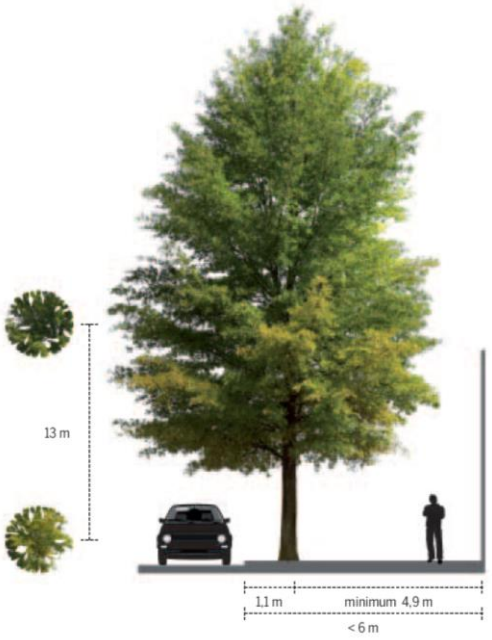
Bloomberg Associates

Green Codes and Tree Regulations

Research Findings from 11 Global Cities

March 2019



Bloomberg Associates surveyed tree regulations in 11 cities around the globe

- **Bloomberg Associates compared Milan's Green Regulation to tree regulations in 10 global cities known for their street tree-planting efforts**
- For each city we looked at:
  - **Key policies and regulations** for street trees
  - **Tree pit measurements and standards**
  - **Design guidance** for street tree planting

Key Findings

1. There is no global standard for street tree planting
2. Milan's street tree pit requirements are significantly larger than in other cities
3. Milan's street tree planting buffers are inflexible and do not vary by utility or street furniture
4. Milan's street tree standards do not vary by street type
5. Many cities use illustrations to provide guidance and clarify tree planting regulations

Milan's tree planting standards are the largest and least flexible of any city surveyed

1 There is no global standard for street tree planting

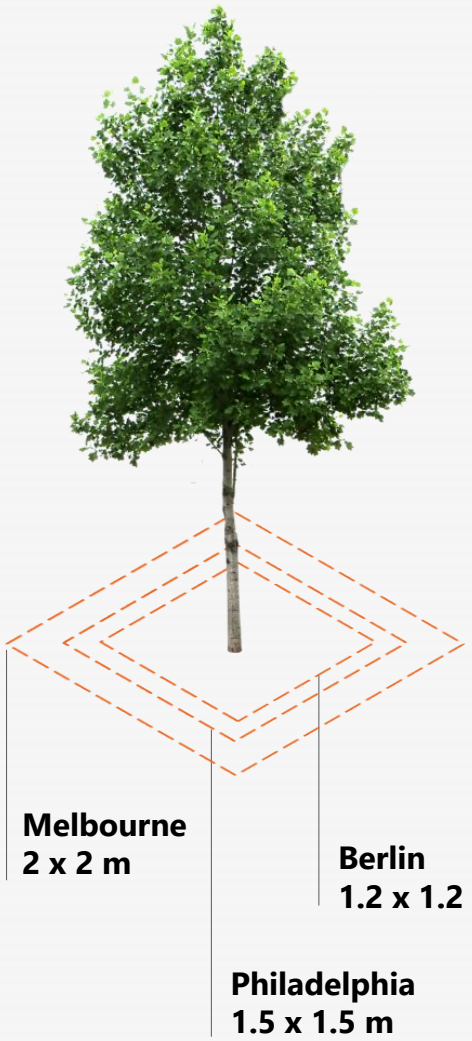
City	Pit Shape	Pit Dimensions – Small Tree Classes			Pit Dimensions – Medium Tree Classes			Pit Dimensions – Large Tree Classes			Standard Buffer?	Variations from Standard / Notes
		Length	Width	Depth	Length	Width	Depth	Length	Width	Depth		
Barcelona	Rectangular	.8m	1.2m	.1m	.8m	1.2m	.1m	1.2m	1.2m	.1m	✘	Planting guidelines include buffer specifications for narrow streets, medium-width streets and wide streets.
Berlin	Square	2m	2m	1 - 1.5m	4m	4m	1.5m	-	-	2.5m	✘	When a tree is in an "extreme location" on a city street, and the pit cannot be enlarged, depth should be increased to 2.5m to increase the root area.
Boston	Rectangular	1.2m	3m	.9m	1.2m	3m	.9m	1.2m	3m	.9m	✘	Includes buffer/planting specifications for open tree trenches, covered tree trenches, and raised tree beds.
Chicago	Circular	3x wider than diameter of root ball		-	3x wider than diameter of root ball		-	3x wider than diameter of root ball		-	✘	Provides standard pit size and then specifics for pit size based on location of the tree (i.e. parkway planter or parking lot island).
Dublin	Circular	An area equivalent to a circle with a radius 12x the stem diameter		-	An area equivalent to a circle with a radius 12x the stem diameter		-	An area equivalent to a circle with a radius 12x the stem diameter		-	✘	Provides calculations for determining pit size based on tree diameter and number of stems. Topsoil depths vary according to the type and size of planting or seeding.
London	Rectangular	Minimum $1m^3$			Minimum $1m^3$			Minimum $1m^3$			✘	Pit shall be deep enough to accommodate the roots without bending and be of minimum one cubic meter.
Melbourne	Square	1.2m	1.2m	-	1.5m	1.5m	-	2m	2m	-	✘	Although there are no parameters for tree height, it does provide minimum, preferred, and large dimensions for pit size.
Milan	**Circular**	**3m**	**3m**	**-**	**4m**	**4m**	**-**	**5m**	**5m**	**-**	✓	**Pit dimensions are listed as "radius in meters." Four classifications of trees, with largest pit radius 5m x 5m (not included in chart).**
New York	Rectangular	1.5m	3m	3x diameter of root ball	1.5m	3m	3x diameter of root ball	1.5m	3m	3x diameter of root ball	✘	Provides specific guidelines for structural soil, continuous structural soil, Swedish structural soil, soil cell unit in single layer detail, soil cell unit in double layer detail, and buffer specifications for specific street objects (i.e. fire hydrants and street lights). Depth is three times the diameter of the root ball.
Philly	Square	.9m	.9m	-	1.2m	1.2m	-	1.5m	1.5m	-	✘	No clear specifics on pit shape, but able to assume rectangular given it allows for varied pit shapes (i.e. .9m x 1.2m).
Turin	Circular	2m	2m	1.1m	3m	3m	1.1m	4m	4m	1.1m	✓	Provides specific buffer distances from borders, underground utilities, railway lines, other trees, buildings, and sidewalks.

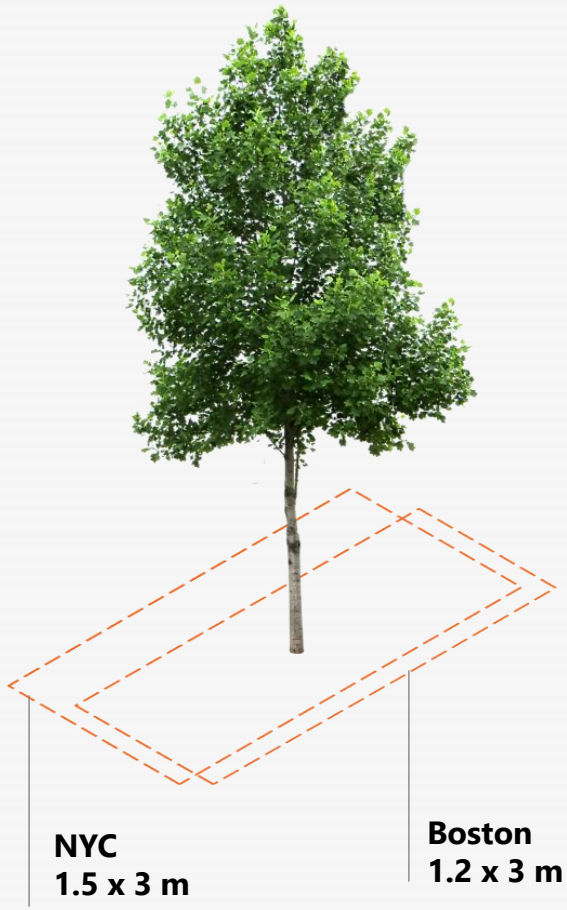
Tree pit sizes range from 0.8 – 2 meters for small trees and 1.2 – 5 meters for large trees

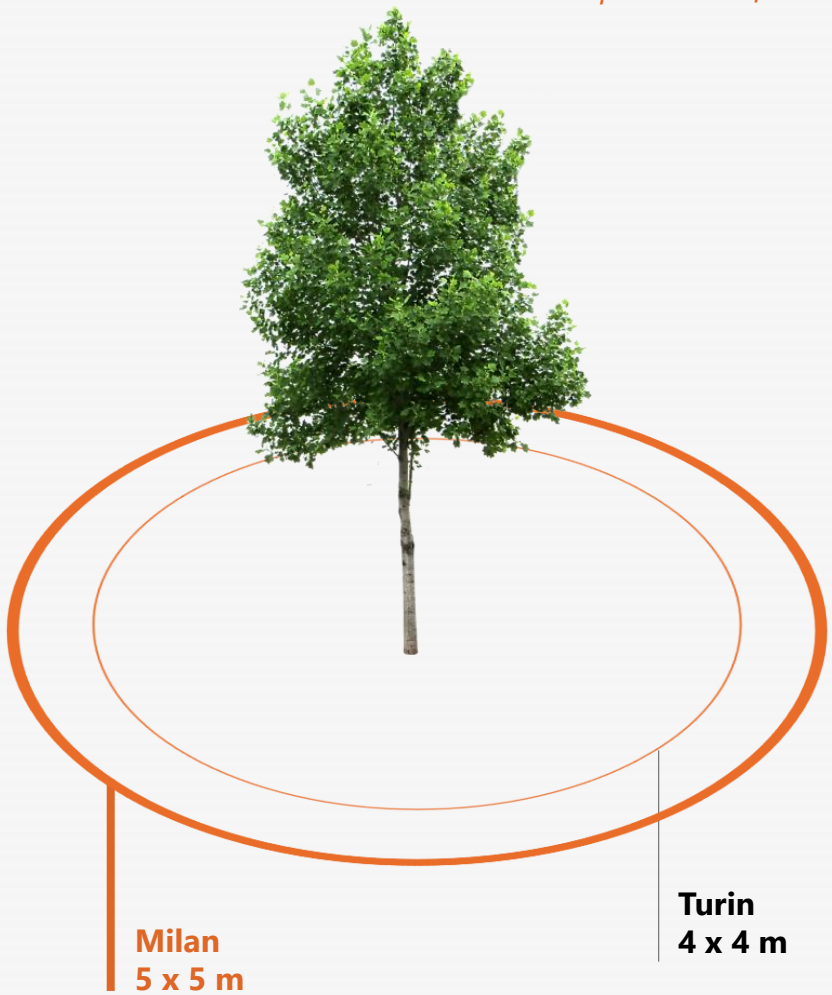
2 Milan's street tree pits requirements are significantly larger than in other cities

Milan's tree pit regulations are 1.6-2.4 x greater than the average pit of the 10 other cities.

Requirements for large trees







3 Milan's street tree planting buffers are inflexible and do not vary by utility or street furniture

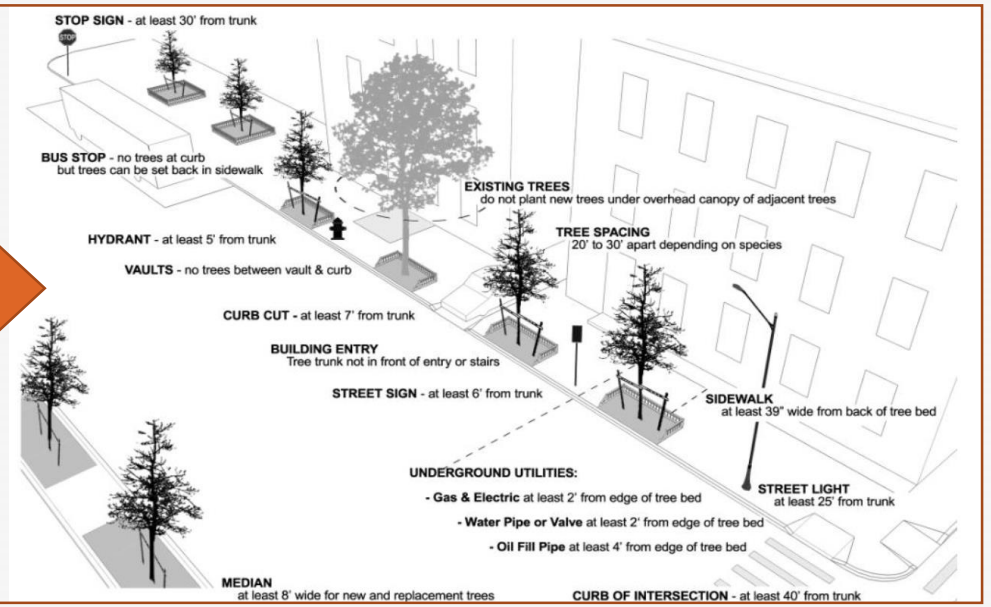
Milan's tree buffer sizes vary by tree height but not utility or street furniture. All of the cities surveyed except Milan and Turin provide varying buffers based on specific utilities and street furniture.

Milan tree planting buffers

Tree Height	Buffer
>25m	3m
15-25m	3m
8-15m	1.5m
<8m	1.5m

New York City tree planting buffers

Object	Distance	From
stop sign	9m	trunk
hydrant	1.5m	trunk
curb	2m	trunk
curb of intersection	12m	trunk
street sign	2m	trunk
street light	7.5m	trunk
tree	6 or 9m	each other
gas and electric	0.5m	tree bed
water pipe or valve	0.5m	edge of tree bed
oil fill pipe	1m	edge of tree bed



4 Milan's street tree standards do not vary by street type

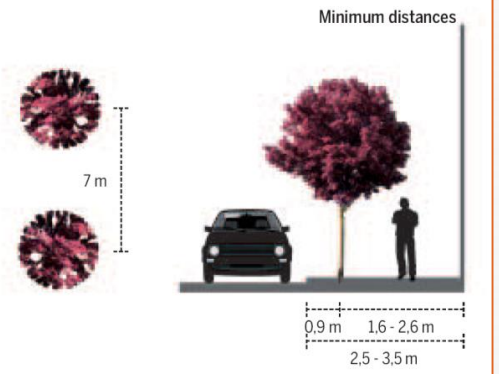
Street tree planting standards in Barcelona, Boston, and Chicago vary depending upon street typology.

- **Barcelona** has different tree pit requirements (as shown) for:
  - narrow
  - medium
  - wide streets
- **Boston** has different tree pit requirements for:
  - parkways and boulevards
  - neighborhood connector streets
  - neighborhood main streets
  - neighborhood residential streets
  - downtown commercial areas
  - downtown mixed-use areas
  - industrial areas
- **Chicago** has different tree pit requirements for:
  - tree pits with a grate
  - parking lot islands
  - parkway planters
  - narrow parkways

Barcelona - Tree planting in narrow streets

Narrow streets: those with a pavement width of less than 3.5 meters, where small species are planted. Planting on pavements less than 2.5 m wide should be avoided.

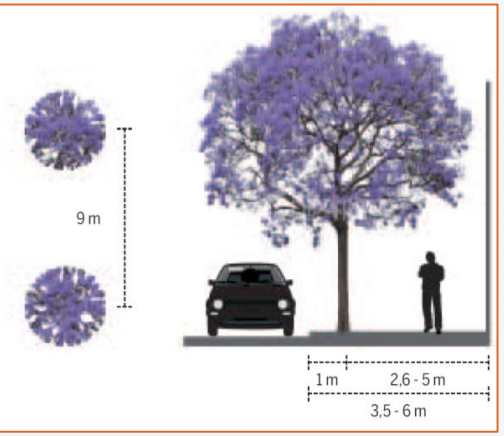
When buildings have balconies or overhangs and the crown of the adult tree would be expected to come within 0.5 m, planting should be avoided. The minimum distance between trees and lamp posts should be 3 m, and 7 m the planting distance between trees.



