

May 30, 2023

P-RFQ No. 2023-043

## REQUEST FOR QUOTATION

### SUPPLY AND DELIVERY OF UPVC ELBOW AND UPVC PIPE W/ RUBBER RING

The Santa Maria Water District (SMWD) hereinafter referred to as "the Purchaser", through its Bids and Awards Committee (BAC), invite interested parties to submit price quotation for the project, "**SUPPLY AND DELIVERY OF UPVC ELBOW AND UPVC PIPE W/ RUBBER RING**" through Small Value Procurement (Sec. 53.9 of R.A. No. 9184) with Approved Budget for the Contract (ABC) of Ninety Eight Thousand Six Hundred Eighty Four and Sixty Four Centavos Only (**₱98,684.64**).

	Description	Qty	Unit	Unit Cost	Total Amount
1	<b>UPVC ELBOW 50mm X 45 DEG</b>	6	PC		
2	<b>UPVC PIPE w/ RUBBER RING 75mm</b>	48	LM		
3	<b>UPVC PIPE w/ RUBBER RING 150mm</b>	48	LM		
	*** nothing follows ***				
	***Please see attached technical specifications***				

All items listed under the purchaser's specifications must be complied on a pass-fail basis.

Failure to meet any one of the requirements will result to rejection.

Likewise, it is understood that Purchaser's specifications are minimum requirements. The Bidder/Supplier may offer higher specifications or additional items, if any.

Procurement procedures will be conducted in accordance with the provisions of the Implementing Rules and Regulations (IRR) of Republic Act No. 9184 (Government Procurement Reform Act).

It is the intent of the Purchaser to evaluate the quotation for the item and award will be made to the quotation resulting in the overall lowest cost, meeting purchaser's technical specifications.

Likewise, in accordance with Section 54.6 and Appendix A of Annex "H" (Consolidated Guidelines for the Alternative Methods of Procurement) of the IRR of RA No. 9184, the supplier shall provide the following documentary requirements as a **condition for award** of the contract. The documents shall be attached together with the quotations.

1. PhilGEPS Registration Number
2. Mayor's/Business Permit



3. Photo Copy of Sample Official Receipt (OR)
4. Certificate of Registration (BIR FORM 2303); and
5. Duly Notarized Omnibus Sworn Statement. (If unable to have the document notarized, you may submit a signed unnotarized Omnibus Sworn Statement, subject to compliance therewith after award of contract but before payment).

Your prices must be quoted in Philippine Peso and must include the unit price and total price, inclusive of all taxes to be paid and other incidental cost to the delivery site if the contract is awarded.

All quotations may be typewritten or handwritten and may be placed in sealed envelope marked "**SUPPLY AND DELIVERY OF UPVC ELBOW AND UPVC PIPE W/ RUBBER RING**" (RFQ No. 2023-043) and must be submitted on or before **June 5, 2023, 11:00AM** at the SMWD main office. It may also be sent thru email on our official email address at [smwdbulacan@yahoo.com](mailto:smwdbulacan@yahoo.com) on the specified time stated above and address to the General Manager, Engr. Carlos N. Santos Jr.

Quotations shall be valid for thirty (30) calendar days from the deadline of submission of the same.

The delivery period shall be within **5 Days** from receipt of the Purchase Order (PO). The supplier should inform the purchaser at least two (2) days before the date of delivery. The Purchaser shall have the right to reject or to return the items that will be declared defective. The delivery will be made only during working days from 8:00 AM to 5:00 PM.

DELIVERY SITE: General Services Division of SMWD located at 301 J. P. Rizal St., Dulong Bayan, Santa Maria, Bulacan.

The prospective supplier shall submit the following:

- a) Duly accomplished Quotation Form; and
- b) Brochures of the items offered, if any.

The Santa Maria Water District reserves the right to accept or reject any quotation, and to annul the procurement process and reject all quotations at any time prior to Contract award, without thereby incurring any liability to the affected supplier or suppliers. SMWD also reserves the right to waive any required formality in the proposals received, and select the proposal which it determines to be the most advantageous to the government.

