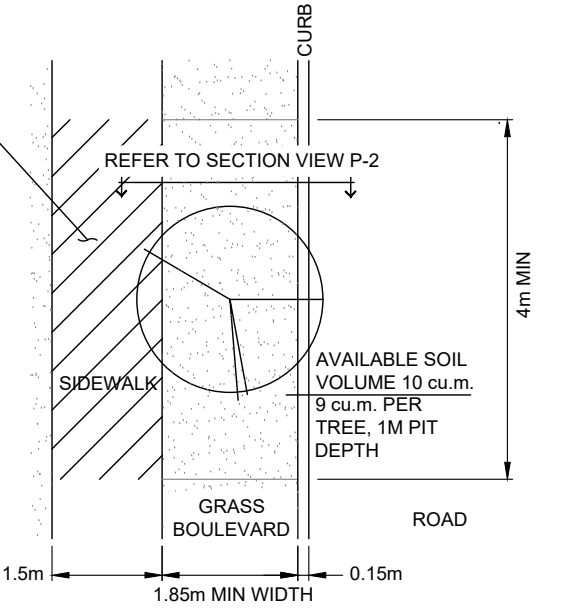


**TREE PLANTING WITH 20 cu.m ROOT ZONE  
PLAN VIEW**

STRUCTURED SOIL / SOIL  
CELL UNDER SIDEWALK  
OR HARD SURFACE



**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.



**TREE PLANTING ROOT ZONE VOLUME**

Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	P-1

G:\INFRASTRUCTURE PLANNING STANDARDS & PRODUCTS\MOOSE\EDITION NO13 MAY 2020\2019-09-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTIONS\FINAL DRAFT\SECTION 14 DWGS\IP-2

APPROVED TREE SPECIES  
AS PER PLANTING PLAN  
PRUNE FOR CLEARANCE AND FOR  
TREE HEALTH AS PER SECTION 14.0

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

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

SOD ON 150mm DEPTH TOPSOIL  
AS PER SPECIFICATION.

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

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

300mm MIN DEPTH IRRIGATION  
TRENCH

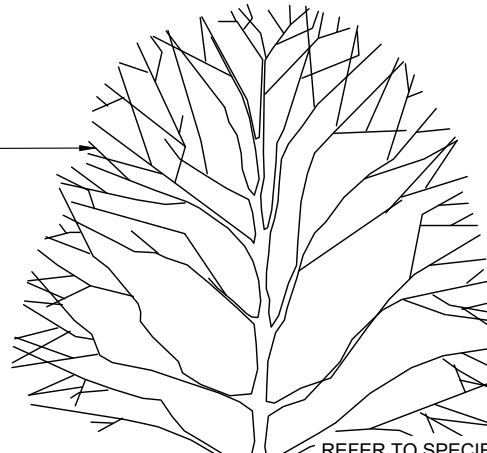
UNTIE AND REMOVE TOP 1/3 OF BURLAP  
FROM ROOTBALL.  
NOTE: BALLED AND BURLAP TREE IS  
ILLUSTRATED. IF CONTAINER OR BAG  
GROWN TREES ARE USED, COMPLETELY  
REMOVE IMPERISHABLE CONTAINERS.

SUBSOIL (REFER TO CLAUSE 14.17  
OF SPECIFICATIONS).

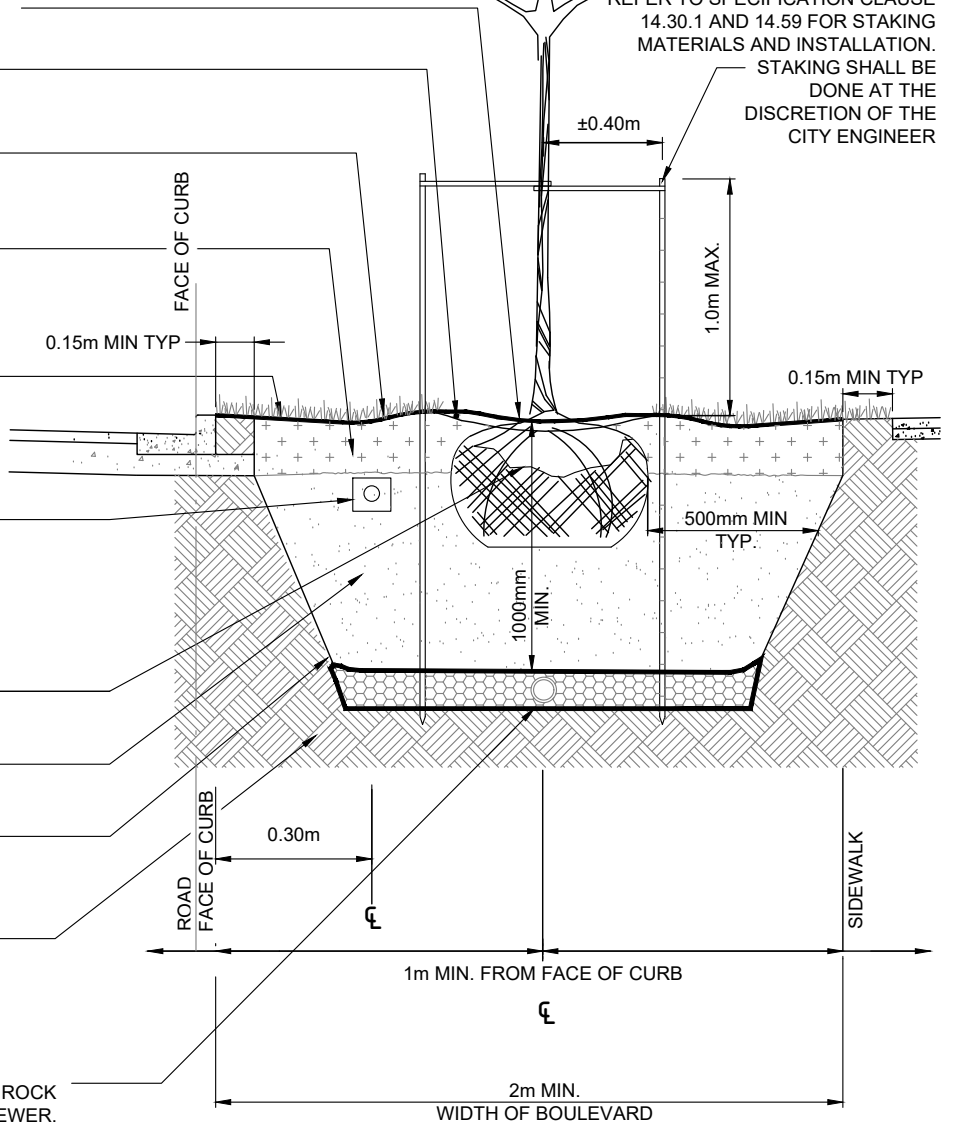
ROUGHEN PIT BOTTOM AND SIDES  
TO REMOVE GLAZING.

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 STAKING  
MATERIALS AND INSTALLATION.  
STAKING SHALL BE  
DONE AT THE  
DISCRETION OF THE  
CITY ENGINEER



**CITY OF NANAIMO**  
THE HARBOUR CITY

TREE PLANTING IN GRASS  
BOULEVARD OR MEDIAN

Scale: NTS  
Created: MAY 2013  
Rev Date: NOV 2016  
Dwg No: P-2

3.3.2020

G:\INFRASTRUCTURE PLANNING\STANDARDS & PRODUCTS\MOES\ISSUES\EDITION NO13 MAY 2020\2019-09-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTIONS\FINAL DRAFT\SECTION 14 DWGSP-3

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.

