

PART 6

IRRIGATION AND LANDSCAPING

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Trees and Plants

















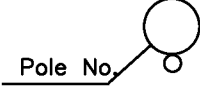




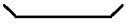

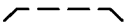
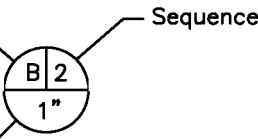

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Abbreviations and symbols for irrigation and landscaping

1. LETTERING SIZE: 100 Leroy minimum except for line type and other background information. Use 120 Leroy for new work installation.
2. LETTERING STYLE: Capital letters preferred.
3. EXISTING IMPROVEMENTS: Shown in light shaded dashed line.
4. NEW IMPROVEMENTS: Shown in solid continuous line.

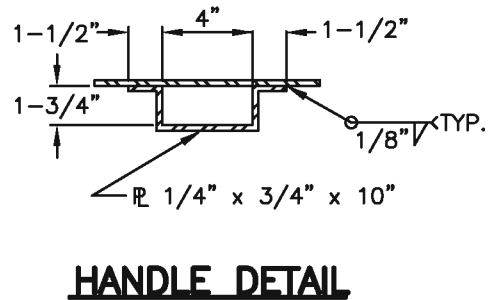
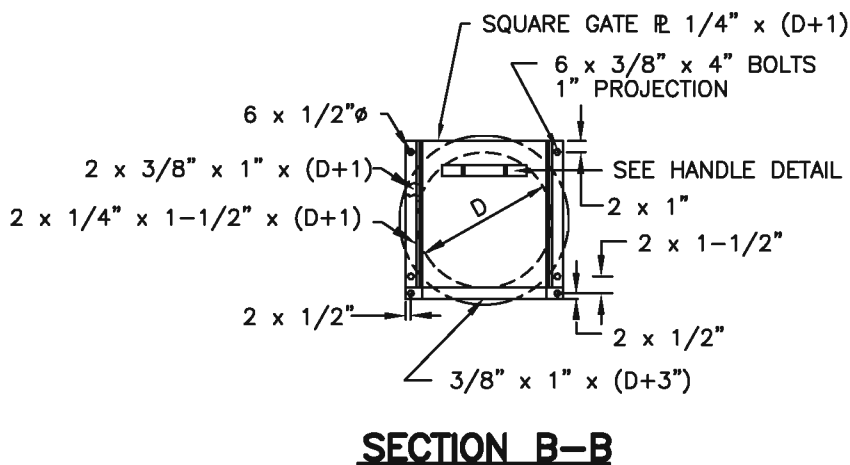
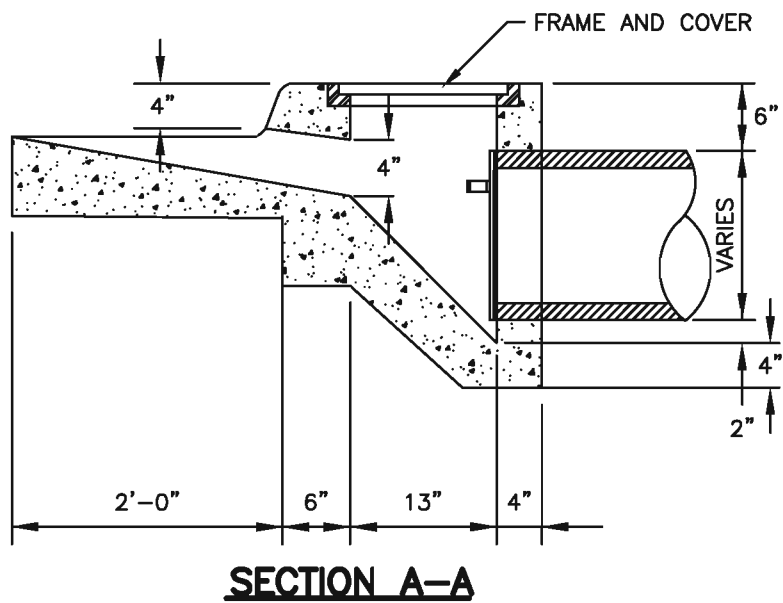
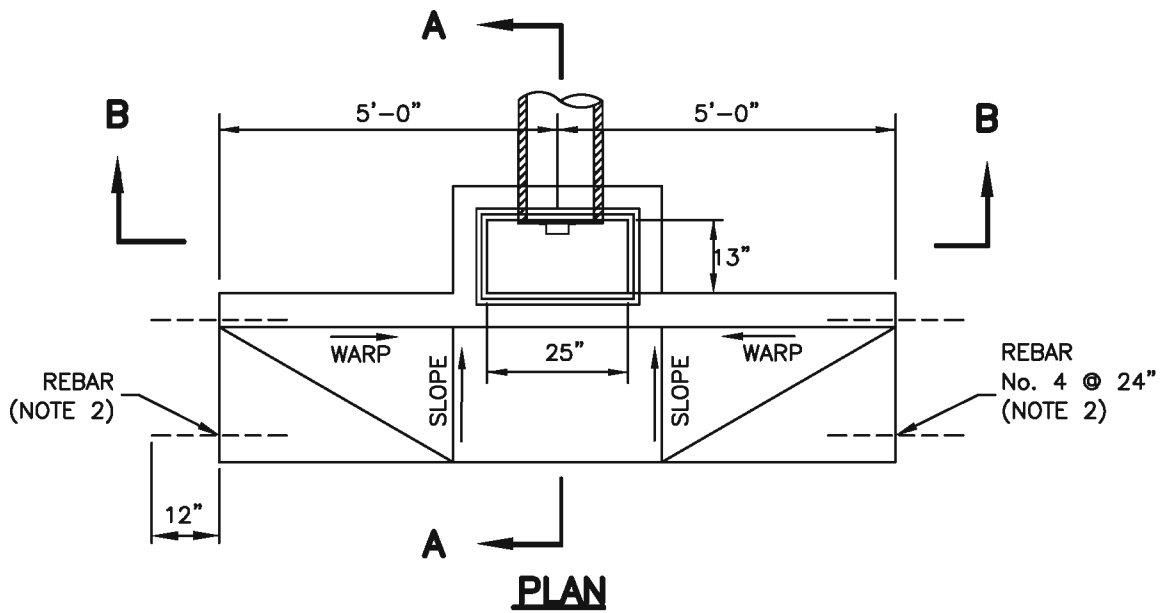
SYMBOL

DEFINITIONS

	BACKFLOW PREVENTER ASSEMBLY
	DOUBLE CHECK
	REDUCED PRESSURE
	CONTROLLER
	DRINKING FOUNTAIN
	ELECTRICAL CONDUIT
	SPRAY HEAD
	90°
	180°
	360°
	VARIABLE
	ROTOR POP UP
	PIPE
	PRESSURE MAIN
	CIRCUIT PIPE
	POINT OF CONNECTION
	POWER SOURCE
	PULL BOX:
	HIGH VOLTAGE
	LOW VOLTAGE
	PUMP
	SLEEVE:
	NEW
	EXISTING
	STATION DESIGNATION (REMOTE CONTROL VALVE)
	THRUST BLOCK

Curb inlet box for irrigation

1. **BACKFILL:** Provide and place per APWA Section 31 23 23. Compact per APWA Section 31 23 26 to a modified proctor density of 95 percent or greater. Maximum lift thickness is 8 inches before compaction.
2. **REINFORCEMENT:** ASTM A 615, grade 60, deformed steel. See APWA Section 03 20 00 requirements.
3. **CONCRETE:** Class 4000 per APWA Section 03 30 04. Place concrete per APWA Section 03 30 10. Cure per APWA Section 03 39 00.
4. **GATE:** The gate shall securely seal the pipe.
5. **COATINGS:** Coat all metal parts with asphaltum paint.
6. **CASTING:** Grey iron class 20 minimum per ASTM A 48.
7. **STEEL:** ASTM A 36.
8. **ACCESSORIES:** Stainless steel bolts, nuts, washers etc., APWA Section 05 05 23.

