Waterworks

Sheet Number	Sheet Title	Description
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W0.2	DRAWING INDEX	WATERWORKS
W1.1	THRUST BLOCKS FOR HORIZONTAL BENDS	CAPS, PLUGS, TEES & 90° ELBOWS
W1.2	THRUST BLOCKS FOR HORIZONTAL BENDS	45° ELBOWS & 22.5° ELBOWS
W1.3	THRUST BLOCKS FOR HORIZONTAL BENDS	11.25° ELBOWS
W2a.1	SERVICES	20mm & 25mm
W2a.2	SERVICES	40mm & 50mm
W2a.3	SERVICES	100mm & LARGER
W2a.4	SERVICES	DEFINITIONS
W2a.5	SERVICES	HDPE SERVICE (MJ)
W2a.6	SERVICES	HDPE SERVICE (FLANGE)
W2a.7	SERVICES	HDPE SERVICE (FLANGE WET TAP)
W2a.8	SERVICES	HDPE SERVICE (MJ WET TAP)
W2c.1	METERS (CHAMBER)	20mm-50mm
W2c.2	METERS (CHAMBER)	75mm-200mm (LID FULLY REMOVABLE)
W2c.3	METERS (CHAMBER)	75mm-200mm (MAINTENANCE HOLE ACCESS)
W2d.1	METERS (INDOOR)	20mm-50mm
W2d.2	METERS (INDOOR)	75mm-200mm (BYPASS ABOVE MAINLINE)
W2d.3	METERS (INDOOR)	75mm-200mm (BYPASS ADJACENT TO MAINLINE)
W2e.1	METERS (RESIDENTIAL)	25mm METER ON 40mm SERVICE
W2e.2	METERS (RESIDENTIAL)	40mm METER ON 50mm SERVICE
W2e.3	METERS (RESIDENTIAL)	20mm METER RETROFITTED ON 20mm SERVICE
W3.1	GATE VALVES	TYPICAL VALVE INSTALLATION
W3.2	GATE VALVES	LOCATIONS
W4.1	FIRE HYDRANTS	LOCATIONS
W4.2	FIRE HYDRANTS	DETAILS
W5.1	SAMPLING STATIONS	LOCATIONS
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W6.1	AIR VALVES	INSTALLATION IN BOULEVARD
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W8.1	BLOWOFFS	UNDER TRAFFIC LOAD
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W9.1	BLOWDOWNS	150mm BLOWDOWN INTO MAINTENANCE HOLE
W9.2	BLOWDOWNS	150mm FIRE HYDRANT BLOWDOWN
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W11.2	PIPE	LANDSCAPING RESTRICTIONS
W11.3	PIPE	CROSSING OVER HIGH-VOLTAGE ELECTRICAL DUCT
W12.1	APPURTENANCES	TEMPORARY END CAPS

Waterworks

Sheet Number	Sheet Title	Description
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W13.2	CASTINGS	METER BOX LIDS NO. 4 & 5
W13.3	CASTINGS	METER BOX FRAME NO. 6
W13.4	CASTINGS	METER BOX LID NO. 6
W13.5	CASTINGS	METER BOX FRAME NO. 7
W13.6	CASTINGS	METER BOX LID NO. 7
W14.1	CASTINGS	MAINTENANCE HOLE FRAME NO. WW1
W14.2	CASTINGS	MAINTENANCE HOLE COVER NO. WW1
W14.3	CASTINGS	MAINTENANCE HOLE COVER NO. 2
W15.1	CASTINGS	TELESCOPIC VALVE BOX
W15.2	CASTINGS	TELESCOPIC VALVE BOX LID
W15.3	CASTINGS	SPECIAL TELESCOPIC VALVE BOX LID
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W16.1	CASTINGS	CAST IRON LID FOR PVC SERVICE BOX
W16.2	CASTINGS	TYPE A SERVICE BOX
W17.1	JOINT HARNESS	DETAILS
W17.2	JOINT HARNESS	TIE BOLTS & STUD DIAMETERS
W18.1	BACKFLOW PREVENTERS	CONSTRUCTION WATER SERVICE BACKFLOW PREVENTER
W19.1	CHAMBERS	20mm, 25mm, 40mm, & 50mm METER BOXES
W19.2	CHAMBERS	75mm & 100mm COMPOUND METERS TOP SECTION
W19.3	CHAMBERS	75mm & 100mm COMPOUND METERS TOP SECTION
W19.4	CHAMBERS	75mm & 100mm COMPOUND METERS BOTTOM SECTION
W19.5	CHAMBERS	75mm & 100mm COMPOUND METERS BOTTOM SECTION
W19.6	CHAMBERS	FIRELINE METER BOTTOM SECTION
W19.7	CHAMBERS	FIRELINE METER TOP SECTION
W19.8	CHAMBERS	FIRELINE METER LID
W19.9	CHAMBERS	VALVE BOX BASE
W20.1	WATER FOUNTAINS	SPACE REQUIREMENTS
W20.2	WATER FOUNTAINS	DRAINING TO A ROCK PIT
W20.3	WATER FOUNTAINS	DRAINING TO STORM SEWER MAIN

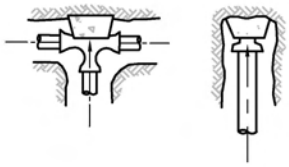
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W1.1

FORCES	
CLASS 52 D.I. PIPE O.D.	
OPERATING PRESSURE (psi)	150
WATER HAMMER ALLOWANCE	1.50
TESTING PRESSURE (psi)	225
FACTOR OF SAFETY	1.33
DESIGN PRESSURE (psi)	300
THRUST BLOCKS	
FACTOR OF SAFETY	2.00

CAPS, PLUGS & TEES



90° ELBOWS

MAX. ALLOWABLE SOIL BEARING LOADS (psf)	PIPE SIZE (inches)	PIPE SIZE (mm)	THRUST (lb)	MIN. BLOCK BASE AREA (sq. ft.)	MIN. BLOCK BASE AREA (m^2)	THRUST (lb)	MIN. BLOCK BASE AREA (sq. ft.)	MIN. BLOCK BASE AREA (m^2)
20,000 HARDPAN OR SHALE	4	100	5,429	0.5	0.05	7,677	0.8	0.07
	6	150	11,218	1.1	0.10	15,864	1.6	0.15
	8	200	19,298	1.9	0.18	27,291	2.7	0.25
	12	300	41,054	4.1	0.38	58,060	5.8	0.54
12,000 HARD CLAY	4	100	5,429	0.9	0.08	7,677	1.3	0.12
	6	150	11,218	1.9	0.17	15,864	2.6	0.25
	8	200	19,298	3.2	0.30	27,291	4.5	0.42
	12	300	41,054	6.8	0.64	58,060	9.7	0.90
6,000 SAND (COARSE & LOOSE OR FINE & COMPACT)	4	100	5,429	1.8	0.17	7,677	2.6	0.24
	6	150	11,218	3.7	0.35	15,864	5.3	0.49
	8	200	19,298	6.4	0.60	27,291	9.1	0.85
	12	300	41,054	13.7	1.27	58,060	19.4	1.80
2,000 SOFT CLAY	4	100	5,429	5.4	0.50	7,677	7.7	0.71
	6	150	11,218	11.2	1.04	15,864	15.9	1.47
	8	200	19,298	19.3	1.79	27,291	27.3	2.54
	12	300	41,054	41.1	3.81	58,060	58.1	5.39

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

THRUST BLOCKS FOR HORIZONTAL BENDS CAPS, PLUGS, TEES & 90° ELBOWS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W1.2

		45° ELBOWS			22.5° ELBOWS		
FORCES		SEE 22.5° ELBOW					
CLASS 52 D.I. PIPE O.D.							
OPERATING PRESSURE (psi)	150						
WATER HAMMER ALLOWANCE	1.50						
TESTING PRESSURE (psi)	225						
FACTOR OF SAFETY	1.33						
DESIGN PRESSURE (psi)	300						
THRUST BLOCKS							
FACTOR OF SAFETY	2.00						

MAX. ALLOWABLE SOIL BEARING LOADS (psf)	PIPE SIZE (inches)	PIPE SIZE (mm)	THRUST (lb)	MIN. BLOCK BASE AREA (sq. ft.)	MIN. BLOCK BASE AREA (m^2)	THRUST (lb)	MIN. BLOCK BASE AREA (sq. ft.)	MIN. BLOCK BASE AREA (m^2)
20,000 HARDPAN OR SHALE	4	100	4,155	0.4	0.04	2,118	0.2	0.02
	6	150	8,586	0.9	0.08	4,377	0.4	0.04
	8	200	14,770	1.5	0.14	7,530	0.8	0.07
	12	300	31,422	3.1	0.29	16,019	1.6	0.15
12,000 HARD CLAY	4	100	4,155	0.7	0.06	2,118	0.4	0.03
	6	150	8,586	1.4	0.13	4,377	0.7	0.07
	8	200	14,770	2.5	0.23	7,530	1.3	0.12
	12	300	31,422	5.2	0.49	16,019	2.7	0.25
6,000 SAND (COARSE & LOOSE OR FINE & COMPACT)	4	100	4,155	1.4	0.13	2,118	0.7	0.07
	6	150	8,586	2.9	0.27	4,377	1.5	0.14
	8	200	14,770	4.9	0.46	7,530	2.5	0.23
	12	300	31,422	10.5	0.97	16,019	5.3	0.50
2,000 SOFT CLAY	4	100	4,155	4.2	0.39	2,118	2.1	0.20
	6	150	8,586	8.6	0.80	4,377	4.4	0.41
	8	200	14,770	14.8	1.37	7,530	7.5	0.70
	12	300	31,422	31.4	2.92	16,019	16.0	1.49

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

THRUST BLOCKS FOR HORIZONTAL BENDS
45° ELBOWS & 22.5° ELBOWS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W1.3

		11.25° ELBOWS
FORCES		SEE 22.5° ELBOW
CLASS 52 D.I. PIPE O.D.		
OPERATING PRESSURE (psi)	150	
WATER HAMMER ALLOWANCE	1.50	
TESTING PRESSURE (psi)	225	
FACTOR OF SAFETY	1.33	
DESIGN PRESSURE (psi)	300	
THRUST BLOCKS		
FACTOR OF SAFETY	2.00	

MAX. ALLOWABLE SOIL BEARING LOADS (psf)	PIPE SIZE (inches)	PIPE SIZE (mm)	THRUST (lb)	MIN. BLOCK BASE AREA (sq. ft.)	MIN. BLOCK BASE AREA (m^2)
20,000 HARDPAN OR SHALE	4	100	1,064	0.1	0.01
	6	150	2,199	0.2	0.02
	8	200	3,783	0.4	0.04
	12	300	8,048	0.8	0.07
12,000 HARD CLAY	4	100	1,064	0.2	0.02
	6	150	2,199	0.4	0.03
	8	200	3,783	0.6	0.06
	12	300	8,048	1.3	0.12
6,000 SAND (COARSE & LOOSE OR FINE & COMPACT)	4	100	1,064	0.4	0.03
	6	150	2,199	0.7	0.07
	8	200	3,783	1.3	0.12
	12	300	8,048	2.7	0.25
2,000 SOFT CLAY	4	100	1,064	1.1	0.10
	6	150	2,199	2.2	0.20
	8	200	3,783	3.8	0.35
	12	300	8,048	8.0	0.75

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

THRUST BLOCKS FOR HORIZONTAL BENDS
11.25° ELBOWS

ISSUE DATE: SEPTEMBER 2018

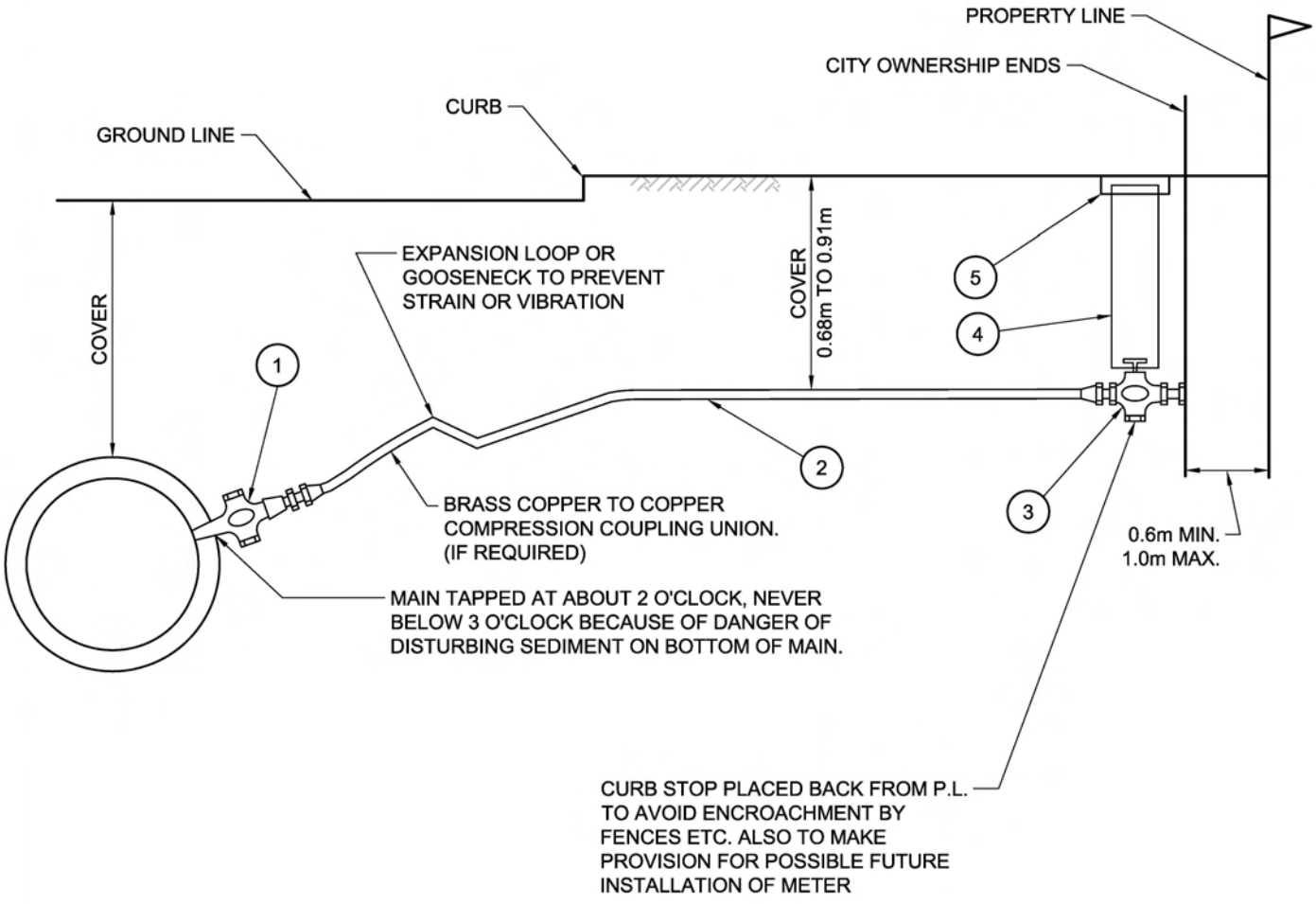
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2a.1



LEGEND:

(1)	MAIN STOP	BRASS, MUELLER THREAD (MALE) WITH SUITABLE END CONNECTION FOR COPPER TUBE BURIED.
(2)	COPPER SERVICE	COPPER WATER TUBE CONFORMING TO ASTM B88 TYPE K SOFT, ANNEALED AND SUPPLIED IN COILS.
(3)	CURB STOP	BRASS, END FOR COPPER TO IRON PIPE THREAD (FEMALE) OR END FOR IPS POLYETHYLENE PIPE TO I.P. THREAD (FEMALE)
(4)	SERVICE BOX	"NO-CO-RODE" PIPE 100mm DIA. (UNMETERED SERVICE ONLY)
(5)	SERVICE BOX COVER	CAST IRON, REFER TO DWG W16.1 (UNMETERED SERVICE ONLY)

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

SERVICES
20mm & 25mm

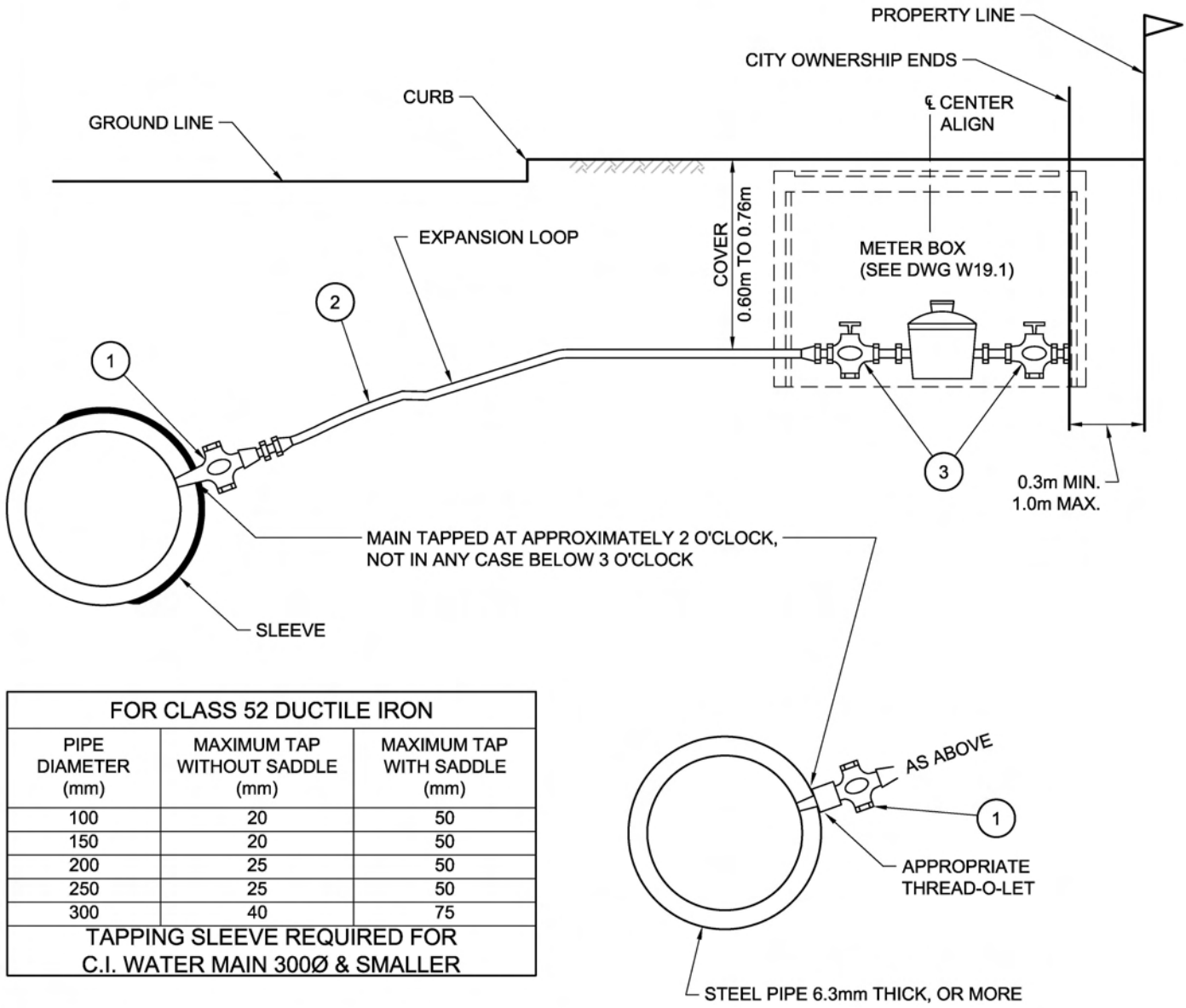
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2a.2



FOR CLASS 52 DUCTILE IRON		
PIPE DIAMETER (mm)	MAXIMUM TAP WITHOUT SADDLE (mm)	MAXIMUM TAP WITH SADDLE (mm)
100	20	50
150	20	50
200	25	50
250	25	50
300	40	75
TAPPING SLEEVE REQUIRED FOR C.I. WATER MAIN 300Ø & SMALLER		

LEGEND:

(1)	MAIN STOP	BRASS (40 OR 50mm) MUELLER THREAD (MALE) TO (50 OR 65mm) RESPECTIVELY, IRON PIPE THREAD (MALE)
(2)	COPPER SERVICE	COPPER WATER PIPE CONFORMING TO A.S.T.M. B88 TYPE K, ANNEALED (40mm) DIA. SUPPLIED IN COILS & LENGTHS (50mm) DIA. IN LENGTHS.
(3)	CURB STOP	BRASS, END FOR COPPER TO IRON PIPE THREAD (FEMALE)

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

SERVICES
40mm & 50mm

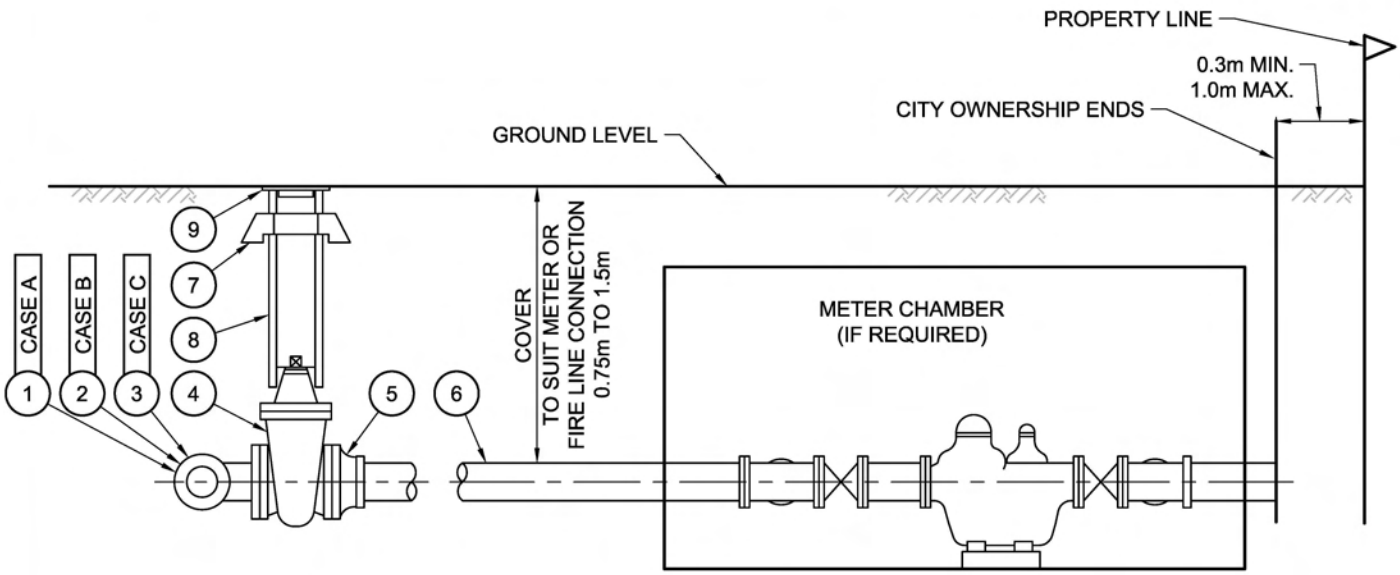
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2a.3



WET TAPPING

CASE A - SPLIT SLEEVE AS PER CITY ENGINEER APPROVED SLEEVE
USED FOR C.I. & D.I. MAINS, STEEL MAINS OTHER THAN IN CASE C, OR STEEL MAINS (6.3mm) THICK OR LESS.

DRY TAPPING

CASE B - CAST TEE (2) USED FOR ALL SIZES OF C.I. & D.I.

WET OR DRY TAPPING

CASE C - WELDED BRANCH (3) USED ON STEEL MAINS OVER (6.3mm) THICK AS FOLLOWS:
100mm SERVICE OFF 150mm MAIN OR OVER
200mm SERVICE OFF 300mm MAIN OR OVER
250mm SERVICE OFF 300mm MAIN OR OVER

LEGEND:

(1) SPLIT SLEEVE
(2) CAST TEE
(3) STEEL WELDED BRANCH
(4) CLASS 125 C.I. FLANGED VALVE, HUB ENDED FOR CASE B
(5) C.I. FLANGE TO MECHANICAL JOINT CONNECTOR (BY-LAW SCHEDULE 'A' SIZES ONLY)
(6) D.I. PIPE TO PROPERTY OWNER'S SIZE REQUIREMENTS
(7) SEE DWG W19.9 VALVE BOX BASE
(8) VALVE EXTENSION PIPE
(9) SEE DWG W15.1 TELESCOPIC VALVE BOX

* ON METERED SERVICES WHERE CHAMBER IS INSTALLED PARALLEL TO PROPERTY LINE 2-90° BENDS WILL BE REQUIRED PLUS ADEQUATE RODDING AND BLOCKING.

NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

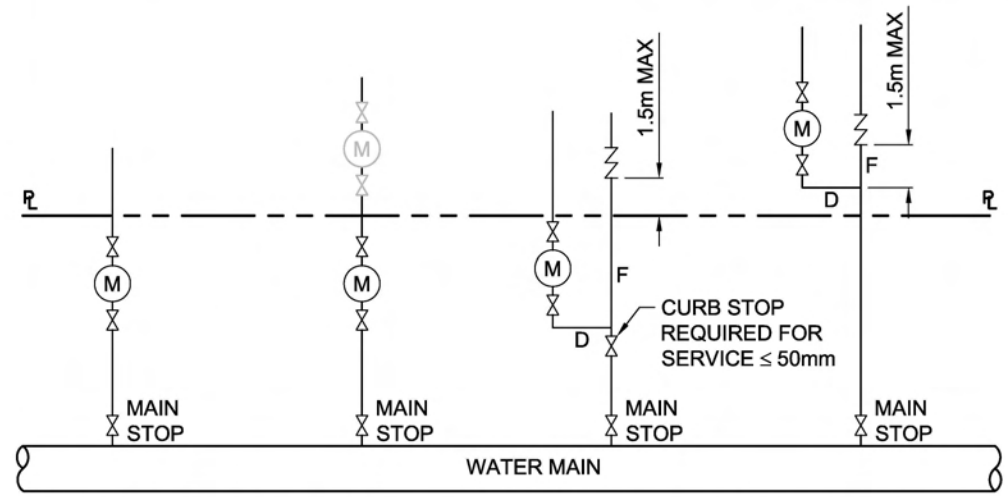
SERVICES
100mm & LARGER

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2a.4



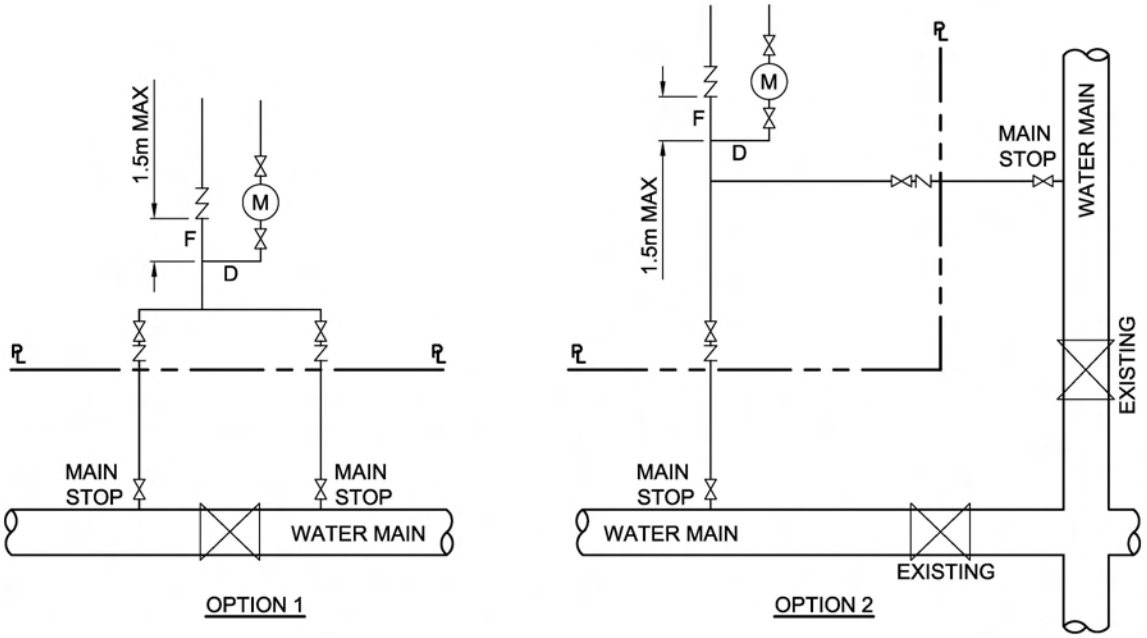
LEGEND:
- PROPERTY LINE
- GATE VALVE
- GATE VALVE (ALTERNATE LOCATION)
- CHECK VALVE
- BACKFLOW PREVENTION ASSEMBLY (BFPA)
- (M) METER
- (M) METER (ALTERNATE LOCATION)
- F FIRE LINE
- D DOMESTIC LINE

DOMESTIC SERVICE RESIDENTIAL

DOMESTIC ONLY SERVICE NON-RESIDENTIAL

COMBINED SERVICE TWIN[2]

COMBINED SERVICE DUAL[2]



COMBINED SERVICE INTERCONNECTED[3]

NOTES:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.
2. FOR METERS LARGER THAN 75mm A BYPASS IS REQUIRED.
3. CITY TO DETERMINE WHICH OPTION TO BE USED

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

SERVICES DEFINITIONS

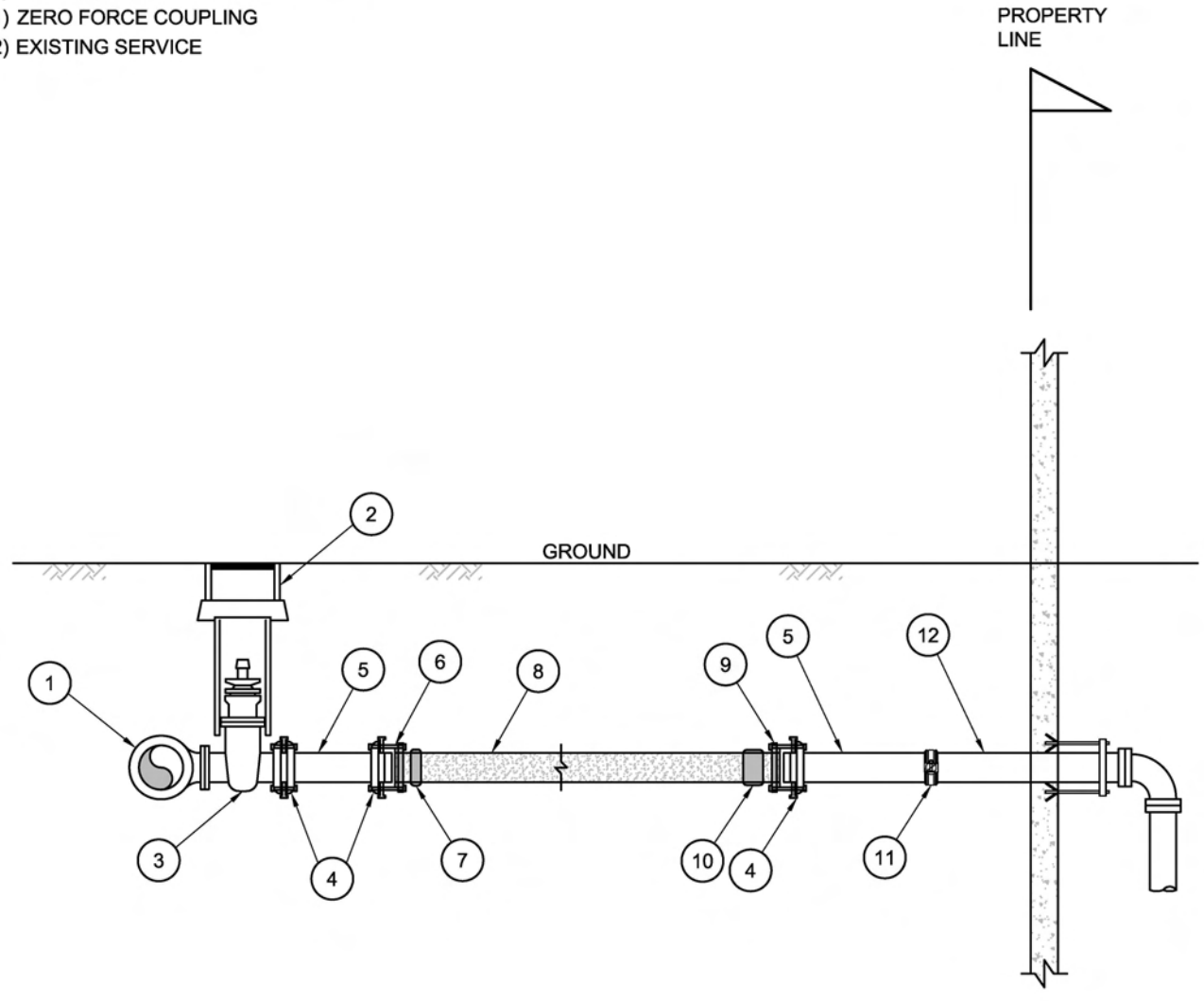
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W2a.5

LEGEND:

(1) WATER MAIN & MECHANICAL JOINT TEE
(2) VALVE BOX ASSEMBLY (VALVE EXTENSION PIPE, CONCRETE VALVE BOX BASE & LID AND TELESCOPIC VALVE BOX)
(3) SERVICE VALVE - FL X MJ
(4) WEDGE ACTION RESTRAINT (W.A.R.)
(5) D.I.C.L. SPOOL PIECE (CUT TO SUIT)
(6) HDPE MJ ASSEMBLY (BUTT FUSED)
(7) BUTT FUSED JOINT
(8) HDPE - DR11 (DIRECTIONAL DRILLED)
(9) HDPE MJ ASSEMBLY (ELECTRO FUSED)
(10) ELECTRO FUSED COUPLER
(11) ZERO FORCE COUPLING
(12) EXISTING SERVICE



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

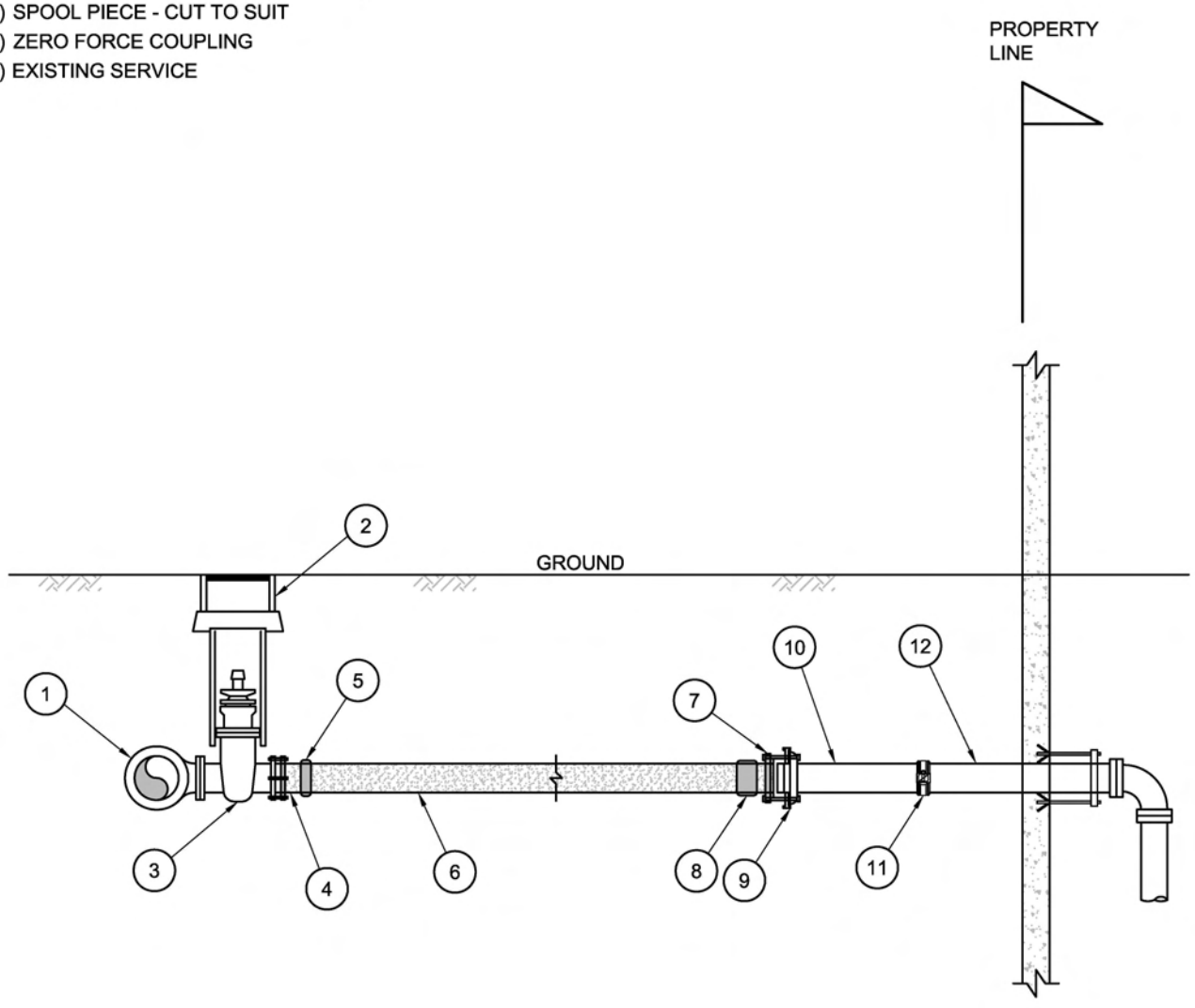
SERVICES
HDPE SERVICE (MJ)

