Alpha
Consulting Engineers Pte Ltd

# PROJECT QUALITY PLAN

## PROPOSED ADDITIONS AND ALTERATIONS TO BASEMENT 1 TO 3, 1ST TO 7TH STOREY OF THE EXISTING AMARA HOTEL AND SHOPPING CENTRE ON LOT 486P TS03 AT TANJONG PAGAR ROAD

For

## AMARA HOTEL PROPERTIES PTE LTD

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

Prepared By: Tay Chin Meng/Chan Sheh Wei

Authorised By: Choong Choon Guan

Date: 13 March 2012

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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 | 6114-PQP | 13 March 2012 |
| | | |
| | | |
| | | |
| | | |

### 1.2 Revision Record

| Revision | Date of Issue | Section Reference | Page(s) | Remarks |
|---|---|---|---|---|
| 0 | 26 April 2010 | 1 to 11 | 28 | + 1 pg (Section 4.1 – Overall programme) |
| 1 | 6 January 2011 | 1 to 11 | 28 | + 2 pgs (Section 4.1 Overall programme) |
| 2 | 13 March 2012 | 1 to 11 | 28 | + 2 pgs (Section 4.1 Overall programme) |
| | | | | |
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**SECTION 2**

**PROJECT INFORMATION**

## 2.1 Project Description

| | |
|---|---|
| Type of Development | Shopping Centre |

| Statistics of Development | |
|---|---|
| Site Area, m² | 7679.7m$^2$ |
| Nett Floor Area, m² | - |
| Gross Floor Area, m² | 21,000 m$^2$ |
| Covered Carpark, m² | - |
| No. of Covered Carpark Lots | - |
| No. of Apartments/Houses | - |
| No. of Beds (for Hospitals) | - |
| No. of Guestroom (for Hotels) | - |
| No. of Blocks / No. of Storeys | Shopping Podium of 4-Storey & 3-Basement |
| No. of Phases | 1 |

## 2.2 Project Cost

| M&E Services Cost Plan (S$ x 1M) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Services | EI | ACVI | LEI | FFAI | PSI | SPFI | ESCS | | | |
| Estimate | 3.2 | 5.9 | 3.0 | 0.995 | 1.3 | - | 1.0 | | | |
| Awarded | 4.62 | 3.92 | 2.4 | 0.815 | 1.33 | | | | | |

| Total Project Construction Cost (S$ x1M) | | | |
|---|---|---|---|
| | Site Clearance | Piling Works | Main Contract |
| Estimate | | | 30.8 |
| Awarded | | | 29.4 |

*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

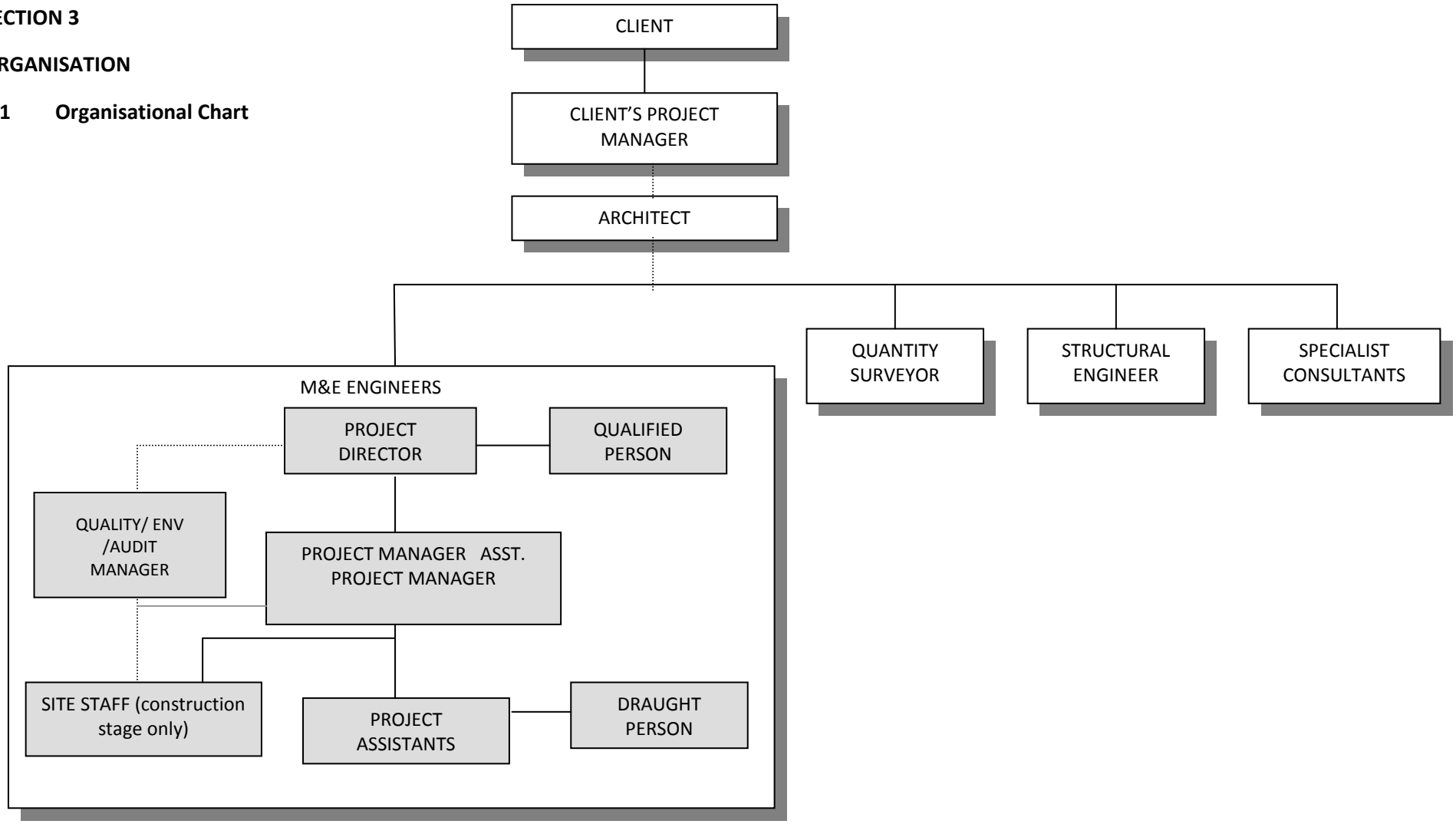
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EJECTOR & DIVERTER | ✓ | SUMP PUMP | | FUEL OIL TANK | | LIFT & ESCALATOR | ✓ | PRESSURE VESSEL | | HOISTS | | FOAM | |