Barcelona - Tree planting in medium-width streets

Medium-width streets: those with a pavement width of between 3.5 and 6 m, where medium-sized trees can be planted.

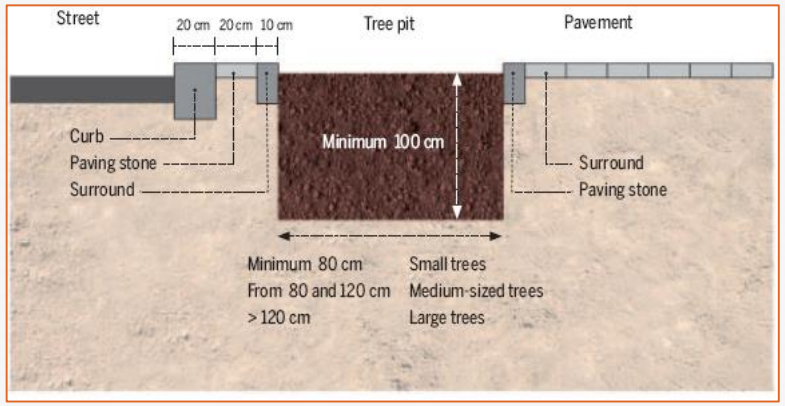
The minimum distance between trees and lamp posts should be 4.5 m, and 9 m the planting distance between trees.



5 Many cities use illustrations to provide guidance and clarify tree planting regulations

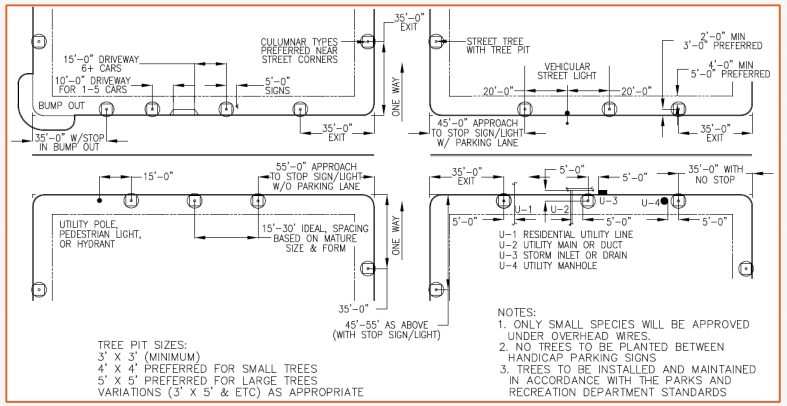
A variety of drawing types can help designers understand and correctly apply tree standards.

Sectional drawing with dimensions



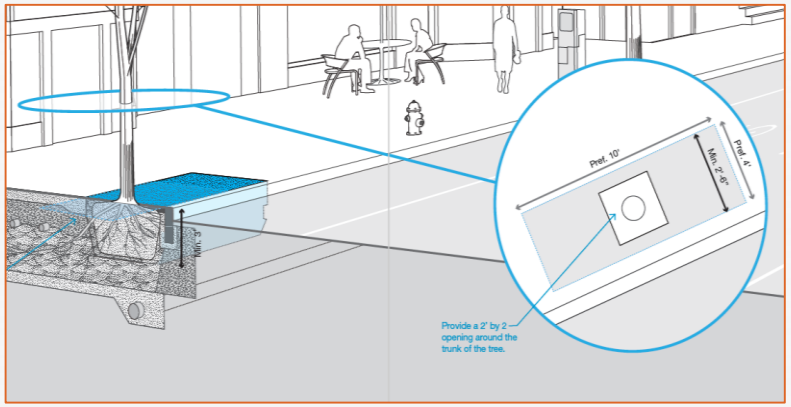
Barcelona tree pit design

Engineering-style drawing with clear pit sizes



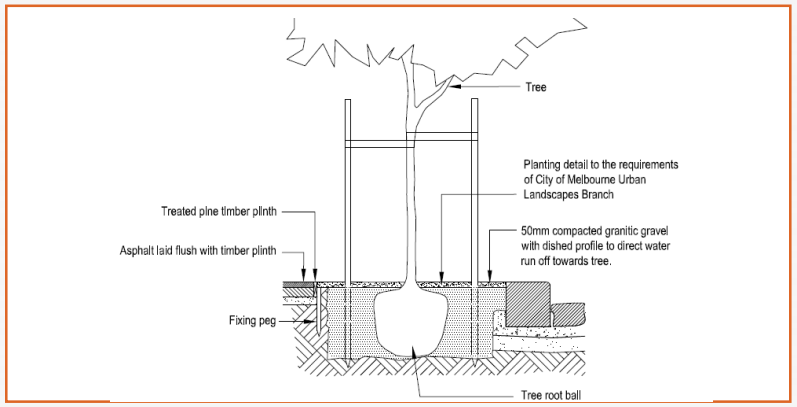
Philadelphia street tree planting diagram

Streetscape view with street tree detailing



Boston street trees tree pit guidelines

Sectional drawing with material details



Melbourne tree pit standard size in asphalt paved area

Appendix

Summary of urban street tree planting requirements

City	Pit Shape	Pit Dimensions – Small Tree Classes			Pit Dimensions – Medium Tree Classes			Pit Dimensions – Large Tree Classes			Standard Buffer?	Variations from Standard / Notes
		Length	Width	Depth	Length	Width	Depth	Length	Width	Depth		
Barcelona	Rectangular	.8m	1.2m	.1m	.8m	1.2m	.1m	1.2m	1.2m	.1m	✗	Planting guidelines include buffer specifications for narrow streets, medium-width streets and wide streets.
Berlin	Square	2m	2m	1 - 1.5m	4m	4m	1.5m	-	-	2.5m	✗	When a tree is in an "extreme location" on a city street, and the pit cannot be enlarged, depth should be increased to 2.5m to increase the root area.
Boston	Rectangular	1.2m	3m	.9m	1.2m	3m	.9m	1.2m	3m	.9m	✗	Includes buffer/planting specifications for open tree trenches, covered tree trenches, and raised tree beds.
Chicago	Circular	3x wider than diameter of root ball		-	3x wider than diameter of root ball		-	3x wider than diameter of root ball		-	✗	Provides standard pit size and then specifics for pit size based on location of the tree (i.e. parkway planter or parking lot island).
Dublin	Circular	An area equivalent to a circle with a radius 12x the stem diameter		-	An area equivalent to a circle with a radius 12x the stem diameter		-	An area equivalent to a circle with a radius 12x the stem diameter		-	✗	Provides calculations for determining pit size based on tree diameter and number of stems. Topsoil depths vary according to the type and size of planting or seeding.
London	Rectangular	Minimum $1m^3$			Minimum $1m^3$			Minimum $1m^3$			✗	Pit shall be deep enough to accommodate the roots without bending and be of minimum one cubic meter.
Melbourne	Square	1.2m	1.2m	-	1.5m	1.5m	-	2m	2m	-	✗	Although there are no parameters for tree height, it does provide minimum, preferred, and large dimensions for pit size.
Milan	**Circular**	**3m**	**3m**	**-**	**4m**	**4m**	**-**	**5m**	**5m**	**-**	✓	**Pit dimensions are listed as "radius in meters." Four classifications of trees, with largest pit radius 5m x 5m (not included in chart).**
New York	Rectangular	1.5m	3m	3x diameter of root ball	1.5m	3m	3x diameter of root ball	1.5m	3m	3x diameter of root ball	✗	Provides specific guidelines for structural soil, continuous structural soil, Swedish structural soil, soil cell unit in single layer detail, soil cell unit in double layer detail, and buffer specifications for specific street objects (i.e. fire hydrants and street lights). Depth is three times the diameter of the root ball.
Philly	Square	.9m	.9m	-	1.2m	1.2m	-	1.5m	1.5m	-	✗	No clear specifics on pit shape, but able to assume rectangular given it allows for varied pit shapes (i.e. .9m x 1.2m).
Turin	Circular	2m	2m	1.1m	3m	3m	1.1m	4m	4m	1.1m	✓	Provides specific buffer distances from borders, underground utilities, railway lines, other trees, buildings, and sidewalks.

Barcelona

Barcelona (1/3)

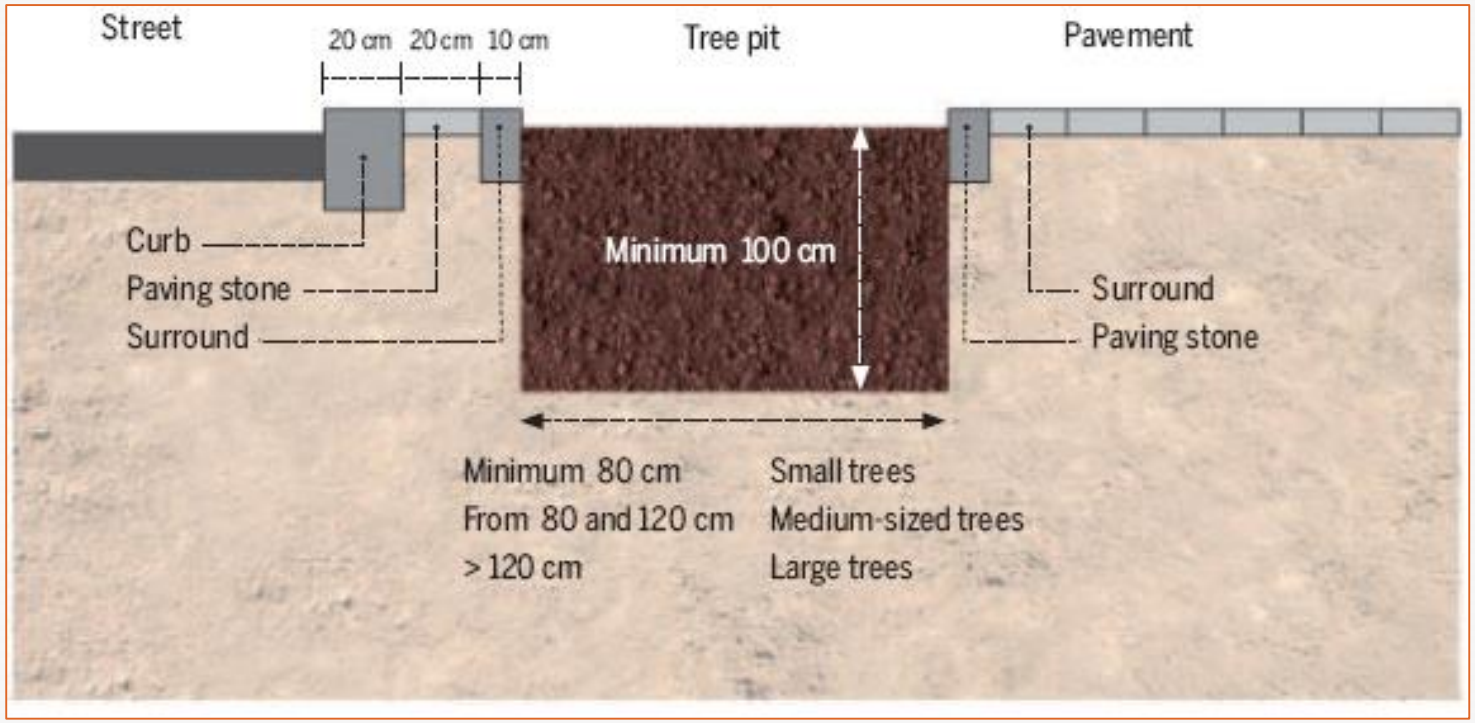
In Barcelona, the width of the pavement ultimately determines tree pit size.

Tree Height Classes	Pit Dimensions*		
	Length	Width	Depth
<6m	.8m	1.2m	.1m
6-15m	.8m	1.2m	.1m
>15m	1.2m	1.2m	.1m

* "The bigger the tree pit, the better for the tree. However, it is the width of the pavement that ultimately determines their size."

Pit Shape	**Rectangular**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed based on pavement width.
Tree-related documents	*Street Tree Management in Barcelona*. (Barcelona City Council). 2011.
Specificity of Design Guidance	Clear delineation of height for 3 tree classes and specific drawings of tree pits with dimensional information.

Source: Street Tree Management in Barcelona. (Barcelona City Council). 2011.

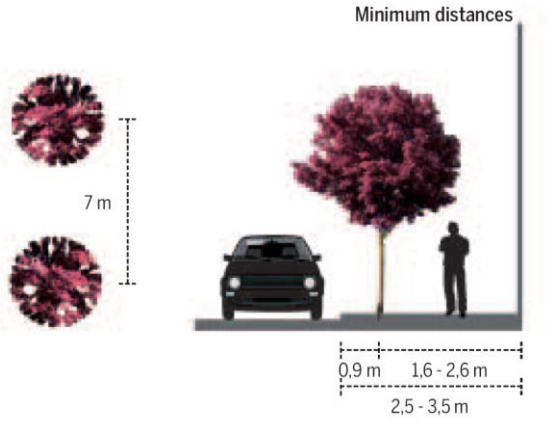


Source: Street Tree Management in Barcelona. (Barcelona City Council). 2011. Page 24.

Barcelona (3/3)

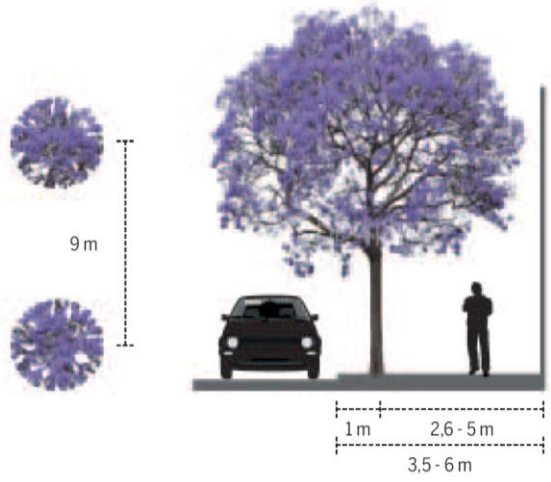
Narrow streets: those with a pavement width of less than 3.5 meters, where small species are planted. Planting on pavements less than 2.5 m wide should be avoided.

When buildings have balconies or overhangs and the crown of the adult tree would be expected to come within 0.5 m, planting should be avoided. The minimum distance between trees and lamp posts should be 3 m, and 7 m the planting distance between trees.



Medium-width streets: those with a pavement width of between 3.5 and 6 m, where medium-sized trees can be planted.

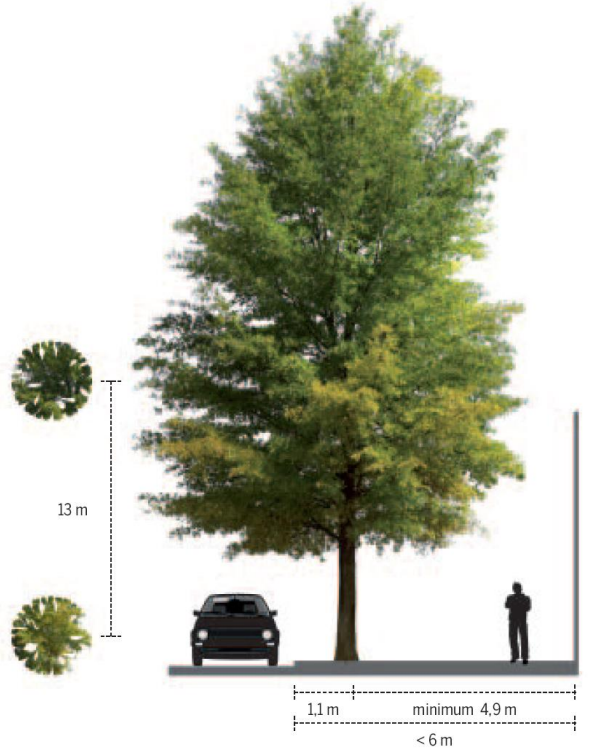
The minimum distance between trees and lamp posts should be 4.5 m, and 9 m the planting distance between trees.