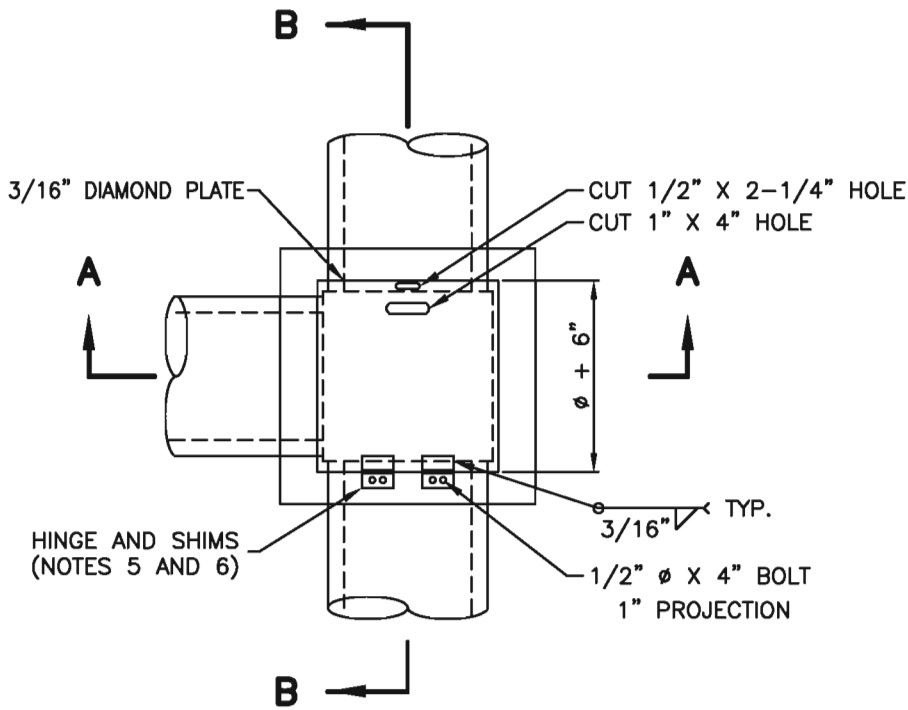


Curb inlet box for irrigation

Plan No.
611

Irrigation diversion box

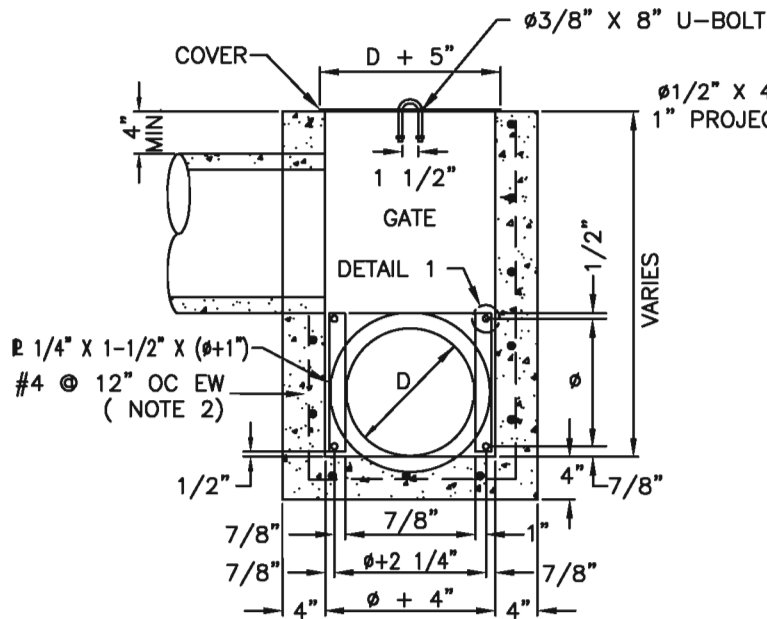
1. **BACKFILL:** Provide and place per APWA Section 31 23 23. Compact per APWA Section 31 23 26 to a modified proctor density of 95 percent or greater. Maximum lift thickness is 8 inches before compaction.
2. **REINFORCEMENT:** ASTM A 615, grade 60, deformed steel. See APWA Section 03 20 00 requirements.
3. **CONCRETE:** Class 4000 per APWA Section 03 30 04. Place concrete per APWA Section 03 30 10. Cure per APWA Section 03 39 00.
4. **GATE:** The gate shall securely seal the pipe.
5. **HINGE:** 3" x 3" butt hinges welded to the cover plate.
6. **SHIMS:** Manufacture shims to match the thickness of the cover plate and install shims on the bolted side of the hinge between the hinge and the concrete box.
7. **COATINGS:** Coat all metal parts with asphaltum paint.
8. **STEEL:** ASTM A 36.
9. **ACCESSORIES:** Stainless steel bolts, nuts, washers etc., APWA Section 05 05 23.



