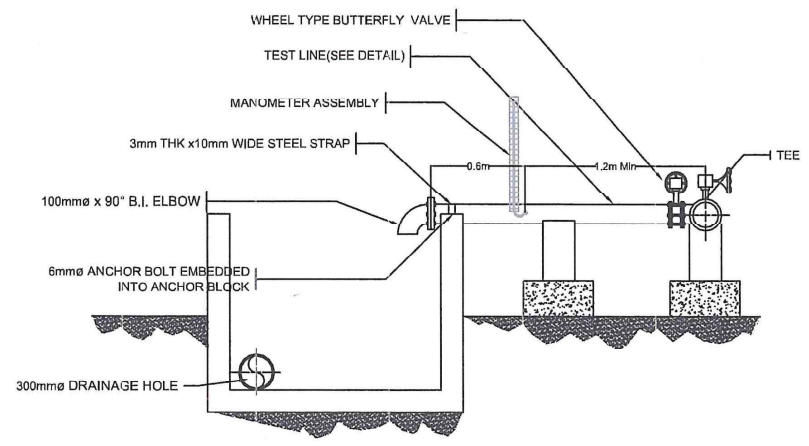
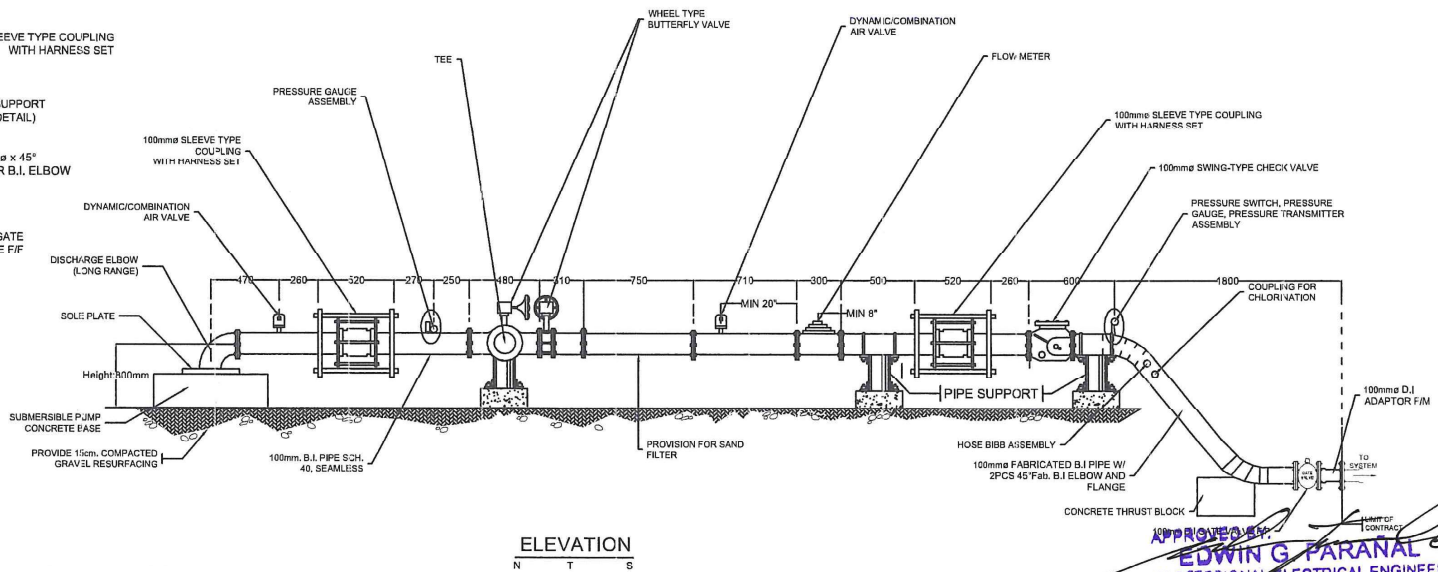


LAYOUT PLAN
N T S



SECTION A-A
N T S



ELEVATION
N T S

APPROVED BY:
EDWIN G. PARANAL
PROFESSIONAL ELECTRICAL ENGINEER
TIN: 140-711-118
PTR: 985-7491 PRC NO.: 2809
DATE: 01/02/24 PLACE: NAGA C.

