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## Garden Railway 'Foyer' Redesign

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An independent study project report by The Alice and J. Liddon Pennock, Jr. Endowed Horticulture Intern (2017-2018)

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## Garden Railway 'Foyer' Redesign

### Abstract

The Garden Railway is one of the most highly visited areas of the Morris Arboretum, so it is important for it to be well kept. Surrounding areas are just as important because of the increased foot traffic to the adjacent Garden Railway. The focus of this project, the 'Foyer', is one of those important surrounding areas. It encompasses the area just outside of the entrance path to the Railway. The 'Foyer' needed a new design that would solve some of the challenges presented by the traffic and previous bed layout. One of the beds in the area was half empty because a large white oak was removed in 2016, and the remaining plants were affected by the changed conditions. The high traffic flow of visitors and staff vehicles through this area tends to cause a bottleneck because there is limited space to step off the path. In answer to these problems, some design goals were established. One of the goals was to suggest a planting scheme that would thrive in the environment there and also create a more cohesive flow between the surrounding garden areas. The other goals for the planting scheme were to have four seasons of interest and be relatively low maintenance for the three section leaders involved. Finally, the new design needed to simplify the bed lines and shrink the old oak bed area to create more grass space for visitors or strollers to move off the loop path.

### Disciplines

Horticulture

### Comments

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**TITLE:** Garden Railway ‘Foyer’ Redesign

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*The Alice and J. Liddon Pennock, Jr. Endowed Horticulture Intern*

**DATE:** April 2018

**ABSTRACT:**

The Garden Railway is one of the most highly visited areas of the Morris Arboretum, so it is important for it to be well kept. Surrounding areas are just as important because of the increased foot traffic to the adjacent Garden Railway. The focus of this project, the ‘Foyer’, is one of those important surrounding areas. It encompasses the area just outside of the entrance path to the Railway. The ‘Foyer’ needed a new design that would solve some of the challenges presented by the traffic and previous bed layout. One of the beds in the area was half empty because a large white oak was removed in 2016, and the remaining plants were affected by the changed conditions. The high traffic flow of visitors and staff vehicles through this area tends to cause a bottleneck because there is limited space to step off the path. In answer to these problems, some design goals were established. One of the goals was to suggest a planting scheme that would thrive in the environment there and also create a more cohesive flow between the surrounding garden areas. The other goals for the planting scheme were to have four seasons of interest and be relatively low maintenance for the three section leaders involved. Finally, the new design needed to simplify the bed lines and shrink the old oak bed area to create more grass space for visitors or strollers to move off the loop path.

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## **INTRODUCTION**

Garden Railway ‘Foyer’ is the chosen name of the area that was redesigned for this project, describing the beds and grassy area just outside of the Garden Railway entrance. Specifically, three beds were redesigned or partially replanted, including: the front of the bed to the right of the Garden Railway entrance as you exit (Garden Railway Bed), the bed in front of the Long Fountain *Lindera salicifolia* 2007-024\*A hedge (Long Fountain Bed), and the bed across the road from the Garden Railway entrance path to the right (Bed H).

Historically, two paths ran through this area of the garden connecting the old Oak Allée and the water feature under the katsura tree to the Swan Pond area (see Figure 1). The paths were parallel to a formally planted walk, sometimes referred to as the double border or flower walk, from the Orange Balustrade to the area of the current Baxter Memorial and were bordered by peonies, lilacs, mock oranges, and cherries, among other plants. Now (see Figure 2), this area is preceded on the loop path by the Pennock Flower Walk, Long Fountain, and Garden Railway, all of which are defined and purposeful areas with individual planting schemes. The ‘foyer’ however, is a transitional space, in more ways than one. First, it transitions between the defined features and more informally planted areas like the Holly Slope and Azalea Meadow. Second, it is the convergence of three horticulturalists’ sections and therefore this area features three different gardening styles. Previously, the goal was to unite the beds along this stretch of path with a collection of hydrangeas. In 2016, a large white oak tree was removed from Bed H exposing the area more and creating less desirable conditions for the hydrangeas.

