

THE CARL S. ENGLISH JR. BOTANICAL GARDEN AT THE HIRAM M. CHITTENDEN LOCKS: SUPPLEMENTAL HISTORIC GROUNDS REPORT AND MANAGEMENT PLAN FOR INCLUSION IN LAKE WASHINGTON SHIP CANAL PROJECT MASTER PLANNING



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1. ABBREVIATIONS

AHPA-Archaeological and Historic Preservation Act 1974

ALJ-Arthur Lee Jacobson author

CFR-Code of Federal Regulations

COL-Colonel

CX-Seattle District Center for Expertise on Historic Structures

Carter-Brian S. Carter gardener

Eckerstrom-Gustaf J. Eckerstrom gardener

English-Carl S. English Jr. gardener's helper and SDH

ER-Engineer Regulation

ESA-Endangered Species Act 1973

Fleming-Michael E. Fleming assistant gardener and SDH

FOBL-Friends of the Ballard Locks

Follestad-Ralph C. Follestad project engineer

Gould-Carl F. Gould architect

Hernandez-Alan Hernandez gardener

Kruckeberg-Arthur R. Kruckeberg professor of botany at the University of Washington and friend of English

LTC-Lieutenant Colonel

LWSC-Lake Washington Ship Canal

LWSCMP-Lake Washington Ship Canal Master Plan

LWSCNHD-Lake Washington Ship Canal National Historic District

MP-Master Plan

Mulligan-Director Washington Park Arboretum and friend of English

OMP-Operational Management Plan

OPM-Operations Project Manager

PBCUA-Public Buildings Cooperative Use Act 1976

NEPA-National Environmental Protection Act 1969

NHPA-National Historic Preservation Act 1966

NPS-National Park Service

NRM-Natural Resource Management (Manager)

NRS-Natural Resources Section

Sargent-A.W. Sargent assistant engineer

SDH-Seattle District Horticulturist

SBPC-Seattle Board of Park Commissioners

USACE-United States Army Corps of Engineers

2. PREFACE

2.1 Preface

I have been a gardener at the Hiram M. Chittenden Locks and Carl S. English Jr. Botanical Garden for a decade. In September of 2017 I began pursuing a Master of Environmental Horticulture degree at the University of Washington's School of Environmental and Forest Sciences. A portion of the degree requirement is set aside for a research project.

It was not my original intent to fulfill my graduate degree by focusing my project on my place of employment. With so many opportunities for study I was excited by the prospect of studying something new or doing field work in a new locale. Yet studying the garden prevailed.

Pragmatically, I already had done much research on the garden and I could complete the plant inventory of the garden after my work shift had ended. I believe it a necessity that a scholarly work on the garden be produced. The last complete plant inventory was compiled in 1982 and the last thorough report on the garden was prepared in 1989 (Freier 1989, Mendelson and Fleming 1982).

This gap of 30 years or more of study of the garden also lent a sense of urgency to this work. Therefore, I tried to combine a supplemental grounds report, management plan, and inventory in one work. In hindsight, each one of these could have been focused on more and they in and of themselves would have been suitable for research project. The dearth of updated research on the garden compelled me to try to combine as much as possible into this work, however. This work was also timely. After a decade of working in the garden I feel that now, and only just so, I was ready to attempt a work of this scope.

Writing this for the University of Washington gave me some independence in thought and method. My experience in the garden helped me to make practical sense of the information I was sifting through to construct decision trees, provide commentary, and make recommendations.

In consideration of any bias I may have, it is certain that I am not neutral in my enthusiasm and advocacy for the garden. Yet, it is my belief that the primary source material provides the steadying hand of verifiable objectivity to my conclusions here.

My hope is to foster the shared conviction that the garden is indeed a place “worthy of serious study” and to encourage further energy into its study, preservation, and enhancement.

3. EXECUTIVE SUMMARY

3.1 Executive summary

This Supplemental Historic Grounds Report and Management Plan (report and plan): The Carl S. English Jr. Botanical Garden (garden) at the Hiram M. Chittenden Locks (Locks) for Inclusion in Lake Washington Ship Canal (LWSC) Project Master Plan is intended as a historic aid, operational manual, reference, and plant inventory.

It accomplishes these by combining extant reports and plans of and related to the garden with newly rediscovered primary source material, evaluating and assessing infrastructure work at the Locks and its influence on the garden, and an operational understanding of garden management.

The report and plan places emphasis on the career of Carl S. English Jr. (English) and establishes 10 December 1974, the date the Locks grounds were named after English, as the precise date when the garden became a contributing landscape to the LWSCNHD.

Operational decision trees are introduced here. These decision trees are based on historical and operational considerations within the garden. They endeavor to aid in the practical and feasible objectives associated with managing and preserving the garden.

Bed and area descriptions are included to aid in current management considerations and provide a description of their disposition in 2019. A new updated plant inventory is also introduced to provide numbers of plant families, genera, and species of the garden as well as what bed they reside.

This report and plan is meant to aid in the formulation of a new LWSC Master Plans (LWSCMP) as it relates to the garden, and serve as reference and catalyst for further reports and studies of the garden.

4. STATEMENT OF PURPOSE

4.1 Statement of purpose

4.1.1 Mission

The mission of this report and plan is to carry out the duty to preserve and maintain the garden. It achieves this by providing a complementary historical supplement and introduces an operations and management plan intended for consideration and inclusion in the LWSCMP as well as a full updated plant inventory to aid this endeavor.

4.1.2 Background and Context

The LWSC including the Locks and garden is at once a singularly beautiful and historic civil works project and is a vital infrastructure project to the City of Seattle, the State of Washington, the U.S. Army Corps of Engineers (USACE) and to the United States of America (McDowell 2017).

What is unique about the garden's setting is that it surrounds a bustling navigational operation yet is a notable and highly trafficked tourist attraction. Uniquely, it is also home to a private residence, the Cavanaugh House. This structure is listed as a contributing building as part of the LWSCNHD. The house was planned by junior engineer C.A.D. Young in 1912 and construction was completed in 1913. The house is named after COL J.B. Cavanaugh who oversaw construction of the Locks from 1911-1917. (USACE 1998). It has been continually occupied since constructed. In 1967 it became the residence of the Seattle District Engineer.



Figure 1 Aerial view of the LWSC looking north circa 1982. Locks archives

The Locks and garden are subject to a web of legal, regulatory, designatory framework. Relevant documents are the National Historic Preservation Act (NHPA) of 1966, USACE Engineering Regulation (ER) 1130-2-540 Chapter 6 (USACE 1998), the USACE designation of the LWSC grounds after English (USACE 1974), and the February 1994 Lake Washington Ship Canal Master Plan (Design Memorandum 9) (1994 LWSCMP) prescribed by ER 1130-2-400.

