

CITY OF LIVERMORE

STANDARD DETAILS

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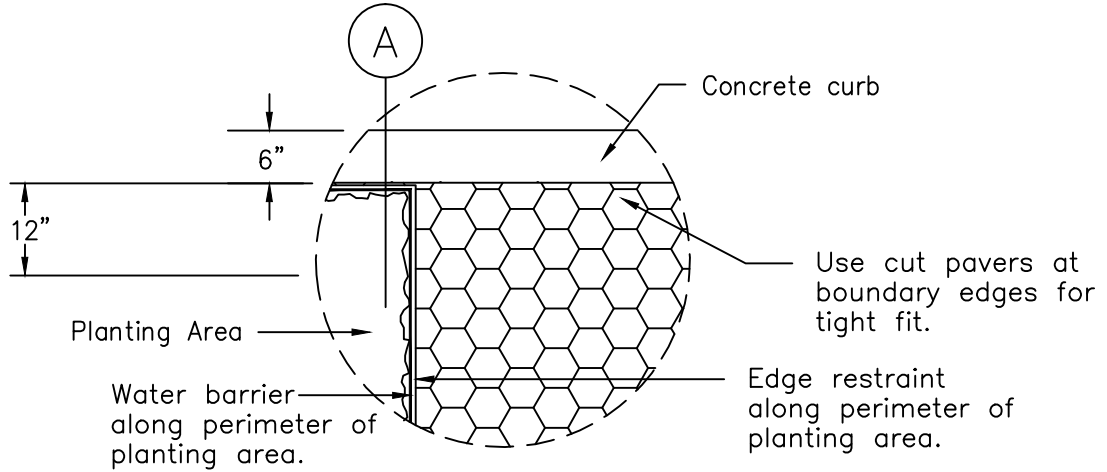
DETAIL
NO.

TITLE

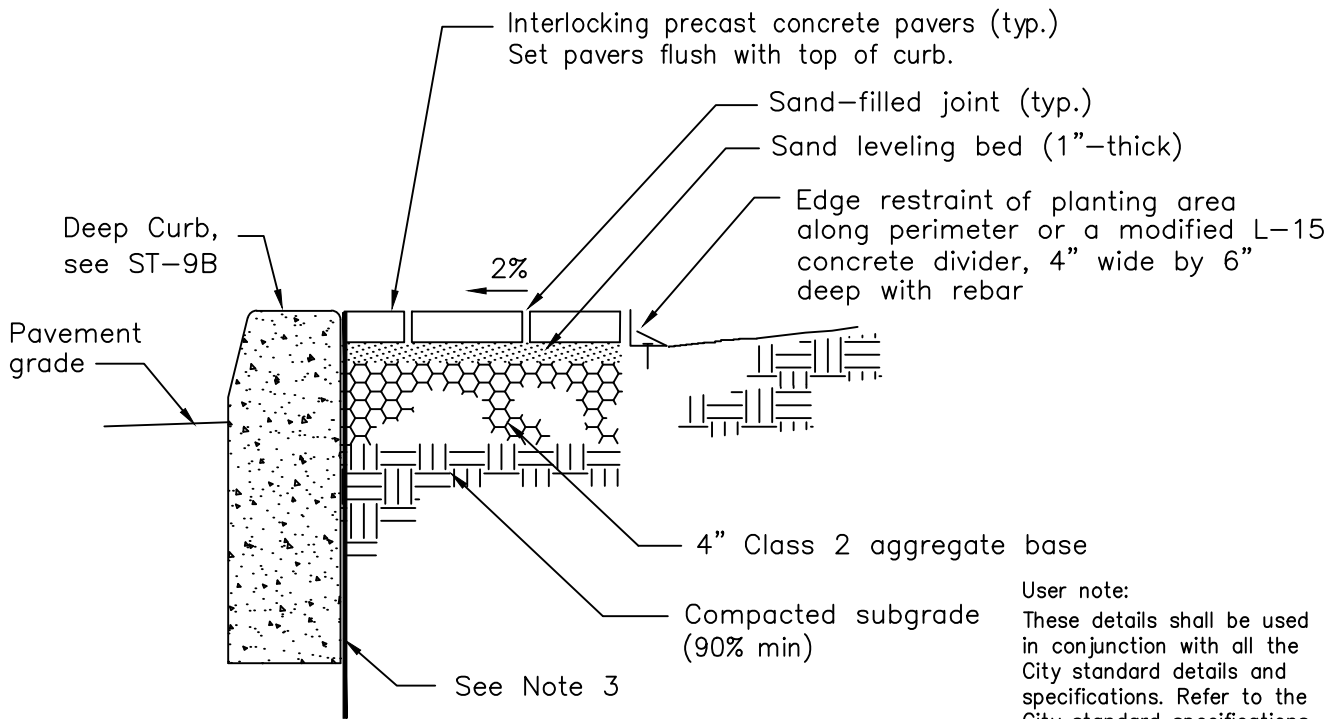
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NOTES:

1. Interlocking precast concrete paver color and pattern subject to City approval.
2. Aggregate base to be treated with a pre-emergent herbicide.
3. If roadway structural section is greater than 14", install water barrier extending from top of pavers to 6" below street subgrade. See L-2C.
4. Irrigation main line to be placed outside of face of water barrier.



PLAN

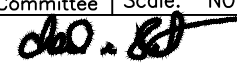


MAINTENANCE BAND SECTION

User note:
 These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

MEDIAN PAVING
 INTERLOCKING PRECAST
 CONCRETE PAVERS

CITY OF LIVERMORE
 STANDARD DETAIL

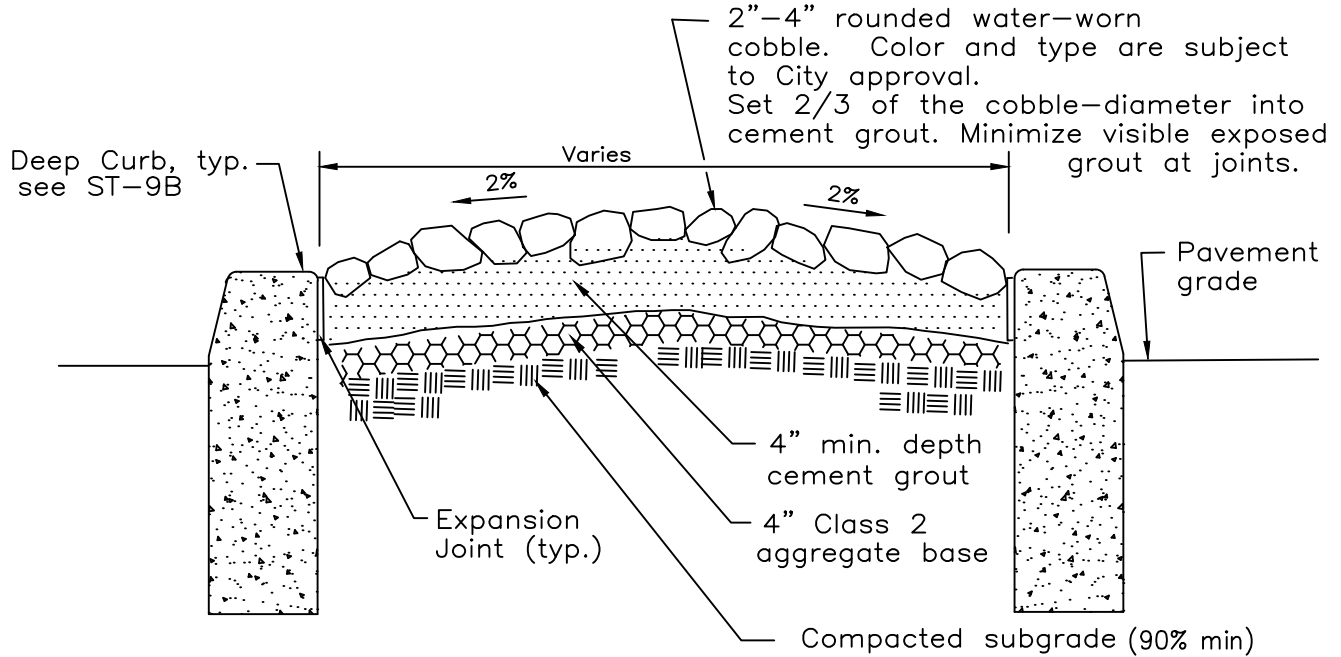
Dwn: FY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-1B

L01B.DWG

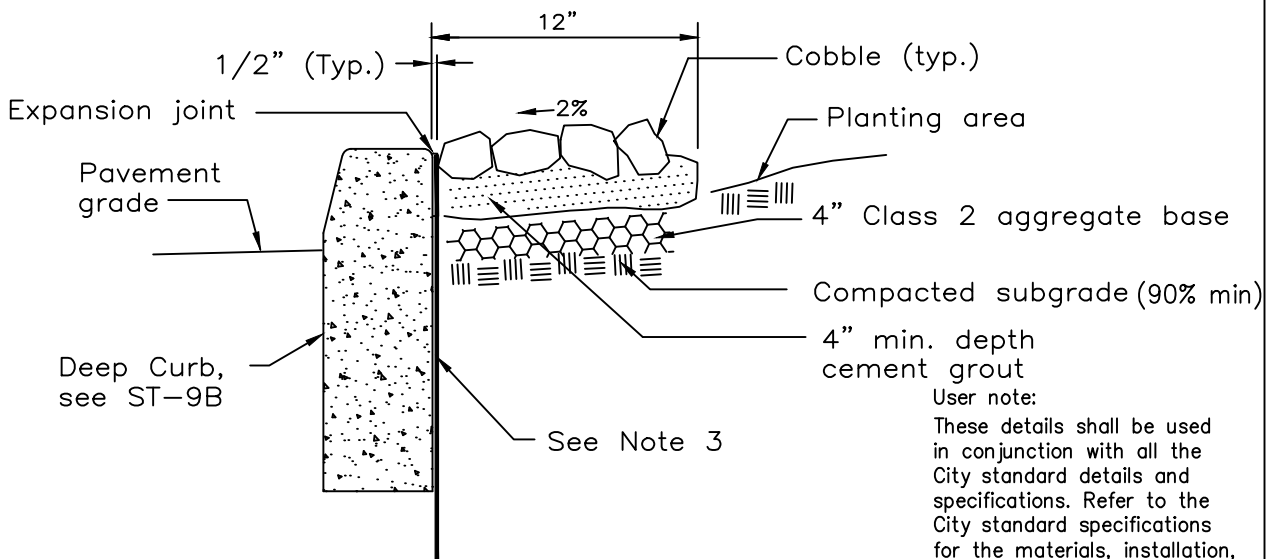
Date	By	Rev.

NOTES:

1. Cobblestone subject to City approval.
2. Aggregate base to be treated with a pre-emergent herbicide as approved by the City.
3. If roadway structural section is greater than 14", install water barrier extending from top of pavers to 6" below street subgrade, See L-2C.
4. Irrigation main line to be placed outside of face of water barrier.



MEDIAN NOSE SECTION



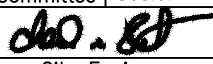
MAINTENANCE BAND SECTION

User note:
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Date	By	Rev.

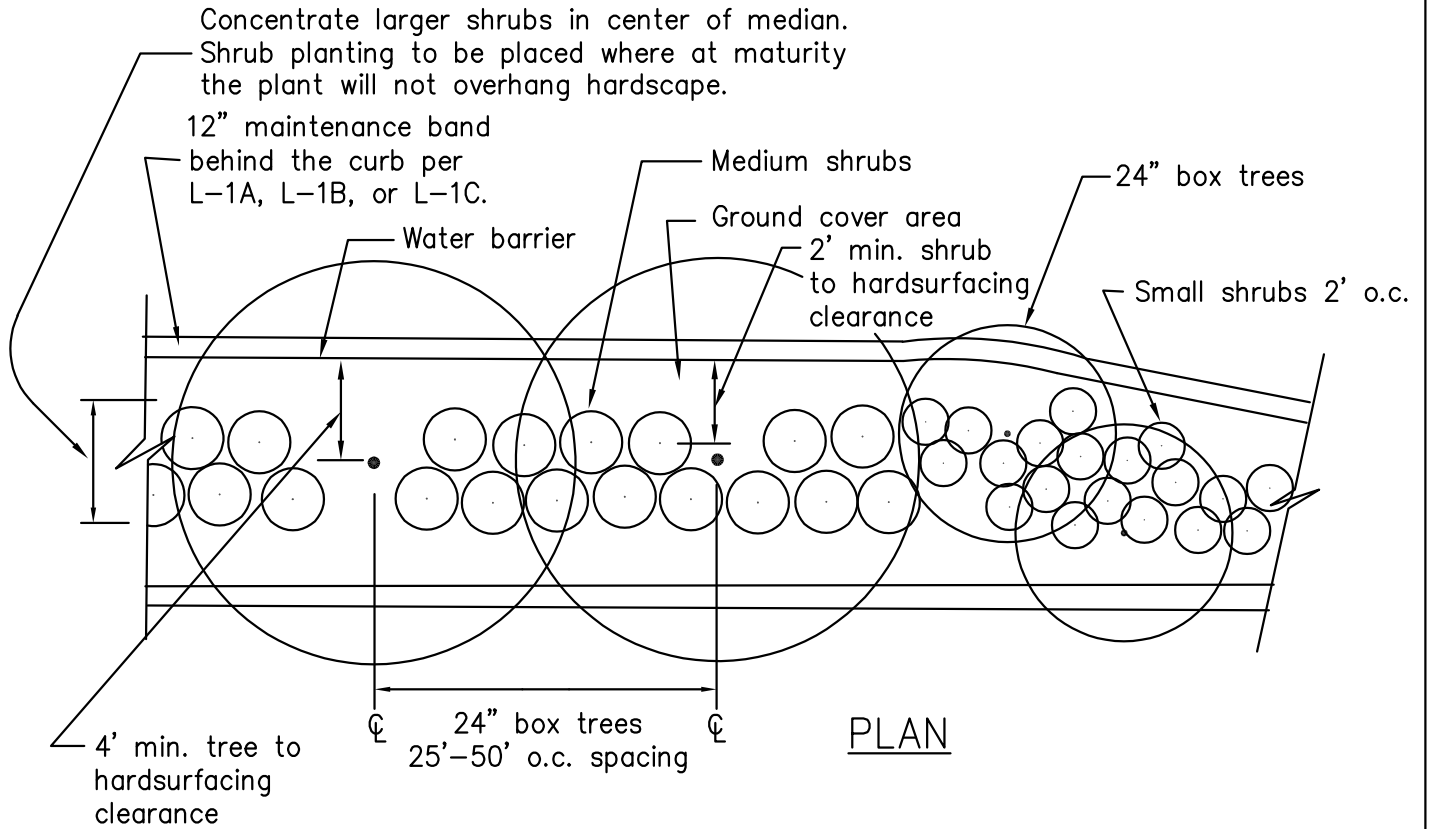
MEDIAN PAVING
 COBBLESTONE

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: MAS	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-10

L01C.DWG

NOTE: This detail is only a guideline. Plant variety/size and hardsurfacing materials are subject to City approval. Minimum quantities of plant materials are shown.



Minimum quantity of plant material per 100' long section of standard 16'-wide median. Quantities will vary proportionally for other median widths.

TREES:

24"-box: 2-4 trees per 100' large canopy trees

24"-box: 3-7 trees per 100' accent trees

SHRUBS (Mature Height)

Large: 5'-10' high, 30 shrubs per 100'

Medium: 3'-5' high, 40 shrubs per 100'

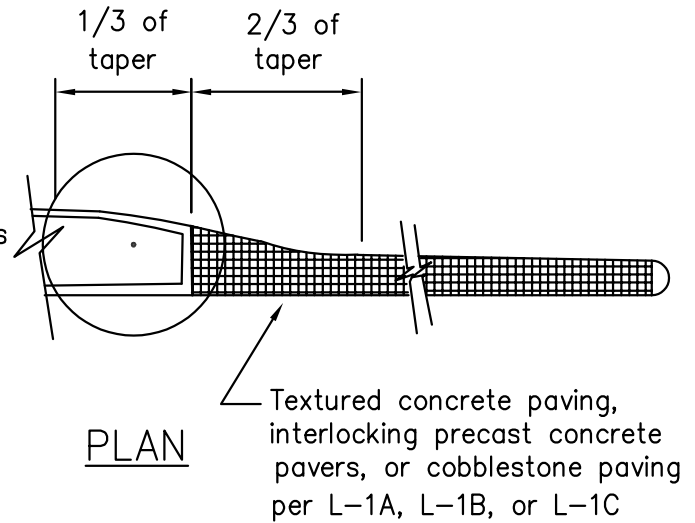
Small: 1'-3' high, 50 shrubs per 100'

GROUND COVER

Fast growing: 12" o.c.

Moderate growing: 9" o.c.

Slow growing: 6" o.c.



NOTES:

1. Areas between plants shall receive a 3" layer of mulch.
2. Trees within 300' of intersections, as measured from centerline of the cross-street, shall have canopies trimmed to provide 8' clear from top of curb to lowest scaffold branch. Groundcover within 300' of intersections and driveways shall be specified as a low-growing variety, with native growth height of no more than 30" above top of curb including mounding.

User note:

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MEDIAN PLANTING

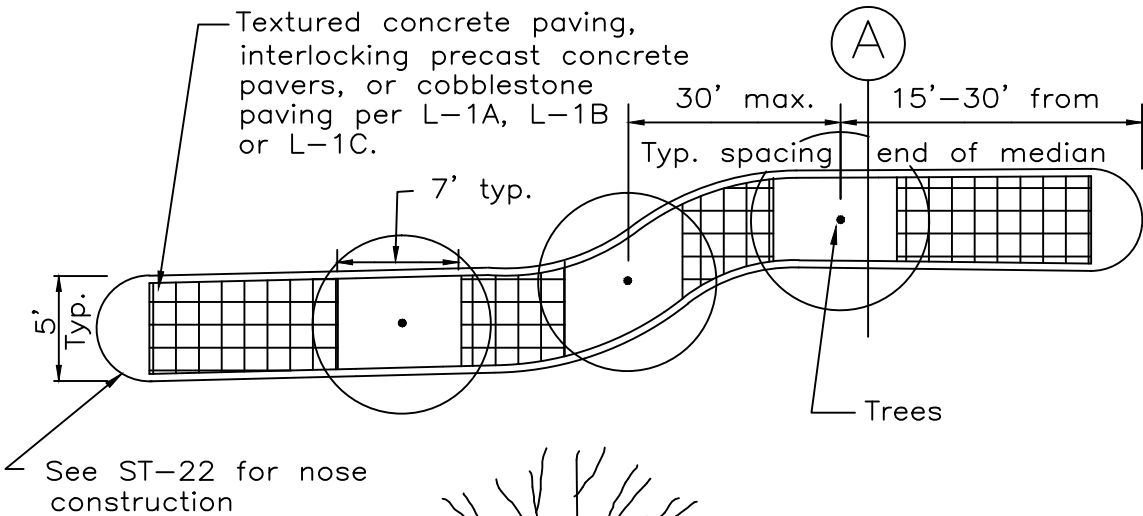
GENERAL

CITY OF LIVERMORE
STANDARD DETAIL

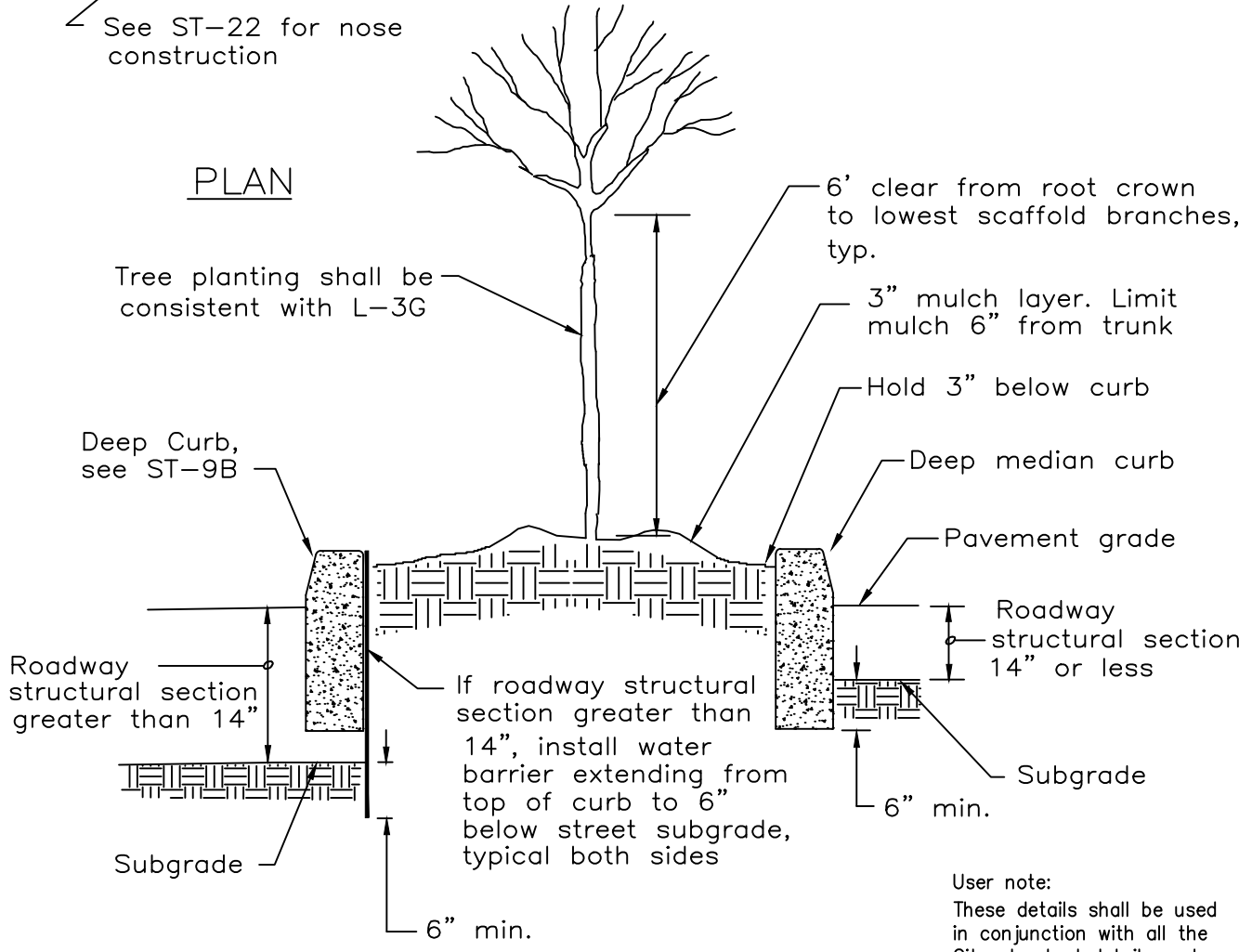
Dwn: FY/JT	Date: Nov -22	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-2A

LOZA.DWG

6/23/20	JT	1
Date	By	Rev.