Wide streets: those with a pavement width of more than 6 metres, where large trees can be planted.

The minimum distance between trees and lamp posts should be 6.5 m, and 13 m the planting distance between trees.

In all cases, the distance between trees and traffic lights and other signs must be greater than 3 m, and greater than 1 m between trees and dropped kerbs.



Source: Street Tree Management in Barcelona. (Barcelona City Council). 2011. Page 23.

Berlin

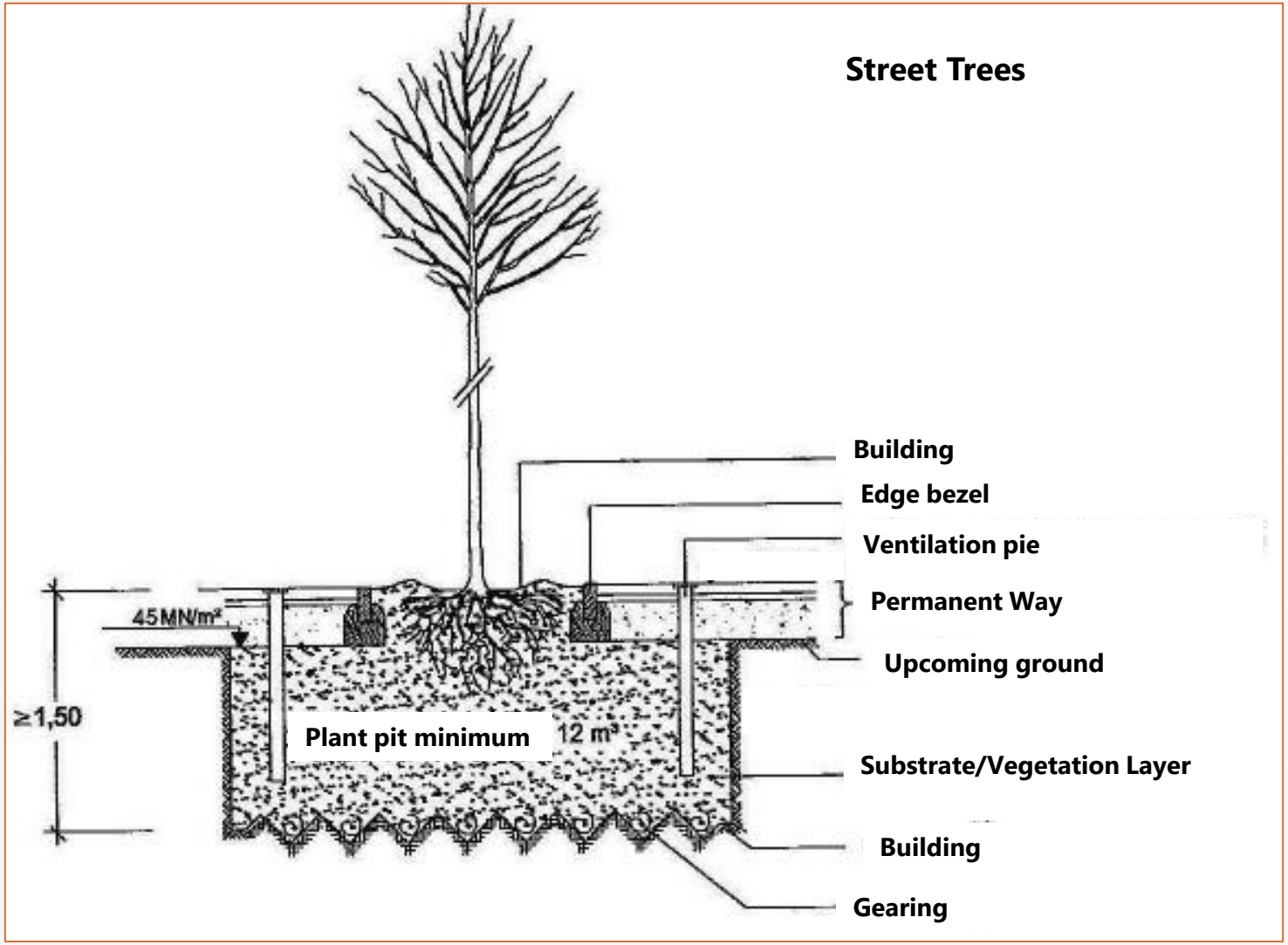
Berlin (1/2)

Tree Height Classes	Pit Dimensions		
	Length	Width	Depth*
Young trees 4m	2m	2m	1 - 1.5m
Mature trees >4m	4m	4m	1.5m
"Extreme location"	-	-	2.5m

* "When a tree is in an 'extreme location' on a city street, and the pit cannot be enlarged, depth should be increased to 2.5 m to increase the root area."

Pit Shape	**Square**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed. "According to the [German Landscape Research, Development and Construction Society] (FLL), a plant pit must be at least 12 m^3 in size. Its depth should be at least 1.5 m."
Tree-related documents	*The Berlin Standards for Planting and Subsequent Care of Street Trees*. (Berlin Garden Office Leaders Conference). 2011.
Specificity of Design Guidance	Clear delineation of height for 2 tree classes, information on depth, specific drawings of tree pits with dimensional information.

Source: The Berlin Standards for Planting and subsequent Care of Street Trees. (Berlin Garden Office Leaders Conference). 2011.



Source: The Berlin Standards for Planting and subsequent Care of Street Trees. (Berlin Garden Office Leaders Conference). 2011. Page 11.

Boston

Boston (1/4)

Tree Height Classes	Pit Dimensions*		
	Length	Width**	Depth
1.5m	1.2m	3m	.9m
2m	1.2m	3m	.9m
2.5m	1.2m	3m	.9m

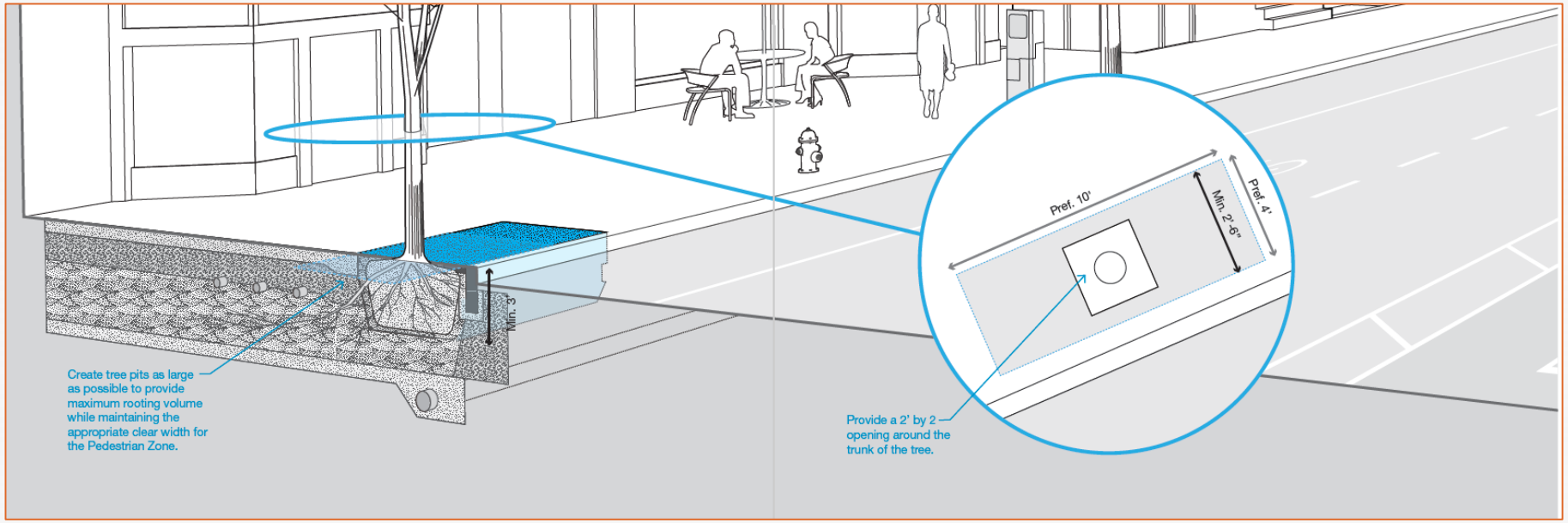
* "Where site-specific conditions prohibit meeting the guidelines, trees should be considered at the discretion of the Boston Parks Department."

** "Provide as large a tree pit as feasible while maintaining appropriate sidewalk clearances. Smaller tree pits, as narrow as 0.79 m wide, may be approved if sidewalk constrains prohibit the construction of a full size tree pit. Existing tree pits that are smaller than the recommended minimum may be replanted at the discretion of Boston Parks Department."

Pit Shape	**Rectangular**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed: "Smaller tree pits as narrow as 0.79 m wide may be approved if sidewalk constraints prohibit the construction of a full size tree pit. Existing tree pits that are smaller than the recommended minimum may be replanted at the discretion of Boston Parks Department."
Tree-related documents	*Boston Complete Streets Guidelines.* (Boston Transportation Department). 2013.
Specificity of Design Guidance	Clear delineation of height for 3 tree classes, and information on width or depth. Clear delineation of tree pit dimensions. Specific drawings of a tree pit with dimensional information.

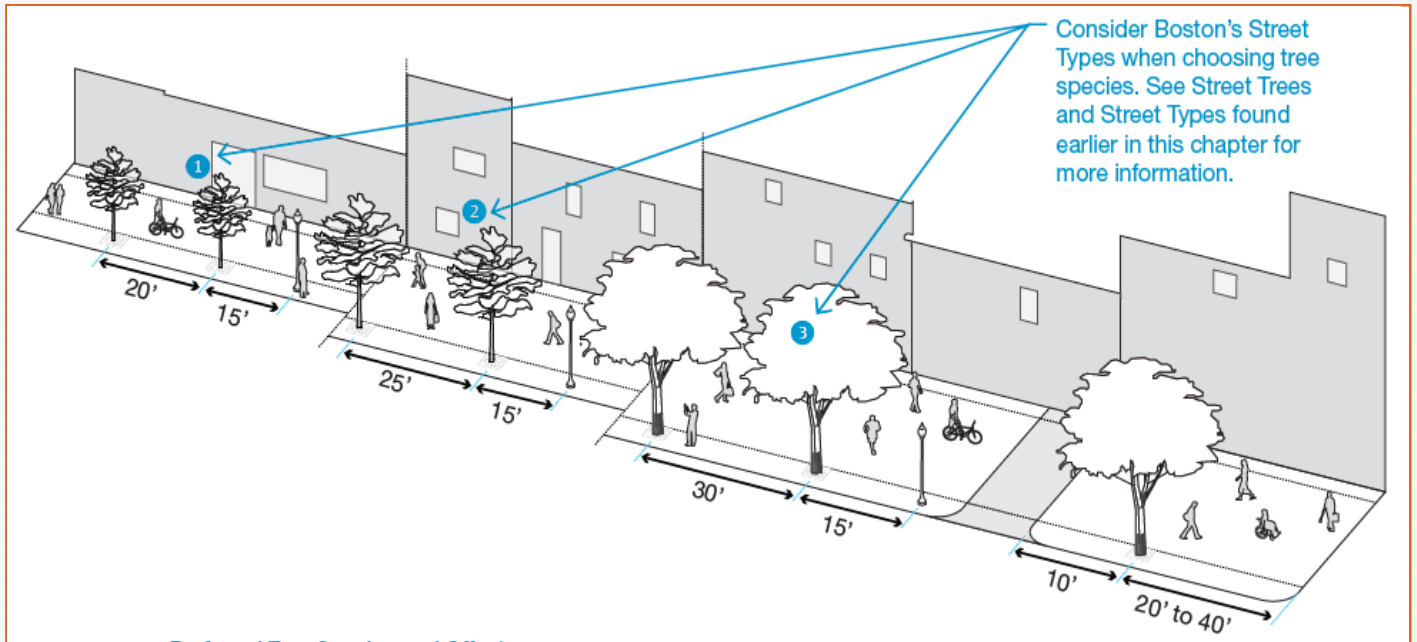
Source: Boston Complete Streets Guidelines. (Boston Transportation Department). 2013.

Boston (2/4)



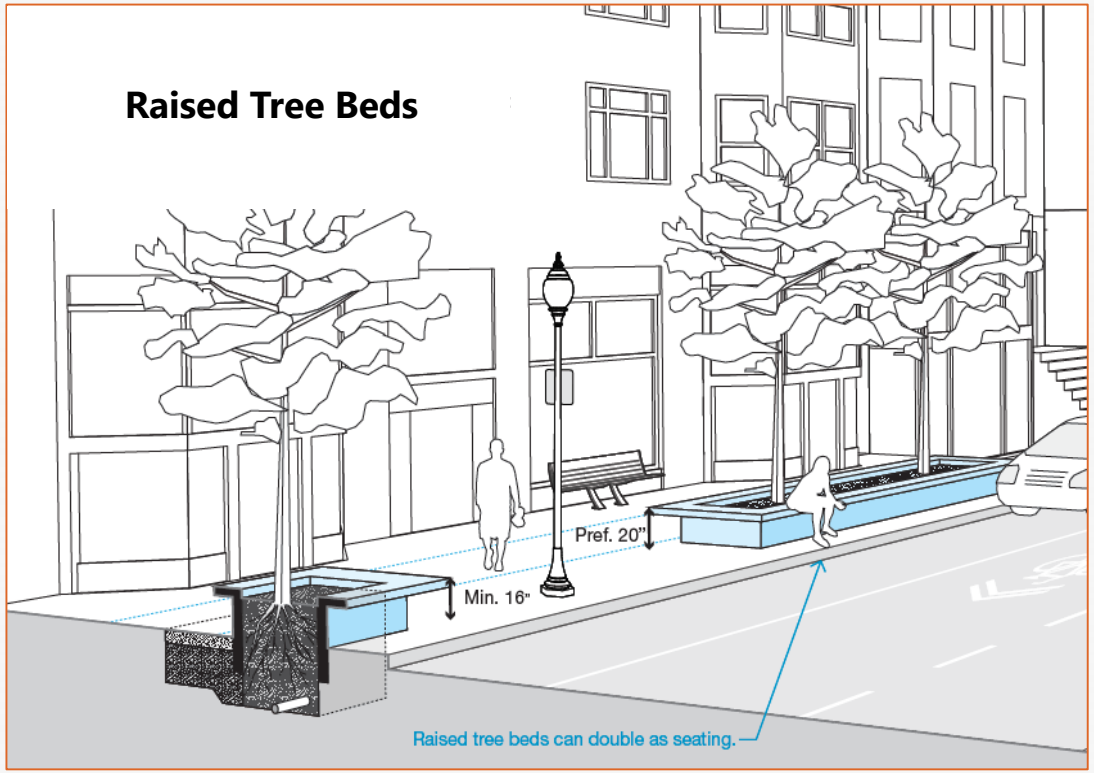
Source: Boston Complete Streets Guidelines. (Boston Transportation Department). 2013. Page 64.

