Alpha
Engineering Consultant

# PROJECT QUALITY PLAN

**PROPOSED CONDOMINIUM HOUSING DEVELOPMENT OF 1 BLOCK OF 5-4/STOREY RESIDENTIAL FLATS (TOTAL 73 UNITS) WITH SWIMMING POOL, ANCILLARY FACILITIES & BASEMENT CARPARK ON LOT 994 MK 13 AT JALAN ULU SEMBAWANG**

For

**M/S ANCHOR DEVELOPMENT PTE LTD**

| | |
|---|---|
| Copy No. | |

Prepared By: Chim Heng Leong

Authorised By: Richard Teo

Date: 18 September 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 | 1410-PQP File | 28 September 2005 |
| 2 | Chim Heng Leong | 28 September 2005 |
| | | |
| | | |
| | | |

### 1.2 Revision Record

| Revision | Date of Issue | Section Reference | Page(s) | Remarks |
|---|---|---|---|---|
| 0 | 28 September 2005 | 1 to 10 | 26 | |
| 1 | 12 April 2006 | 1 to 10 | 26 | |
| 2 | 18 September 2006 | 1 to 10 | 26 | + 1 pg (Sect 4.1 – Master Programme) |
| | | | | |
| | | | | |
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**SECTION 2**

**PROJECT INFORMATION**

## 2.1 Project Description

| | |
|---|---|
| Type of Development | Residential/Condominium |

| Statistics of Development | |
|---|---|
| Site Area, m² | 6196.60 |
| Nett Floor Area, m² | - |
| Gross Floor Area, m² | 8675.10 |
| Covered Carpark, m² | 2,100 |
| No. of Covered Carpark Lots | 75 |
| No. of Apartments/Houses | 73 apartment units |
| No. of Beds (for Hospitals) | - |
| No. of Guestroom (for Hotels) | - |
| No. of Blocks / No. of Storeys | 1 Blk of 5-4 storeys c/w 1 Basement |
| No. of Phases | 1 |

## 2.2 Project Cost

| M&E Services Cost Plan (S$ x 1M) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Services | EI | ACVI | LEI | FFAI | PSI | SPFI | |
| Estimate | - | 0.4756 | - | - | - | - | |
| Awarded | 0.9 | 0.4756 | 0.3 | 0.18735 | 0.7 | 0.1 | |

| Total Project Construction Cost (S$ x1M) | | | |
|---|---|---|---|
| | Site Clearance | Piling Works | Main Contract |
| Estimate | - | - | - |
| Awarded | - | - | 14.381 |

