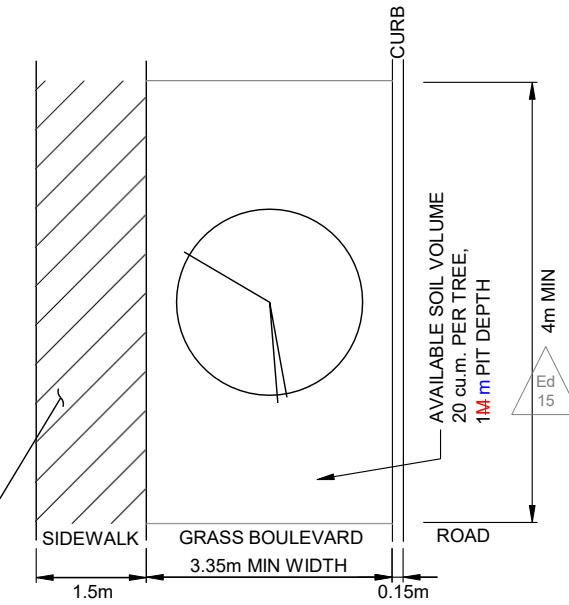
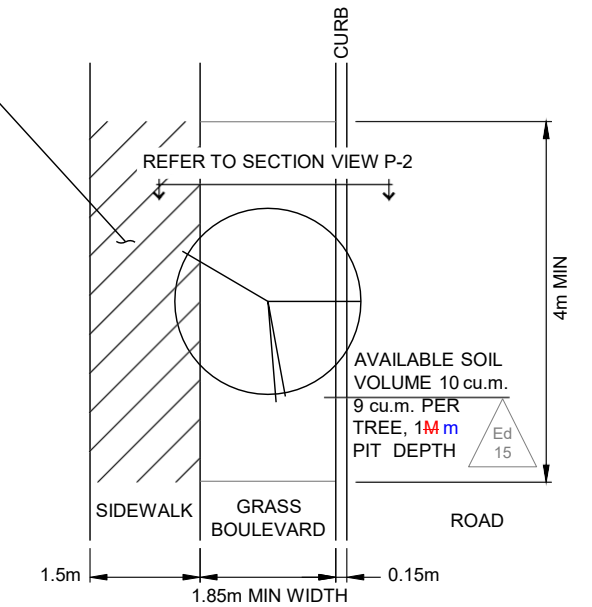


STRUCTURED SOIL / SOIL
CELL UNDER SIDEWALK
OR HARD SURFACE



**TREE PLANTING WITH 20 cu.m ROOT ZONE
PLAN VIEW**



**TREE PLANTING WITH 13.5± cu.m ROOT ZONE
PLAN VIEW**

NOTES:

1. REFER TO SPECIFICATIONS CLAUSE 14.06 FOR STREET TREE SPACING, LOCATION, AND SIZE.
2. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.

CITY OF NANAIMO

THE HARBOUR CITY

TREE PLANTING ROOT ZONE VOLUME

Scale: NTS

Created: MAY 2013

Rev Date: MAY 2020

Dwg No: P-1

PRUNE FOR CLEARANCE AND FOR
TREE HEALTH AS PER SECTION 14.0

75mm DEPTH BARK MULCH TO
600mm RADIUS AT TREE.

150mm MIN. DEPTH "A HORIZON"
AMENDED TOPSOIL PER SPECIFICATIONS.

PROVIDE 12mm FREEBOARD
BETWEEN FINISHED GRADE AND
ADJACENT PAVED SURFACES.

300mm MIN DEPTH IRRIGATION
TRENCH

UNTIE AND REMOVE TOP 1/3 OF BURLAP FROM ROOTBALL.
NOTE: BALLED AND BURLAP TREE IS ILLUSTRATED. IF CONTAINER OR BAG GROWN TREES ARE USED, COMPLETELY REMOVE IMPERISHABLE CONTAINERS.

SUBSOIL (REFER TO CLAUSE 14.17 OF SPECIFICATIONS).

ROUGHEN PIT BOTTOM AND SIDES
TO REMOVE GLAZING.

UNDISTURBED NATIVE SOILS OR
COMPACTED SUBGRADE.

AS PER THE CITY ENGINEERS DIRECTION
INSTALL PVC DRAIN IN 150mm DEPTH DRAINROCK
C/W FILTERCLOTH AND DRAIN TO STORM SEWER.

REFER TO SPECIFICATION CLAUSE
14.30.1 AND 14.59 FOR S
MATERIALS AND INSTALLATION.
STAKING SHALL BE
DONE AT THE
DISCRETION OF THE
CITY ENGINEER

FACE OF CURB

0.15m MIN TYP

0.15m MIN TYP

1.0m MAX.

1000mm
MIN.

500mm M
TYP.

ROAD
FACE OF CURB

0.30m

1m MIN. FROM FACE OF CURB

2m MIN.
WIDTH OF BOULEVARD

NOTES:

1. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.

Dwg No: P-2

TREE PLANTING IN GRASS BOULEVARD OR MEDIAN

CITY OF NANAIMO

THE HARBOUR CITY

Engineering Standards & Specifications
May-2020-Edition 15

3:INFRASTRUCTURE PLANNING\STANDARDS & PRODUCTS\SI\MOE\SECTION NO 13 MAY 2020\2019-09-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTION\FINAL DRAFT\SECTION 14 DWG\SP-2

3.3.2020

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REMOVE DEAD, DAMAGED
OR WEAK GROWTH

FORM WATERING BASIN AT SHRUB BASE.
NOTE: ENSURE THE SOIL LEVEL DOES
NOT EXCEED THE ORIGINAL NURSERY
SOIL LINE AND THAT ROOTS ARE
COMPLETELY COVERED IN SOIL.

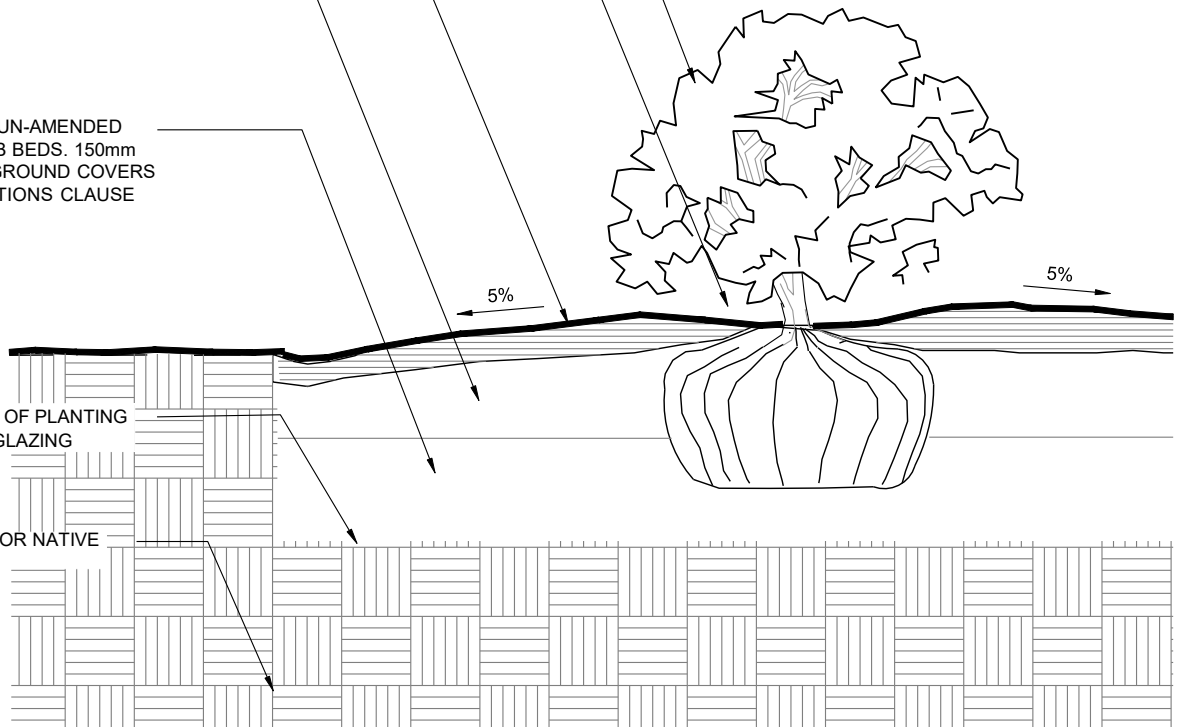
50mm DEPTH BARK MULCH.

