



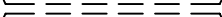
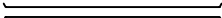
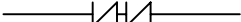














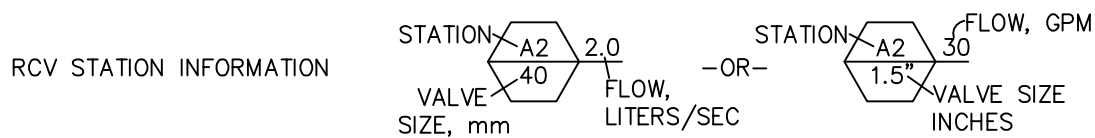


POINT OF CONNECTION	POC
WATER METER	
PIPE – LATERAL LINE	
PIPE – PRESSURE WATER MAIN	
PIPE – POTABLE WATER	
SLEEVE – EXISTING	
SLEEVE – NEW	
BACKFLOW PREVENTION ASSEMBLY – DOUBLE CHECK TYPE	
BACKFLOW PREVENTION ASSEMBLY – REDUCED PRESSURE	
VACUUM BREAKER ASSEMBLY – ATMOSPHERIC TYPE	
VACUUM BREAKER ASSEMBLY – PRESSURE TYPE	
PRESSURE REGULATOR	
PRESSURE RELIEF	
PUMP	
Y-STRAINER	
THRUST BLOCK	
ANGLE VALVE	
GATE VALVE	
QUICK COUPLER VALVE – ABOVE GRADE	
QUICK COUPLER VALVE – BELOW GRADE	
HOSE BIBB	
REMOTE CONTROL VALVE	



## STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1993  
REV. 2005, 2009

# LANDSCAPE IRRIGATION SYMBOLS

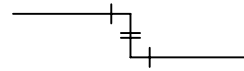
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

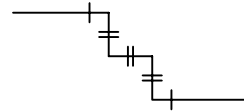
## 500–2

SHEET 1 OF 2

SWING JOINT ASSEMBLY –  
SINGLE

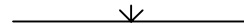


SWING JOINT ASSEMBLY –  
DOUBLE

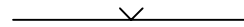


SHRUB HEAD\*

1/4 CIRCLE

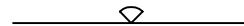


1/2 CIRCLE



LAWN HEAD\*

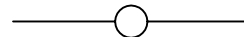
1/4 CIRCLE



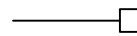
1/2 CIRCLE



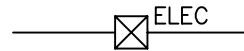
FULL



BUBBLER HEAD



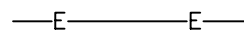
ELECTRICAL METER CABINET



AUTOMATIC CONTROLLER & CABINET



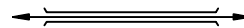
ELECTRICAL CONDUIT



CONTROL WIRES – DIRECT BURIAL



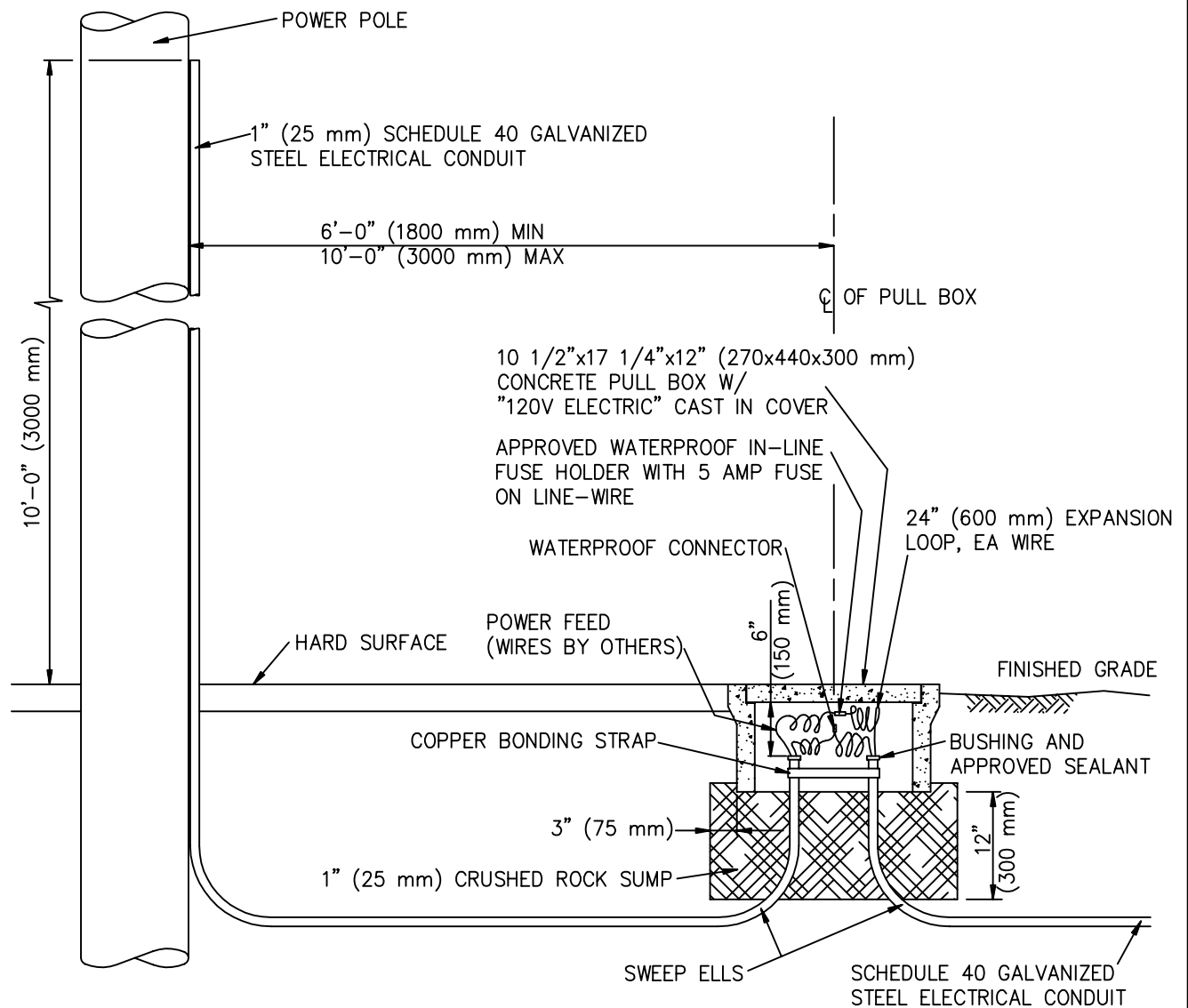
CONTROL WIRES – IN CONDUIT



PULL BOX



\*SEE PLANS FOR SYMBOLS USED FOR MULTIPLE TYPES AND SIZES



**NOTES:**

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BOX:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CRUSHED ROCK SHALL COVER ELECTRICAL BOX SIDE OPENINGS TO PREVENT SOIL ENTRY.
4. WATERPROOF CONNECTORS SHALL BE SUBJECT TO ENGINEER'S APPROVAL.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**ELECTRICAL SERVICE**

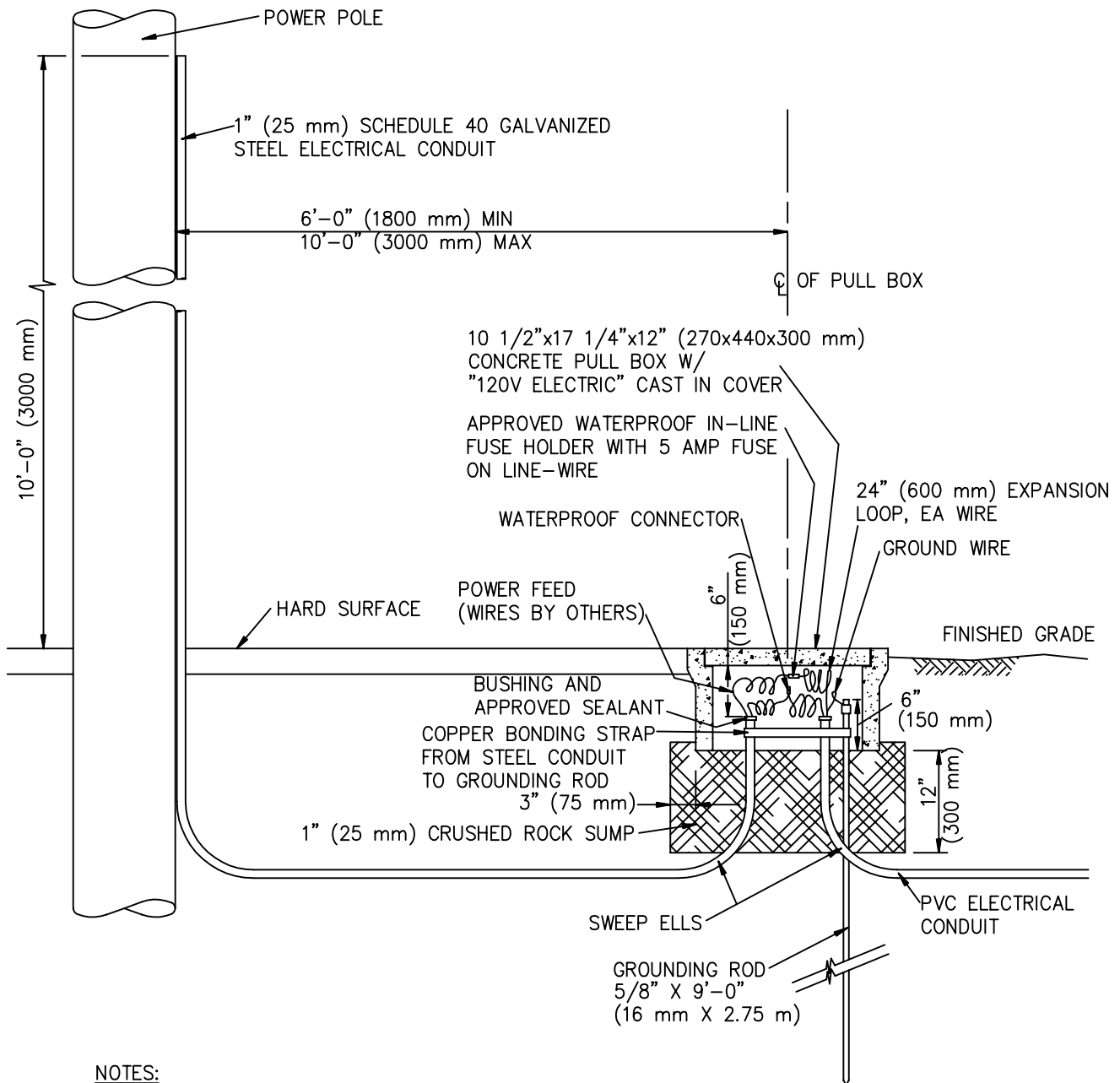
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**501-3**

SHEET 1 OF 3

**SEE OCPW STANDARD PLAN 501-3-OC FOR CONDITIONS**



**NOTES:**

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BOX:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CRUSHED ROCK SHALL COVER ELECTRICAL BOX SIDE OPENINGS TO PREVENT SOIL ENTRY.
4. WATERPROOF CONNECTORS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
5. GROUND WIRE SHALL BE CONTINUOUS No. 10 COPPER, WRAPPED AROUND AND BONDED TO GROUNDING ROD WITH AN APPROVED CLAMP.
6. GROUNDING ROD SHALL BE COPPER-CLAD STEEL.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

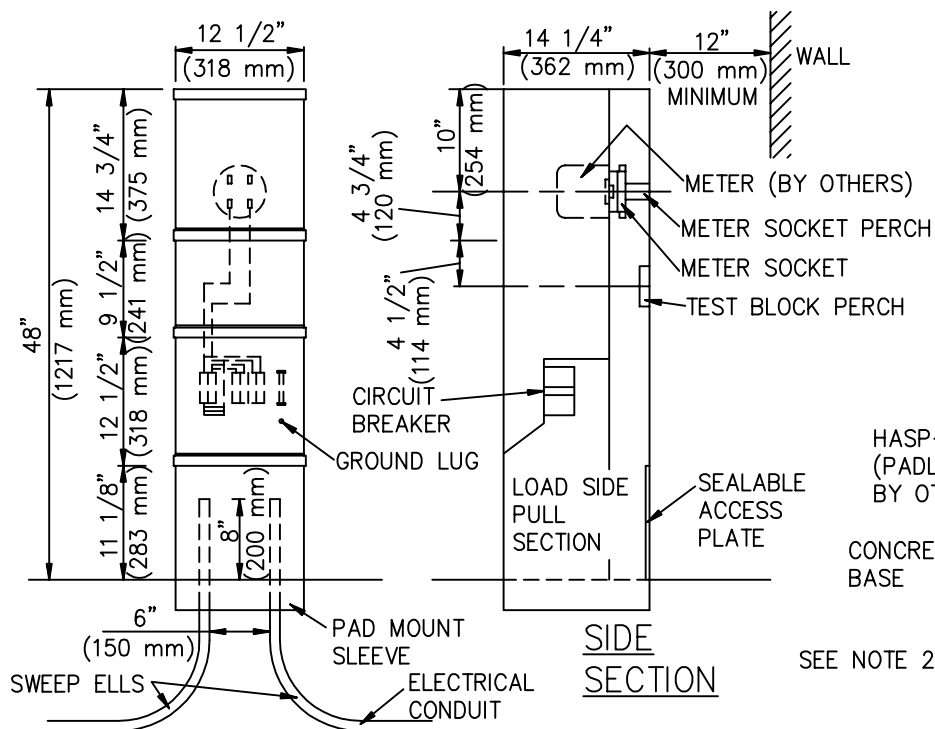
**ELECTRICAL SERVICE**

STANDARD PLAN

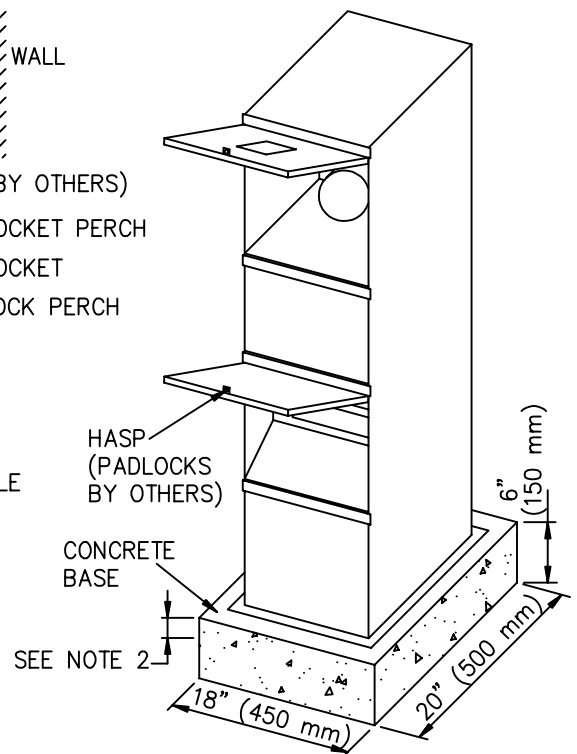
**501-3**

SHEET 2 OF 3

**SEE OCPW STANDARD PLAN 501-3-OC FOR CONDITIONS**



FRONT ELEVATION



OBLIQUE VIEW

NOTES:

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF CONCRETE BASE:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CONCRETE BASE SHALL BE CLASS 450-C-2000 (265-C-14)
4. CONTRACTOR SHALL FILL PAD MOUNT WITH 1" (25 mm) CRUSHED ROCK 12" (300 mm) DEEP.
5. MATERIAL (UNLESS OTHERWISE NOTED):  
BODY - 12 GAGE (2.75 mm) GALVANIZED STEEL. DEAD FRONT AND COVERS -  
16 GAGE (1.61 mm) GALVANIZED STEEL. FINISH - IRON PHOSPHATE DIP,  
ZINC CHROMATE PRIME, GREEN BAKED ENAMEL SURFACE.
6. CABINET SHALL INCLUDE 2 POLE MAIN CIRCUIT BREAKER, 100 A.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**ELECTRICAL SERVICE**

STANDARD PLAN

**501-3**

SHEET 3 OF 3

**SEE OCPW STANDARD PLAN 501-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITONS</u>
501-3	501-3-OC	<u>ELECTRICAL SERVICE</u>

SHEET 1

1. DELETE SCHEDULE 40 GALVANIZED STEEL AT POWER POLE. ADD SCHEDULE 80 PVC.
2. ADD APPROVED TO WATERPROOF CONNECTION.
3. DELETE SCHEDULE 40 GALVANIZED STEEL AT SWEEP ELL. ADD SCHEDULE 40 PVC.
4. DELETE COPPER BONDING STRAP.
5. PLASTIC BOX MAY BE SUBSTITUTED IN PLANTING AREAS NOT IMMEDIATELY ADJACENT TO OR IN CONCRETE.

SHEET 2

NOT APPROVED

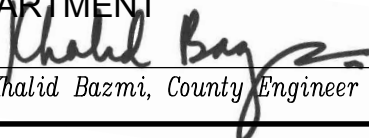
SHEET 3

1. ADD NOTE 7. EQUIPMENT SHALL BE UL LISTED.
2. ADD NOTE 8. SLOPE CONCRETE AWAY FROM BASE AT 1 PERCENT MIN.
3. ADD NOTE 9. INSTALL GROUND ROD  $\frac{5}{8}$  INCH BY 9 FOOT COPPER CLAD STEEL IN METER CABINET.
4. ADD NOTE 10. INSTALL PER NEC REQUIREMENTS.
5. ADD CONTINUOUS NO. 10 COPPER GROUND WIRE WRAPPED AROUND AND BONDED WITH AN APPROVED GROUND CLAMP TO GROUNDING ROD.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

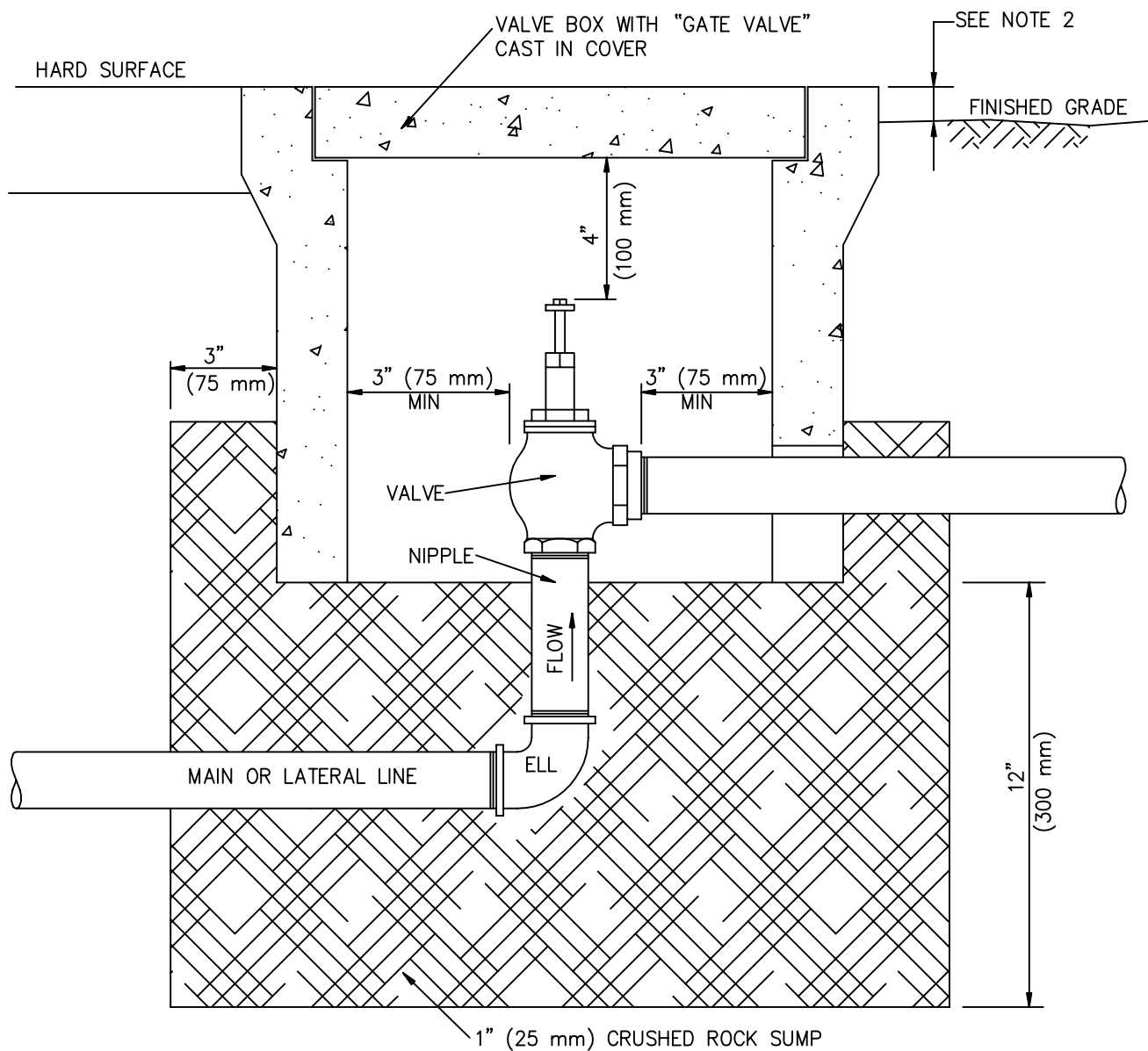
  
Khalid Bazmi, County Engineer

STD. PLAN

501-3-OC

SPPWC STANDARD PLAN - ELECTRICAL SERVICE

SHT. 1 OF 1



**NOTES:**

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BOX:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CLOSE NIPPLES SHALL NOT BE USED.
4. CRUSHED ROCK SHALL COVER VALVE BOX PIPE OPENINGS TO PREVENT SOIL ENTRY.

