Alpha
Consulting Engineers Pte Ltd

# PROJECT QUALITY PLAN

**PROPOSED ADDITIONS AND ALTERATIONS TO EXISTING 5-STOREY FLATTED LIGHT INDUSTRIAL BUILDINGS ON LOTS 4813PT SL, 4816PT MK 23 & 4362PT SL MK 28 (NEW LOT 5471P MK 23) AT KAKI BUKIT AVENUE 3/KAKI BUKIT AVENUE 1 (BEDOK PLANNING AREA)**

For

**HSBC INSTITUTIONAL TRUST SERVICES (SINGAPORE) LIMITED AS TRUSTEE OF ASCENDAS REAL ESTATE INVESTMENT TRUST**

| | |
|---|---|
| Copy No. | 1 |

Prepared By: Tay Chin Meng

Authorised By: Choong Choon Guan

Date: 17 February 2011

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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 | 6125-PQP | 17 February 2011 |
| | | |
| | | |
| | | |
| | | |

## 1.2 Revision Record

| Revision | Date of Issue | Section Reference | Page(s) | Remarks |
|---|---|---|---|---|
| 0 | 10 January 2011 | 1 to 11 | 28 | + 1 pg (Section 4.1 –Work Programme) + 1 pg (Section 10.2 – Form for Requisition of Variation Works) |
| | | | | |
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**SECTION 2**

**PROJECT INFORMATION**

## 2.1 Project Description

| | |
|---|---|
| Type of Development | Industrial |

| Statistics of Development | |
|---|---|
| Site Area, m² | 25,516.60 |
| Nett Floor Area, m² | - |
| Gross Floor Area, m² | 50,650.42 |
| Covered Carpark, m² | - |
| No. of Covered Carpark Lots | 513 |
| No. of Apartments/Houses | - |
| No. of Beds (for Hospitals) | - |
| No. of Guestroom (for Hotels) | - |
| No. of Blocks / No. of Storeys | 5-Storey Flatted Light Industrial Building |
| No. of Phases | - |

## 2.2 Project Cost

| M&E Services Cost Plan (S$ x 1M) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Services | EI | ACVI | LEI | FFAI | PSI | SPFI | | | | |
| Estimate | | | | | | | | | | |
| Awarded | 0.16 | 0.3 | | 0.08 | 0.04 | | | | | |

| Total Project Construction Cost (S$ x1M) | | | |
|---|---|---|---|
| | Site Clearance | Piling Works | Main Contract |
| Estimate | | | |
| Awarded | | | 2.38 |

*Site Clearance shall include earth work, soil improvement, service diversion and termination.*

## 2.3 Scope of Works

### 2.3.1 Scope of Consultancy Services

| | |
|---|---|
| Conceptual/Schematic Design | |
| Detailed Design | ✓ |
| Tender Documentation | ✓ |
| Tender Evaluation | ✓ |
| Contract Supervision | ✓ |
| M&E Costing | ✓ |
| Submissions to Authority | ✓ |

(✓*where applicable*)

### 2.3.2 Scope of M&E Services

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ELECTRICAL | ✓ | AIR CONDITIONING | ✓ | SPRINKLER | ✓ | SANITARY | ✓ | SWIMMING POOL | |
| LIFT | | MECHANICAL VENTILATION | | FIRE ALARM | ✓ | COLD WATER | | STEAM BOILER | |
| ESCALATOR | | MECHANICAL SMOKE EXTRACT | | HOSEREEL | ✓ | HOT WATER | | FUEL STORAGE | |
| PABX | | COMPUTER A/C | | WET RISER | | TOWN GAS | | | |
| SECURITY | | BST CARPARK EXH | | DRY RISER | ✓ | LPG GAS | | | |
| TELELIFT | | HEATING | | | | MEDICAL GAS | | | |
| DATA COMM. | | | | | | | | | |
| FLUSHFLOOR TRUNKING | | | | | | | | | |

(✓*where applicable*)