(✓*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 | Loh Fook Yuen (LFY) |
| Project Manager | | Lim Chai Hoon (LCY) |
| Assistant Project Manager | | Tay Chin Meng (TCM) |
| Project Assistant (Mech) | | - |
| Project Assistant (Elect) | | Chan Sheh Wei (CSW) |
| Draughtsperson | | Common Pool |
| Resident Engineer (M&E) | | - |
| Assistant Resident Engineer (M&E) | | - |
| Clerk-of-Work (M&E) | | Leong Mun Seng |
| | | |
| | | |

### 3.3 Client/Client's Representatives

Client:- Amara Hotel Properties Pte Ltd

Address:- 100 Tras Street #06-01
Amara Corporate Tower
Singapore 079027

Tel:- 6879 2515

Fax:- 6224 2660

Client's Representatives:-

| Name of Company | Contact Person | Contact |
|---|---|---|
| Amara Hotel Properties Pte Ltd | Name: Low Kim Wah<br>Position: Project Manager | Tel: 6879 2533 (DID)<br>Fax: 6244 2660<br>Handphone:<br>Email:<br>KimWah.low@amaraholdings.com |
| Amara Hotel Properties Pte Ltd | Name: Kelvin Teo<br>Position: Director of Engineering | Tel: 6879 2582<br>Fax: 6244 3910<br>Handphone: 9856 3262<br>Email:<br>Kelvin.teo@amarahotels.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<br>Aedas Pte Ltd | Name: Harold Tan<br>Position: Architectural Designer | Tel: 6464 1707<br>Fax: 6734 6233<br>Handphone: 8151 1568<br>Email: harold.tan@aedas.com |
| Quantity Surveyor<br>CPG Consultants Pte Ltd | Name: Ivan Tao Junming<br>Position: Principle QS | Tel: 6412 0342<br>Fax: 6357 4668<br>Handphone:<br>Email: ivan.tao@cpgcorp.com.sg |
| Structural Engineer<br>KTP Consultants Pte Ltd | Name: Liu Shao Yong<br>Position: Senior Associate Director | Tel: 6412 0348<br>Fax: 6273 8454<br>Handphone:<br>Email: lsy@ktp.com.sg |
| Interior Designer | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Lighting Consultant<br>The Lightbox Pte.Ltd. | Name: Warinya Pintongkam (Jui)<br>Position: Managing Director | Tel: 6294 6803<br>Fax: 6324 0868<br>Handphone: 9741 1599<br>Email: jui@lightboxlighting.com |
| Acoustic Consultant | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Landscape Consultant<br>ICN Design Int'l Pte Ltd | Name: Henry Steed<br>Position: | Tel: 6225 3006<br>Fax: 6225 0924<br>Handphone:<br>Email: henrysteed@icn-design.com.sg |
| Signage Consultant<br>Design Objectives Pte Ltd | Name: Theng Theng<br>Position: Signage Designer | Tel: 6221 2881<br>Fax: 6221 1577<br>Handphone:<br>Email:<br>thengtheng@designobjectives.com.sg |

**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><br>SEF Construction Pte Ltd | DSC | Name: Chin Chee Kiong<br>Position: Senior Project Manager | Tel: 6100 1188<br>Fax: 6288 3688<br>Handphone: 9855 2820<br>Email: cheekiong_chin@sef.sg |
| Air Conditioning & Ventilation Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Plumbing & Sanitary Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Electrical Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| Lift & Escalator Installation Sub-Contractor<br>Kone Pte Ltd | NSC | Name: Kharb Sanjay<br>Position: Manager | Tel: 6424 6220<br>Fax: 6424 6346<br>Handphone:9145 6075<br>Email: sanjay.kharb@kone.com |
| Fire Fighting & Alarm Installation Sub-Contractor | | Name:<br>Position: | Tel:<br>Fax:<br>Handphone:<br>Email: |
| 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 | Kathy Foo | 6671 7123 |
| (b) Installation | - | |
| (c) Meter Section | - | |
| (d) Road Lighting | - | |
| TFCC: | | |
| (a) SCV | Lim Chee Yong | 9238 0945 |
| (b) SingTel | Tan Beng Hua | 9735 3182 |
| (c) IDA | Tan Huay San | 6211 1870 |
| 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 | Liew Khee Boon | 6578 7603 |
| (b) Installation/Inspection | A Rajenthiran | 6578 7817 |
| PowerGas Pte Ltd | | |
| (a) Diversion | | |
| NEA (Pollution Control) | | |
| (a) Planning/Submission | | |
| (b) Inspection | | |