150mm LAYER OF 'A HORIZON' SOIL MIX.
(SPECIFICATIONS CLAUSE 14.18)

300mm LAYER OF UN-AMENDED
TOPSOIL IN SHRUB BEDS. 150mm
LAYER DEPTH IN GROUND COVERS
BEDS. (SPECIFICATIONS CLAUSE
14.16)

SCARIFY BOTTOM OF PLANTING
BED TO REMOVE GLAZING

COMPACTED FILL OR NATIVE
MATERIAL



CITY OF NANAIMO

THE HARBOUR CITY

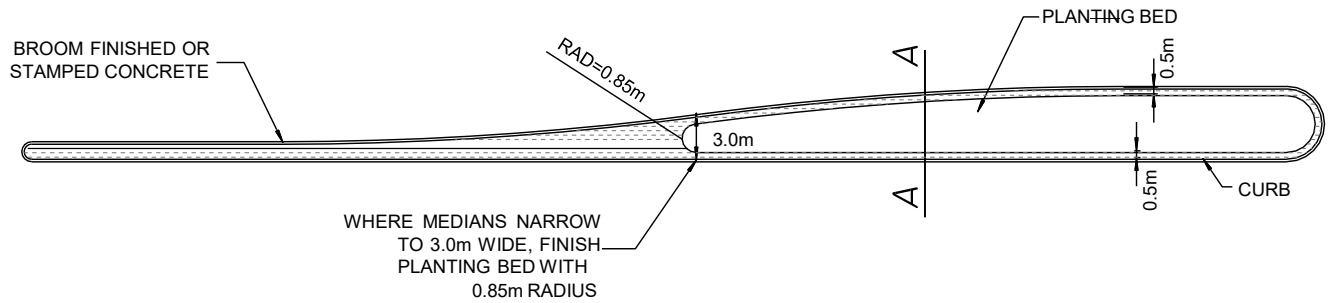
SHRUB PLANTING IN BED

Scale: NTS

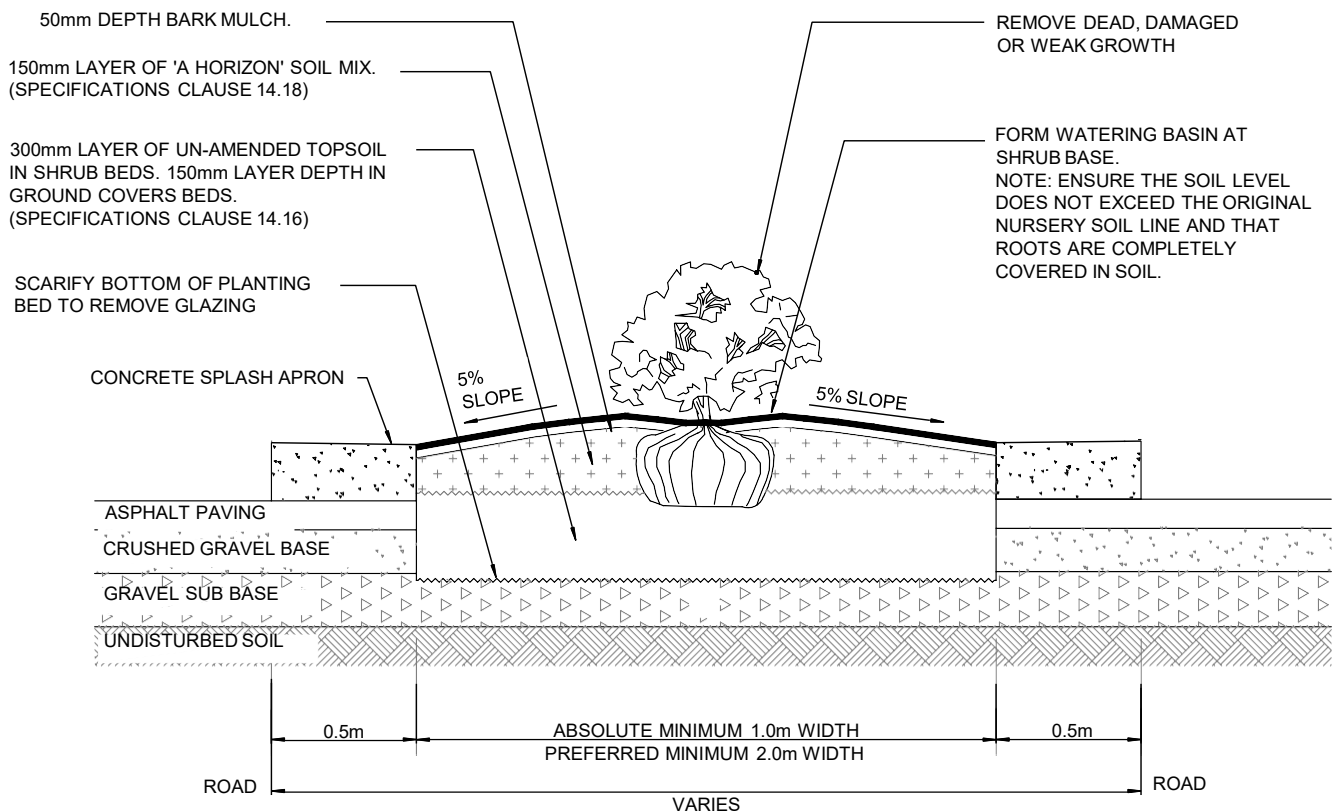
Created: JAN 1998

Rev Date: JAN 1998

Dwg No: P-3



PLAN VIEW



SECTION VIEW A

NOTES:

1. FOR CENTER MEDIAN DETAILS SEE SECTION 8, STD DWG CS-7
2. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.
3. BASE AND SUB-BASE REQUIREMENTS AS PER SECTION 9.0.
4. CONCRETE REQUIREMENTS AS PER SECTION 11.0.



CITY OF NANAIMO

THE HARBOUR CITY



SHRUB PLANTING IN MEDIAN

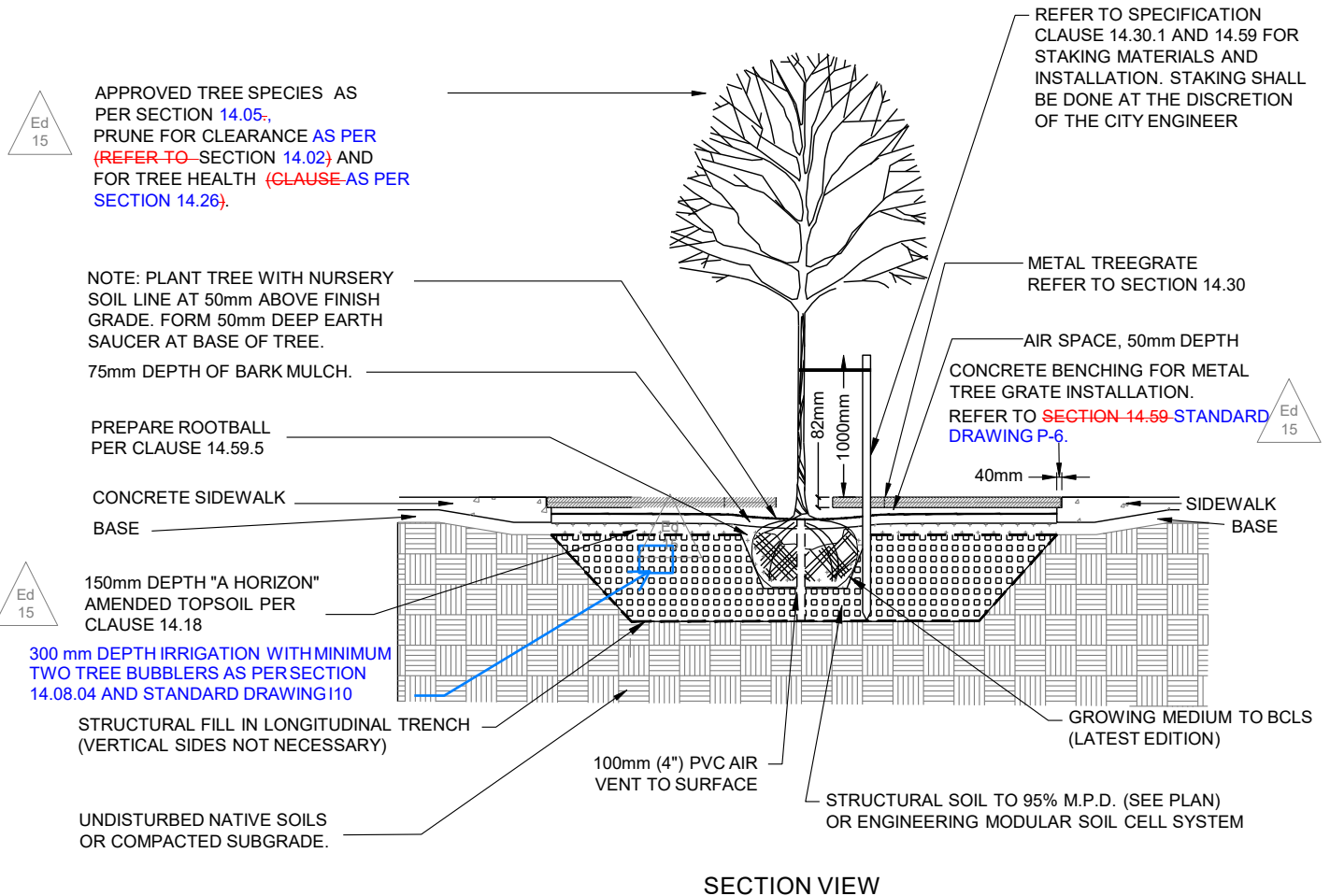
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Created: MAY 2013

