NOTES:

1. Plant material must meet the minimum acceptable standard set by the American Association of Nurserymen's American Standard of Nursery Stock: ANSI Z60.1. Broken, damaged, diseased, or substandard stock are prohibited from being planted in the public right-of-way and will be rejected.

2. Only class I (small growing) trees are permitted to be planted under or within fifteen (15') of overhead utility lines.

3. Prune only broken or damaged branches. Do not apply fertilizer at time of planting.

4. The root flare is the point where the top most structural root emerges from the trunk.
   The depth of the root ball shall be measured from the root flare to the bottom of the root ball.
   Handle B&B plants carefully when transferring to planting hole.
   Lift or carry by holding the root ball, not the trunk.

5. Remove any excess soil from the top of the root ball to expose the root flare.
   Place tree in planting hole with root flare level with or up to 1" above finish grade.

6. Remove all wire baskets and rope from root ball. Be careful to keep the root ball intact.

7. Remove all burlap from the root ball. Be careful to keep root ball intact.

8. Straighten, cut and remove any circling roots.

9. Backfill planting hole 2/3 full with existing soil, settle with water, continue to fill with soil, water again. Water thoroughly after installation to eliminate air pockets.

10. Construct a temporary raised ring of soil at edge of root ball to contain water.
    Remove or breach before winter.

11. Construct mulch ring with a minimum 36" diameter to a depth of 2" - 4"; leave 3" bare ground between mulch and tree trunk.

12. Set stakes parallel to prevailing wind and outside of root ball. Ties must be 1" wide minimum, flexible belt-like strapping. Do not use rope or wire.
    Do not over-tighten around tree. Ties should be tight enough to support the tree while allowing it to sway. Remove stakes and ties within one year after installation.

13. Trees benefit when irrigated separately from turf. Water new trees during summer months to a depth of 12" - 18" once per week (about 5 gallons of water per caliper inch) for the first 3 growing seasons. During periods of drought, new trees may need more frequent watering.
SECTION

REMOVE ALL TABS & LABELS

REMOVE TRUNK WRAP

POLYLOCK TREE TIES

8' TREE STAKES
DRIVE 2' INTO SOIL

GRAFT UNION: TYP. 4" - 6" ABOVE
ROOT FLARE

ROOT FLARE: LEVEL WITH OR UP TO
1" ABOVE FINISH GRADE

TEMPORARY RAISED RING OF
SOIL 6" MIN. HEIGHT

CONSTRUCT A 6" - 8" HIGH
SOIL MOUND TO SUPPORT
CENTER OF TREE AND
PROMOTE SPREADING
OF ROOTS

SET ROOT BALL ON
UNDISTURBED NATIVE SOIL
TO PREVENT SETTLING

DIG HOLE 2-3 TIMES THE
WIDTH OF ROOT BALL
ROUGHEN SIDES TO
DISTURB GLAZING

36" MIN. DIA. MULCH RING

BARE ROOT TREE PLANTING DETAIL

Approved by: 
Parks & Rec. Design Mgr.
Neill Miner

Drawn by: 
GLS

Checked by: 
CB

PR-101-2

Adopted:
NOTES:

1. Plant material must meet the minimum acceptable standard set by the America Association of Nurserymen's American Standard of Nursery Stock: ANSI Z60.1. Broken, damaged, diseased, or substandard stock are prohibited from being planted in the public right-of-way and will be rejected.

2. Only class I (small growing) trees are permitted to be planted under or within fifteen (15') of overhead utility lines.

3. Prune only broken or damaged branches. Do not apply fertilizer at time of planting.

4. The root flare is the point where the top most structural root emerges from the trunk. The depth of the root ball shall be measured from the root flare to the bottom of the lowest root(s). Handle roots carefully when transferring to planing hole.

5. Remove all packing material from roots.

6. Plant root flare level with or up to 1" above finish grade.

7. Straighten, cut and remove any circling roots. Construct a mound of soil 6" - 8" high to support center of tree. Spread roots over mound, extending in a radial pattern from the trunk, distributing them evenly in the planting hole.

8. Backfill planting hole 2/3 full with existing soil, settle with water, continue to fill with soil, water again. Water thoroughly after installation to eliminate air pockets.

9. Construct a temporary raised ring of soil at edge of root ball to contain water. Remove or breach before winter.

10. Construct mulch ring with minimum 36" diameter to a depth of 2" - 4"; leave 3" of bare ground between mulch and tree trunk.

11. Set stakes parallel to prevailing wind and outside of root ball. Ties must be 1" wide minimum, flexible belt-like strapping. Do not use rope or wire. Do not overtighten around tree. Ties should be tight enough to support the tree while allowing it to sway. Remove stakes and ties within one year after installation.