Reports and plans related specifically on how the garden fits into these frameworks offering recommendations and policies have been provided and reiterated since 1989 (Freier 1989, USACE 1994, USACE 1998). In the intervening thirty years no operational or managerial template has been constructed to put into practice how these recommendations and policies actually and practically can be achieved.

The current LWSCMP is at once the most up to date MP and is 25 years old. This MP was prepared to shepherd “use and development of the natural and manmade resources at the project, which is administered by the Seattle District, U.S. Army Corps of Engineers”. This document sets the objectives for the project. Secondly this

document provides the framework for secondary management objectives in the form of “operational management plans” (OMP) (USACE 1994).

In order to implement an operational and management plan for the garden the overarching LWSCMP needs to be updated and the OMP related to the garden changed. To achieve this objective this report and plan intends to influence an updated LWSCMP and future OMPs.

4.1.3 What this report and plan delivers

The report and plan is the most comprehensive history of the garden to date. It synthesizes previous plans, reports, and primary source documents on the garden by complementing previous works written about the garden. Specifically the 1989 “Historic Grounds Report The Carl S. English Jr. Botanical Garden: Hiram M. Chittenden Locks” (1989 Report) prepared by Renee Freier is fundamental to framing this report and plan.

This report and plan delivers the first historical update in thirty years to the 1989 Report. It also introduces new primary source information directly related to the history of operations at the LWSC and the life and career of English.



Figure 2 English with television reporter 10 December 1974. Locks archives

A complete plant inventory of the garden is also provided in **Appendix A**, the first in 37 years.

An operations and management plan that includes:

- Operational context of the garden within the mission of the LWSC project
- Layers of development through the five garden eras
- What the garden is using English's own words, his actions, the commentary of his contemporary and peers, and the plants English introduced to science and to the garden.
- How to emulate English in managing the garden
- Unique position of garden in relation to LWSCNHD and USACE designation
- An overview of the represented families, genera, and species in the garden from 1982 to present

- Collections Policy that guides the propagation methods, purchasing sources, and exchange policy for plant introduction in the garden
- Plant Significance Hierarchy that functions as a mechanism for evaluating and then deciding what plants to retain and plants to remove in a historical, regulatory, management, and botanical framework
- Bed renovation case studies
- Planting Bed Evaluation Decision Tree that guides operations in a historical, regulatory, management, and botanical framework
- Updated bed and area descriptions including overview of historic integrity, plants and features of interest, recommendations for operations and management
- Future recommendations for garden
- Complete plant inventory

4.2 Who should use this Carl S. English Jr. Botanical Garden at the Hiram M. Chittenden Locks: Supplemental Historic Grounds Report and Management Plan for inclusions in Lake Washington Ship Canal Master Planning.

4.2.1 LWSC OPM, NRM and NRS and LWSC staff

4.2.2 Seattle District Environmental and Cultural Resources Branch and Seattle District Technical Center of Expertise for Preservation of Historic Structures and Buildings

4.2.3 Seattle District Operations Division

4.2.4 Writers and editors of LWSC Master Plans

4.2.5 Seattle District Public Affairs Office

4.2.6 Schools, researchers, professors and students

4.2.7 Public

5. THE GARDEN AND CAREER OF ENGLISH

5.1 Introduction to the garden

Maintaining a garden and gardening is at first glance a straightforward matter of groundskeeping.

The lawns and grass are cut and trimmed, leaves are raked, mulch is spread, planting beds are outlined and edged, the various plants are clipped, snipped, pruned and hedged. Sometimes plants must be removed and new ones added, trees felled, and trees replanted. Litter is picked, sidewalks and roadways swept, blown, and pressure washed. If these essential albeit menial tasks are accomplished then the garden is gardened and the grounds are kept.

And yet these important and humble tasks while being a necessity and the first step to the operations of any garden or park, are only a part of the varied, complex, and interdisciplinary nature of the gardener's job.

After the groundskeeping has been finished another suite of operational and management considerations and responsibilities are then required at the garden.

These considerations and responsibilities are aesthetic, botanical, cultural, historical, horticultural, legal, and regulatory. Of primary importance is the intent and mission of this report and plan is to properly explain these considerations and responsibilities to foster a shared understanding of the job at hand and the aims to be accomplished.

5.2 The Hiram M. Chittenden Locks: A singular place by design

The LWSC is a lock and dam that links a series of manmade canals and freshwater lakes with the inland sea of Puget Sound. The LWSC is a major conduit for local commerce and infrastructure while also being heavily trafficked by pleasure craft. Adjacent to the lock and dam is a fish ladder which is the artery for salmonid migration to the Cedar and Sammamish rivers.

The LWSC is situated in the middle of a large urban city. The superstructure of the project was constructed in a Second Renaissance Revival Style of architecture which was granted legal protection in 1978 as part of the LWSCNHD (USACE 1978). Surrounding the civils works project to the north are seven landscaped and parked acres and a residence on a hill.

It is unknown, or at present no primary source evidence has been rediscovered, pertaining to what the reasoning behind the architectural singularity and landscaped acreage. A recurring theme of this report and plan is that while it is unknown why some things were done it is simply known that they were.

The seven acres north of the lock and dam, the subject of this report and plan, are described here by the late Dr. Arthur Kruckeberg (Kruckeberg) in the *Arboretum Bulletin* during the Summer of 1959 written 28 years into English's tenure.

"In 1955, over 735,000 people thronged...to the officially named 'Hiram M. Chittenden Locks' in 1956. Conjure up a mental image of this popular and familiar landmark. Then, in your mind's eye erase the vision of the broad sweeps of lawn, the stately trees and the colorful plantings in the many spacious drifts and you have lost the elusive but significant aesthetic quality that is the Locks. To be sure, the average visitor enters the grounds bent on viewing the activity of boats and people at the locksides. Yet, once entering the north gate on senses the change from the clutter and crowding of city life to the serenity and expansive beauty of a park. To the knowing eye, the plantings are not at all typical of just any park of estate. The keen gardener, horticulturalist, or botanist is at once convinced that he has stepped into a botanical sanctuary-a true arboretum."

In 1974 the Seattle District of USACE designated the grounds at the Locks to be named "The Carl S. English Jr. Gardens" in recognition of the namesake's lifetime of distinguished service and "unselfish desire to preserve the environment for the benefit of mankind" (USACE 1974).