**Prepared by:**

Sgd.

**Romel P. Lazaga**  
**Procurement Assistant**

**Noted by:**

Sgd.

**Maria Leonora S. Romarate**  
**BAC Chairperson**

## TECHNICAL SPECIFICATIONS

<p style="text-align: center;"><b>UPVC (UNPLASTICIZED POLY-VINYL CHLORIDE) PIPE</b></p>	<p>This standard specifies the requirements for oriented unplasticized polyvinyl chloride pipes with nominal outside diameter of 90mm to 500mm intended for the conveyance of potable water under pressure and of temperatures up to 45°C for use below ground.</p> <p>The pipes shall be made of unplasticized polyvinyl chloride compound/formulation. This compound/formulation shall consist substantially of PVC-U resin/powder, to which shall be added only those additives necessary to facilitate the production of pipes and fittings in accordance with ISO 16422:2014 standards.</p> <p style="text-align: center;"><b>a. <u>Classification</u></b></p> <p>Pipes shall have a material classification of <b>500</b> with nominal pressure <b>PN16 (1.6 MPa) ----- 230 psi</b></p> <p style="text-align: center;"><b>b. <u>Requirements</u></b></p> <p>1. Materials</p> <p style="padding-left: 40px;">(a). The raw material must be “Virgin Resin” from a recognized top-quality resin company. In-plant blending of non-compounded resins is non-acceptable.</p> <p style="padding-left: 40px;">(b). The pipe shall meet the requirements of the National Sanitation 3 Institute of Science and Technology or other approved testing laboratories and shall be made from non-toxic, non-lead based plasticizer.</p> <p style="padding-left: 40px;">(c). The use of manufacturer’s own reprocessed material, produced during the manufacture and works testing of products and conforming to the material requirements of ISO 16422, is permitted. Reprocessed or recycled material obtained from external sources shall not be used.</p> <p style="padding-left: 40px;">(d). When measured according to the methods described in ISO 3126, unplasticized polyvinyl chloride pipe shall conform with the following dimensions conforming to the wall thickness table in ISO 16422.</p> <p style="text-align: center;"><u>Table 1 – Dimensions</u></p> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: center;"><u>Nominal Pipe Diameter</u></th> <th style="text-align: center;"><u>Outside Pipe Diameter</u></th> <th style="text-align: center;"><u>Wall thickness minimum</u></th> </tr> <tr> <th style="text-align: center;">inch</th> <th style="text-align: center;">mm</th> <th style="text-align: center;">mm</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">90</td> <td style="text-align: center;">2.0</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">110</td> <td style="text-align: center;">2.4</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">160</td> <td style="text-align: center;">3.5</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">225</td> <td style="text-align: center;">5.0</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">250</td> <td style="text-align: center;">5.5</td> </tr> </tbody> </table>	<u>Nominal Pipe Diameter</u>	<u>Outside Pipe Diameter</u>	<u>Wall thickness minimum</u>	inch	mm	mm	3	90	2.0	4	110	2.4	6	160	3.5	8	225	5.0	10	250	5.5
<u>Nominal Pipe Diameter</u>	<u>Outside Pipe Diameter</u>	<u>Wall thickness minimum</u>																				
inch	mm	mm																				
3	90	2.0																				
4	110	2.4																				
6	160	3.5																				
8	225	5.0																				
10	250	5.5																				

12	315	6.9
14	355	7.8
16	400	8.8
18	450	9.9
20	500	11.0

(e). The minimum depth of engagement of integral sockets with elastomeric (fix) sealing ring type joints shall conform to ISO 2045.