Boston (3/4)



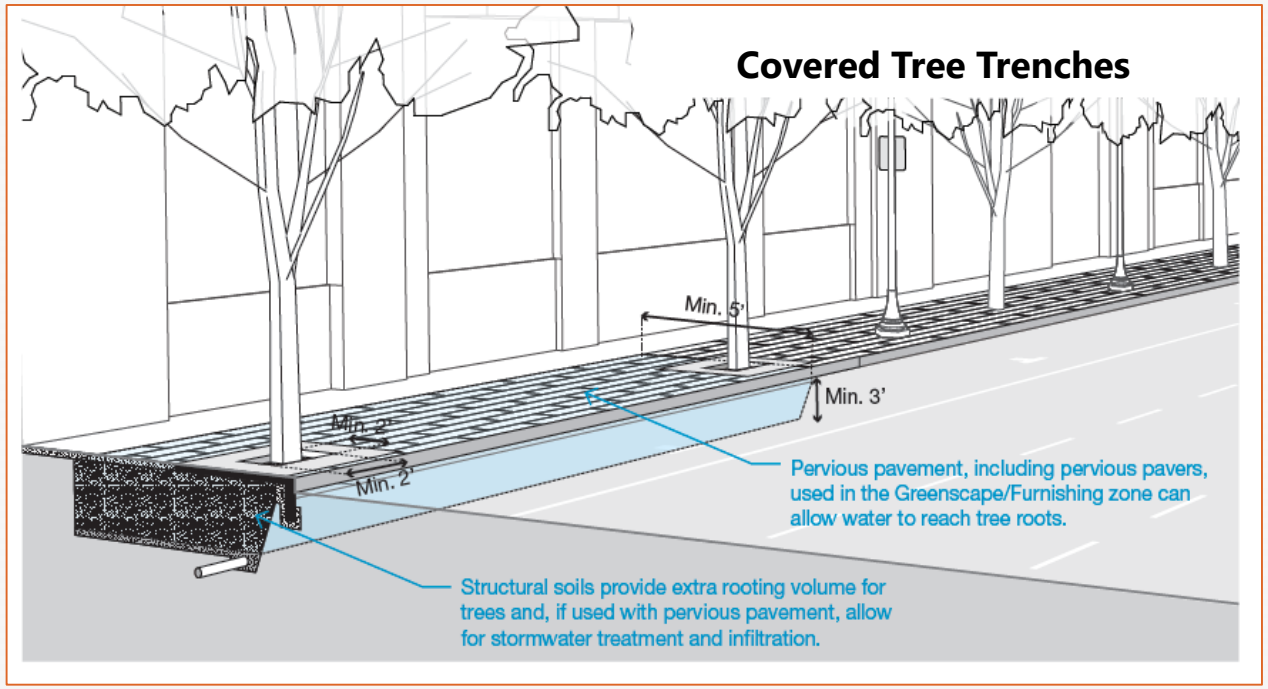
Preferred Tree Spacing and Offsets

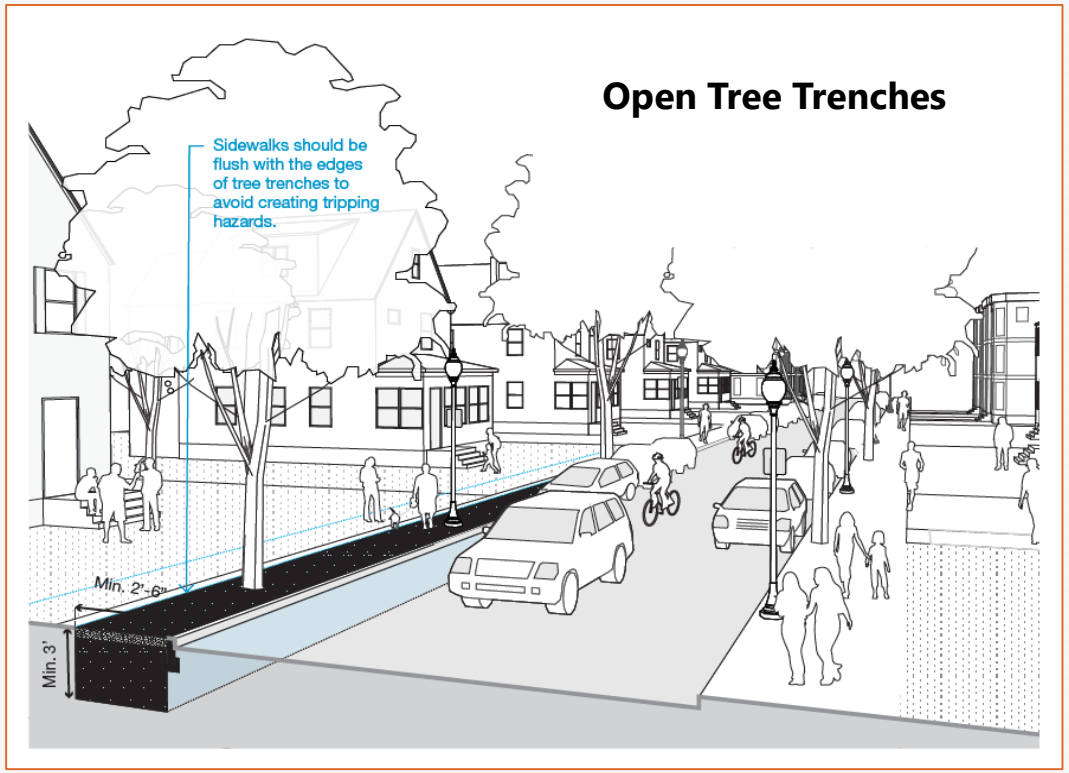
	1 Short Stature Ornamental Trees	2 Medium Stature Trees	3 Large Stature Shade Trees
On-Center Spacing	20'	25'	30'
Offset from Curbs or Path Edges	2'-6"	2'-6"	2'-6"
Offset from Light Poles	15'	15'	15'
Offset from Driveways, Fire Hydrants, Loading Zones	10'	10'	10'
Offset from Intersections (Depending on direction of traffic)	20'	20' to 40'	20' to 40'



Source: Boston Complete Streets Guidelines. (Boston Transportation Department). 2013. Page 61.

Boston (4/4)





Source: Boston Complete Streets Guidelines. (Boston Transportation Department). 2013. Pages 59 and 63.

Chicago

Chicago (1/4)

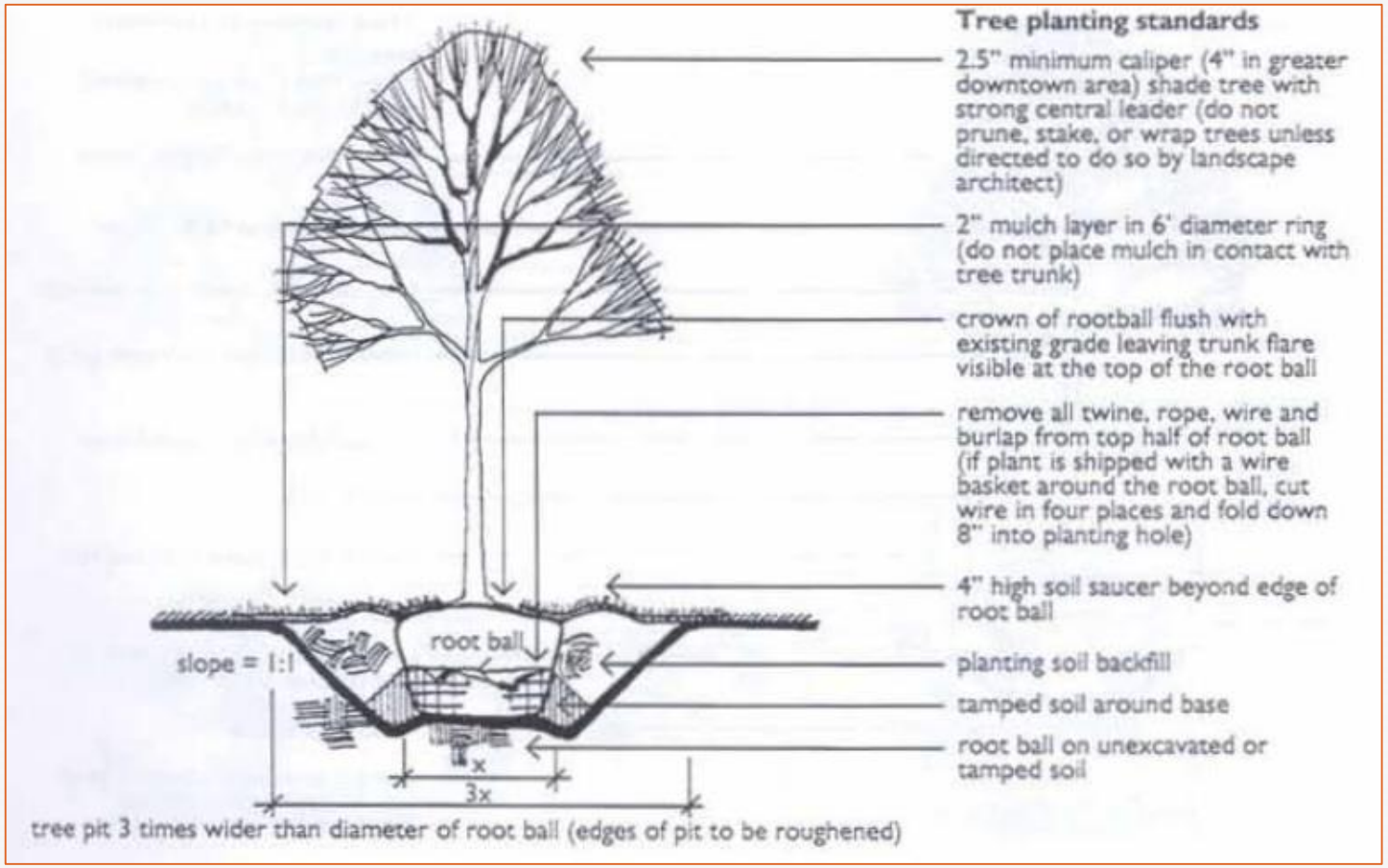
Chicago provides standard pit size and then specifics for pit size based on location of the tree (i.e. parkway planter or parking lot island). It does not classify trees by height, but instead by caliper and planting location.

Tree Height Classes	Pit Dimensions		
	Length	Width	Depth
N/A	3x wider than diameter of root ball.		-

Pit Shape	**Circular**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed in: • Narrow Parkway • Parkway Planter • Tree Pit with Grate • Parking Lot Island
Tree-related documents	*Guide to the Chicago Landscape Ordinance. Regulations and guidelines relating to Title 10, Chapter 32 and Title 17, Chapter 194A of the Chicago Municipal Code*. (Office of the Mayor). 2000.
Specificity of Design Guidance	Clear delineation of diameter for 2 tree classes, no information on height. Specific drawings of tree pits with dimensional information.

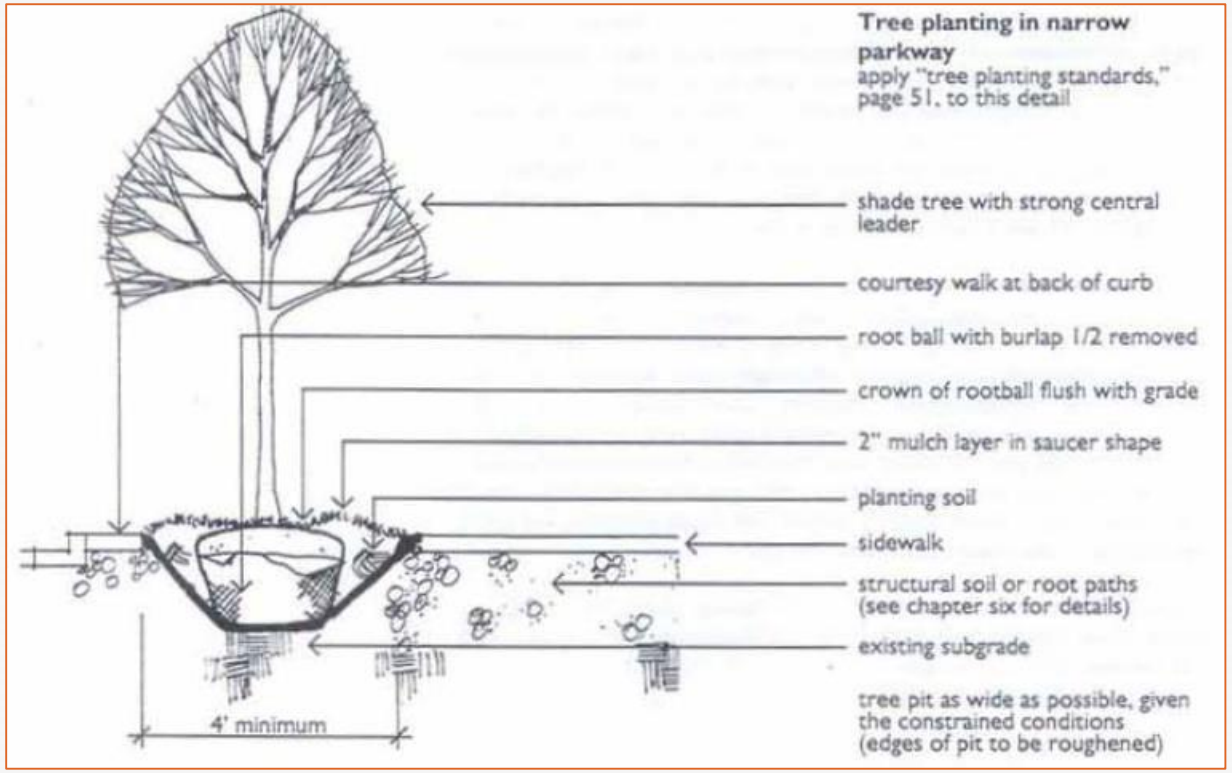
Source: Guide to the Chicago Landscape Ordinance. Regulations and guidelines relating to Title 10, Chapter 32 and Title 17, Chapter 194A of the Chicago Municipal Code. (Office of the Mayor). 2000.

Tree Planting Standards

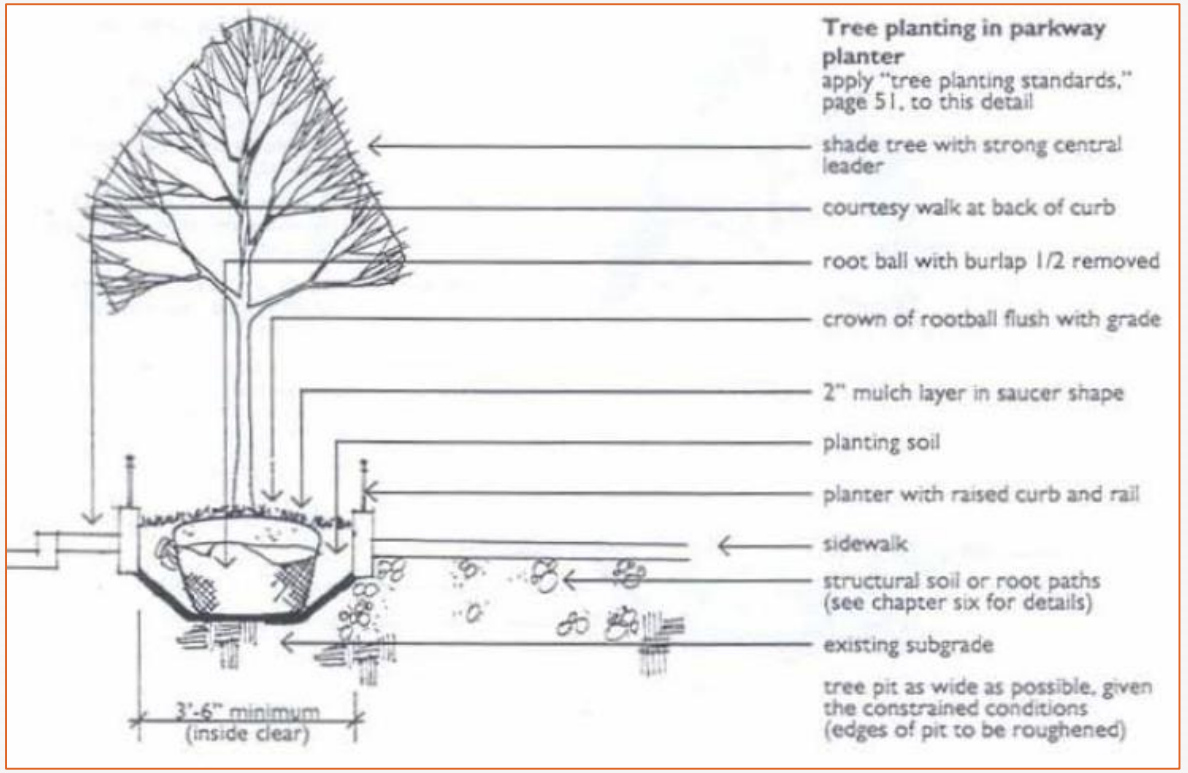


Source: Guide to the Chicago Landscape Ordinance. Regulations and guidelines relating to Title 10, Chapter 32 and Title 17, Chapter 194A of the Chicago Municipal Code. (Office of the Mayor). 2000. Page 51.

