

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NORTH SINAI DEVELOPMENT ORGANIZATION  
MINISTRY OF WATER RESOURCES AND IRRIGATION  
THE ARAB REPUBLIC OF EGYPT

THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT ( PHASE III )

( DETAILED DESIGN STUDY )

VOLUME V : TENDER DOCUMENT OF PACKAGE 4  
( MAIN POWER SUBSTATION )

( VOL. V-2 : TENDER DRAWINGS, A3 SIZE )

OCTOBER, 2000

SANYU CONSULTANTS INC.  
PACIFIC CONSULTANTS INTERNATIONAL

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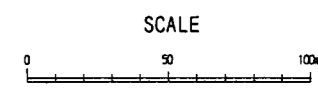
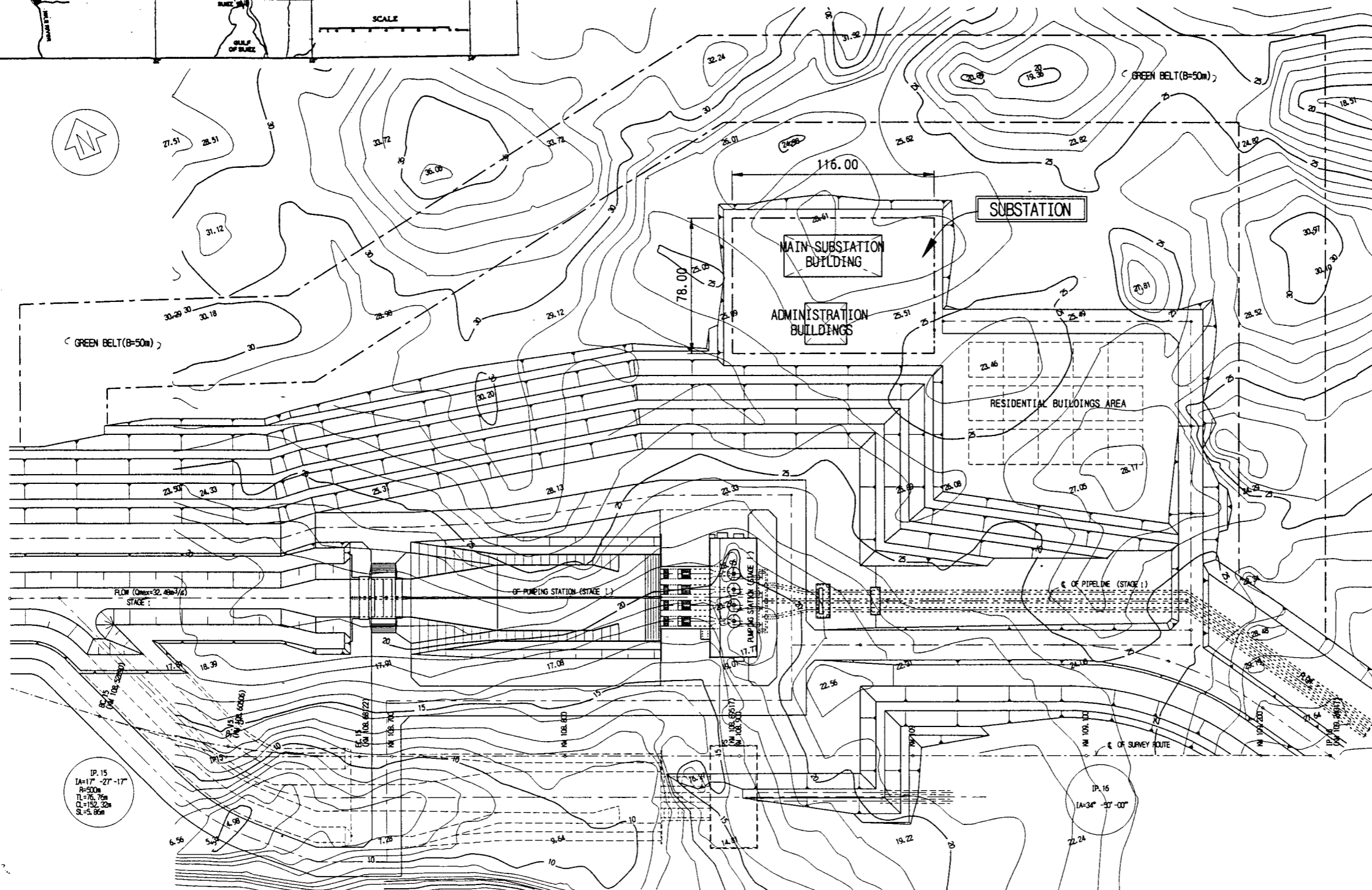
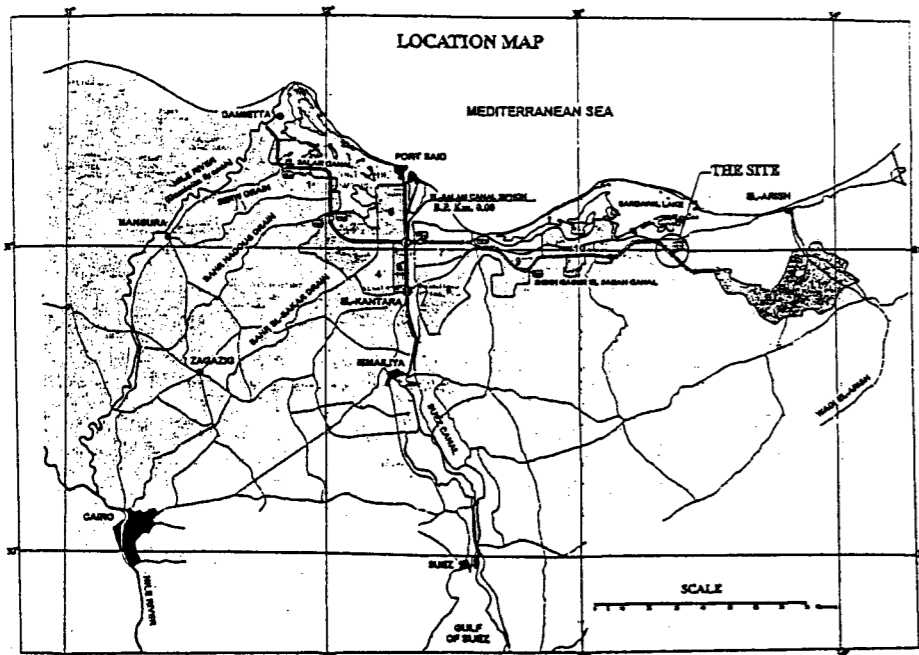
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**LIST OF DRAWINGS FOR FORTH PACKAGE**

