Ref. ITB-2021-PAL-165026 (Re-tender)
Event ID number: PAL10- 11272
Addendum 01 to the ITB

Pre-bid Meeting Minutes - Addendum No.1 to the ITB

Invitation to Bid (ITB) - ITB-2021-PAL- 165026 - Construction of Deep Water Well Site and Above-ground Water Reservoir for Jericho Agro-Industrial Park (JAIP)	
RFP issue Date	29 December 2021
Extended Deadline for submission of offers	As set in the relevant e-tendering event PAL10 – 0000011272

This correspondence pertaining to the above-mentioned project should be considered as an integral part of the tender documents. Below please find the UNDP / PAPP clarifications and an official reply to all inquiries raised by participant bidders following the pre-bid meeting held at JAIP admin building on 4 January 2022, and the site visit to the project site.

No	**Query(s) Raised**	**Reply/Clarification**
1	Extend the submission date by additional two weeks.	Bid submission deadline is extended by an additional 6 calendar days. Please refer to the extended end date and time in the relevant e-tendering event PAL10 – 0000011272.
2	Please supply us the below Annexes listed in Drawing No. JAIP-W-GEN-02 since we didn't find them: a. ANNEX 01: JAIP Well & Booster PS Instruments & Devices List b. ANNEX 02: IOs List of JAIP Well & Booster PS c. ANNEX 03: JAIP Well & Booster Monitor & Control Data Points d. ANNEX 04: JAIP Well & Pump Station - Electrical Design	These annexes are attached to this addendum

Notes:

1- We encourage the successful Bidder (who will be awarded the contract) to enter into a "forward contract/agreement" with his bank to fix the exchange rate in advance and thereby avoid the exchange rate risk during the contract overall duration.

2- Currency of Bid: United States dollar.

3- The provided "list of approved manufacturers" in the Bill of Quantities (BoQ) is hereby renamed to read **"List of suggested manufacturers"** which is provided **for guidance purposes only;** "or equivalent" applies" as well. In this regard, any manufacturer's names, trade names, brand names or catalogue numbers used in the specifications are for the purpose of describing and

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establishing general performance and quality levels. Such references are not intended to be restrictive. Bids are invited on these and comparable brands or products provided the quality of the proposed products meet or exceed the quality of the specifications listed for any item.

4- Regarding the mentioned brands for the pumps in the “List of suggested manufacturers”, “Andritz” brand is also added to the mentioned guidance brands.

5- Regarding the requirement to have for any equipment included in the BoQ a reliable local agent (please see relevant condition under Section 4 of the ITB – page 31/72), we would like to clarify that local agent in this regard shall be based in either Palestine, Jordan, or Israel, with ability to provide spare parts and after-sales services to the Well Site location when and as required in the tender documents.

6- In BoQ item JAIP-W-0001, we hereby replace the wording “in line with UNDP Health and Safety Manual” to read “in line/in full compliance with UNDP Health and Safety Requirements”. Contractors shall complete all the mobilizations requirements before the start of actual implementation on site.

7- Modification of the specifications of the enclosure of the standby generator:

- **BOQ Item JAIP-W-1701: this item description shall be modified as follows**:

Supply, Install, Furnish, Commissioning and Testing 220kVA, 400V, 50Hz Standby Diesel Generator (200KVA, 400V, 50Hz Prime) with weatherproof enclosure (Original canopy) according to Design Drawings and Specifications, **price to include supply and install a hot dip galvanized shed for the generator with the same specifications as per item JAIP-W-0310**

- **Diesel Engine Generator System: The technical specifications of “Original Energy Container” mentioned in Section 8.9 of the Particular Specifications are modified as below:**

Section 8.9: Sound Attenuated Enclosure (Original Canopy) for Standby Generator 220 KVA

- Original made sound attenuated enclosure.
- Robust /Highly Corrosion Resistant Construction.
- Galvanized Steel construction level 2 enclosure meeting EU noise levels
- Enclosure Designed for 50 C° Ambient Capability
- 4 mm factory installed fabricated steel base frame with integral fuel Tank.
- Environmentally friendly, polyester powder baked paint
- Zinc plated or black coated stainless-steel fasteners
- Internally mounted critical exhaust silencing System
- Large cable entry area for installation ease
- Accommodates side mounted breaker and control panel
- Vertically- hinged double doors on both sides.
- Removable Ducts providing maintenance access with enclosure in place

- Lube oil and coolant drains piped to base frame side rail, on exterior
- Lockable access doors which give full access to control panel and breaker
- Fully guarded cooling fan and battery charging alternator
- Externally mounted emergency stop button
- Control panel viewing window
- Sound pressure level does not exceed 69 dba @100 % load at 7 meters distance.

8- Is the Sealed Sleave Section/ Coupling Mentioned for submersible pump required or not? The bidders are referred to point 1 under the "Additional Information for the Construction of Jericho Well Site Project" on Page 72 in the ITB-2021-PAL-165026, in response to this inquiry.

9- Please note that the owner(s) and/or General Managers of the contracting company are not allowed to fill in /serve in any of the listed Key personnel positions, unless a written approval is granted for that purpose by UNDP, following assessment of his experience / qualifications, availability, and current workload the said company has.

10- Regarding the meaning of similar projects in the evaluation criteria (similar in size, value, nature and complexity to the subject project), we would like to clarify regarding "similar in nature and complexity" aspect, this means not only well site construction, but also any closely related water & wastewater construction projects of similar scope and degree of complexity (e.g. Water Pumping Station & Force Main, Wastewater Treatment Plant, Water Reservoir Facility, etc.)

All other terms and conditions of the solicitation documents, except as/if amended herein, shall remain unchanged and shall continue in full force and effect.

