

CITY OF COQUITLAM

WATER METER SPECIFICATIONS

February, 2022

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1. **Preamble**

The following specifications detail the City's requirements for the installation of meters on City water service connections.

An applicant is responsible for the supply and installation of meters and associated piping, chambers and equipment on metered water service connections. The City must accept the installation prior to activation of the service.

The specifications identifies acceptable meter types, location and installation requirements.

2. **Definitions**

ANSI: American National Standards Institute.

ASTM: American Society for Testing and Materials.

AWWA: American Water Works Association

Activation: Opening of the service valve to permit the flow of water.

Applicant: A person, company or agency that makes application for a water service connection from the City water system as required by the City's Water Distribution Bylaw.

Engineer: A professional engineer registered in the province of British Columbia practicing in the field of Civil or Mechanical Engineering.

FM: Factory Mutual Engineering and Research Organization, a research and testing agency accepted by the Insurance Industry.

NSF: NSF International

ULC: Underwriters' Laboratories of Canada, a research and testing agency accepted by the Insurance Industry.

Water Distribution Bylaw: Refers to the City of Coquitlam Water Distribution Bylaw 4428 as amended.

3. **Services to be Metered**

The Water Distribution Bylaw identifies service connections that require meters. This includes but is not limited to all property intended for commercial, industrial, institutional, agricultural, and public. All service connections to such properties including fire and domestic services shall have meters.

Fire service rated combined fire/domestic meters are allowed only in existing water systems when replacing the existing meters and not allowed in new developments; new developments must have separate fire and domestic lines as per drawing WM -1.

4. Location of Meters

Meters shall be placed at the interface between the City and private water system. In most circumstances the interface occurs at the property line of the site. The meter and meter box, vault or chamber shall be located entirely on private property unless approved otherwise by the City.

Where a City water main is within private property in a right-of-way, place the meter and box, vault or chamber at the right-of-way boundary line, and outside the right-of-way.

Where possible locate meters in landscaped areas, free of obstructions. If unavoidable, meters may be placed in pedestrian path areas or parking stalls. If the meter is placed in a parking stall, the pit-radio transceiver should be placed in a smaller box where it may be easily accessed and off parking stalls (refer drawing WM-7). Meters must not be located in driveways or roadways/highways.

Vaults and chambers should be placed in proximity to the site drainage system to permit installation of a gravity drain from the vaults and chambers.

5. Meter Types

There are three types of cold-water meters accepted for use by the City. These are positive displacement, turbine and compound types. The meters must be radio-read meters coupled with a radio transceiver unit that will function with the City's current Advanced Metering Infrastructure (AMI) system.

The actual meter or combination of meters accepted for use must accurately account for the total water use of the property serviced. All meters must be new. Used or reconditioned meters are not accepted.

Positive Displacement meters are to be either nutating disk or oscillating piston type to AWWA C-700. Meters are to have a lead free bronze (NSF/ANSI 61, Annex G and Annex F) case with cast iron or plastic frost protection cover. Meters 38mm and 50mm in size are to have oval two bolt flanged ends.

Acceptable positive displacement type meters are:

- Sensus SR11 coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver
- Neptune T-10 coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver

* *Equivalent means the radio transceiver unit that is compatible with City's current AMI system.*

Neptune R900i meters are **not** accepted.

Turbine meters are to conform to the AWWA C-701 class II. All turbine meters are to have lead free bronze (NSF/ANSI 61, Annex G and Annex F), stainless steel or ductile iron with epoxy coating cases and flanged connections. 38mm and 50 mm sizes are to have oval two bolt flanges. Meters are to have horizontal turbines.

Individual turbine meters are acceptable only in applications involving continuous high flows such as dedicated irrigation systems or some industrial processes.

Use of turbine meters requires City approval.

Acceptable turbine type meters are:

- Sensus OMNI R², T² coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver
Neptune HP coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver

* *Equivalent means the radio transceiver unit that is compatible with City's current AMI system.*

Compound meters are to conform to AWWA C-702. All compound meters are to have lead free bronze (NSF/ANSI 61, Annex G and Annex F), stainless steel or ductile iron with epoxy coating cases and flanged connections. Meters 50mm in diameter are to have oval two bolt flanges.

Acceptable compound meters are:

- Sensus OMNI C² coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver
- Neptune TRU/FLO coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver with Double Pair wire

* *Equivalent means the radio transceiver unit that is compatible with City's current AMI system.*

6. Registers

All meters are to have direct reading, sealed absolute encoder registers. The unit of measure shall be cubic meters. Registers must be new. Used or reconditioned registers are not acceptable. All registers shall be programmed to read all digits left of the decimal place (minimum 5 digits).

Acceptable encoder registers for indoor use are:

- Sensus Electronic Register+; Omni Register+
- Neptune Procoder Register

Acceptable encoder registers for pit installations are:

- Sensus Electronic Register+ WP (waterproof), Omni Register+
- Neptune Procoder Register

7. Meter Selection

The type or combination of types of meters to be used for recording water consumption from a service connection must accurately record consumption over the expected range of flow. The meter size selected shall ensure pressure losses are within acceptable limits and provide long meter life.

The following Table 1 provides a guide for acceptable meter types and sizes for a range of uses and flows.

Table 1: Meter Flow Ranges

WATER USE	LAND USE	SIZE		ACCEPTABLE METER TYPE	Flow (L/s)	
		mm	in		Operating Range	Maximum Continuous
Domestic	Commercial	16	5/8	Displacement	0.032 - 1.26	1.26
	Institutional	19	3/4	Displacement	0.047 - 1.89	1.89
	Industrial	25	1	Displacement	0.063 - 3.16	3.16
		38	1 1/2	Displacement*	0.032 - 6.31	6.31
		50	2	Displacement*	0.032 - 12.62	12.62
		75	3	Compound	0.032 - 28.39	28.39
		100	4	Compound	0.063 - 63.09	63.09
		150	6	Compound	0.095 - 126.18	126.18
		200	8	Compound	0.252 - 170.34	170.34
250	10	Compound	0.316 - 252.36	252.36		
Irrigation/ Bulk Water Use	Agricultural	38	1 1/2	Turbine	0.079-12.62	10.09
	Golf Courses	50	2	Turbine	0.095-15.77	12.62
	Parks	75	3	Turbine	0.158-41.01	31.55
	Some Industrial Uses	100	4	Turbine	0.189-78.86	63.09
	150	6	Turbine	0.252-157.73	126.18	
	200	8	Turbine	0.316-220.82	220.82	
	250	10	Turbine	0.379-347.00	347.00	

* Displacement refers to Positive displacement meter type or approved equal

Conversion Factors: l/sec to USGPM multiply by 15.850

L/sec to IGPM multiply by 13.198

8. Dedicated Fire Services

Fire service connections are to be metered to detect unauthorized use. Provide all fire services with a double detector check valve in combination with an appropriately sized “tattle-tale” positive displacement radio type meter and double check valve on a bypass. Install “tattle-tale” meters in accordance with these specifications.

9. Combined Fire Domestic Services

All new water service connections to the municipal water system shall have a separate fire line and domestic service pipe, unless approved otherwise by the City.

Where the City approves the use of a combined domestic and fire service, an FM approved ULC listed meter assembly shall be installed to measure all flows. The meter assembly shall include a strainer, check valve, an approved type meter and a smaller approved domestic meter on a bypass. The meter set shall be factory assembled. All meters must be radio type as per this specifications.

Acceptable preassembled fire meter sets are:

- Neptune HP Protectus III, coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver
- Sensus OMNI F² (FireLine) with check valve and smaller (domestic) meter on a bypass and coupled with 510M (non-pit) / 520M (pit) or equivalent* radio transceiver.
- Neptune C&I Mach 10 meter coupled with 510 DP/520 DP wired or touch (3-wire) **(use of this meter to be approved by the City)**

* *Equivalent means the radio transceiver unit that is compatible with City's current AMI system.*

10. Installation Requirements

Installation requirements are summarized on the following Table 2 and illustrated on the appended typical installation drawings.

Table 2: Installation Requirements

Size mm	Type	By Pass*		Strainer Required	Strainer Type	Chamber		
		Required	Size			Type	Size mm	Model
16x19	Displacement	No	-	No	-	Meter Box	300x500	Brooks 37
19-25	Displacement	No	-	No	-	Meter Box	425x750	Brooks 66
38-50	Displacement	Yes	25 mm	No	-	Meter Box	560x860	AEC 5686
75	Compound	Yes	50 mm	Yes	Straight	Vault	1200x2000	AEC 2121
100	Compound	Yes	50 mm	Yes	Straight	Vault	3260x1760	AEC 3151
150	Compound	Yes	50 mm	Yes	Straight	Vault	3260x1760	AEC 3151
150	Combined	Yes	50mm	Yes	FM/UL	Vault	3260x1760	AEC 3151
100-150	Detector Check /Fire	No	-	No	-	Vault	1200x2000	AEC 2121
200	Detector Check /Fire	No	-	No	-	Vault	3260x1760	AEC 3151

* *A bypass is not required for dedicated irrigation meters.*

The applicant's Engineer must design installations for meters not shown on the above table.

Installation and Piping Requirements:

Install meters horizontally with register casings plumb, facing upward. Where installed in a meter box, center meter in box.

All connecting piping, valves and fittings shall be equal to the diameter of the meter for a distance of at least 5 pipe diameters up and down stream of the meter.

Where required, install strainers immediately upstream of the meter using a flanged connection. Strainers shall be of the same manufacturer and size as the meter. Exceptions must be approved by the City.

Provide isolation valves upstream and downstream of the meter to allow removal of meter and strainer cases. Install a valve on bypass. Provide a lock wing on the operating nut of bypass valves 50mm and smaller.

For all compound and turbine meter installations provide a straight section of horizontal pipe, 5 pipe diameters in length, between the strainer and the upstream isolating valve. Do not install elbows, bends, non-concentric reducers, check valves, backflow preventers and/or pressure reducing valves within 10 pipe diameters upstream or 5 pipe diameters downstream of a meter.