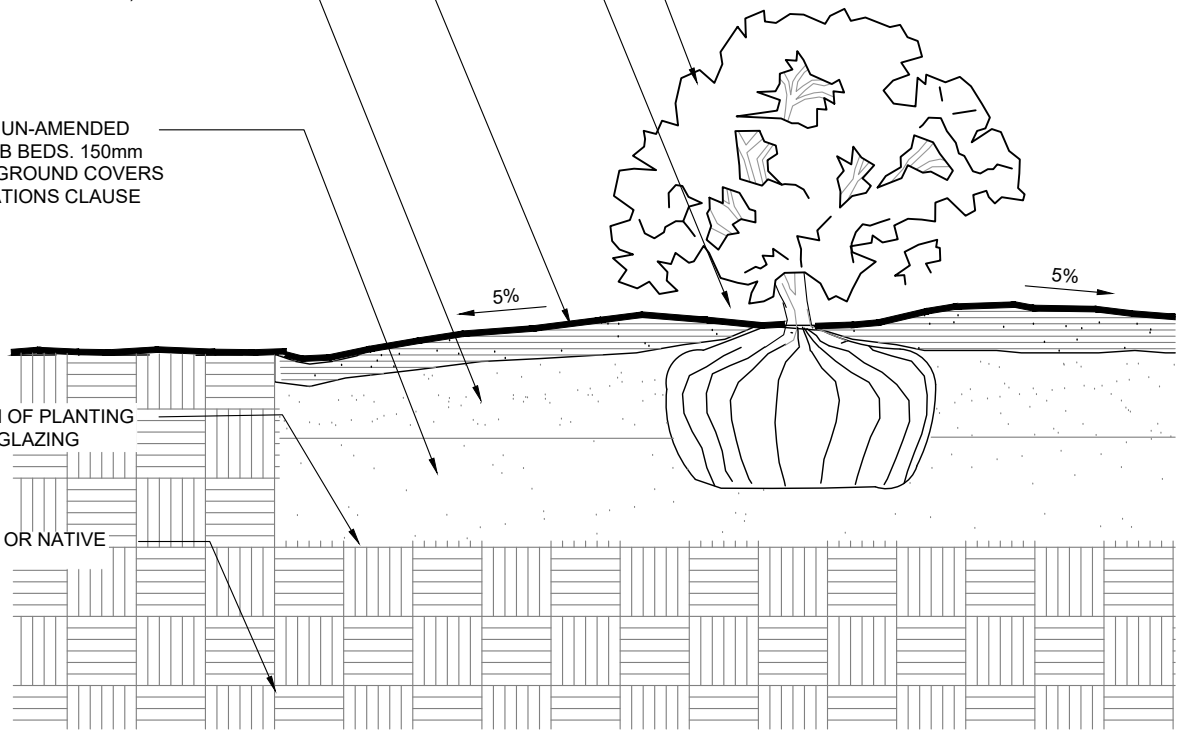
50mm DEPTH BARK MULCH.

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



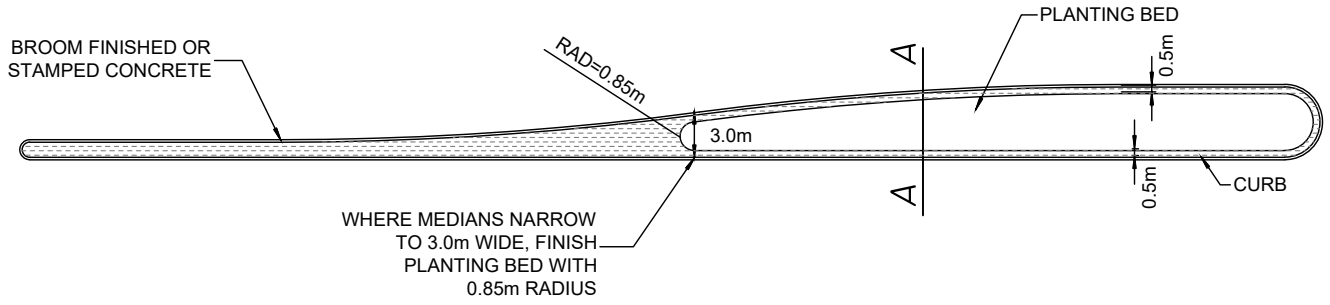
3.3.2020



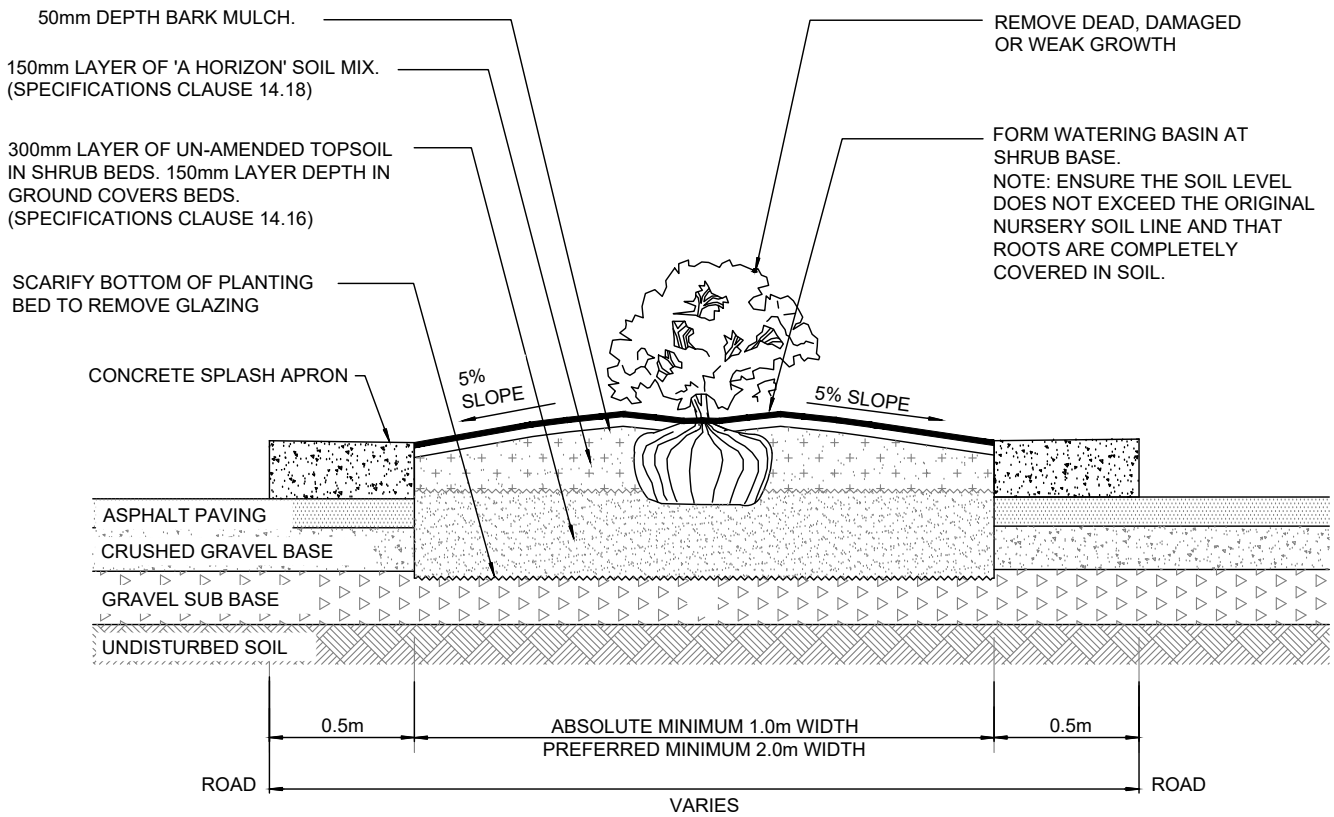
SHRUB PLANTING IN BED

Scale: NTS  
 Created: JAN 1998  
 Rev Date: JAN 1998  
 Dwg No: P-3

G:\INFRASTRUCTURE PLANNING\STANDARDS & PRODUCTS\SI\MOSES\EDITION NO13 MAY 2020\2019-08-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTIONS\FINAL DRAFT\SECTION 14 DWGSP-4