Though the ‘foyer’ area is not a go-to location in the garden, it is inadvertently a high traffic area because of its proximity to the Garden Railway. Because the loop path is directly bordered by beds in this section for a significant length, there is limited space for visitors to move off the road when a staff truck or cart drives through. This happens often during the busy season, which slows down staff, especially since three sections converge there. Also, having limited space for visitors to move and get out of the way of vehicles can make them feel uncomfortable and that is not the experience we want visitors to have at the Arboretum. In addition, because this is a high traffic area and seen by many visitors, it needs to be aesthetically pleasing.

## **DESIGN GOALS**

With this background information in mind, this site had a few key reasons for redesign: 1) the loss of the oak and the decline of the remaining plants, 2) the inconsistent design between sections, 3) the high traffic flow through the area, and 4) the desire to create an aesthetically pleasing planting for visitors. To meet these needs, the goal of this project was to provide a design that unified the area, using a simple but attractive plant palette that would ultimately be relatively low maintenance. Some specific questions we wanted to answer while brainstorming were: a) how to ease the bottleneck of foot traffic? b) are there any important views to maintain or create? c) what hydrangeas need to be kept in order to maintain our collection?

## **INITIAL SITE ANALYSIS**

A base map was created using the BG-MAP as a starting point and hand measuring the features and plants in the area (see Figure 3). Soil tests were conducted in four locations within the design area. The sample sites ranged from 6.9-7.2 pH. Each site result also listed key nutrient levels and recommended ratios for adding nutrients to the soil. A list of existing plants in the area was generated and each plant was given a status: keep, move, or remove. A new map was drawn, omitting the plants with a removal status, in order to easily envision what space there was to work with.

## **DESIGN PROCESS**

The Arboretum recently established an official design process. Simplified, the process is as follows: begin with a clear goal and timeline for the project and meet with the Design Committee three times throughout the design process (Concept, Design, and Final Meeting) to assess the project and incorporate any changes as the project develops. The Design Committee consists of the Executive Director, Director of Horticulture, Chief Horticulturist, Section Leaders, and an outside consultant. This project followed the steps of this design process.

The initial concept focused on the changes to the bed lines with very general ideas for the type of planting scheme. Major alterations included shrinking the size of Bed H by moving the left edge of the bed closer to the bench cut-out (looking at the bed from the path) and making a grass path in front of the *Enkianthus perulatus* 1932-0467\*A and 1932-0468\*A (dividing the bed into two) (see Figure 4). Reducing this bed would ease the bottleneck of foot traffic by creating more grass space for visitors to step onto. The grass path also encourages a nice view to the *Cedrus atlantica* 'Aurea' 1932-0864\*A and *Cercidiphyllum japonicum* 1932-0589\*A. An additional goal was to soften the bed edge of the Long Fountain Bed by including the *Magnolia acuminata* 1934-5595\*A and *Tsuga canadensis* 1935-6124\*EE in the bed. Initially, one idea was to open a path between the *Lindera salicifolia* hedge and the two *Enkianthus perulatus*, pulling visitors toward the sundial and Orange Balustrade. That was decided against, because it would encourage people to walk right over a manhole cover. The existing patch of *Neillia sinensis* 1932-0469\*A would be expanded in order to maintain the view up to the sundial while discouraging the path through. The plant selection was mainly going to be shrubs with a focus on four seasons of interest.

The existing plant list for the plants in Bed H required more deliberation than some of the other plants in the area. The *Magnolia sieboldii* 1992-002\*B, despite having health and structural issues, is the best specimen of that species at the Arboretum, so it is important to the collection. Therefore, before it can be removed, it needs to be propagated and that may take several years to accomplish. The *Sinocalycanthus chinensis* 1990-108\*C and *Callicarpa mollis* 2007-223\*B were also debated because they are healthy specimens that have value in the collection, but do not suit the site. After deliberation, the new shoots of the *Sinocalycanthus chinensis* and all three *Callicarpa mollis* plants would be kept but moved to a new location. The

hydrangeas posed another problem because they grew together and their identities were confused. A recent attempt to sort them out identified the best-performing varieties and these were moved to a better location.

A few changes for the final design included the following: moving the *Neillia sinensis* further down the Long Fountain bed and only using amsonia in that bed near the *Magnolia acuminata* instead of amsonia and redbird dogwood. The corner of the Garden Railway Bed was difficult to decide on because of the conditions it presented. The geranium was definitely going to stay in one corner, but the other corner is bordered by the path on two sides and does not get much run-off, so the full sun conditions are less favorable. The final design draft included a sweep of amsonia with geranium in front of it along the path and three oak leaf hydrangeas to fill in next to the existing shrubs.