*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

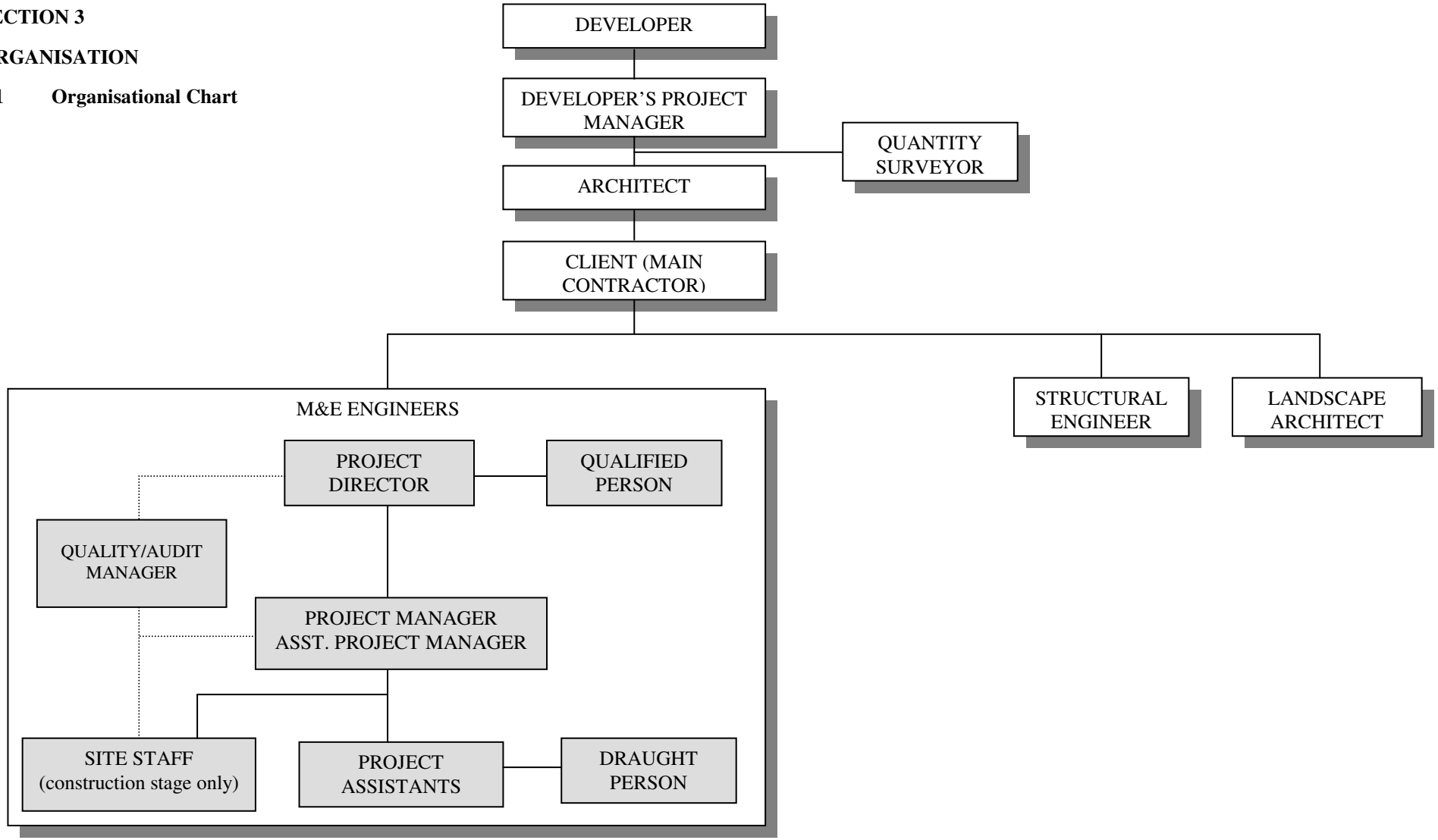
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EJECTOR & DIVERTER | | SUMP PUMP | | FUEL OIL TANK | | LIFT & ESCALATOR | | PRESSURE VESSEL | | HOISTS | | FOAM | |

(✓*where applicable*)

**SECTION 3**

**ORGANISATION**

**3.1 Organisational Chart**



**SECTION 3**

**ORGANISATION**

### 3.2 AEC's Project Team Member

| TITLE | | NAME |
|---|---|---|
| Project Director | | Richard Teo (RT) |
| Qualified Person | Mechanical | Loh Chew Thong (LCT) |
| | Electrical | Richard Teo (RT) |
| Project Manager | | Chim Heng Leong (CHL) |
| Assistant Project Manager | | Loh Fook Yuen (LFY) |
| Project Assistant (Mech) | | - |
| Project Assistant (Elect) | | Lim Chai Hoon (LCY) |
| Draughtsperson | | Common Pool |
| Resident Engineer (M&E) | | - |
| Assistant Resident Engineer (M&E) | | - |
| Clerk-of-Work (M&E) | | S H Lim |
| | | |
| | | |

### 3.3 Client/Client's Representatives

| | | | |
|---|---|---|---|
| Developer:- | Anchor Developments Pte Ltd | Client:- | Nakano Singapore (Pte) Ltd |
| Address:- | 438 Alexandra Road #02-00<br>Alexandra Point<br>Singapore 119958 | Address:- | 1 Coleman Street, #06-02,<br>The Adelphi,<br>Singapore 179803 |
| Tel:- | 6276 4882 | Tel:- | 6333 4933 |
| Fax:- | 6271 0811 | Fax:- | 6338 8568 |