Rev Date: MAY-2020

Dwg No: P-4

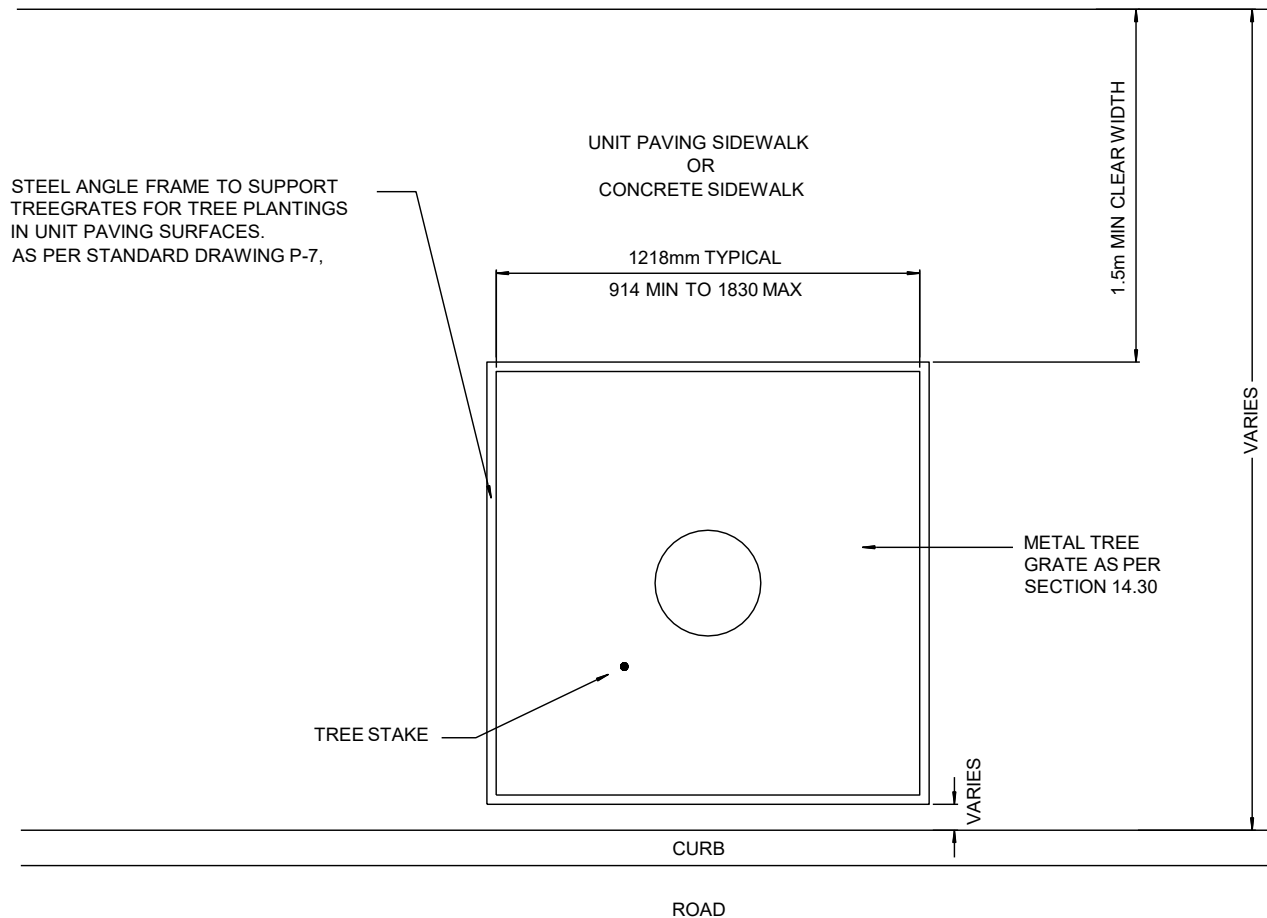




SECTION VIEW

NOTES:

1. ALL WORK AND MATERIALS ARE TO BE AS DESCRIBED IN THE CITY OF NANAIMO MANUAL OF ENGINEERING STANDARDS & SPECIFICATIONS LATEST EDITION OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.
2. REQUIRED VOLUME OF GROWING MEDIUM IS 10m³, TO A DEPTH OF 800mm FOR EACH TREE. [REFER TO TABLE IN CLAUSE 14.58.8.](#)
3. FINAL TREE LOCATIONS MAY BE VARIED IF CERTIFIED BY A LANDSCAPE ARCHITECT AND THE CITY OF NANAIMO.
4. IF POOR DRAINAGE CONDITIONS EXIST, PROVIDE POSITIVE SUB-SURFACE DRAINAGE AWAY FROM PLANTING EXCAVATION.
5. IRRIGATION REQUIRED TO CITY OF NANAIMO STANDARDS WHERE REQUIRED BY CITY ENGINEER.
6. SEE DRAWING P-2 FOR REQUIRED DETAILS AND WORKS.
7. [ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.](#)
8. CURB AND SIDEWALK AS PER SECTION 8.0
9. BASE AND SUB-BASE REQUIREMENTS AS PER SECTION 9.0.
10. CAST-IN PLACE CONCRETE REQUIREMENTS AS PER SECTION 11.0.



NOTE:

1. REFER TO SECTION 14.30 FOR SPECIFICATIONS AND 14.59 FOR INSTALLATIONS.
2. ALLOWABLE TREE GRATE SIZE SHALL BE 1219mm x 1219mm WITH A MINIMUM SIZE OF 914mm AND A MAXIMUM SIZE OF 1830mm.
3. INSTALL TREES TO MINIMIZE CONFLICTS WITH UTILITIES, BUILDING, STRUCTURES, PEDESTRIAN, AND VEHICULAR TRAFFIC.
4. INSTALL TREE STAKES AS PER CITY ENGINEERS DIRECTION. REFER TO SECTIONS 14.30 AND 14.59 FOR MATERIALS AND INSTALLATION SPECIFICATIONS.
5. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
6. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.
7. CURB AND SIDEWALK AS PER SECTION 8.0



CITY OF NANAIMO

THE HARBOUR CITY



TREE GRATE PLAN VIEW

Scale: NTS

Created: MAY 2013

Rev Date: MAY 2013

Dwg No: P-6

NOTE: PLANT TREE WITH NURSERY SOIL LINE AT 50mm ABOVE FINISH GRADE. FORM 50mm DEEP EARTH SAUCER AT BASE OF TREE.

75mm DEPTH BARK MULCH.