Tree Planting in Narrow Parkway

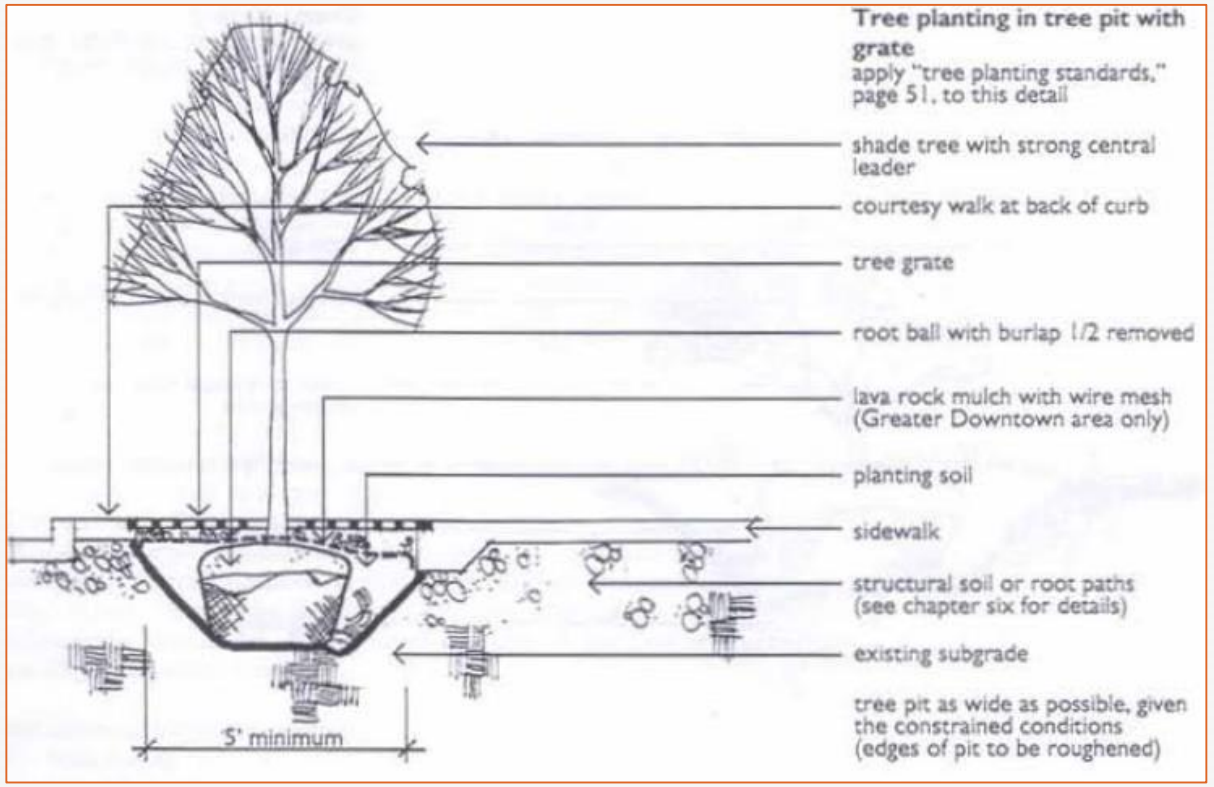


Tree Planting in Parkway Planter

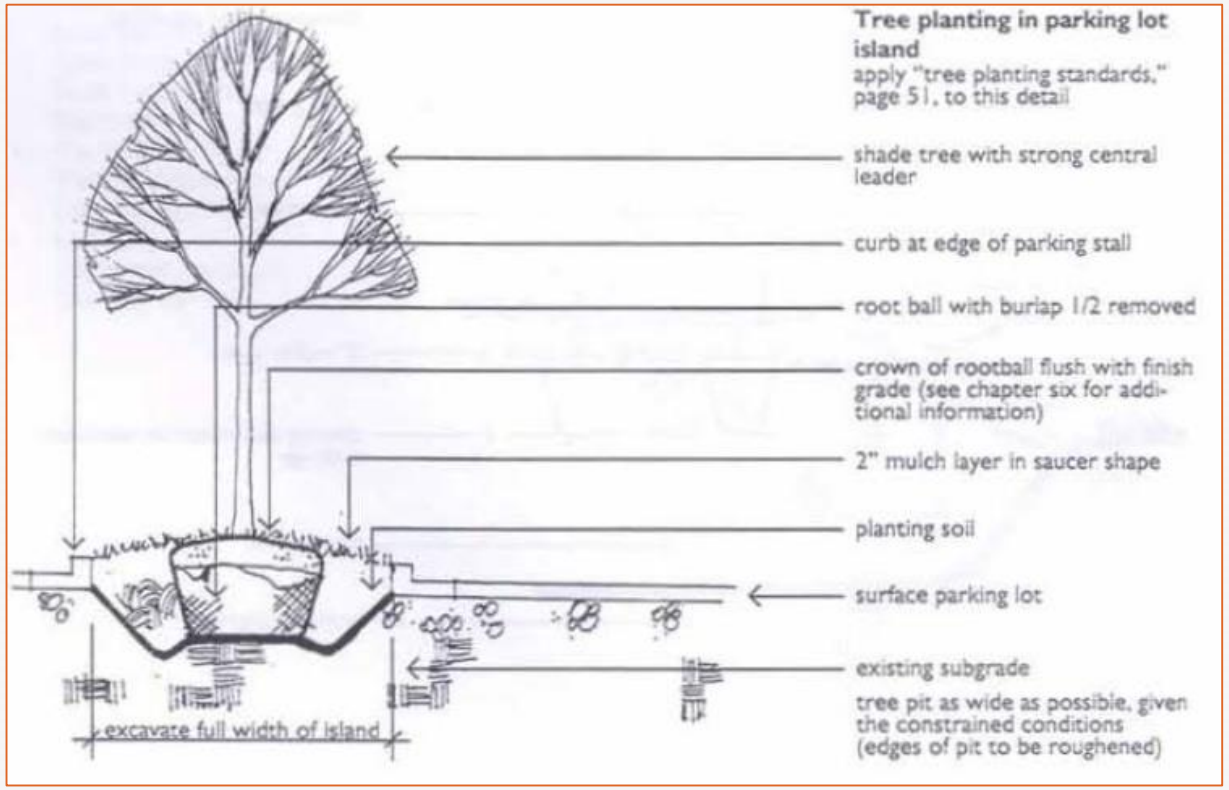


Source: Guide to the Chicago Landscape Ordinance. Regulations and guidelines relating to Title 10, Chapter 32 and Title 17, Chapter 194A of the Chicago Municipal Code. (Office of the Mayor). 2000. Page 52

Tree Planting in Tree Pit with Grate



Tree Planting in Parking Lot Island



Source: Guide to the Chicago Landscape Ordinance. Regulations and guidelines relating to Title 10, Chapter 32 and Title 17, Chapter 194A of the Chicago Municipal Code. (Office of the Mayor). 2000. Page 53.

Dublin

Dublin (1/3)

Dublin provides guidance on street tree planting through the Dublin City Tree Strategy. For planting specification and "Root Protection Areas" it refers specifically to British Standards.

Tree Height Classes*	Pit Dimensions**		
	Length	Width	Depth
5 - 8m	An area equivalent to a circle with a radius 12 x the stem diameter		-
8 - 15 m			-
>15m			-

** "The Root Protection Area for each tree should initially be plotted as a circle centered on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon on equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distributions."

** "Topsoil depths should be appropriate for, and may vary according to, the type and size of planting or seeding to be undertaken."

Pit Shape	**Circular**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed. "Tree planting will be undertaken in accordance with British Standard Codes of Practice *BS3936-1: 1992:* • *Nursery stock specifications for trees and shrubs.* (British Standards Publication). 1992.*; BS 3998:2010* • *Tree work. Recommendations.* (British Standards Publication). 2010.*; BS 4043:1989* • *Recommendations for Transplanting Root-Balled Trees.* (British Standards Publication). 1989.*; BS 4428: 1989 (Section 7)* • *Recommendations for General Landscape Operations.* (British Standards Publication). 1989.*; BS 8545:2014* • *Trees: from nursery to independence in the landscape—Recommendations.* (British Standards Publication). 2014."
Tree-related documents	*Dublin City Tree Strategy 2016-2020.* (Dublin City Council). 2016. *BS 5837:2012 Trees in relation to design, demolition and construction-Recommendations.* (British Standards Publication). 2012.
Specificity of Design Guidance	Refer to British Standards for pit and depth specifications, which are based on specific calculations.

***Source:** Dublin City Tree Strategy 2016-2020. (Dublin City Council). 2016.
****Source:** BS 5837:2012 Trees in relation to design, demolition and construction-Recommendations. (British Standards Publication). 2012.

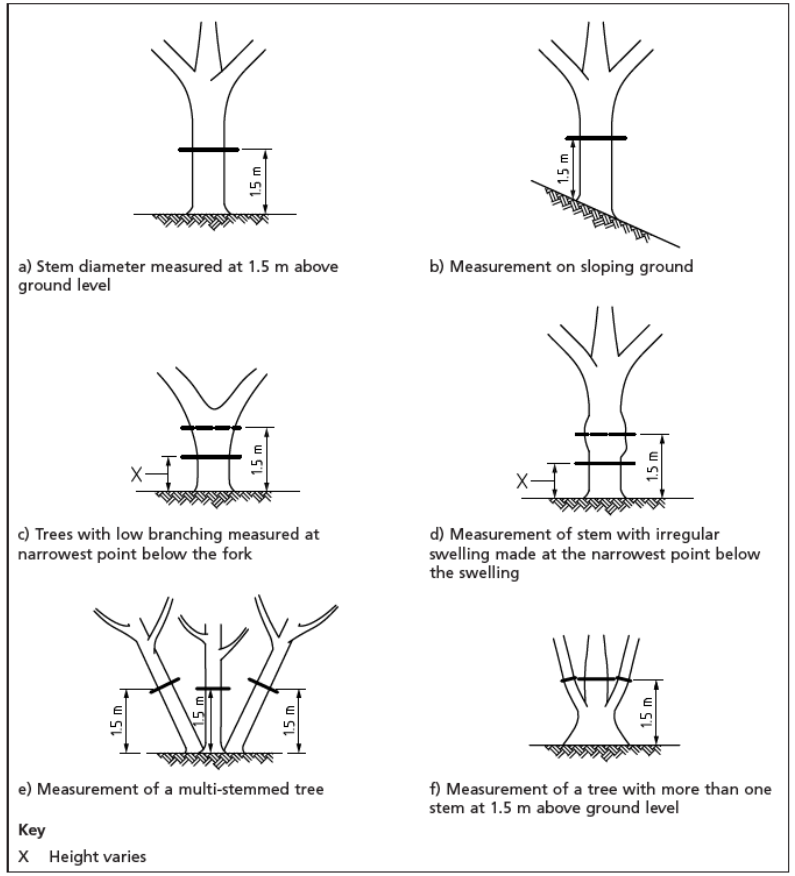
Annex C
(normative)

Measurement of tree stems

Diameters of single stem trees on level ground should be measured in accordance with Figure C.1a). Diameters of other commonly encountered tree stems should be measured in accordance with Figures C.1b) to C.1f).

NOTE The thick black line indicates where the measurement is taken.

Figure C.1 **Measurement of tree stems**



a) Stem diameter measured at 1.5 m above ground level

b) Measurement on sloping ground

c) Trees with low branching measured at narrowest point below the fork

d) Measurement of stem with irregular swelling made at the narrowest point below the swelling

e) Measurement of a multi-stemmed tree

f) Measurement of a tree with more than one stem at 1.5 m above ground level

Key

X Height varies

Source: BS 5837:2012 Trees in relation to design, demolition and construction-Recommendations. (British Standards Publication). 2012. Page 39.

Root Protection Area Calculations

a) For trees with two to five stems, the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \ldots + (\text{stem diameter 5})^2}$$

b) For trees with more than five stems (not illustrated in Annex C), the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{ number of stems}}$$

Annex D
(normative)

Root protection area

The RPAs given in Table D.1 should be used for single stem trees and the equivalent resultant combined stem diameter for multi-stemmed trees.

Table D.1 **Root protection areas**

Single stem diameter mm	Radius of nominal circle m	RPA m²	Single stem diameter mm	Radius of nominal circle m	RPA m²
75	0.90	3	675	8.10	206
100	1.20	5	700	8.40	222
125	1.50	7	725	8.70	238
150	1.80	10	750	9.00	255
175	2.10	14	775	9.30	272
200	2.40	18	800	9.60	290
225	2.70	23	825	9.90	308
250	3.00	28	850	10.20	327
275	3.30	34	875	10.50	346
300	3.60	41	900	10.80	366
325	3.90	48	925	11.10	387
350	4.20	55	950	11.40	408
375	4.50	64	975	11.70	430
400	4.80	72	1 000	12.00	452
425	5.10	81	1 025	12.30	475
450	5.40	92	1 050	12.60	499
475	5.70	102	1 075	12.90	519
500	6.00	113	1 100	13.20	547
525	6.30	124	1 125	13.50	573
550	6.60	137	1 150	13.80	598
575	6.90	150	1 175	14.10	625
600	7.20	163	1 200	14.40	652
625	7.50	177	1 225	14.70	679
650	7.80	191	1 250+	15.00	707

*NOTE These figures are derived from the calculations described in **4.6**.*

Source: BS 5837:2012 Trees in relation to design, demolition and construction-Recommendations. (British Standards Publication). 2012. Pages 10, 11 & 40.

London

London's code focuses mainly on the type and shape of tree. For all trees, it requires a pit that is deep enough to accommodate the roots without bending and a minimum of one cubic meter.

Tree Height Classes	Pit Dimensions		
	Length	Width	Depth*
<7.5m	Minimum $1m^3$		
7.5 - 12m	Minimum $1m^3$		
>12m	Minimum $1m^3$		

* "The pit shall be deep enough to accommodate the roots without bending and be of minimum one cubic meter."

Pit Shape	**Rectangular**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed: "Whilst the City acknowledges British Standards *BS 4043:1989 Recommendations for Transplanting Root-Balled Trees.* (British Standards Publication). 1989. *BS 4428: 1989 (Section 7) Recommendations for General Landscape Operations.* (British Standards Publication). 1989. and *BS 5837:2012 Trees in relation to design, demolition and construction-Recommendations.* (British Standards Publication). 2012., due to constraints within the City's highly developed environment, these British Standards have been altered where required to accommodate the City Corporation's specific constraints."
Tree-related documents	*City of London Tree Planting Guidelines. City of London Tree Planting Strategy Parts 1 & 2*. (City of London). 2012. *City of London Tree Planting Guidelines.* 2005.
Specificity of Design Guidance	Clear delineation of width and depth for 2 tree classes, no information on height, no specific drawings of tree pits with dimensional information

Sources: City of London Tree Planting Guidelines. City of London Tree Planting Strategy Parts 1 & 2. (City of London). 2012.
City of London Tree Planting Guidelines. 2005.

Melbourne

Melbourne (1/2)

Melbourne focuses mainly on species selection and diversity. Although there are no parameters for tree height, it does provide minimum, preferred, and large dimensions for pit sizes in its City of Melbourne Design Standards.

