

KARACHI WATER & SEWERAGE BOARD

ADDITIONAL 65 MGD WATER SUPPLY SCHEME
FROM HALEJI TO PIPRI, KARACHI

PACKAGE # 02
CONSTRUCTION OF NEW 65 MGD PUMP HOUSE
(EQUIPPED WITH M&E PUMPING MACHINERIES) AT GHARO

EPC/TURNKEY CONTRACT
ON LUMP SUM FIXED PRICE BASIS

VOLUME # 03
TENDER DRAWINGS
JANUARY, 2018

CONSULTANT:



EA Consulting (Pvt.) Limited

(Formerly Engineering Associates)




CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:



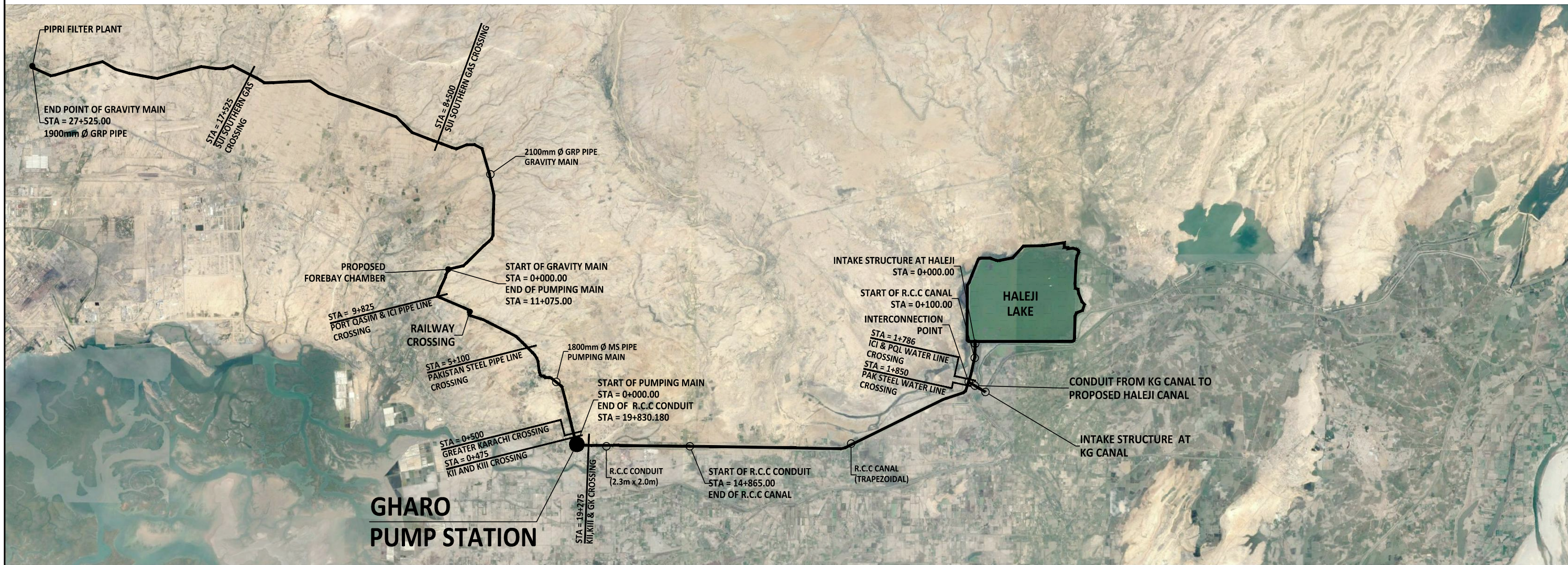
Jers Engineering Consultant




S.NO	DRAWING TITLE	DRAWING NO.
1	LIST OF DRAWING	EA-942-65M-PII-U-LS01
2	ROUTE PLAN	EA-942-65M-PII-U-RP1
3	SCHEMATIC PLAN OF 65 MGD	EA-942-65M-PII-U-SP01
4	GHARO PUMPING STATION	EA-942-65M-PII-U-SP03
	LOCATION PLAN	
5	SCHEMATIC DRAWING OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-LP01
6	SCHEMATIC DRAWING OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-LP02A
7	SCHEMATIC DRAWING OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-LP02B
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8	PRELIMINARY PLAN OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-GP1
9	PRELIMINARY SECTION OF PUMP ROOM & SUMP WELL	EA-942-65M-PII-U-GP2
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11	LAYOUT PLAN OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-APL1
12	TEMPORARY SITE OFFICE / PORTA CABIN OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-APL2
13	SECTION A-A OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-APL3
14	FRONT ELEVATION OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO	EA-942-65M-PII-U-APL4
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	ROAD CROSS SECTION	
16	ROAD CROSS SECTION A-A AT GHARO PUMPING STATION	EA-942-65M-PII-U-CS01
	ELECTRICAL WORK	
17	MV SCHEMATIC DIAGRAM	EA-942-65M-PII-E-01
18	LV SCHEMATIC DIAGRAM	EA-942-65M-PII-E-01
19	PROPOSED SUBSTATION LAYOUT PLAN	EA-942-65M-PII-E-03
20	ELECTRICAL CABLE ROUTES FROM SUBSTATION TO PUMP ROOM	EA-942-65M-PII-E-04
21	PLC / SCADA SYSTEM SINGLE LINE DIAGRAM	EA-942-65M-PII-U-SLD1

							CLIENT:-		 <div>KARACHI WATER & SEWERAGE BOARD</div>			PROJECT:- ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.													
							CONSULTANT:-																		
							 <div>EA Consulting (Pvt.) Limited CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</div>		IN ASSOCIATION WITH:-  Jers Engineering Consultants										DRAWN	M.NOMAN SIDDIQUI	PACKAGE #. 02				
									0		JAN,18				TENDER DRAWING	N.A.I	M.Z	A.A	DESIGNED	NABEEL AHMED IDREES	LIST OF DRAWING				
							ED.NO	DATE	DESCRIPTION	BY	CKD	APR	CHECKED	MUNAWAR ZAMAN	Scale / Sheet	Drawing No.									
											APPROVED	ALI ASGHAR	(A1)	EA-942-65M-PII-U-LS01											

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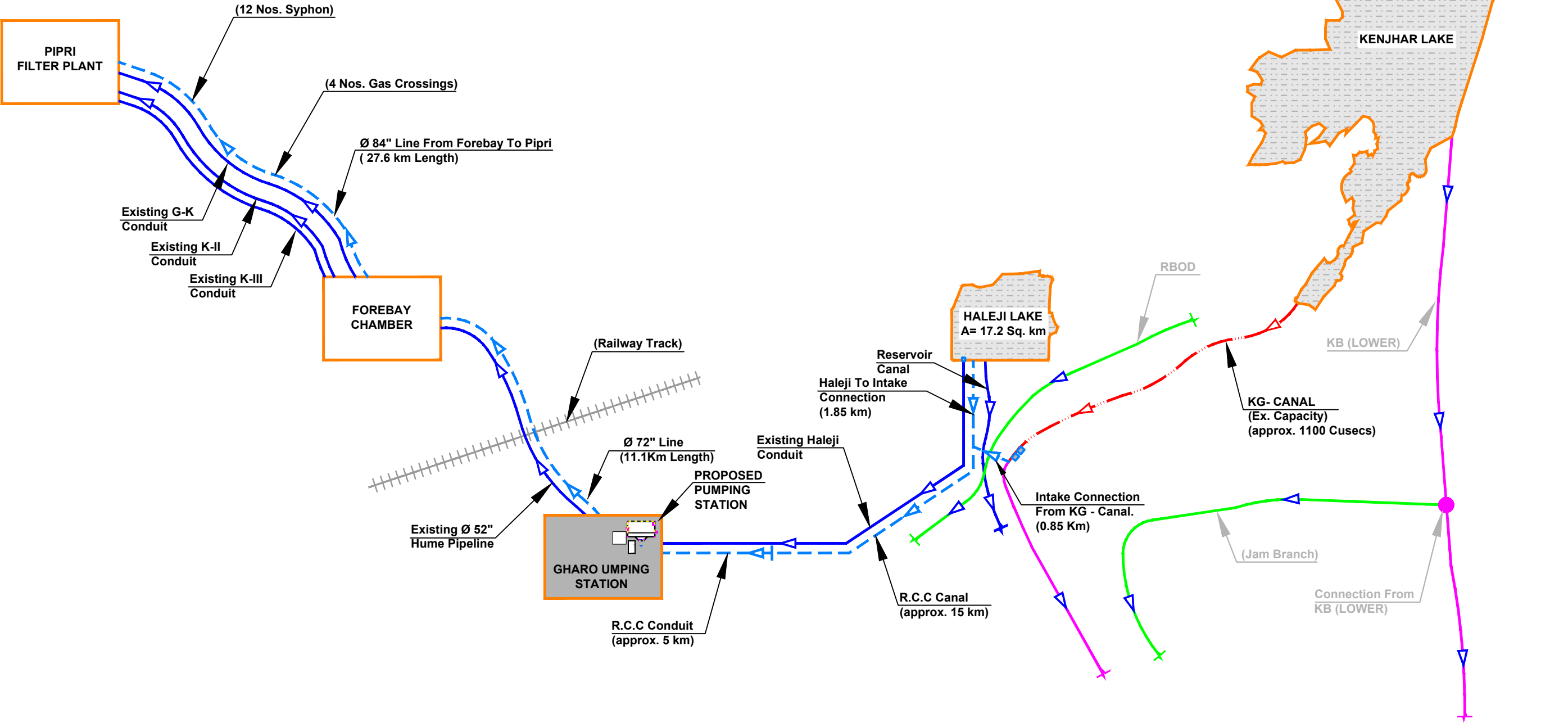
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							CLIENT:-		PROJECT:-					
								KARACHI WATER & SEWERAGE BOARD		ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.				
							CONSULTANT:-	IN ASSOCIATION WITH:-		DRAWN	M.NOMAN SIDDIQUI	TITLE		PACKAGE #. 02
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A		EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small>			DESIGNED	NABEEL AHMED IDREES	ROUTE PLAN		
ED.NO	DATE	DESCRIPTION	BY	CKD	APR					CHECKED	MUNAWAR ZAMAN	Scale / Sheet	Drawing No.	
										APPROVED	ALI ASGHAR	(A1)	EA-942-65M-PII-U-RP1	

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SCHEMATIC PLAN OF 65 MGD PROJECT



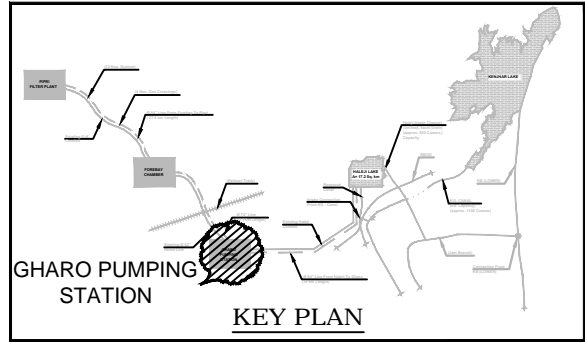
NOTE:
1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE STATED.