## 2. Physical Characteristics

- (a) Appearance – The pipe shall be homogeneous throughout and free from cracks, holes, encrustations and other foreign inclusions. Excessive die lines and/or stress marks (particularly in the socket and bell groove) as well as discernible material marbling are not allowed. The ends of the pipe shall be cleanly cut and square to the axis of the pipe.
- (b) Color – The pipe shall be blue in color extruded from the compound resins that consist of carbon blue (2% minimum) to resist UV penetration and shall be uniform throughout the entire surface of the pipe.
- (c) Pipe Ends – Pipes with plain end(s) to be used with elastomeric sealing ring type joints shall have a chamfer conforming to Figure 1 of ISO 16422.
- (d) Ovality and Waviness – pipe should be round and should not have wavy inside and outside surface.
- (e) Weight – oriented uPVC pipes should be less than half of ordinary uPVC pipes weight of the same nominal external diameter.

## 3. Mechanical Properties

The pipe shall conform with the mechanical properties specified in Table 2.

Table 2 – Mechanical Properties and Characteristics

	Units	Value ISO 16422
Minimum required strength (MRS)	MPa	50
Overall service coefficient (C)	-	1.4
Design Stress	MPa	36
Short term elasticity modulus (E)	MPa	>4,000
Resistance to axial traction	MPa	>48
Resistance to hoop traction	MPa	>85
Shore hardness D	-	81-85
Density	kg/dm <sup>3</sup>	1.35-1.46
PVC Resin K value	-	>64
Poisson coefficient	-	0.35-0.41
Vicat temperature	°C	>80

Lineal expansion coefficient	°C <sup>-1</sup>	0.8x10 <sup>-4</sup>
Thermal conductivity	Kcal/mh °C	0.14-0.18
Specific heat at 20 deg.C	cal/g °C	0.20-0.28
Dielectric stiffness	kV/mm	20-40
Dielectric constant at 60Hz	-	3.2-3.6
Transverse resistivity at 20deg. C	Ω/cm	>10 <sup>16</sup>
Absolute roughness (ka)	mm	0.007
Absolute roughness (Hazen Williams)	-	150
Manning roughness coefficient (n)	-	0.009

The ring stiffness of pipes conforming to this International Standard may be determined in accordance with ISO 9969. Pipes of stiffness less than 4 KN/m<sup>2</sup> might not be suitable where high vacuum or external pressure could be developed, and could need special installation techniques where installed below ground.

#### 4. Joints

**Polypropylene Ring with a synthetic rubber lip shall be used for sizes 90mm up to 500mm.**

**This watertight sealing type joints includes a Polypropylene ring and a synthetic rubber lip which allows the seal to be integrated with the pipe, avoiding joint displacement or movement while the installation is taking place.**

#### **c. Sampling and Testing**

1. At least one piece or set (depending on the quantities specified by the test method) of sample/s per production batch (one production run or one production shift, whichever is shorter) shall be taken at random for testing in accordance with the methods and procedures specified in this standard.
2. Pressure testing shall be conducted in accordance with ISO 1167-1.
3. Pipes shall be tested at 0°C in accordance with ISO 3127, and shall have a true impact rate (TIR) of not more than 10% when using masses given in Table 3 of ISO 16422. The radius of the striker nose shall be R=12.5mm.