The finalized plant selection is listed in Table 1. The final array of plants in the project area offers great four-season interest. In the spring the interest will be on the *Amsonia hubrichtii* and the existing magnolias and lilacs. Following that, the summer interest will be found in the *Hydrangea quercifolia* and *Geranium macrorrhizum* blooms. In the fall, the area will come alive with great foliage color on the *Amsonia hubrichtii*, *Hydrangea quercifolia*, *Geranium macrorrhizum*, and the existing *Enkianthus perulatus*. Even the winter will have exciting moments like the red twigs of the *Cornus alba* 'Baton Rouge' and the fruits on the *Ilex verticillata* 'Winter Red'.

## CONSTRUCTION

Removals and moves took place throughout the winter months after approval from the curator. The *Sinocalycanthus chinensis* seedlings surrounding the main plant were dug up and potted while the rest of the plant was removed. The hydrangeas were either removed completely or transplanted to new areas in the garden. *Hydrangea macrophylla* 'Coerulea Lace' 2004-128\*A and *Hydrangea macrophylla* 'Pieta' 2012-071\*A were moved to the area behind the Three Tubes sculpture. The three *Callicarpa mollis* plants were transplanted to a new area, along the property line below the Holly Slope. Selected *Neillia sinensis* plants were removed from the current mass but kept in the same area and planted to create a larger mass planting.

The proposed plant list was finalized and plants were ordered in February (for the full list see Table 1). Perennials were sourced from Kurt Bluemel, Inc. (\$412.50) and Babikow Greenhouses (\$525), and the woody shrubs were sourced from Pleasant Run Nursery (\$1,152) for a total cost of \$2,089.50. Due to snow, plants were dropped off later than initially planned, during the week of March 12. They were kept at the greenhouse while the last removals were finished and until all the deliveries were completed.

A mix of topsoil and compost filled in the holes left from the plant removals and moves. The area under the *Magnolia acuminata*, in the Long Fountain Bed, previously had turf that was removed using grub hoes prior to planting. Biochar was mixed into the hole for each plant during planting. All plants were planted between March 26 and 28. The shrubs were well-rooted while the perennials varied. Though decently rooted, the *Amsonia hubrichtii* had a lot of extra soil in their pots, as did some of the *Geranium macrorrhizum* 'Bevan's Variety'.

No major changes were made to the planting design, only some shifting to ensure all the plants had proper spacing. In the Garden Railway Bed, one *Hydrangea quercifolia* 'Amethyst' shrub was moved, so now looking at the bed from the loop path there are two on the left and one on the right. The sweep of geranium in the front of Bed H was expanded further along the front of the bed. The newly planted beds and additionally some of the surrounding area was mulched with triple ground mulch. The mulch layer was scraped off of the bed areas that were being turned into turf. Seed was spread and covered with salt hay. The new bed edges were lined with black posts and chain to keep visitors out of the bed and unify the area even more.

### **FUTURE RECOMMENDATIONS**

Some ideas to keep in mind for the future as the 'foyer' area continues to develop are as follows. Add to the existing dogwood shrubs along the Oak Allee and in Bed 8 (*Cornus alba*, *Cornus sanguinea* 'Midwinter Fire') to further tie in this design and draw the eye to similar pops of color. The *Tsuga canadensis* further from the path should be pruned away from the *Cercidiphyllum japonicum* so its crown can fully develop. If the pair of *Tsuga canadensis* are ever removed, the space left from the one in the bed should be filled by the existing *Neillia sinensis* and the other space should be turf. The *Cercidiphyllum japonicum* will continue to grow and provide some shade, but if more trees are desired in the area, they should be planted further from the *Lindera salicifolia* hedge so it can thrive in the full sun. The *Magnolia sieboldii* is on the propagation list. If it declines significantly and is removed, the space should be filled with an additional *Hydrangea quercifolia* and *Cornus alba* 'Baton Rouge'. The existing daffodils in Bed H were blooming while the new plants were going in and they looked great with the red branches of the dogwood. Two suggestions are to add more daffodils throughout the dogwood sweep, or add a third contrasting minor bulb to the bed like a *Scilla* or *Chionodoxa* that are already present in the area. Another idea could be to plant the minor bulbs in a sweep to demarcate the *Amsonia hubrichtii* since it is hard to see when cut back for the winter.

