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ROOSEVELT ISLAND SOUTH POINT PARK TREE INVENTORY

For

LANGAN

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WHY DID SAVATREE INVENTORY THE TREES AT SOUTH POINT PARK?

Langan will be designing a rip-rap revetment project along the west and east borders of South Point Park on Roosevelt Island, NY and needed to know the trees located within the park that may be impacted by the project. The soil in proximity to the seawall is impacted and the current site plan calls for removal and replacement of the top 18 inches of soil (and removal of any stones) throughout the Project Area.

The tree inventory information will be used to determine which trees may be suitable for retention and require protection during construction.

Our proposal to perform the work was accepted and it was agreed that our assignment was to:

- Perform an inventory and assessment of all trees measuring 4-inches and larger at South Point Park;
    - For all trees inventoried, we collected the following data: tree number, species (common name), diameter at breast height, condition (Good, Fair, Poor, Critical, Dead), and whether the tree is located within the Project Area.
- Provide a web-based map of resulting inventory;
- Provide an Excel file of the complete inventory dataset;
- Provide a summary written report.

In areas with multiple trees under 4 inches in diameter, we collected one location point and noted the number of trees in the Notes column. Tags from a prior inventory were installed on many trees within the central area of the park. Tag numbers are included in the Notes column from these trees.

HOW DID SAVATREE CONDUCT THE TREE INVENTORY?

A Registered Consulting Arborist from the SavATree Consulting Group visited the site on two consecutive days to perform the data collection. The Arborist used ArcGIS Online on an iPad to collect all data. Data was exported to Excel for QA/QC. A searchable, online map was made using the final dataset.

WHAT DID SAVATREE FIND?

SavATree included 382 trees in the inventory. The link to the web map is: http://arcg.is/1m8aGK.

Trees are color-coded based upon condition where purple = Dead; red = Critical; orange = Poor; yellow = Fair; and green = Good. The map can be searched by tree number by using the text box at the upper-left of the page.

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Of the 382 trees, 99 are located with the Project Area (in the unmanaged area between the seawall and fence that runs along the park perimeter. The current plan calls for all these trees to be removed. The species break for these 99 trees is shown in the figure below.

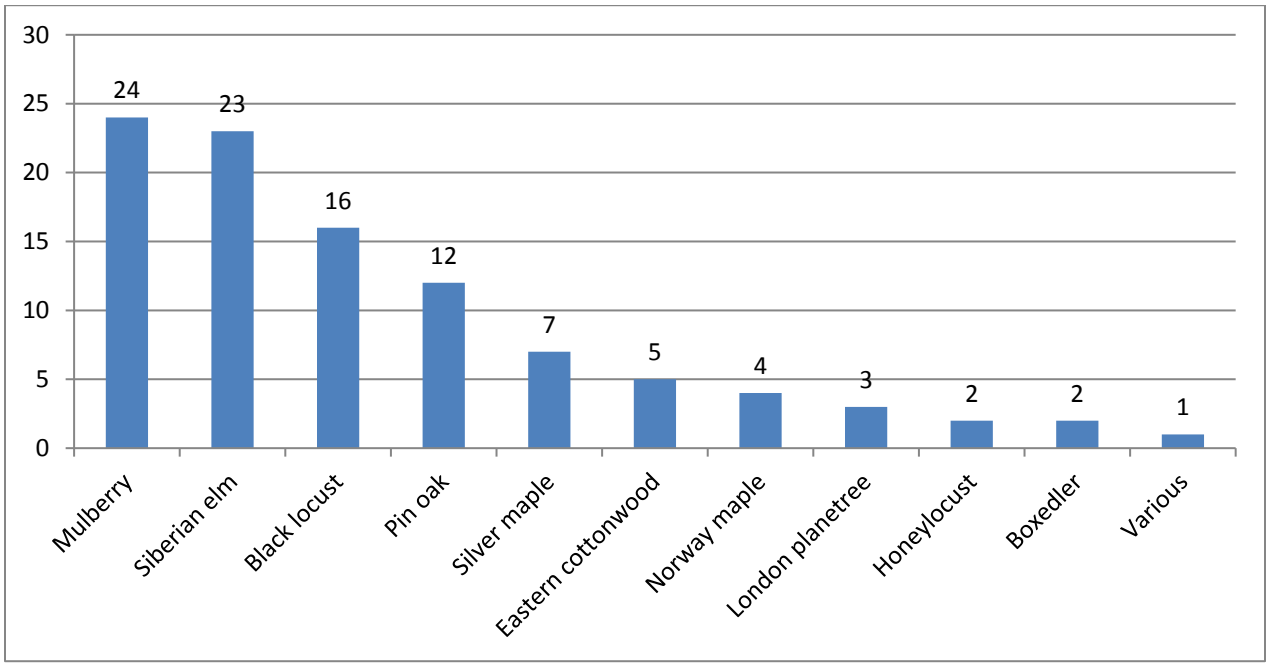

Figure 1 – Breakdown of species located within the Project Area.

The most common species located in the Project Area are mulberry, Siberian elm, and black locust. All of these, as well as Norway maple, are invasive species.

The vast majority of these trees (75%) are less than 10-inches in diameter (see Figure 2 on the following page). Of the 24 that are greater than 10-inches, ten are codominant or multi-stemmed at the base. The diameters for these trees were recorded by summing the diameter of each stem.