**SECTION 4**

**PROGRAMME**

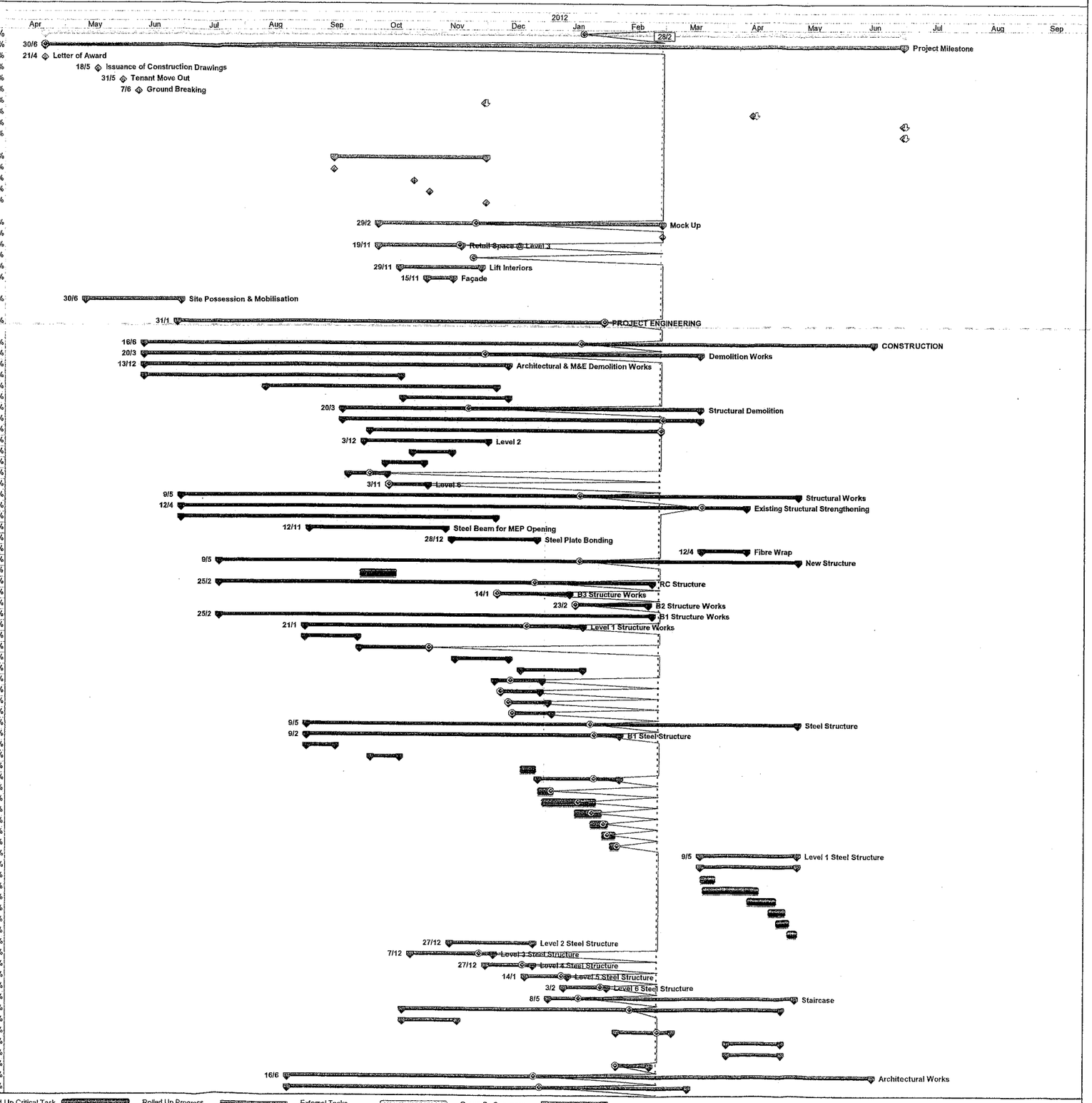
## 4.1 Overall Programme – Please refer to the attachment