12. Trees benefit when irrigated separately from turf. Water new trees during summer months to a depth of 12" - 18" once per week (about 5 gallons of water per caliper inch) for the first 3 growing seasons. During periods of drought, new trees may need more frequent watering.
SECTION

- REMOVE ALL TABS & LABELS
- REMOVE TRUNK WRAP
- POLYLOCK TREE TIES
- 8' STAKES
  DRIVE 2' INTO SOIL
- GRAFT UNION: TYP. 4" - 6"
  ABOVE ROOT FLARE
- ROOT FLARE: LEVEL WITH OR UP
  TO 1" ABOVE FINISH GRADE
- TEMPORARY RAISED RING OF SOIL
  6" MIN. HEIGHT

- 36" MIN. DIA. MULCH RING

- REMOVE ROOT BALL FROM
  CONTAINER BEFORE
  PLACING IN PLANTING PIT
  SCARIFY THE EDGES OF THE
  ROOT BALL

- SET ROOT BALL ON
  UNDISTURBED NATIVE SOIL
  TO PREVENT SETTLING

- DIG HOLE 2-3 TIMES THE
  WIDTH OF ROOT BALL
  ROUGHEN SIDES
  TO DISTURB GLAZING

CONTAINER TREE PLANTING DETAIL

Approved by: 
Parks & Rec. Design Mgr. 
Neil Miner

Drawn by: 
GLS

Checked by: 
CB

Adopted:

PR-101-3
1. Plant material must meet the minimum acceptable standard set by the American Association of Nurserymen's American Standard of Nursery Stock: ANSI Z60.1. Broken, damaged, diseased, or substandard stock are prohibited from being planted in the public right-of-way and will be rejected.
2. Only class I (small growing) trees are permitted to be planted under or within fifteen (15') of overhead utility lines.
3. Prune only broken or damaged branches. Do not apply fertilizer at time of planting.
4. The root flare is the point where the top most structural root emerges from the trunk. The depth of the root ball shall be measured from the root flare to the bottom of the ball. Handle container plants carefully when transferring to planting hole. Lift or carry by holding the root ball, not the trunk.
5. Remove any excess soil from the top of the root ball to expose the root flare. Place tree in planting hole with root flare level with or up to 1" above finish grade.
6. Remove container from root ball. Be careful to keep the root ball intact.
7. Straighten, cut and remove any circling roots.
8. Backfill planting hole 2/3 full with existing soil, settle with water, continue to fill with soil, water again. Water thoroughly after installation to eliminate air pockets.
9. Construct a temporary raised ring of soil at edge of root ball to contain water. Remove or breach before winter.
10. Construct mulch ring with minimum 36" diameter to a depth of 2" - 4"; leave 3" of bare ground between mulch and tree trunk.
11. Set stakes parallel to prevailing wind and outside of root ball. Ties must be 1" wide minimum, flexible belt-like strapping. Do not use rope or wire. Do not over-tighten around tree. Ties should be tight enough to support the tree while allowing it to sway. Remove stakes and ties within one year after installation.
12. Trees benefit when irrigated separately from turf. Water new trees during summer months to a depth of 12" - 18" once per week (about 5 gallons of water per caliper inch) for the first 3 growing seasons. During periods of drought, new trees may need more frequent watering.
1. Tree as per City of Missoula Parks & Rec. standards for selecting & planting landscape street trees

2. 3/4" polylock tree ties, (2)

3. NEENAH R-8713, 180 deg. square 60" or 48" tree grate with tree guard, reference plan for construction details

4. Steel flange 2" x 3" pre-drilled to accept 2" x 1/2" through bolt

5. Curb / Gutter or other approved equal

6. Root control barrier by "Deep Root Corp" or approved equal. 12" depth adjacent to sidewalks and 18" depth adjacent to curbs

7. First roots shall be visible at top of rootball. Set top of rootball 1" above finish grade to adjust for settling.

8. Sidewalk

9. Backfill mix as per specifications or soil report

10. Planting pit shall be the width of the tree well and no deeper than the root ball. Scarify sides & bottom of planting pit.