PLAN



(A) SECTION

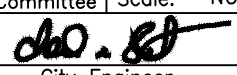
User note:
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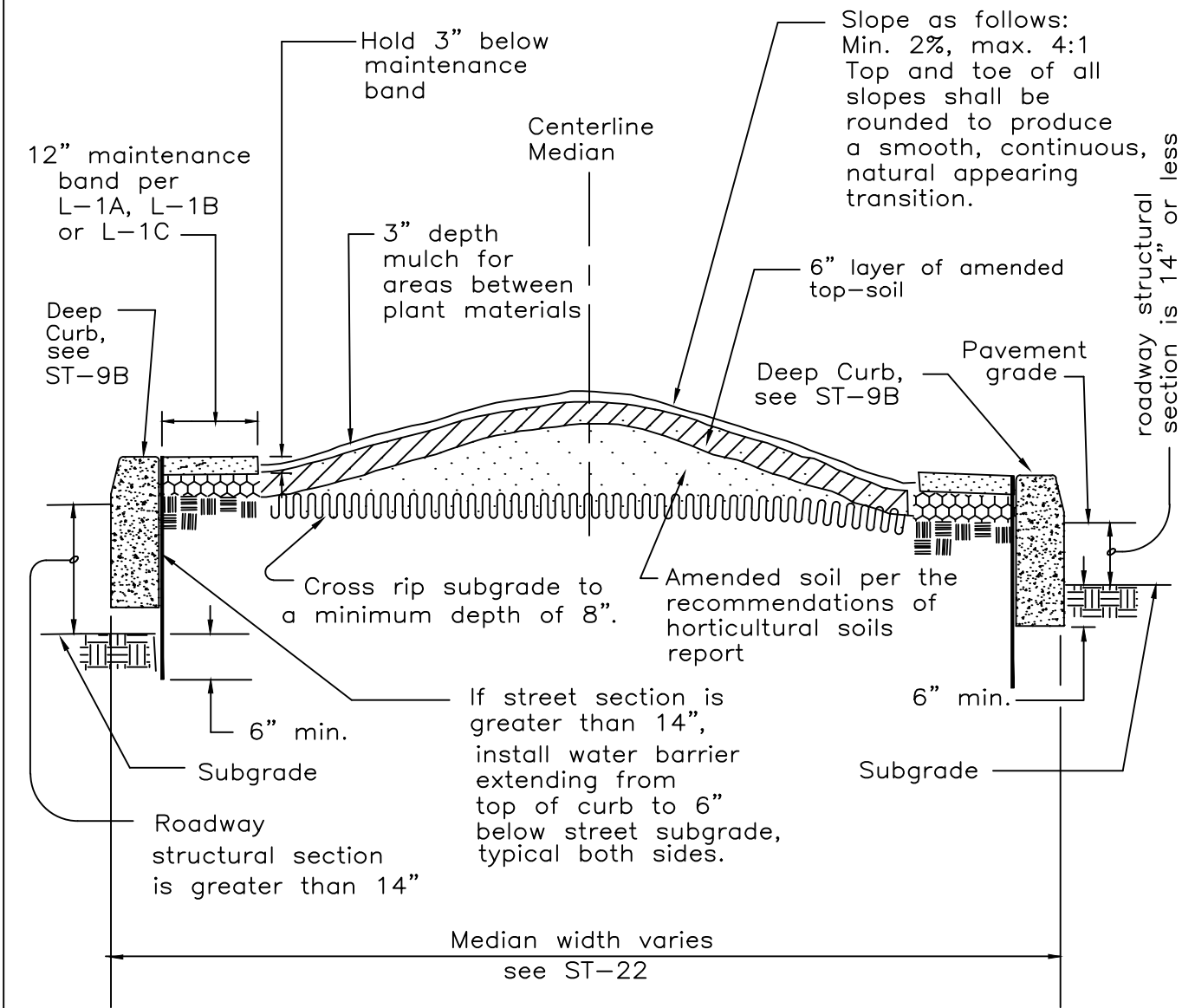
L02B.DWG

Date	By	Rev.

MEDIAN PLANTING
 NARROW MEDIANS

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: MAS	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-2B



SECTION

User note:
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L02C.DWG

Date	By	Rev.

MEDIAN PLANTING
WIDE MEDIANS

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
<i>do</i>		L-2C
City Engineer		

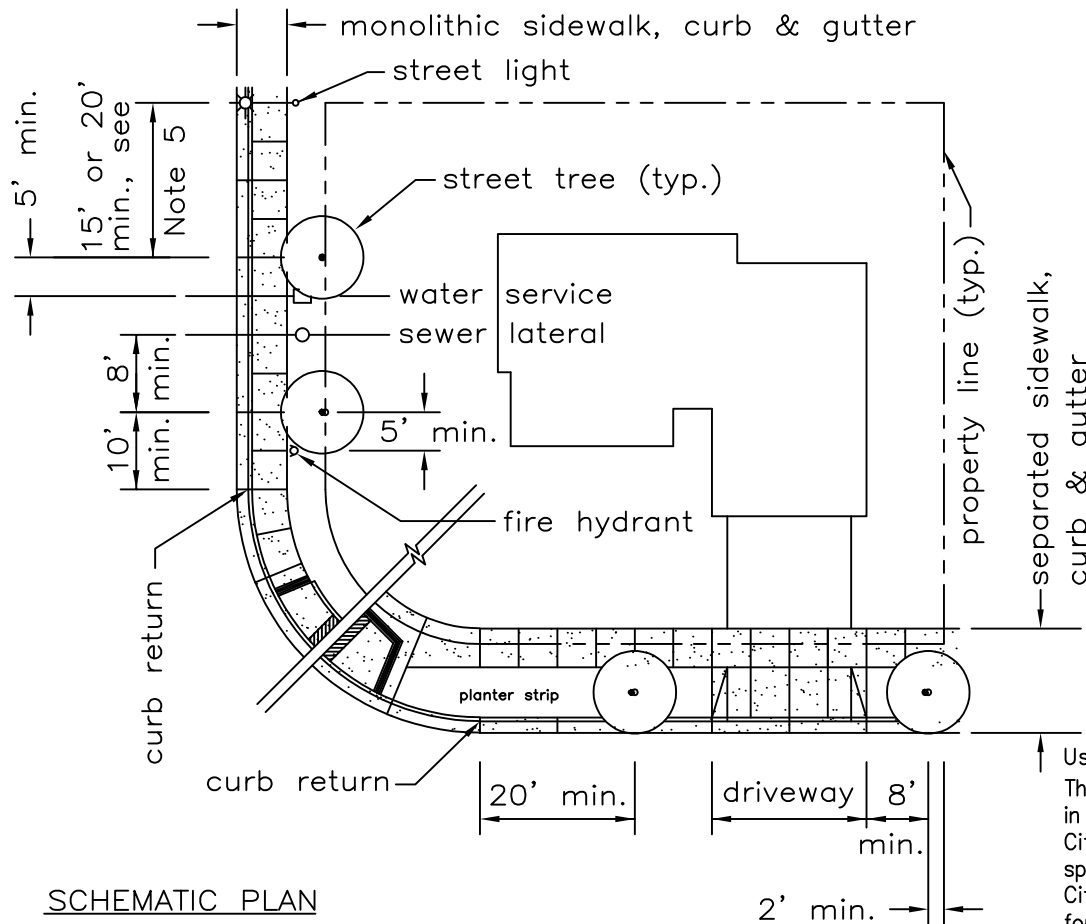
Minimum street tree quantities for new development:

1. Single frontage residential lot – 1 tree.
2. Dual frontage (corner) lot – 2 trees.
3. Industrial/commercial frontage – 1 tree per 50' of frontage.
4. Backing Lot – Per L-17A or L-17B.

All tree varieties and quantities are subject to City approval.

Minimum street tree clearances (see schematic plan below for illustration):

1. Street trees shall be located 8' (min.) from sanitary sewer mains and laterals.
2. Street trees shall be located 5' (min.) from water mains and services.
3. Street trees shall be located 5' (min.) from fire hydrants.
4. Street trees shall be located 8' from driveways.
5. Street trees shall be located 20' (min.) from standard street lights.
Street trees shall be located 15' (min.) from decorative street lights.
6. Street trees shall be located 20' (min.) from curb returns with separated sidewalk, or 10' from curb returns with monolithic sidewalk.
7. Street trees shall be located 2' (min.) from the common property line separating lots.

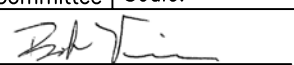


User note:
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SCHEMATIC PLAN
(for illustration only)

STREET
TREE PLANTING
QUANTITIES & CLEARANCES

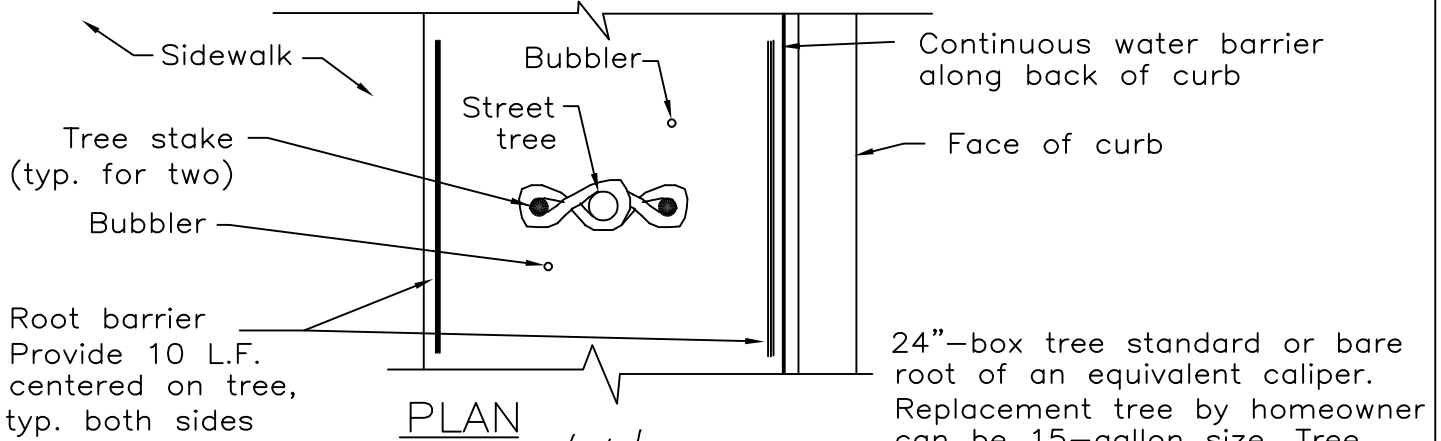
CITY OF LIVERMORE
STANDARD DETAIL

Dwn: MAS/JT	Date: Nov-22	NO. L-3A
Spec. Committee	Scale: NONE	
 City Engineer		

6/23/20	JT	1
Date	By	Rev.

L03A.DWG

NOTE: The mulch, if required, shall not be within 6" of the trunk of the tree.



PLAN

24"-box tree standard or bare root of an equivalent caliper. Replacement tree by homeowner can be 15-gallon size. Tree species to be approved by the Planning Commission for new development. Tree replacement to be approved by the Public Works Department.

1"-wide rubber tree tie. Attach in figure 8 pattern to stake using galvanized wood screws (typ.)

(2) Bubbler per L-7. Connect to automatic irrig. system with separate valve circuit.

2"Ø x 8' long (min.) pressure-treated lodgepole stake. Place on windward side of tree. Top of stake to be set below lowest scaffold branches.

Set root crown 1" above finish grade. Scarify root ball before planting.

Organic mulch (3"-layer) or groundcover, where required.

Sidewalk

equal equal

Curb & gutter

Continuous water barrier extending from top of curb to 6" below subgrade

Root barrier Provide 10 L.F. typ. both sides

18"
12"

Amended top soil backfill per horticultural soils report

Fertilizer tablets, applied at manufacturer's recommended rate

SECTION

Irrigation lateral 12" deep inside tree root barrier. Irrigation line or component shall not be routed under tree root ball

User note:

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STREET TREE PLANTING

FOR SEPARATED OR MEANDERING SIDEWALK

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY/JT Date: Nov-22 NO.

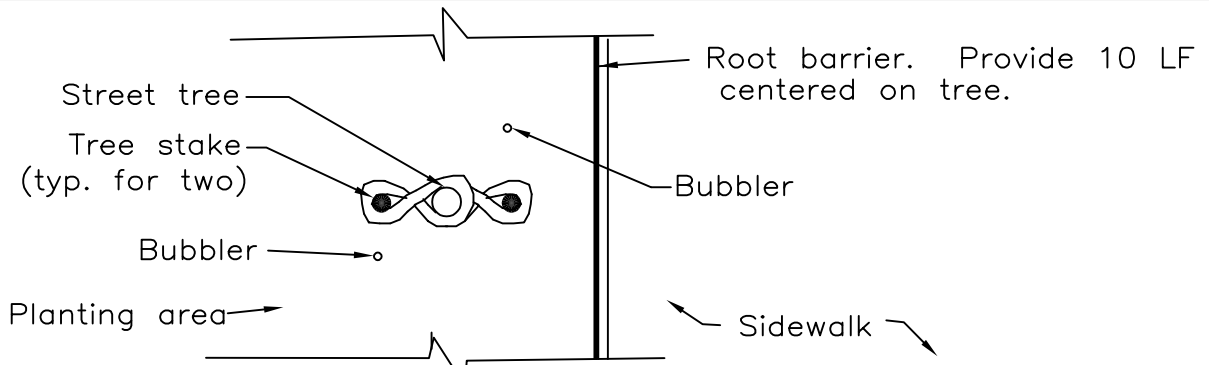
Clkd: Spec. Committee Scale: NONE

B. J. [Signature]
City Engineer

L-3C

L03B.DWG

6/23/20	JT	1
Date	By	Rev.



PLAN

1"-wide rubber tree tie. Attach in figure 8 pattern to stake using galvanized wood screws (typ.)

(2) Bubbler per L-7 Connect to automatic irrigation system with separate valve circuit.

Planting area
Scarify walls of plant hole (typ.)

Irrigation lateral Installed away from root ball.

24"-box tree standard or bare root of an equivalent caliper. Replacement tree by homeowner can be 15-gallon size. Tree species to be approved by the Planning Commission for new development. Tree replacement to be approved by the Public Works Department.

2"Ø x 8' long (min.) pressure-treated lodgepole stake. Place on windward side of tree. Top of stake to be set below lowest scaffold branches.

4.5' (typ.) Set crown 1" above finish grade. Scarify root ball immediately prior to planting.

Amended top soil backfill per horticultural soils report

Finish grade
Monolithic sidewalk, curb & gutter

18" Root barrier Provide 10 LF per tree.

Structural Soil
Fertilizer tablets applied at manufacturer's recommended rate

SECTION

User note:

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STREET TREE PLANTING FOR MONOLITHIC SIDEWALK

CITY OF LIVERMORE STANDARD DETAIL

Dwn: FY/JT Date: Nov-22 NO.

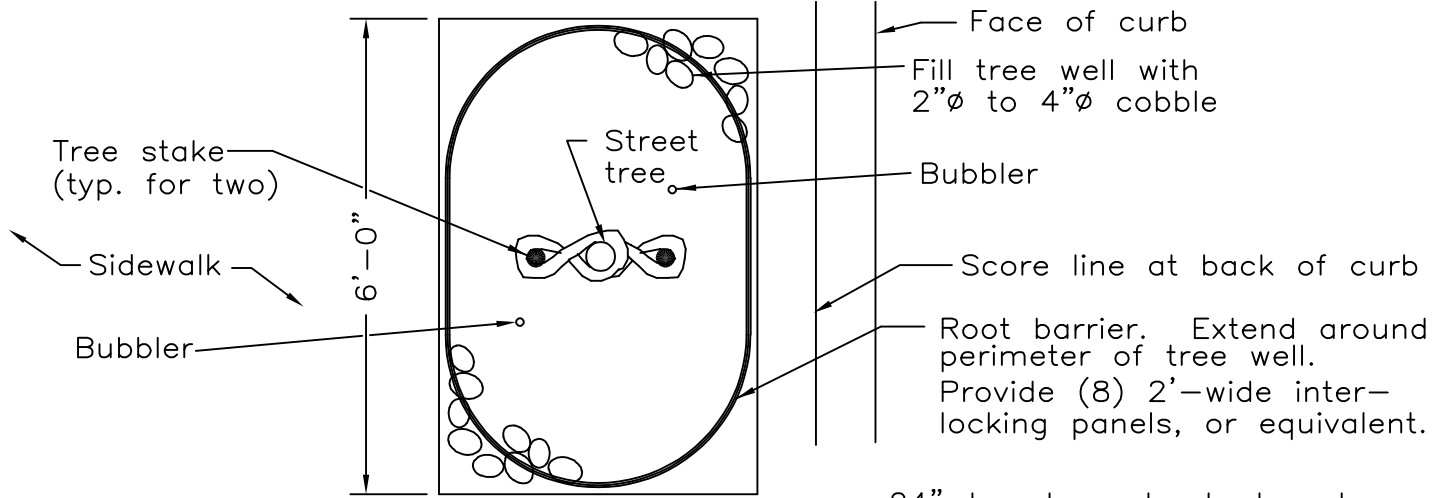
Spec. Committee Scale: NONE

B. J. Tim
City Engineer

L-3D

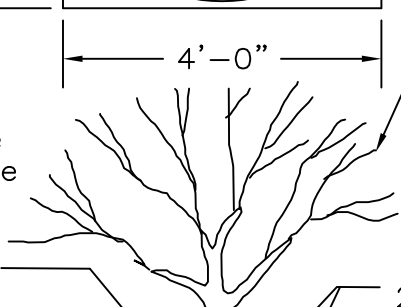
L03D.DWG

6/23/20	JT	1
Date	By	Rev.



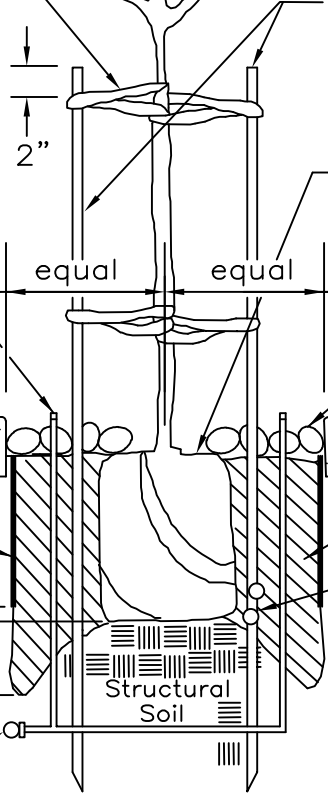
PLAN

1"-wide rubber tree tie. Attach in figure 8 pattern to stake using galvanized wood screws (typ.)



24"-box tree standard or bare root of an equivalent caliper. Tree species to be approved by the Planning Commission for new development. Tree replacement to be approved by the Public Works Department.

(2) Bubbler per L-7. Connect to automatic irrig. system with separate valve circuit.



SECTION

8" thickened slab edge around perimeter of tree well

Sidewalk

Root barrier. Extend around perimeter of tree well.

2"Ø x 8' long (min.) pressure-treated lodgepole stake. Place on windward side of tree. Top of stake to be set below lowest scaffold branches.

Set root crown 1" above finish grade. Scarify root ball before planting.

2"Ø to 4"Ø cobbles

#4 rebar, continuous around perimeter of thickened slab edge

Curb & gutter

Amended top soil backfill per horticultural soils report

Fertilizer tablets applied at manufacturer's recommended rate

Irrigation lateral 12" deep inside tree well. Irrigation line or component shall not be routed under tree root ball.

User note:
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STREET TREE PLANTING FOR TREE WELLS

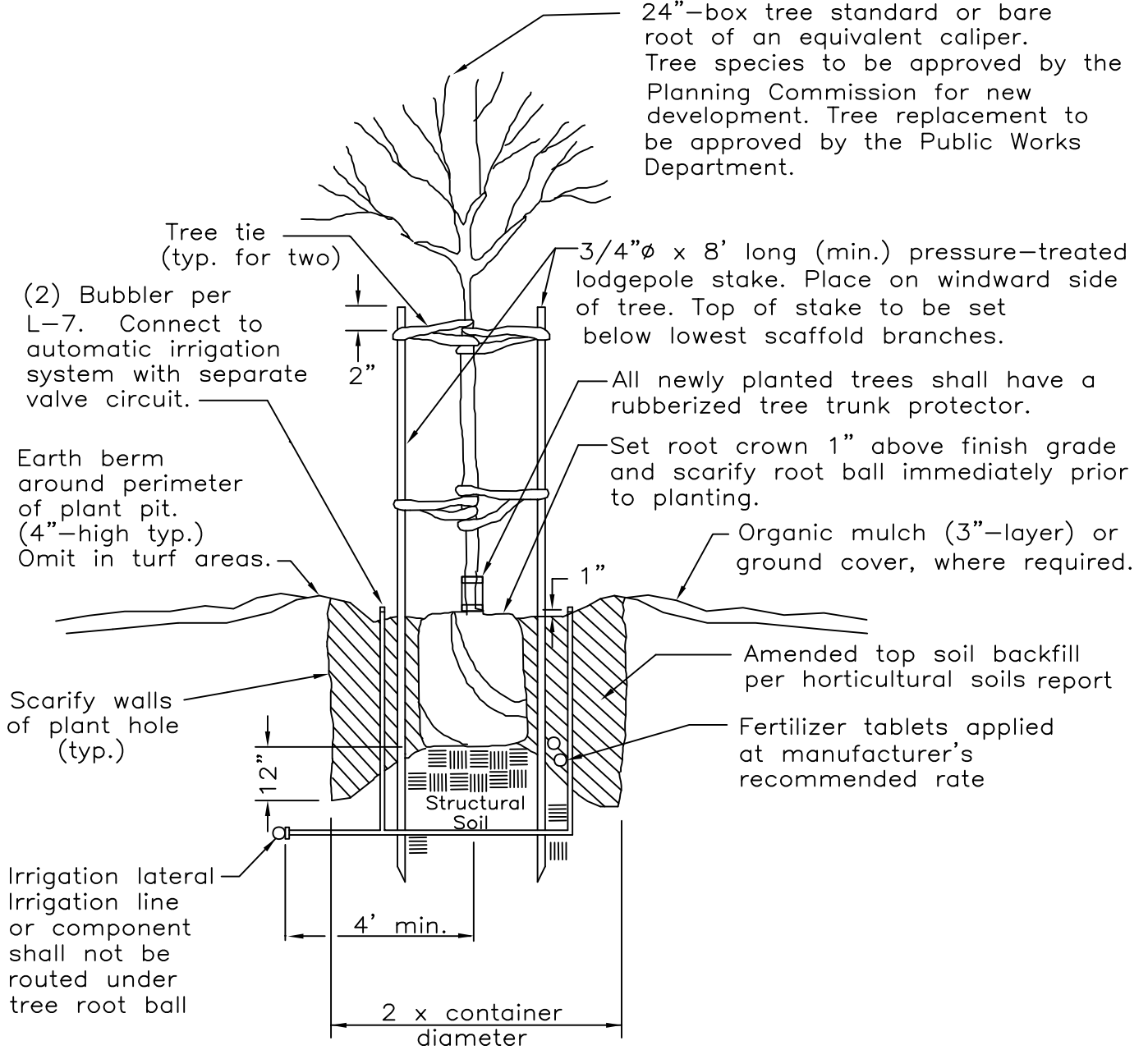
CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY/JT	Date: Nov-22	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-3E

L03E.DWG

6/23/20	JT	1	
Date	By	Rev.	

24"-box tree standard or bare root of an equivalent caliper. Tree species to be approved by the Planning Commission for new development. Tree replacement to be approved by the Public Works Department.



SECTION

NOTES:

1. When tree is located within 6' of sidewalk, curb, or other hard surfacing, plant tree per L-3C.
2. The mulch, if required, shall not be placed in contact with the parent trunk of the tree.

User note:

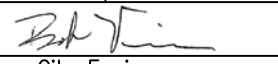
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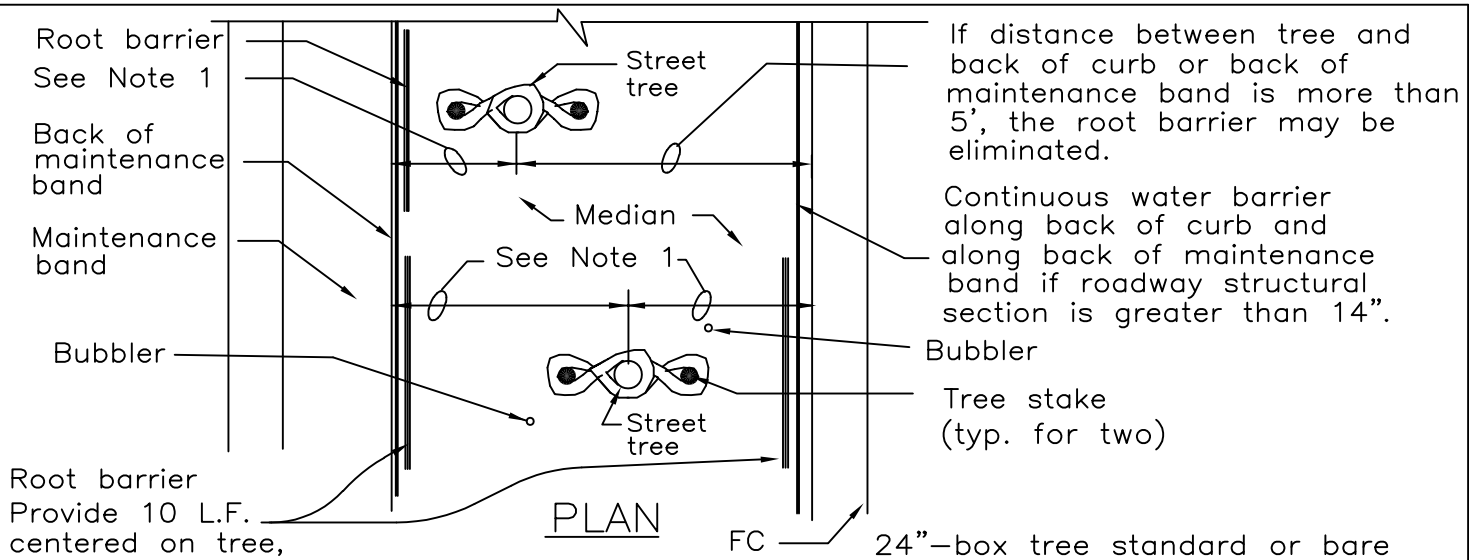
LO3E.DWG

6/23/20	JT	1
Date	By	Rev.