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

SEF CONSTRUCTION PTE LTD

# PROPOSED ADDITIONALS AND ALTERATIONS WORKS TO EXISTING AMARA HOTEL AND SHOPPING CENTRE AT TANJONG PAGAR ROAD

| ID | Task Name | Duration | Start | Finish | Plan % Complete 28-Feb-12 | Actual % Complete 28-Feb-12 |
|---|---|---|---|---|---|---|
| 0 | **A&A Amara Hotel and Shopping Centre** | **312 days** | **Thu 21/4/11** | **Sat 30/6/12** | **71%** | **66%** |
| 1 | **Project Milestone** | **312 days** | **Thu 21/4/11** | **Sat 30/6/12** | **0%** | **0%** |
| 2 | Letter of Award | 0 days | Thu 21/4/11 | Thu 21/4/11 | 100% | 100% |
| 3 | Issuance of Construction Drawings | 0 days | Wed 18/5/11 | Wed 18/5/11 | 100% | 100% |
| 4 | Tenant Move Out | 0 days | Tue 31/5/11 | Tue 31/5/11 | 100% | 100% |
| 5 | Ground Breaking | 0 days | Tue 7/6/11 | Tue 7/6/11 | 100% | 100% |
| 6 | MDF Room Completion | 0 days | Wed 30/11/11 | Wed 30/11/11 | 100% | 100% |
| 7 | Façade Curtain Wall Completion | 0 days | Sat 14/4/12 | Sat 14/4/12 | 0% | 0% |
| 8 | Project Completion Date | 0 days | Sat 30/6/12 | Sat 30/6/12 | 0% | 0% |
| 9 | Handover | 0 days | Sat 30/6/12 | Sat 30/6/12 | 0% | 0% |
| 10 | | | | | | |
| 11 | **NSC On-Board** | **55 days** | **Wed 14/9/11** | **Wed 30/11/11** | **100%** | **100%** |
| 12 | Decorative lighting (to supply) | 0 days | Wed 14/9/11 | Wed 14/9/11 | 100% | 100% |
| 13 | Sanitary wares (to supply) | 0 days | Tue 25/10/11 | Tue 25/10/11 | 100% | 100% |
| 14 | Softcape contractor (to supply & install) | 0 days | Wed 2/11/11 | Wed 2/11/11 | 100% | 100% |
| 15 | Signage contractor (to supply & install) | 0 days | Wed 30/11/11 | Wed 30/11/11 | 100% | 100% |
| 16 | | | | | | |
| 17 | **Mock Up** | **102 days** | **Sat 8/10/11** | **Wed 29/2/12** | **100%** | **98%** |
| 18 | **Lift Lobby @ Level 3** | **0 days** | **Wed 29/2/12** | **Wed 29/2/12** | **100%** | **0%** |
| 20 | **Retail Space @ Level 3** | **30 days** | **Sat 8/10/11** | **Sat 19/11/11** | **100%** | **95%** |
| 23 | Toilet @ Level 3 | 0 days | Fri 25/11/11 | Fri 25/11/11 | 100% | 90% |
| 24 | **Lift Interiors** | **30 days** | **Tue 18/10/11** | **Tue 29/11/11** | **100%** | **100%** |
| 26 | **Façade** | **10 days** | **Tue 1/11/11** | **Tue 15/11/11** | **100%** | **100%** |
| 29 | | | | | | |
| 30 | **Site Possession & Mobilisation** | **36 days** | **Wed 11/5/11** | **Thu 30/6/11** | **100%** | **100%** |
| 49 | | | | | | |
| 50 | **PROJECT ENGINEERING** | **156 days** | **Mon 27/6/11** | **Tue 31/1/12** | **100%** | **99%** |
| 157 | | | | | | |
| 158 | **CONSTRUCTION** | **266 days** | **Fri 10/6/11** | **Sat 16/6/12** | **70%** | **65%** |
| 159 | **Demolition Works** | **202 days** | **Fri 10/6/11** | **Tue 20/3/12** | **98%** | **95%** |
| 160 | **Architectural & M&E Demolition Works** | **132 days** | **Fri 10/6/11** | **Tue 13/12/11** | **100%** | **100%** |
| 161 | **Phase 1 (Level 1 to Level 4)** | **94 days** | **Fri 10/6/11** | **Thu 20/10/11** | **100%** | **100%** |
| 178 | **Phase 2 (Basement 1 to Basement 3)** | **84 days** | **Thu 11/8/11** | **Wed 7/12/11** | **100%** | **100%** |
| 188 | **Phase 3 (Level 5 to Level 6)** | **38 days** | **Thu 20/10/11** | **Tue 13/12/11** | **100%** | **100%** |
| 193 | **Structural Demolition** | **131 days** | **Mon 19/9/11** | **Tue 20/3/12** | **93%** | **85%** |
| 194 | **Level 1 (GL- L1-R/2-5)** | **131 days** | **Mon 19/9/11** | **Tue 20/3/12** | **59%** | **100%** |
| 198 | **Basement 1 (GL- H-J/4-5, GL-L-R/1-6)** | **107 days** | **Mon 3/10/11** | **Wed 29/2/12** | **100%** | **100%** |
| 204 | **Level 2** | **46 days** | **Fri 30/9/11** | **Sat 3/12/11** | **100%** | **100%** |
| 213 | **Level 3** | **15 days** | **Tue 25/10/11** | **Tue 15/11/11** | **100%** | **100%** |
| 218 | **Level 4** | **15 days** | **Tue 11/10/11** | **Tue 1/11/11** | **100%** | **100%** |
| 223 | **Level 5** | **15 days** | **Thu 22/9/11** | **Thu 13/10/11** | **100%** | **50%** |
| 228 | **Level 6** | **15 days** | **Thu 13/10/11** | **Thu 3/11/11** | **100%** | **0%** |
| 233 | **Structural Works** | **225 days** | **Wed 29/6/11** | **Wed 9/5/12** | **84%** | **75%** |
| 234 | **Existing Structural Strengthening** | **206 days** | **Wed 29/6/11** | **Thu 12/4/12** | **94%** | **100%** |
| 235 | **Beam Enlargement** | **115 days** | **Wed 29/6/11** | **Wed 7/12/11** | **100%** | **100%** |
| 364 | **Steel Beam for MEP Opening** | **51 days** | **Fri 2/9/11** | **Sat 12/11/11** | **100%** | **100%** |
| 385 | **Steel Plate Bonding** | **32 days** | **Mon 14/11/11** | **Wed 28/12/11** | **100%** | **100%** |
| 412 | **Fibre Wrap** | **17 days** | **Tue 20/3/12** | **Thu 12/4/12** | **0%** | **100%** |
| 428 | **New Structure** | **211 days** | **Tue 19/7/11** | **Wed 9/5/12** | **77%** | **60%** |