METAL TREE GRATE

150mm DEPTH "A HORIZON" AMENDED TOPSOIL PER CLAUSE 14.18

UNIT PAVING SURFACE
BASE

PREPARE ROOTBALL PER CLAUSE 14.59.5

300 mm DEPTH IRRIGATION WITH MINIMUM TWO TREE BUBBLERS AS PER SECTION 14.08.04 AND STANDARD DRAWING I10

UNDISTURBED NATIVE SOILS OR COMPACTED SUBGRADE. AS PER THE CITY ENGINEERS DIRECTION

STRUCTURAL FILL IN LONGITUDINAL TRENCH (VERTICAL SIDES NOT NECESSARY)

100mm (4") PVC AIR VENT TO SURFACE

SECTION VIEW

REFER TO SPECIFICATION CLAUSE 14.30.1 AND 14.59 FOR STAKING MATERIALS AND INSTALLATION. STAKING SHALL BE DONE AT THE DISCRETION OF THE CITY ENGINEER

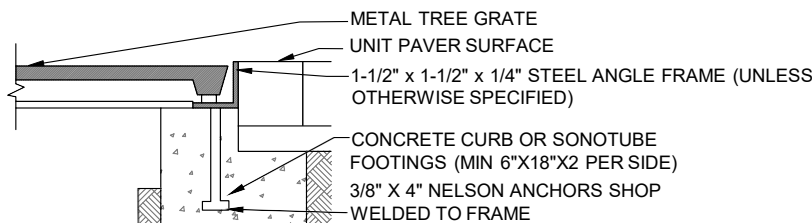
STEEL ANGLE IRON FRAME FOR TREE GRATE INSTALLATION
REFER TO DETAIL BELOW AND STANDARD DRAWING P-6.

UNIT PAVING SURFACE

BASE

GROWING MEDIUM TO BCLS (LATEST EDITION)

STRUCTURAL SOIL TO 95% M.P.D. (SEE PLAN) OR ENGINEERING MODULAR SOIL CELL SYSTEM



TREE GRATE FRAME INSTALLATION DETAIL FOR PAVERS WITHOUT CONCRETE BASE

PLAN



SECTION

NOTES:

TREE GRATE STEEL ANGLE IRON FRAME DETAIL

1. PRUNE APPROVED TREE SPECIES FOR CLEARANCE AND FOR TREE HEALTH AS PER SECTION 14.0.
2. TREE GRATE INSTALLATION SHALL BE AS PER THE MANUFACTURERS SPECIFICATION.
3. ALL WORK AND MATERIALS ARE TO BE AS DESCRIBED IN THE CITY OF NANAIMO MANUAL OF ENGINEERING STANDARDS & SPECIFICATIONS LATEST EDITION OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. REQUIRED VOLUME OF GROWING MEDIUM IS 10m³, TO A DEPTH OF 800mm FOR EACH TREE. REFER TO TABLE IN SECTION 14.58.8
5. FINAL TREE LOCATIONS MAY BE VARIED IF CERTIFIED BY A LANDSCAPE ARCHITECT AND THE CITY OF NANAIMO.
6. IF POOR DRAINAGE CONDITIONS EXIST, PROVIDE POSITIVE SUB-SURFACE DRAINAGE AWAY FROM PLANTING EXCAVATION.
7. IRRIGATION REQUIRED TO CITY OF NANAIMO STANDARDS WHERE REQUIRED BY CITY ENGINEER.
8. SEE STANDARD DRAWING P-2 FOR REQUIRED DETAILS AND WORKS.
9. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.
10. BASE AND SUB-BASE REQUIREMENTS AS PER SECTION 9.0.
11. CAST-IN PLACE CONCRETE REQUIREMENTS AS PER SECTION 11.0.
12. CONCRETE SURFACE TREATMENT AS PER SECTION 13.0.

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TREE PLANTING IN UNIT PAVING SURFACE

Scale: NTS
Created: MAY 2013
Rev Date: MAY 2020
Dwg No: P-7

① DOUBLE CHECK VALVE ASSEMBLY (DCVA) BACK FLOW PREVENTER

② BRASS 90° ELL (1 OF 2)

③ BRASS NIPPLE

④ FINISH GRADE

⑤ 50mm DEPTH 19mm MINUS GRAVEL

⑥ VALVE BOX C/W BOLTED LID

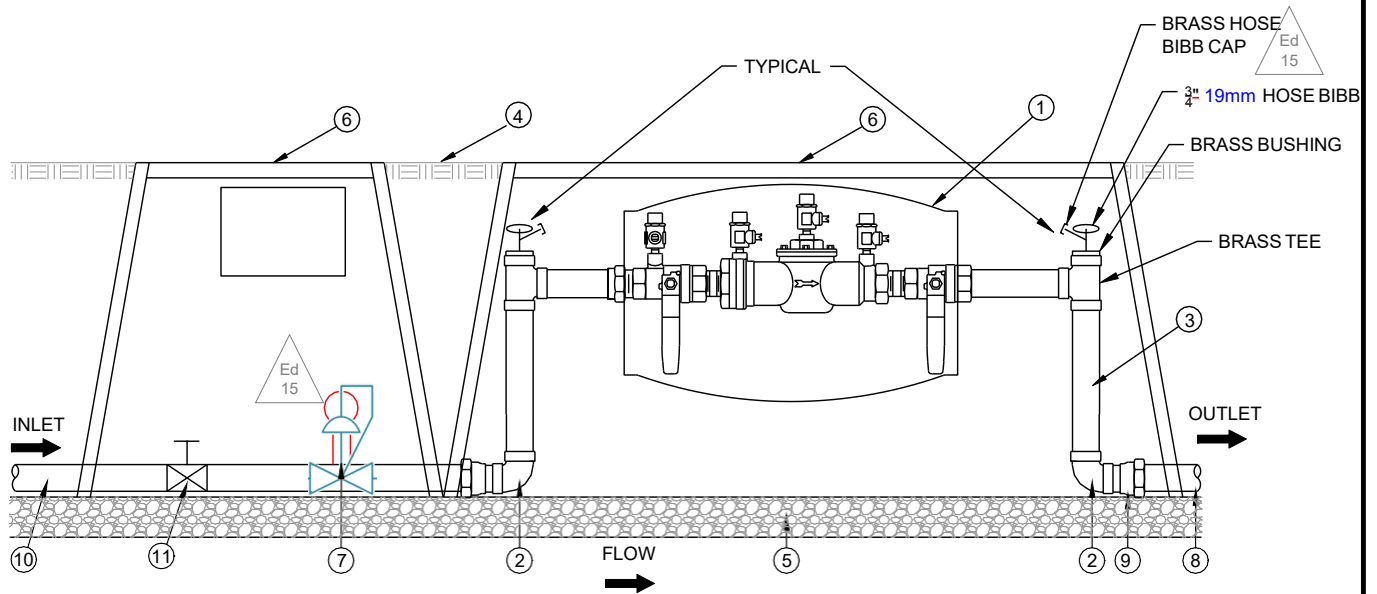
⑦ ~~LIQUID FILLED PRESSURE GAUGE~~
PRESSURE REDUCING VALVE (PRV) (SEE NOTE 7)

⑧ 19mm - 50mmØ SCHEDULE 40 PVC IRRIGATION MAIN (¾"-2"Ø)

⑨ SCHEDULE 40 PVC MALE ADAPTER

⑩ ~~TYPE K ANNEALED COPPER PIPE OR~~
CLASS 200 POLYETHYLENE TUBING FROM CITY OF NANAIMO WATER, METER AS PER SECTION 5.30

⑪ ~~BRONZE-BRASS~~ GATE VALVE



NOTES:

1. SUPPLY CONNECTION FROM MAIN TO WATER METER TO CITY OF NANAIMO ENGINEERING STANDARDS AND SPECIFICATIONS BY CITY FORCES AT OWNERS EXPENSE.
2. ~~ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED ON THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.~~
3. AS PER SECTION 5 WATER SYSTEM CROSS CONNECTION CONTROL.
4. ~~DOUBLE CHECK VALVE ASSEMBLY (DCVA)~~ FOR SYSTEMS WITHOUT INJECTION OF CHEMICALS. IF CHEMICALS ARE USED ~~REDUCED PRESSURE (RP) ASSEMBLY~~ SHALL BE REQUIRED.
5. SUBJECT TO APPROVAL BY THE CITY ENGINEER, AN ASSE 1060 CLASS 2 FROST PROTECTION ENCLOSURE MAY BE USED.
6. ~~WHERE STATIC WATER PRESSURE MAY EXCEED 550 KPA (80 PSI), INSTALL A PRESSURE REDUCING VALVE (PRV).~~