TREE PLANTING
FOR OPEN AREAS

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY/JT	Date: Nov-22	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-3F

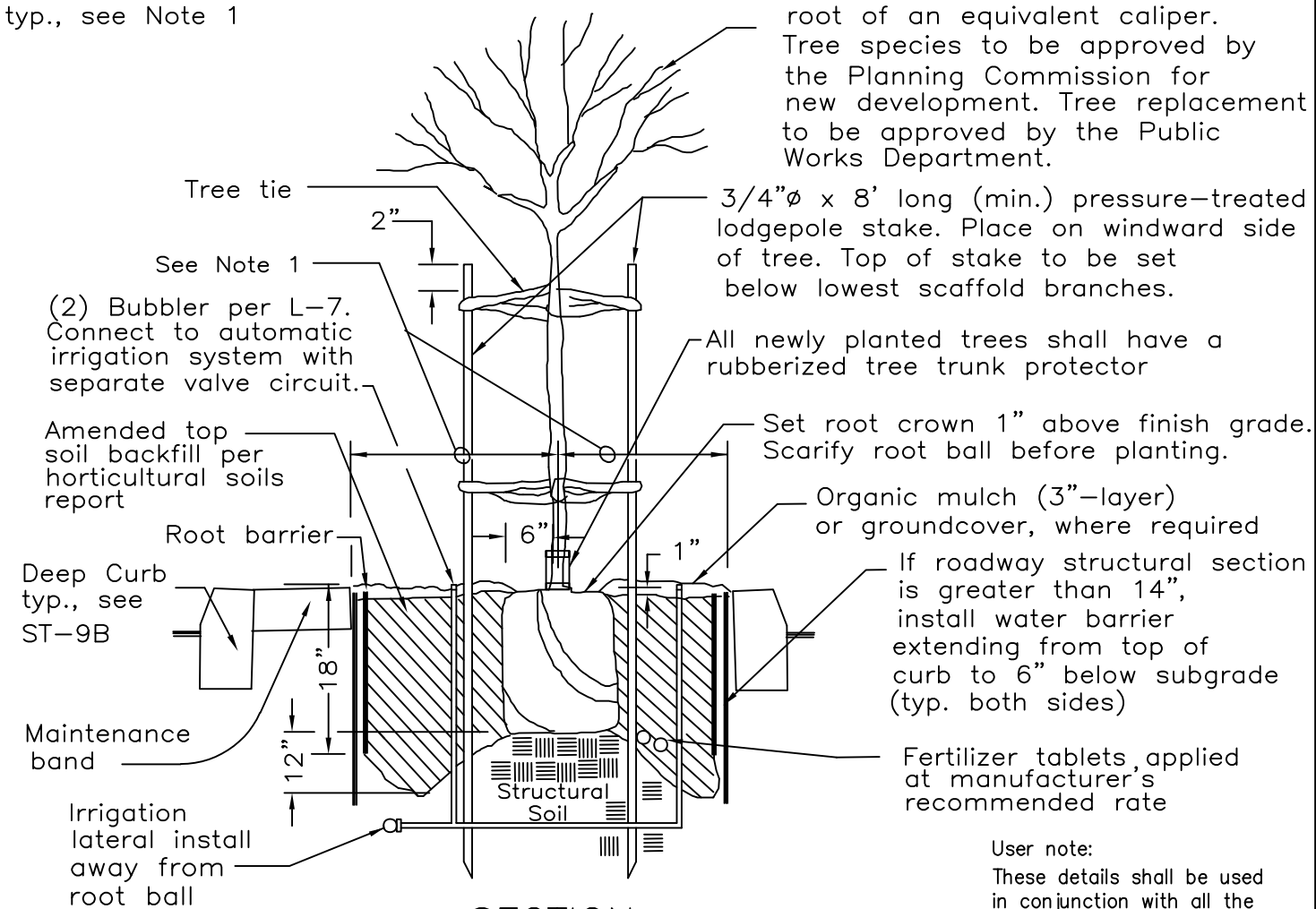


If distance between tree and back of curb or back of maintenance band is more than 5', the root barrier may be eliminated.

Continuous water barrier along back of curb and along back of maintenance band if roadway structural section is greater than 14".

Root barrier Provide 10 L.F. centered on tree, typ., see Note 1

24"-box tree standard or bare root of an equivalent caliper. Tree species to be approved by the Planning Commission for new development. Tree replacement to be approved by the Public Works Department.



NOTES:

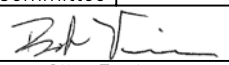
- 1) Provide 10 L.F. root barrier if distance is 5' or less.
- 2) The mulch, if required, shall not be placed within 6" of the trunk of the tree.

User note:
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STREET TREE PLANTING FOR MEDIANS

CITY OF LIVERMORE STANDARD DETAIL

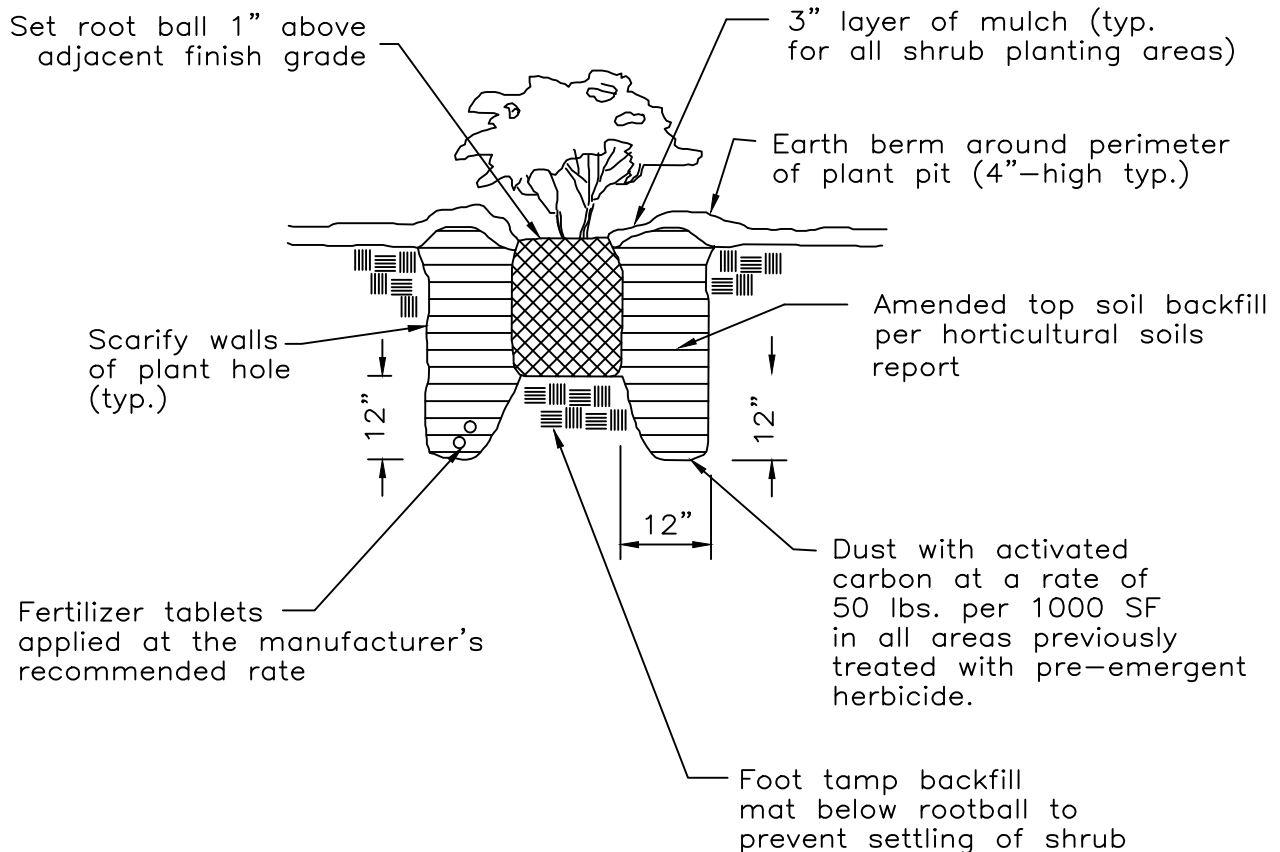
6/23/20	JT	1
Date	By	Rev.

Dwn: FY/JT	Date: Nov-22	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-3G

L03F.DWG

NOTES:

1. Shrub varieties, quantities, sizes, and spacing are subject to Design Review Committee approval.
2. The mulch, if required, shall not be placed within 6" of parent trunk of the shrub.
3. The shrub hole shall be 12" (min.) deeper and 12" (min.) larger on all sides of the root ball.



SECTION

User note:

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L04.DWG

SHRUB PLANTING

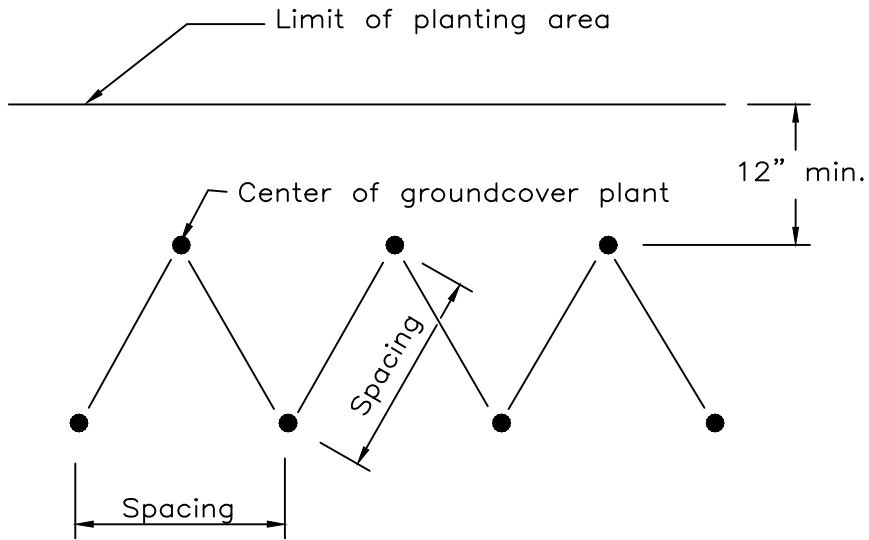
CITY OF LIVERMORE
STANDARD DETAIL

Dwn: MAS	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
<i>db0.88</i>		L-4
City Engineer		

Date	By	Rev.

NOTES:

1. Groundcover varieties, quantities, sizes, and spacing are subject to Design Review Committee approval.
2. Dust the plant pits with activated carbon at a rate of 50 lbs. per 1000 SF in all areas previously treated with pre-emergent herbicide.



PLAN

User note:

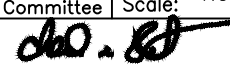
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L05.DWG

Date	By	Rev.

GROUNDCOVER
SPACING

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: MAS	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-5

Adjacent sidewalk, curb, or wall (as occurs)

3" typ.

Set head flush with finish grade

Install concrete "sprinkler block" when adjacent to flush curb

Rotor or Spray Head

NOTE:
Provide in-line check valves at base of head as required to prevent unwanted discharge from low elevation heads. Omit if spray head equipped with integral check valve.

NOTE:
Use side outlet on 12" spray heads in curbsless medians and curbsless backing lots only

Sch. 80 PVC threaded riser (length as required)

90° marlex street elbow

90° Sch. 80 PVC elbow

6"-long Sch. 80 PVC threaded riser

30° min. to 45° max.

SECTION

Sch. 40 PVC tee, elbow, or adapter with FIPT outlet

Irrigation lateral

90° marlex street elbow

90° Sch. 80 PVC elbow

90° marlex street elbow

PLAN

6"-long Sch. 80 PVC threaded riser

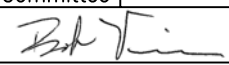
Pop-up head

User note:
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LEGEND:
MIPT = Male Iron Pipe Thread
FIPT = Female Iron Pipe Thread

ROTOR OR SPRAY HEAD

CITY OF LIVERMORE STANDARD DETAIL

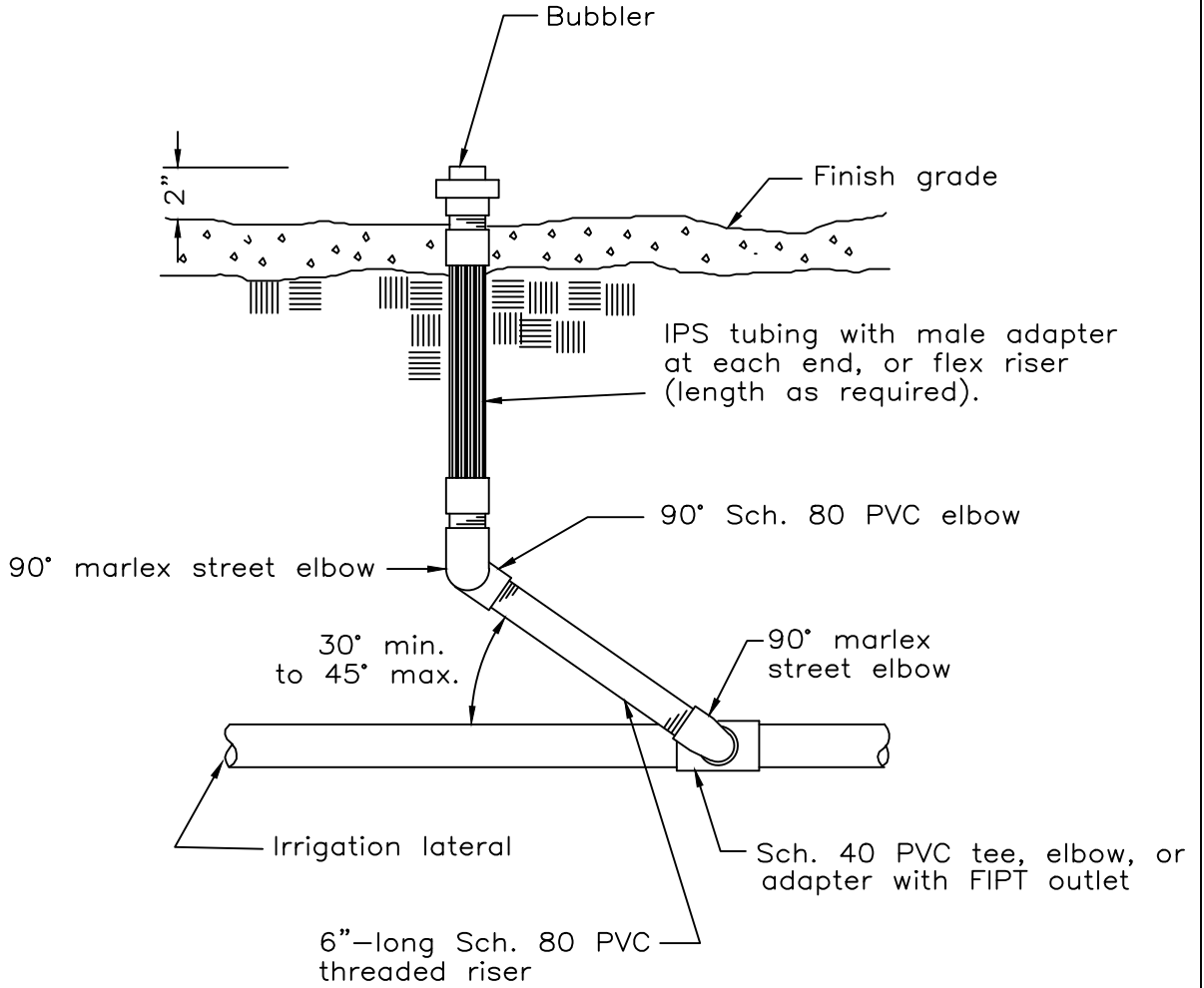
Dwn: MM/JT	Date: Nov-22	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-6

6/23/20	JT	1
Date	By	Rev.

LOG.DWG

NOTE:

1. All laterals, mains, and swing joints shall be located 24" min. away from trees or plants.



SECTION

User note:

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LEGEND:

MIPT = Male Iron Pipe Thread
 FIPT = Female Iron Pipe Thread

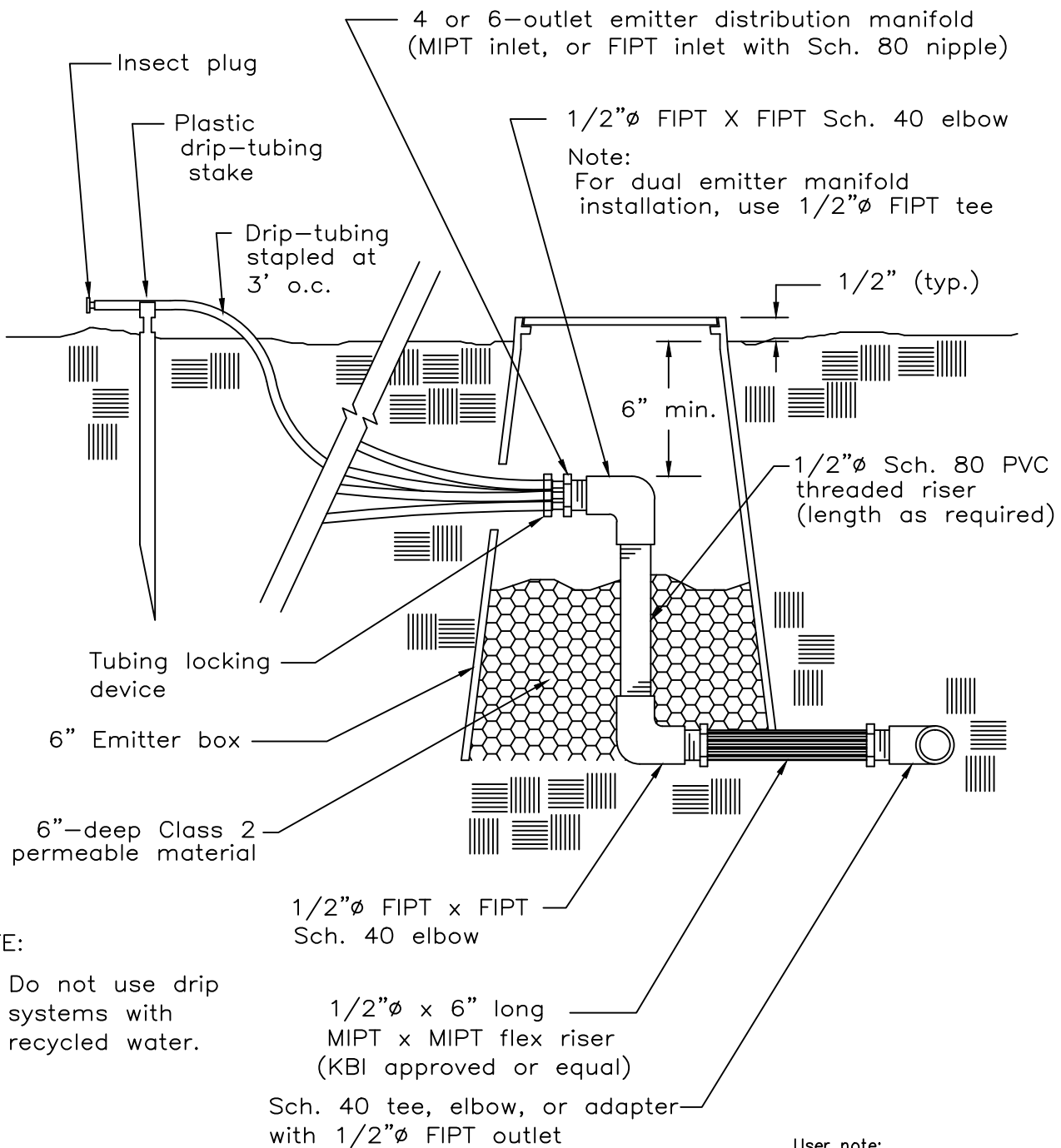
L07.DWG

Date	By	Rev.

TREE BUBBLER

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: MAS	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
<i>[Signature]</i>		L-7
City Engineer		



NOTE:

- Do not use drip systems with recycled water.

- 1/2" FIPT x FIPT Sch. 40 elbow
- 1/2" x 6" long MIPT x MIPT flex riser (KBI approved or equal)
- Sch. 40 tee, elbow, or adapter with 1/2" FIPT outlet

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LEGEND:

MIPT = Male Iron Pipe Thread
 FIPT = Female Iron Pipe Thread

SECTION

DRIP EMITTER
 FOUR OR SIX OUTLET

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: MM	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	L-8A
 City Engineer		

L08A.DWG

Date	By	Rev.

NOTES:

1. Center valve box over remote control valve.
2. Set boxes 1" above finish grade or mulch cover in planting areas and flush with finish grade in turf.
3. Set boxes in ground cover/shrub areas whenever possible. Use concrete boxes in hardsurfaced areas.
4. Set boxes parallel to each other and perpendicular to edge of sidewalk, curb, wall, or hardsurfacing.
5. Avoid heavy compacting of soil around boxes to prevent collapse of box sides.
6. All fittings shown shall be the same size as the valve size specified.

Plastic valve box w/ bolt down lid. Permanently inscribe "RCV" and the station number onto the box lid.

Water-proof wire connection (typ.)

Plastic tag with valve number

12" Min.

Irrigation lateral

Female adapter

Union

Remote control valve

Irrigation main line

Spare wire

Low voltage control wires (Provide one spare of different color per valve)

SECTION

Line size plastic ball valve (low torque)

2" min.

3" min., 6" max.

Finish grade

2" min.

Coil wire (24" min. length) at each wire connection in remote control valve box (typ.)

Common brick (one each corner)

6"-deep Class 2 permeable material

Sch. 80 PVC riser & threaded fittings

45° elbow (typical)

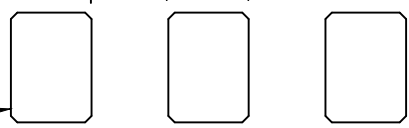
Edge of lawn, walk fence, curb, etc.

12"

12"

12" typ.

Rectangular valve box




PLAN

User note:
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

REMOTE CONTROL VALVE STANDARD

CITY OF LIVERMORE STANDARD DETAIL

Dwn: FY	Date: May-13	NO. L-9A
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		

Date	By	Rev.