Republic of the Philippines
METROPOLITAN NAGA
WATER DISTRICT
40 J. Miranda Avenue, Naga City

PREPARED BY:
[Signature]
SHARMAINE E. BRACIA
OIC - Division Mgr., PDCC

CHECKED BY:
[Signature]
SON JUN O. MILLARES
OIC - Department Mgr., EED

RECOMMENDING APPROVAL:
[Signature]
ROQUE S. FRANCISCO
AGM, O&TS

APPROVED BY:
[Signature]
FLORENCIO T. MONGOSO JR.
General Manager A

PROJECT TITLE/LOCATION:
PROPOSED ALMEDA II PUMPING STATION,
ELECTRO-MECHANICAL EQUIPMENT, DISCHARGE LINE AND
ELECTRICAL EQUIPMENT
Barangay Concepcion Pequeña, Naga City

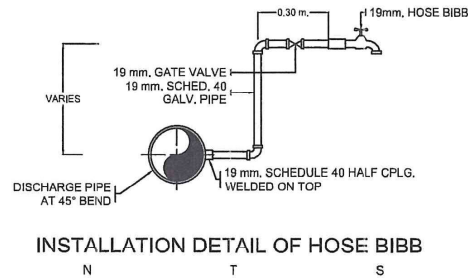
SHEET CONTENTS:
Discharge line Layout Design

SHEET NO.:
1
6
Date: 10-2324

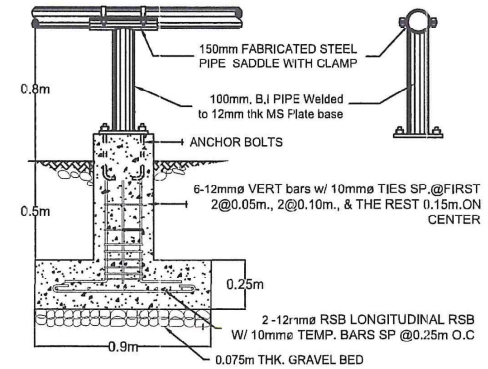
EEDFB, REV. 00, APRIL, 2019

SCHEDULE OF ORIFICE PLATE

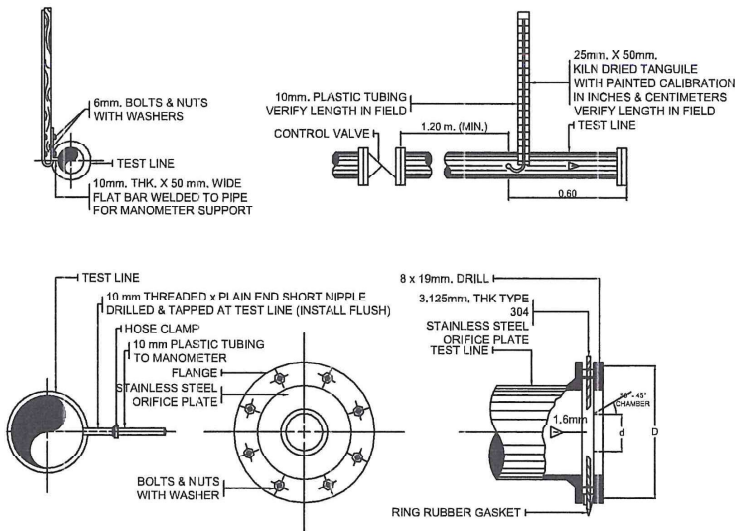
SIZE OF TEST LINE	ORIFICE PLATE BORE, d	PLATE DIAMETER, D
100 mm.	75 mm.	180 mm.
150 mm.	75 mm., 100 mm., 125 mm.	250 mm.
200 mm.	100 mm., 125 mm., 150 mm.	300 mm.
250 mm.	150 mm., 175 mm., 200 mm.	350 mm.



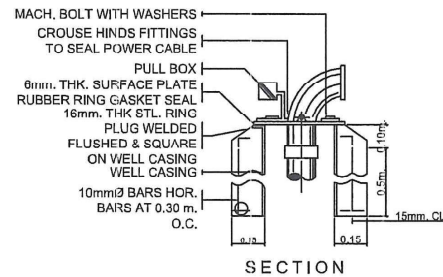
INSTALLATION DETAIL OF HOSE BIBB



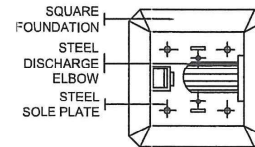
PIPE AND TEE SUPPORT DETAIL



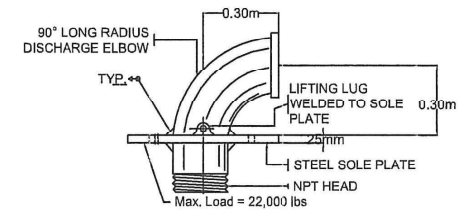
PUMP TEST LINE, ORIFICE AND MANOMETER DETAIL



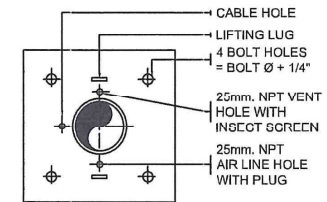
SECTION



PLAN



SECTION



PLAN

SUBMERSIBLE PUMP BASE DETAIL

APPROVED BY:
EDWIN S. PARANAL
 PROFESSIONAL ELECTRICAL ENGINEER
 TIN: 148-77-118
 PTR: 455 7981 PRC NO.: 2809
 DATE: 01/02/21 PLACE: NAGA CITY



