PROJECT QUALITY PLAN

PROPOSED NEW 11-STOREY OFFICE BUILDING AT CHIN SWEE ROAD/JALAN KUKOH

For

M/S RDC LAND PTE LTD

Copy No.	

Prepared By: Choong Choon Guan

Authorised By: Tan L S

Date: 7 January 1999

TABLE OF CONTENTS

SECTION	DESCRIPTION
-	**TITLE PAGE**
-	**TABLE OF CONTENTS**
1	**QUALITY PLAN CONTROL AND DISTRIBUTION**
1.1	List of Copy Holders
1.2	Revision Record
2	**PROJECT INFORMATION**
2.1	Project Description
2.2	Project Cost
2.3	Scope of Works
3	**ORGANISATION**
3.1	Organisation Chart
3.2	AEC's Project Team Member
3.3	Client/Client's Representative
3.4	Not Used
3.5	Not Used
3.6	Authorities
4	**PROGRAMME**
4.1	Overall Programme
4.2	Authority Submission Status for M&E Services – 1st Submission
4.3	Not Used

TABLE OF CONTENTS

SECTION	DESCRIPTION
5	**PROJECT RECORDS**
5.1	List of Internal File
5.2	Filing of Drawings
6	**INTERFACING**
6.1	Method of Interface
6.2	Not Used
6.3	Circulation of Documents to External Parties
7	**WORK AUTHORISATION**
8	**DESIGN INPUT AND METHODOLOGY**
8.1	List of Client's Standards, Reference Documents or Brief
8.2	List of Applicable Code of Practice and Regulations
8.3	List of Design Guide or Handbook Used
8.4	List of Applicable Quality System Procedures
8.5	List of Software Used for Design/Analysis
9	**CLIENT'S REQUIREMENTS**
9.1	List of Output Required by Client
9.2	Not Used
10	**LIST OF SUB-JOB**
10.1	Not Used

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	1185-PQP File	28 August 1998
2	Choong Choon Guan	28 August 1998

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
1	28 August 1998	Section 1 to Section 9	27	1st Issue of PQP
2	7 January 1999	Section 1 to Section 10	26	2nd Issue of PQP

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Office

Statistics of Development	
Site Area, m²	1,955.2
Nett Floor Area, m²	5242.6
Gross Floor Area, m²	6,834
Covered Carpark, m²	1,200
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	11
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LI	FFAI	PSI	SPFI				
Estimate	1.35	1.32	0.6	0.45	0.36	-				
Awarded	-	-	-	-	-	-				

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	13.0
Awarded	-	-	-

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							
DATA COMM.									
FLUSHFLOOR TRUNKING	✓								

(✓ *where applicable*)

2.3.3 Submission to Relevant Authorities by Others

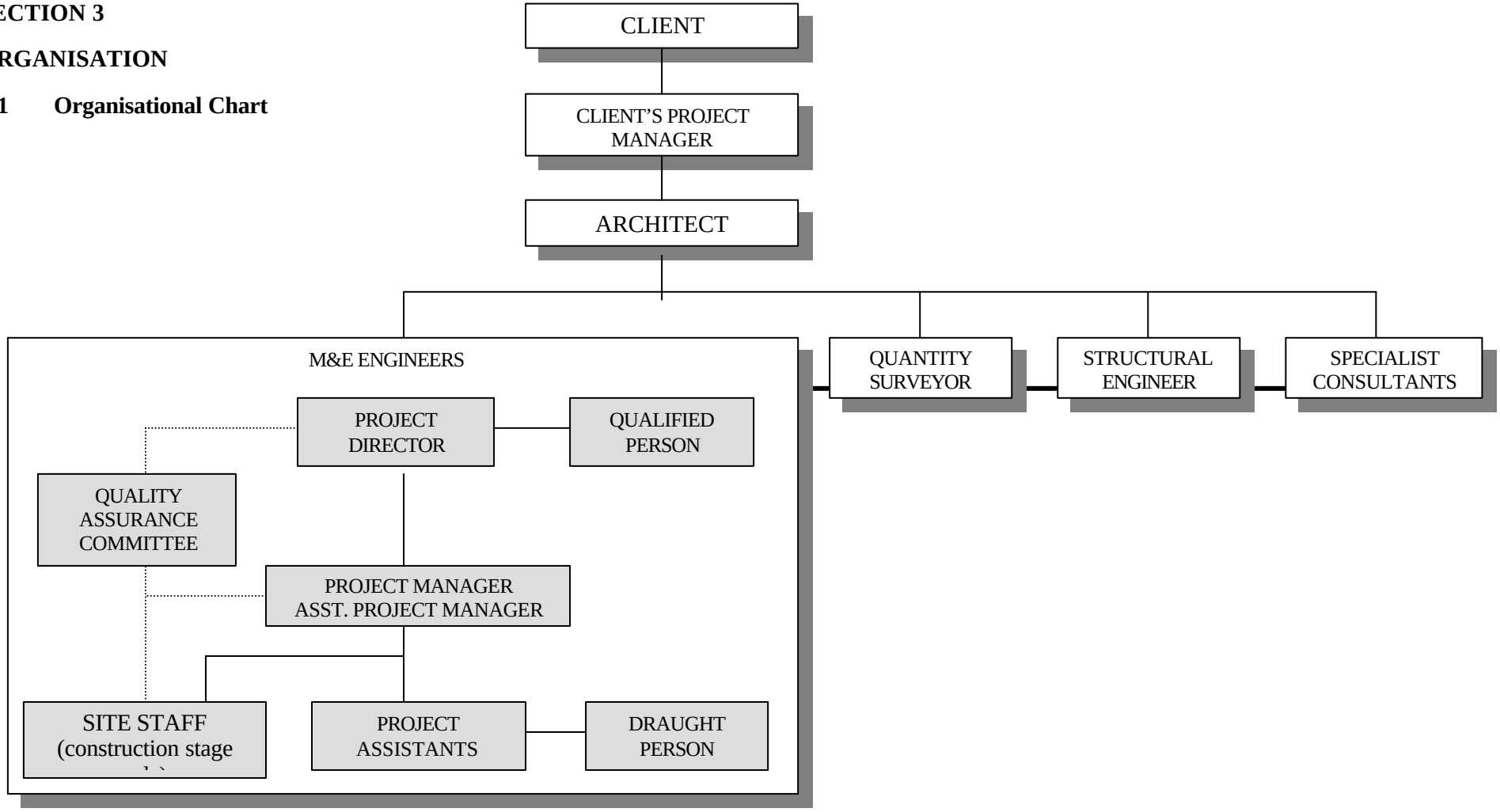
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓ *where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 AEC's Project Team Member