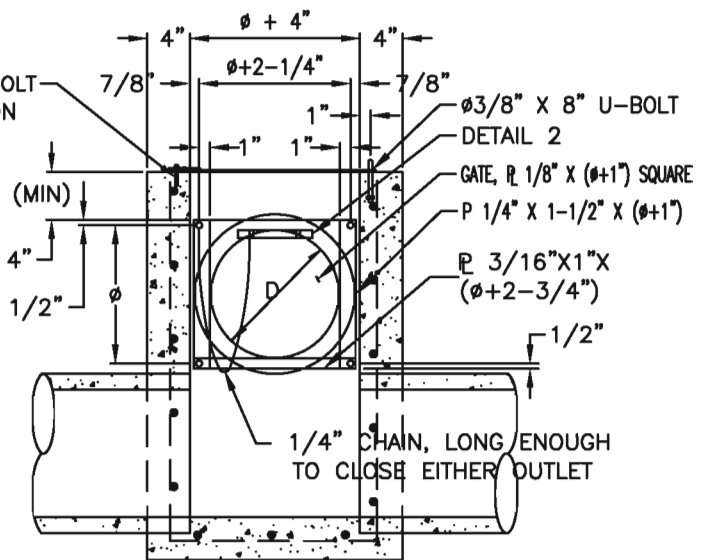
PLAN VIEW

NARRATIVE

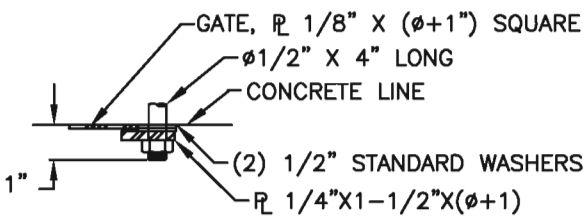
DO NOT USE THIS BOX IN AREAS USED BY VEHICULAR TRAFFIC OR IN SIDEWALKS



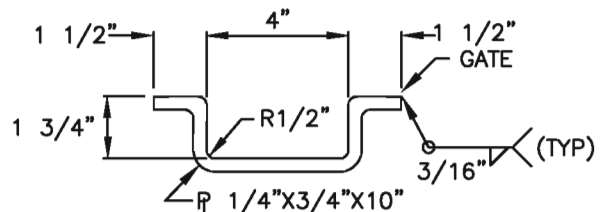
SECTION A-A



SECTION B-B



DETAIL 1



DETAIL 2

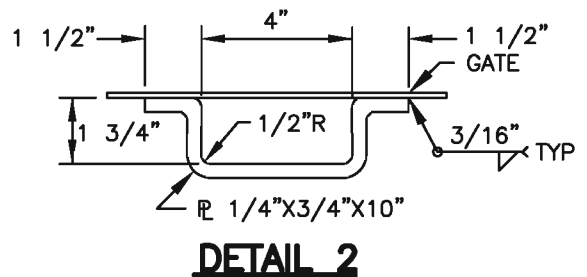
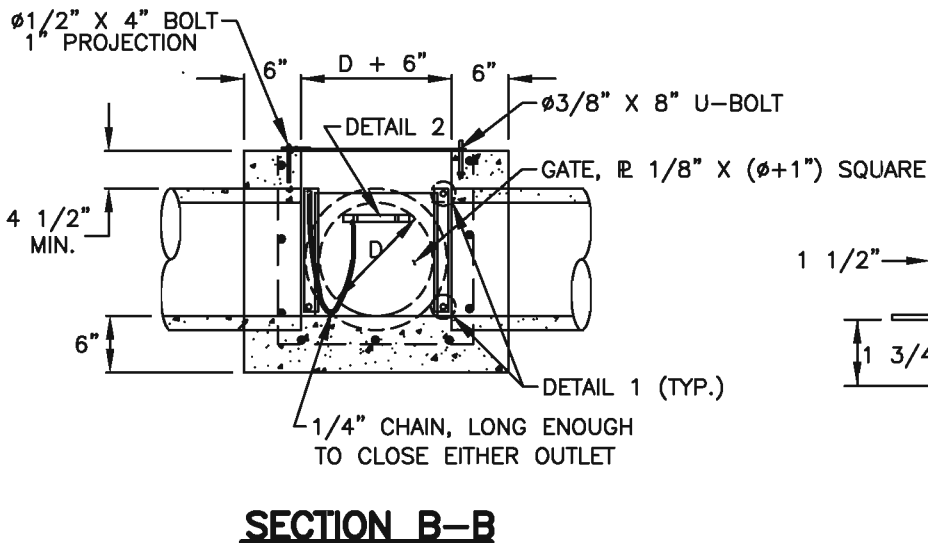
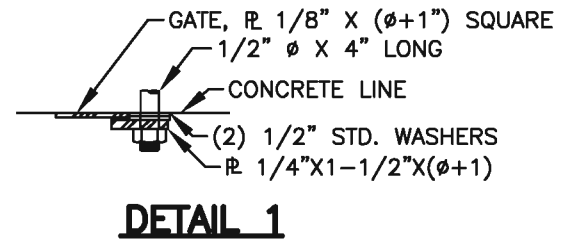
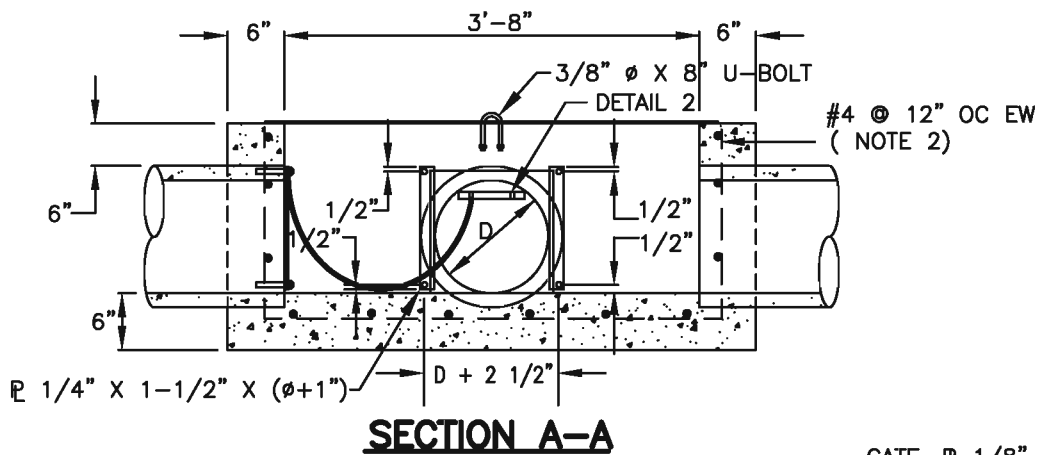
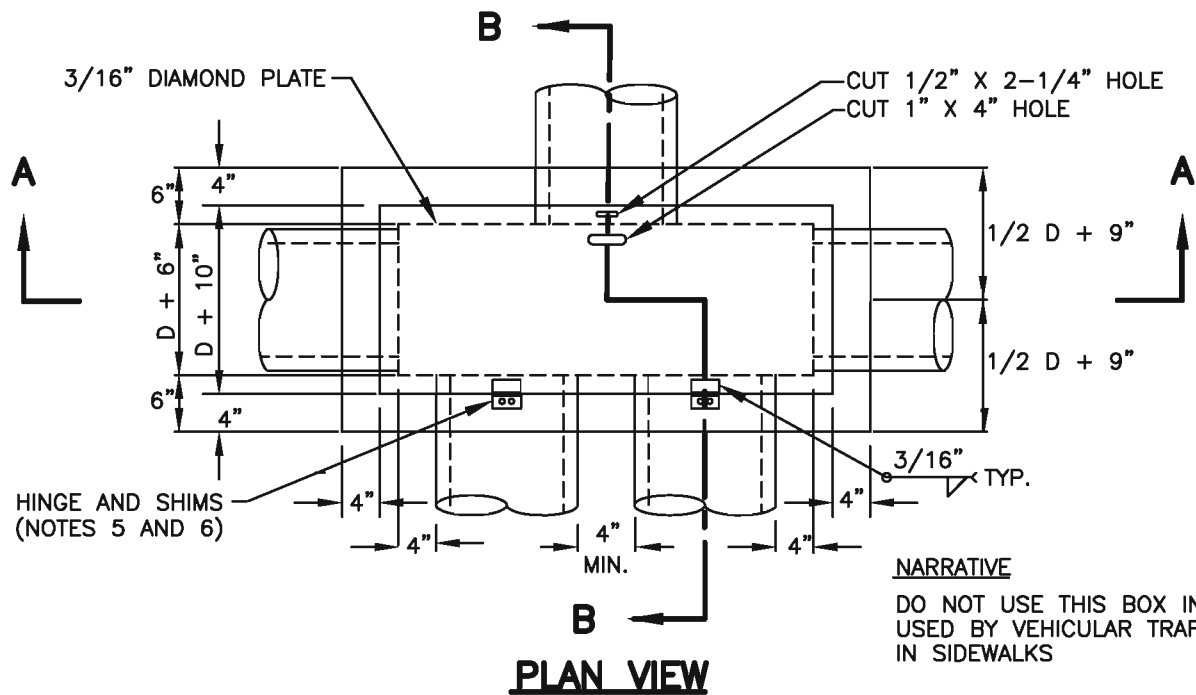
Irrigation diversion box

Plan No.

613

Irrigation diversion box

1. **BACKFILL:** Provide and place per APWA Section 31 23 23. Compact per APWA Section 31 23 26 to a modified proctor density of 95 percent or greater. Maximum lift thickness is 8 inches before compaction.
2. **REINFORCEMENT:** ASTM A 615, grade 60, deformed steel. See APWA Section 03 20 00 requirements.
3. **CONCRETE:** Class 4000 per APWA Section 03 30 04. Place concrete per APWA Section 03 30 10. Cure per APWA Section 03 39 00.
4. **GATE:** The gate shall securely seal the pipe.
5. **HINGE:** 3" x 3" butt hinges welded to the cover plate.
6. **SHIMS:** Manufacture shims to match the thickness of the cover plate and install shims on the bolted side of the hinge between the hinge and the concrete box.
7. **COATINGS:** Coat all metal parts with asphaltum paint.
8. **STEEL:** ASTM A 36.
9. **ACCESSORIES:** Stainless steel bolts, nuts, washers etc., APWA Section 05 05 23.

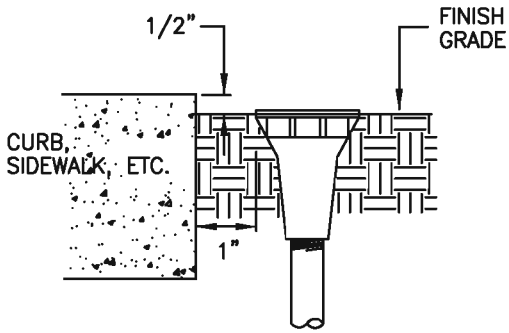


Irrigation diversion box

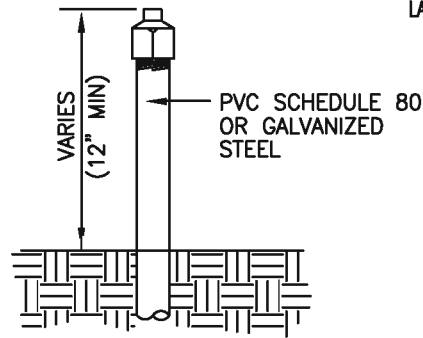
Plan No.
614

Stationary head

1. INSPECTION: Prior to backfilling around head, secure inspection of head installation by ENGINEER.
2. PLACEMENT:
 - A. Adjust heads to final landscape grade.
 - B. Keep heads 1/2 inch below edge of pavement surfaces.
3. BACKFILL: Install backfill material around heads and compact to prevent settling.
4. SURFACE RESTORATION: Cut sod around head to fit. Keep head flush with surrounding sod or seeded areas.
5. COVERAGE: Provide correct type of head and adjust throttle controls to obtain required coverage.