Interested bidders shall acknowledge receipt of this addendum by returning/including it, signed, and stamped, with their offers.

DocuSigned by:
Signature: Shehadeh Habash
58FF41FE586E4F3...
Name: Shehadeh Habash
Title: Head of Procurement Unit
UNDP/PAPP
05-Jan-2022

Attachments:

Annexes / Appendixes 1-4 listed in Drawing No. JAIP-W-GEN-02

ANNEXES

ANNEX 01: JAIP Well & Booster PS Instruments & Devices List

ANNEX 02: IOs List of JAIP Well & Booster PS

ANNEX 03: JAIP Well & Booster Monitor & Control Data Points

ANNEX 04: JAIP Well & Pump Station – Electrical Design

Appendix 1: JAIP Well & Booster PS Instruments & Devices List

JAIP Well &Booster Pump Station Instuments , Devices and Signals List

INDEX	TAG NUMBER		DEVICE DESCRIPTIONS	CHARACTERISTICS	SIGNAL	SIZE /Range
	TAG	Loop				
1	**FE**	1110	JAIP Well Pump Discharge Flow Element	Magnetic Flowmeter Tube 200mm, C/W grounding rings and IP66 J Box		N/A
2	**FIT**	1110	JAIP Well Pump Discharge Flow Indicator Transmitter	Flowmeter Transmitter & Indicator, IP 66, Range 0-1500M/Hr	A	0-1500M' /Hr
3	**PE**	1110	JAIP Well Pump Discharge Pressure Element			
4	**PIT**	1110	JAIP Well Pump Discharge Pressure Indicating Transmitter	Pressure Transmitter, Range 0 - 10 Bar	A	0 -10 Bar
5	**FS**	1110	JAIP Well Pump Discharge Flow Switch- Low Low	Flow Pressure Switch Low , Range 0 - 10 Bar	D	N/A
6	**PS**	1110	JAIP Well Pump Discharge Pressure Switch High High	Pressure switch High, Range 0 - 10 Bar	D	N/A
7	**LE**	1110	JAIP Well Pump Level(Suction Pressure) Element	Level Element-Range 0-50 m		
8	**LIT**	1110	JAIP Well Level Indicating Transmitter	Level, Range 0 - 50 m	A	0-100
9	**TE**	1110A	JAIP Well Pump Temperature Element 1	RTD Winding Element - Motor Phase A	RTD	0 - 250°C
10	**TE**	1110B	JAIP Well Pump Temperature Element 2	RTD Winding Element - Motor Phase B	RTD	0 - 250°C
11	**TE**	1110C	JAIP Well Pump Temperature Element 3	RTD Winding Element - Motor Phase C	RTD	0 - 250°C
12	**TI**	1110	JAIP Well Pump Temperature Relay	Temperature Relay &Indicator	RS485	
13	**LSHH**	1011	JAIP Pump Station Reservoir Tank TK-1111 High High Level Switch	Float C/W 20m wire and strain relief connector - Level High-high (6.1m)	D	N/A
14	**LSLL**	1011	JAIP Pump Station Reservoir Tank TK-1111 Low Low Level	Float C/W 20m wire and strain relief connector - Level Low-Low (1.0m)	D	N/A
15	**LALL**	1011	JAIP Pump Station Reservoir Tank TK-1111 Level Relay	SPDT, 4 Pole relay. 24Vdc	D	
16	**LE**	1011	JAIP Pump Station Reservoir Tank TK-1111 Level Sensor			
17	**LIT**	1011	JAIP Pump Station Reservoir Tank TK-1111 Level Indicating Transmitter	Static Pressure Level Transmitter, 0 - 10m WC (0 - 98 kPa)		0 - 100kPa
18	**XS**	1011A	JAIP Pump Station Reservoir Tank TK-1111 Hatch Switch 1	Heavy Duty Limit switch C/W arm & lever, mounted under hatch	D	N/A
19	**XS**	1011B	JAIP Pump Station Reservoir Tank TK-1111 Hatch Switch 2	Heavy Duty Limit switch C/W arm & lever, mounted under hatch	D	N/A
20	**FS**	1210	JAIP BPS Booster Pump No 1 Flow Switch- Low Low	Flow Pressure Switch Low , Range 0 - 10 Bar	D	N/A
21	**PS**	1210	JAIP BPS Booster Pump No 1 Pressure Switch High High	Pressure switch High, Range 0 - 10 Bar	D	N/A
22	**TE**	1210	JAIP BPS Booster Pump No 1 Temperature Element 1	RTD Element - PT100	RTD	0 - 250°C
23	**TI**	1210	JAIP BPS Booster Pump No 1 Temperature Indicator	Temperature Relay &Indicator	RS485	
24	**FS**	1220	JAIP BPS Booster Pump No 2 Flow Switch Low Low	Flow Pressure switch Low, Range 0 - 10 Bar	D	N/A
25	**PS**	1220	JAIP BPS Booster Pump No 2 Pressure Switch High High	Pressure switch High, Range 0 - 10 Bar	D	N/A
26	**TE**	1220	JAIP BPS Booster Pump No 2 Temperature Element 1	RTD Element -PT100	RTD	0 - 250°C