An assembly with a Neptune brand meter without a strainer requires a minimum of 8-pipe-diameters of straight run pipe upstream of the meter.

Provide a test point for all meters 75mm in diameter and larger. In the absence of a test plug on the meter case, install a testing tee with a 50mm diameter threaded nipple and cap, between the meter and the downstream isolating valve.

For meters 75mm in diameter and larger provide a mechanical flange adapter on the downstream side of the meter to provide flexibility for meter and strainer case removal.

Support all meters, valves and bypasses within chambers with adjustable pipe stands. Bricks, concrete or wood blocking are not acceptable means of support.

Vaults and chambers require drain connection to a storm drainage system. Where a gravity connection to the storm system is not available, the City may approve one of the following options:

- Installation of an electric sump pump
- Installation of a rock pit. A Professional Engineer specializing in geotechnical designs must design rock pits
- Installation of a hydraulic sump ejector assembly.

Radio Installation:

The required number of radio transceiver units must be installed according to the manufacturers' specifications. In non-traffic areas mount radio transceiver in the chamber lid in accordance with the manufacturer's instructions. Where the lid is in a traffic area, mount the radio transceiver unit in a meter box cover/lid with recessed-hole that will have the radio transceiver head flushed with the meter box cover/lid or in an adjacent Brooks 37 Box as shown in drawing WM-7.

Remote wiring connections shall be either factory or field sealed to ensure connections are water proof. Field seals shall be in accordance with the manufacturers' instructions. The wire/cable used to connect the meter and the radio transceiver must be supplied by or purchased from the meter manufacturer and has sufficient length, including slack, to be able to open or remove the lid/hatch without snapping, removing, or separating the wire/cable.

For inside meter installations, where approved by the City, locate wall mounted radio transceivers about 1.6 metres above grade in clearly accessible location. Wiring radio transceiver to outside building and wall installation must comply to manufacturers' specifications.

11. Materials

Pipe

Copper Pipe: Copper pipe to be Certified Type K soft copper to ASTM B 88m.

All copper tubing joints are to be compression type or Victaulic. Acceptable compression fittings are McDonald "T", James Jones "Super Grip", Ford "Quick Joint" or Mueller "110". Soldered joints are not permitted

Red Brass Pipe: Red Brass pipe to meet AWWA C-800.

Red brass joints to be threaded to ANSI B1.20.1.

Steel Pipe: Steel pipe is to meet AWWA C-200, electrically welded. Steel to ASTM A36. Epoxy coat the interior and exterior of all steel pipe and fabrications to AWWA C-210 or AWWA C-213.

Steel pipe joints are to be flanged to AWWA C-208 or made with mechanical couplers, mechanical flange adapters, and "Uniflange" or "EZ Flange" style adapters.

Stainless Steel Pipe: Stainless steel pipe is to be Schedule 10S, dual certified 304 series stainless steel.

Grooved ends to be roll grooved per Victaulic Standard Groove specifications.

Fittings

Brass: Brass fittings to 75mm to meet AWWA C-800. All fitting joints to be compression type, threaded to ANSI B1.20.1, flanged or Victaulic. Acceptable compression fittings are specified in the latest edition of the City's MMCD supplemental specifications and approved products list.

Steel: Steel fittings are acceptable in sizes 75mm and larger. Fabricated steel fittings to meet AWWA C-208 and AWWA C-207. Epoxy coat steel fittings to AWWA 210 or AWWA-213. All fitting connections shall be shop welded, flanged or Victaulic. Flange dimensions and drilling are to be ANSI B16.1

Stainless Steel: Welded stainless steel fittings to be Class 150 weld-neck or slip-on type with continuous weld.

All grooved fittings to be Schedule 10S, 304 series stainless steel. Couplings to be Victaulic Style 489.

Valves

All valves are to be suitable for buried service. Valves on domestic service connections up to 50mm in diameter shall be bronze ball or cylinder corporation style valves meeting AWWA C-800. Valves shall have rubber o-ring seals. Connections shall be threaded, compression type or flanged. Actuation is to be by a tee-head style operating nut. Provide a lock wing on the tee-head and case for all bypass valves (locking mechanisms on levers are not acceptable).

Valves on domestic service connections 75mm to 250mm in diameter are to be cast iron, resilient seat, NRS gate valves to AWWA C-509 with flanged ends. Stem seal to be o-ring type. Actuation of buried valves or valves in vaults shall be by a standard 50mm square operating nut. Valves within person entry chambers shall be operated by hand wheel.

Provide a Nelson style valve box over buried valves.

Fire service valves within vaults or chambers shall be resilient seat, OS&Y gate valves to AWWA 509.

Detector Check Valves

Double detector check valves are to comply with AWWA C-510. Detector check valves for fire service use must be FM approved and ULC listed.

Flange Adapters

Mechanical Flange adapters for 50mm to 200mm sizes shall be to AWWA C219.

Connections between flanged fittings and steel piping may be made with "Uni-flange" or "EZ-flange" adapters.

Bolts and Nuts

Bolts and nuts are to be stainless steel to ASTM F-593 and F-594. Rolled threads, fit and dimension to AWWA C-111.

Meter Setters

Setters are permitted only for water meters 50 mm or smaller and must be same size as the water service connection.

For 19 mm and 25 mm services, setters must be equipped with a full port inlet ball valve and dual check valve on outlet.

For 38 mm and 50 mm services, the setter shall be equipped with a full port inlet ball valve and full port outlet ball valve to facilitate in-situ testing of the meter. Further, the setter shall have a bypass valve with a lock wing.

All setters must meet NSF 61 Annex F/G requirements.

Meter Boxes

The box, vault or chamber shall be precast concrete to the dimensions provided in Table 3. Vaults shall be design for boulevard (off road) use with static H-20 loading. Chambers shall be designed for roadway use with H-20 loading or deep installations. The minimum headroom for chambers shall be 1.9 meters for worker entry.

Boxes shall have galvanized steel or aluminum lids capable of withstanding H-20 static loads (for off road). Lids shall include a “bolt down” capability. Cast iron lids require City approval.

Vaults sized 1200 x 2000 shall have two hinged aluminum lids providing an 800mm x 1700mm opening. Vaults sized 1760 x 3260 shall have three hinged aluminum lids providing an 820mm x 2590mm opening. Vault lids shall be capable of withstanding H-20 static loading. Lids shall include a “bolt down” capability.

Lids for chambers shall be 1200mm x 1200mm square split hinged aluminum. Chamber lids shall be capable of withstanding H-20 loading. Lids shall include a “bolt down” capability.

Lids for boxes, vaults and chambers shall be predrilled and with a recessed hole for transceiver unit installation. Where this is not feasible follow drawing WM-7.

Where the depth from the top of the lid frame to the chamber floor exceeds 0.6 meters, provide an aluminum ladder securely fastened to the chamber floor and wall. Ladders shall have a telescoping aluminum post fixed to the ladder to enable safe worker entry or exit (Bilco LadderUP Safety Post LU4 or approved equal). The access hatch must be sized for a worker to enter or exit with confined space gear/clothing.

Damp proof the exterior surfaces of all vaults and chambers by applying an asphalt emulsion coating. Make construction joints water tight with an appropriate sealant.

An area of at least 1.0 metre horizontal around the meter box, vault or chamber shall be free of major landscaping or objects, including shrubs, trees, retaining or other types of walls, fences, gates, tracks, poles, etc., to facilitate maintenance of the meter assembly.

Where the meter is approved by the City to be installed within a building / utility room, the installation should be within a reasonable distance of a floor drain, which must be suitably sized to accept the flows associated with meter testing and/or maintenance. The meter should be installed a minimum of 600 mm above the floor. A space of at least 1.0 metre horizontal and 1.0 metre vertical from the meter assembly shall be free of obstruction to allow for convenient servicing / maintenance and testing of the meter. No electrical, mechanical, or water-sensitive equipment should be placed or installed under the meter assembly or in an area where splash or flow from the meter assembly could occur during servicing / maintenance or testing of the meter.

Acceptable boxes, vaults and chambers are listed in Table 3 below:

Table 3: Meter chambers

Type	Size (mm)	Model*	Lid / Hatch Size (mm)
Boxes	300x500	Brooks 37	300x450 galv. steel (cast iron with City approval)
	425x750	Brooks 66	450x750 galv. Steel (cast iron with City approval)
	560x860	AE Concrete 5686	630x940 aluminum
Vaults	1200x2000	AE Concrete 2121	2 – 880x880 aluminum
	1760x3260	AE Concrete 3151	3 – 880x880 aluminum
Chambers	1760x3260	AE Concrete 3152	2 – 600x1200 aluminum

* Specified or equivalent product

12. Inspection Procedure

A request for water service connection is initiated by an application for a Plumbing Permit through the City’s Development Services Department.

The Applicant’s Engineer shall determine from the City whether the service connection requires a meter and shall select the appropriate meter type for the intended use in accordance with the City’s Water Meter Specifications. Plans submitted as part of the Plumbing Permit Application must indicate the meter size, type and chamber location. The plans shall also indicate the expected range of flows and the average expected flow for the proposed installation.

For non-typical meter installations, or for meters of 200mm diameter and larger, the applicant’s Engineer must provide detailed drawings giving complete details of the installation.

The City Development Services Department will inspect the meter installation to ensure conformance to this specification and the B.C. Plumbing Code.