LEGEND:
PROPOSED
EXISTING
RAISING OF EXISTING CANAL

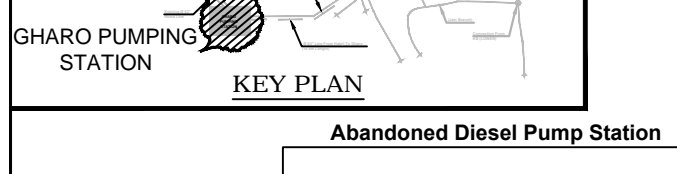
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A	
ED.NO	DATE	DESCRIPTION	BY	CKD	APR	

CLIENT:-	KARACHI WATER & SEWERAGE BOARD
CONSULTANT:-	EA Consulting (Pvt.) Limited
IN ASSOCIATION WITH:-	Jers Engineering Consultants

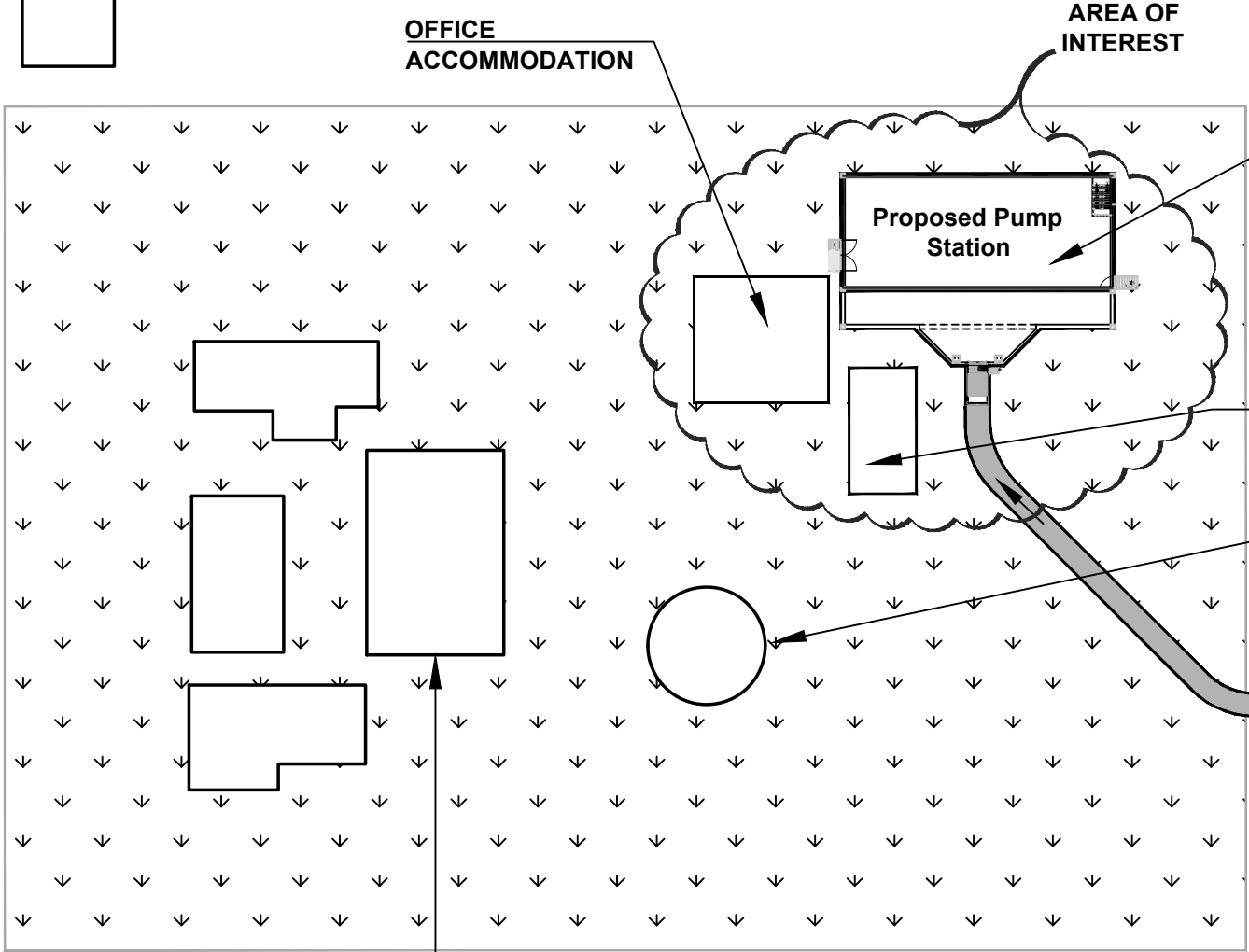
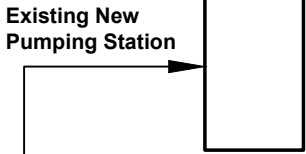
PROJECT:-	ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.
DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR
TITLE	SCHEMATIC PLAN OF 65 MGD
PACKAGE #	02
Scale / Sheet	(A1)
Drawing No.	EA-942-65M-PII-U-SP01



GHARO PUMPING STATION



5+4 Vertical Turbine Pumps
3 Pumps of 100HP
2 Pumps of 220HP



NOTE:
1. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE STATED.

LEGEND:
PROPOSED
EXISTING
RAISING OF EXISTING CANAL

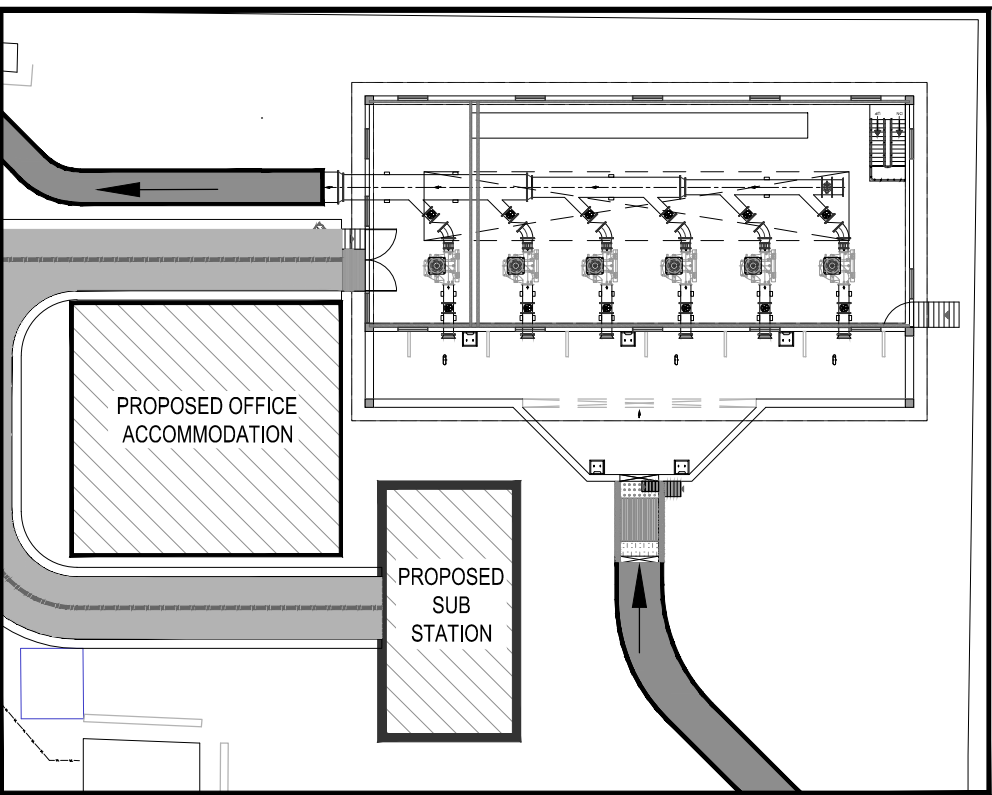
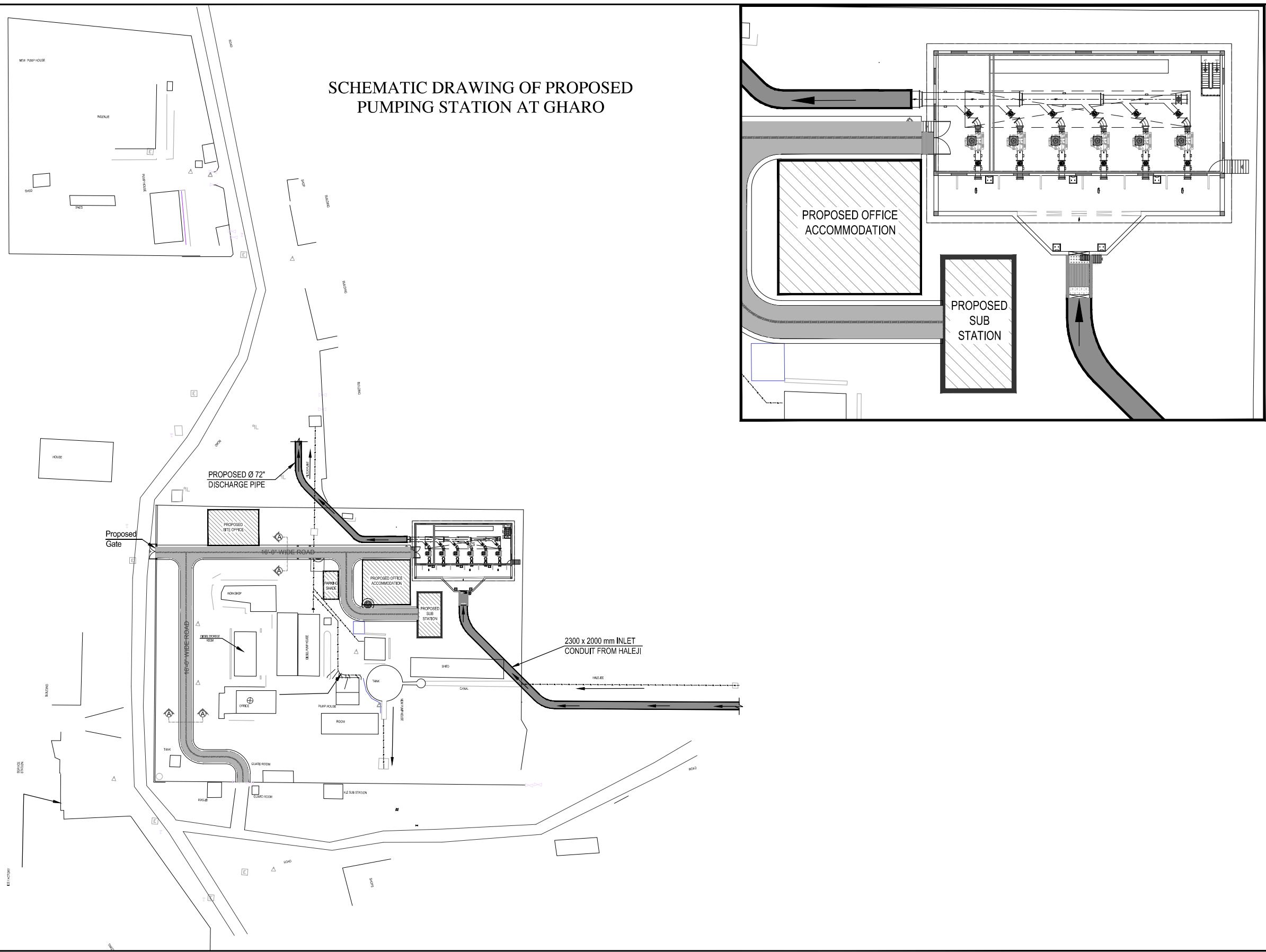
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR




CLIENT:-	KARACHI WATER & SEWERAGE BOARD
CONSULTANT:-	EA Consulting (Pvt.) Limited
IN ASSOCIATION WITH:-	Jers Engineering Consultants

PROJECT:-	ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.
DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR
TITLE	GHARO PUMPING STATION
PACKAGE #	02
Scale / Sheet	(A1)
Drawing No.	EA-942-65M-PII-U-SP03