**Table 3 – Classified striker mass and drop height conditions for the falling-weight impact test**

<u>Nominal Size</u> mm	<u>Total Mass</u> kg
90	5
110	6.3
125	6.3
140	8
160	8

200  
≥ 250

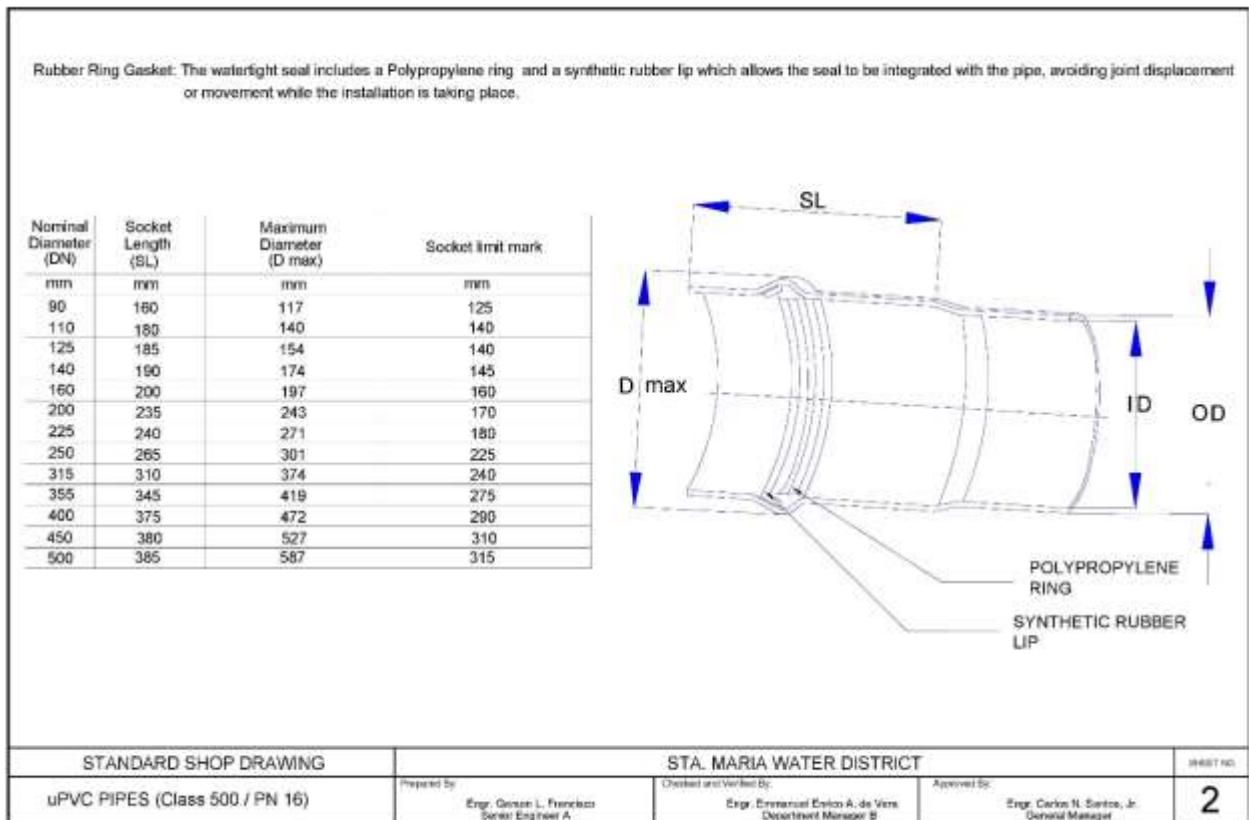
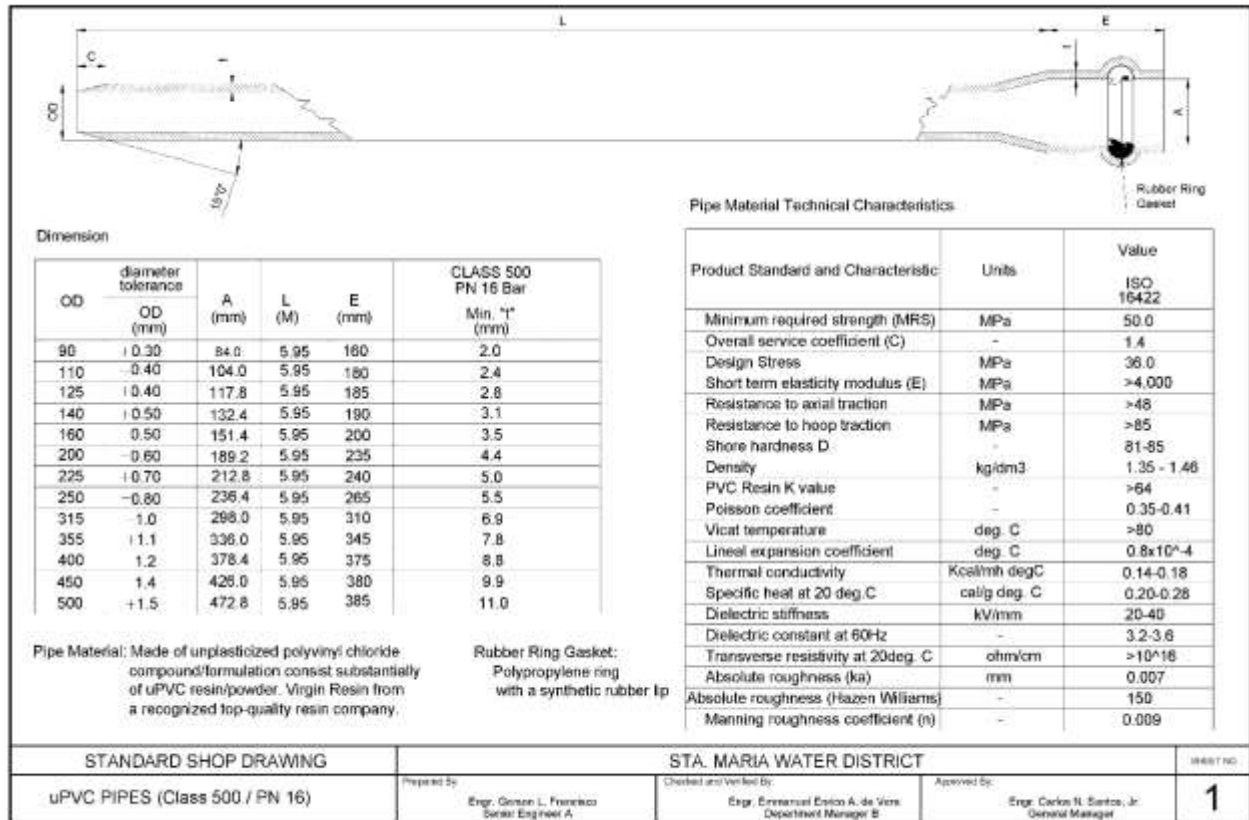
10  
12.5