L09A.DWG

NOTES:

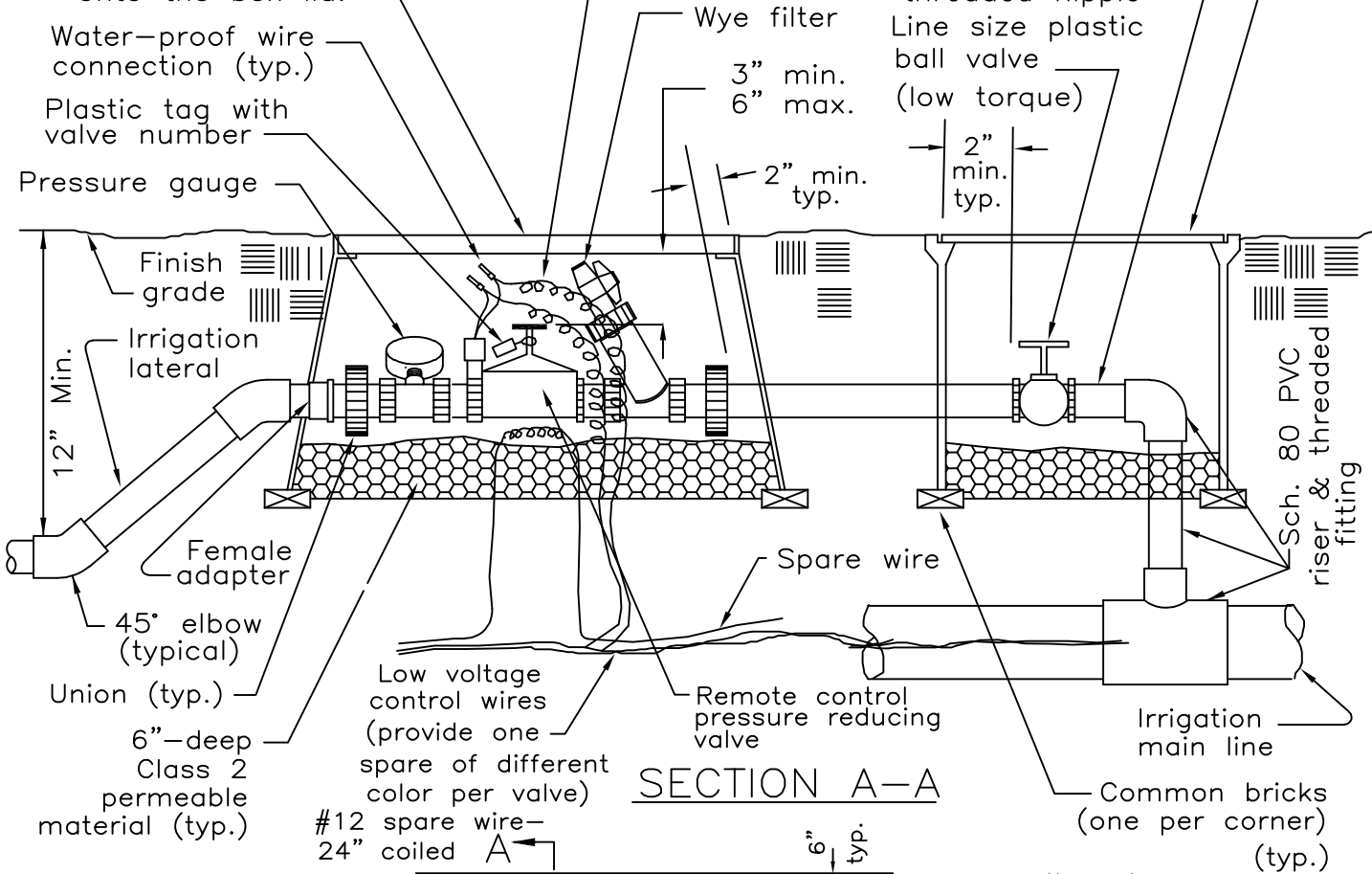
1. Center valve box over remote control valve.
2. Set boxes 1" above finish grade or mulch cover in planting areas, and flush with finish grade in turf.
3. Set boxes in ground cover/shrub areas whenever possible. Use concrete boxes in hardsurfaced areas.
4. Set boxes parallel to each other and perpendicular to edge of sidewalk, curb, wall, or hardsurfacing.
5. Avoid heavy compacting of soil around boxes to prevent collapse of box sides.
6. All fittings shown shall be the same size as the valve size specified.

Plastic valve box with bolt-down lid. Permanently inscribe "BV" onto lid

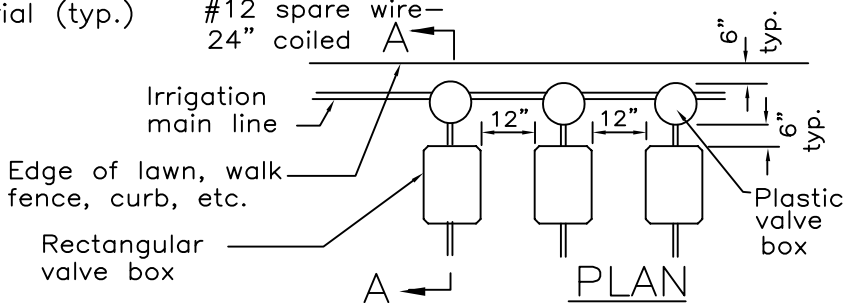
Coil wire (24" min. length) at each wire connection in remote control valve box (typ.)

Plastic valve box w/ bolt down lid. Permanently inscribe "RCV" and the station number onto the box lid.

Sch. 80 PVC threaded nipple
Line size plastic ball valve (low torque)




SECTION A-A



User note:
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

REMOTE CONTROL VALVE
DRIP IRRIGATION SYSTEMS

CITY OF LIVERMORE
STANDARD DETAIL

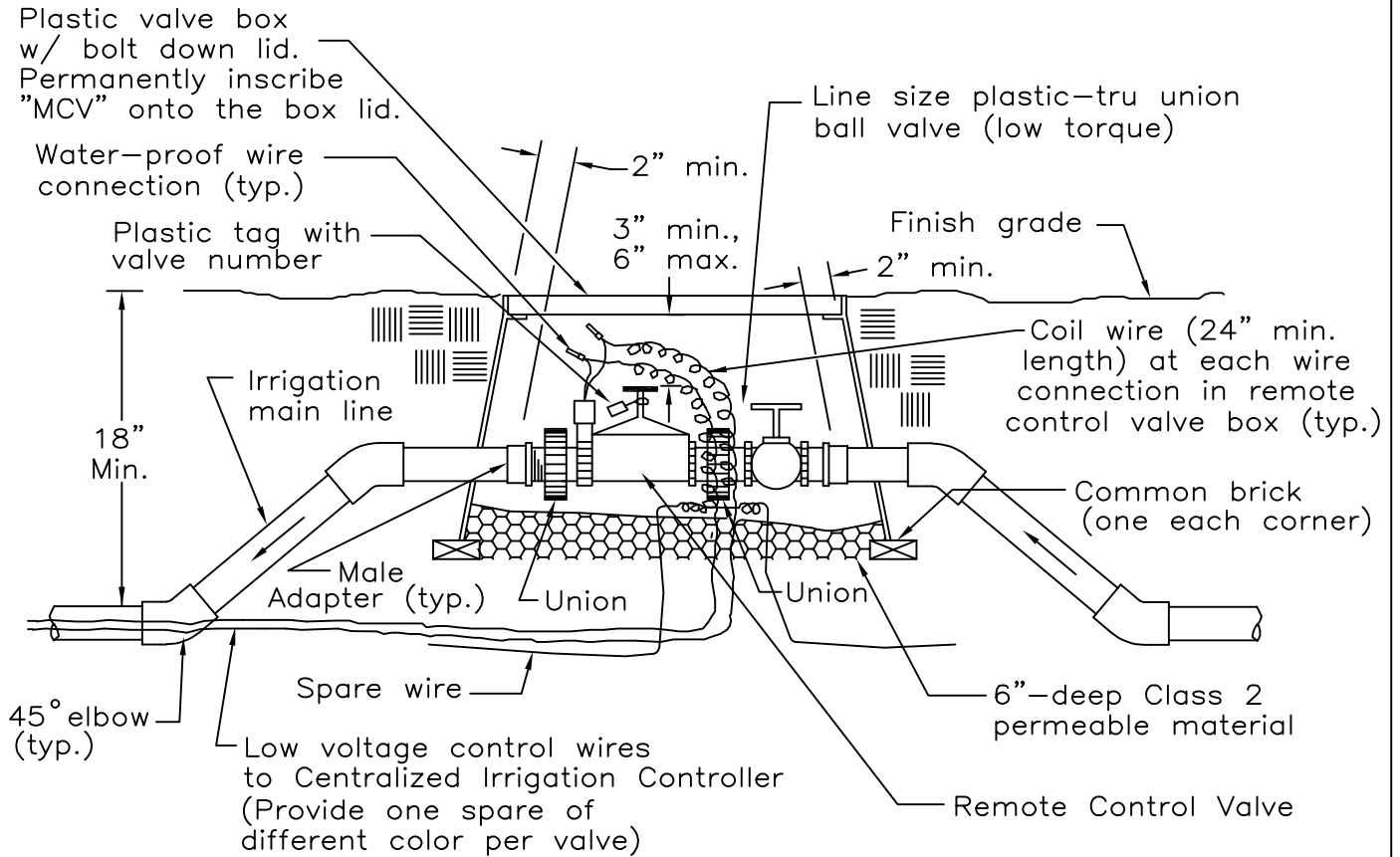
Dwn: FY-HI	Date: Apr-23	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-9B

L09B.DWG

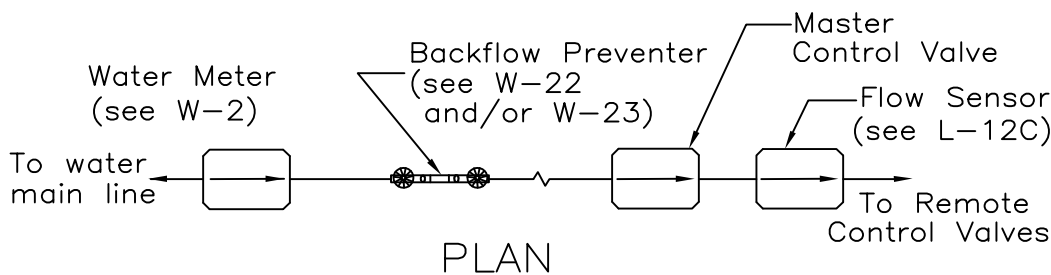
Date	By	Rev.

NOTES:

1. Center valve box over remote control valve.
2. Set boxes 1" above finish grade or mulch cover in planting areas and flush with finish grade in turf.
3. Set boxes in ground cover/shrub areas whenever possible. Use concrete boxes in hardsurfaced areas.
4. Set box perpendicular to edge of sidewalk, curb, wall, or hardsurfacing.
5. Avoid heavy compacting of soil around box to prevent collapse of box sides.
6. All fittings shown shall be the same size as the valve size specified.



SECTION



PLAN

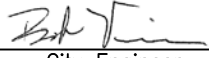
User note:
 These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

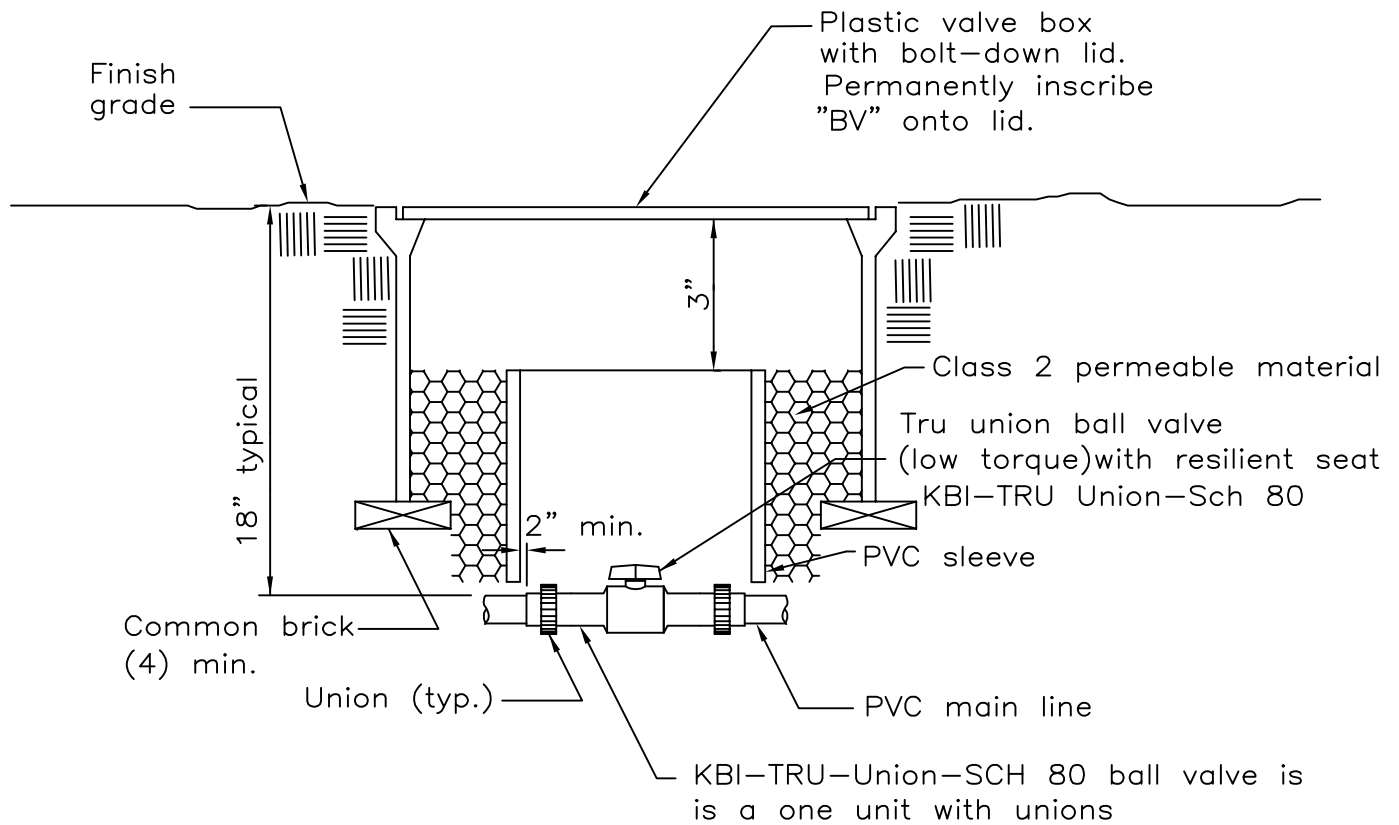
L09C.DWG

Date	By	Rev.

MASTER CONTROL VALVE
 FOR CENTRALIZED IRRIGATION SYSTEMS

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: FY/Hi	Date: Mar-23	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-9C



SECTION

NOTE:

Add a box and sleeve large enough to enclose the ball valve and union.

User note:

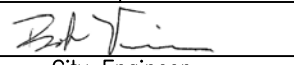
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

L10.DWG

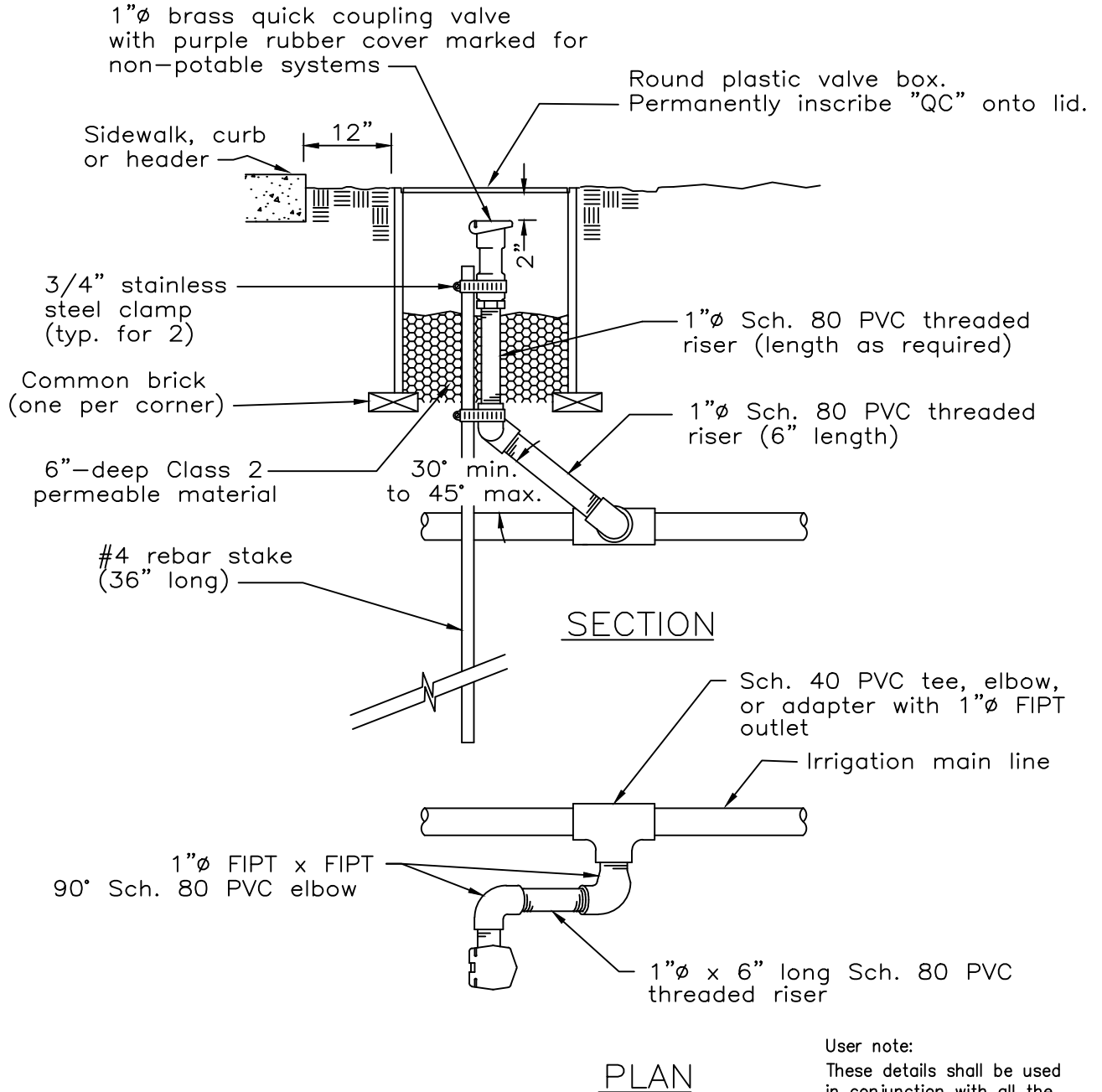
Date	By	Rev.
4/19/23	HI	2
3/4/20	JT	1

TRU UNION
BALL VALVE

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: MM-HI	Date: Apr-23	NO. L-10
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		

NOTE: Set boxes 1" above finish grade or mulch cover in planting areas, and flush with finish grade in turf areas.



User note:
 These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

LEGEND:

MIPT = Male Iron Pipe Thread
 FIPT = Female Iron Pipe Thread

CITY OF LIVERMORE
 STANDARD DETAIL

QUICK COUPLING
 VALVE

Dwn: DMc	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
<i>John D. ...</i> City Engineer		L-11

L11.DWG

Date	By	Rev.

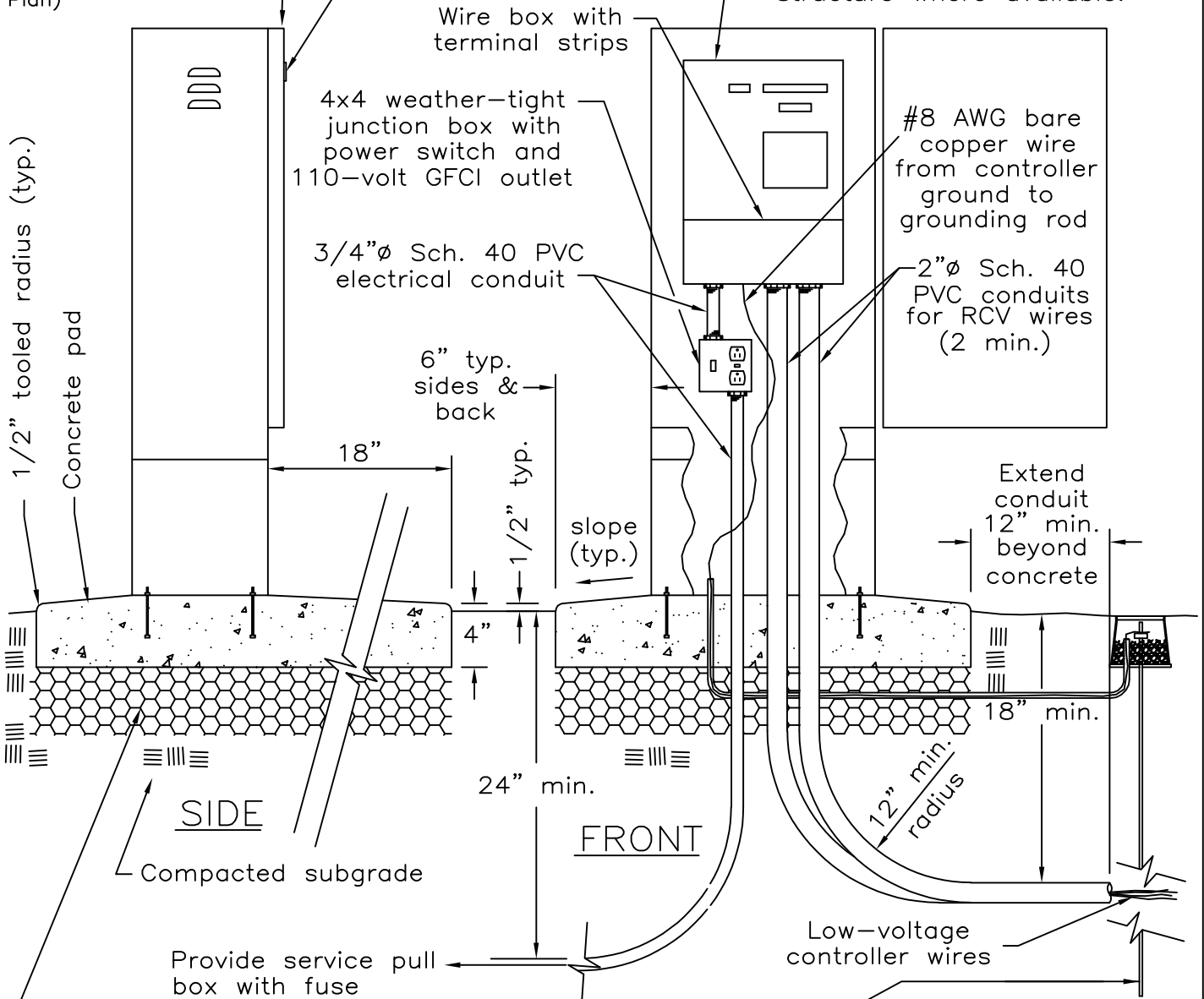
Note:

All electrical service components shall be U.L. listed and installed per National Electric Code requirements.

Stainless steel lockable controller cabinet
(Dark Forest Green—South Livermore Valley Plan)

Address number to be shown on the drawings. ID numerals dimension per ST-14A

Irrigation controller. Mount to housing per manufacturer's recommendations. Locate as close as possible to wall or structure where available.



#8 AWG bare copper wire from controller ground to grounding rod

2" Sch. 40 PVC conduits for RCV wires (2 min.)

Extend conduit 12" min. beyond concrete

User note:
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

5/8"Ø x 8' long copper grounding rod w/clamp locate outside of cabinet 8' away with 1 1/2"Ø conduit per detail L-12C

ELEVATIONS

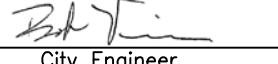
Date	By	Rev.

CONTROLLER

STANDARD

CITY OF LIVERMORE

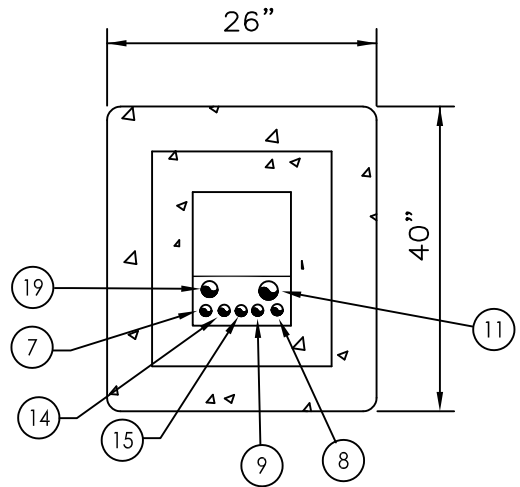
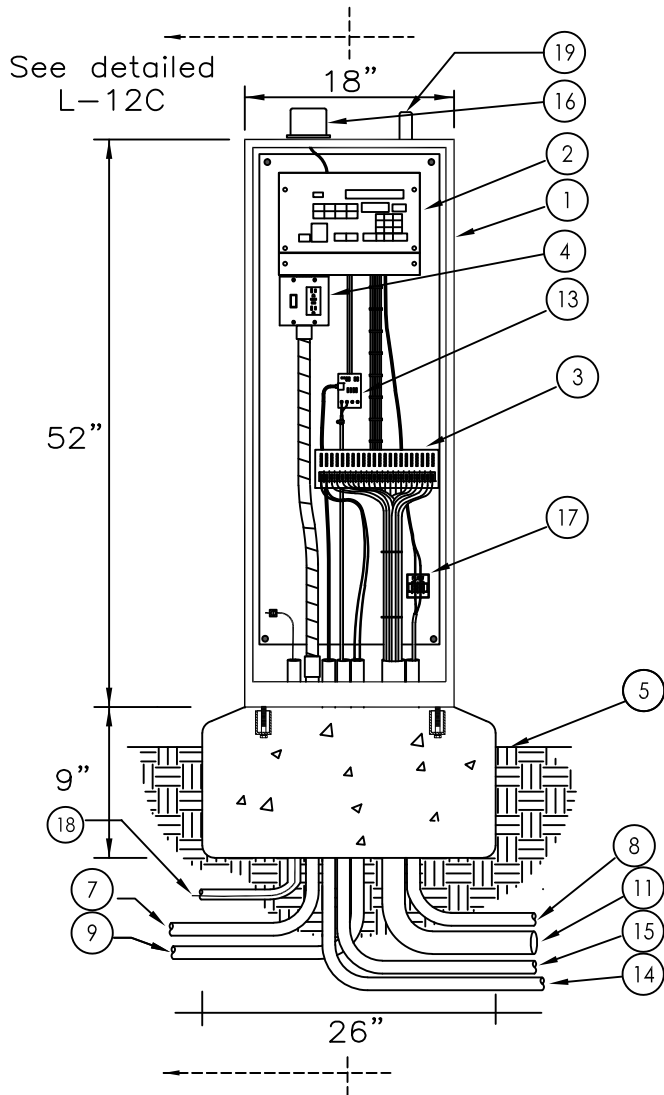
STANDARD DETAIL

Dwn: MM-HI	Date: Apr-23	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-12A

L12A.DWG

Notes:

1. All electrical service components shall be U.L. listed and installed per National Electric Code requirements.
2. Provide dome antenna only if clear reception can be established between the controller and the City Maintenance Service Center, 3500 Robertson Park Road. Otherwise, provide a high-gain antenna per L-12E.
3. Address numbers as shown on the drawings. ID numerals dimensions per ST-14A

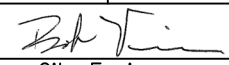


- 1 Strongbox stainless steel NEMA 3R rainproof enclosure (UL listed).
- 2 Satellite assembly. Rain Master DX3 and DXi controller.
- 3 Terminal strip for valve wires.
- 4 Power switch/GFCI receptacle.
- 5 Finished grade.
- 6 12" diam plastic box with lid permanently inscribed "ground rod" filled with 6" deep class 2 permeable material.