The plants that were installed were selected for minimum maintenance requirements. The dogwood shrubs should be completely cut back every few years or the old stems cut back every year to ensure the brightest color. If they start to encroach upon the path opening, the winterberry shrubs should be pruned to maintain the eight foot path between Bed H and the *Enkianthus perulatus*. The *Amsonia hubrichtii* should be cut back in the winter, and the geranium shouldn't need any special attention.

Documentation pertaining to the project such as photos and plant lists can be found on the Shared Drive: Shared\_Morris\_Horticulture\_NoBackups\_InternProjects\_JenMonico



## **REFERENCES**

Babikow Greenhouses (2018). <https://www.babikow.com/>

Design Review Committee

Kurt Bluemel. <http://www.kurtbluemel.com/>

Lucy Dinsmore, Morris Arboretum Horticulture Section Leader, Personal Communications

Morris Arboretum. Collection Connection Staff Homepage. [https://bg-webapp.business-services.upenn.edu/ecmweb/ECM\\_Staff\\_Home.html](https://bg-webapp.business-services.upenn.edu/ecmweb/ECM_Staff_Home.html)

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Pleasant Run Nursery (2018). <http://www.pleasantrunnursery.com/>

## **ACKNOWLEDGEMENTS**

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Lucy Dinsmore

Paul Orpello

and the

Design Review Committee: Paul Meyer, Anthony Aiello, Vince Marrocco, Nina Schneider  
Horticulture Committee

**TABLES AND FIGURES**

Name	Size	#	Source
<i>Amsonia hubrichtii</i>	3G	30	Kurt Bluemel, Inc.
<i>Cornus alba</i> ‘Baton Rouge’	#7	12	Pleasant Run Nursery
<i>Geranium macrorrhizum</i>	1QT	60	Kurt Bluemel, Inc.
<i>Geranium macrorrhizum</i> ‘Bevan’s Variety’	1G	100	Babikow Greenhouses
<i>Hydrangea quercifolia</i> 2015-250*C Wild Collected SE US	2G	5	Morris Arboretum Greenhouse
<i>Hydrangea quercifolia</i> ‘Amethyst’	#7	3	Pleasant Run Nursery
<i>Ilex verticillata</i> ‘Southern Gentleman’	#3	2	Pleasant Run Nursery
<i>Ilex verticillata</i> ‘Winter Red’	#7	5	Pleasant Run Nursery

Table 1. Complete list of plants ordered for this project including the size of the container (Size), the quantity ordered (#), and what company they were ordered from (Source).