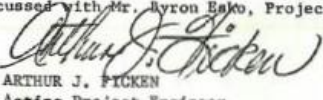
DISPOSITION FORM			
For use of this form, see AR 340-15; the preparing agency is The Adjutant General's Office.			
REFERENCE OR OFFICE SYMBOL	SUBJECT		
NPSOP-PO-LW	Designation of the Carl S. English, Jr. Botanical Garden		
THRU TO	FROM	DATE	CMT 1
Ch, Operations Div District Engineer	Project Engineer Hiram M. Chittenden Locks	07-25-74 Ficken/mam/783-7001	
<p>1. On 28 June 1974, Mr. Carl S. English, Jr., the Seattle District Horticulturist retired from the U. S. Army, Corps of Engineers, upon completion of forty-two years and eight months of Government service at Hiram M. Chittenden Locks.</p> <p>2. Mr. English attended Washington State University and graduated in February 1929 with a Bachelor of Science Degree in Botany. Following graduation Mr. English did landscape gardening and general nursery work in the Portland, Oregon area. On 2 November 1931, Mr. English accepted employment at the Hiram M. Chittenden Locks as a Gardener's Helper and in February 1941 he was promoted to Gardener and assumed full charge of the grounds at the Locks. This included introducing and propagating new plants and upkeep of the grounds, lawns, shrubbery, etc.</p> <p>3. In October 1969, Mr. English was promoted to the position of Seattle District Horticulturist and served in that capacity until his retirement. Mr. English displayed an excellent knowledge of plant materials and his love for his profession is attested to in the beautiful 7½ acres of grounds at the Hiram M. Chittenden Locks as well as along the Lake Washington Ship Canal. In 1971 the American Horticultural Society awarded a Professional Citation to Mr. English for his outstanding development of the Botanical Gardens at the Locks. Mr. English is known world wide for his contribution to the exchange of rare seeds and plants throughout the world. In addition to the above citation, Mr. English has received numerous Department of the Army performance awards and in 1969 the Federal Executive Board selected him the Outstanding Male Civil Servant of the Military Agencies. Mr. English's continual cooperation with the Seattle Garden Club has added immeasurably to the beautification of the City of Seattle.</p> <p>4. In recognition of Mr. English's dedication to the development of the world renowned Botanical Gardens at the Locks and his unselfish desire to preserve the environment for the enjoyment of mankind, I strongly recommend that consideration be given to designating the Botanical Gardens at the Locks as the "CARL S. ENGLISH, JR. BOTANICAL GARDENS". The main entrance sign and the sign located immediately east of the Administration Building should be revised to read as follows:</p> <p style="text-align: center;">HIRAM M. CHITTENDEN LOCKS AND CARL S. ENGLISH, JR. BOTANICAL GARDENS AND LAKE WASHINGTON SHIP CANAL, U. S. ARMY CORPS OF ENGINEERS</p> <p>I further recommend that an appropriate bronze plaque be erected at the Project inscribed with the recognition of Mr. English and the Botanical Gardens. I further recommend that a public dedication be made by the District Engineer.</p> <p>5. The above recommendation has been discussed with Mr. Byron Esko, Project Engineer and has received his concurrence.</p>			
DC Chief, Proj Opers Br Chief, Opers Div ESKO	 ARTHUR J. FICKEN Acting Project Engineer Hiram M. Chittenden Locks		

Figure 3 Disposition form regarding designation of English garden 25 July 1974. Locks archives

5.3 Carl S. English Jr.: Botanist, horticulturist, dirt gardener, meritorious and outstanding civil servant

When the grounds at the Locks were named after English in 1974 there was some discussion as to whether a civil works project could be solely or partially named after a

living person (USACE 1974). This discussion documented in letters in the nomination package helps illustrate what a distinct honor this was for English.

English was by all accounts a distinct individual. In deed and word English was a groundskeeper, or even “dirt gardener” (Dress 1957, Kruckeberg 1959). He was a groundskeeper in addition to botanist, plant discoverer and hybridizer, apparently able to write in Latin, as well as a meritorious and outstanding civil servant (Dress 1957, English 1947, Freier 1989, Kruckeberg 1959, USACE 1974).

Kruckeberg again writes in the *Arboretum Bulletin* Summer 1959:

“In 1931, Carl S. English Jr. joined the staff of civilian personnel as horticulturalist. Mix a dash of taxonomist and horticulturist with liberal portions of the field botanist and ‘dirt gardener’ and you have Carl English, the versatile plantsman. But, that is not the whole man. With these ingredients some divine power has blended the qualities of humility, generosity, love of all nature, and unbounded energy and industry.”

The study of botany, horticulture, and plants in general can be esoteric. The achievement of describing for the science of botany four new plants species is a rather specialized one (Flora 2018, Freier 1989). To the uninterested, untrained or those unfamiliar with plants it can be difficult to relate these remarkable actions adequately. The same goes for the introduction of new plant hybrids, the collection of plant seed from around the world and the single-handed development of a botanic garden.

Perhaps the appreciation of English and the garden by those not particularly interest in botany, horticulture, or the like, would be better understood if the appreciation was centered not on plants but rather on the achievement of the individual. Alternately the garden could be seen as a career long attendance to duty, ethics, values, and achievements of a meritorious and outstanding civil servant. Therefore duty, ethics, and values guide the mission to deliver on the considerations and responsibilities in managing and preserving the garden.



Figure 4 USACE SD Public Affairs Office display panel for "Garden Tea" in conjunction with LWSC Centennial 20 May 2017. Locks archives

5.4 Legal, regulatory, and designatory framework of the garden

The Locks and garden are governed by a number of laws, regulations, and designations. These factors add nuance and complexity to the day to day operational considerations and responsibilities.

The LWSC was evaluated and made eligible by the Washington State Historic Preservation Officer in 1978 four years after the designation of the grounds in English's honor in 1974 (USACE 1978). The LWSC was then listed on the National Historic Register in December of that year with the garden being listed as a contributing landscape to this designation 20 years later (USACE 1998).

This designation legally and regulatorily binds the operations of the LWSC to the NHPA of 1966 as amended in Section 106, the National Environmental Policy Act (NEPA) of 1969, Archeological and Historic Preservation Act (AHPA) of 1974, Public Buildings Cooperative Use Act (PBCUA) of 1976, Army Command Policy Memorandum #12, 19 November 1993 and ER 1130-2-540 Code of Federal Regulations (CFR) Title 36 Parks,

Forests, and Public Lands Chapter III (CFR Title 36) that regulates USACE public lands. Other federal laws are followed where applicable including the Endangered Species Act (ESA).

5.5 The landscape architecture of the garden

The garden's design or disposition, most closely resembles that of the English landscape style. In other portions of the garden it tends to reflect the operational and architectural attributes and character of the design of the Locks (Freier 1989).