11. Concrete edge to retain subgrade 4" thick minimum

12. Finish planter grade 7" below top of tree grate
1. Temporary watering basin; 4" high and twice the diameter of the root ball

2. Top dress Mulch as per specifications

3. Set Root Crown of plant 1" above soil finish grade to allow for settlement
   Remove excess potting mix to expose root crown

4. Scarify the outside of root ball & remove all circling roots

5. Backfill planting hole 2/3 full with existing soil, settle with water, continue to fill with soil, water again. Water thoroughly after installation to eliminate air pockets
NOTES:

1. Use triangular equidistant spacing between plantings. See planting plan for spacing details.

2. Ground Cover plant location

3. 2" - 4" of top dress mulch as per specifications

4. Set Root Crown of plant 1" above soil finish grade to allow for settlement
   Remove excess potting mix to expose root crown

5. Backfill planting hole 2/3 full with existing soil, settle with water, continue to fill with soil, water again. Water thoroughly after installation to eliminate air pockets.
NOTES:

1. Steel edging (\(\frac{3}{16}'' \times 6''\)) or resin composite materials are acceptable alternatives upon approval of project manager.

2. Flat steel stake (9'' length) @ 4' O.C. minimum spacing.

3. Finish grade for soil in turf area 1'' below top of edging.

4. Finish grade for soil in hardscape area 3'' min. below top of edging.

5. Finish grade for soil in shrub or groundcover area 3'' min. below top of edging.


LANDSCAPE EDGING DETAIL (STRAIGHT SECTION W/ SPLICE)
NOTES:

1. Steel edging ($\frac{3}{16}$" x 6") or resin composite materials are acceptable alternatives upon approval of project manager.

2. Flat steel stake (9" length) @ 4' O.C. minimum spacing.

3. Finish grade for soil in turf area 1" below top of edging.

4. Finish grade for soil in hardscape area 3" min. below top of edging.

5. Finish grade for soil in shrub or groundcover area 3" min. below top of edging.

SECTION

1. Curb as per city specifications and standards
2. Stamped Concrete - 4' thick
3. 2" min. sandbase
4. Compacted subgrade as per specifications
5. Finish grade 1" below top of mow band in sod, 2" below top of mow band in planter or decomposed granite
6. Vehicular right-of-way
7. Mow band 18" wide min. as per plans and specifications
8. Prepared planting soil as per specifications
9. Root control barrier by "Deep Root Corp" or approved equal 18" depth min, 10' strip, centered on the tree
10. Planting area (size varies with location)

SECTION

STAMPED CONCRETE MOW BAND DETAIL

Approved by: 
Parks & Rec. Design Mgr. 
Neil Miner

Drawn by: GLS
Checked by: CB

Parks and Rec. Dept.

PR-107
NOTES:

1. As per approved plans, provide root barrier at the curbs / mowbands. Root control barrier by "Deep Root Corp." or approved equal, 18" depth min. 10' strip, centered on the tree.

2. Shrubs and grasses as per approved planting plan. Ref planting plan for layout and plant species.

3. As per specifications groundcover / mulch (3" min. mulch depth) ref. plans for material

4. Mowband color / pattern as per specifications

5. Curb as per city specifications and standards

6. Vehicular right of way

7. 2' - 0" shrub setback. No shrub foliage shall encroach within this zone upon final shrub maturity

8. Planting bed finish grade, 2" minimum depth from top of curb with 2% max cross slope to center line

9. Prepare planting soil as per specifications
NOTES:

1. Wilkins 975RP Reduced Pressure Backflow Preventer or approved equal. Reference specifications for size.
2. Union (TYP). 1' to 2' above turf
3. 4" Concrete pad with sleeves at inlet and outlet
   Set pad 2" above finish grade in groundcover or decomposed granite
   1" above finish grade when set in turf
4. Finish Grade
5. Schedule 40 or PVC mainline. Reference specifications for size and type.
6. PVC Schedule 40 or adapter (MPT x Slip) No FPT PVC Allowed
7. Expanded metal cage, reference specifications for size
8. Galvanized pipe and fittings on upstream and downstream side
9. Galvanized 90 on upstream and downstream side
NOTES:

1. Wilkins 720A PVB (PRESSURE REDUCER BREAKER) or approved equal. Reference specifications for size.
2. Union (TYP). 1' to 2' above turf
3. 4" Concrete pad with sleeves at inlet and outlet.
   Set pad 2" above finish grade in groundcover or decomposed granite
   1" above finish grade when set in turf
4. Finish Grade
5. Schedule 40 or PVC mainline. Reference specifications for size and type.
6. PVC Schedule 40 or adapter (MPT x Slip) No FPT PVC Allowed
7. Expanded metal cage, reference specifications for size
8. Galvanized pipe and fittings on upstream and downstream side
9. Galvanized 90 on upstream and downstream side
NOTES:

1. Trim valve box to provide 1\" clearance around pipe
2. 2\" min. mulch depth flush with top of valve box
3. Machined schedule 40 PVC short nipple
4. Remote control valve Rainbird P.E.B. series or approved equal
5. Pentite or other approved splice
6. Plastic valve box Carson 1419 14\" x 19\" or equal as specified with lid label "Irrigation"
   Set top of box flush with finish grade in sod; 2\" above planting bed or decomposed granite sub-base
7. Sod root layer, flush with top of valve box
8. Schedule 40 electrical conduit & sweep as per specifications
9. PVC schedule 40 lateral line: Provide 18\" length prior to first fitting
10. Schedule 80 PVC Union (TYP.)
11. Schedule 40 PVC elbow S x S
12. 1/4\" Galvanized wire cloth placed above gravel
13. Control & Common wires, size as reg. provide min. 18\" extra, coiled
14. Schedule 40 PVC nipple, length varies
15. Solvent weld schedule 40 mainline, 18\" - 24\" max coverage
16. Pea gravel 6\" depth
17. Schedule 80 PVC tee S x S x S
18. Bricks for valve box support (4)
19. T x T ball valve, size per plans
20. Use min. 3 wraps of Teflon tape at each threaded connection
NOTES:

1. Trim valve box to provide 1" clearance around pipe
2. Machined schedule 40 PVC short nipple
3. Remote control valve Rainbird P.E.B. series or approved equal
4. Pentite or other approved splice
5. Concrete valve box, Christy B-9 or approved equal with lid labeled "Irrigation"
6. Concrete paving
7. Compacted road base as per specifications
8. PVC schedule 40 lateral line: Provide 18" length prior to first fitting.
9. Schedule 80 PVC Union (TYP.)
10. Schedule 40 PVC elbow S x S
11. ¼" Galvanized wire cloth placed above gravel
12. Control & Common wires, size as reg. provide min. 18" extra, coiled
13. Schedule 40 PVC nipple, length varies
14. Solvent weld schedule 40 mainline, 18" - 24" max coverage
15. Pea gravel 6" depth
16. Schedule 80 PVC tee S x S x S
17. Bricks for valve box support (4)
18. T x T ball valve, size per plans
19. Use min. 3 wraps of Teflon tape at each threaded connection
20. Schedule 40 electrical conduit & sweep as per specifications
NOTES:

1. Sod root layer, flush with top of valve box

2. Set top of box above finish grade: 1" in sod; 2" in planter or decomposed granite

3. Quick coupling valve with locking rubber cover (1" only) Rainbird 44-LRC or approved equal

4. Set quick coupler 12" from edge of planting area and no more than an 1" gap between bottom of valve box cover & top of quick coupler

5. Curb header or paving

6. Plastic valve box with quick coupler valve, Carson 910 or approved equal

7. Manufactured triple swing joint; Rainbird or approved equal

8. 2" min. mulch depth flush with top of valve box

9. Scheduled 40 PVC tee S x S x T

10. Solvent weld schedule 40 mainline, 18" - 24" max coverage

11. Pea gravel, 6" depth

12. ¼" galvanized wire cloth placed over gravel

13. Bricks for valve box support (4)

14. Nipple - size varies

15. Minimum 3 wraps of Teflon tape at each threaded connection

16. ½" X 18" rebar with (2) stainless steel gear clamps or approved equal support system
SECTION

Note: Narrow or irregular shaped areas less than 8' - 0" in any direction located at the edge of paving or face of wall shall be designed with subsurface or low volume irrigation.

NOTES:

1. Finish Grade
2. Set top of rotor at finish grade of concrete and above soil finish grade; ½" - ¾" in sod, 2" in planting bed, decomposed granite or mulch. Top of sprinkler shall be level with top of paving.
3. Pop-up rotor as per specifications; placed 6" from edge of curb or paving
4. Schedule 80 riser, length as required
5. Manufactured triple swing joint; Rainbird or approved equal
6. Tee (S x FPT) or Elbow (S x S x FPT); size as per plans
7. Lateral line schedule 40 with 1' - 0" min. coverage
8. Native soil backfill, free of rocks larger than 1"
9. Nozzle as specified per plans

POP UP ROTOR DETAIL

Missoula
Parks and Rec. Dept.

Approved by
Parks & Rec. Design Mgr.
Neil Miner

Drawn by:
GLS

Checked by:
CB

PR-113
SECTION

Curb Header or Paving

1'.-0". MIN.