CITY OF NANAIMO
THE HARBOUR CITY

19MM mm TO 50MM mm DIAMETER
SERVICE IRRIGATION BACKFLOW
PREVENTER AND POINT OF CONNECTION

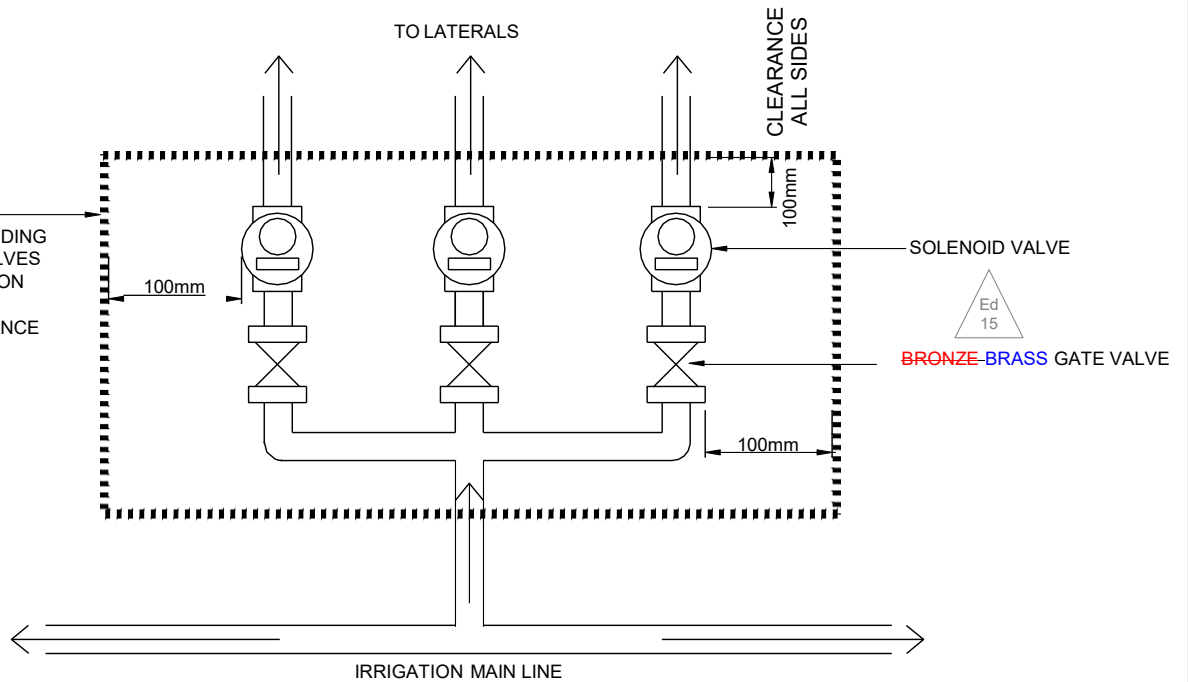
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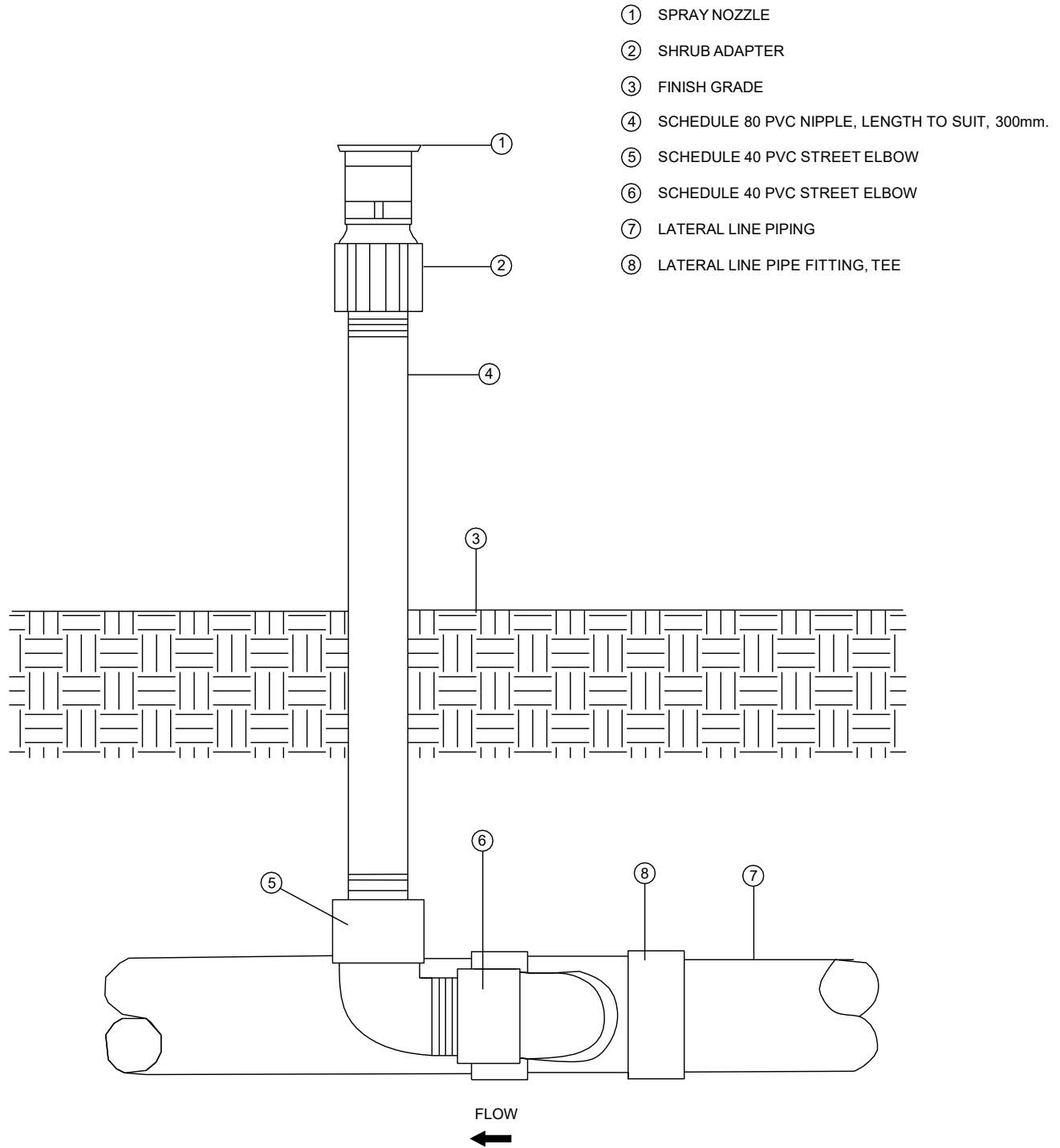
Created: MAY 2013

Rev Date: MAY 2020

Dwg No: I-1

VALVE BOX
SIZE VARIES DEPENDING
ON NUMBER OF VALVES
WITH CONSIDERATION
TO THE MINIMUM
DIMENSION CLEARANCE





NOTES:



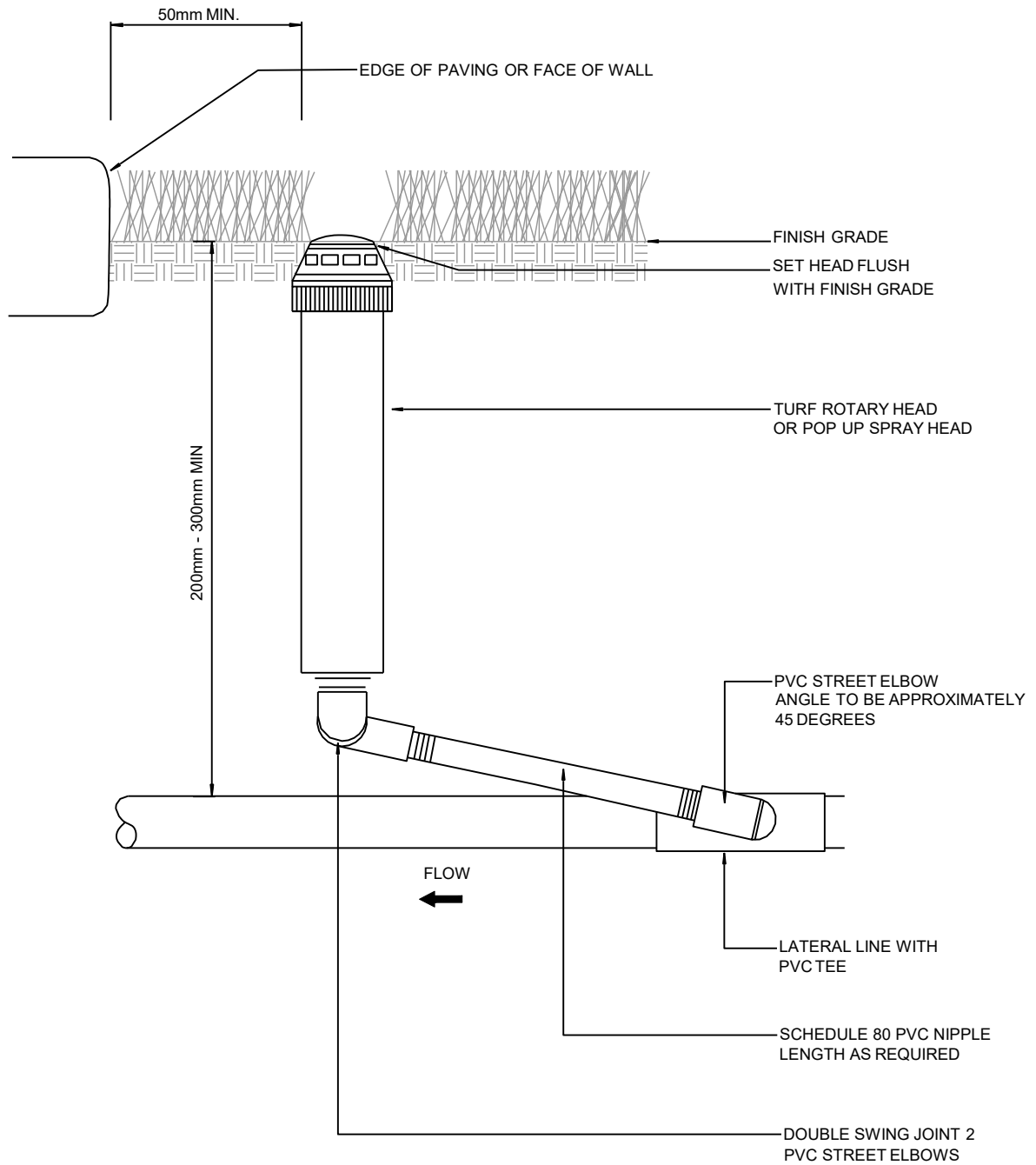
1. THREAD SEAL TAPE (PTFE TAPE) ALL THREADED JOINTS.
2. FOR DESIGN CRITERIA, SPECIFICATION AND INSTALLATION REFER TO SECTION 14.0 WRITTEN SPECIFICATIONS.
3. ~~ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED ON THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.~~ ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.



SHRUB RISER
 SPRAY HEAD

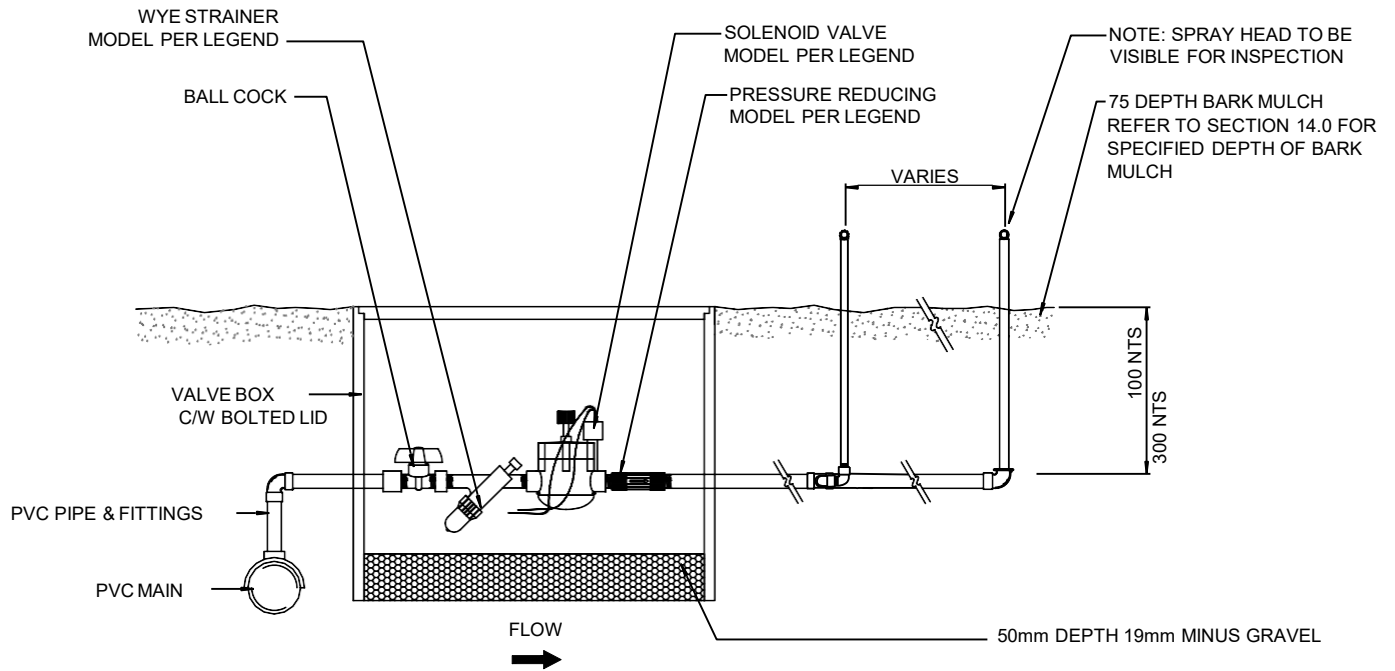
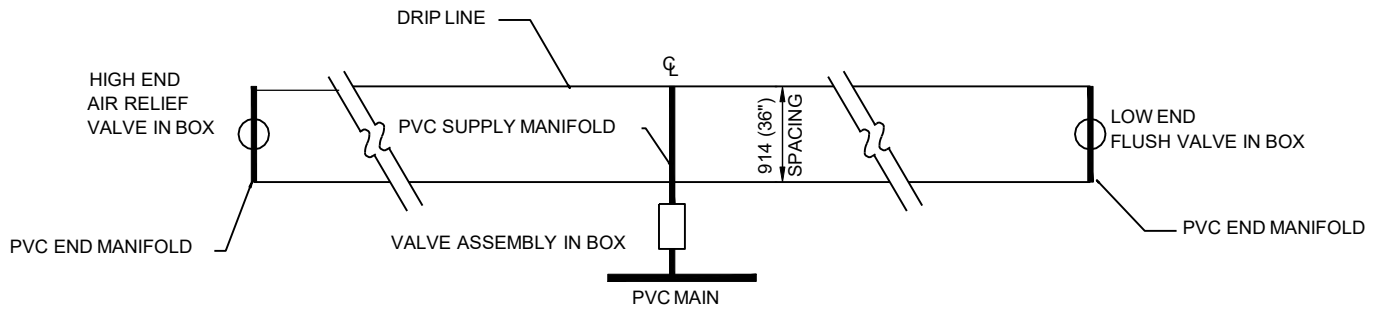
Scale: NTS
 Created: MAY 2013
 Rev Date: NOV-2016
 Dwg No: I-4





NOTES:

1. ~~ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED ON THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.~~ ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.
2. FOR DESIGN CRITERIA SPECIFICATIONS AND INSTALLATIONS REFER TO SECTION 14.0 WRITTEN SPECIFICATIONS.



