Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED ERECTION OF 4-STOREY ADMIN BUILDING WITH WORKSHOP, WAREHOUSE AND CONTRACTOR'S OFFICE FACILITIES ON LOTS 937V PT, 767N PT, 1117C & 1837P PT MK34 MERLIMAU ROAD (JURONG ISLAND)

For

SINGAPORE REFINING COMPANY PRIVATE LIMITED

Copy No.	1

Prepared By: Chuan Kian Heng

Authorised By: Andrew Loh

Date: 1 June 2010

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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	6066-PQP File	12 July 2008

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	12 July 2008	Section 1 to 10	28	+ 1 pg (Sect 4.1 – Overall Programme
1	30 June 2009	Section 1 to 11	28	+ 1 pg (Sect 4.1 – Overall Programme
2	1 June 2010	Section 1 to 11	28	+ 3 pgs (Sect 4.1 – Overall Programme

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Industrial

Statistics of Development	
Site Area, m²	69,391.00
Nett Floor Area, m²	-
Gross Floor Area, m²	32,771.41
Covered Carpark, m²	4,970
No. of Covered Carpark Lots	156
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	4-Storey Admin Building, 2-Storey Workshop, 2-Storey Common Warehouse, 2-Storey Contractor's Office & Single Storey Chemical/ Catalyst Warehouse
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	9.49	8.65	0.22	1.78	2.91	N.A	(Figures from Tender Return of the Prospective Tenderer)			
Awarded	9.45	8.59	0.22	1.73	2.93	N.A				

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	3.84	-
Awarded	N.A	3.84	72.5

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*)

* By Specialist

2.3.3 Submission to Relevant Authorities by Others

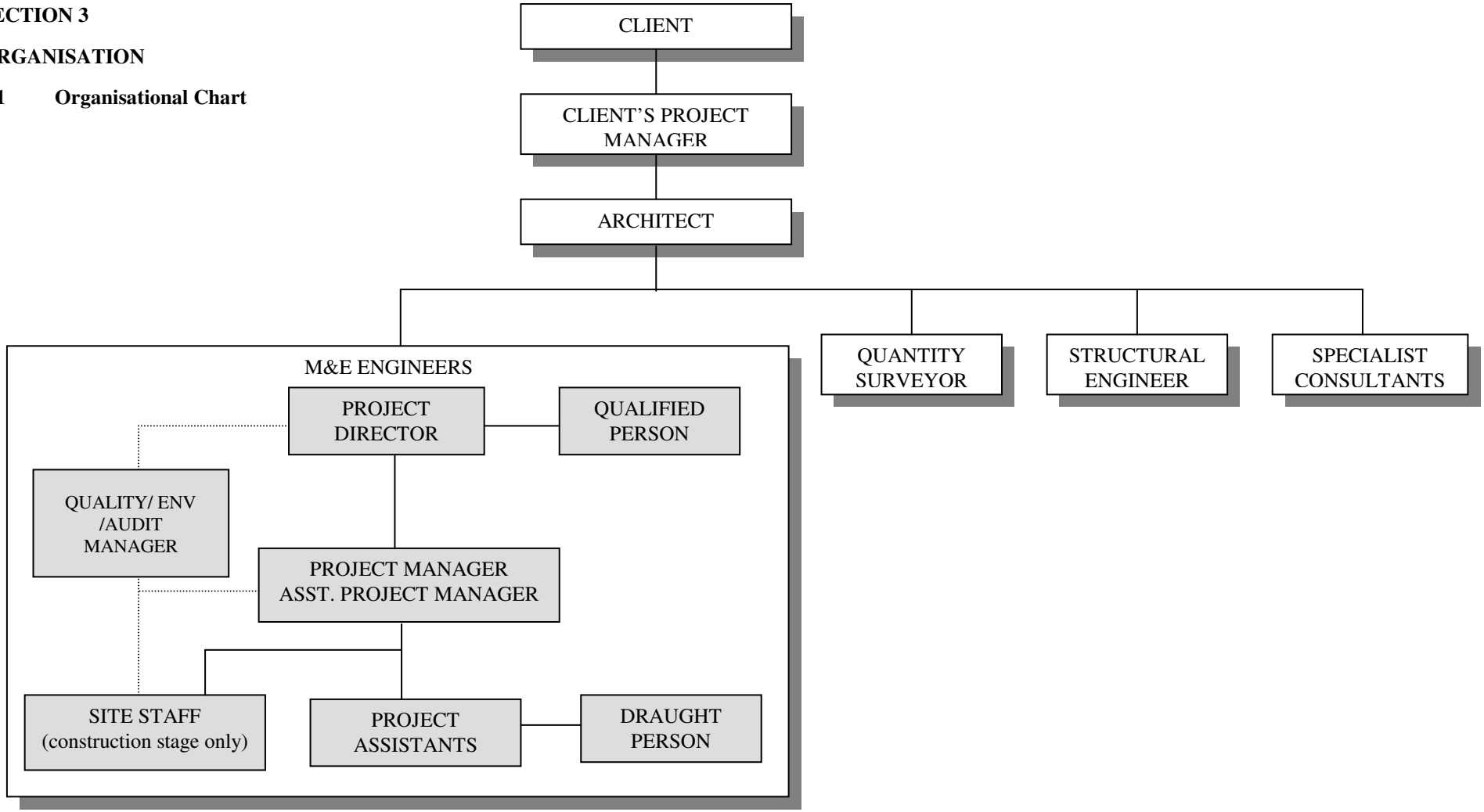
EJECTOR & DIVERTER		SUMP PUMP	✓	FUEL OIL TANK	✓	LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Andrew Loh (LCT)
Qualified Person	Mechanical	Andrew Loh (LCT)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Chuan Kian Heng (CKH)
Assistant Project Manager		Ivan Tan (TCH)
Project Assistant (Mech)		Khor Bee Khoon (KBK)
Project Assistant (Elect)		-
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Resident Technical Officer (M&E)		Boh Teck Wee