- 7 120VAC electrical power run in 1" PVC conduit to controller side from electrical meter.
- 8 1" conduit and sweep ell for flow sensor cables.
- 9 1" conduit and sweep ell for master valve cables.
- 10 5/8" x 8' ground rod with #6 ground wire and clamp.
- 11 PVC conduit and sweep ell for lead wire. (Size as required)
- 12 Utility underground service conduit. Size per code.
- 13 PHB—phone hardwire board.
- 14 1"conduit and sweep ell for phone cable
- 15 1"conduit and sweep ell for EV-CAB-COM (out).
- 16 PMR-CAC—Permanent mount receiver, antenna.
- 17 EV-CAB-SEN—Flow sensor cable.
- 18 1 1/2" conduit sweep for ground rod
- 19 Ext. Antenna for cell communication

FRONT VIEW
CONTROLLER
FOR CENTRALIZED
IRRIGATION SYSTEMS

CITY OF LIVERMORE
STANDARD DETAIL

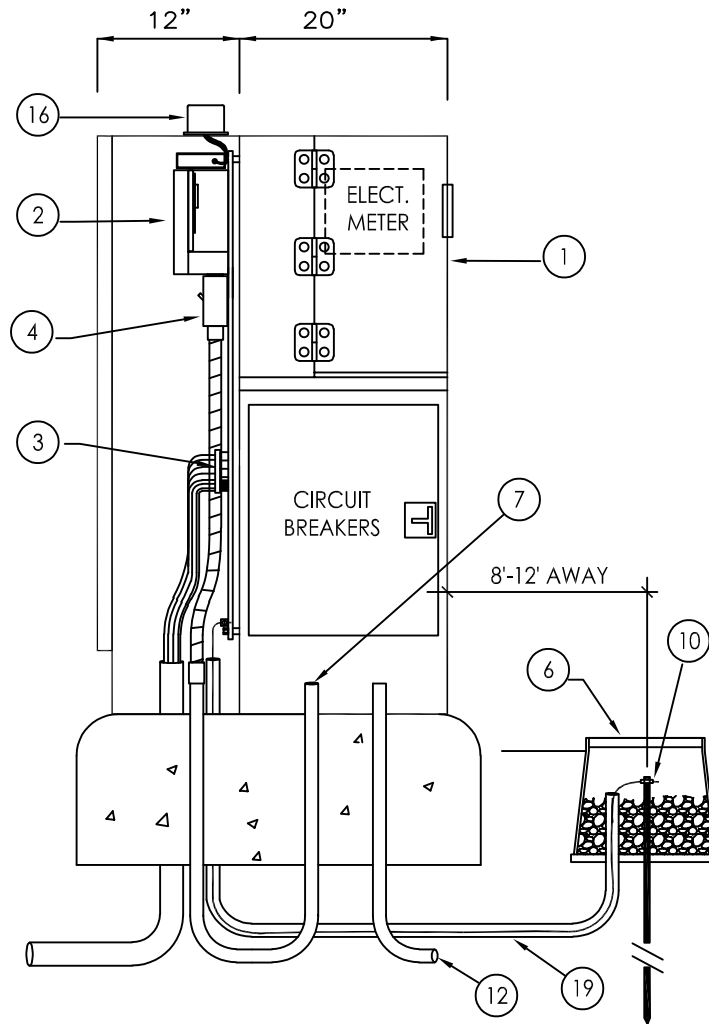
Dwn: FY/JT/HI	Date: Mar-23	NO.
Ckd: ^{Spec.} Committee	Scale: NONE	
 City Engineer		L-12B

L12B.DWG

Date	By	Rev.
3/15/23	HI	2
6/23/20	JT	1

Notes:

1. All electrical service components shall be U.L. listed and installed per National Electric Code requirements.
2. Provide dome antenna only if clear reception can be established between the controller and the City Maintenance Service Center, 3500 Robertson Park Road. Otherwise, provide a high-gain antenna per L-12E.
3. Address numbers as shown on the drawings. ID numerals dimensions per ST-14A



- | | |
|---|--|
| <ul style="list-style-type: none"> ① Strongbox stainless steel NEMA 3R rainproof enclosure (UL listed). ② Satellite assembly. Rain Master DX3 and DXi controller. ③ Terminal strip for valve wires. ④ Power switch/GFCI receptacle. ⑥ 12" diam plastic box with lid permanently inscribed "ground rod" filled with 6" deep class 2 permeable material. | <ul style="list-style-type: none"> ⑦ 120VAC electrical power run in 1" PVC conduit to controller side from electrical meter. ⑩ 5/8" x 8' ground rod with #6 ground wire and clamp. ⑫ Utility underground service conduit. Size per code. ⑯ PMR-CAC-Permanent mount receiver, antenna. ⑰ 1 1/2" conduit sweep for ground rod |
|---|--|

SIDE VIEW
CONTROLLER
FOR CENTRALIZED
IRRIGATION SYSTEMS

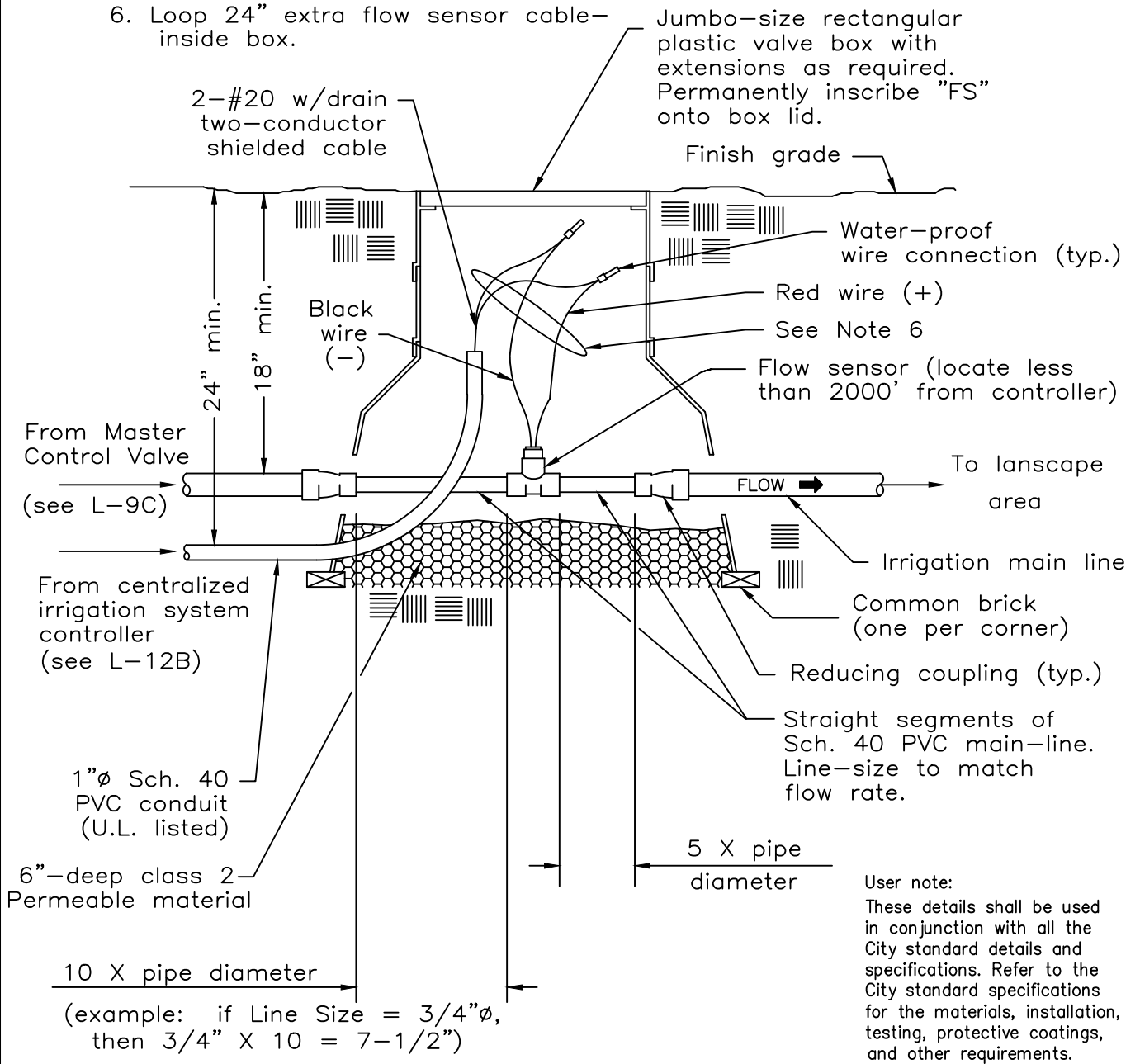
CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY/JT/HI	Date: Mar-23	NO.
Ckd: Spec. Committee	Scale: NONE	L-12C
City Engineer		

L12C.DWG	3/15/23	HI	2
	6/23/20	JT	1
Date	By	Rev.	

NOTES:

1. The flow sensor cable shall be continuous between the controller and the flow sensor box (no intermediate splices).
2. Set box 1" above finish grade or mulch cover in planting areas, or flush with finish grade in turf areas.
3. Set box in ground cover or shrub areas whenever possible. Use equivalent-sized concrete box in sidewalk area.
4. Avoid heavy compacting of soil around box to prevent collapse of box sides.
5. Flow sensor fuse to be installed in the controller cabinet.
6. Loop 24" extra flow sensor cable—inside box.



(example: if Line Size = 3/4"φ,
then 3/4" X 10 = 7-1/2")

User note:
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

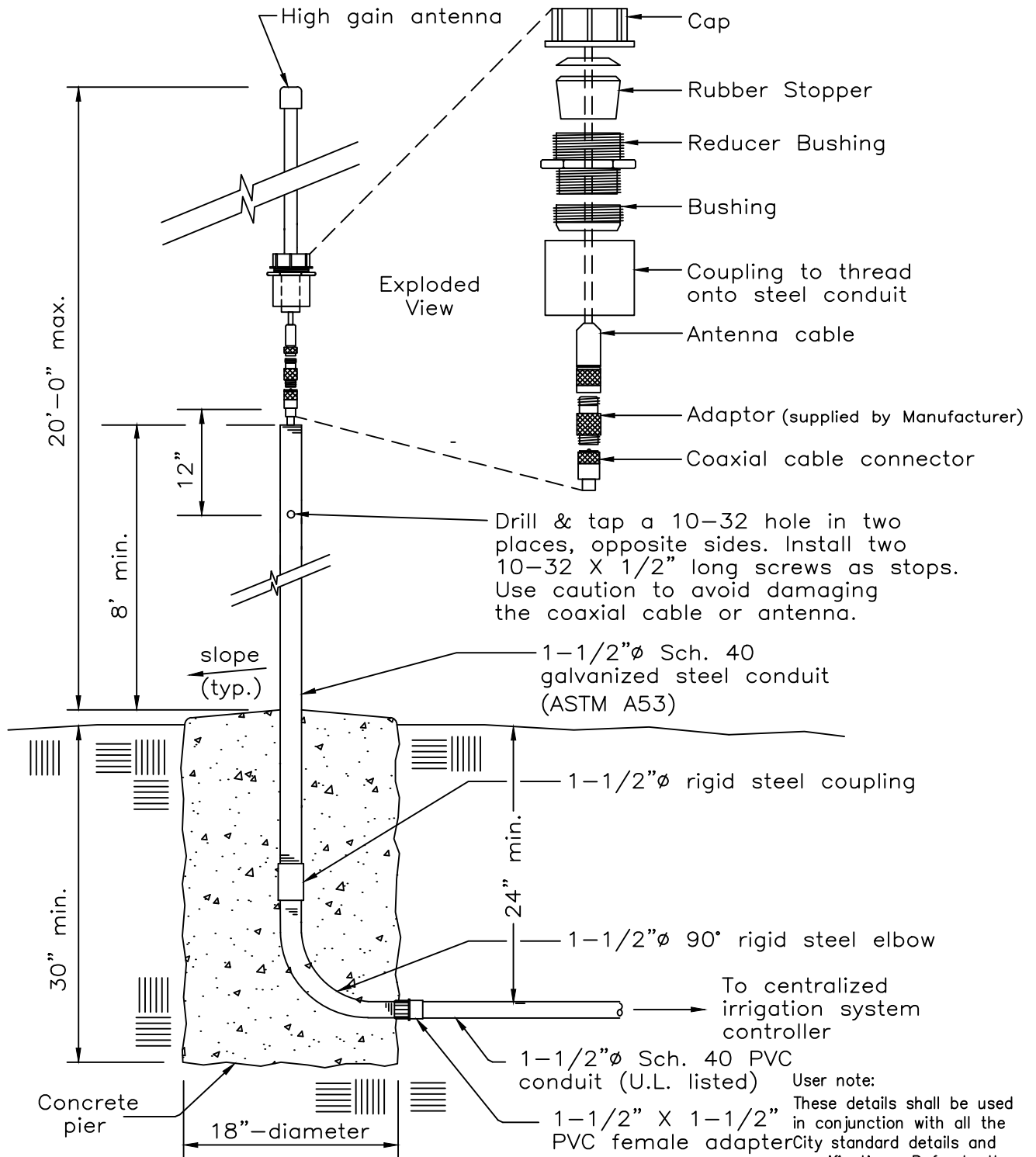
L12D.DWG

Date	By	Rev.

FLOW SENSOR

FOR CENTRALIZED IRRIGATION SYSTEMS

CITY OF LIVERMORE STANDARD DETAIL		
Dwn: FY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	L-12D
City Engineer		




NOTE: Coordinate final location and height with the Engineering Division prior to installation.

SECTION

Date	By	Rev.

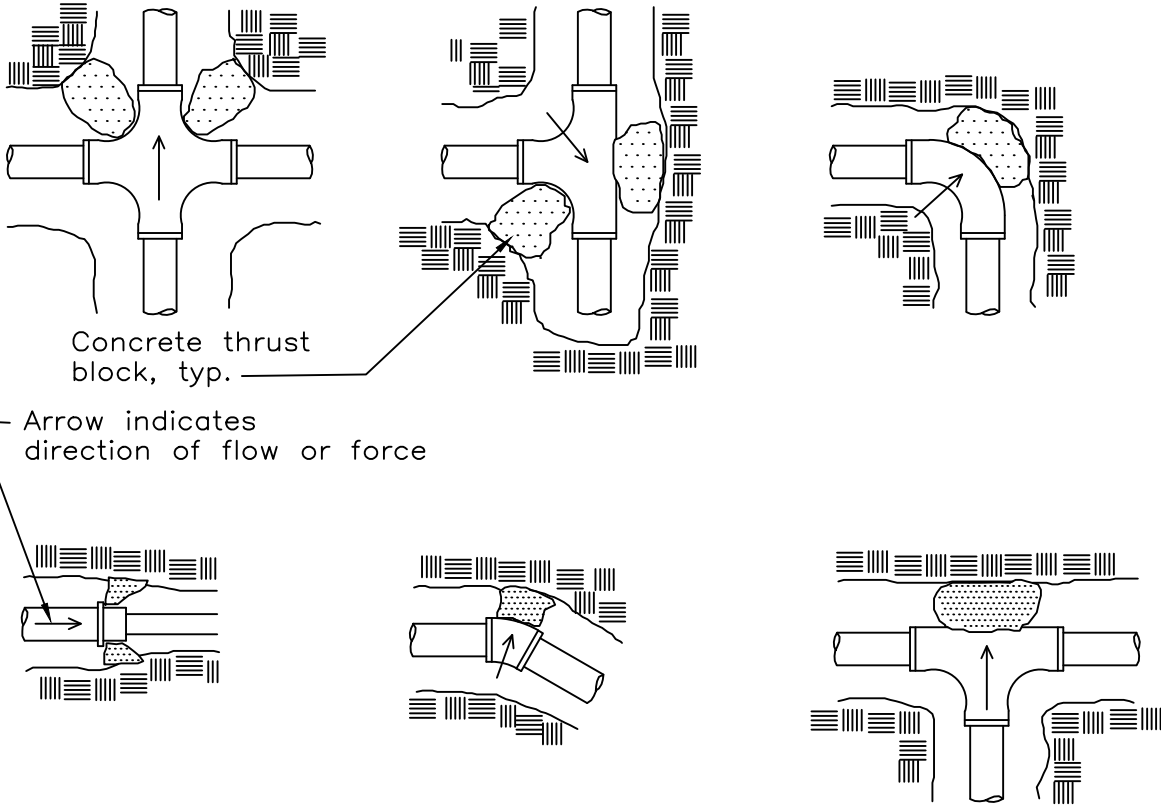
HIGH-GAIN
ANTENNA
FOR CENTRALIZED
IRRIGATION SYSTEMS

CITY OF LIVERMORE
STANDARD DETAIL

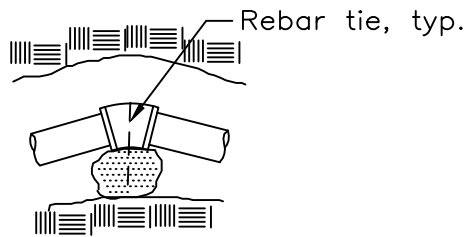
Dwn: FY	Date: May-13	NO.
Kcd: Spec. Committee	Scale: NONE	
 City Engineer		L-12E

L12E.DWG

NOTE:
Install main line per manufacturer's installation guide. Size of concrete thrust blocks shall be per pipe manufacturer's installation guide.



PLAN



SECTION

User note:
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

L13.DWG

Date	By	Rev.

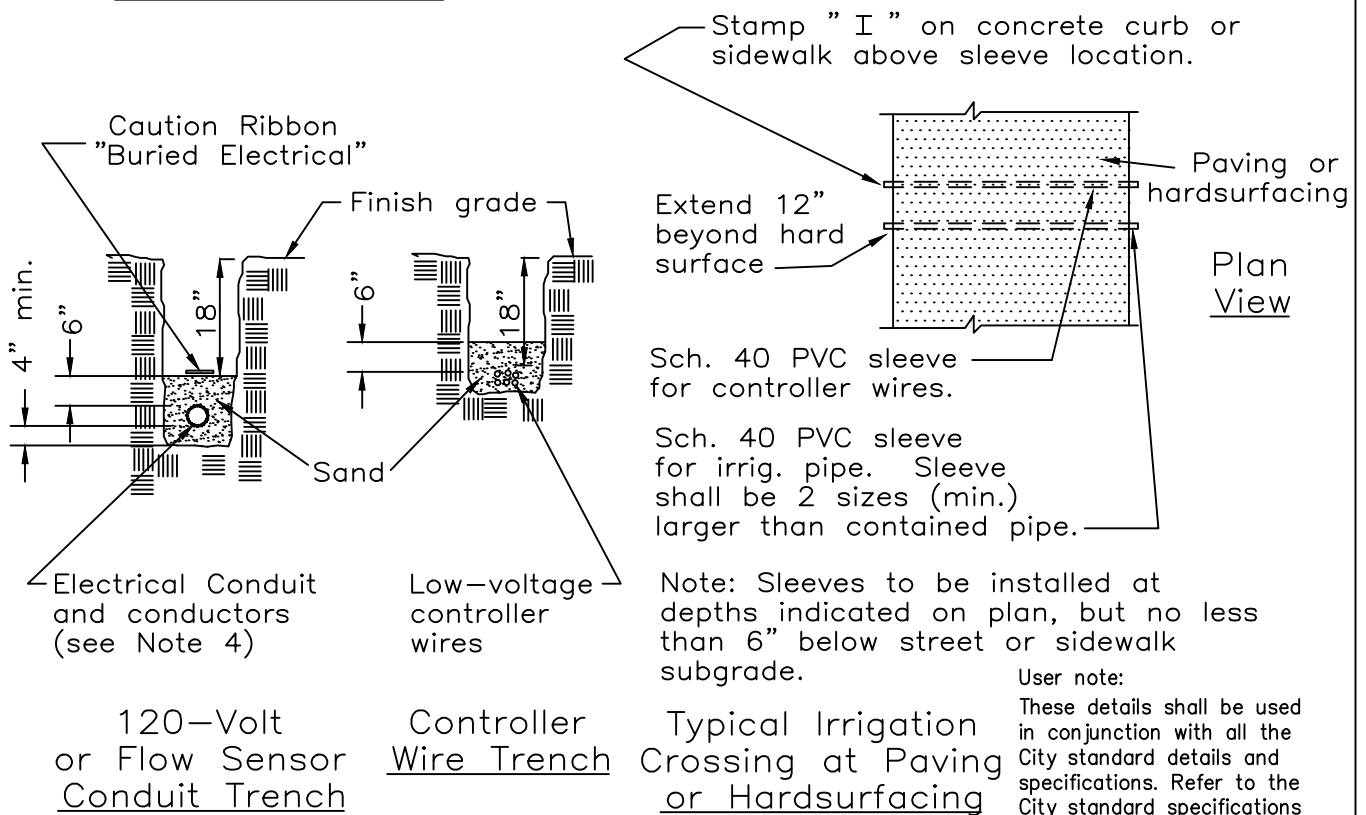
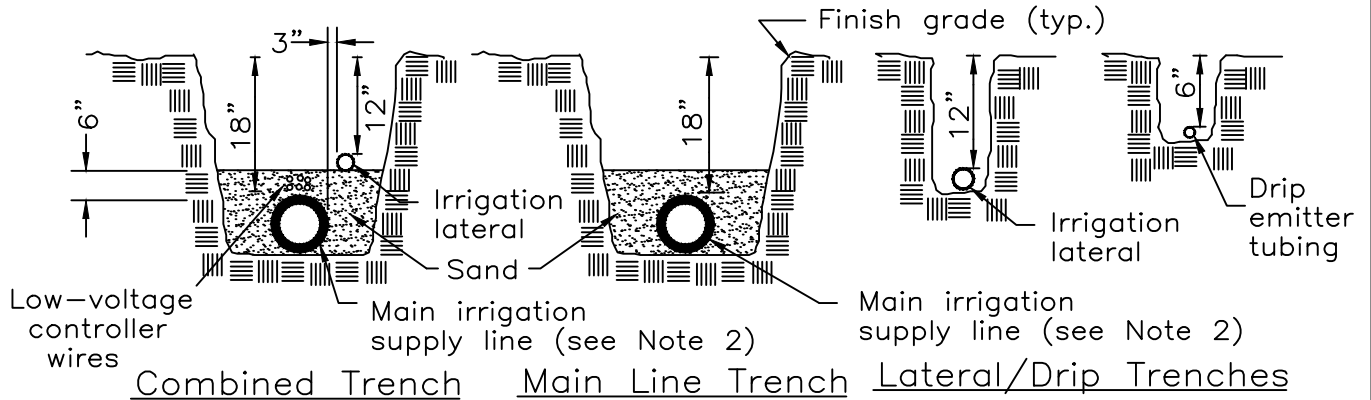
IRRIGATION MAIN
THRUST BLOCK

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
<i>do. 88</i>		L-13
City Engineer		

NOTES:

1. All irrigation piping shall be installed in the trench in a serpentine manner per the manufacturer's recommendations.
2. All main supply lines to be installed per the manufacturer's recommendations.
3. Trench backfill shall be native material compacted to 90% R.C. minimum.
4. All electrical service components shall be U.L. listed and installed per National Electric Code requirements.
5. All main & lateral lines and control wiring shall be placed in sleeves under paved or hardsurfaced areas (see detail below).