| 429 | Hoarding Phase-2 (GL-A-K, GL-6-7) | 14 days | Wed 28/9/11 | Tue 18/10/11 | 100% | 100% |
| 430 | **RC Structure** | **159 days** | **Tue 19/7/11** | **Sat 25/2/12** | **100%** | **71%** |
| 431 | **B3 Structure Works** | **28 days** | **Wed 7/12/11** | **Sat 14/1/12** | **100%** | **0%** |
| 437 | **B2 Structure Works** | **28 days** | **Mon 16/1/12** | **Thu 23/2/12** | **100%** | **0%** |
| 443 | **B1 Structure Works** | **159 days** | **Tue 19/7/11** | **Sat 25/2/12** | **100%** | **100%** |
| 468 | **Level 1 Structure Works** | **103 days** | **Wed 31/8/11** | **Sat 21/1/12** | **100%** | **64%** |
| 469 | **Phase-1 (GL-M-R, GL-6-7)** | **20 days** | **Wed 31/8/11** | **Wed 28/9/11** | **100%** | **100%** |
| 474 | **Phase-2 (GL-A-M, GL-6-7)** | **27 days** | **Wed 28/9/11** | **Fri 4/11/11** | **100%** | **99%** |
| 480 | **Slab Topping Up (GL J-R / 1-2) Phase 1** | **20 days** | **Wed 16/11/11** | **Wed 14/12/11** | **100%** | **100%** |
| 486 | **Slab Topping Up (GL G-J / 1-2) Phase 2** | **25 days** | **Mon 19/12/11** | **Sat 21/1/12** | **100%** | **100%** |
| 492 | **New Escalator Pit (GL Q-Q1 / 1)** | **19 days** | **Tue 6/12/11** | **Sat 31/12/11** | **100%** | **34%** |
| 498 | **Water Feature 2 (Phase 1)** | **15 days** | **Fri 9/12/11** | **Fri 30/12/11** | **100%** | **0%** |
| 505 | **Water Feature 3 (Phase 1)** | **15 days** | **Tue 13/12/11** | **Tue 3/1/12** | **100%** | **0%** |
| 512 | **Water Feature 1 (Phase 2)** | **15 days** | **Thu 15/12/11** | **Thu 5/1/12** | **100%** | **0%** |
| 519 | **Steel Structure** | **179 days** | **Thu 1/9/11** | **Wed 9/5/12** | **80%** | **68%** |
| 520 | **B1 Steel Structure** | **115 days** | **Thu 1/9/11** | **Thu 9/2/12** | **100%** | **82%** |
| 521 | **Erect Temporary UB (Phase 1)** | **12 days** | **Thu 1/9/11** | **Sat 17/9/11** | **100%** | **100%** |
| 525 | **Erect Temporary UB (Phase 2)** | **12 days** | **Tue 4/10/11** | **Thu 20/10/11** | **100%** | **100%** |
| 529 | Dismantling of temporary UB | 7 days | Mon 19/12/11 | Wed 28/12/11 | 100% | 100% |
| 530 | **Construction of new Basement 1 slab** | **31 days** | **Wed 28/12/11** | **Thu 9/2/12** | **100%** | **66%** |
| 531 | Drilling and bolts insert | 7 days | Wed 28/12/11 | Fri 6/1/12 | 100% | 80% |
| 532 | Installation of steel beams | 21 days | Fri 30/12/11 | Sat 28/1/12 | 100% | 65% |
| 533 | Bondek Installation | 11 days | Mon 16/1/12 | Tue 31/1/12 | 100% | 65% |
| 534 | Shear Studs Installation | 8 days | Tue 24/1/12 | Fri 3/2/12 | 100% | 65% |
| 535 | Re-Bar Installation | 6 days | Mon 30/1/12 | Tue 7/2/12 | 100% | 65% |
| 536 | Concreting Works | 4 days | Fri 3/2/12 | Thu 9/2/12 | 100% | 55% |
| 537 | **Level 1 Steel Structure** | **36 days** | **Tue 20/3/12** | **Wed 9/5/12** | **0%** | **5%** |
| 538 | **Construction of new Level 1 slab** | **36 days** | **Tue 20/3/12** | **Wed 9/5/12** | **0%** | **5%** |
| 539 | Drilling and bolts insert | 6 days | Tue 20/3/12 | Wed 28/3/12 | 0% | 45% |
| 540 | Installation of steel beams | 21 days | Wed 21/3/12 | Thu 19/4/12 | 0% | 0% |
| 541 | Bondek Installation | 12 days | Thu 12/4/12 | Sat 28/4/12 | 0% | 0% |
| 542 | Shear Studs Installation | 8 days | Mon 23/4/12 | Thu 3/5/12 | 0% | 0% |
| 543 | Re-Bar Installation | 6 days | Fri 27/4/12 | Sat 5/5/12 | 0% | 0% |
| 544 | Concreting Works | 4 days | Thu 3/5/12 | Wed 9/5/12 | 0% | 0% |
| 545 | **Level 2 Steel Structure** | **31 days** | **Mon 14/11/11** | **Tue 27/12/11** | **100%** | **100%** |
| 552 | **Level 3 Steel Structure** | **31 days** | **Tue 25/10/11** | **Wed 7/12/11** | **100%** | **85%** |
| 559 | **Level 4 Steel Structure** | **17 days** | **Fri 2/12/11** | **Tue 27/12/11** | **100%** | **80%** |
| 563 | **Level 5 Steel Structure** | **17 days** | **Thu 22/12/11** | **Sat 14/1/12** | **100%** | **80%** |
| 567 | **Level 6 Steel Structure** | **17 days** | **Wed 11/1/12** | **Fri 3/2/12** | **100%** | **80%** |
| 571 | **Staircase** | **90 days** | **Tue 3/1/12** | **Tue 8/5/12** | **50%** | **43%** |
| 620 | **Lifts Works** | **137 days** | **Fri 21/10/11** | **Tue 1/5/12** | **53%** | **41%** |
| 621 | **Lift 5** | **21 days** | **Fri 21/10/11** | **Sat 19/11/11** | **100%** | **100%** |
| 631 | **Lift 6** | **21 days** | **Tue 7/2/12** | **Wed 7/3/12** | **76%** | **89%** |
| 641 | **Lift 7** | **21 days** | **Mon 2/4/12** | **Tue 1/5/12** | **0%** | **0%** |
| 651 | **Lift 12** | **21 days** | **Mon 2/4/12** | **Tue 1/5/12** | **0%** | **0%** |
| 660 | **Lift 13** | **14 days** | **Tue 7/2/12** | **Sat 25/2/12** | **100%** | **0%** |
| 667 | **Architectural Works** | **214 days** | **Tue 23/8/11** | **Sat 16/6/12** | **66%** | **51%** |
| 668 | **L3 ARCH WORKS** | **147 days** | **Tue 23/8/11** | **Thu 15/3/12** | **97%** | **69%** |