27	**TI**	1220	JAIP BPS Booster Pump No 2 Temperature Indicator	Temperature Relay &Indicator	RS485	
28	**FS**	1230	JAIP BPS Booster Pump No 3 Flow Switch Low Low	Flow Pressure Switch Low, Range 0 - 10 Bar	D	N/A
29	**PS**	1230	JAIP BPS Booster Pump No 3 Pressure Switch High High	Pressure switch High, Range 0 - 10 Bar	D	N/A
30	**TE**	1230	JAIP BPS Booster Pump No 3 Temperature Element 1	RTD Element - PT100	RTD	0 - 250°C
31	**TI**	1230	JAIP BPS Booster Pump No 3 Temperature Indicator	Temperature Relay &Indicator	RS485	
32	**PE**	1125	JAIP BPS Flowmeter Vault Pressure Element			
33	**PIT**	1125	JAIP BPS Flowmeter Vault Pressure Indicating Transmitter	Pressure Transmitter, Range 0 - 10 Bar	A	0 -10 Bar
34	**FE**	1225	JAIP BPS Discharge Flow Indicator	Magnetic Flowmeter Tube 200mm, C/W grounding rings and IP66 J Box		.
35	**FIT**	1225	JAIP BPS Discharge Flow Element	FlowmeterTransmitter & Indicator, IP 66, Range 0-1500M3/Hr	A	0-1500M' /Hr
36	**LCP**	1225	JAIP BPS Flowmeter Vault Display Panel LCP	Nema 12 (IP54) local control panel for for flow indicators		
37	**XS**	1225A	JAIP BPS Flowmeter Vault Hatch Intrusion Switch 1	IP 66 Limit switch with roller & arm mounted at reservoir hatch	D	N/A
38	**XS**	1225B	JAIP BPS Flowmeter Vault Hatch Intrusion Switch 2	IP 66 Limit switch with roller & arm mounted at reservoir hatch	D	N/A
39	**XS**	1225A	Electrical Room Door Intrusion Switch	IP 66 Limit switch with roller & arm mounted at vault hatch	D	N/A
40	**AE**	991	Chlorine & PH Analyzer Sensor			
41	**AIT**	991	Chlorine&Ph Analyzer	Chlorine Analyzer,Measuring range: 0.01-5.00 mg/L Cl2	AI	N/A
42	**TE**	991	Turbidty Sensor			
43	**TIT**	991	Turbidty Transmitter	Turbidty Transmitter,Measuring range: 0-50 NTU	AI	
44	**CE**	991	Conductivity Sensor			
45	**CIT**	991	ConductivityTransmitter	Conductivity Transmitter,Measuring range:0-500 mS/m	AI	
46	**LD**	900	Leakage Detection- Conductive Switch	Conductive Type Point Level Switch	DI	
47	**LE**	901	Ultrasonic Level Element			
48	**LIT**	901	Chlorine Tank No.01 Level Indicator	Ultrasonic Level Transmitter,Range 0-10 m	AI	N/A
49	**LE**	902	Ultrasonic Level Element			
50	**LIT**	902	Chlorine Tank No.02 Level Indicator	Ultrasonic Level Transmitter,Range 0-10 m	AI	N/A
51	**FE**	1310	Transmission Line Flow Element	Magnetic Flowmeter Tube150 mm, C/W grounding rings and IP68 J Box		N/A
52	**FIT**	1310	Transmission Line Flow Indicator Transmitter	GSM Battery Powered Transmitter & Indicator, IP 68	A	
53	**FE**	1320	Transmission Line Flow Element	Magnetic Flowmeter Tube50 mm, C/W grounding rings and IP68 J Box		N/A
54	**FIT**	1320	Transmission Line Flow Indicator Transmitter	GSM Battery Powered Transmitter & Indicator, IP 68	A	