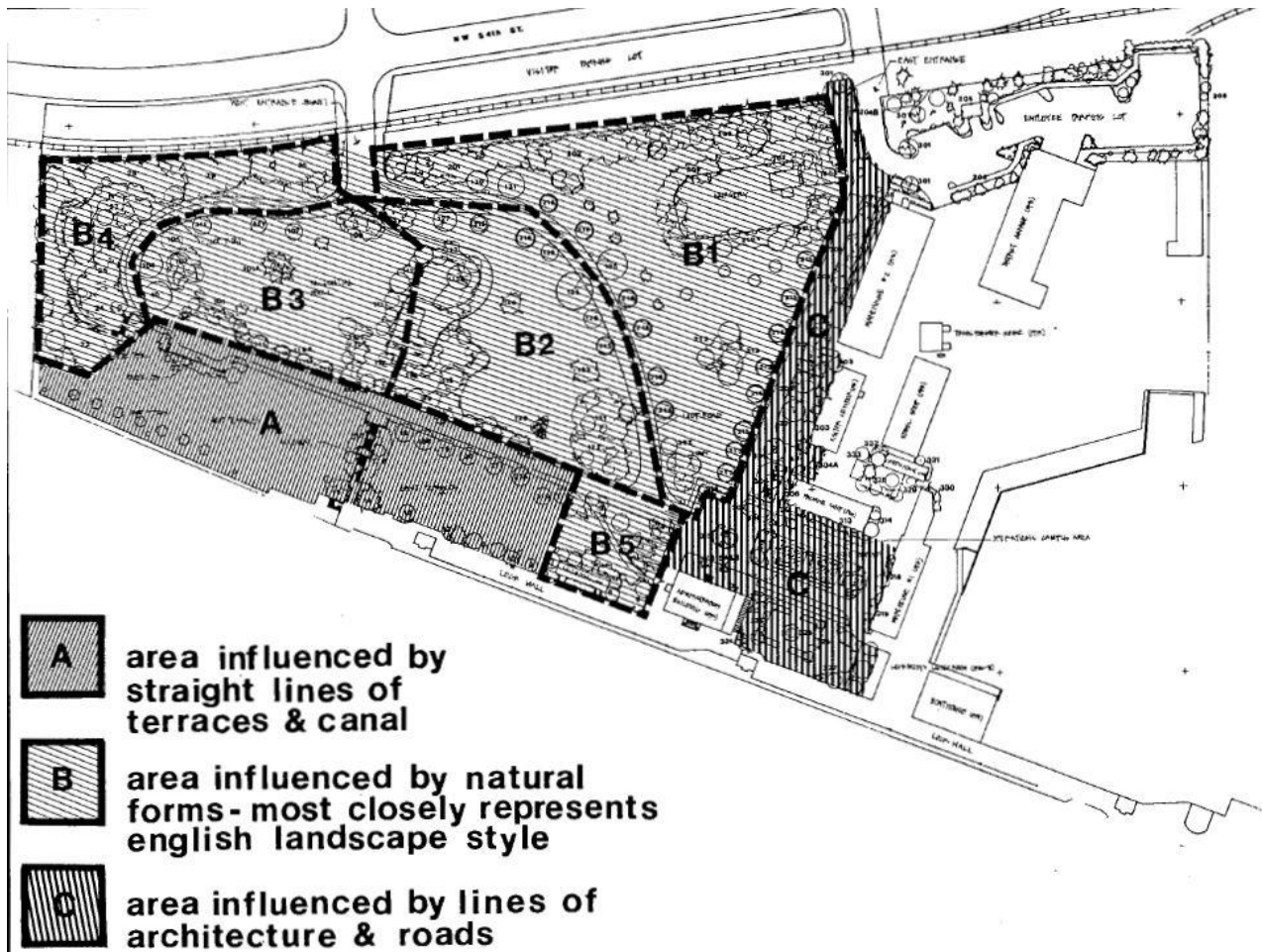


Figure 5 1989 Report division of landscape areas within the garden. Freier 1989.

At present areas A and B, in the above figure are exactly the same as they were in 1989. Changes made to the superstructure of the project (see 7.6) have changed area C significantly. Whatever designation could be made of area C today the garden is composed of different landscape styles and these areas require different approaches in operations and management.

5.6 The absence of a management plan

There currently is no management plan for the garden. While certain practices are followed either by tradition or an assumption of what should be done. The absence of a management plan leads to an unknown mission objective.

The 1989 Report provides recommendations and subsequently feeds the directives contained in the 1994 LWSCMP. Even so, there is a gulf between knowing what is to be done in theory and how it would or even could be accomplish in practice. A constant underlying push pull between the recommendations and policies in the former and operationally how these recommendations and policies are to be achieved.

The absence of a management creates an environment where decision making can be hampered or could be viewed with suspicion. Any decisions that are made could be viewed as subjective, haphazard, or ahistorical as there is no formal document that guides these decisions, however logical or well meaning.

The garden requires a management plan. There is much complexity in being in accord operationally with the LWSCNHD as a contributing landscape. It is also difficult in practice to faithfully adhere to recommendations of the 1989 Report, while also allowing for the passage of time, changes in infrastructure, visitor use patterns and activities, and the constant growth of vegetation.

A plan is mission essential meet to the duty of preserving and managing the garden given the interdisciplinary nature of the garden's history, setting, and contents. By creating a shared understanding of the history, setting, and contents of the garden is can thus direct a shared plan for meeting the mission to preserve and manage the garden operationally.

6. METHODOLOGY

6.1 Reference material

The reference material contained herein represents a collection of all reports, articles, letters, plans, catalogs, photographs, and interviews found to date.

6.2 Previous reports on the garden

There are two reports by landscape architects. The first was completed in 1989 by landscape architect Renee Freier, "Historic Grounds Report: The Carl S. English Jr. Botanical Garden". The second was prepared by National Park Service (NPS) landscape architects in 2013 in conjunction with the USACE Seattle District Center for Expertise on Historic Structures (CX), "Landscape Chronology: Carl S. English Jr. Botanical Garden, Hiram M. Chittenden Locks" (Freier 1989), (NPS USACE 2013).

6.2.1 1989 Historic Grounds Report

The 1989 “Historic Grounds Report: The Carl S. English Jr. Botanical Garden” is the foundational report of reference for this report and plan (see **Appendix B**).

