A Visual Guide to Tree Root Disturbance

Structural risk (3x dia)

Minimum clearance (5x dia)

ISA CRZ (12x dia)

Median root radius (24x dia)- should survive if cut entirely around tree at this distance

Safe structure dist. (2'+*)

Max root radius (?)

If roots are cut at: 1 2 3 4 5

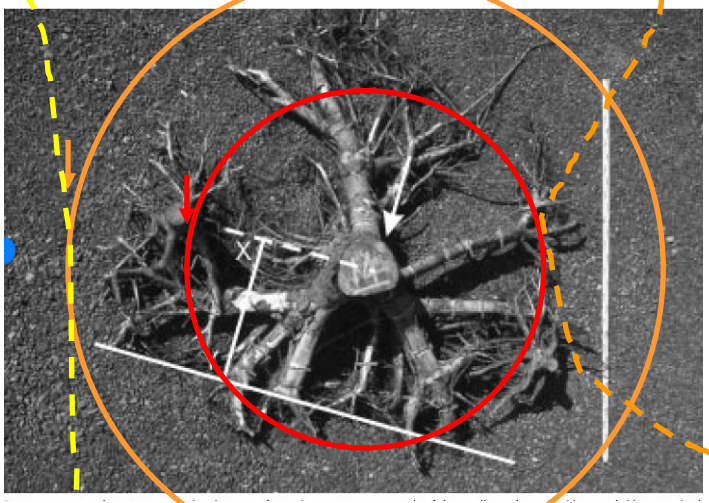
1. High risk of toppling/ blowing over in high winds
2. Tree highly unlikely to survive
3. Tree might survive depending on circumstances
4. Tree is expected to survive almost every time
5. Practically no damage to existing roots

One sided cuts at the ISA Critical Root Zone (12x diameter, which is usually near the drip line) is almost guaranteed survival. Cutting all the way around at CRZ may be too much for older trees.

Cuts to one side outside of orange circle have a chance to kill tree. Survival is not guaranteed and depends on species and circumstances.

Any cut within the red circle (3x diameter) has a very high risk of failure. Do not cut here if there are any potential targets.

Cuts inside the orange circle generally kill the tree, but may survive limited incursion.



- Structural risk (3x dia)
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- Median root radius (24x dia)- should survive if cut entirely around tree at this distance
- Safe structure planting dist. (2'+*)
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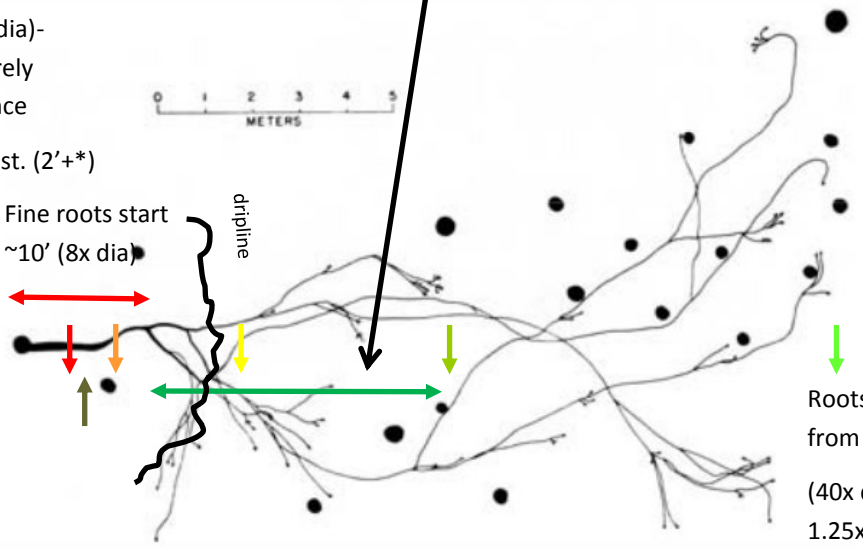
The most absorbing roots are 10-30' from the trunk

A majority of the fine roots are less than 30' from trunk (24x trunk diameter)



Fine roots start ~10' (8x dia)

Trunk diameter about 15"

Assume 40' tall and 25' wide

Roots extend to 50' from the trunk

(40x dia, 2x width, 1.25x height)

*Distance to structure should be based on expected fully grown size. All trees less than 30' tall or wide should be planted 2' away, then add 4' for every 10' width over 30' or 2' for 10' height over 30'

Figure 2. Plan-view diagram of the horizontal woody root system developed from a single lateral root of a red maple about 60 years old. Solid circles show the location of other trees in the stand. Arrows indicate that the root tips were not found; therefore these roots continued somewhat farther than is shown. From Lyford and Wilson, 1964.