3.3 Client/Client's Representatives

Client:- Singapore Refining Company Private Limited

Address:- 1 Merlimau Road
Singapore 628260

Tel:- 6262 2243 / 6357 0100

Fax:- 6867 7182

Client's Representatives:-

Name of Company	Contact Person	Contact
Singapore Refining Company Private Limited	Name: Mr Yuen Yew Kuan Position: Mechanical Manager	Tel: 6357 0174 Fax: 6357 0429 Handphone: 9624 8494 Email: yuenyk@src.com.sg
Singapore Refining Company Private Limited	Name: Lim Ah Heng Position: -	Tel: 6357 0174 Fax: 6357 0429 Handphone: 96846663 Email: LIMAH@src.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 Huay Architects	Name: Mr Eric Huay Position: Director	Tel: 6372 0183 extn 18 and/or 13 Fax: 6372 0186 Handphone: - Email: eric_huay@huayarchitects.com
Quantity Surveyor Davis Langdon & Seah Singapore Pte Ltd	Name: Ms Ku Sy En Jenny Position:	Tel: 6222 3888 Fax: 6224 7089 Handphone: - Email: 5427@dls.com.sg
Structural Engineer Hainal-Konyi Consulting Engineers	Name: Mr Freddie Phua Position: Director	Tel: 6415 7225 (DID) Fax: 6415 7211 Handphone: - Email: freddie.phua@sg.hainal-konyi.com
Interior Designer J-Plan Associates Pte Ltd	Name: Ms Fion Moo Position:	Tel: 6382 2676 Fax: 6382 2896 Handphone: - Email: jpa@jplan.com.sg
Lighting Consultant -	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant CCW Associates Pte Ltd	Name: Mr Cheah Beng Kin Position: Director	Tel: 6278 4918 Fax: 6275 7206 Handphone: - Email: ccw@ccw.com.sg
Green Mark Consultant Aurecon Singapore (Pte) Ltd	Name: Mr Lee Chee Kin Position:	Tel: 62566188 Ext 220 Fax: 6251 7188 Handphone: - Email: LeeCK@ap.aurecongroup.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 JDC Corporation	-	Name: Mr Ko Hooi Chee Position: Chief M&E Co-ordinator	Tel: 6220 5555 Fax: 6224 3575 Handphone: 9738 8772 Email: kohc@jdc-corpn.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Kurihara Kogyo Co., Ltd	NSC	Name: Mr Neo Chin Sun Position: Deputy Senior Manager	Tel: 6271 9863 DID: 6506 0217 Fax: 6271 3548 Handphone: 9756 0291 Email: csneo@kurihara.com.sg
Plumbing & Sanitary Installation Sub-Contractor Wang Kok Sewerage Construction Pte Ltd	DSC	Name: Mr Marlboro Chua K S Position: Senior Project Manager	Tel: 6280 7823 Fax: 6382 4371 Handphone: 9830 9348 Email: wangkok@singnet.com.sg
Electrical Installation Sub-Contractor Kurihara Kogyo Co., Ltd	NSC	Name: Mr Foo Sau Yee, Desmond Position: Senior Engineer	Tel: 6271 9863 Fax: 6278 4475 Handphone: 9626 3174 Email: desmondfoo@kurihara.com.sg
Lift & Escalator Installation Sub-Contractor Chevalier Singapore Holdings Pte Ltd	DSC	Name: Mr B R Prasad Position: Project Engineer	Tel: 6273 2266 DID: 6510 7251 Fax: 6474 2988 Handphone: 9722 0655 Email: Prasad@chevalier.com.sg
Fire Fighting & Alarm Installation Sub-Contractor Kurihara Kogyo Co., Ltd	NSC	Name: Mr Chia Meng Kiang Position: Manager	Tel: 6271 9863 Fax: 6271 3548 Handphone: 9767 6396 Email: mkchia@kurihara.com.sg
Swimming Pool Filtration Plant Installation Sub-Contractor N.A	-	Name: Position:	Tel: Fax: Handphone: Email:
Carpark System Installation Sub-Contractor N.A	-	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		
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 Supply) Network Dept:		
(a) Water Conservation	Ms Wang Qiong	6731 3975
(b) Plumbing Plan	Mr Ng Guan Chai	6885 2401
(c) Diversion		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU	Mr Tan Kia Tong	6235 8888 / 6731 3023
(b) M&E Plan	Mr Alan Tan	6235 8888 / 6731 3023
(c) Diversion		
City Gas Pte Ltd:		
(a) Planning/Submission		
(b) Installation/Inspection		
PowerGas Pte Ltd		
(a) Diversion		
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

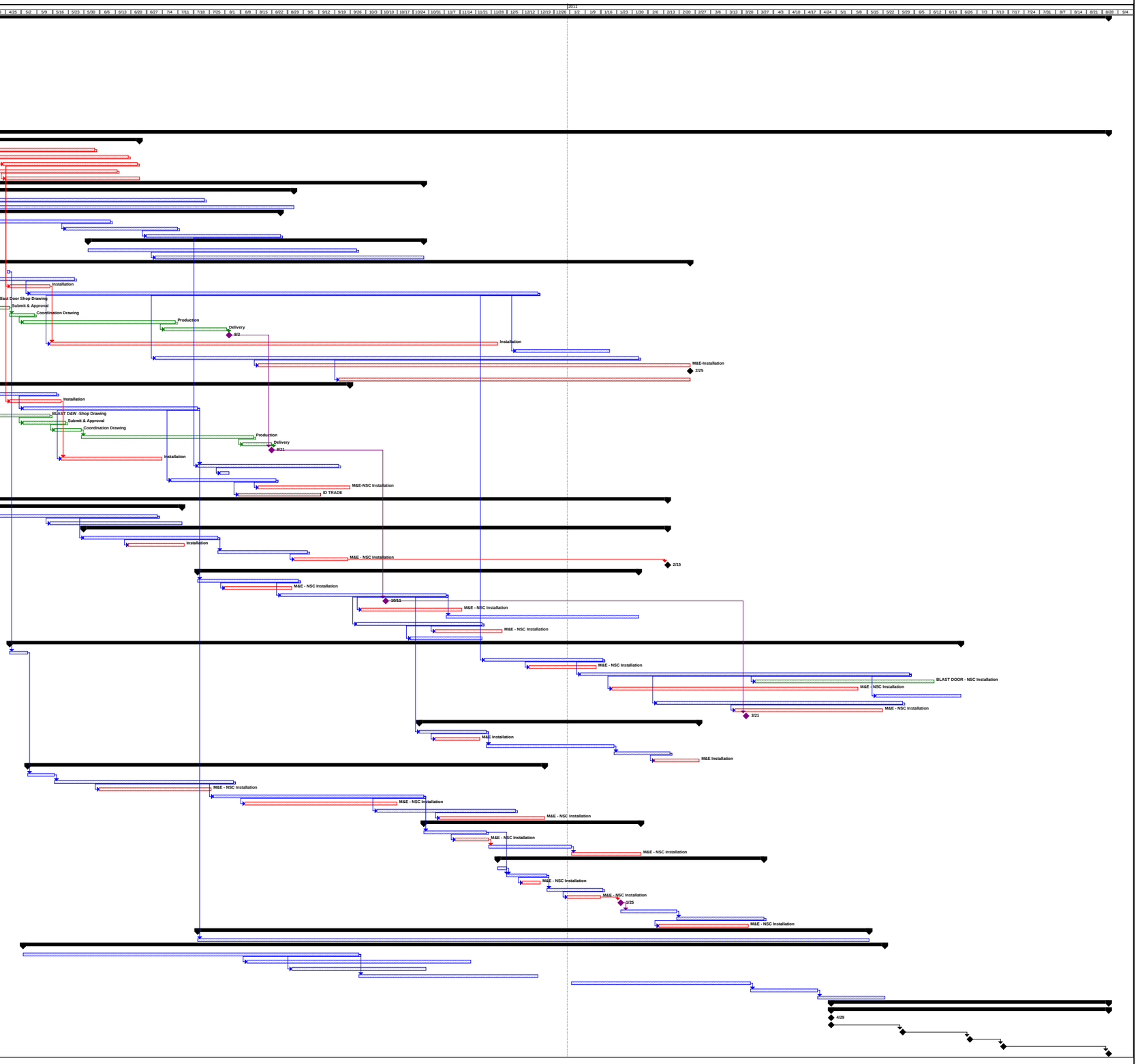
4.1 Overall Programme – Refer to attached