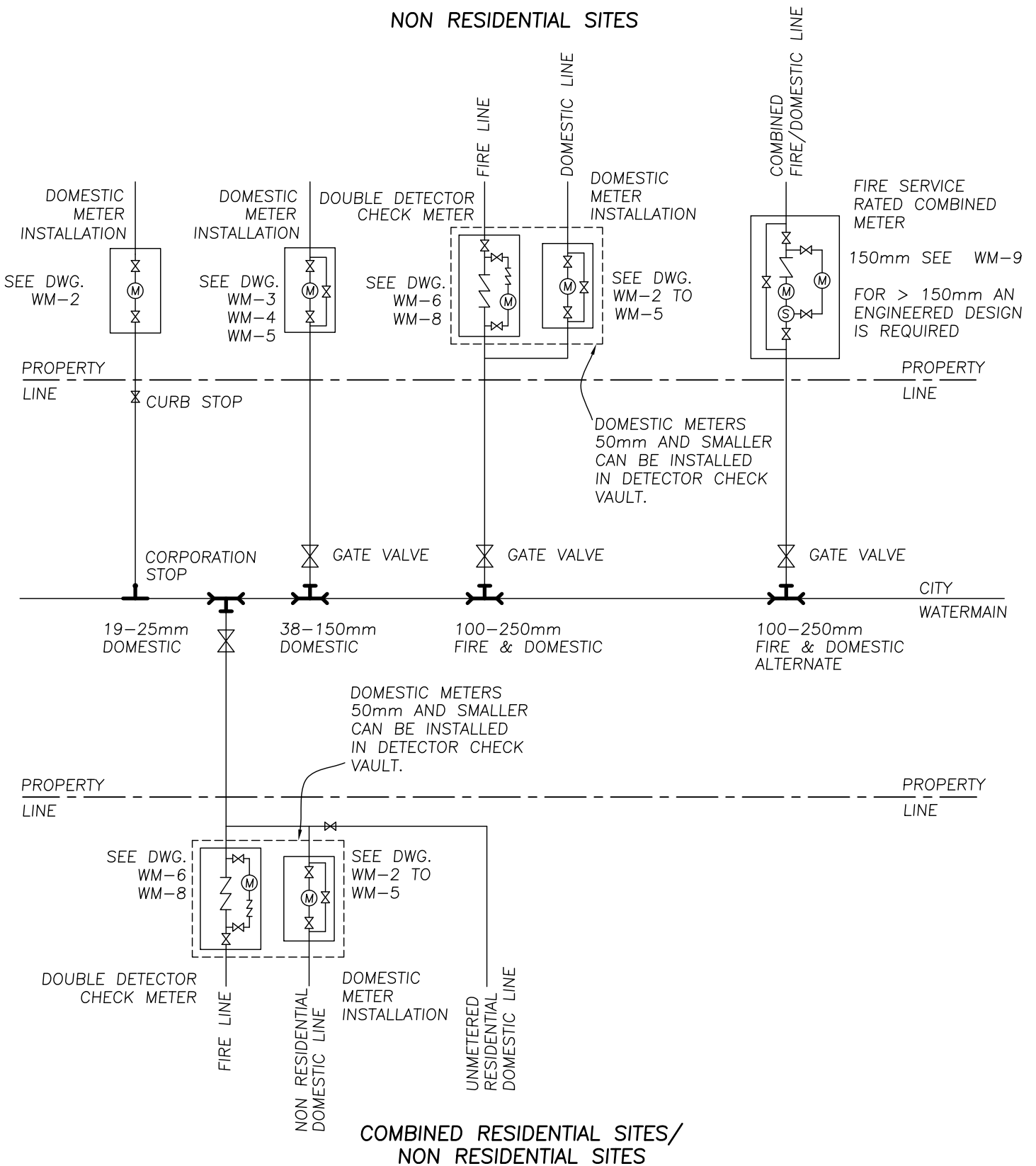
Upon approval of the installation by the Plumbing Inspector, the developer is to call the City Engineering and Public Works Department at 604-927-3500 to lock the bypass valve where applicable, take the initial meter reading and activate the service connection. All factory tags and labels are to remain on the meter until the City Public Works department removes them.

13. Water Service During Construction

Water service connections required during construction phase of a development project generally be unmetered per the latest applicable *Water Distribution Amendment Bylaw*, however at the discretion of the City a meter may be required. Meters installed on such service connections are to conform to the requirements of this specifications – unless variations approved by the City - and the meter to be in place prior to the activation of the service. Only City Engineering Department personnel may deactivate such a service or remove the meter. Contact the City Engineering Customer Service Desk at 604-927-3500.

Water Meter Specifications
Typical Installation Drawings

NON RESIDENTIAL SITES

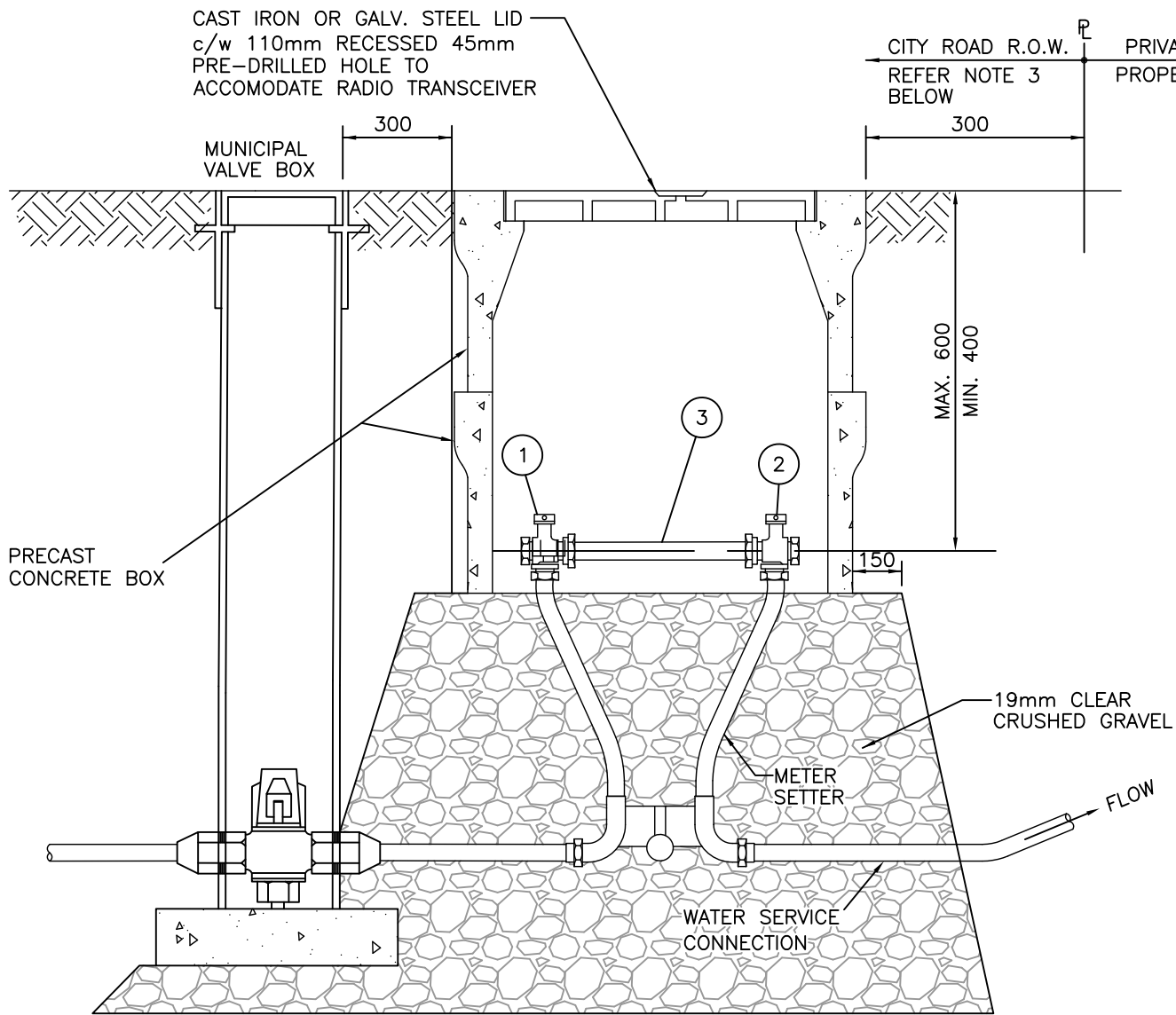


PLOTTED: 1-Dec-21

TYPICAL SERVICE INSTALLATION

DATE: DEC/2021
 DRAWN: REY
 SCALE: N.T.S.

DRAWING NUMBER:
WM-1



SECTION

METER BOXES

16 mm	METER	-	BROOKS 37
16x19 mm	METER	-	BROOKS 37
19 mm	METER	-	BROOKS 66
25 mm	METER	-	BROOKS 66

No. DESCRIPTION

1	INLET BALL VALVE (FULL PORT)
2	DUAL CHECK VALVE (IN SETTER)
3	TYPE K COPPER SPOOL PIECE IN PLACE OF METER

NOTES:

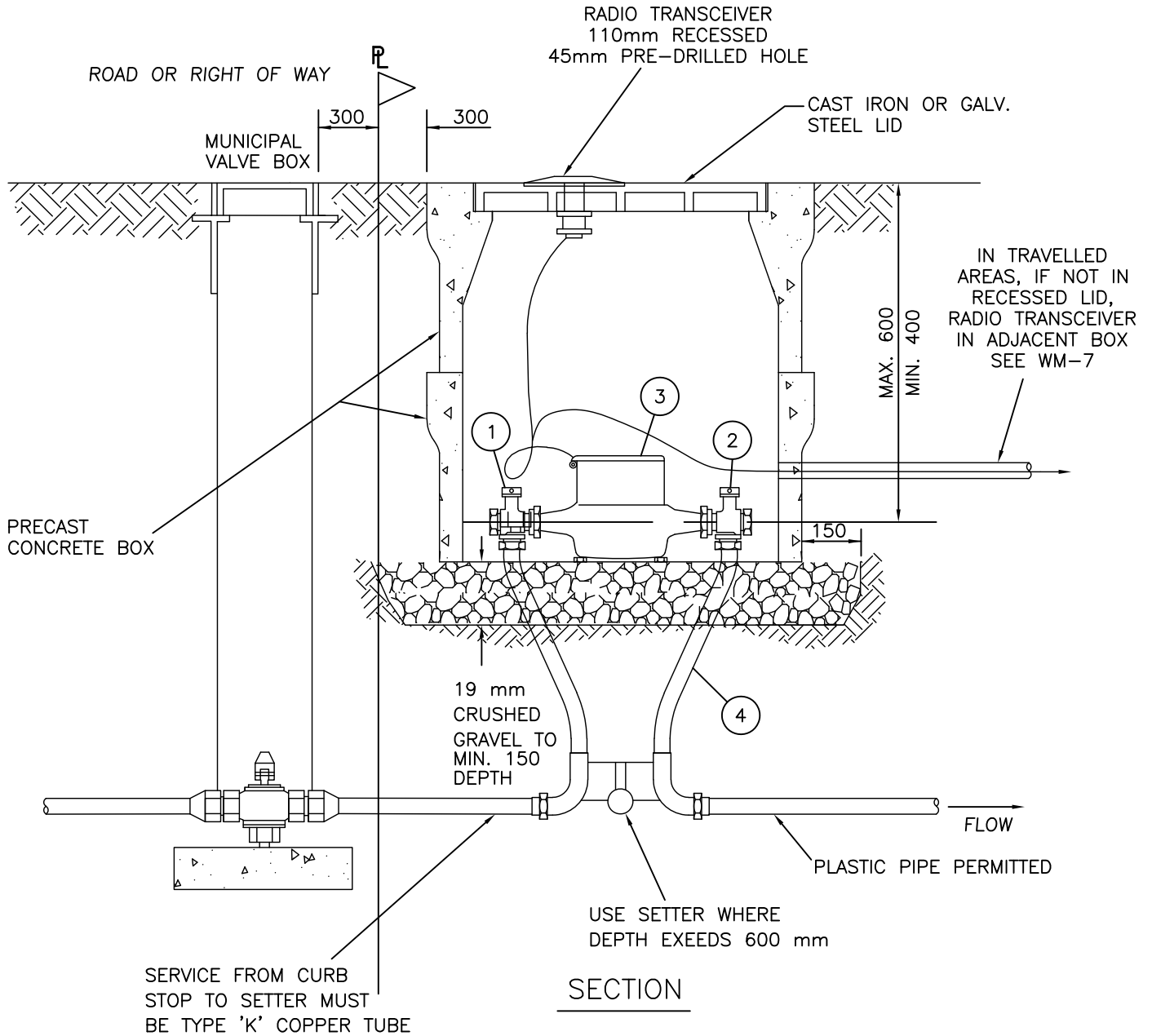
1. THIS DRAWING SHOULD BE REVIEWED WITH WATER METER SPECIFICATIONS DOCUMENT.
2. REFER TO SECTION 33 11 01 FOR DETAILED SPECIFICATIONS.

3. METER SETTER TO BE LOCATED ON PRIVATE PROPERTY (300mm FROM PROPERTY LINE) IF BEING INSTALLED AS PART OF A DEVELOPMENT.

16mm ϕ - 25mm ϕ METER SETTER
INSTALLATION

DATE: 01 DEC/2021
DRAWN: REY
SCALE: N.T.S.

DRAWING NUMBER:
COQ-W2m



METER BOXES

16 mm	METER	-	BROOKS 37
16x19 mm	METER	-	BROOKS 37
19 mm	METER	-	BROOKS 66
25 mm	METER	-	BROOKS 66

No.

DESCRIPTION

1	INLET BALL VALVE (FULL PORT)
2	DUAL CHECK VALVE (IN SETTER)
3	APPROVED METER
4	APPROVED METER SETTER

Note: This drawing should be reviewed with water meter specifications document.

**16mm \varnothing - 25mm \varnothing POSITIVE
DISPLACEMENT METER INSTALLATION**

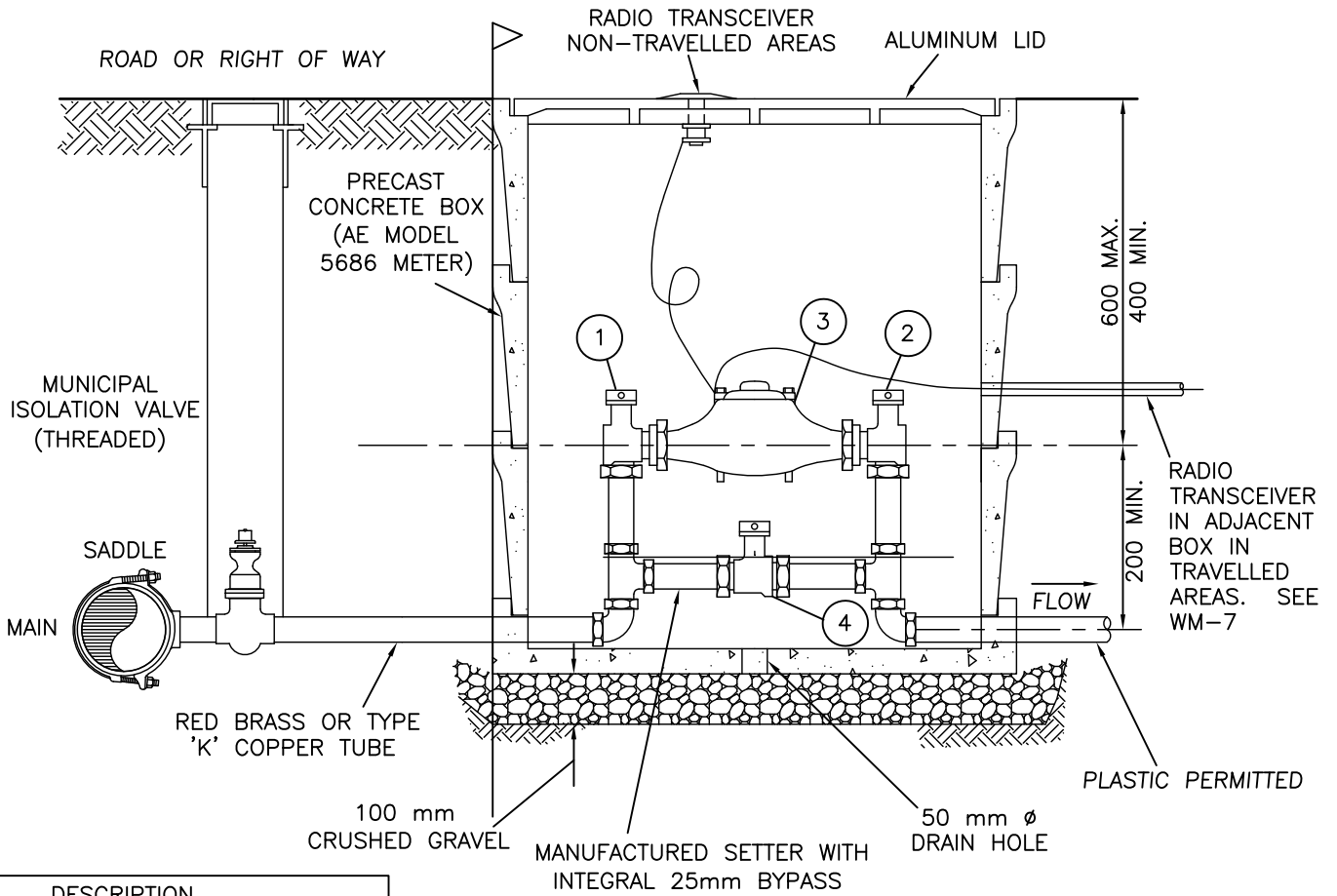
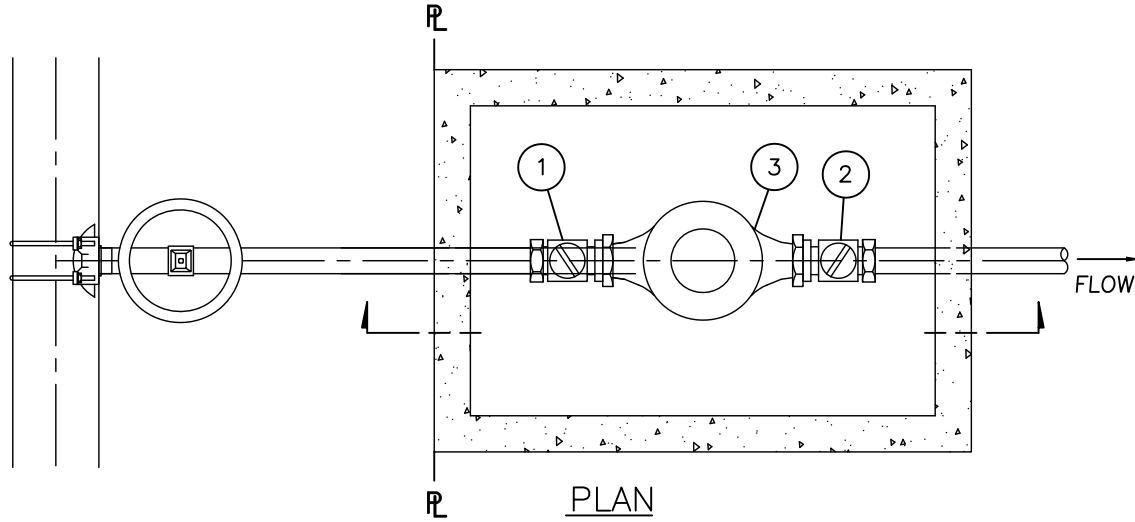
DATE: 01 DEC/2021

DRAWN: REY

SCALE: N.T.S.