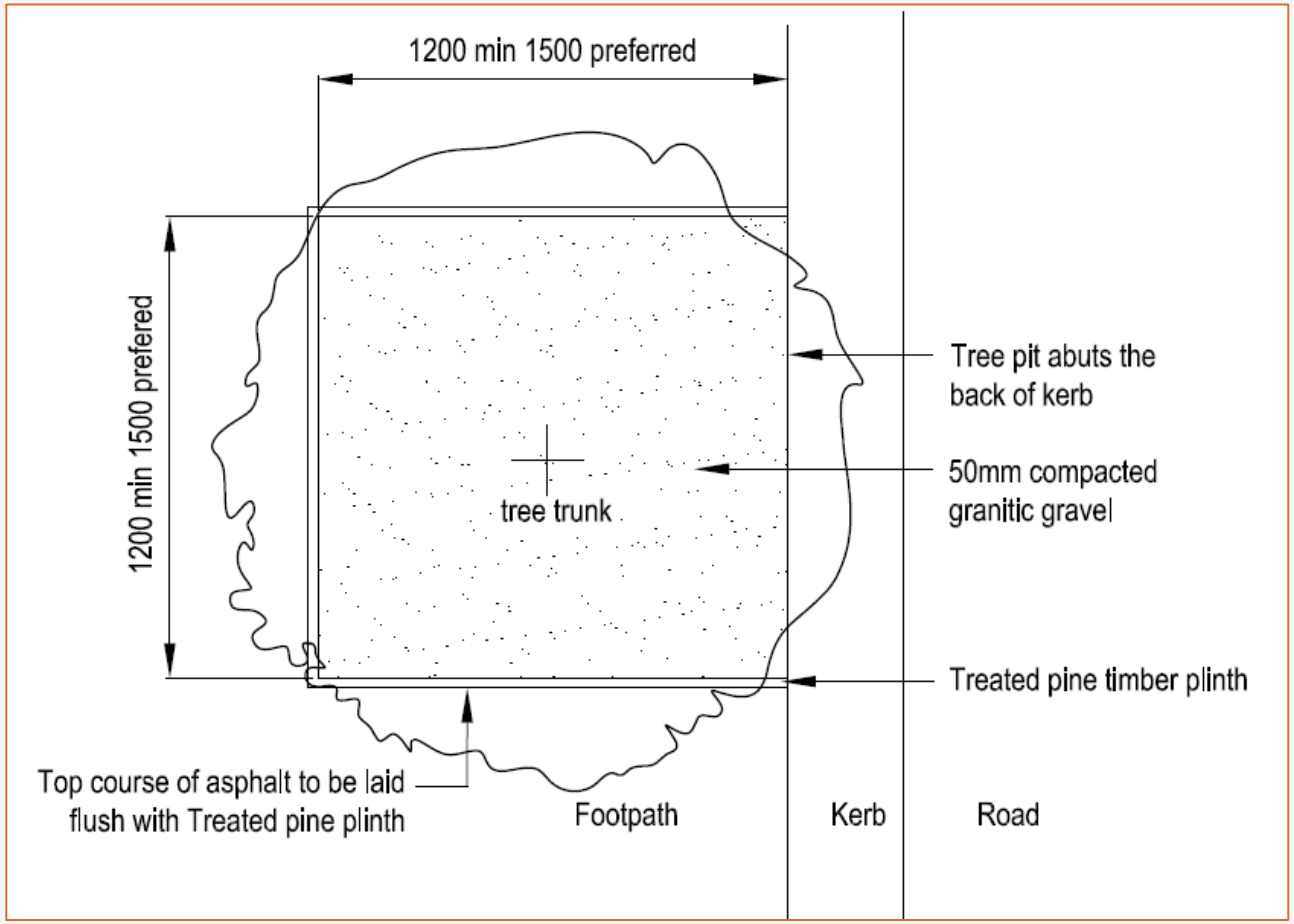
"Preferred Site Condition"	Tree Pit Dimensions*		
	Length	Width	Depth
Minimum	1.2m	1.2m	-
Preferred	1.5m	1.5m	-
Large	2m	2m	-

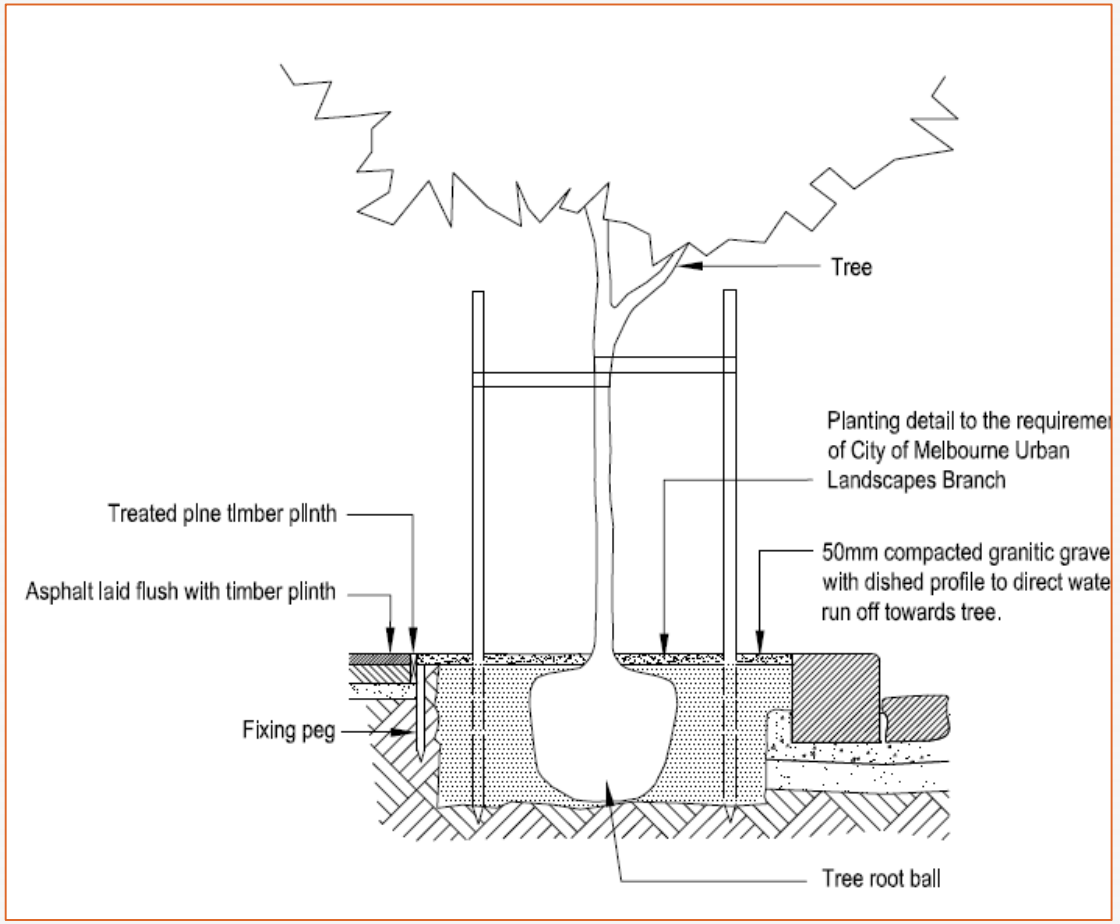
* "Tree pit sizes vary to suite site conditions."

Pit Shape	**Square**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed: "Tree pit sizes vary to suite site conditions."
Tree-related documents	*Tree Pit Standard Size in Asphalt Paved Area 501.02. (*City of Melbourne Design Standards). 2013. Section, Page 1.
Specificity of Design Guidance	Clear delineation of diameter for 3 tree classes, no information on depth or height; specific drawings of tree pits with dimensional information.

Source: Tree Pit Standard Size in Asphalt Paved Area 501.02. (City of Melbourne Design Standards). 2013. Section, Page 1.

Melbourne (2/2)





Source: Tree Pit Standard Size in Asphalt Paved Area 501.02. (City of Melbourne Design Standards). 2013. Section, Page 1.

Milan

Tree Height Classes	Tree Pit Dimensions*		
	Length	Width	Depth
<8m	2m	2m	-
8 - 15m	3m	3m	-
15 - 25m	4m	4m	-
>25m	5m	5m	-

* "The pertinence area of trees, based on the extension of parts above-ground and of the root system is defined by the circumference at ground level having at its center of the tree trunk."

Pit Shape	**Rectangular**
Standard Buffer?	**Yes**
Variability/flexibility in regulations	**No**
Tree-related documents	*Regulations on the Use and Protection of Public and Private Green Spaces.* (Milan Municipal Council.) 2017.
Specificity of Design Guidance	No specific drawings of tree pits with dimensional information.

Source: Regulations on the Use and Protection of Public and Private Green Spaces. (Milan Municipal Council.) 2017.

New York

New York (1/7)

Tree Height Classes	Tree Pit Dimensions*		
	Length	Width	Depth
<8m	1.5m	3m	3x diameter of root ball
8-15m	1.5m	3m	3x diameter of root ball
15-25m	1.5m	3m	3x diameter of root ball
>25m	1.5m	3m	3x diameter of root ball

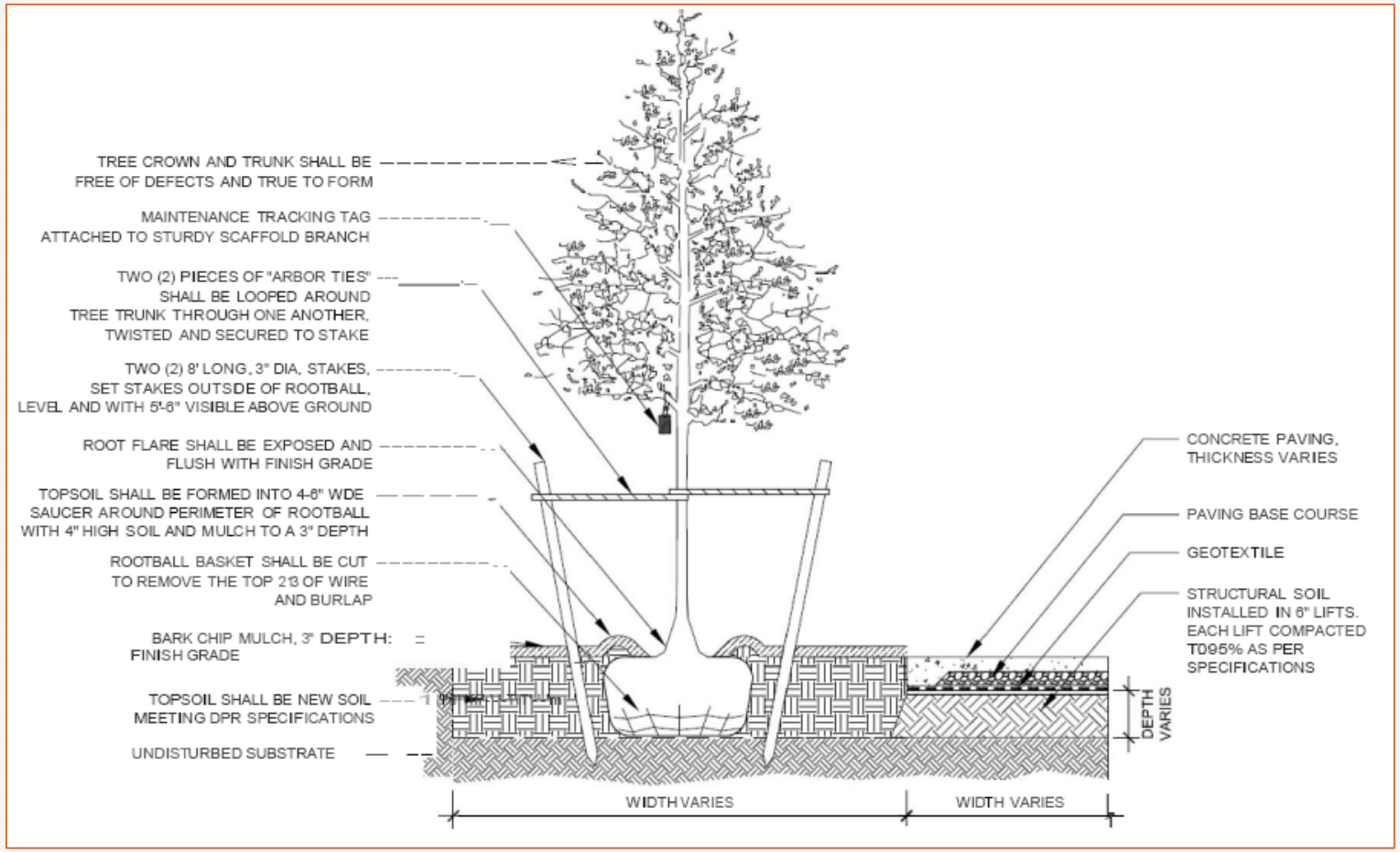
* "Tree pits should be as large as possible to allow for ample growing space for the tree's roots and to reduce the likelihood of future sidewalk lifting."

"Where a 1.5 by 3 m tree pit is not possible, alternate dimensions must be approved by the Forrester."

Pit Shape	**Rectangular**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed: "Where a 1.5 by 3 m tree pit is not possible, alternate dimensions must be approved by the Forrester."
Tree-related documents	*Street Tree Planting Standards for New York City. (*City of New York Parks and Recreation). 2016.
Specificity of Design Guidance	Clear delineation of height for 4 tree classes; includes information on width and depth. Specific drawings of tree pits with dimensional information.

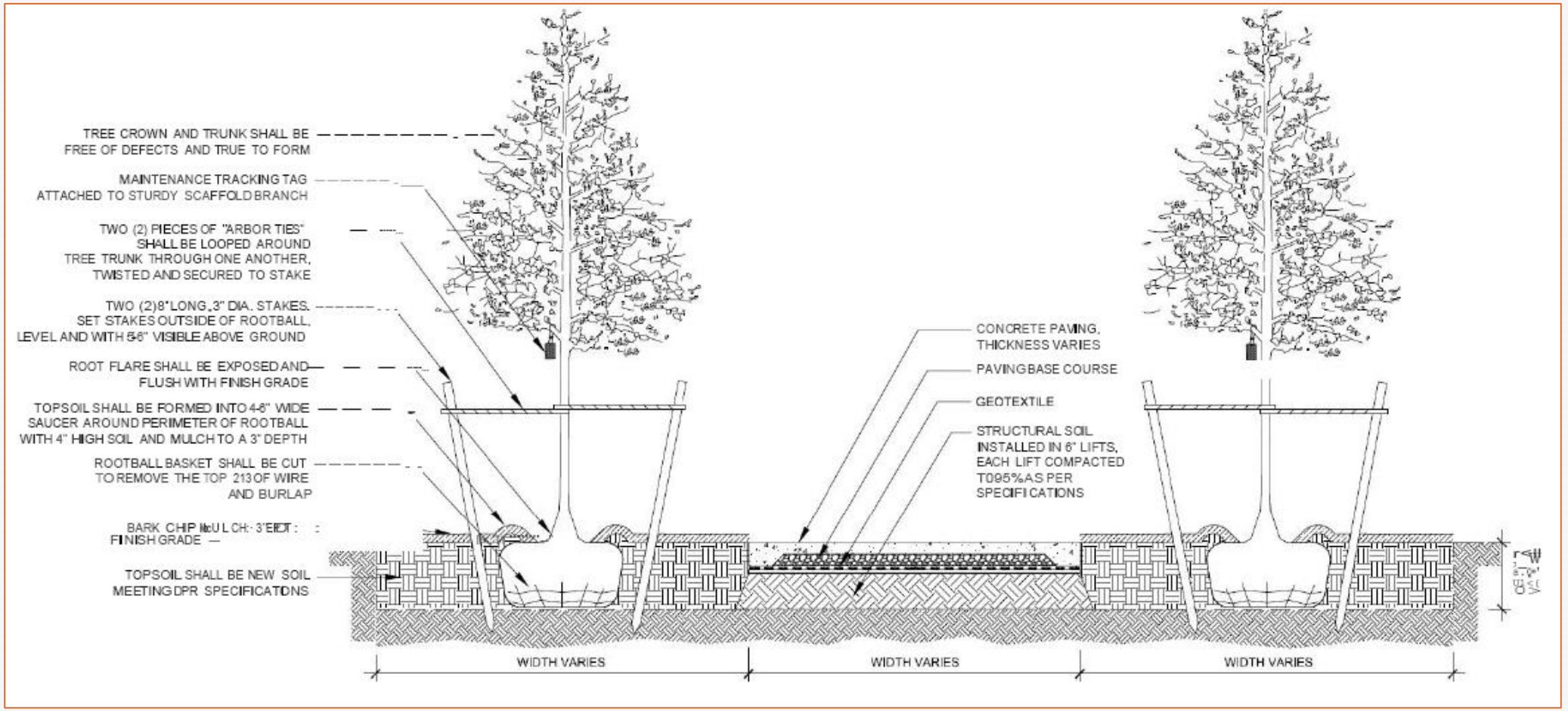
Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016.