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																									

JDC CORPORATION
SINGAPORE BRANCH

SRC PROJECT AT JURONG ISLAND CONSTRUCTION PROGRAMME

ID	Task Name	Duration	Start	Finish
1	SRC JURONG ISLAND CONSTRUCTION PROGRAMME	558 days	Fri 2/19/10	Wed 8/31/11
2	SITE PREPARATION WORK	53 days	Fri 2/19/10	Mon 4/12/10
3	FACTORY LICENCE	14 days	Fri 2/19/10	Thu 3/4/10
4	APPLICATION & APPROVAL	14 days	Fri 2/19/10	Thu 3/4/10
5	PRE-CON SURVER	24 days	Mon 3/8/10	Wed 3/31/10
6	SITE SURVER / REPORT AND SUBMISSION	14 days	Mon 3/8/10	Sun 3/21/10
7	ACTIVATE CONTRACT ALL RISK	1 day	Wed 3/31/10	Wed 3/31/10
8	PRE-COMPUTATION SURVEY	27 days	Fri 3/5/10	Wed 3/31/10
9	SETTING BOUNDARY LINE & CONTROL POINT & PILING ECC	27 days	Fri 3/5/10	Wed 3/31/10
10	CABLE DECTECTION	28 days	Wed 3/3/10	Tue 3/30/10
11	APPLY TO AUTHORITIES FOR DRAWING	14 days	Wed 3/3/10	Tue 3/16/10
12	SITE DETECTION WORK	3 days	Wed 3/17/10	Fri 3/19/10
13	PREPARE REPORT	4 days	Sat 3/20/10	Tue 3/23/10
14	NOTICE OF COMMENCEMENT OF CABLE DETECTION WORK	7 days	Wed 3/24/10	Tue 3/30/10
15	SITE OFFICE	35 days	Tue 3/9/10	Mon 4/12/10
16	SITE OFFICE AND TEMP FACILITIES	35 days	Tue 3/9/10	Mon 4/12/10
17	**WORK COMMENCEMENT**	**534 days**	**Mon 3/15/10**	**Wed 8/31/11**
18	**M&E SHOPDRAWING**	**70 days**	**Thu 4/15/10**	**Wed 6/23/10**
19	PREPARATION OF SHOPDRAWING	50 days	Thu 4/15/10	Thu 6/3/10
20	SUBMIT SHOPDRAWING PROGRESSIVELY FOR APPROVAL INCL COMMENTS	60 days	Tue 4/20/10	Fri 6/18/10
21	COORDINATION DRAWING	60 days	Sat 4/24/10	Tue 6/22/10
22	PREPARATION OF MATERIAL SUBMISSION	60 days	Thu 4/15/10	Sun 6/13/10
23	MATERIAL SAMPLE SUBMISSION	60 days	Sun 4/25/10	Wed 6/23/10
24	**BUILDER SHOPDRAWING**	**228 days**	**Mon 3/15/10**	**Thu 10/28/10**
25	**RC SHOPDRAWING**	**170 days**	**Mon 3/15/10**	**Tue 8/31/10**
26	PREPARARION OF SHOPDRAWING	130 days	Mon 3/15/10	Thu 7/22/10
27	SUBMIT SHOPDRAWING PROGRESSIVELY FOR APPROVAL INCL COMMENTS	140 days	Wed 4/14/10	Tue 8/31/10
28	**STEEL SHOPDRAWING**	**136 days**	**Mon 4/12/10**	**Wed 8/25/10**
29	PREPARATION STEEL SHOPDRAWING	60 days	Mon 4/12/10	Thu 6/10/10
30	SUBMIT SHOPDRAWING PROGRESSIVELY FOR APPROVAL INCL COMMENTS	50 days	Sat 5/22/10	Sat 7/10/10
31	FABRICATION	60 days	Sun 6/27/10	Wed 8/25/10
32	**ARCHITECTURAL SHOPDRAWING**	**150 days**	**Tue 6/1/10**	**Thu 10/28/10**
33	PREPARATION ARCHITECTURAL SHOPDRAWING	120 days	Tue 6/1/10	Tue 9/28/10
34	SUBMIT SHOPDRAWING PROGRESSIVELY FOR APPROVAL INCL COMMENTS	120 days	Thu 7/1/10	Thu 10/28/10
35	ADMIN BUILDING	330 days	Thu 4/1/10	Fri 2/25/11
36	ADDITIONAL 2 NOS RC PILE	1 day	Mon 4/26/10	Mon 4/26/10
37	RC SUB-STRUCTURE WORK	48 days	Thu 4/8/10	Tue 5/25/10
38	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	18 days	Tue 4/27/10	Fri 5/14/10
39	RC SUPER STRUCTURE WORK	227 days	Thu 5/6/10	Sat 12/18/10
40	PREPARE SHOP DRAWING (BLAST D&W)	20 days	Thu 4/1/10	Tue 4/20/10
41	SUBMIT SHOP DRAWING & APPROVAL	18 days	Fri 4/9/10	Mon 4/26/10
42	COORDINATION DRAWING	11 days	Tue 4/27/10	Fri 5/7/10
43	PRODUCTION	68 days	Mon 5/3/10	Fri 7/9/10
44	CRATING & DESPATCH	28 days	Mon 7/5/10	Sun 8/1/10
45	START INSTALLATION OF BLAST DOOR & WINDOW - NSC	0 days	Mon 8/2/10	Mon 8/2/10
46	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	200 days	Sat 5/15/10	Tue 11/30/10
47	LIFT INSTALLATION	42 days	Thu 12/9/10	Wed 1/19/11
48	WET FINISHING WORK (1 WEEK PREPARATION WORK BEFORE SHOPDRAWING APPROVAL)	216 days	Thu 7/1/10	Tue 2/1/11
49	3RD FIX M & E WORK - NSC / PLUMBING & SANTARY WORK	193 days	Mon 8/16/10	Thu 2/24/11
50	***HANDOVER MDF ROOM***	0 days	Fri 2/25/11	Fri 2/25/11
51	ID TRADE	157 days	Tue 9/21/10	Thu 2/24/11
52	MAINTENANCE WORKSHOP	171 days	Thu 4/8/10	Sat 9/25/10
53	RC SUB-STRUCTURE WORK	40 days	Thu 4/8/10	Mon 5/17/10
54	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	23 days	Tue 4/27/10	Wed 5/19/10
55	RC SUPER-STRUCTURE WORK	78 days	Mon 5/3/10	Mon 7/19/10
56	PREPARE SHOP DRAWING (BLAST D&W)	36 days	Fri 4/9/10	Fri 5/14/10
57	SUBMIT SHOP DRAWING & APPROVAL	19 days	Mon 5/3/10	Fri 5/21/10
58	COORDINATION DRAWING	12 days	Mon 5/17/10	Fri 5/28/10
59	PRODUCTION	77 days	Sat 5/29/10	Fri 8/13/10
60	CRATING & DESPATCH	13 days	Mon 8/9/10	Sat 8/21/10
61	START INSTALLATION OF BLAST DOOR & WINDOW - NSC	0 days	Sat 8/21/10	Sat 8/21/10
62	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	45 days	Thu 5/20/10	Sat 7/3/10
63	STEEL STRUCTURE & METAL ROOFING	63 days	Tue 7/20/10	Mon 9/20/10
64	INSTALLATION OF OVERHEAD CRANE TRANSFER FROM SRC	4 days	Fri 7/30/10	Mon 8/2/10
65	WET FINISHING	47 days	Thu 7/8/10	Mon 8/23/10
66	3RD FIX M & E WORK - NSC / PLUMBING & SANTARY WORK	41 days	Mon 8/16/10	Sat 9/25/10
67	ID TRADE	37 days	Sat 8/7/10	Sun 9/12/10
68	UTILITY BUILDING	302 days	Mon 4/19/10	Tue 2/15/11
69	FIRE WATER TANK	85 days	Mon 4/19/10	Mon 7/12/10
70	STRUCTURAL WORK	74 days	Mon 4/19/10	Thu 7/1/10
71	PLUMBING WORK	59 days	Sat 5/15/10	Mon 7/12/10
72	H & L TENSION SWITCH ROOM / TRANSFORMER ROOM	261 days	Sun 5/30/10	Tue 2/15/11