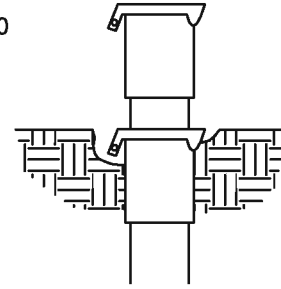


TYPE F
FLUSH HEAD

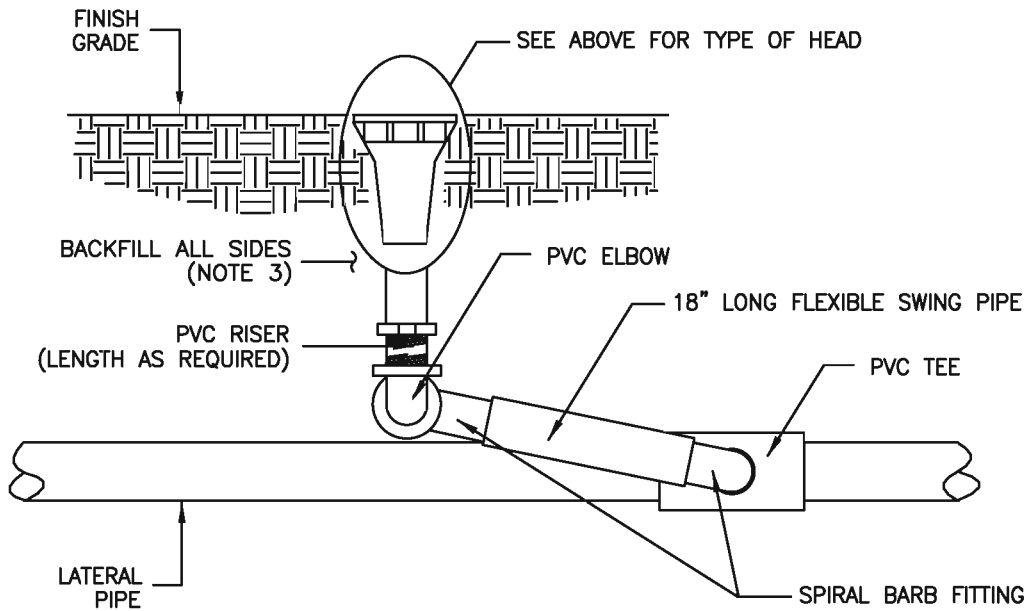


TYPE S
SHRUB HEAD

ADJUST TO FINISH GRADE WHEN
LANDSCAPED SURFACE IS ESTABLISHED



TYPE Q
QUICK COUPLER



SECTION

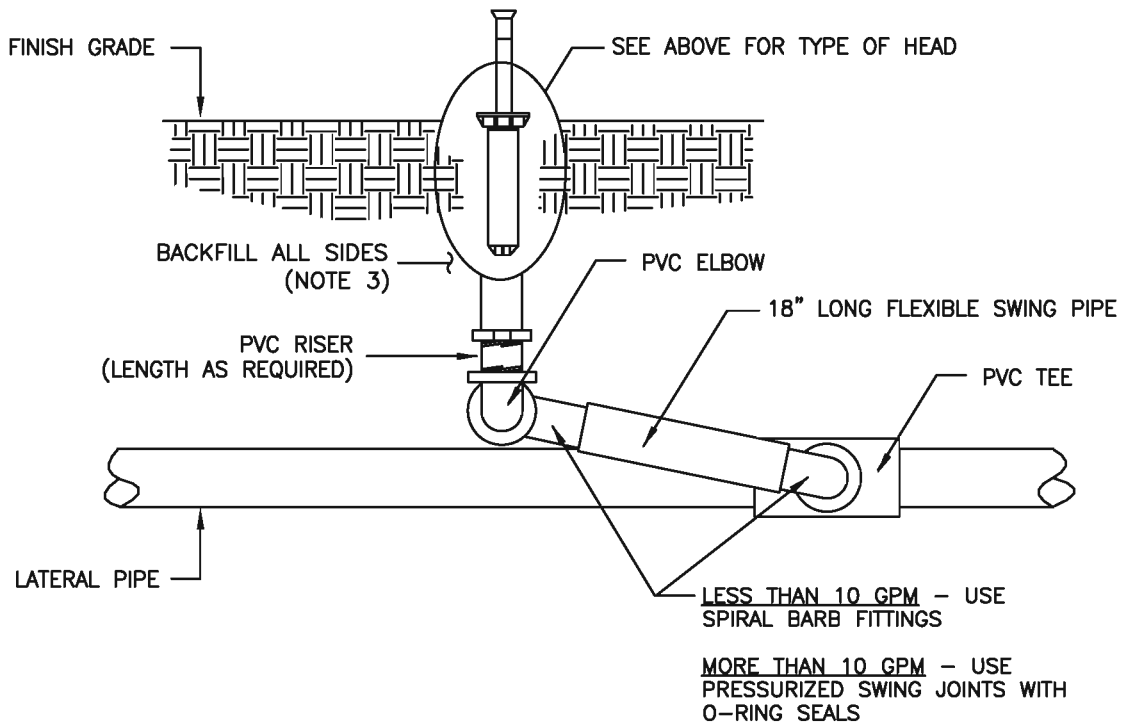
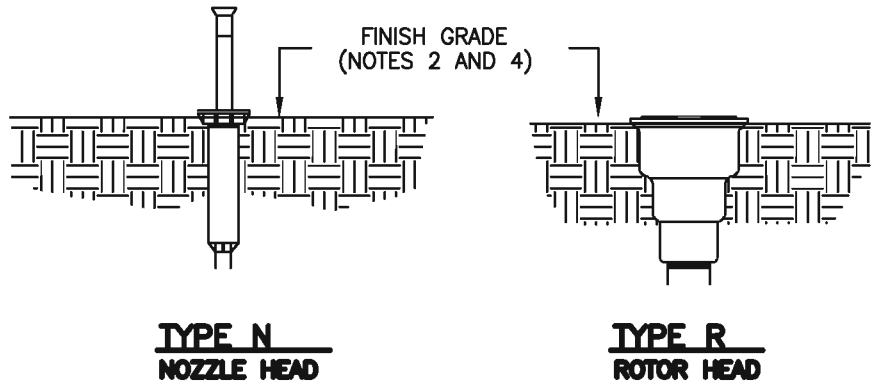
Stationary head

Plan No.

621

Pop-up head

1. INSPECTION: Prior to backfilling around head, secure inspection of head installation by ENGINEER.
2. PLACEMENT:
 - A. Adjust heads to final landscape grade.
 - B. Keep heads 1/2 inch below edge of pavement surfaces.
3. BACKFILL: Install backfill material around heads and compact to prevent settling.
4. SURFACE RESTORATION: Cut sod around head to fit. Keep head flush with surrounding sod or seeded areas.
5. COVERAGE: Provide correct type of head and adjust throttle controls to obtain required coverage.