DRAWING NUMBER:

WM-2



No.	DESCRIPTION
1	STOP WITH LOCKWING
2	DOWNSTREAM STOP
3	METER
4	BYPASS STOP WITH LOCKWING

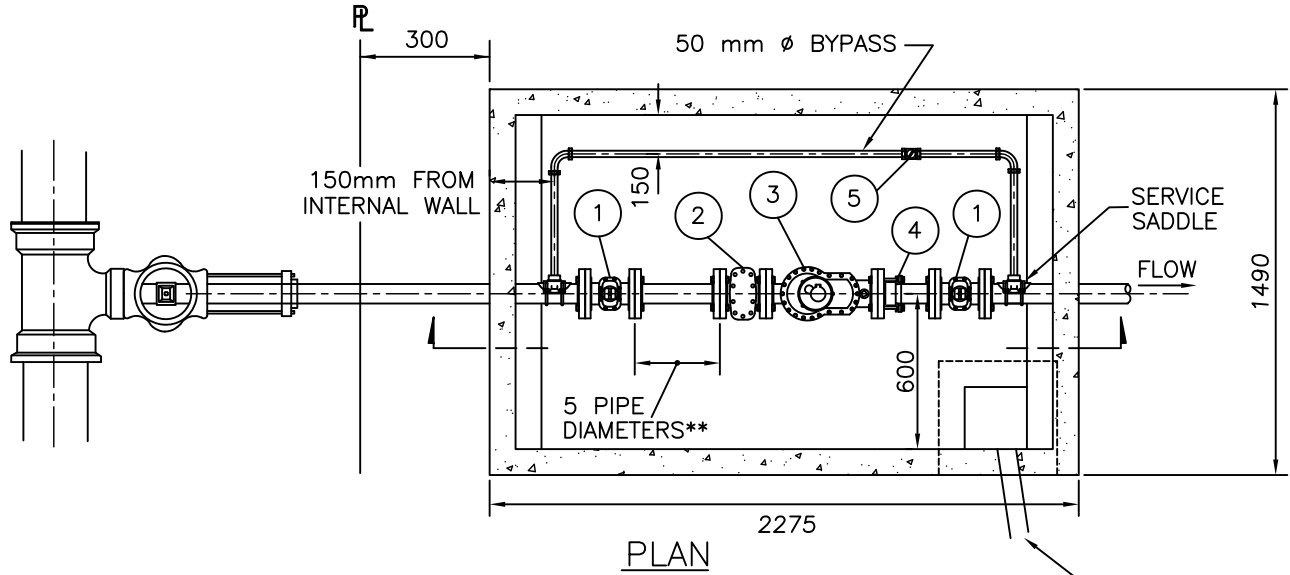
NOTES:
 ALL FIELD JOINTS TO BE THREADED OR COMPRESSION.
 ALL PIPE TO BE BRASS OR COPPER TUBE.
 MANUFACTURED SETTERS MAY HAVE SOLDERED JOINTS.

PLOTTED: 1-Dec-21

**38mm \varnothing - 50mm \varnothing POSITIVE
 DISPLACEMENT METER INSTALLATION**

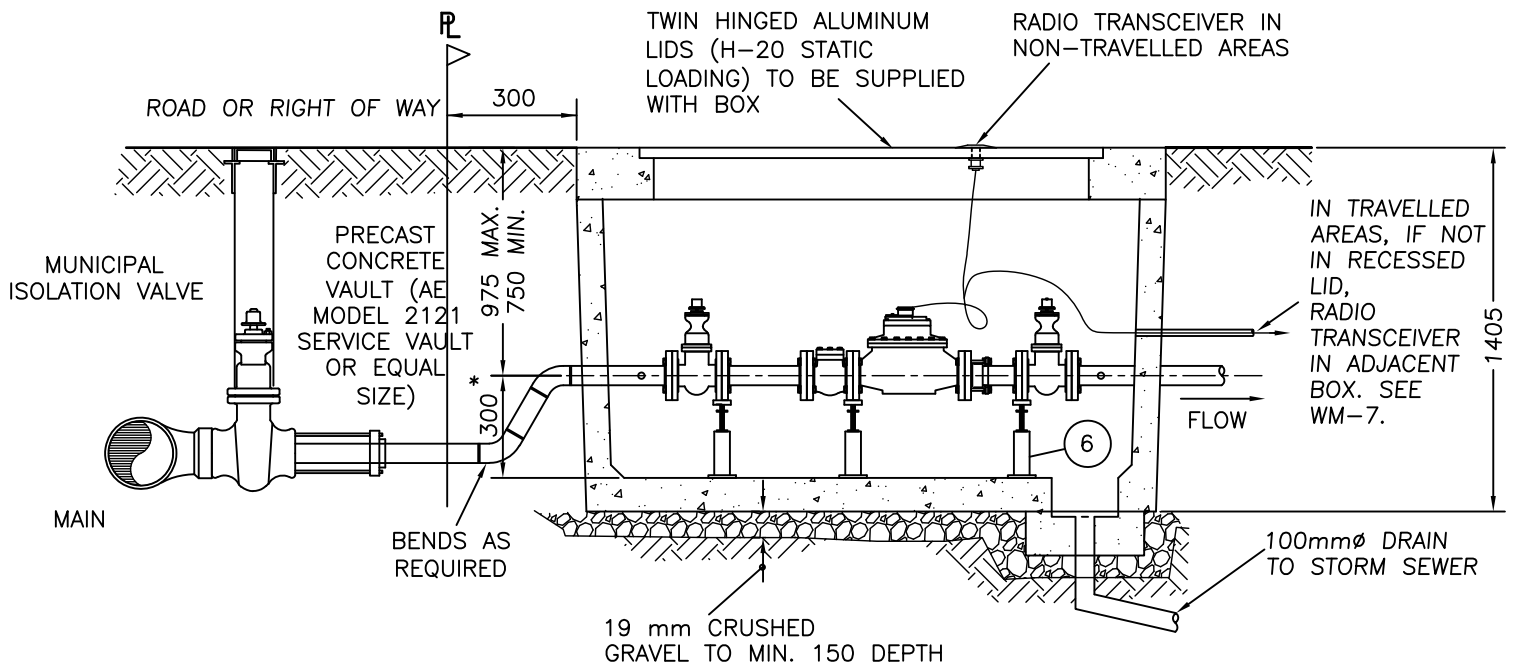
DATE: DEC/2021
 DRAWN: REY
 SCALE: N.T.S.

DRAWING NUMBER:
WM-3



PLAN

100mm ϕ DRAIN TO STORM SEWER



SECTION

NOTES:

1. THIS DRAWING SHOULD BE REVIEWED WITH WATER METER SPECIFICATIONS DOCUMENT.
2. PIPE TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.
3. REFER DISTANCES IN WATER METER SPECIFICATIONS DOCUMENT.
4. CONNECTIONS:
BRASS: IPT
COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED
STEEL: FLANGED, "UNIFLANGE", OR "EZ FLANGE" OR VICTAULIC

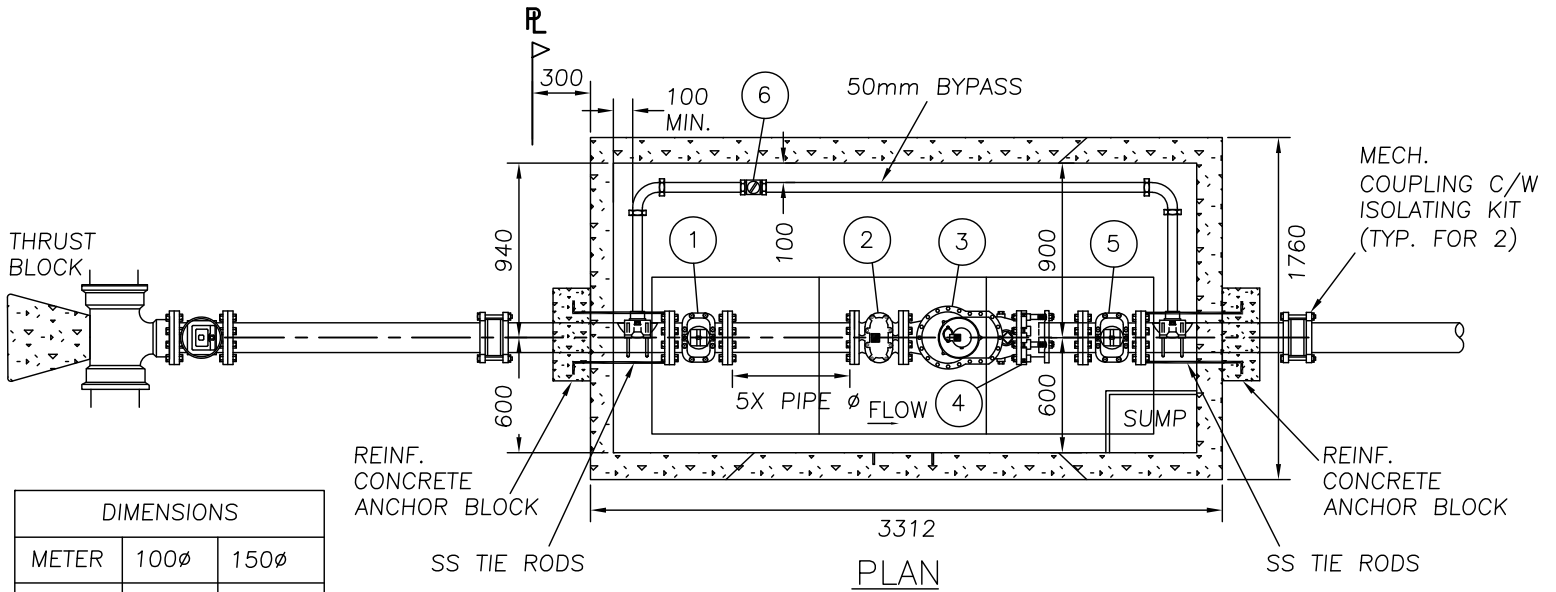
No.	DESCRIPTION
1	GATE VALVE (ISOLATION)
2	STRAINER
3	APPROVED METER
4	MECHANICAL FLANGE ADAPTOR
5	BYPASS BALL VALVE WITH LOCKWING
6	ADJUSTABLE PIPE STANDS

**75mm ϕ COMPOUND
METER INSTALLATION**

DATE: 01 DEC/2021
DRAWN: REY
SCALE: N.T.S.