This 1989 Report was directed to be prepared at the behest of Horace Foxall Manager of the CX. 1989 was a serendipitous time to write the report. It was prepared fifteen years after English’s retirement and at the exact midpoint of Seattle District Horticulturalist (SDH) Michael E. Fleming’s (Fleming) 30 year tenure. The majority of the people interviewed for this report are now retired, deceased, or both. Freier was able to conduct interviews with peers of English notably Brian Mulligan (Mulligan) of the Washington Park Arboretum and Kruckeberg of the U.W. She also walked the garden with English’s coworker and successor, Walter Lyon (Lyon) and spoke with English’s sister (Freier 1989).

Many subjects covered by Freier including flow of pedestrian traffic, visitation impact on grounds, pattern of garden development, site evaluation, place of the garden in landscape architecture history, and recommendations for development and preservation have either stayed true to the present and have been heeded and followed since publication (Carter 2018, Fleming 2015).

6.2.2 2013 NPS USACE Landscape Chronology

In 2013, as mitigation for the installation of the security fence around the James B. Cavanaugh House a joint National Park Service (NPS) and Corps landscape chronology study was written, “Landscape Chronology: Carl S. English Jr. Botanical Garden”.

This chronology study reviewed changes to the Locks landscape over time but did not take into account period plans as delineated in Freier’s 1989 Historic Grounds Report. The report also did not establish a fixed period for when the garden would be considered historic, if at all. Neither the 11 December 1974 designation of the grounds in honor of English nor the primary source documents relating to it are mentioned or cited.

Entryway Phases I and II were also not included in the report, two events which changed the superstructure of the Locks significantly and the garden layout changed with it. This omission produced an incomplete contextual understanding of the garden. Comparison photos contained in the report have no established contextual framework to refer to (NPS USACE 2013).

This report was originally intended to be the first of three reports examining if the garden itself could be on the National Register of Historic Places. The report

recommended a cultural landscape report followed by a preservation maintenance plan (NPS USACE 2013). These subsequent reports have not been produced.

6.3 1976 Botanical garden brochure and tour

This brochure was originally published in 1969 in preparation of the XI Botanical Congress visiting Seattle and the Locks. It was re-published in 1974 and 1976. It is the only complete bed by bed listing of plants during the English Era.

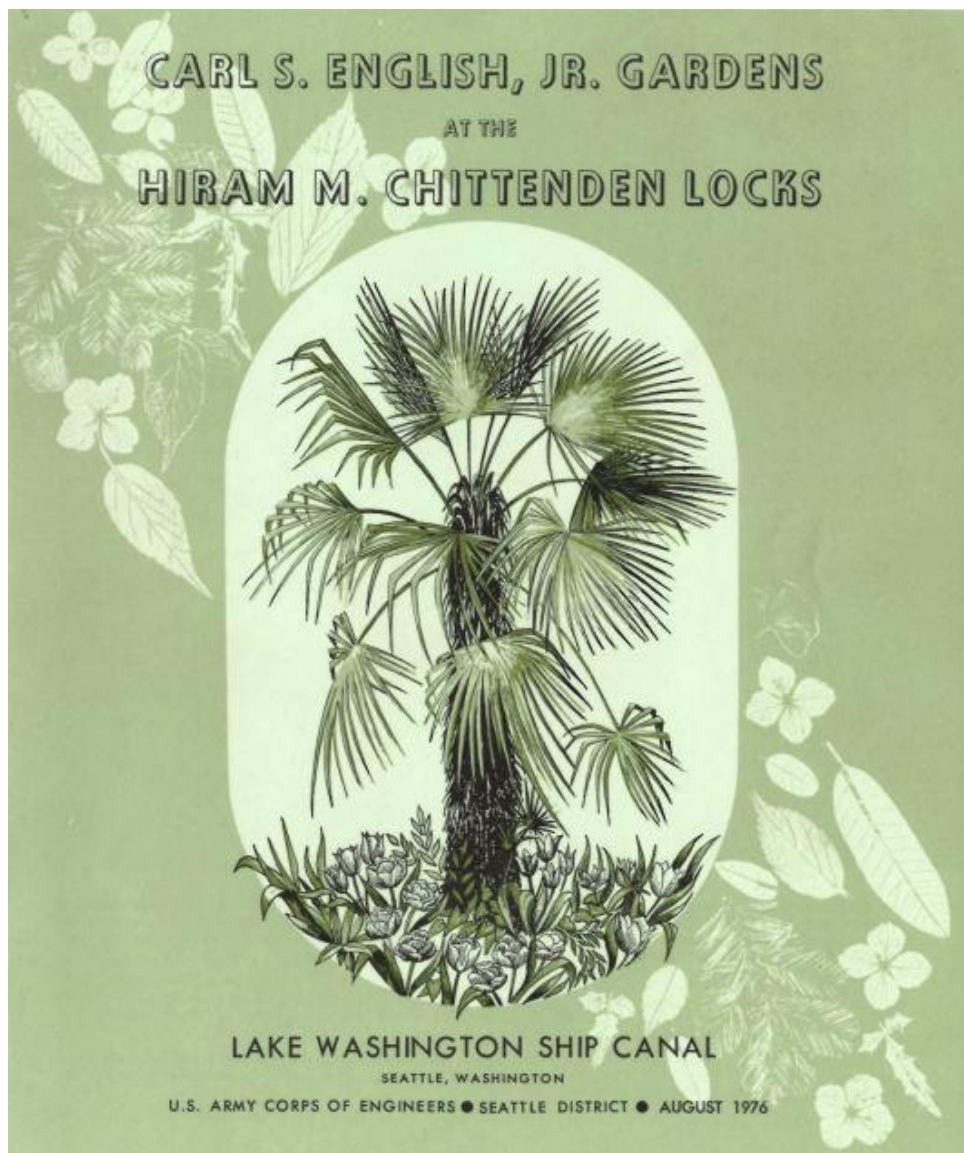


Figure 6 The 1976 Carl S. English, Jr. Gardens Brochure. Locks archives

6.4 Kathy Mendelson's 1982 Plant Inventory

Kathy Mendelson compiled the plant inventory and developed a card catalog system for the plants in each of the beds. Mendleson studied under Kruckeberg at the University of Washington. (Fleming 2015). This inventory documents many interesting qualities of plants found in the garden during the early Fleming Era. It is helpful in establishing changes between 1976 and 1982. Mendleson also reported helpful information on individual plants in the garden. The inventory is included in the appendices of the 1989 Report. Taxonomic nomenclature changes since 1982 were not examined here.



Figure 7 Kathy Mendelson, undated likely circa 1981. Locks archives

6.5 1998 Historic Property Management Plan for LWSC

This plan primarily describes the contributing historic building and landscapes that are part of the LWSCNHD. This plan recognizes the garden as a contributing landscape to the LWSCNHD.