### 2.3.3 Submission to Relevant Authorities by Others

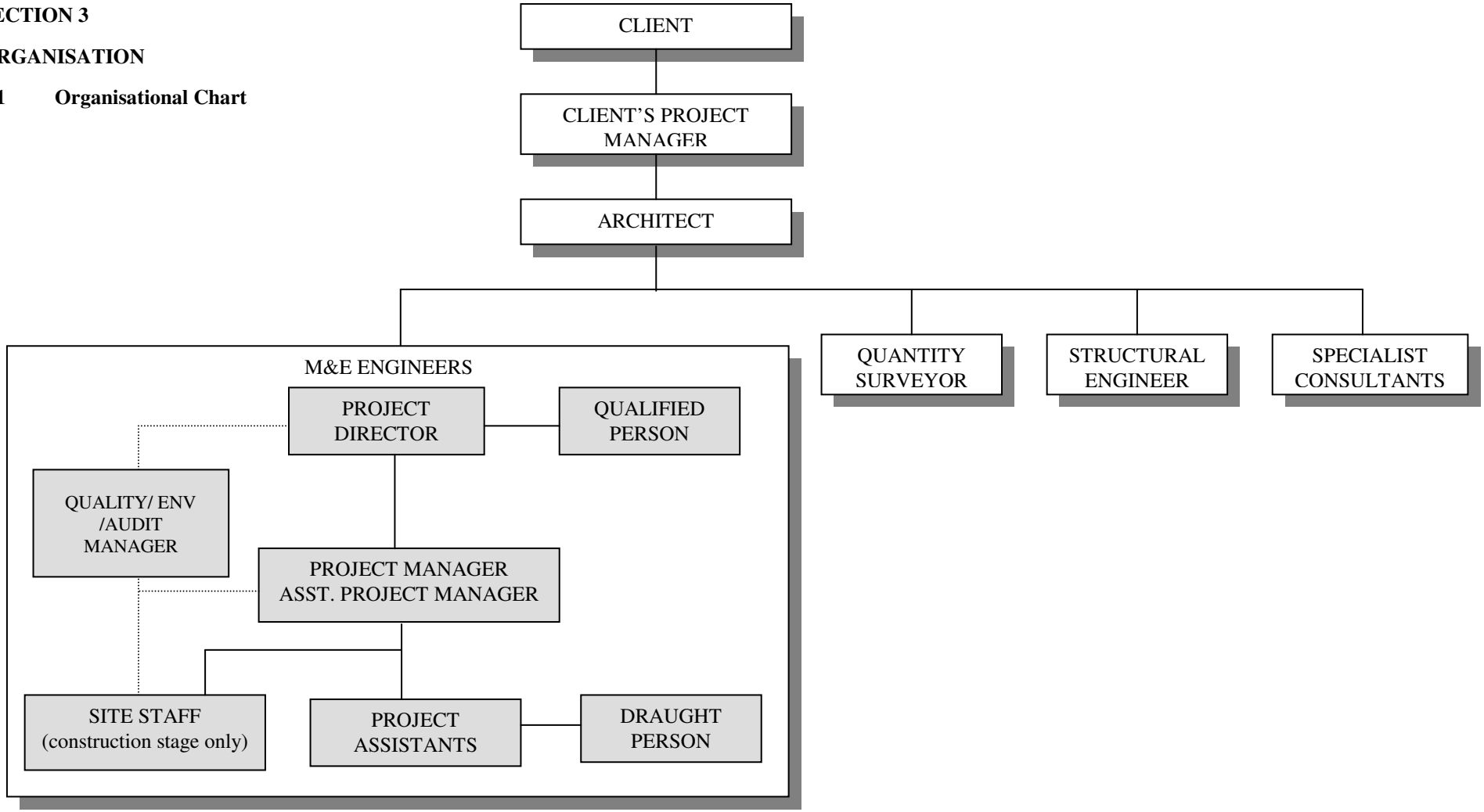
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EJECTOR & DIVERTER | | SUMP PUMP | | FUEL OIL TANK | | LIFT & ESCALATOR | | PRESSURE VESSEL | | HOISTS | | FOAM | |

(✓*where applicable*)

**SECTION 3**

**ORGANISATION**

**3.1 Organisational Chart**



**SECTION 3**

**ORGANISATION**

### 3.2 ACEPL's Project Team Member

| TITLE | | NAME |
|---|---|---|
| Project Director | | Choong Choon Guan (CCG) |
| Qualified Person | Mechanical | Choong Choon Guan (CCG) |
| | Electrical | - |
| Project Manager | | Choong Choon Guan (CCG) |
| Assistant Project Manager | | Goh Soon Huat (GSH) |
| Project Assistant (Mech) | | Tay Chin Meng (TCM) |
| Project Assistant (Elect) | | Rukiah Bte Suttan (RBS) |
| Draughtsperson | | Common Pool |
| Resident Engineer (M&E) | | Martin Poa |
| Assistant Resident Engineer (M&E) | | - |
| Clerk-of-Work (M&E) | | - |
| | | |
| | | |