73	RC STRUCTURE WORK	60 days	Sun 5/30/10	Wed 7/28/10
74	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	25 days	Sat 6/19/10	Tue 7/13/10
75	FINISHING WORK	40 days	Thu 7/29/10	Mon 9/6/10
76	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	24 days	Wed 9/1/10	Fri 9/24/10
77	***HANDOVER SUBSTATION***	0 days	Tue 2/15/11	Tue 2/15/11
78	WAREHOUSE	197 days	Tue 7/20/10	Tue 2/1/11
79	RC SUB-STRUCTURE WORK	45 days	Tue 7/20/10	Thu 9/2/10
80	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	30 days	Sun 8/1/10	Mon 8/30/10
81	RC SUPER STRUCTURE WORK	74 days	Thu 8/26/10	Sun 11/7/10
82	START INSTALLATION OF BLAST DOOR & WINDOW - NSC	0 days	Mon 10/11/10	Mon 10/11/10
83	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	45 days	Fri 10/1/10	Sun 11/14/10
84	STEEL STRUCTURE ROOF & CLADDING	86 days	Mon 11/8/10	Tue 2/1/11
85	WET FINISHING WORK	56 days	Wed 9/29/10	Tue 11/23/10
86	3RD FIX M & E WORK - NSC / PLUMBING & SANTARY WORK	33 days	Wed 11/3/10	Thu 12/2/10
87	ID TRADE	32 days	Sat 10/23/10	Tue 11/23/10
88	CONTRACTOR OFFICE	425 days	Tue 4/27/10	Sat 6/25/11
89	ADDITIONAL 34 NOS RC PILE	8 days	Tue 4/27/10	Tue 5/4/10
90	RC SUB-STRUCTURE WORK	53 days	Thu 11/25/10	Sun 1/16/11
91	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	30 days	Wed 12/15/10	Thu 1/13/11
92	RC SUPER STRUCTURE WORK	147 days	Fri 1/7/11	Thu 6/2/11
93	BLAST DOOR & WINDOW - NSC (INSTALLATION)	80 days	Sat 3/26/11	Mon 6/13/11
94	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	110 days	Fri 1/21/11	Tue 5/10/11
95	STEEL STRUCTURE & METAL ROOF	38 days	Thu 5/19/11	Sat 6/25/11
96	WET FINISHING WORK	110 days	Thu 2/10/11	Mon 5/30/11
97	3RD FIX M & E WORK - NSC / PLUMBING & SANTARY WORK	66 days	Thu 3/17/11	Sat 5/21/11
98	START INSTALLATION OF BLAST DOOR & WINDOW - NSC	0 days	Mon 3/21/11	Mon 3/21/11
99	CATALYST & CHEMICAL WAREHOUSE	125 days	Wed 1/26/10	Mon 2/28/11
100	RC SUB-STRUCTURE WORK	30 days	Wed 10/27/10	Thu 11/25/10
101	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	20 days	Wed 11/3/10	Mon 11/22/10
102	STEEL STRUCTURE ROOF	57 days	Fri 11/26/10	Fri 1/21/11
103	FINISHING WORK	25 days	Sat 1/22/11	Tue 2/15/11
104	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	20 days	Wed 2/9/11	Mon 2/28/11
105	AC PLANT ROOM & CARPARK	231 days	Wed 9/5/10	Tue 12/21/10
106	ADDITIONAL 42 NOS RC PILING WORK	12 days	Wed 5/5/10	Sun 5/16/10
107	RC SUB-STRUCTURE WORK	80 days	Mon 5/17/10	Wed 8/4/10
108	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	50 days	Sun 6/6/10	Sun 7/25/10
109	RC SUPER STRUCTURE WORK	94 days	Tue 7/27/10	Thu 10/28/10
110	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	68 days	Tue 8/10/10	Sat 10/16/10
111	WET FINISHING WORK	62 days	Fri 10/8/10	Wed 12/8/10
112	3RD FIX M & E WORK - NSC / PLUMBING & SANTARY WORK	47 days	Fri 11/5/10	Tue 12/21/10
113	COVER FIRE ENGINE BAY	97 days	Fri 10/29/10	Wed 2/2/11
114	RC SUB-STRUCTURE WORK	28 days	Fri 10/29/10	Thu 11/25/10
115	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	15 days	Fri 11/12/10	Fri 11/26/10
116	STEEL STRUCTURE ROOF	37 days	Sat 11/27/10	Sun 1/2/11
117	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	31 days	Mon 1/3/11	Wed 2/2/11
118	SECURITY GANTRY	119 days	Wed 12/1/10	Tue 3/29/11
119	ADDITIONAL 12 NOS RC PILE	4 days	Wed 12/1/10	Sat 12/4/10
120	RC SUB-STRUCTURE WORK	18 days	Sun 12/5/10	Wed 12/22/10
121	1ST FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	8 days	Sun 12/12/10	Sun 12/19/10
122	RC SUPER STRUCTURE WORK	25 days	Thu 12/23/10	Sun 1/16/11
123	2ND FIX M & E WORK-NSC / PLUMBING & SINITARY WORK-JDC	15 days	Sat 1/1/11	Sat 1/15/11
124	START INSTALLATION OF BLAST DOOR & WINDOW - NSC	0 days	Tue 1/25/11	Tue 1/25/11
125	FINISHING WORK	25 days	Tue 1/25/11	Fri 2/18/11
126	STEEL STRUCTURE ROOF	39 days	Sat 2/19/11	Tue 3/29/11
127	3RD FIX M & E WORK - NSC / PLUMBING & SANTARY WORK	40 days	Fri 2/11/11	Tue 3/22/11
128	DRAIN WORK	300 days	Tue 7/20/10	Sun 5/15/11
129	PERMETER DRAIN	300 days	Tue 7/20/10	Sun 5/15/11
130	EXTERNAL WORK	385 days	Mon 5/3/10	Sun 5/22/11
131	DRAIN DIVERSION (INCLUDE 86 NOS PILING WORK)	150 days	Mon 5/3/10	Wed 9/29/10
132	RC RATAINING WALL (INCLIDE PILING WORK)	100 days	Wed 8/11/10	Thu 11/18/10
133	PUMPING MAIN DIVERSION	60 days	Tue 8/31/10	Fri 10/29/10
134	LINK BRIDGE & CABLE BRIDGE (INCLUDE 31NOS RC PILE & BACAU PILE WORK)	80 days	Thu 9/30/10	Sat 12/18/10
135	ROAD WORK & RERB	80 days	Mon 1/3/11	Wed 3/23/11
136	FENCING	30 days	Thu 3/24/11	Fri 4/22/11
137	TURFING	30 days	Sat 4/23/11	Sun 5/22/11
138	**AUTHORITIES INSPECTION WORK**	**124 days**	**Fri 4/29/11**	**Wed 8/31/11**
139	**TESTING & COMMISSIONING**	**124 days**	**Fri 4/29/11**	**Wed 8/31/11**
140	***POWER TURN ON***	0 days	Fri 4/29/11	Fri 4/29/11
141	***FINAL SEWER CONNECTION***	0 days	Fri 4/29/11	Fri 4/29/11
142	***WATER TURN ON***	0 days	Tue 5/31/11	Tue 5/31/11
143	***M&E RI INSPECTION***	0 days	Thu 6/30/11	Thu 6/30/11
144	***BUILDER RI INSPECTION***	0 days	Fri 7/15/11	Fri 7/15/11
145	***TOP***	0 days	Wed 8/31/11	Wed 8/31/11