Republic of the Philippines
 METROPOLITAN NAGA
 WATER DISTRICT
 40 J. Miranda Avenue, Naga City

PREPARED BY:
 SHARMAINE E. BRACIA
 OIC - Division Mgr., PDCD

CHECKED BY:
 SOYUN O. MILLARES
 OIC - Department Mgr., EED

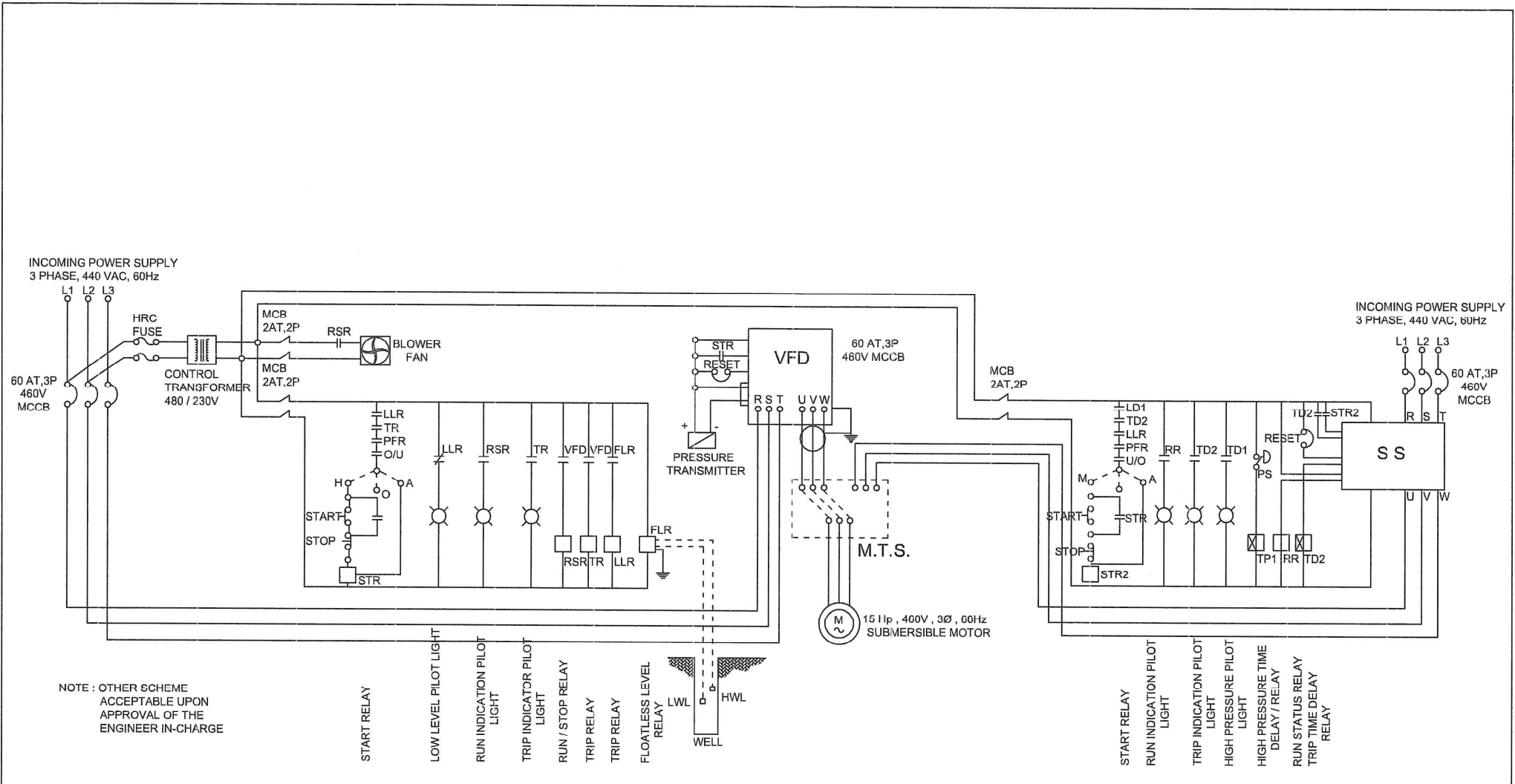
RECOMMENDING APPROVAL:
 ROQUE S. FRANCISCO
 AGM, O&TS

APPROVED:
 FLORENCIO T. MONGOSO JR.
 General Manager A

PROJECT TITLE/LOCATION:
 PROPOSED ALMEDA II PUMPING STATION,
 ELECTRO-MECHANICAL EQUIPMENT, DISCHARGE LINE AND
 ELECTRICAL EQUIPMENT
 Barangay Concepcion Pequeña, Naga City