Client's Representatives:-

| Name of Firm | Contact Person | Contact |
|---|---|---|
| Anchor Developments Pte Ltd | Name: Mr Lee Choon Li<br>Position: Project Director | Tel: 6276 4882<br>Fax: 6271 0811<br>Handphone: 9633 9975<br>Email: cllee@centrepoint.com.sg |
| Nakano Singapore (Pte) Ltd | Name: Mr Low Han Thong<br>Position: Project Manager | Tel: 6759 4392<br>Fax: 6759 4636<br>Handphone: 9848 8735<br>Email: ulusembawang@nakano.com.sg |
| Nakano Singapore (Pte) Ltd | Name: Mr Paul Yam<br>Position: M&E Manager | Tel: 6759 4392<br>Fax: 6759 4636<br>Handphone: 9450 7027<br>Email: paul@nakano.com.sg |
| | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |

### 3.4 **Other Consultants** (Local)

| Function / Name of Firm | Contact Person | Contact |
|---|---|---|
| Architect<br>Project 168 Services Pte Ltd | Name: Mr C P Tan<br>Position: Director<br><br><br>Name: Ms Karen Lam<br>Position: Architect | Tel: 6334 4887<br>Fax: 6334 2627<br>Handphone: 9669 9326<br>Email: cptan@con168.com.sg<br>Tel: 6334 4887 ext 209<br>Fax: 6334 2627<br>Handphone: 9725 3556<br>Email: karen@con168.com.sg |
| Quantity Surveyor<br>Davis Langdon & Seah Singapore Pte Ltd | Name: Mr Tay Ter Long<br>Position: Quantity Surveyor | Tel: 6222 3888<br>Fax: 6224 7089<br>Handphone: -<br>Email: mailqs@dls.com.sg |
| Structural Engineer<br>SCE Consultants (Pte) | Name: Mr Slamet Gunawan<br>Position: Associate | Tel: 6337 2828<br>Fax: 6339 9313<br>Handphone: -<br>Email: sce@sce.com.sg |
| Landscape Consultant<br>Site Concepts International Pte Ltd | Name: Mr William Koh<br>Position: - | Tel: 6221 8826<br>Fax: 6221 8937<br>Handphone: -<br>Email: sitecon@singnet.com.sg |
| Lighting Consultant | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Acoustic Consultant | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| _____ | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| _____ | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |

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

| Function / Name of Firm | Contact Person | Contact |
|---|---|---|
| Architect | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| M&E Consultant | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Quantity Surveyor | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Structural Engineer | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Interior Designer | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Lighting Consultant | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Acoustic Consultant | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| _____ | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |

### 3.5 Contractors/Sub-Contractors

| Function / Name of Firm | Contract * | Contact Person | Contact |
|---|---|---|---|
| Main Contractor<br><br>Nakano Singapore (Pte) Ltd | DC | Name: Mr Loh Han Thong<br>Position: Project Manager | Tel: 6759 4392<br>Fax: 6759 4636<br>Handphone: 9848 8735<br>Email: ulusembawang@nakano.com.sg |
| Air Conditioning & Ventilation Installation Sub-Contractor<br><br>Design Aire Engineering (S) Pte Ltd | DSC | Name: Mr. William Liew<br>Position: Director | Tel: 6746 9611<br>Fax: 6747 4922<br>Handphone: 9672 6277<br>Email: deaire@mbox3.singnet.com.sg |
| Plumbing & Sanitary Installation Sub-Contractor<br><br>WTC Engineering Pte Ltd | DSC | Name: Mr Wang T C<br>Position: Managing Director | Tel: 6745 9733<br>Fax: 6745 6806<br>Handphone: 9067 1144<br>Email: wtc97@mbox2.singnet.com.sg |
| Electrical Installation Sub-Contractor<br><br>Tresima Asia Pte Ltd | DSC | Name: Mr Pek Beng Ee<br>Position: Project Manager | Tel: 6841 9077<br>Fax: 6741 3940<br>Handphone: 9009 3117<br>Email: tresima@singtel.com.sg |
| Lift & Escalator Installation Sub-Contractor<br><br>Ryoden (Singapore) Pte Ltd | DSC | Name: Mr K L Loh<br>Position: Project Engineer | Tel: 6842 5678<br>Fax: 6748 2292<br>Handphone: -<br>Email: kl.loh@rs.meap.com |
| Fire Fighting & Alarm Installation Sub-Contractor<br><br>Design Aire Engineering (S) Pte Ltd | DSC | Name: Mr William Liew<br>Position: Director | Tel: 6746 9611<br>Fax: 6747 4922<br>Handphone: 9672 6277<br>Email: deaire@mbox3.singnet.com.sg |
| Swimming Pool Filtration Plant Installation Sub-Contractor<br><br>Hydrotech M&E Services Pte Ltd | DSC | Name: Mr Lai Heng Tong<br>Position: Managing Director | Tel: 6748 4779<br>Fax: 6748 8016<br>Handphone: 9026 1457<br>Email: Hydrotech3@yahoo.com.sg |
| Carpark System Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| _____ | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>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 | Mr Francis Chang | 6823 8555 |
| (b) Diversion | | |
| SP Services: | | |
| (a) Customer Supply | Mr Rick Lim | 6823 8282 |
| (b) Installation | | |
| (c) Meter Section | | |
| (d) Road Lighting | | |
| TFCC: | | |
| (a) SCV | | |
| (b) SingTel | Mr Chin Yong How | 6848 5615 |
| (c) IDA | | |
| BCA: | | |
| (a) Building Plan | | |
| FSSD: | | |
| (a) Building Plan | | |
| (b) M&E Plan | | |
| PUB (Water Supply) Network Dept: | | |
| (a) Water Conservation | | |
| (b) Plumbing Plan | | |
| (c) Diversion | | |
| PUB Water Reclamation (Network) Dept: | | |
| (a) Building Plan/CBPU | | |
| (b) M&E Plan | | |
| (c) Diversion | | |
| City Gas Pte Ltd: | | |
| (a) Planning/Submission | Mr Liew Khee Boon | 6586 8846/6586 8899<br>plan@citygas.com.sg |
| (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 attach Master Programme