PLAN VIEW



SECTION VIEW A

NOTES:

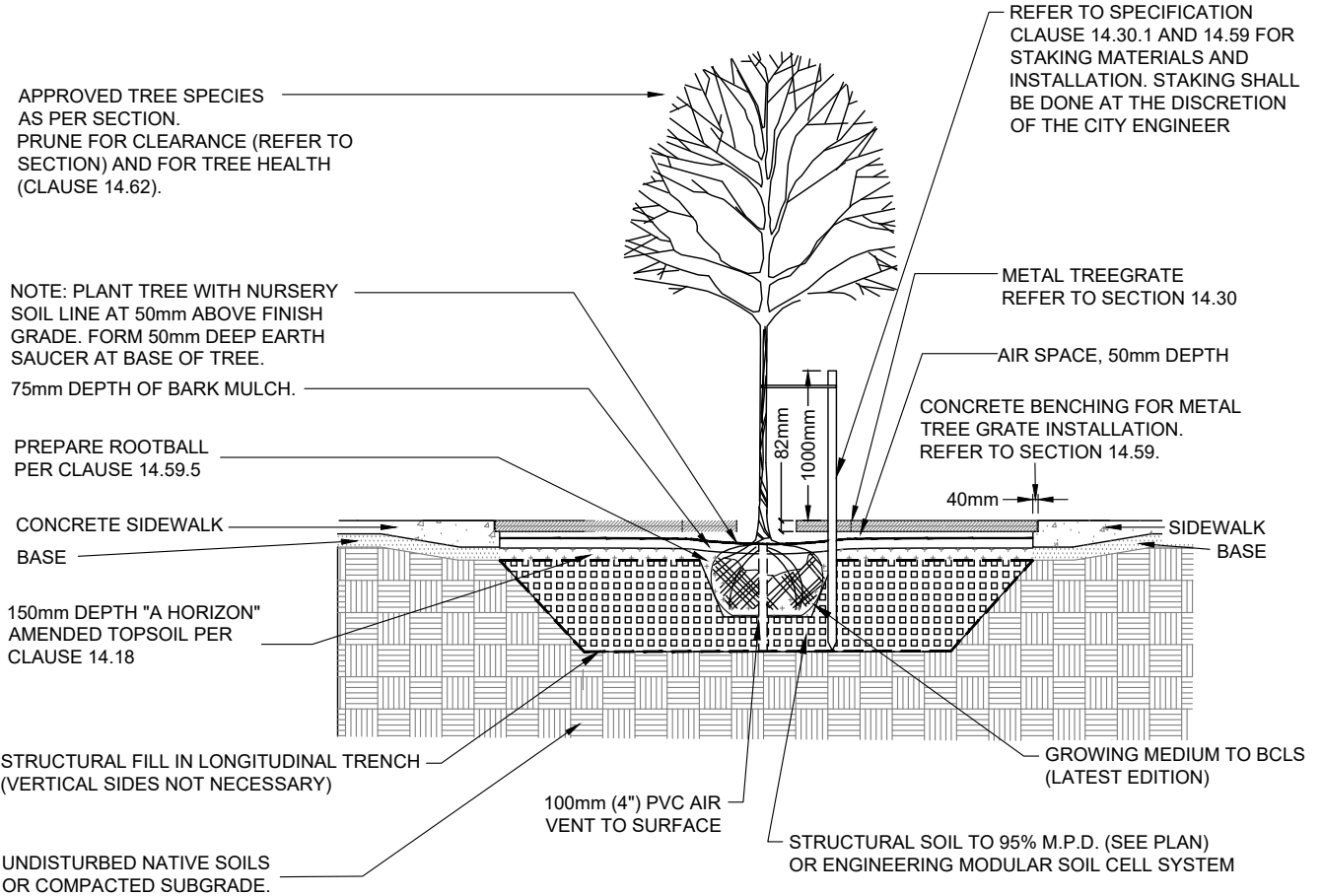
1. FOR CENTER MEDIAN DETAILS SEE SECTION 8, STD DWG CS-7.

3.18.2020



SHRUB PLANTING IN MEDIAN

Scale: NTS  
 Created: MAY 2013  
 Rev Date: MAY 2020  
 Dwg No: P-4



SECTION VIEW

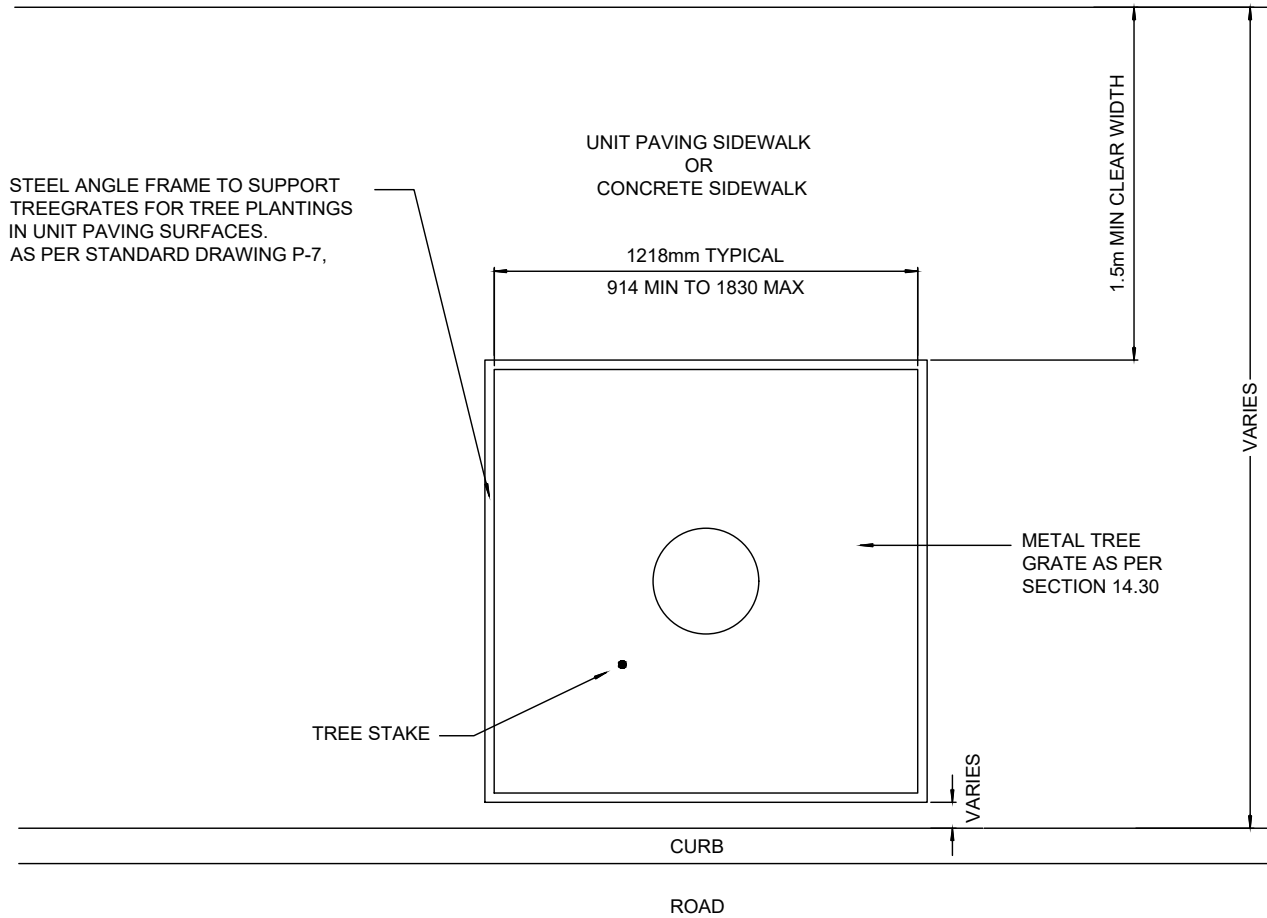
NOTES:

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.
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.