CATEGORY	DWG No.	TITLE OF DRAWINGS
1. GENERAL	GNL-401	THE SITE PLAN
2. SUBSTATION EQUIPMENT	SSE-401	POWER SUPPLY GENERAL DIAGRAM
	SSE-402	SINGLE LINE DIAGRAM
	SSE-403	LAYOUT PLAN
	SSE-404	TYPICAL SECTIONS
	SSE-405	EARTHING PLAN-1 (EARTH GRID)
	SSE-406	EARTHING PLAN-2 (INDOOR)
	SSE-407	CONTROL SYSTEM
	SSE-408	CONTROL CABLE SCHEDULE-1
	SSE-409	CONTROL CABLE SCHEDULE-2
	SSE-410	11 kv MAIN FEEDER CABLE PLAN
	SSE-411	AUXILIARY SUBSTATION MANHOLE SCHEDULE-1
	SSE-412	AUXILIARY SUBSTATION MANHOLE SCHEDULE-2
3. SUBSTATION BUILDING WORKS	SBW-401	MAIN SUBSTATION & ADMINISTRATION BUILDING-GENERAL NOTES
	SBW-402	MAIN SUBSTATION & ADMINISTRATION BUILDING-DOOR, WINDOWS AND FINISHING SCHEDULE
	SBW-403	ADMINISTRATION BUILDING-GROUND FLOOR AND ROOF PLANS
	SBW-404	MAIN SUBSTATION-GROUND FLOOR AND ROOF PLANS
	SBW-405	ADMINISTRATION BUILDING-ELEVATIONS
	SBW-406	MAIN SUBSTATION-ELEVATIONS
	SBW-407	MAIN SUBSTATION & ADMINISTRATION BUILDING-SECTIONS
	SBW-408 – 409	MAIN SUBSTATION & ADMINISTRATION BUILDING-STANDARD DETAILS (1/2) - (2/2)
	SBW-410	ADMINISTRATION BUILDING-DETAIL
	SBW-411	MAIN SUBSTATION & ADMINISTRATION BUILDING-GENERAL NOTES
	SBW-412	ADMINISTRATION BUILDING-FRAMING PLAN AND ELEVATION
	SBW-413	ADMINISTRATION BUILDING-MEMBER SCHEDULE
	SBW-414	ADMINISTRATION BUILDING-MISC. DETAIL OF GROUND FLOOR
	SBW-415	MAIN SUBSTATION-FRAMING PLAN
	SBW-416	MAIN SUBSTATION-FRAMING ELEVATION
	SBW-417	MAIN SUBSTATION-MEMBER SCHEDULE
	SBW-418 – 419	MAIN SUBSTATION-MISC. DETAIL OF GROUND FLOOR (1/2) – (2/2)
	SBW-420	ADMINISTRATION BUILDING-LIGHTING AND SOCKET OUTLET INSTALLATION SCHEDULE
	SBW-421	MAIN SUBSTATION-LIGHTING AND SOCKET OUTLET INSTALLATION SCHEDULE
	SBW-422	MAIN SUBSTATION & ADMINISTRATION BUILDING-GENERAL NOTES FOR VAC AND PLUMBING SYSTEM
	SBW-423	MAIN SUBSTATION & ADMINISTRATION BUILDING-DIAGRAM FOR WATER SUPPLY SYSTEM
	SBW-424	MAIN SUBSTATION & ADMINISTRATION BUILDING-PLUMBING SYSTEM, EXTERIOR PIPING
	SBW-425	ADMINISTRATION BUILDING-VENTILATION AND AIR ONDITIONING SYSTEM (GROUND FLOOR)
	SBW-426	MAIN SUBSTATION-VENTILATION AND AIR CONDITIONING SYSTEM (GROUND FLOOR)

MAIN FEATURES OF THE CONTRACT

Facility	Unit	Specifications
1. Main Substation		
-Power Transformer	4	-25MVA, 66kV/11kV
-66kV Circuit Breaker	2	-3Phase, 50Hz, 1250A
-Ditto	4	-3Phase, 50Hz, 800A
-11kV Switchgears	12	-VCB:12kV, 2000A, 40kA
-Station Transformer Panel	4	-Indoor type
2. Building Works		
-Main Substation	1	-Single story;1,344m <sup>2</sup>
-Administration Building	1	-Single story;576m <sup>2</sup>



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THE NORTH SINAI INTEGRATED RURAL  
 DEVELOPMENT PROJECT (PHASE II)

CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL  
 MAIN POWER SUBSTATION (FOR EL SALAAM No. 7 P. S.)