LESS THAN 10 GPM - USE
SPIRAL BARB FITTINGS

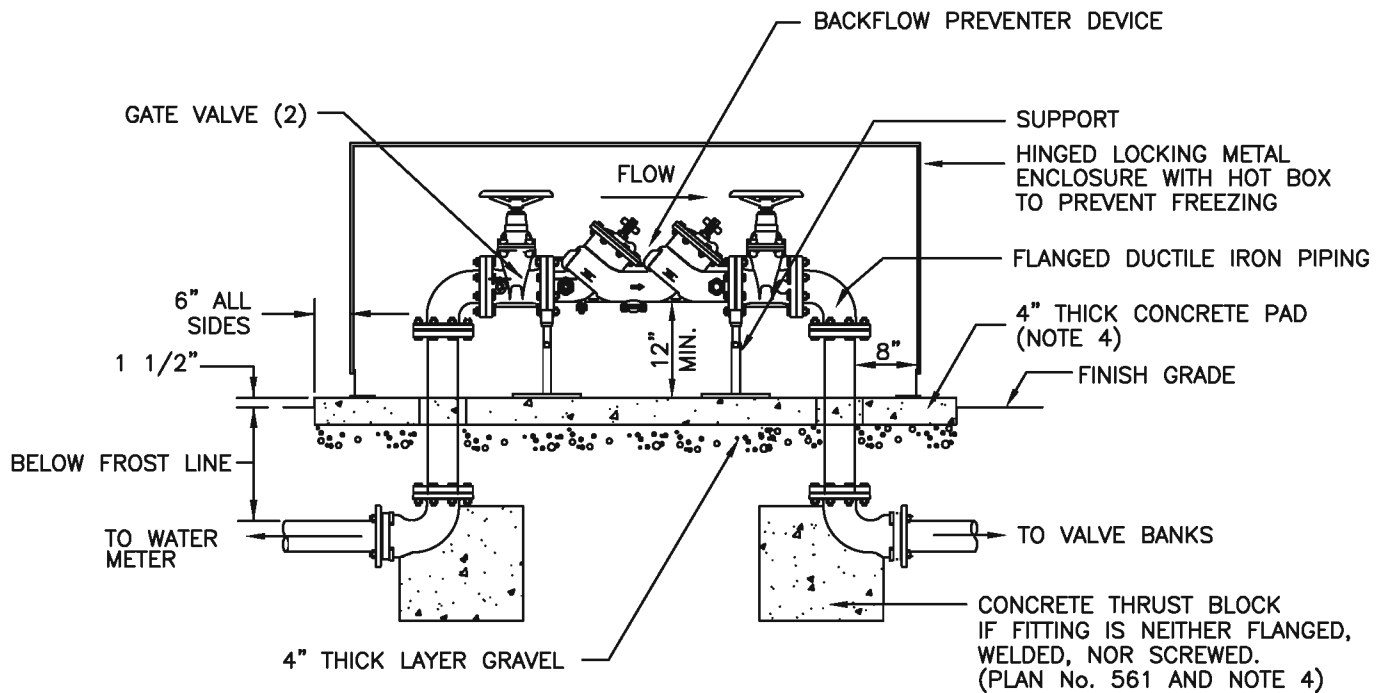
MORE THAN 10 GPM - USE
PRESSURIZED SWING JOINTS WITH
O-RING SEALS

Pop-up head

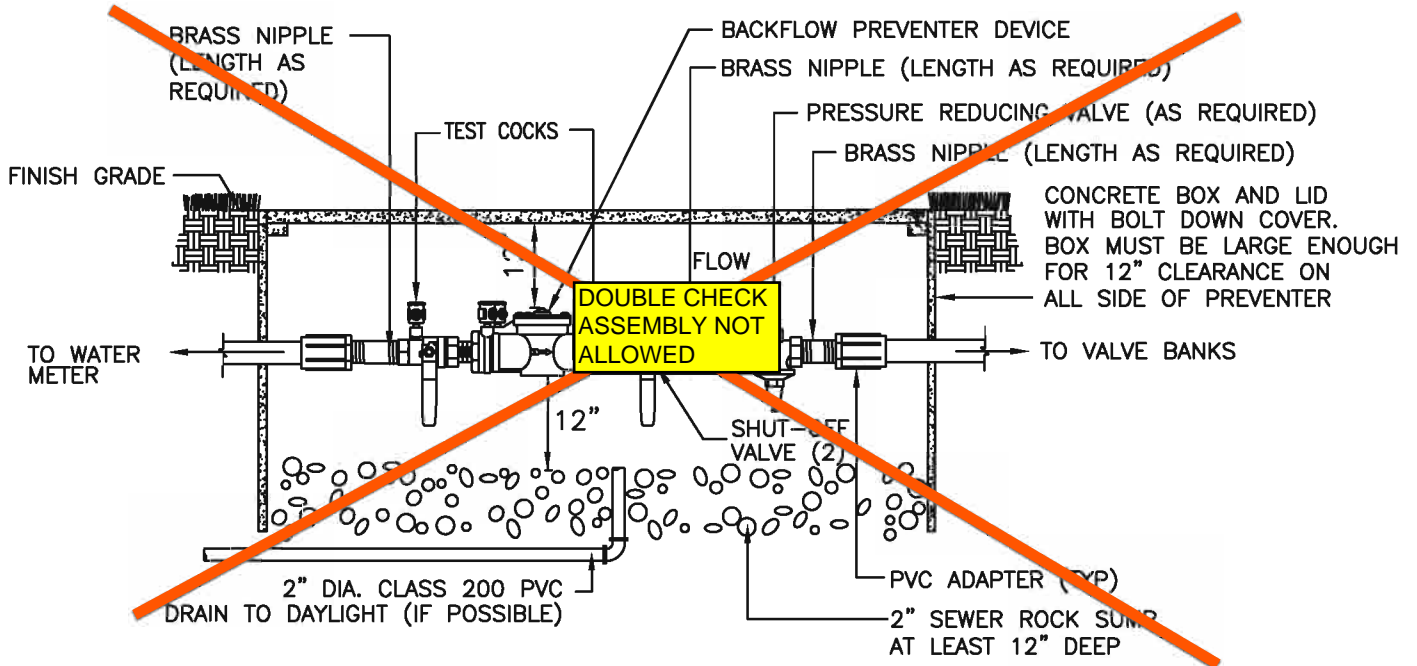
Plan No.
622

Backflow preventer

1. INSPECTION: Assure ENGINEER the backflow preventer system meets the Utah Safe Drinking Water Act.
2. BACKFILL: Install backfill material around valve box and compact to prevent settling.
3. COATING: Except machined surfaces, coat all items exposed to atmosphere with epoxy paint. Color to be selected by ENGINEER.
4. CONCRETE: Class 4000 per APWA Section 03 30 04. Place concrete per APWA Section 03 30 10. Cure per APWA Section 03 39 00.
5. INSTALLATION: Install per the plumbing code. It must not be susceptible to flooding and must be accessible at all times for testing, repair, inspection, etc.
6. TESTING Test the backflow preventer within 10 days of installation by a licensed backflow device tester and report results to ENGINEER.



ABOVE GROUND > 3 INCH



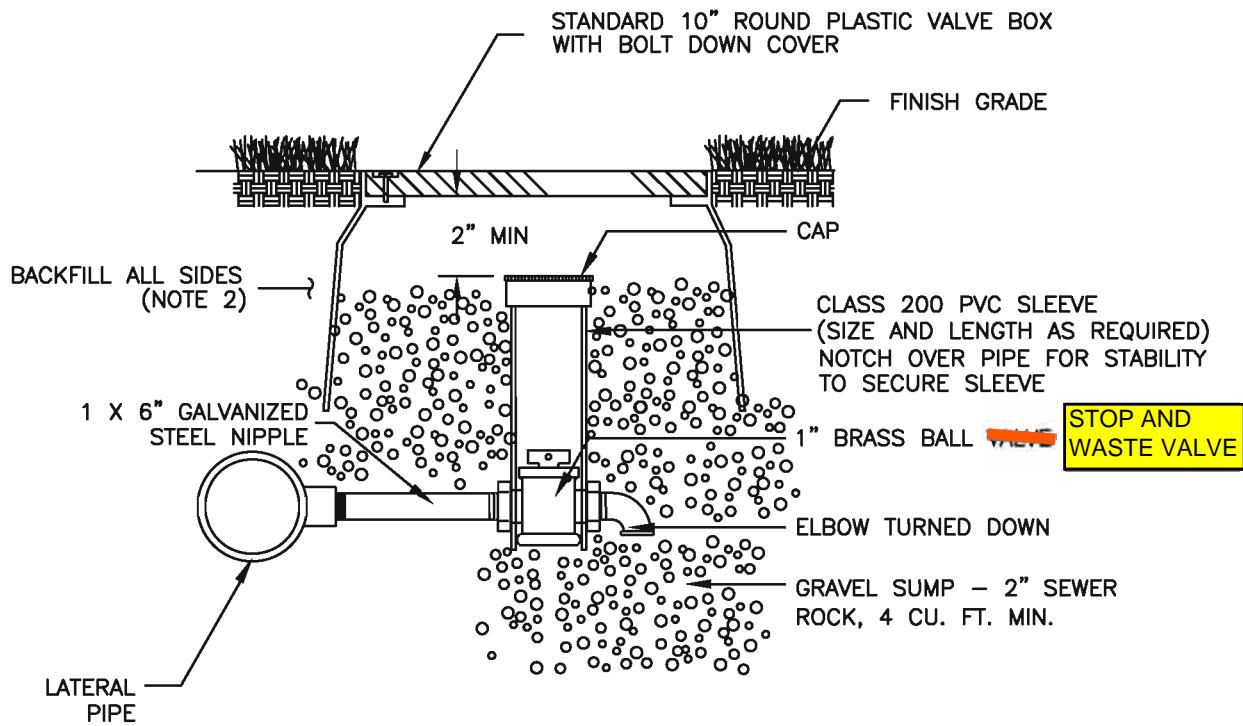
BELOW GROUND

Backflow preventer

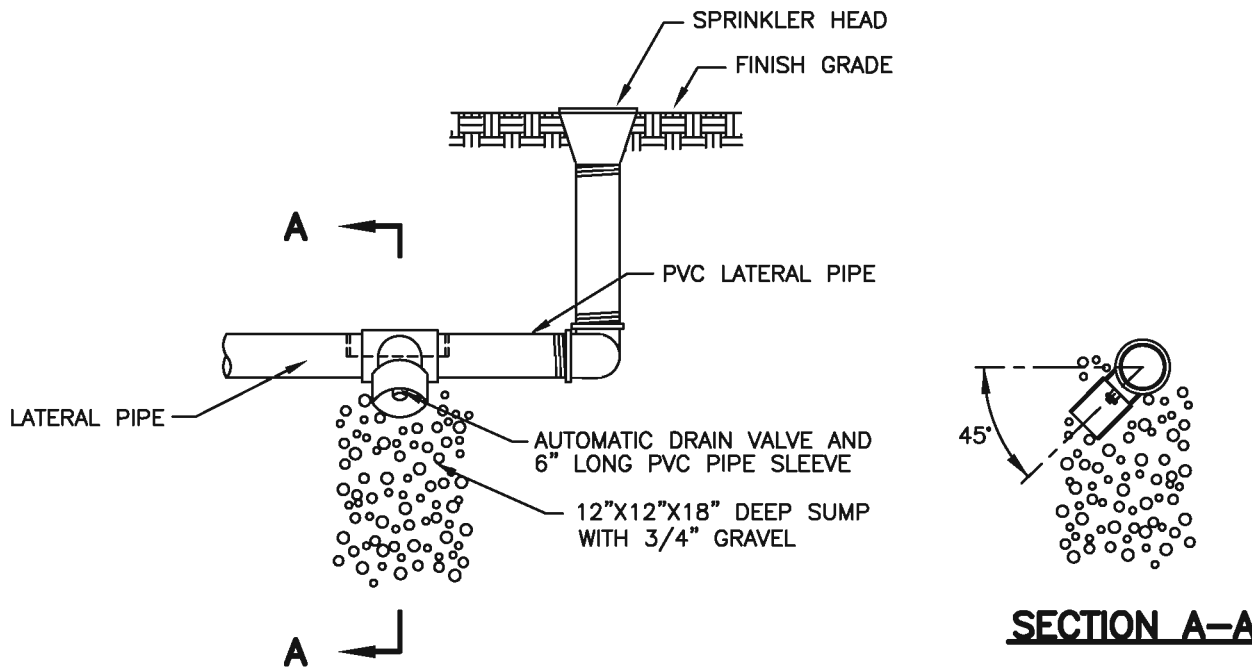
Plan No.
631

Drain valve

1. **INSPECTION:** Prior to backfilling around drain, secure inspection of drain installation by ENGINEER. System must be pressurized during inspection.
2. **BACKFILL:** Install backfill material around pipe and valve and compact to prevent settling.
3. **PLACEMENT:** Provide positive drainage in entire system. Do not install automatic drain valves on the end of lateral pipes. Install upstream of the last head or at a low point to obtain full drainage.
4. **SALVAGE:** Deliver salvaged valves to ENGINEER unless specified otherwise.
5. **INSTALLATION:** Locate all valves at all low points on circuit pipe.



