri 12/8/06	
20	30% Production	4 wks	Thu 9/21/06	Wed 10/18/06	1
21	Review (JPW/AT3)	1 day	Thu 10/19/06	Thu 10/19/06	20
22	70% production	4 wks	Fri 10/20/06	Thu 11/16/06	21
23	Review (UNSW/JPW/AT3)	1 day	Fri 11/17/06	Fri 11/17/06	22
24	100% production	2 wks	Mon 11/27/06	Fri 12/8/06	23,9
25	**Approval to Tender**	5 days	Mon 12/11/06	Fri 12/15/06	24
26	**Tender**	25 days	Mon 12/18/06	Fri 1/19/07	25
27	**Award**	0 days	Fri 3/9/07	Fri 3/9/07	
28	**Architectural FSSD Submission (AT3)**	0 days	Mon 12/4/06	Mon 12/4/06	34SF-2 wks
29	**M&E Submissions**	41 days?	Fri 11/17/06	Fri 1/12/07	
30	TFCC	4 wks	Fri 11/17/06	Thu 12/14/06	16
31	Water	4 wks	Fri 11/17/06	Thu 12/14/06	16
32	Sanitary	4 wks	Fri 11/17/06	Thu 12/14/06	16
33	ETTV	21 days?	Mon 12/4/06	Mon 1/1/07	10
34	FSSD (Fire)	4 wks	Mon 12/18/06	Fri 1/12/07	18FS+1 wk
35	FSSD (Mech)	4 wks	Mon 12/18/06	Fri 1/12/07	18FS+1 wk
36	**BP Submission (AT3)**	0 days	Mon 1/8/07	Mon 1/8/07	33



Project: 1439
Date: Thu 9/21/06

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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	✓
- CF	✓	- PQP/QSP	✓

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
- IC	✓				

(✓*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 (Latest Set)	(All project drawings in soft copy to be saved in server)
Incoming Architectural Sketches/Details (Latest Set)	
Incoming Structural Drawings (Latest Set)	
M&E Drawings - Electrical Installation - Lift & Escalator Installation - Air Conditioning & Ventilation Installation - Fire Fighting & Alarm Installation - Plumbing & Sanitary Installation	
Other Drawings	
- Shop Drawing (Electrical)	JB
- Shop Drawing (Mechanical)	TCM

Note: All superseded hard copies of drawings (with soft copies in server) are discarded.

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

Item No.	Description*	Required From	Required By	Date Required	Remarks
1.	Location of AHU room, Mechanical Risers	TWC	SKY	-	completed
2.	Electrical load of Mechanical equipment	TWC	SKY	-	completed

** 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	I	
c.	Project Cost Estimate/Contract Cost	A	-	I	I	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	-	C	C	I	
b.	Sketch Design Drgs.	A	-	C	C	I	
c.	Final Design Drgs.	A	-	C	I	I	
d.	Shop Drawings	C	-	C	C	I	
e.	As Built Drgs.	I	-	I	I	I	
3.	**Other Document**						
a.	Specification	A	-	I	I	I	
b.	Tender Document	A	-	I	I	I	
c.	Tender Evaluation Report	A	-	I	I	I	
d.	Design Report	A	-	C	I	I	
e.	Progress Report	I	C	I	I	I	
f.	Financial Report	A	-	I	I	I	
g.	Minutes of Meeting	I	-	I	I	I	
h.	Inspection Report	I	-	I	I	I	
i.	Testing & Comm. Report	I	-	I	I	I	
j.	O & M Manual	I	-	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 Questionnaire			✓		
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 : AEC Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

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

ITEM	KEPT BY
Competition Brief	File 1439-Owner

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

Trane Air Conditioning Manual

Carrier's System Piping Design Part 3

ASHRAE Handbooks

8.4 List of Applicable Quality System Procedures

Alpha Engineering Consultant'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 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	✓
Q1	Quality System Audit	✓
Q2	Feedback Reporting	✓
Q3	Clients Feedback	✓
Q4	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 Engineering	Lift traffic calculation	✓
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
Fault Level Calculation	-	Alpha Engineering	Calculation of voltage drop and fault level	

(✓*where applicable*)

SECTION 9

CLIENT'S REQUIREMENTS

9.1 List of Output Required by Client:-

Item	* Remarks
M&E Design Report	A
M&E Cost Estimate Report	A
Pre-Qualification of Tenderers	A
Tender Documents	A
Tender Report	A
Payment Valuation for QS	I
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.

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

NOT USED

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers – NOT USED

Sub Job No	Description	Allocation Details