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**ANGLE VALVE**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**502-3**

SHEET 1 OF 1

**SEE OCPW STANDARD PLAN 502-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.


<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
502-3	502-3-OC	ANGLE VALVE

1. USE CLASS 315 PVC PIPE AND SCHEDULE 40 PVC FITTINGS FOR 2 INCHES OR GREATER. USE SCHEDULE 40 PVC PIPE AND FITTINGS FOR SIZES 1½ INCHES OR LESS.
2. PROVIDE TWO OPERATING KEYS FOR VALVES.
3. FOR TURF AREAS – ALL ANGLE VALVES SHALL BE LOCATED OUTSIDE THE DESIGNATED PLAYING FIELD (I.E., BALL DIAMOND, SOCCER, ETC.).
4. VALVES UP TO 2 INCHES IN DIAMETER SHALL HAVE MALLEABLE IRON "TEE" HANDLES. VALVES LARGER THAN 2 INCHES IN DIAMETER SHALL HAVE SQUARE OPERATING NUTS.
5. VALVE BOX SHALL BE ONE OF THE FOLLOWING CASES AS SPECIFIED ON THE PLANS:  
  
CASE 1. CONCRETE BOX W/CONCRETE COVER  
  
CASE 2. CONCRETE BOX W/LOCKING CAST IRON COVER  
  
CASE 3. PLASTIC BOX W/LOCKING PLASTIC COVER
6. WRAP LANDSCAPE FABRIC AROUND SIDES AND BOTTOM OF BOX TO COVER ALL OPENINGS.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

  
Khalid Bazmi, County Engineer

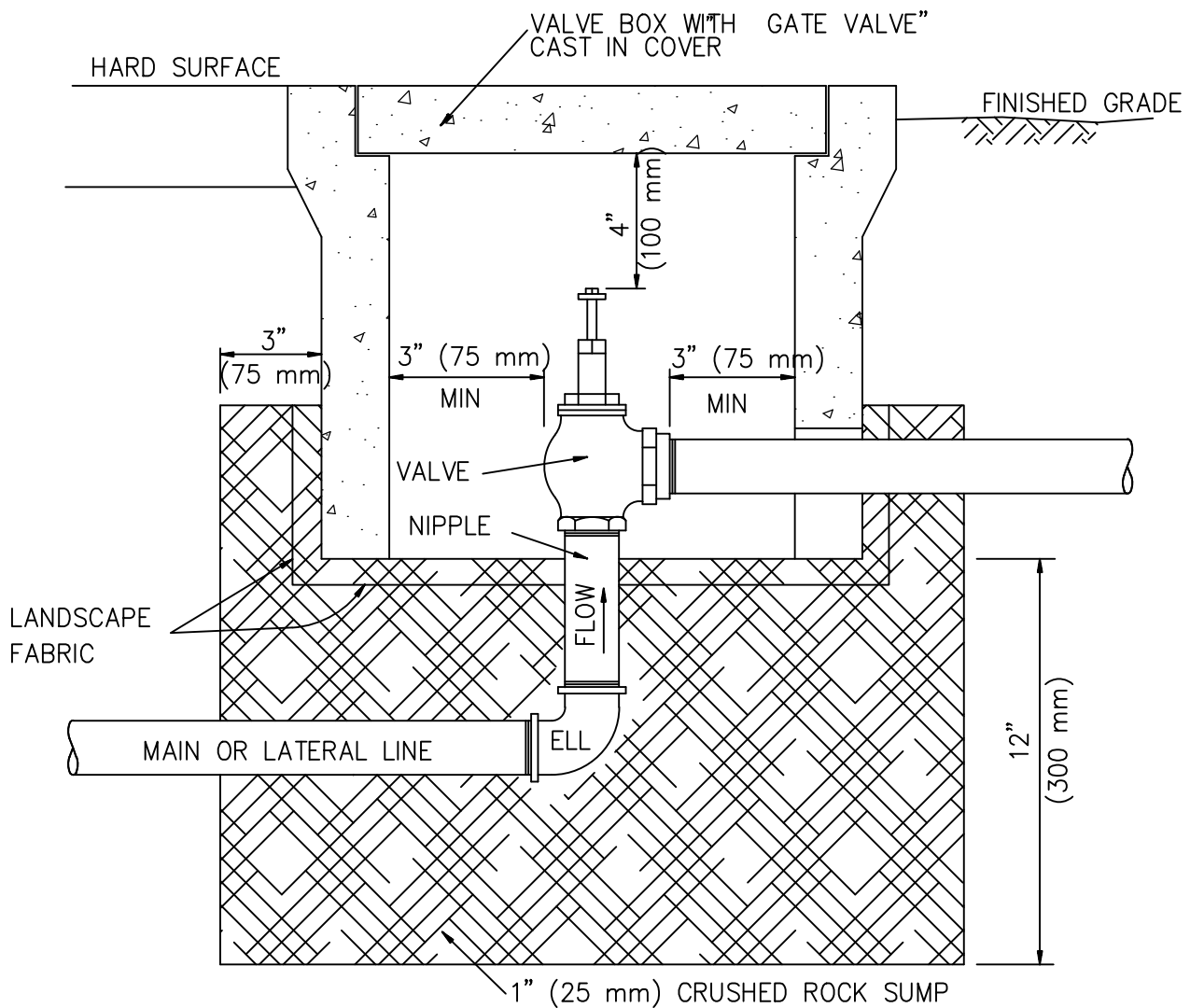
STD. PLAN

502-3-OC

SPPWC STANDARD PLAN - ANGLE VALVE

SHT. 1 OF 2





COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

*Khalid Bazmi*  
Khalid Bazmi, County Engineer

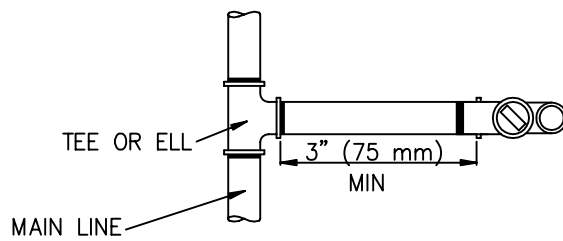
STD. PLAN

502-3-OC

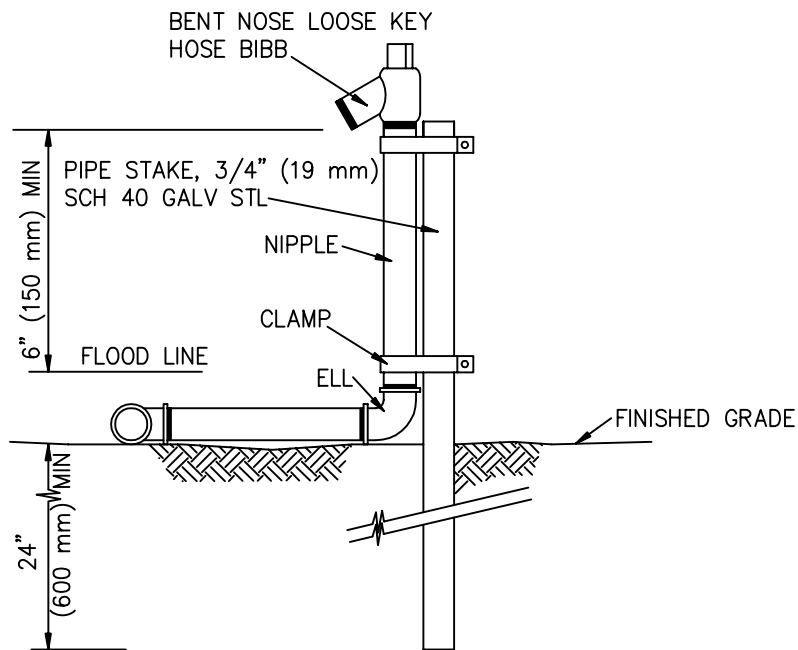
SPPWC STANDARD PLAN - ANGLE VALVE

SHT. 2 OF 2





PLAN



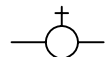
ELEVATION

NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL.
2. PIPE SIZE FROM MAIN LINE SHALL MATCH QUICK COUPLER INLET DIAMETER.
3. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
4. CLAMPS SHALL BE STEEL (COMMERCIAL QUALITY, GALVANIZED OR CADMIUM PLATED) OR STAINLESS STEEL.
5. PLASTIC PIPE SHALL NOT BE USED ABOVE FINISHED GRADE.

ABOVE-GRADE PIPING INSTALLATION

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**HOSE BIBB VALVE**

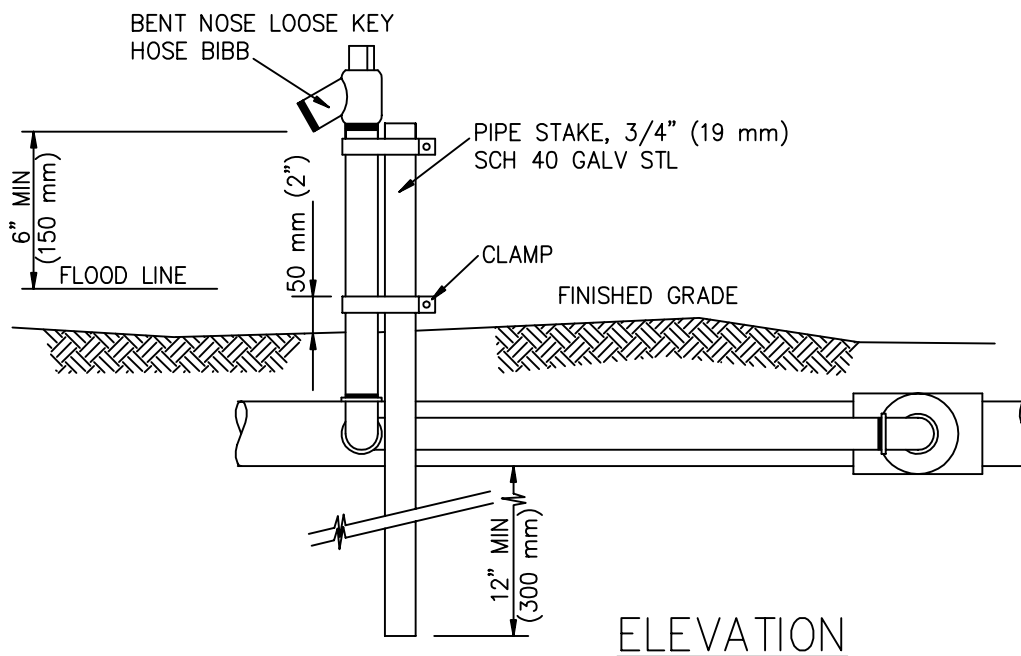
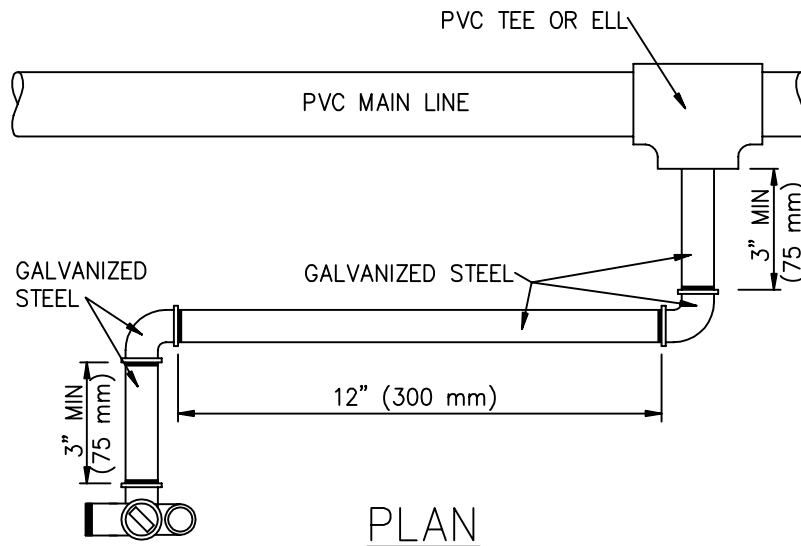
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**505-3**

SHEET 1 OF 2

**SEE OCPW STANDARD PLAN 505-3-OC FOR CONDITIONS**

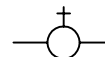


**NOTES:**

1. GALVANIZED STEEL PIPE AND FITTINGS SHALL BE SCHEDULE 40. PVC PIPE AND FITTINGS SHALL BE SCHEDULE 80.
2. VALVE IN LAWN AREAS SHALL BE SET AT GRADE. IN SHRUB AREAS, VALVE SHALL BE SET 4" (100 mm) ABOVE FINISHED GRADE.
2. PIPE SIZE FROM MAIN LINE SHALL MATCH QUICK COUPLER INLET DIAMETER.
3. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
4. CLAMPS SHALL BE STEEL (COMMERCIAL QUALITY, GALVANIZED OR CADMIUM PLATED) OR STAINLESS STEEL.
5. PLASTIC PIPE SHALL NOT BE USED ABOVE FINISHED GRADE.

**BELOW-GRADE PIPING INSTALLATION**

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**HOSE BIBB VALVE**

STANDARD PLAN

**505-3**

SHEET 2 OF 2

**SEE OCPW STANDARD PLAN 505-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
505-3	505-3-OC	<u>HOSE BIBB VALVE</u>

SHEET 1

1. HOSE BIBB VALVE SHALL BE BRASS.
2. FOR TURF AREAS - ALL HOSE BIBB VALVES SHALL BE LOCATED OUTSIDE THE DESIGNATED PLAYING AREA (I.E., BALL DIAMOND, SOCCER FIELD, ETC.).
3. REVISE NOTE 5 TO READ: SCHEDULE 80 PVC RISERS, FITTINGS AND SCHEDULE 40 ULTRAVIOLET RESISTANT PVC PIPE ARE APPROVED FOR ABOVE GROUND INSTALLATION.

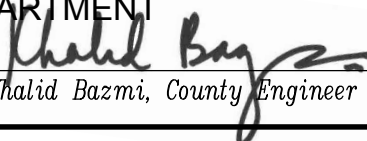
SHEET 2

1. HOSE BIBB VALVE SHALL BE BRASS.
2. FOR TURF AREAS - ALL HOSE BIBB VALVES SHALL BE LOCATED OUTSIDE THE DESIGNATED PLAYING AREA (I.E., BALL DIAMOND, SOCCER FIELD, ETC.).
3. REVISE NOTE 5 TO READ: SCHEDULE 80 PVC RISERS, FITTINGS AND SCHEDULE 40 ULTRAVIOLET RESISTANT PVC PIPE ARE APPROVED FOR ABOVE GROUND INSTALLATION.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

  
Khalid Bazmi, County Engineer

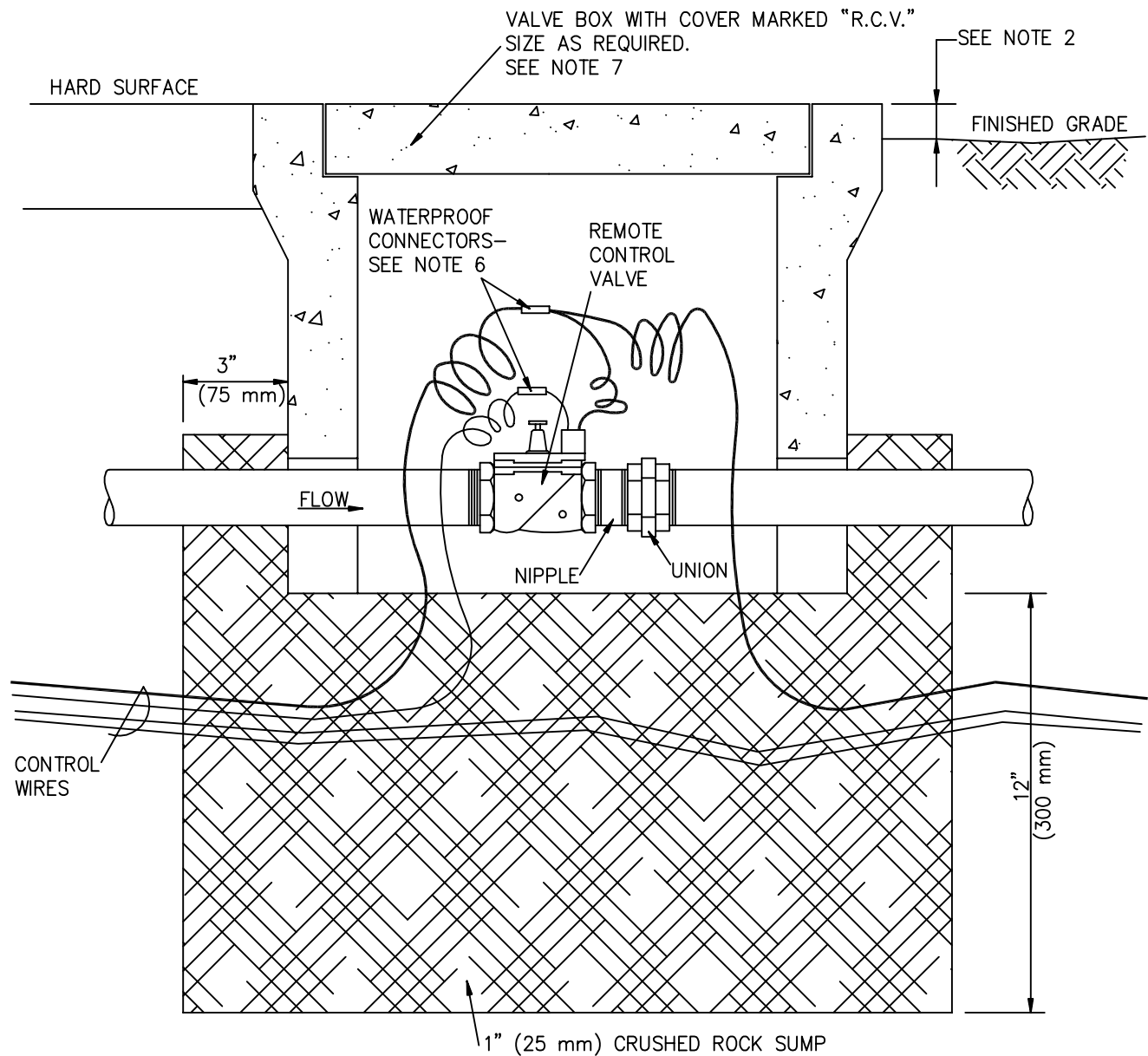
STD. PLAN

505-3-OC

SPPWC STANDARD PLAN - HOSE BIBB VALVE

SHT. 1 OF 1





**NOTES:**

1. AREA AROUND BOX MAY EITHER BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BOX:  
 AT GRADE FOR HARD SURFACE  
 1/2" (12 mm) ABOVE GRADE FOR LAWN  
 1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CLOSE NIPPLES SHALL NOT BE USED.
4. CRUSHED ROCK SHALL COVER VALVE BOX PIPE OPENINGS TO PREVENT SOIL ENTRY.
5. PIPE AND FITTINGS SHALL BE SCHEDULE 80 PVC.
6. WATERPROOF CONNECTORS SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
7. VALVE BOX SHALL BE AS SPECIFIED, EITHER:  
 CASE 1-CONCRETE BOX w/ CONCRETE COVER  
 CASE 2-CONCRETE BOX w/ LOCKING CAST IRON COVER  
 CASE 3-PLASTIC BOX w/ LOCKING PLASTIC COVER
8. PROVIDE 24" (600 mm) EXPANSION LOOP FOR EACH CONTROL WIRE IN BOX.

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**REMOTE CONTROL VALVE**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**506-3**

SHEET 1 OF 1

**SEE OCPW STANDARD PLAN 506-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

SPPWC #    OCPW #    NAME AND CONDITIONS  
 506-3        506-3-OC        REMOVE CONTROL VALVE

1. USE CLASS 315 PVC PIPE AND SCHEDULE 40 PVC FITTINGS FOR SIZES 2 INCHES OR GREATER. USE SCHEDULE 40 PVC PIPE AND FITTINGS FOR SIZES 1 INCHES OR LESS.
2. PROVIDE ONE CONTROLLER VALVE ID TAGS PER VALVE. ID TAGS SHALL BE POLYURETHANE 2¼ INCHES X 2¾ INCHES MINIMUM WITH 1⅝ INCHES BLOCK LETTERS ON A CONTRASTING BACKGROUND.
3. ALL REMOVE CONTROL VALVES AND ENCLOSURES SHALL BE LOCATED OUTSIDE OF DESIGNATED PLAYING FIELD (I.E., BASEBALL, SOCCER, ETC.).
4. DISTANCE BETWEEN BOTTOM OF VALVE BOX COVER AND TOP OF VALVE SHALL BE 4 INCHES.
5. WRAP LANDSCAPE FABRIC AROUND SIDES AND BOTTOM OF BOX TO COVER ALL OPENINGS.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

  
 Khalid Bazmi, County Engineer

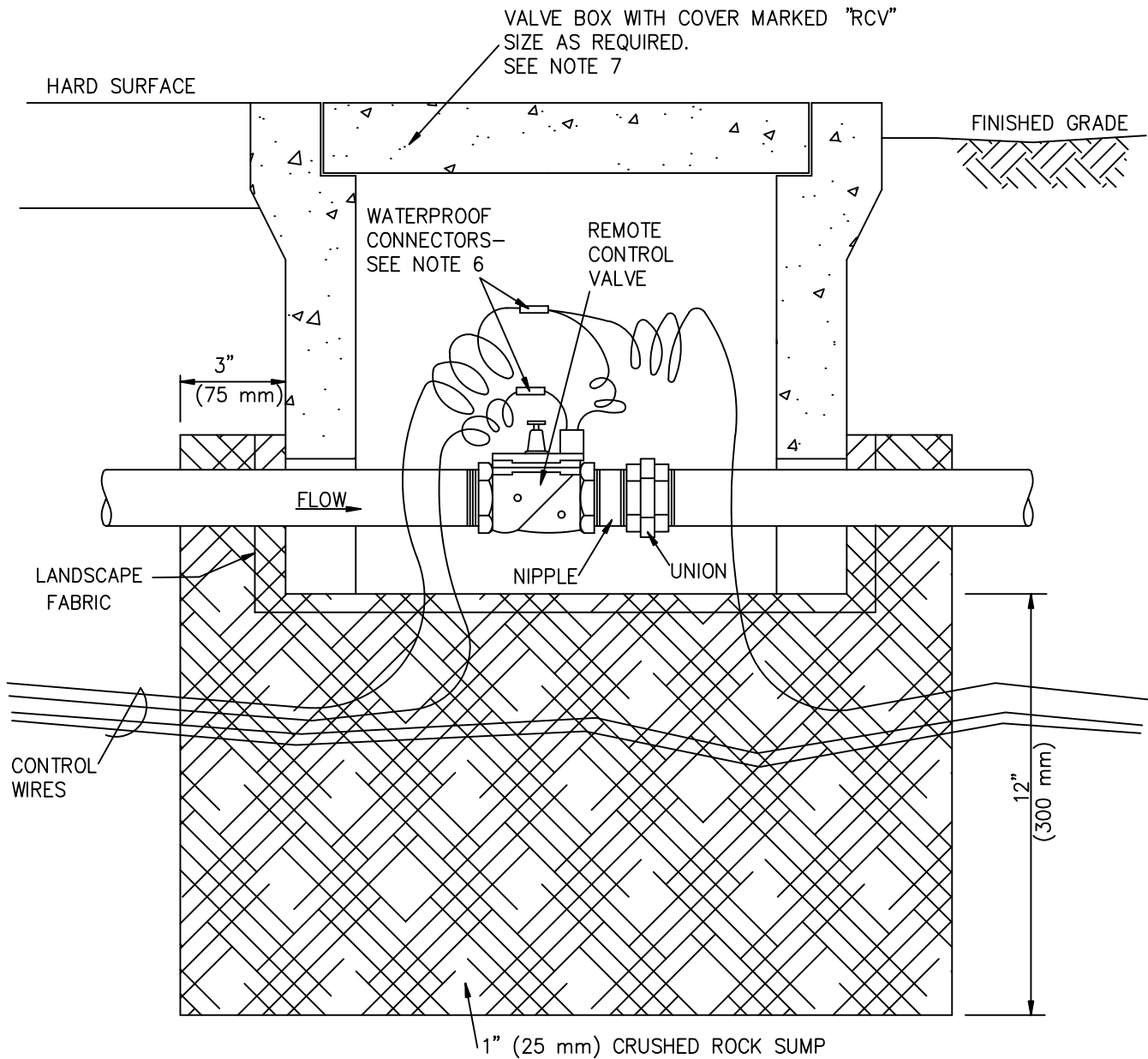
STD. PLAN

506-3-OC

SPPWC STANDARD PLAN - REMOTE CONTROL VALVE

SHT. 1 OF 2





COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

*Khalid Bazmi*  
Khalid Bazmi, County Engineer

STD. PLAN

506-3-OC

SPPWC STANDARD PLAN - REMOTE CONTROL VALVE

SHT. 2 OF 2



**SEE OCPW STANDARD PLAN 507-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

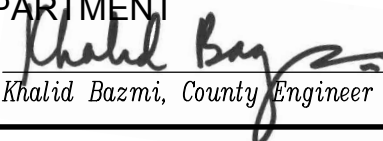
<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
507-3	507-3-OC	<u>REMOTE CONTROL VALVE WITH QUICK COUPLER</u>

1. USE CLASS 315 PVC PIPE AND SCHEDULE 40 PVC FITTINGS FOR SIZE 2 INCHES OR GREATER. USE SCHEDULE 40 PVC PIPE AND FITTINGS FOR SIZES 1 INCHES OR LESS.
2. PROVIDE ONE CONTROLLER VALVE IDENTIFICATION TAG PER VALVE. ID TAGS SHALL BE POLYURETHANE 2 INCHES X 2 INCHES WITH 4 8 INCHES BLACK LETTERS ON A CONTRASTING BACKGROUND.
3. ALL REMOTE CONTROL VALVES WITH QUICK COUPLER AND ENCLOSURES SHALL BE LOCATED OUTSIDE OF DESIGNATED PLAYING FIELD (I.E., BASEBALL DIAMOND, SOCCER FIELD, ETC.).
4. DISTANCE BETWEEN BOTTOM OF VALVE BOX COVER AND TOP OF VALVE SHALL BE 4 INCHES.
5. QUICK COUPLER SHALL HAVE LOCKING.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

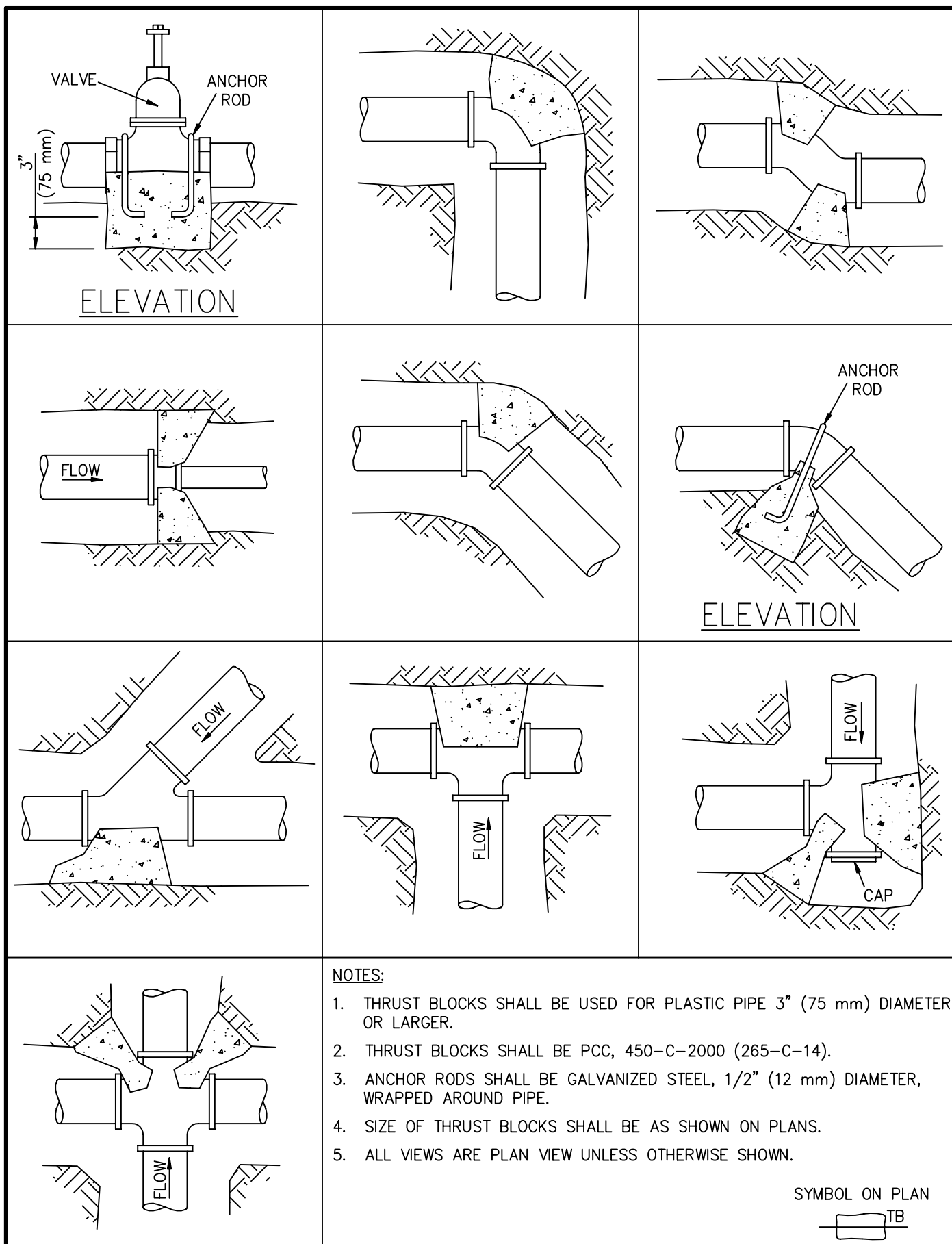
  
Khalid Bazmi, County Engineer

STD. PLAN

507-3-OC

SPPWC STANDARD PLAN-REMOTE CONTROL VALVE W/QUICK COUPLER

SHT. 1 OF 1



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**THRUST BLOCKS FOR PLASTIC PIPE**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**508-3**

SHEET 1 OF 1

**SEE OCPW STANDARD PLAN 508-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

SPPWC#      OCPW #      NAME AND CONDITIONS  
 508-3      508-3-OC      THRUST BLOCKS FOR PLASTIC PIPE

1. FOR DESIGN LINE PRESSURES OTHER THAN 100 PSI, THE REVISED BEARING AREA SHALL EQUAL THE ACTUAL LINE PRESSURE, AS DETERMINED BY ENGINEER, TIMES THE TABULATED AREA DIVIDED BY 100 PSI.
2. FOR ANGLES NOT TABULATED, USE THE NEXT LARGER TABULATED AREA (SEE BELOW).
3. REVISE NOTE 3 TO READ: THE REQUIRED BEARING AREAS MAY BE DECREASED WHEN THE ALLOWABLE SOIL BEARING CAPACITY HAS BEEN VERIFIED (SOIL REPORT) GREATER THAN 1,000 PSF.
4. ADD TO NOTE 2, UNLESS OTHERWISE NOTED.