TYPE A - MANUAL DRAIN VALVE



TYPE B - AUTOMATIC DRAIN VALVE

Drain valve

Plan No.

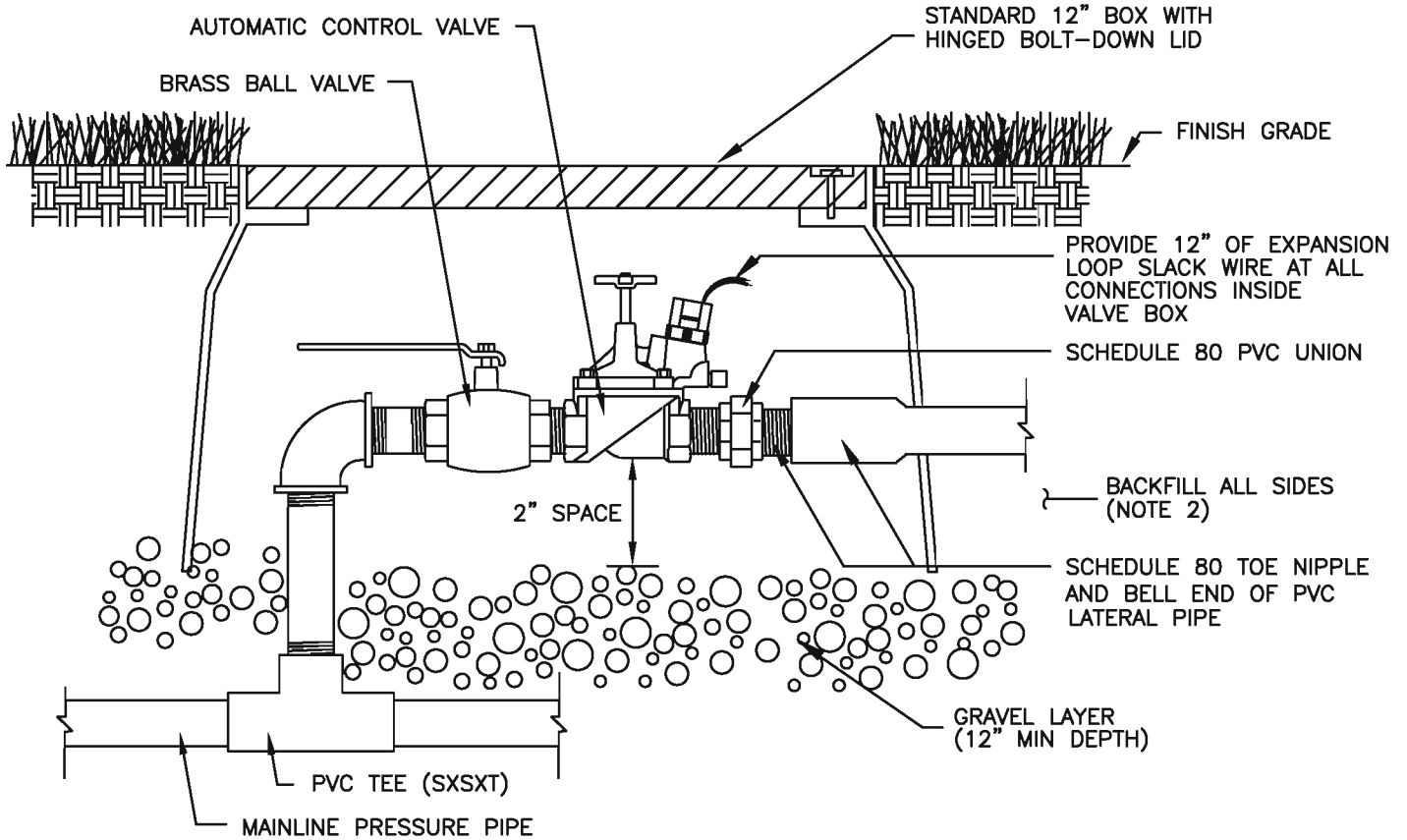
632

Control valve

1. **INSPECTION:** Prior to backfilling around valve box, secure inspection of installation by ENGINEER. System must be pressurized during inspection.
2. **BACKFILL:** Install backfill material around pipe and valve box and compact to prevent settling.
3. **PLACEMENT:** Install automatic controllers and wiring per manufacturer's recommendations.

NARRATIVE

USE SCHEDULE 80 THREADED PIPING



ELEVATION

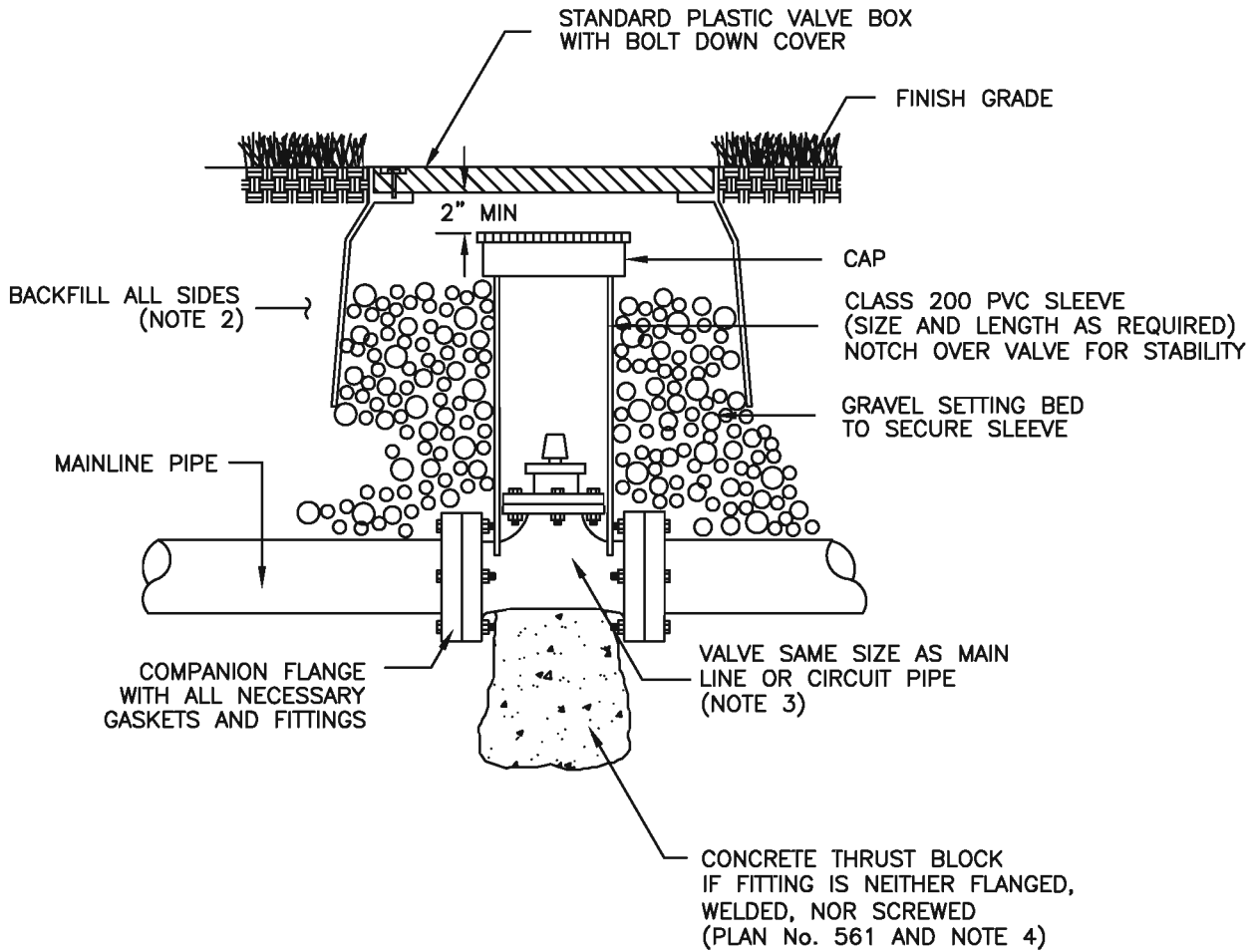
Control valve

Plan No.