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W2a.6

LEGEND:

(1) WATER MAIN & FLANGE TEE
(2) VALVE BOX ASSEMBLY (VALVE EXTENSION PIPE, CONCRETE VALVE BOX BASE & LID AND TELESCOPIC VALVE BOX)
(3) SERVICE VALVE - FL X FL
(4) HDPE FL ASSEMBLY (BUTT FUSED)
(5) BUTT FUSED JOINT
(6) HDPE - DR11 (DIRECTIONAL DRILLED)
(7) HDPE MJ ASSEMBLY c/w ELECTRO FUSED COUPLER
(8) ELECTRO FUSED COUPLER
(9) WEDGE ACTION RESTRAINT (W.A.R.)
(10) SPOOL PIECE - CUT TO SUIT
(11) ZERO FORCE COUPLING
(12) EXISTING SERVICE



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

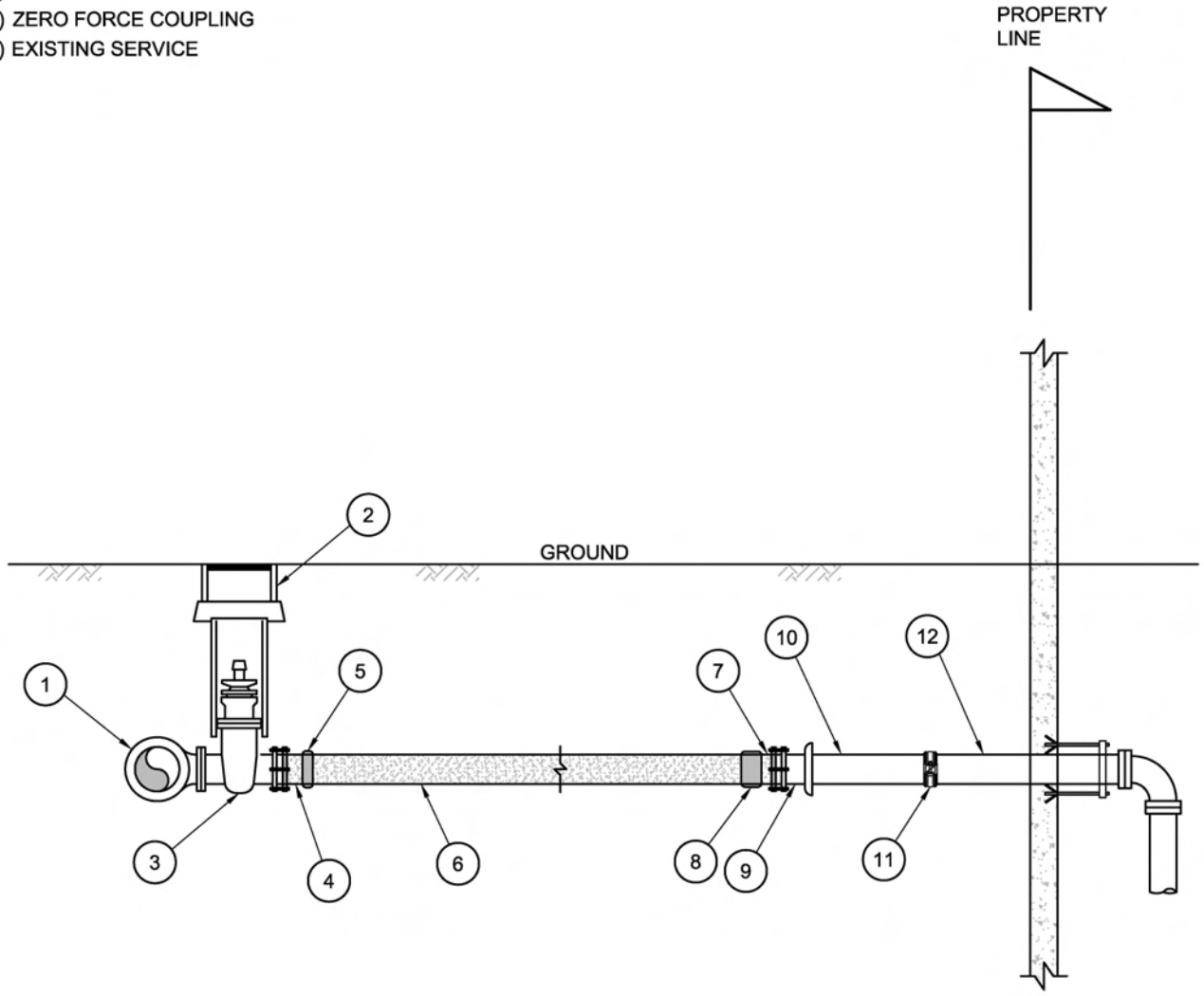
SERVICES
HDPE SERVICE (FLANGE)

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W2a.7

LEGEND:

(1) WATER MAIN & WET TAPPING TEE
(2) VALVE BOX ASSEMBLY (VALVE EXTENSION PIPE, CONCRETE VALVE BOX BASE & LID AND TELESCOPIC VALVE BOX)
(3) SERVICE VALVE - FL X FL
(4) HDPE FLANGED ASSEMBLY (BUTT FUSED OR ELECTRO FUSED COUPLER)
(5) BUTT FUSED JOINT
(6) HDPE - DR11 (DIRECTIONAL DRILLED)
(7) HDPE FLANGED ASSEMBLY (ELECTRO FUSED)
(8) ELECTRO FUSED COUPLER
(9) FLANGE X HUB ADAPTER (D.I.C.L.)
(10) SPOOL PIECE - CUT TO SUIT
(11) ZERO FORCE COUPLING
(12) EXISTING SERVICE



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

SERVICES
HDPE SERVICE (FLANGE WET TAP)

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

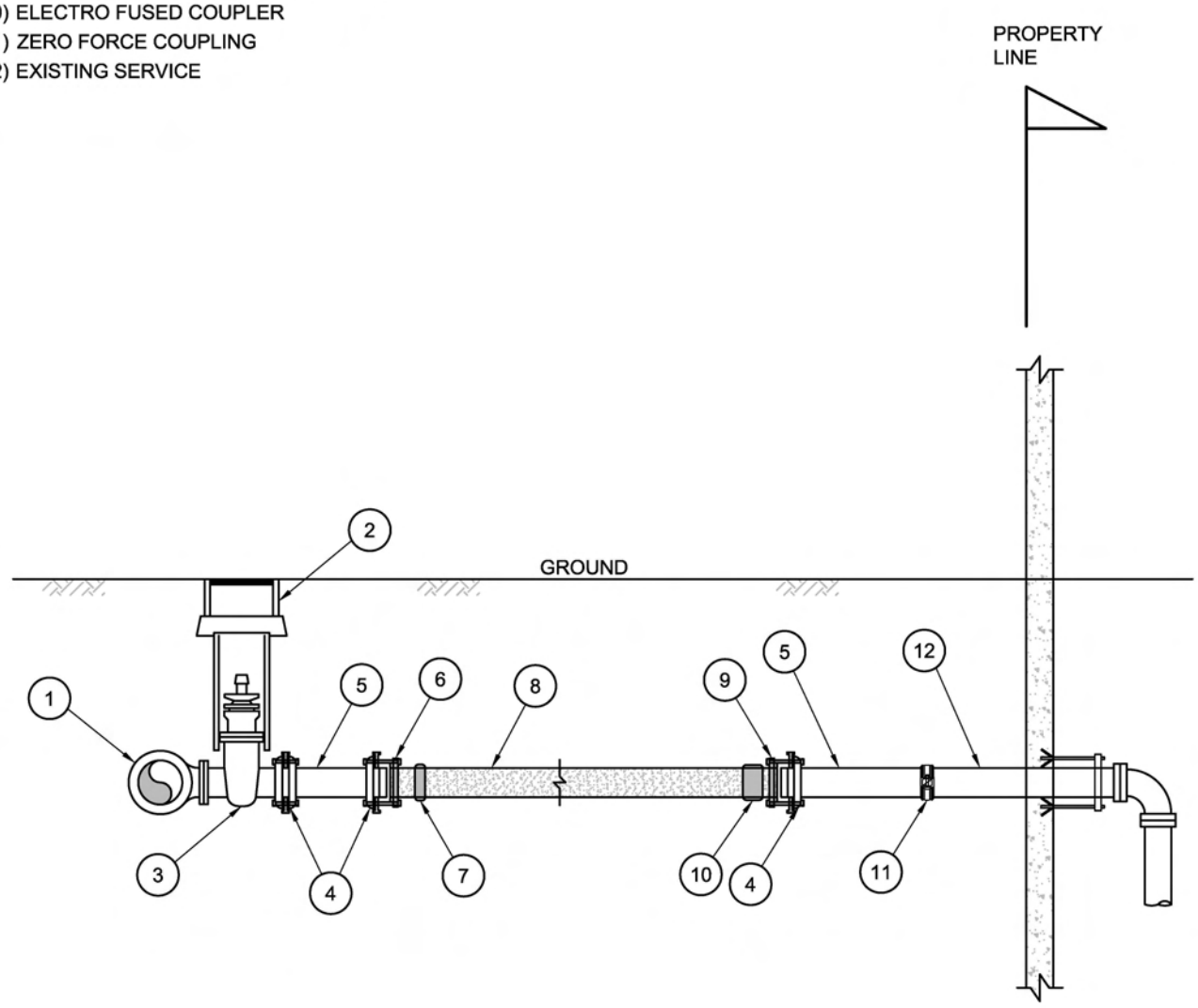
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2a.8

LEGEND:

(1) WATER MAIN & WET TAPPING TEE
(2) VALVE BOX ASSEMBLY (VALVE EXTENSION PIPE, CONCRETE VALVE BOX BASE & LID AND TELESCOPIC VALVE BOX)
(3) SERVICE VALVE - FL X MJ
(4) WEDGE ACTION RESTRAINT (W.A.R.)
(5) D.I.C.L. SPOOL PIECE (CUT TO SUIT)
(6) HDPE MJ ASSEMBLY (BUTT FUSED)
(7) BUTT FUSED JOINT
(8) HDPE - DR11 (DIRECTIONAL DRILLED)
(9) HDPE MJ ASSEMBLY (ELECTRO FUSED)
(10) ELECTRO FUSED COUPLER
(11) ZERO FORCE COUPLING
(12) EXISTING SERVICE



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

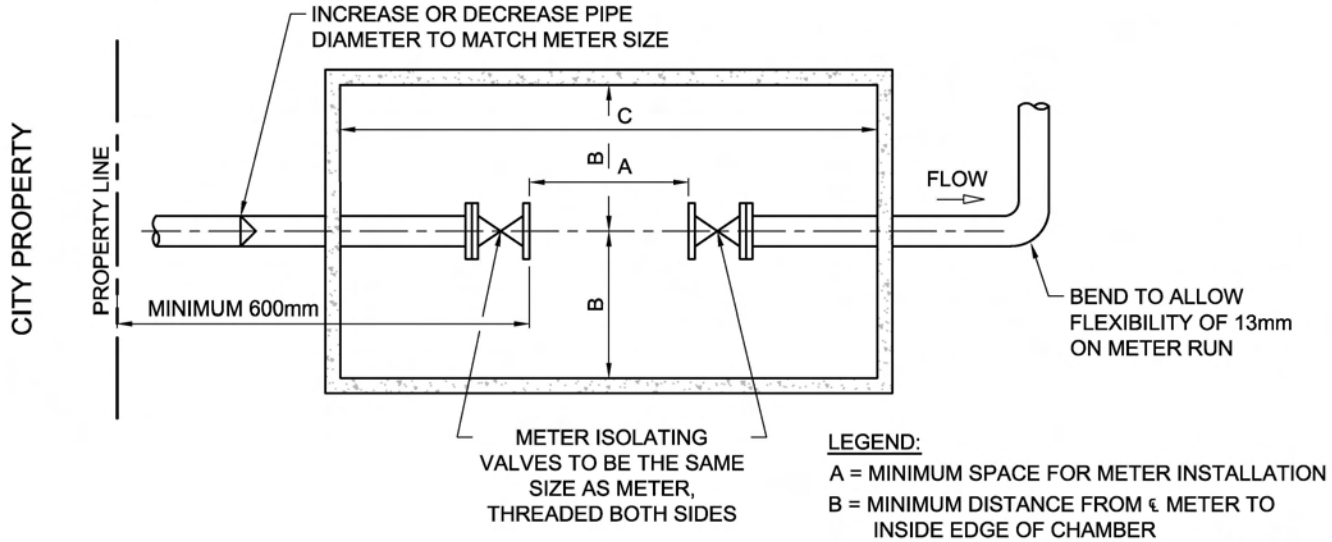
SERVICES
HDPE SERVICE (MJ WET TAP)

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2c.1



LEGEND:

A = MINIMUM SPACE FOR METER INSTALLATION

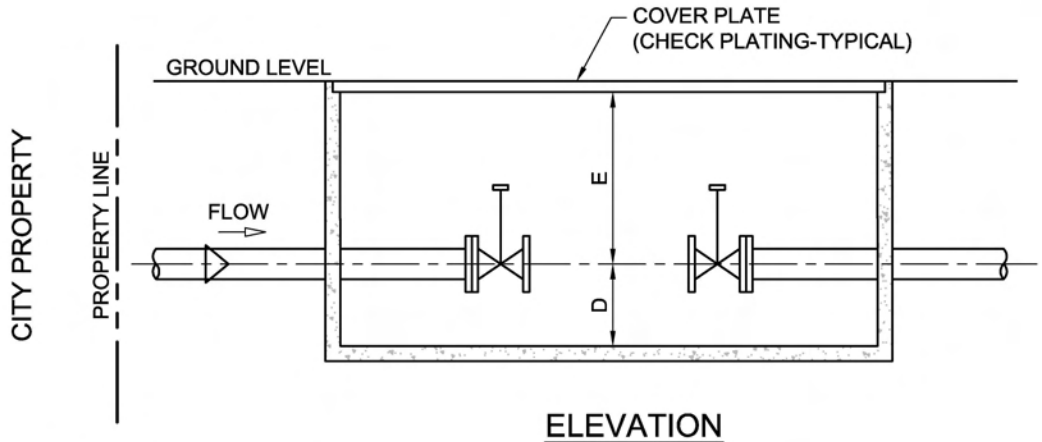
B = MINIMUM DISTANCE FROM ℄ METER TO INSIDE EDGE OF CHAMBER

C = MINIMUM INSIDE LENGTH OF CHAMBER

D = MINIMUM VERTICAL DISTANCE FROM CHAMBER FLOOR TO ℄ METER

E = DEPTH OF METER ISOLATING VALVES FROM GROUND LEVEL

PLAN VIEW



ELEVATION

METER SIZE		A		B		C		D		E (MINIMUM)		E (MAXIMUM)	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
0.75	20	13.5	345	8	200	24	610	6	150	24	610	30	760
1	25	15	380	8	200	24	610	6	150	24	610	30	760
1.5	40	19.5	495	12	305	33	840	6	150	24	610	30	760
2	50	24	610	12	305	33	840	6	150	24	610	30	760

NOTE:

1. FOR 20mm TO 50mm METERS.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (CHAMBER)
20mm-50mm

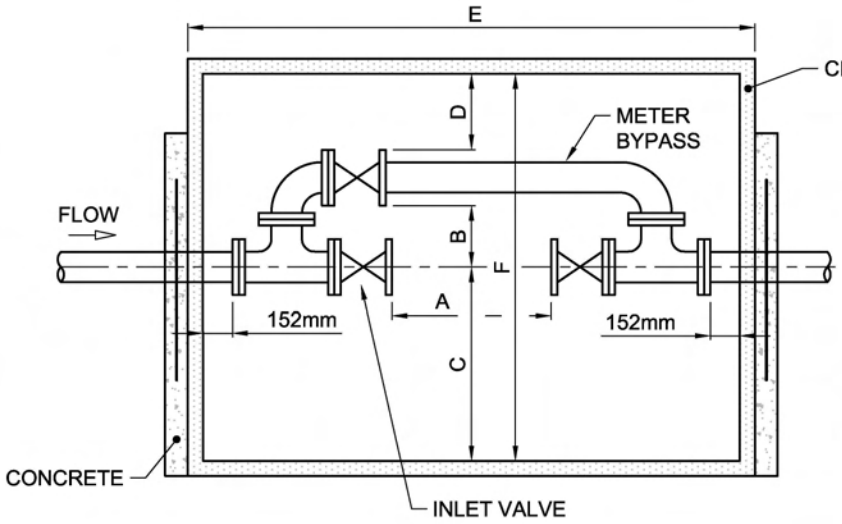
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2c.2



LEGEND:

A = SPACE FOR INSTALLATION OF METER

B = MINIMUM CLEARANCE BETWEEN ℄ METER TO NEAREST EDGE OF THE BYPASS

C = MINIMUM DISTANCE FROM ℄ METER TO INSIDE EDGE OF CHAMBER

D = MINIMUM CLEARANCE BETWEEN BYPASS AND WALL

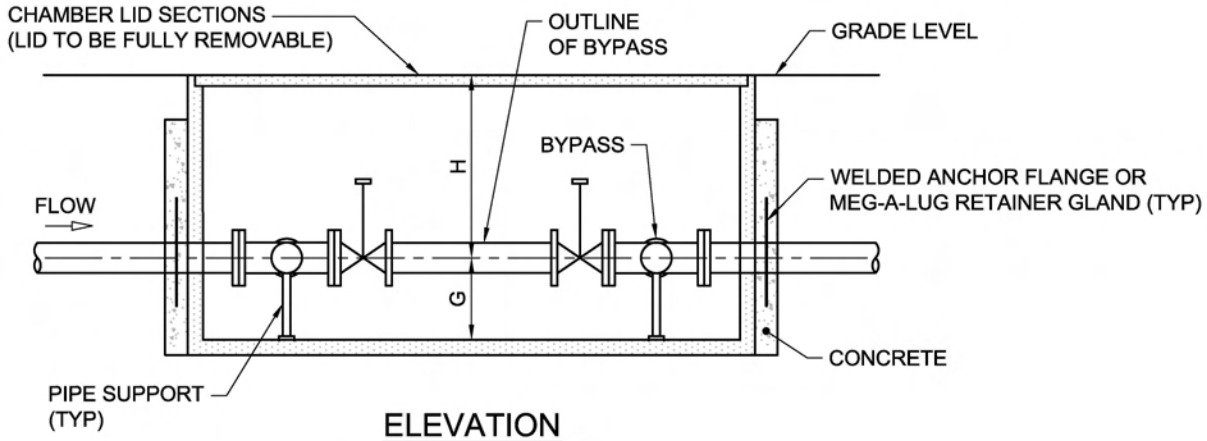
E = LENGTH OF CHAMBER

F = MINIMUM INSIDE WIDTH OF CHAMBER

G = VERTICAL DISTANCE FROM CHAMBER FLOOR TO ℄ METER

H = DEPTH OF METER ISOLATING VALVES FROM GROUND LEVEL

PLAN VIEW



ELEVATION

METER SIZE		BYPASS SIZE (MINIMUM)		A		B		C		D		E		F		G		H (MINIMUM)	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3	75	2	50	45	1140	8	200	10	255	8	200	108	2740	38	965	17	430	30	760
4	100	3	75	45	1140	8	200	10	255	8	200	108	2740	38	965	17	430	30	760
6	150	4	100	48	1220	9	230	11	280	8	200	120	3050	40	1020	17	430	30	760
8	200	6	150	72	1830	13	330	15	380	8	200	144	3660	48	1220	17	430	30	760

NOTES:

1. FOR 75mm TO 200mm METERS (EXCLUDING FIRELINE METERS).
2. MUST HAVE VEHICLE ACCESS TO CHAMBER.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (CHAMBER)
75mm-200mm (LID FULLY REMOVABLE)

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

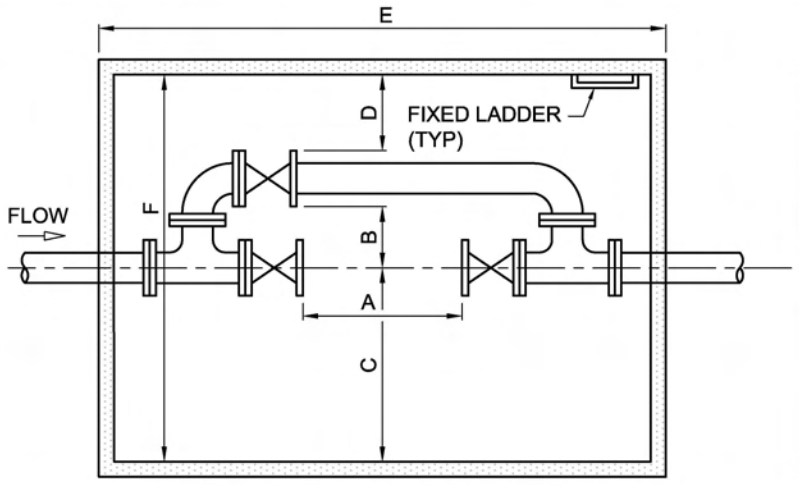
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

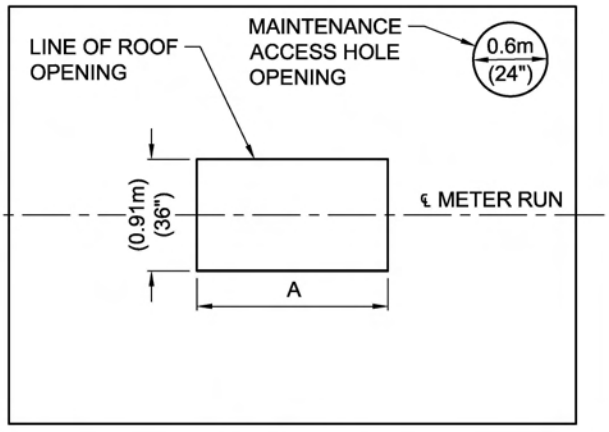
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.

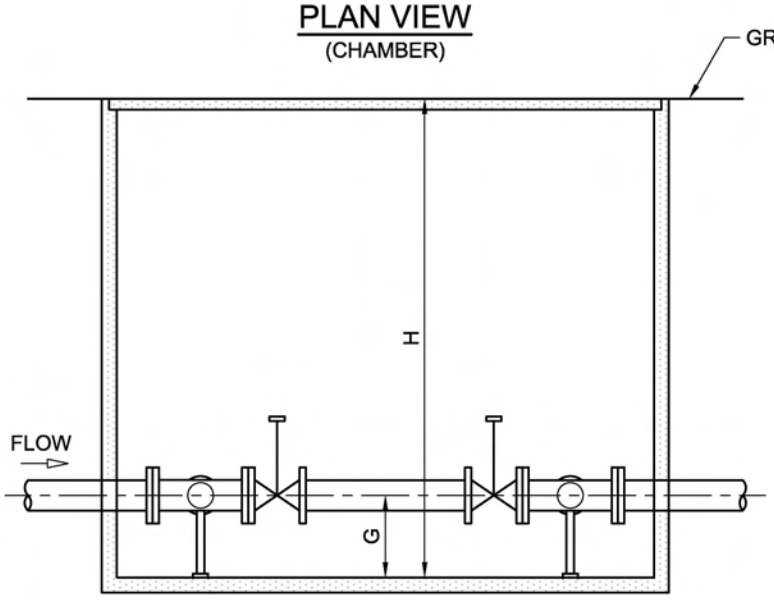
W2c.3



PLAN VIEW
(CHAMBER)



PLAN VIEW
(ROOF SLATS)



ELEVATION

LEGEND:

A = SPACE FOR INSTALLATION OF METER

B = MINIMUM CLEARANCE BETWEEN ℄ METER TO NEAREST EDGE OF THE BYPASS

C = MINIMUM DISTANCE FROM ℄ METER TO INSIDE EDGE OF CHAMBER

D = MINIMUM CLEARANCE BETWEEN BYPASS AND WALL

E = LENGTH OF CHAMBER

F = MINIMUM INSIDE WIDTH OF CHAMBER

G = VERTICAL DISTANCE FROM CHAMBER FLOOR TO ℄ METER

H = MAXIMUM HEIGHT OF CHAMBER

METER SIZE		BYPASS SIZE (MINIMUM)		A		B*		C		D		E		F (MINIMUM)		G (MINIMUM)		G (MAXIMUM)		H (MAXIMUM)	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3	75	2	50	45	1140	8	200	18	455	8	200	108	2740	48	1220	17	430	36	910	79	2005
4	100	3	75	45	1140	8	200	18	455	8	200	108	2740	48	1220	17	430	36	910	79	2005
6	150	4	100	48	1220	9	230	19	485	8	200	120	3050	50	1270	17	430	36	910	79	2005
8	200	6	150	72	1830	13	330	24	610	8	200	144	3660	60	1525	17	430	36	910	79	2005

*IF METER BYPASS IS ABOVE MAIN LINE. B (MINIMUM) = 34" OR 864 mm

NOTES:

1. FOR 75mm TO 200mm METERS (EXCLUDING FIRELINE METERS).
2. MUST HAVE VEHICLE ACCESS TO CHAMBER.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (CHAMBER)
75mm-200mm (MAINTENANCE HOLE ACCESS)

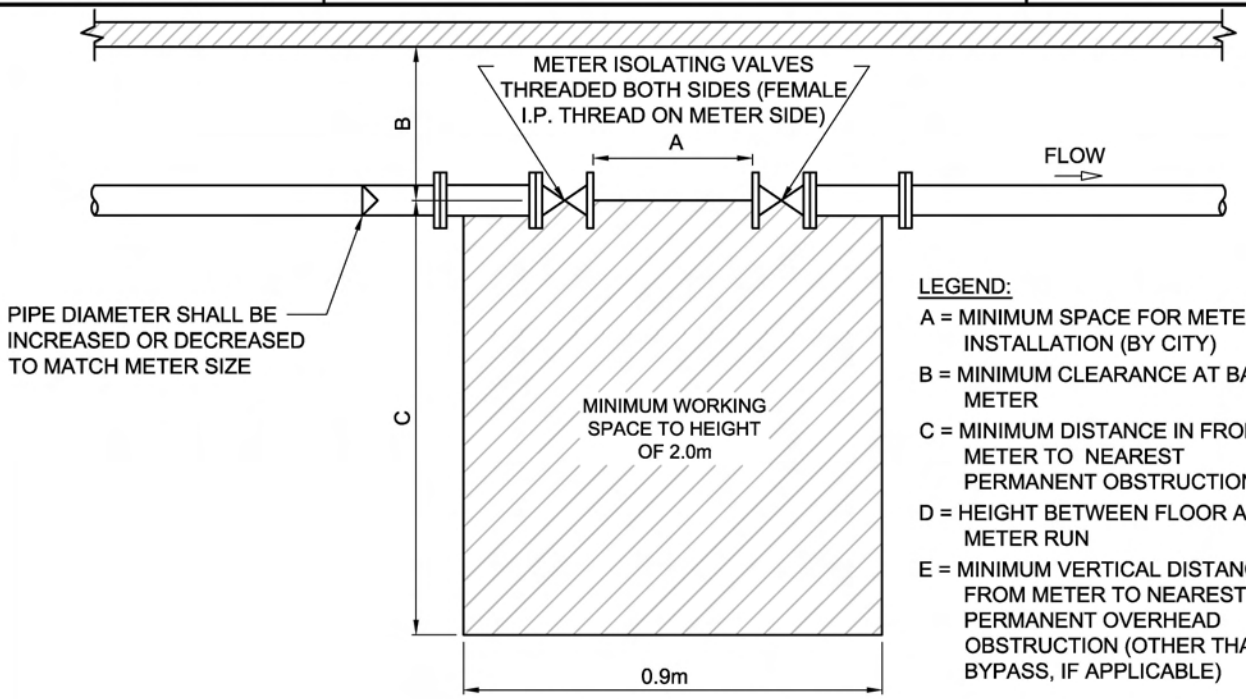
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2d.1



LEGEND:

A = MINIMUM SPACE FOR METER INSTALLATION (BY CITY)

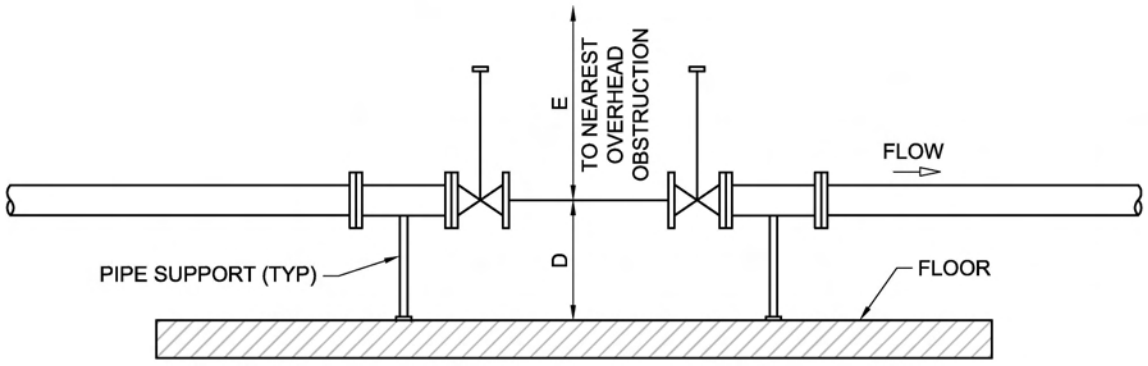
B = MINIMUM CLEARANCE AT BACK OF METER

C = MINIMUM DISTANCE IN FRONT OF METER TO NEAREST PERMANENT OBSTRUCTION

D = HEIGHT BETWEEN FLOOR AND CL METER RUN

E = MINIMUM VERTICAL DISTANCE FROM METER TO NEAREST PERMANENT OVERHEAD OBSTRUCTION (OTHER THAN BYPASS, IF APPLICABLE)

PARTIAL PLAN VIEW



ELEVATION

METER SIZE		A		B		C		D (MINIMUM)		D (MAXIMUM)		E	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
0.75	20	13.5 ±0.125	343±3	8	200	36	915	6	150	48	1220	48	1220
1	25	15 ±0.125	381±3	8	200	36	915	6	150	48	1220	48	1220
1.5	40	19.5 ±0.25	495±6	8	200	36	915	6	150	48	1220	48	1220
2	50	24 ±0.25	610±6	9	230	36	915	6	150	48	1220	48	1220

NOTES:

1. FOR 20mm TO 50mm METERS.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (INDOOR)
20mm-50mm

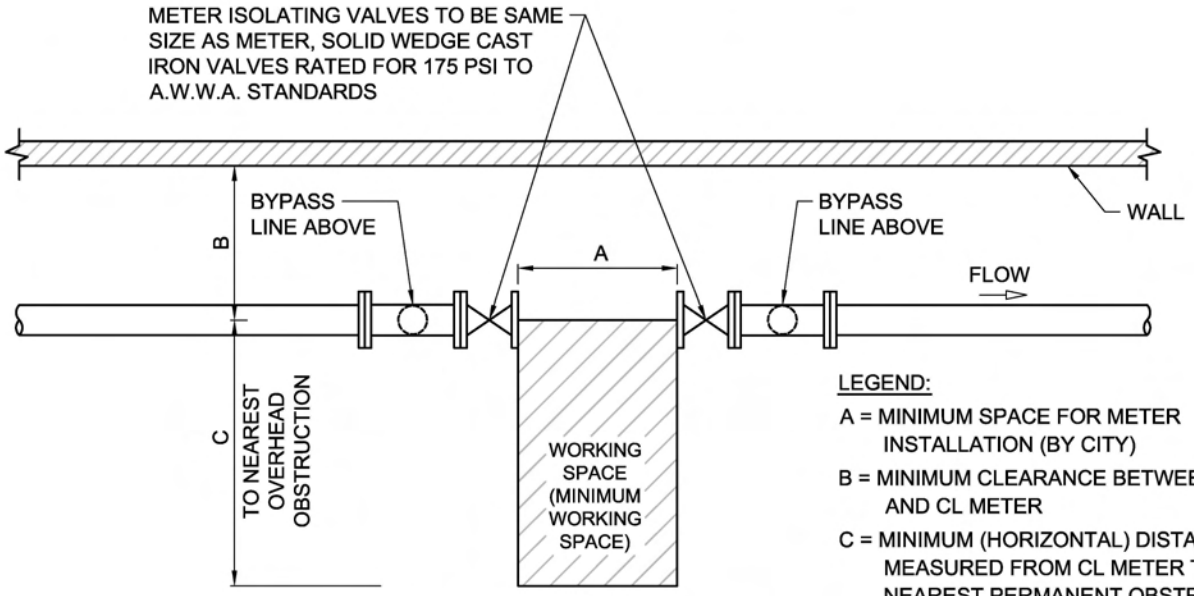
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2d.2



PLAN VIEW
(MECHANICAL / METER ROOM)

LEGEND:

A = MINIMUM SPACE FOR METER INSTALLATION (BY CITY)

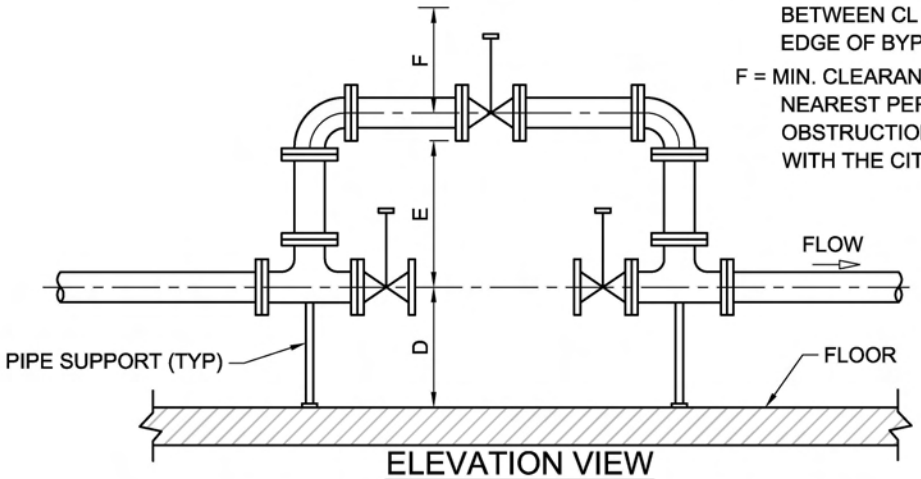
B = MINIMUM CLEARANCE BETWEEN WALL AND CL METER

C = MINIMUM (HORIZONTAL) DISTANCE MEASURED FROM CL METER TO NEAREST PERMANENT OBSTRUCTION

D = HEIGHT BETWEEN FLOOR AND CL METER

E = MINIMUM VERTICAL DISTANCE BETWEEN CL METER AND NEAREST EDGE OF BYPASS

F = MIN. CLEARANCE FROM CL BYPASS TO NEAREST PERMANENT OVERHEAD OBSTRUCTION TO BE CONFIRMED WITH THE CITY OF VANCOUVER



ELEVATION VIEW
(METER ROOM)

METER SIZE		BYPASS SIZE (MINIMUM)		A		B		C		D (MINIMUM)		D (MAXIMUM)		E		F	
in	mm	in (+/- 1/5")	mm (+/- 5mm)	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3	75	2	50	45	1140	10	255	48	1220	20	510	36	910	34	865	TO BE CONFIRMED	
4	100	3	75	45	1140	10	255	48	1220	20	510	36	910	34	865		
6	150	4	100	48	1220	10	255	48	1220	20	510	36	910	34	865		
8	200	6	150	72	1830	10	255	48	1220	20	510	36	910	34	865		

NOTES:

1. FOR 75mm TO 200mm METERS (EXCLUDING FIRELINE METERS).
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (INDOOR)
75mm-200mm (BYPASS ABOVE MAINLINE)