Project: SRC CONSTRUCTION PROG
Date: Mon 4/19/10

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

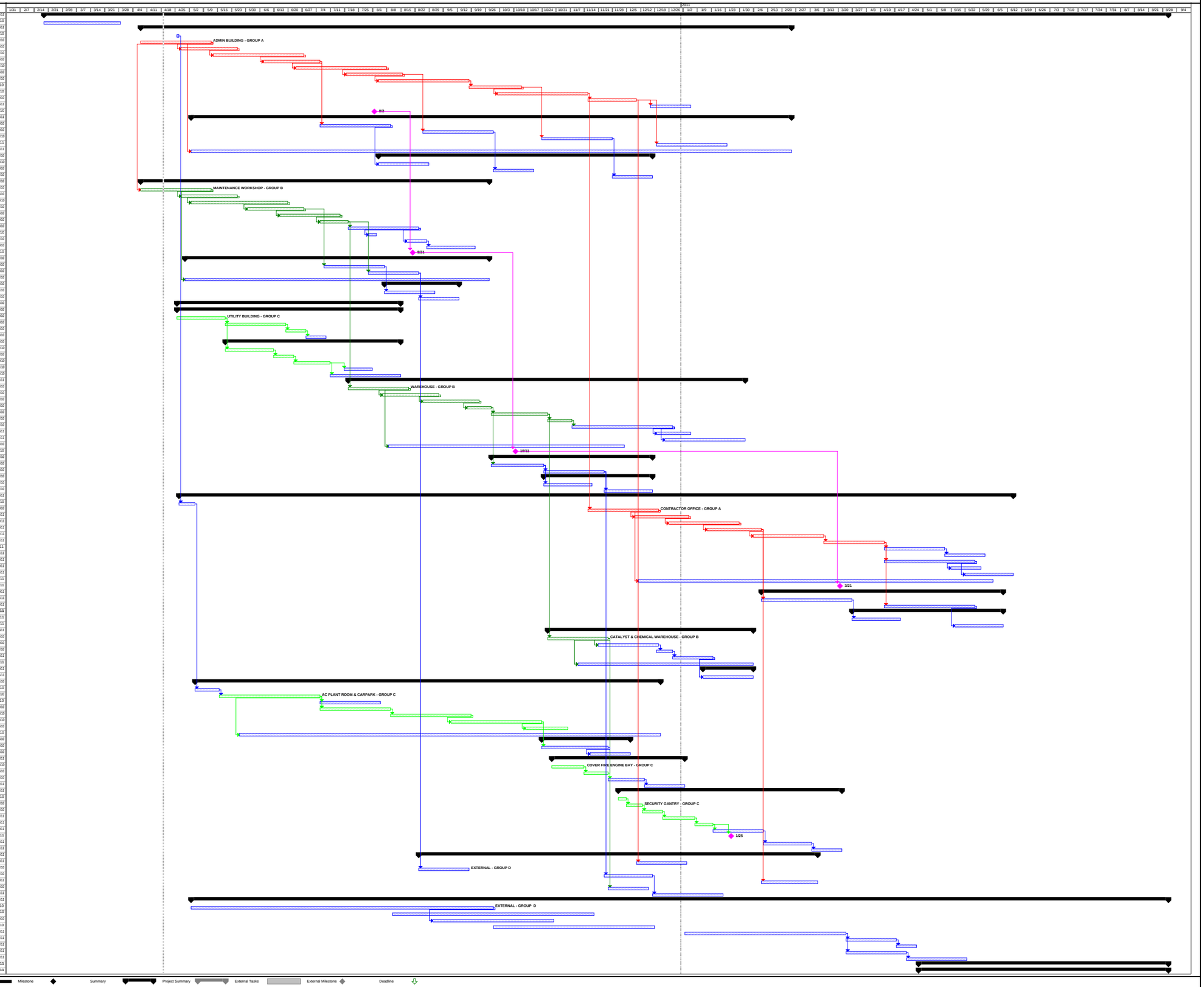
PREPARED BY : KC TING

JDC CORPORATION
SINGAPORE BRANCH

SRC JURONG ISLAND PROJECT CONSTRUCTION SCHEDULE

REV-4
6 MARCH 2010

ID	Task Name	Duration	Start	Finish
1	SRC JURONG ISLAND PROJECT - 78 WEEKS WORK PROGRAM	552 days	Fri 2/19/10	Wed 8/31/11
2	SITE PREPARATION-FACTORY LICENCE,PRE-CON SURVER,INSURANCE,FACILITIES	38 days	Fri 2/19/10	Sun 3/28/10
3	ADMIN BUILDING - GROUP A	323 days	Thu 4/8/10	Thu 2/24/11
4	ADDITIONAL 2 NOS RC PILE	1 day	Mon 4/26/10	Mon 4/26/10
5	RC SUB-STRUCTURE-PILECAP & BEAM & LIFT PIT	35 days	Thu 4/8/10	Wed 5/12/10
6	1ST STOREY RC SLAB	28 days	Wed 4/28/10	Tue 5/25/10
7	230MM THK RC WALL / BLASTPROOF DOOR / COLUMN & LIFT CORE	45 days	Fri 5/14/10	Sun 6/27/10
8	2ND STOREY RC SLAB	28 days	Tue 6/8/10	Mon 7/5/10
9	230MM THK RC WALL / BLASTPROOF DOOR / COLUMN & LIFT CORE	45 days	Thu 6/24/10	Sat 8/7/10
10	3RD STOREY RC SLAB	28 days	Mon 7/19/10	Sun 8/15/10
11	230MM THK RC WALL / BLASTPROOF DOOR / COLUMN & LIFT CORE	45 days	Wed 8/4/10	Fri 9/17/10
12	4TH STOREY RC SLAB	26 days	Sat 9/18/10	Wed 10/13/10
13	230MM THK RC WALL / BLASTPROOF DOOR / COLUMN & LIFT CORE	45 days	Sat 10/2/10	Mon 11/15/10
14	RC ROOF SLAB & DOG HOUSE	24 days	Tue 11/16/10	Thu 12/9/10
15	ROOF WATERPROOFING WORK	20 days	Fri 12/17/10	Wed 1/5/11
16	START INSTALLATION OF BLAST DOOR & WINDOW	0 days	Mon 8/2/10	Mon 8/2/10
17	WET FINISHING WORK	298 days	Mon 5/3/10	Thu 2/24/11
18	1ST STOREY	35 days	Tue 7/6/10	Mon 8/9/10
19	2ND STOREY	35 days	Thu 8/26/10	Wed 9/29/10
20	3RD STOREY	35 days	Sun 10/24/10	Sat 11/27/10
21	4TH STOREY	35 days	Mon 12/20/10	Sun 1/23/11
22	M & E WORK / PLUMBING WORK	298 days	Mon 5/3/10	Thu 2/24/11
23	ID TRADE	136 days	Wed 8/4/10	Fri 12/17/10
24	1ST STOREY	25 days	Wed 8/4/10	Sat 8/28/10
25	2ND STOREY	20 days	Thu 9/30/10	Tue 10/19/10
26	3RD STOREY	20 days	Sun 11/28/10	Fri 12/17/10
27	MAINTENANCE WORKSHOP - GROUP B	173 days	Thu 4/8/10	Mon 9/27/10
28	RC SUB-STRUCTURE PILECAP & BEAM	35 days	Thu 4/8/10	Wed 5/12/10
29	1ST STOREY RC SLAB	28 days	Wed 4/28/10	Tue 5/25/10
30	230MM THK RC WALL / BLASTPROOF DOOR & COLUMN	48 days	Mon 5/3/10	Sat 6/19/10
31	2ND STOREY RC SLAB & 1ST LOWER ROOF	28 days	Mon 5/31/10	Sun 6/27/10
32	230MM THK RC WALL / BLASTPROOF DOOR & COLUMN	30 days	Wed 6/16/10	Thu 7/15/10
33	2ND LOWER ROOF SLAB	14 days	Tue 7/6/10	Mon 7/19/10
34	ERECT STEEL ROOF STRUCTURE	35 days	Tue 7/20/10	Mon 8/23/10
35	INSTALLATION OF OVERHEAD CRANE FROM TRANSFER SRC	4 days	Fri 7/30/10	Mon 8/2/10
36	STEEL COLUMN CONCRETE ENCASEMENT	10 days	Wed 8/18/10	Fri 8/27/10
37	METAL ROOFING	24 days	Sat 8/28/10	Mon 9/20/10
38	START INSTALLATION OF BLAST DOOR & WINDOW	0 days	Sat 8/21/10	Sat 8/21/10
39	WET FINISHING WORK	151 days	Fri 4/30/10	Mon 9/27/10
40	1ST STOREY	30 days	Thu 7/8/10	Fri 8/6/10
41	2ND STOREY	25 days	Fri 7/30/10	Mon 8/23/10
42	M & E WORK	151 days	Fri 4/30/10	Mon 9/27/10
43	ID TRADE	37 days	Sat 8/7/10	Sun 9/12/10
44	1ST STOREY	25 days	Sat 8/7/10	Tue 8/31/10
45	2ND STOREY	20 days	Tue 8/24/10	Sun 9/12/10
46	UTILITY BUILDING - GROUP C	111 days	Mon 4/26/10	Sat 8/14/10