TREE PLANTING IN CONCRETE SIDEWALK

Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	P-5



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.



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

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

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

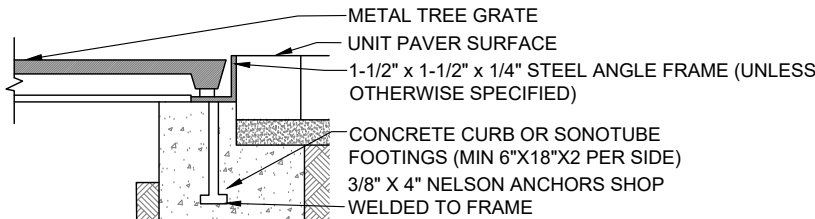
UNIT PAVING SURFACE

BASE

GROWING MEDIUM TO BCLS (LATEST EDITION)

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

**SECTION VIEW**



TREE GRATE FRAME INSTALLATION DETAIL FOR PAVERS WITHOUT CONCRETE BASE

**PLAN**



**SECTION**

**TREE GRATE STEEL ANGLE IRON FRAME DETAIL**

**NOTES:**

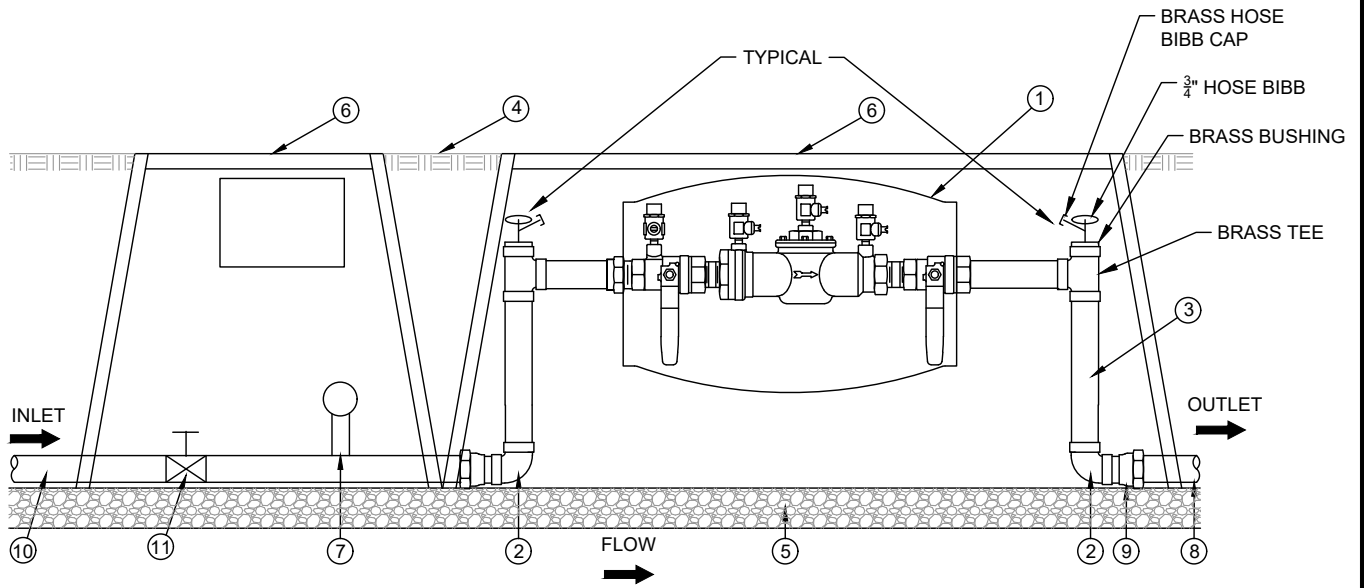
1. PRUNE APPROVED TREE SPECIES FOR CLEARANCE AND FOR TREE HEALTH AS PER SECTION 14.
2. TREE GRATE INSTALLATION SHALL BE AS PER THE MANUFACTURERS SPECIFICATION.
3. ALL WORK AND MATERIALS ARE TO BE AS DESCRIBED IN THE CITY OF NANAIMO MANUAL OF ENGINEERING STANDARDS & SPECIFICATIONS LATEST EDITION OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. REQUIRED VOLUME OF GROWING MEDIUM IS 10m<sup>3</sup>, TO A DEPTH OF 800mm FOR EACH TREE.
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 DRAWING P-2 FOR REQUIRED DETAILS AND WORKS.



TREE PLANTING IN UNIT PAVING SURFACE

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

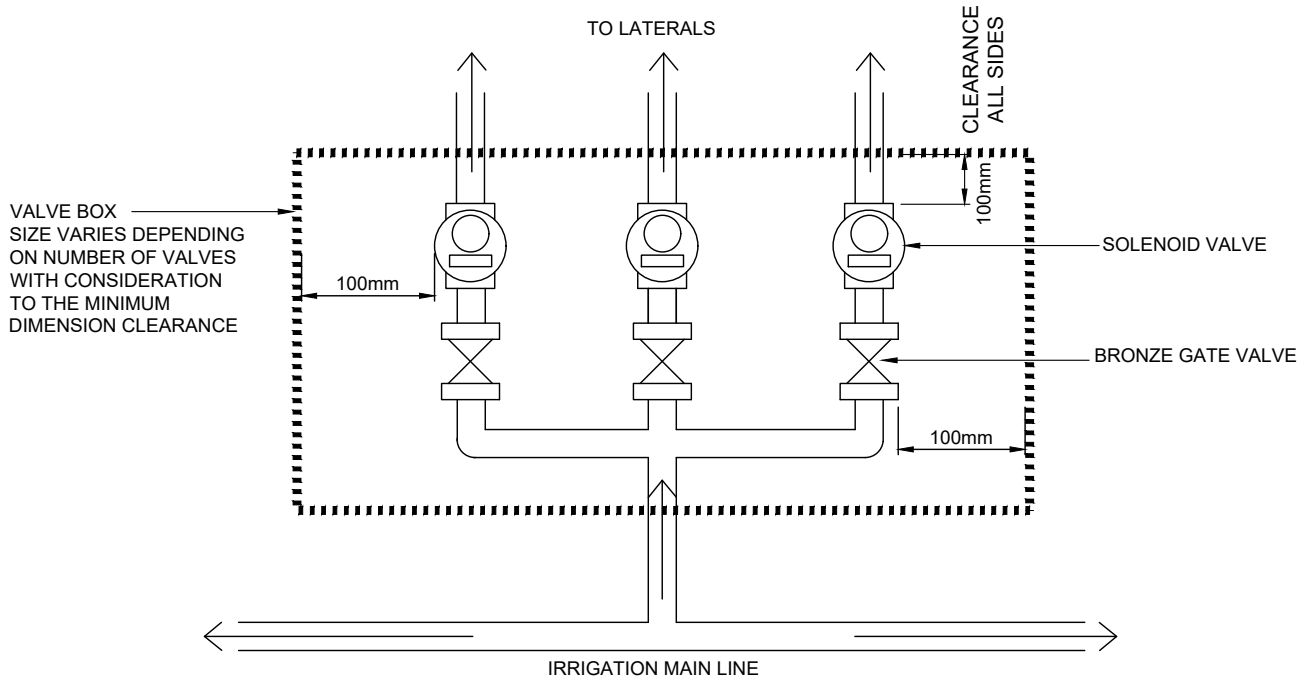
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>① DOUBLE CHECK VALVE ASSEMBLY (DCVA) BACK FLOW PREVENTER</li> <li>② BRASS 90° ELL (1 OF 2)</li> <li>③ BRASS NIPPLE</li> <li>④ FINISH GRADE</li> <li>⑤ 50mm DEPTH 19mm MINUS GRAVEL</li> <li>⑥ VALVE BOX C/W BOLTED LID</li> <li>⑦ LIQUID FILLED PRESSURE GAUGE</li> </ul> | <ul style="list-style-type: none"> <li>⑧ 19mm - 50mmØ SCHEDULE 40 PVC IRRIGATION MAIN (¾"-2"Ø)</li> <li>⑨ SCHEDULE 40 PVC MALE ADAPTER</li> <li>⑩ TYPE K ANNEALED COPPER PIPE OR CLASS 200 POLYETHYLENE TUBING FROM CITY OF NANAIMO WATER METER AS PER SECTION 5.30</li> <li>⑪ BRONZE GATE VALVE</li> </ul> |
|--|---|