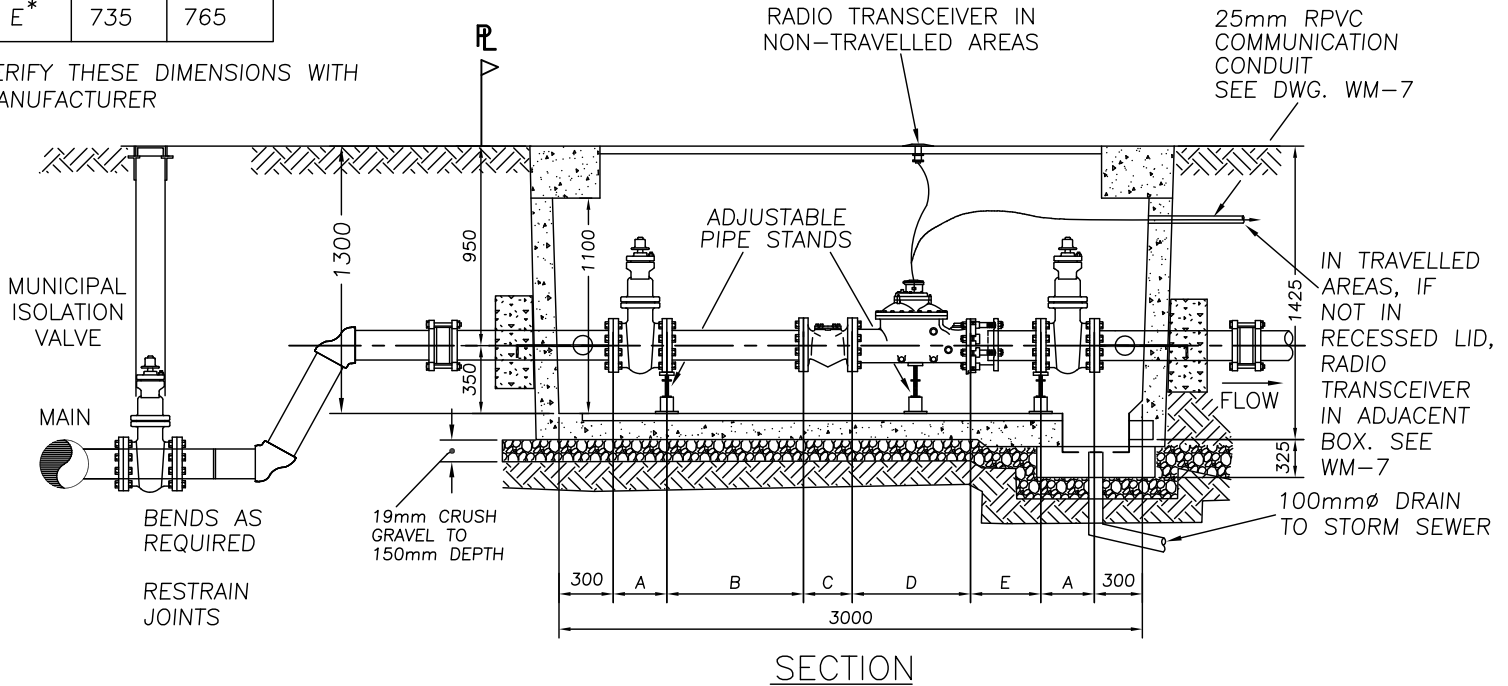
DRAWING NUMBER:

WM-4



DIMENSIONS		
METER	100 ϕ	150 ϕ
A	229	267
B	508	762
C*	191	229
D*	508	610
E*	735	765

* VERIFY THESE DIMENSIONS WITH MANUFACTURER



NOTES:
PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.

CONNECTIONS:
BRASS: IPT
COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED
STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC

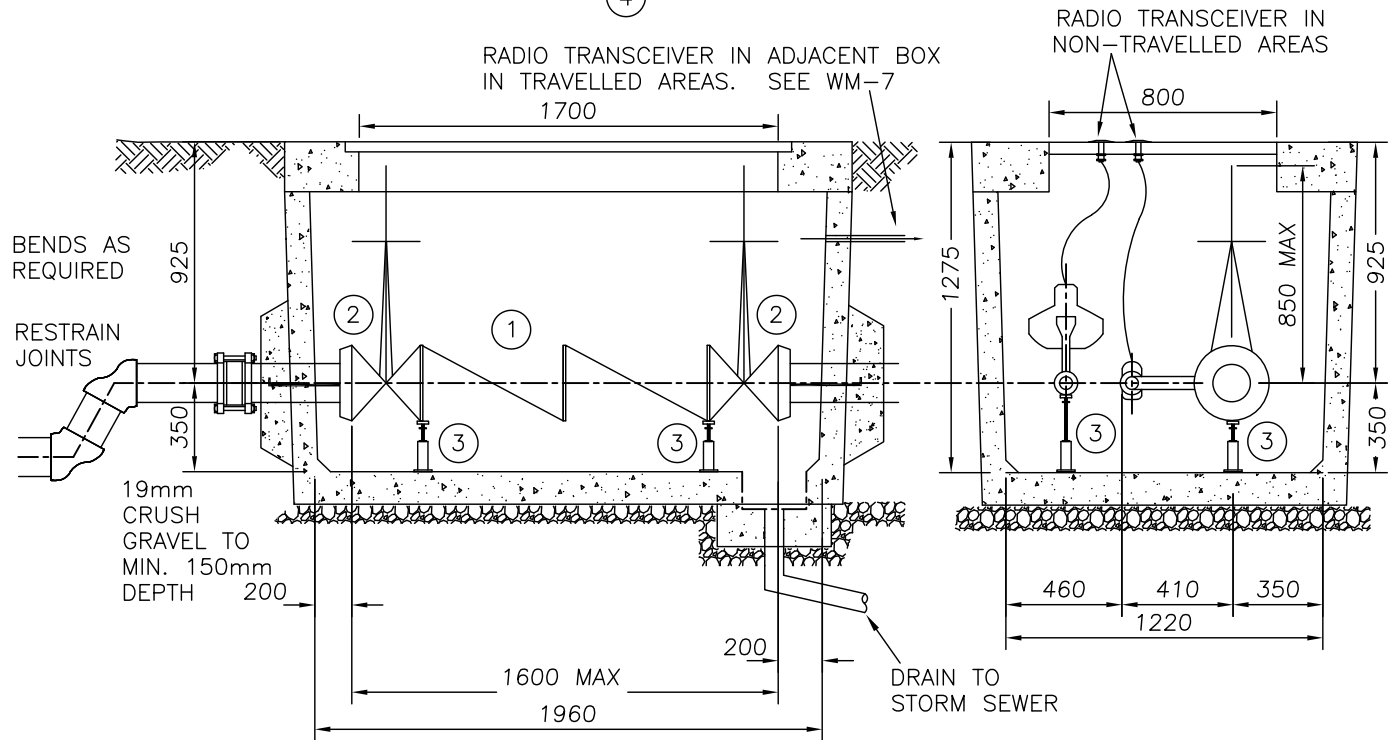
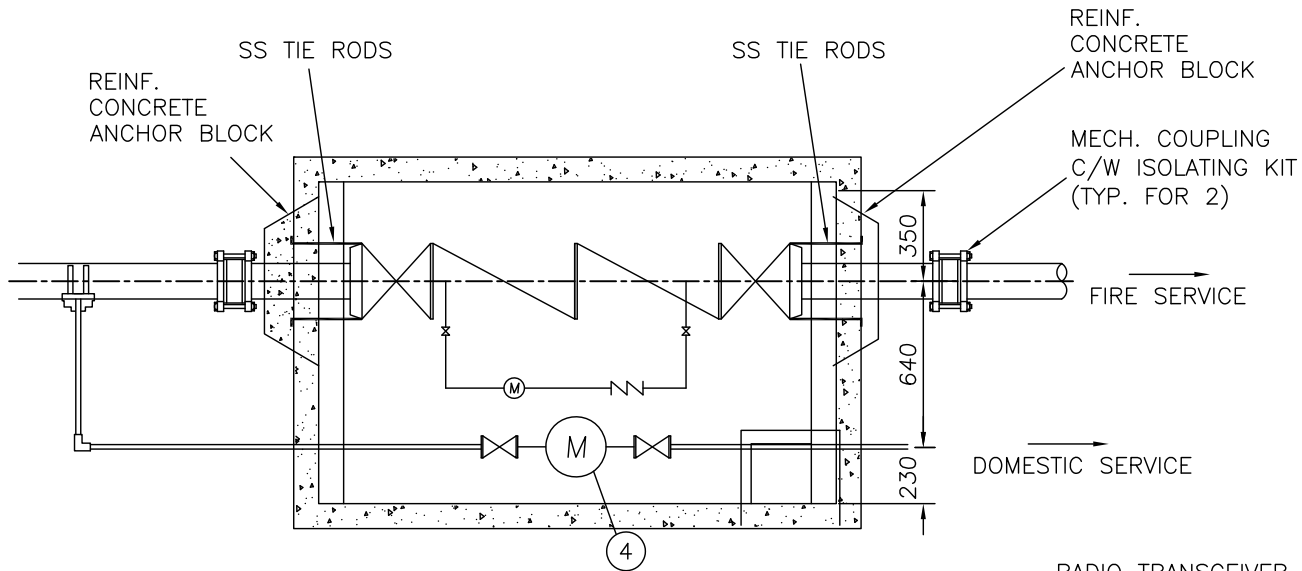
CHAMBER:
AE CONCRETE MODEL 3151 VAULT OR EQUAL SIZE

No.	DESCRIPTION
1	UPSTREAM RESILENT SEAT GATE VALVE
2	STRAINER
3	APPROVED METER
4	MECHANICAL FLANGE ADAPTOR
5	DOWNSTREAM RESILENT SEAT GATE VALVE
6	BYPASS BALL VALVE WITH LOCKWING

**100mm ϕ - 150mm ϕ
COMPOUND METER INSTALLATION**

DATE: 01 DEC/2021
DRAWN: REY
SCALE: N.T.S.