633

Isolation shut-off valve

1. INSPECTION: Prior to backfilling around shut-off valve, secure inspection of valve installation by ENGINEER. System must be pressurized during inspection.
2. BACKFILL: Install backfill material around pipe and valve and compact to prevent settling.
3. GATE VALVE: Bronze, double disk wedge type with integral taper seats and non-rising stem.
4. CONCRETE: Class 4000 per APWA Section 03 30 04. Place concrete per APWA Section 03 30 10. Cure per APWA Section 03 39 00.
5. SALVAGE: Return salvaged valves to ENGINEER unless specified otherwise.



SECTION

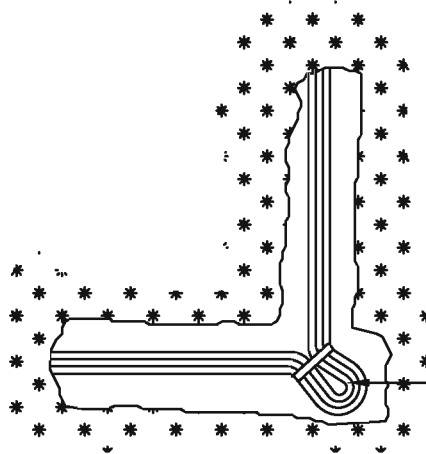
isolation shut-off valve

Plan No.

635

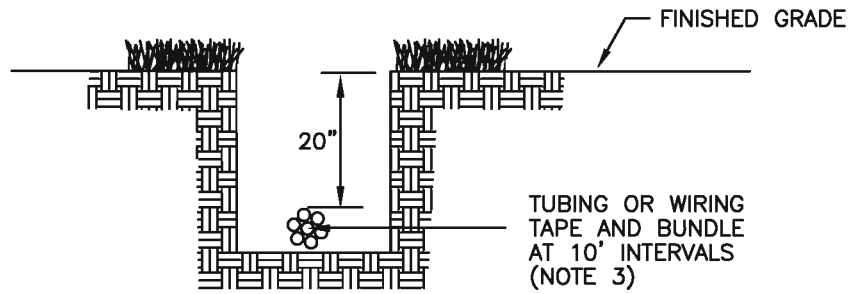
Wire runs for landscape irrigation

1. **BACKFILL:** Install and compact backfill material to prevent settling.
2. **CIRCUIT PIPE:** Where circuit pipe runs parallel to a pressure pipe, do not install over pressure pipe.
3. **CONTROL WIRE:** Use UF-UL listed copper control wire with PVC insulation for direct burial. Provide 12 inches of expansion loop wire at each valve and every 100 feet of wire length. Use waterproof wire connectors at all splices.



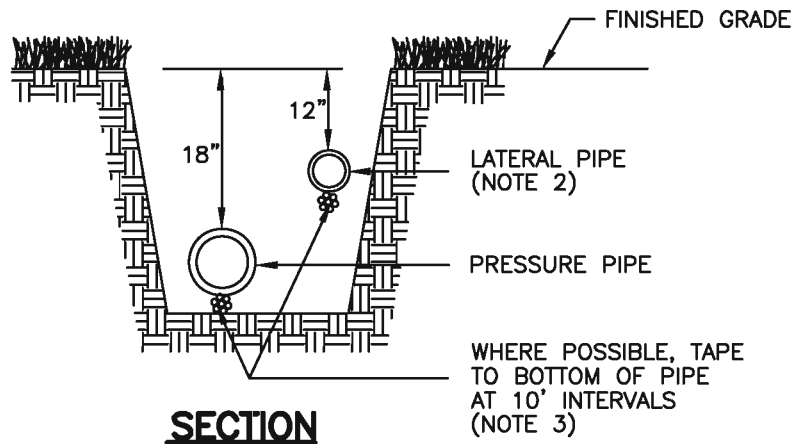
TIE A LOOSE 20" LOOP IN ALL WIRING AT CHANGES OF DIRECTION GREATER THAN 30 DEGREES. UNTIE ALL LOOPS AFTER CONNECTIONS HAVE BEEN MADE

PLAN VIEW



TUBING OR WIRING TAPE AND BUNDLE AT 10' INTERVALS (NOTE 3)

SECTION



WHERE POSSIBLE, TAPE TO BOTTOM OF PIPE AT 10' INTERVALS (NOTE 3)

SECTION

Tree

1. DEFINITIONS

- A. Large Tree: over 50 feet tall at maturity.
- B. Medium Tree: between 30 and 50 feet tall at maturity.
- C. Small Tree: up to 30 feet tall at maturity.
- D. Park Strip: area between the edge of road, (back of curb) and the sidewalk.
- E. Tree Size: average caliper diameter measured 6" above the root ball.

2. TREE SIZE FOR PARK STRIPS:

<u>Tree Size</u>	<u>Park Strip Width</u>
Large Tree	8 feet or larger
Medium Tree	5- feet or larger
Small tree	3 feet or larger

3. TREE LOCATIONS:

<u>Distance from</u>	<u>Distance</u>
Fire hydrant, water meter, utility box, residential driveway, alley, property line, mailbox, or building.....	10 feet
Non-traffic control signing (no parking, children at play, etc.).....	15 feet
Small tree, utility pole, light pole, or unregulated intersection.....	20 feet
Tree on private property	25 feet
Medium tree, commercial driveway, or traffic control signing	30 feet
Large tree, or intersection with traffic control lights	40 feet

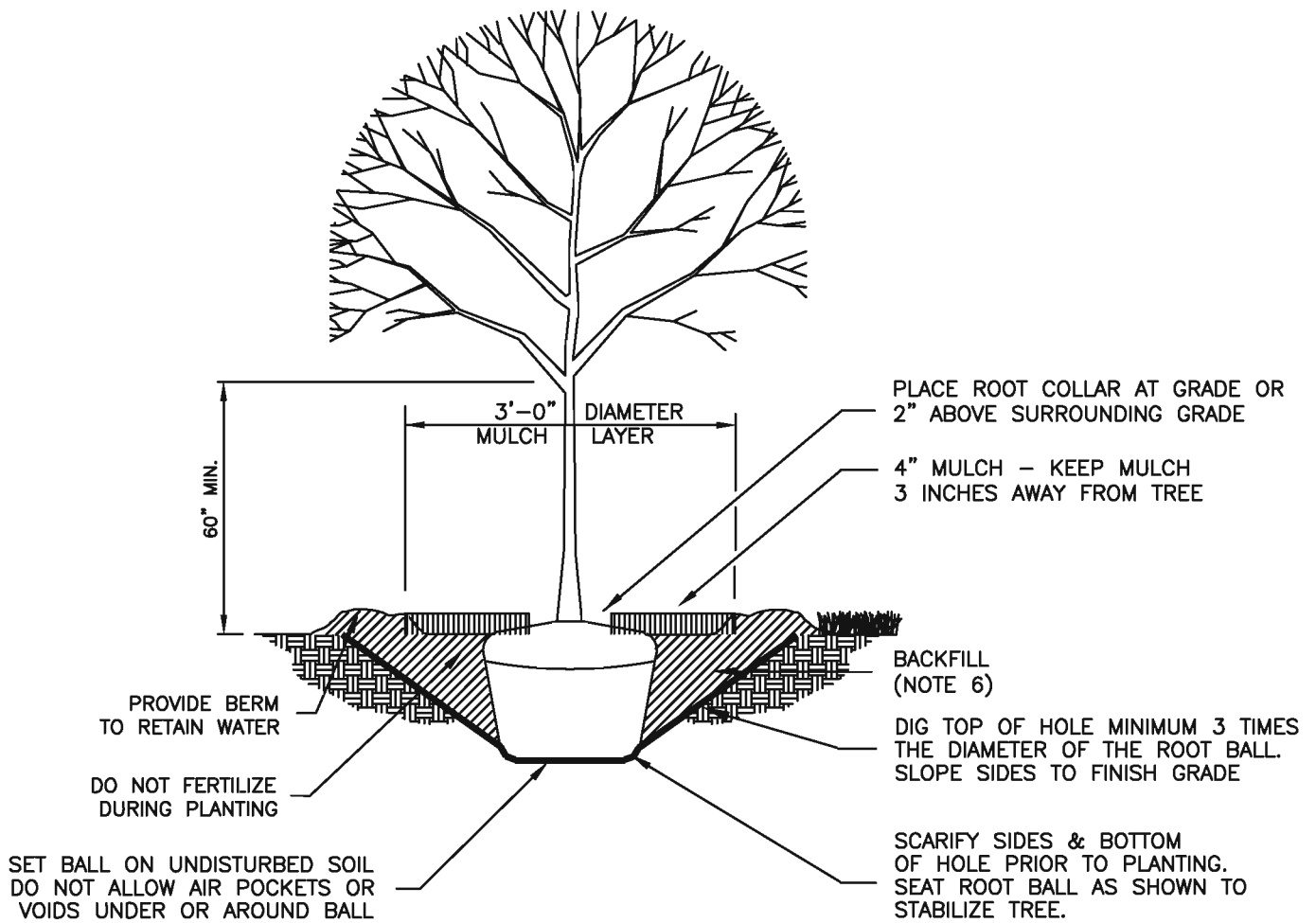
4. ROOT BALL:

- A. Prune circling roots, protruding root stubs, and fibrous matted roots flush with the root ball. Handle root ball with care. Minimize crumbling, cracking, and splitting.
- B. After placing the tree in the hole remove wire and burlap if stability of the root ball allows. If not, remove only the top one or two rows of wire and an equal amount of burlap. Leave no twine or burlap on or near the surface of the ball or around the trunk. Cut vertical slits in burlap that remains. Do not fold burlap into the hole.