Compton 1914 with Morris Arboretum Overlay by Terry Foss

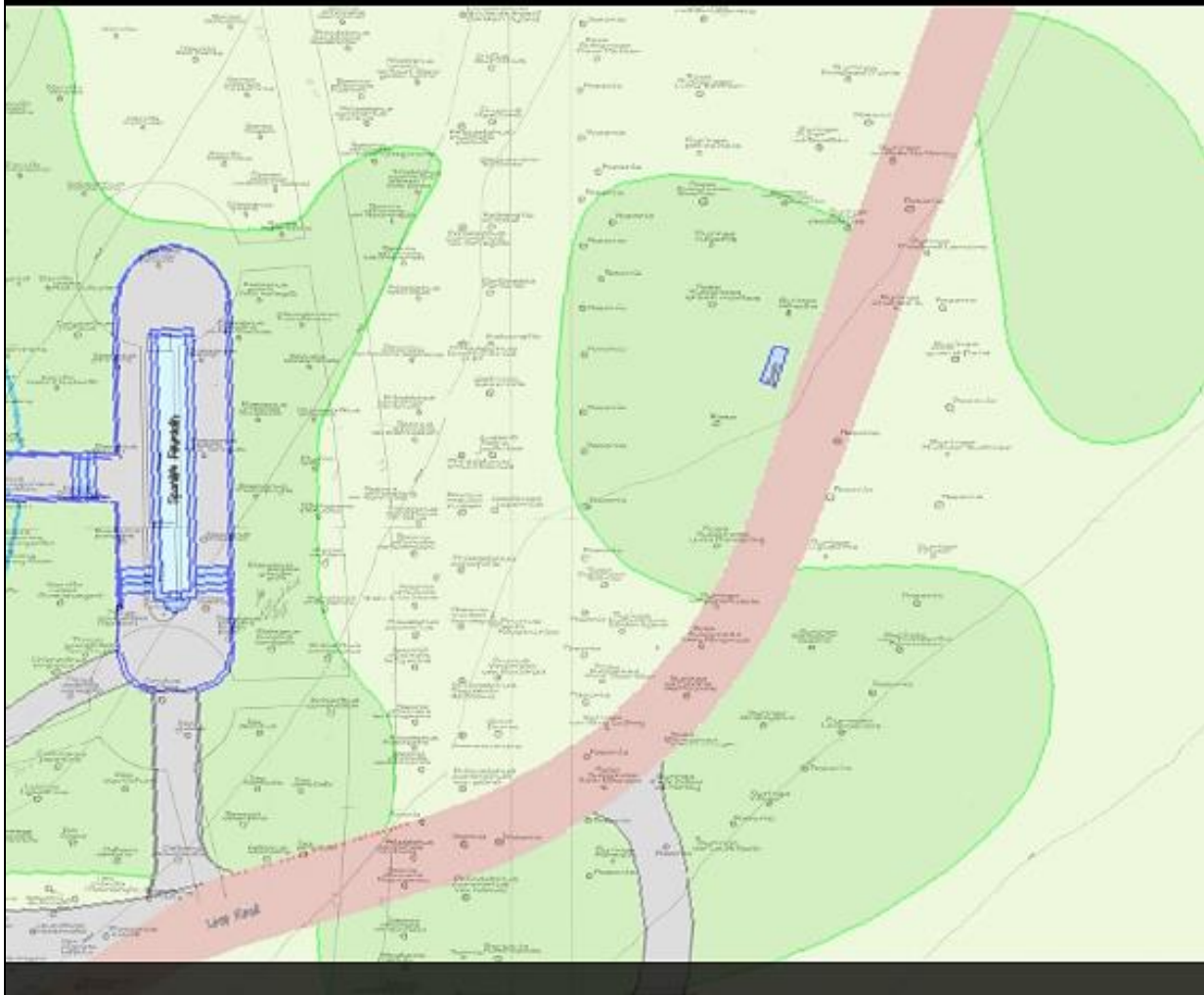


Figure 1. 1914 Map (depicted by lines and text) overlaid with the current map (depicted by the different shaded grey areas) of project area.