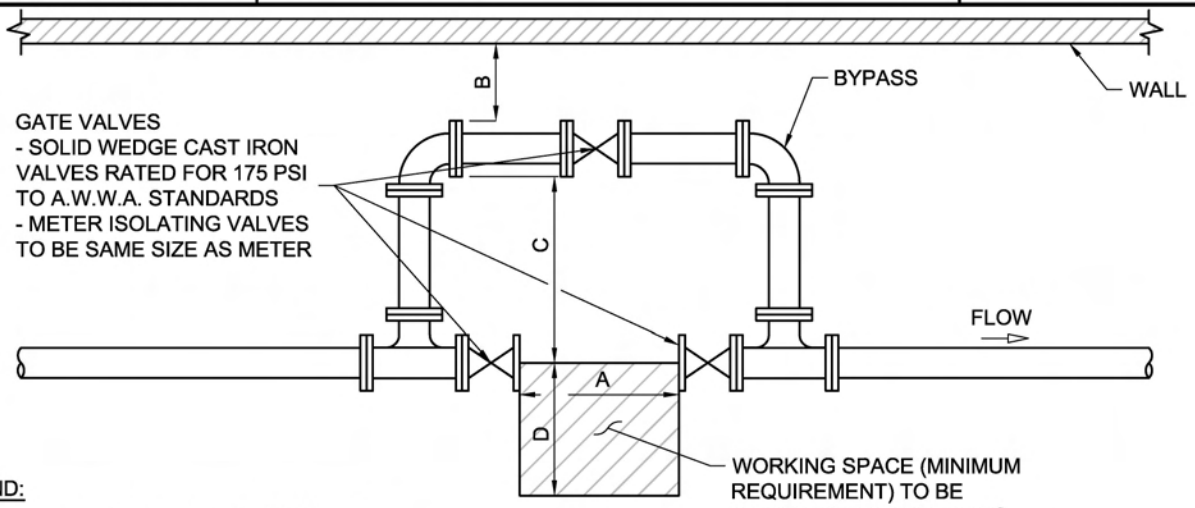
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2d.3



PLAN VIEW
(METER ROOM)

LEGEND:

A = SPACE FOR INSTALLATION OF METER

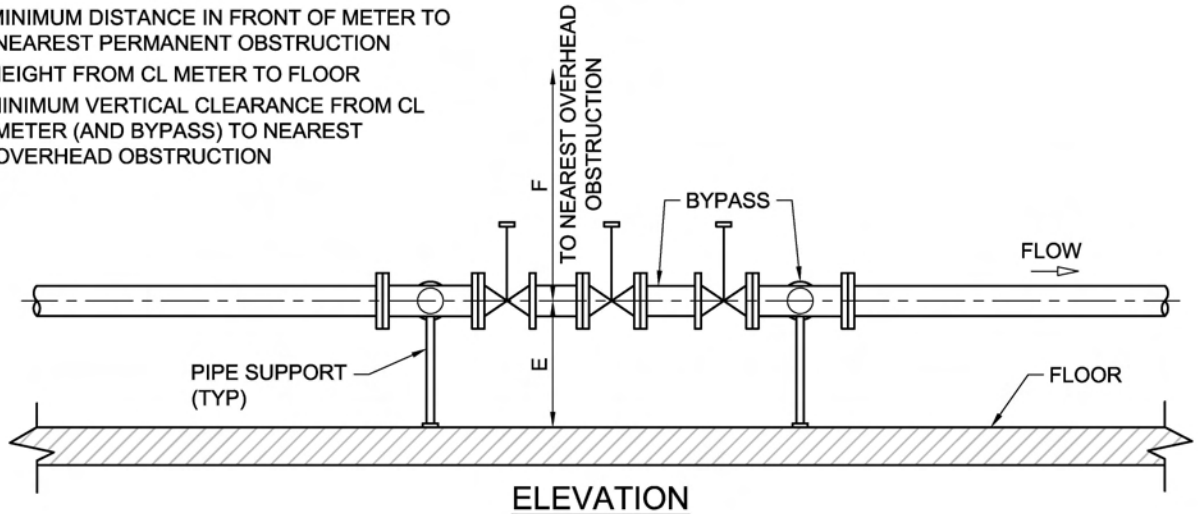
B = MINIMUM CLEARANCE BETWEEN BYPASS AND WALL

C = MINIMUM CLEARANCE BETWEEN CL METER TO NEAREST EDGE OF THE BYPASS

D = MINIMUM DISTANCE IN FRONT OF METER TO NEAREST PERMANENT OBSTRUCTION

E = HEIGHT FROM CL METER TO FLOOR

F = MINIMUM VERTICAL CLEARANCE FROM CL METER (AND BYPASS) TO NEAREST OVERHEAD OBSTRUCTION



ELEVATION
(METER ROOM)

METER SIZE		BYPASS SIZE (MINIMUM)		A		B		C		D		E (MINIMUM)		E (MAXIMUM)		F	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3	75	2	50	45	1140	10	255	8	200	48	1220	17	430	36	910	48	1220
4	100	3	75	45	1140	10	255	8	200	48	1220	17	430	36	910	48	1220
6	150	4	100	48	1220	10	255	9	230	48	1220	19	485	36	910	48	1220
8	200	6	150	72	1830	10	255	13	330	48	1220	20	510	36	910	48	1220

NOTE:

1. FOR 75mm TO 200mm METERS (EXCLUDING FIRELINE METERS).

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (INDOOR)
75mm-200mm (BYPASS ADJACENT TO MAINLINE)

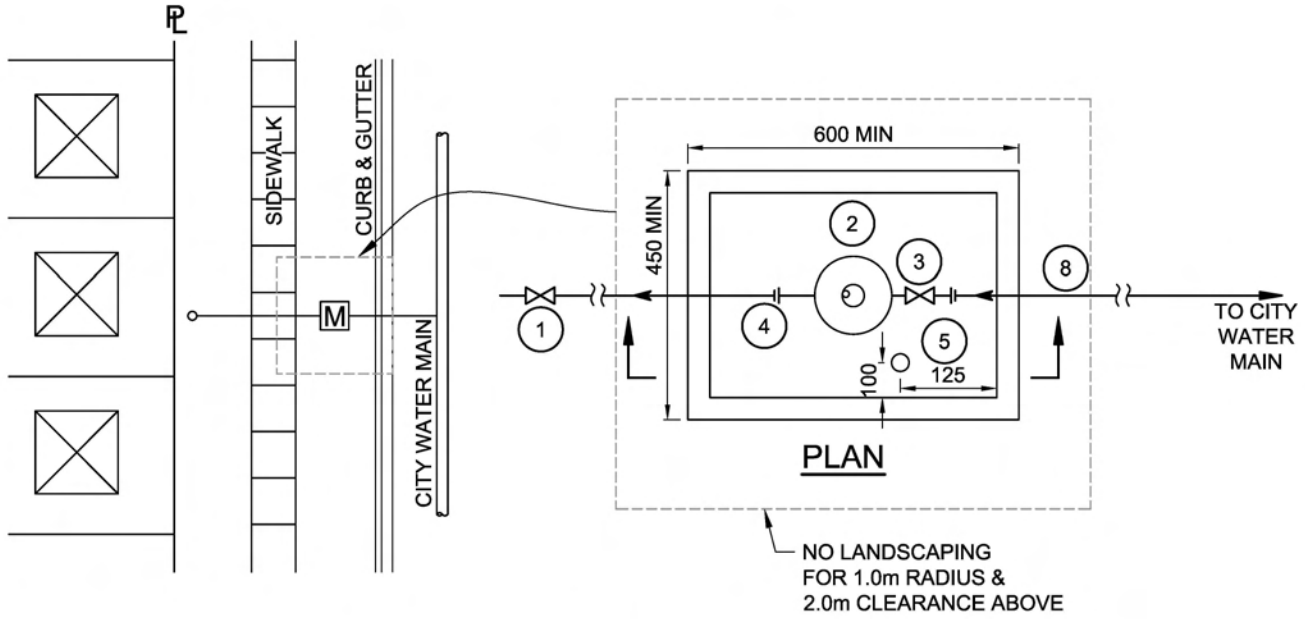
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

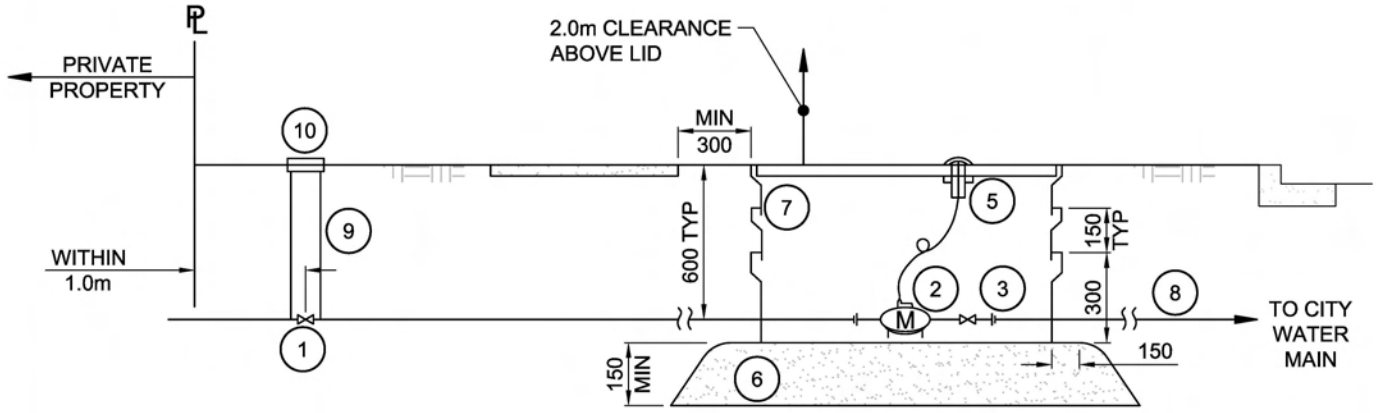
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W2e.1



PLAN



SECTION

MATERIAL LIST	
ITEM	DESCRIPTION
1	40mm MAIN VALVE PROPERTY SHUT OFF
2	25mm WATER METER
3	25mm UPSTREAM METER ISOLATION VALVE c/w COMPRESSION FITTING
4	DOWNSTREAM METER TAIL ASSEMBLY 40mm X 25mm BUSHING (IF REQUIRED)
5	SENSUS COMPATIBLE TRANSCEIVER
6	19mm CLEAR CRUSH DRAIN ROCK
7	PVC METER BOX c/w LID AND 45mmØ OPENING FOR REMOTE SENSOR 150mm HEIGHT EXTENSIONS AS REQUIRED
8	40mm COPPER
9	100mm PVC RISER PIPE - CUT TO SUIT
10	VWW CAST IRON COVER FOR SERVICE VALVE

NOTES:
1. METER BOX LOCATION ACCESSIBLE BY VEHICLE WILL REQUIRE LOAD RATED WATER METER BOX.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (RESIDENTIAL)
25mm METER ON 40mm SERVICE

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

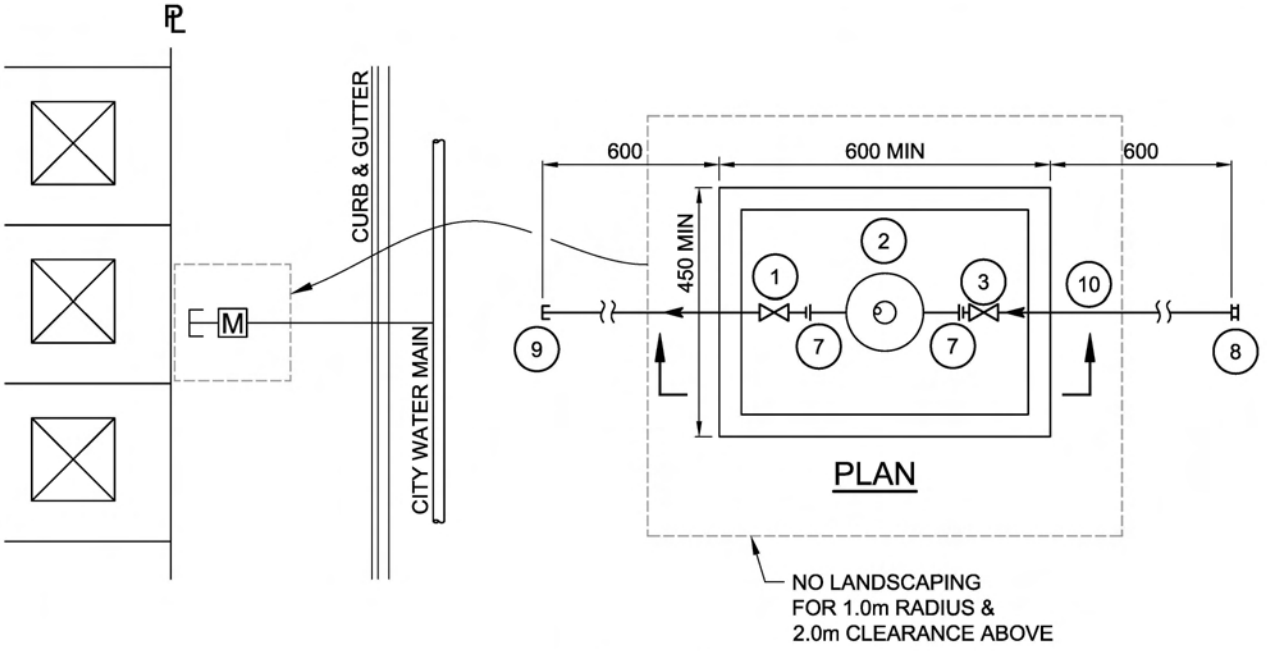
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

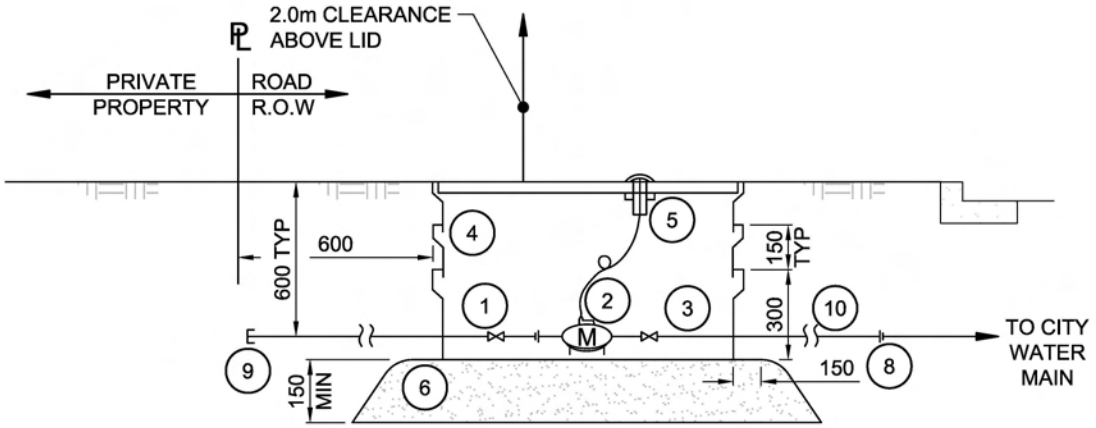
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.

W2e.2



PLAN



SECTION

MATERIAL LIST	
ITEM	DESCRIPTION
1	50mm DOWNSTREAM METER ISOLATION VALVE c/w COMPRESSION FITTING
2	40mm WATER METER
3	50mm UPSTREAM METER ISOLATION VALVE c/w COMPRESSION FITTING
4	PVC METER BOX CA/V LID AND 45mmØ OPENING FOR REMOTE SENSOR 150MM HEIGHT EXTENSIONS AS REQUIRED
5	SENSUS COMPATIBLE AMR TRANSCEIVER
6	19mm CLEAR CRUSH DRAIN ROCK
7	40mm METER FLANGE 50mm X 40mm BUSHING (IF REQUIRED) 40mm X 90mm NIPPLE (IF REQUIRED)
8	50mm COMPRESSION COUPLING
9	50mm PLASTIC CAP
10	50mm COPPER

NOTE:

1. METER BOX LOCATION ACCESSIBLE BY VEHICLE WILL REQUIRE LOAD RATED WATER METER BOX.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (RESIDENTIAL)

40mm METER ON 50mm SERVICE

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

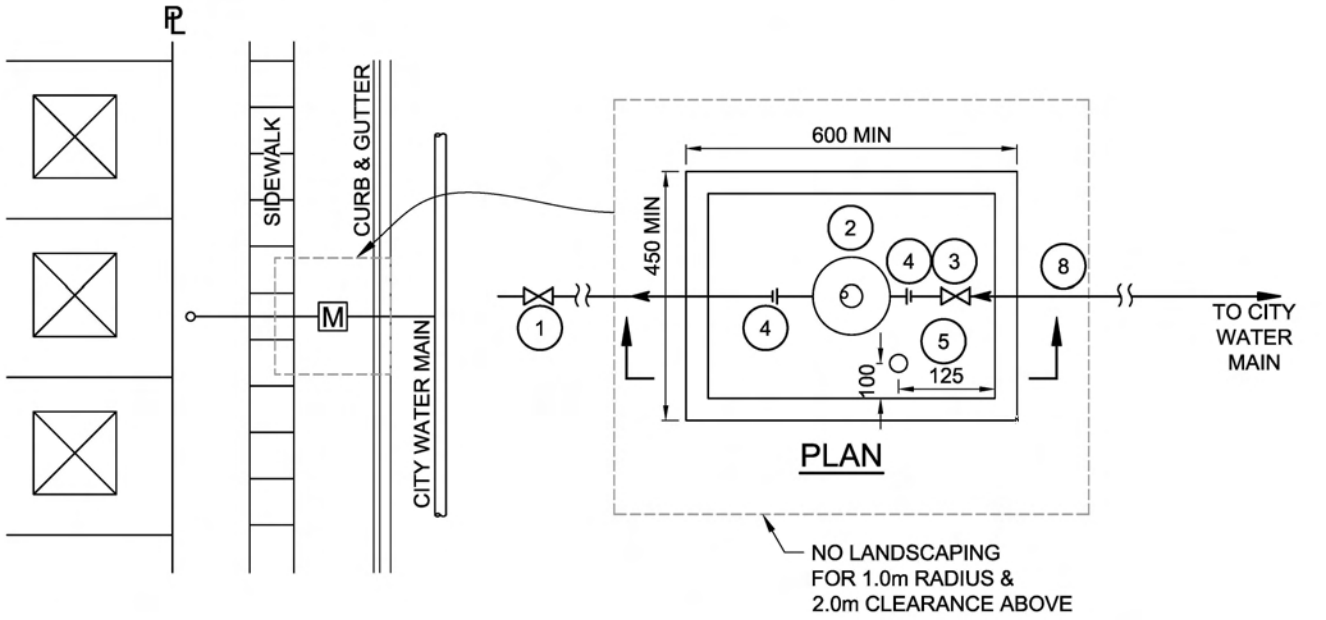
CITY OF VANCOUVER

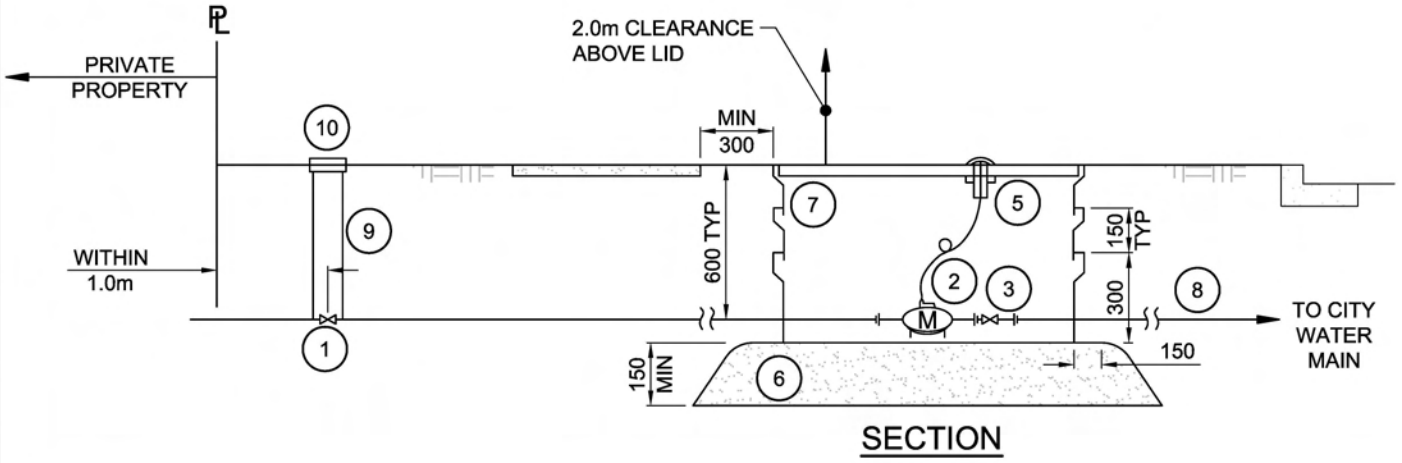
STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.

W2e.3





MATERIAL LIST	
ITEM	DESCRIPTION
1	EXISTING 20mm MAIN VALVE PROPERTY SHUT OFF
2	20mm WATER METER
3	20mm UPSTREAM METER ISOLATION VALVE c/w COMPRESSION FITTING
4	METER TAIL ASSEMBLY c/w COMPRESSION FITTING
5	SENSUS COMPATIBLE AMR TRANSCEIVER
6	19mm CLEAR CRUSH DRAIN ROCK
7	PVC METER BOX c/w LID AND 45mmØ OPENING FOR REMOTE SENSOR 150mm HEIGHT EXTENSIONS AS REQUIRED
8	EXISTING 20mm COPPER
9	EXISTING 100mm PVC RISER PIPE - CUT TO SUIT
10	EXISTING VWW CAST IRON COVER FOR SERVICE VALVE

NOTE:

1. METER BOX LOCATION ACCESSIBLE BY VEHICLE WILL REQUIRE LOAD RATED WATER METER BOX
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

METERS (RESIDENTIAL)

20mm METER RETROFITTED ON 20mm SERVICE

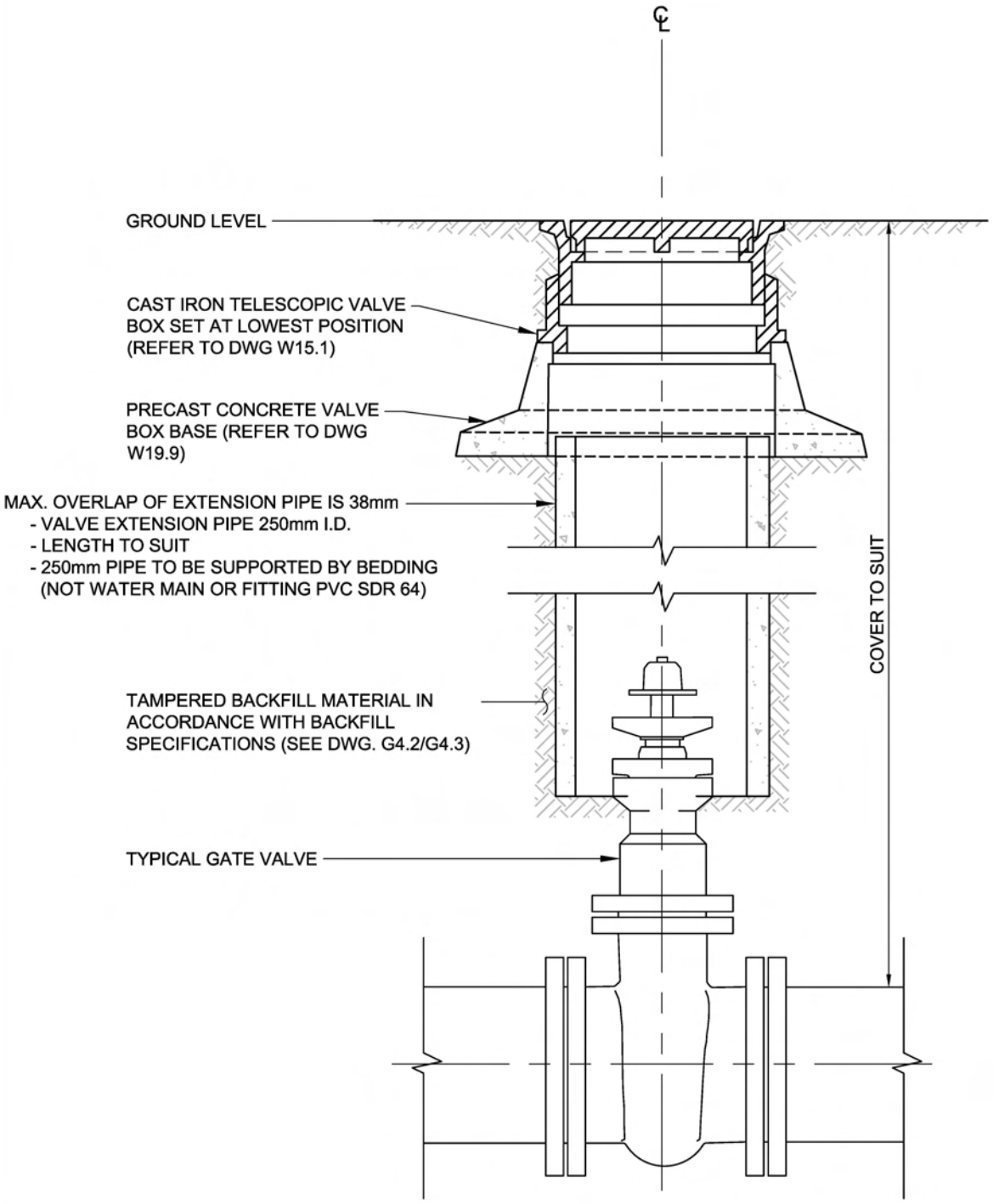
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W3.1



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

GATE VALVES
TYPICAL VALVE INSTALLATION

ISSUE DATE: SEPTEMBER 2018

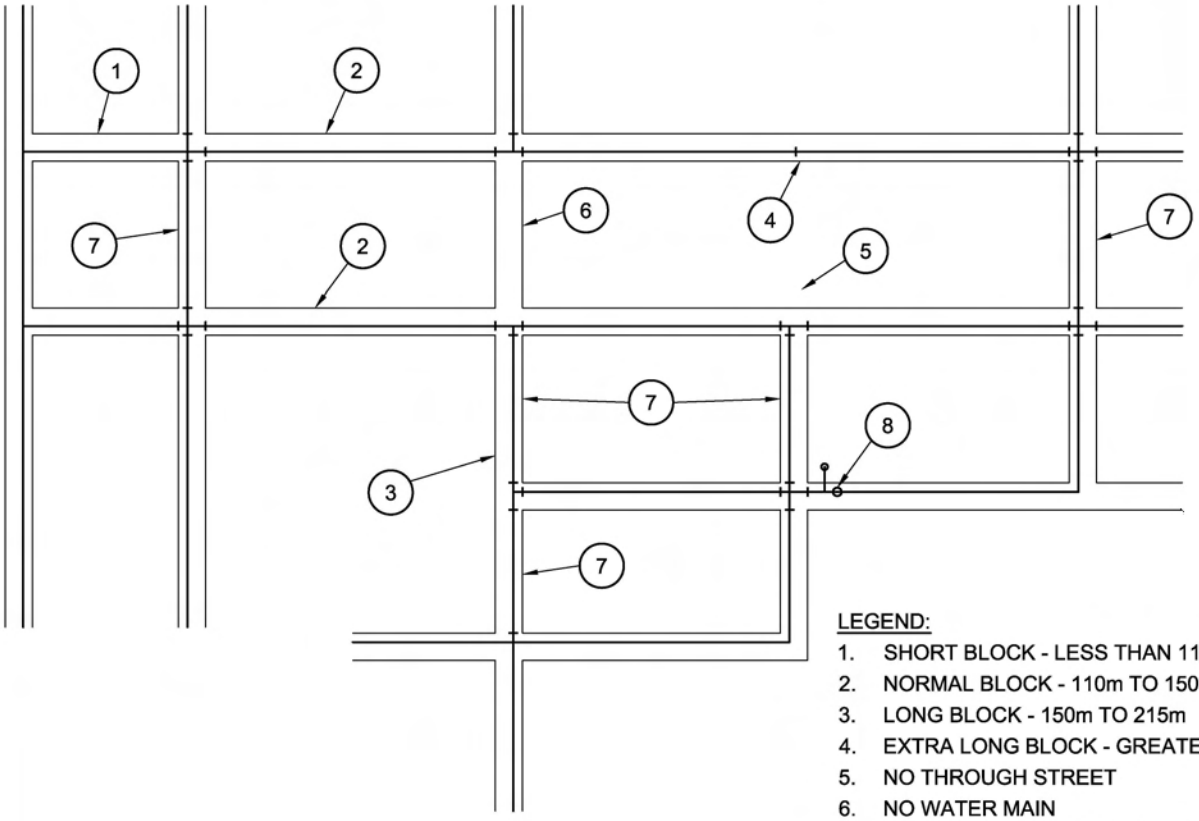
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

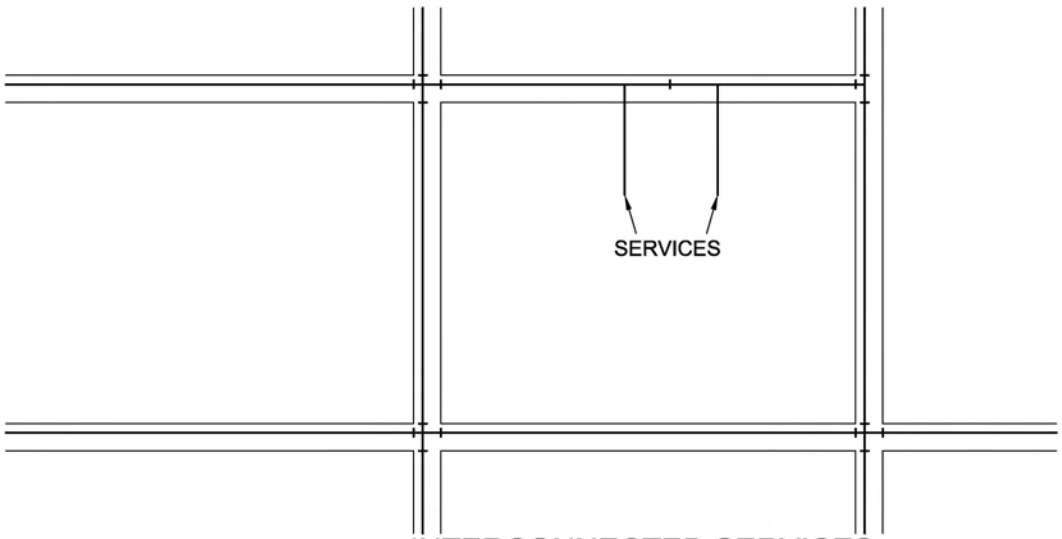
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W3.2



LEGEND:

1. SHORT BLOCK - LESS THAN 110m - NO SERVICES
2. NORMAL BLOCK - 110m TO 150m
3. LONG BLOCK - 150m TO 215m
4. EXTRA LONG BLOCK - GREATER THAN 215m
5. NO THROUGH STREET
6. NO WATER MAIN
7. SHORT BLOCK - LESS THAN 110m - SERVICES
8. ZONE BOUNDARY



INTERCONNECTED SERVICES

NOTE:

IN GENERAL, VALVES TO BE LOCATED AT ALL INTERSECTIONS WHETHER THERE ARE SERVICES OR NOT. ADDITIONAL VALVES MAY BE REQUIRED IF THERE ARE A NUMBER OF SERVICES OFF THE SAME LINE.

SCALE: N.T.S.

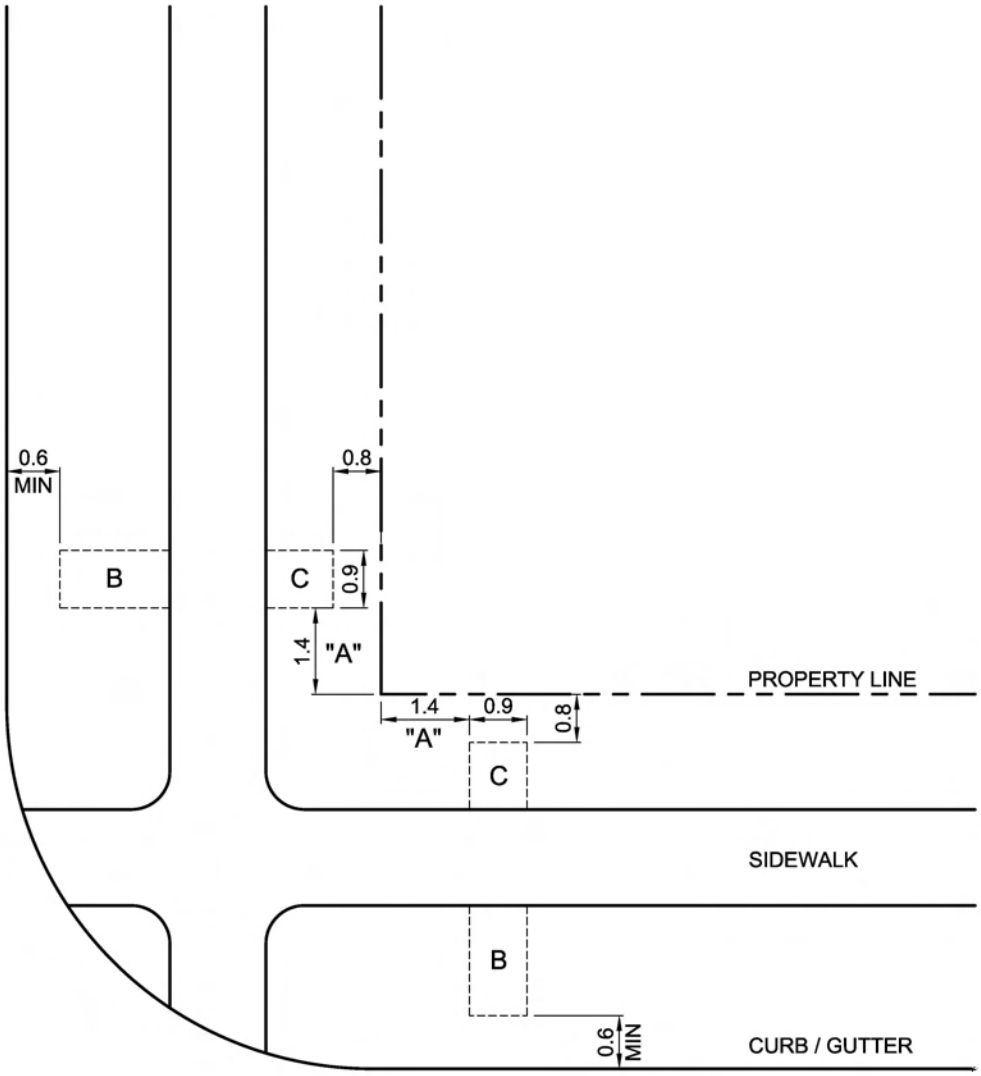
REV.	REVISION DATE	APPROVED

GATE VALVES
LOCATIONS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W4.1



NOTES:

1. WHEN PAVEMENT IS LIKELY TO BE WIDENED, DIMENSION "A" WILL BE INCREASED TO 2.3m MAX.
2. THE MINIMUM DISTANCE FROM ANY VERTICAL OBSTRUCTION IS TO BE 1.1m, OR 1.7m IN THE LINE OF ANY PORT.
3. AREA "B" IS PREFERRED TO AREA "C".
4. THE PREFERRED DISTANCE FROM THE CORNER IS 1.8m WITH THE HYDRANT LINED UP WITH THE PERMANENT LAMP STANDARDS.
5. NO STRUCTURE WILL INTERFERE WITH THE LAYING LINE OF A HOSE FOR 1.7m, WITHIN 60 DEGREES OF EACH SIDE OF THE PUMPER PORT.
6. HYDRANT LOCATIONS ARE MEASURED FROM THE CENTRE LINE OF THE HYDRANT TO THE RESPECTIVE POSITIONS.
7. ALL DIMENSIONS IN METERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

FIRE HYDRANTS LOCATIONS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

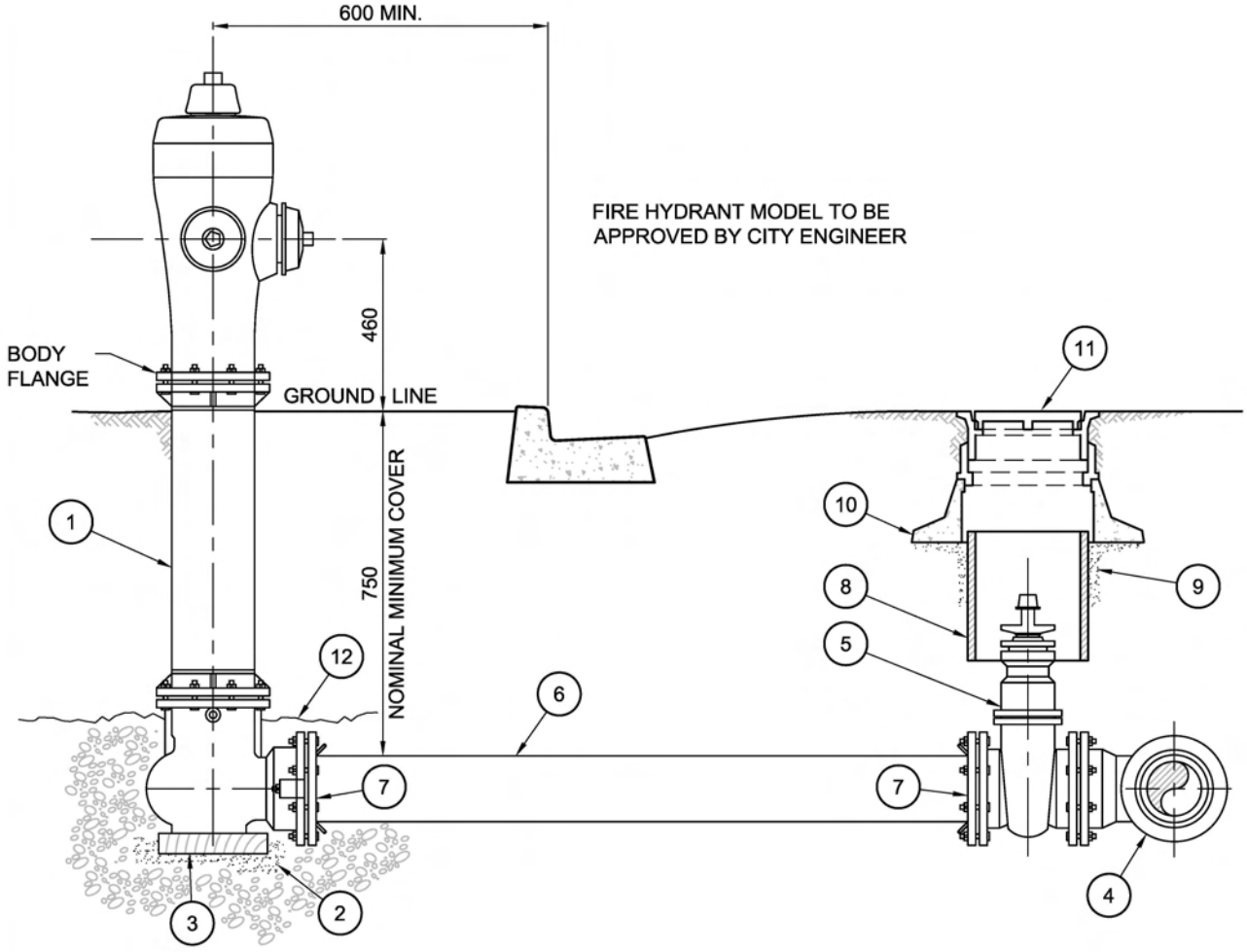
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W4.2

LEGEND:

1. STANDARD HYDRANT WITH MJ BELL.
2. DRAINROCK TO FACILITATE DRAINAGE - MAXIMUM SIZE 50mm.
3. PRESSURE-TREATED WOOD BLOCK BASE - SIZE APPROXIMATELY 50 x 300 x 300 LONG.
4. FLANGED TEE AT WATER MAIN - BRANCH SIZE 150mm DIAMETER.
5. HYDRANT CONTROL VALVE - 150mm D.I. RESILIENT SEAT GATE VALVE, FLANGE x MJ ENDS, 50mm A.W.W.A. OPERATING NUT.
6. NIPPLE - SIZE 150mm DIAMETER x A MINIMUM OF 300mm IN LENGTH.
7. USE WEDGE ACTION RESTRAINTS BACK TO HYDRANT CONTROL VALVE AS PER AWWA STANDARD.
8. VALVE EXTENSION PIPE - 250mm INSIDE DIAMETER, PVC, MIN. 3mm WALL THICKNESS.
9. COMPACTED COV #9 BACKFILL FOR VALVE EXTENSION PIPE AND VALVE BOX BASE.
10. PRECAST CONCRETE VALVE BOX BASE (REFER TO DWG W19.9).
11. CAST IRON TELESCOPIC VALVE BOX (REFER TO DWG W15.1).
12. FILTER CLOTH BETWEEN BACKFILL AND DRAINROCK.



NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

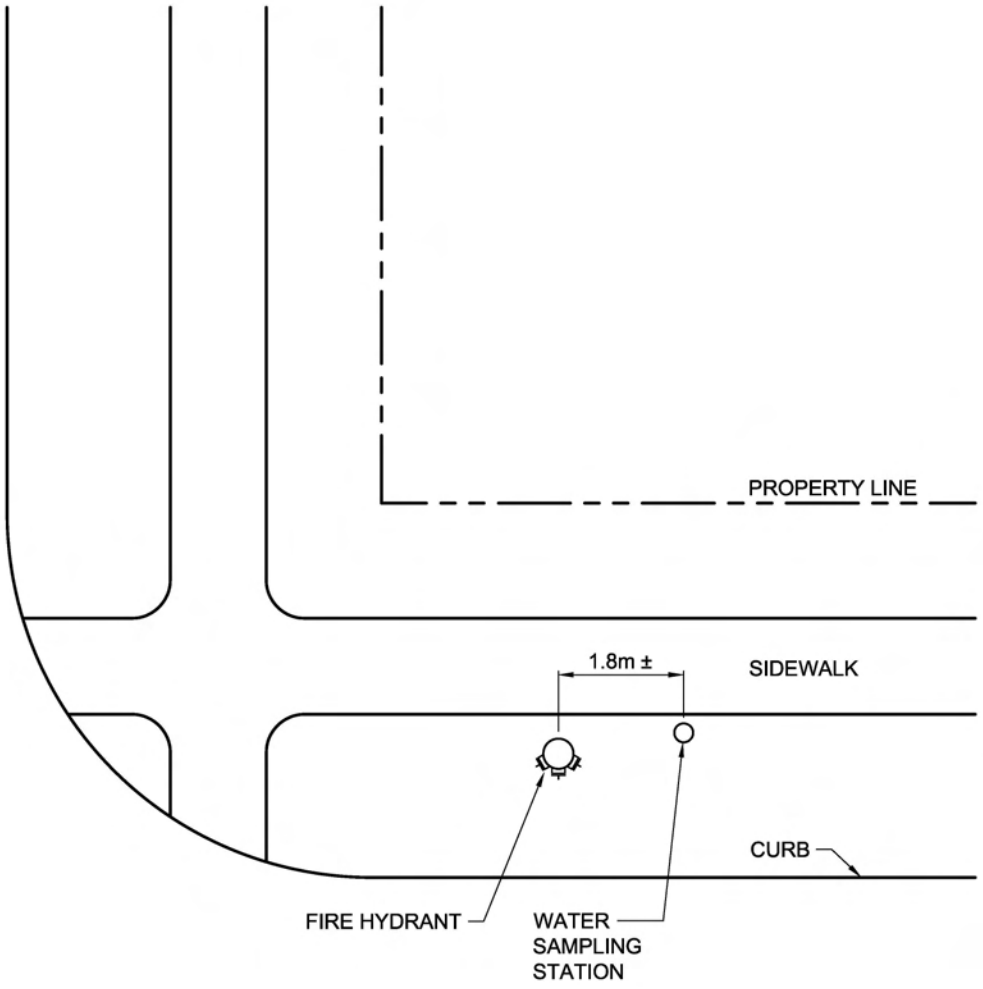
REV.	REVISION DATE	APPROVED

FIRE HYDRANTS DETAILS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W5.1



PREFERRED LOCATION OF WATER SAMPLING STATION

NOTES:

1. WATER SAMPLING STATION TO BE INSTALLED NEAR A FIRE HYDRANT TO PROVIDE AUTO ACCESS FREE OF PARKED CARS (IF POSSIBLE).
2. INSTALL WATER SAMPLING STATION BEHIND FIRE HYDRANT TO PROVIDE CLEARANCE FOR ACCESS TO HYDRANT PORTS.
3. INSTALL OPENING IN WATER SAMPLING STATION SUCH THAT PERSON TAKING WATER SAMPLE FACES ONCOMING TRAFFIC.
4. WATER TO RUN CONTINUOUSLY, ADJUST TO MINIMUM FLOW DURING "PEAK HOUR" PRESSURE CONDITIONS.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

SAMPLING STATIONS LOCATIONS

ISSUE DATE: SEPTEMBER 2018

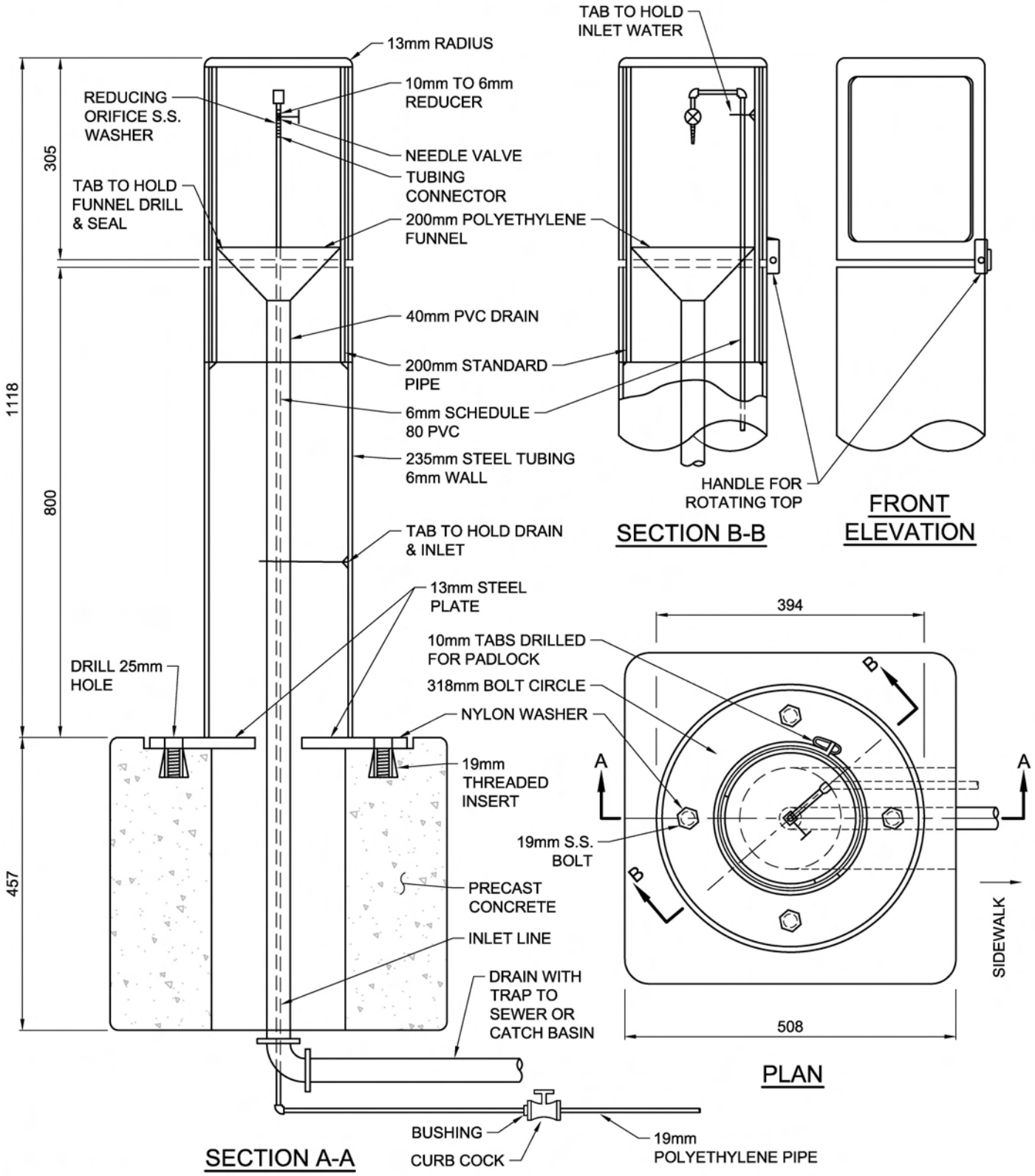
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W5.2



NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

SAMPLING STATIONS DETAILS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER

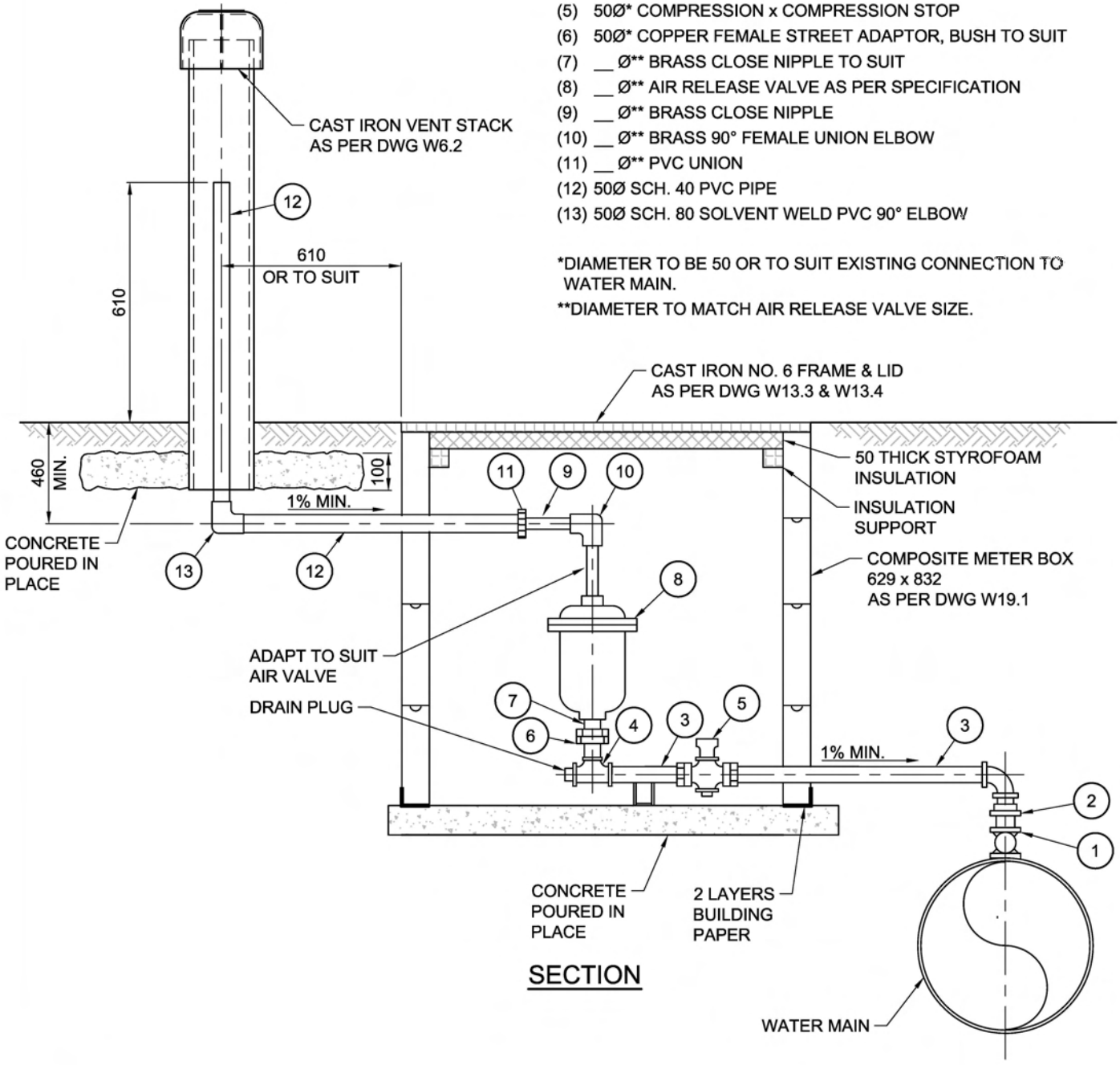
STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W6.1

AIR RELEASE VALVE INSTALLATION IN BOULEVARD

LEGEND:
(1) 50Ø* BRASS THREADED CORPORATION VALVE STOP
(2) 50Ø* MALE x SOLDER ADAPTOR, BUSH EXISTING WATER MAIN CONNECTION TO 50 Ø IF NECESSARY
(3) 50Ø* TYPE K COPPER PIPE
(4) 50Ø* 90° COPPER TEE, ADAPTOR, PLUG
(5) 50Ø* COMPRESSION x COMPRESSION STOP
(6) 50Ø* COPPER FEMALE STREET ADAPTOR, BUSH TO SUIT
(7) __ Ø** BRASS CLOSE NIPPLE TO SUIT
(8) __ Ø** AIR RELEASE VALVE AS PER SPECIFICATION
(9) __ Ø** BRASS CLOSE NIPPLE
(10) __ Ø** BRASS 90° FEMALE UNION ELBOW
(11) __ Ø** PVC UNION
(12) 50Ø SCH. 40 PVC PIPE
(13) 50Ø SCH. 80 SOLVENT WELD PVC 90° ELBOW

*DIAMETER TO BE 50 OR TO SUIT EXISTING CONNECTION TO WATER MAIN.
**DIAMETER TO MATCH AIR RELEASE VALVE SIZE.



SECTION

NOTES:
1. GRADE HORIZONTAL PIPE RUNS MINIMUM 1% UPWARDS TOWARD AIR VALVE AND VENT STACK.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

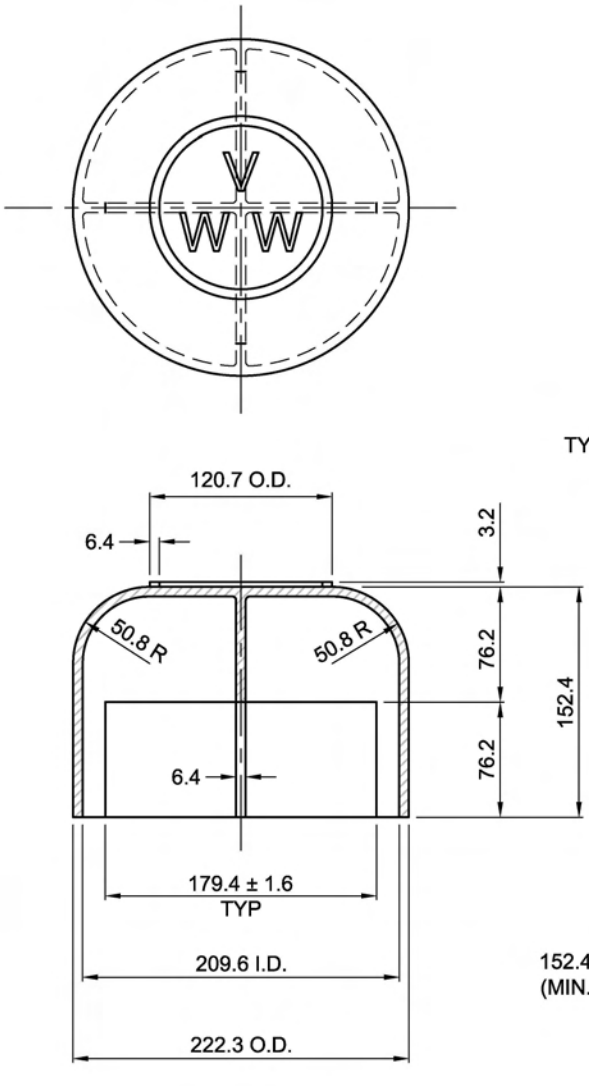
AIR VALVES
INSTALLATION IN BOULEVARD

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

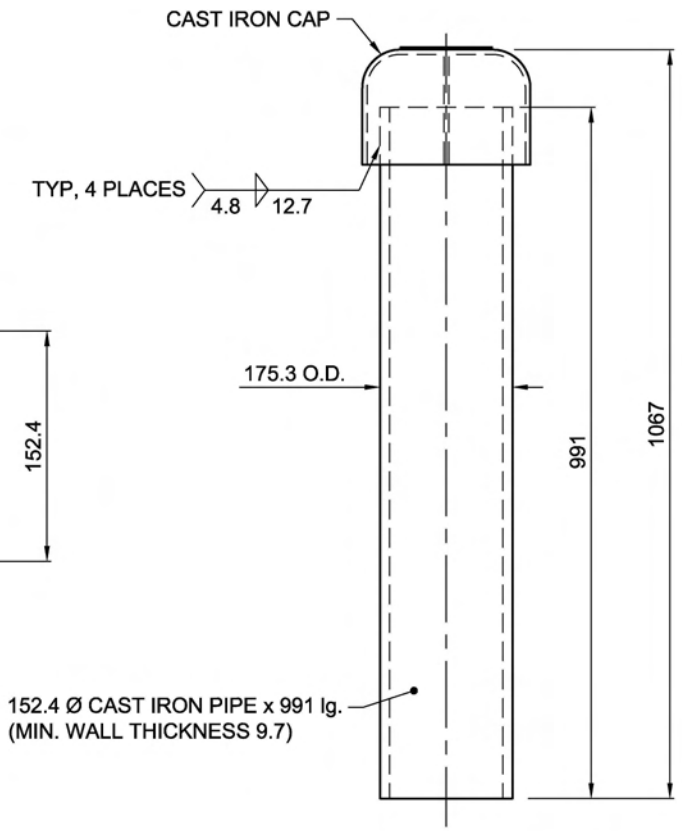
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W6.2



CAP DETAIL



VENT STACK ASSEMBLY

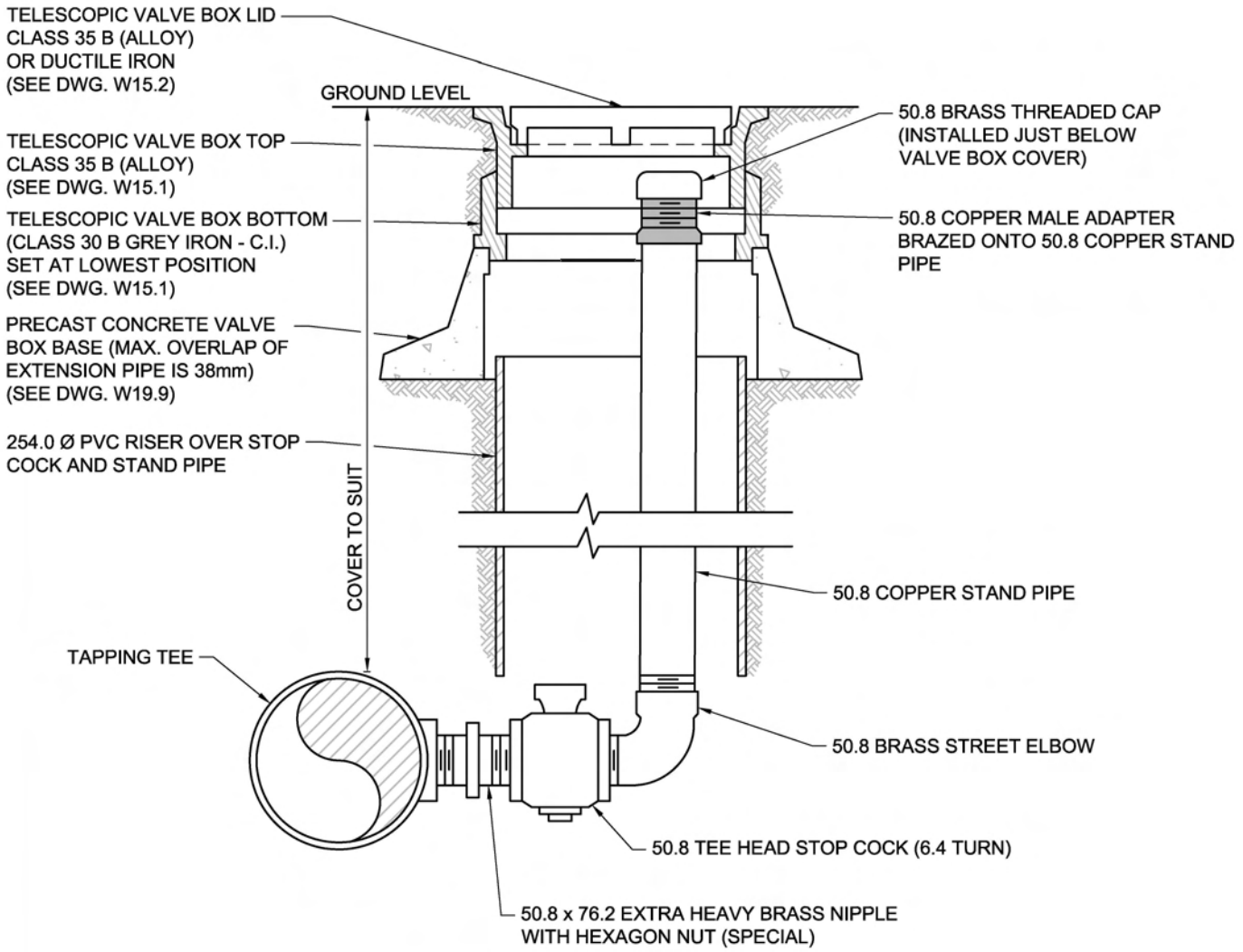
NOTE:
1. THE LETTERS "VWW" ON TOP OF THE CAP ARE TO BE 25.4mm HIGH AND 3.2 mm THICK
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

AIR VALVES
VENT STACKS

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO



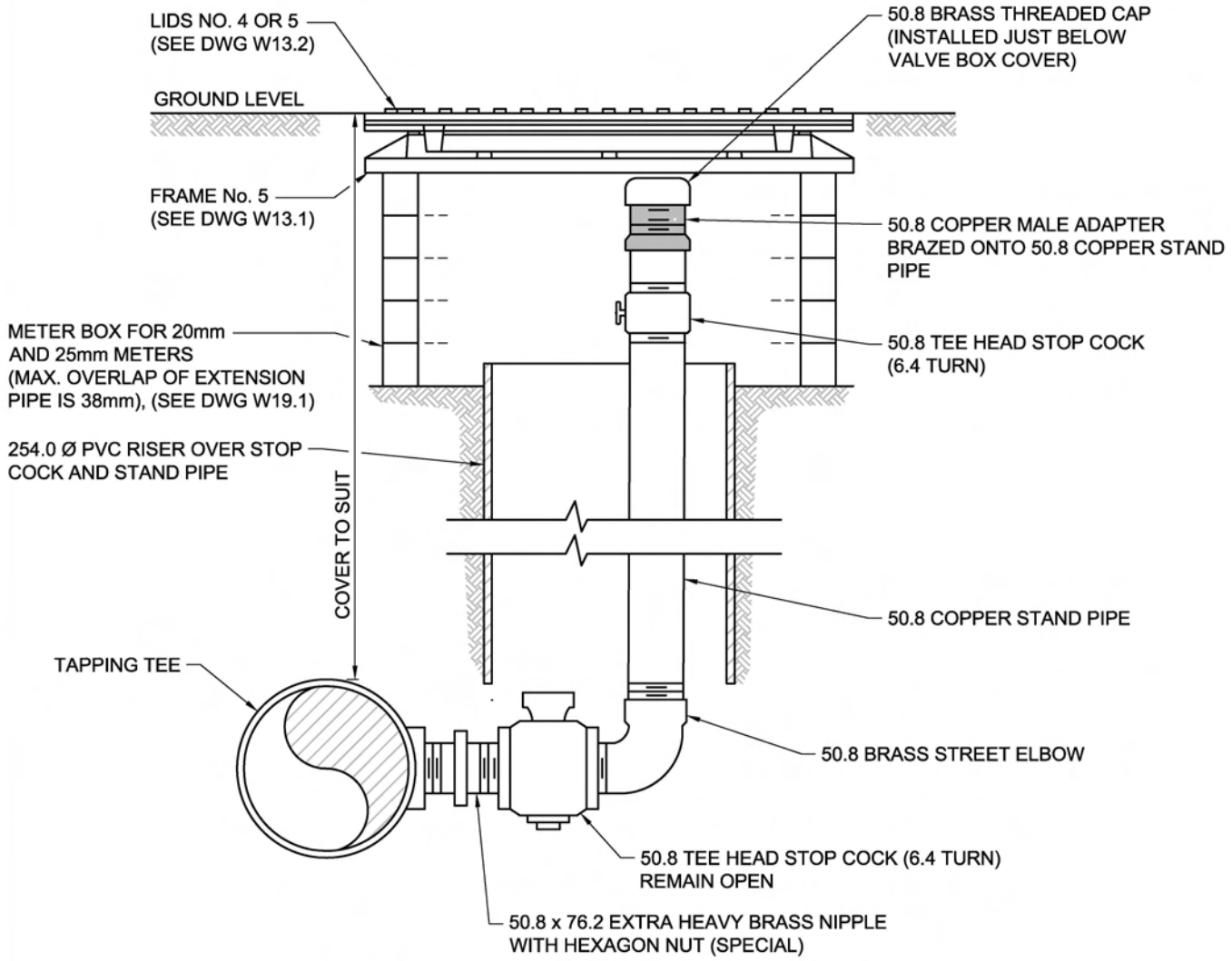
TYPICAL BLOW OFF INSTALLATION
(UNDER TRAFFIC LOAD)

NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W8.2



TYPICAL BLOW OFF INSTALLATION
(FOR BOULEVARD OR SIDEWALK)

NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

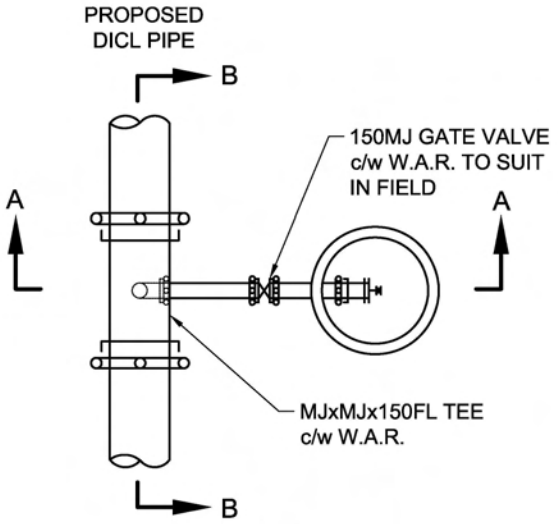
REV.	REVISION DATE	APPROVED

BLOWOFFS
FOR BOULEVARD OR SIDEWALK

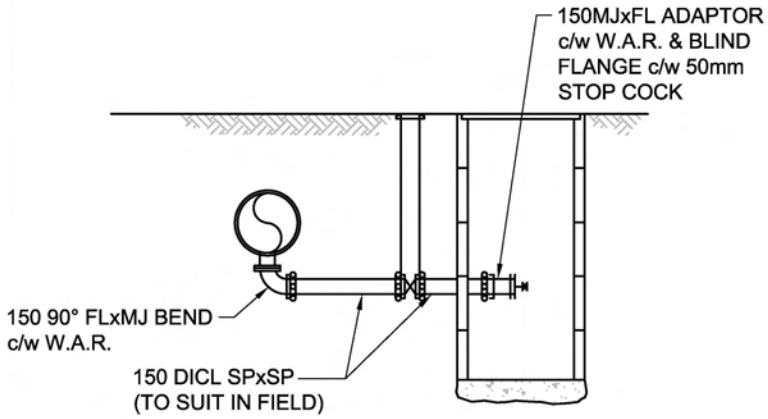
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

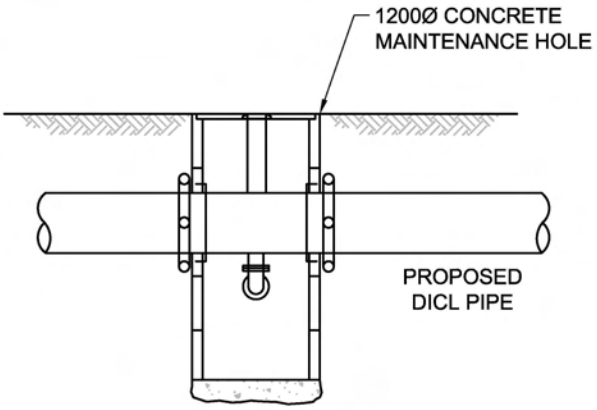
CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W9.1



PLAN



SECTION A-A



SECTION B-B

NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

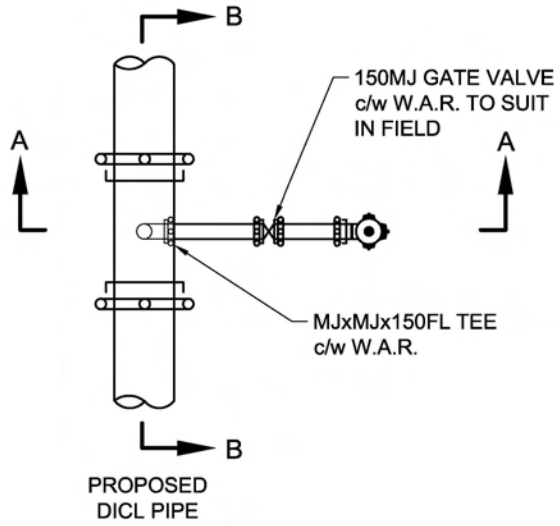
BLOWDOWNS

150mm BLOWDOWN INTO MAINTENANCE HOLE

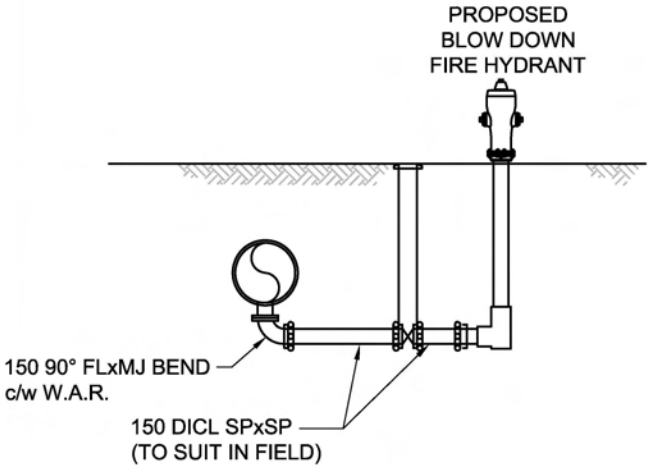
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

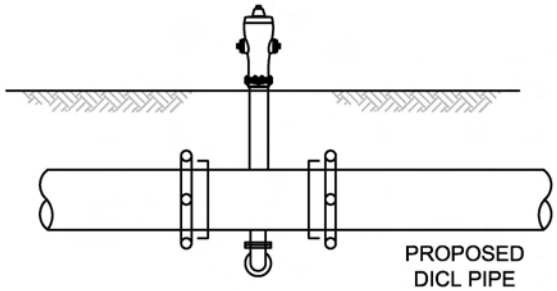
CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W9.2



PLAN



SECTION A-A



SECTION B-B

NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

BLOWDOWNS

150mm FIRE HYDRANT BLOWDOWN

ISSUE DATE: SEPTEMBER 2018

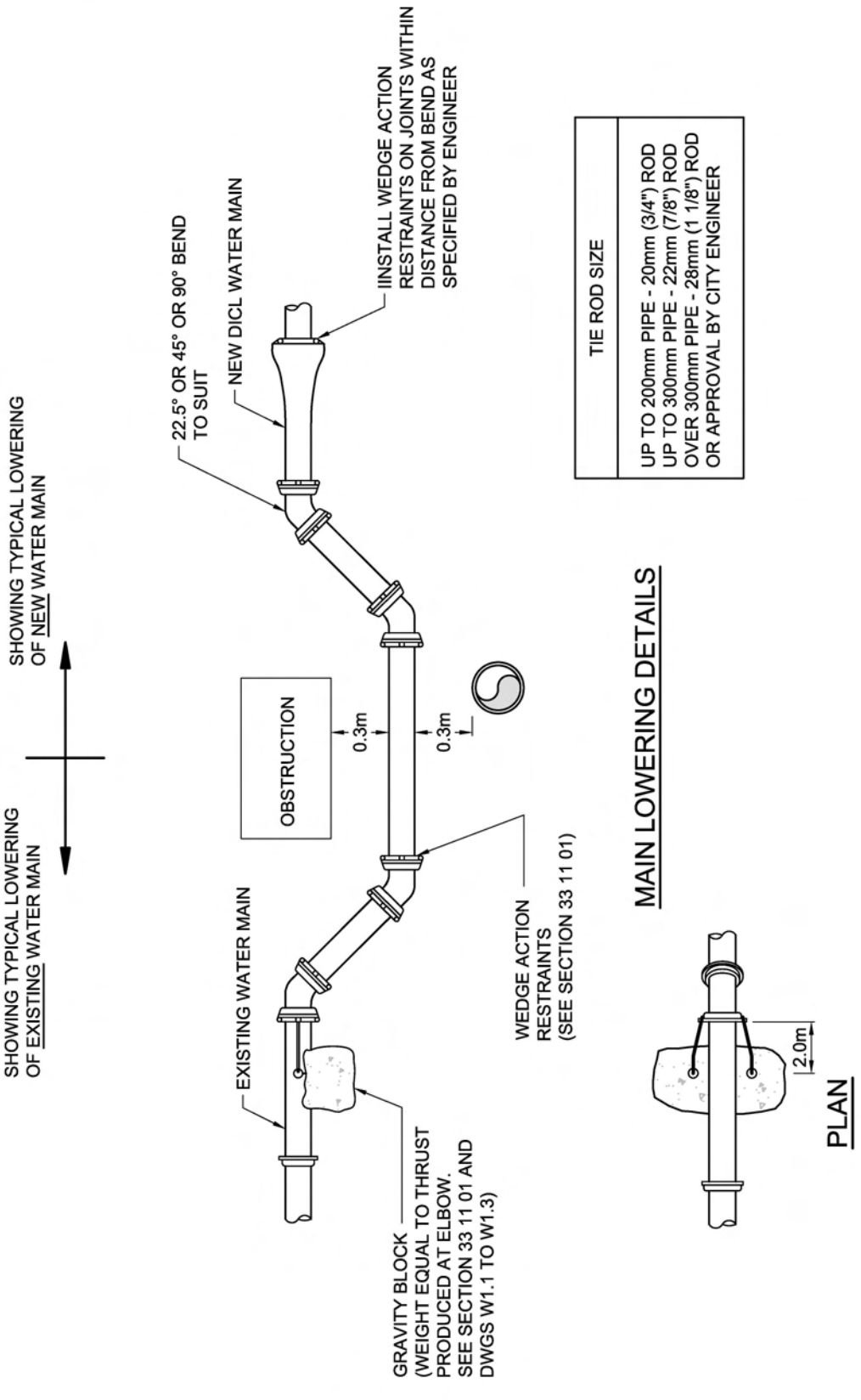
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W11.1

SCALE: N.T.S.