47	FIRE WATER TANK	111 days	Mon 4/26/10	Sat 8/14/10
48	DRIVE IN SHEET PILE SHORING	24 days	Mon 4/26/10	Wed 5/19/10
49	RC STRUCTURE BASE SLAB AND WALL	30 days	Thu 5/20/10	Fri 6/18/10
50	ROOF SLAB	10 days	Sat 6/19/10	Mon 6/28/10
51	EXTRACT SHEET PILE & STRUCTING	10 days	Tue 6/29/10	Thu 7/8/10
52	HIGH AND LOW TENSION SWITCH ROOM / TRANSFORMER ROOM	87 days	Thu 5/20/10	Sat 8/14/10
53	RC SUB-STRUCTURE WORK / CABLE TRENCH	24 days	Thu 5/20/10	Sat 6/12/10
54	1ST STOREY RC SLAB	10 days	Sun 6/13/10	Tue 6/22/10
55	ROOF SLAB	18 days	Wed 6/23/10	Sat 7/10/10
56	ROOF WATERPROOFING	14 days	Sun 7/18/10	Sat 7/31/10
57	FINISHING WORK	35 days	Sun 7/11/10	Sat 8/14/10
58	WAREHOUSE - GROUP B	197 days	Tue 7/20/10	Tue 2/1/11
59	RC SUB-STRUCTURE	30 days	Tue 7/20/10	Wed 8/18/10
60	1ST STOREY RC SLAB	28 days	Fri 8/6/10	Thu 9/2/10
61	230MM THK RC WALL & BLASTPROOF DOOR & COLUMN	28 days	Thu 8/26/10	Wed 9/22/10
62	2ND STOREY RC SLAB	12 days	Fri 9/17/10	Tue 9/28/10
63	230MM THK RC WALL / BLASTPROOF DOOR & COLUMN	28 days	Wed 9/29/10	Tue 10/26/10
64	RC FLAT ROOF	12 days	Wed 10/27/10	Sun 11/7/10
65	STEEL STRUCTURE & ROOF TRUSS	50 days	Mon 11/8/10	Mon 12/27/10
66	STEEL COLUMN CONCRETE ENCASEMENT	17 days	Mon 12/20/10	Wed 1/5/11
67	METAL ROOFING AND METAL CLADDING	40 days	Fri 12/24/10	Tue 2/1/11
68	M & E WORK / PLUMBING	117 days	Mon 8/9/10	Fri 12/3/10
69	START INSTALLATION OF BLAST DOOR & WINDOW	0 days	Mon 10/11/10	Mon 10/11/10
70	WET FINISHING WORK	80 days	Wed 9/29/10	Fri 12/17/10
71	1ST STOREY	26 days	Wed 9/29/10	Sun 10/24/10
72	2ND STOREY	30 days	Mon 10/25/10	Tue 11/23/10
73	ID TRADE	54 days	Mon 10/25/10	Fri 12/17/10
74	1ST STOREY	24 days	Mon 10/25/10	Wed 11/17/10
75	2ND STOREY	24 days	Wed 11/24/10	Fri 12/17/10
76	CONTRACTOR OFFICE -GROUP A	414 days	Tue 4/27/10	Tue 6/14/11
77	ADDITIONAL PILING 34 NOS	8 days	Tue 4/27/10	Tue 5/4/10
78	RC SUB-STRUCTURE	35 days	Tue 11/16/10	Mon 12/20/10
79	1ST STOREY RC SLAB	27 days	Thu 12/9/10	Tue 1/4/11
80	230MM THK RC WALL & BLASTPROOF DOOR	35 days	Sun 12/26/10	Sat 1/29/11
81	2ND STOREY RC SLAB	27 days	Fri 1/14/11	Wed 2/9/11
82	230MM THK RC WALL & BLASTPROOF DOOR	35 days	Sun 2/6/11	Sat 3/12/11
83	LOWER RC ROOF	30 days	Sun 3/13/11	Mon 4/11/11
84	UPPER ROOF	30 days	Tue 4/12/11	Wed 5/11/11
85	WATERPROOFING	20 days	Thu 5/12/11	Tue 5/31/11
86	STEEL STRUCTURE & ROOF TRUSS	45 days	Tue 4/12/11	Thu 5/26/11
87	STEEL COLUMN CONCRETE ENCASEMENT	15 days	Sun 5/15/11	Sun 5/29/11
88	METAL ROOFING & ALUMINIUM LOUVRE	24 days	Sun 5/22/11	Tue 6/14/11
89	M&E WORK	176 days	Sat 12/11/10	Sat 6/4/11
90	START INSTALLATION OF BLAST DOOR & WINDOW	0 days	Mon 3/21/11	Mon 3/21/11
91	FINISHING WORK	120 days	Thu 2/10/11	Thu 6/9/11
92	1ST STOREY	45 days	Thu 2/10/11	Sat 3/26/11
93	2ND STOREY	45 days	Tue 4/12/11	Thu 5/26/11
94	**ID TRADE**	**75 days**	**Sun 3/27/11**	**Thu 6/9/11**
95	1ST STOREY	24 days	Sun 3/27/11	Tue 4/19/11
96	2ND STOREY	24 days	Tue 5/17/11	Thu 6/9/11
97	CATALYST & CHEMICAL WAREHOUSE - GROUP B	102 days	Wed 10/27/10	Sat 2/5/11
98	RC SUB-STRUCTURE TO 1ST STOREY SLAB	30 days	Wed 10/27/10	Thu 11/25/10
99	STEEL STRUCTURE & ROOF TRUSS	30 days	Sun 11/21/10	Mon 12/20/10
100	STEEL COLUMN ENCASEMENT	8 days	Mon 12/20/10	Mon 12/27/10