DRAWING NUMBER:
WM-5



NOTES

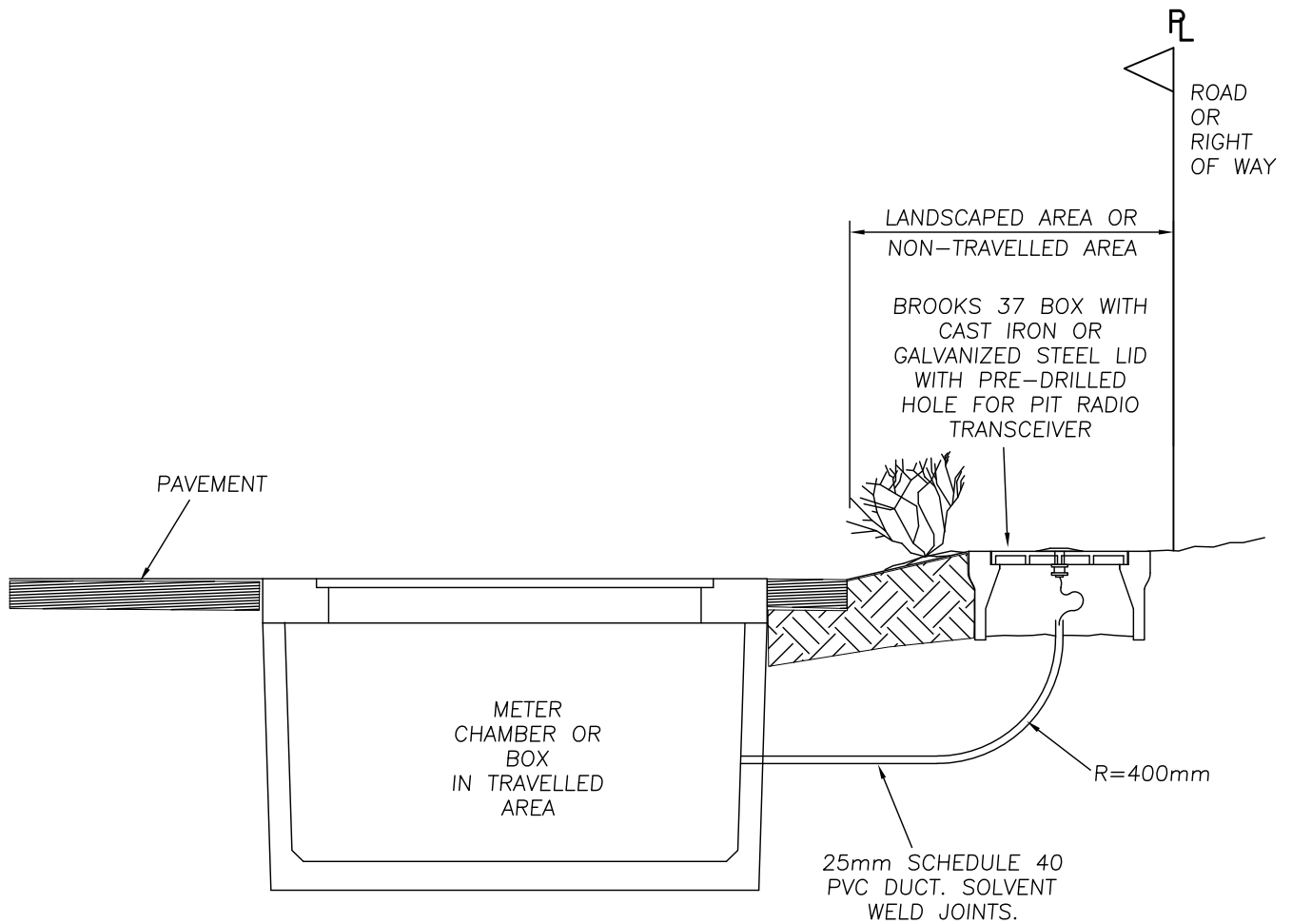
1. THIS DRAWING SHOULD BE REVIEWED WITH WATER METER SPECIFICATIONS DOCUMENT.
2. PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.
3. CONNECTIONS:
BRASS: IPT
COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED
STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC
4. AS PER BC BUILDING CODE 3.2.4.9.1), 2) & 3), VALVE HANDWHEELS CONTROLLING THE FIRE WATER SERVICE SHALL BE ELECTRICALLY SUPERVISED AND MONITORED.
5. VAULT: AE CONCRETE MODEL 2121 OR EQUAL SIZE

No.	DESCRIPTION
1	FM APPROVED ULC LISTED DOUBLE DETECTOR CHECK ASSEMBLY CW 2 OS & Y GATE VALVES, TEST COCKS, APPROVED METER AND BY PASS.
2	"UNIFLANGE" OR "MEGA LUG" FLANGE ADAPTORS.
3	ADJUSTABLE PIPE STANDS.
4	50mm AND SMALLER DOMESTIC METER. METERS > 50mm REQUIRE SEPARATE VAULT.

SEPARATE DOMESTIC METER AND 100mm - 150mm FIRE SERVICE WITH DOUBLE DETECTOR CHECK VALVE INSTALLATION

DATE:	01 DEC/2021
DRAWN:	REY
SCALE:	N.T.S.

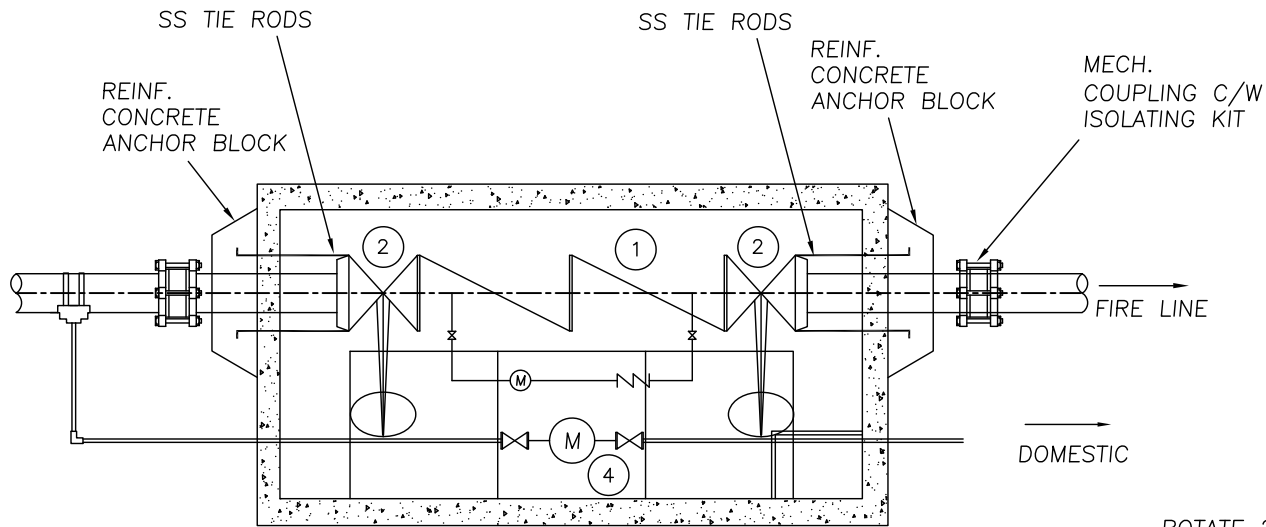
DRAWING NUMBER:
WM-6



**PIT RADIO TRANSCEIVER
INSTALLATION IN TRAVELLED AREAS**

DATE:	01 DEC/2021
DRAWN:	REY
SCALE:	N.T.S.

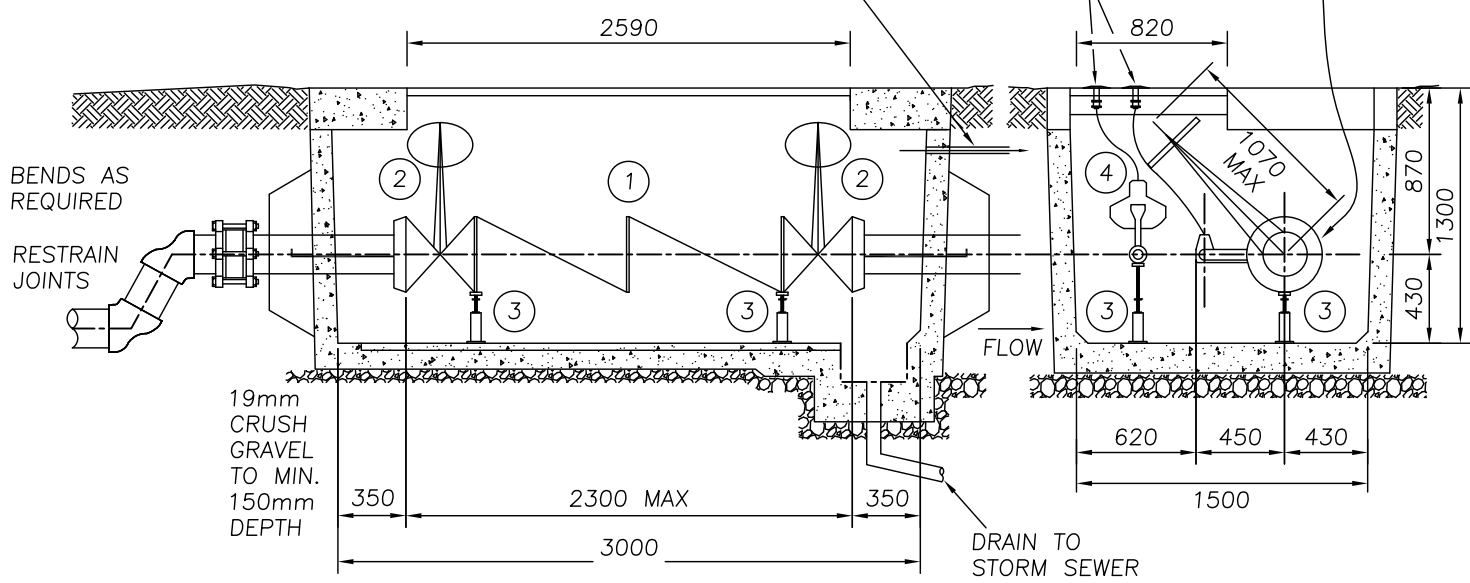
DRAWING NUMBER:
WM-7



RADIO TRANSCEIVER IN ADJACENT BOX IN TRAVELLED AREAS. SEE WM-7

RADIO TRANSCEIVER IN NON-TRAVELLED AREAS

ROTATE 200mm GATE VALVES 1 BOLT HOLE.