Seattle District Commanders are legally bound to protect the LWSCNHD by upholding NHPA through ER-1130-2-540. This plan was created with the Washington State Historic Preservation Officer and the Advisory Council on Historic Preservation.

The use of this plan is the manual that guides all management by civilian managers at LWSC to identify, assess, evaluate, plan and fulfill properly, management actions to preserve and maintain the LWSCNHD.

6.6 1994 LWSC Master Plan

Required under ER-1120-2-400, MPs set the use and development of civil works projects and guide many other process decisions and operations decision.

This plan is 25 years old while at once being the most current master plan. It is no longer appropriate for some current use and management actions at LWSC because of its age.

Despite the delay in an updated master plan, the 1994 MP is still fundamental in evaluating if actions taken in the garden are appropriate and responsible to maintaining the LWSCNHD.

6.7 Locks archives and University of Washington Special Collections: photographs, plans, maps, artifacts, and documents

The Locks archives both in physical and digital form are rich in material. Thousands of photographs, plans, maps, letters, artifacts, and documents may be easily accessed. The work of Locks employees, former employees, and FOBL in creating and maintaining these archives is invaluable to the preservation of Locks and garden history.

The majority of the photos are cataloged in a Past Perfect computer program available to both LWSC employees on USACE network computers and to FOBL on a designated computer for their use at the project. The work of scanning, compiling, and describing these photos is the result of more than a decade of labor by LWSC employees and FOBL.

The University of Washington Special Collections home of the Gould Family Papers yielded two primary source information related to the construction of the Locks.

The "Locks archives" also refers to internal garden and NRS documents, notes, or computer files. Many these computer files are undated and have no author. In other instances "Locks archives" may refer an internal work plan or Microsoft Word document describing an action with the author unknown, hand written notes, or internal receipts. In some cases "Locks archives" may refer to an internal receipt or a saved internal email.



Figure 8: Locks staff photograph August, 1932 at the south door of the Administration Building. English is below right of the left light globe #16 and Sargent is center #29. Locks archives

6.7.1 Letters of A.W. Sargent and Commanders 1915-22

The rediscovery by FOBL of early correspondence between A.W. Sargent, assistant engineer and SD Commanders amongst themselves and the Seattle Board of Park Commissioners (SBPC) between 1915-1922 is revelatory.

These letters give primary insight in to the original intent for the Locks grounds by SD Commanders and Sargent. The letters also help make linkages between extant Original Era plants and those furnished by the SBPC.

6.7.2 Cornell University: English's seed catalogs 1931-59

An anecdote held that English sent his seeds to Cornell University (Cornell). In 2013 the NRS investigated this claim.

After correspondence with Cornell it was found that there was some truth to this anecdote. Indeed, English had sent something to Cornell, yet they weren't his seeds but rather his seed catalogs. The NRS received copies of English's seed business catalogs from 1931-1959 along with two photographs.



Carl S. English, Jr.

Taken in his home garden, 8546 - 30th
Avenue N. W., Seattle 7, Wash.

Bailey
Hortorium
Item No.
399

Figure 9 An undated photograph likely circa 1939. One of the only youthful photos of English. Courtesy Cornell University

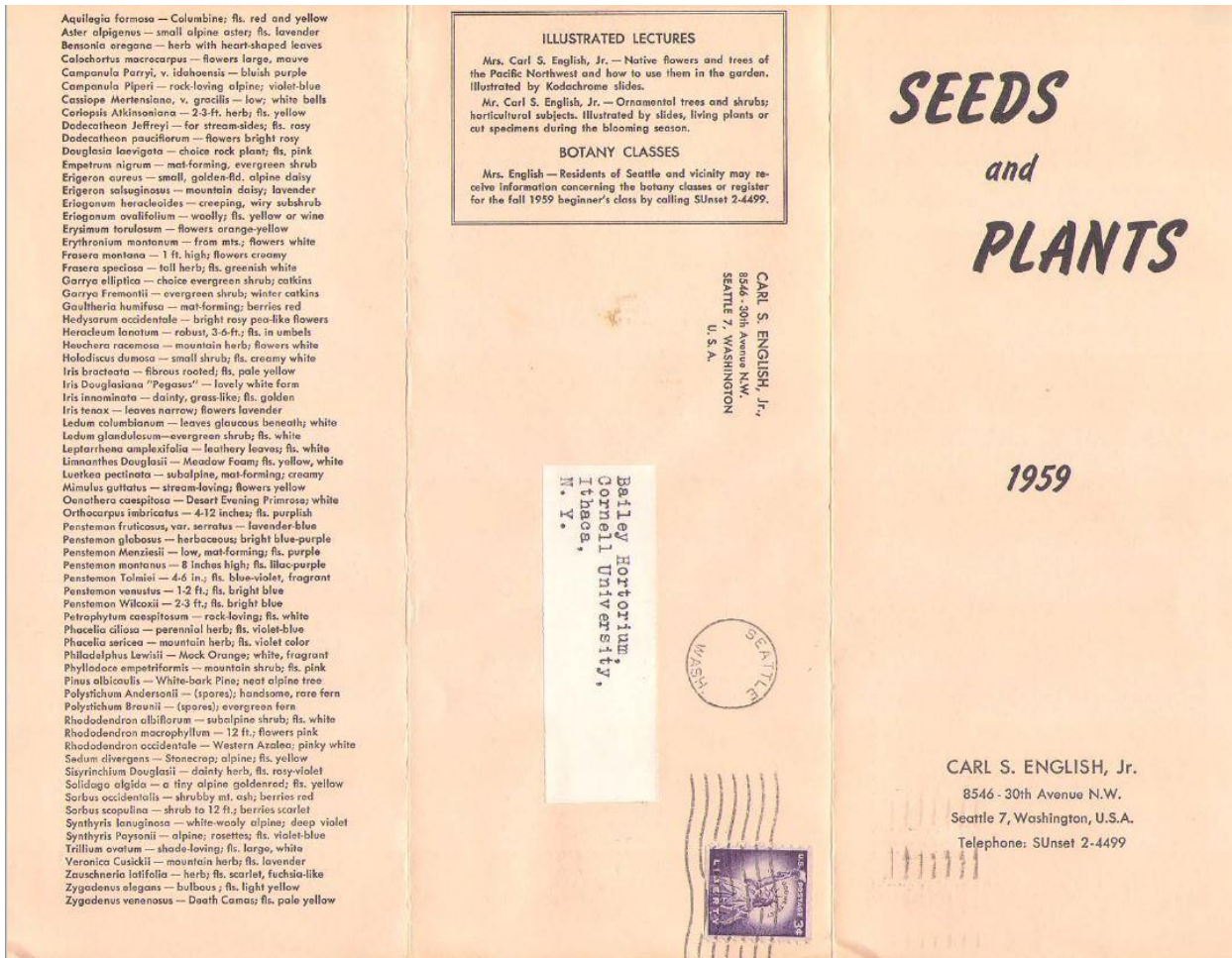


Figure 10 English's 1959 seed catalog outside flap. Courtesy Cornell University

It was known that English and his wife operated a small business selling hundreds of plants and seeds (Dress 1957, Freier 1989). It was also well known that English travelled extensively regionally and abroad collecting seeds and also exchanging seeds ("Garden" 1938), (Kruckeberg 1959), (English 1972, Freier 1989, Locks archives, Lyon 1978, USACE 1976). Obtaining the catalogs and examining the plants offered is another rediscovery about English and the origins of plants in the garden.