TIE ROD SIZE
UP TO 200mm PIPE - 20mm (3/4") ROD UP TO 300mm PIPE - 22mm (7/8") ROD OVER 300mm PIPE - 28mm (1 1/8") ROD OR APPROVAL BY CITY ENGINEER

MAIN LOWERING DETAILS

REV.	REVISION DATE	APPROVED

PIPE

MAIN LOWERING DETAIL

ISSUE DATE: SEPTEMBER 2018

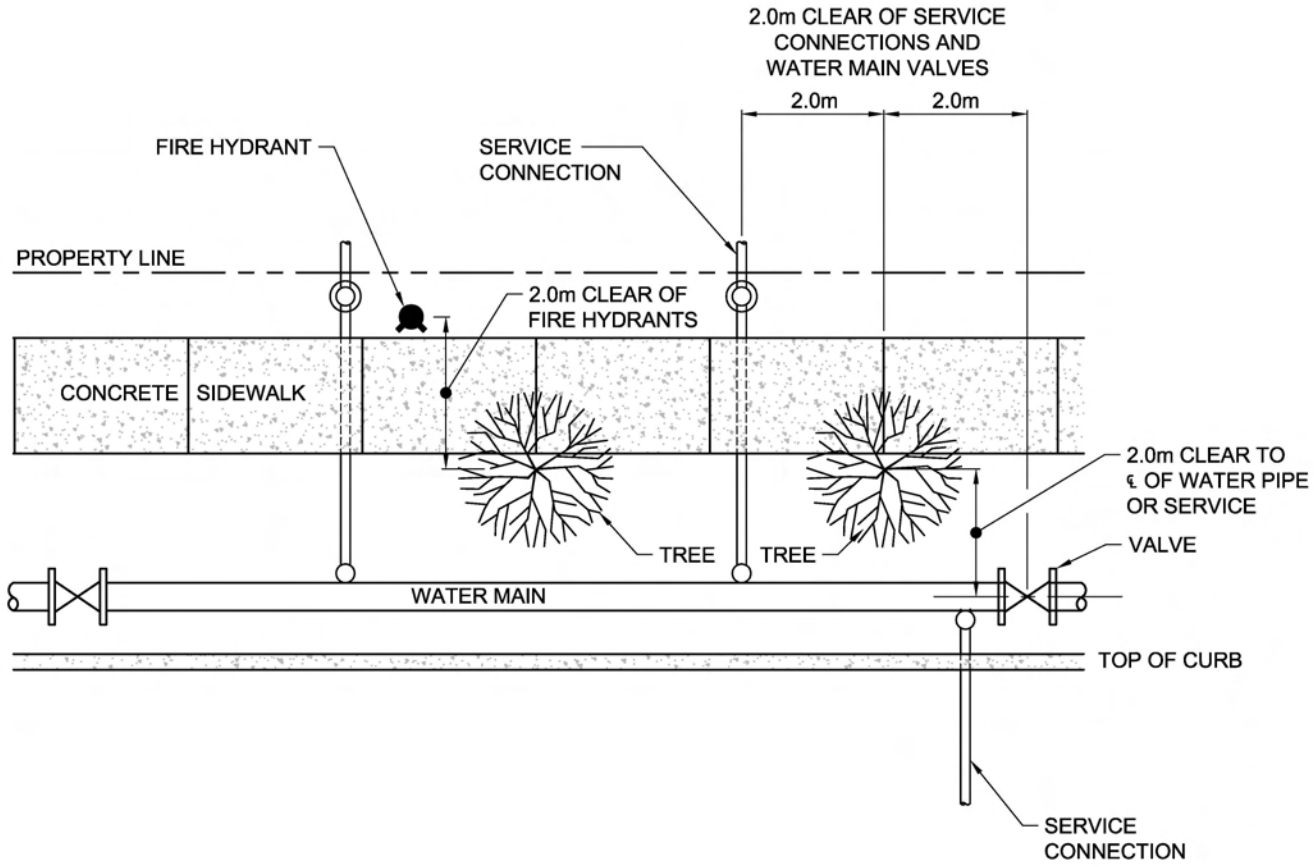
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W11.2



NOTES:

1. FOR PLACEMENT OF TREES OR SHRUBS, ENSURE TREES OR SHRUBS ARE PLANTED A MINIMUM DISTANCE OF 2.0m FROM CENTRELINE OF WATER MAIN OR SERVICE PIPE.
2. WHERE NECESSARY FOR WATER MAIN OR SERVICE PIPE MAINTENANCE OR REPLACEMENT, LANDSCAPING WILL BE REMOVED AT OWNER'S EXPENSE.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

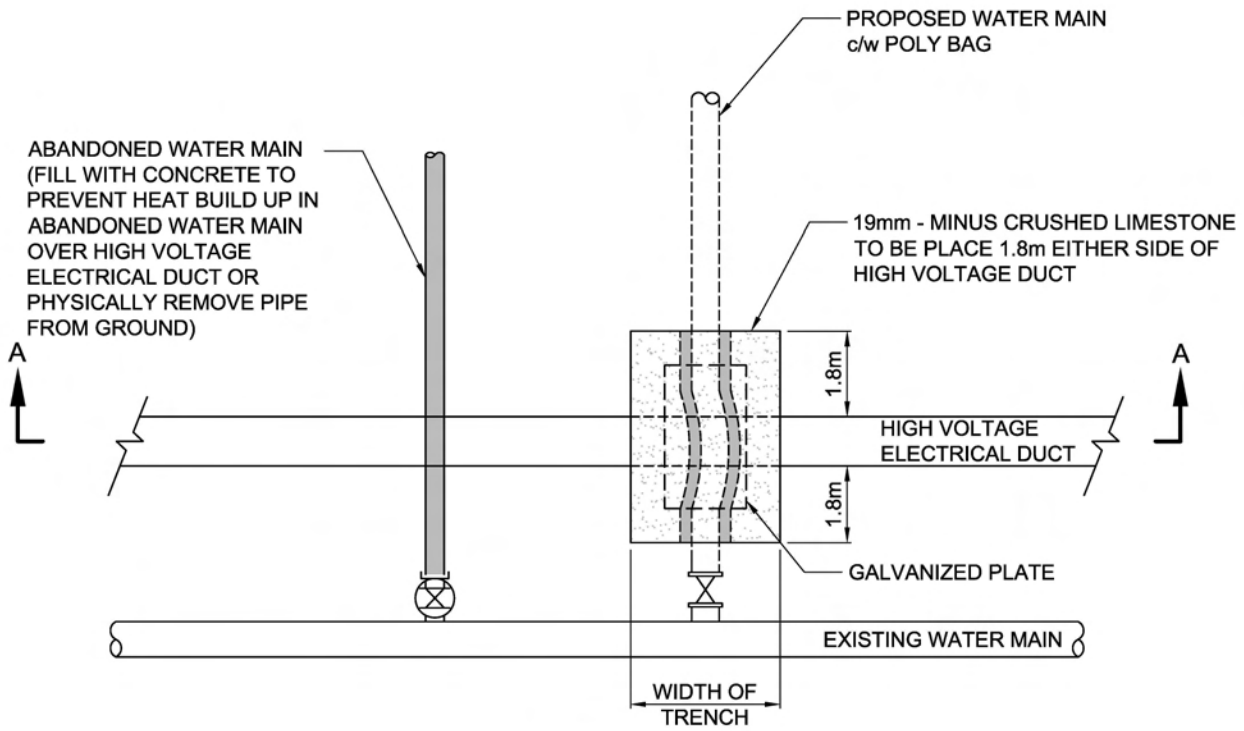
PIPE

LANDSCAPING RESTRICTIONS

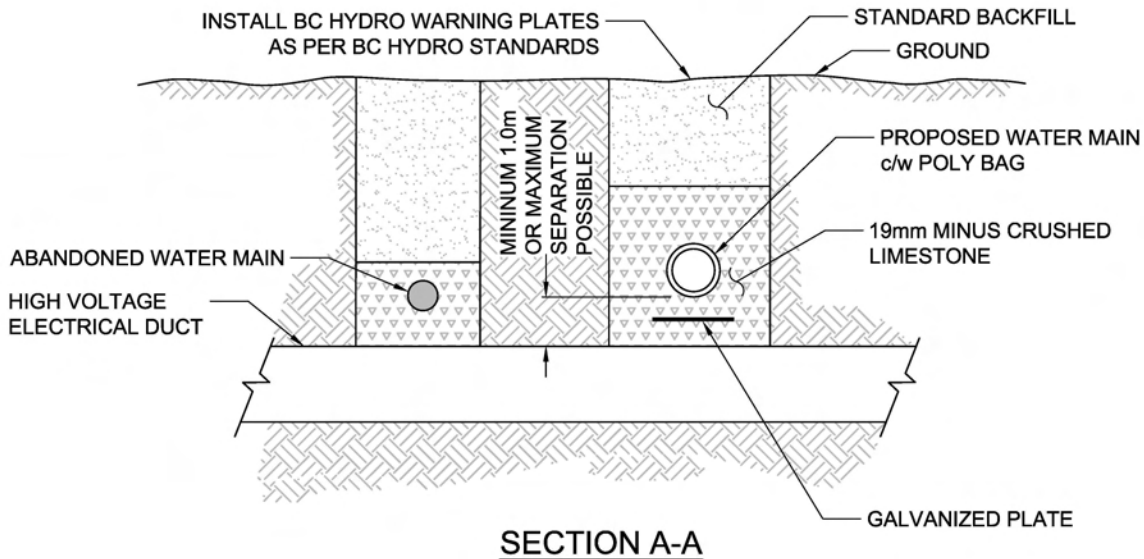
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W11.3



PLAN



SECTION A-A

NOTES:

1. CROSSING TO BE APPROVED BY BC HYDRO PRIOR TO CONSTRUCTION.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

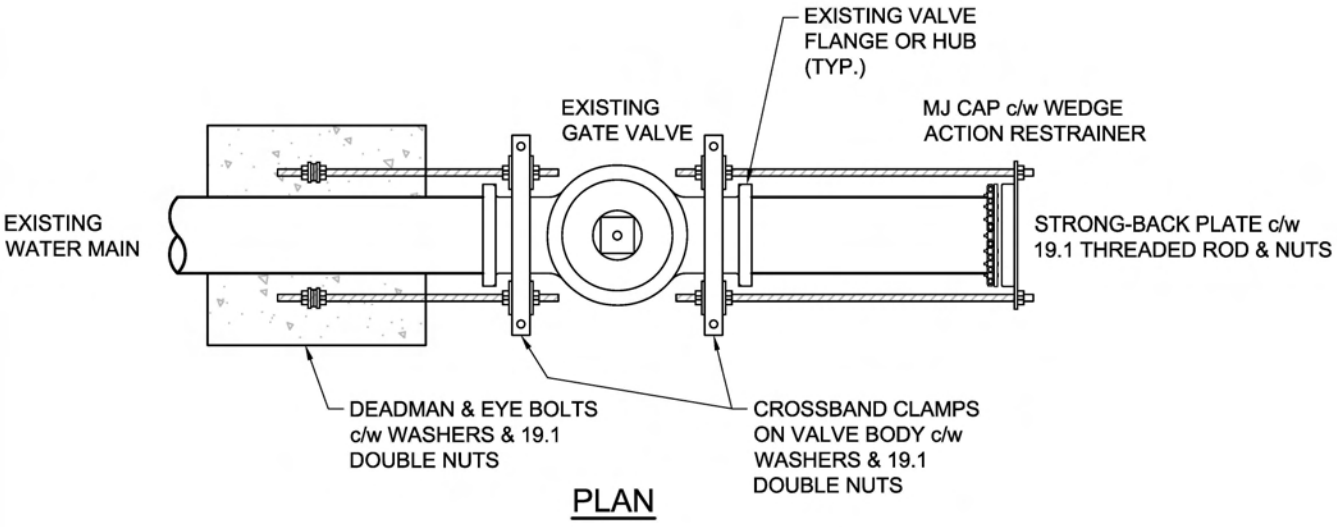
PIPE
CROSSING OVER HIGH-VOLTAGE ELECTRICAL DUCT

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

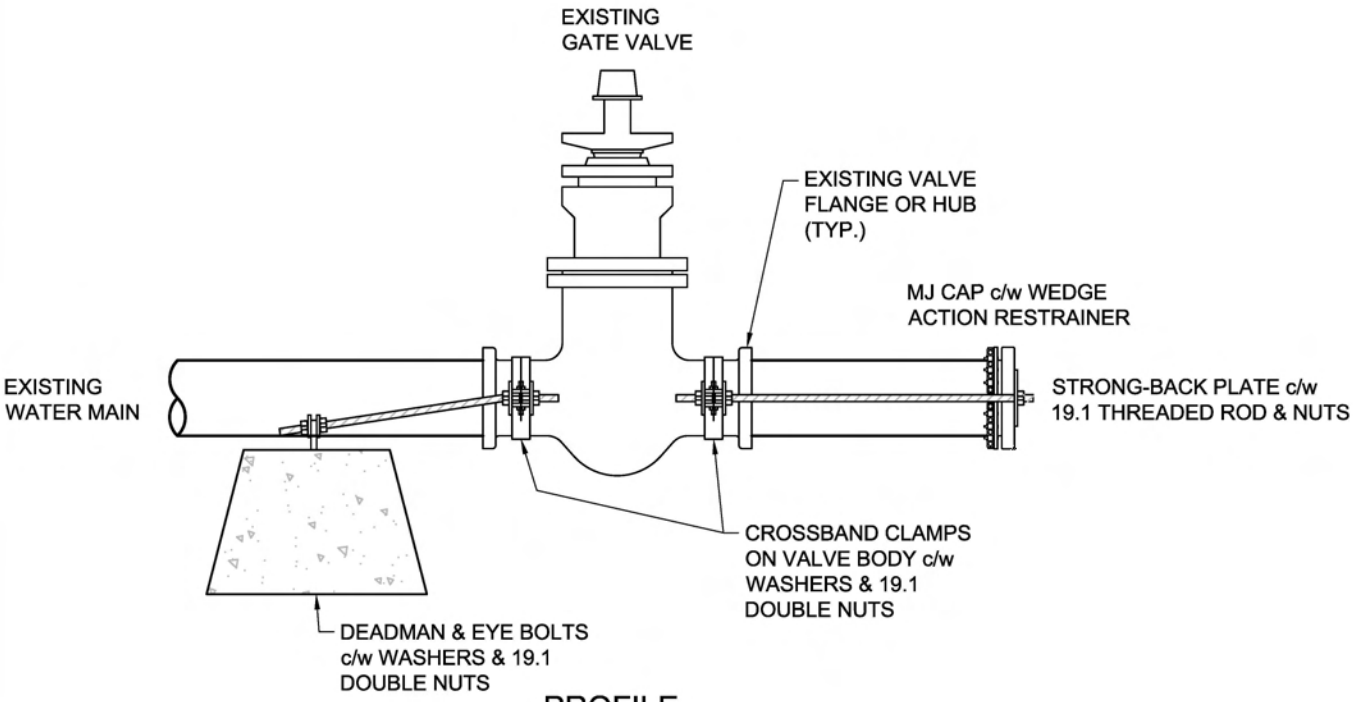
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W12.1



PLAN



PROFILE

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

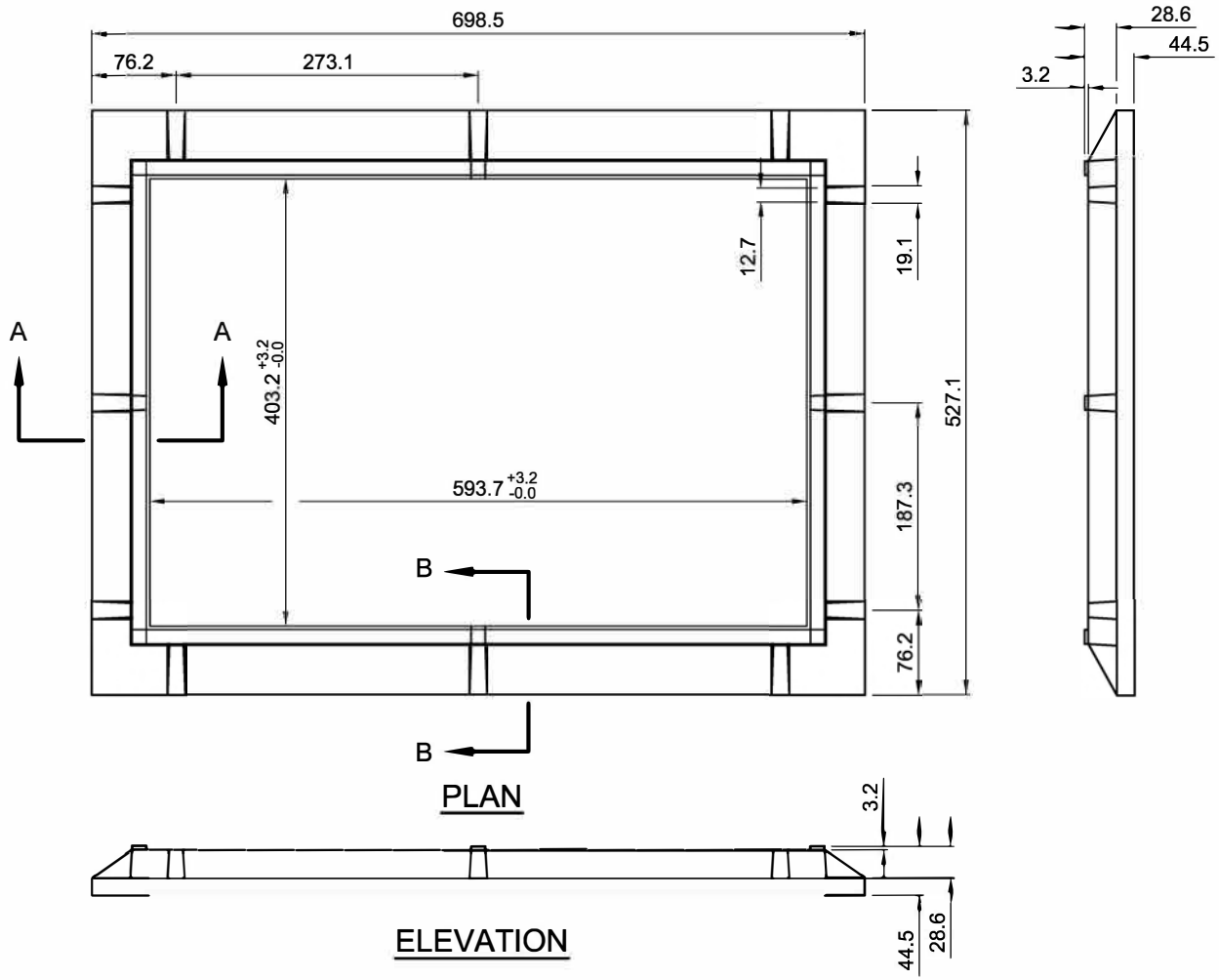
REV.	REVISION DATE	APPROVED

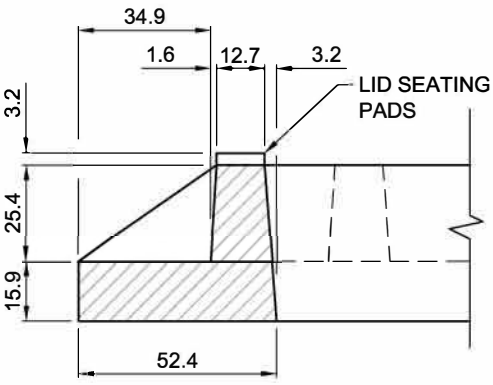
APPURTENANCES
TEMPORARY END CAPS

ISSUE DATE: SEPTEMBER 2018

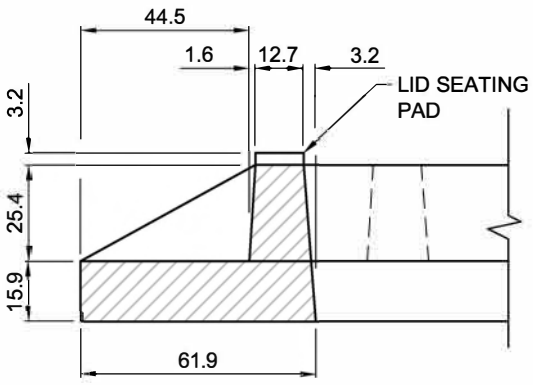
APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W13.1





SECTION A-A



SECTION B-B

NOTES:

1. FOR 20mm AND 25mm METER BOXES (SEE DWG W19.1)
2. **THE** NO. 5 FRAME ACCEPTS THE NO. 4 (DWG W13.2) OR NO. 5 (DWG W13.2) METER BOX LIDS.
3. FRAME WEIGHT 19.5 ± 2.3 KG.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS
METER BOX FRAME NO. 5

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

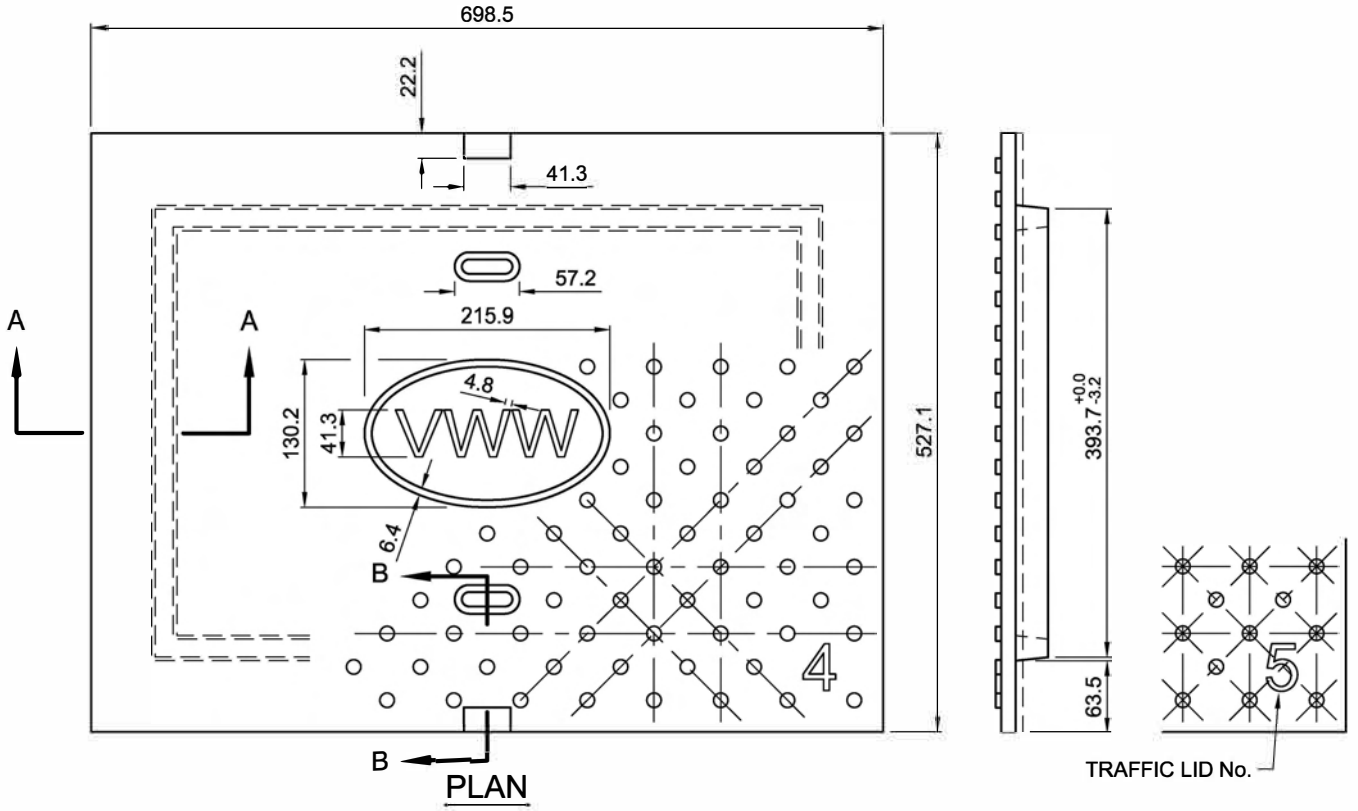
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

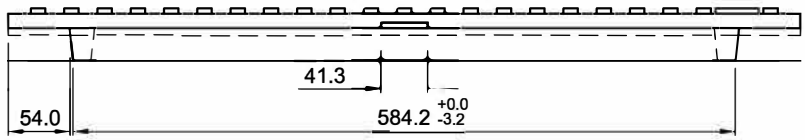
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.

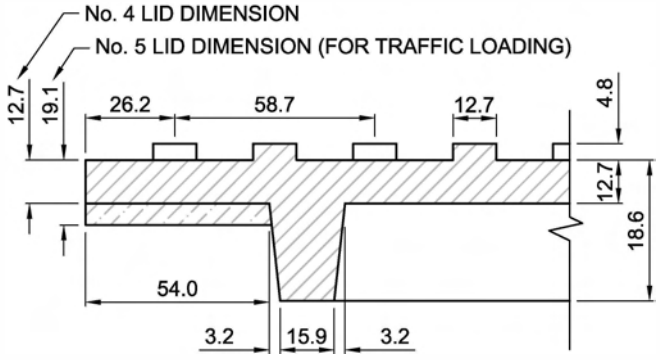
W13.2



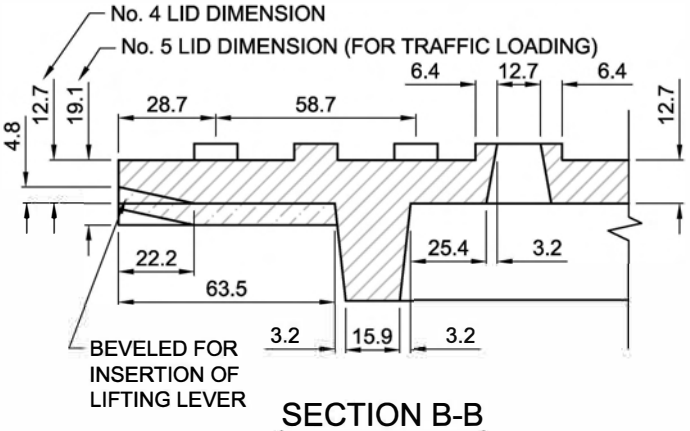
PLAN



ELEVATION



SECTION A-A



SECTION B-B

NOTES:

1. FOR 20mm AND 25mm METER BOXES (SEE DWG W19.1)
2. FOR USE WITH FRAME NO. 5 (DWG W13.1).
3. LID NO. 4 MAY BE USED ALONE IN BOULEVARDS.
4. LID NO. 5 TO BE USED FOR TRAFFIC LOADING.
5. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS

METER BOX LIDS NO. 4 & 5

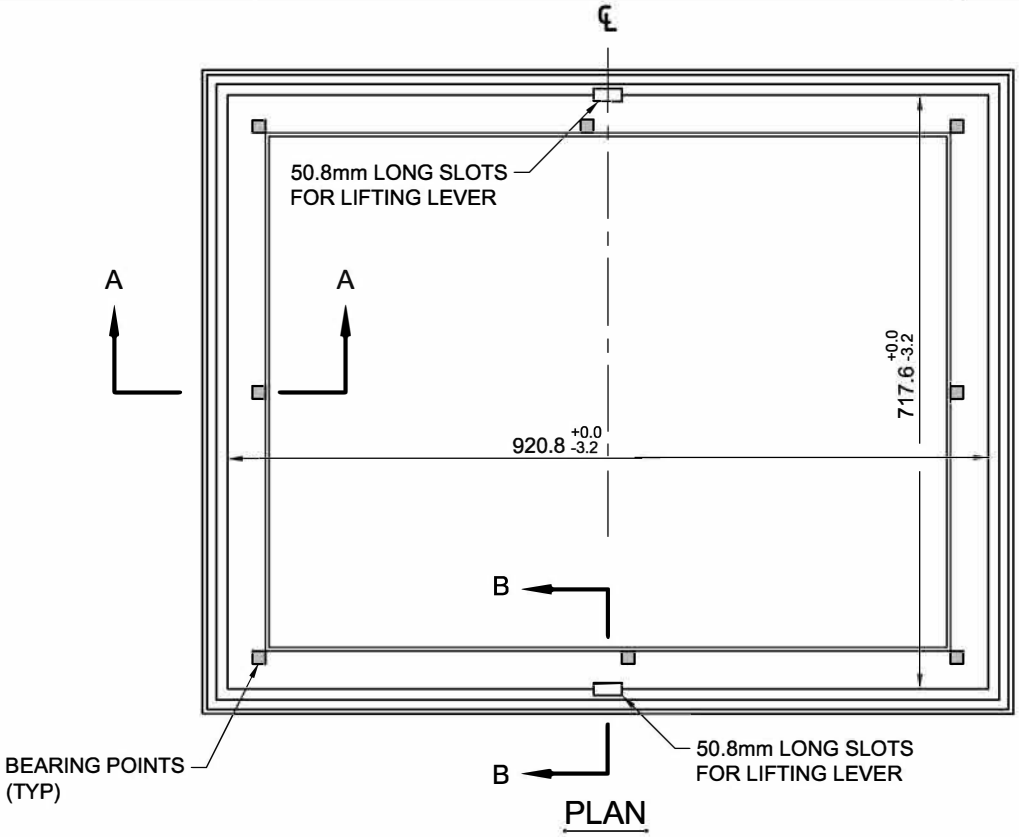
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

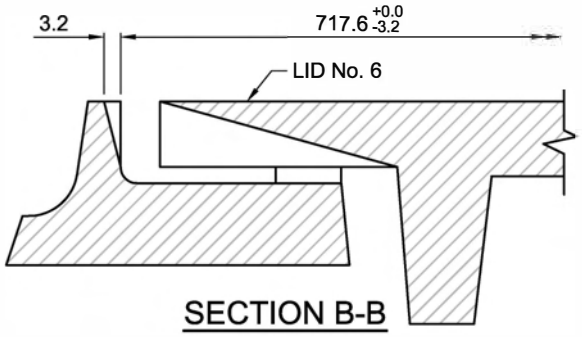
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

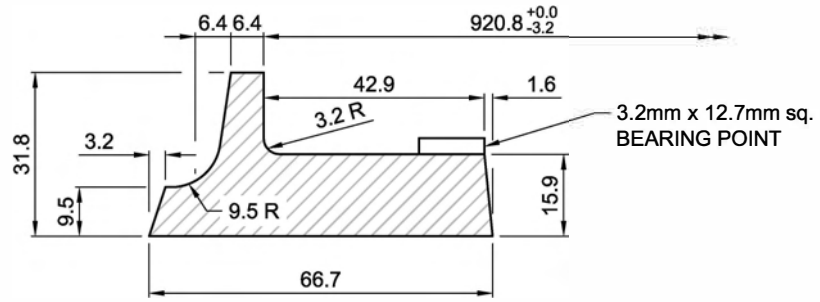
DRAWING No.
W13.3



PLAN



SECTION B-B



SECTION A-A

NOTES:

1. FOR 40mm AND LARGER METER BOXES (SEE DWG W19.1)
2. THE NO. 6 FRAME ACCEPTS THE NO. 6 METER BOX LID (DWG W13.4).
3. WARPING OF FRAME NOT TO EXCEED 6.4MM FROM CORNER TO CORNER.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS
METER BOX FRAME NO. 6

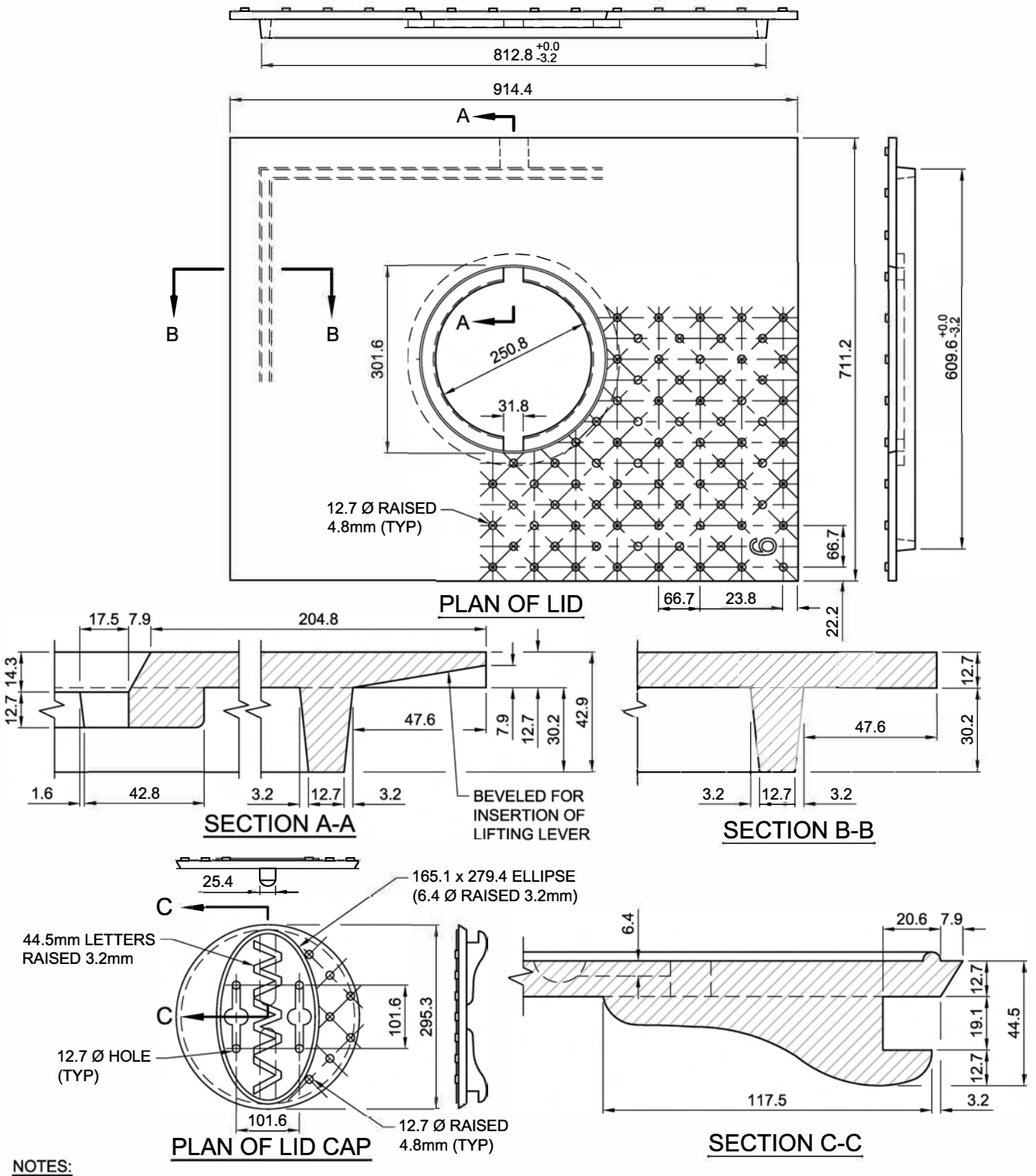
ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W13.4