SHEET CONTENTS:
 Standard Mechanical Plan






SHEET NO.:
 2
 6
 Date: 10-2324

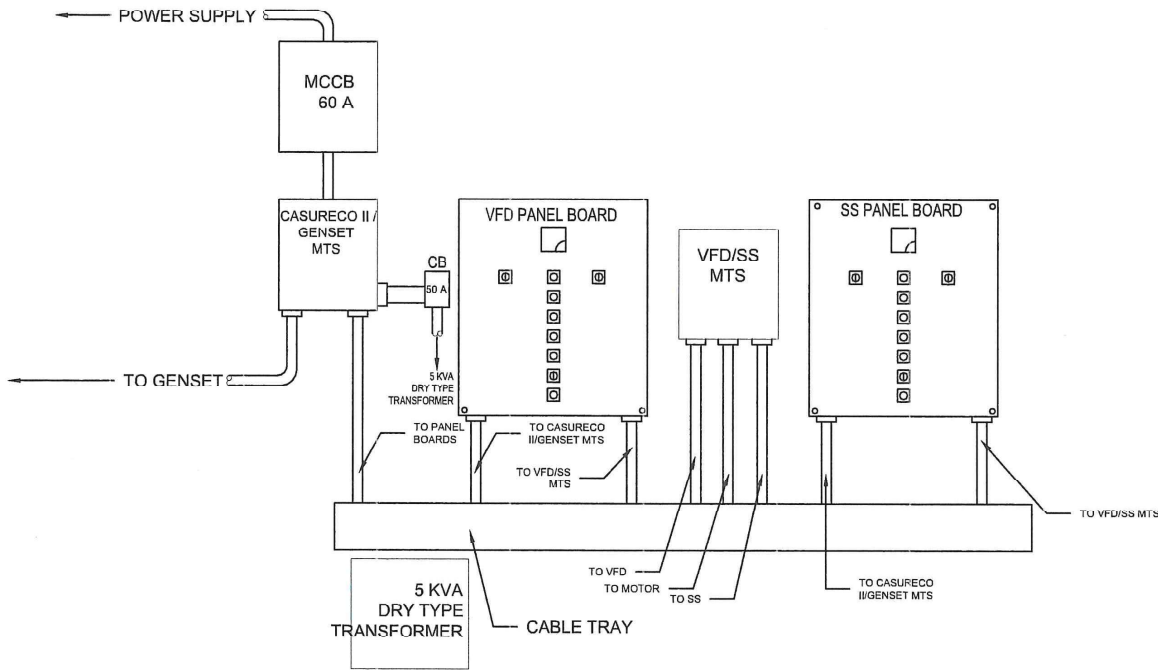


NOTE : OTHER SCHEME ACCEPTABLE UPON APPROVAL OF THE ENGINEER IN-CHARGE

VFD AND SOFTSTARTER CONTROL SCHEMATIC DIAGRAM

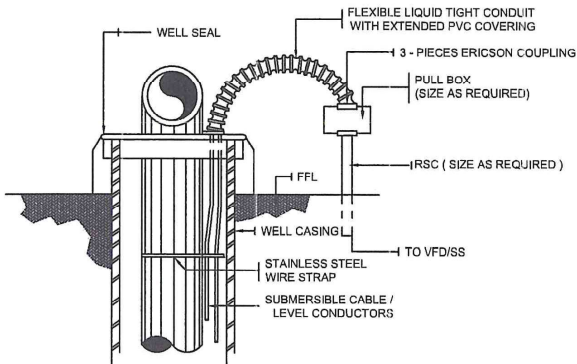
APPROVED BY:
EDWIN C. PARANAL
 PROFESSIONAL ELECTRICAL ENGINEER
 TIN: 148-711-119
 PTR: 485 7461 PRC NO.: 2800
 DATE: 01/02/19 PLACE: NAGA C.

 Republic of the Philippines METROPOLITAN NAGA WATER DISTRICT 40 J. Miranda Avenue, Naga City	PREPARED BY:  SHARMAINE E. BRACIA OIC - Division Mgr., PDCO	CHECKED BY:  SONJUN O. MILLARES OIC - Department Mgr., EED	RECOMMENDING APPROVAL:  ROQUE S. FRANCISCO AGM, O&TS	APPROVED:  FLORENCIO T. MONGOSO JR. General Manager A	PROJECT TITLE/LOCATION: PROPOSED ALMEDA II PUMPING STATION, ELECTRO-MECHANICAL EQUIPMENT, DISCHARGE LINE AND ELECTRICAL EQUIPMENT Barangay Concepcion Pequeña, Naga City	SHEET CONTENTS : VFD AND SS DIAGRAM _____ _____ _____ CAD BY: JL PEÑAS	SHEET NO.: 3 / 6 Date: 10-2224
	EED/F19, REV. 00, APRIL, 2019						