DESIGN LINE PRESSURE = 100 psi (690 kPa)				
PIPE SIZE(mm)	REQUIRED BEARING AREA, SQ. FT. (m <sup>2</sup> )			
	TEE	90° ELL	45° ELL	22 <sup>1</sup> / <sub>2</sub> ° ELL
3" (70)	1.0 (0.09)	1.4 (0.13)	1.0 (0.09)	1.0 (0.09)
4" (100)	1.6 (0.15)	2.3 (0.21)	1.2 (0.11)	1.0 (0.09)
6" (150)	3.6 (0.33)	5.0 (0.46)	2.7 (0.25)	1.4 (0.13)
8" (200)	5.9 (0.55)	8.3 (0.77)	4.5 (0.42)	2.3 (0.21)
10" (250)	9.1 (0.85)	12.8 (1.19)	6.9 (0.64)	3.5 (0.33)
12" (300)	12.8 (1.19)	18.1 (1.68)	9.8 (0.91)	5.0 (0.46)

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

*Khalid Bazmi, County Engineer*

STD. PLAN

508-3-OC

SPPWC STANDARD PLAN - THRUST BLOCKS FOR PLASTIC PIPE

SHT. 1 OF 2

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
508-3	508-3-OC	<u>THRUST BLOCKS FOR PLASTIC PIPE</u>

5. THE FOLLOWING ARE GENERAL DESIGN CRITERIA:

a) ALL CONCRETE USED IN THRUST BLOCK SHALL ATTAIN 2,000 PSI AT 28 DAYS.

b) MIN. THICKNESS (IN) = MIN. BEARING AREA (SF) X

$$\begin{aligned} & 1,000 \text{ psf} / (0.85 \times \sqrt{2,000 \text{ psi} \times \text{bp (IN)}}) \\ & = 26.3 \times \text{MIN. BEARING AREA (SF)} / \text{bp (IN)} \end{aligned}$$

WHERE:

BP = CONCRETE CONTACT ALONG PIPE (IN)

ASSUMPTIONS:

- BASED ON 100 PSI WATER PRESSURE
- BEARING PRESSURE OF 1,000 PSF
- CONCRETE STRENGTH OF 2,000 PSI

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Approved

  
Khalid Bazmi, County Engineer

Revision: August 2018

STD. PLAN

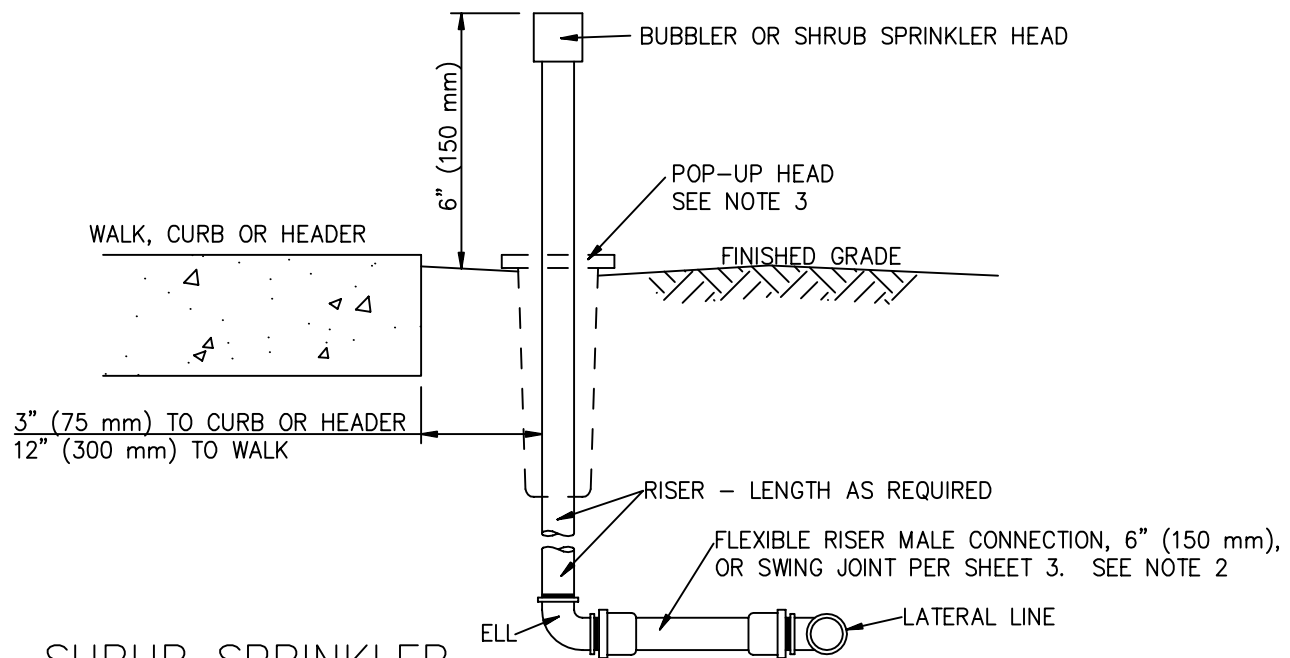
508-3-OC

SPPWC STANDARD PLAN - THRUST BLOCKS FOR PLASTIC PIPE

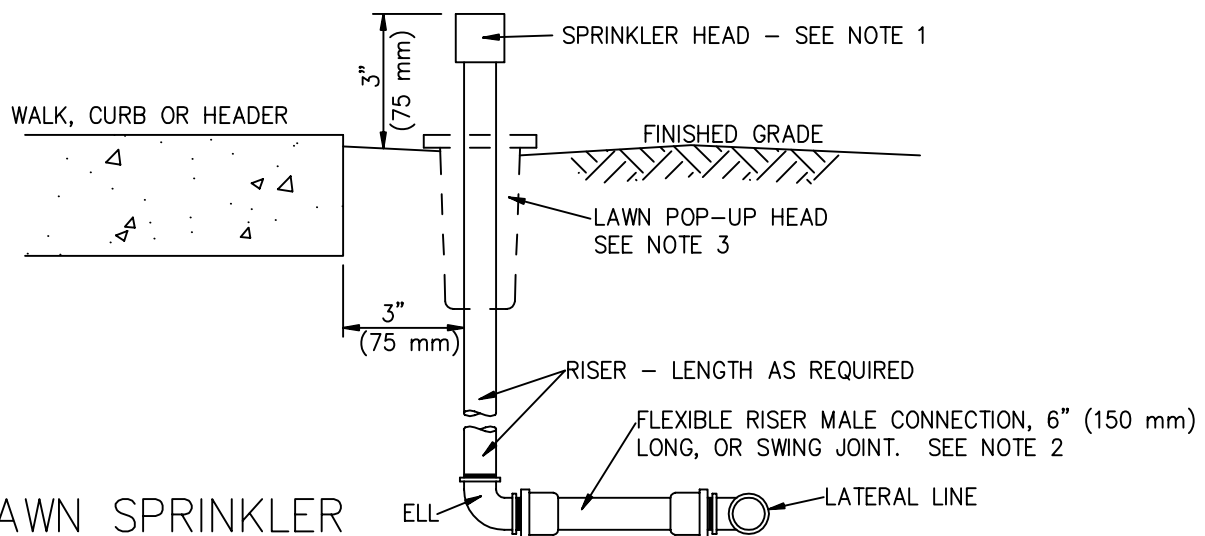
SHT. 2 OF 2







## SHRUB SPRINKLER



## LAWN SPRINKLER

### NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 80 PVC.
2. FLEXIBLE RISERS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER. CONTRACTOR MAY USE SWING JOINTS PER DETAIL, SHEET 3, INSTEAD OF FLEXIBLE RISERS.
3. INSTALL LAWN HEADS 3" (75 mm) ABOVE GRADE. BEFORE FIRST MOWING, ADJUST NON-POP-UP LAWN HEADS TO FINISHED GRADE.
4. INSTALL POP-UP BODIES 1/4" (10 mm) ABOVE FINISHED GRADE.
5. ELLS AND RISERS SHALL BE MADE OF THE SAME MATERIAL.

### STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

## IRRIGATION SPRINKLER HEAD

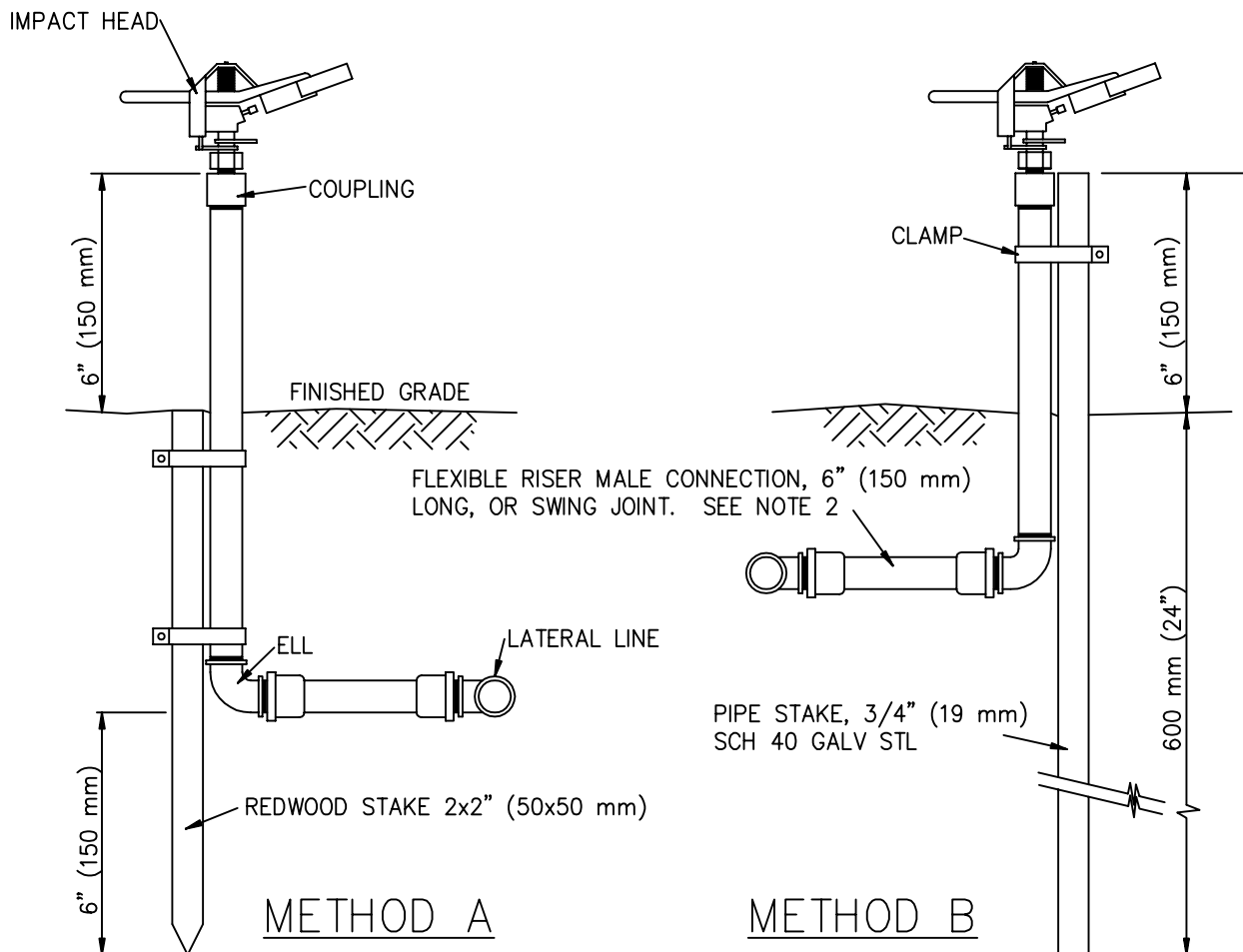
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**509-3**

SHEET 1 OF 3

**SEE OCPW STANDARD PLAN 509-3-OC FOR CONDITIONS**



NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL.
2. FLEXIBLE RISERS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER. CONTRACTOR MAY USE SWING JOINTS PER DETAIL, SHEET 3, INSTEAD OF FLEXIBLE RISERS.
3. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
4. CLAMPS SHALL BE STEEL (COMMERCIAL QUALITY, GALVANIZED OR CADMIUM PLATED) OR STAINLESS STEEL.
5. PLASTIC PIPE SHALL NOT BE USED ABOVE FINISHED GRADE.

IMPACT SPRINKLER

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

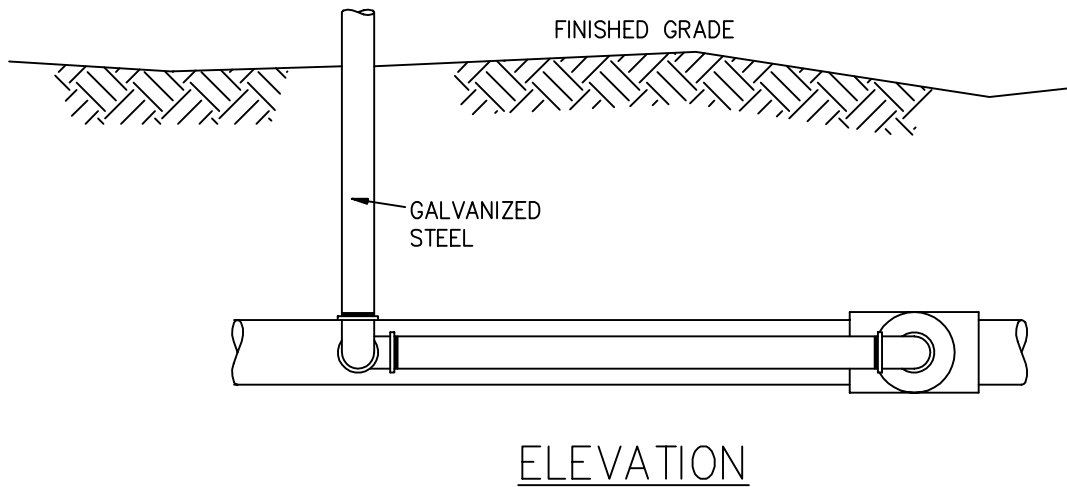
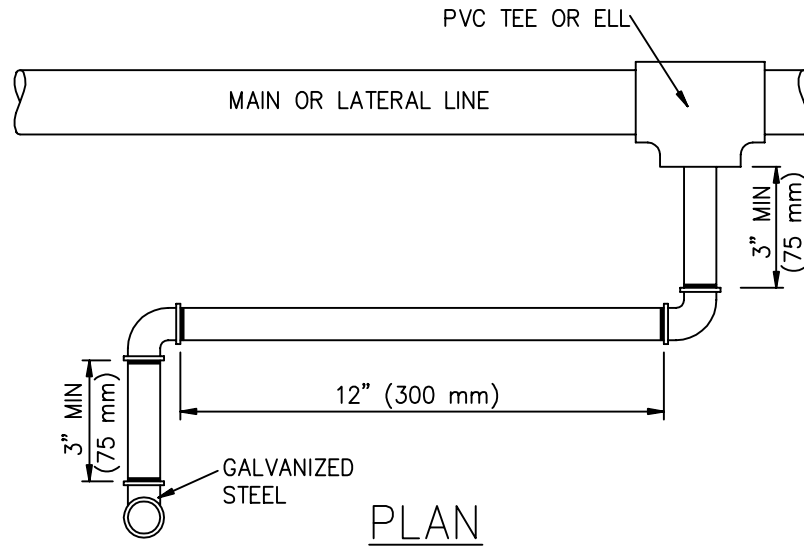
**IRRIGATION SPRINKLER HEAD**

STANDARD PLAN

**509-3**

SHEET 2 OF 3

**SEE OCPW STANDARD PLAN 509-3-OC FOR CONDITIONS**



NOTES:

PIPE AND FITTINGS SHALL BE SCHEDULE 80 PVC UNLESS SHOWN OTHERWISE. GALVANIZED STEEL PIPE AND FITTINGS SHALL BE SCHEDULE 40.

SWING JOINT DETAIL

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**IRRIGATION SPRINKLER HEAD**

STANDARD PLAN

**509-3**

SHEET 3 OF 3

**SEE OCPW STANDARD PLAN 509-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
509-3	509-3-OC	<u>IRRIGATION SPRINKLER HEAD</u>

LAWN SPRINKLER – SHEET 1

1. THE INSTALLATION OF 90 PERCENT RISER FROM LATERAL LINE IS PROHIBITED. LAWN AND SHRUB SPRINKLER ASSEMBLY SHALL USE SWING JOINT ASSEMBLY.
2. SPRING-LOADED CHECK VALVES SHALL BE PROVIDED ON ALL HEADS NECESSARY TO PREVENT LINE BLEEDING.

IMPACT SPRINKLER – SHEET 2

1. SCHEDULE 80 PVC RISER, FITTINGS AND SCHEDULE 40 FITTINGS AND SCHEDULE 40 ULTRAVIOLET RESISTANT PVC PIPE MAY BE USED FOR ABOVE GROUND INSTALLATION.

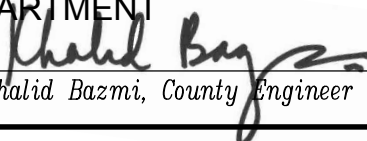
SWING JOINT DETAIL – SHEET 3

1. SCHEDULE 80 PVC RISER, FITTINGS AND SCHEDULE 40 FITTINGS AND SCHEDULE 40 ULTRAVIOLET RESISTANT PVC PIPE MAY BE USED FOR ABOVE GROUND INSTALLATION.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

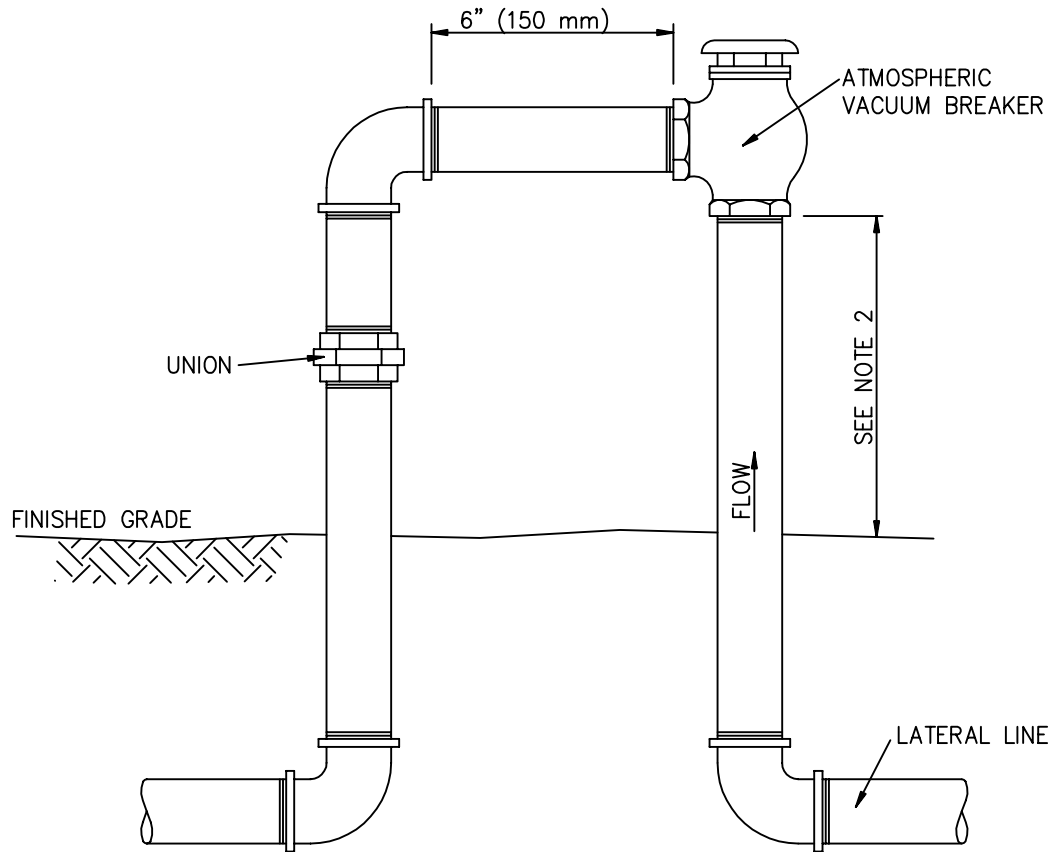
  
Khalid Bazmi, County Engineer

STD. PLAN

509-3-OC

SPPWC STANDARD PLAN - IRRIGATION SPRINKLER HEAD

SHT. 1 OF 1

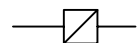


## ATMOSPHERIC TYPE, 2" (50 mm) AND SMALLER

### NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED.
2. ATMOSPHERIC TYPE VACUUM BREAKER SHALL BE INSTALLED DOWNSTREAM OF CONTROL VALVE AND AT LEAST 6" (150 mm) ABOVE THE HIGHEST OUTLET OR THE FLOOD LINE, WHICHEVER IS HIGHER.
3. DEVICES AND INSTALLATIONS SHALL COMPLY WITH LOCAL HEALTH AND WATER AGENCY REQUIREMENTS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. USE APPROVED PLASTIC TAPE 1/2" (12 mm) WIDE AT ALL THREADED CONNECTIONS. COAT EXPOSED THREADS WITH APPROVED RUST-INHIBITING SEALANT.