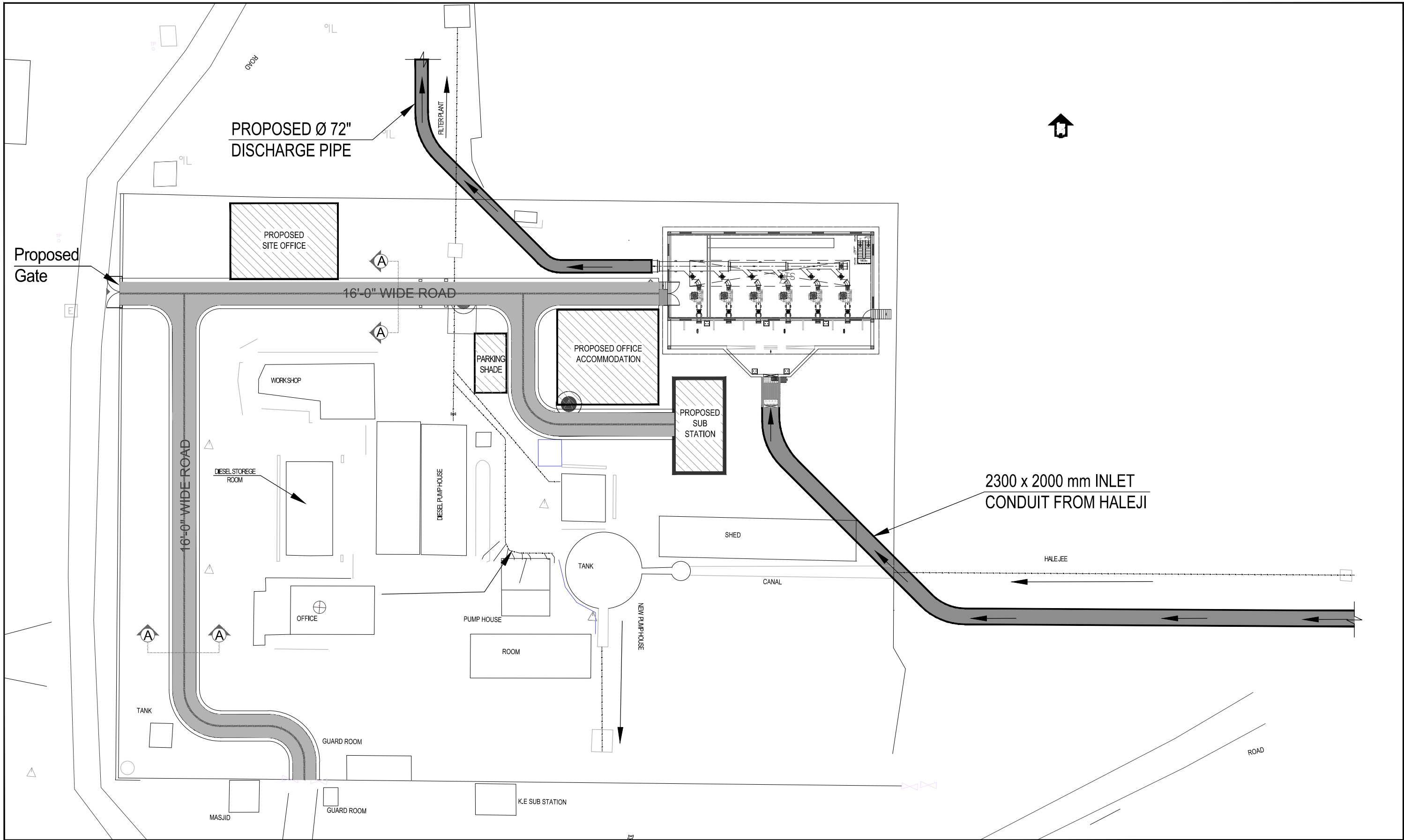





SCHEMATIC DRAWING OF PROPOSED
PUMPING STATION AT GHARO

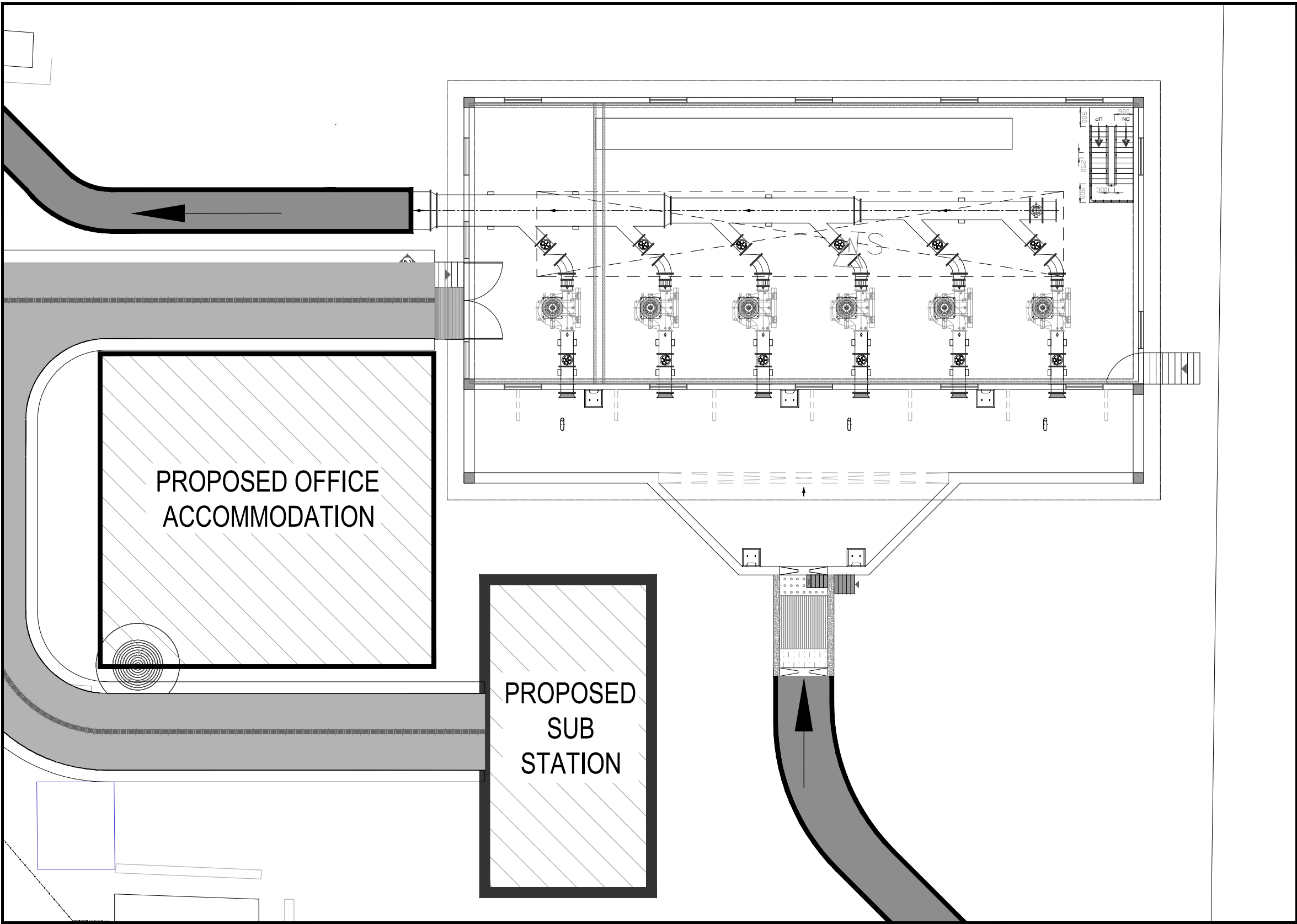





						CLIENT:-		 KARACHI WATER & SEWERAGE BOARD		PROJECT:-				ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.			
						CONSULTANT:-				IN ASSOCIATION WITH:-		DRAWN	M.NOMAN SIDDIQUI	TITLE			PACKAGE #. 02
						 EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small>				 Jers Engineering Consultants		DESIGNED	NABEEL AHMED IDREES	SCHEMATIC DRAWING OF PROPOSED PUMPING STATION AT GHARO			
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A							CHECKED	MUNAWAR ZAMAN				
ED.NO	DATE	DESCRIPTION	BY	CKD	APR					APPROVED	ALI ASGHAR	(A1)		EA-942-65M-PII-U-LP01			

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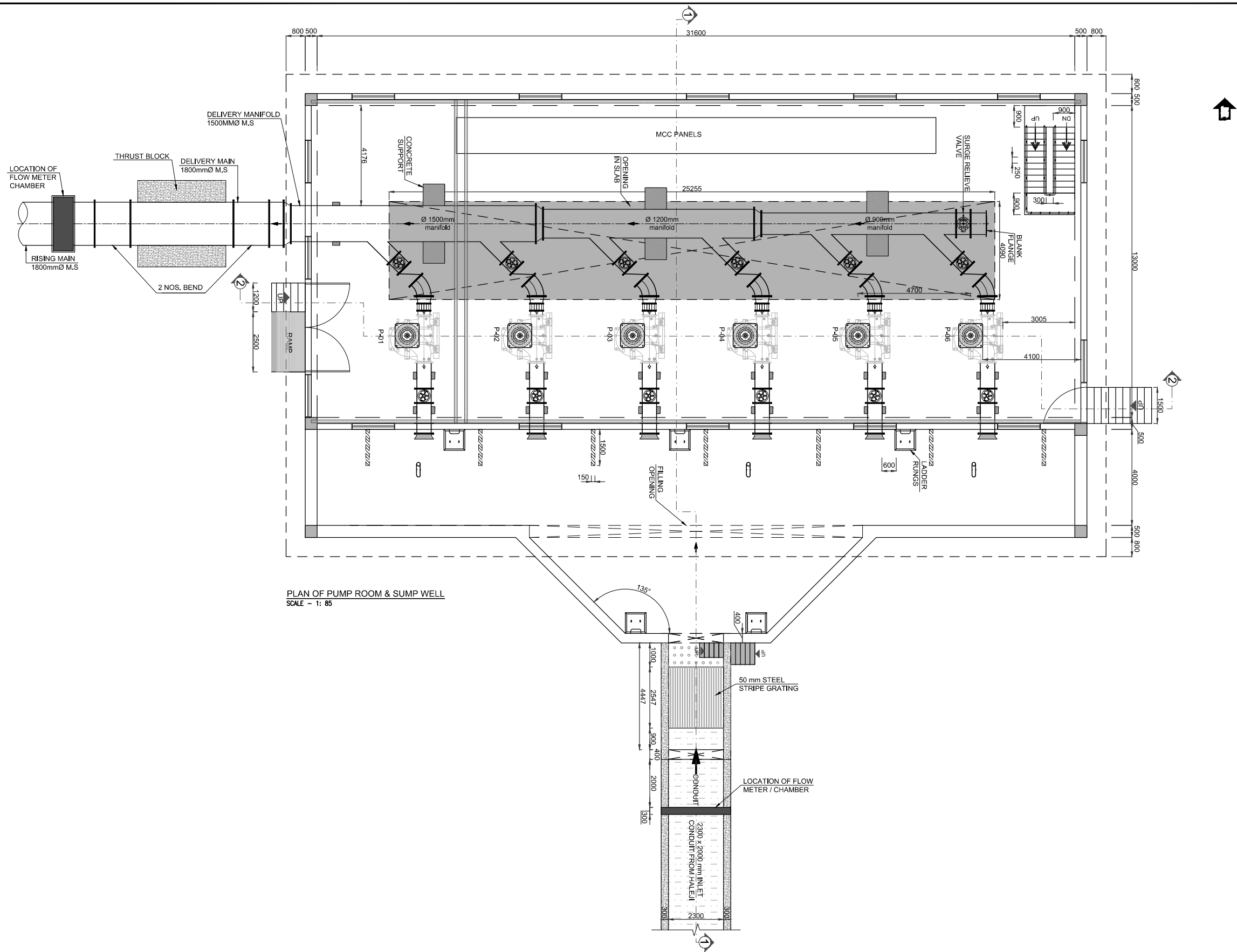