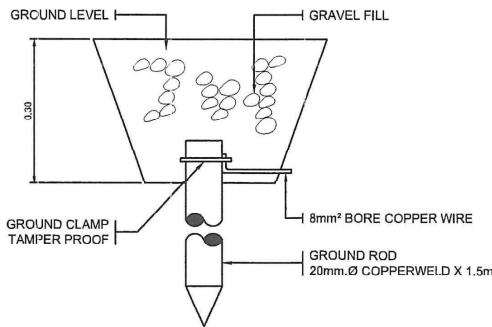
FRONT PANEL LAYOUT

N T S



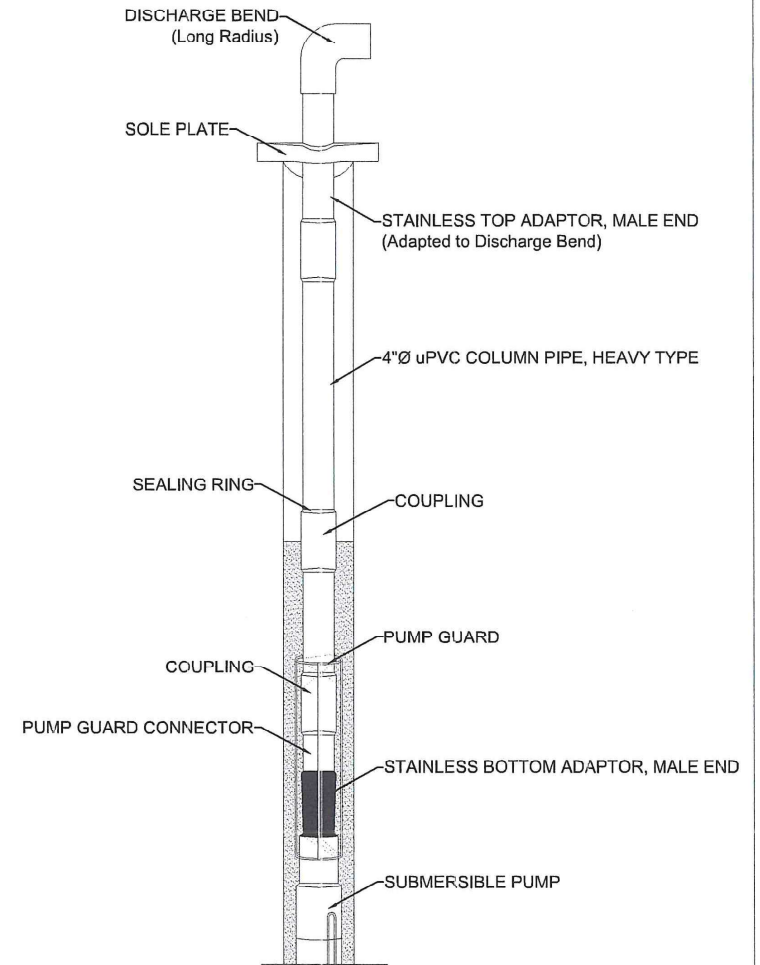
MOTOR CABLE & LEVEL CONDUCTOR MOUNTING / PULL BOX DETAIL

N T S



GROUNDING ROD DETAIL

N T S



RISER PIPE DETAIL

N T S

APPROVED BY: **EDWIN G. PARANAL**
 PROFESSIONAL ELECTRICAL ENGINEER
 TIN: 144-711-116
 PTR: 485 7401 PRC NO.: 2809
 DATE: 01/02/24 PLACE: NAGA CITY

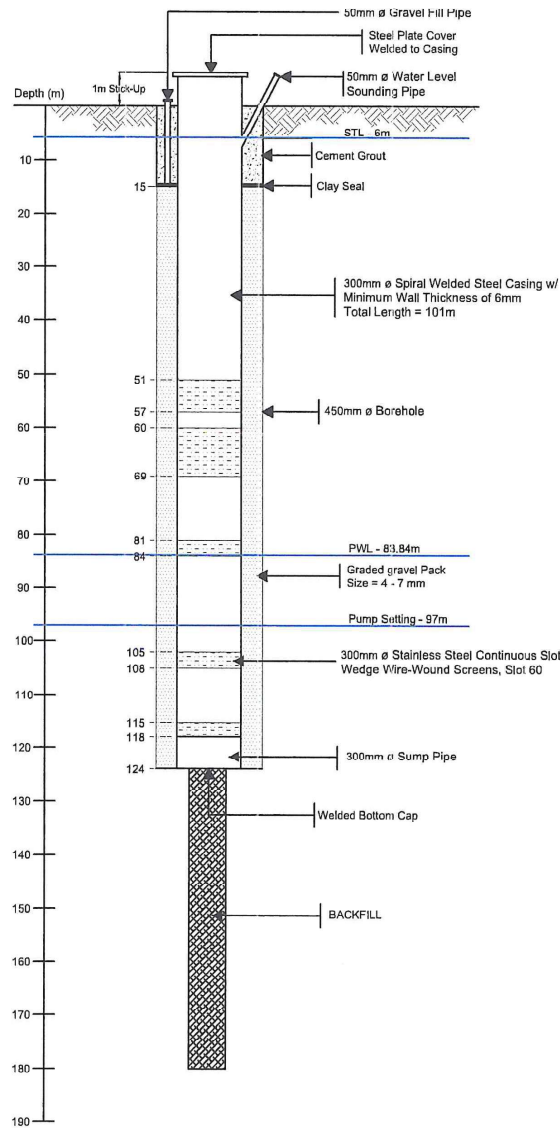


Republic of the Philippines
METROPOLITAN NAGA WATER DISTRICT
 40 J. Miranda Avenue, Naga City