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | TASK NAME | MONTHS | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| 1. | Preliminary Planning | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | Planning Submission | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | Detail Design | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | BP Submission | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | BP Submission (Amendments) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | Tender Period for Piling | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. | Tender Period for Sub-Structure | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. | Tender Period for Super-Structure | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. | Piling Period | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10. | Sub-Structure Construction Period | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11. | Super-Structure Construction Period | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12. | TOP | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13. | CSC | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

# MASTER NETWORK

| NO. | PROJECT NAME | CLIENT | STRUCTURAL ENGINEER | TOTAL FLOOR AREA | NO. OF STOREY | CHECKED BY |
|---|---|---|---|---|---|---|
| | ULU SEMBAWANG<br>MASTER SCHEDULE | ANCHOR DEVELOPMENTS PTE LTD | SCE CONSULTANTS (PTE) | 8 636.27m² | 5 STOREYS | LOW HAN THONG |
| | | ARCHITECT<br>CONSORTIUM 168 ARCHITECTS PTE LTD | M & E ENGINEER<br>ALPHA ENGINEERING CONSULTANT | | CONSTRUCTION PERIOD<br>14th Dec 2004 ~ 13th Dec 2006 | DATE<br>02-03-2005 |

**NAKANO SINGAPORE (PTE) LTD**
No. 1 COLEMAN STREET #06-02
THE ADELPHI SINGAPORE 179803
Tel : 6333 4933 Fax : 6338 8568

SCHEDULE DATE — Years / Mths

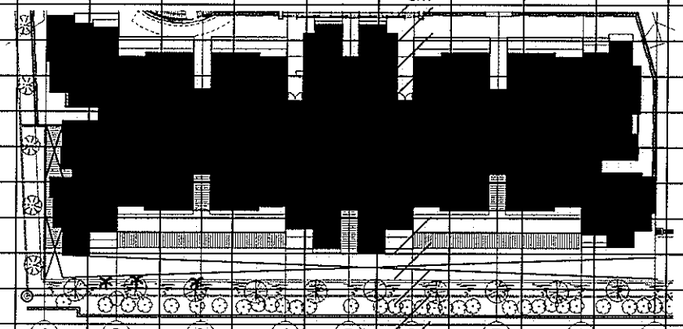
2005: DEC | JAN | FEB CNY | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

2006: JAN | FEB CNY | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

ROOF
ATTIC 3050
5F 3000 BD RM 3
4F 3000 M. BED
3F 3000 M. BED
2F 3000 M. BED
1F 3000 M. BED PES
BASEMENT & R.C RETAINING WALL DRIVEWAY
PILECAP
PILING
BASEMENT EXCAVATION
DEMOLITION EXISTING BUILDING
TEMPORARY FACILITIES
SUBSTATION
LANDSCAPE DECK / SWIMMING POOL
EXTERNAL PLASTER
MOCK UP UNIT