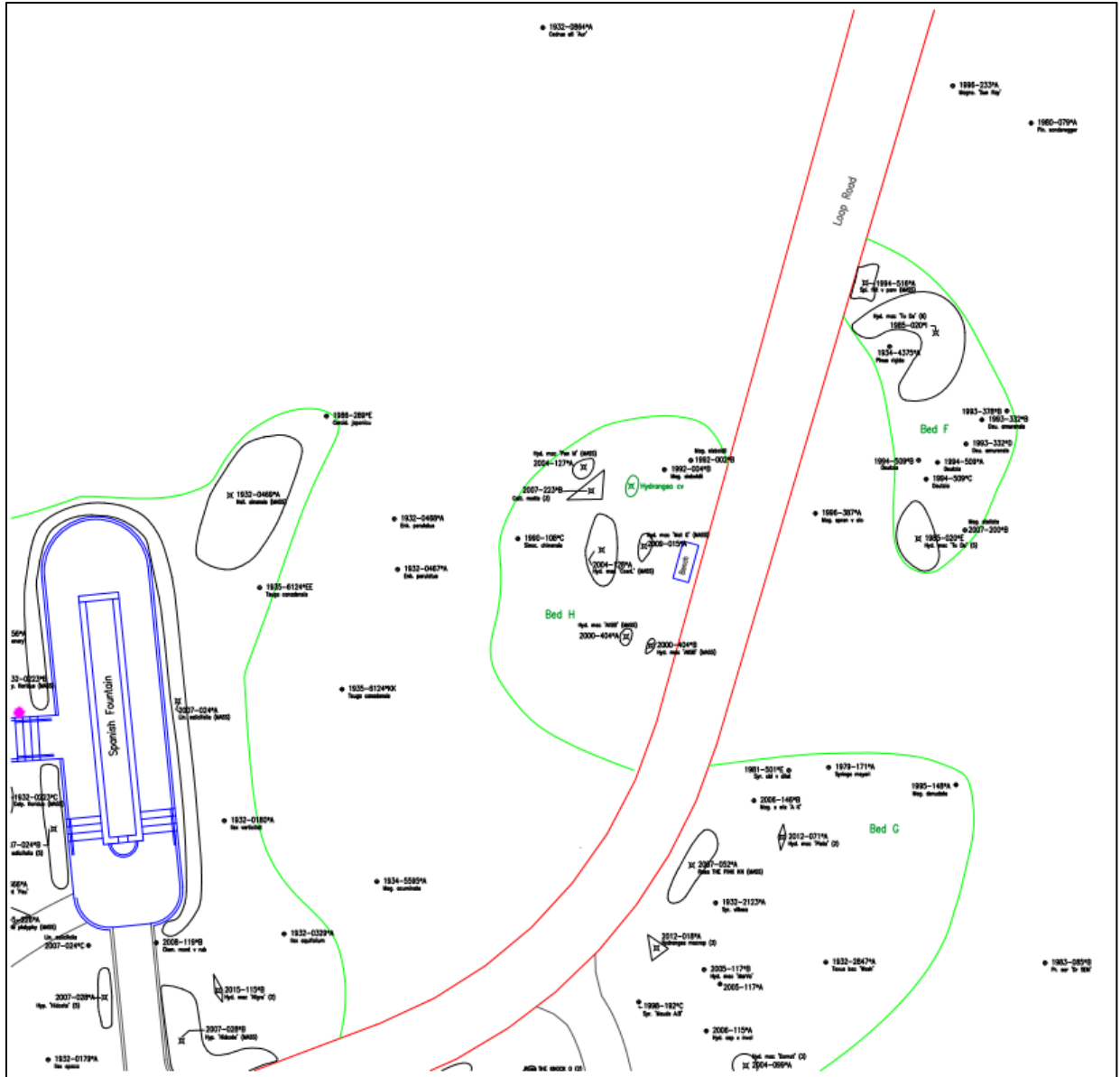


Figure 2. Current BGMap of area.

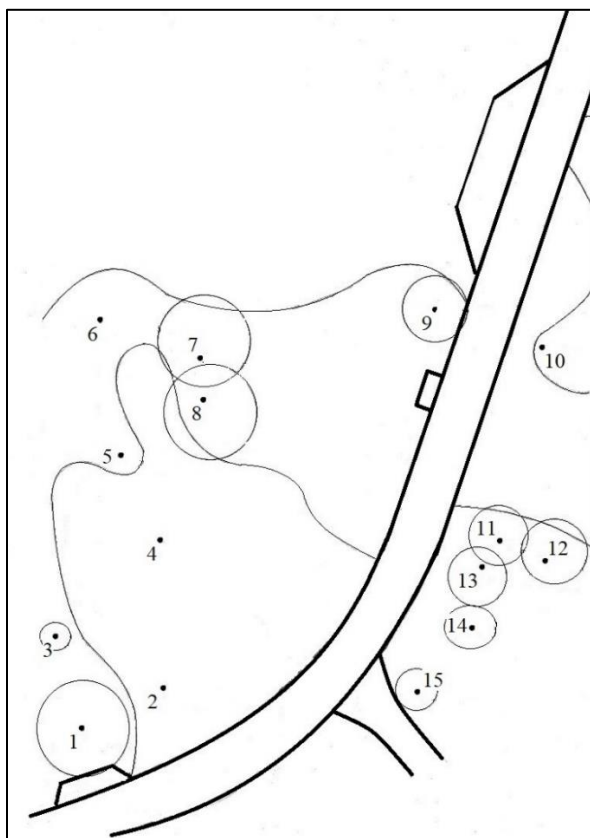


Figure 3. Hand-drawn map of the area with existing plants labeled.