APPENDIX 2: IOs List of JAIP Well & Booster PS

JAIP Well & Booster Pump Station - Inputs\Outputs Signals List

No.	TAG NUMBER		DATA POINTS DESCRIPTION	FUNCTION/TYPE	SIGNAL TYPE	SOURCE	
	Tag	Loop			DI DO AI AO Com	Device	Loop
1	XA	101	Pump Station Fire Alarm	Fire Alarm	DI	FACP	101
2	UL	101	Pump Station FACP Data Set	Fire Alarm Status & Data	RS 485 Comm	FACP	101
3	YA	1100	Pump Station UPS General Alarm	UPS General Alarm	DI	UPS	1100
4	JA	1100	Pump Station Utility Power Fail	No AC Power Alarm	DI	UPS	1100
5	JL	1100	Pump Station UPS on Battery	UPS Low Battery Alarm	DI	UPS	1100
6	XA	1011	Pump Station Reservoir Tank TK-1111 Hatch Alarm	Security Intrusion Alarm	DI	XS	1011
7	TAH	1000	Pump Station Panel High Temp	High Temp. Alarm	DI	LCP	1000
8	XA	1000	Pump Station Panel Intrusion Alarm	Security Intrusion Alarm	DI	LCP	1000
9	FQI	1110	JAIP Well Pump Discharge Flowmeter- Flow Total	Flow Integ/Tot Indication	DI: FWD, DI: REV	FIT	1110
10	FI	1110	JAIP Well Pump Discharge Flowmeter- Flow Rate	Flow Indication	AI	FIT	1110
11	PI	1110	JAIP Well Pump Discharge Pressure	Pressure Indication	AI	PI	1110
12	FALL	1110	JAIP Well Pump Low Low Flow Pressure Alarm	Flow Alarm Low Low	DI	P	1110
13	PAHH	1110	JAIP Well Pump High High Pressure Alarm	Pressure Alarm High High	DI	P	1110
14	LI	1110	JAIP Well Level	Level Indication	AI	SCU	1110
15	TI	1110	JAIP Well Pump Motor Tempreture Data Set	Temp Indication	RS 485 Comm	SCU	1110
16	TAHH	1110	JAIP Well Pump Temperature Alarm	High High Temperature	DI	SCU	1110
17	LAHH	1011	Pump Station Reservoir Tank TK-1111 High High Level Alarm	Level Alarm High High	DI	LSHH	1011
18	LALL	1011	Pump Station Reservoir Tank TK-1111 Low Low Level Alarm	Level Alarm Low Low	DI	LSLL	1011
19	LI	1011	Pump Station Reservoir Tank TK-1111 Level	Level Indication	AI	LI	1011
20	YA	1225A	JAIP BPS Pump Station Tank Lew Lew Level Interlock	Pump interlock - Start	DO	I 1014	1225A
21	LALL	1115	JAIP BPS Pump Station Backup LWCO Low Low Alarm	Level Alarm Low Low	DI	LALL	1115
22	ZL	1210	JAIP BPS Booster Pump No 1 In Remote and VFD Ready	Ready Status	DI	P	1210
23	HS	1210	JAIP BPS Booster Pump No 1 Start/Stop	Start / Stop Control	DO	P	1210
24	SK	1210	JAIP BPS Booster Pump No 1 Speed Control	Speed Control to VFD	AO	P	1210
25	SI	1210	JAIP BPS Booster Pump No 1 Speed	Speed Indication from VFD	AI	P	1210
26	YL	1210	JAIP BPS Booster Pump No 1 VFD Run Status	Run Status confirmation	DI	P	1210
27	YA	1210	JAIP BPS Booster Pump No 1 VFD Fail	Gen. VFD Alarm Status	DI	P	1210
28	PALL	1210	JAIP BPS Booster Pump No 1 Low Low Flow Pressure Alarm	Pressure Alarm Low Low	DI	P	1210
29	PAHH	1210	JAIP BPS Booster Pump No 1 High High Pressure Alarm	Pressure Alarm High High	DI	P	1210
30	TAHH	1210	JAIP BPS Booster Pump No 1 Over Temperature Alarm	Temperature Alarm High High	DI	P	1210
31	UL	1210	JAIP BPS Booster Pump No 1 VFD Data Set	VFD Data & Status	Enet TCP\IP Comm	P	1210
32	TI	1210	JAIP BPS Booster Pump No 1 Temperature Relay Data Set	Temperature Relay Data	RS 485 Comm	P	1210
33	YA	1225B	JAIP BPS Pump Station Tank Low Low Level Interlock	Pump interlock - Start	DO	I 1014	1225B
34	ZL	1220	JAIP BPS Booster Pump No 2 In Remote and VFD Ready	Ready Status	DI	P	1220
35	HS	1220	JAIP BPS Booster Pump No 2 Start/Stop	Start / Stop Control	DO	P	1220
36	SK	1220	JAIP BPS Booster Pump No 2 Speed Control	Speed Control to VFD	AO	P	1220
37	SI	1220	JAIP BPS Booster Pump No 2 Speed	Speed Indication from VFD	AI	P	1220
38	YL	1220	JAIP BPS Booster Pump No 2 VFD Run Status	Run Status confirmation	DI	P	1220
39	YA	1220A	JAIP BPS Booster Pump No 2 VFD Fail	Gen. VFD Alarm Status	DI	P	1220
40	PALL	1220	JAIP BPS Booster Pump No 2 Low Low Pressure Alarm	Pressure Alarm Low Low	DI	P	1220
41	PAHH	1220	JAIP BPS Booster Pump No 2 High High Pressure Alarm	Pressure Alarm High High	DI	P	1220
42	TAHH	1220	JAIP BPS Booster Pump No 2 Over Temperature Alarm	Temperature Alarm High High	DI	P	1220
43	UL	1220	JAIP BPS Booster Pump No 2 VFD Data Set	VFD Data & Status	Enet TCP\IP Comm	P	1220
44	TI	1220	JAIP BPS Booster Pump No 2 Temperature Relay Data Set	Temperature Relay Data	RS 485 Comm	P	1220
45	YA	1225C	JAIP BPS Pump Station Tank Low Low Level Interlock	Pump interlock - Start	DO	I 1014	1225C
46	ZL	1230	JAIP BPS Booster Pump No 3 In Remote and VFD Ready	Ready Status	DI	P	1230
47	HS	1230	JAIP BPS Booster Pump No 3 Start/Stop	Start / Stop Control	DO	P	1230
48	SK	1230	JAIP BPS Booster Pump No 3 Speed Control	Speed Control to VFD	AO	P	1230
49	SI	1230	JAIP BPS Booster Pump No 3 Speed	Speed Indication from VFD	AI	P	1230
50	YL	1230	JAIP BPS Booster Pump No 3 VFD Run Status	Run Status confirmation	DI	P	1230
51	YA	1230A	JAIP BPS Booster Pump No 3 VFD Fail	Gen. VFD Alarm Status	DI	P	1230
52	PALL	1230	JAIP BPS Booster Pump No 3 Low Low Pressure Alarm	Pressure Alarm Low Low	DI	P	1230