M&E
MINOR SEWER
PLUMBING SANITARY
CAT.04 ROAD / EXTERNAL CULVERT
LIFT
ELECT
AC & MV

IMPORTANT MILE STONE




R.C. ACTIVITY FOR TYPICAL FLOOR
CLEANING 0 1 | REBAR | 4 | SET P. CAST. REAR WALL/COL. | 14 15 | CONC | 15 | STRIKE | 20 | SLAB FORM WORK | 27 28 | CONC | 30 days

FINISHING ACTIVITY AT TYPICAL FLOOR
MARK PREP 0 | BRICKWORK WINDOW & DOOR FRAME 1 | CEILING PLASTERING 2 | WALL & FLOOR TILE 3 | GLAZING, PARQUET 4 | SANITARY FITTING W/BOWORK KITCHEN CABINET 5 | 5 MONTHS

RETAINING WALL & BASEMENT ①
PILECAP
2 MONTHS

CHANGE OF DESIGN SCHEME — REFER TO EMAIL DATED 07/01/05 — PREP — LOAD TEST

SUBMISSION — DEMOLITION — DEMOB MAT
SUBMISSION — APPLICATION APPROVAL — TEMP. OFFICE/TOILET

DESIGN DWGS — SHOP DWGS — PROCUREMENT MATERIALS — PREPARATION — R.C. — FINISHING

EXCAVATION / PILECAP — R.C. STRUCTURE — WATERPROOFING — WATER FEATURE FINISHING — PAINTING — DISMANTLE SCAFFOLD

EXTERNAL SCAFFOLD / WALL FINISHING & PLASTER

MOCK UP 1 UNIT

HANDOVER TO POWER GRID — TURN ON 2 MONTHS LATER — ELECTRICAL PUB (TURN ON)

PREPARATION — SHOP DWGS — ARCHITECT SUBMISSION — APPROVAL 2.5 MONTHS — PREPARATION — JACKING — INSPECTION CONNECTION

PREPARATION — SHOP DWGS — BASEMENT T.C., HATCH BOX, PIPING — SOIL WASTE / DOMESTIC WATER SYSTEM — WATER LINE — ROOF PIPING WATER TANK & PUMP — TESTING COMMISSION — CONSULTANT INSPECTION — AUTHORITY

AUTHORITY SUBMISSION — BP CLEARANCE — CAT. 04 ROAD CONSTRUCTION / ENTRANCE CULVERT — INTERNAL DRAIN & DRIVEWAY CONSTRUCTION — PAVING ASPHALT — AUTHORITY

PREPARATION — SHOP DWGS — FABRICATION — LIFT SHAFT PREPARATION — HANDING OVER — LIFT GUIDE / CAR INSTALLATION CAR FINISHES — TESTING COMMISSION — CONSULTANT INSPECTION — AUTHORITY

PREPARATION — SHOP DWGS — CONDUIT & WIRING — ELECTRICAL RISER — PUB INSPECTION — TESTING COMMISSION — CONSULTANT INSPECTION — AUTHORITY

PREPARATION — SHOP DWGS — PIPING — INSTALL CONDENSING UNIT / AIR CON — TESTING COMMISSION — CONSULTANT INSPECTION — AUTHORITY