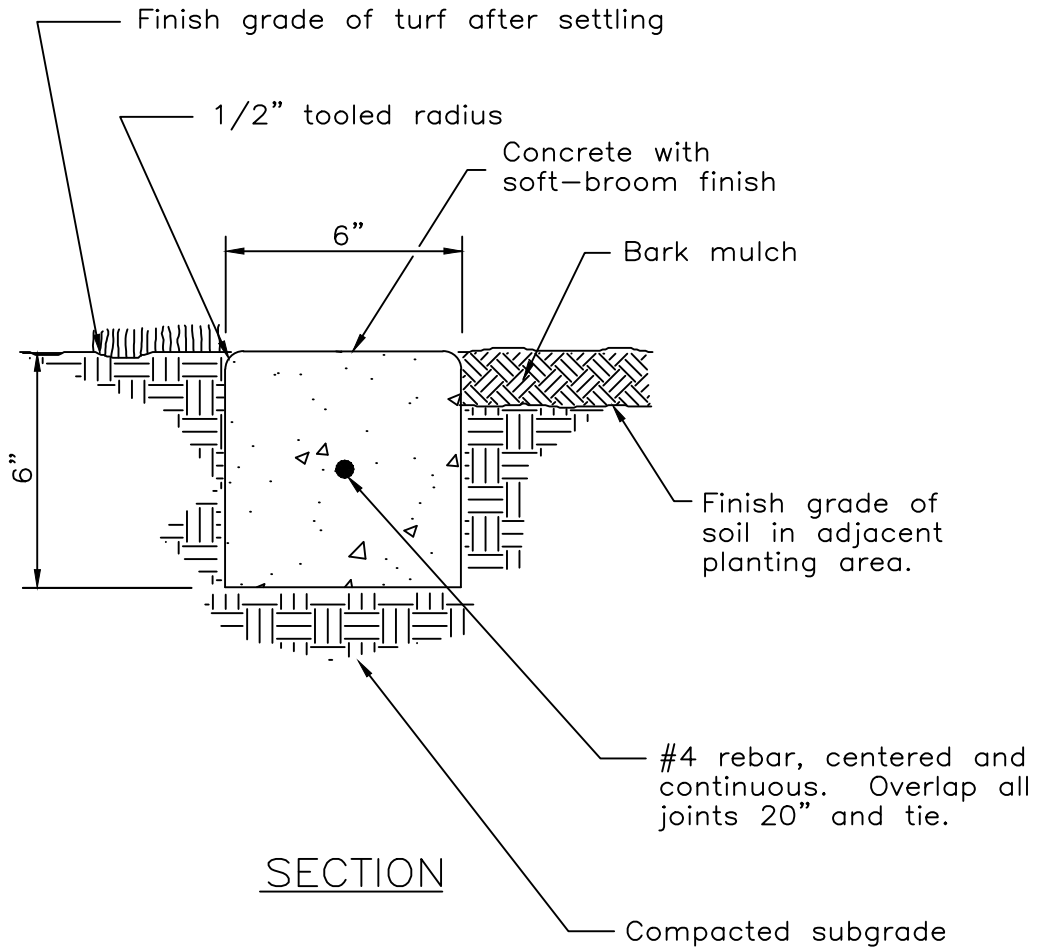
L14.DWG

Date	By	Rev.

IRRIGATION TRENCHING

CITY OF LIVERMORE STANDARD DETAIL

Dwn: MAS	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-14



NOTE:
 Provide 1/4" wide by 1/2" deep score lines at 8'-0" o.c. and expansion joints at 32'-0" o.c.


User note:
 These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

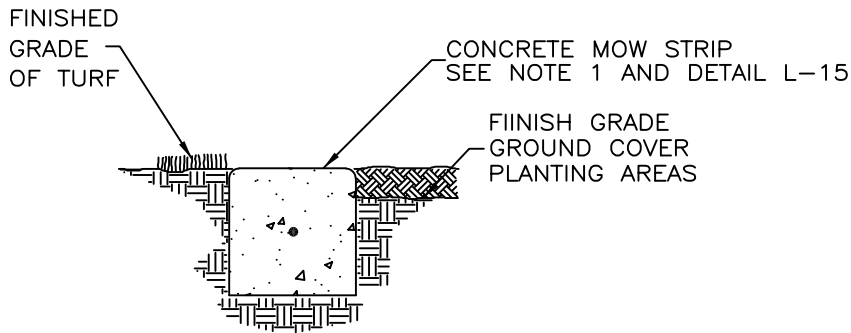
L15.DWG

Date	By	Rev.

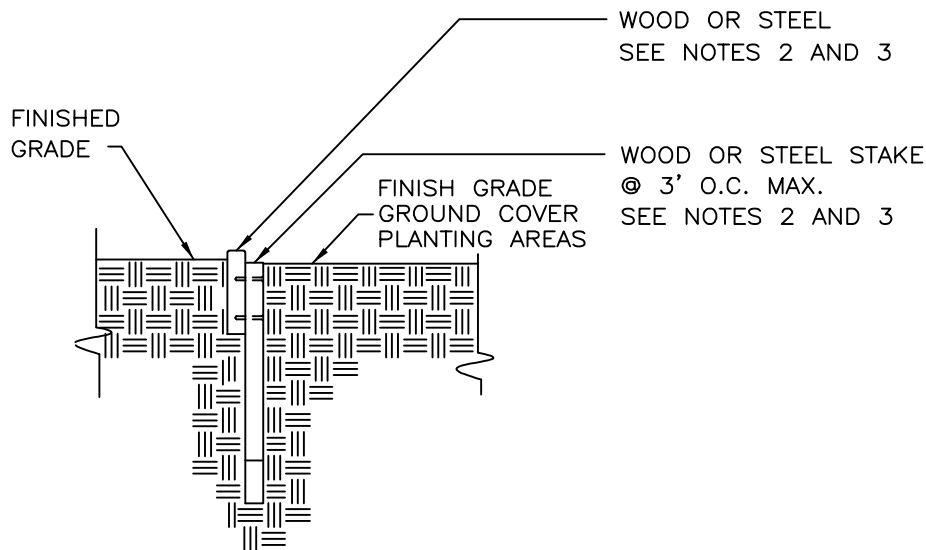
CONCRETE
 DIVIDER

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: FY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-15



CONCRETE MOW STRIP SECTION



NON-TURF STRIP SECTION

Notes:

1. CONCRETE MOW STRIP IS THE PROFFERED METHOD FOR SEPARATING TURF FROM LANDSCAPE AREAS.
2. STEEL EDGING IS AN OPTION IN CERTAIN NON-TURF APPLICATIONS WITH PLAN REVIEW APPROVAL. USE - MANUFACTURED REQUIRED METAL STAKES FOR METAL EDGING.
3. REDWOOD EDGING IS AN OPTION IN CERTAIN NON-TURF APPLICATIONS WITH PLAN REVIEW APPROVAL. USE - PLATED DECK SCREWS FOR WOOD STAKE ATTACHMENT.
4. ALLOW FOR THERMAL EXPANSION & CONTRACTION BY LEAVING GAPS IN THE SLIP JOINTS OR AT THE END OF THE RUN (FOR WOOD).
5. STAKE APPROX 3' 0" OC (MORE FOR STRAIGHT RUNS LESS FOR CURVES).

User note:

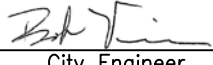
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

L16.DWG

5/26/20	JT	1
Date	By	Rev.

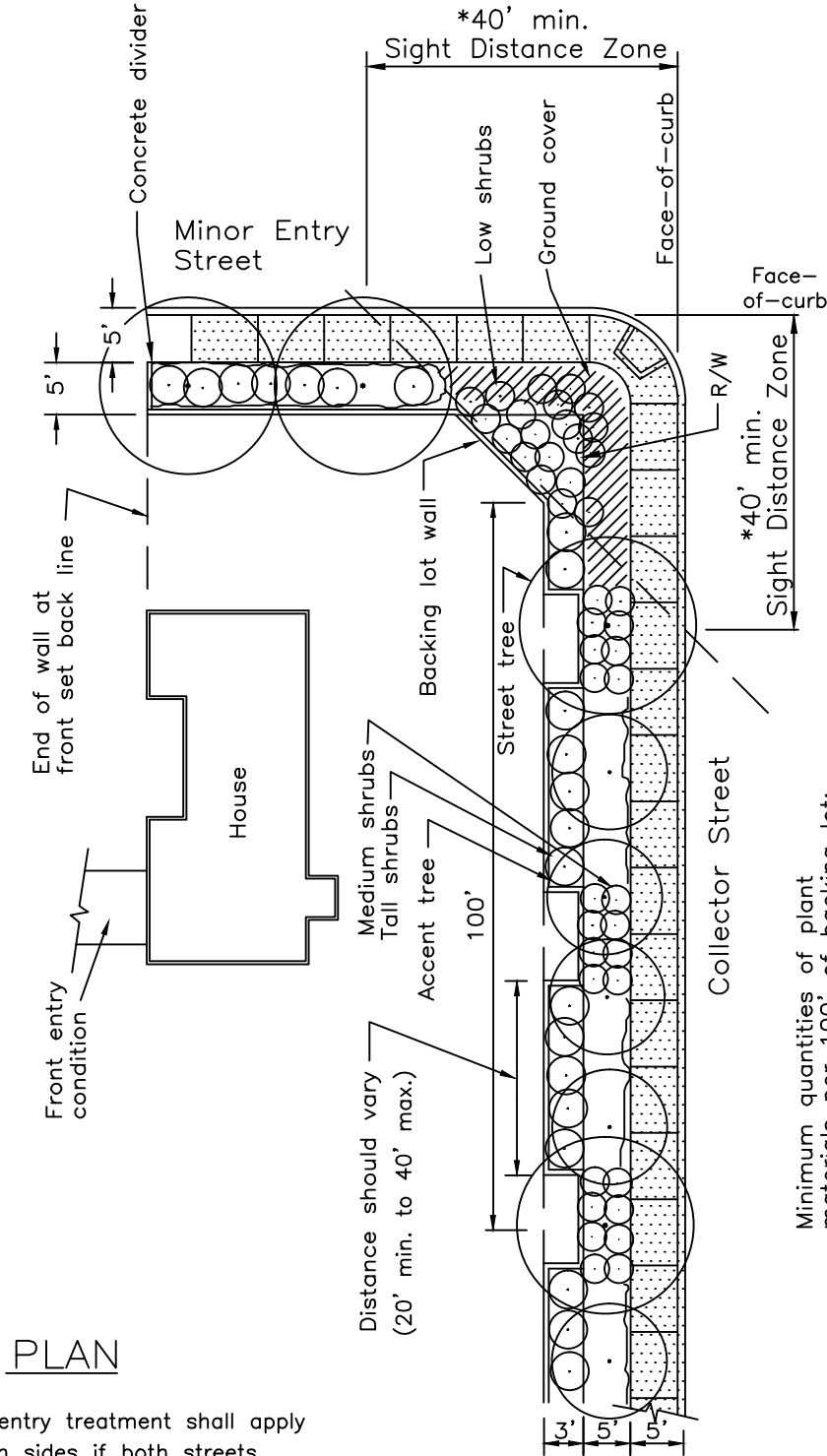
LANDSCAPE
EDGING

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: FY/JT	Date: Nov-22	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-16

NOTE: Backing lot landscape treatments, which include wall materials, design, and alignment, as well as landscaping layout and design, are subject to Design Review approval.

* SIGHT DISTANCE REQUIREMENT APPLIES TO ALL INTERSECTIONS



PLAN

Minor entry treatment shall apply to both sides if both streets are minor

SIGHT DISTANCE ZONE

No trees or accent trees allowed unless trimmed to provide 6'-minimum clearance from root crown to lowest scaffold branch. Low shrubs and accent ground cover shall be trimmed to a maximum height of 30" above the curb.

NOTE: This is a general guideline only. Wall pattern materials, alignment & planting design to be approved by Design Review Committee (DRC). These are minimums. The DRC can approve more than these minimums but not less.

Minimum quantities of plant materials per 100' of backing lot:

TREES (7 trees min. per 100'):
 24"-box: 2-3 trees
 15"-gallon: 4-5 trees

SHRUBS: (Mature Height)
 Large 5'-10' high: 23 shrubs
 Medium 3'-5' high: 24 shrubs
 Small 1'-3' high: 30 shrubs

GROUND COVER:
 Fast Growing: 12" o.c.
 Moderate Growing: 9" o.c.
 Slow Growing: 6" o.c.

User note:


These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

L17A.DWG

Date	By	Rev.

ILLUSTRATIVE BACKING LOT TREATMENT COLLECTOR/MINOR STREETS

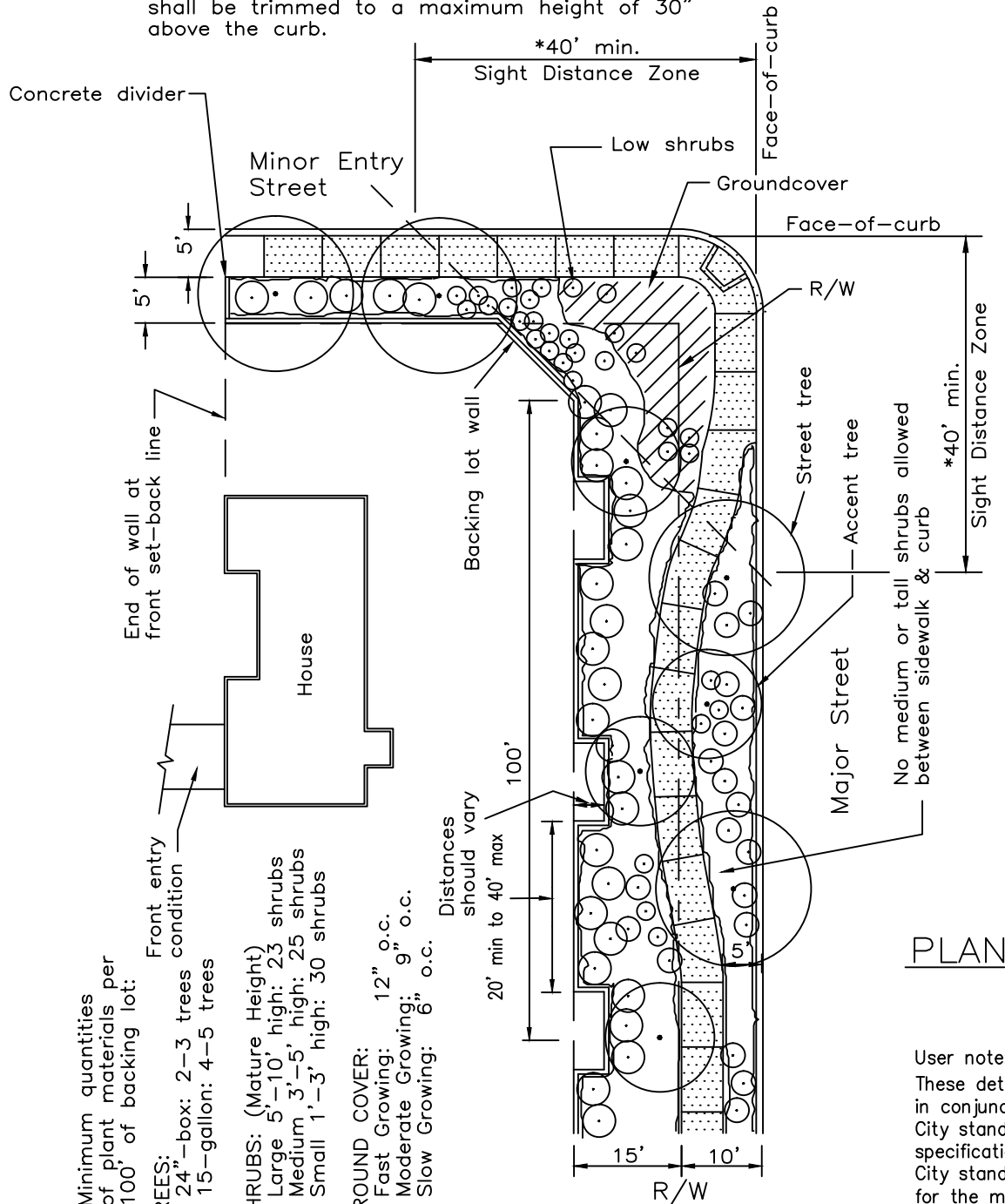
CITY OF LIVERMORE STANDARD DETAIL

Dwn: FY	Date: May-13	NO.
Spec. Committee	Scale: NONE	L-17A
 City Engineer		

NOTE: Backing lot landscape treatments, which includes wall materials, design, and alignment, as well as landscaping layout and design, are subject to Design Review approval.

SIGHT DISTANCE ZONE

- No trees or accent trees allowed unless trimmed to provide 6'-minimum clearance from root crown to lowest scaffold branch.
- Low shrubs and accent ground cover shall be trimmed to a maximum height of 30" above the curb.



PLAN

Minimum quantities of plant materials per 100' of backing lot:

TREES:
 24" - box: 2-3 trees condition
 15-gallon: 4-5 trees

SHRUBS: (Mature Height)
 Large 5'-10' high: 23 shrubs
 Medium 3'-5' high: 25 shrubs
 Small 1'-3' high: 30 shrubs

GROUND COVER:
 Fast Growing: 12" o.c.
 Moderate Growing: 9" o.c.
 Slow Growing: 6" o.c.

Distances should vary
 20' min to 40' max

NOTE: This is a general guideline only. Wall pattern/materials, alignment & planting design to be approved by Design Review Committee (DRC). These are minimums. The DRC can approve more than these minimums but not less than.

* SIGHT DISTANCE REQUIREMENT APPLIES TO ALL INTERSECTIONS

User note:
 These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.


*Sight distance requirement applies to all intersections.

L17B.DWG

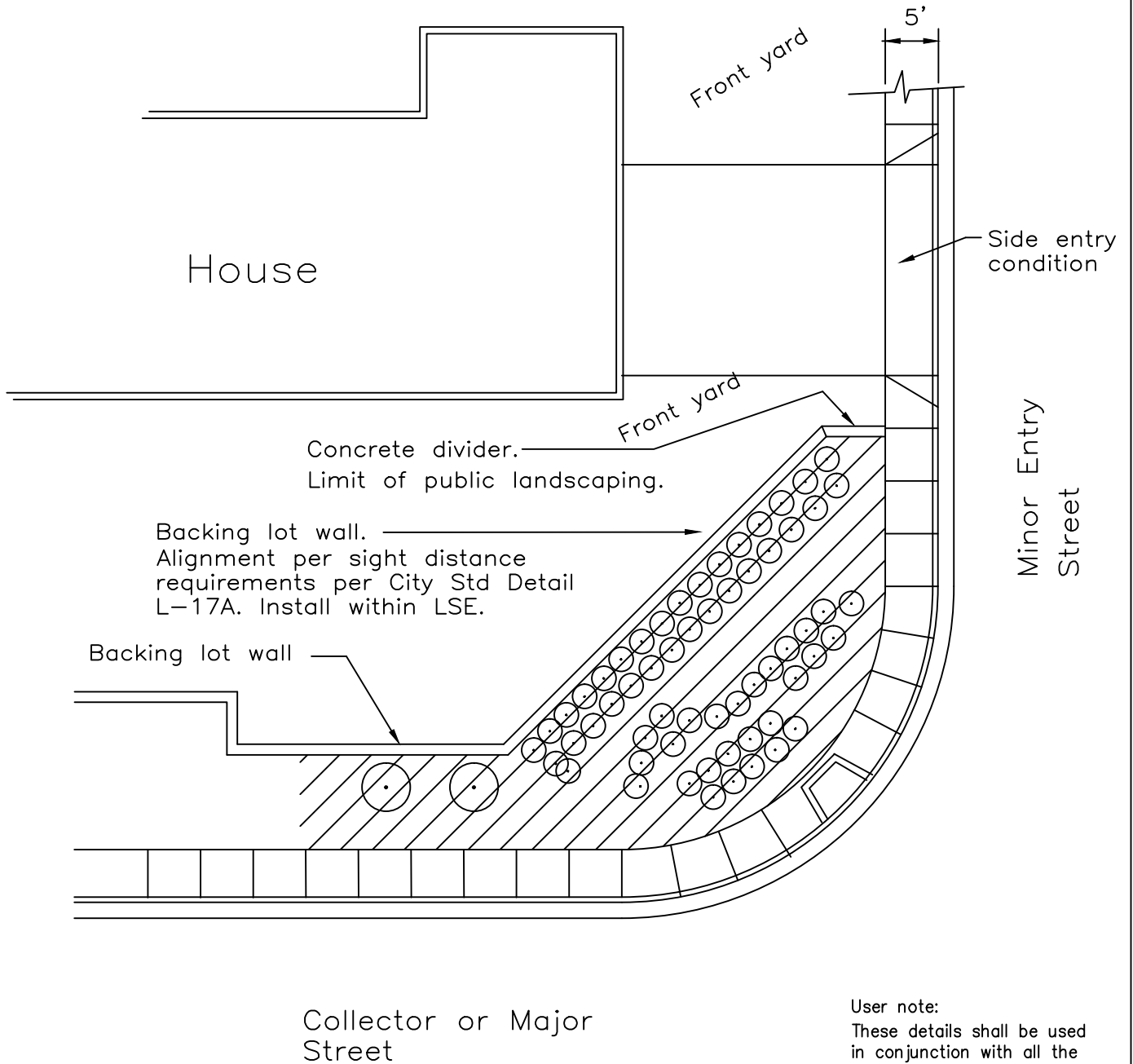
Date	By	Rev.

ILLUSTRATIVE BACKING LOT TREATMENT
 MAJOR/MINOR STREETS

CITY OF LIVERMORE
 STANDARD DETAIL

Dwn: FY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-17B

NOTE: Backing lot landscape treatments, which include wall materials, design, and alignment, as well as landscaping layout and design, are subject to Design Review approval.




PLAN

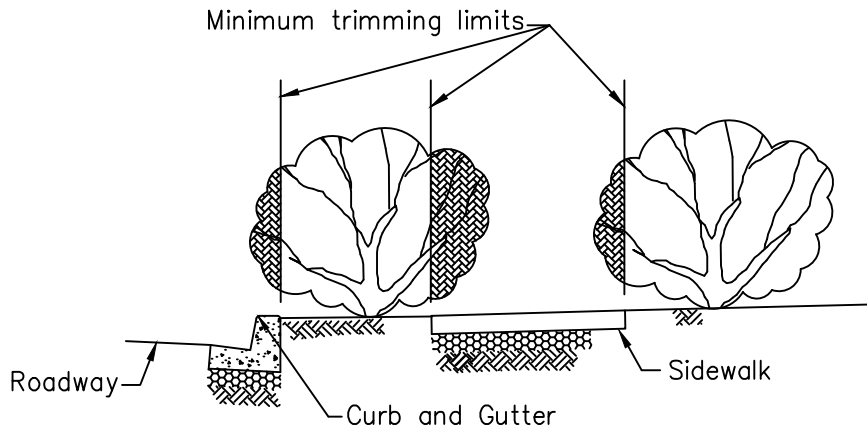
User note:
 These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

Date	By	Rev.