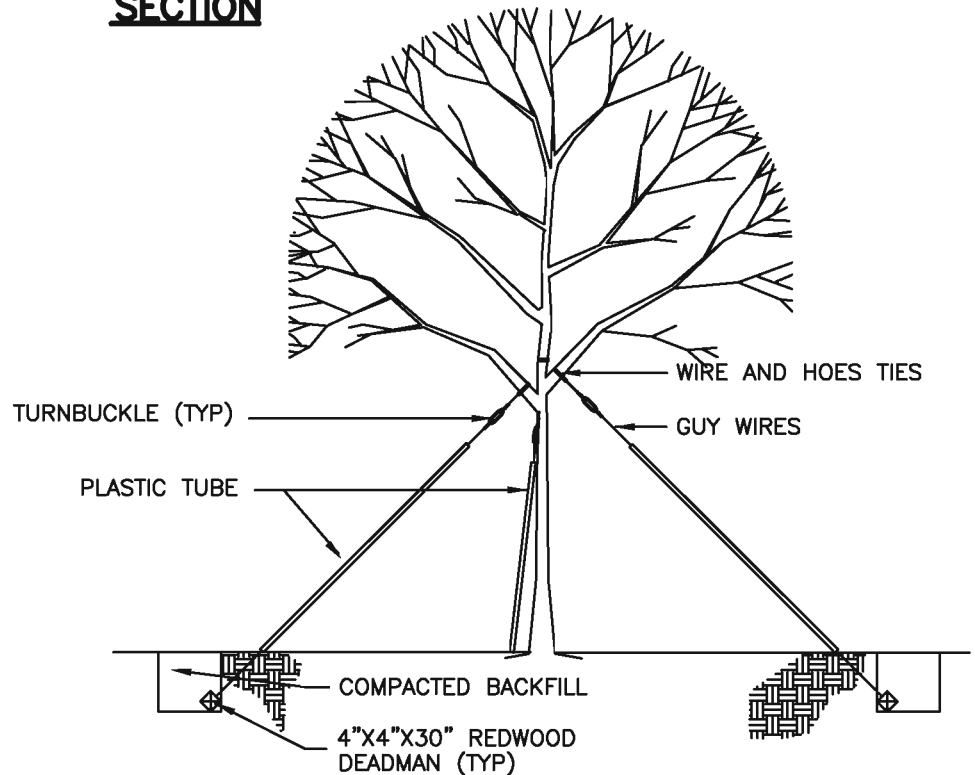
5. CONTAINERS: Slide root balls out of containers. Do not pull on the trunk. If is too large, cut the container off after the tree is placed in the planting site.

6. BACKFILL AND WATERING:

- A. Use soil removed from the hole as backfill. If soil is road base, mix with 1/3 organic mulch APWA Section 32 93 43. Mix thoroughly.
- B. Compact backfill in 6" layers. Water. Allow water to soak deeply into the soil. Make sure ball gets thoroughly wet.



SECTION



NOTICE
 STAKING NOT PERMITTED EXCEPT
 IF AUTHORIZED IN WRITING
 BY ENGINEER

TYPICAL TREE STAKING DETAIL

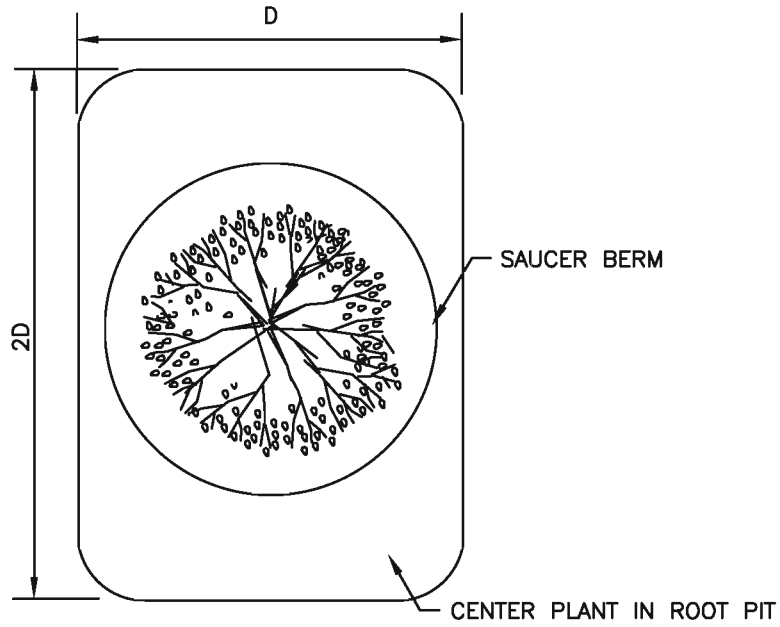
Plan No.

681

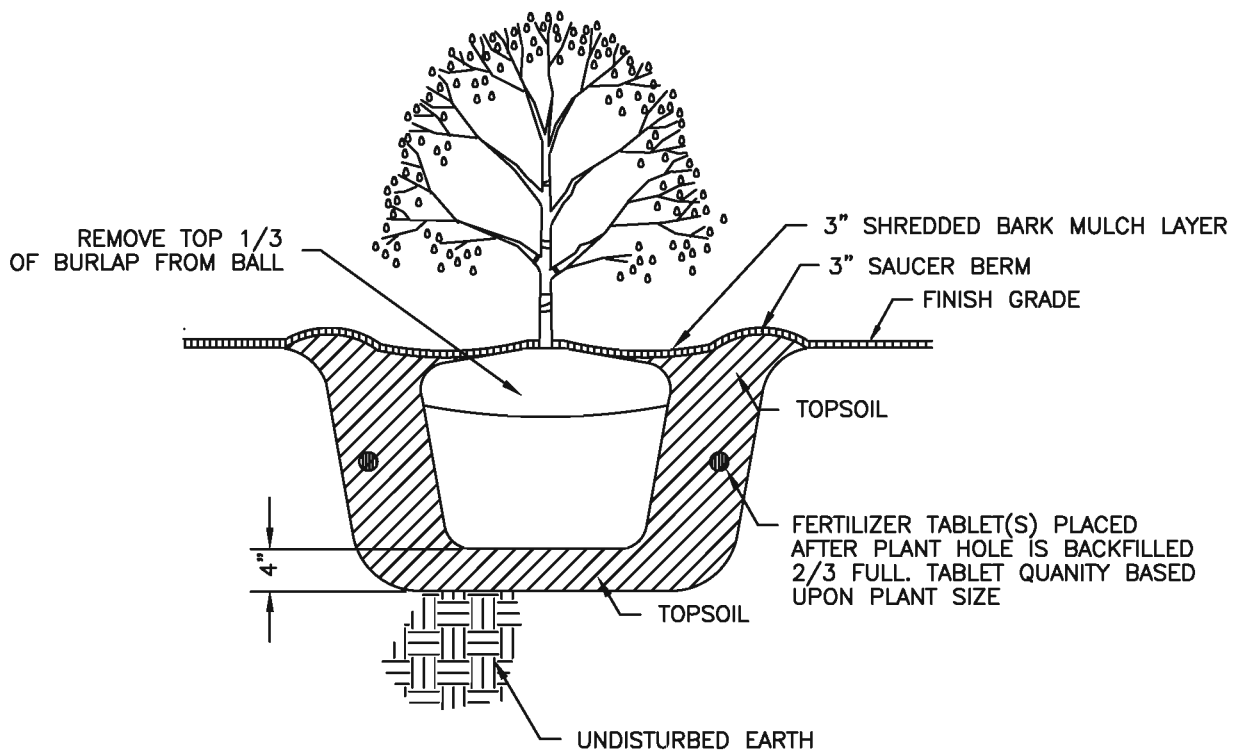
Tree

Shrubs and bushes

1. BACKFILL: Install and compact all backfill material to prevent settling
2. DEPTH OF PLANTING: Set shrubs and bushes at original depth.
3. FERTILIZER: Commercial fertilizer per FS O-F-241, uniform in composition.
4. ACCESSORIES: Wood or wood cellulose fiber free of growth or germination inhibiting ingredients.



PLAN



SECTION

Shrubs and bushes

Plan No.

683