NOTES

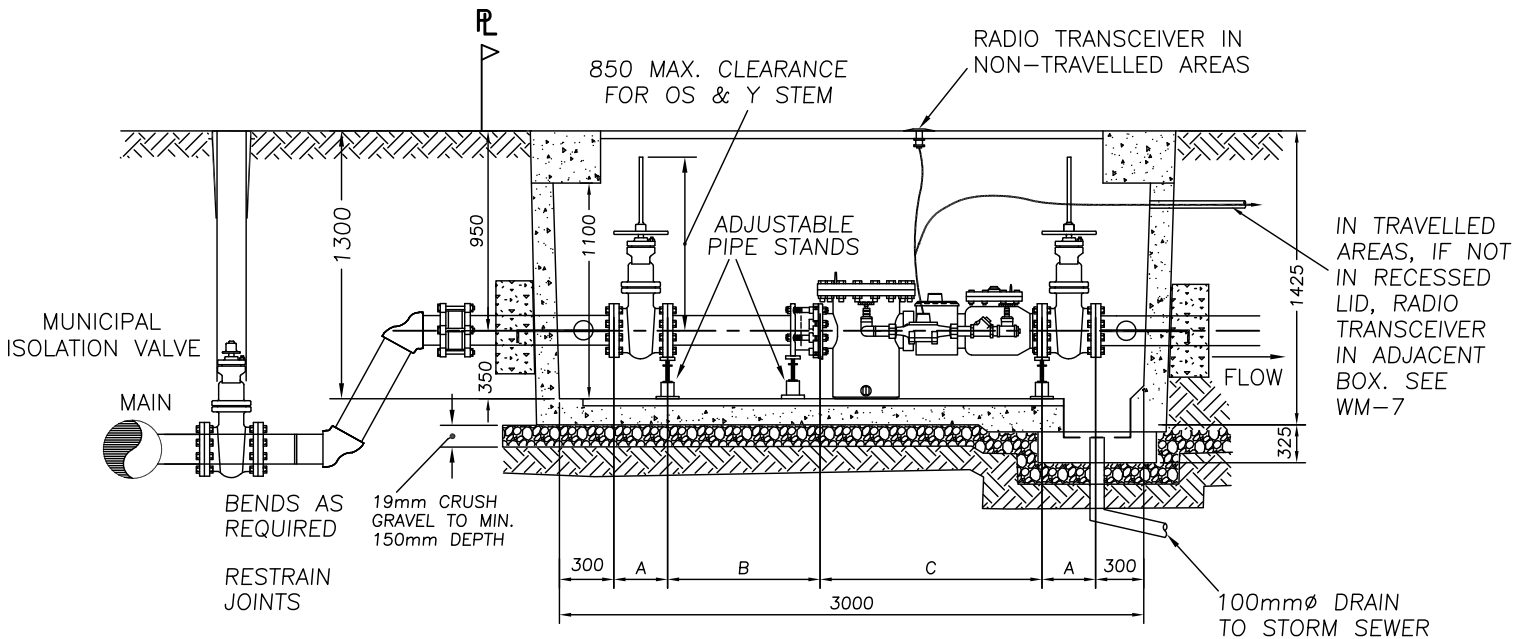
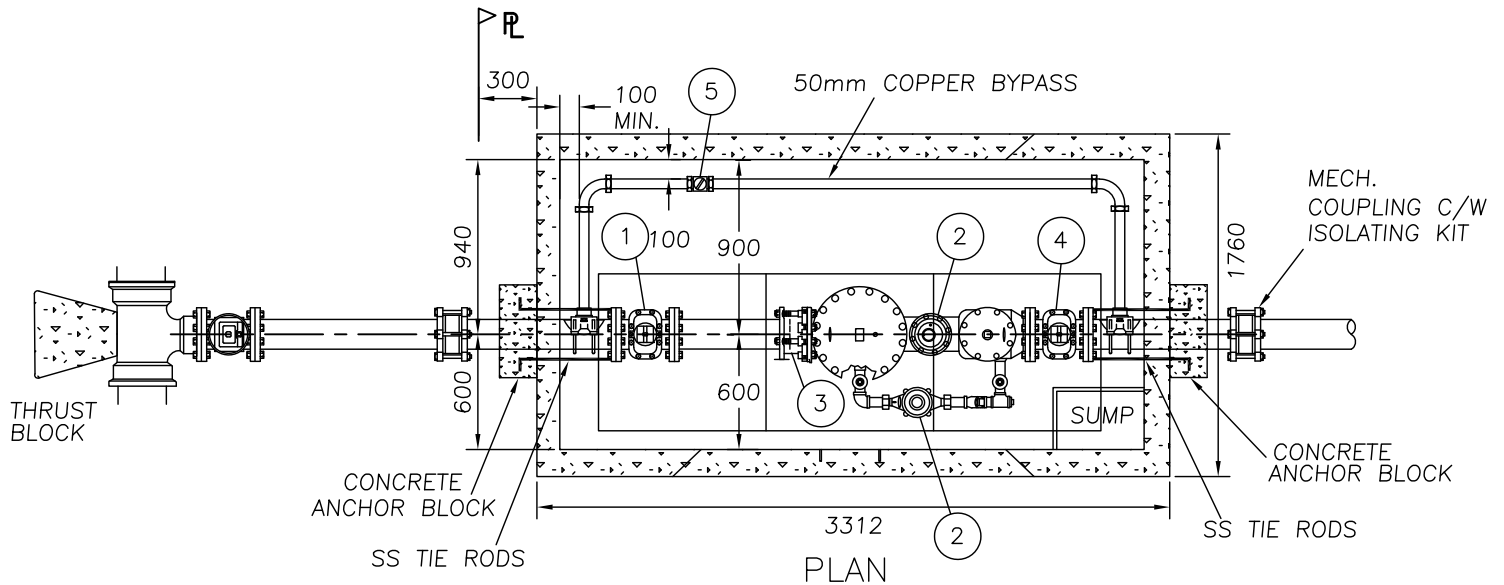
1. THIS DRAWING SHOULD BE REVIEWED WITH WATER METER SPECIFICATIONS DOCUMENT.
2. PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.
3. CONNECTIONS:
BRASS: IPT
COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED
STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC
4. AS PER BC BUILDING CODE 3.2.4.9.1), 2) & 3), VALVE HANDWHEELS CONTROLLING THE FIRE WATER SERVICE SHALL BE ELECTRICALLY SUPERVISED AND MONITORED.
5. VAULT: AE CONCRETE MODEL 2121 OR EQUAL SIZE

No.	DESCRIPTION
1	FM APPROVED ULC LISTED DOUBLE DETECTOR CHECK ASSEMBLY C/W 2 OS & Y GATE VALVES, TEST COCKS, APPROVED METER AND BY PASS.
2	"UNIFLANGE" OR "MEGA LUG" FLANGE ADAPTORS.
3	ADJUSTABLE PIPE STANDS.
4	DOMESTIC METERS 50mm WITH LOW BYPASS SETTER. METERS > 50mm REQUIRE SEPARATE VAULT.

SEPARATE FIRE/DOMESTIC LINES METER INSTALLATION

DATE:	01 DEC/2021
DRAWN:	REY
SCALE:	N.T.S.

DRAWING NUMBER:
WM-8



SECTION

No.	DESCRIPTION
1	UPSTREAM RESILIENT SEAT GATE VALVE (OS & Y)
2	APPROVED FIRE SERVICE METER
3	MECHANICAL FLANGE ADAPTOR
4	DOWNSTREAM RESILIENT SEAT GATE VALVE (OS & Y)
5	BYPASS BALL VALVE WITH LOCKWING

NOTES

- THIS DRAWING SHOULD BE REVIEWED WITH WATER METER SPECIFICATIONS DOCUMENT.
- PIPE: TO BE TYPE K COPPER, BRASS, EPOXY COATED WELDED STEEL OR SS.
- CONNECTIONS:
BRASS: IPT
COPPER: COMPRESSION OR VICTAULIC. NO SOLDER PERMITTED
STEEL: FLANGED, "UNIFLANGE", "EZ FLANGE" OR VICTAULIC
- AS PER BC BUILDING CODE 3.2.4.9.1), 2) & 3), VALVE HANDWHEELS CONTROLLING THE FIRE WATER SERVICE SHALL BE ELECTRICALLY SUPERVISED AND MONITORED.
- VAULT: AE CONCRETE MODEL 2121 OR EQUAL SIZE

DIMENSIONS	
METER	150 ϕ
A	267
B	723
C*	1143

* VERIFY THESE DIMENSIONS WITH MANUFACTURER

150mm ϕ COMBINED FIRE/DOMESTIC METER INSTALLATION

DATE: 01 DEC/2021

DRAWN: REY

SCALE: N.T.S.

DRAWING NUMBER:

WM-9