TOP INSPECTION — OBTAIN TOP — 13/12/2006

BP CLEARANCE

LIFT SHAFT HANDOVER — ELECTRICAL TURN ON — TELECOM TURN ON — WATER & GAS TURN ON — TOP INSP. RI FSB — TOP

SUBSTATION HANDOVER

**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 | 30/1/05 | 25/1/05 | | | | | | | 4/2/05 |
| Power Supply Substation | SP PowerGrid Ltd | 1/3/05 | 28/2/05 | | | | | | | 23/3/05 |
| Metering Layout | SP Services Ltd | - | - | - | - | - | - | - | - | - |
| Sanitary Installation | PUB Water Reclamation (Network) Dept | 15/5/05 | 30/8/05 | - | - | - | - | - | - | 2/9/05 |
| Domestic Water Supply | PUB (Water Supply) Network Dept | 30/10/05 | 26/10/05 | 11/11/05 | 30/11/05 | 14/12/05 | 21/12/05 | - | - | 11/1/06 |
| Gas Supply Installation | City Gas Pte Ltd | 30/9/05 | 4/10/05 | - | - | - | - | - | - | 26/10/05 |
| Air Conditioning & Ventilation Inst. | FSSD | 15/11/05 | 7/3/06 | - | - | - | - | - | - | 24/3/06 |
| Fire Fighting & Alarm Installation | FSSD | 15/11/05 | 8/2/06 | - | - | - | - | - | - | 27/2/06 |
| Telephone Installation | TFCC | 30/9/05 | 12/10/05 | - | - | - | - | - | - | 28/10/05 |
| Broadband Co-axial Cable System (BCS) | Starhub Cable Vision | 30/9/05 | 12/10/05 | - | - | - | - | - | - | 28/10/05 |
| 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: | |
|---|---|---|---|
| - Owners | | - Architect | |
| - Authorities | | - Other Consultants | |
| - Contractors | | - CC | |
| - CF/CC | ✓ | - PQP/QSP | ✓ |

**Project Files to be initiated by PM as and when required**

| File Ref: | | File Ref: | | File Ref: | |
|---|---|---|---|---|---|
| 1410 | ✓ | | | | |
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**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 | LCY |
| Incoming Architectural Sketches/Details | LCY |
| Incoming Structural Drawings | LCY |
| M&E Drawings | |
| - Electrical Installation | LCY |
| - Lift & Escalator Installation | LCY |
| - Air Conditioning & Ventilation Installation | CHL |
| - Fire Fighting & Alarm Installation | CHL |
| - Plumbing & Sanitary Installation | CHL |
| - Swimming Pool & Filtration Installation | CHL |
| Other Drawings | |
| - Interior Design | LCY |
| - Landscape/Waterscape | LCY |
| | |
| | |
| | |

**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 |
|---|---|---|---|---|---|
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** Information required by INTERNAL DESIGN TEAM MEMBERS*

**SECTION 6**

**INTERFACING**

### 6.3 Circulation of Documents to External Parties

| | Code:<br>A - Approval Required<br>C - For Comments<br>I - For Information Only | Client/ Client Rep. | Client's Project Manager | Architect | Structural Engineer | Quantity Surveyor | |
|---|---|---|---|---|---|---|---|
| **1.** | **Letters/Fax:** | | | | | | |
| a. | Project Design | C | - | C | C | - | |
| b. | Project Administration | I | - | C | C | C | |
| c. | Project Cost Estimate/Contract Cost | - | - | - | - | - | |
| **2.** | **Drawings** | | | | | | |
| a. | Outline Design Drgs. | - | - | - | - | - | |
| b. | Sketch Design Drgs. | - | - | - | - | - | |
| c. | Final Design Drgs. | - | - | - | - | - | |
| d. | Shop Drawings | C | - | A | C | - | |
| e. | As Built Drgs. | - | - | - | - | - | |
| **3.** | **Other Document** | | | | | | |
| a. | Specification | - | - | I | - | - | |
| b. | Tender Document | - | - | - | - | - | |
| c. | Tender Evaluation Report | - | - | - | - | - | |
| d. | Design Report | - | - | - | - | - | |
| e. | Progress Report | - | - | - | - | - | |
| f. | Financial Report | - | - | - | - | - | |
| g. | Minutes of Meeting | - | - | - | - | - | |
| h. | Inspection Report | - | - | - | - | - | |
| i. | Testing & Comm. Report | - | - | - | - | - | |
| j. | O & M Manual | - | - | - | - | - | |

**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 : AEC Site Staff

**SECTION 8**

**DESIGN INPUT & METHODOLOGY**

## 8.1 List of Client's Standards, Reference Documents or Brief – NOT USED

| ITEM | KEPT BY |
|---|---|
| | |
| | |
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## 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 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 | ~~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 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 – NOT USED

| 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 | |
| Hyena | 4.00.1 | ACADS-BSG | Fire Sprinkler & Hydrant Analysis | |
| 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 | C, A |
| M&E Cost Estimate Report | - |
| Pre-Qualification of Tenderers | - |
| Tender Documents | - |
| Tender Report | - |
| Payment Valuation for QS | - |
| Certificates of Supervision for TOP/CSC | Re |

** Remarks*

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

*Other purposes and for action: please specify.*

**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 |
|---|---|---|
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