### 3.3 Client/Client's Representatives

Client:- Ascendas Funds Management (S) Ltd

Address:- 61 Science Park Road
#04-01 The Galen
Singapore Science Park II
Singapore 117525

Tel:- 67741033

Fax:- 6775 2813

Client's Representatives:-

| Name of Company | Contact Person | Contact |
|---|---|---|
| Ascendas Funds Management (S) Ltd | Name: Mr Yong Kok Fong<br>Position: Manager of A-REIT | Tel: 6508 8815<br>Fax: 6775 2813<br>Handphone: 9248 4447<br>Email: kokfong.yong@ascendas-fms.com |
| Ascendas Services Pte Ltd | Name: Mr Adrian Ho<br>Position: Project Manager | Tel: 6774 1033<br>Fax: 6774 9842<br>Handphone: 9679 7963<br>Email: ADRIAN@ascendas.com |
| | 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** (Local)

| Function / Name of Company | Contact Person | Contact |
|---|---|---|
| Architect | Name: Mr Tong Cherng Yaw<br>Position: Senior Principal Architect | Tel: 6220 2153<br>Fax: 6325 4918<br>Handphone: 9018 8794<br>Email:cytong@addp-do.com.sg |
| Quantity Surveyor | Name: Ms Pauline Tay<br>Position: Quantity Surveyor | Tel: 6296 63118<br>Fax: 6296 6160<br>Handphone: 9758 5515<br>Email: becqspm@singnet.com.sg |
| Structural Engineer | Name: Dr Reggie Koh<br>Position: Senior Engineer | Tel: 6412 0365<br>Fax: 6273 8454<br>Handphone: -<br>Email: reggiekoh@ktp.com.sg |
| 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: |
| _____ | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |

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

| Function / Name of Company | 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 Company | Contract * | Contact Person | Contact |
|---|---|---|---|
| Main Contractor<br>Boon Tian Contractor Pte Ltd | DC | Name: Mr Tong Tng<br>Position: Project Manager | Tel: 6287 7883<br>Fax: 6289 7117<br>Handphone: 9731 7457<br>Email:sktng@boontian.com.sg |
| Air Conditioning & Ventilatdon Installation Sub-Contractor<br>Join Aircon & Electrical Engineering Pte Ltd | NSC | Name: Mr Kelvin Tan<br>Position: - | Tel: 6756 6695<br>Fax: 6756 2886<br>Handphone: -<br>Email:kelvintan@joinaircon.com.sg |
| Plumbing & Sanitary Installation Sub-Contractor<br>Join Aircon & Electrical Engineering Pte Ltd | NSC | Name: Mr Kelvin Tan<br>Position: - | Tel: 6756 6695<br>Fax: 6756 2886<br>Handphone: -<br>Email:kelvintan@joinaircon.com.sg |
| Electrical Installation Sub-Contractor<br>Join Aircon & Electrical Engineering Pte Ltd | NSC | Name: Mr Kelvin Tan<br>Position: - | Tel: 6756 6695<br>Fax: 6756 2886<br>Handphone: -<br>Email:kelvintan@joinaircon.com.sg |
| Lift & Escalator Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Fire Fighting & Alarm Installation Sub-Contractor<br>TYC Engineering Pte Ltd | NSC | Name: Mr Alex Cheong<br>Position: - | Tel: 6462 0860<br>Fax: 6760 6560<br>Handphone: 9176 2888<br>Email:alex.5155@yahoo.com.sg |
| Swimming Pool Filtration Plant Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| 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 | | |
| (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 | | |
| (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 | | |
| (b) Installation/Inspection | | |
| PowerGas Pte Ltd | | |
| (a) Diversion | | |
| NEA (Pollution Control) | | |
| (a) Planning/Submission | | |
| (b) Inspection | | |