						CLIENT:- <div> KARACHI WATER & SEWERAGE BOARD</div>		PROJECT:- ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.						
						CONSULTANT:- <div> EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small></div>		IN ASSOCIATION WITH:- <div> Jers Engineering Consultants</div>		DRAWN	M.NOMAN SIDDIQUI	TITLE		PACKAGE #. 02
										DESIGNED	NABEEL AHMED IDREES	SCHEMATIC DRAWING OF PROPOSED PUMPING STATION AT GHARO		
										CHECKED	MUNAWAR ZAMAN			
										APPROVED	ALI ASGHAR	Scale / Sheet (A1)	Drawing No. EA-942-65M-PII-U-LP02A	
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A									
ED.NO	DATE	DESCRIPTION	BY	CKD	APR									



						CLIENT:-		PROJECT:-	
								ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.	
						CONSULTANT:-		DRAWN	M.NOMAN SIDDIQUI
						IN ASSOCIATION WITH:-		DESIGNED	NABEEL AHMED IDREES
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A	 EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small>		CHECKED	MUNAWAR ZAMAN
ED.NO	DATE	DESCRIPTION	BY	CKD	APR	 Jers Engineering Consultants		APPROVED	ALI ASGHAR
								TITLE	
								PACKAGE #. 02	
								SCHEMATIC DRAWING OF PROPOSED PUMPING STATION AT GHARO	
								Scale / Sheet	Drawing No.
								(A1)	EA-942-65M-PII-U-LP02B

File Path: E:\D:\Projects\Local\942_65 MGD PROJ



PLAN OF PUMP ROOM & SUMP WELL
SCALE - 1: 85

NOTE:-

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR LOCATION OF PROPOSED PUMP ROOM REFER DWG. NO. EA-942-65M-PII-U-LP1.
3. FOR SECTIONS OF PUMP ROOM REFER DWG. NO. EA-942-65M-U-GP2 & GP3.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



Jers Engineering Consultant

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

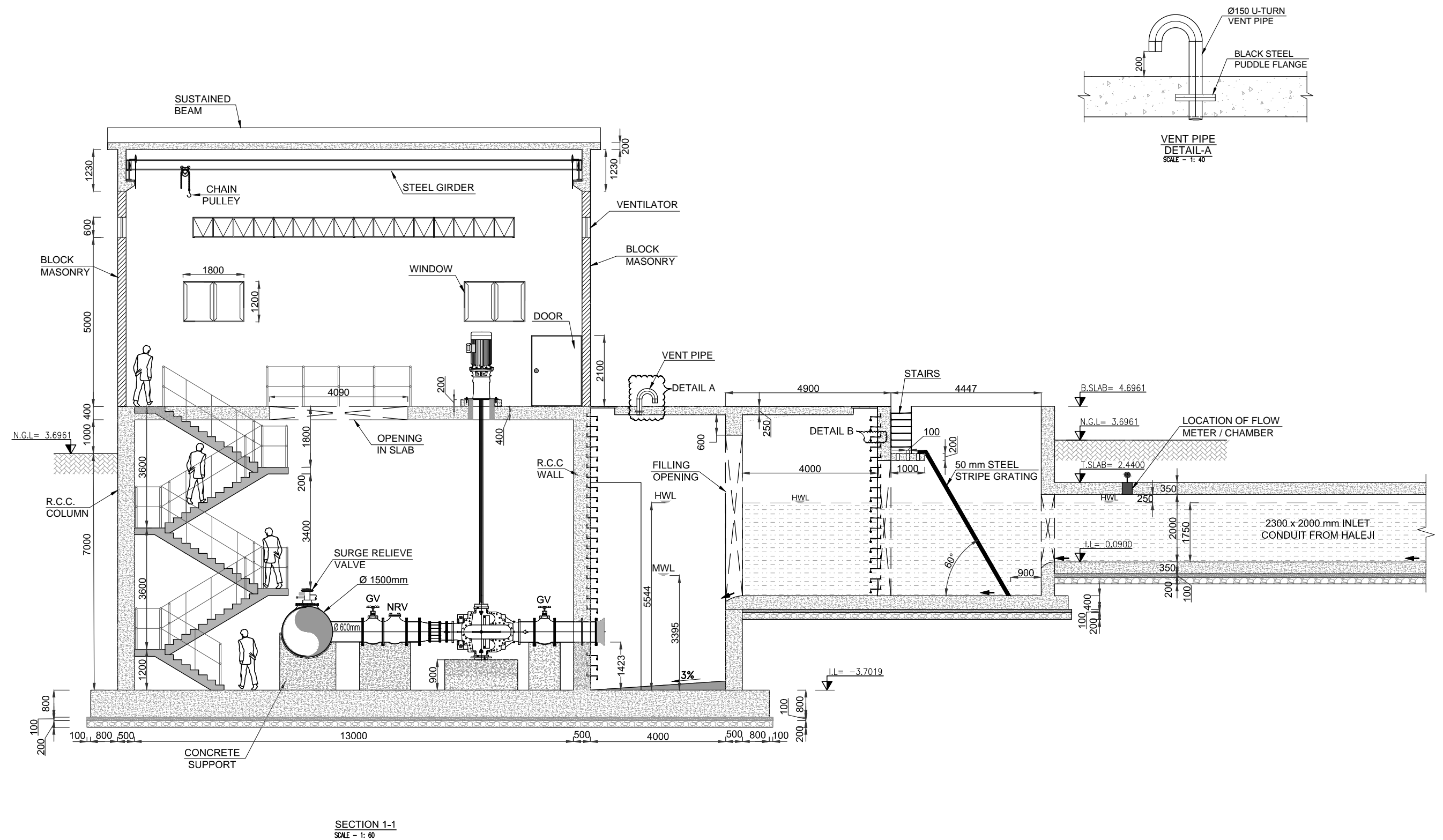
TITLE

PRELIMINARY PLAN OF
PROPOSED PUMPING STATION AT GHARO

Scale / Sheet
1 : 85 (A1)

Drawing No.
EA-942-65M-PII-U-GP1

PACKAGE #. 02



NOTE:-

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR PLAN OF PUMP ROOM REFER DWG. NO. EA-942-65M-U-GP1.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



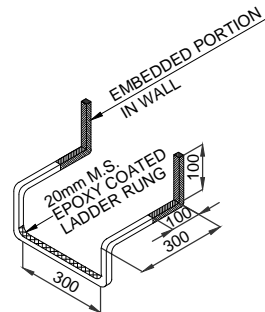
Jers Engineering Consultant

PROJECT:-

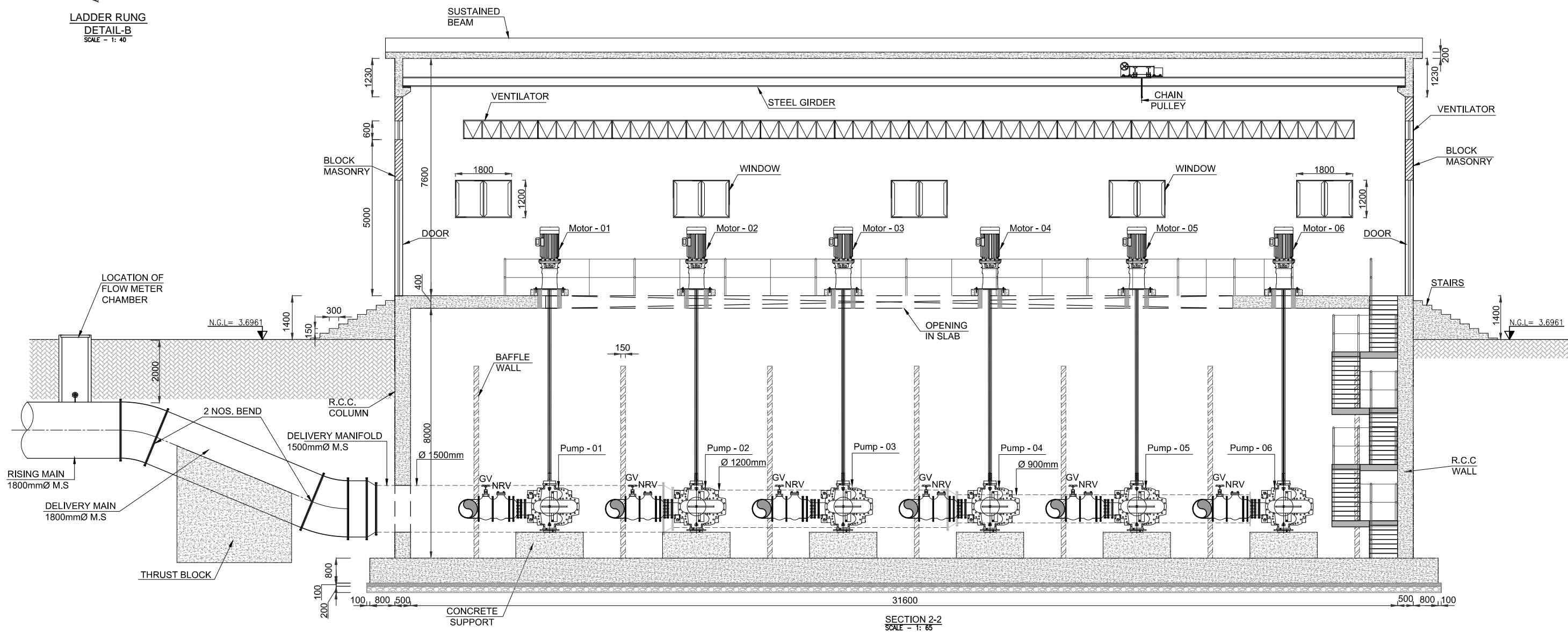
ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

TITLE	PACKAGE #. 02
PRELIMINARY SECTION OF PUMP ROOM & SUMP WELL	
Scale / Sheet	Drawing No.
AS SHOWN (A1)	EA-942-65M-PII-U-GP2



LADDER RUNG
DETAIL-B
SCALE - 1: 40



NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR PLAN OF PUMP ROOM REFER DWG. NO. EA-942-65M-GSP-U-GP1.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