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

## VACUUM BREAKER ASSEMBLY

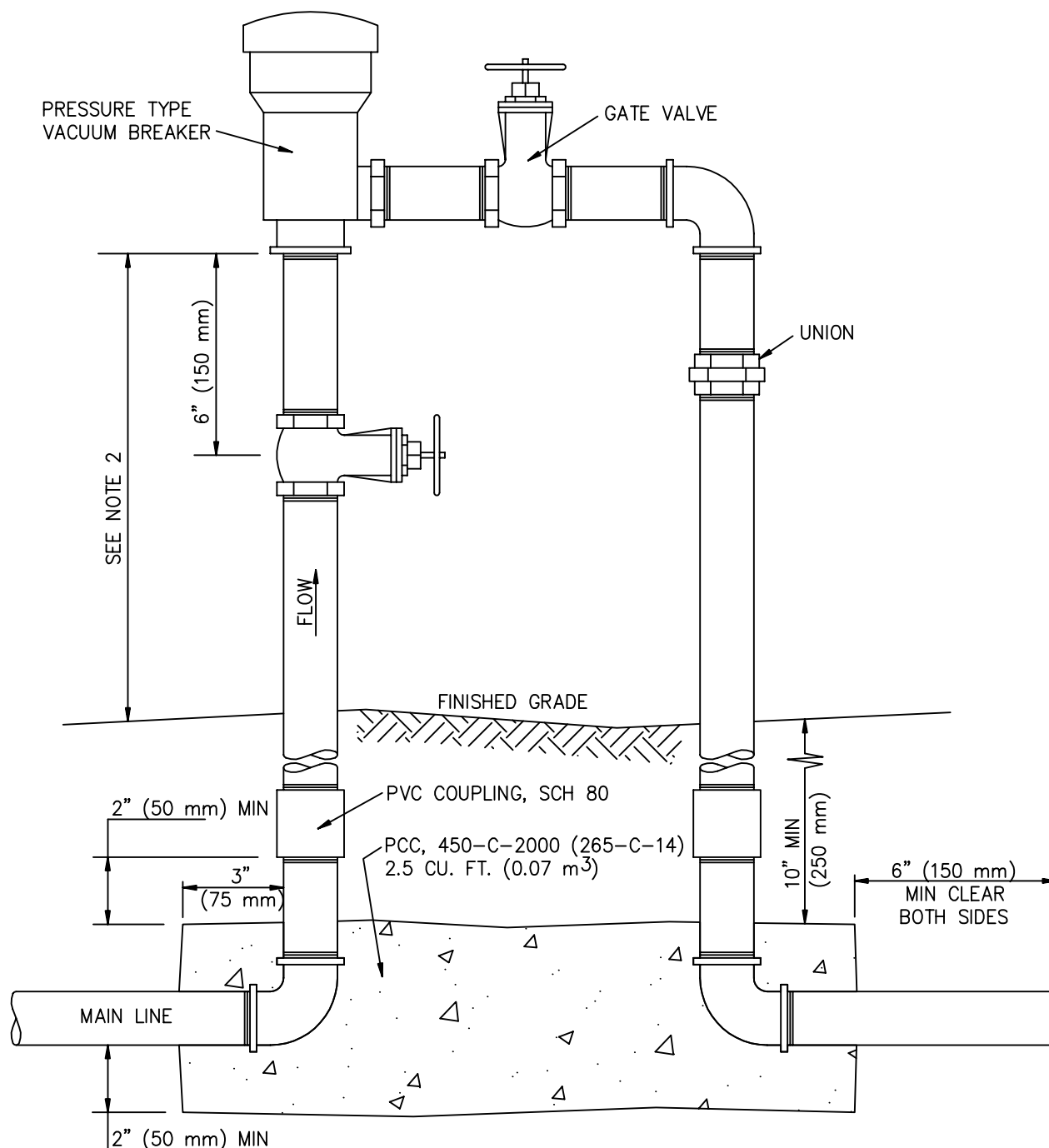
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**510-3**

SHEET 1 OF 2

**SEE OCPW STANDARD PLAN 510-3-OC FOR CONDITIONS**



## PRESSURE TYPE, 2" (50 mm) AND SMALLER

### NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED.
2. PRESSURE TYPE VACUUM BREAKER SHALL BE INSTALLED AT LEAST 12" (300 mm) ABOVE THE HIGHEST OUTLET OR THE FLOOD LINE, WHICHEVER IS HIGHER. PRESSURE TYPE VACUUM BREAKERS SHALL NOT BE SUBJECTED TO BACK PRESSURE OR DRAINAGE.
3. DEVICES AND INSTALLATIONS SHALL COMPLY WITH LOCAL HEALTH AND WATER AGENCY REQUIREMENTS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. USE APPROVED PLASTIC TAPE 1/2" (12 mm) WIDE AT ALL THREADED CONNECTIONS. COAT EXPOSED THREADS WITH APPROVED RUST-INHIBITING SEALANT.
6. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
7. PLASTIC PIPE SHALL NOT BE USED ABOVE FINISHED GRADE.

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**VACUUM BREAKER ASSEMBLY**

STANDARD PLAN

**510-3**

SHEET 2 OF 2

**SEE OCPW STANDARD PLAN 510-3-OC FOR CONDITIONS**

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<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
510-3	510-3-OC	<u>VACUUM BREAKER ASSEMBLY</u>

SHEET 1

1. REVISE NOTE 1 TO READ: RISER PIPES AND FITTINGS SHALL BE BRASS.


SHEET 2

1. REVISE NOTE 1 TO READ: RISER PIPES AND FITTINGS SHALL BE BRASS.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

  
Khalid Bazmi, County Engineer

STD. PLAN

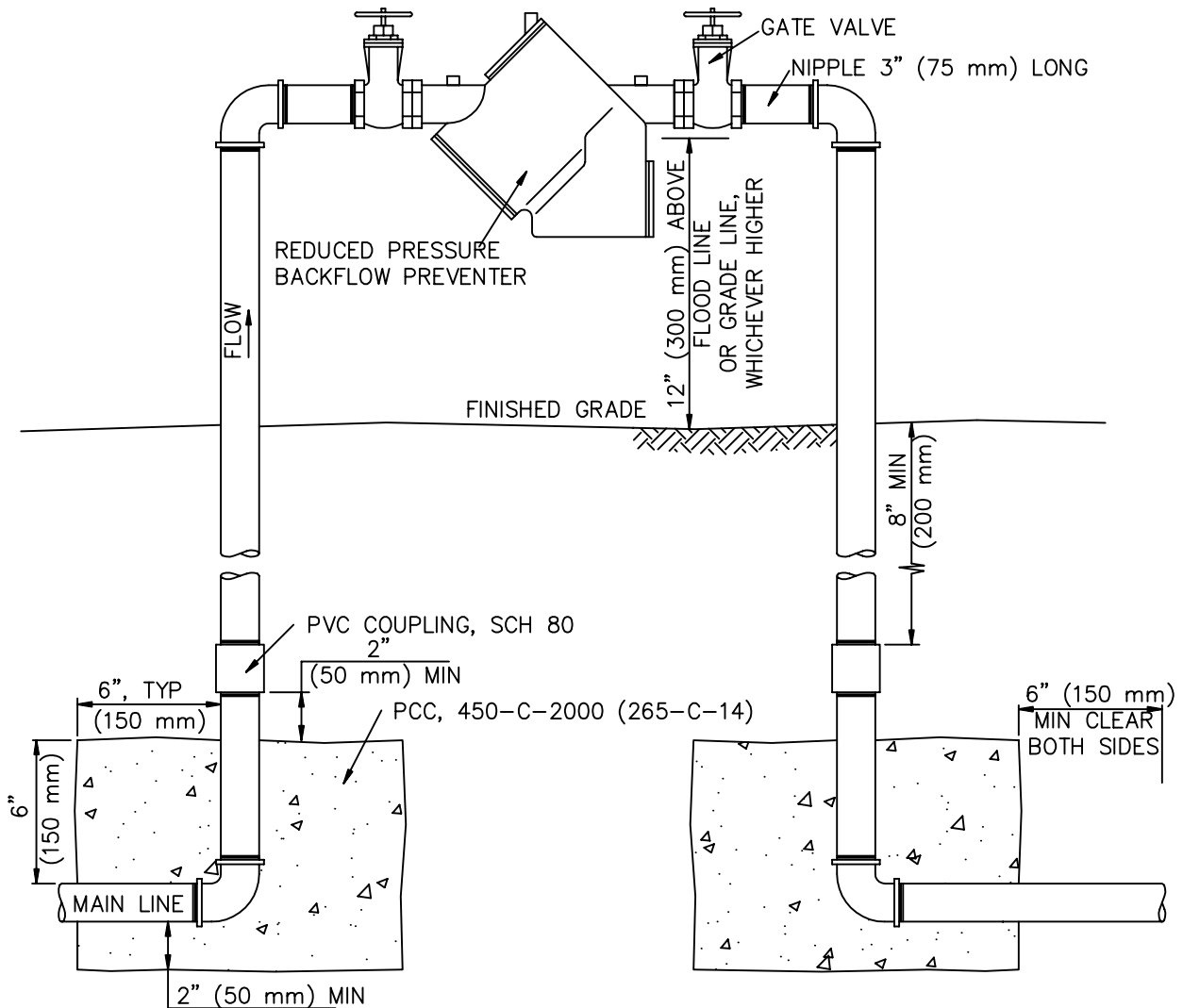
510-3-OC

SPPWC STANDARD PLAN - VACUUM BREAKER ASSEMBLY

SHT. 1 OF 1







**NOTES:**

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED.
2. DEVICES AND INSTALLATIONS SHALL COMPLY WITH LOCAL HEALTH AND WATER AGENCY REQUIREMENTS.
3. VALVE ASSEMBLIES MAY HAVE SCREWED OR FLANGED FITTINGS.
4. USE APPROVED PLASTIC TAPE 1/2" (12 mm) WIDE AT ALL THREADED CONNECTIONS. COAT EXPOSED THREADS WITH APPROVED RUST-INHIBITING SEALANT.
5. DISSIMILAR METALS SHALL BE SEPARATED BY AN APPROVED DIELECTRIC COUPLING.
6. PLASTIC PIPE SHALL NOT BE USED ABOVE FINISHED GRADE.

SYMBOL ON PLAN

—BPA—

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

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**BACKFLOW PREVENTER ASSEMBLY  
REDUCED PRESSURE TYPE**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**512-3**

SHEET 1 OF 1

**SEE OCPW STANDARD PLAN 512-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.


<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
512-3	512-3-OC	<u>BACKFLOW PREVENTER ASSEMBLY</u> <u>REDUCED PRESSURE TYPE</u>

1. REVISE NOTE 1 TO READ: RISER, PIPES AND FITTINGS SHALL BE BRASS.
2. ADD TO NOTE 2: UNLESS OTHERWISE NOTED.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

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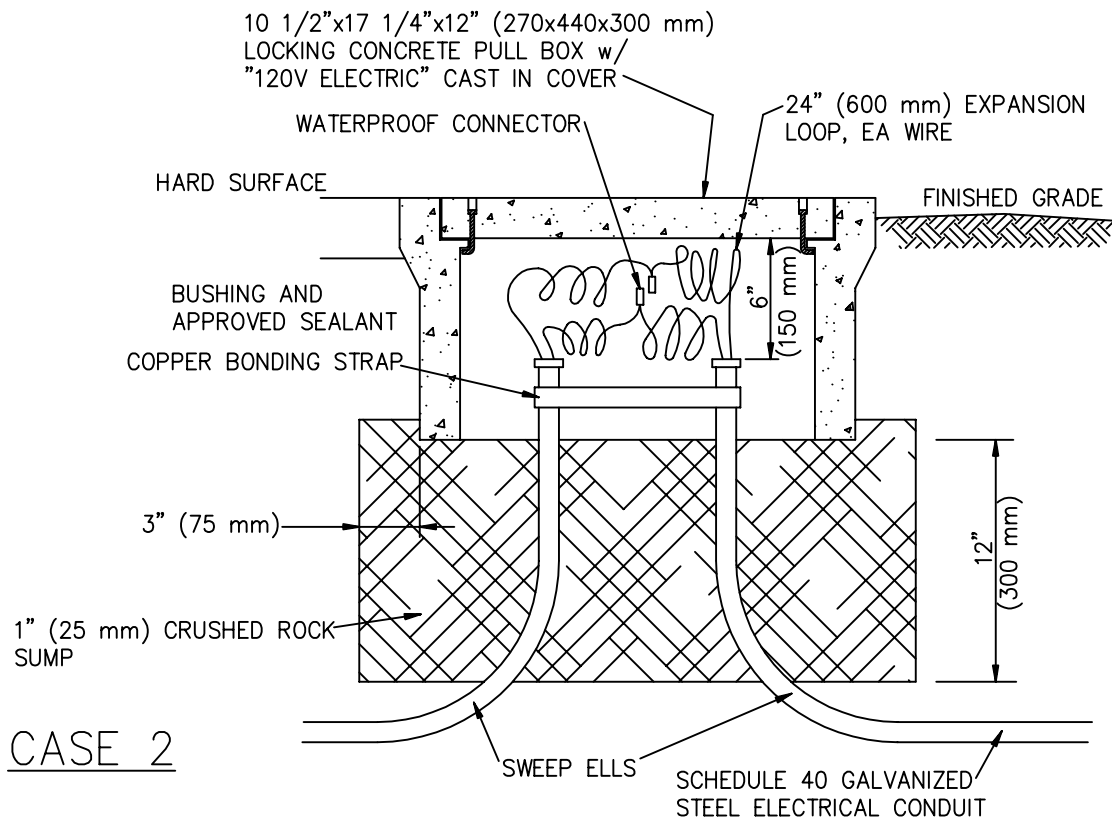
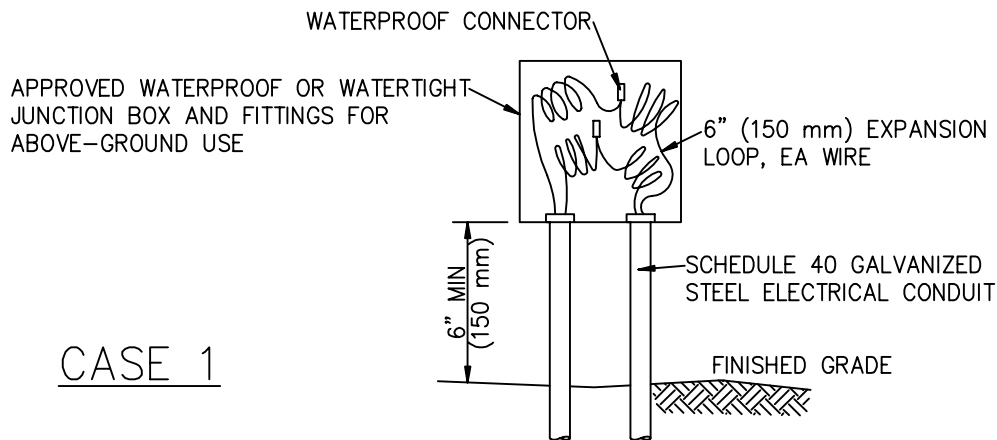
  
Khalid Bazmi, County Engineer

STD. PLAN

512-3-OC

SPPWC STANDARD PLAN - BACKFLOW PREVENTER ASSEMBLY  
REDUCED PRESSURE TYPE

SHT. 1 OF 1

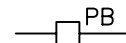


NOTES:

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BOX:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CRUSHED ROCK SHALL COVER ELECTRICAL BOX SIDE OPENINGS TO PREVENT SOIL ENTRY.
4. WATERPROOF CONNECTORS SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
5. PVC CONDUIT MAY BE USED FOR CASE 2 IF APPROPRIATE GROUND WIRES ARE INSTALLED.

HIGH VOLTAGE INSTALLATION

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

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GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**ELECTRICAL PULL BOX**

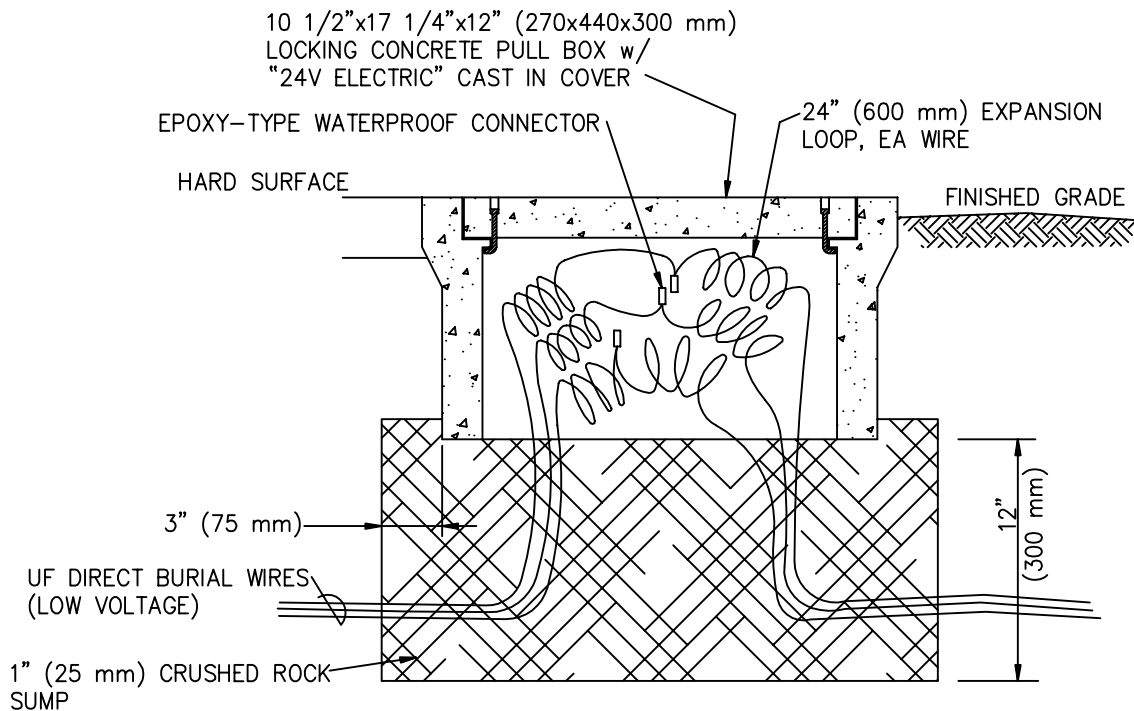
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**513-3**

SHEET 1 OF 2

**SEE OCPW STANDARD PLAN 513-3-OC FOR CONDITIONS**

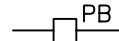


NOTES:

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BOX:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
3. CRUSHED ROCK SHALL COVER ELECTRICAL BOX SIDE OPENINGS TO PREVENT SOIL ENTRY.
4. LOW VOLTAGE WIRES UNDER ROADWAY SHALL BE WITHIN CONTINUOUS CONDUIT WITH 90° SWEEP ELLS TERMINATING WITHIN PULL BOXES. SEE PLANS FOR SIZE AND TYPE OF BOXES.

LOW VOLTAGE INSTALLATION

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**ELECTRICAL PULL BOX**

**513-3**

SHEET 2 OF 2

**SEE OCPW STANDARD PLAN 513-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
513-3	513-3-OC	<u>ELECTRICAL PULL BOX</u>

SHEET 1, CASE 1

1. DELETE SCHEDULE 40 GALVANIZED STEEL AND REPLACE WITH SCHEDULE 80 PVC.

SHEET 1, CASE 2

1. DELETE COPPER BONDING STRAP.
2. DELETE SCHEDULE 40 GALVANIZED STEEL AND REPLACE WITH SCHEDULE 40 PVC.
3. ADD APPROVED TO WATERPROOF CONNECTOR.
4. ADD 120 VOLTS TO HIGH VOLTAGE INSTALLATION TITLE.

SHEET 2, LOW VOLTAGE INSTALLATION

1. USE TRAFFIC WEIGHT FIBERGLASS PULL BOX WITH HINGE, VANDAL-PROOF LOCKING COVER MARKED "IRRIGATION-LOW VOLTAGE".
2. ADD 24 VOLTS TO LOW VOLTAGE INSTALLATION TITLE.

SHEETS 1 & 2

CASE 1: CONCRETE BOX W/CONCRETE COVER.

CASE 2: CONCRETE BOX W/LOCKING CAST IRON COVER.

LOW VOLTAGE INSTALLATION: PLASTIC BOX W/LOCKING PLASTIC COVER.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

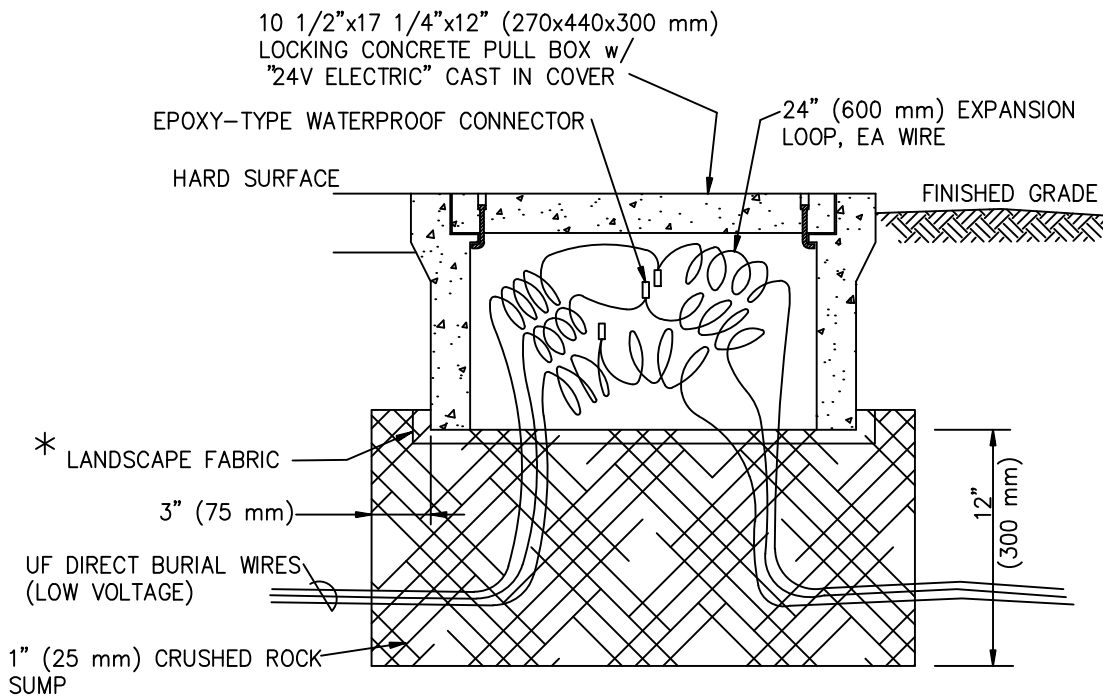
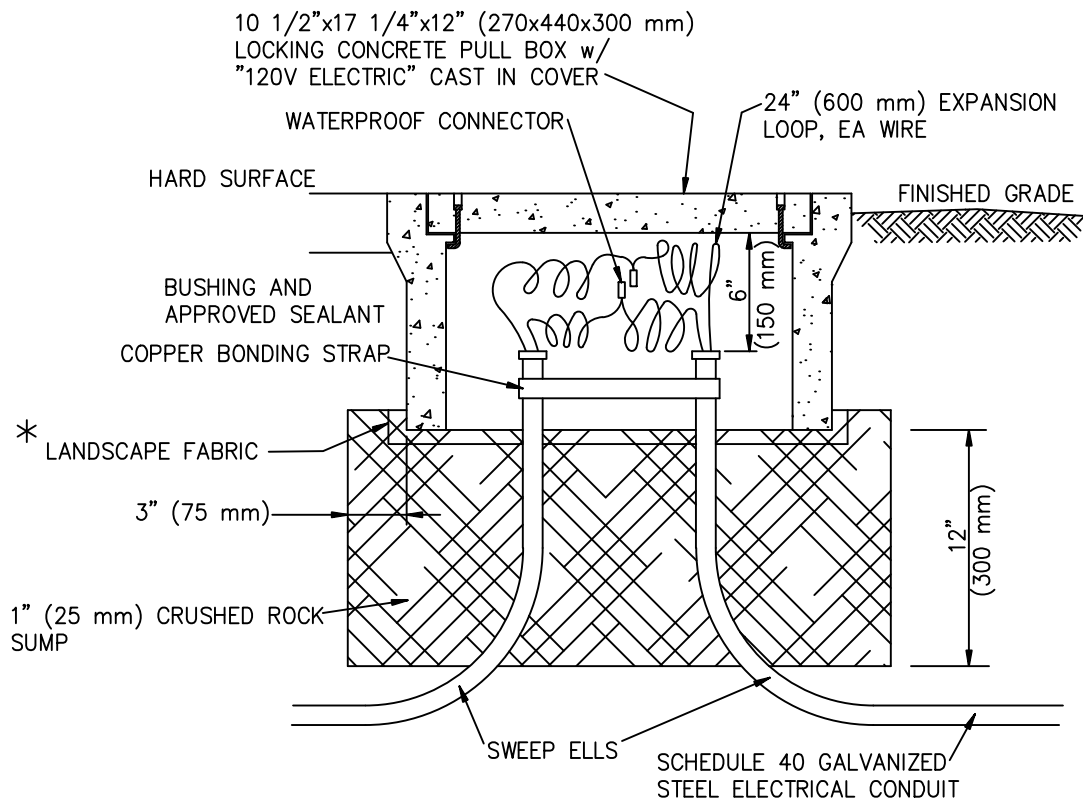
*Khalid Bazmi*  
Khalid Bazmi, County Engineer