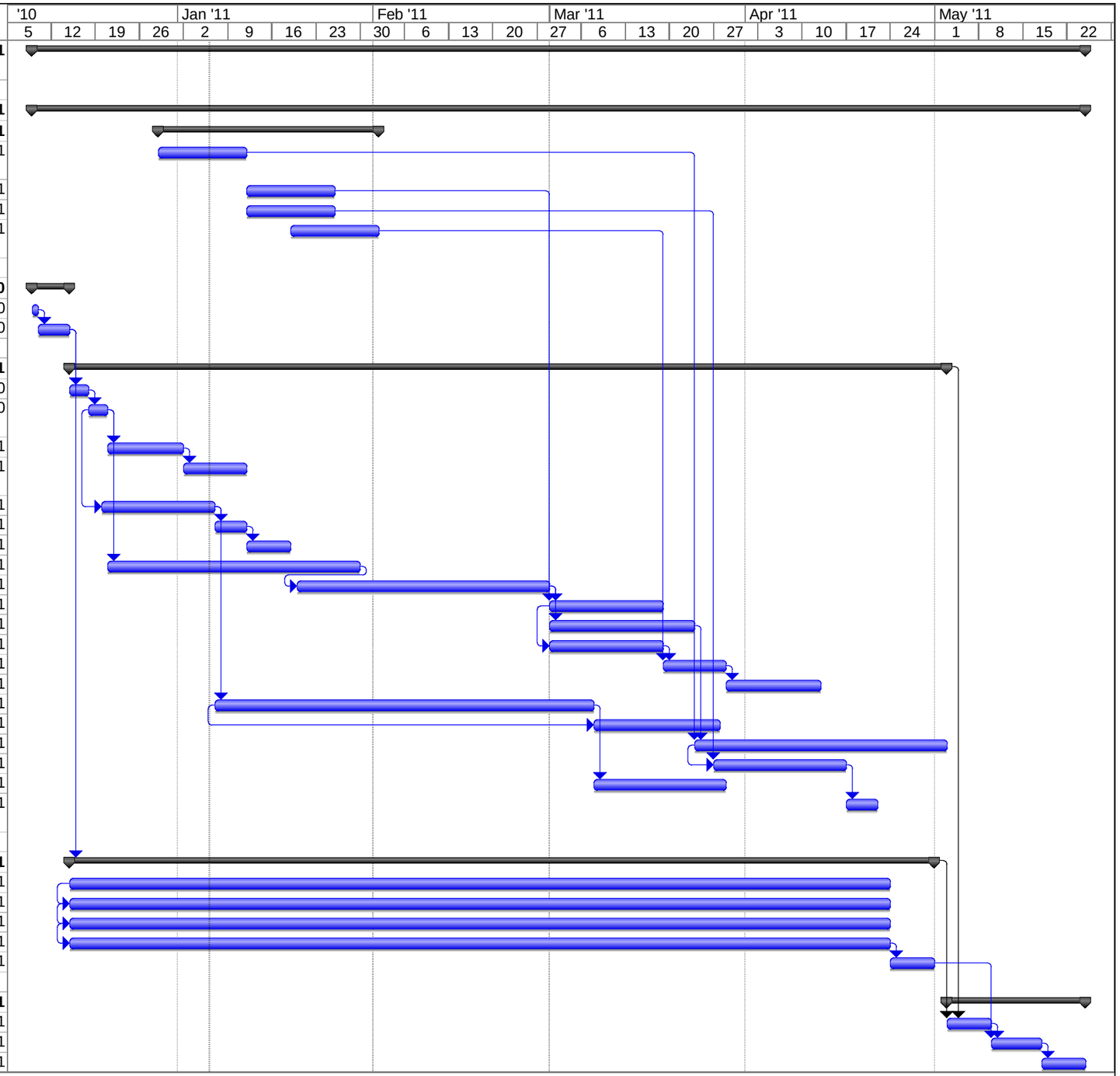
**SECTION 4**

**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 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | **A&A Works To Techview At Kaki Bukit Ave 1&3** | **167 days** | **Thu 9/12/10** | **Tue 24/05/11** |
| 2 | | | | |
| 3 | **Zone A** | **167 days** | **Thu 9/12/10** | **Tue 24/05/11** |
| 4 | **Submission & Approval of Material** | **35 days** | **Wed 29/12/10** | **Tue 1/02/11** |
| 5 | Aluminium curtain wall (sample & shop drawing) | 14 days | Wed 29/12/10 | Tue 11/01/11 |
| 6 | S/S Hook (sample) | 14 days | Wed 12/01/11 | Tue 25/01/11 |
| 7 | Fire-rated Door (Shop Drawing) | 14 days | Wed 12/01/11 | Tue 25/01/11 |
| 8 | Waterproofing product (catalogue, shopdrawing & sample) | 14 days | Wed 19/01/11 | Tue 1/02/11 |
| 9 | | | | |
| 10 | **Mobilization** | **6 days** | **Thu 9/12/10** | **Tue 14/12/10** |
| 11 | Possession of site | 1 day | Thu 9/12/10 | Thu 9/12/10 |
| 12 | Protection / Hoarding Works | 5 days | Fri 10/12/10 | Tue 14/12/10 |
| 13 | | | | |
| 14 | **Builder Works** | **139 days** | **Wed 15/12/10** | **Mon 2/05/11** |
| 15 | Setting out | 3 days | Wed 15/12/10 | Fri 17/12/10 |
| 16 | Dismantle existing ceiling for new partition works for ID 17 & 18 | 3 days | Sat 18/12/10 | Mon 20/12/10 |
| 17 | Erection of partition for 4th storey new corridor | 12 days | Tue 21/12/10 | Sat 1/01/11 |
| 18 | Erection of parition for 5th storey, between GL 14-15 | 10 days | Sun 2/01/11 | Tue 11/01/11 |
| 19 | Dismantling of existing Partition & Ceiling | 18 days | Mon 20/12/10 | Thu 6/01/11 |
| 20 | Rainwater downpipe | 5 days | Fri 7/01/11 | Tue 11/01/11 |
| 21 | Temporary Tentage | 7 days | Wed 12/01/11 | Tue 18/01/11 |