Jers Engineering Consultant

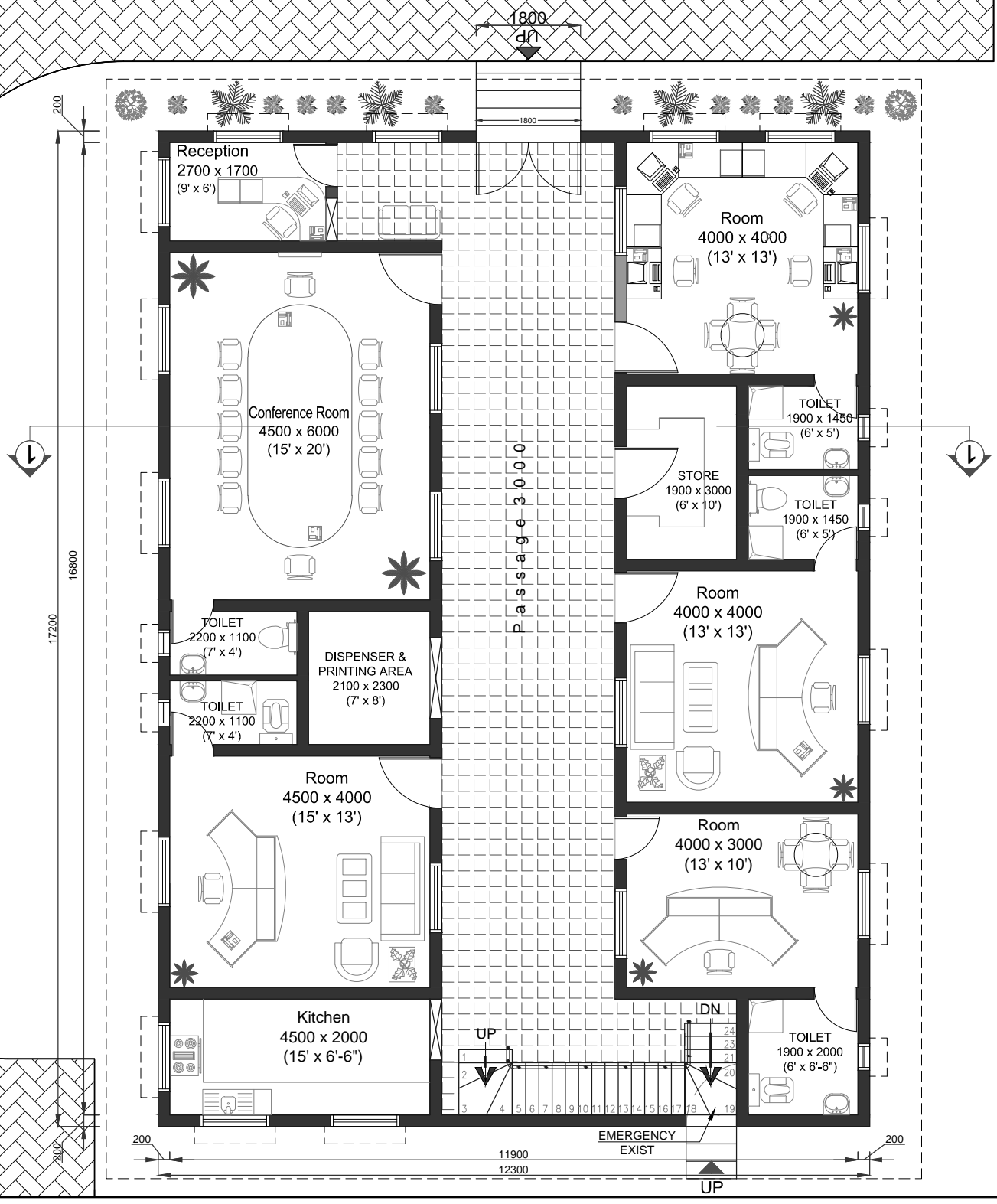
PROJECT:-




ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

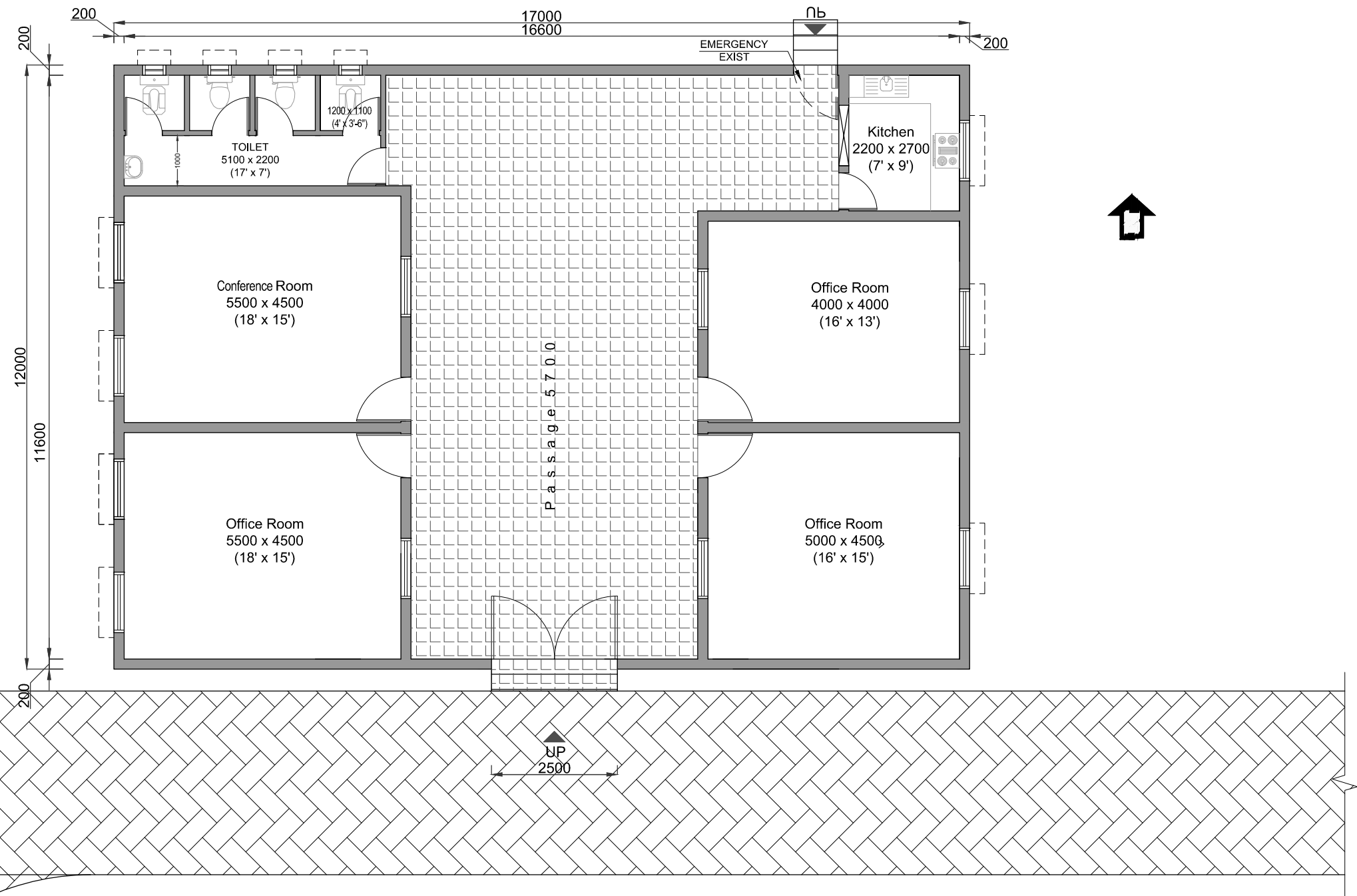
TITLE	PRELIMINARY SECTION OF PUMP ROOM & SUMP WELL	PACKAGE #. 02
Scale / Sheet	AS SHOWN (A1)	Drawing No. EA-942-65M-PII-U-GP3

LAYOUT PLAN OFFICE ACCOMMODATION



NOTE: 1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED. 2. FOR LOCATION OF SCHEMATIC DRAWING OF PROPOSED PUMP ROOM REFER DWG. NO. EA-942-65M-PII-U-LP01.						CLIENT:-  KARACHI WATER & SEWERAGE BOARD		PROJECT:- ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.		
						CONSULTANT:-  EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small>		IN ASSOCIATION WITH:-  Jers Engineering Consultant		PACKAGE #. 02 LAYOUT PLAN OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO Scale / Sheet 1 : 50 (A1) Drawing No. EA-942-65M-PII-U-APL1
0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A			DRAWN	M.NOMAN SIDDIQUI	
								DESIGNED	NABEEL AHMED IDREES	
								CHECKED	MUNAWAR ZAMAN	
								APPROVED	ALI ASGHAR	
ED.NO	DATE	DESCRIPTION	BY	CKD	APR					

PROPOSED TEMPORARY SITE OFFICE / PORTA CABIN



NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR LOCATION OF SCHEMATIC DRAWING OF PROPOSED PUMP ROOM REFER DWG. NO. EA-942-65M-PII-U-LP1.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



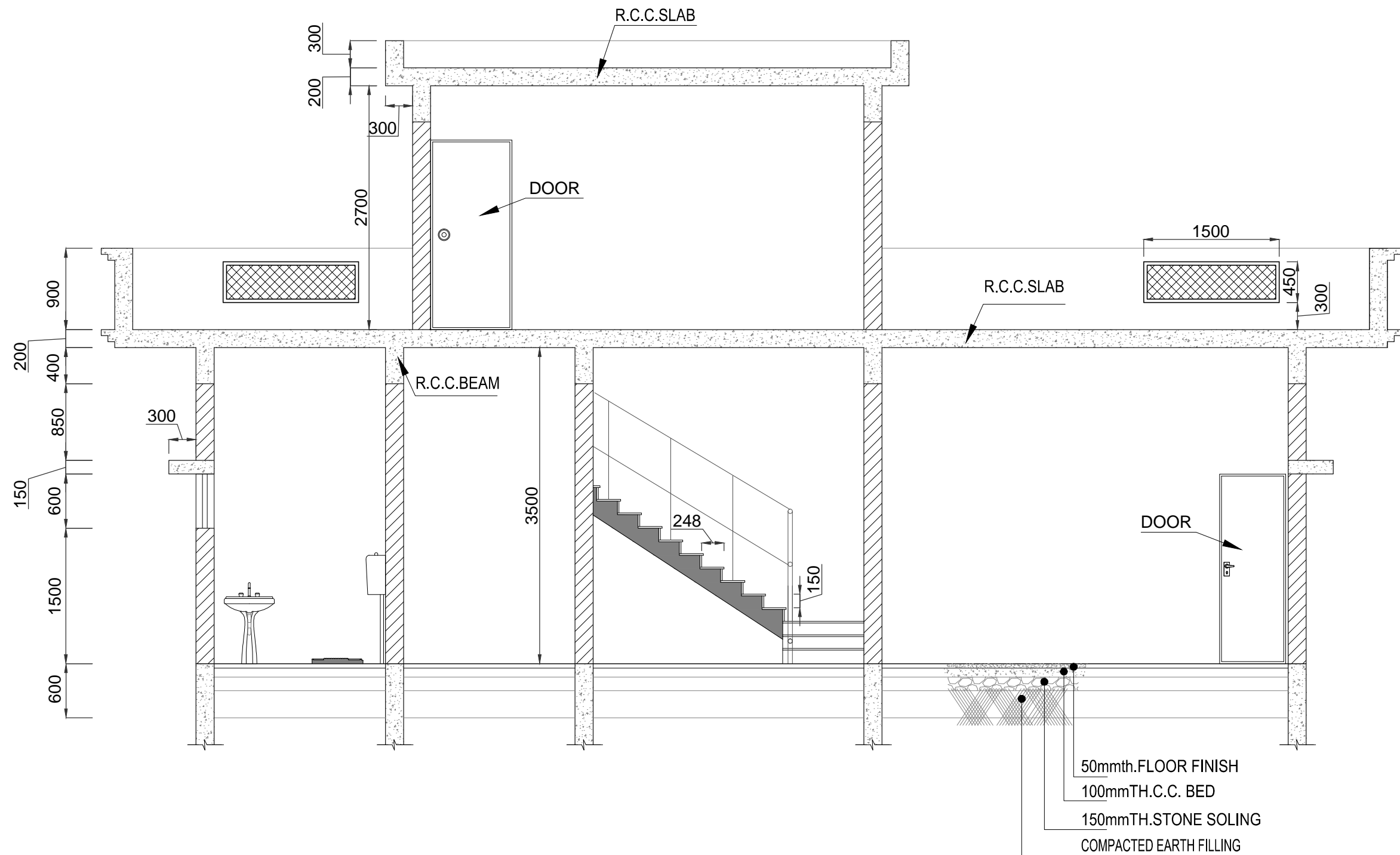
Jers Engineering Consultant

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

TITLE	PACKAGE #. 02
LAYOUT PLAN SITE OFFICE OF PROPOSED PUMPING STATION AT GHARO	
Scale / Sheet	Drawing No.
1 : 50 (A1)	EA-942-65M-PII-U-APL2