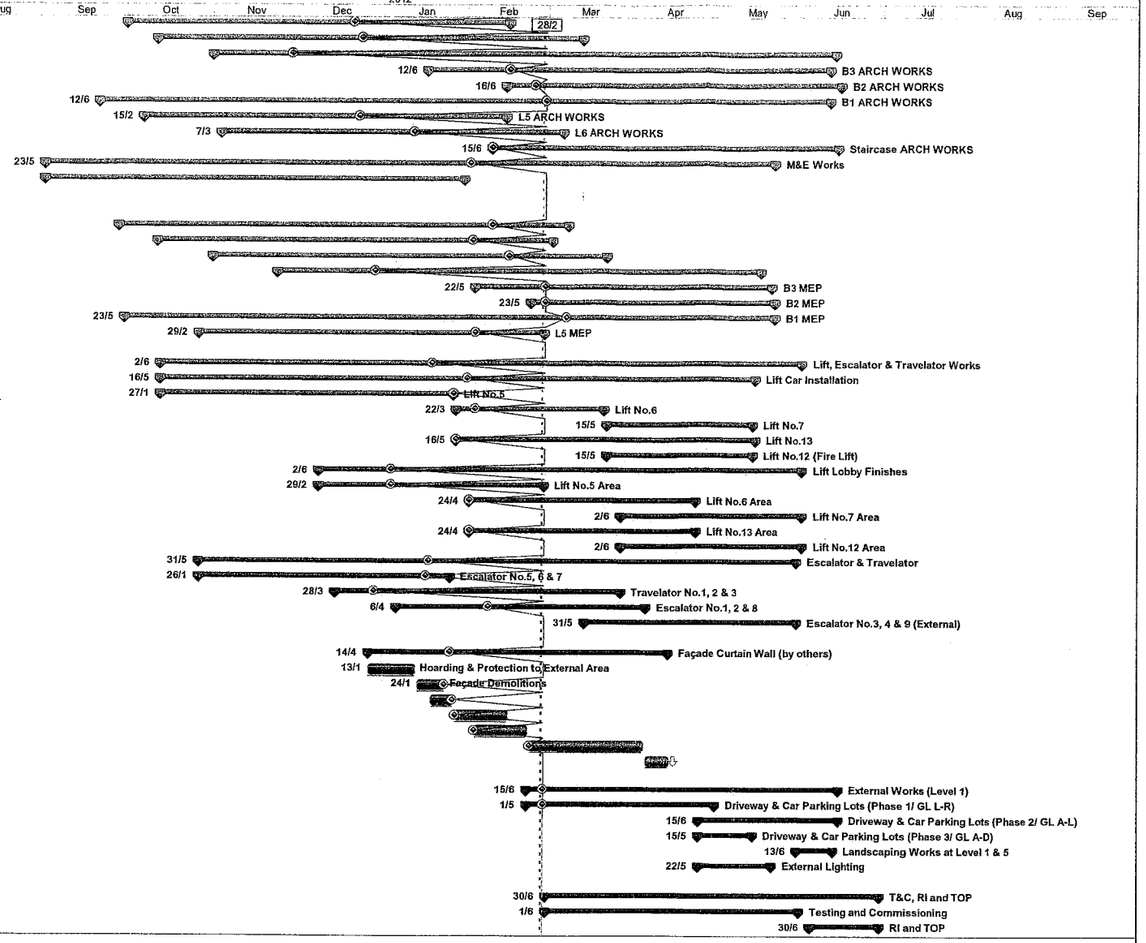

Project: Amara Project
Date: 11.08.11
Revision: 3

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

SEF CONSTRUCTION PTE LTD

# PROPOSED ADDITIONALS AND ALTERATIONS WORKS TO EXISTING AMARA HOTEL AND SHOPPING CENTRE AT TANJONG PAGAR ROAD

| ID | Task Name | Duration | Start | Finish | Plan % Complete 28-Feb-12 | Actual % Complete 28-Feb-12 |
|---|---|---|---|---|---|---|
| 722 | L2 ARCH WORKS | 99 days | Fri 30/9/11 | Thu 16/2/12 | 100% | 60% |
| 762 | L4 ARCH WORKS | 111 days | Tue 11/10/11 | Wed 14/3/12 | 98% | 50% |
| 818 | L1 ARCH WORKS | 163 days | Mon 31/10/11 | Thu 14/6/12 | 81% | 13% |
| 864 | B3 ARCH WORKS | 106 days | Mon 16/1/12 | Tue 12/6/12 | 20% | 62% |
| 889 | B2 ARCH WORKS | 89 days | Tue 14/2/12 | Sat 16/6/12 | 6% | 62% |
| 914 | B1 ARCH WORKS | 190 days | Tue 20/9/11 | Tue 12/6/12 | 24% | 41% |
| 964 | L5 ARCH WORKS | 94 days | Thu 6/10/11 | Wed 15/2/12 | 100% | 59% |
| 972 | L6 ARCH WORKS | 89 days | Thu 3/11/11 | Wed 7/3/12 | 95% | 55% |
| 979 | Staircase ARCH WORKS | 91 days | Thu 9/2/12 | Fri 15/6/12 | 9% | 39% |
| 993 | M&E Works | 189 days | Thu 1/9/11 | Wed 23/5/12 | 70% | 74% |
| 994 | Major Equipment Delivery | 108 days | Thu 1/9/11 | Tue 31/1/12 | 100% | 100% |
| 1017 | Pre RI Inspection | 1 day | Tue 13/3/12 | Wed 14/3/12 | 0% | 0% |
| 1018 | | | | | | |
| 1019 | L3 MEP | 118 days | Tue 27/9/11 | Fri 9/3/12 | 96% | 88% |
| 1054 | L2 MEP | 104 days | Tue 11/10/11 | Sat 3/3/12 | 98% | 83% |
| 1089 | L4 MEP | 104 days | Mon 31/10/11 | Fri 23/3/12 | 91% | 81% |
| 1124 | L1 MEP | 127 days | Wed 23/11/11 | Fri 18/5/12 | 83% | 26% |
| 1168 | B3 MEP | 77 days | Fri 3/2/12 | Tue 22/5/12 | 17% | 70% |
| 1203 | B2 MEP | 64 days | Thu 23/2/12 | Wed 23/5/12 | 3% | 70% |
| 1238 | B1 MEP | 169 days | Thu 29/9/11 | Wed 23/5/12 | 19% | 70% |
| 1282 | L5 MEP | 90 days | Wed 26/10/11 | Wed 29/2/12 | 100% | 80% |
| 1299 | | | | | | |
| 1300 | Lift, Escalator & Travelator Works | 168 days | Wed 12/10/11 | Sat 2/6/12 | 47% | 23% |
| 1301 | Lift Car Installation | 155 days | Wed 12/10/11 | Wed 16/5/12 | 46% | 24% |
| 1302 | Lift No.5 | 77 days | Wed 12/10/11 | Fri 27/1/12 | 100% | 98% |
| 1308 | Lift No.6 | 39 days | Fri 27/1/12 | Thu 22/3/12 | 67% | 22% |
| 1314 | Lift No.7 | 38 days | Thu 22/3/12 | Tue 15/5/12 | 0% | 0% |
| 1320 | Lift No.13 | 78 days | Fri 27/1/12 | Wed 16/5/12 | 65% | 0% |
| 1327 | Lift No.12 (Fire Lift) | 38 days | Thu 22/3/12 | Tue 15/5/12 | 0% | 0% |