The number of unique, rare, and hard to find plant species on offer is remarkable. Equally so is English's apparent knowledge of the habitats of many rare plants that are difficult to access even today. During the 1930s the logistics required to access these habitats would have been much more difficult.

In the catalogs what can also be gleaned is the evolution in English's plant interests. Initially, the catalogs offered seed of plants native to the Pacific Northwest from sea level to the alpine environs. By 1959, the final catalog known, the plants and seed offered has expanded to include much of the globe.

The 1959 catalog demonstrates an increased rate in exchange and illustrates an evolution in English's plant interests from native and especially alpine in the 1930s to a truly cosmopolitan and global interest in plants by 1959.

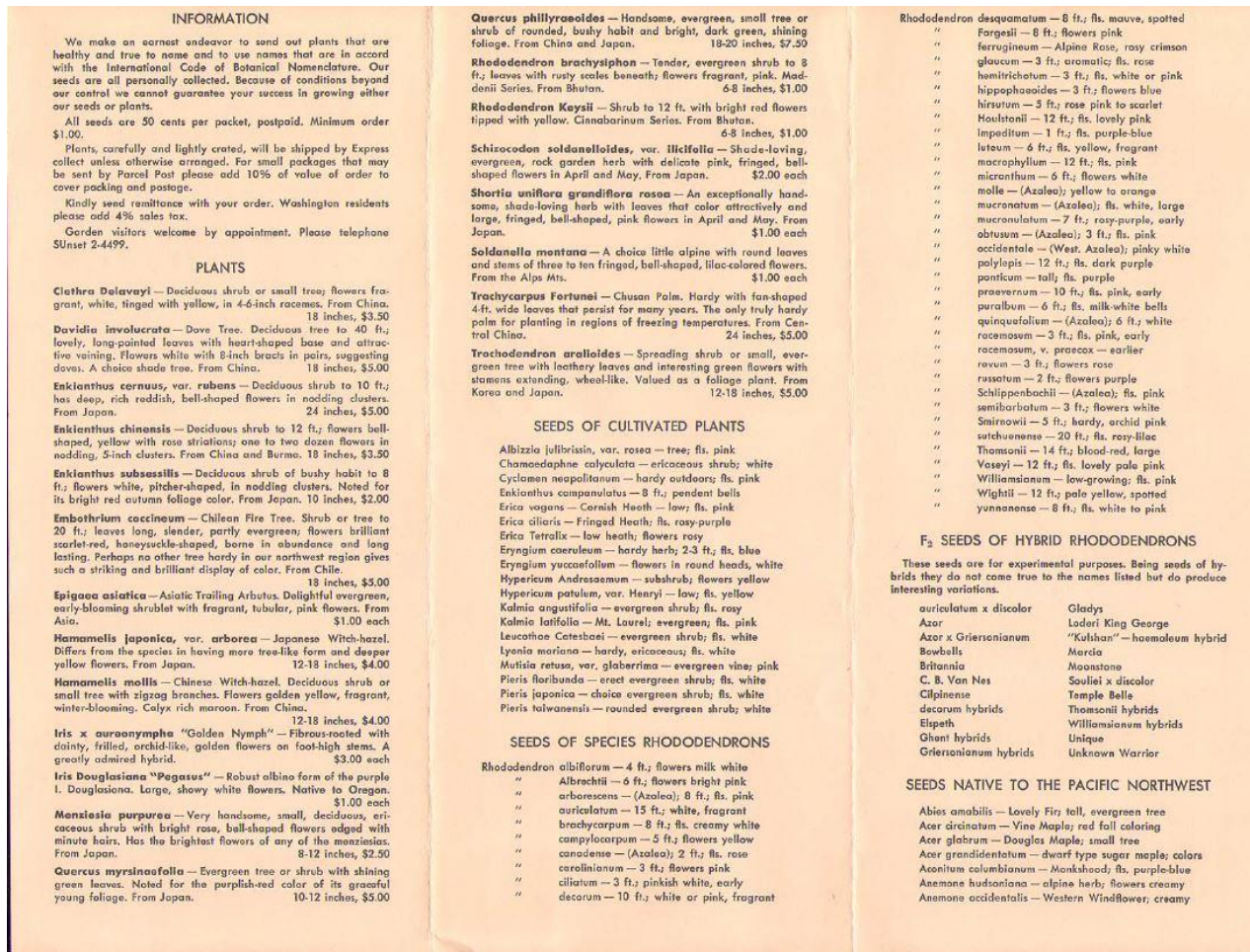


Figure 11 English's 1959 seed catalog inside flap. Courtesy Cornell University

6.8 Articles and papers written about garden

Due to the dedication and yeoman's work of FOBL and USACE employees almost all articles and papers written about the garden and English are available. These works, which are referenced often here offer crucial primary and secondary source information about English and the garden.

6.9 *Trees of Seattle* 2nd. Edition 2004

Arthur Lee Jacobson's (ALJ) book contains a whole section on the significant trees and some shrubs in every planting bed in the garden. ALJ also designed a new bed map that more accurately shows the disposition of the planting beds in 2004. This map is the first updated planting bed map since 1984 and is adopted in this work. This book also serves as a valuable supplement to the garden accession database thanks to ALJ's detailed and generous tree survey in service to the garden and public.

6.10 Interviews

Referenced interviews of garden employees include those of Fleming retired SDH (1974-2004) and former gardener and NRS ranger Brian S. Carter (1996-2017).

6.11 Revised time periods of garden development

This report adapts and then modifies the previous three time periods established in garden development (Freier 1989). This is for two reasons. Firstly, thirty years have passed since the 1989 Report was prepared. An update is required. Secondly new information gleaned from the rediscovery of documents, letters, and interviews with Fleming add nuance to the previously established time periods and herald the introduction of new ones here.