SECTION A-A

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR LOCATION OF OFFICE ACCOMMODATION LAYOUT PLAN REFER DWG. NO. EA-942-65M-PII-U-APL1.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



Jers Engineering Consultant

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

TITLE	PACKAGE #. 02
SECTION A-A OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO	
Scale / Sheet	Drawing No.
1 : 25 (A1)	EA-942-65M-PII-U-APL3



FRONT ELEVATION

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR LOCATION OF OFFICE ACCOMMODATION LAYOUT PLAN REFER DWG. NO. EA-942-65M-PII-U-APL1.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-

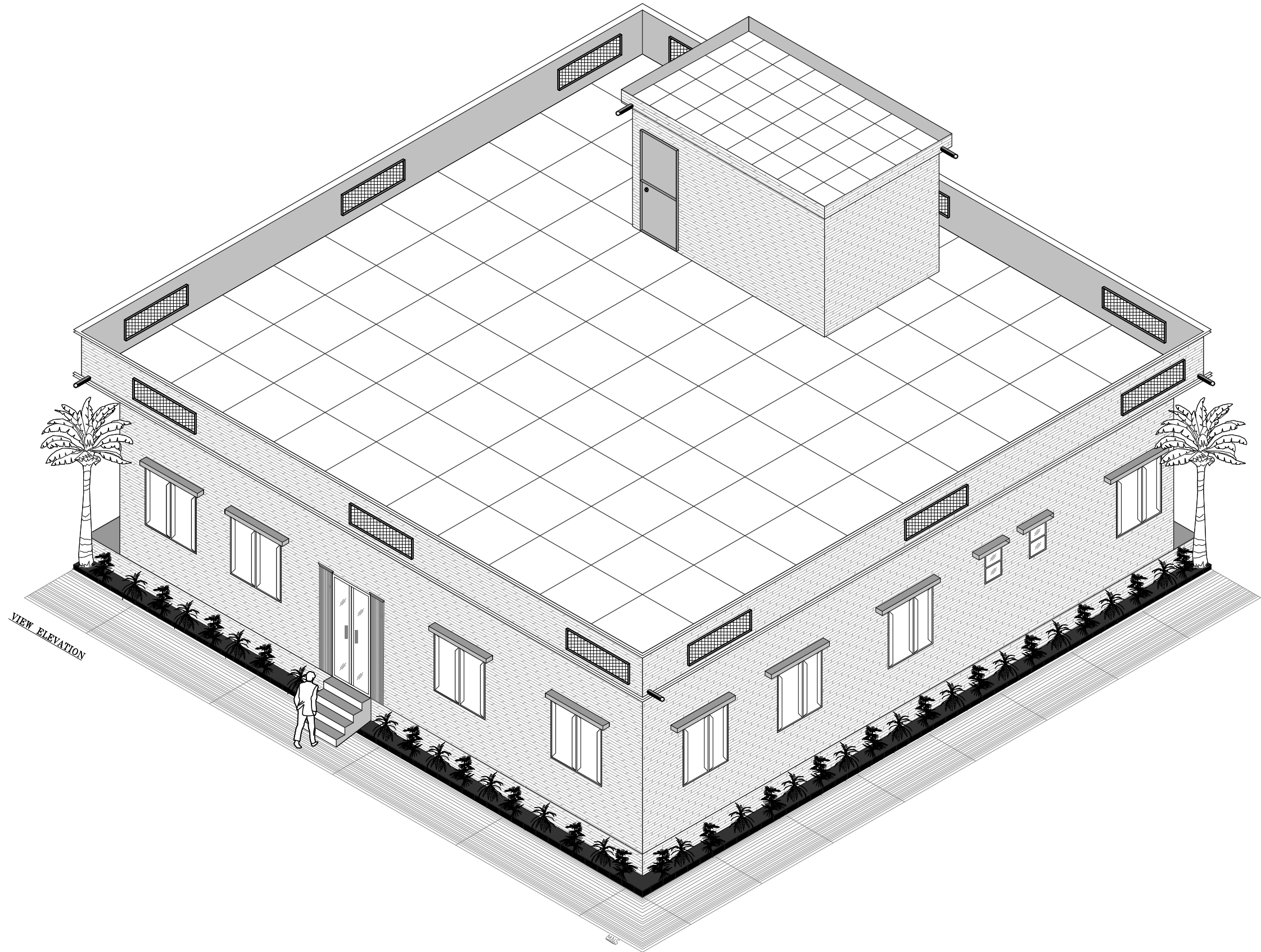


Jers Engineering Consultant

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI	PACKAGE #. 02	
DESIGNED	NABEEL AHMED IDREES	TITLE	
CHECKED	MUNAWAR ZAMAN	FRONT ELEVATION OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO	
APPROVED	ALI ASGHAR	Scale / Sheet	Drawing No.
		1 : 25 (A1)	EA-942-65M-PII-U-APL4



NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR LOCATION OF OFFICE ACCOMMODATION LAYOUT PLAN REFER DWG. NO. EA-942-65M-PII-U-APL1.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



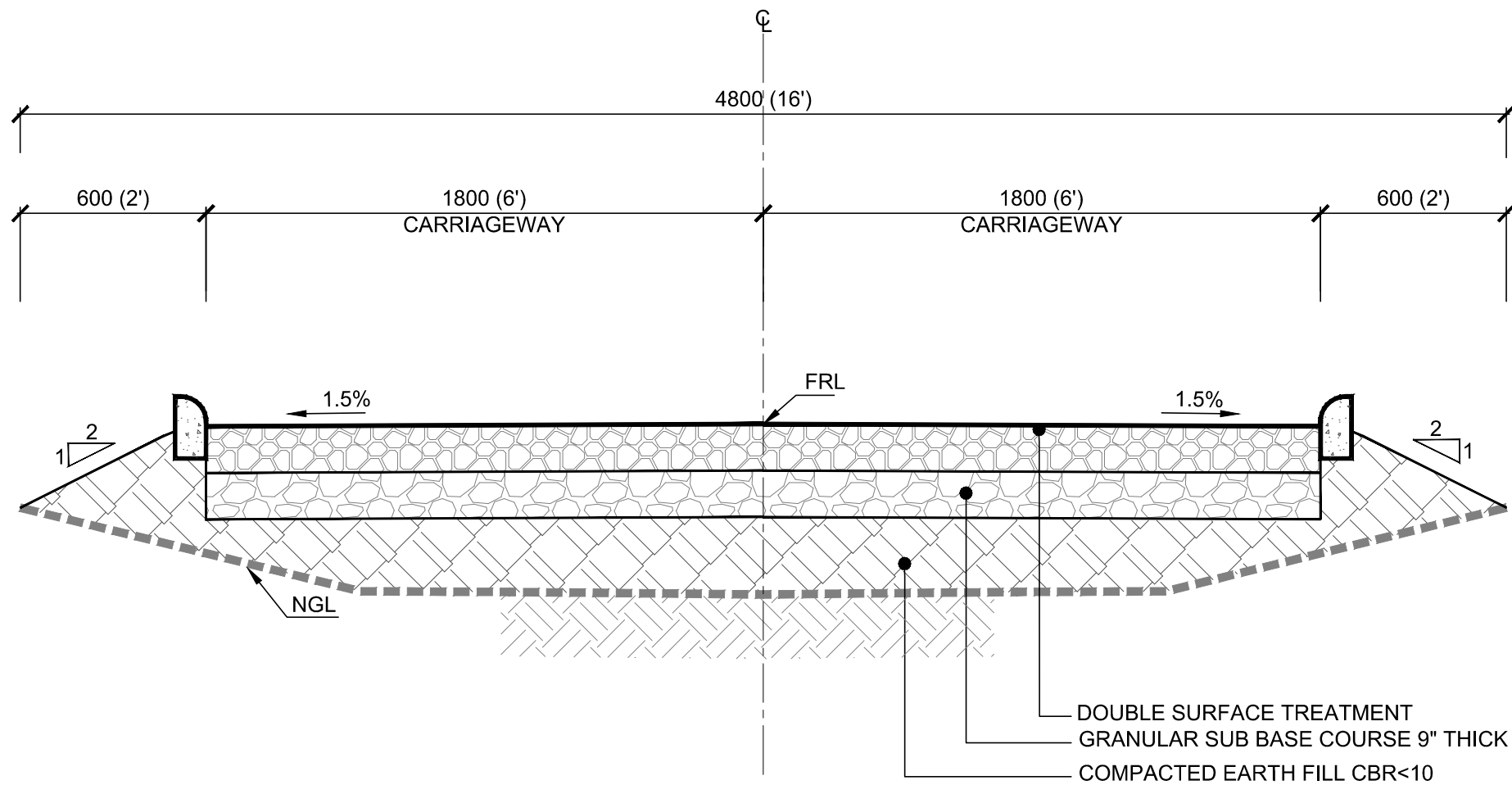
Jers Engineering Consultant

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

TITLE	PACKAGE #. 02
VIEW ELEVATION OFFICE ACCOMMODATION OF PROPOSED PUMPING STATION AT GHARO	
Scale / Sheet	Drawing No.
1 : 25 (A1)	EA-942-65M-PII-U-APL5






ROAD CROSS SECTION 16' WIDE
SECTION A - A

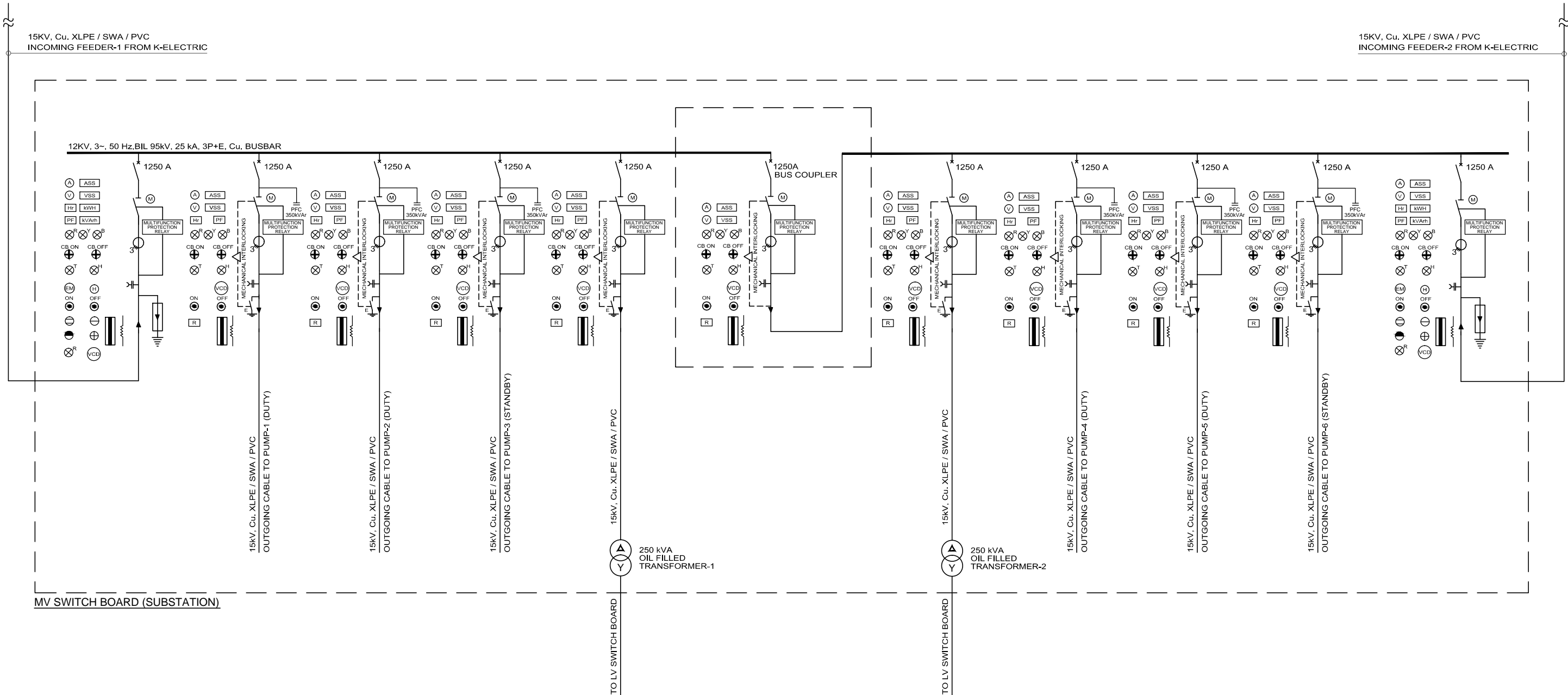
NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED.
2. FOR LOCATION OF PROPOSED PUMP ROOM REFER DWG. NO. EA-942-65M-PII-U-LP01, LP01A & LP01B.