NOTES:

1. FOR USE WITH 40mm AND LARGER METER BOXES (SEE DWG W19.1)
2. FOR USE WITH FRAME NO. 6 (DWG W13.3).
3. FOR BOULEVARD AND SIDEWALK INSTALLATIONS.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS

METER BOX LID NO. 6

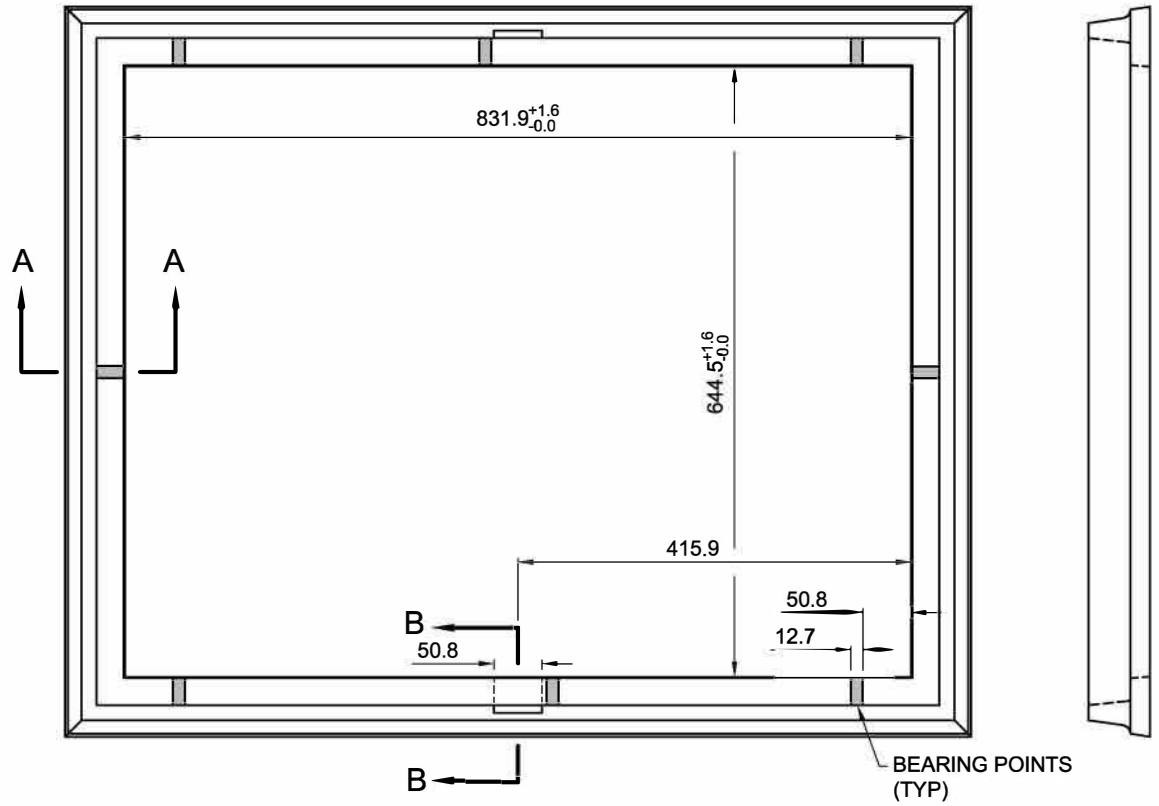
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

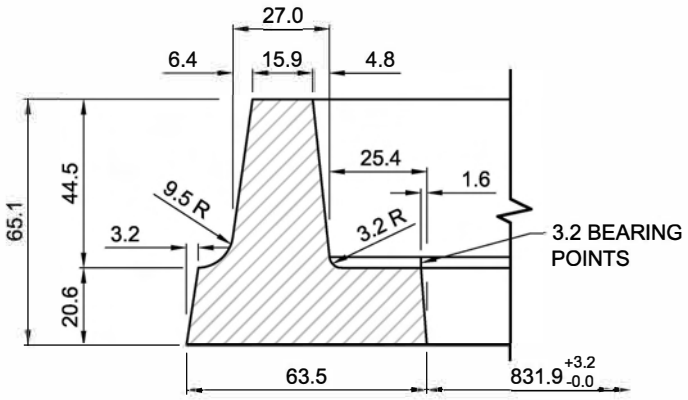
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

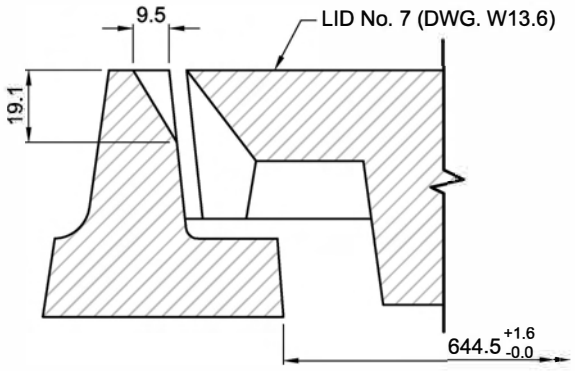
DRAWING No.
W13.5



PLAN



SECTION A-A



SECTION B-B
SHOWING 50.8mm SLOT FOR LIFTING LEVER

NOTES:
1. FOR 40mm AND LARGER METER BOXES UNDER PAVEMENT (SEE DWG W19.1)
2. THE NO. 7 FRAME ACCEPTS THE NO. 7 METER BOX LID (DWG W13.6).
3. WARPING OF FRAME IS NOT TO EXCEED 6.4mm FROM ONE CORNER TO ANOTHER.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS
METER BOX FRAME NO. 7

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

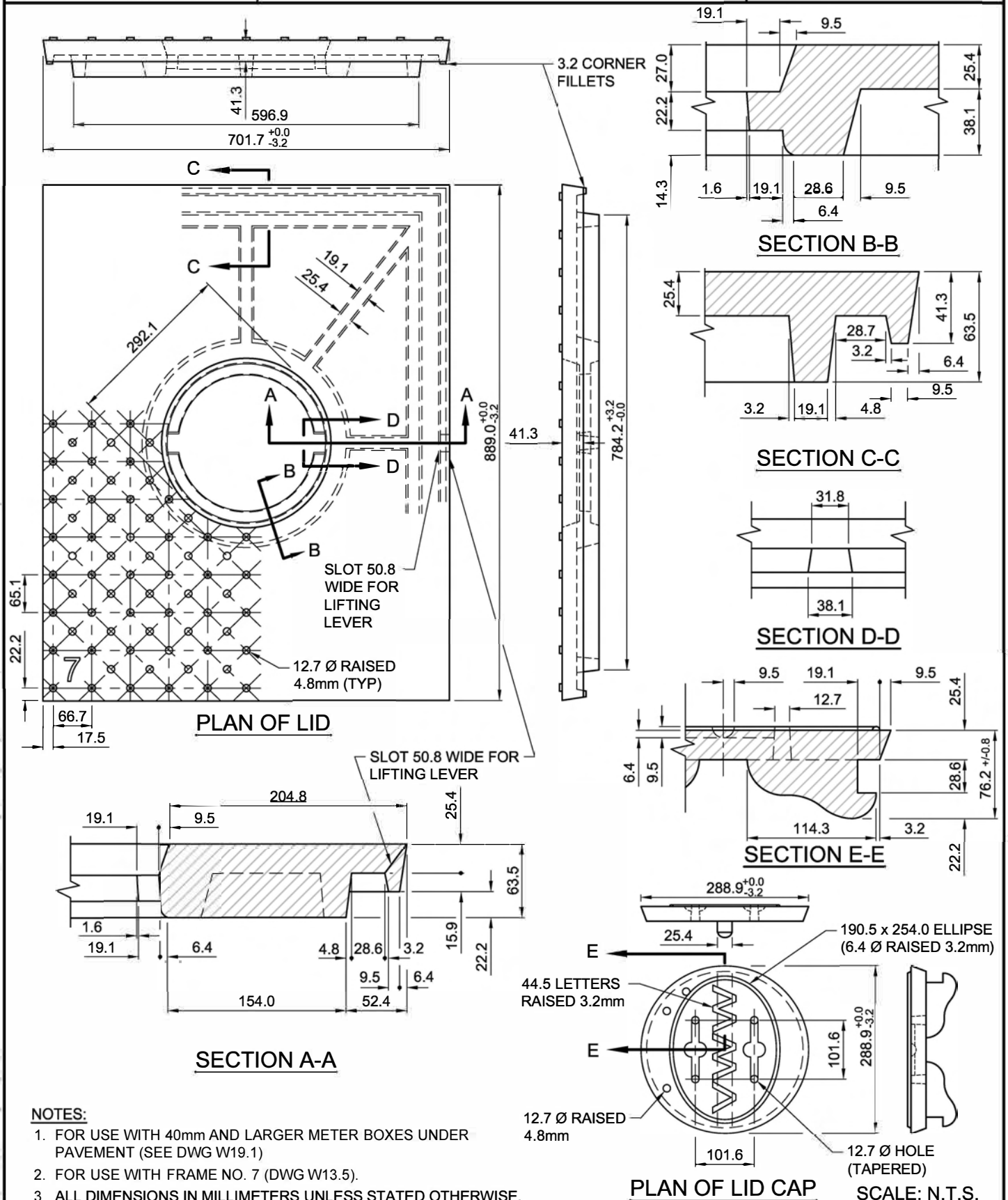
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.

W13.6



NOTES:

1. FOR USE WITH 40mm AND LARGER METER BOXES UNDER PAVEMENT (SEE DWG W19.1)
2. FOR USE WITH FRAME NO. 7 (DWG W13.5).
3. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

REV.	REVISION DATE	APPROVED

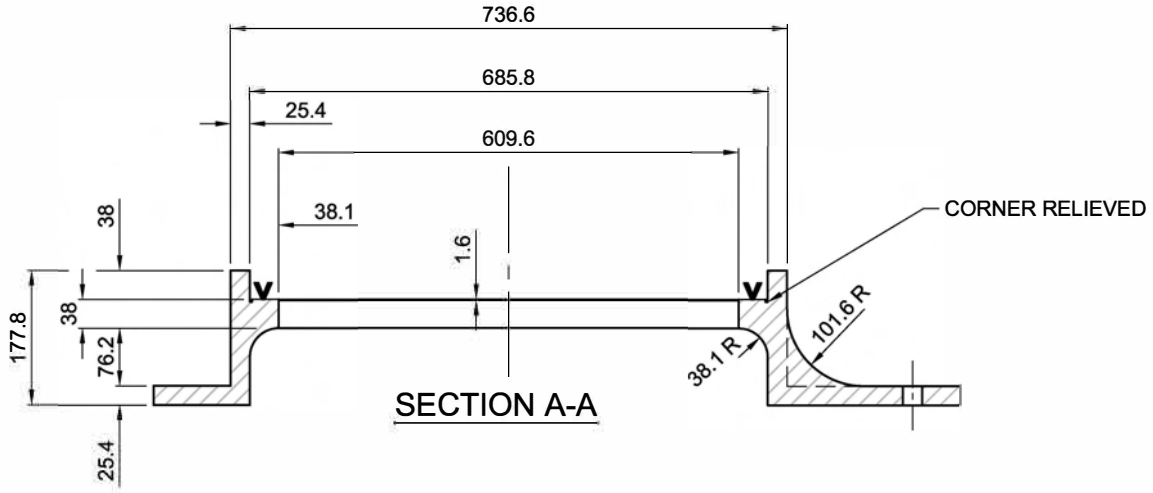
CASTINGS

METER BOX LID NO. 7

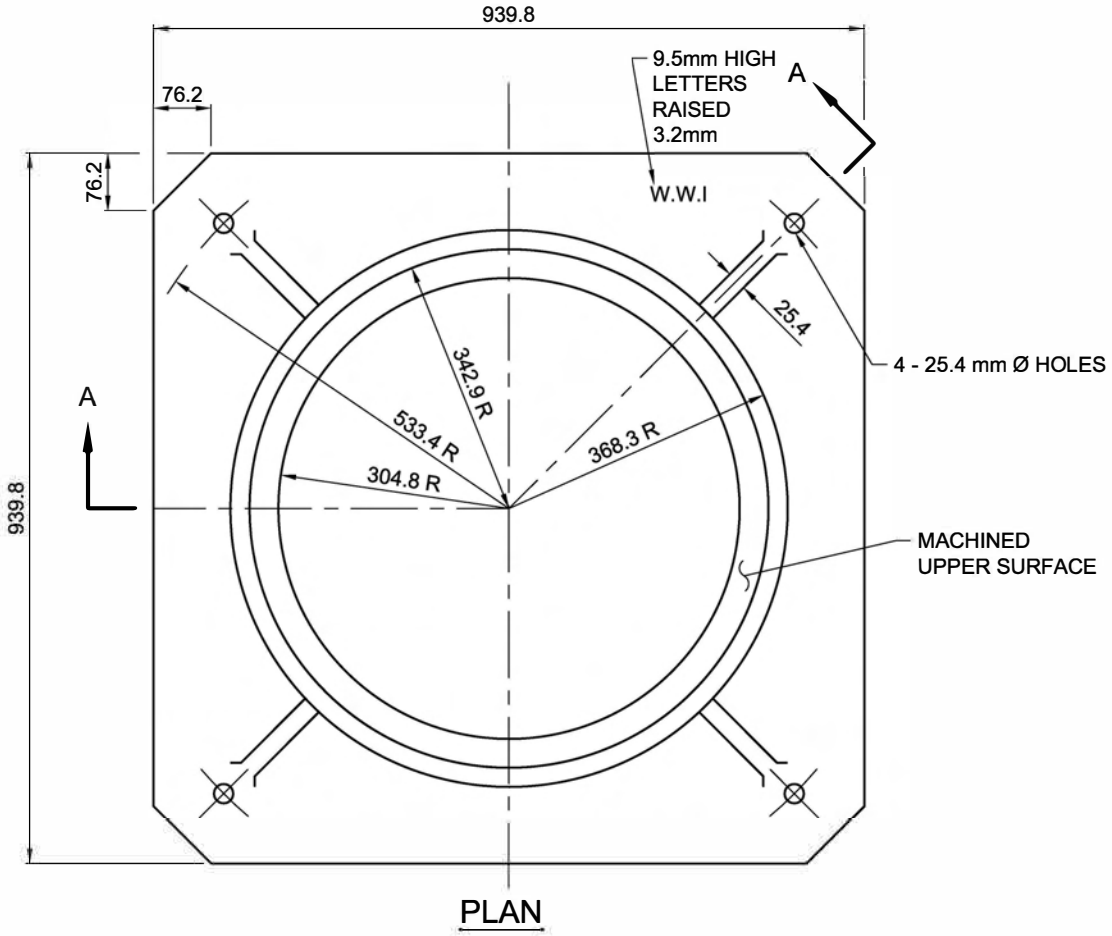
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W14.1



SECTION A-A



PLAN

NOTES:

1. FOR USE WITH COVER NO. WW1 (DWG W14.2).
2. ALL CORNERS TO HAVE 3.2 RADIUS UNLESS OTHERWISE SPECIFIED.
3. ALL SURFACES MARKED (▼) TO BE MACHINED.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS

MAINTENANCE HOLE FRAME NO. WW1

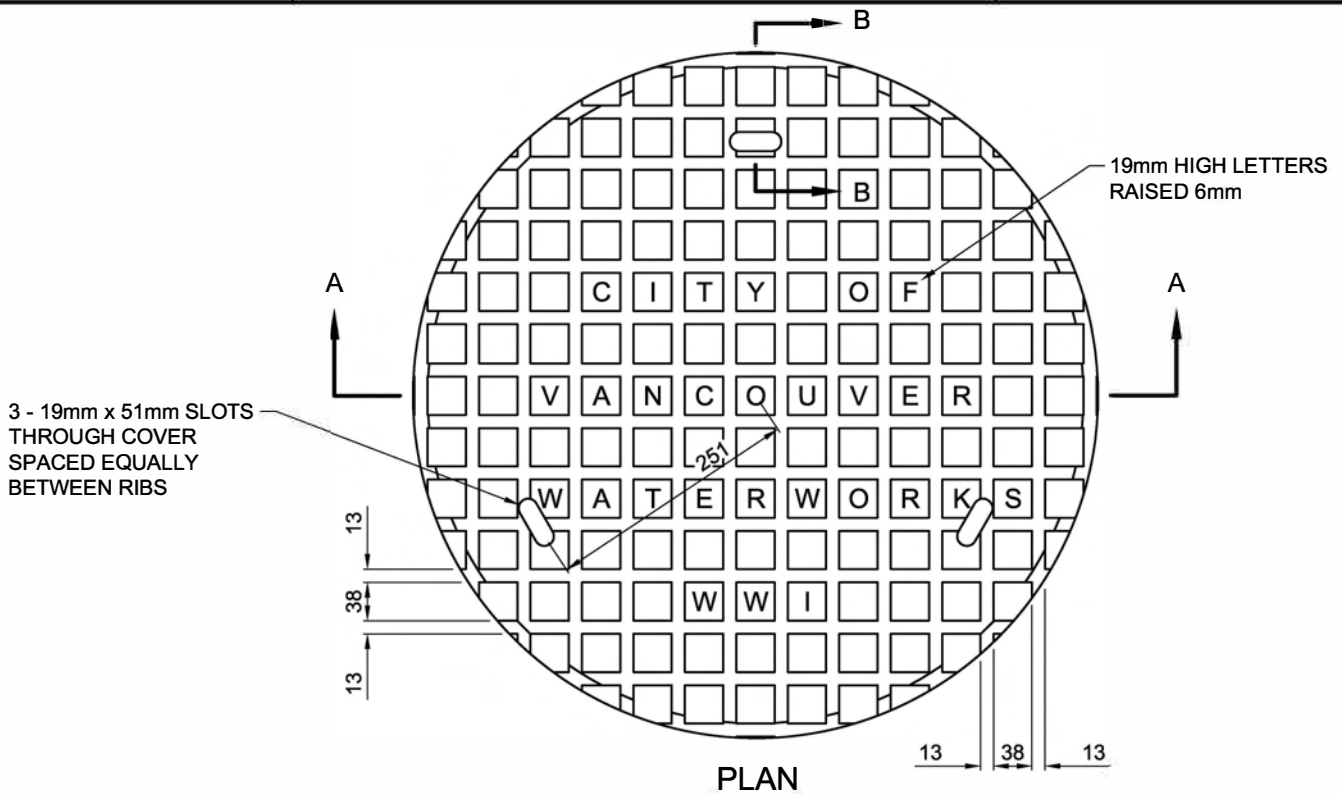
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

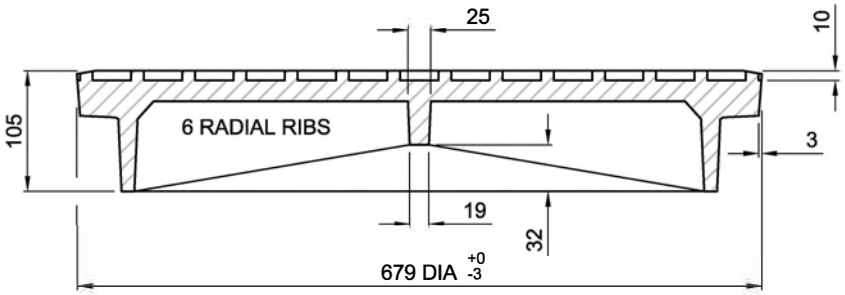
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

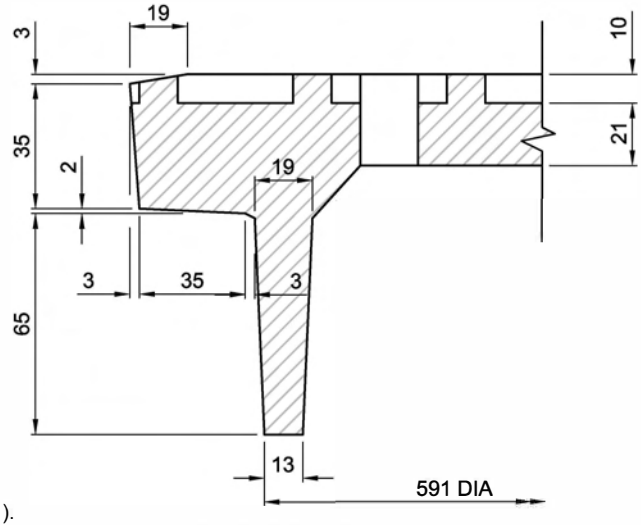
DRAWING No.
W14.2



PLAN



SECTION A-A



SECTION B-B

NOTES:
1. FOR USE WITH FRAME NO. WW1 (DWG W14.1).
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

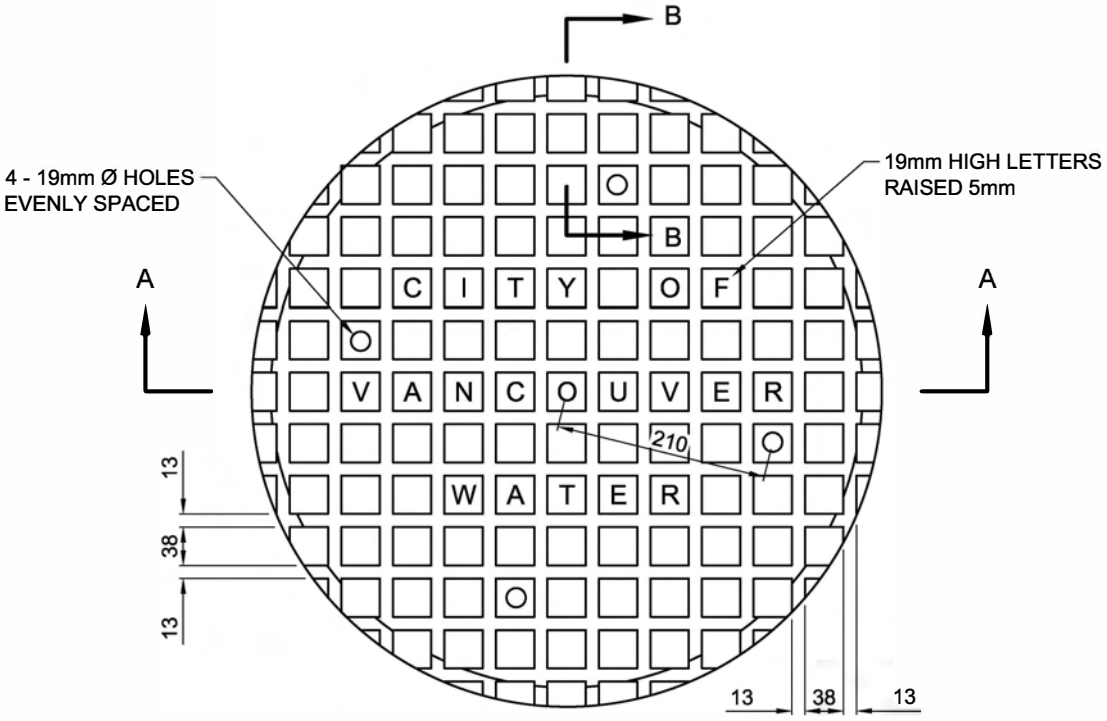
SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

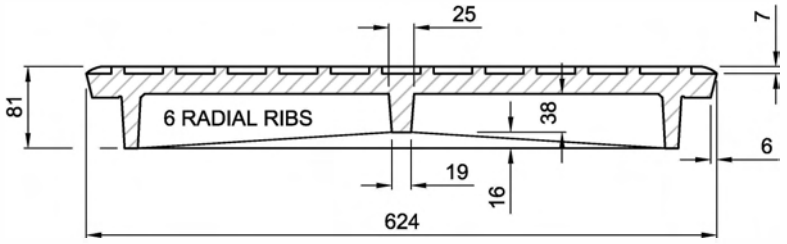
CASTINGS
MAINTENANCE HOLE COVER NO. WW1

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LI AO

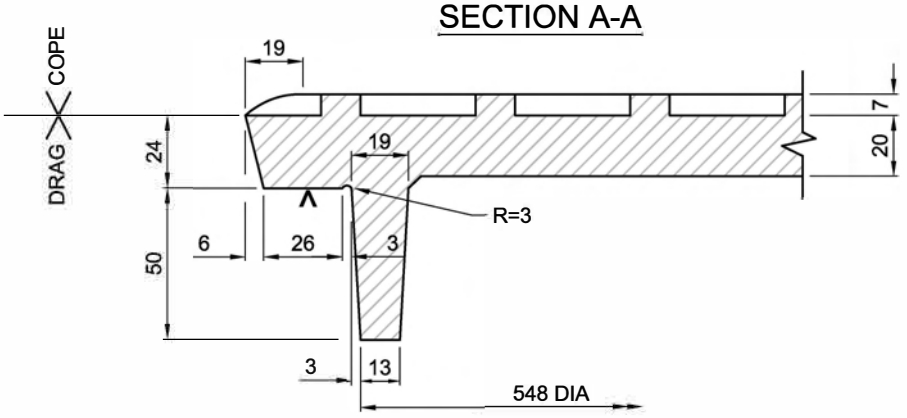
CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W14.3



PLAN



SECTION A-A



SECTION B-B

NOTES:

1. FITS SEWER FRAME N0.13 (DWG S5.7).
2. THE MASTER PATTERN HAS INTERCHANGEABLE LETTERS SEWER AND WATER.
3. (∧) INDICATES 1.6mm HAS BEEN ALLOWED ON THE PATTERN FOR MACHINING.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS
MAINTENANCE HOLE COVER NO. 2

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LI AO

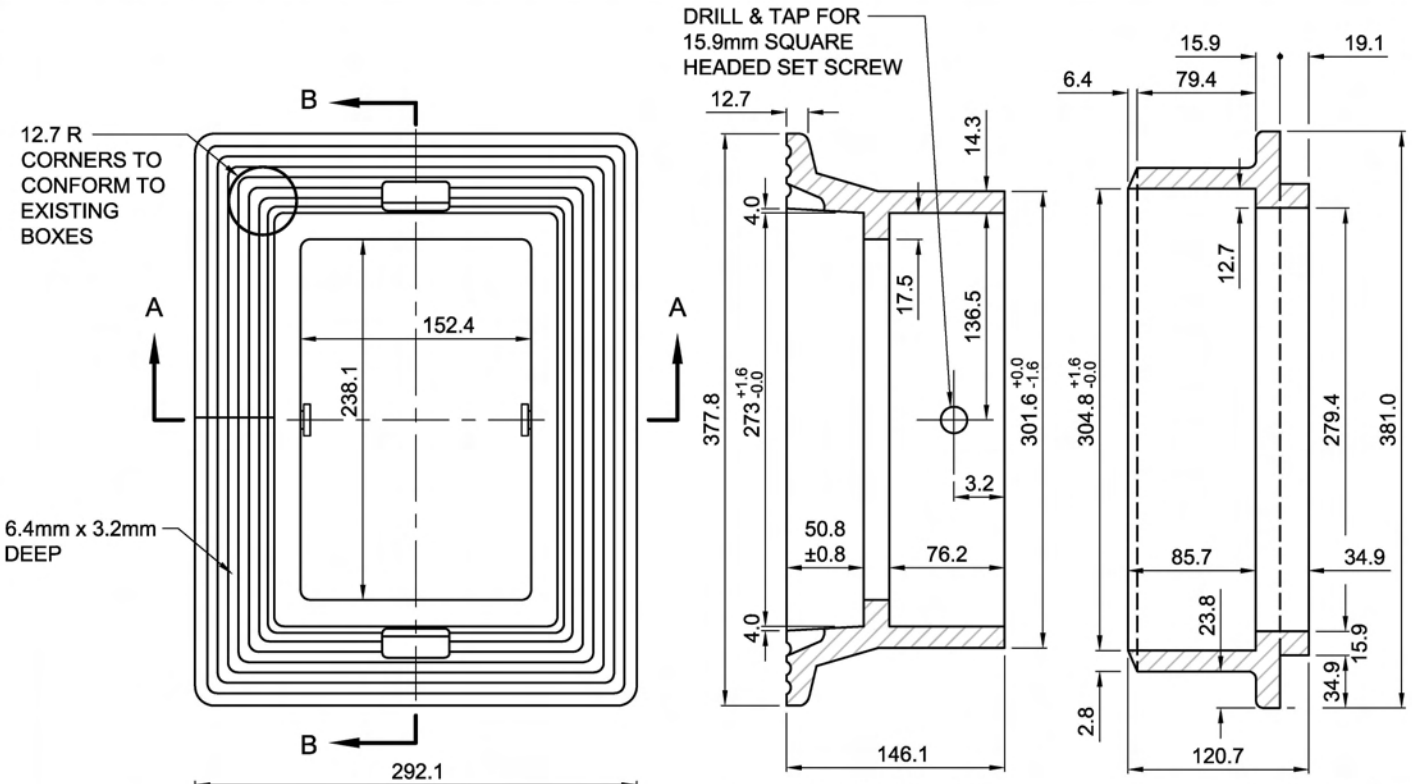
CITY OF VANCOUVER

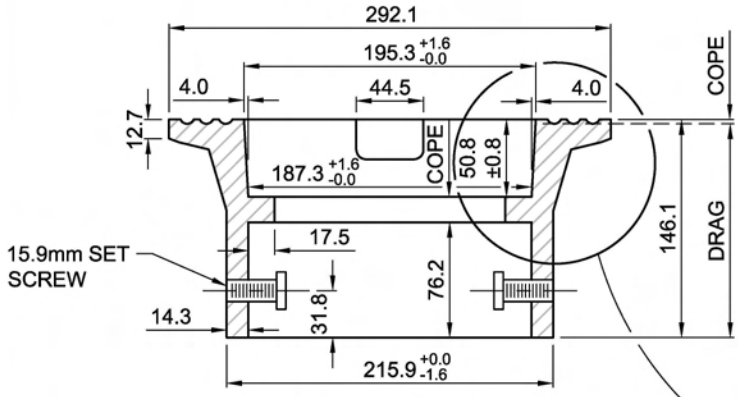
STANDARD DETAIL DRAWINGS

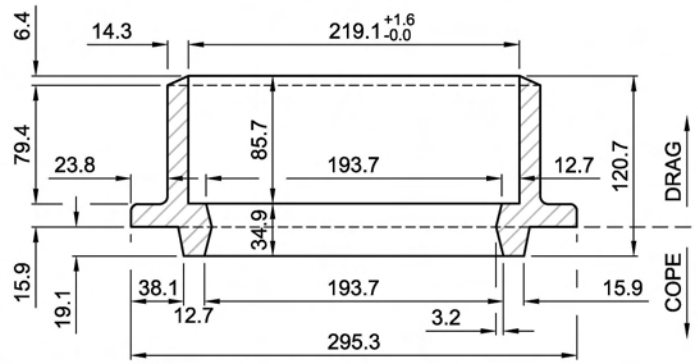
ENGINEERING SERVICES - VANCOUVER, B.C.

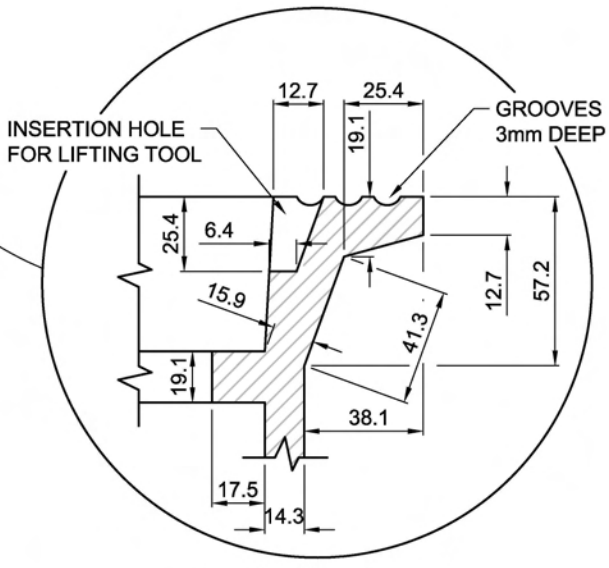
DRAWING No.