THE SITE PLAN

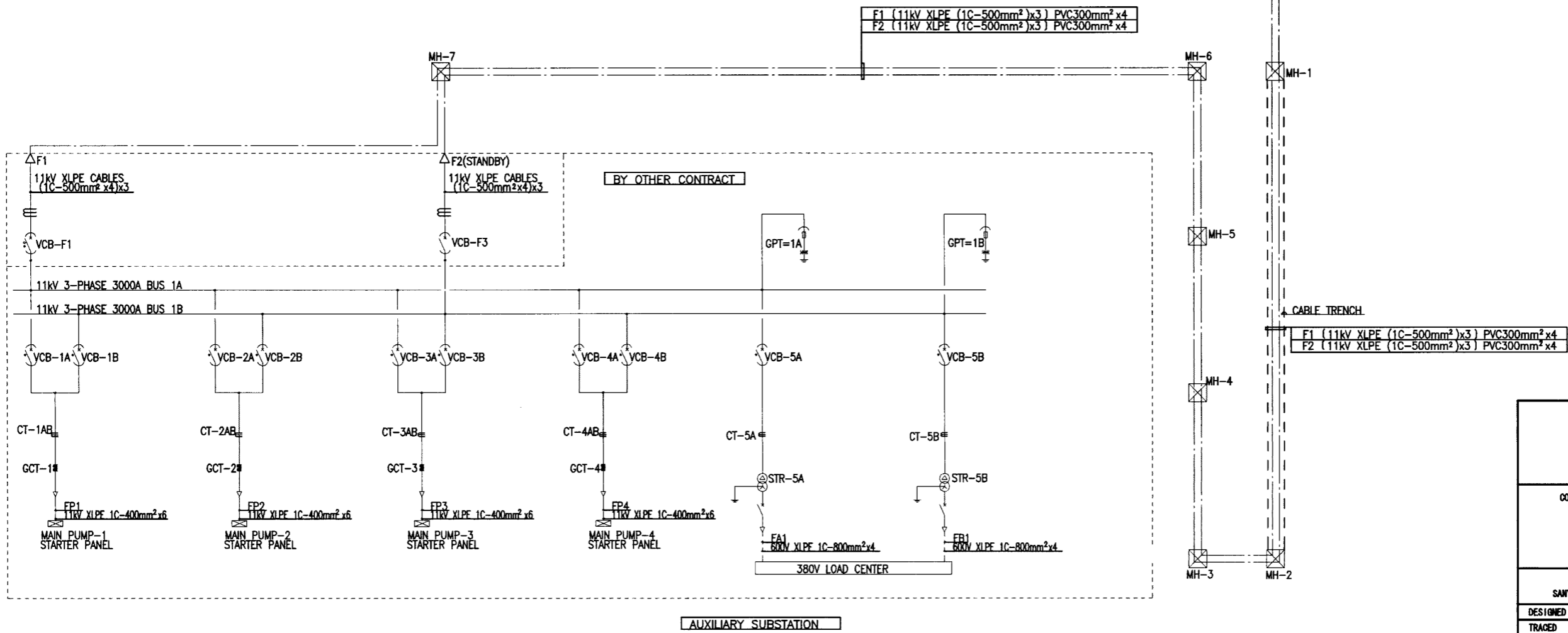
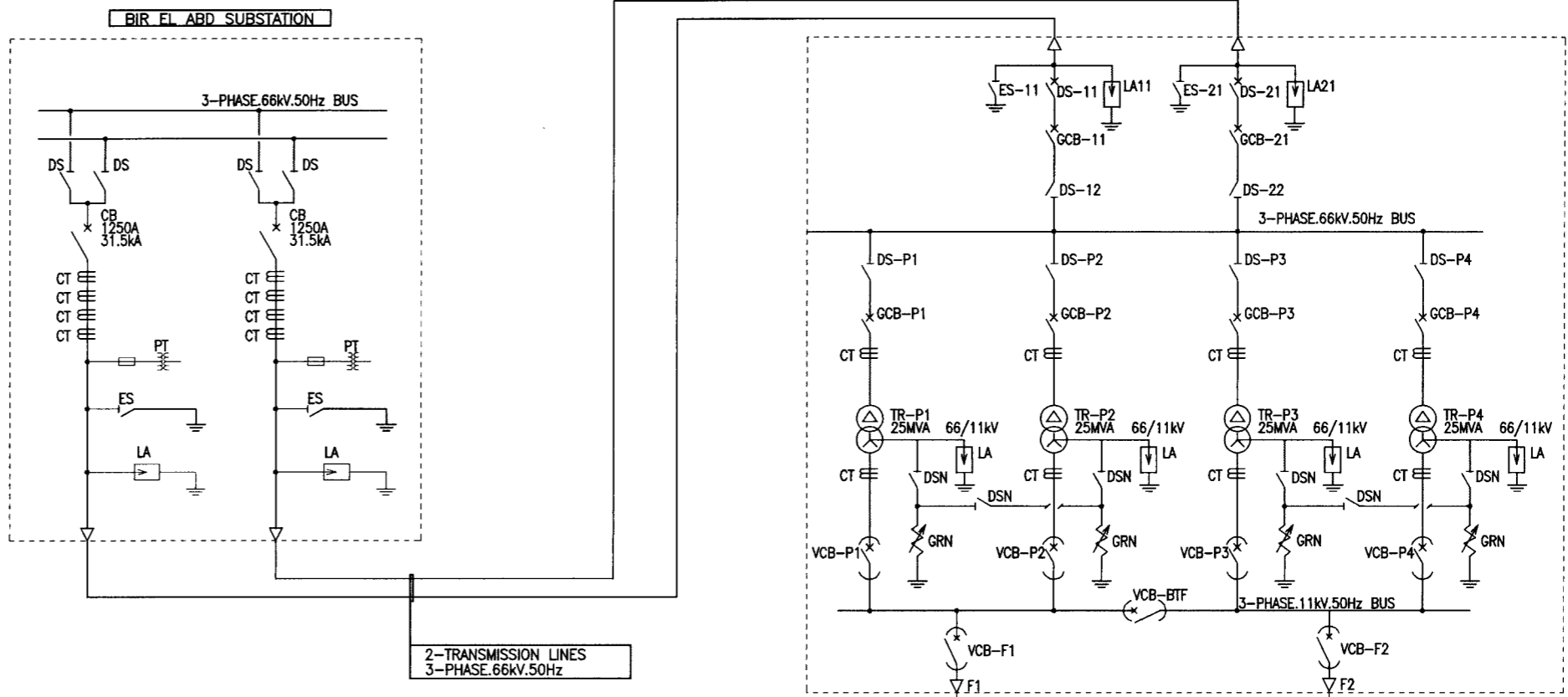
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DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	GNL-401