| 22 | Strengthening of all structure works | 40 days | Tue 21/12/10 | Sat 29/01/11 |
| 23 | Demolition of existing prestressed structure | 40 days | Thu 20/01/11 | Mon 28/02/11 |
| 24 | Roof parapet wall | 18 days | Tue 1/03/11 | Fri 18/03/11 |
| 25 | Installation of Brickwall | 23 days | Tue 1/03/11 | Wed 23/03/11 |
| 26 | Courtyard structural Works | 18 days | Tue 1/03/11 | Fri 18/03/11 |
| 27 | Waterproofing To Courtyard | 10 days | Sat 19/03/11 | Mon 28/03/11 |
| 28 | Floor Finishes Works @ Courtyard | 15 days | Tue 29/03/11 | Tue 12/04/11 |
| 29 | Installation of Drywall Partition | 60 days | Fri 7/01/11 | Mon 7/03/11 |
| 30 | Painting to Wall & Drywall partition | 20 days | Tue 8/03/11 | Sun 27/03/11 |
| 31 | Installation of Spandrel / Aluminium Windows | 40 days | Thu 24/03/11 | Mon 2/05/11 |
| 32 | Installation of Fire Doors | 21 days | Sun 27/03/11 | Sat 16/04/11 |
| 33 | Installation of suspended ceiling | 21 days | Tue 8/03/11 | Mon 28/03/11 |
| 34 | Signage for fire hosereel, escape route plans, meter compartment | 5 days | Sun 17/04/11 | Thu 21/04/11 |
| 35 | | | | |
| 36 | **M&E Works** | **137 days** | **Wed 15/12/10** | **Sat 30/04/11** |
| 37 | ACMV | 130 days | Wed 15/12/10 | Sat 23/04/11 |
| 38 | Fire Protection Works | 130 days | Wed 15/12/10 | Sat 23/04/11 |
| 39 | Plumbing & Sanitary | 130 days | Wed 15/12/10 | Sat 23/04/11 |
| 40 | Electrical Installation | 130 days | Wed 15/12/10 | Sat 23/04/11 |
| 41 | Testing & Commissioning | 7 days | Sun 24/04/11 | Sat 30/04/11 |
| 42 | | | | |
| 43 | **Miscellaneous** | **22 days** | **Tue 3/05/11** | **Tue 24/05/11** |
| 44 | General Cleaning | 7 days | Tue 3/05/11 | Mon 9/05/11 |
| 45 | RI Inspection | 8 days | Tue 10/05/11 | Tue 17/05/11 |
| 46 | TOP | 7 days | Wed 18/05/11 | Tue 24/05/11 |