STD. PLAN

513-3-OC

SPPWC STANDARD PLAN - ELECTRICAL PULL BOX

SHT. 1 OF 2



\* WRAP LANDSCAPE FABRIC AROUND SIDES AND BOTTOM OF  
BOX TO COVER ALL OPENINGS.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

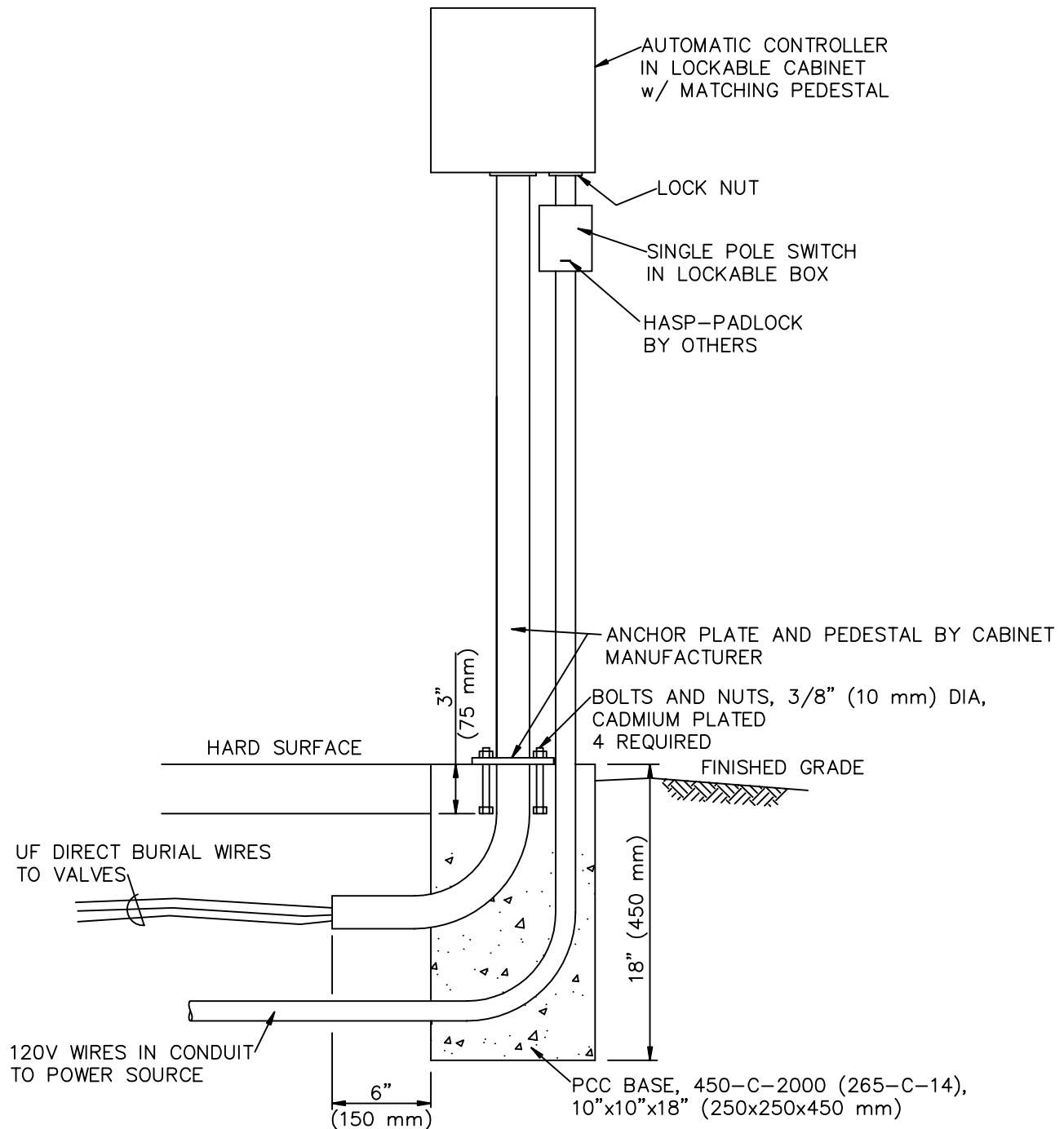
*Khalid Bazmi*  
Khalid Bazmi, County Engineer

STD. PLAN

513-3-OC

SPPWC STANDARD PLAN - ELECTRICAL PULL BOX

SHT. 2 OF 2



## PEDESTAL MOUNT – TYPE A

### NOTES:

1. AREA AROUND BOX MAY BE PLANTED, HARD SURFACE, OR A COMBINATION OF BOTH.
2. TOP OF BASE:  
AT GRADE FOR HARD SURFACE  
1/2" (15 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS

SYMBOL ON PLAN



### STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

## IRRIGATION CONTROLLER ENCLOSURE

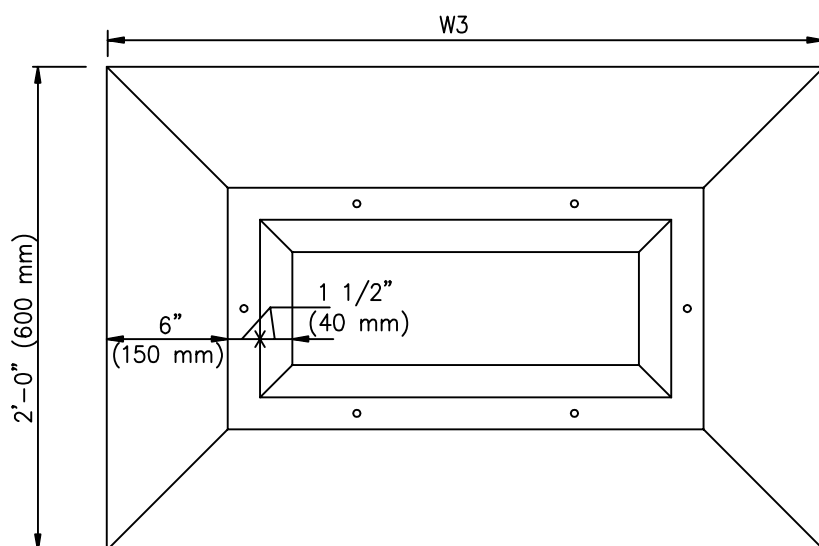
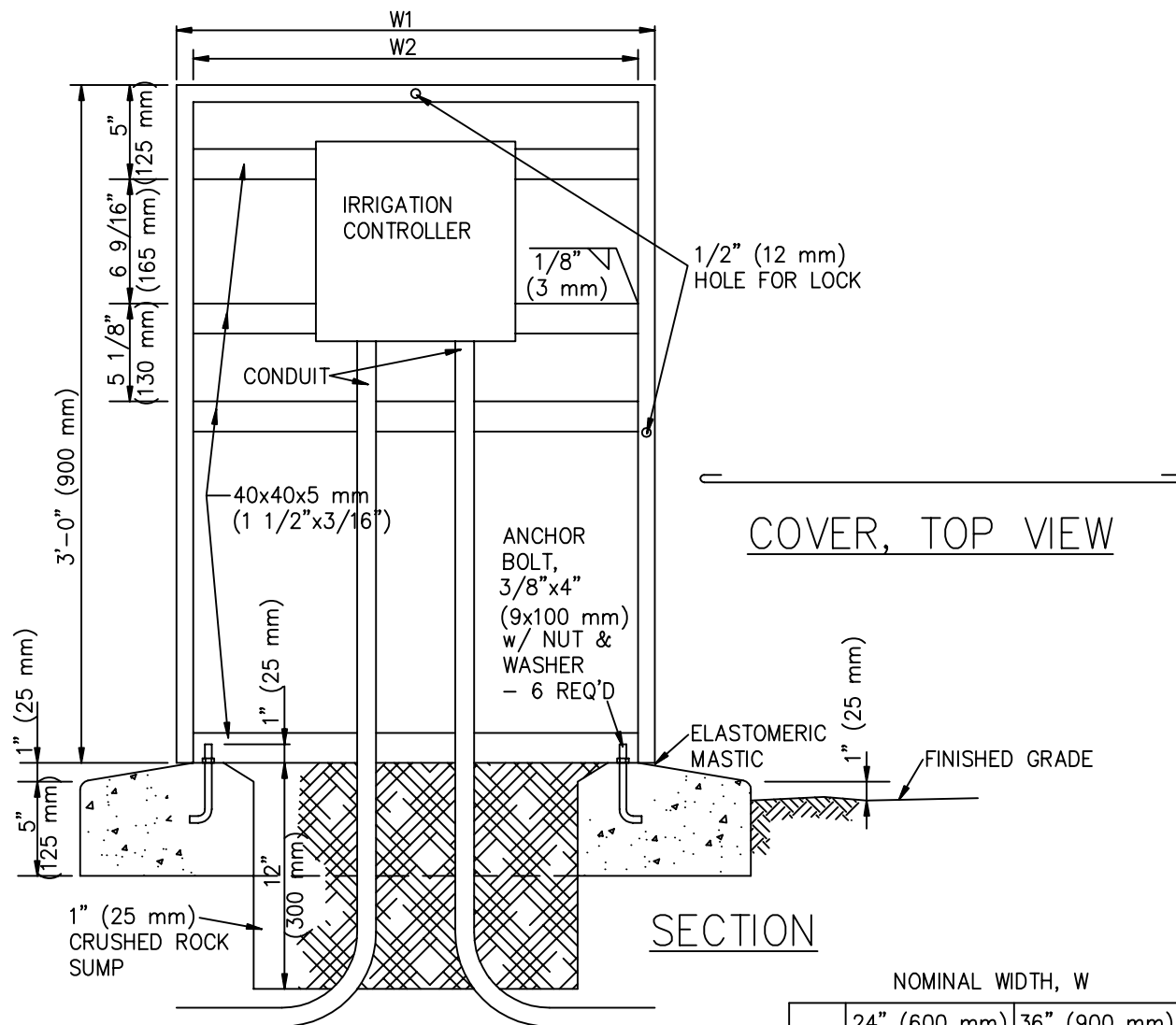
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**514-3**

SHEET 1 OF 4

**SEE OCPW STANDARD PLAN 514-3-OC FOR CONDITIONS**



PLAN OF CONCRETE BASE

PEDESTAL MOUNT - TYPE B

NOMINAL WIDTH, W

	24" (600 mm)	36" (900 mm)
W1	2'-7/8" (630 mm)	3'-7/8" (935 mm)
W2	1'-11" (585 mm)	2'-11" (890 mm)
W3	2'-11" (890 mm)	3'-11" (1190 mm)

NOTES:

1. CONCRETE SHALL BE CLASS 450-C-2000 (265-C-14).
2. UNLESS OTHERWISE NOTED, ENCLOSURE SHALL BE 3/16" (5 mm) PLATE STEEL. PAINT ENCLOSURE WITH TWO COATS OF RUST INHIBITING PAINT (COLOR WILL BE SELECTED BY ENGINEER).

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

IRRIGATION CONTROLLER ENCLOSURE

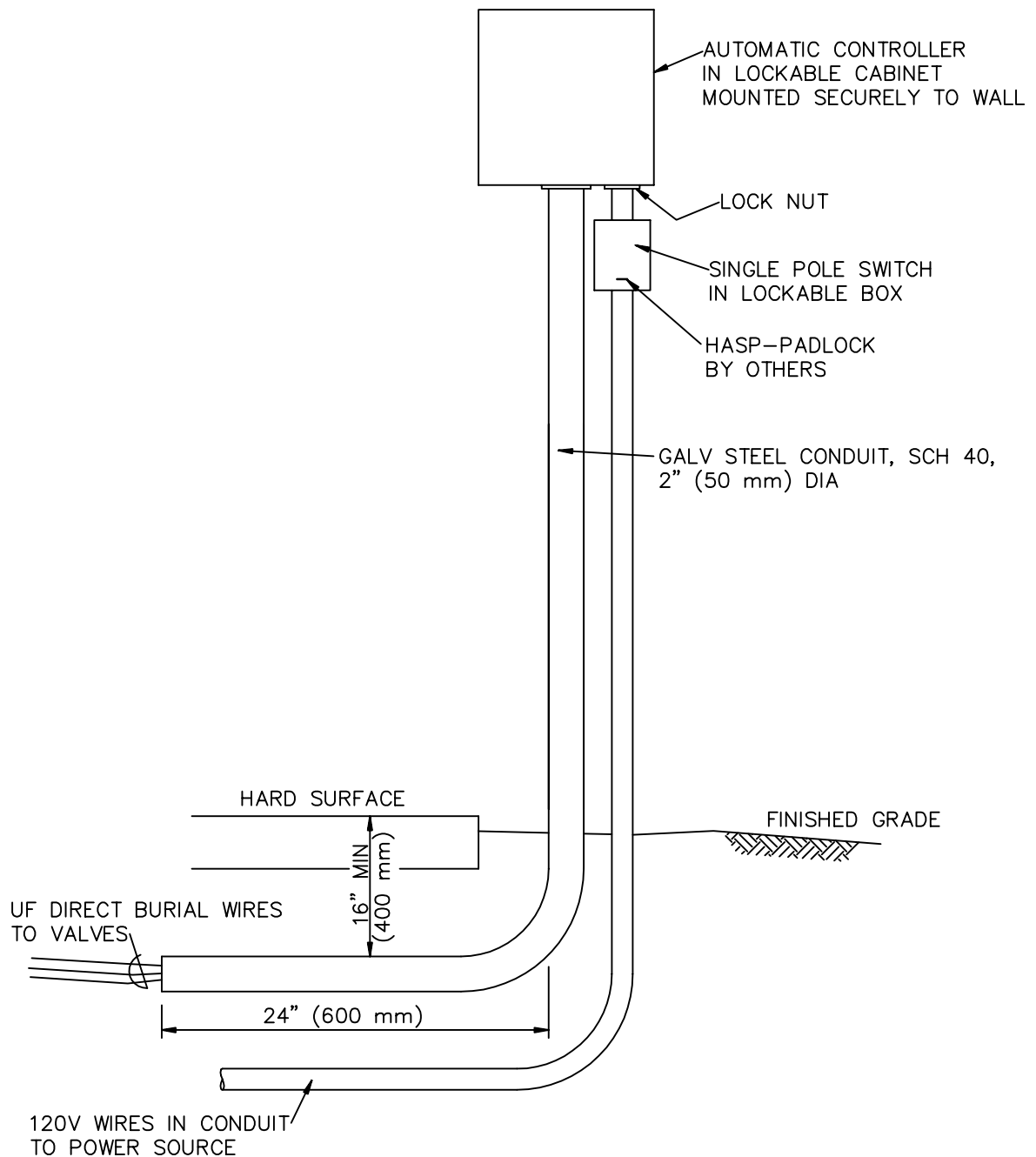
STANDARD PLAN

514-3

SHEET 2 OF 4

SEE OCPW STANDARD PLAN 514-3-OC FOR CONDITIONS





WALL MOUNT - TYPE C

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

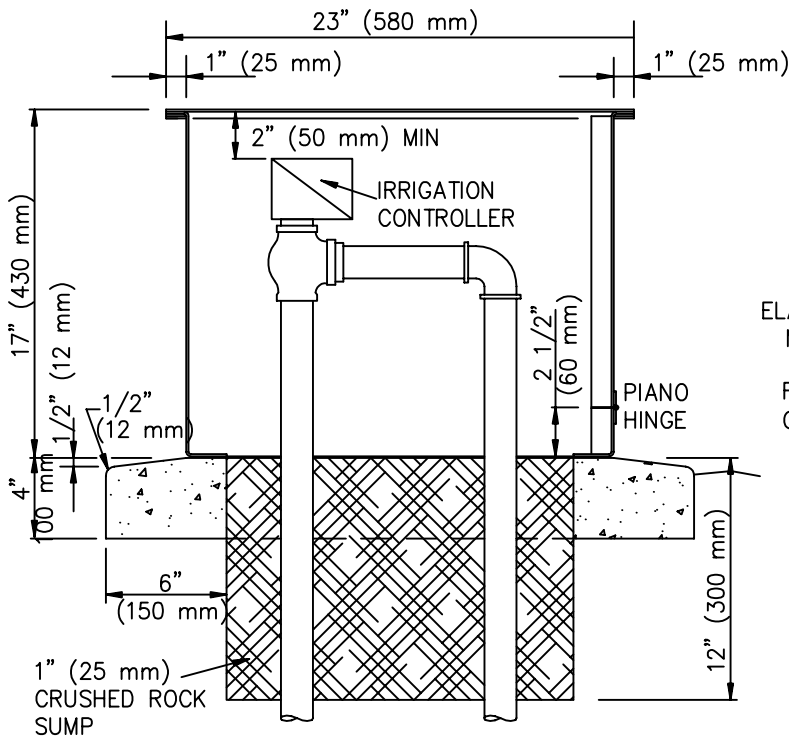
STANDARD PLAN

**IRRIGATION CONTROLLER ENCLOSURE**

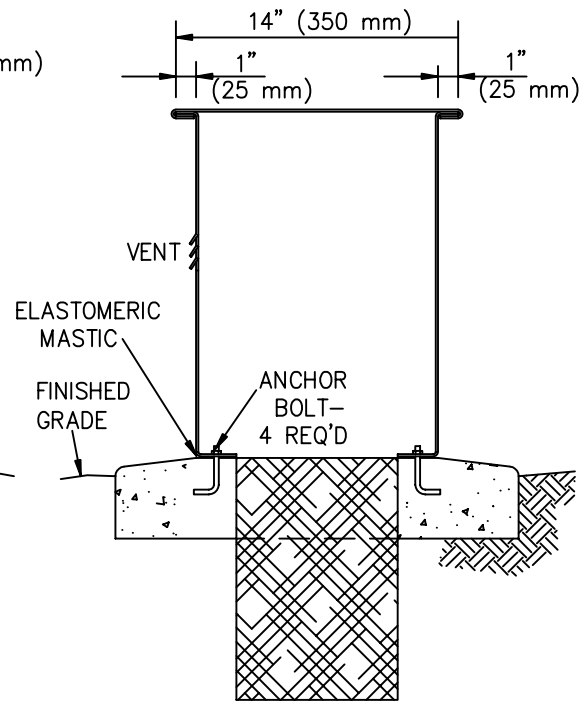
**514-3**

SHEET 3 OF 4

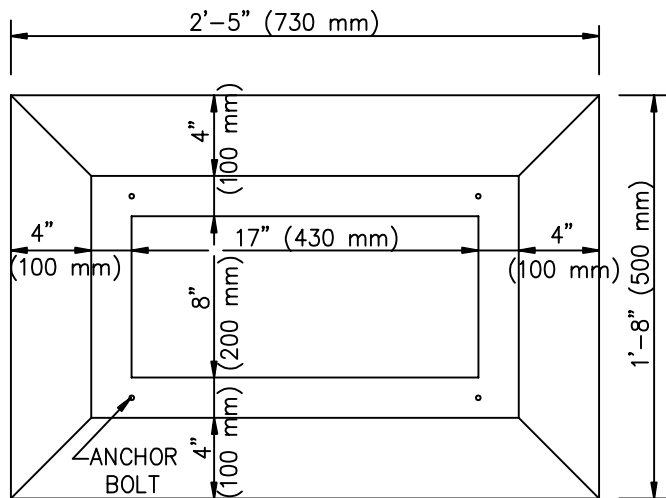
**SEE OCPW STANDARD PLAN 514-3-OC FOR CONDITIONS**



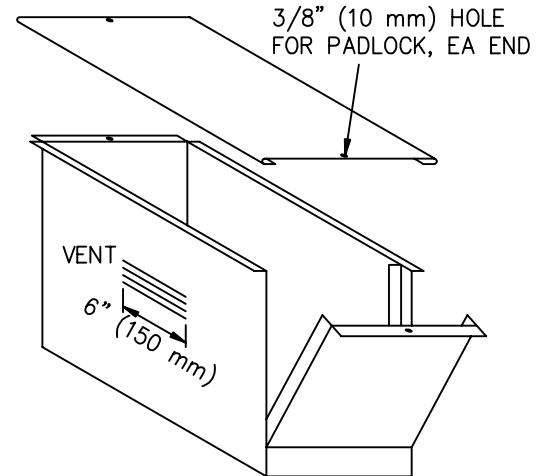
SECTION



END VIEW



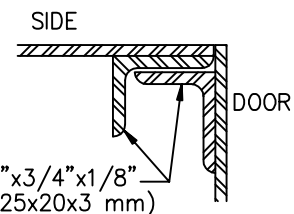
PLAN OF CONCRETE BASE



OBLIQUE VIEW

NOTES:

1. CONCRETE SHALL BE CLASS 450-C-2000 (265-C-14).
2. UNLESS OTHERWISE NOTED, ENCLOSURE SHALL BE 12 GAGE (2.75 mm) STEEL. PAINT ENCLOSURE WITH TWO COATS OF RUST INHIBITING PAINT (COLOR WILL BE SELECTED BY ENGINEER).



CORNER DETAIL

TYPE D

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**IRRIGATION CONTROLLER ENCLOSURE**

**514-3**

SHEET 4 OF 4

**SEE OCPW STANDARD PLAN 514-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
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514-3	514-3-OC	<u>IRRIGATION CONTROLLER ENCLOSURE</u>
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GENERAL NOTES

1. PEDESTAL MOUNT - TYPE A IS NOT ALLOWED.
2. PULLBOX FOR DIRECT BURIAL WIRES SHALL BE INSTALLED A MAXIMUM OF 2 FEET FROM FACE OF CONTROLLER.
3. PULLBOX SHALL BE TRAFFIC WEIGHT FIBERGLASS WITH HINGED, VANDAL-PROOF, LOCKING COVER MARKED "IRRIGATION-LOW VOLTAGE".

PEDESTAL MOUNT - TYPE B - SHEET 2

1. UF DIRECT BURIAL WIRES TO VALVES SHALL BE BURIED A MINIMUM OF 12 INCHES.
2. 120 VOLT WIRES IN ELECTRICAL CONDUIT TO POWER SOURCE SHALL BE BURIED 18 INCHES.
3. ADD TO NOTE 1: UNLESS OTHERWISE NOTED.

WALL MOUNT - TYPE C - SHEET 3

1. 2 INCH SCHEDULE 40 GALVANIZED STEEL PIPE SHALL READ: 3 INCH GALVANIZED CONDUIT.

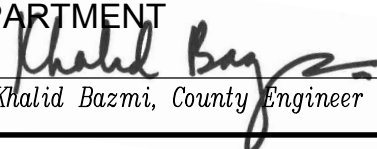
ALL SHEETS

1. STAINLESS STEEL MAY BE SUBSTITUTED FOR GALVANIZED STEEL.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

  
Khalid Bazmi, County Engineer

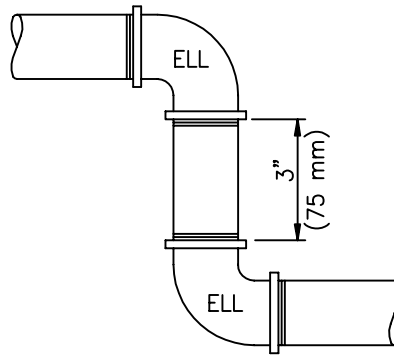
STD. PLAN

514-3-OC

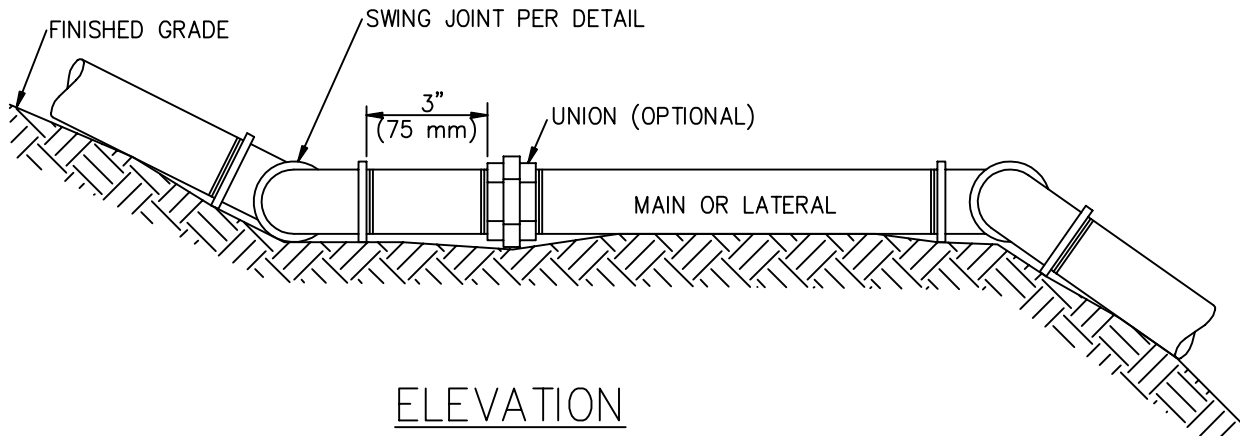
SPPWC STANDARD PLAN - IRRIGATION CONTROLLER ENCLOSURE

SHT. 1 OF 1





SWING JOINT PLAN DETAIL



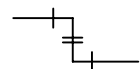
ELEVATION

NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED.
2. SWING JOINTS SHALL BE INSTALLED AT EACH CHANGE OF GRADE.
3. PIPE SHALL BE PINNED PER STANDARD PLAN 515.