53	PAHH	1230	JAIP BPS Booster Pump No 3 High High Pressure Alarm	Pressure Alarm High High	DI	P	1230
54	TAHH	1230	JAIP BPS Booster Pump No 3 Over Temperature Alarm	Temperature Alarm High High	DI	P	1230
55	UL	1230	JAIP BPS Booster Pump No 3 VFD Data Set	VFD Data & Status	Enet TCP\IP Comm	P	1230
56	TI	1230	JAIP BPS Booster Pump No 3 Temperature Relay Data Set	Temperature Relay Data	RS 485 Comm	P	1230
57	PI	1125	JAIP BPS Booster Pump Discharge Pressure	Pressure Indication	AI	PI	1125A
58	XA	1225A	JAIP BPS Flowmeter Vault I Hatch Intrusion Alarm	Security Intrusion Alarm	DI	XA	1225
59	XA	1225B	JAIP BPS Flowmeter Vault I Hatch Intrusion Alarm	Security Intrusion Alarm	DI	XA	1225
60	FQI	1225	JAIP BPS Flowmeter Vault - Flow Total	Flow Integ/Tot Indication	DI: FWD, DI: REV	FIT	1225
61	FI	1225	JAIP BPS Flowmeter Vault - Flow Rate	Flow Indication	AI	FIT	1225
62	XA	1225A	Electrical Room Door Intrusion Alarm	Alarm	DI	XA	1225A
63	XA	1225B	Electrical Room Door Intrusion Switch	Alarm	DI	XA	1225B
64	JA	100	Pump Station ATS Utility Power Fail	Station Utility Power Off	DI	ATS	100
65	JL	100	Pump Station ATS On Generator Power	Station On Stand-by Power	DI	ATS	100
66	UL	100	Pump Station Power Monitor Data	Pwer Data & Status	Enet TCP\IP Comm	ATS	100
67	YA	100A	Pump Station Utility - Main Breaker Status - ON	Station Breaker Status	DI	YA	100
68	YL	101	JAIP GEN-100 Run	Run Status	DI	GEN	100
69	YA	101	JAIP GEN-100 Fail	Fail Alarm	DI	GEN	100
70	LA	101	JAIP GEN-100 Low Fuel Alarm	Low Fuel Alarm	DI	GEN	100
71	XA	101	JAIP GEN-100 Alarm	Alarm	DI	GEN	100
72	LALL	101	JAIP GEN-100 Fuel Tank Level	Level Indication	AI	TK	100
73	AI	991	Chlorine Analyzer Indication	Chlorine Indication	AI	DIS	100
74	TI	991	Turbidiyt Indication	Turbidiyt Indication	AI	DIS	100
75	CI	991	Conductivity Indication	Conductivity Indication	AI	DIS	100
76	LD	900	Leak Detect Switch	Leak Detect Switch	DI	DIS	101
77	LI	901	Chlorine Tank No.01 Level Indication	Level Indication	AI	DIS	100
78	LI	902	Chlorine Tank No.02 Level Indication	Level Indication	AI	DIS	100
79	HS	910	Dosing Pump No.1 Start/Stop	Start / Stop Control	DO	P	910
80	YA	910	Dosing Pump No.1 Fail	Pump Fail	DI	P	910
81	YL	910	Dosing Pump No.1 RUN	Pump Run	DI	P	910
82	ZL	910	Local-Of-Remote Selector	LOR Selector	DI	P	910
83	SK	910	Stroke Rate Setpoint-For PID Function Related to Flow Of Well Pump And Chlorine	Stroke Rate Setpoint 0f Pump	AO	P	910
84	HS	920	Dosing Pump No.2 Start/Stop	Start / Stop Control	DO	P	920
85	YA	920	Dosing Pump No.2 Fail	Pump Fail	DI	P	920
86	YL	920	Dosing Pump No.2RUN	Pump Run	DI	P	920
87	ZL	920	Local-Of-Remote Selector	LOR Selector	DI	P	920
88	SK	920	Stroke Rate Setpoint- For PID Function Related to Flow Of Well Pump and Chlorine	Stroke Rate Setpoint 0f Pump	AO	P	920
89	ZL	900A	Local-Of-Remote Selector\Tank01 Selection	LOR Selector	DI	P	900
90	ZL	900B	Local-Of-Remote Selector\Tank both Selection	LOR Selector	DI	P	900
91	ZL	900C	Local-Of-Remote Selector\Tank02 Selection	LOR Selector	DI	P	900

Notes:

1. For accurate IO take off, verify with PID drawings for Well&pump station.
2. The Contractor shall supply Input and Output Modules, to be installed in PLC enclosure.
3. All inputs and outputs shall be installed, wired, and interfaced properly to the terminal strip.

APPENDIX 3: JAIP Well & Booster Monitor & Control Data Points

HMI Data Points List of JAIP Well&Booster Station

Legends are D:Display,S\R:Set\Reset Point,T:Trend, L:Logged To DataBase,A1\A2 Alarm Priority

Signal/Tag Description(Data Points)	Display and Register Type	Alarm Level	Trend/Logging	Notes
Well Pump				
Well Pump (L-O-R) Remote Selected	D			Status Send to SCADA
Well Pump Run	D			Status Send to SCADA
Well Pump Speed Indication	D		L, T	Value of Speed Send to SCADA
Well Pump Motor Power Set	D		L, T	Values of VFD Set Data Send to SCADA
Well Pump Fault	D	A1	L	Alarm send to SCADA
Well Pump Runtime Hours	D		L	send to SCADA
Well Pump Runtime Hours Reset	S			
Well Pump Remote- Manual or Remote Auto Selection	S			HMI alarm if pump left in "Remote-Manual"
Well Pump Speed Setpoint in Remote-Manual	S, R			SCADA Security Level Never Adjust Set Point s
Well Pump Speed Setpoint Limilts	S, R			SCADA Security Level Never Adjust Limits
Well Pump Comm. Fault	D	A1	L	Alarm send to SCADA
Well Pump Pressure High High	D	A1	L	Alarm send to SCADA
Well Pump Flow Pressure Low Low	D	A1	L	Alarm send to SCADA
Well Pump Temperature High High	D	A1	L	Alarm send to SCADA
Well Pump Start \Stop Commands	D			Start and Stop From SCADA
Well Pump Firing Timers For all Alrms	S, R			SCADA Security Level Never Adjust Timers Value
Well Pump Restart Time delay	S, R			SCADA Security Level Never Adjust Timers Value
Well Pump Temperature Values Indications	D		L	send to SCADA
Well Pump Temperature Setpoints(High Temp)	S, R			SCADA Security Level Never Adjust Setpoints
Pump Sequence Auto-Manual Selection	D			Selection From SCADA
Enable\Disable -Out of Service	D			Enable\Disable From SCADA
JAIP Well Water Level	D		L\T	send to SCADA
JAIP Well High Level Set\Reset point	S\R			SCADA Security Level Never Adjust Setpoints
JAIP Well Level Set\Reset point	S\R			SCADA Security Level Never Adjust Setpoints
JAIP WellLow Low Level Set\Reset point	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Pressure				
Well Pump Discharge Pressure Rate	D		L\T	send to SCADA
Well Pump Discharge Pressure High high Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Pressure Low Low Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Pressure Setpoint Timers	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Pressure High high Alarm	D	A1	L	send to SCADA
Well Pump Discharge Pressure Low Low Alarm	D	A2	L	send to SCADA
Well Pump Discharge Flow Rate				
Well Pump Discharge Flow Rate	D		L\T	send to SCADA
Well Pump Discharge Flow Forward Total	D		L\T	send to SCADA
Well Pump Discharge Flow Reversed Total	D		L\T	send to SCADA
Well Pump Discharge Flow Net Total	D		L\T	send to SCADA