Eighteen of the 24 trees that are 10 inches or larger are in either Fair or Good condition. Of these, five are invasive species. When we remove the trees that are over 10 inches because they have multiple stems, there are ten trees growing in the Project Area that are single-stemmed, over 10 inches in diameter, and if Fair or Good condition. They are trees: 30, 31, 42, 43, 44, 256, 259, 262, 295, and 296. Trees 30-44 are on the west side of the park and trees 256-296 on the east.

Trees 30, 31, 256, 259, 262 grow in very close proximity to the existing seawall. For this reason, it is highly unlikely that they can be retained.

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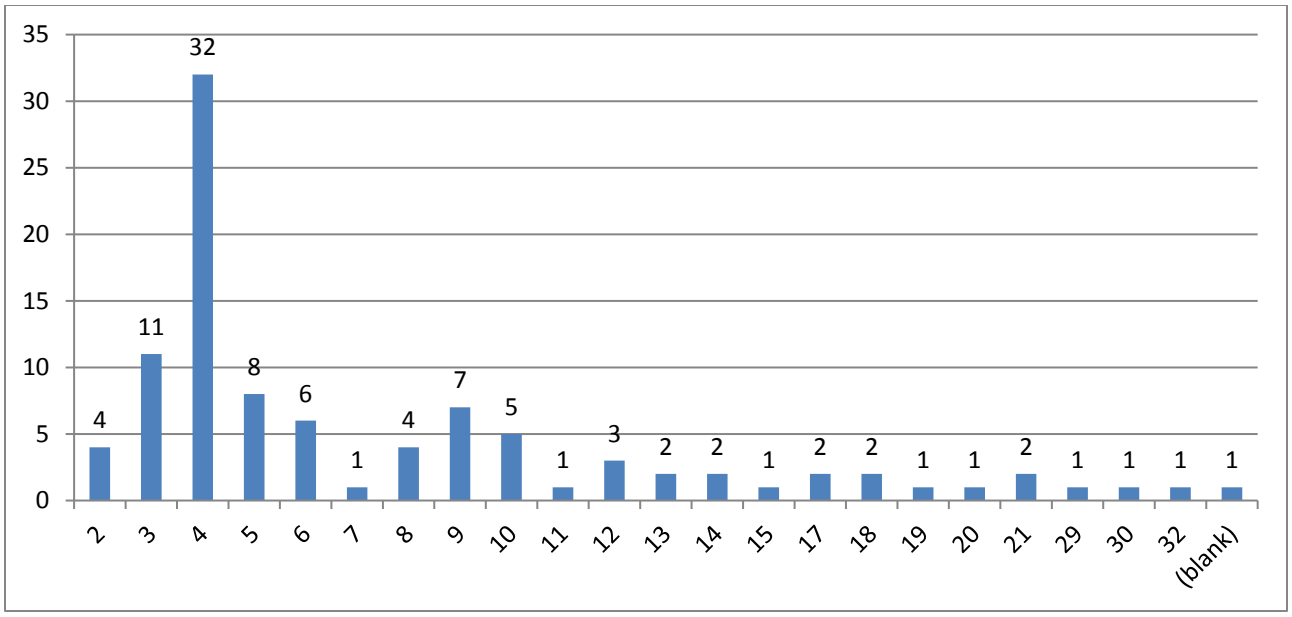

Figure 2 – Diameter distribution for the trees growing in the Project Area at South Point Park.

WHAT ARE THE POTENTIAL IMPACTS OF CONSTRUCTION ON TREES?

In addition to the damage to the tree parts above ground, root systems are most often impacted during construction activities. Despite how root zones are often depicted in books, they are rarely perfectly symmetrical.

The vast majority of any tree's root system is located in the top 6-12 inches of soil, which means that any construction activity can have a major impact. Excessive grade change, soil compaction, and direct damage to roots during excavation will change air, water, and nutrient availability for trees. Tree roots require both air and water, in the proper proportions, to function properly. Many tree functions depend on a healthy root system.

Tree protection zones should be established to reduce access to the critical root zone of trees (critical root zones are estimated to be a one foot radius for each inch of tree diameter). This protection zone should be constructed of materials that are not easily damaged. Frequent inspections should also occur to ensure that tree protection zones are in place and that construction activity is not occurring in these areas.

If tree protection zones are not practical one alternative would be to place of wood chips 3" deep then install Alternamats (or similar material) over the top of this layer. This will help to reduce soil compaction associated with construction equipment and activities. Once construction is complete, these materials should be removed.

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WHAT DOES SAVATREE RECOMMEND BASED ON OUR FINDINGS?

We identified five trees growing in the Project Area (42, 43, 44, 295, and 296) that could be considered for retention based upon species, size, and condition. However, due to the extensive grading that is necessary as part of the project in addition to the presence of impacted soils in the park, much of the topsoil will need to be removed and replaced. This will result in significant impact to the critical root zones of these five trees. For this reason, preservation is not be feasible.

Based upon our observations, we recommend the following:

- Remove all of the trees in the Project Area prior to construction.
- During the design phase, create access routes that will not impact the critical root zones of the trees located within the central area of South Point Park.
    - Storage of any construction materials, fill, top soil, etc. should occur outside of the critical root zones of these trees as well.
    - If needed, retain a consulting arborist to develop a tree preservation plan for the trees in this area.