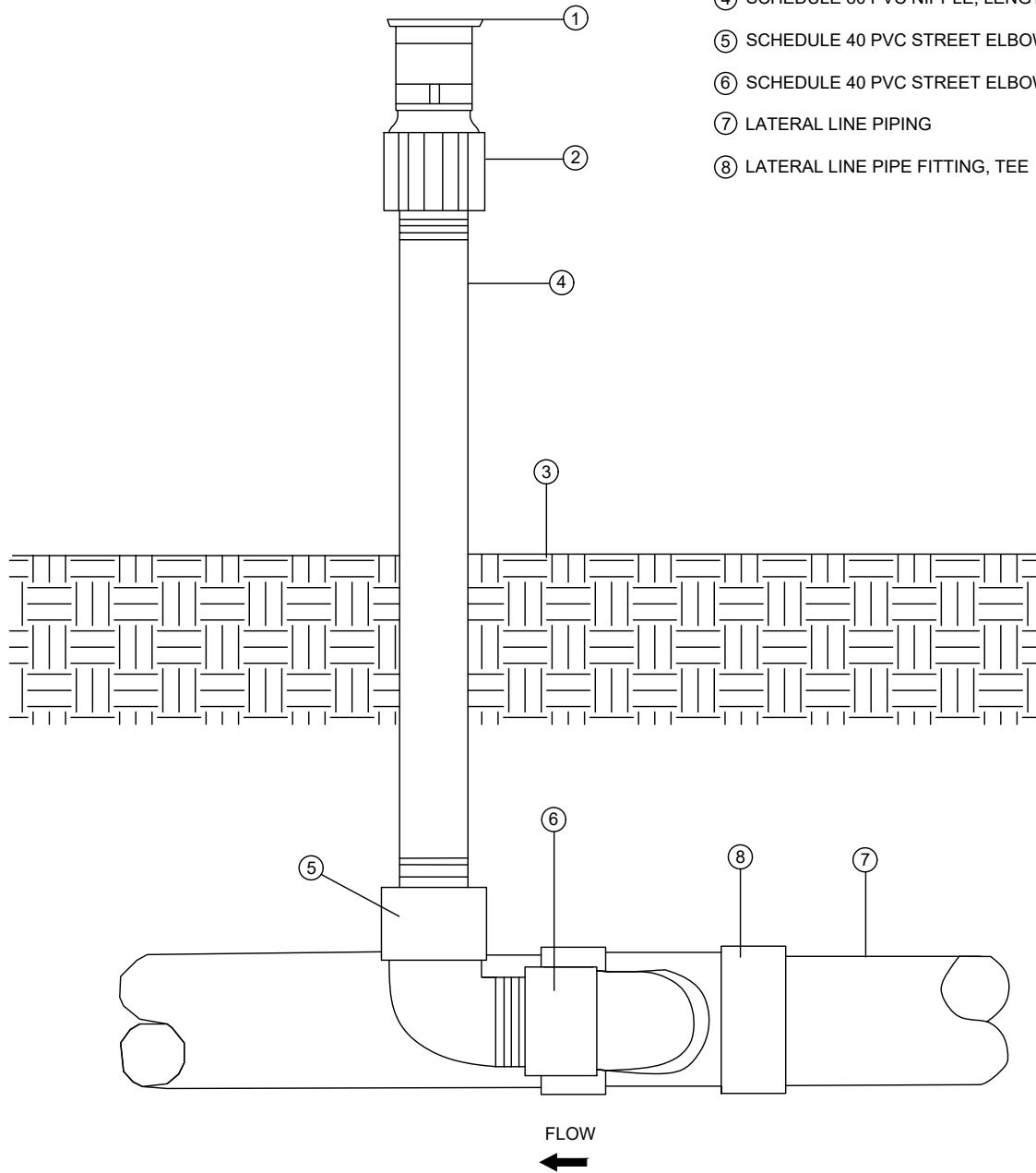
**NOTES:**

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.
3. AS PER SECTION 5 WATER SYSTEM CROSS CONNECTION CONTROL.
4. DCVA FOR SYSTEMS WITHOUT INJECTION OF CHEMICALS. IF CHEMICALS ARE USED A RP ASSEMBLY SHALL BE REQUIRED.
5. SUBJECT TO APPROVAL BY THE CITY ENGINEER, AN ASSE 1060 CLASS 2 FROST PROTECTION ENCLOSURE MAY BE USED.





- ① SPRAY NOZZLE
- ② SHRUB ADAPTER
- ③ FINISH GRADE
- ④ SCHEDULE 80 PVC NIPPLE, LENGTH TO SUIT, 300mm.
- ⑤ SCHEDULE 40 PVC STREET ELBOW
- ⑥ SCHEDULE 40 PVC STREET ELBOW
- ⑦ LATERAL LINE PIPING
- ⑧ LATERAL LINE PIPE FITTING, TEE



NOTES:

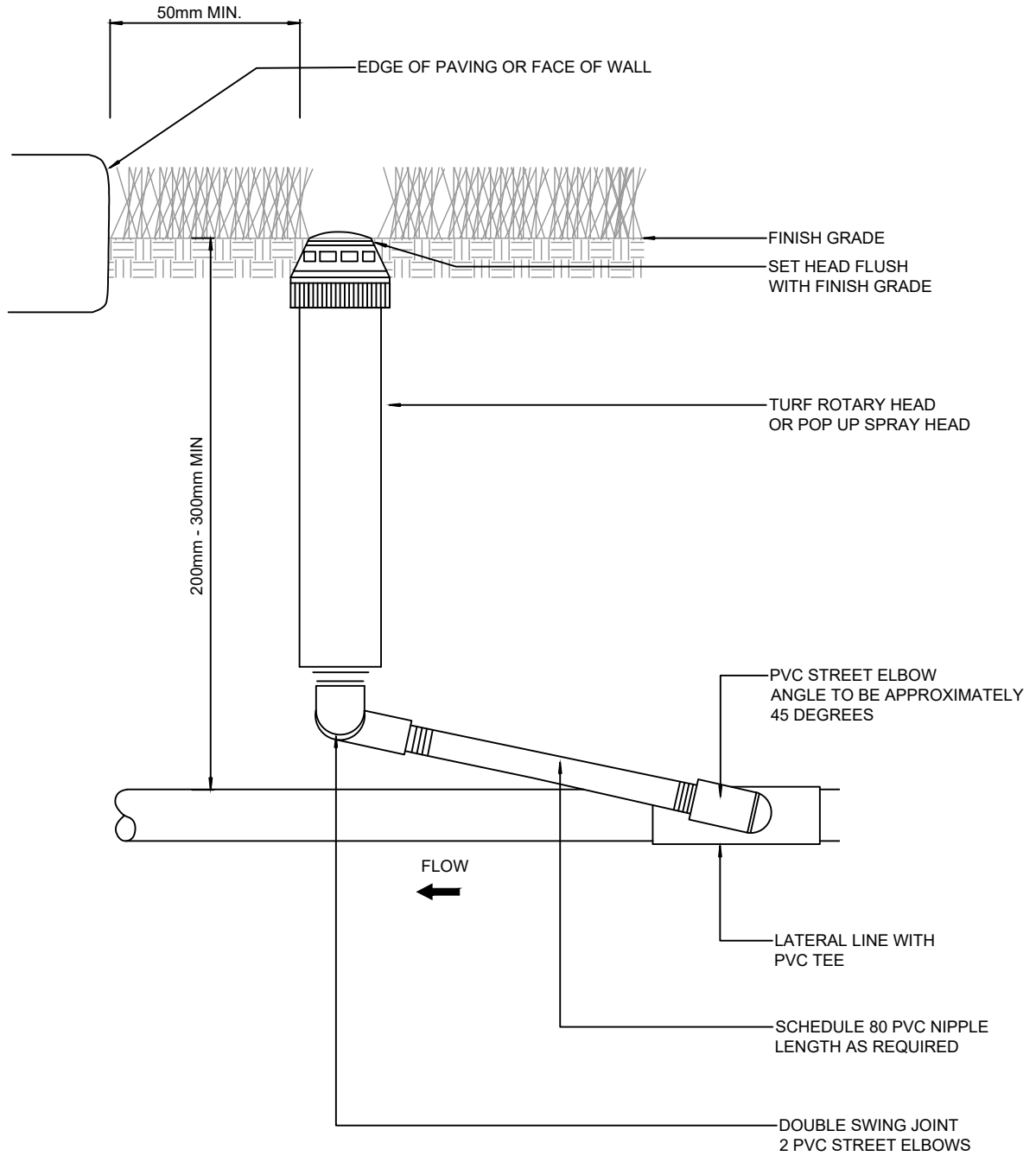
1. THREAD SEAL TAPE (PTFE TAPE) ALL THREADED JOINTS.
2. FOR DESIGN CRITERIA, SPECIFICATION AND INSTALLATION REFER TO SECTION 14.0 WRITTEN SPECIFICATIONS.
3. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED ON THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.



SHRUB RISER  
SPRAY HEAD

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

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NOTES:

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

3.3.2020



POPUP SPRAY HEAD  
TURF ROTARY HEAD

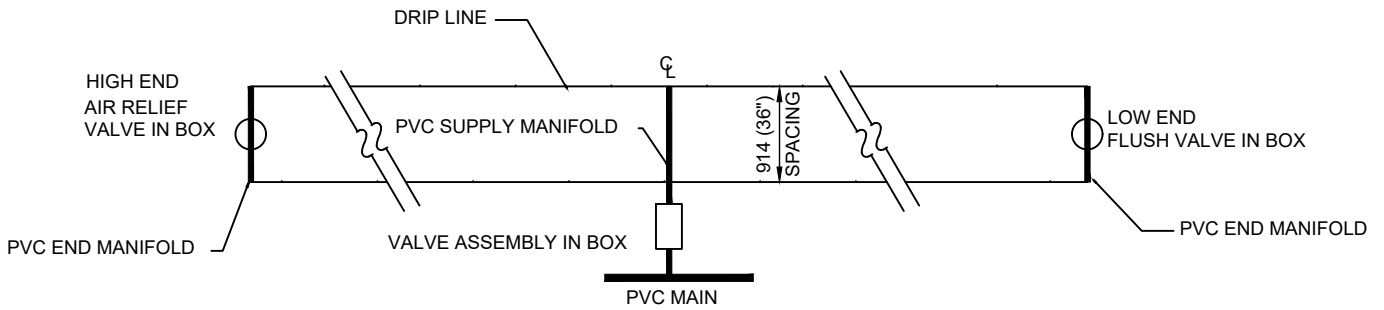
Scale: N.T.S.

Created: SEPT 2012

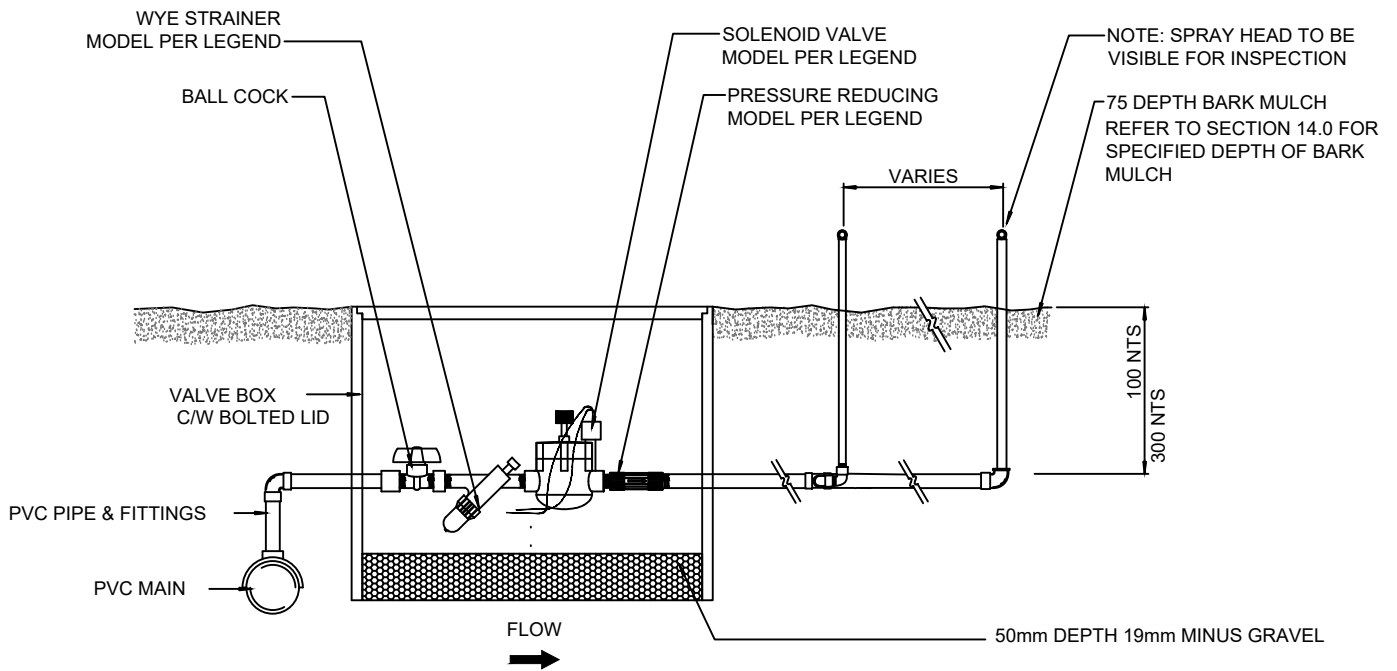
Rev Date: MAY 2020

Dwg No: I-5

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DRIP CIRCUIT SCHEMATIC LAYOUT



TYPICAL DRIP VALVE ASSEMBLY AND MANIFOLD

NOTES:

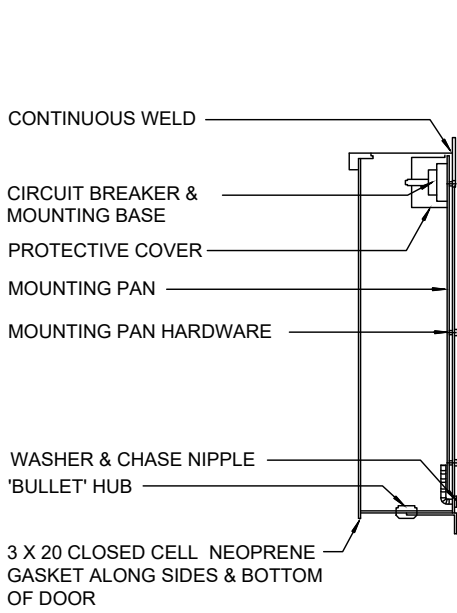
1. FOR DESIGN CRITERIA, SPECIFICATIONS AND INSTALLATIONS REFER TO SECTION 14.0 WRITTEN SPECIFICATIONS.