IP. 15  
 IA=17'-27"-17"  
 R=500'  
 TL=76.70m  
 CL=132.32m  
 SL=5.86m

IP. 16  
 IA=34'-37'-00"

LEGEND	
CODE	DESCRIPTION
GCB	GAS INSULATED CIRCUIT BREAKER
VCB	VACUUM CIRCUIT BREAKER(WITHDRAWABLE)
CB	CIRCUIT BREAKER
TR	DISTRIBUTION TRANSFORMER
ES	EARTHING SWITCH
DS	DISCONNECTOR
EDS	DISCONNECTOR WITH EARTHING SWITCH
CT	CURRENT TRANSFORMER
PT	VOLTAGE TRANSFORMER
STR	STATION TRANSFORMER
LA	LIGHTNING ARRESTER
MCCB	MOLDED CASE CIRCUIT BREAKER
DSN	NEUTRAL DISCONNECTOR
GRN	GROUNDING RESISTANCE
	FUSE
	GROUNDING
MH	MANHOLE



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**THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)**

CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL  
MAIN POWER SUBSTATION ( FOR EL SALAAM No.7 P.S.)

**POWER SUPPLY SYSTEM GENERAL DIAGRAM**

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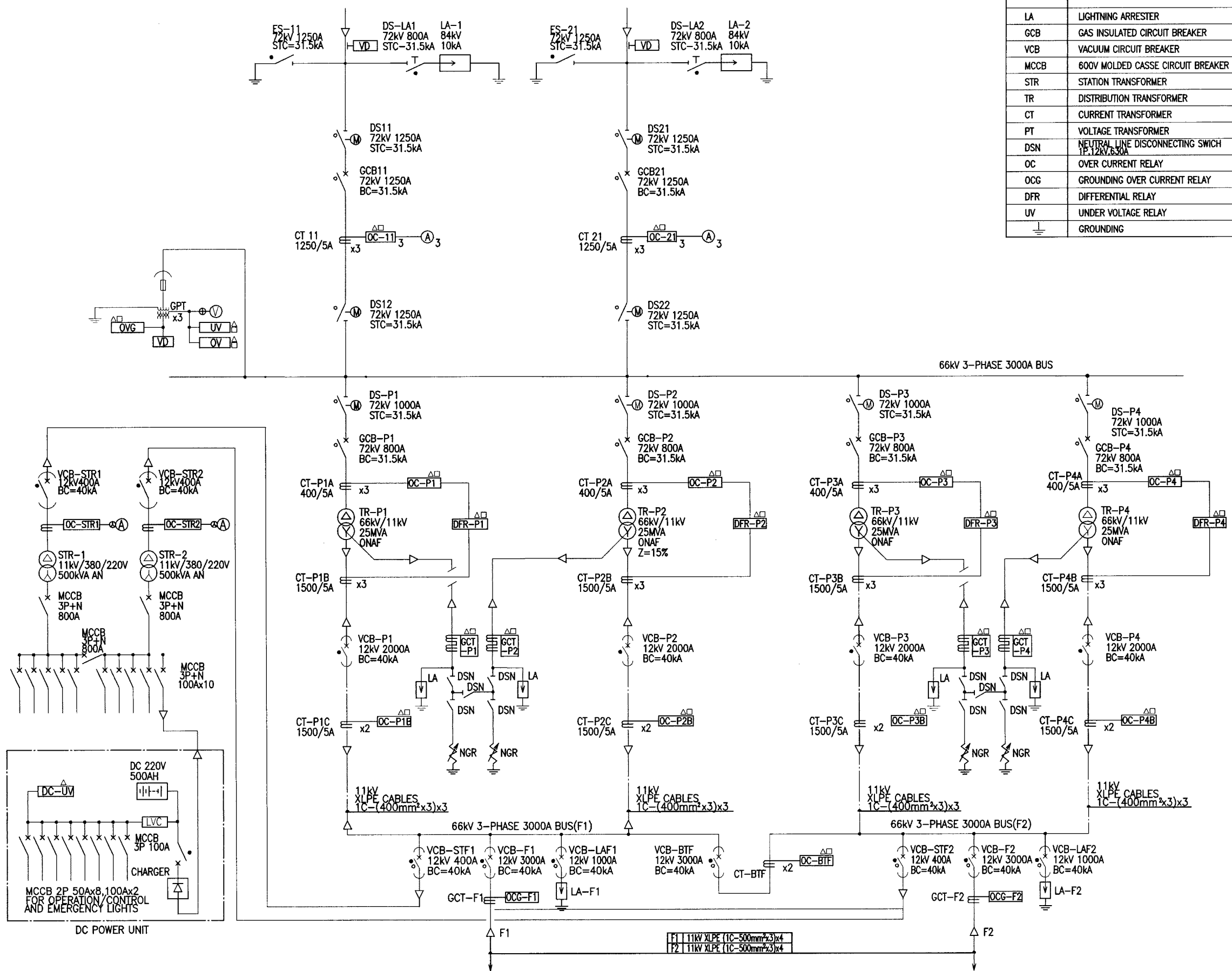
DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	SSE-401