PREPARED BY: <i>[Signature]</i> SHARMAINE E. BRACIA OIC - Division Mgr., PDCD	CHECKED BY: <i>[Signature]</i> SONJUN O. MILLARES OIC - Department Mgr., EED	RECOMMENDING APPROVAL: <i>[Signature]</i> ROQUE S. FRANCISCO AGM, O&TS	APPROVED: <i>[Signature]</i> FLORENCIO T. MONGOSO JR. General Manager A
--	---	---	--

PROJECT TITLE/LOCATION: PROPOSED ALMEDA II PUMPING STATION, ELECTRO-MECHANICAL EQUIPMENT, DISCHARGE LINE AND ELECTRICAL EQUIPMENT Barangay Concepcion Pequeña, Naga City
--

SHEET CONTENTS:	SHEET NO.:
Front Panel Layout	4
Grounding Rod Detail	5
Motor Cable and Level Conductor	6
Riser Pipe Detail	
CAD BY: JL PENAS	Date: 10-2024



WELL DESIGN
ALMEDA II PRODUCTION WELL
CONCEPCION PEQUEÑEZ, NAGA CITY

SCHEDULE OF LOADS

CIRCUIT NO.	LOAD DESCRIPTION	NO. OF			SWITCHES			VOLT	VA	AMP			CIRCUIT BREAKER RATINGS	SIZE OF WIRE	SIZE OF CONDUIT
		L.O.	C.O.	SPD	S1	S2	S3			AB	BC	CA			
1	LIGHTING LOADS (PERIMETER LIGHTS)	4					230	400	1.74			15AT, 2P, 53AF (AFCI)	2C - 2.0 mm ² THHN COPPER WIRE 1C - 2.0 mm ² THHN COPPER WIRE	20 mm Ø uPVC PIPE	
2	LIGHTING LOADS + E. LIGHT	9			3		230	900	3.91			15AT, 2P, 53AF (AFCI)	2C - 2.0 mm ² THHN COPPER WIRE 1C - 2.0 mm ² THHN COPPER WIRE	20 mm Ø uPVC PIPE	
3	CONVENIENCE OUTLET		4				230	720	3.13			20AT, 2P, 50AF (GFCI)	2C - 2.0 mm ² THHN COPPER WIRE 1C - 2.0 mm ² THHN COPPER WIRE	20 mm Ø uPVC PIPE	
4	SPARE			1			230	1,000	4.35			20AT, 2P, 50AF (GFCI)	2C - 3.5 mm ² THHN COPPER WIRE 1C - 3.5 mm ² THHN COPPER WIRE	20 mm Ø uPVC PIPE	
TOTAL		13	4	1	3		230	3,020	13.13			50AT, 2P, 53AF	2C - 8.0 mm ² THHN COPPER WIRE 1C - 8.0 mm ² THHN COPPER WIRE	25 mm Ø uPVC PIPE	