Note: Narrow or irregular shaped areas less than 8'-0". in any direction located at the edge of paving or face of wall shall be designed with subsurface or low volume irrigation

NOTES:

1. Finish Grade
2. Set top of sprinkler at finish grade of concrete and above soil finish grade; 1/2".-3/4". in sod, 2" in planting bed, decomposed granite or mulch. Top of sprinkler shall be level with top of paving. If bubbler is used, top of bubbler shall be to grade.
3. Pop-up spray head as per specifications; placed 6". from edge of curb or paving
4. Schedule 80 riser, length as required
5. Manufactured triple swing joint; Rainbird or approved equal
6. Tee (S x FPT) or Elbow (S x S x FPT); size as per plans
7. Lateral line schedule 40 with 1'-0". min. coverage
8. Native soil backfill, free of rocks larger than 1"
9. Nozzle as specified per plans

POP UP SPRAY HEAD DETAIL

Approved by
Parks & Rec. Design Mgr.
Neil Miner

Drawn by: GLS

Checked by: CB

PR-114
NOTES:

1. Finish grade

2. Topsoil backfill, no particles greater than 1", compact per specifications

3. 6" sand fill above mainline

4. PVC pipe lateral line

5. Electric wires in 2" schedule 40 electrical conduit from controller to valve

6. 6" min. trench width

7. Place 3" of sand below mainline or slewing

8. Lateral line - 12" min. coverage

9. PVC Mainline - 24" min. coverage

10. 2" min. separation between electrical conduit and mainline

11. Sides of trench will be dug square and be void of all sharp objects
NOTES:

1. Finish grade

2. Paving as per city specifications & standards

3. 6" min. sand fill above top of sleeve

4. PVC pipe lateral

5. Electric wires in 2" schedule 40 electrical conduit from controller to valve

6. 6" min. trench width

7. Place 3" of sand below mainline or sleeving

8. 4" min. sleeve or as required; 24" min. coverage from bottom of paving to top of pipe

9. Native soil backfill - compacted to 95% proctor density

10. PVC pipe mainline

11. Sides of trench will be dug square and be void of all sharp objects
NOTES:

1. Finish grade

2. Paving as per city specifications & standards

3. 6" min. sand fill above top of sleeve

4. PVC pipe lateral

5. Electric wires in 2" schedule 40 electrical conduit from controller to valve

6. 6" min. trench width

7. Place 3" of sand below mainline or sleeving

8. 4" min. sleeve or as required; 24" min. coverage from bottom of paving subgrade to top of pipe

9. Native soil backfill - compacted to 95% proctor density

10. PVC pipe mainline

11. Sides of trench will be dug square and be void of all sharp objects

12. Pavement subgrade as per City of Missoula specifications
NOTES:

1. 2" - 4" layer of mulch

2. ½" Subterranean drip tubing. Placed on-top of finish grade. Spacing will vary according to soil conditions and type of landscaping & planting plan as per specifications.

3. Amend topsoil as per specifications. Will vary according to soil conditions.

4. Landscape fabric
NOTES:

1. Remote control valve, RainBird PEB-B with a Netafim tech filter downstream of valve

2. Schedule 40 PVC supply header

3. Schedule 40 PVC compression tee S x S x C

4. Dripline lateral Netafim, layout as per plans

5. Area perimeter as per plans

6. Air relief valve plumbed to dripline at high point of system as per plans

7. Air relief lateral

8. PVC exhaust header

9. Perimeter laterals from edge (distance as per plans)

10. Line flushing valve plumbed to PVC

11. Distance as per specifications
NOTES:

1. Dripline flush valve, Netafim or City approved equal

2. Finish grade

3. Set top of box above finish grade; 1" in sod, 2" in planter or decomposed granite

4. 10" round valve box Carson #910 or City approved equal

5. PVC from exhaust header

6. PEA gravel sump (6" - 8" in diameter)

7. Common brick for support (3)

8. ¼" galvanized wire mesh

9. PVC female adapter
NOTES:

1. Air relief valve Netafim or City approved equal

2. Finish grade

3. Set top of box above finish grade; 1" in sod, 2" in planter or decomposed granite

4. 10" round valve box Carson #910 or City approved equal

5. ½" PVC coupler T x T

6. ½" schedule 80 nipple (length varies)

7. Pea gravel 6" depth

8. Poly tubing, connect to nipple with tee S x S x T

9. Common brick for support (3)

10. ¼" galvanized wire mesh
NOTES:

1. Remote control valve, Rainbird PEB PRS-B or City approved equal with Netafim filter downstream of valve

2. PVC supply header, continuous to next tree

3. ¾" schedule 40 tee S x S x C

4. Compression reducer schedule 40 S x C elbow

5. Start of dripline, size and type as per plans and specifications

6. Estimated dripline of tree in 5 years

7. Tree rootball

8. Flush valve

9. Schedule 40 PVC supply line

10. Space drip line 6" from edge of rootball