SINGLE SWING JOINT ASSEMBLY

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**SWING JOINT ASSEMBLY**

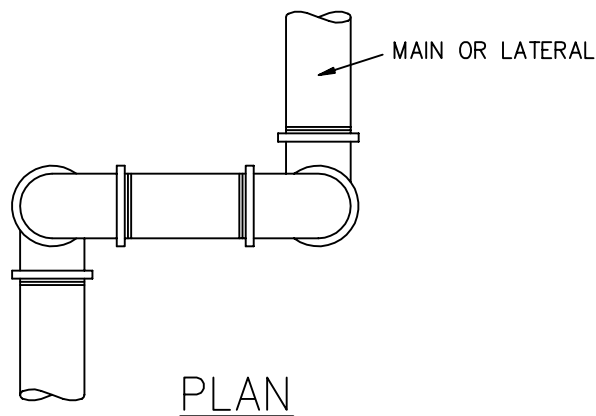
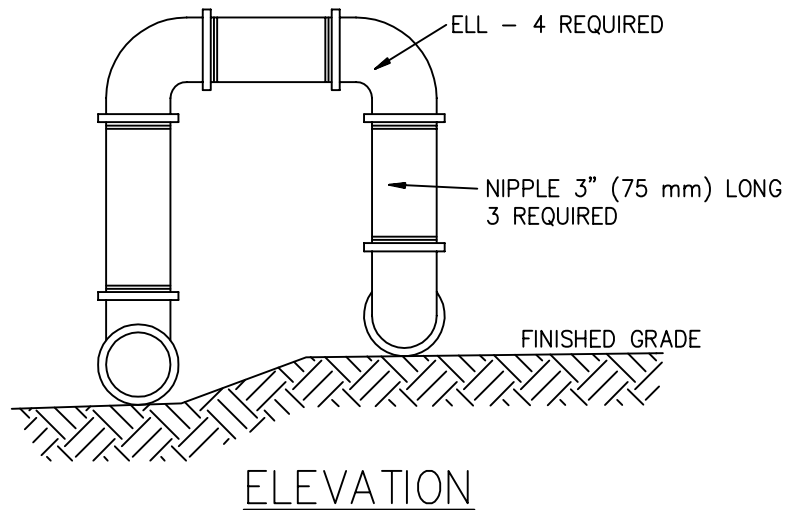
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**517-3**

SHEET 1 OF 2

**SEE OCPW STANDARD PLAN 517-3-OC FOR CONDITIONS**

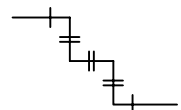


NOTES:

1. PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED.
2. DOUBLE SWING JOINTS SHALL BE INSTALLED WHERE CHANGES OF GRADE AND ALIGNMENT OCCUR SIMULTANEOUSLY.
2. DOUBLE SWING JOINTS SHALL ALSO BE INSTALLED AS EXPANSION JOINTS ON LONG RUNS OF GALVANIZED PIPE, EACH 300' (90 m) MAXIMUM.
3. PIPE SHALL BE PINNED PER STANDARD PLAN 515.

DOUBLE SWING JOINT

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**SWING JOINT ASSEMBLY**

STANDARD PLAN

**517-3**

SHEET 2 OF 2

**SEE OCPW STANDARD PLAN 517-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
517-3	517-3-OC	<u>SWING JOINT ASSEMBLY</u>

SHEET 1

1. ADD TO NOTE 1: SCHEDULE 80 PVC RISERS, FITTINGS AND SCHEDULE 40 ULTRAVIOLET RESISTANT PVC PIPE ARE APPROVED FOR ABOVE GROUND INSTALLATION.

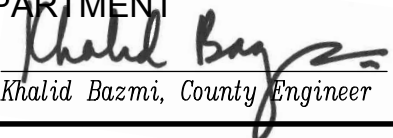
SHEET 2

1. ADD TO NOTE 1: SCHEDULE 80 PVC RISERS, FITTINGS AND SCHEDULE 40 ULTRAVIOLET RESISTANT PVC PIPE ARE APPROVED FOR ABOVE GROUND INSTALLATION.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Adopted: Res. 06-010  
Revised: Res. YY-XXX

Approved

  
Khalid Bazmi, County Engineer

STD. PLAN

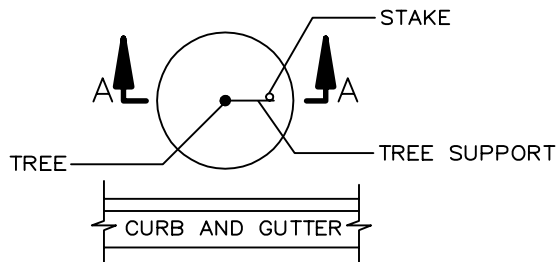
517-3-OC

SPPWC STANDARD PLAN - SWING JOINT ASSEMBLY

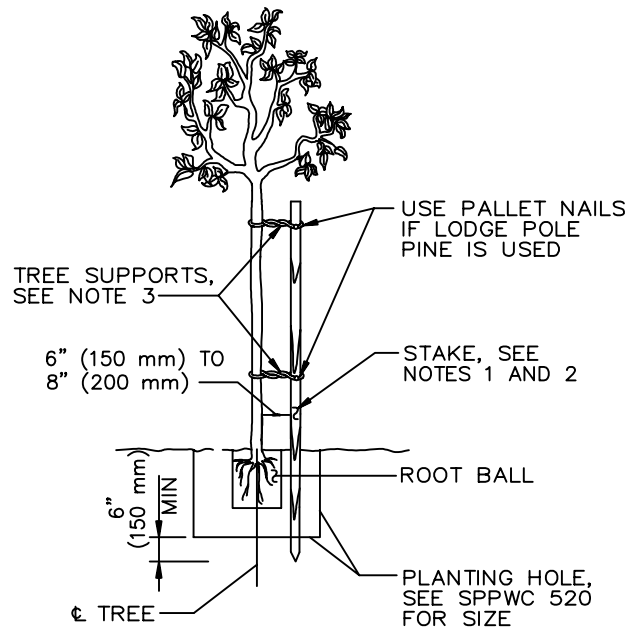
SHT. 1 OF 1







PLAN



SECTION A-A

## SINGLE STAKING

### NOTES:

1. STAKE SHALL BE EITHER 2" (50 mm) DIAMETER LODGE POLE PINE, TREATED WITH COPPER NAPHTHANATE OR PRESSURE TREATED WITH CHROMATED COPPER ARSENATE, OR GALVANIZED STEEL PIPE, PER SSPWC 308-4.6.1 (METHOD A).
2. HEIGHT OF STAKE SHALL BE 10' (3 m); HOWEVER, IT SHALL NOT BE HIGHER THAN THE TOP OF THE TREE.
3. TREE SUPPORTS SHALL BE PER SSPWC 308-4.6.1.

### STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARD, INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

## TREE STAKING

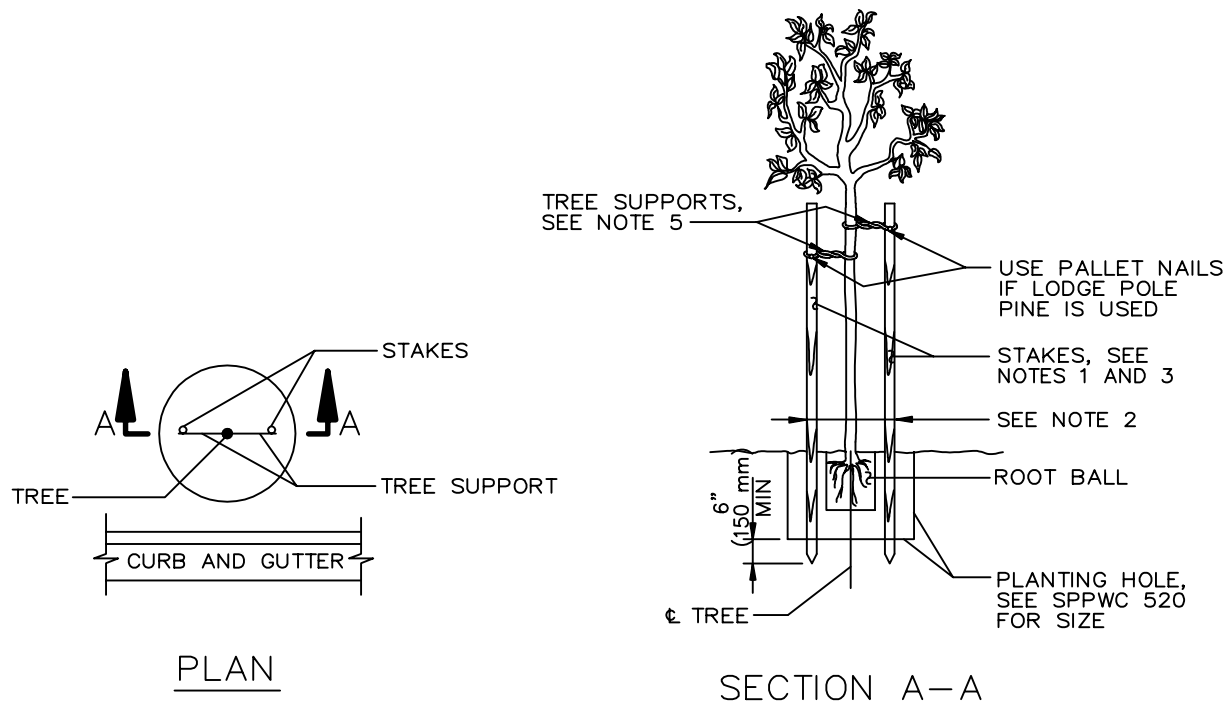
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**518-3**

SHEET 1 OF 3

**SEE OCPW STANDARD PLAN 518-3-OC FOR CONDITIONS**



LENGTH OF STAKES	
TREE SIZE	LENGTH
15 GAL (55 L)	10' (3 m)*
24" (600 mm) BOX	12' (3.6 m)
30" (750 mm) BOX	12' (3.6 m)
36" (900 mm) - 48" (1200 mm) BOX	SEE NOTE 4

\*USE 12' (3.6 m) WITH CASE 2. SEE SPPWC 520.

## DOUBLE STAKING

### NOTES:

1. STAKE SHALL BE EITHER 2" (50 mm) DIAMETER LODGE POLE PINE, TREATED WITH COPPER NAPHTHANATE OR PRESSURE TREATED WITH CHROMATED COPPER ARSENATE, OR GALVANIZED STEEL PIPE, PER SSPWC 308-4.6.1 (METHOD A).
2. PLACE STAKES 18" (450 mm) APART FOR 15GAL (55 L) TREE. PLACE STAKES AT OUTER EDGE OF ROOT BALL FOR LARGER SIZE (BOX) TREES.
3. HEIGHT OF STAKES SHALL NOT BE HIGHER THAN THE TOP OF THE TREE.
4. FOR 36" (900 mm) OR LARGER BOX TREES-STAKE OR GUY AT THE DIRECTION OF THE ENGINEER.
5. TREE SUPPORTS SHALL BE PER SSPWC 308-4.6.1.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

## TREE STAKING

STANDARD PLAN

**518-3**

SHEET 2 OF 3

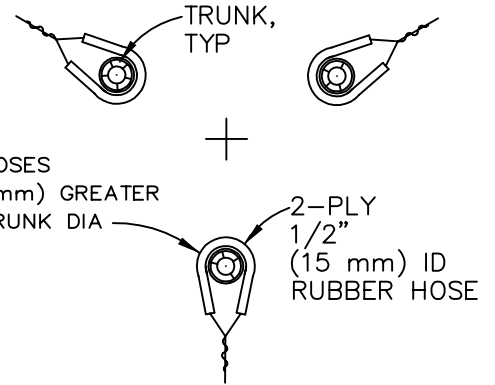
**SEE OCPW STANDARD PLAN 518-3-OC FOR CONDITIONS**

### GUY WIRE SIZES

24"–48" BOX (600–1200 mm) 2 STRAND #12 BWG (2.7 mm) ZINC COATED

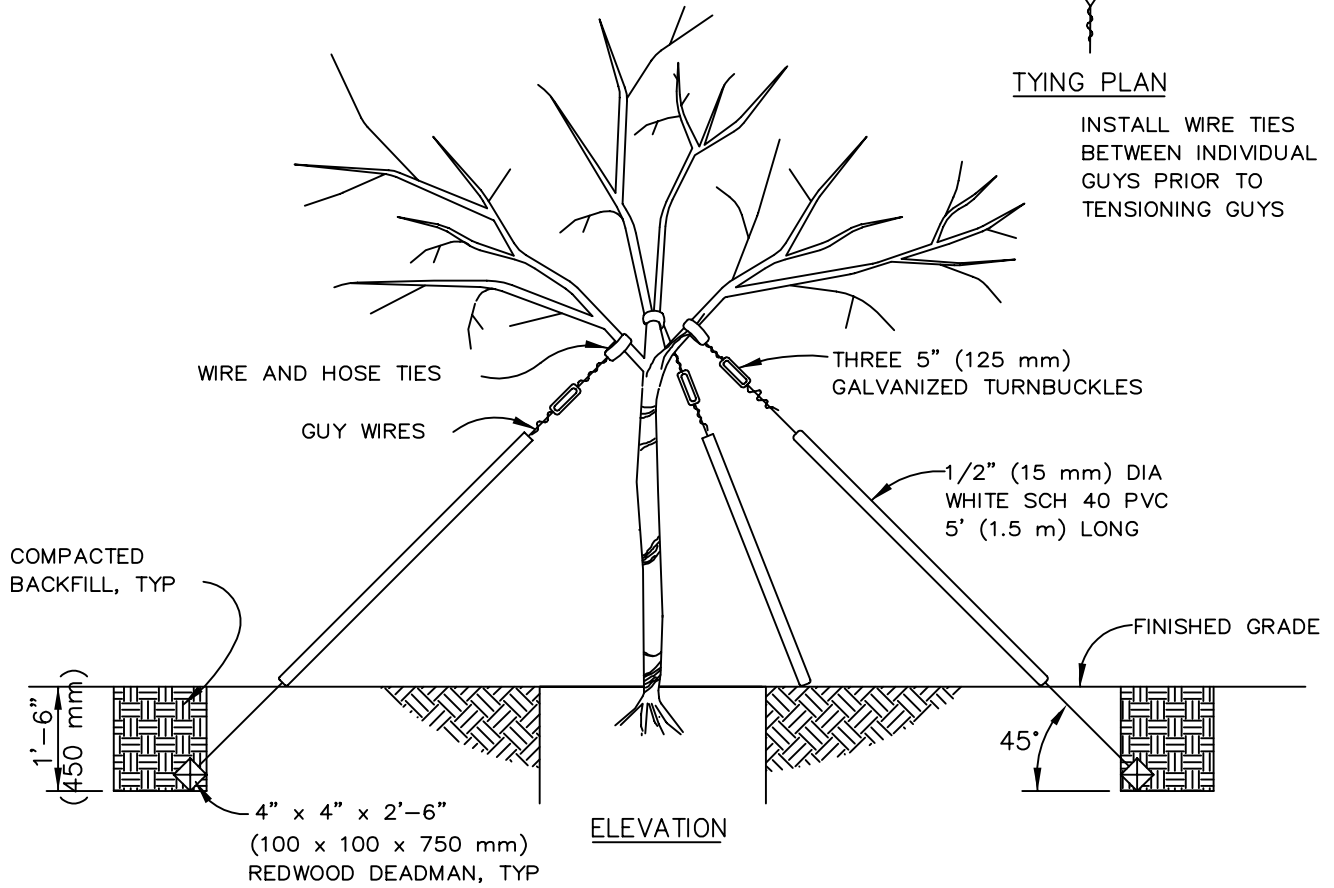
OVER 48" (1200 mm) BOX 3 STRAND #12 BWG (2.7 mm) ZINC COATED

MULTIPLE STRANDS SHALL BE TWISTED TOGETHER

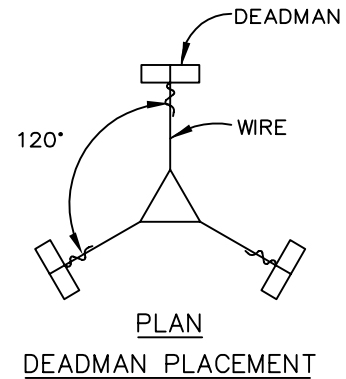
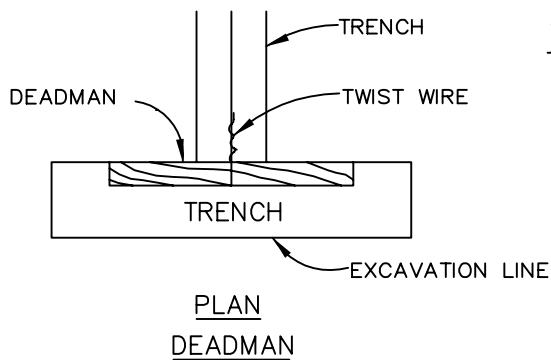


### TYING PLAN

INSTALL WIRE TIES BETWEEN INDIVIDUAL GUYS PRIOR TO TENSIONING GUYS



### TREE GUYING



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

## TREE STAKING

STANDARD PLAN

518-3

SHEET 3 OF 3

SEE OCPW STANDARD PLAN 518-3-OC FOR CONDITIONS

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
518-3	518-3-OC	<u>TREE STAKING</u>

ALL SHEETS

1. TREE SUPPORTS SHALL BE 1 INCH WIDE RUBBER OR PLASTIC STRAP, NO WIRE.
2. TREE SHALL BE TIED LOOSE TO ALLOW FOR MOVEMENT.

SHEETS 1 & 2

1. REVISE NOTE 1 TO READ: STAKE SHALL BE EITHER 2 INCH DIAMETER LODGE POLE PINE, TREATED WITH ALKALINE COPPER QUATERNARY, OR GALVANIZED STEEL PIPE, PER SECTION 308-4.6.1, "METHOD "A" TREE STAKING", OF THE GREENBOOK.
2. DELETE NOTE 2 SHEET 1 AND NOTE 3 SHEET 2 AND REPLACE WITH: STAKE SHALL BE HIGH ENOUGH TO KEEP TREE FROM FALLING OVER, HOWEVER IT SHALL NOT BE HIGHER THAN THE TOP OF THE TREE, NOR RUB AGAINST ANY PART OF THE TREE. STAKE SHALL BE INSTALLED OUTSIDE ROOT BALL.
3. DELETE "LENGTH OF STAKES" CHART ON SHEET 2. SEE NOTE 2 ABOVE.


SHEET 3

1. ADD NEW TREE GUYING NOTE: TREE SUPPORTS PER SECTION 308-4.6.3, "GUYING", OF THE GREENBOOK.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

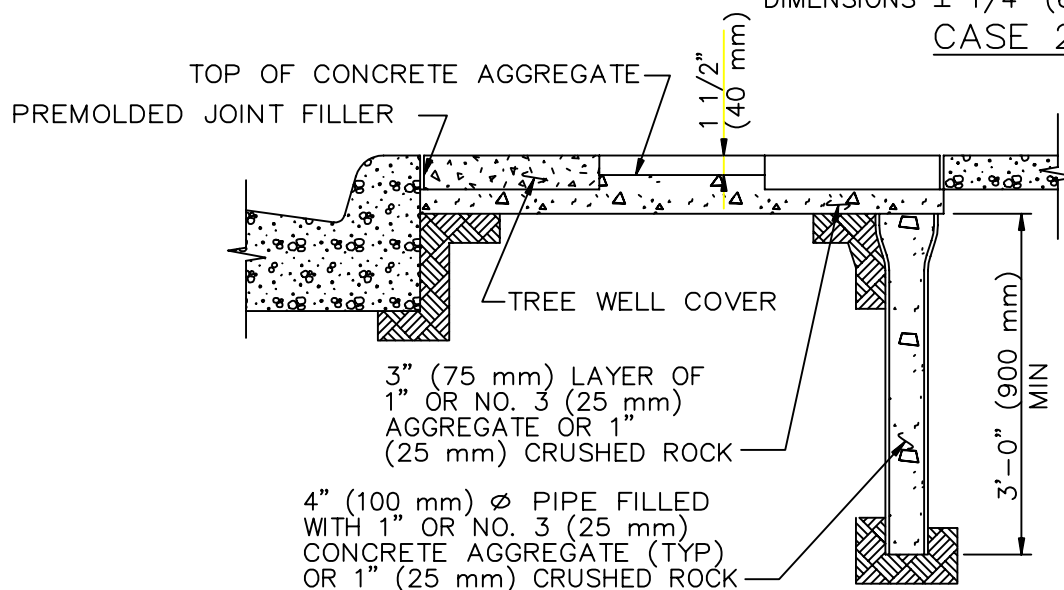
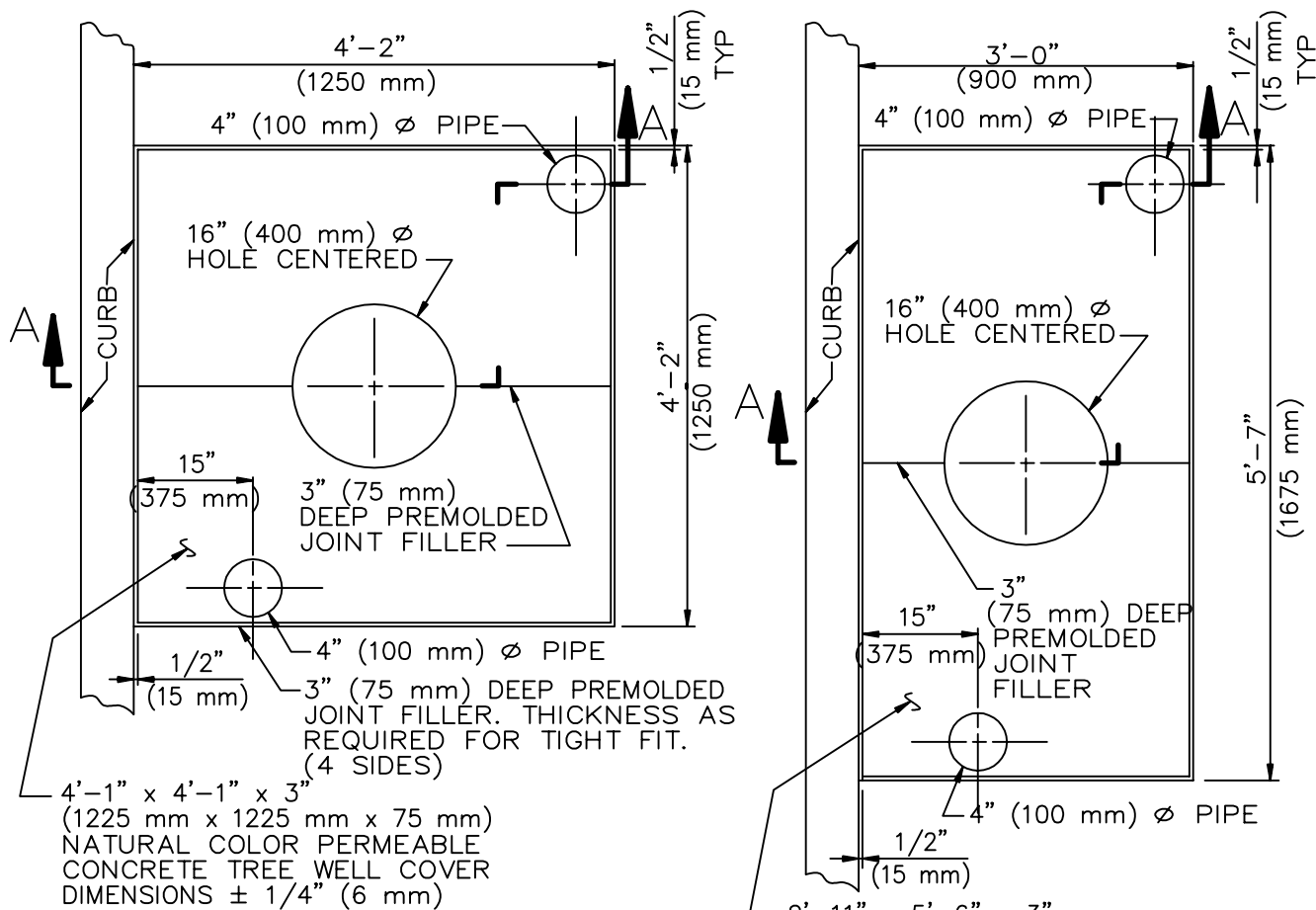
  
Khalid Bazmi, County Engineer

STD. PLAN

518-3-OC

SPPWC STANDARD PLAN - TREE STAKING

SHT. 1 OF 1



### SECTION A-A

#### NOTE:

SEE SHEETS 3 AND 7 FOR NOTES PERTAINING TO THIS SHEET.