Project: Techview Programe
Date: Thu 6/01/11

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

**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 | 28/2/11 | | | | | | | | |
| Domestic Water Supply | PUB (Water Supply) Network Dept | | | | | | | | | |
| Gas Supply Installation | City Gas Pte Ltd | | | | | | | | | |
| Air Conditioning & Ventilation Inst. | FSSD | 28/2/11 | | | | | | | | |
| Fire Fighting & Alarm Installation | FSSD | 28/2/11 | | | | | | | | |
| 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 | |
| - Authorities | ✓ | - Other Consultants | |
| - Contractors | | - CC | |
| - CF / CF | ✓ | - PQP/QSP | ✓ |

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

| File Ref: | | File Ref: | | File Ref: | |
|---|---|---|---|---|---|
| 6125 | ✓ | | | | |
| -PP | ✓ | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

(✓*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 | Tay Chin Meng (TCM) |
| Incoming Architectural Sketches/Details | Tay Chin Meng (TCM) |
| Incoming Structural Drawings | Tay Chin Meng (TCM) |
| M&E Drawings | |
| - Electrical Installation | Rukiah Bte Suttan (RBS) |
| - Lift & Escalator Installation | - |
| - Air Conditioning & Ventilation Installation | Tay Chin Meng (TCM) |
| - Fire Fighting & Alarm Installation | Tay Chin Meng (TCM) |
| - Plumbing & Sanitary Installation | Tay Chin Meng (TCM) |
| - Swimming Pool & Filtration Installation | - |
| 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 – 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 | A | A | C | C | - | |
| b. | Project Administration | - | - | - | - | - | |
| c. | Project Cost Estimate/Contract Cost | A | A | - | - | C | |
| **2.** | **Drawings** | | | | | | |
| a. | Outline Design Drgs. | A | A | C | C | - | |
| b. | Sketch Design Drgs. | A | A | C | C | - | |
| c. | Final Design Drgs. | A | A | C | C | - | |
| d. | Shop Drawings | - | - | A/C | - | - | |
| e. | As Built Drgs. | I | I | I | I | I | |
| **3.** | **Other Document** | | | | | | |
| a. | Specification | A | A | C | C | C | |
| b. | Tender Document | A | A | C | - | C | |
| c. | Tender Evaluation Report | A | A | C | - | C | |
| d. | Design Report | A | A | C | C | C | |
| e. | Progress Report | - | - | - | - | - | |
| f. | Financial Report | - | - | - | - | - | |
| g. | Minutes of Meeting | I | I | I | I | - | |
| h. | Inspection Report | I | I | I | - | - | |
| i. | Testing & Comm. Report | I | I | I | - | - | |
| j. | O & M Manual | I | I | I | - | - | |

**SECTION 7**

**WORK AUTHORISATION**

| Activity \ Authorised Signatories | PD | QP | PM | AE | SS |
|---|---|---|---|---|---|
| General Correspondences with Client | ✓ | ✓ | ✓ | | |
| General Correspondences with Other Consultants | | | ✓ | ✓ | |
| M&E Cost Estimate Report | ✓ | | ✓ | | |
| M&E Design Report | ✓ | | ✓ | | |
| Check Prints | | ✓ | | | |
| Tender Drawing Approval | ✓ | ✓ | ✓ | | |
| Tender Specification Approval | ✓ | | ✓ | | |
| List of Tenderers | | | ✓ | | |
| Tender 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 – 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 & Escalator Installation~~ | ~~BS~~ | ~~SS~~ | | | | |
| Sprinkler System | ~~BS~~ | SS | ~~NFPA~~ | ~~AS~~ | ~~LPC~~ | |
| ~~Wet Riser System~~ | ~~BS~~ | ~~SS~~ | ~~NFPA~~ | ~~AS~~ | ~~MS~~ | |
| Automatic Fire Alarm System | ~~BS~~ | SS | ~~NFPA~~ | ~~AS~~ | ~~MS~~ | |
| Sanitary System | ~~BS~~ | SS | ~~NFPA~~ | ~~AS~~ | ~~MS~~ | |
| ~~Plumbing System~~ | ~~BS~~ | ~~SS~~ | ~~NFPA~~ | ~~AS~~ | ~~MS~~ | |
| ~~Town Gas/LPG Supply System~~ | ~~BS~~ | ~~SS~~ | ~~NFPA~~ | ~~AS~~ | | |
| ~~Boiler and Steam Supply System~~ | ~~ASME~~ | ~~BS~~ | ~~AS~~ | | | |
| ~~Mechanical Smoke Control System~~ | ~~BS~~ | ~~NFPA~~ | ~~AS~~ | | | |