FROM BIR EL ABD SUBSTATION

3-PHASE, 66kV, 50Hz  
POWER SUPPLY  
NO.1

3-PHASE, 66kV, 50Hz  
POWER SUPPLY  
NO.2 (STANDBY)

LEGEND			
CODE	DESCRIPTION	CODE	DESCRIPTION
VD	VOLTAGE DETECTOR	OV	OVER VOLTAGE RELAY
DS	DISCONNECTING SWITCH (ISOLATOR)	DC-UV	DC UNDER VOLTAGE RELAY
ES	EARTHING SWITCH	V	VOLT METER
		A	AMMETER
LA	LIGHTNING ARRESTER	FUSE	FUSE
GCB	GAS INSULATED CIRCUIT BREAKER	BC	BREAKING CAPACITY
VCB	VACUUM CIRCUIT BREAKER	STC	SHORT TIME CAPACITY
MCCB	600V MOLDED CASSE CIRCUIT BREAKER	LVC	LOAD VOLTAGE COMPENSATOR
STR	STATION TRANSFORMER	BATTERY (ALKALINE SHIELD)	BATTERY (ALKALINE SHIELD)
TR	DISTRIBUTION TRANSFORMER		FOR REMOTE SUPERVISION AND OPERATION
CT	CURRENT TRANSFORMER		FOR REMTOTE SUPERVISION (MODE INDICATION)
PT	VOLTAGE TRANSFORMER	△	FOR REMOTE SUPERVISION (FAULT INDICATION)
DSN	NEUTRAL LINE DISCONNECTING SWICH	□	INSTALLED IN REMOTE CONTROL RELAY PANEL
OC	OVER CURRENT RELAY	NGR	NEUTRAL GROUNDING RESISTANCE 0-500A, 12-150, 10Sec
OCG	GROUNDING OVER CURRENT RELAY	GCT	GROUNDING CURENT TRANSFORMER
DFR	DIFFERENTIAL RELAY	Ⓜ	OPERATION MOTOR
UV	UNDER VOLTAGE RELAY		
Ⓜ	GROUNDING		



CONNECT TO AUXILIARY SUBSTATION

THE ARAB REPUBLIC OF EGYPT  
MINISTRY OF WATER RESOURCES AND IRRIGATION  
NORTH SINAI DEVELOPMENT ORGANIZATION

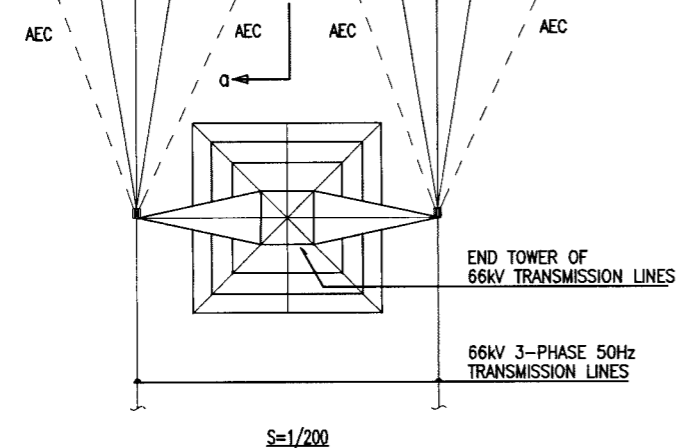
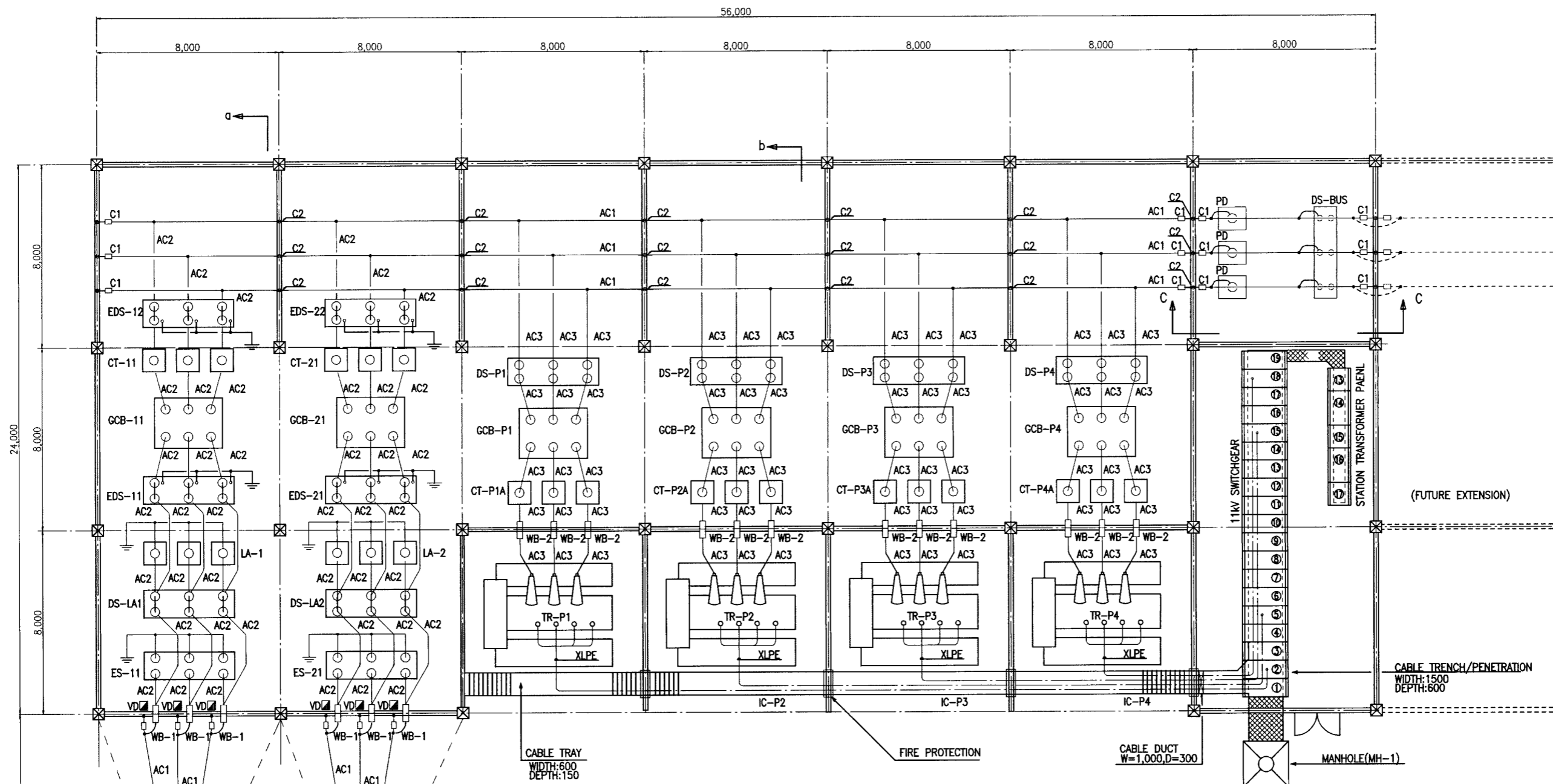
**THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)**

CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBAH CANAL  
MAIN POWER SUBSTATION ( FOR EL SALAAM No.7 P.S.)

**SINGLE LINE DIAGRAM**

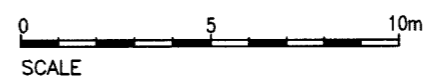
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SANYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	SSE-402



**LEGENDE**

CODE	DESCRIPTION	SIZE
AC1	HEAT RESISTANCE ALUMINIUM ALLOY STRANDED CABLE	1600 mm <sup>2</sup>
AC2	ALUMINUM PIPE CONDUCTOR	60 mm dia.
AC3	ALUMINUM PIPE CONDUCTOR	50 mm dia.
XLPE	11kV XLPE IC-1000mm <sup>2</sup> x3+1C-500mm <sup>2</sup>	
C1	SUSPENSION INSULATOR DISK TYPE 250mm x 4 UNIT	
C2	LINE POST INSULATOR 190mm dia 740mm LENGTH	
WB1	66kV BUSHING (WALL THROUGH)	2000 A
WB2	66kV BUSHING (WALL THROUGH)	1000 A
PD	CAPACITANCE POTENTIAL DEVICE	66 kV
VD	66kV VOLTAGE DETECTOR	
AEC	AERIAL EARTHING CONDUCTOR:HARD DRAWN COPPER CALBE	5 mm



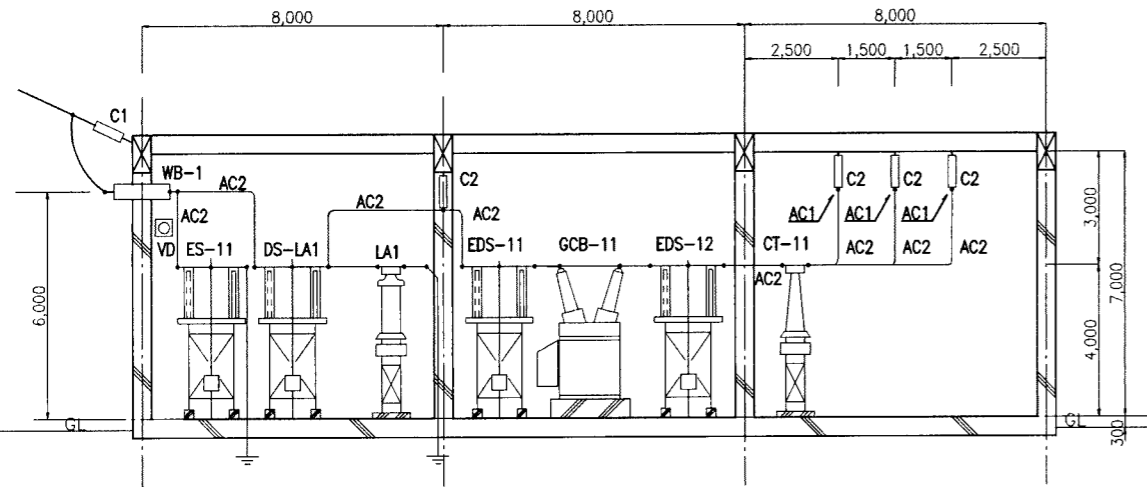
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CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBAH CANAL  
MAIN POWER SUBSTATION ( FOR EL SALAM No. 7 P. S.)