3.3.2020

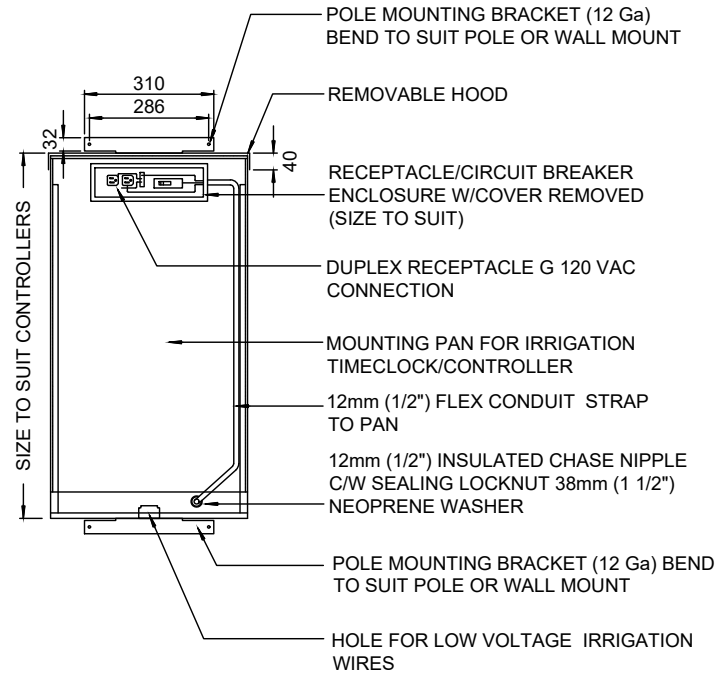


IN-LINE DRIP ASSEMBLY AND LAYOUT

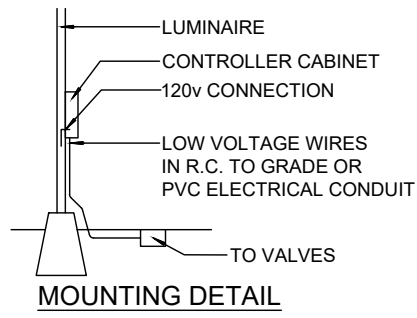
Scale: NTS  
 Created: MAY 2013  
 Rev Date: MAY 2013  
 Dwg No: I-6