- 1=*Ilex aquifolium* 1932-0329\*A
- 2=*Magnolia acuminata* 1934-5595\*A
- 3=*Ilex verticillata* 1932-0180\*A
- 4=*Tsuga canadensis* 1935-6124\*KK
- 5=*Tsuga canadensis* 1935-6124\*EE
- 6=*Cercidiphyllum japonicum* 1986-289\*E
- 7=*Enkianthus perulatus* 1932-0468\*A
- 8=*Enkianthus perulatus* 1932-0467\*A
- 9=*Magnolia sieboldii* 1992-002\*B
- 10=*Magnolia sprengeri* var. *elongata* 1996-387\*A
- 11=*Syringa oblata* var. *dilitata* 1981-501\*E
- 12=*Syringa meyeri* 1979-171\*A

- 13=*Magnolia* × *wieseneri* 'Aashild Kalleberg' 2006-146\*B
- 14=*Syringa villosa* 1932-2123\*A
- 15=*Syringa* 'Maude a bushnell' 1998-192\*C

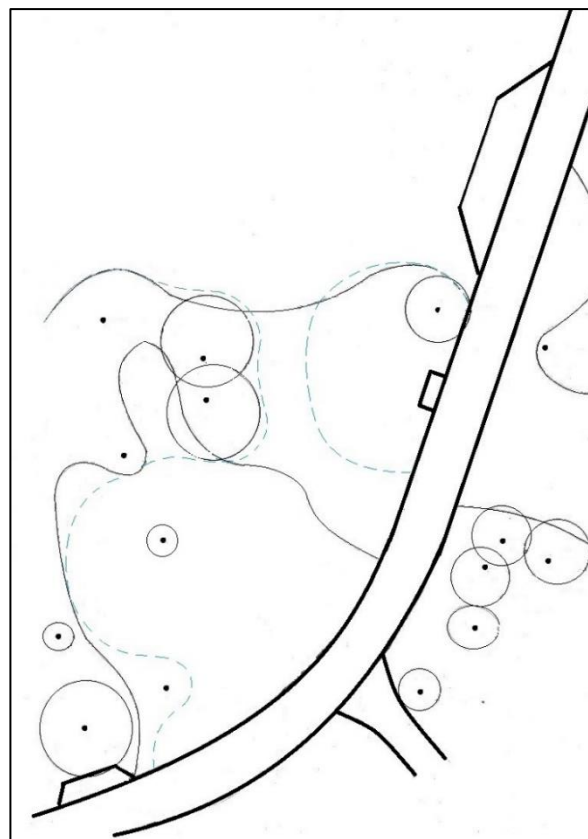


Figure 4. Hand-drawn map of the area with suggested bedlines (dotted line).

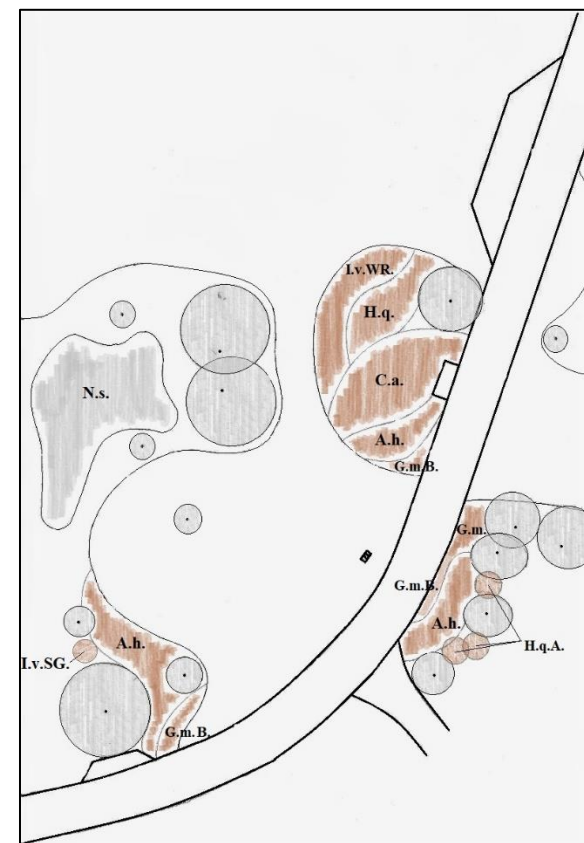


Figure 5. Hand-drawn map of the area with suggested planting layout labeled.

- A.h. = *A. hubrichtii*
- C.a. = *C. alba* 'Baton Rouge'
- G.m. = *G. macrorrhizum*
- G.m.B. = *G. macrorrhizum* 'Bevan's Variety'
- H.q. = *H. quercifolia* 2015-250\*C
- H.q.A. = *H. quercifolia* 'Amethyst'
- I.v.WR. = *I. verticillata* 'Winter Red'
- I.v.SG. = *I. verticillata* 'Southern Gentleman'
- N.s. = *Neillia sinensis* 1932-0469\*A