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A
ED.NO	DATE	DESCRIPTION	BY	CKD	APR

CLIENT:-  KARACHI WATER & SEWERAGE BOARD	
CONSULTANT:-  EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small>	IN ASSOCIATION WITH:-  Jers Engineering Consultant

PROJECT:- ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.		
DRAWN	M.NOMAN SIDDIQUI	TITLE ROAD CROSS SECTION A-A AT GHARO PUMPING STATION Scale / Sheet 1 : 10 (A1) Drawing No. EA-942-65M-PII-U-CS01
DESIGNED	NABEEL AHMED IDREES	
CHECKED	MUNAWAR ZAMAN	
APPROVED	ALI ASGHAR	



LEGEND

SYMBOLS	DESCRIPTION
	12KV VACUUM CIRCUIT BREAKER (VCB), BIL 95kV, 25kA FOR 1 SEC
	SURGE ARRESTER
	EARTHING SWITCH
	3Nos. CURRENT TRANSFORMERS WITH SHORT LINKS (2-CORE) 800-600/5/5A
	3Nos. POTENTIAL TRANSFORMER (11000/√3/110/√3 V)
	VOLT METER (0-15KV)

LEGEND

SYMBOLS	DESCRIPTION
	VOLT METER SELECTOR SWITCH (4 POSITION)
	AMPERE METER
	AMPERE METER SELECTOR SWITCH (4 POSITION)
	ENERGY METER (KWH / KVARH) WITH MDI, P.F ETC.
	PUSH BUTTONS ON AND OFF ELECTRICAL CIRCUIT BREAKER
	INDICATION LAMP FOR PHASES R-RED, Y-YELLOW, B-BLUE

LEGEND

SYMBOLS	DESCRIPTION
	INDICATION LAMP FOR VCB ON AND OFF
	CIRCUIT BREAKER TRIP INDICATION LAMP T-AMBER
	HEATER 'ON' INDICATION LAMP (BLUE)
	HOOTER
	O/C, S/C, E/F RELAY WITH TEST BLOCK
	PUSH BUTTON ALARM ACKNOWLEDGEMENT

LEGEND


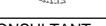

SYMBOLS	DESCRIPTION
	PUSH BUTTON LOCK OUT RESET
	PUSH BUTTON HOOTER MUTE
	ANTI CONDENSATION HEATER WITH THERMOSTATE
	MOTORIZED (VCB) ALSO WITH HAND CHARGING MECHANISM
	PANEL LIGHT WITH LIMIT SWITCH
	PUSH BUTTON LAMP TEST

LEGEND

SYMBOLS	DESCRIPTION
	FAULT INDICATION LAMP (RED)
	KWH METER WITH MDI
	KVARh METER
	CAPACITIVE VOLTAGE DETECTOR
	POWER FACTOR METER
	HOURS COUNTER












LEGEND

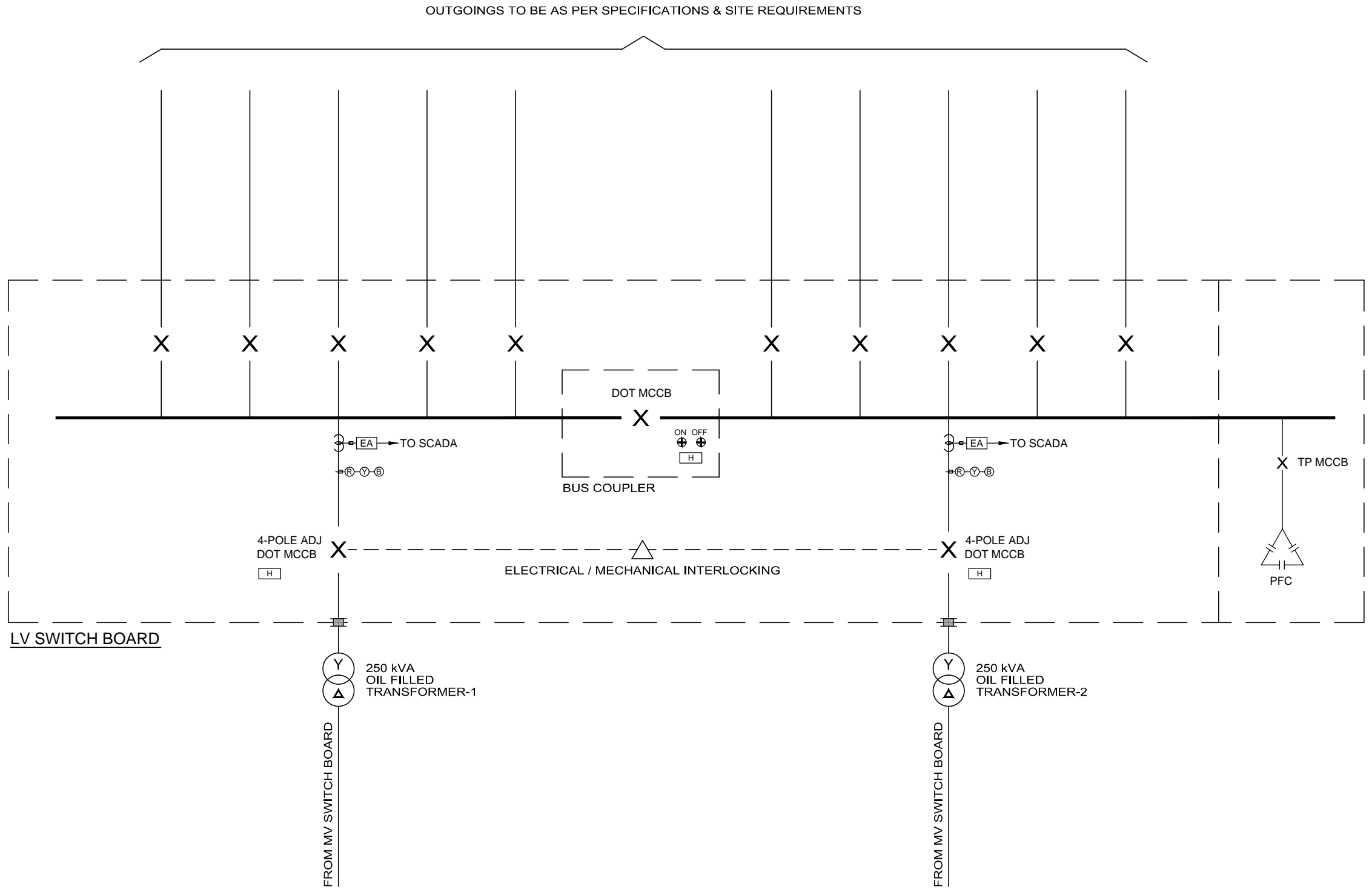
SYMBOLS	DESCRIPTION
	PROVISION FOR MONITORING & REMOTE CONTROL OF PUMPS FROM PLC/SCADA CONTROL
	POWER FACTOR CORRECTION UNIT

						CLIENT:- <div>KARACHI WATER & SEWERAGE BOARD</div>		PROJECT:- ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.						
						CONSULTANT:- <div>EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small></div>		IN ASSOCIATION WITH:- <div>Jers Engineering Consultants</div>		DRAWN	ZA	TITLE		PACKAGE #. 02
0	JAN,18	TENDER DRAWING	Z.A	A.B	J.I.S					DESIGNED	AB	MV SCHEMATIC DIAGRAM		
ED.NO	DATE	DESCRIPTION	BY	CKD	APR					CHECKED	AB			
										APPROVED	JIS	Scale / Sheet	Drawing No.	
												(A1)	EA-942-65M-PII-E-01	

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LEGEND

SYMBOLS	DESCRIPTION
	MOULDED CASE CIRCUIT BREAKER (MCCB)
	ELECTRICAL / MECHANICAL INTERLOCKING
	TRANSFORMER
	CURRENT TRANSFORMER
	FUSES
	PILOT LAMPS (R,Y,B)- INDICATES PHASE REFERENCE
	ENERGY ANALYZER
	ANTI CONDENSATE HEATER WITH THERMOSTAT
	INDICATION LAMPS
	POWER FACTOR CORRECTION UNIT
	NON FERROUS CABLE GLAND PLATE



CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



Jers Engineering Consultants

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN

ZA

TITLE

PACKAGE #. 02

DESIGNED

AB

LV SCHEMATIC DIAGRAM

CHECKED

AB

Scale / Sheet

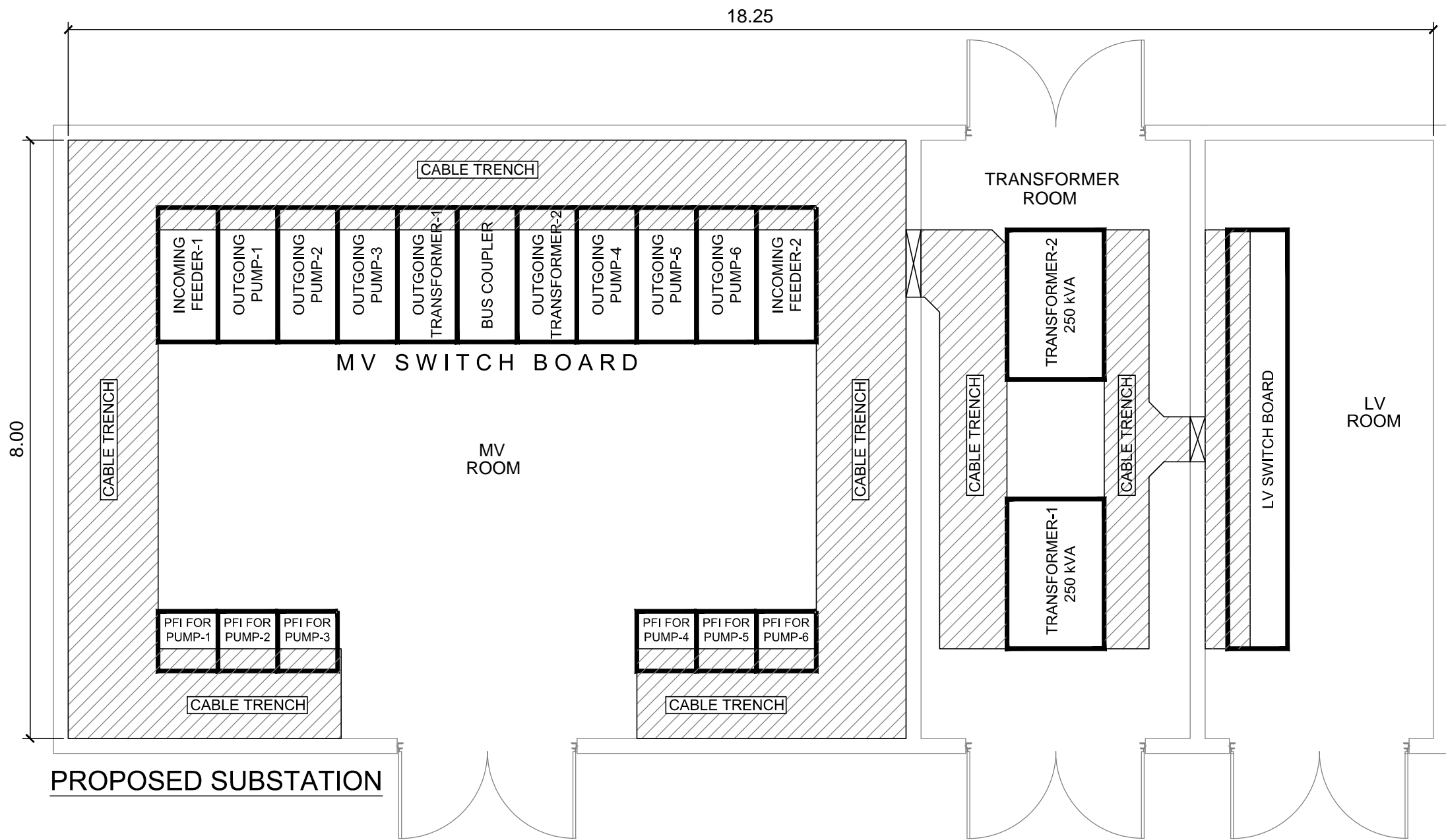
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
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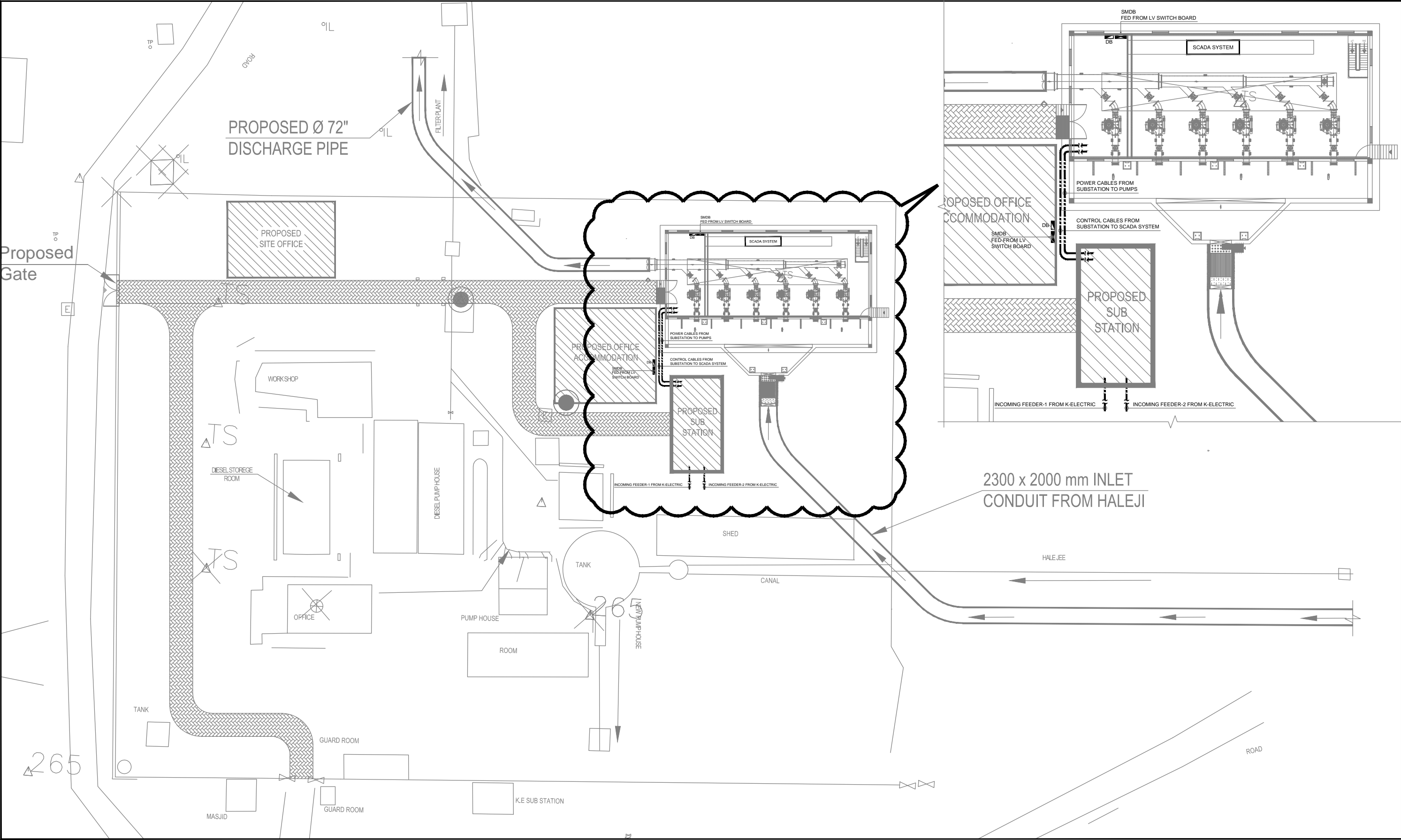
JIS




(A1)

EA-942-65M-PII-E-02



							CLIENT:- <div></div> <div>KARACHI WATER & SEWERAGE BOARD</div>		PROJECT:- <div>ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.</div>						
							CONSULTANT:- <div> EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small></div>		IN ASSOCIATION WITH:- <div> Jers Engineering Consultants</div>		DRAWN	ZA	TITLE		PACKAGE #. 02
											DESIGNED	AB	PROPOSED SUBSTATION LAYOUT PLAN		
											CHECKED	AB	Scale / Sheet		Drawing No.
											APPROVED	JIS	(A1)		EA-942-65M-PII-E-03

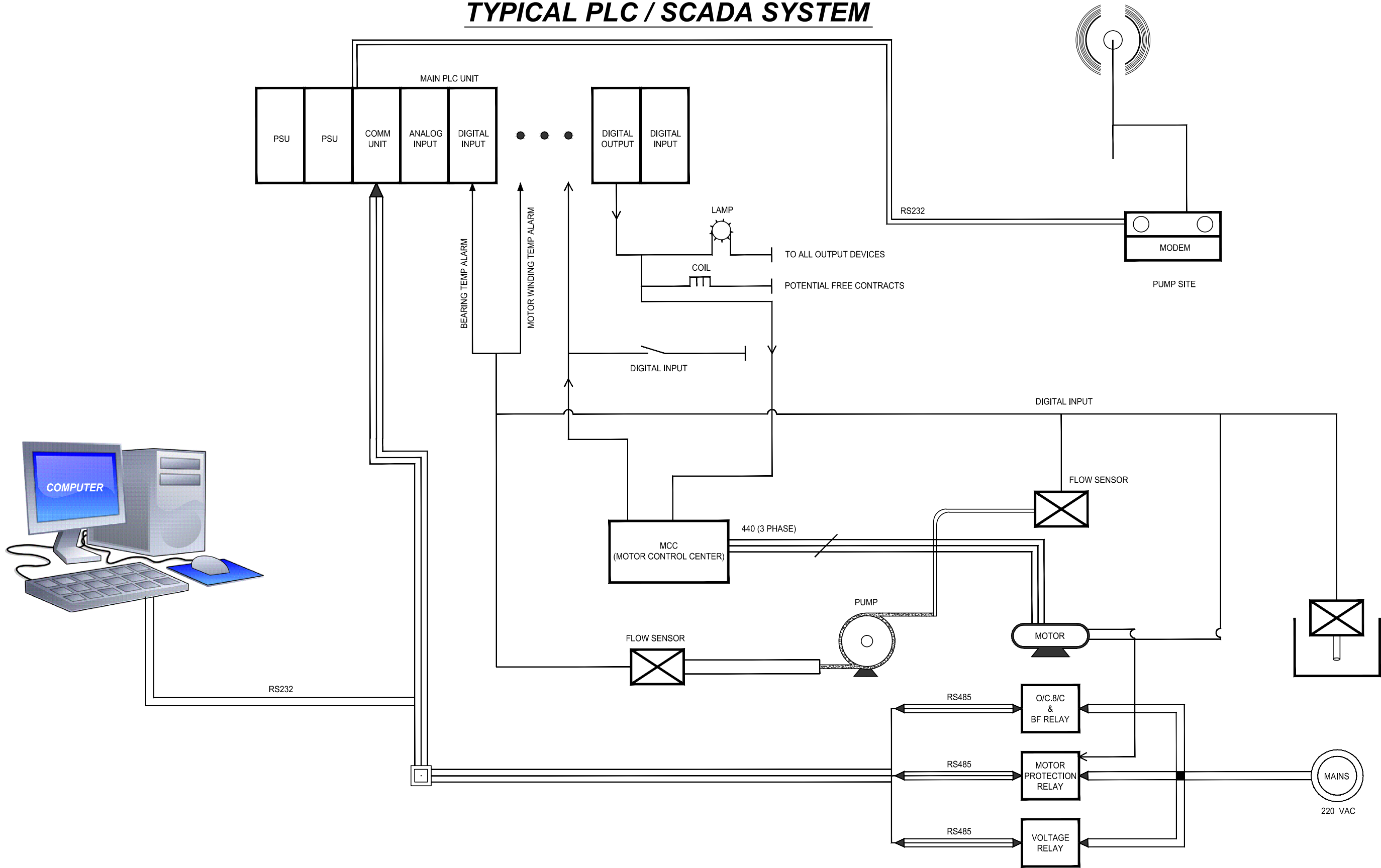


							KARACHI WATER & SEWERAGE BOARD	PROJECT:- ADDITIONAL 65 MGD WATER SUPPLY SCHEME FROM HALEJI TO PIPRI, KARACHI.	PACKAGE #. 02 ELECTRICAL CABLE ROUTES FROM SUBSTATION TO PUMP ROOM			
							EA Consulting (Pvt.) Limited <small>CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS</small>	IN ASSOCIATION WITH:-  Jers Engineering Consultants	DRAWN	ZA	Scale / Sheet (A1) Drawing No. EA-942-65M-PII-E-04	
0	JAN,18	TENDER DRAWING	Z.A	A.B	J.I.S				DESIGNED	AB		
ED.NO	DATE	DESCRIPTION	BY	CKD	APR				CHECKED	AB		
									APPROVED	JIS		

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TYPICAL PLC / SCADA SYSTEM



NOTES :-

LEGEND :-

REFERENCE DISIGNATOR

01 = RS485/D-NET	
02 = ANALOG INPUT	
03 = DIGITAL INPUT	
04 = 220 VAC	

0	JAN,18	TENDER DRAWING	N.A.I	M.Z	A.A	
ED.NO	DATE	DESCRIPTION	BY	CKD	APR	

CLIENT:-



KARACHI WATER
&
SEWERAGE BOARD

CONSULTANT:-



EA Consulting (Pvt.) Limited
CONSULTING ENGINEERS, ARCHITECTS, ECONOMISTS & PLANNING EXPERTS

IN ASSOCIATION WITH:-



Jers Engineering Consultant

PROJECT:-

ADDITIONAL 65 MGD
WATER SUPPLY SCHEME FROM
HALEJI TO PIPRI, KARACHI.

DRAWN	M.NOMAN SIDDIQUI
DESIGNED	NABEEL AHMED IDREES
CHECKED	MUNAWAR ZAMAN
APPROVED	ALI ASGHAR

TITLE	PACKAGE #. 02
PLC / SCADA SYSTEM SINGLE LINE DIAGRAM	
Scale / Sheet	Drawing No.
(A1)	EA-942-65M-PII-U-SLD1