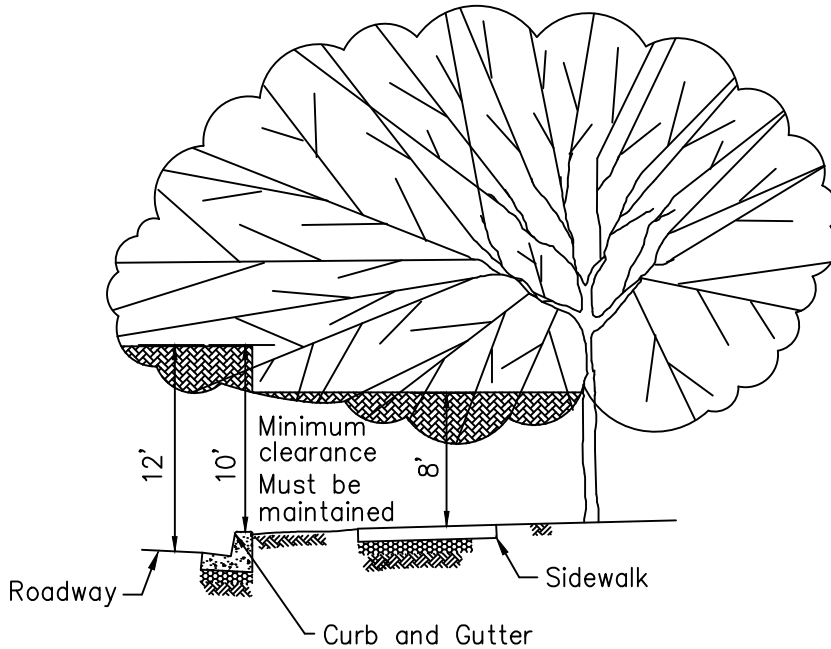
ILLUSTRATIVE BACKING LOT TREATMENT
 (CORNER TREATMENT)

CITY OF LIVERMORE STANDARD DETAIL		
Dwn: MAS/KY	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-17C

L17C.DWG



Trim plants so as not to encroach into the curb and sidewalk. It is recommended that you trim branches away from the edge of the curb or sidewalk to minimize the frequency of trimming.



Note:

Trees planted adjacent to the roadway and sidewalk must be trimmed to allow safe passage of vehicles and pedestrians. Trees should be pruned whenever a street sign or traffic signal is not visible from a minimum distance of 150 feet.

User note:


These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

L-17D.DWG

Date	By	Rev.

TREE AND SHRUB PRUNING GUIDELINES

CITY OF LIVERMORE
STANDARD DETAIL

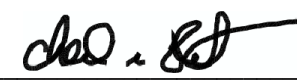
Dwn: JV	Date: May-13	NO.
Ckd: Spec. Committee	Scale: NONE	
 City Engineer		L-17D

Plant Name and Description	Important Character						Cultural Preference						Tolerances								Growth Info			Planting Info			Comments	
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity	Spread in 10 Yrs/Maturity		Minimum Planter Size

Acacia melanoxylon Black Acacia		X	Y	SP	X	W		X	X	X	X	X	X	X	X	X	X		X				X	M	20 30	15 20	7	VH	3	
Acer buergeranum Trident Maple	X						R O	X	X	X	X			X	X	X		X	X			X	SL	20 30	20 30	3	L	2 10		
Acer campestre "Queen Elizabeth"	X						Y	X	X	X	X			X	X	X		X	X	X			M	15 30	10 20	4	L	5		
Acer griseum Paperbark Maple	X						R	X	X	X	X			X	X	X		X	X				M F	20 25	10 20	3	L	2 10		
Acer Macrophyllum Big Leaf Maple	X		Y	SP	X		Y	X	X		X							X	X				M	30 75	30 50	7	M			
Acer Negundo Californicum Box Elder	X			SP	X	S	Y	X	X	X		X						X	X				M F	60	50		M			
Acer negundo "sensation" Sensation Box Elder	X		P	SP			O	X	X	X	X			X	X	X		X	X	X			M F	15 25	10 20	5	M	5		
Acer platanoides Norway Maple	X						R	X	X	X	X			X		X		X	X			X	M	25 40	15 30	5	M	5	AC	
Aesculus hippocastanum Horsechestnut	X		W	SP				X			X			X								X	S	15 25	10 20	5	M	2 5		
Alnus Rhombifolia White Alder	X		Y	SP	X	FA WI S		X	X		X				X	X		X	X				F	50 90	30 50	7	M			

LEGEND

AC = Avoid Clay Soils	F = Fast	H = High	MT= Multi Trunk	R = Red	SP= Spring	W = White
BL = Blue	FA = Fall	L = Low	O = Orange	S = Summer	U = Unknown	WI= Winter
BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
E = Experimental	FR = Frost Sensitive	MR=Mildew Resistant	Pi = Pink	SL =Slow	VH= Very High	


No. L-18A	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL Dwn: : KY Ckd: Spec Committee  City Engineer	Date: March-2020 Scale: None
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Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Alnus Rubra Red Alder	X		Y	SP			BR	X	X									X	X					M	80	30		H		
Arbutus "marina" Strawberry Tree		X	W	FA	X	W		X	X	X	X		X	X	X	X		X	X	X	X	X		S	20	20	3	L	2	AC
Arbutus Menziesii Madrone		X	PI	SP	X	FA		X	X									X	X					M	50	30	7	M		
Brachychiton populneus Bottle Tree		X	W	SP				X		X	X				X	X								M	30	20	7	H	5	
Callistemon viminalis Weeping Bottle Brush		X	R	SP				X			X		X		X	X			X		X	X		F	20	10	3	L	3	FR
Carpinus betulus European Hornbeam	X							X	X		X			X	X	X		X				X		M	25	6	3	L	5	
Casuarina cunninghamiana Horsetail Tree		X						X			X	X	X		X	X	X	X	X			X		M	30	20	10	H	10	
Ceanothus thyrsiflorus Blue Blossom		X	B	SP				X		X	X				X	X			X		X	X		F	10	10	3	L	3	AC
Cedrus deodara Deodar Cedar		X	L					X			X			X	X			X	X					F	20	20	7	H	5	SH
Celtis australis European Hackberry	X							X	X	X	X			X	X	X		X	X					F	15	10	7	VH	6	

LEGEND

AC = Avoid Clay Soils	F = Fast	H = High	MT= Multi Trunk	R = Red	SP = Spring	W = White
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BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
E = Experimental	FR = Frost Sensitive	MR=Mildew Resistant	Pi = Pink	SL =Slow	VH= Very High	


No. L-18B	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL	
		Dwn: : KY Ckd: Spec Committee	Date: March-2020 Scale: None
		 City Engineer	

Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Celtis sinensis Chinese Hackberry	X					Y	X	X	X	X	X		X	X	X	X		X	X	X				F	15 40	10 35	7	VH	6	AC
Cercidium floridum Blue Palo Verde	X		Y	SP			X		X	X				X	X	X			X			X		F	15 30	10 30	5	M	5 10	
Cercis canadensis Canadian Redbud	X		R		X		R	X	X	X	X			X	X	X			X			X	X	F	25 35	15 25	3	L	2	
Cercis reniformis Oklahoma Redbud	X		V	SP			R	X			X			X	X			X				X	X	M F	20 25	20 25	3	L	2	E
Chionanthus retusus Chinese Fringe Tree	X		W	SP S		Y	X	X	X	X				X	X	X			X					SL M	12 30	10 25	5	M	2 8	FR
Chitalpa tashkentensis Pink Dawn Chitalpa	X		Pi	S			X			X				X	X	X						X		F	15 25	15 25	4	L	1 6	
Chorisia speciosa Floss silk tree	X	X	P	F A			X			X				X	X	X								SL	25 40	20 30	5	M	5	E FR
Cinnamomum camphora Camphor Tree		X	Y	SP	X		X		X			X	X			X		X	X				X	SL	25 50	25 50	10	VH	5 10	AC
Cornus Sericea/ Stolonifera Western Dogwood	X		W	S F	X	FA WI	R		X		X							X	X					M	10 12	12		L		
Corylus colurna Turkish Hazelnut	X				X		Y	X	X	X	X			X	X	X			X					M F	30 50	15 30	4	L	10	

LEGEND

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BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
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No. L-18C	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL	
		Dwn: : KY Ckd: Spec Committee	Date: March-2020 Scale: None
		 City Engineer	

Plant Name and Description	Important Character						Cultural Preference						Tolerances								Growth Info			Planting Info			Comments	
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity	Spread in 10 Yrs/Maturity		Minimum Planter Size

Cotinus obovatus Smoke Tree	X		P	SP			Y R	X		X					X	X			X		X			SL	15 25	10 20	3	L	3+ 5	E
Crataegus phaenopyrum Washington Hawthorn	X		W	SP			R	X		X				X	X	X						X		M	15 20	10 20	3	L	2	
Cupressus sempervirens Italian Cypress		X						X		X	X	X	X	X	X							X			30 60	15 20	7	H	5 10	AC
Eriobotrya deflexa Loquat		X	W	SP				X	X	X	X			X	X				X		X			F	15 30	10 20	3	L	3	
Eucalyptus gunnii Cider Gum		X						X					X		X	X	X	X	X			X		F	20 40	10 20	7	H	5	
Eucalyptus levcoxylon White Iron Bark		X	W	S				X		X	X		X	X	X	X				X				F	20 60	10 30	5	M	5	FR
Eucalyptus microtheca Flooded Box		X						X					X		X			X	X				X	F	20 35	15 25	7	M	5	MT
Eucalyptus nicholii Peppermint Eucalyptus		X						X		X			X	X				X	X					F	20 35	15 25	5	M	5	
Eucalyptus polyanthemos Silver Dollar Gum		X	W	S				X			X		X	X	X	X						X		F	20 40	15 30	7	M	5	

LEGEND

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No. L-18D	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL	
		Dwn: : KY Ckd: Spec Committee	Date: March-2020 Scale: None
		 City Engineer	

Plant Name and Description	Important Character						Cultural Preference						Tolerances								Growth Info			Planting Info			Comments	
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity	Spread in 10 Yrs/Maturity		Minimum Planter Size

Fagus sylvatica European Beech Tree	X					R	X	X	X	X				X	X	X		X	X	X				M	20 60	10 30	7	M	5 10	
Fraxinus americana Autumn Purple	X					P	X		X	X		X	X	X		X		X	X	X		X		F	30 60	20 40	7	M	5	
Garrya Elliptica Coast Silk Tassel		X	Y	W	X	FA WS	X	X										X	X					M	10 20	20	5	L		
Geijera parviflora Australian Willow		X					X		X					X		X		X	X					SL	20 30	15 25	4	L	5	
Ginkgo biloba Maidenhair Tree 'Fairmount'	X					Y	X	X	X	X				X	X	X						X		F	20 55	10 25	3	L	5 10	
Ginkgo biloba Maidenhair Tree 'Sentenal'	X					Y	X	X	X	X				X	X	X								F	20 55	10 25	3	L	5 10	
Gleditsia triacanthos Honey Locust	X					Y	X					X		X	X	X					X			F	25 50	25 50	5	M	3 5	
Heteromeles Arbutifolia Toyon		X	W	S	X	FA W	X	X		X								X	X					SL M	10 25	20	5	L		MT
Hymenosporum flavum Sweetshade		X	Y	S			X	X	X							X		X	X					SL	20 30	10 20	3	L	3 5	AC E

LEGEND

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No.
L-18E

TREE PLANTING GUIDE

**CITY OF LIVERMORE
STANDARD DETAIL**

Dwn : KY
Ckd: Spec Committee

Date: March-2020
Scale: None




City Engineer

Plant Name and Description	Important Character							Cultural Preference					Tolerances								Growth Info			Planting Info			Comments	
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity	Spread in 10 Yrs/Maturity		Minimum Planter Size

Koelreuteria paniculata Goldenrain Tree	X		Y	S	X	WI	Y	X	X	X	X		X		X	X	X	X					X	M	15 30	15 30	3	L	3 5	
Lagerstroemia indica Crape Myrtle Hybrids	X		V				V	X		X				X	X	X	X		X	X		X		SL	15 30	10 20	3	L	3 5	MR
Laurus "X" Saratoga Laurel		X						X	X	X	X		X		X	X	X	X				X	X	F	15 25	10 20	3	L	5 5	AC
Liquidambar cultivars Sweet Gum	X						V	X		X				X		X	X							M	20 50	10 25	10	VH	5 10	
Malus cultivars Crabapples	X		V		X	FA	V	X			X				X	X	X					X		M	10 20	10 20	2	VL	2 6	
Maytenus boaria Mayten Tree		X						X	X	X	X				X		X		X	X			X	M	15 25	10 15	5	M	6	AC
Melaleuca linariifolia Flaxleaf Paperback		X	W	S				X			X				X	X	X					X		S	10 20	10 20	3	L	2 5	E FR
Melaleuca quinquenervia Cajeput Tree		X	W	SP				X	X	X	X		X		X	X	X		X	X				M F	20 40	12 20	5	M	3	FR

LEGEND

AC = Avoid Clay Soils	F = Fast	H = High	MT= Multi Trunk	R = Red	SP= Spring	W = White
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No. L-18F	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL	
		Dwn: : KY Ckd: Spec Committee  City Engineer	Date: March-2020 Scale: None

Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Melaleuca styphellioides Prickly Melaleuca		X	W	SP			X		X	X		X			X	X			X	X				F	20 45	15 20	4	L	4	FR
Michelia doltsopa (No common name)		X	W	S			X	X	X	X					X			X		X				M	20 40	10 25	4	L	10	
Morus alba Fruitless Mulberry	X					Y	X			X		X	X	X	X	X							X	F	25 40	25 40	10	VH	2	
Nyssa sylvatica Tupelo	X					R	X	X		X				X	X	X	X	X		X				M	20 35	10 20	4	L	8	
Olea europea Majestic Beauty		X			X		X			X	X	X	X	X	X	X							X	M	20 25	20 25	3	L	2 5	
Olea europea "Swan Hill"		X					X		X	X		X	X	X	X	X	X						X	M	20 30	20 30	4	L	2 5	
Parkinsonia aculeata Palo Verde	X		Y	SP			X		X		X	X		X	X	X						X	F	15 20	15 20	3	L	1 6	E FR	
Pinus brutia Brutia Pine		X					X				X	X			X	X	X	X	X				X	F	30 80	25 60	10	H	10	
Pinus canariensis Canary Island Pine		X					X		X		X	X			X	X			X				X	F	30 80	20 50	5	M	10	

LEGEND

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BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
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No.
L-18C

TREE PLANTING GUIDE

**CITY OF LIVERMORE
STANDARD DETAIL**

Dwn: : KY
Ckd: Spec Committee

Date: March-2020
Scale: None




City Engineer

Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Pinus eldarica Mondale Pine		X					X				X	X		X	X			X			X		F	30 80	20 50	7	H	10	AC
Pinus pinea Italian Stone Pine		X					X		X		X	X		X	X			X			X		M	30 60 50	25 50	10	H	10	AC
Pinus Sabiniana Grey Pine		X	PI Y	SP	X	FA		X	X		X							X	X				F	40 80 50	30 50	7	M		
Pinus sylvestris Scots Pine		X					X		X		X	X		X	X			X			X		M	30 80 50	20 50	10	H	10	AC
Pinus thunbergiana Japanese Black Pine		X					X		X		X	X		X	X			X			X		M	30 60	20 40	7	H	10	AC
Pistacia chinensis Chinese Pistacio	X					R	X		X	X	X				X	X		X	X	X			M	15 25	10 20	4	L	4	
Pittosporum brevicalyx Saratoga		X	Y	SP			X	X	X	X				X	X	X					X		S	10 20	6 15	2	L	1 5	E
Platanus cultivars Sycamores	X					Y	X	X	X	X			X	X	X	X		X			X		F	35 60 50	30 50	5	M	4	AC
Platanus Racemosa California Sycamore	X				X	S FA	BR	X	X		X			X	X			X	X				F	30 80 50	20 50	7	M		
Prunus cerasifera Krauter Vesuvius	X		W	SP	X	S	R	X			X			X	X	X		X			X	X	M	20 30	20 30	4	L	3 5	

LEGEND

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No. L-18H	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL	
		Dwn: : KY Ckd: Spec Committee	Date: March-2020 Scale: None
		 City Engineer	

Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Prunus caroliniana Carolina Laurel Cherry		X					X								X	X		X	X		X	X	M	15 25	10 15	4	L	2 5	E
Prunus sargentii Flowering Cherry	X		V			V	X		X	X			X	X	X	X		X	X		X		S M	15 20	15 20	3	L	2 5	AC
Pyrus calleryana Chanticleer Pear	X		W	SP		Y R	X			X			X	X	X	X		X	X	X			M	25 50	15 35	5	M	3 5	
Pyrus calleryana "Red Spire" Pear	X		W	SP		R Y	X			X			X	X	X	X		X	X	X			M	25 50	20 35	5	M	3 5	FB
Pyrus kawakamii Evergreen Pear	X	X	W	SP WI			X			X			X	X	X	X		X	X	X			M	25 40	25 40	5	M	3 5	FB
Pyrus ussuriensis Prairie Gem Pear	X		W		X	S	R	X			X				X	X					X		F	15 25	15 25	3	L	3 6	E
Quercus agrifolia Coast Live Oak		X					X	X	X		X		X		X	X		X	X			X	M	15 40	10 50	5	M	5	
Quercus bicolor Swamp White Oak	X					BR	X	X		X				X	X	X		X		X			M F	20 45	10 25	4	L	10	AC
Quercus Berberidifolia Scrub Oak		X		SP	X	S FA	X	X	X	X														10 15	10 15	5	M		

LEGEND

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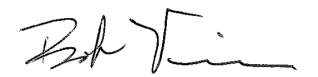
No.
L-181

TREE PLANTING GUIDE

**CITY OF LIVERMORE
STANDARD DETAIL**

Dwn: : KY
Ckd: Spec Committee

Date: March-2020
Scale: None



City Engineer

Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Quercus chrysolepis Gold Cup Oak		X					X	X	X	X	X				X	X						X		S	20	8	4	M	2	E
Quercus coccinea Scarlet Oak	X					R	X	X	X	X				X	X	X			X					M	20	15	4	L	8	AC
Quercus douglasii Blue Oak	X			X	FA WI	BR O	X	X		X					X	X								SL	30	40	5	M		
Quercus ilex Holly Oak		X		X			X	X	X	X	X	X	X	X	X	X						X	X	S	15	15	7	H	3	
Quercus kelloggii California Black Oak	X			X	FA WI	O	X	X		X								X	X						30	30	7	M		
Quercus lobata Valley Oak	X						X	X	X	X	X	X		X	X	X						X		M	20	10	6	M	6	AC
Quercus rubra Red Oak	X					R	X	X	X	X					X	X			X	X	X			F	30	20	6	M	5	
Quercus robur English Oak	X						X	X	X	X	X	X			X	X			X	X			X	F	30	30	6	M	6	
Quercus shumardii Shumard Oak	X					R	X	X	X	X				X	X	X			X	X	X			M	20	15	6	M	8	

LEGEND

AC = Avoid Clay Soils	F = Fast	H = High	MT= Multi Trunk	R = Red	SP= Spring	W = White
BL = Blue	FA = Fall	L = Low	O = Orange	S = Summer	U = Unknown	WI= Winter
BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
E = Experimental	FR = Frost Sensitive	MR=Mildew Resistant	Pi = Pink	SL =Slow	VH= Very High	


No.
L-181

TREE PLANTING GUIDE

**CITY OF LIVERMORE
STANDARD DETAIL**

Dwn: : KY
Ckd: Spec Committee

Date: March-2020
Scale: None



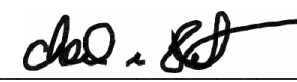
City Engineer

Plant Name and Description	Important Character						Cultural Preference						Tolerances								Growth Info			Planting Info			Comments	
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity	Spread in 10 Yrs/Maturity		Minimum Planter Size

Quercus suber Cork Oak		X					X	X	X		X	X		X	X			X	X				X	M	20 50	10 30	6	M	5	AC
Quercus Wislizenii Interior Live Oak		X			X	FA WI	X	X		X								X	X					SL	30 75	30 75	7	M		
Rhus lancea African Sumac		X			X		X	X		X	X			X	X	X								M	15 20	15 20	5	M	3 5	
Robinia pseudoacacia Purple Robe Locust	X		P	SP		Y	X				X	X			X	X							X	F	25 40	20 35	5	M	1 3	
Salix Laevigata Red Willow	X					Y													X	X				M F	20 45	30	7	H		
Sambucus Mexicana Blue Elderberry	X		Y	SP S	X	S FA	X	X		X								X	X					M F	10 25	15	5	L		SH
Schinus molle California Pepper Tree		X			R	S	X		X	X		X			X	X	X						X	F	15 30	15 35	7	H	6	FR
Sequoia sempervirens "Coast Redwood"		X					X	X		X					X	X	X		X	X				F	30 60	20 40	7	H	10	
Sophora japonica Japanese Pagoda	X		Y	S	X	F	Y	X	X	X		X	X	X	X	X	X	X	X	X			X	M S	20 40	20 40	5	M	3 5	FR

LEGEND

AC = Avoid Clay Soils	F = Fast	H = High	MT= Multi Trunk	R = Red	SP= Spring	W = White
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BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
E = Experimental	FR = Frost Sensitive	MR=Mildew Resistant	Pi = Pink	SL =Slow	VH= Very High	

No. L-18K	TREE PLANTING GUIDE	CITY OF LIVERMORE STANDARD DETAIL	
		Dwn: : KY Ckd: Spec Committee  City Engineer	Date: March-2020 Scale: None

Plant Name and Description	Important Character						Cultural Preference					Tolerances								Growth Info			Planting Info			Comments		
	Deciduous	Evergreen	Flowers, Color	Flowering Period	Fruit	Fruiting Period	Fall Color	Sun	Part Shade	Good Drainage	Irrigation	No water after 2 nd year	Alkaline Soils	Boron Tolerant	Sprinklers	Wind	Heat	Poorly Drained Soils	Well Drained/Clay-Loam	Well Drained/Sandy	Turf Areas	Small Planters	Re-claimed Water	Growth Rate	Height in 10 Yrs/ Maturity		Spread in 10 Yrs/Maturity	Minimum Planter Size

Taxodium mucronatum Mexican Cypress	X	X					X	X		X		X		X	X	X	X			X				F	15	5	5	M	5	
Tilia americana Redmond Linden	X		W	SP		Y	X	X		X				X	X	X						X		M	20	10	5	M	2	E
Tipuana tipu Tipu Tree	X	X	Y				X			X				X	X	X						X		F	15	12	3	L	1	E
Tristania lauring Swamp Myrtle		X	Y	S			X	X	X	X				X	X	X		X				X		M	12	10	3	L	6	
Ulmus parvifolia "drake" Evergreen Elm		X					X			X				X	X	X	X	X	X			X		F	30	35	6	H	3	
Ulmus "pioneer" Pioneer Elm	X					Y	X	X	X	X	X	X	X	X	X	X	X	X	X			X		VF	30	25	7	H	5	
Ulmus "heritage" Frontier Elm	X					R	X	X		X		X		X	X	X	X	X				X		VF	20	15	7	H	5	
Umbellularia Californica California Bay		X	Y	SP	X	S	X	X		X									X	X				SL	15	15	5	M		
Vitex angus-castus Chaste Tree	X		BL	FA		Y	X			X			X	X	X	X	X	X	X			X		S	12	8	3	L	5	
Zelkova serrata Sawleaf Zelkova	X					Y	X			X			X	X	X	X		X	X			X		M	25	25	7	H	3	
						R																		F	50	50			5	

LEGEND

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BL = Blue	FA = Fall	L = Low	O = Orange	S = Summer	U = Unknown	WI= Winter
BR = Brown	FB = Fireblight	M = Moderate	P = Purple	SH= Short Lived	V = Various	Y = Yellow
E = Experimental	FR = Frost Sensitive	MR=Mildew Resistant	Pi = Pink	SL =Slow	VH= Very High	


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L-181

TREE PLANTING GUIDE

**CITY OF LIVERMORE
STANDARD DETAIL**

Dwn : KY
Ckd: Spec Committee

Date: March-2020
Scale: None



City Engineer

PLANT CHOICES ARE NOT LIMITED TO THIS PLANTING GUIDE LIST	SHRUB CHARACTERISTICS														ENVIRONMENTAL TOLERANCE						COMMENTS													
	TYPE		HEIGHT			SHAPE		VIGOR		ROOTING			LEAF SIZE		FLOWER		EXPOSURE		SOIL		FROST		DRO-UGHT											
	Evergreen	Deciduous	18" - 3' Small	3' - 5' Medium	5' - 10' Large	Upright	Spreading	Slow	Moderate	Fast	Large Vigorous	Shallow, Surface	Deep	Root Suckers	Fine	Medium	Coarse	Showy	Not Showy	Sun	Partial Shade	Deep Shade	Good Drainage	Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No				
Botanical Name: Common Name																																		
Abelia grandiflora "Sherwoodii": Glossy Abelia	●		●			●		●				●		●			●		●	●			●				●			●		●	More compact than below	
Abelia grandiflora: Glossy Abelia	●			●		●		●						●			●		●									●			●		●	Needs pruning for best appearance
Agapanthus "Peter Pan": Lily of the Nile	●		●			●		●								●	●		●	●			●									●	Best with N.E. exposure	
Agapanthus "Queen Anne": Lily of the Nile	●		●			●			●		●					●	●		●	●								●				●	Medium height blue	
Agapanthus "Rancho White": Lily of the Nile	●		●			●			●		●					●	●		●	●								●		●		●	Low white variety	
Arbutus unedo "Compacta": Strawberry Tree	●			●		●		●				●				●		●	●				●				●				●	●	Medium height	
Arbutus unedo: Strawberry Tree	●			●		●		●				●				●		●	●				●				●				●		●	Tall - Can be small tree
Berberis thunbergii: Atropurpurea Nana		●		●		●		●					●			●		●	●				●				●					●	●	Bronze foliage with sun
Berberis thunbergii: Japanese Barberry		●		●		●		●						●			●		●	●				●			●					●	●	Good barrier
Cistus Purpureus: Orchid Rockrose	●			●		●		●						●			●		●				●	●				●		●	●			
Cistus 'Sunset': Pink Rockrose	●			●		●		●						●			●		●				●					●		●	●			
Cotoneaster (select cultivars)	●	●	●	●		●		●		●				●			●		●	●					●	●		●		●		●		Wooly Aphids problem
Cotoneaster lacteus: Parney Cotoneaster	●			●		●		●						●			●		●				●	●	●	●	●	●	●	●	●	●		Good barrier/Screen/Banks
Dodonaea viscosa "Purpurea": Purple Hop Bush	●			●	●			●						●			●		●				●		●	●	●	●	●	●	●	●		Fast/Becomes treelike
Eriogonum Fasciculatum: California Buckwheat	●			●		●		●						●			●		●				●					●		●	●	●		Good for Erosion Control
Escallonia "Fradesii"	●			●		●		●						●			●		●	●				●	●	●	●	●	●	●	●	●		Good screen/Tolerates wind
Escallonia "Newport"	●		●			●	●							●			●		●	●				●				●		●		●		Low shrub/Showy flower
Escallonia "Terri"	●			●		●		●						●			●		●							●	●	●	●	●	●	●		Medium height/Good foliage color
Euryops Pectinatus: Euryops	●			●		●		●						●			●		●									●		●	●	●		
Garrya elliptica "James Roof": Coast Silktassel	●			●	●			●						●			●		●	●								●		●	●	●		Good screen background

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NO.