Well Pump Discharge Flow High high Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Flow Low Low Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Flow Setpoint Timers	S\R			SCADA Security Level Never Adjust Setpoints
Well Pump Discharge Flow High high Alarm	D	A2	L	send to SCADA
Well Pump Discharge Flow Low Low Alarm	D	A1	L	send to SCADA
Booster Pump 1				
Booster Pump 1 (L-O-R) Remote Selected	D			Status Send to SCADA
Booster Pump 1 Run	D			Status Send to SCADA
Booster Pump 1 Speed Indication	D		L, T	Value of Speed Send to SCADA
Booster Pump 1 Motor Power Set	D		L, T	Values of VFD Set Data Send to SCADA
Booster Pump 1 Fault	D	A1	L	Alarm send to SCADA
Booster Pump 1 Runtime Hours	D		L	send to SCADA
Booster Pump 1 Runtime Hours Reset	S			
Booster Pump 1 Remote- Manual or Remote Auto Selection	S			HMI alarm if pump left in "Remote-Manual"
Booster Pump 1 Speed Setpoint in Remote-Manual	S, R			SCADA Security Level Never Adjust Set Point s
Booster Pump 1 Speed Setpoint Limilts	S, R			SCADA Security Level Never Adjust Limits
Booster Pump 1 Comm. Fault	D	A1	L	Alarm send to SCADA
Booster Pump 1 Pressure High High	D	A1	L	Alarm send to SCADA
Booster Pump 1 Flow Pressure Low Low	D	A1	L	Alarm send to SCADA
Booster Pump 1 Temperature High High	D	A1	L	Alarm send to SCADA
Booster Pump 1 Vibration High High	D	A1	L	Alarm send to SCADA
Booster Pump 1 Start \Stop Commands	D			Start and Stop From SCADA
Booster Pump 1 Firing Timers For all Alrms	S, R			SCADA Security Level Never Adjust Timers Value
Booster Pump 1 Restart Time delay	S, R			SCADA Security Level Never Adjust Timers Value
Booster Pump 1 Temperature Values Indications	D		L	send to SCADA
Booster Pump 1 Temperature Setpoints(High Temp)	S, R			SCADA Security Level Never Adjust Setpoints
Booster Pump 1 Lead	D			Status send to SCADA
Booster Pump 1 Lag	D			Status send to SCADA
Booster Pump 1 Standby	D			Status send to SCADA
Pump Sequence Auto-Manual Selection	D			Selection From SCADA
Enable\Disable -Out of Service for Pump 1	D			Enable\Disable From SCADA
Booster Pump 2				
Booster Pump 2 (L-O-R) Remote Selected	D			Status Send to SCADA
Booster Pump 2 Run	D			Status Send to SCADA
Booster Pump 2 Speed Indication	D		L, T	Value of Speed Send to SCADA
Booster Pump 2 Motor Power Set	D		L, T	Values of VFD Set Data Send to SCADA
Booster Pump 2 Fault	D	A1	L	Alarm send to SCADA
Booster Pump 2 Runtime Hours	D		L	send to SCADA
Booster Pump 2 Runtime Hours Reset	S			
Booster Pump 2 Remote- Manual or Remote Auto Selection	S			HMI alarm if pump left in "Remote-Manual"
Booster Pump 2 Speed Setpoint in Remote-Manual	S, R			SCADA Security Level Never Adjust Set Point s
Booster Pump 2 Speed Setpoint Limilts	S, R			SCADA Security Level Never Adjust Limits
Booster Pump 2 Comm. Fault	D	A1	L	Alarm send to SCADA
Booster Pump 2 Pressure High High	D	A1	L	Alarm send to SCADA
Booster Pump 2 Flow Pressure Low Low	D	A1	L	Alarm send to SCADA
Booster Pump 2 Temperature High High	D	A1	L	Alarm send to SCADA
Booster Pump 2 Start \Stop Commands	D			Start and Stop From SCADA
Booster Pump 2 Firing Timers For all Alrms	S, R			SCADA Security Level Never Adjust Timers Value
Booster Pump 2 Restart Time delay	S, R			SCADA Security Level Never Adjust Timers Value
Booster Pump 2 Temperature Values Indications	D		L	send to SCADA