A. COMPUTATION :

$$I = \frac{3020}{230}$$

$$I = 13.13 \text{ AMPS}$$

B. FOR DRY TYPE TRANSFORMER

For Transformer KVA Rating

$$\text{KVA Rating} = 13.13 \times 230$$

$$\text{KVA Rating} = 3020$$

Use: 5 KVA, 460/230V, 1Ø, 60Hz, Two Winding Dry Type Transformer

C. For 15HP, 460V, 3Ø, 60Hz, Submersible Motor Auto Transformer Starter at 65% AMP

$$I_{\text{MOTOR}} = 21$$

MOTOR FEEDER AT 125% FULL LOAD AMPERES

$$I_{\text{MOTOR}} = 1.25 (21)$$

$$I_{\text{MOTOR}} = 26.25 \text{ amp}$$

Use: 3C- 8.0mm² THHN Cu Wire + 1C- 8.0mm² THHN Cu Wire in 25mmØ uPVC Pipe

For Sub Feeder Conductor

Use: 2C- 8.0mm² THHN Cu Wire + 1C- 8.0mm² THHN Cu Wire in 25mmØ uPVC Pipe

For Sub Feeder Protection

Use: 50 AT/50 AF, 2P, 230V, 60Hz, CIRCUIT BREAKER

CIRCUIT NO.	LOAD DESCRIPTION	NO. OF			SWITCHES			VOLT	VA	AMP			CIRCUIT BREAKER RATINGS	SIZE OF WIRE	SIZE OF CONDUIT
		L.O.	C.O.	SPD	S1	S2	S3			AB	BC	CA			
1	PB				3		2	460	3,020	6.565			50AT, 2P, 50AF (AFCI)	2C - 8.0 mm ² THHN COPPER WIRE 1C - 8.0 mm ² THHN COPPER WIRE	25 mm Ø uPVC PIPE
2	15HP Motor			1				460	16731.61			21	60AT, 3P, 60AF (GFCI)	3C - 8.0 mm ² THHN COPPER WIRE 1C - 8.0 mm ² THHN COPPER WIRE	25 mm Ø uPVC PIPE
TOTAL		13	4	1	3		2	460	19751.61	6.565			60A, 3P, 60AF	3C - 8.0 mm ² THHN COPPER WIRE 1C - 8.0 mm ² THHN COPPER WIRE	25 mm Ø uPVC PIPE

D. FOR MAIN FEEDER CONDUCTOR

$$I_{FL} = \frac{19751.61 + 25\%(16731.61)}{460 \times \sqrt{3}}$$

$$I_{FL} = 30.04 \text{ amp}$$

Use: 3C- 8.0mm² THHN Cu Wire + 1C- 8.0mm² THHN Cu Wire in 25mmØ uPVC Pipe

FOR MAIN FEEDER PROTECTION

$$I = \frac{3020 + 250\%(16731.61)}{460 \times \sqrt{3}}$$

$$I = 56.29 \text{ amp}$$

Use: 60 AT, 3P, 460V, 60Hz, CIRCUIT BREAKER

FOR SERVICE DISCONNECTION

Use: 60 AT, 3P, 460V, 60Hz, CIRCUIT BREAKER

E. FOR TRANSFORMER KVA RATING

$$\text{KVA RATING} = \frac{30.04 \times 460 \times \sqrt{3}}{1000 \times 3}$$

$$\text{KVA RATING} = 7.978$$

Use: 3-10KVA DISTRIBUTION TRANSFORMER

F. FOR FUSE LINK RATING

$$I = \frac{10}{7.62}$$

$$I = 1.31 \text{ amp}$$

Use: 3 amp Fuse Link

G. FOR GENERATOR SET KVA RATING

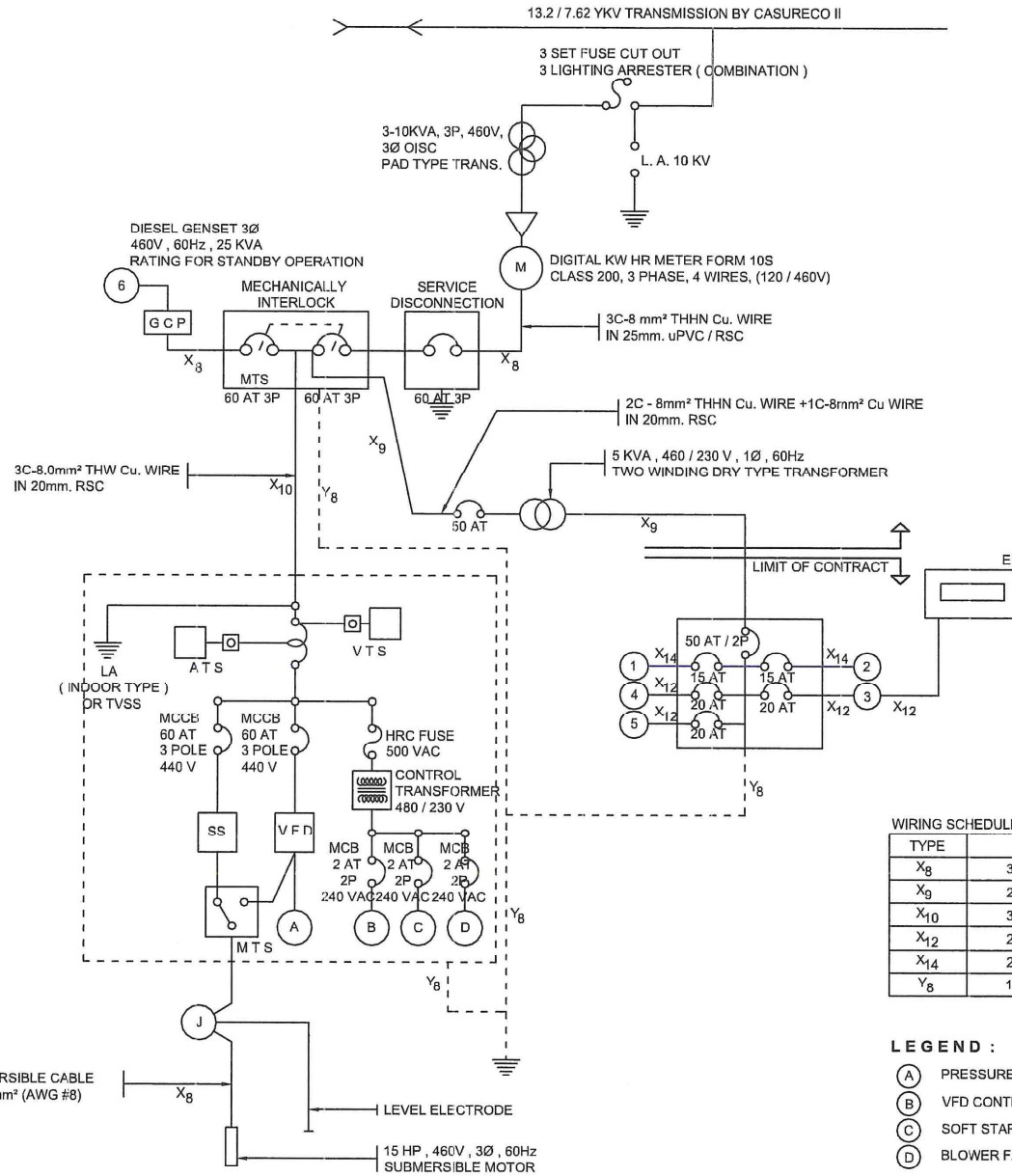
$$\text{KVA RATING} = \frac{20.04 \times 460 \times \sqrt{3}}{1000}$$