*(Delete where necessary)*

**SECTION 8**

**DESIGN INPUT & METHODOLOGY**

### 8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

ASHRAE Handbooks

Institute of Plumbing's Plumbing Services Design Guide

### 8.4 List of Applicable Quality System Procedures

Alpha Consulting Engineers Pte Ltd's Quality Management System Procedures

| Section | Title | ✓ where applicable |
|---|---|---|
| M1 | Preparation of Consultancy Offer | ✓ |
| M2 | Project Commissioning and Service Agreement | ✓ |
| M3 | Design Control | ✓ |
| M4 | Design Change Control | |
| M5 | Tender Process and Evaluation | ✓ |
| M6 | Authority Submission | ✓ |
| M7 | Construction Process Control | ✓ |
| M8 | Testing and Commissioning | ✓ |
| S1 | Document Control | ✓ |
| S2 | Documentation of Quality & Environmental Management System Procedure | ✓ |
| S3 | Documentation of Project Quality Plan | ✓ |
| S4 | Specification Control | ✓ |
| S5 | Library Control | ✓ |
| S6 | Archive Control | ✓ |
| S7 | Filing Control | ✓ |
| S8 | Drawing Control | ✓ |
| S9 | Administration Control | ✓ |
| S10 | Purchasing Control | |
| S11 | Training Control | |
| S12 | Computer Control | |
| QE1 | Quality & Environmental System Audit | ✓ |
| QE2 | Feedback Reporting | ✓ |
| QE3 | Clients Feedback | ✓ |
| QE4 | Management Review | |

### 8.5 List of Software Used For Design/Analysis

| DESCRIPTION/ PACKAGE NAME | VERSION | SUPPLIER/ SOURCE | PURPOSE | |
|---|---|---|---|---|
| Calculux | 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 | |
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(✓*where applicable*)

**SECTION 9**

**ENVIRONMENTAL CONSIDERATIONS**

## 9.1 Sustainable Design Features / Criteria

| Item | Remarks |
|---|---|
| Green Mark criteria | N.A |
| Green Design Features | N.A |

## 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

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 | ✓ (by Main Contractor) |
| 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 | - |
| 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)*

- Form for Requisition of Variation (refer to attached)

ascendas

**Project:** _____

## REQUISITION FOR VARIATION WORKS

**PART 1A : REQUEST (To be filled in by the requesting party)**

| | |
|---|---|
| To : | From : |
| Contract : | Requisition No. : |
| Location of Works : | Drawing Ref. : |

Description of Works :

(Please use separate sheet if insufficient space)

Reasons for Variation (Full details with attached sketches to be listed below) :

☐ Authorities' Requirement ☐ Owner's Requirement ☐ Site Conditions

☐ Design Refinement ☐ Others (to specify) _____
(Please use separate sheet for details, if necessary)

Initiated By (Name) : _____ Signature & Date : _____

**PART 1 B : TIME IMPLICATION (To be filled in by the Architect / M&E Consultant)**

Time Implication : _____
(Please use separate sheet for details, if necessary)

Prepared By (Name) : _____ Signature & Date : _____

**PART 1C : COST IMPLICATION (To be filled in by the Quantity Surveyor / M&E Consultant)**

Specification / Bill Reference No :

Cost Implication : _____
(Please use separate sheet for details, if necessary)

Prepared By (Name) : _____ Signature & Date : _____

**PART II : RECOMMENDATION (To be filled in by ASCENDAS SERVICES PTE LTD)**

☐ Recommended Signature & Date _____

☐ Not Recommended Name : _____

Remarks :

**PART III : APPROVAL (To be filled in by the OWNER)**

☐ Approved Signature & Date : _____

☐ Disapproved Name : _____

**PART IIIA : EI / AI / AD NO. (To be filled in by the requesting party if an EI / AI / AD has already been issued)**

Employer's/Architect's Instruction : _____ Architect's Direction : _____

Date : _____ Date : _____



Space to be

**SECTION 11**

**LIST OF SUB-JOB**

### 11.1 List of Sub-Job Numbers – NOT USED

| Sub Job No | Description | Allocation Details |
|---|---|---|
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