Booster Pump 2 Temperature Setpoints(High Temp)	S, R			SCADA Security Level Never Adjust Setpoints
Booster Pump 2 Lead	D			Status send to SCADA
Booster Pump 2 Lag	D			Status send to SCADA
Booster Pump 2 Standby	D			Status send to SCADA
Pump Sequence Auto-Manual Selection	D			Selection From SCADA
Enable\Disable -Out of Service for Pump 2	D			Enable\Disable From SCADA
Booster Pump 3				
Booster Pump 3 (L-O-R) Remote Selected	D			Status Send to SCADA
Booster Pump 3 Run	D			Status Send to SCADA
Booster Pump 3 Speed Indication	D		L, T	Value of Speed Send to SCADA
Booster Pump 3 Motor Power Set	D		L, T	Values of VFD Set Data Send to SCADA
Booster Pump 3 Fault	D	A1	L	Alarm send to SCADA
Booster Pump 3 Runtime Hours	D		L	send to SCADA
Booster Pump 3 Runtime Hours Reset	S			
Booster Pump 3 Remote- Manual or Remote Auto Selection	S			HMI alarm if pump left in "Remote-Manual"
Booster Pump 3 Speed Setpoint in Remote-Manual	S, R			SCADA Security Level Never Adjust Set Point s
Booster Pump 3 Speed Setpoint Limilts	S, R			SCADA Security Level Never Adjust Limits
Booster Pump 3 Comm. Fault	D	A1	L	Alarm send to SCADA
Booster Pump 3 Pressure High High	D	A1	L	Alarm send to SCADA
Booster Pump 3 Flow Pressure Low Low	D	A1	L	Alarm send to SCADA
Booster Pump 3 Temperature High High	D	A1	L	Alarm send to SCADA
Booster Pump 3 Start \Stop Commands	D			Start and Stop From SCADA
Booster Pump 3 Firing Timers For all Alrms	S, R			SCADA Security Level Never Adjust Timers Value
Booster Pump 3 Restart Time delay	S, R			SCADA Security Level Never Adjust Timers Value
Booster Pump 3 Temperature Values Indications	D		L	send to SCADA
Booster Pump 3 Temperature Setpoints(High Temp)	S, R			SCADA Security Level Never Adjust Setpoints
Booster Pump 3 Lead	D			Status send to SCADA
Booster Pump 3 Lag	D			Status send to SCADA
Booster Pump 3 Standby	D			Status send to SCADA
Pump Sequence Auto-Manual Selection	D			Selection From SCADA
Enable\Disable -Out of Service for Pump 3	D			Enable\Disable From SCADA
Booster Pumps Discharge Pressure				
Booster Pumps Discharge Pressure Rate	D		L\T	send to SCADA
Booster Pumps Discharge Pressure High high Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Booster Pumps Discharge Pressure Low Low Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Booster Pumps Discharge Pressure Setpoint Timers	S\R			SCADA Security Level Never Adjust Setpoints
Booster Pumps Discharge Pressure High high Alarm	D	A1	L	send to SCADA
Booster Pumps Discharge Pressure Low Low Alarm	D	A2	L	send to SCADA
Booster Pumps Discharge Flow Rate				
Booster Pumps Discharge Flow Rate	D		L\T	send to SCADA
Booster Pumps Discharge Flow Forward Total	D		L\T	send to SCADA
Booster Pumps Discharge Flow Reversed Total	D		L\T	send to SCADA
Booster Pumps Discharge Flow Net Total	D		L\T	send to SCADA
Booster Pumps Discharge Flow High high Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Booster Pumps Discharge Flow Low Low Setpoint	S\R			SCADA Security Level Never Adjust Setpoints
Booster Pumps Discharge Flow Setpoint Timers	S\R			SCADA Security Level Never Adjust Setpoints
Booster Pumps Discharge Flow High high Alarm	D	A2	L	send to SCADA
Booster Pumps Discharge Flow Low Low Alarm	D	A1	L	send to SCADA
Booster Pumps Discharge Flow Chamber-Flood Alarm	D	A1	L	send to SCADA
Booster Pumps Water Tank				

JAIP Reservoir (TK-1111) Water Level	D		L\T	send to SCADA
JAIP Reservoir (TK-1111) High High Level Set\Reset point	S\R			SCADA Security Level Never Adjust Setpoints
JAIP Reservoir (TK-1111) Low Level Set\Reset point	S\R			SCADA Security Level Never Adjust Setpoints
JAIP Reservoir (TK-1111) Low Low Level Set\Reset point	S\R			SCADA Security Level Never Adjust Setpoints
JAIP Reservoir (TK-1111) Low Low Level Alarm	D	A1	L	Alarm send to SCADA
JAIP Reservoir (TK-1111) High High Level Alarm	D	A2	L	Alarm send to SCADA
JAIP Reservoir (TK-1111) High High Level Float	D	A1	L	Alarm send to SCADA
JAIP Reservoir (TK-1111) Low Low Level Float	D	A1	L	Alarm send to SCADA
JAIP Reservoir (TK-1111) Door Hatch Alarm	D	A2	L	Alarm send to SCADA
General Signal(BPS1&BPS2)				
Fire alarm Panel in "Alarm" mode	D	A2	L	Alarm send to SCADA
UPS general alarm	D	A2	L	Alarm send to SCADA
UPS battery charge level	D		L	Alarm send to SCADA
Automatic Transfer Switch Generator or Mains	D	A1	L	Alarm send to SCADA
Stand-By Generator Run Status	D	A1	L	Status send to SCADA
Stand-By Generator Fail (YA- 100A) Major Alarm	D	A2	L	Alarm send to SCADA
Stand-By Generator Minor alarm (XA-100A)	D	A1	L	Alarm send to SCADA
Stand-By Generator Low fuel alarm (LAL-100B)	D	A1	L	Alarm send to SCADA
Stand-By Generator Fuel Tank Low-Low level (LALL-101A)	D	A1	L	Alarm send to SCADA
Power Moniter Data Set-Smart Meter	D		L	send to SCADA
Stand-By Generator Fuel Tank Low level (LAL-101B)	D		L,T	send to SCADA
Chlorine System				
Chlorine Analyzer Rate	D		L	Alarm send to SCADA
Chlorine Level-Tank01	D		L	Alarm send to SCADA
Chlorine Level-Tank02	D		L	Alarm send to SCADA
Dosing Pump 01 Run Command	D		L	Alarm send to SCADA
Dosing Pump 01 LOR	D		L	Status send to SCADA
Dosing Pump 01 Fail	D		L	Alarm send to SCADA
Dosing Pump 02 Run Command	D		L	Alarm send to SCADA
Dosing Pump 02 LOR	D		L	Status send to SCADA
Dosing Pump 02 Fail	D		L	Alarm send to SCADA