APPROVED BY: *[Signature]*
EDWIN C. PARANAL
PROFESSIONAL ELECTRICAL ENGINEER
TIN: 1489745416, 3Ø, 460V Generator
PTR: 485 7431 PRC NO.: 2909
DATE: 01/02/24 PLACE: NAGA CITY

WELL DESIGN

COMPUTATIONS OF LOAD

<p>Republic of the Philippines METROPOLITAN NAGA WATER DISTRICT 40 J. Miranda Avenue, Naga City</p>	PREPARED BY: <i>[Signature]</i> SHARMAJINE E. BRACIA OIC - Division Mgr., PDCO	CHECKED BY: <i>[Signature]</i> SONJUN O. MILLARES OIC - Department Mgr., EED	RECOMMENDING APPROVAL: <i>[Signature]</i> ROQUE S. FRANCISCO AGM, O&TS	APPROVED BY: <i>[Signature]</i> FLORENCIO T. MONGOSO JR. General Manager A	PROJECT TITLE/LOCATION: PROPOSED ALMEDA II PUMPING STATION, ELECTRO-MECHANICAL EQUIPMENT, DISCHARGE LINE AND ELECTRICAL EQUIPMENT Barangay Concepcion Pequeñez, Naga City	SHEET CONTENTS : AS SHOWN	SHEET NO.: 5 / 6
	CAD BY: JL PEÑAS Date: 10-27-24						






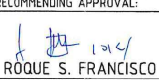
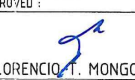
WIRING SCHEDULE

TYPE	WIRE SIZE	CONDUIT SIZE
X ₈	3 - 8.0 mm ² THHN	25 mm Ø RSC
X ₉	2 - 8.0 mm ² THHN	20 mm Ø RSC
X ₁₀	3 - 8.0 mm ² THW	25 mm Ø RSC
X ₁₂	2 - 3.5 mm ² THHN	20 mm Ø RSC
X ₁₄	2 - 2.0 mm ² THHN	20 mm Ø RSC
Y ₈	1 - 8.0 mm ² THHN	20 mm Ø RSC

LEGEND :

- (A) PRESSURE TRANSMITTER
- (B) VFD CONTROL CIRCUIT
- (C) SOFT STARTER CONTROL CIRCUIT
- (D) BLOWER FAN

APPROVED BY: 
EDWING G. PARAÑAL
 PROFESSIONAL ELECTRICAL ENGINEER
 TIN: 146-711-116
 PTR: 465-7461 PRC NO.: 2809
 DATE: 01/02/21 PLACE: NAGA CITY

 Republic of the Philippines METROPOLITAN NAGA WATER DISTRICT 40 J. Miranda Avenue, Naga City	PREPARED BY:	CHECKED BY:	RECOMMENDING APPROVAL:	APPROVED:	PROJECT TITLE/LOCATION:	SHEET CONTENTS :	SHEET NO.:
	 SHARMAINE E. BRACIA OIC - Division Mgr., PDCO	 SON JON O. MILLARES OIC - Department Mgr., EED	 ROQUE S. FRANCISCO AGM, O&TS	 FLORENCIO T. MONGOSO JR. General Manager A	PROPOSED ALMEDA II PUMPING STATION, ELECTRO-MECHANICAL EQUIPMENT, DISCHARGE LINE AND ELECTRICAL EQUIPMENT Barangay Concepcion Pequeña, Naga City	AS SHOWN	6 6
					CAD BY: JL PEÑAS	Date: 10-2024	

EEDP18, REV. 00, APRIL, 2019