NOTES:

1. FOR DESIGN CRITERIA, SPECIFICATIONS AND INSTALLATIONS REFER TO SECTION 14.0 WRITTEN SPECIFICATIONS.
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CITY OF NANAIMO

THE HARBOUR CITY

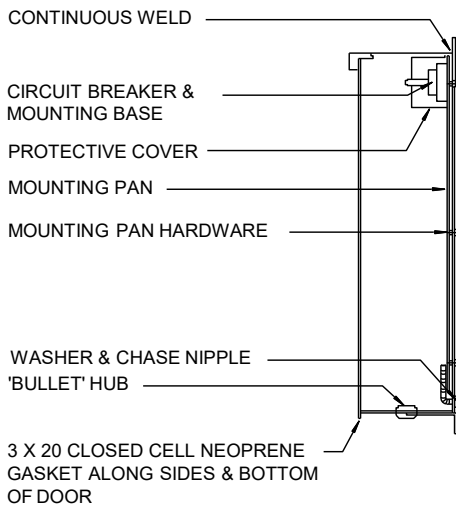
IN-LINE DRIP ASSEMBLY AND LAYOUT

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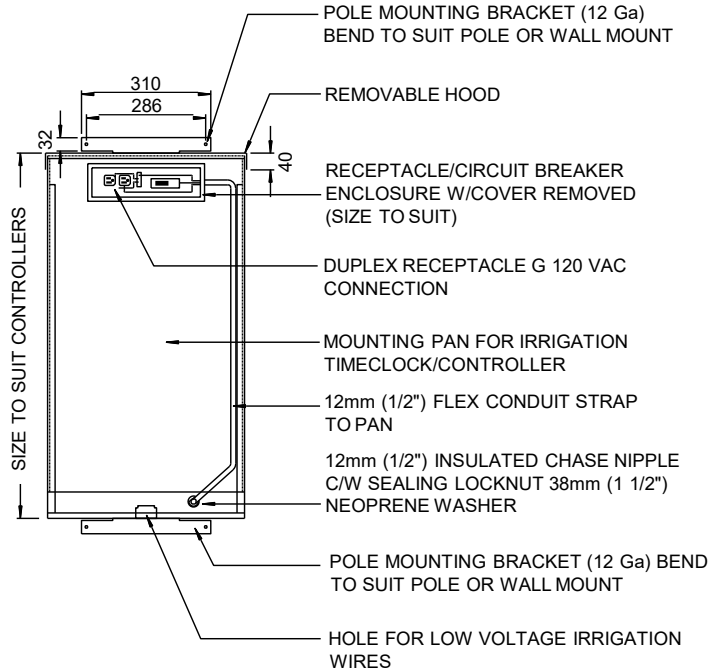
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Rev Date: MAY 2013

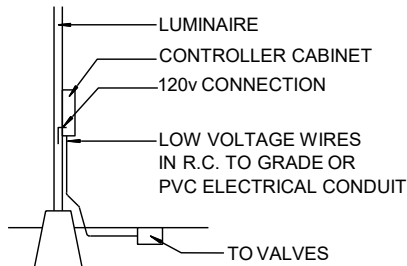
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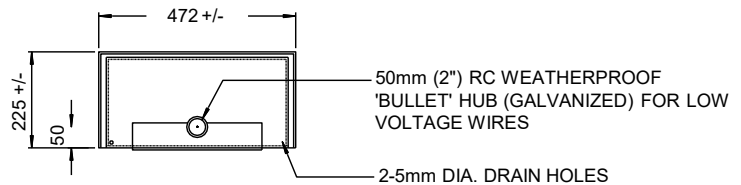
CROSS SECTION



FRONT VIEW WITH DOOR REMOVED



MOUNTING DETAIL



BOTTOM VIEW

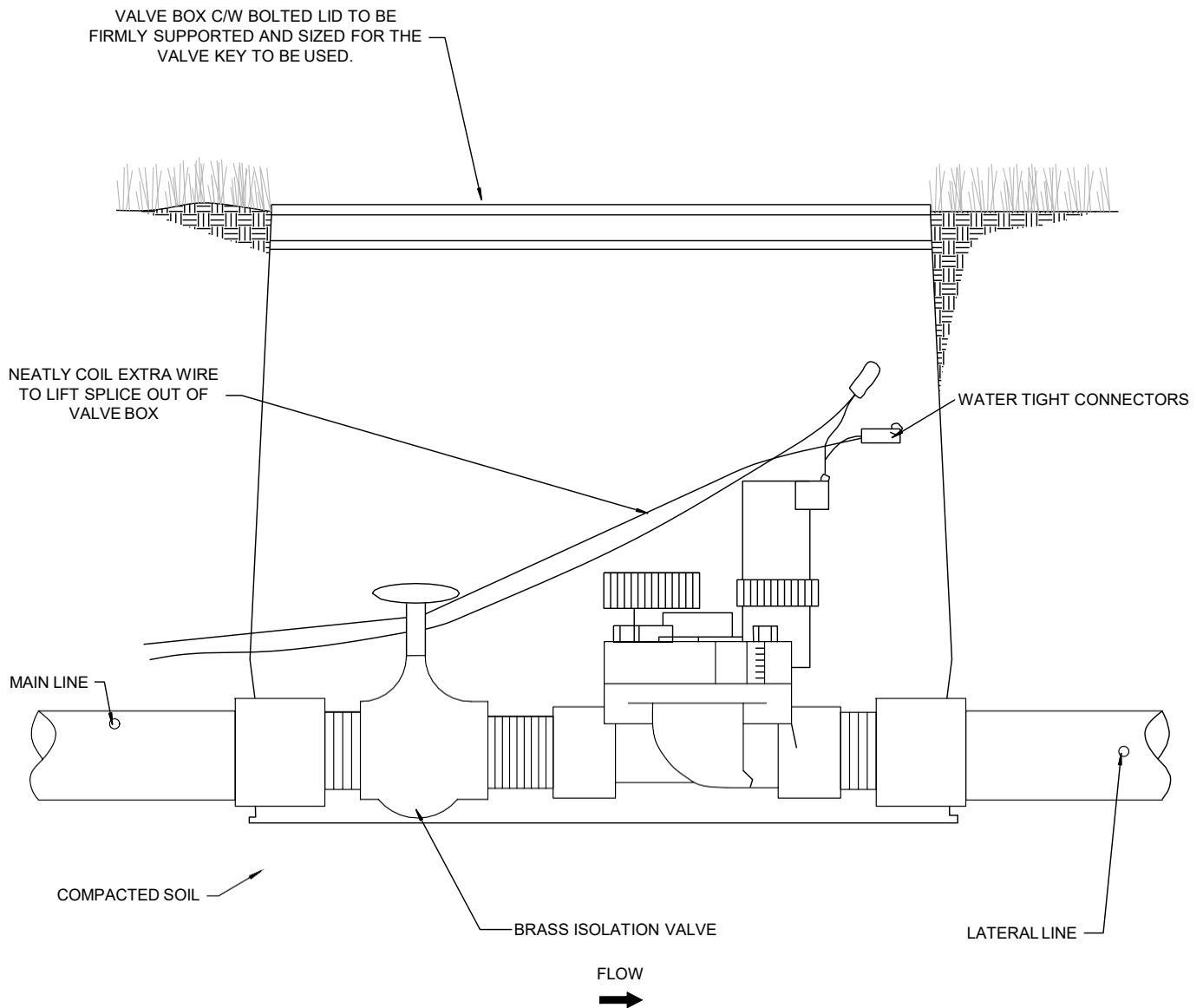
NOTES:

1. **ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION. ~~ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED ON THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.~~**
2. ENTIRE ENCLOSURE TO BE 16 GAUGE MILD STEEL OR ALUMINUM WITH THE EXCEPTION OF THE RECEPTACLE ENCLOSURE & MOUNTING PAN WHICH SHALL BE 14 GAUGE. STEEL FINISHED WITH GREY ENAMEL, ALUMINUM CLEAR ANODIZED. ALL SEAMS SHALL BE CONTINUOUSLY WELDED.
3. THE ENCLOSURE SHALL BE MANUFACTURED TO CONFORM TO C.S.A. ENCLOSURE 3 SPECIFICATIONS & SHALL BEAR APPROVAL FROM THE PROVINCIAL SAFETY BRANCH INSPECTOR.
4. ALL HARDWARE (SCREWS, NUTS, ETC.) SHALL BE STAINLESS STEEL.
5. DOOR TO BE FULLY GASKETTED & WITH PADLOCKING FACILITY.
6. THE PANEL SHALL BEAR THE MANUFACTURER & THE PROVINCIAL APPROVAL LABELS INSIDE THE PANEL.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



IRRIGATION CONTROLLER CABINET DETAILS

Scale: NTS
Created: MAY 2013
Rev Date: MAY-2020
Dwg No: I-7



NOTES:

1. VALVE BOX TO BE INSTALLED FLUSH WITH FINISHED GRADE, AND IN A SHRUB AREA WHERE POSSIBLE.
2. ~~ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.~~ ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.