Tree Planting & Structural Soil Detail



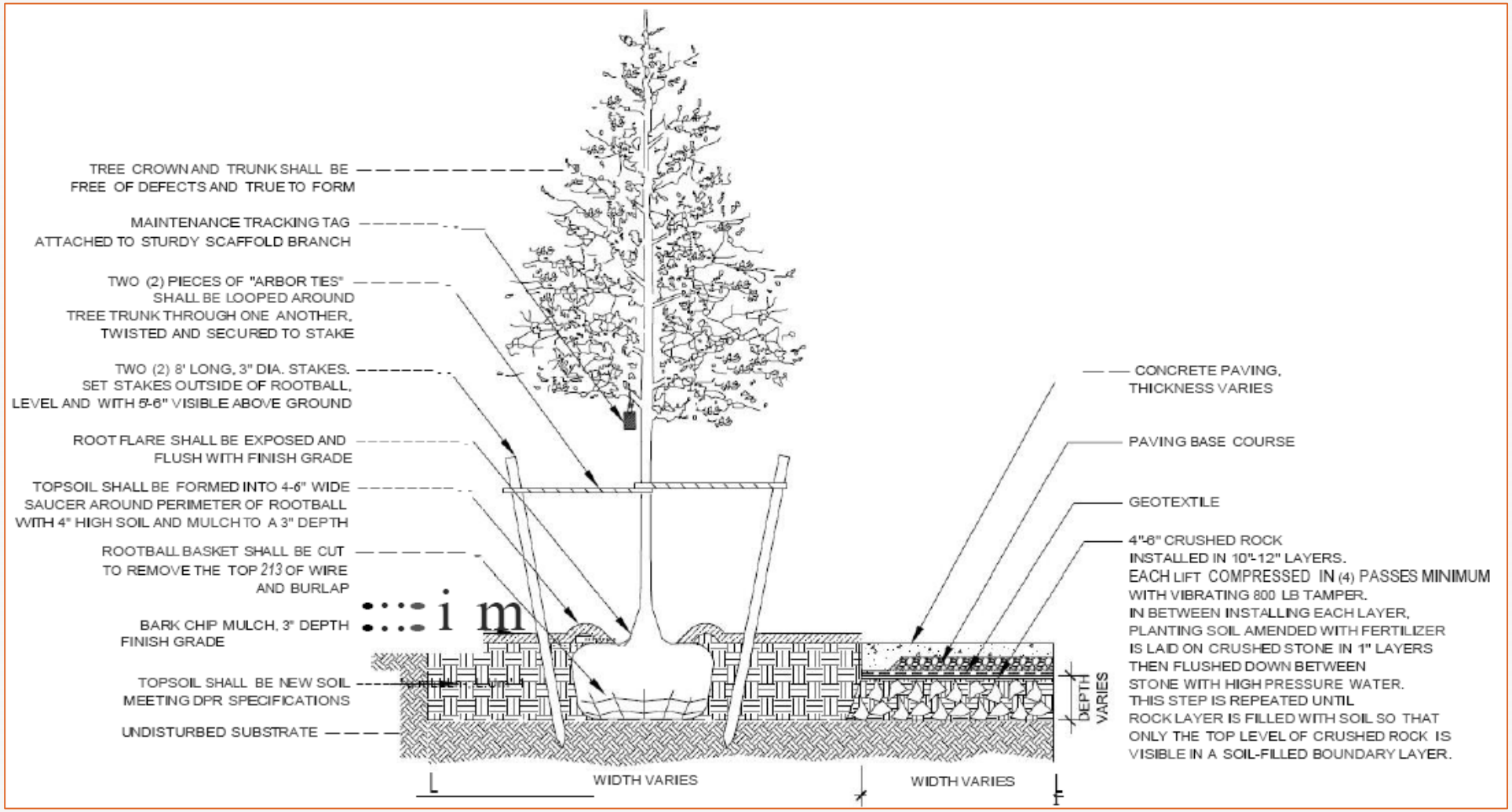
Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016. Page 20.

Tree Planting & Continuous Structural Soil Detail



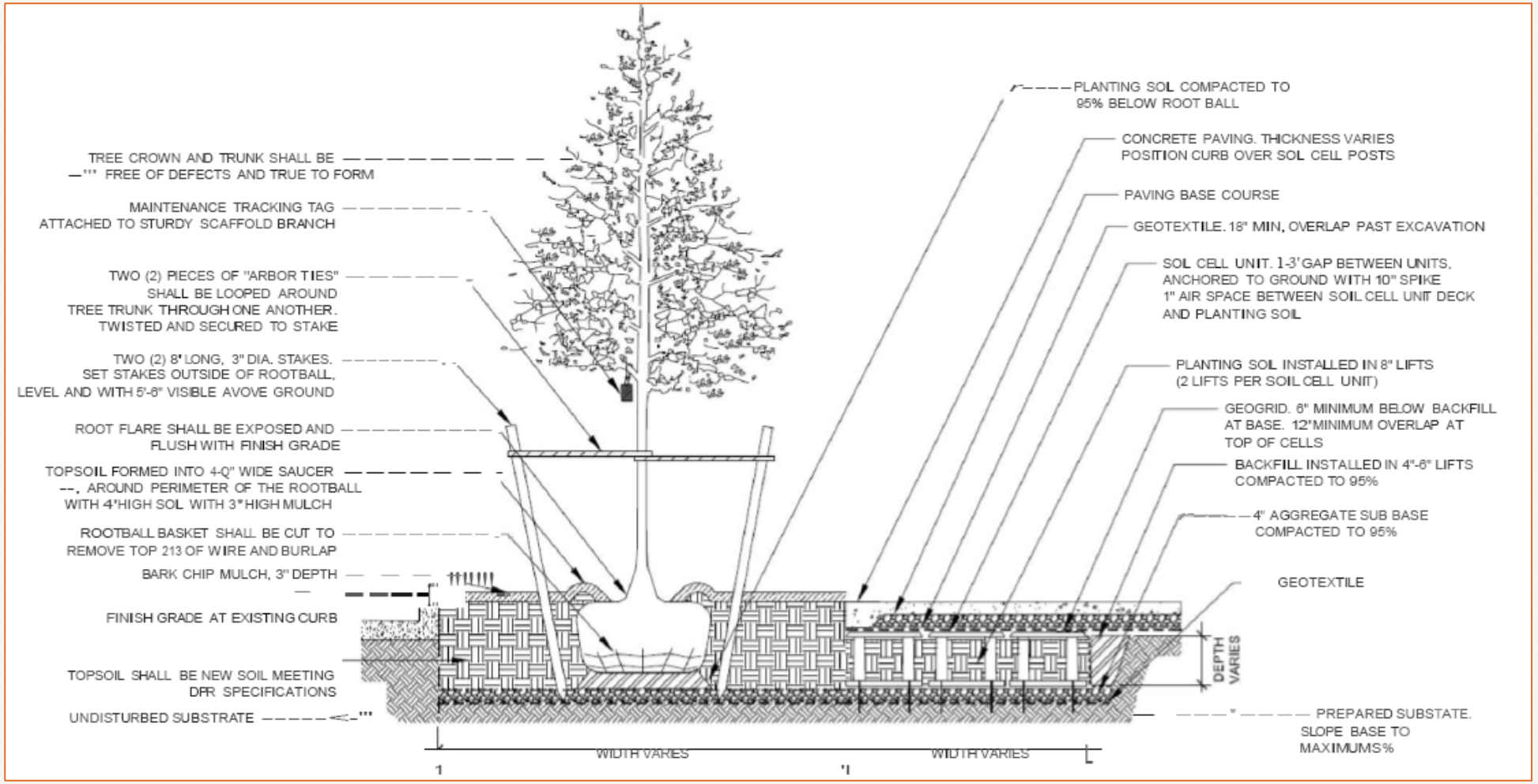
Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016. Page 21.

Tree Planting & Swedish Structural Soil Detail



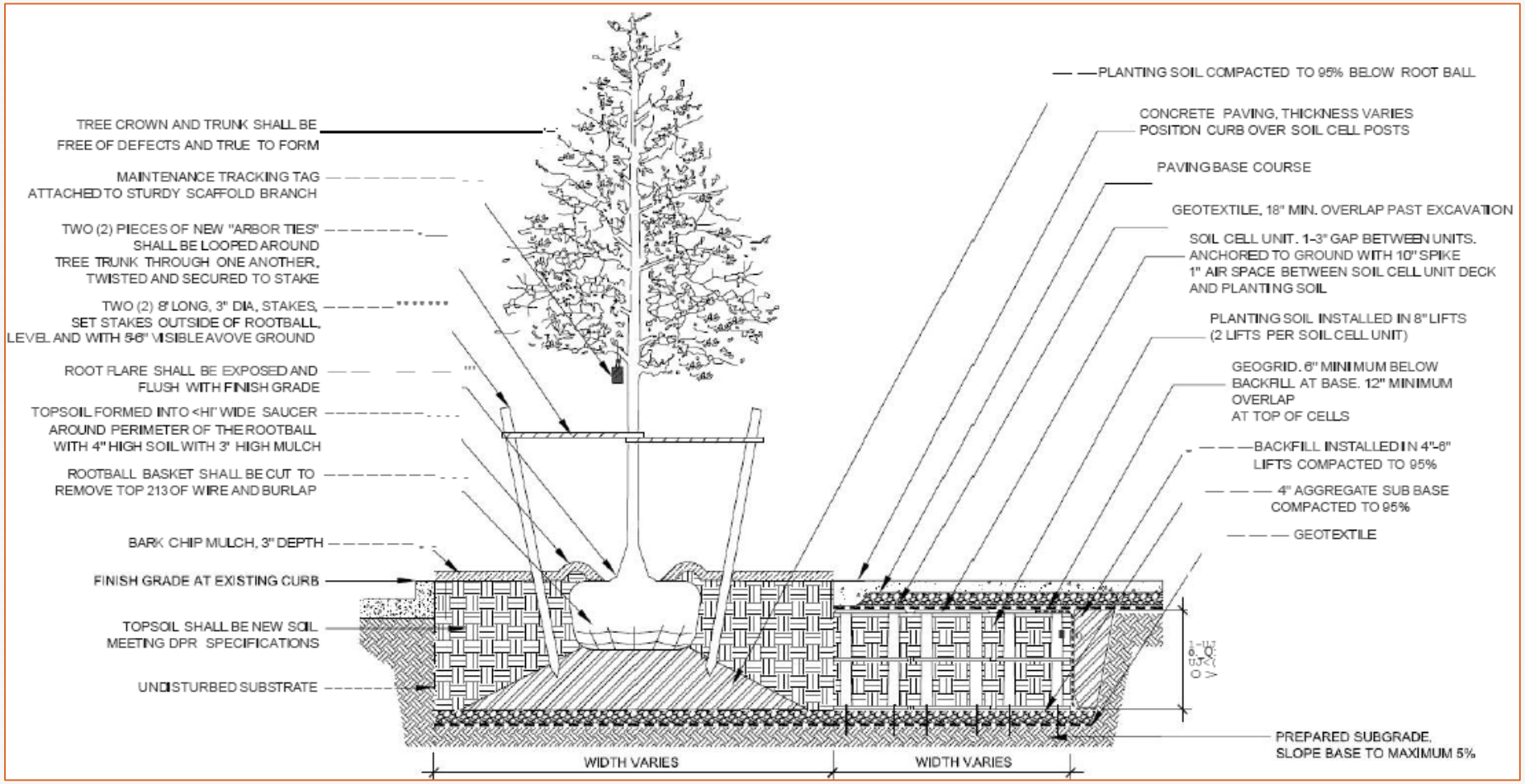
Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016. Page 22.

Tree Planting & Soil Cell Unit in Single Layer Detail



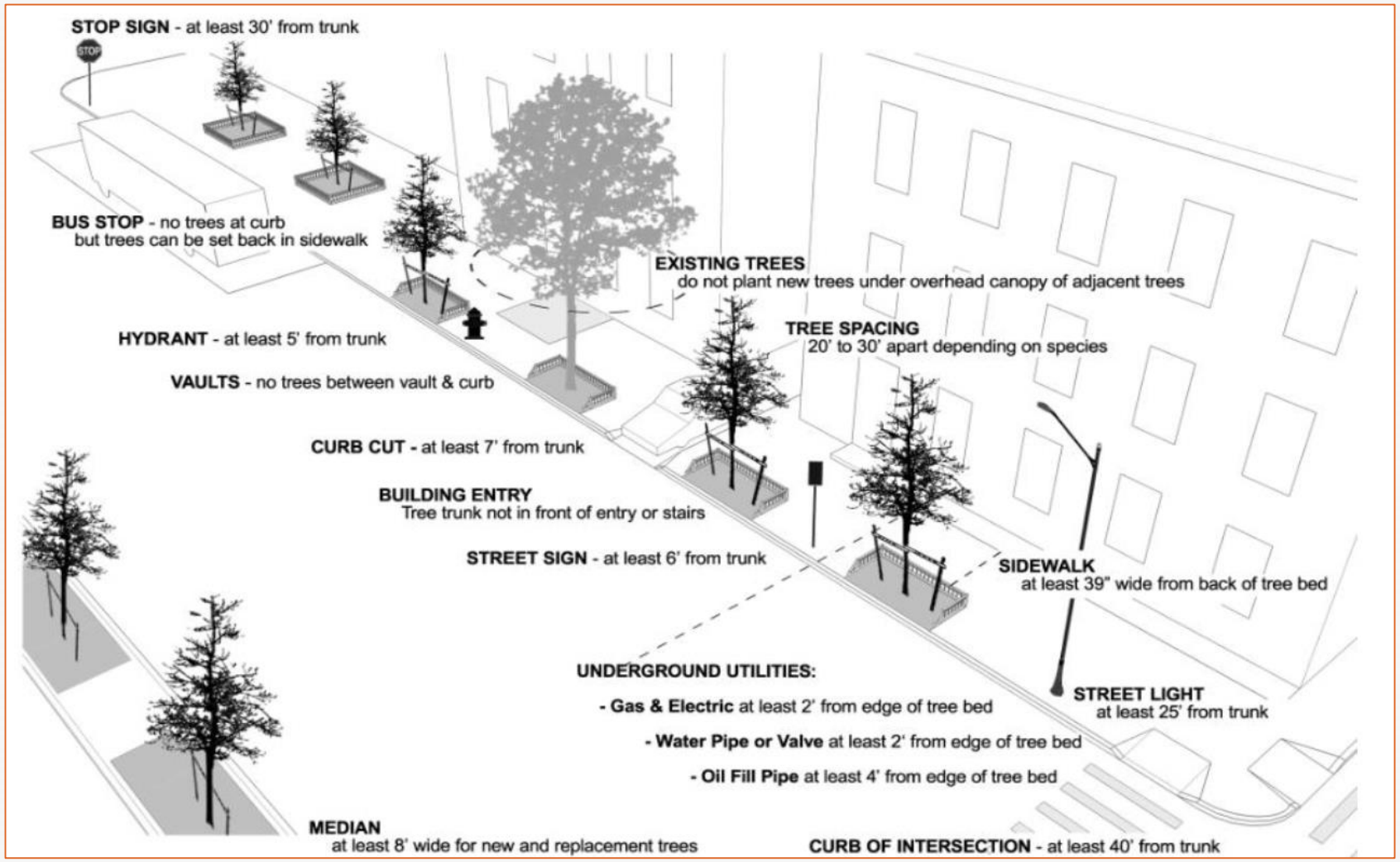
Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016. Page 23.