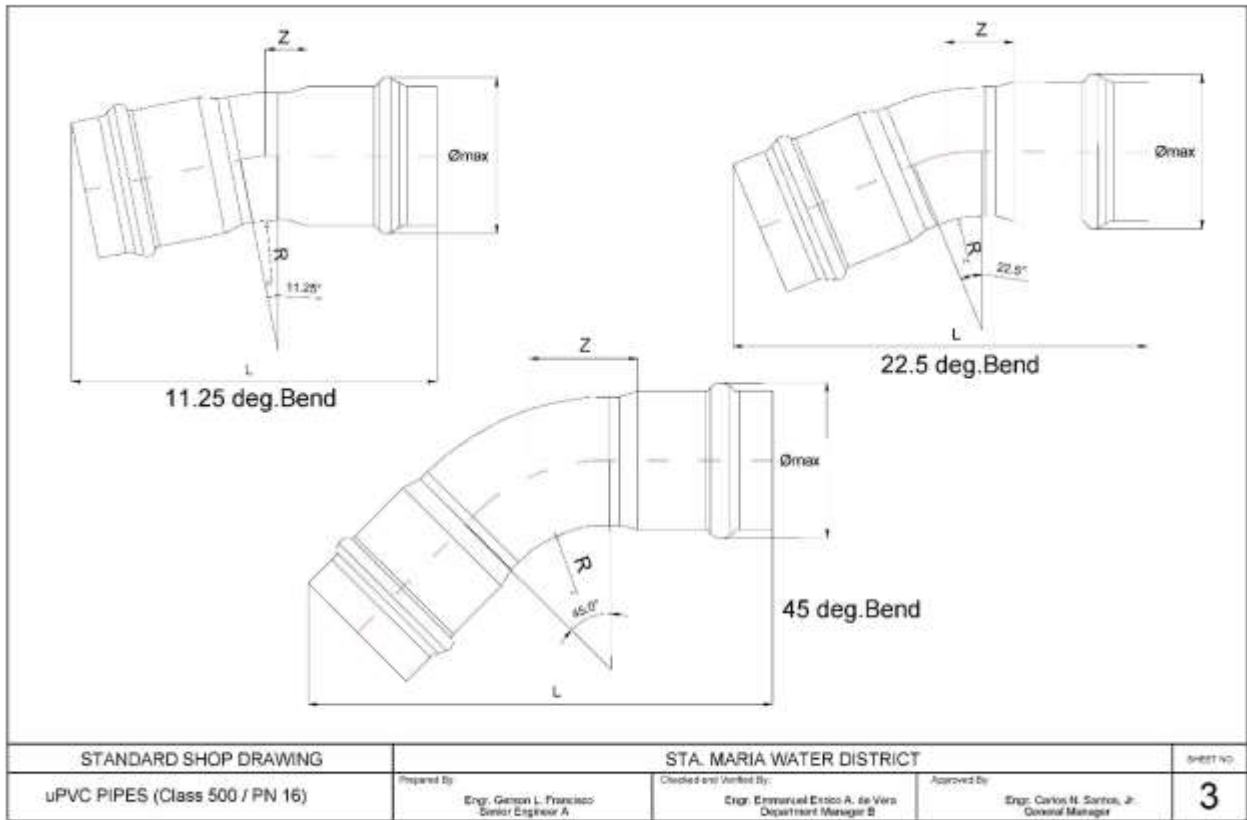
**d. Marking**

The pipe shall be clearly marked in white text and shall not exceed 0.15mm. deep consisting of but not limited to the following information spaced at intervals of not more than one meter:

1. Name of Product
2. Outside diameter and thickness, mm
3. Pressure Rating
4. Manufacturer's name and/or its recognized trademark
5. Material Code / Reference Standard
6. Date of Manufacture

**The pipe manufacturer shall provide certification that all the pipe testing/characteristic has been performed/meet on the specific product in accordance with ISO 16422:2014.**





11.25 deg. Bend		DN	Ømax (mm)	L (mm)	Z (mm)	Radius (mm)	CLASS 500 PN 16 Bar Weight (kg)
		110	140	455	55	165	1.0
		160	200	535	70	240	2.2
		200	245	595	80	300	4.0
		250	305	690	95	375	8.0
		315	375	790	115	475	13.0
		400	475	925	140	600	24.4
		500	575	1080	185	750	29.4

Pipe Material: Made of unplasticized polyvinyl chloride compound/formulation consist substantially of uPVC resin/powder, Virgin Resin from a recognized top-quality resin company.

22.5 deg. Bend		DN	Ømax (mm)	L (mm)	Z (mm)	Radius (mm)	CLASS 500 PN 16 Bar Weight (kg)
		110	140	490	70	165	1.0
		160	200	585	95	240	2.4
		200	245	655	110	300	4.3
		250	305	765	135	375	6.4
		315	375	885	160	475	14.5
		400	475	1045	200	600	27.5
		500	575	1240	240	750	33.0

Rubber Ring Gasket: Polypropylene ring with a synthetic rubber lip

45 deg. Bend		DN	Ømax (mm)	L (mm)	Z (mm)	Radius (mm)	CLASS 500 PN 16 Bar Weight (kg)
		110	140	555	105	165	1.1
		160	200	680	145	240	2.9
		200	245	770	175	300	5.1
		250	305	910	215	375	7.7
		315	375	1070	285	475	17.5
		400	475	1280	330	600	33.7
		500	575	1530	400	750	40.4

STANDARD SHOP DRAWING

STA. MARIA WATER DISTRICT

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Checked and Verified By: Engr. Emmanuel Carlos A. de Vera, Department Manager B

Approved By: Engr. Carlos N. Santos, Jr., General Manager

uPVC PIPES (Class 500 / PN 16)

SHEET NO. 4