W15.1









NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS

TELESCOPIC VALVE BOX

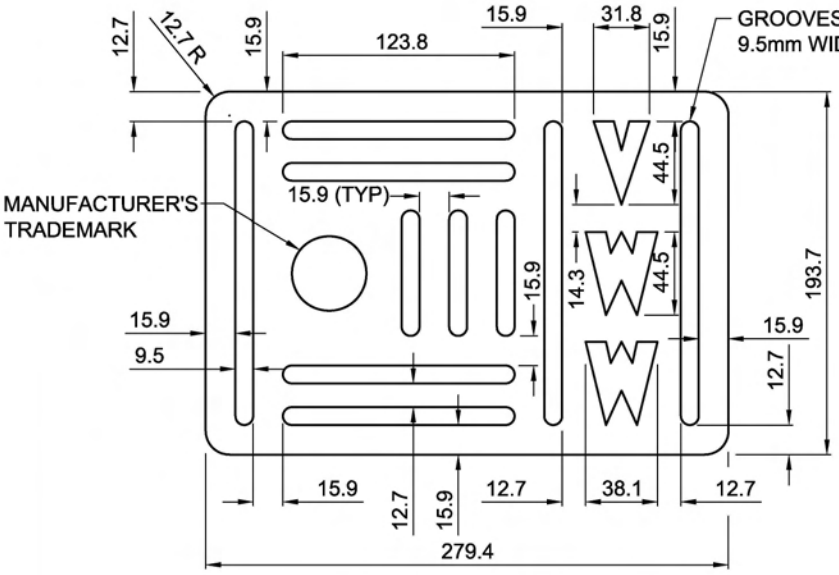
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

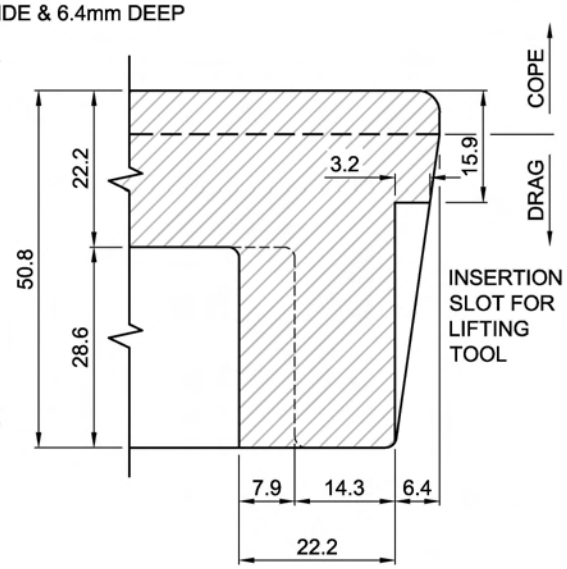
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

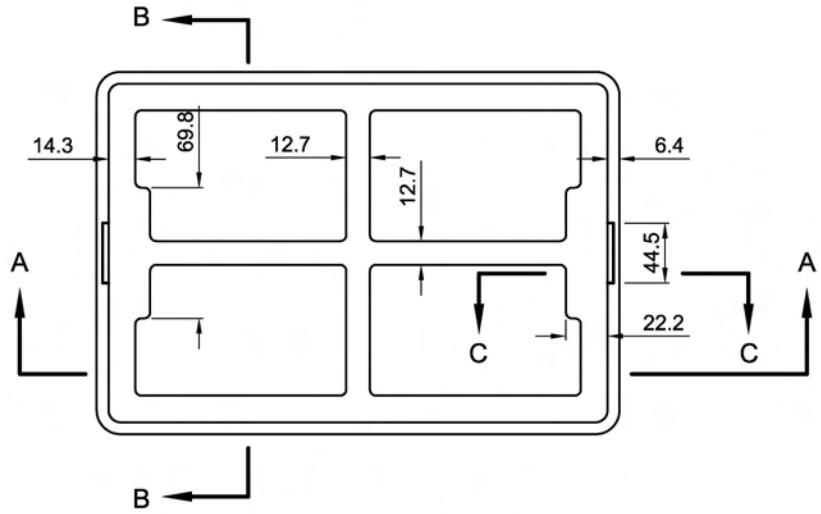
DRAWING No.
W15.2



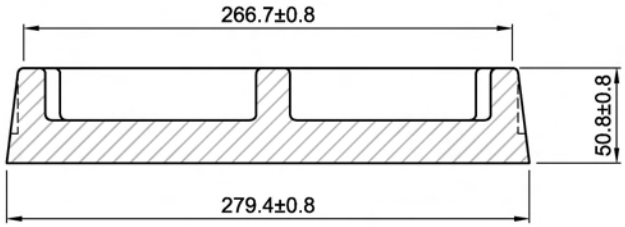
TOP OF LID



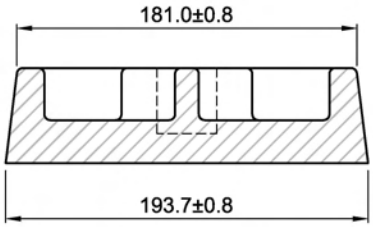
SECTION C-C



UNDERSIDE OF LID



SECTION A-A



SECTION B-B

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

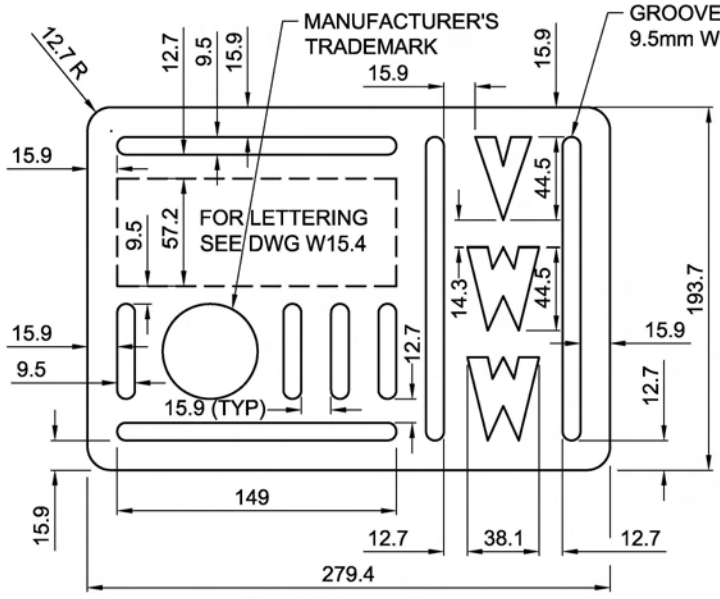
CASTINGS
TELESCOPIC VALVE BOX LID

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

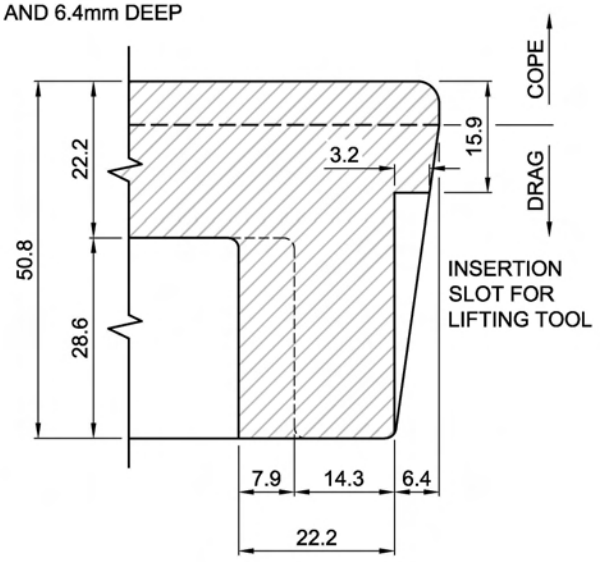
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

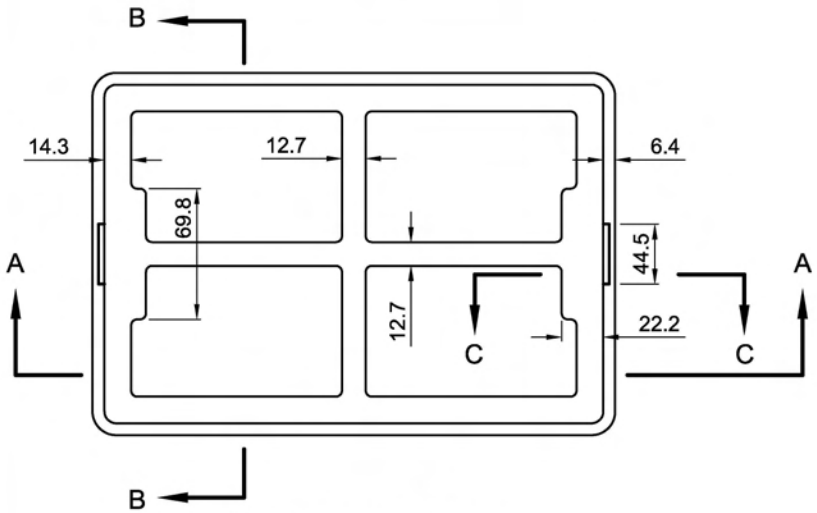
DRAWING No.
W15.3



TOP OF LID



SECTION C-C



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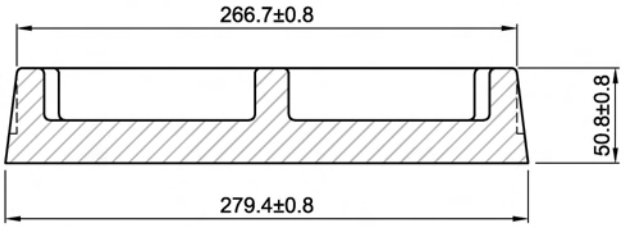
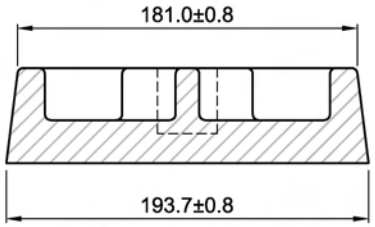


SECTION A-A



SECTION B-B

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

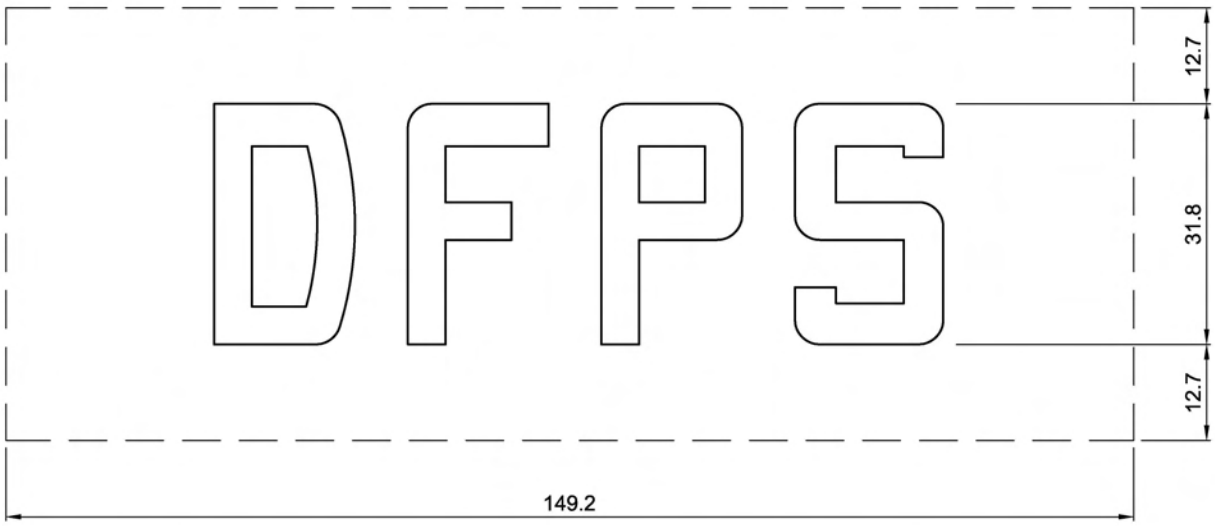
SCALE: N.T.S.

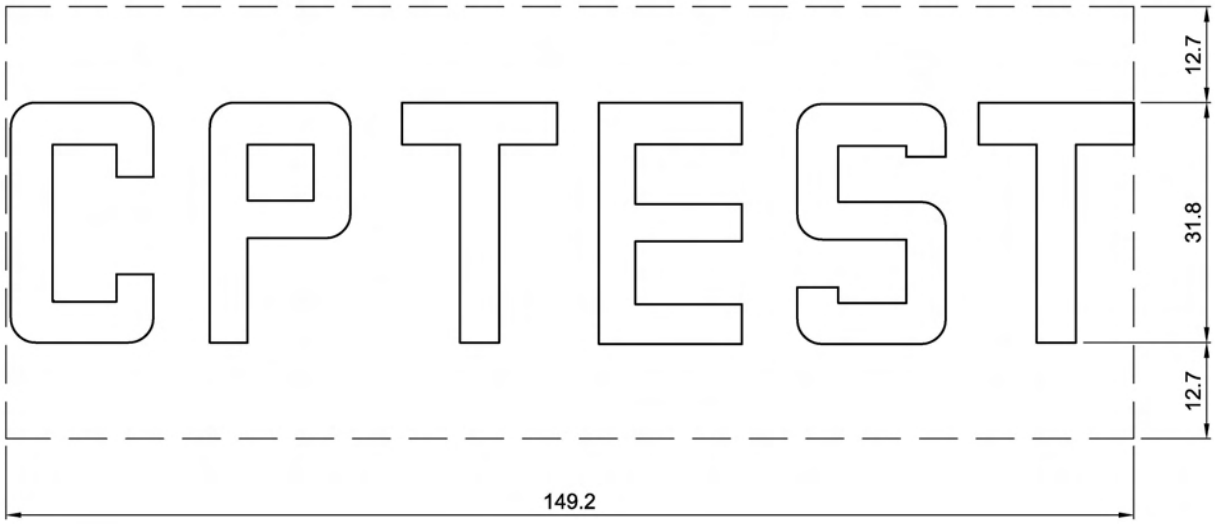
REV.	REVISION DATE	APPROVED

CASTINGS
SPECIAL TELESCOPIC VALVE BOX LID

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W15.4





NOTE:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS

SPECIAL TELESCOPIC VALVE BOX LID LETTERING

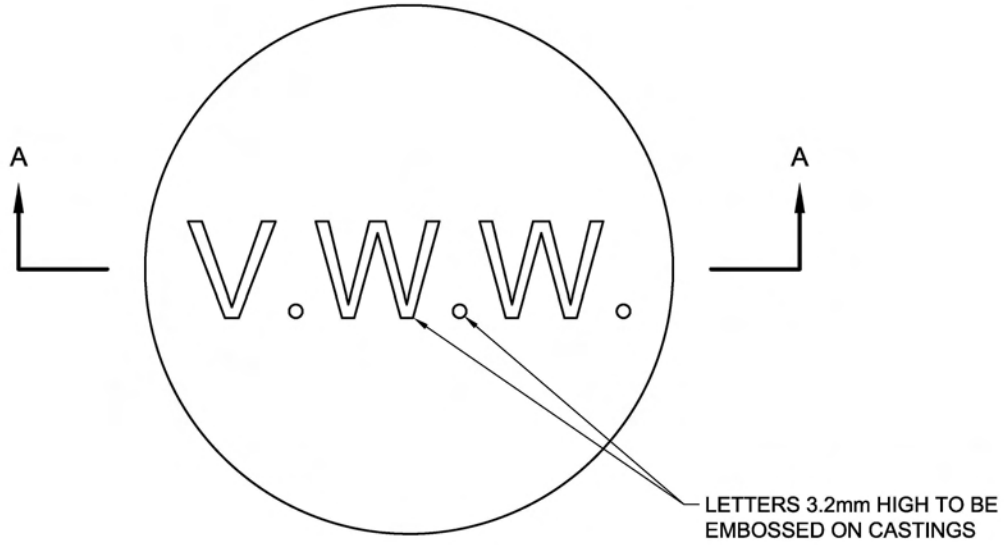
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

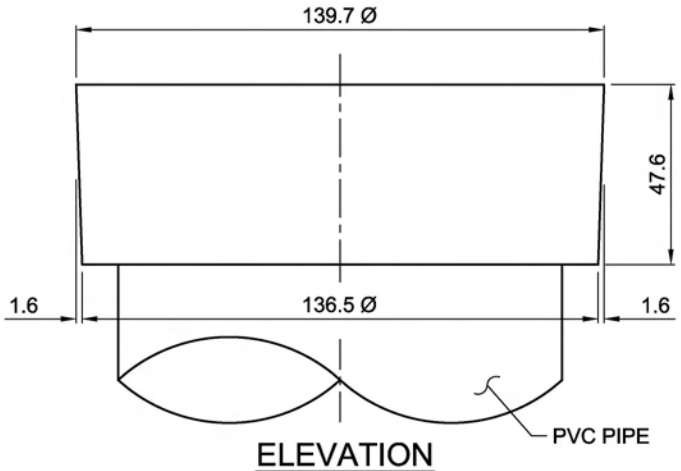
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

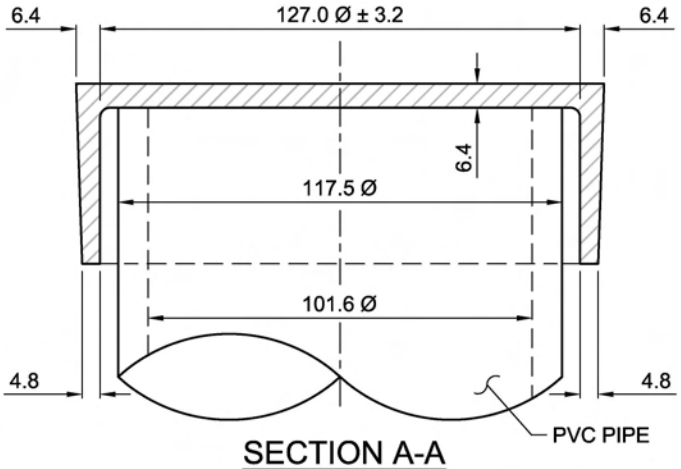
DRAWING No.
W16.1



PLAN



ELEVATION



SECTION A-A

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CASTINGS
CAST IRON LID FOR PVC SERVICE BOX

ISSUE DATE: SEPTEMBER 2018

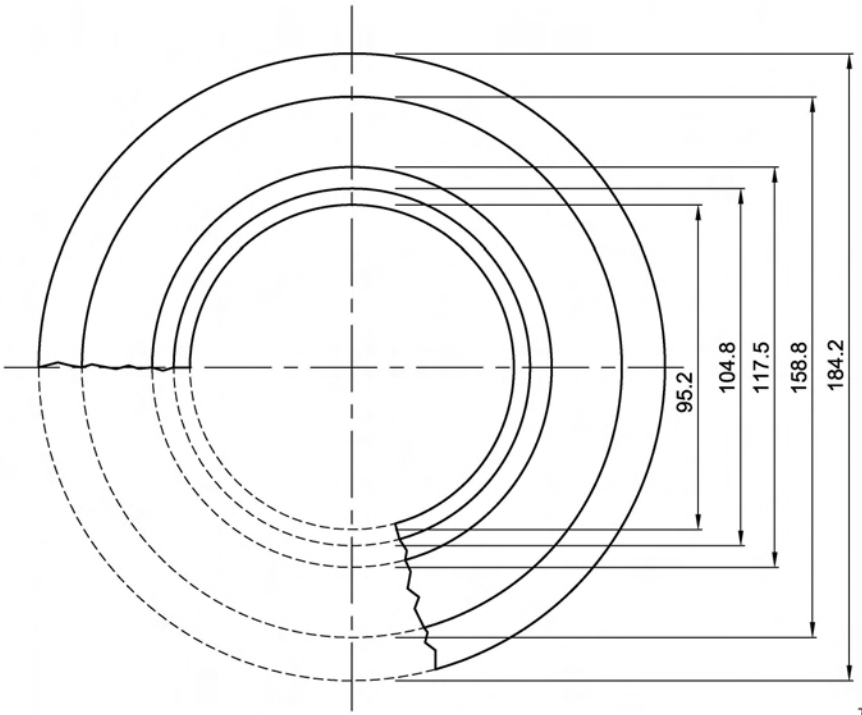
APPROVED BY: E. LIAO

CITY OF VANCOUVER

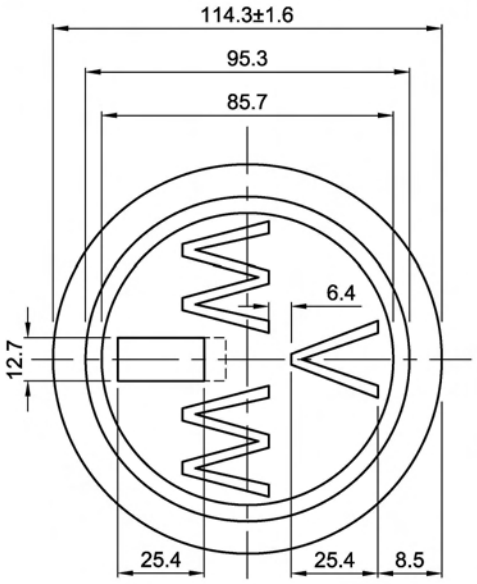
STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W16.2

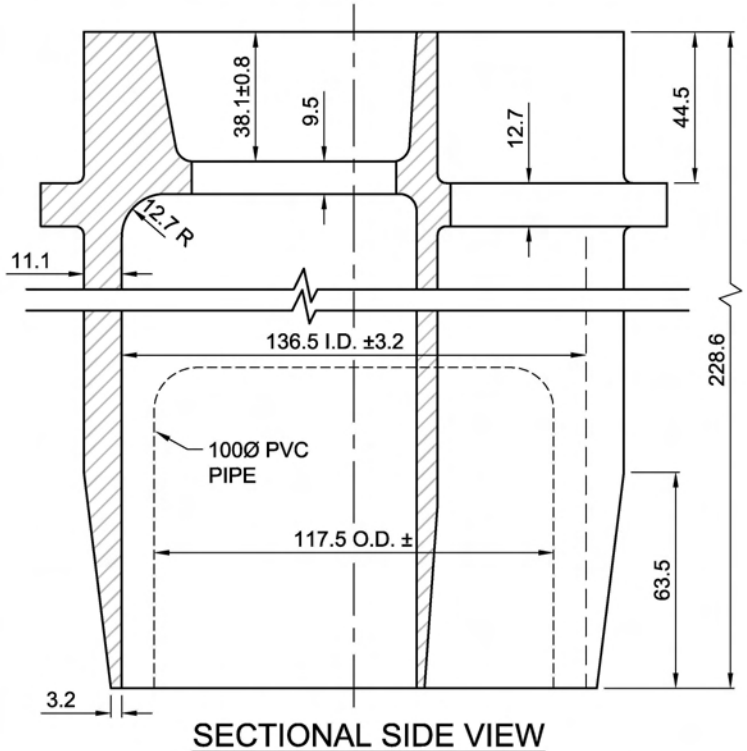
TYPE "A" SERVICE BOX - SIDEWALK INSTALLATION



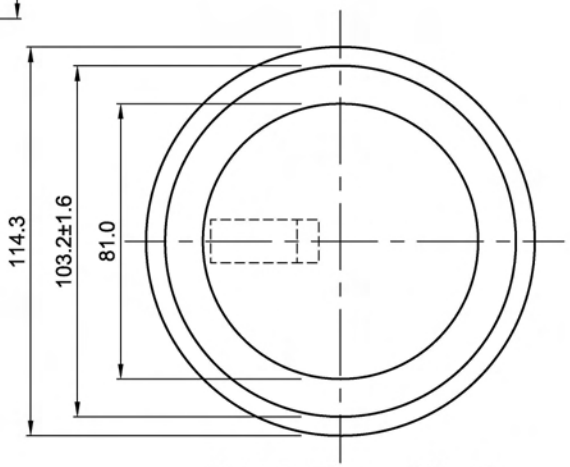
TOP VIEW OF SERVICE BOX



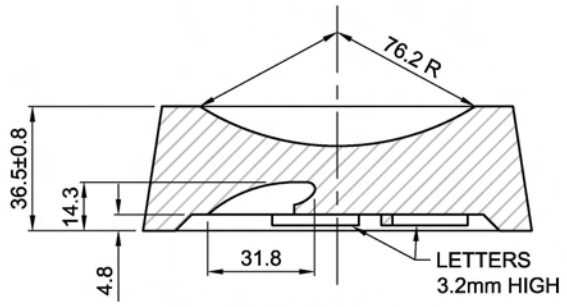
TOP VIEW OF LID



SECTIONAL SIDE VIEW



UNDERSIDE OF LID



HALF-SECTION OF LID
(UPSIDEDOWN)

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

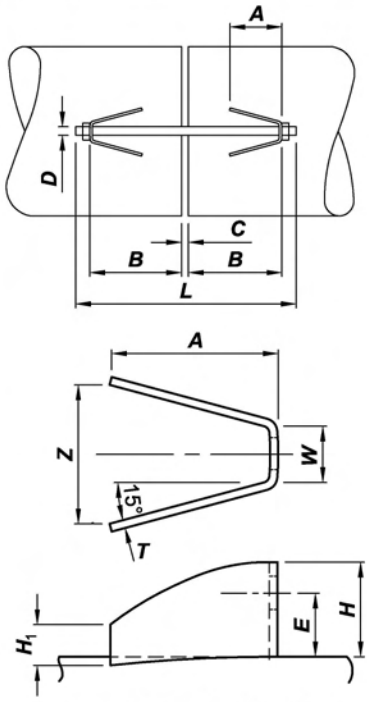
CASTINGS
TYPE A SERVICE BOX

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W17.1



DETAILS OF JOINT HARNESS
TIE BOLT, OR STUDS, AND LUGS

FOR DIAMETER OF THE BOLT STUDS
SEE DWG W17.2

LUG MATERIAL TO CONFORM TO ASTM A283, GRADE B OR A285, GRADE C OR EQUAL.

STUD MATERIAL TO CONFOM TO ASTM A193, GRADE B7 OR EQUAL.

REFERENCE: AWWA-M11 STEEL PIPE MANUAL

DIMENSIONS OF JOINT HARNESS TIE BOLTS, OR STUDS, AND LUGS FOR STYLE 38 DRESSER COUPLINGS

STUD DIAM. *D*	*A*	*W*	*Z*	*T*	*H*	*E*	H_1	HOLE DIAM.	127 MIDDLE RING		178 MIDDLE RING	
									L	*B*	*L*	*B*
15.9	76.2	38.1	73.0	9.5	98.4	76.2	50.8	19.1	565.2	241.3	596.9	257.2
19.1	95.3	42.9	88.9	9.5	104.8	200.0	295.3	390.5	485.8	581.0	676.3	771.5
22.2	114.3	49.2	106.4	9.5	108.0	206.4	304.8	403.2	501.7	600.1	698.5	796.9
25.4	130.2	54.0	119.1	9.5	114.3	219.1	323.9	428.6	533.4	638.2	743.0	847.7
28.6	155.6	60.3	136.5	12.7	120.7	92.1	63.5	31.8	254 MIDDLE RING		793.8	342.9
31.8	171.5	65.1	144.5	12.7	127.0	95.3	63.5	34.9	914.4	400.1	825.5	355.6
34.9	190.5	71.4	177.8	12.7	136.5	95.3	63.5	38.1	952.5	415.9	857.3	368.3
38.1	222.3	76.2	190.5	12.7	139.7	98.4	63.5	41.3	1028.7	450.9	939.8	406.4
41.3	241.3	82.6	206.4	12.7	142.9	98.4	63.5	44.5	1073.2	469.9	990.6	428.6
44.5	257.2	87.3	219.1	12.7	149.2	101.6	63.5	47.6	1098.6	479.4	1016.0	438.2
47.6	279.4	93.7	241.3	12.7	152.4	101.6	63.5	50.8	1162.1	508.0	1073.2	463.6
50.8	308.0	98.4	252.4	19.1	158.8	108.0	63.5	54.0	1231.9	539.8	1149.4	498.5
57.2	362.0	109.5	292.1	19.1	171.5	109.5	63.5	60.3	1346.2	590.6	1282.7	558.8

NOTES:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.
2. BOLT, OR STUD, SIZES ARE BASED ON THE USE OF TWO BOLTS, OR STUDS, AND FOUR LUGS PER JOINT.
3. MAXIMUM BOLT STRESS IS APPROXIMATELY 40,000 PSI.
4. USE HEAT TREATED BOLTS WITH YIELD STRENGTH OF APPROXIMATELY 70,000 PSI.
5. DIMENSIONS ***L*** AND ***B*** ARE BASED ON A ***C*** VALUE OF 25mm.
6. FOR VALUES OF ***C*** GREATER THAN 25mm, ***B*** MUST BE DECREASED.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

JOINT HARNESS DETAILS

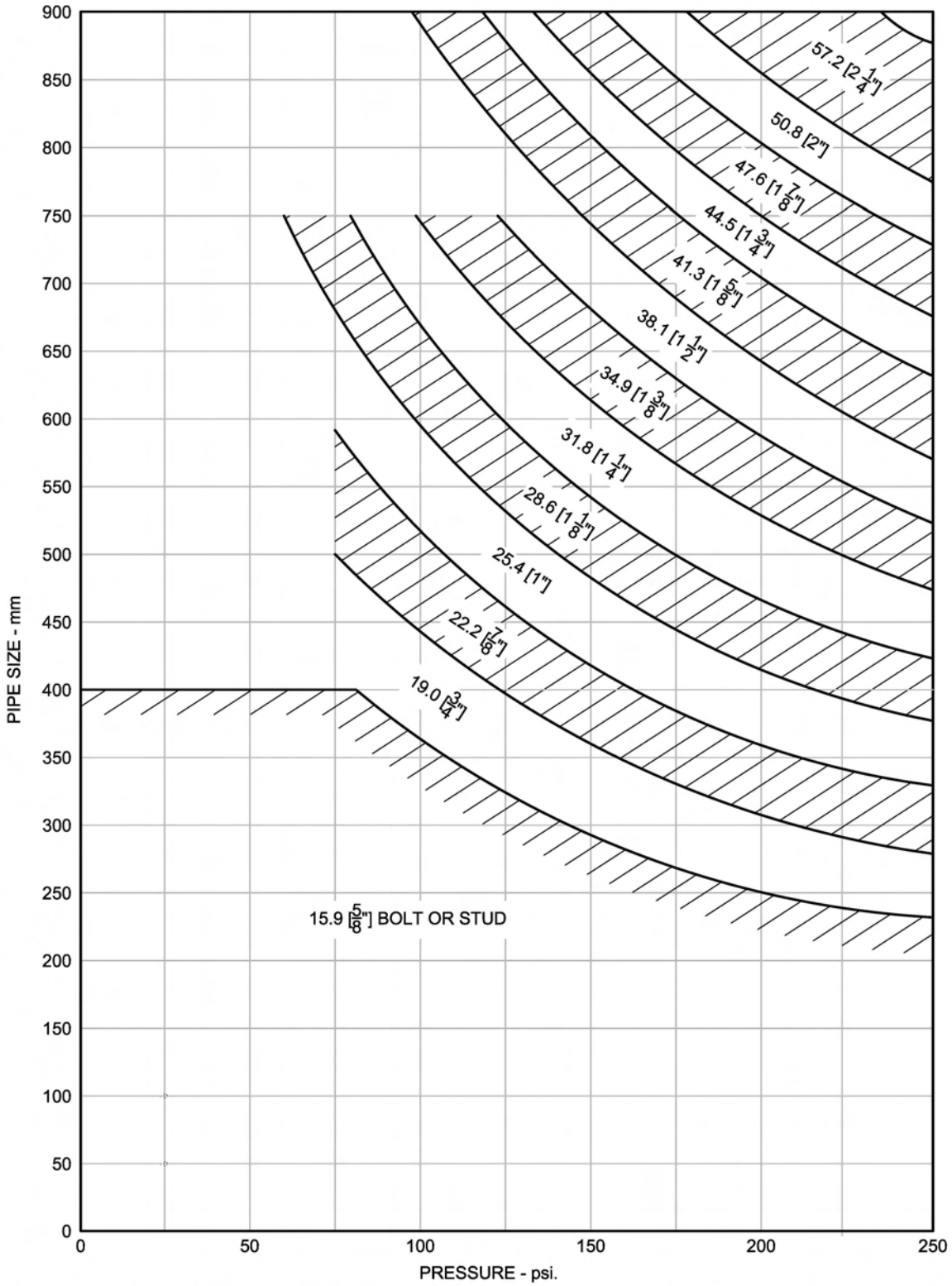
ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W17.2



DIAMETERS OF JOINT HARNESS TIE BOLTS, OR STUDS, FOR GIVEN PIPE SIZES AND OPERATING PRESSURES

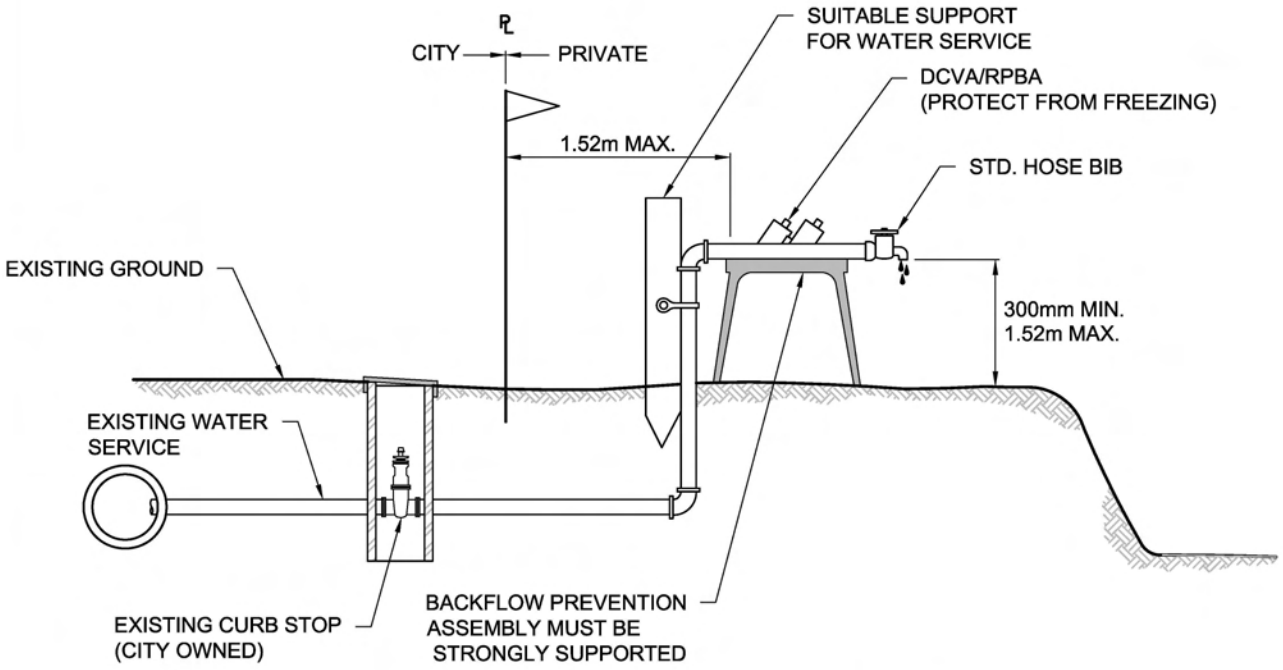
REV.	REVISION DATE	APPROVED

JOINT HARNESS
TIE BOLTS & STUD DIAMETERS

ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W18.1



BACKFLOW PREVENTION ASSEMBLY REQUIREMENT FOR ALL CONSTRUCTION SERVICES

NOTES:

1. ALL TEMPORARY AND/OR PERMANENT CONSTRUCTION WATER SERVICE(S) WILL REQUIRE CITY APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA) OR REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA), DEPENDING UPON THE DEGREE OF HEALTH HAZARD WITHIN THE INDIVIDUAL SITE. NORMALLY A DCVA WILL BE REQUIRED FOR A **LOW** HEALTH HAZARD SITE. THESE ASSEMBLIES **MUST BE** TESTED BY A CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER UPON INSTALLATION TO ENSURE THEY ARE IN PROPER WORKING ORDER. THE CERTIFIED TESTER WILL COMPLETE THE CITY'S TEST REPORT FORM AND **MUST** SUBMIT THE FORM TO THE WATERWORKS DESIGN BRANCH **PRIOR TO THE WATER SERVICE(S) BEING TURNED ON.**
2. THIS REQUIREMENT IS SIMILAR TO OUR CURRENT POLICY CONCERNING THE USE OF CITY OWNED FIRE HYDRANTS.
3. LISTS OF CITY APPROVED (USC APPROVED) ASSEMBLIES AND COMPANIES EMPLOYING CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTERS LICENSED WITH THE CITY ARE AVAILABLE FROM THE WATERWORKS DESIGN BRANCH.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

BACKFLOW PREVENTERS
CONSTRUCTION WATER SERVICE BACKFLOW PREVENTER

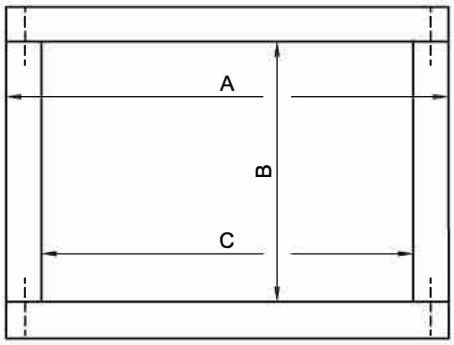
ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

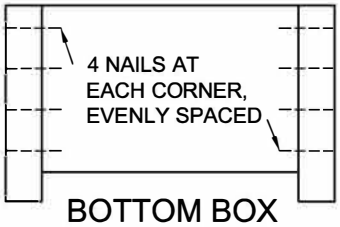
DRAWING No.
W19.1



PLAN VIEW

STANDARD BOX

2" x 12" LUMBER / COMPOSITE



BOTTOM BOX

2" x 10" & 2" x 12" LUMBER / COMPOSITE

MAKE-UP BOX

2" x 6" LUMBER / COMPOSITE

BOX ENDS TO BE NAILED AS SHOWN WITH 101.6mm x 9 GAUGE "ARDOX" HOT TIP GALVANIZED NAILS

END VIEWS

METER SIZE	A	B	C
20 & 25	685	413	603
40 & 50	915	629	832

DIMENSIONS

NOTES:

1. DIMENSIONS A & B ARE THE LENGTHS OF THE SIDE & END COMPONENTS PRIOR TO CONSTRUCTION.
2. DIMENSIONS B & C ARE THE INSIDE DIMENSIONS OF THE CONSTRUCTED BOX.
3. A TOLERANCE OF ±3.2mm IS ALLOWED ON THE LENGTH OF THE COMPONENTS.
4. 20mm & 25mm METER BOXES FIT FRAME NO. 5 (DWG W13.1) WITH LIDS NO. 4 & 5 (DWG W13.2)
5. 40mm & 50mm METER BOXES FIT FRAME NO. 6 (DWG W13.3) WITH LID NO. 6 (DWG W13.4), AND FRAME NO. 7 (DWG W13.5) WITH LID NO. 7 (DWG W13.6)
6. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CHAMBERS

20mm, 25mm, 40mm, & 50mm METER BOXES

ISSUE DATE: SEPTEMBER 2018

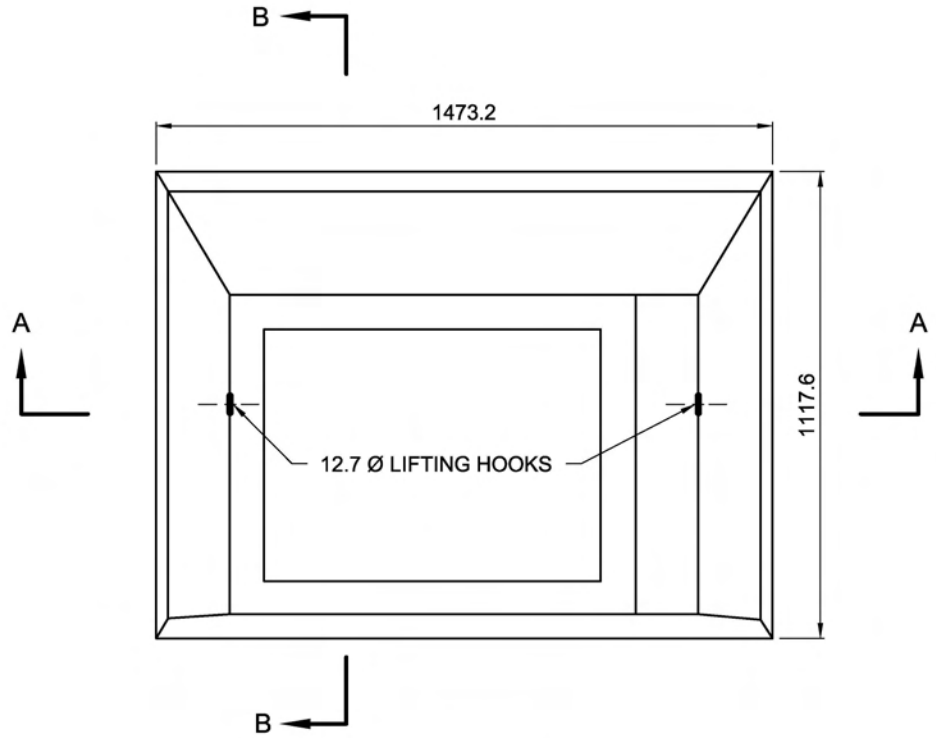
APPROVED BY: E. LI AO

CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS

ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W19.2



PLAN

NOTES:

1. SEE DWG W19.3 FOR SECTIONS A-A AND B-B.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CHAMBERS

75mm & 100mm COMPOUND METERS TOP SECTION

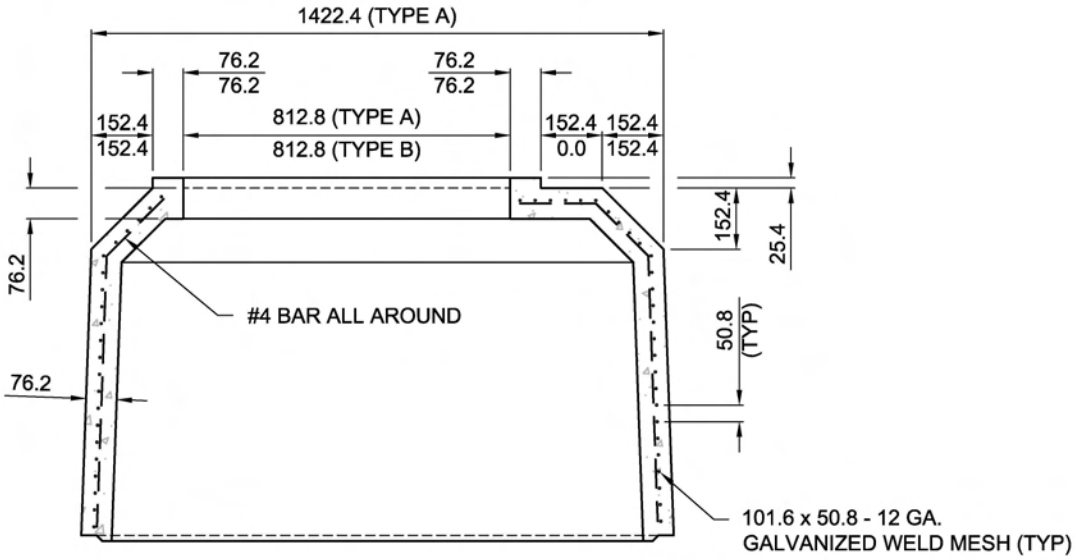
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

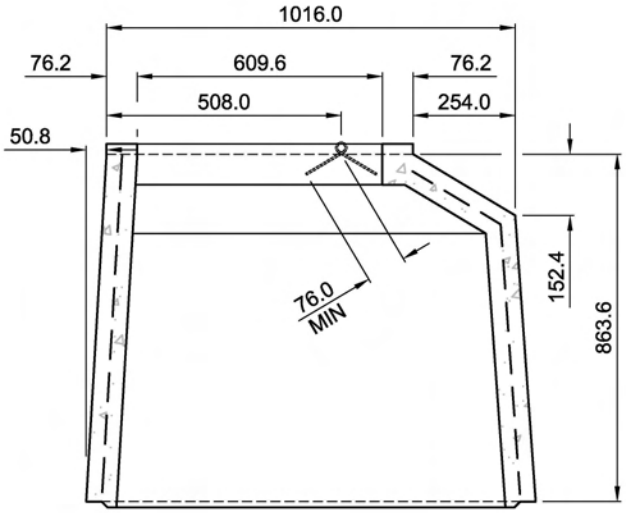
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W19.3



SECTION A-A



SECTION B-B

NOTES:
1. SEE DWG W19.2 FOR PLAN VIEW.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

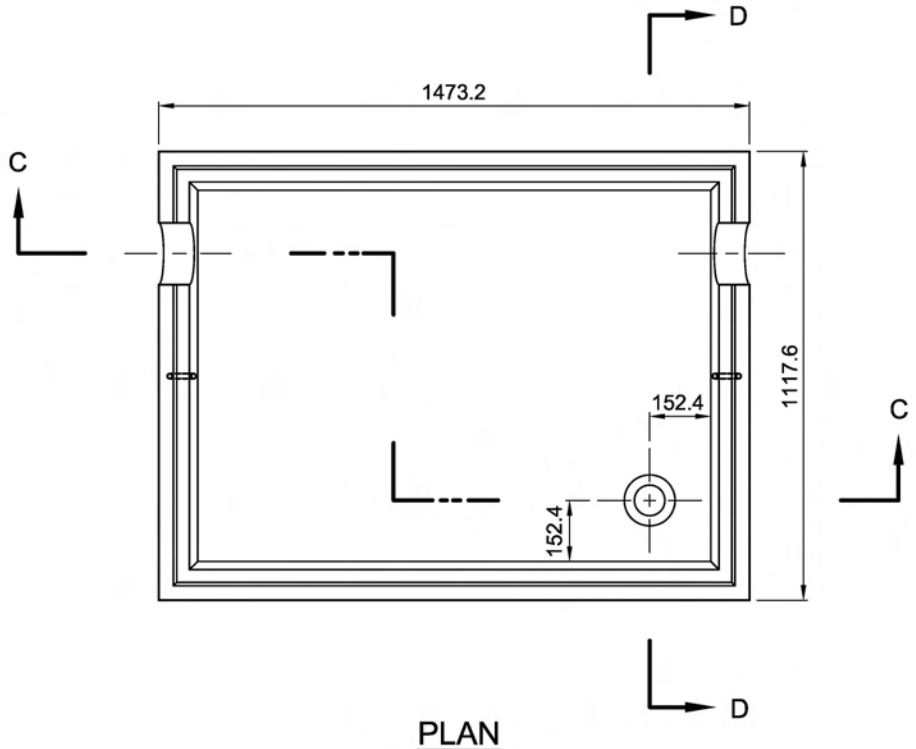
SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

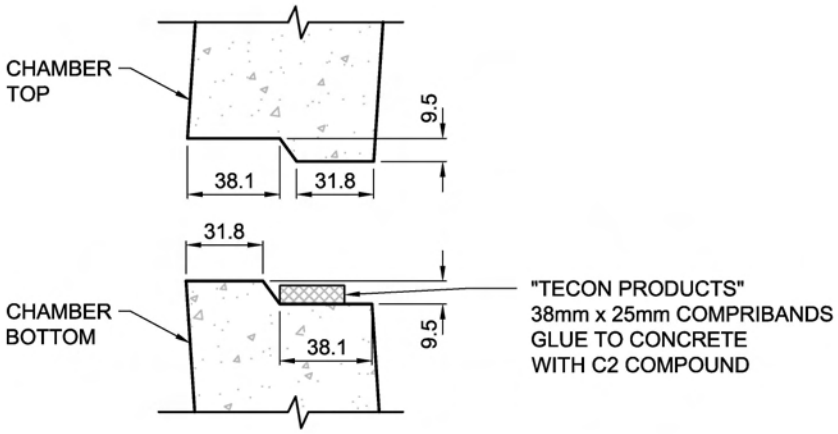
CHAMBERS
75mm & 100mm COMPOUND METERS TOP SECTION

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W19.4



PLAN



JOINT DETAIL

NOTES:

1. SEE DWG W19.5 FOR SECTIONS C-C AND D-D.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

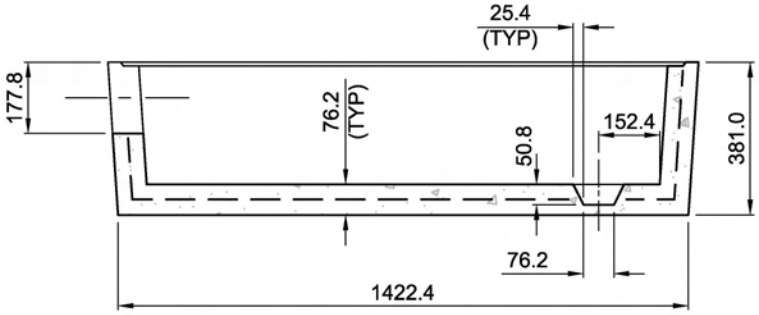
CHAMBERS

75mm & 100mm COMPOUND METERS BOTTOM SECTION

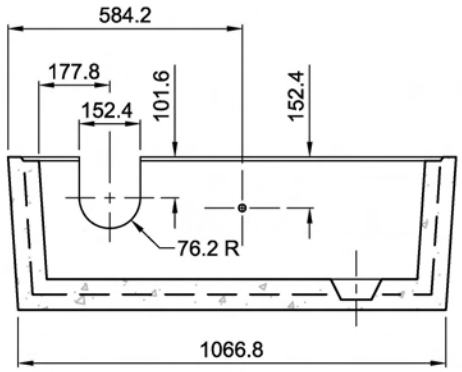
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W19.5



SECTION C-C



SECTION D-D

NOTE:

1. SEE DWG W19.4 FOR PLAN VIEW.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CHAMBERS

75mm & 100mm COMPOUND METERS BOTTOM SECTION

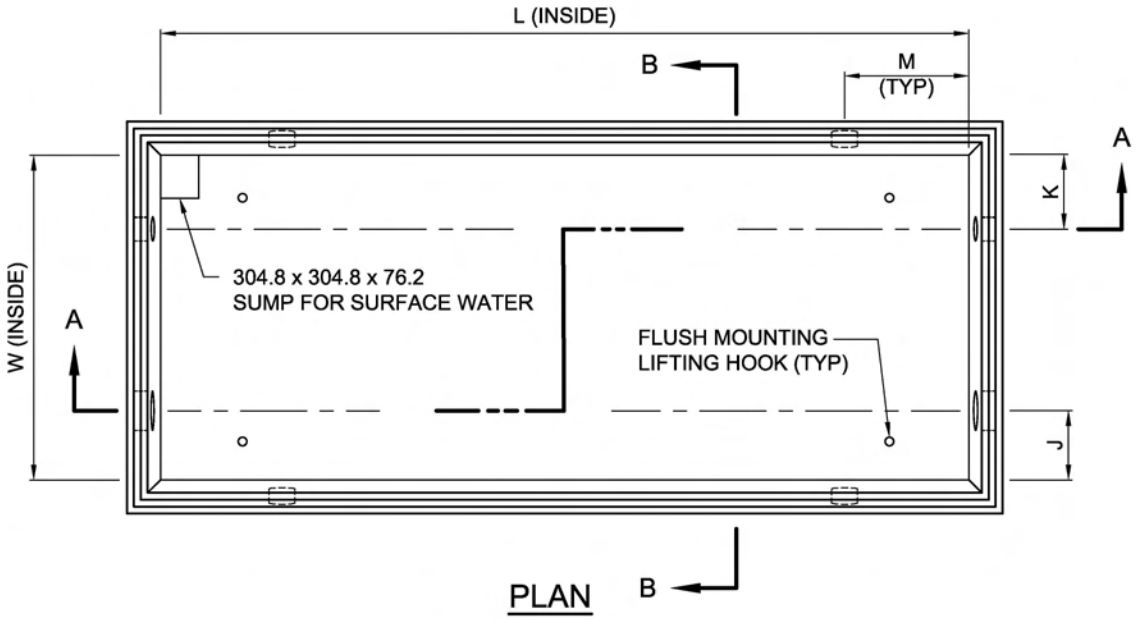
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

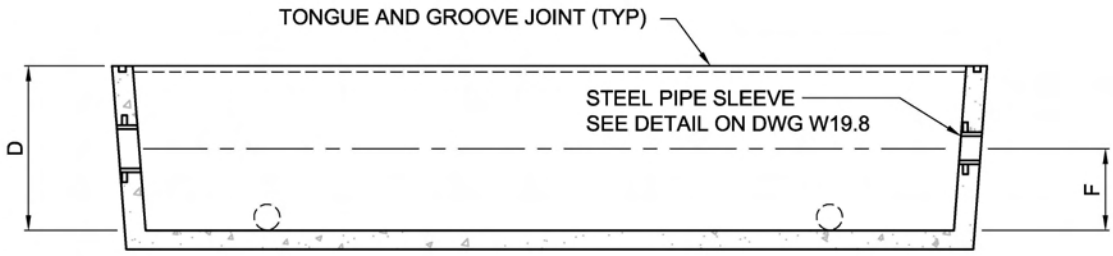
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

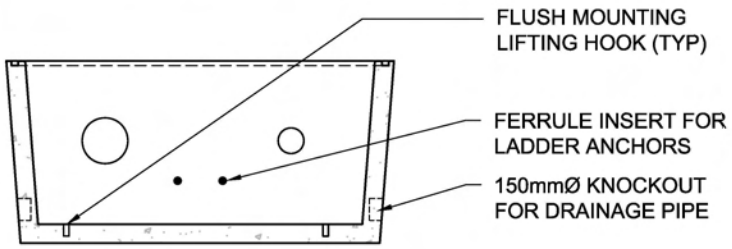
DRAWING No.
W19.6



PLAN



SECTION A-A



SECTION B-B

NOTES:
1. FOR DIMENSION TABLE REFER TO DETAIL DWG W19.8.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

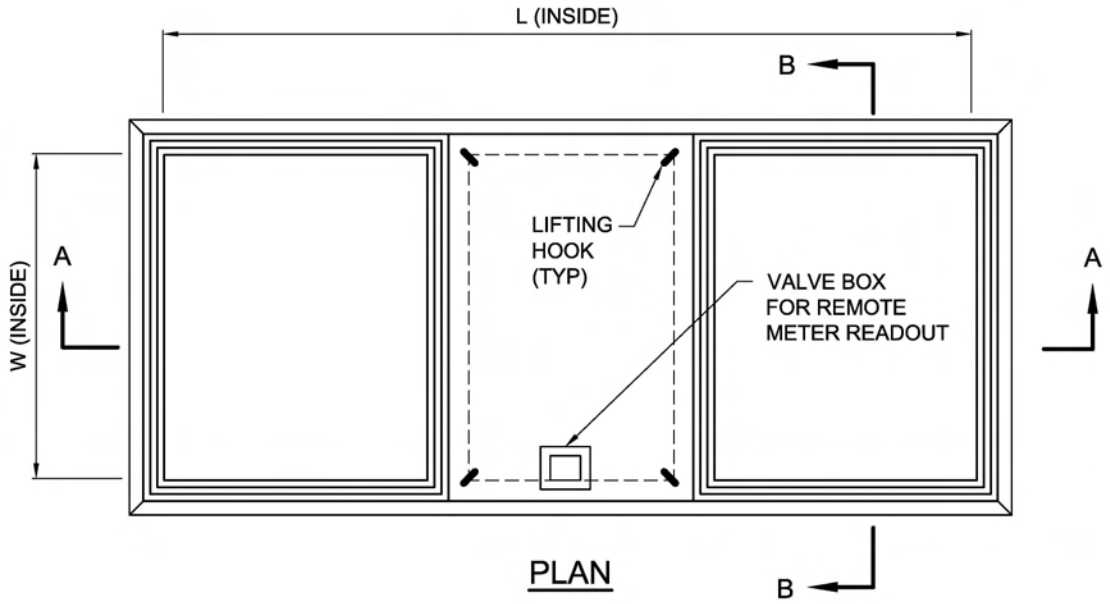
CHAMBERS
FIRELINE METER BOTTOM SECTION

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

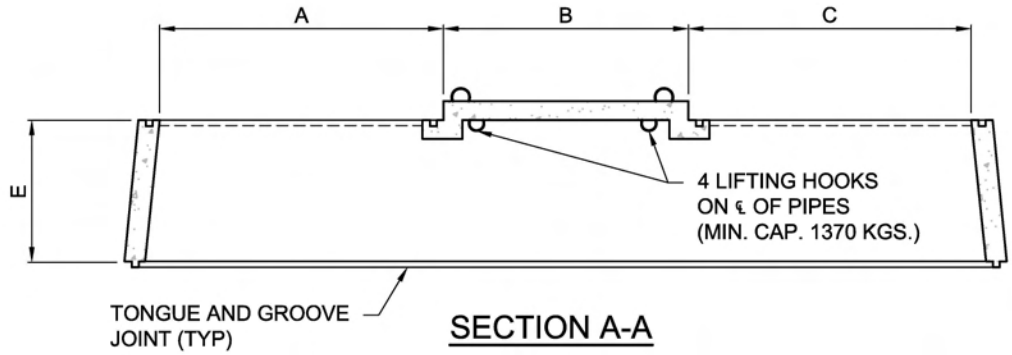
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

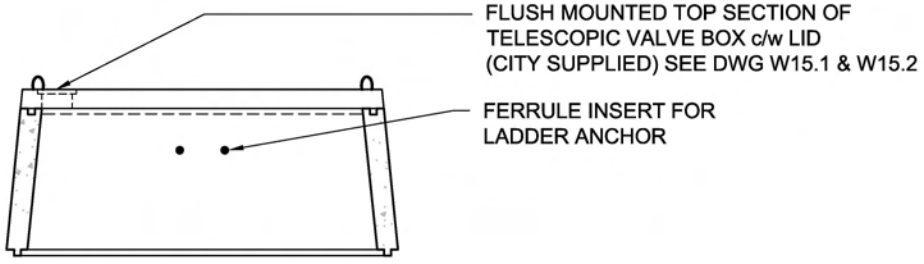
DRAWING No.
W19.7



PLAN



SECTION A-A



SECTION B-B

NOTES:
1. FOR DIMENSION TABLE REFER TO DWG W19.8.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

CHAMBERS
FIRELINE METER TOP SECTION

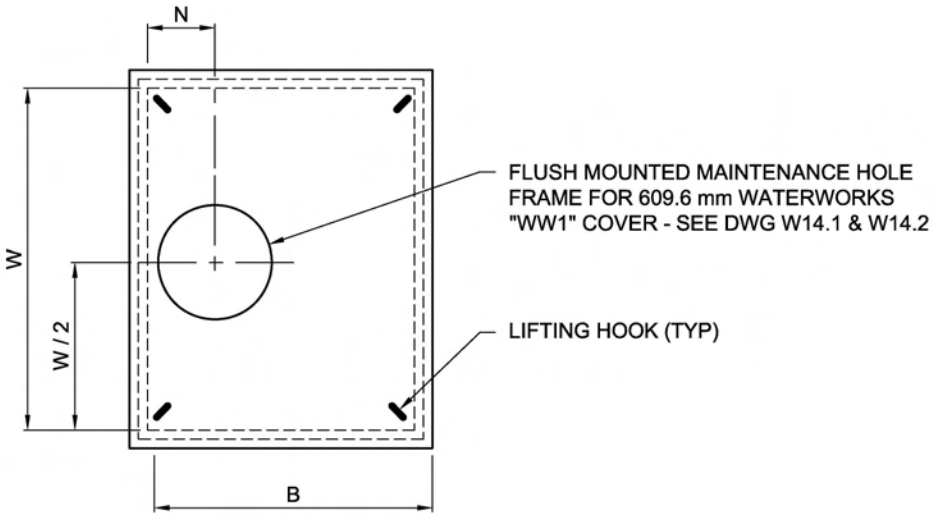
ISSUE DATE: SEPTEMBER 2018

APPROVED BY: E. LIAO

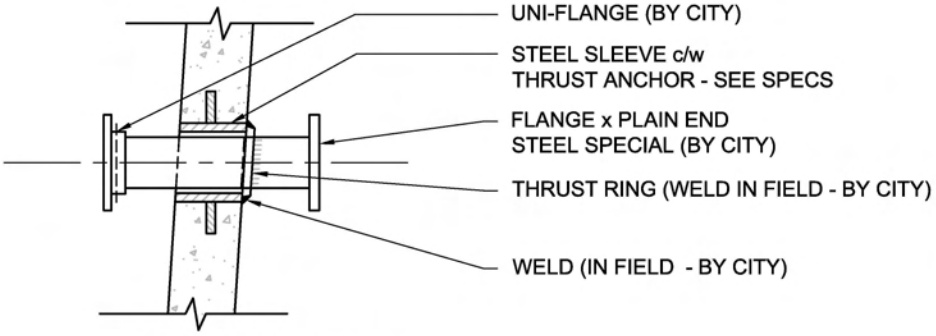
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

DRAWING No.
W19.8



PLAN



SLEEVE DETAIL

METER SIZE (mm)	L (m)	W (m)	A (m)	B (m)	C (m)	D (m)	E (m)	F (mm)	J (mm)	K (mm)	M (mm)	N (mm)
100	4.57	2.44	1.52	1.52	1.52	1.22	1.07	610	533	533	914	356
150	4.57	2.44	1.52	1.52	1.52	1.22	1.07	610	533	533	914	356
200	6.1	2.44	2.13	1.83	2.13	1.22	1.07	610	533	533	914	356
250	6.1	2.44	2.13	1.83	2.13	1.22	1.07	610	533	533	914	356
250 - 300	6.1	2.44	2.13	1.83	2.13	1.22	1.07	610	533	533	914	356

DIMENSION TABLE

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

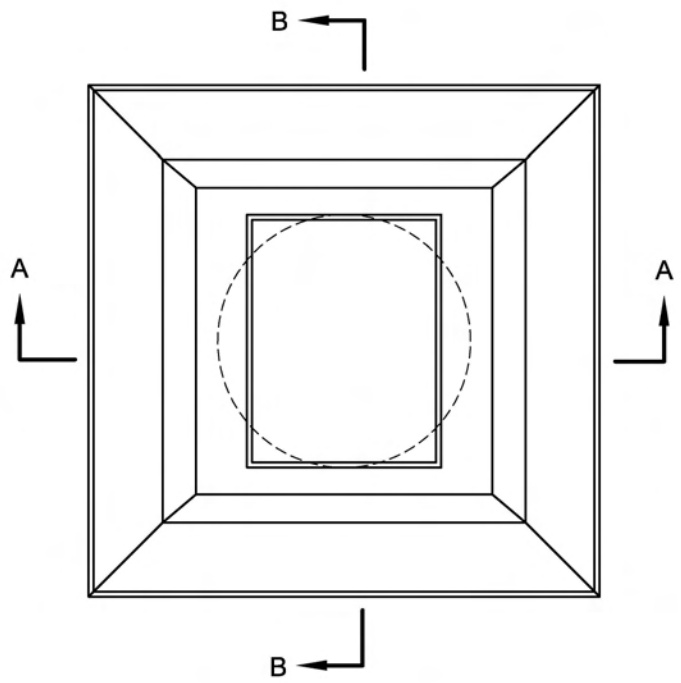
CHAMBERS
FIRELINE METER LID

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

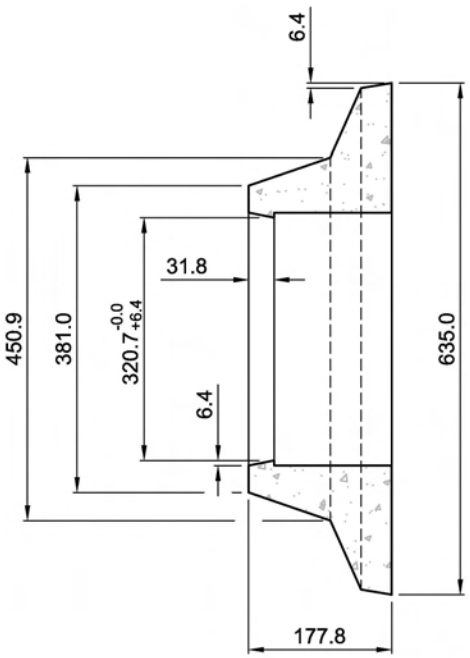
CITY OF VANCOUVER

STANDARD DETAIL DRAWINGS
ENGINEERING SERVICES - VANCOUVER, B.C.

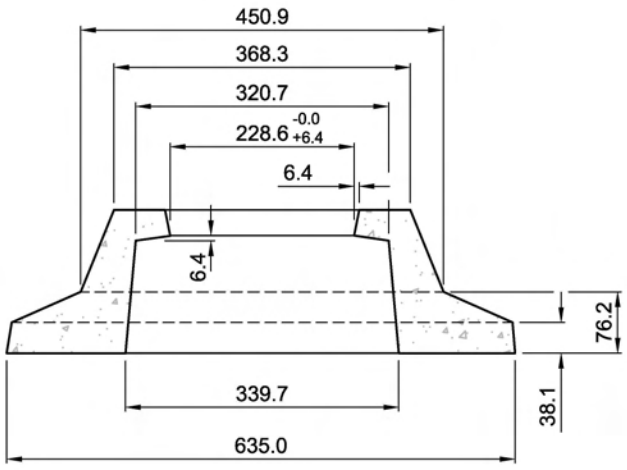
DRAWING No.
W19.9



PLAN



SECTION B-B



SECTION A-A

NOTE:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.

SCALE: N.T.S.

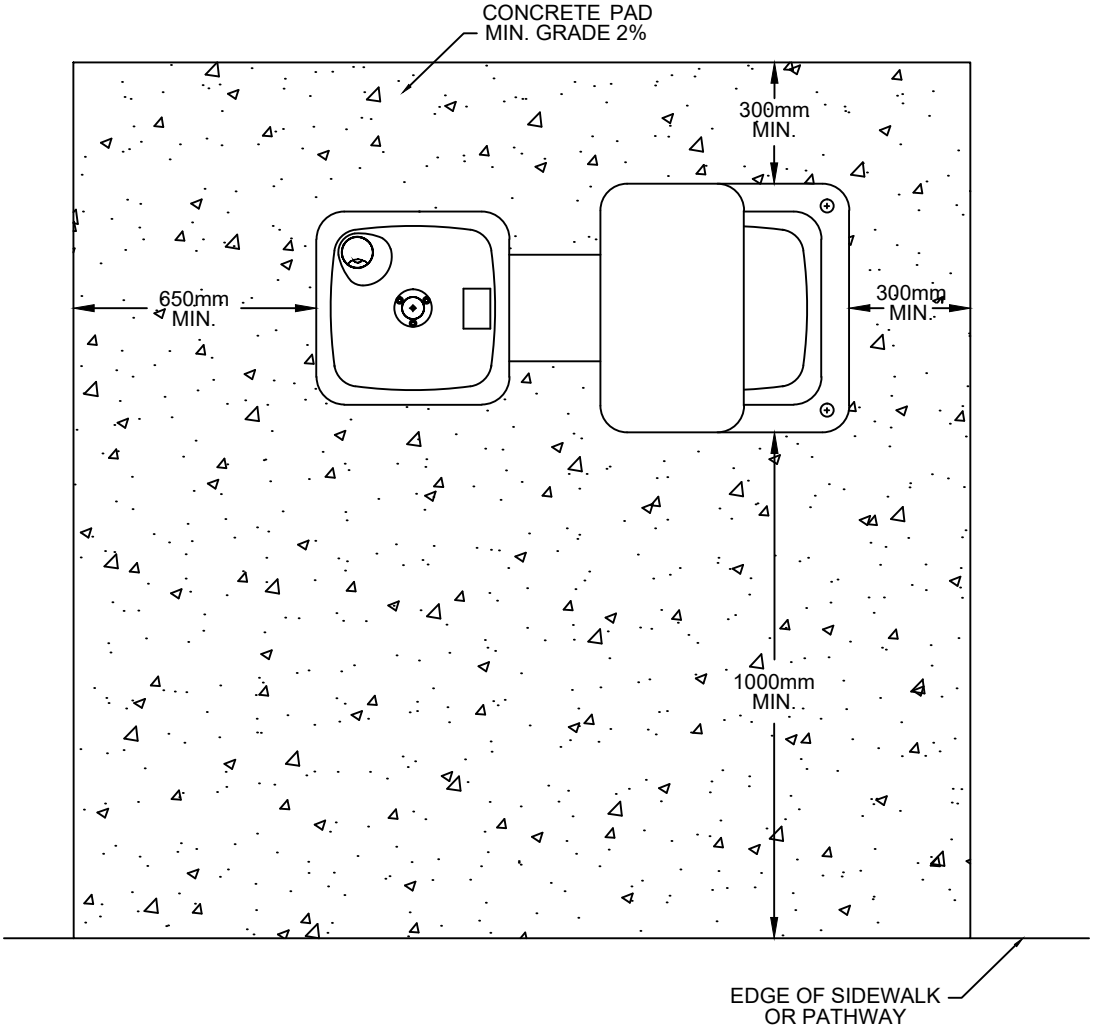
REV.	REVISION DATE	APPROVED

CHAMBERS
VALVE BOX BASE

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W20.1

1660 X 1550 CONCRETE PAD



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

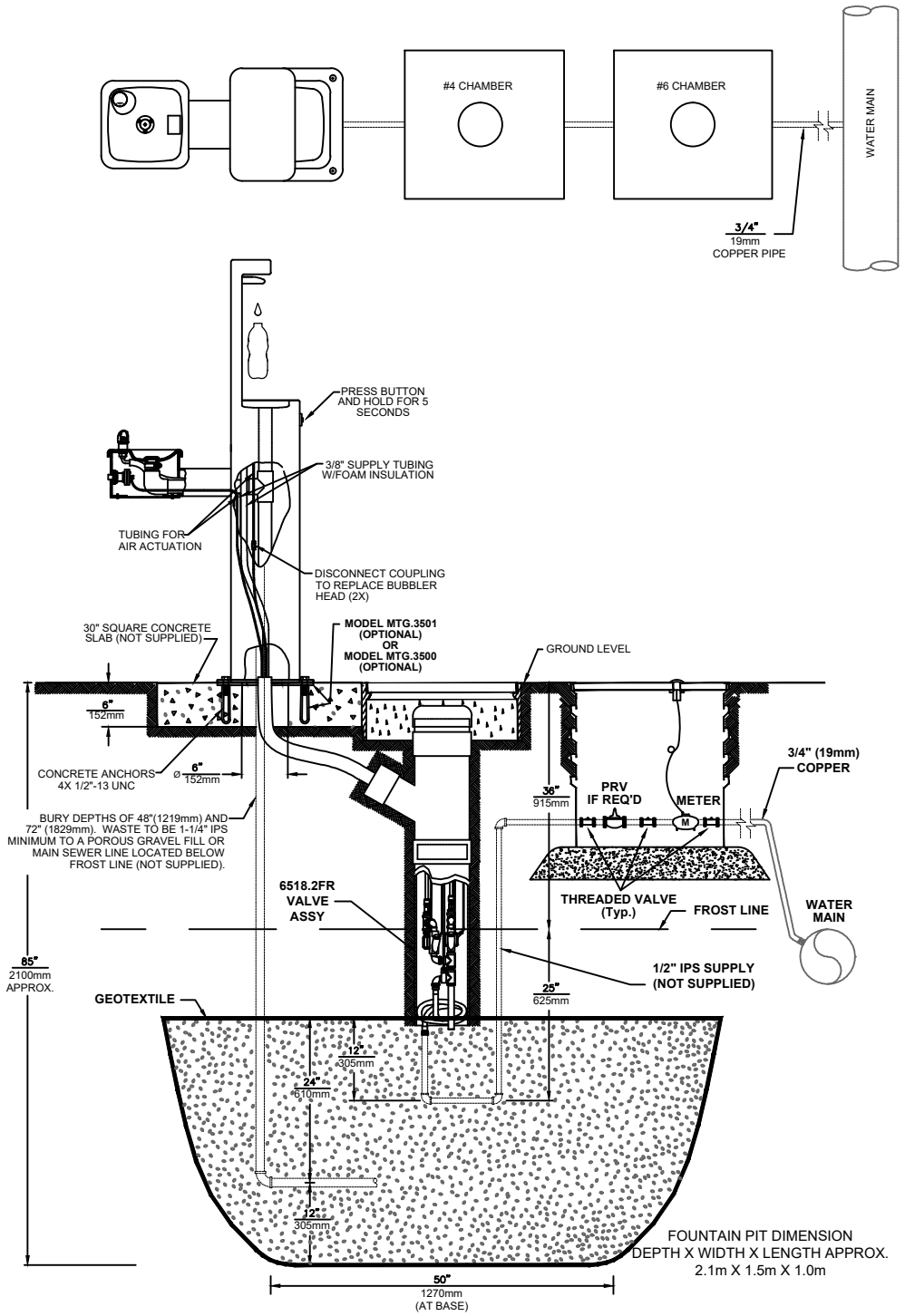
WATER FOUNTAINS
SPACE REQUIREMENTS

ISSUE DATE: AUGUST 2019

APPROVED BY: E. LIAO

CITY OF VANCOUVER	STANDARD DETAIL DRAWINGS ENGINEERING SERVICES - VANCOUVER, B.C.	DRAWING No. W20.2

WATER FOUNTAIN DRAINING TO A ROCK PIT



SCALE: N.T.S.

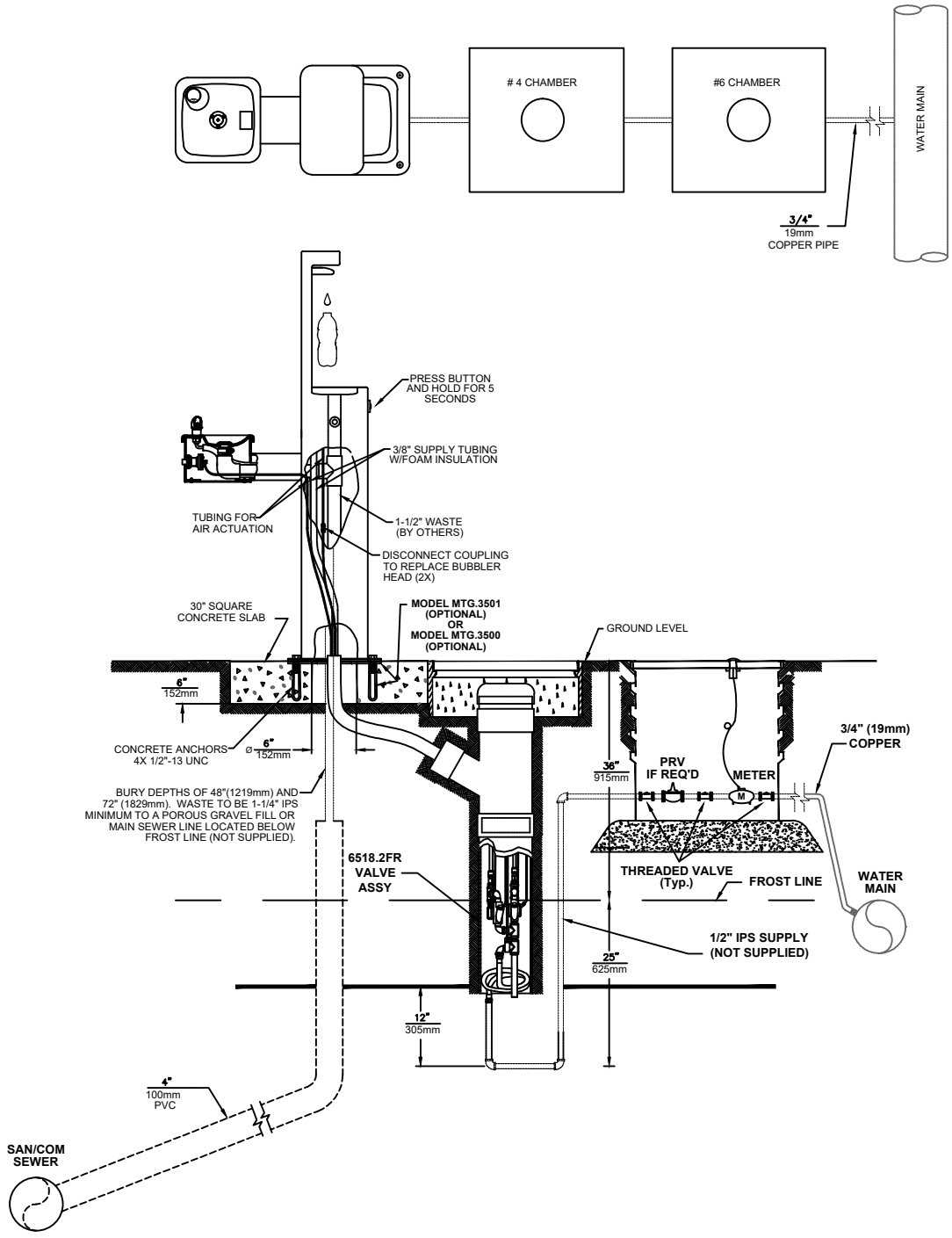
REV.	REVISION DATE	APPROVED

WATER FOUNTAINS
DRAINING TO A ROCK PIT

ISSUE DATE: AUGUST 2019

APPROVED BY: E. LIAO

WATER FOUNTAIN DRAINING TO STORM SEWER MAIN



SCALE: N.T.S.

REV.	REVISION DATE	APPROVED

WATER FOUNTAINS
DRAINING TO STORM SEWER MAIN

ISSUE DATE: AUGUST 2019

APPROVED BY: E. LIAO