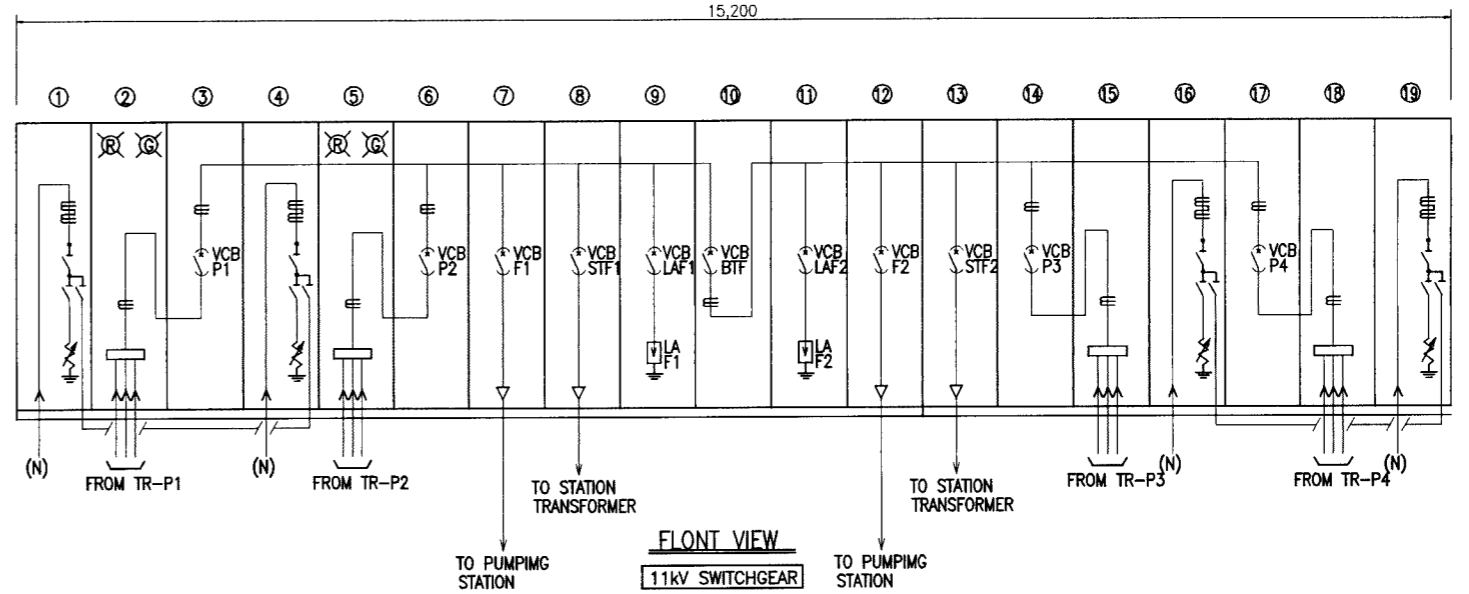
**LAYOUT PLAN**

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
SAMYU CONSULTANTS INC, PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED	
TRACED	
CHECKED	
APPROVED	
DRAWING NO.	SSE-403