| 1333 | Lift Lobby Finishes | 127 days | Thu 8/12/11 | Sat 2/6/12 | 33% | 6% |
| 1334 | Lift No.5 Area | 59 days | Thu 8/12/11 | Wed 29/2/12 | 100% | 31% |
| 1339 | Lift No.6 Area | 59 days | Wed 1/2/12 | Tue 24/4/12 | 32% | 0% |
| 1344 | Lift No.7 Area | 49 days | Tue 27/3/12 | Sat 2/6/12 | 0% | 0% |
| 1349 | Lift No.13 Area | 59 days | Wed 1/2/12 | Tue 24/4/12 | 32% | 0% |
| 1354 | Lift No.12 Area | 49 days | Tue 27/3/12 | Sat 2/6/12 | 0% | 0% |
| 1359 | Escalator & Travelator | 156 days | Wed 26/10/11 | Thu 31/5/12 | 61% | 39% |
| 1360 | Escalator No.5, 6 & 7 | 66 days | Wed 26/10/11 | Thu 26/1/12 | 100% | 91% |
| 1366 | Travelator No.1, 2 & 3 | 75 days | Wed 14/12/11 | Wed 28/3/12 | 73% | 14% |
| 1371 | Escalator No.1, 2 & 8 | 66 days | Thu 5/1/12 | Fri 6/4/12 | 65% | 30% |
| 1376 | Escalator No.3, 4 & 9 (External) | 56 days | Wed 14/3/12 | Thu 31/5/12 | 0% | 15% |
| 1381 | | | | | | |
| 1382 | Façade Curtain Wall (by others) | 80 days | Mon 26/12/11 | Sat 14/4/12 | 65% | 29% |
| 1383 | Hoarding & Protection to External Area | 14 days | Mon 26/12/11 | Fri 13/1/12 | 100% | 100% |
| 1384 | Façade Demolitions | 7 days | Fri 13/1/12 | Tue 24/1/12 | 100% | 90% |
| 1385 | Site setting out | 7 days | Wed 18/1/12 | Fri 27/1/12 | 100% | 90% |
| 1386 | Curtain Wall 1st Fix | 14 days | Fri 27/1/12 | Thu 16/2/12 | 100% | 0% |
| 1387 | Curtain Wall 2nd Fix | 14 days | Fri 3/2/12 | Thu 23/2/12 | 100% | 0% |
| 1388 | Décor Lighting Installation | 30 days | Thu 23/2/12 | Thu 5/4/12 | 13% | 0% |
| 1389 | Final Clearing & Handing Over | 7 days | Thu 5/4/12 | Sat 14/4/12 | 0% | 0% |
| 1390 | | | | | | |
| 1391 | External Works (Level 1) | 82 days | Wed 22/2/12 | Fri 15/6/12 | 2% | 37% |
| 1392 | Driveway & Car Parking Lots (Phase 1/ GL L-R) | 49 days | Wed 22/2/12 | Tue 1/5/12 | 8% | 43% |
| 1401 | Driveway & Car Parking Lots (Phase 2/ GL A-L) | 38 days | Tue 24/4/12 | Fri 15/6/12 | 0% | 51% |
| 1410 | Driveway & Car Parking Lots (Phase 3/ GL A-D) | 15 days | Tue 24/4/12 | Tue 15/5/12 | 0% | 0% |
| 1414 | Landscaping Works at Level 1 & 5 | 10 days | Wed 30/5/12 | Wed 13/6/12 | 0% | 29% |
| 1418 | External Lighting | 20 days | Tue 24/4/12 | Tue 22/5/12 | 0% | 24% |
| 1422 | | | | | | |
| 1423 | T&C, RI and TOP | 88 days | Wed 29/2/12 | Sat 30/6/12 | 0% | 0% |
| 1424 | Testing and Commissioning | 67 days | Wed 29/2/12 | Fri 1/6/12 | 0% | 0% |
| 1452 | RI and TOP | 20 days | Mon 4/6/12 | Sat 30/6/12 | 0% | 0% |