101	METAL ROOFING	20 days	Tue 12/28/10	Sun 1/16/11
102	M&E WORK	87 days	Thu 11/11/10	Sat 2/5/11
103	FINISHING WORK	25 days	Wed 1/12/11	Sat 2/5/11
104	1ST STOREY FINISHING WK	25 days	Wed 1/12/11	Sat 2/5/11
105	AC PLANT ROOM & CARPARK - GROUP C	231 days	Wed 5/5/10	Tue 12/21/10
106	ADDITIONAL PILING 42 NOS	12 days	Wed 5/5/10	Sun 5/16/10
107	AC PLANT RC STRUCTURE	50 days	Mon 5/17/10	Mon 7/5/10
108	WET FINISHING WORK	30 days	Tue 7/6/10	Wed 8/4/10
109	CARPARK RC SUB-STRUCTURE PILECAP	35 days	Tue 7/6/10	Mon 8/9/10
110	1ST STOREY RC BEAM & SLAB	40 days	Tue 8/10/10	Sat 9/18/10
111	2ND STOREY COLUMN / BEAM / RAMP AND RC SLAB	45 days	Thu 9/9/10	Sat 10/23/10
112	PARAPET WALL	21 days	Sat 10/16/10	Fri 11/5/10
113	M&E WORK	209 days	Thu 5/27/10	Tue 12/21/10
114	WET FINISHING WORK	44 days	Sun 10/24/10	Mon 12/6/10
115	1ST STOREY	33 days	Sun 10/24/10	Thu 11/25/10
116	2ND STOREY	20 days	Wed 11/17/10	Mon 12/6/10
117	COVER FIRE ENGINE BAY	66 days	Fri 10/29/10	Sun 1/2/11
118	RC SUB-STRUCTURE	16 days	Fri 10/29/10	Sat 11/13/10
119	1ST STOREY RC SLAB	12 days	Sun 11/14/10	Thu 11/25/10
120	ERECT STEEL STRUCTURE	18 days	Fri 11/26/10	Mon 12/13/10
121	METAL ROOFING	20 days	Tue 12/14/10	Sun 1/2/11
122	SECURITY GANTRY - GROUP C	111 days	Wed 12/1/10	Mon 3/21/11
123	ADDITIONAL 12 NOS RC/PILING WORK	4 days	Wed 12/1/10	Sat 12/4/10
124	RC SUB-STRUCTURE	8 days	Sun 12/5/10	Sun 12/12/10
125	1ST STOREY RC SLAB	10 days	Mon 12/13/10	Wed 12/22/10
126	230MM THK RC WALL & BLASTPROOF DOOR	16 days	Thu 12/23/10	Fri 1/7/11
127	RC LOWER ROOF TO GUARD HOUSE & TOILET	9 days	Sat 1/8/11	Sun 1/16/11
128	FINISHING WORK	25 days	Mon 1/17/11	Thu 2/10/11
129	START INSTALLATION OF BLAST DOOR & WINDOW	0 days	Tue 1/25/11	Tue 1/25/11
130	ERECT STEEL STRUCTURE	24 days	Fri 2/11/11	Sun 3/6/11
131	METAL ROOFING	15 days	Mon 3/7/11	Mon 3/21/11
132	BULDING PERIMETER DRAIN WORK - GROUP D	198 days	Tue 8/24/10	Wed 3/9/11
133	ADMIN BULDING PERIMETER DRAIN & APRON SLAB	25 days	Fri 12/10/10	Mon 1/3/11
134	MAINTENANCE WORKSHOP PERIMETER DRAINA APRON	25 days	Tue 8/24/10	Fri 9/17/10
135	WAREHOUSE PERIMETER DRAIN & APRON SLAB	24 days	Wed 11/24/10	Fri 12/17/10
136	CONTRACTOR OFFICE PERIMETER DRAIN & APRON	28 days	Thu 2/10/11	Wed 3/9/11
137	CATALYST CHEMICAL WAREHOUSE PERIMETER DRAIN & APRON	20 days	Fri 11/26/10	Wed 12/15/10
138	CARPARK PERIMETER DRAIN & APRON SLAB	35 days	Sat 12/18/10	Fri 1/21/11
139	EXTERNAL WORK - GROUP D	479 days	Mon 5/3/10	Wed 8/31/11
140	DRAIN DIVERSION (INCL 86 NOS PILING)	150 days	Mon 5/3/10	Wed 9/29/10
141	RETAINING WALL (INCL BACAU PILING)	100 days	Wed 8/11/10	Thu 11/18/10
142	PUMPING MAIN DIVERSION	60 days	Tue 8/31/10	Fri 10/29/10
143	LINK BRIDGE & CABLE BRIDGE (INCL 31 NOS RC PILING & BACAU PILING)	80 days	Thu 9/30/10	Sat 12/18/10
144	ROAD WORK SUB-BASE	80 days	Mon 1/3/11	Wed 3/23/11
145	ASPHALT PAVING	25 days	Thu 3/24/11	Sun 4/17/11
146	ROAD MARKING	10 days	Mon 4/18/11	Wed 4/27/11
147	FENCING & GATE	30 days	Thu 3/24/11	Fri 4/22/11
148	TURFING AND LANDSCAPE	30 days	Sat 4/23/11	Sun 5/22/11
149	**AUTHORITIES INSPECTION**	**118 days**	**Fri 4/29/11**	**Wed 8/31/11**
150	**TESTING & COMMISSIONING**	**118 days**	**Fri 4/29/11**	**Wed 8/31/11**