SHRUB PLANTING GUIDE

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY Date: May-13

Ckd: Spec. Committee Scale: NONE



City Engineer

PLANT CHOICES ARE NOT LIMITED TO THIS PLANTING GUIDE LIST	SHRUB CHARACTERISTICS														ENVIRONMENTAL TOLERANCE				COMMENTS														
	TYPE		HEIGHT			SHAPE		VIGOR		ROOTING			LEAF SIZE		FLOWER		EXPOSURE			SOIL		FROST		DRO-UGHT									
	Evergreen	Deciduous	18" - 3' Small	3' - 5' Medium	5' - 10' Large	Upright	Spreading	Slow	Moderate	Fast	Large Vigorous	Shallow, Surface	Deep	Root Suckers	Fine	Medium	Coarse	Showy		Not Showy	Sun	Partial Shade	Deep Shade	Good Drainage	Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No		
Botanical Name:	Common Name																																
Grevillea Rosmarinifolia:	Select Cultivars	●			●	●		●				●		●			●		●	●		●							●	●			
Ilex cornuta cultivars:	Chinese Holly	●			●		●	●				●				●		●	●		●		●					●			●		
Ilex vomitoria "Nana":	Dwarf Yaupon Holly	●		●			●	●				●		●			●		●	●	●		●				●	●			●		
Lagerstoemia dwarf varieties:	Crape Myrtle		●		●	●		●				●		●	●		●		●		●		●					●			●		
Lavandula Stoechas:	Spanish Lavender	●		●			●		●			●		●			●		●		●		●					●			●		
Lavatera Thuringiaca:	Bush Mallow	●			●	●		●				●		●			●		●		●		●					●			●		
Ligustrum "Suwanee River":	Privet Dwarf	●		●	●		●	●				●				●		●	●	●		●	●				●	●			●		
Ligustrum japonicum "Texanum":	Privet	●			●	●		●				●		●	●		●		●	●		●	●				●	●			●		
Mahonia Nevinii:	Nevins Barberry	●			●	●		●				●		●			●		●	●		●	●					●			●		
Melaleuca ericifolia:	Health Melaleuca	●			●		●		●			●		●			●		●	●		●	●				●	●			●		
Myrica californica:	Pacific Wax Myrtle	●			●	●			●			●		●			●		●	●		●	●				●				●		
Nandina domestica:	Heavenly Bamboo	●		●	●	●		●				●		●			●		●	●	●		●				●				●		
Nerium oleander "Petite Pink":	Oleander	●		●			●	●	●			●		●			●		●		●	●	●				●	●			●		
Nerium oleander "Petite Salmon":	Oleander	●		●		●		●	●			●		●			●		●		●	●	●				●	●			●		
Nerium oleander cultivars:	Oleander	●		●	●	●		●	●			●		●			●		●		●	●	●				●	●			●		
Olea europa "Little Olle":	Dwarf Olive	●		●		●		●				●		●			●		●		●	●	●				●	●			●		
Osmanthus fragrans:	Sweet Olive	●			●	●		●				●		●		●		●	●	●		●	●				●				●		
Osmanthus heterophyllus:	Holly Leaf Osmanthus	●		●	●	●		●				●		●			●		●	●	●		●	●				●	●			●	
Phormium Tenax:	Select Cultivars	●		●	●		●		●					●			●		●	●	●		●					●			●		
Pittosporum crassifolium	"Nana"	●		●			●		●				●		●			●		●	●	●					●	●			●		

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NO.

SHRUB PLANTING GUIDE

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY Date: May-13

Ckd: Spec. Committee Scale: NONE



City Engineer

PLANT CHOICES ARE NOT LIMITED TO THIS PLANTING GUIDE LIST

Botanical Name: Common Name

SHRUB CHARACTERISTICS

ENVIRONMENTAL TOLERANCE

COMMENTS

TYPE	HEIGHT	SHAPE	VIGOR	ROOTING			LEAF SIZE	FLOWER	EXPOSURE			SOIL		FROST		DRO-UGHT															
				Large Vigorous	Shallow, Surface	Deep			Root Suckers	Fine	Medium	Coarse	Showy	Not Showy	Sun		Partial Shade	Deep Shade	Good Drainage	Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No					
Evergreen	Deciduous	18" - 3' Small	3' - 5' Medium	5' - 10' Large	Upright	Spreading	Slow	Moderate	Fast	Large Vigorous	Shallow, Surface	Deep	Root Suckers	Fine	Medium	Coarse	Showy	Not Showy	Sun	Partial Shade	Deep Shade	Good Drainage	Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No		
Pittosporum eugenioides																														Tall screen/ Background	
Pittosporum tobira "Veriegata": Tobira																														Medium height	
Pittosporum tobira "Wheeler's Dwarf"																														Mound/Best with N.E. exposure	
Pittosporum tobira: Tobira																														Screen background	
Raphiolepis "Majestic Beauty"																														Accent/Screen/Specimen	
Raphiolepis indica "Ballerina"																														Dark foliage and flowers	
Raphiolepis indica "Clara"																														White flowers	
Raphiolepis indica "Pinkie"																														Similar to "Springtime"	
Raphiolepis indica "Springtime"																														Heavy flowers/Good mass	
Rhamnus alaternus: Italian Buckhorn																														Drought-resistant screen	
Rhamnus californica "Eve Case": Coffeeberry																														Background/Medium height/Neat	
Teucrium Chamaedrys/Lucidrys: Germander																															
Viburnum tinus cultivars: Laurustinus																														Mildew/Aphids/Good screen	
Westringea Fruticosa: Coast Rosemary (Var.)																														Wind Tolerant	
Xylosma congestum																														Sensitive to soil problems	
Xylosma congestum "Compacta"																														Twiggy/More compact	

L-19C
NO.

SHRUB PLANTING GUIDE

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY Date: May-13
Ckd: Spec. Committee Scale: NONE


City Engineer


Botanical Name: Common Name	GROUNDCOVER CHARACTERISTICS										ENVIRONMENTAL TOLERANCE						COMMENTS							
	HEIGHT		VIGOR		ROOTING		LEAF SIZE		FLOWER		EXPOSURE		SOIL		FROST	DRO-UGHT								
	Low	Tall	Slow	Moderate	Fast	Shallow, Surface	Deep	Fine	Medium	Coarse	Showy	Not Showy	Sun	Partial Shade	Deep Shade	Good Drainage		Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No
Achillea Clavennae : Silver Yarrow	●			●		●			●		●		●							●		●		Can Mow Periodically
Achillea Millefolium : Yarrow		●		●		●			●		●		●	●						●		●		Can Mow Periodically
Achillea Millefolium 'Rosea' : Rose Yarrow		●		●		●			●		●		●	●						●		●		Can Mow Periodically
Asctostaphylos Uva-Ursi : 'Bearberry', 'Kinnikinnik'	●		●			●		●			●		●	●						●		●		Good for Slopes
Armeria Maritima : Sea Pink, Thrift	●			●		●		●			●		●							●		●		
Campanula Poscharskyana : Serbian Bellflower	●				●	●				●	●		●	●						●		●		
Carex Pansa : Meadow Sedge	●			●		●		●			●	●	●			●	●				●	●		Can Mow 2-3 Times/Year
Carex Praegracilis : Dune Sedge, Field Sedge		●		●		●		●			●	●	●			●	●				●	●		Can Mow 2-3 Times/Year
Carex Texensis : Texas Sedge, Catlin Sedge	●			●		●		●			●	●	●			●	●				●	●		Can Mow Periodically
Carex Divulsa (Tumulicola) : Berkeley Sedge		●		●		●		●			●	●	●	●		●	●				●	●		
Ceanothus Griseus Horizontalis : Carmel Creeper		●		●		●		●			●		●	●		●	●				●	●		
Ceanothus Hearstiroum : Hearst Ceanothus	●		●			●		●			●		●	●		●	●				●	●		
Chamaemelum Hobile : Chamomile	●			●		●		●			●	●		●						●			●	Can Mow Periodically
Coprosma X Kirkii : Creeping Coprosma		●		●		●		●			●	●		●	●					●			●	Good for Slopes
Coprosma 'Verde Vista'	●			●		●		●			●	●		●						●		●		Needs Tip Pruning
Correa 'Carmine Bells' : Australian Fuchsia		●		●		●		●			●		●								●	●		Good Drainage
Correa Pulchella : Australian Fuchsia		●		●		●		●			●		●								●	●		Good Drainage

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GROUNDCOVER PLANTING GUIDE

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY	Date: May-13
Ckd: Spec. Committee	Scale: NONE



 City Engineer

Botanical Name: Common Name	GROUNDCOVER CHARACTERISTICS										ENVIRONMENTAL TOLERANCE						COMMENTS								
	HEIGHT		VIGOR		ROOTING		LEAF SIZE		FLOWER		EXPOSURE		SOIL		FROST	DRO-UGHT									
	Low	Tall	Slow	Moderate	Fast	Shallow, Surface	Deep	Fine	Medium	Coarse	Showy	Not Showy	Sun	Partial Shade	Deep Shade	Good Drainage		Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No	
Cotoneaster dammeri 'Carol Beauty': Bearberry Cotoneaster		●		●		●		●			●	●	●		●		●	●	●		●			Needs Tip Pruning	
Drosanthemum Hispidum : Red Apple Iceplant	●				●	●		●			●				●				●		●	●			
Dymondia Margaretae : Silver Carpet	●		●			●		●			●	●	●		●							●	●		
Festuca Glauca : Blue Fescue	●			●		●		●			●	●			●						●		●		
Festuca Idahoensis : Idaho Fescue	●			●		●		●			●	●	●		●						●		●		
Festuca Rubra : Red Fescue	●			●		●		●			●	●	●		●						●		●		
Fuchsia Procumbens : Prostate Fuschia	●			●		●		●			●		●		●						●		●		
Fragaria Chiloensis : Beach Strawberry	●			●		●		●		●		●			●			●	●				●		
Genista Lydia : Broom	●			●		●		●		●		●			●		●	●	●			●			Accent Only
Hypericum calycinum : Aaron's Beard	●				●	●		●		●		●	●			●	●	●	●			●			Cut Back Regularly
Koeleria Macrantha : Junegrass		●		●		●		●			●	●			●	●						●	●		Good for Erosion Control
Lotus Scoparius : Deerweed		●		●				●		●		●			●	●						●	●		
Malvastrum Lateritium : Trailing Mallow	●				●	●		●		●		●			●	●						●	●		Good for Slopes
Myoporum Parvifolium 'Prostrata' : Myoporum	●				●	●		●			●	●			●							●	●		Good for Slopes
Nandina domestica 'Harbour Dwarf' : Heavenly Bamboo		●	●					●			●		●	●	●						●		●		Best with N.E. Exposure
Nepetaracemosa : Cat Mint	●				●	●		●		●		●			●						●		●		
Phyla Nodiflora : Lippia	●			●		●		●		●		●			●						●		●		Can Take Foot Traffic

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NO.

GROUNDCOVER PLANTING GUIDE

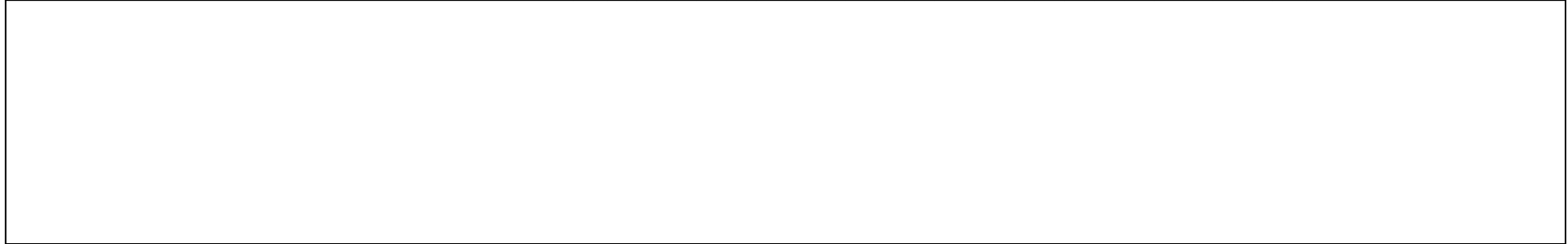
CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY Date: May-13
Ckd: Spec. Committee Scale: NONE



City Engineer

Botanical Name: Common Name	GROUNDCOVER CHARACTERISTICS										ENVIRONMENTAL TOLERANCE						COMMENTS							
	HEIGHT		VIGOR			ROOTING		LEAF SIZE			FLOWER	EXPOSURE			SOIL			FROST	DRO-UGHT					
	Low	Tall	Slow	Moderate	Fast	Shallow, Surface	Deep	Fine	Medium	Coarse	Showy	Not Showy	Sun	Partial Shade	Deep Shade	Good Drainage		Poor Drainage	Boron Contaminated	Sodium Contaminated	Yes	No	Yes	No
Rhamnus Californica 'Seaview Improved' : Coffeeberry		●	●			●		●			●	●	●		●					●	●			
Rosemarinus 'Huntington Blue' : Rosemary	●		●					●			●	●			●		●			●	●			Full Sun/Good Drainage
Salvia Melifera 'Terra Seca' : Prostrate Sage		●		●		●		●			●	●			●						●	●		
Salvia Sonomensis : Creeping Sage	●			●		●		●			●	●			●						●	●		
Salvia Spathacea : Pitcher Sage, Hummingbird Sage		●		●		●		●			●	●			●						●	●		
Thymus Pseudolanuginosus : Wooly Thyme	●				●	●		●			●	●	●		●					●			●	
Thymus Serpyllum : Creeping Thyme	●				●	●		●			●	●	●		●					●			●	
Vinca minor : Dwarf Periwinkle	●		●					●		●				●		●							●	Shade Only/Good Soil
Whipplea Modesta : Western Modesty, Yerba de Selva	●			●		●		●		●			●	●	●						●	●		
Zauschneria (Epilobium) Septentrionalis : California Fuschia	●				●	●		●		●		●	●		●						●	●		




L-20C
NO.

GROUNDCOVER PLANTING GUIDE

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY	Date: May-13
Ckd: Spec. Committee	Scale: NONE



 City Engineer

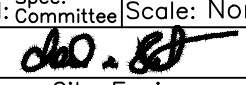
BIORETENTION SWALE AND PLANTER DESIGN GUIDANCE

1. Longitudinal slope of swales shall be between 0.5% and 5%. Swales of greater than 3% may be required to install check dams to reduce velocity through the swale.
2. All swales shall and planters be required to provide an adequate underdrain system to prevent ponding with a minimum of 0.5% slope.
- 3 Swales and planters shall be designed to eliminate any ponding of water for more than 48 hours.
4. Side slopes shall not exceed 2:1, horizontal: vertical.
5. Erosion control practices must be implemented and maintained until such a time that the vegetation in the swale has established allowing the proper function of the drainage area as a "bioswale".
6. Swale bottom must be graded flat to improve pollutant removal. Swale bottom should ideally be at least 4–6 feet wide, with a minimum of 2 feet wide. Properly designed swales should resemble more of a flat–soft "U" shape rather than a sharp "V" ditch shape.
7. Swales shall be designed and sized to meet the latest requirements indicated in section C.3 of the City's NPDES permit with the Regional Water Quality Control Board (see Alameda County clean Water Program Technical Manual for: guidance at www.cleanwaterprogram.org):
Generally, swales provided should collect runoff from the contributing drainage area using the general guideline of 0.04 sq.ft. of swale for each 1 sq.ft. of contributing drainage area.
8. For swales proposed in residential street parkway strips, the minimum width allowed should be 12 feet, with 15 feet or more recommended.
9. Maintenance of swales will be the responsibility of the property owner for residential and commerical/industrial applications, or a homeowner's association for residential common areas.
10. Swales will require sufficient irrigation to establish and maintain complete vegetation coverage. vegetation damaged due to ponding, erosion, insufficient irrigation, or other problems, it must be replaced. Turf shall be mowed as needed to maintain a 4–6 inch grass height.
11. Soil specifications for storm water measures shall be used for bio–retention soils. This specification is available at "www.cleanwaterprogram.org".

User note:
These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

CITY OF LIVERMORE STANDARD DETAIL

BIORETENTION SWALE & PLANTER DESIGN GUIDANCE

Dwn: MM	Date: May-13	No.
Ckd: <small>Spec.</small> Committee	Scale: None	L-21A
 _____ City Engineer		

L-21B.DWG

Date:	By:	Rev:

BIO-RETENTION SWALE DESIGN GUIDANCE-(Continued)%%

- Swales must be densely vegetated with conventional turf, approved alternatives to conventional turf, or other approved vegetation as referenced in the Bioswale Plant List shown below.
- Areas of a site used for grass swales or other stormwater treatment are required to meet the City's Water Efficient Landscaping requirements.

Highest Zone

<i>Acer negundo</i>	Box Elder
<i>Acer rubrum</i>	Red Maple
<i>Acer saccharinum</i>	Silver Maple
<i>Alnus spp.</i>	Alder
<i>Betula spp.</i>	Birch
<i>Carya illinoensis</i>	Pecan
<i>Carya ovata</i>	Buttonbush
<i>Casuarina spp.</i>	She-Oak
<i>Clethra arborea</i>	Lily-of-the-Valley
<i>Cornus stolonifera</i>	Redtwig Dogwood
<i>Diospyros virginiana</i>	Persimmon
<i>Eucalyptus camaldulensis</i>	Red Gum
<i>E. nitrodora</i>	Lemon Gum
<i>E. erythrocorys</i>	Red-Cap Gum
<i>Fraxinus latifolia</i>	Oregon Ash
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Liquidambar styraciflua</i>	Liquidambar
<i>Liriodendron tulipifera</i>	Tulip Tree
<i>Magnolia grandiflora</i>	Southern Magnolia
<i>M. virginiana</i>	Sweet Bay
<i>Melaleuca quinquenervia</i>	Cajeput Tree
<i>Nyssa sylvatica</i>	Tupelo
<i>Picea sitobensis</i>	Sitka Spruce
<i>Platanus x acerifolia</i>	London plane
<i>Platanus occidentalis</i>	Sycamore
<i>P. racemosa</i>	California Sycamore
<i>Populus deltoides</i>	Cottonwood
<i>Pterocarya stenocarpus</i>	Wingnut
<i>Quercus macrocarpa</i>	Bur Oak
<i>Q. palustris</i>	Pin Oak

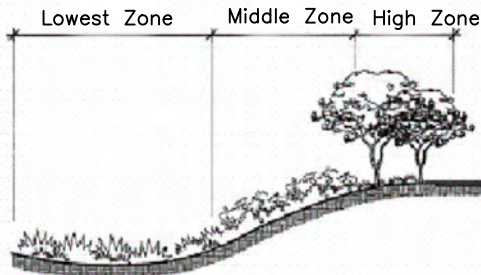
<i>Salix spp.</i>	Willow
<i>Sequoia sempervirens</i>	Coast Redwood
<i>Taxodium distichum</i>	Bald Cypress
<i>Thuja occidentalis</i>	Arborvitae

Middle Zone

<i>Cornus stolonifera</i>	Redtwig Dogwood
<i>Gaultheria shallon</i>	Salal
<i>Equisetum hyemale</i>	Horsetail
<i>Ferns (many spp.)</i>	Fern
<i>Iris (many spp.)</i>	Iris
<i>Mimulus</i>	Monkeyflower
<i>Miscanthus sinensis</i>	Japanese Silver Grass
<i>Myoporum parvifolium</i>	Myoporum
<i>Putah Creeks</i>	
<i>Myrica</i>	Pacific Wax Flower
<i>Salix spp.</i>	Willow
<i>Vaccinium</i>	Huckleberry

Lowest Zone

<i>Acoris gramineus</i>	Acoris
<i>Carex spp.</i>	Sedge
<i>Deschampsia caespitosa</i>	Tufted Hairgrass
<i>Iris (many spp.)</i>	Iris
<i>Laurothoe danielsiae</i>	Sierra Laurel
<i>Scirpus cernuus</i>	Bulrush
<i>Juncus spp.</i>	Rush
<i>Tradescantia virginiana</i>	Spiderwort
<i>Typha latifolia</i>	Common Cattail




User note:
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L-21C.DWG

BIO-RETENTION SWALE DESIGN GUIDANCE AND PREFERRED PLANT LIST

CITY OF LIVERMORE STANDARD DETAIL

Dwn: MM	Date: May-13	No.
Ckd: Spec. Committee	Scale: None	L-21B
 City Engineer		

Date:	By:	Rev:

LANDSCAPE GENERAL DESIGN GUIDELINE REQUIREMENTS

The following is a list of City ordinances, policies, and regulations with landscape related requirements applicable in the City which may apply including but not limited to:

1. Tree preservation ordinance (see Chapter 12.20 Livermore Municipal Code, Article II);
2. The current Alameda Countywide Clean Water program requirements and published associated technical guidance;
3. The current California Building Standards applicable to the City of Livermore;
4. The landscape sections of any checklists or scorecards which may be required by City Ordinance including but not limited to the Civic Bay-Friendly Landscaping Ordinance (see Chapter 15.80 Livermore Municipal Code);
5. The Livermore Development Code (see Chapter 4.05 General Landscape Standards), the landscape standards applicable to the property zoning district, and any standards in Chapter 10 (Subdivisions) which may apply;
6. The landscape section in the City of Livermore Design Standards and Guidelines Chapter which may be applicable;
7. The landscape standards in any applicable City Specific Plan that the property may be within.
8. For any additional plants not currently listed in City Stand Details L-18 through L-21 got to www.trivalleywaterwise.com.

User note:

These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

L-21B.DWG

			<h2 style="margin: 0;">BIORETENTION SWALE & PLANTER DESIGN GUIDANCE</h2>	<h3 style="margin: 0;">CITY OF LIVERMORE STANDARD DETAIL</h3>		
				Dwn: MM	Date: Feb-13	No.
				Ckd: <small>Spec.</small> Committee	Scale: None	<h1 style="margin: 0;">L-22</h1>
				_____ City Engineer		
Date:	By:	Rev:				