### TYPE 1

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

## TREE WELL

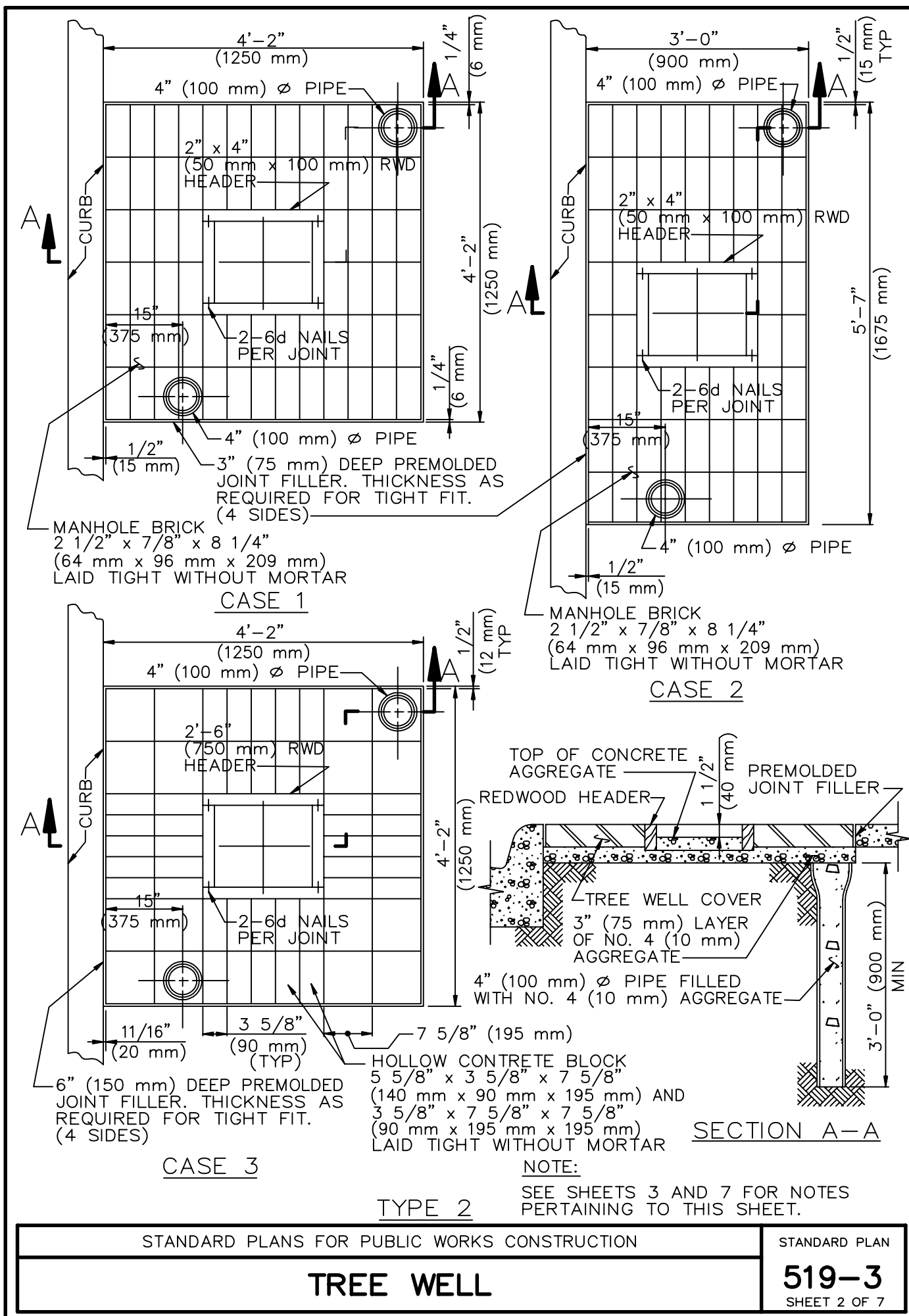
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

519-3

SHEET 1 OF 7

SEE OCPW STANDARD PLAN 519-3-OC FOR CONDITIONS



#### NOTES FOR TYPE 1 TREE WELL

1. THE COVER SHALL BE MADE OF PERMEABLE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 1200 PSI (8.5 MPa) AND SHALL BE CAST-IN PLACE OR PRECAST "AGRIPERM" OR EQUIVALENT. CAST-IN-PLACE CONCRETE SHALL CONSIST OF ONE PART CEMENT TO FOUR PARTS 3/8" (10 mm) GRAVEL AND APPROXIMATE 4 GALLONS (15 LITERS) OF WATER PER 94 LB (42.5 kg) OF CEMENT. THE GRAVEL SHALL BE CLEAN WITH FINES REMOVED. THE CONCRETE MIXTURE SHALL BE DEPOSITED AS NEAR AS POSSIBLE TO ITS FINAL LOCATION. THE EXCESS CONCRETE SHALL BE RODDED OFF IN A SAWING MOTION. A SURPLUS OF CONCRETE SHOULD BE MAINTAINED AGAINST THE FRONT SURFACE OF THE SCREED IN ORDER THAT LOW AREAS WILL BE FILLED AS THE SCREED PASSES OVER. RODDING SHALL BE HELD TO A MINIMUM. AFTER THE SURFACE IS FLAT NO OTHER FINISHING WILL BE REQUIRED. CURING COMPOUND TO WHICH WATERPROOFING MATERIALS HAVE BEEN ADDED WILL NOT BE PERMITTED.
2. EXISTING SIDEWALKS SHALL BE CAREFULLY SAWCUT PREPARATORY TO INSTALLATION OF TREE WELL COVERS. SAWCUT OVER-RUNS SHALL BE CLEANED AND FILLED WITH EPOXY APPROVED BY THE ENGINEER AND FINISHED TO SIDEWALK GRADE.
3. THE PIPE MAY BE CIP, ACP, VCP, ABS, PVC, GALV STL OR ASPHALT IMPREGNATED FIBER DUCT AND IT MAY BE BELL OR PLAIN END.
4. AFTER ALL OTHER WORK PERTINENT TO PLANTING HAS BEEN COMPLETED, EACH TREE SHALL BE WATERED IMMEDIATELY WITH A MINIMUM OF 20 GALLONS (75 LITERS) OF WATER, AND REPEATED 2 TIMES IN THE NEXT 3 DAYS, AFTER THE TREE HAS BEEN WATERED AND THE SOIL IS SUFFICIENTLY DRY, THE SOIL SHALL BE GRADED AND TAMPED. THE 3" (75 mm) LAYER OF AGGREGATE SHALL BE PLACED AND GRADED TO ACCEPT THE TREE WELL COVER FIRMLY, WITHOUT ROCKING, AND FLUSH WITH THE TOP SURFACE OF THE SIDEWALK. THE PREMOLDED JOINT FILLER SHALL BE CAREFULLY PLACED TO INSURE A TIGHT FIT WITH THE TOP OF THE JOINT FILLER FLUSH WITH THE ADJACENT SIDEWALK.
5. IF CAST-IN-PLACE, THERE SHALL BE A 3 MIL (0.075 mm) PLASTIC LINER BETWEEN WALK AND AGGREGATE

#### NOTES FOR TYPE 2 TREE WELL

1. EXISTING SIDEWALK SHALL BE CAREFULLY SAWCUT PREPARATORY TO LAYING OF CONCRETE BLOCKS OR BRICK. SAWCUT OVER-RUNS SHALL BE CLEANED AND FILLED WITH EPOXY APPROVED BY THE ENGINEER AND FINISHED TO SIDEWALK GRADE.
2. THE PIPE MAY BE CIP, ACP, VCP, ABS, PVC, GALV STL OR ASPHALT IMPREGNATED FIBER DUCT, AND IT MAY BE BELL OR PLAIN END.
3. NAILS SHALL BE GALVANIZED STEEL BOX.
4. AFTER ALL OTHER WORK PERTINENT TO PLANTING HAS BEEN COMPLETED, EACH TREE SHALL BE WATERED IMMEDIATELY WITH A MINIMUM OF 20 GALLONS (75 LITERS ) OF WATER AND REPEATED 2 TIMES IN THE NEXT 3 DAYS. AFTER THE WATER HAS SETTLED AND THE SOIL IS SUFFICIENTLY DRY, THE SOIL SHALL BE GRADED AND TAMPED. A 3" (75 mm) LAYER OF AGGREGATE SHALL BE PLACED AND GRADED TO ACCEPT BRICKS FLUSH WITH THE TOP SURFACE OF THE SIDEWALK. THE PREMOLDED JOINT FILLER AND HEADERS SHALL BE CAREFULLY PLACED TO INSURE A TIGHT FIT WITH THE TOP OF THE JOINT FILLER FLUSH WITH THE ADJACENT SIDEWALK.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

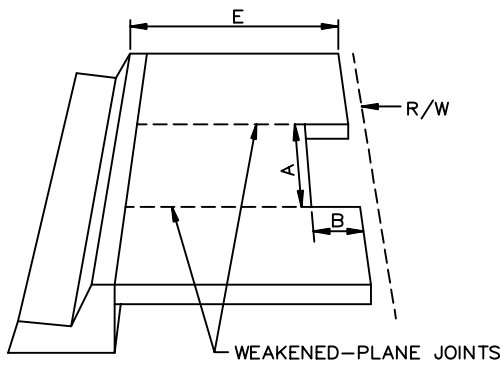
**TREE WELL**

STANDARD PLAN

**519-3**

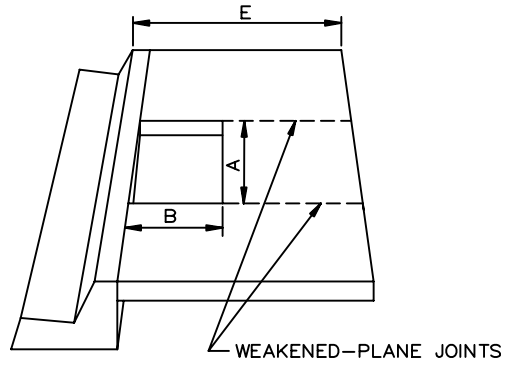
SHEET 3 OF 7

**SEE OCPW STANDARD PLAN 519-3-OC FOR CONDITIONS**



1 COVER REQUIRED

CASE 1: 3' x 18" (900 mm x 450 mm) TREE WELL  
CASE 2: 4' x 24" (1200 mm x 600 mm) TREE WELL

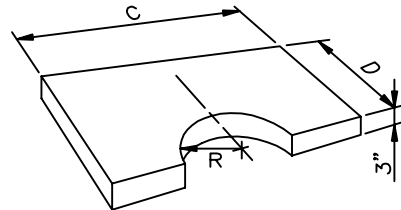


2 COVERS REQUIRED

CASE 3: 3' x 3' (900 mm x 900 mm) TREE WELL  
CASE 4: 4' x 4' (1200 mm x 1200 mm) TREE WELL

## TREE WELLS

CASE	A	B	C	D	E	R
1	3'-0" (900 mm)	18" (450 mm)	2'-11" (975 mm)	17 1/2" (450 mm)	5'-0" (1500 mm) MIN	9" (225 mm)
2	4'-0" (1200 mm)	24" (600 mm)	3'-11" (1175 mm)	23 1/2" (600 mm)	5'-6" (1650 mm) MIN	15" (375 mm)
3	3'-0" (900 mm)	3'-0" (900 mm)	2'-11" (975 mm)	17 1/2" (450 mm)	6'-6" (1950 mm) MIN	9" (225 mm)
4	4'-0" (1200 mm)	4'-0" (1200 mm)	3'-11" (1175 mm)	23 1/2" (600 mm)	7'-6" (2250 mm) MIN	15" (375 mm)



## POROUS TREE WELL COVER (SEE NOTE 2)

### NOTES FOR TYPE 3 TREE WELL

- SEE SHEET 7 FOR NOTES PERTAINING TO THE SHEET.
- PERMEABLE (POROUS) CONCRETE TREE WELL COVER:  
THE COVER SHALL BE MADE OF PERMEABLE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 1200 PSI (8.5 MPa) AND SHALL BE PRECAST & REINFORCED WITH 2 1/4" x 2 1/4" (60 mm x 60 mm) 16 GAUGE WIRE MESH. CONCRETE SHALL CONSIST OF ONE PART CEMENT TO FOUR PARTS 3/8" (10 mm) GRAVEL AND APPROXIMATELY FOUR GALLONS (15 LITERS) OF WATER PER SACK OF CEMENT. THE GRAVEL SHALL BE CLEAN WITH FINES REMOVED. CURING COMPOUND TO WHICH WATER-PROOFING MATERIALS HAVE BEEN ADDED WILL NOT BE PERMITTED.

## TYPE 3

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**TREE WELL**

STANDARD PLAN

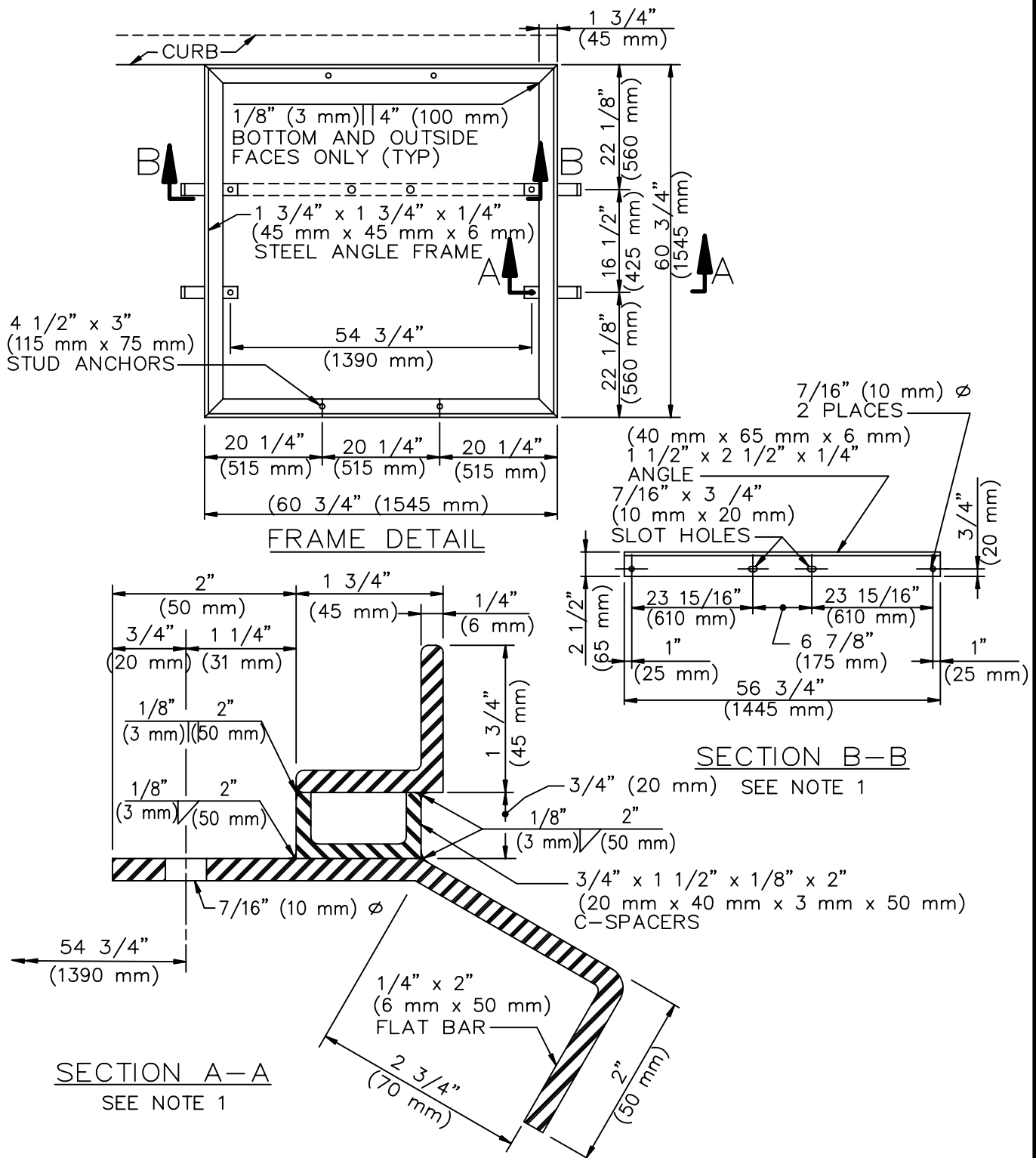
**519-3**

SHEET 4 OF 7

**SEE OCPW STANDARD PLAN 519-3-OC FOR CONDITIONS**







#### NOTES FOR TYPE 4 TREE WELL

1. SECTION A AND B REQUIRED ONLY WHEN TREE GUARD IS REQUIRED.
2. ALL METAL PARTS AND FRAME SHALL CONFORM TO THE SSPWC AND SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
3. SEE SHEET 7 FOR NOTES PERTAINING TO THIS SHEET.

#### TYPE 4

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**TREE WELL**

STANDARD PLAN

**519-3**

SHEET 6 OF 7

**SEE OCPW STANDARD PLAN 519-3-OC FOR CONDITIONS**

GENERAL NOTES FOR ALL FOUR TYPES OF TREE WELL

1. TREE WELLS SHOULD BE SPACED APPROXIMATELY 50' (15 m) APART, BUT NOT LESS THAN ONE PER RESIDENTIAL LOT.
2. LOCATION OF TREE WELLS SUBJECT TO THE FOLLOWING MINIMUM CLEARANCES:
  - A. 50' (15 m) FROM BCR ON THE APPROACH TO AN INTERSECTION AND 15' (4.5 m) FROM THE ECR ON THE EXIT SIDE.
  - B. 20' (6 m) FROM LIGHT STANDARDS.
  - C. 10' (3 m) FROM FIRE HYDRANTS AND DRIVEWAYS.
  - D. 5' (1.5 m) FROM HOUSE WALKS AND UTILITY METERS.
3. COVERS SHALL BE COLORED BUFF USING AN ACCEPTABLE COLORING AGENT.
4. TREE WELL SHALL BE BACKFILLED WITH CLEAN DIRT FLUSH WITH ADJACENT WALK UNTIL TREE IS PLANTED.
5. DO NOT USE CASE 1 OR CASE 2 TREE WELL WHERE THERE IS AN EXISTING FENCE OR WALL AT THE R/W LINE.
6. TOP OF TREE WELL COVER SHALL BE FLUSH WITH ADJACENT SIDEWALK.
7. LOCATION OF TREE SUBJECT TO CHANGE AT THE DIRECTION OF THE ENGINEER.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**TREE WELL**

STANDARD PLAN

**519-3**

SHEET 7 OF 7

**SEE OCPW STANDARD PLAN 519-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

<u>SPPWC#</u>	<u>OCPW#</u>	<u>NAME AND CONDITIONS</u>
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519-3	519-3-OC	<u>TREE WELL</u>
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SHEET 1, SECTION A-A

1. REVISE CALLOUT OF 4 INCH DIAMETER PIPE TO READ: 4 INCH DIAMETER PIPE FILLED WITH 1 INCH OR NO. 3 AGGREGATE (TYP), OR 1 INCH CRUSHED ROCK.

SHEET 2, CASE 1 & 2

1. MANHOLE BRICK SHOULD READ:  
2½ INCH X 3⅞ INCH X 8¼ INCH

SHEET 4, NOTE 2

1. REVISE CONCRETE MINIMUM COMPRESSIVE STRENGTH OF 1,200 PSI TO 2,000 PSI.

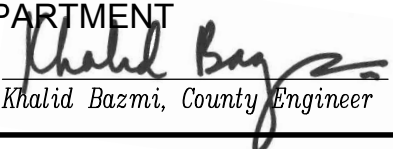
SHEET 7

1. TREE WELLS MUST CONFORM TO NOTES 1 AND 2 OF SPPWC STANDARD PLAN 519-3, AND OCPW STANDARD PLAN 1700.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

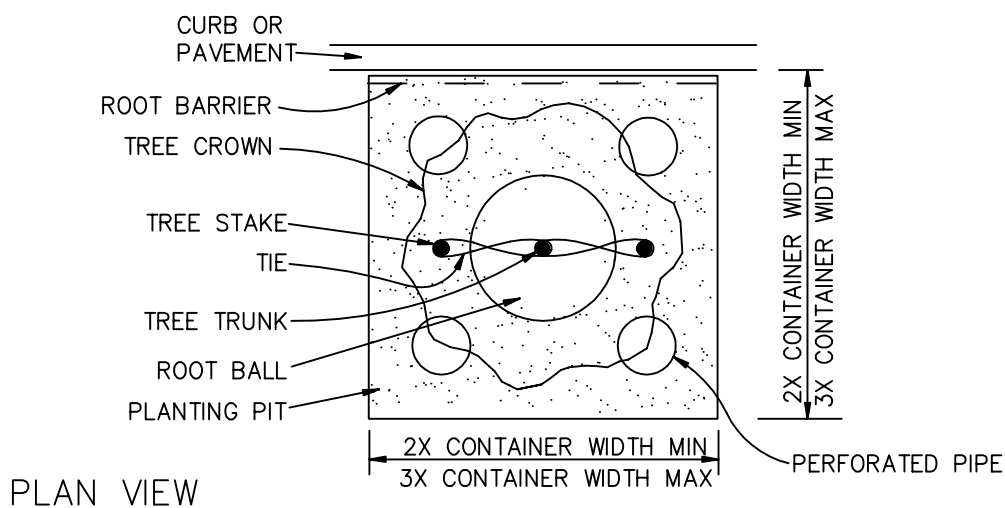
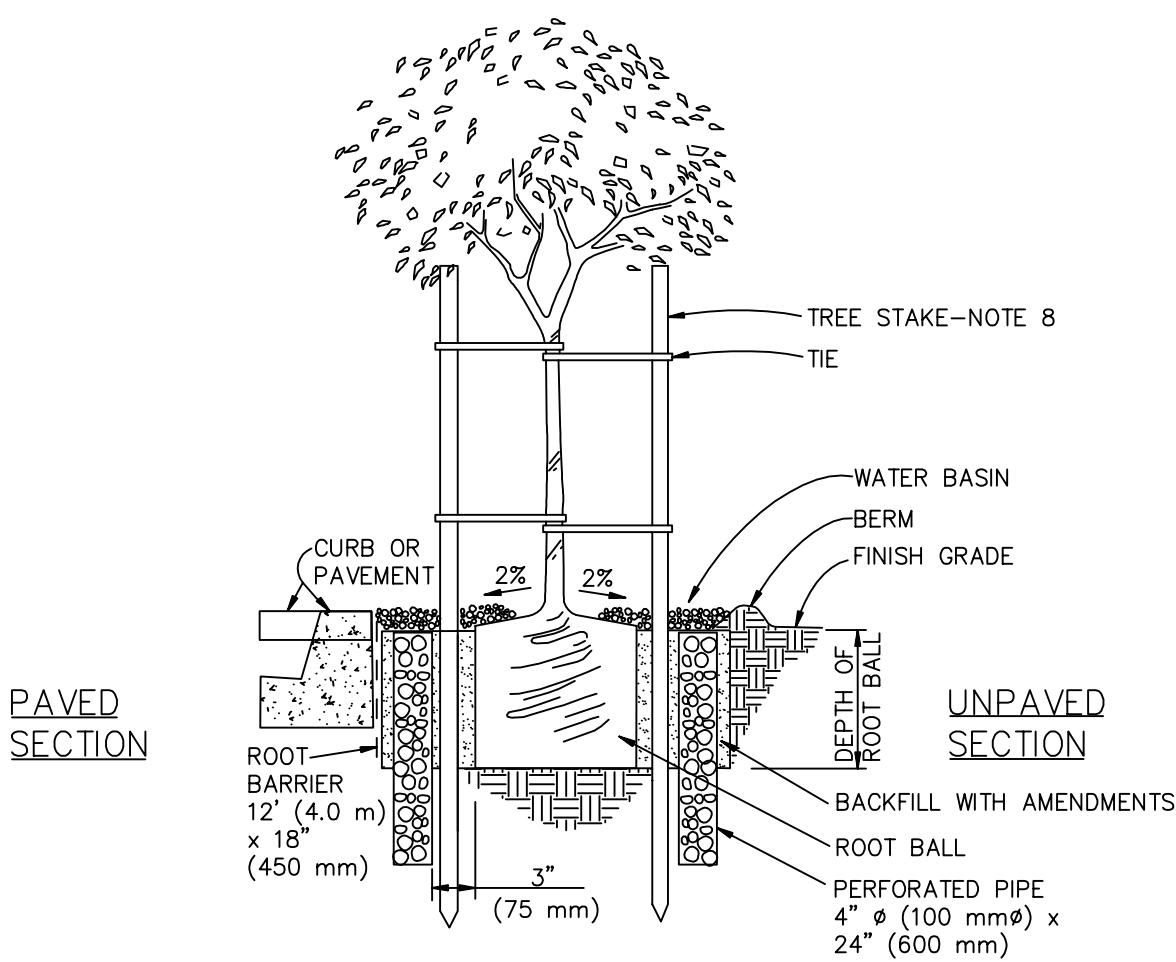
  