Project: Amara Project
Date: 11.08.11
Revision: 3

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | 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 | Jan 2011 | 11 Jan 2011 | | | | | | | |
| Metering Layout | SP Services Ltd | - | | | | | | | | |
| Sanitary Installation | PUB Water Reclamation (Network) Dept | Feb 2011 | 12 Oct 2011 | | | | | | | 13 Oct 2011 |
| Domestic Water Supply | PUB (Water Supply) Network Dept | Mar 2011 | 14 Mar 2012 | | | | | | | |
| Gas Supply Installation | City Gas Pte Ltd | Mar 2011 | 16 Jan 2012 | 26 Jan 2012 | 2 Feb 2012 | | | | | 10 Feb 2012 |
| Air Conditioning & Ventilation Inst. | FSSD | June 2011 | | | | | | | | |
| Fire Fighting & Alarm Installation | FSSD | June 2011 | | | | | | | | |
| Telephone Installation | TFCC | Mar 2011 | 12 May 2011 | | | | | | | 7 Dec 2011 |
| Broadband Co-axial Cable System (BCS) | TFCC | Mar 2011 | 12 May 2011 | | | | | | | 7 Dec 2011 |
| 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) | TFCC | | | | | | | | | |
| 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 | ✓ | - PQP/QSP | ✓ |
| - CC/CF | ✓ | | |

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

| File Ref: | | File Ref: | | File Ref: | |
|---|---|---|---|---|---|
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(✓*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 Architectural Sketches/Details | |
| Incoming Structural Drawings | |
| M&E Drawings<br>- Electrical Installation | LCY / TCM<br>(All Project drawings in softcopy |
| - Lift & Escalator Installation | to be saved in server) |
| - Air Conditioning & Ventilation Installation | |
| - Fire Fighting & Alarm Installation | |
| - Plumbing & Sanitary Installation | |
| - 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

| Item No. | Description* | Required From | Required By | Date Required | Remarks |
|---|---|---|---|---|---|
| | Electrical load for the following items:<br>- Mechanical Equipment<br>- Location of SCP | KBT | LCY | End Oct 2010 | Completed |
| | | | | | |
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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/C | A/C | C | C | - | |
| b. | Project Administration | - | - | - | - | - | |
| c. | Project Cost Estimate/Contract Cost | I | I | I | - | I | |
| **2.** | **Drawings** | | | | | | |
| a. | Outline Design Drgs. | A/C | A/C | C | C | - | |
| b. | Sketch Design Drgs. | A/C | A/C | C | C | - | |
| c. | Final Design Drgs. | A/C | A/C | C | C | - | |
| d. | Shop Drawings | - | - | A/C | C | - | |
| e. | As Built Drgs. | I | I | I | I | I | |
| **3.** | **Other Document** | | | | | | |
| a. | Specification | A/C | A/C | C | C | - | |
| b. | Tender Document | A/C | A/C | C | 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 |
|---|---|
| | |
| | |
| | |
| | |
| | |

## 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 | Certified |
| 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

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 | C |
| M&E Cost Estimate Report | Re |
| Pre-Qualification of Tenderers | - |
| Tender Documents | I |
| Tender Report | I |
| Payment Valuation for QS | I |
| Certificates of Supervision for TOP/CSC | Re |

** Remarks*

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

*Other purposes and for action: please specify.*

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

NOT USED

**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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