APPENDIX 4: JAIP Well & Pump Station – Electrical Design

JAIP Well & Booster Pump Station - Electrical Design Calculations

Equipment	Electrical Load Details*(for KWh Consumption)								Electrical Design Details**(for Power Design)										Circuit Breaker for Loads				
	Phase	Volt	P.F	P2(Kw)	P1(Kw)	Pe(Kw)	Pe(KVA)	Pe(KVAR)	Selected Motor P2(Kw)	Selected Motor P1(Kw)	Selected Motor Pe(Kw)	Selected Motor Pe(KVA)	Selected Motor Pe(KVAR)	Status Of Load	Motor Amps	Branch Amps	NEC Amps	VFD Size(Kw)	C.B Type	Max-Size	C.B Size(Amp)	Pole	Class
P-1110	3Ph	400	0.82	54.4	64.762	67.46	82.2687	47.087591	**75**	89.285714	**93.00595238**	113.4218931	64.9185541	On Duty	157.2	163.72	**204.64**	110	MCCB	327.4304075	**300**	3	C
P-1210	3Ph	400	0.86	10.2	10.625	11.068	12.8694	6.5671925	**15**	15.625	**16.27604167**	18.92562984	9.657635979	On Duty	26.22	27.318	**34.147**	18	MCCB	68.2939876	**63**	3	C
P-1220	3Ph	400	0.86	10.2	10.625	11.068	12.8694	6.5671925	**15**	15.625	**16.27604167**	18.92562984	9.657635979	On Duty	26.22	27.318	**34.147**	18	MCCB	68.2939876	**63**	3	C
P-1230	3Ph	400	0.86	10.2	10.625	11.068	12.8694	6.5671925	**15**	15.625	**16.27604167**	18.92562984	9.657635979	Standby	26.22	27.318	**34.147**	18	MCCB	68.2939876	**63**	3	C
*G.C	3Ph	400	0.86	25	25	25	29.0698	14.834129	**25**	25	**25**	29.06976744	14.83412886	Services	41.96	41.96	**41.96**		MCCB	41.95982598	**63**	3	C

Size of Main Circuit Breaker,ATS&BusBar		
Continious Total Load	260.3102	Amps
Total Load As Per NEC	317.57847	Amps
Min.Size of Main C.B	314.89782	Amps
Max.Size of Main C.B	489	Amps
Main C.B Size -Selection	**400**	Amps
Main Bus Bar Size	**400**	Amps
ATS Size	**400**	Amps
Z Impedance %	4	%
S.C Current	7.939462	KA

Size of Transformer and Diesel Generator			
Continious Total Load	260.3102198		Amps
Total Load As Per NEC	312.3722638		Amps
Real Power	186.1138937		Kw
Apparent Power	216.1616065		KVA
Transformer Size		**225**	KVA
Generator Size		**225**	KVA
Generator PF		0.8	Amps
Generator Kwe		180	Kw
Meduim Voltage			
M.V Voltage\Current	11.6 Kv	10.7590192	Amps

	Energy Consumption @ 100%							
	Total Instaled	Duty	Standby	Power Per Unit	Operating Factor	Total Power	Daily Energy Consumption	Annual Energy Consumption
	No.	No.	No.	Kw	Percent	Kw	KWh\Daily	KWh\Annual
Booster PS	2	2	1	11.06771	1	22.135417	531.25	193906.25
Well Pump	1	1	0	64.7619	1	64.761905	1554.28571	567314.286
Services	1	1	0	25	0.85	21.25	510	186150
	Total Energy Consumption Phase1-2020						**2595.53571**	**947370.536**

*Operating Hour\Annual 8760 Hrs

*Operating Hour\Daily 24 Hrs

*Operating Factor takes into account Reduced Power

Notes:

1. Power Components of Pump Station Designed based to (2+1) Pumps Arrangment .
2. Main and Branch MCCBs Rating as Per NEC Section.210.
3. Main and Branch Conductors Size as Per NEC 430.6 and 430.22.
4. Electrical Load Details* Calculations are based to Actual Hydraulic for Pump Based to Mechanical Design , used only for KWH Energy Consumption Calculation.
5. Electrical Design Details** Calculations are based to Selected Motor Size from Mechanical Design.
6. P1 is Input Power to Motor.
7. P2 is Output Power of Motor(Hydraulic Power need For Pump),Motor Efficiency Included.
8. Pe(Kw) is Total Real Power To Pump System at VFD Input(Branch Power),Motor and VFD Efficiency Included.
9. Pe(KVA) is Total Apperant Power To Pump System at VFD Input.
10. Pe(KVAR) is Total Reactive Power To Pump System at VFD Input.
11. Motor Efficiency is 96% (IE3)Regarding IEC 60034-30-1\IEC 60034-2-1-Premium Efficiency.
12. VFD Efficiency is 96.6%,Efficiency Class IE4.
13. Motor Power Factor is .86 (IE3)Regarding IEC 60034-30-1\IEC 60034-2-1.
14. Submersible Motor Efficiency is 82% With PF 0.83.

*G.C:General Consumers-Services and Lighting	Power-Kw
Outdoor Lighting	5
AC Condtions Guard and Electrical Rooms	8
Building Plug Socket and Indoor Lighting	5
Outdoor Sockets	5
ICA System	2
Total	25

*Services and Lighting Power is Estimated.