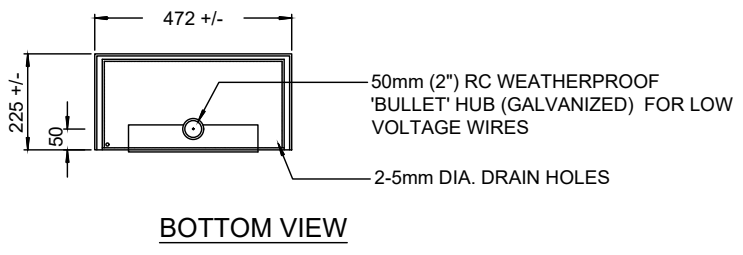
**CROSS SECTION**



**FRONT VIEW WITH DOOR REMOVED**



**MOUNTING DETAIL**



**BOTTOM VIEW**

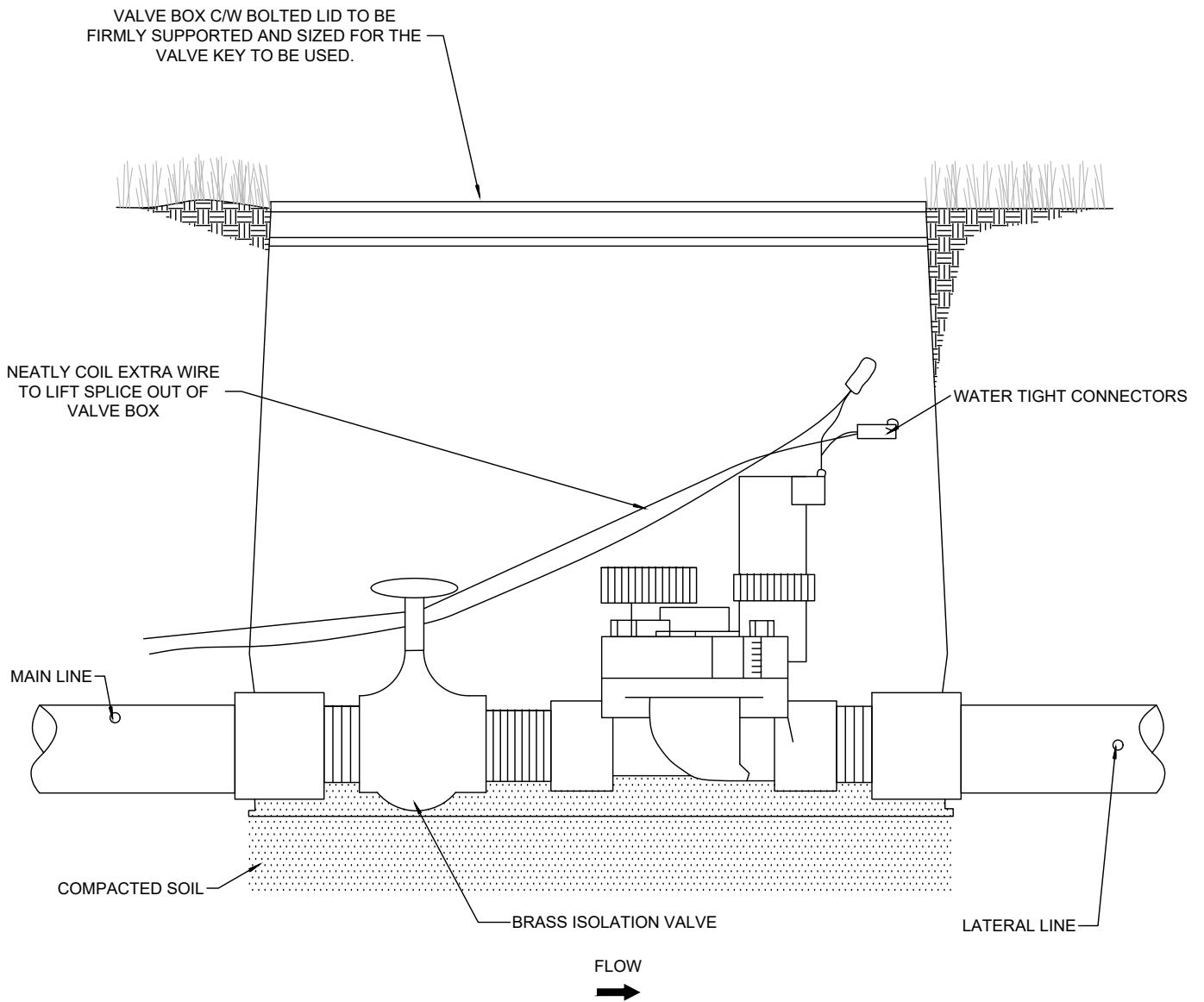
**NOTES:**

1. 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**

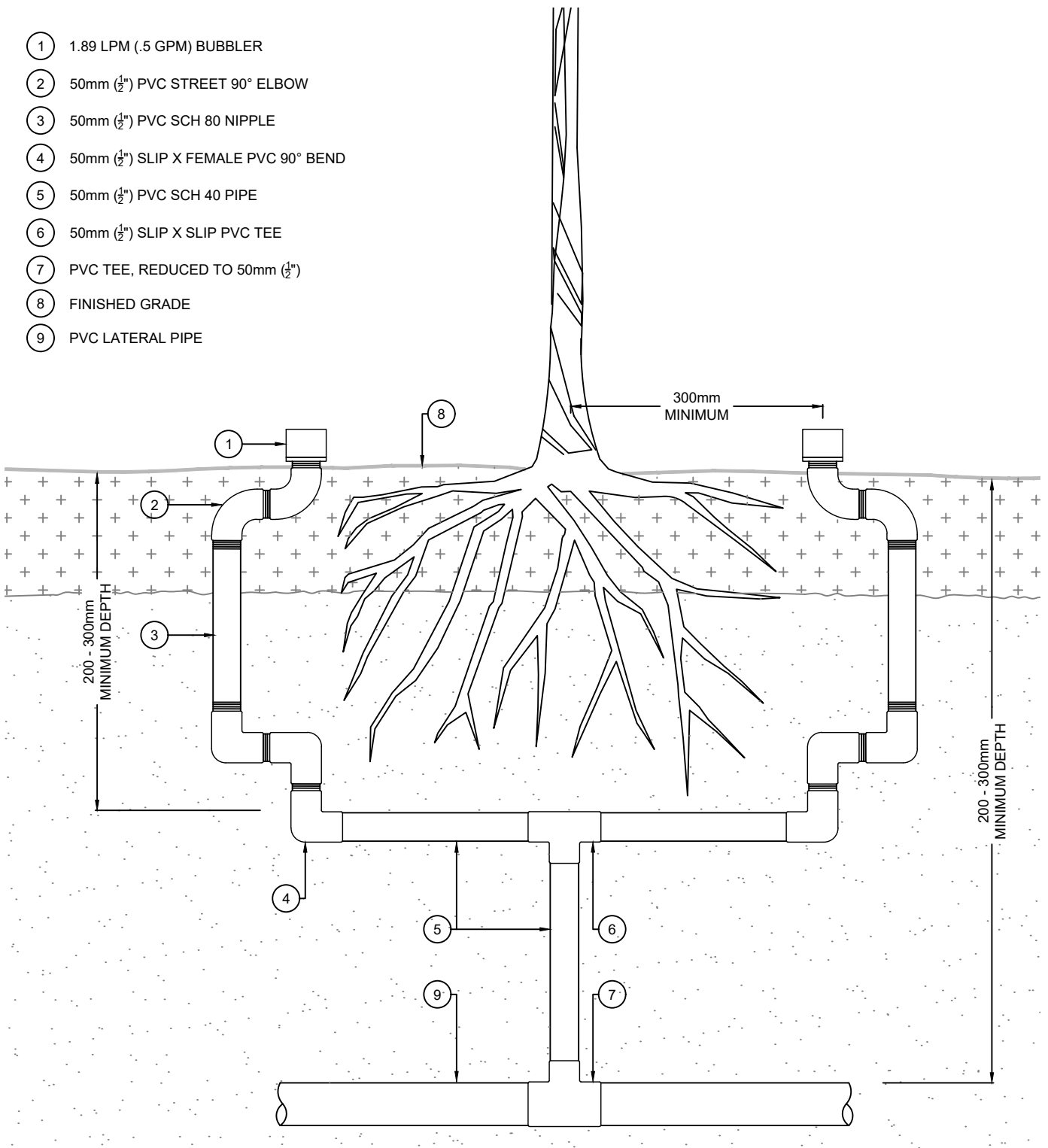
Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	I-7



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.

- 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



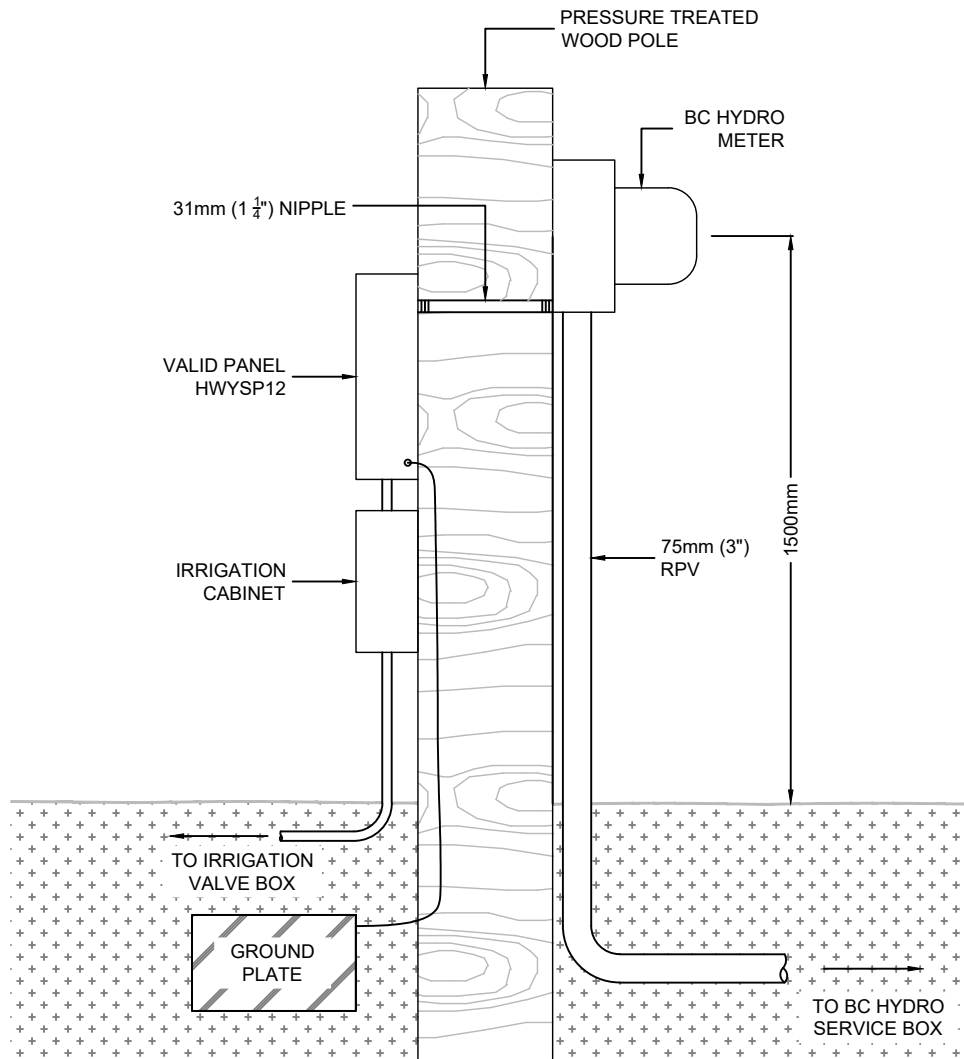
**IRRIGATION BUBBLER SECTION**  
SCALE: 1:10

NOTES:  
1. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER WILL BE APPROVED FOR INSTALLATION.



IRRIGATION BUBBLER

Scale:	NTS
Created:	MAY 2013
Rev Date:	MAY 2020
Dwg No:	I-10



**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.
2. INSTALLATION SHALL BE DONE FOR DESIGNATED PARK LAND.