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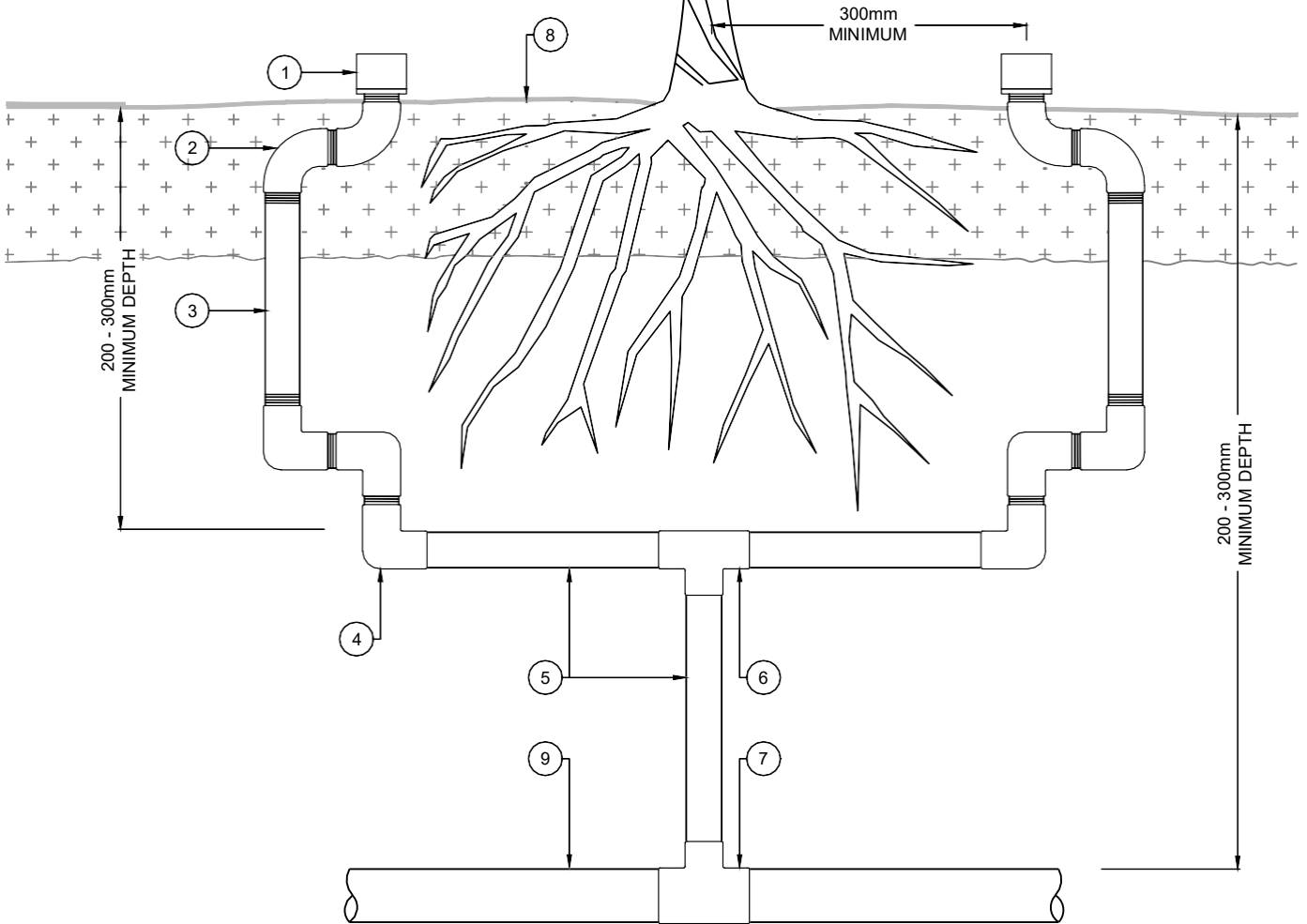
Scale: NTS
Created: MAY 2013
Rev Date: MAY-2013
Dwg No: I-9



ELECTRIC VALVE DETAIL

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- ① 1.89 LPM (.5 GPM) BUBBLER
- ② 50mm (2") PVC STREET 90° ELBOW
- ③ 50mm (2") PVC SCH 80 NIPPLE
- ④ 50mm (2") SLIP X FEMALE PVC 90° BEND
- ⑤ 50mm (2") PVC SCH 40 PIPE
- ⑥ 50mm (2") SLIP X SLIP PVC TEE
- ⑦ PVC TEE, REDUCED TO 50mm (2")
- ⑧ FINISHED GRADE
- ⑨ PVC LATERAL PIPE



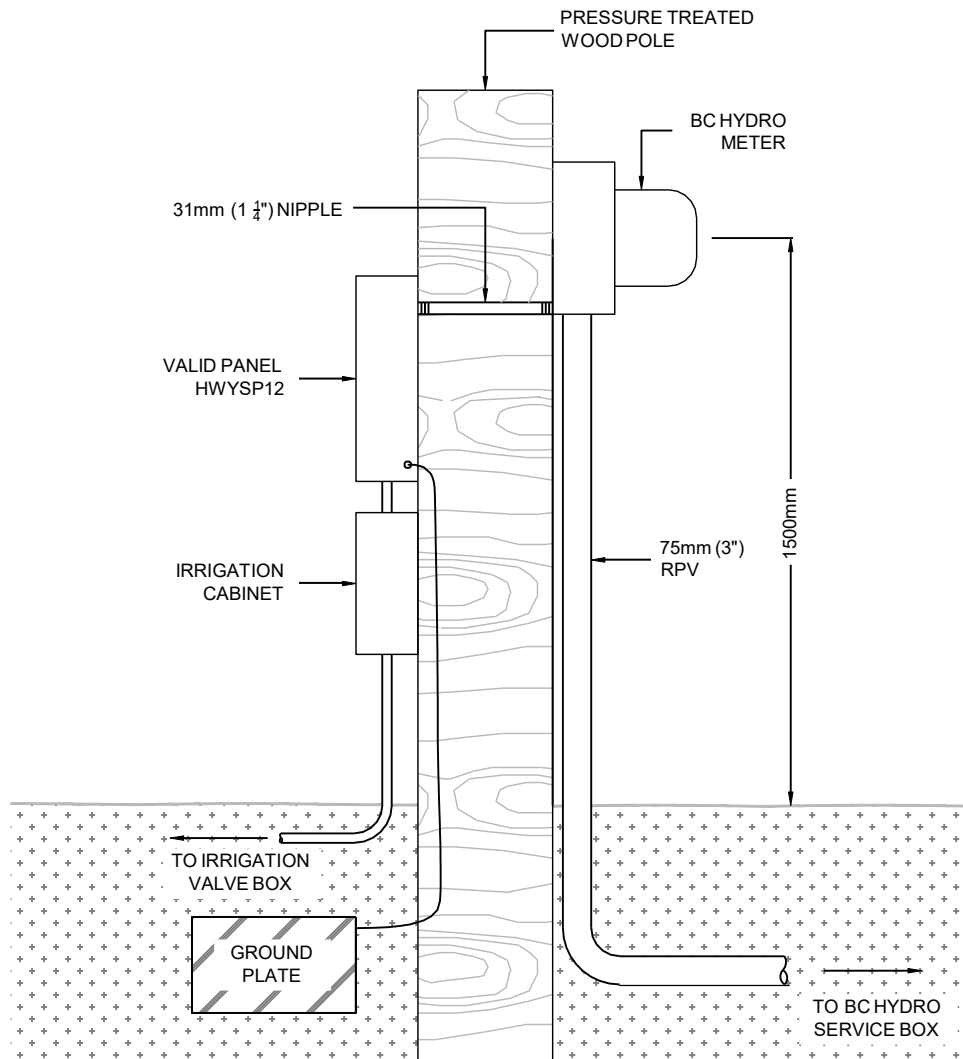
IRRIGATION BUBBLER SECTION

SCALE: 1:10



NOTES:

1. **ONLY PRODUCTS APPROVED BY THE CITY ENGINEER WILL BE APPROVED FOR INSTALLATION. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.**



SECTION

SCALE: 1:20



NOTES:

1. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED ON THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION. ONLY PRODUCTS LISTED IN THE CITY'S APPROVED PRODUCTS LIST OR APPROVED BY THE CITY ENGINEER ARE ACCEPTED FOR INSTALLATION.
2. INSTALLATION SHALL BE DONE FOR DESIGNATED PARK LAND.