Tree Planting & Soil Cell Unit in Double Layer Detail



Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016. Page 24.

New York (7/7)



Source: Street Tree Planting Standards for New York City. (City of New York Parks and Recreation). 2016. Page 30.

Philadelphia

Philadelphia (1/5)

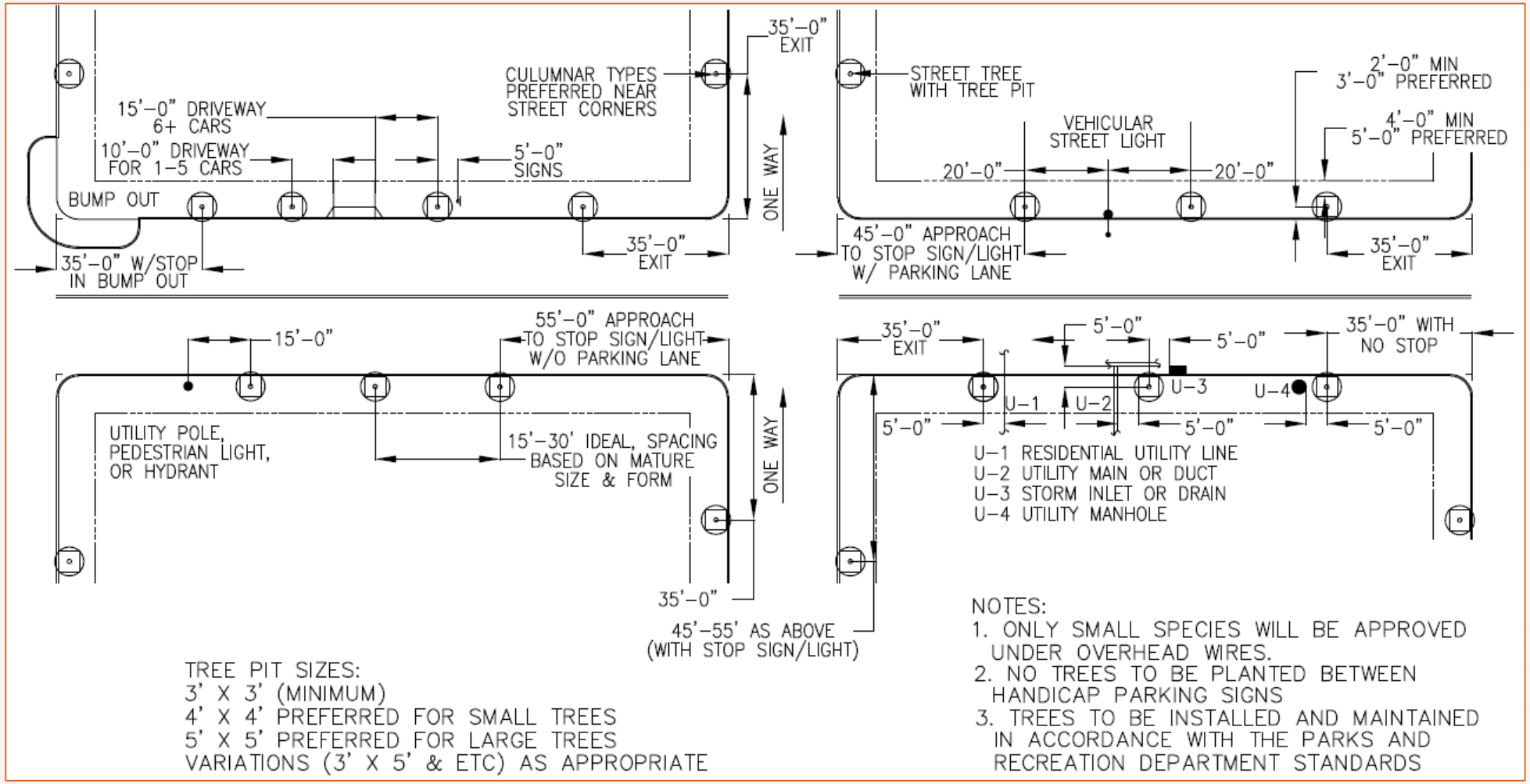
Tree Height Classes*	Tree Pit Dimensions**		
	Length	Width	Depth
0 - 6m	.9m	.9m	-
6 - 12m	1.2m	1.2m	-
> 13m	1.5m	1.5m	-

"Pit variations (.91 x 1.5 m, etc.) are appropriate."

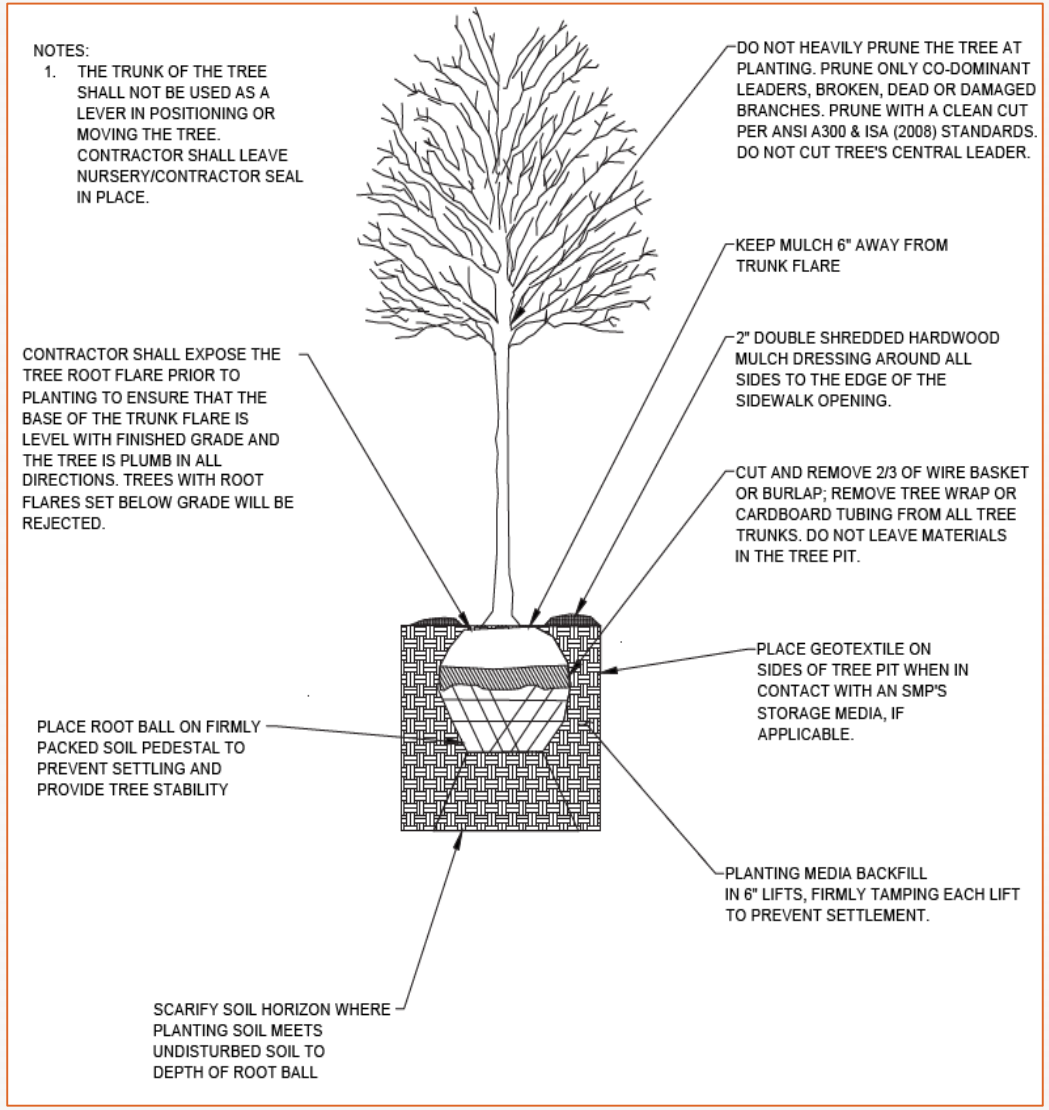
Pit Shape	**Square**
Standard Buffer?	**No**
Variability/flexibility in regulations	**Yes**, variation in tree pit dimensions allowed: "Pit variations (.91x1.5 m, etc.) are appropriate." **
Tree-related documents	*Street Tree Planting Diagram* (Dept. of Streets). 2015.
	City of Philadelphia Green Streets Design Manual. (Multi-agency). 2014.
	City of Philadelphia Green Streets Design Manual Appendix. (Multi-agency). 2014.
	Builder's Guide to Planting Street Trees (Dept. of Parks and Recreation). Year Unknown.
Specificity of Design Guidance	Clear delineation of height for 3 tree classes; no information on depth; no specific drawings of tree pits with dimensional information.

***Source**: Builder's Guide to Planting Street Trees (Dept. of Parks and Recreation).
****Source**: Street Tree Planting Diagram (Dept. of Streets). 2015.

Philadelphia (2/4)



Source: Street Tree Planting Diagram (Dept. of Streets). 2015.



Source: City of Philadelphia Green Streets Design Manual Appendix (Mayor's Office of Transportation and Utilities; Water Department; Streets Department). 2014. Page 50.

Builder's Guide to Planting Street Trees

Development Plan Review Procedures (What the Builder Should Know)

Section 14-705(2) of the Philadelphia Code requires that Street trees be planted in all residential and apartment house subdivisions including land abutting any Street previously opened.

Step 1: The Builder must deliver **three (3) copies** of the proposed site plans to the main office of ***Philadelphia Parks & Recreation / Urban Forestry Division, One Parkway Building, 10th Floor, 1515 Arch Street, Phila., PA. 19102***

NOTE:

- **Plans must be a 24" x 30" or larger with correct scale**
- **Overhead and underground utilities must be shown on plans**
- **Steps must show direction of entry & landing zones designated**
- **PPR must be notified of any changes, revisions or extensions of plans**

Step 2: The site is evaluated by the District Arborist.

Step 3: The District Arborist completes a **D**evelopment **P**lan **R**eview **(DPR)** letter stating if *or* how many street trees need to be planted and notifies the designated contact by email or phone.

Step 4: Per the arborist's DPR letter, a $700.00 deposit is required for **each** tree to be planted. The Builder must submit a cashier's check or money order made *payable to* Philadelphia Parks & Recreation delivered to the address listed above.
Corporate or personal checks are not an accepted form of payment.

Step 5: The Accounting Department receives the funds and issues a receipt. The Builder then receives an *original* validated DPR letter ***stamped as 'PAID'*** along with the receipt and two (2) copies of the approved plans. The arborist keeps a copy of the approved plans.

The deposit funds are placed in escrow and refunded after the trees are planted.

Step 6: Once the required trees are planted within the appropriate time period,* the Builder should contact us to have the District Arborist re-inspect the site. If the planting meets Philadelphia Parks & Recreation requirements, the District Arborist issues a refund as per the DPR letter.

**The trees must be planted before the second anniversary of the issuance of the validated development plan review letter or the escrow will be forfeited.*

Source: Builder's Guide to Planting Street Trees (Dept. of Parks and Recreation).

Turin

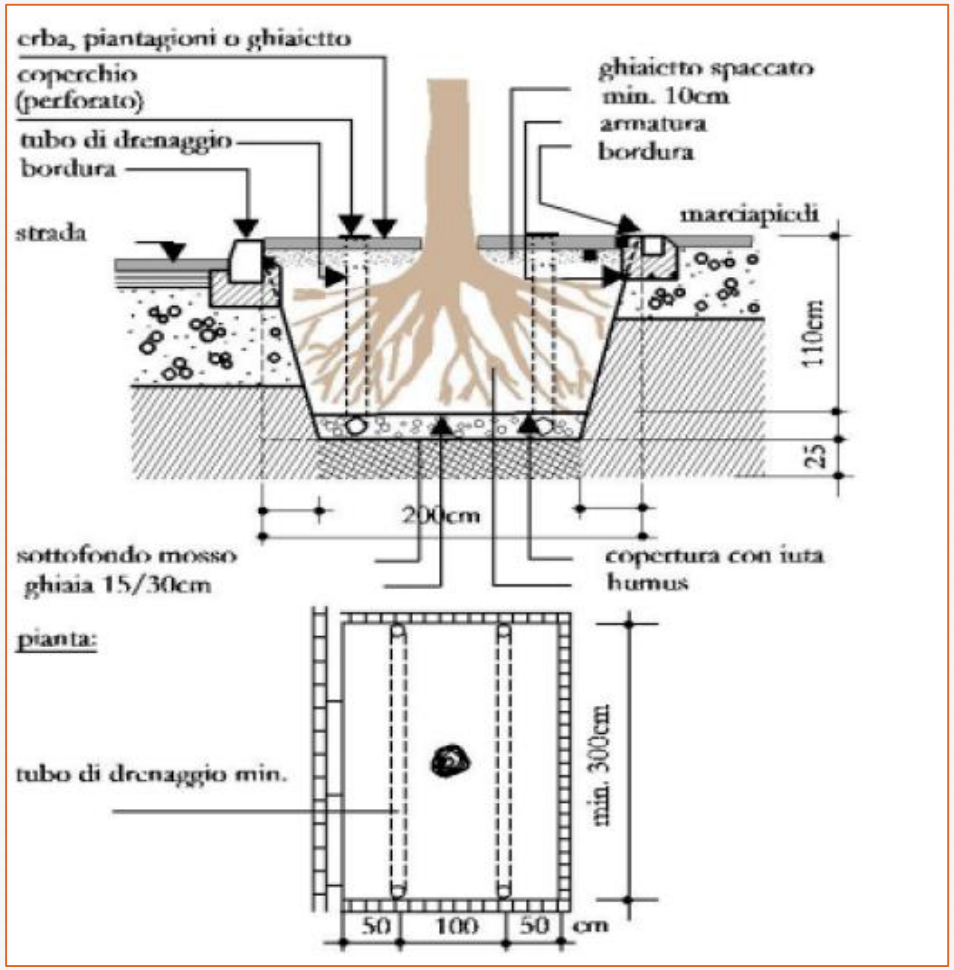
Turin (1/2)

Tree Height Classes	Pit Dimensions		
	Length	Width	Depth*
<10m	2m	2m	1.1m
10-16m	3m	3m	1.1m
>16m	4m	4m	1.1m

"The area of relevance of the trees, based on the development of the aerial and radical apparatus, is defined by the circumference on the ground having as center the shaft of the tree according to the [above] scheme."

Pit Shape	**Circular**
Standard Buffer?	**Yes**
Variability/flexibility in regulations	**No**
Tree-related documents	*Regulation of the Public and Private Green of the City of Turin.* (Turin City Council). 2006.
Specificity of Design Guidance	Clear delineation of height for 3 tree classes; includes information on height and depth; includes specific drawings of tree pits with dimensional information.

Source: Regulation of the Public and Private Green of the City of Turin. (Turin City Council). 2006.
***Source:** Guidelines for the protection of trees in construction sites. (Turin's Public Green Space Code) 2006. Page 16.



Source: Guidelines for the protection of trees in construction sites. (Turin's Public Green Space Code) 2006. Page 16.