Khalid Bazmi, County Engineer

STD. PLAN

519-3-OC

SPPWC STANDARD PLAN - TREE WELL

SHT. 1 OF 1



UNPAVED PARKWAY  
15 GAL (60 LITER) OR 24" (600 mm) BOX

# STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1985  
REV. 1993, 1996, 2005, 2009

## TREE PLANTING

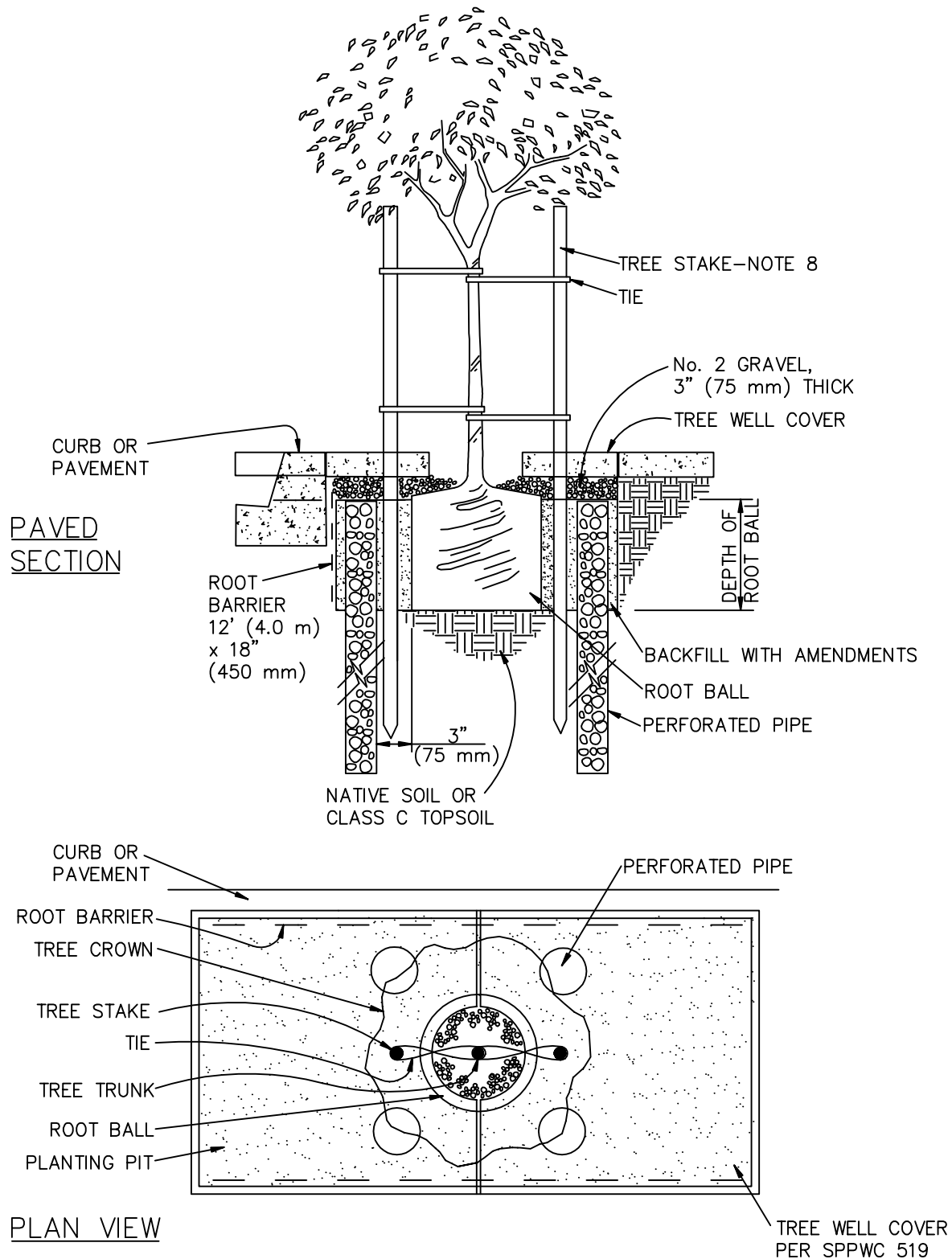
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

520-4

SHEET 1 OF 4

SEE OCPW STANDARD PLAN 520-4-OC FOR CONDITIONS



SIDEWALK TREE WELL  
15 GAL (60 LITER) OR 24" (600 mm) BOX

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

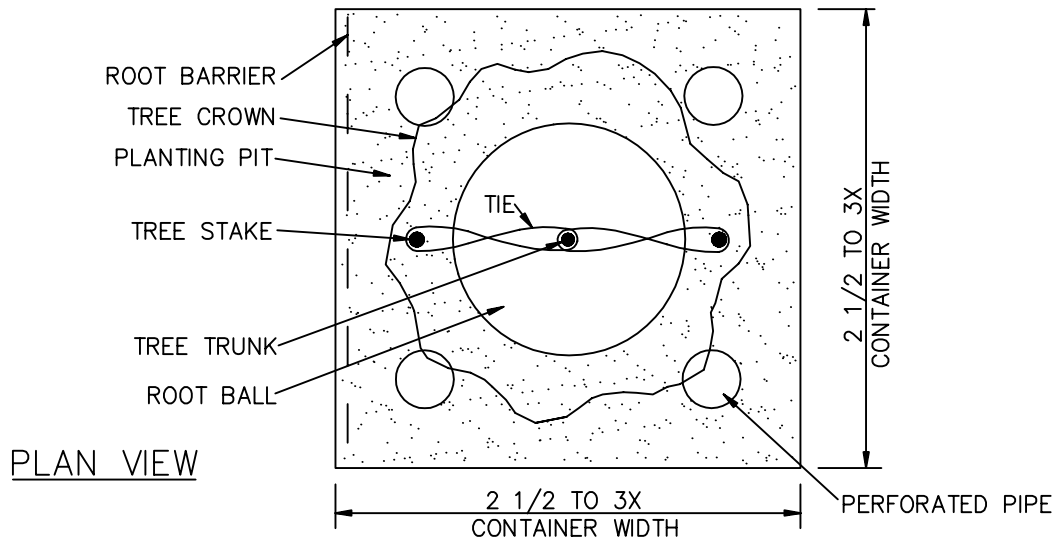
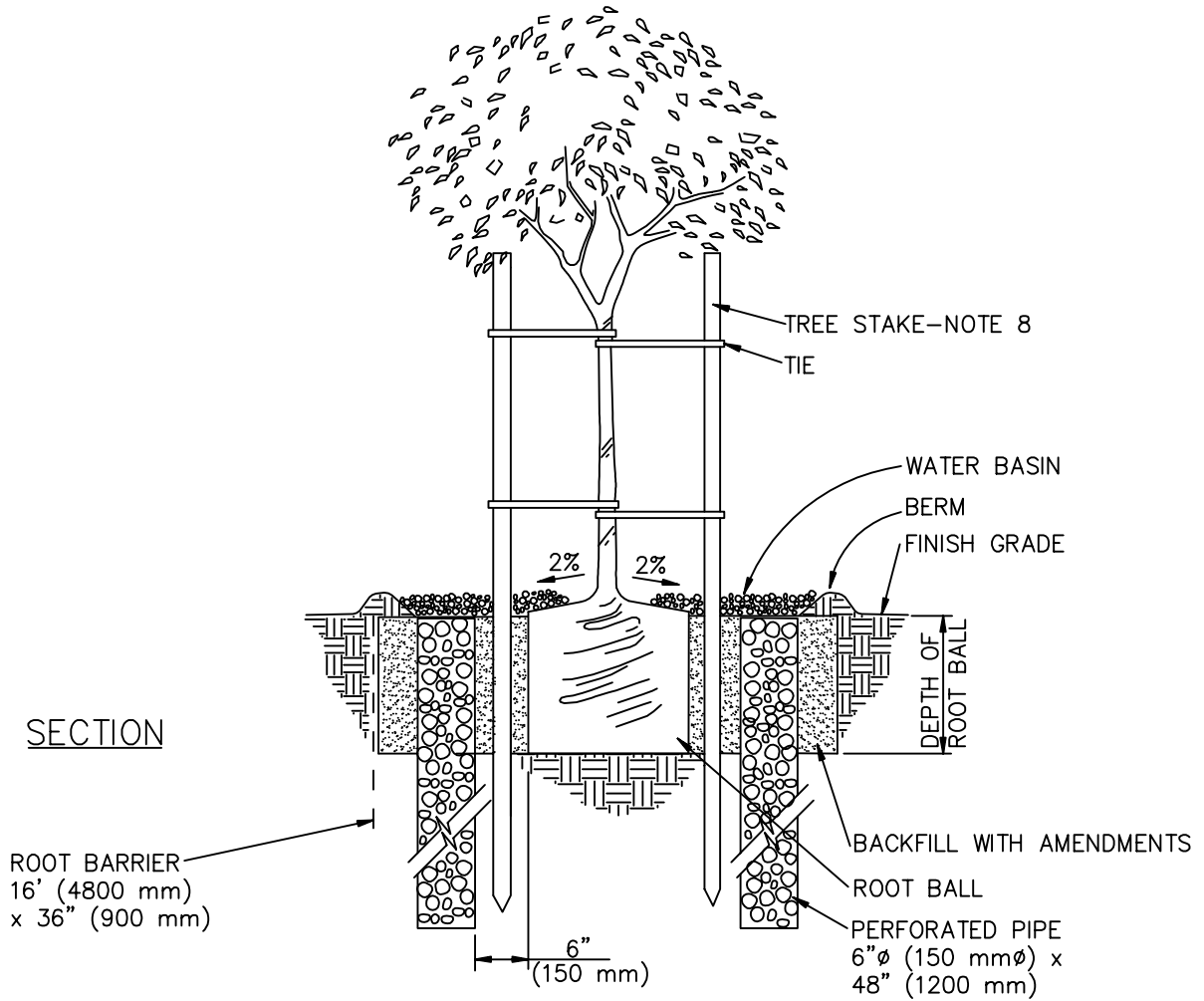
## TREE PLANTING

STANDARD PLAN

**520-4**

SHEET 2 OF 4

**SEE OCPW STANDARD PLAN 520-4-OC FOR CONDITIONS**



30" (750 mm) TO 48" (1200 mm) BOX

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

## TREE PLANTING

STANDARD PLAN

**520-4**

SHEET 3 OF 4

**SEE OCPW STANDARD PLAN 520-4-OC FOR CONDITIONS**

NOTES:

1. SET TOP OF ROOT BALL 1" (25 mm) ABOVE FINISH GRADE.
2. FOR 24" (600 mm) BOX TREES OR SMALLER, INSTALL ROOT BARRIERS IF TRUNK IS WITHIN 5' (1.5 m) OF CURB OR WALK.  
FOR 30" TO 48" (750 mm TO 1200 mm) BOX TREES, INSTALL ROOT BARRIERS IF TRUNK IS WITHIN 10' (3.0 m) OF CURB OR WALK.
3. AMEND BACKFILL MIX PER SPECIFICATIONS. LEAVE TRUNK AND ROOT FLARE VISIBLE.
4. SET PERFORATED PIPE FLUSH WITH TOP OF BACKFILL. FILL PIPE WITH No. 2 GRAVEL PER SSPWC TABLE 200-1.4.(B) AND COVER WITH FILTER FABRIC. WRAP FABRIC 6" (150 mm) DOWN SIDES OF PIPE.
5. FORM 3 1/2" (90 mm) HIGH BERM AROUND BACKFILL AS A WATER BASIN.
6. TOP WATER BASIN WITH 3 1/2" (90 mm) OF No. 2 GRAVEL OR TYPE 1 MULCH PER THE SPECIAL PROVISIONS. KEEP GRAVEL OR MULCH 3 1/2"(90 mm) CLEAR OF TRUNK. LEAVE TRUNK AND ROOT FLARE VISIBLE.
7. REMOVE ALL NURSERY STAKES.
8. INSTALL NEW TREE STAKES PER SPPWC 518.
9. FASTEN TREE TO STAKES PER 308-4.6, TWO TIES PER STAKE.
10. AFTER PLANTING, PRUNE THE TREE AS APPROVED BY THE ENGINEER.
11. ROOT BARRIER, WHERE SHOWN, SHALL BE 80 MIL (2.0 mm) THICK.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**TREE PLANTING**

STANDARD PLAN

**520-4**

SHEET 4 OF 4

**SEE OCPW STANDARD PLAN 520-4-OC FOR CONDITIONS**

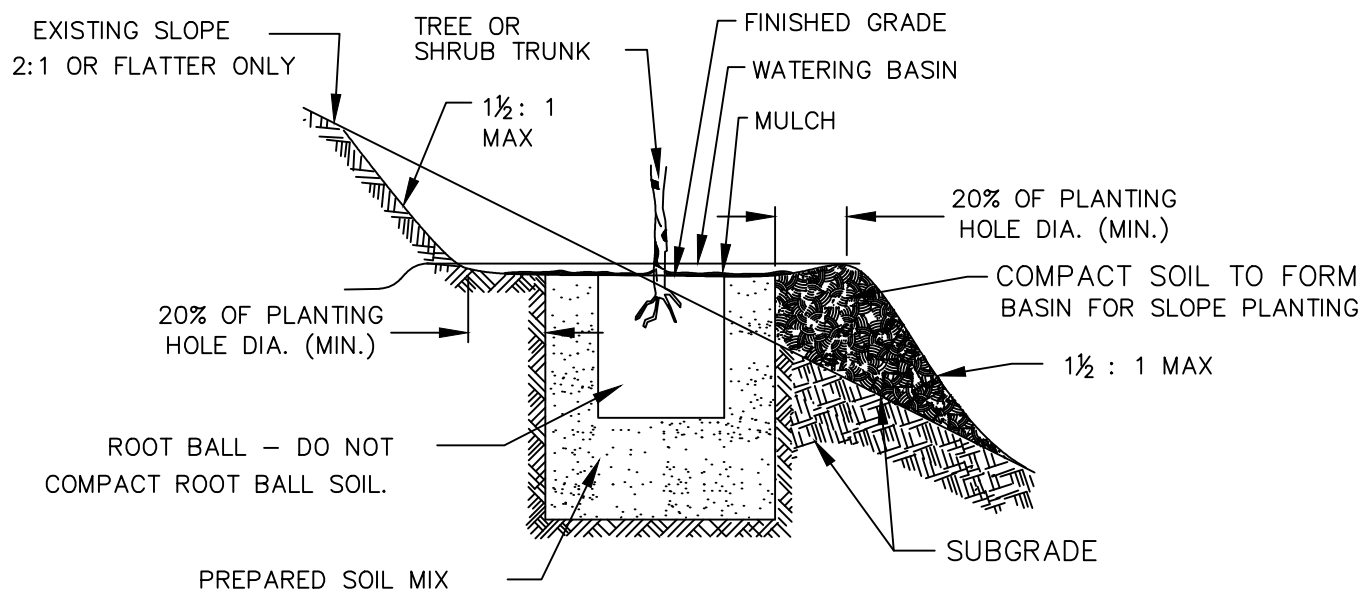


THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

SPPWC#	OCPW#	NAME AND CONDITIONS
520-4	520-4-OC	TREE PLANTING

SHEET 4

1. ADD TO NOTE 1: PREPARED SOIL-MIX HOLE SHALL BE TWICE THE ROOT-BALL DEPTH AND TWICE THE ROOT-BALL DIAMETER.
2. REVISE NOTE 3 TO READ: PREPARED SOIL MIX PER SPECIFICATIONS OR APPROVAL.
3. REVISE NOTE 2 TO READ: MINIMUM PLANTING CLEARANCES OF TREES SHALL CONFORM TO OCPW STANDARD PLAN 1700.
4. ADD TO NOTE 6: FILL UP PLANT HOLE WITH WATER AND ALLOW TO DRAIN PRIOR TO PLANTING.
5. ADD THE TREE AND SHRUB PLANTING DETAIL AS SHOWN BELOW:



TREE & SHRUB PLANTING DETAIL

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

*Khalid Bazmi*  
Khalid Bazmi, County Engineer

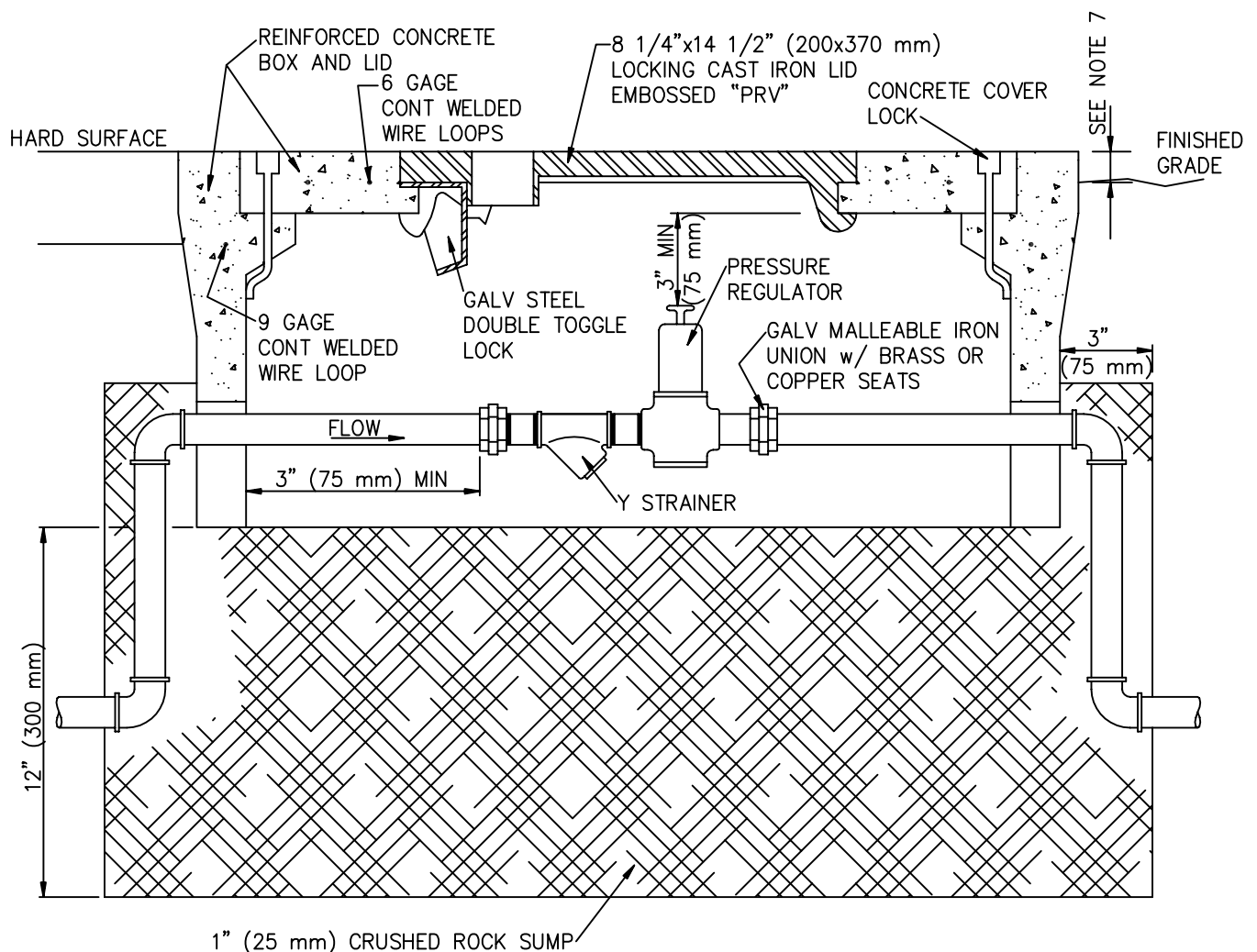
STD. PLAN

520-4-OC

SPPWC STANDARD PLAN - TREE PLANTING

SHT. 1 OF 1

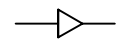




**NOTES:**

1. PRESSURE REGULATOR AND Y STRAINER SHALL BE BRASS OR BRONZE.
2. PRESSURE RATING SHALL BE AS SPECIFIED.
3. Y STRAINER SHALL BE FITTED WITH A 30 MESH SCREEN OF STAINLESS STEEL OR MONEL AND A BLOW-OFF COCK.
4. VALVE BOX SHALL BE SIZED TO CONTAIN ENTIRE Y STRAINER AND PRESSURE REGULATOR ASSEMBLY.
5. ASSEMBLY SHALL BE INSTALLED HORIZONTAL. BLOW-OFF COCK, ADJUSTMENT NUT, AND MAIN CAP ON REGULATOR SHALL BE ACCESSIBLE.
6. UNLESS OTHERWISE NOTED, FITTINGS SHALL BE THREADED SCHEDULE 80 PVC.
7. AREA AROUND VALVE BOX MAY BE PLANTED OR HARD SURFACE OR A COMBINATION OF BOTH.  
TOP OF VALVE BOX:  
AT GRADE FOR HARD SURFACE  
1/2" (12 mm) ABOVE GRADE FOR LAWN  
1" (25 mm) ABOVE GRADE FOR GROUND COVER OR SHRUBS
8. CRUSHED ROCK SHALL COVER BOX SIDE OPENINGS TO PREVENT SOIL ENTRY.
9. CLOSE NIPPLES ARE PROHIBITED.

SYMBOL ON PLAN



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2005, 2009

**PRESSURE REGULATOR INSTALLATION**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**521-3**

SHEET 1 OF 1

**SEE OCPW STANDARD PLAN 521-3-OC FOR CONDITIONS**

THE FOLLOWING STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION, 2009 EDITION, OF THE PUBLIC WORKS STANDARDS, INC. HAVE BEEN ADOPTED BY OCPW WITH CONDITIONS WHICH SHALL APPLY TO OCPW USE. THE CONDITIONS ARE LISTED BELOW.

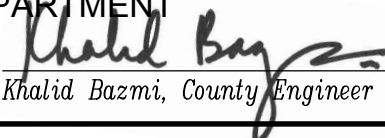
<u>SPPWC #</u>	<u>OCPW #</u>	<u>NAME AND CONDITIONS</u>
521-3	521-3-OC	<u>PRESSURE REGULATOR INSTALLATION</u>

1. DELETE NOTE 6.
2. USE CLASS 315 PVC PIPE AND SCHEDULE 80 PVC FITTINGS FOR SIZE 2 INCHES OR GREATER. USE SCHEDULE 40 PVC PIPE AND FITTINGS FOR SIZES 1 1/2 INCHES OR LESS.
3. FOR INSTALLATION IN TURF AREAS, ALL PRESSURE REGULATOR SYSTEMS SHALL BE LOCATED OUTSIDE OF DESIGNATED PLAYING FIELDS (I.E., BASEBALL DIAMOND, SOCCER FIELD, ETC).
4. LOCKING CAST IRON LID SHALL BE 8 INCH X 14 INCH.
5. WRAP FILTER FABRIC AROUND SIDES AND BOTTOM OF BOX TO COVER ALL OPENINGS.

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Revision: August 2018

Approved

  
Khalid Bazmi, County Engineer

STD. PLAN

521-3-OC

SPPWC STANDARD PLAN-PRESSURE REGULATOR INSTALLATION

SHT. 1 OF 1