TITLE		NAME
Project Director		Tan Lai Siong
Qualified Person	Mechanical	Andrew Loh
	Electrical	Tan Lai Siong
Project Manager		Choong Choon Guan
Assistant Project Manager		Goh Soon Huat
Project Assistant (Mech)		Vincent Wong
Project Assistant (Elect)		Wong Tack Chow
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client:- RDC Land Pte Ltd

Address:- 391A Orchard Road
#18-00 Ngee Ann City Tower A
Singapore 238873

Tel:- 735 2222

Fax:- 735 3803

Client's Representatives:-

Name of Firm	Contact Person	Contact
RDC Land Pte Ltd	Name: Mr Leong Weng Chee Position: Director	Tel: 731 1796 Fax: 735 3803 Pager: - Handphone: - Email: -
RDC Land Pte Ltd	Name: Mr Heng Gee Fat Position: Director	Tel: 731 1796 Fax: 735 3803 Pager: - Handphone: - Email: -
RDC Land Pte Ltd (Representing Sembawang Properties)	Name: Mr Lim Chung Aik Position: Senior Project Manager	Tel: 731 1796 Fax: 735 3803 Pager: - Handphone: - Email: -

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person	Contact
Architect RichardHo Architects Pte Ltd	Name: Mr Richard Ho Position: Managing Director	Tel: 227 4811 Fax: 227 4822 Pager: - Handphone: - Email: -
Project Architect HK Hia & Associates	Name: Mr H K Hia Position: Managing Director	Tel: 336 2101 Fax: 334 2529 Pager: - Handphone: - Email: -
Quantity Surveyor PCS Consultants Pte Ltd	Name: Mr Andrew Heng Position: Director	Tel: 332 2363 Fax: 332 1561 Pager: 9507 4202 Handphone: 9636 5230 Email: -
Structural Engineer Ove Arup & Partners Singapore	Name: Mr Jonanthan Sze Position: Associate	Tel: 298 3033 Fax: 298 6054 Pager: - Handphone: - Email: -
Interior Designer -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Lighting Consultant -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Acoustic Consultant -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
_____ -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
_____ -	Name: Position:	Tel: Fax: Pager: Handphone: Email:

3.4 Other Consultants (Overseas)

NOT USED

3.5 Contractors/Sub-Contractors

NOT USED

3.6 Authorities

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
PowerGrid/Power Supply:		
(a) Customer Supply	Mr Mohammed Anwar Yunos	Tel: 831 8550
(b) Sub-Station	Mr Chin Yoke Fah	Tel: 831 8556
(c) Installation	-	-
(d) Meter Section	-	-
(e) Road Lighting	-	-
(f) Diversion	-	-
Telecom:		
(a) Planning/Line Plant	Mr Gilbert Ho K L	Tel: 838 2867 Fax: 733 9895
(b) Installation	-	-
(c) Diversion	Mr Gilbert Ho K L	Tel: 838 2867 Fax: 733 9895
BCD:		
(a) Building Plan	-	-
FSB:		
(a) Building Plan	-	-
(b) M&E Section	Mr Lee Kim Hock	Tel: 838 6414
PUB (Water)		
(a) Water Conservation	-	-
(b) Plumbing Plan	Mr Loh Mun Wah	Tel: 731 3568 Fax: 731 3023
(c) Diversion	-	-
PowerGas:		
(a) Planning/Submission	Mr Lim Song Hau	Tel: 831 8636 Fax: 831 8699
(b) Installation/Inspection		
(c) Diversion	Mr Ng Kok Pek	Tel: 831 8641 Fax: 831 8699
ENV (Sewerage):		
(a) Building Plan	-	-
(b) M&E Section	-	-
(c) Diversion	-	-
ENV (Pollution Control)		
(a) Planning/Submission	Mr Fong Ping Chiong	Tel: 731 9644 Fax: 731 9725
(b) Inspection	-	-

SECTION 4

PROGRAMME

4.1 Overall Programme

PROJECT SUSPENDED W.E.F. 23 JULY 1998

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

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	Power Supply Pte Ltd	05/05/98	05/05/98							
Power Supply Substation	PowerGrid Pte Ltd	30/06/98								
Main Single Line Diagram	Power Supply Pte Ltd	30/10/98								
Consumer Switchroom Layout	PowerGrid Pte Ltd									
Metering Layout	PowerGrid Pte Ltd	30/11/98								
Sanitary Installation	ENV (Sewerage)	07/10/98								
Domestic Water Supply	PUB (Water)	07/10/98								
Gas Supply Installation	PowerGas Pte Ltd									
Air Conditioning & Ventilation Inst.	Fire Safety Bureau	15/10/98								
Fire Fighting & Alarm Installation	Fire Safety Bureau	22/10/98								
Telephone Installation	Telecom (Broadband)	30/07/98								
	Telecom (TDCS)									
	Telecom (Domestic Operation)									
Fuel Storage	Fire Safety Bureau									
	Pollution Control Department									

4.3 Authority Submission Status for M&E Services (Amendments)

NOT USED

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref: 1185		File Ref: 1185	
-CM	√	-QSP	√
-PC	√	-BD	√
-AE	√	-CC	√
-AM	√	-GC	√
-AA	√	-CF	√
-PQP	√		

Project Files to be initiated by PM as and when required

File Ref: 1185		File Ref: 1185		File Ref: 1185	
-SM	-	-SR	-	-ET	-
-SC	-	-QM	-	-MT	-
-AI	-	-EC/-MC	√	-DF	-
-SQ	-	-SF	-	-EOT	-
-CO	-	-PP	-		

Service Files to be initiated by PM as and when required

	Service										
File Ref: 1185	ACVI	FFAI	PSI	EI	LI	SPFP					
-G	√	√	√	√	√	-					
-Q	-	-	-	-	-	-					
-VO	-	-	-	-	-	-					
-P	-	-	-	-	-	-					
-AI	-	-	-	-	-	-					
-AD	-	-	-	-	-	-					
-CF	√	√	√	√	√	-					

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	Vincent Wong
Incoming Architectural Sketches/Details	Vincent Wong
Incoming Structural Drawings	Vincent Wong
M&E Drawings	
- Electrical Installation	Wong Tack Chow
- Lift & Escalator Installation	Wong Tack Chow
- Air Conditioning & Ventilation Installation	Vincent Wong
- Fire Fighting & Alarm Installation	Vincent Wong
- Plumbing & Sanitary Installation	Vincent Wong
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

SECTION 6

INTERFACING

6.3 Circulation of Documents to External Parties

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

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	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
SS : AEC Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

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

ITEM	KEPT BY
Nil	-

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 Engineering Consultant's Quality System Procedures

Section	Title
A2	Documentation of Project Quality Plan
A3	Administration Control
A4	Document Control
A6	Archive Control
A9	Feedback Reporting
A10	Computer Control
B1	Preparation of Consultancy Offer
B2	Project Commission and Service Agreement
B3	Design Control
B4	Design Change Control
B5	Drawing Control
B6	Specification Control
B7	Tender Process and Evaluation
C1	Contruction Process Control
C2	Testing and Commissioning
D1	Quality System Audit

8.5 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Calculux	2.30	Philips	Lighting design	
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	✓
Gensize 2	2.1	Onan	Generator sizing	
Lift Traffic	-	Alpha Engineering	Lift traffic calculation	✓
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
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
M&E Cost Estimate Report	C
Pre-Qualification of Tenderers	NA
Tender Documents	NA
Tender Report	NA
Payment Valuation for QS	NA
Certificates of Supervision for TOP/CSC	NA

** 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