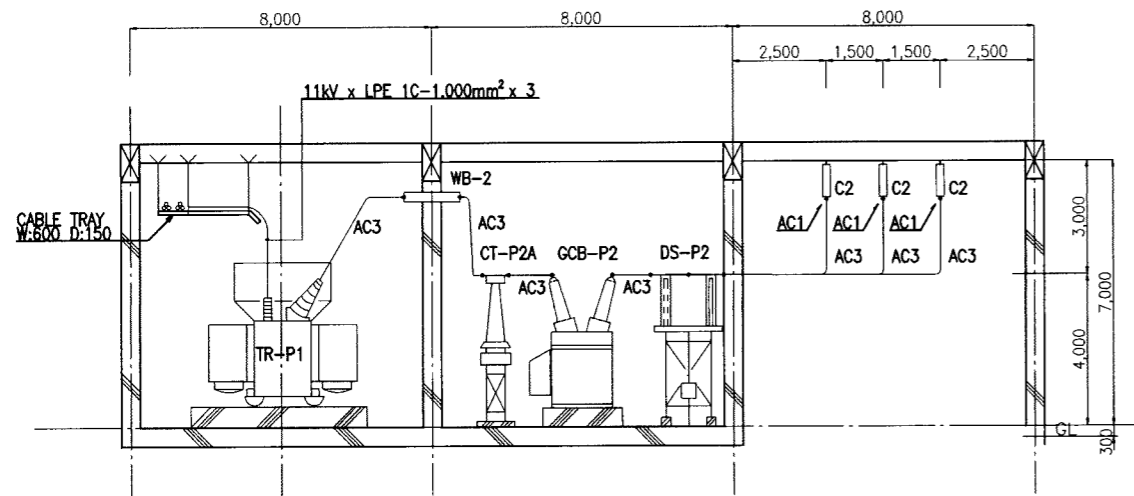


SECTION a-a S=1/100

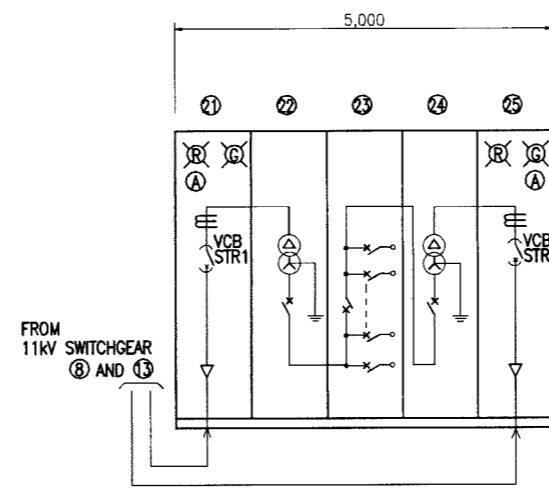


FRONT VIEW

11KV SWITCHGEAR

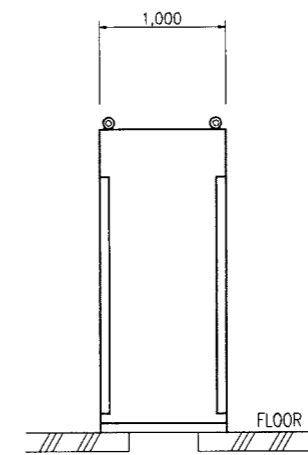


SECTION b-b S=1/100

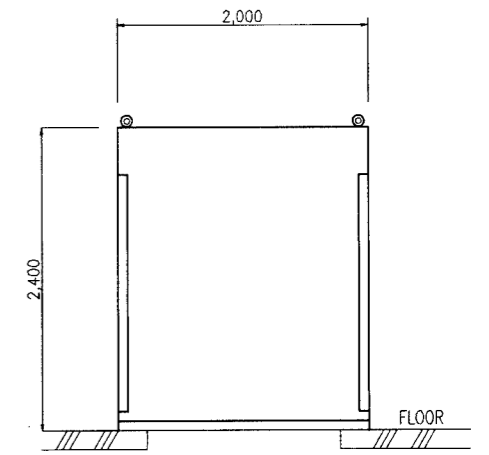


SECTION

STATION TRANSFORMER PANEL

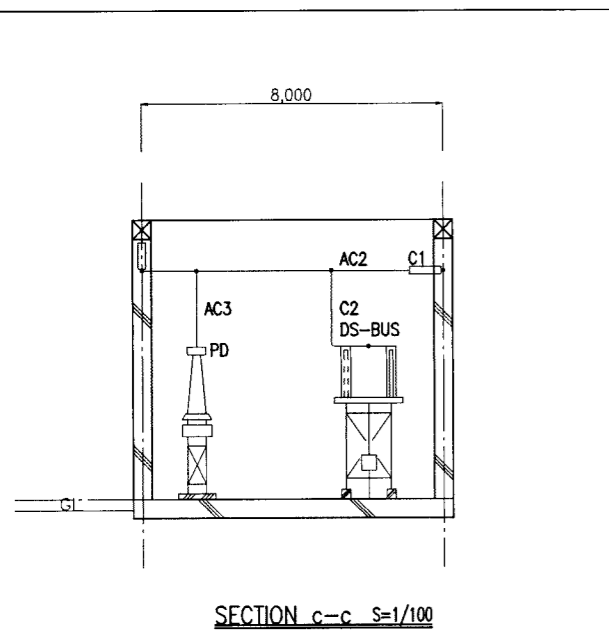


SIDE VIEW



SIDE VIEW

11KV SWITCHGEAR



SECTION c-c S=1/100

PANEL OF SCHEDULE-2	
NO.	NAME OF PANEL
①	VCB PANEL-1
②	STATION TRANSFORMER PANEL-1
③	LOW VOLT SWITCHGEAR PANEL
④	STATION TRANSFORMER PANEL-2
⑤	VCB PANEL-2

PANEL OF SCHEDULE-1	
NO.	NAME OF PANEL
①	NEUTRAL GROUING PANEL-1
②	CABLE TERMINATION PANEL-1
③	VCB PANEL-1
④	NEUTRAL GROUING PANEL-2
⑤	CABLE TERMINATION PANEL-2
⑥	VCB PANEL-2
⑦	11KV FEEDER PANEL-1
⑧	11KV FEEDER PANEL-2
⑨	LIGHTING ARRESTER PANEL-1
⑩	BUS TIE PANEL
⑪	LIGHTING ARRESTER PANEL-2
⑫	11KV FEEDER PANEL-3
⑬	11KV FEEDER PANEL-4
⑭	VCB PANEL-3
⑮	CABLE TERMINATION PANEL-3
⑯	NEUTRAL GROUING PANEL-3
⑰	VCB PANEL-4
⑱	CABLE TERMINATION PANEL-4
⑲	NEUTRAL GROUING PANEL-4

LEGEND	
SYMBOL	DESCRIPTION
	VCB 12KV 2000A, BC=40KA DRAWABLE TYPE
	ZERO PHASE CURRENT TRANSFORMER
	GROUNDING OVER CURRENT RELAY
	TRANSFORMER 11KV/380-220V, 500KVA MOLD TYPE
	DISCONNECTOR SWICH 1P, 12KV, 630A
	CABLE HEAD
	INDICATION LAMP (RED) VCB:ON
	INDICATION LAMP (ORENCE) ALARM (VCB TROUBLE)

THE ARAB REPUBLIC OF EGYPT MINISTRY OF WATER RESOURCES AND IRRIGATION NORTH SINAI DEVELOPMENT ORGANIZATION <b>THE NORTH SINAI INTEGRATED RURAL DEVELOPMENT PROJECT (PHASE III)</b>	
CONVEYANCE SYSTEM OF EL SHEIKH GABER EL SABBABH CANAL MAIN POWER SUBSTATION ( FOR EL SALAAMI No. 7 P. S. )	
<b>TYPICAL SECTIONS</b>	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) SANYU CONSULTANTS INC., PACIFIC CONSULTANTS INTERNATIONAL	
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