Project: SRC MASTER SCHEDULE
Date: Mon 4/19/10

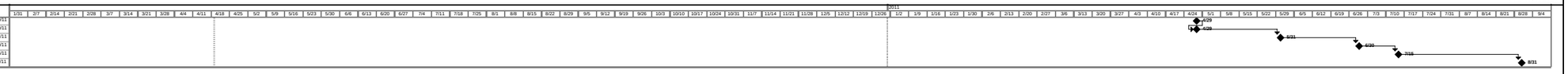
Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

PREPARED BY: KC TING

9/7/09

SRC JURONG ISLAND PROJECT CONSTRUCTION SCHEDULE

ID	Task Name	Duration	Start	Finish
151	POWER TURN ON	0 days	Fri 4/29/11	Fri 4/29/11
152	FINAL SEWER CONNECTION	0 days	Fri 4/29/11	Fri 4/29/11
153	WATER TURN ON	0 days	Tue 5/31/11	Tue 5/31/11
154	M&E RI INSPECTION	0 days	Thu 6/30/11	Thu 6/30/11
155	BUILDER RI INSPECTION	0 days	Fri 7/15/11	Fri 7/15/11
156	TOP	0 days	Wed 8/31/11	Wed 8/31/11



Project: SRC MASTER SCHEDULE
Date: Mon 4/19/10

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

SECTION 4

PROGRAMME

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

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd									
Power Supply Substation	SP PowerGrid Ltd									
Metering Layout	SP Services Ltd									
Sanitary Installation	PUB Water Reclamation (Network) Dept		15/4/10	16/4/10						
Domestic Water Supply	PUB (Water Supply) Network Dept		9/1/09	28/1/09	19/4/10	28/4/10				
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 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/Other Consultants	✓	- 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:	
-EC/MC	✓				
-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	Incoming Soft Copy in Server
Incoming Architectural Sketches/Details	Incoming Soft Copy in Server
Incoming Structural Drawings	KBK
M&E Drawings - Electrical Installation	TCH
- Lift & Escalator Installation	TCH
- Air Conditioning & Ventilation Installation	KBK
- Fire Fighting & Alarm Installation	KBK
- Plumbing & Sanitary Installation	KBK
- Swimming Pool & Filtration Installation	N.A
Other Drawings	

SECTION 6

INTERFACING

6.1 Method of Interface

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

(✓*where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface

Item No.	Description*	Required From	Required By	Date Required	Remarks
1	Electrical Load	KBK	HCL	12 July 2008	
2	Location of SCP	KBK	HCL	12 July 2008	
3	Electrical Load (Rev 1)	KBK	HCL	12 July 2009	
4	Location of SCP (Rev 1)	KBK	HCL	12 July 2009	

** 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	N.A	C	C	I	
b.	Project Administration	A	N.A	I	I	I	
c.	Project Cost Estimate/Contract Cost	A	N.A	I	I	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	N.A	C	C	I	
b.	Sketch Design Drgs.	A	N.A	C	C	I	
c.	Final Design Drgs.	A	N.A	C	C	I	
d.	Shop Drawings	C	N.A	C	C	I	
e.	As Built Drgs.	I	N.A	I	I	I	
3.	**Other Document**						
a.	Specification	A	N.A	I	I	I	
b.	Tender Document	A	N.A	I	I	I	
c.	Tender Evaluation Report	A	N.A	I	I	I	
d.	Design Report	A	N.A	I	I	I	
e.	Progress Report	A	N.A	I	I	I	
f.	Financial Report	A	N.A	I	I	I	
g.	Minutes of Meeting	I	N.A	I	I	I	
h.	Inspection Report	I	N.A	I	I	I	
i.	Testing & Comm. Report	I	N.A	I	I	I	
j.	O & M Manual	I	N.A	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 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
SRC – Design Brief (Rev 4)	File 6066

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
Dry~~/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	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	✓

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features / Criteria

Item	Remarks
Green Mark criteria	✓
Green Design Features	✓

9.2 Site PPE Requirement

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

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

9.3 Site Emergency Preparedness – 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

9.4 Reporting of Environmental Non-conformances

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

9.5 List of Applicable Environmental management system Procedures

Alpha Consulting Engineers Pte Ltd's Environmental Management System Procedures

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

SECTION 10

CLIENT'S REQUIREMENTS

10.1 List of Output Required by Client:-

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

** Remarks*

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

Other purposes and for action: please specify.

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

NOT USED

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers

Sub Job No	Description	Allocation Details
6066-601	Re-Tender for SRC @ Jurong Island	