6.11.1 Original Era

This first period of garden development is from 1915-1931 and represents that original wave of plantings that landscaped the grounds

6.11.2 Nascent Era

The second time period is from 1932-1940 and represents the heretofore relatively unnoticed influence of English on the grounds from a plant composition perspective

6.11.3 English Era

The third period is from 1941-1978 represents English's career and four years of status quo continuing under Lyon

6.11.4 Fleming Era

The fourth period is from 1978-2004 and represents Fleming's career

6.11.5 Present Era

The fifth period is from 2004-2019 and is notable for the lack of an SDH

6.12 Updated plant listing and bed and area descriptions

This section will follow the 1989 Report's Appendices B and C updating bed and area detailed description where applicable and the plant inventory format (Freier 1989, Mendelson and Fleming 1981).

7. SUPPLEMENTAL HISTORIC GROUNDS REPORT

7.1 1989 Historic Grounds Report

This report is foundational to the understanding of the garden now and this report and plan would be impossible without it (See **Appendix B**).

The 1989 report collected a vast amount of information in order to contextualize all of the developments and changes to the garden over space and time.

The impetus for the preparation of the report was the designation of the LWSC as a national historic district as legislated by the NHPA and Section 106. The garden was determined to be a contributing factor to this designation.

"A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development" (NPS 1997).

Seven qualities were examined according to the register criteria including historic location, design, setting, materials, workmanship, feeling and association and the garden was assessed in relation to these qualities (Freier 1989).

Identified were three periods of garden development: 1915-1940, 1941-1974, and 1974-1989. The most important of these periods was 1941-1974 when English had a free hand at developing the garden (English 1972, Freier 1989).

The report the examined site circulation by visitors which states that ten percent of people visit the gardens themselves rather than head directly to the locks and fish ladder and that this number, even in 1989, was at the limit for what the garden could support. This site circulation estimation regarding percentage of visitors to the garden itself has remained consistent to the present day (Freier 1989).

Design trends of the garden and associated structures were examined and a plant inventory by Kathy Mendelson and Fleming was included in the appendix (see **Appendix B**).

Freier was able to interview many persons now deceased including Dr. Arthur Kruckeberg of the University of Washington, Brian Mulligan of the Washington Park Arboretum, and Lyon.

This report was prepared this report just fifteen years after English's retirement and during the midpoint of Fleming's career. This report was completed just before the

completion of Entryway Development Phase II (1989) and The Circular Drive reconstruction and paving projects (see **7.5**). The changes to the sidewalks and roads layout was advised against (Freier 1989).

This report is integral to master planning, Locks management plans, NHPA considerations, and is the report of reference for the garden. After preparation the 1989 Report served as a guide of reference for the garden guiding all garden operations and management considerations and decisions (Carter 2018).

It also guided materials for infrastructure authorizing the use of concrete, rock, and wood and low barrier fencing preferably consisting of concrete bollards or the removal of wooden structures near the rose garden (Freier 1989).

7.2 Updated eras of garden development and supplemental information

The following contains new information obtained since the 1989 Report and covering the time period that the report described. An updated description of garden development since 1989 is also included in this section introducing a new era, “Nascent Era” from 1931-1940, covering 1998-2004 of the Fleming Era and 2004-Present in the Present Era.

7.3 The role of the firm Bebb and Gould during the Original Era

A camaraderie developed between the three principal figures in the construction of the Locks Army engineer Lieutenant Colonel J.B. Cavanaugh (LTC Cavanaugh), architect Carl F. Gould (Gould) of the firm Bebb and Gould, and civilian engineer Sargent.

May 16th, 1917

Lieut. Col. J. B. Cavanaugh,
c/o Department Commander,
Western Department,
San Francisco, Cal.

Dear Col. Cavanaugh,

I am very anxious to contribute my services in the present crisis even though I cannot accept your kind invitation to go to France and I am now applying to the Quartermaster's Department for an opportunity to design the structures for the camp at American Lake. Perhaps you would kindly give me a general letter of recommendation covering the work we have done for you at the Locksite.

Mr. Sargent was in yesterday and we will have the drawings out for him in a few days for the entrance and whatever little odds and ends that Sargent needs we will of course be glad to advise him about. When so many big things are brewing on the horizon and so many of ones friends are involved in this enormous enterprise it makes sticking around in ones ordinary daily occupation particularly difficult but conditions being as they are I can see no other way out of it. However if at any time you feel I can be of service at any place I will be there at your call. There is no one I have appreciated working for more than for you and the big Locksite project. It has enlarged ones horizon.

With very best regards,

Yours truly,

Figure 12 Letter from Gould to Cavanaugh regarding request to serve in France during the Great War 16 May 1917. Gould family Papers courtesy University of Washington Special Collections.

Gould's characterization of his working relationship with Sargent is familiar and breezy. His working relationship with LTC Cavanaugh is apparently one of enduring loyalty in service and shared mission.

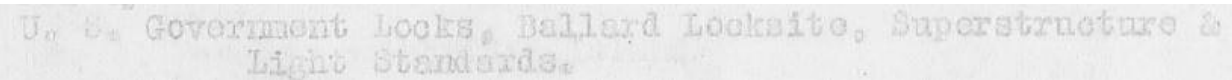
What this letter implies is that the army and civilian engineers with the contracted architect formed a veritable triumvirate managing and implementing the construction of the Locks.

This letter helps to better understand the influence of the firm of Bebb and Gould on the construction of the Locks. In reference to Sargent, Gould relates to LTC Cavanaugh that

“whatever little odds and ends that Sargent needs we will of course be glad to advise him about.” The working relationship between Sargent and Gould was one of familiarity and an inference that a constant exchange of drawings between the two men was ongoing during Locks construction.

Primary source evidence pertaining to the reasons why the Locks were ornamented does not exist or has not been rediscovered. While the motives why the Locks were ornamented is elusive the Locks deliberately were.

The superstructure and light standards of the lock site was designed by the firm Bebb and Gould. Superstructure by definition would mean anything that was above ground associated with the substructure of the locks themselves. The superstructure thus included Administration Building of the Second Renaissance Revival Style and ten associated structures (USACE 1998).



U. S. Government Locks, Ballard Locksite, Superstructure &
Light Standards.

Figure 13 Bebb and Gould description of work at U.S. Government Locks Gould Family papers. Courtesy University of Washington Special Collections Gould Family Papers

No extant records exist or have been found attesting to Bebb and Gould designing as to the roads and sidewalks while designs for the Administration Building and light poles have the stamp of Bebb and Gould.

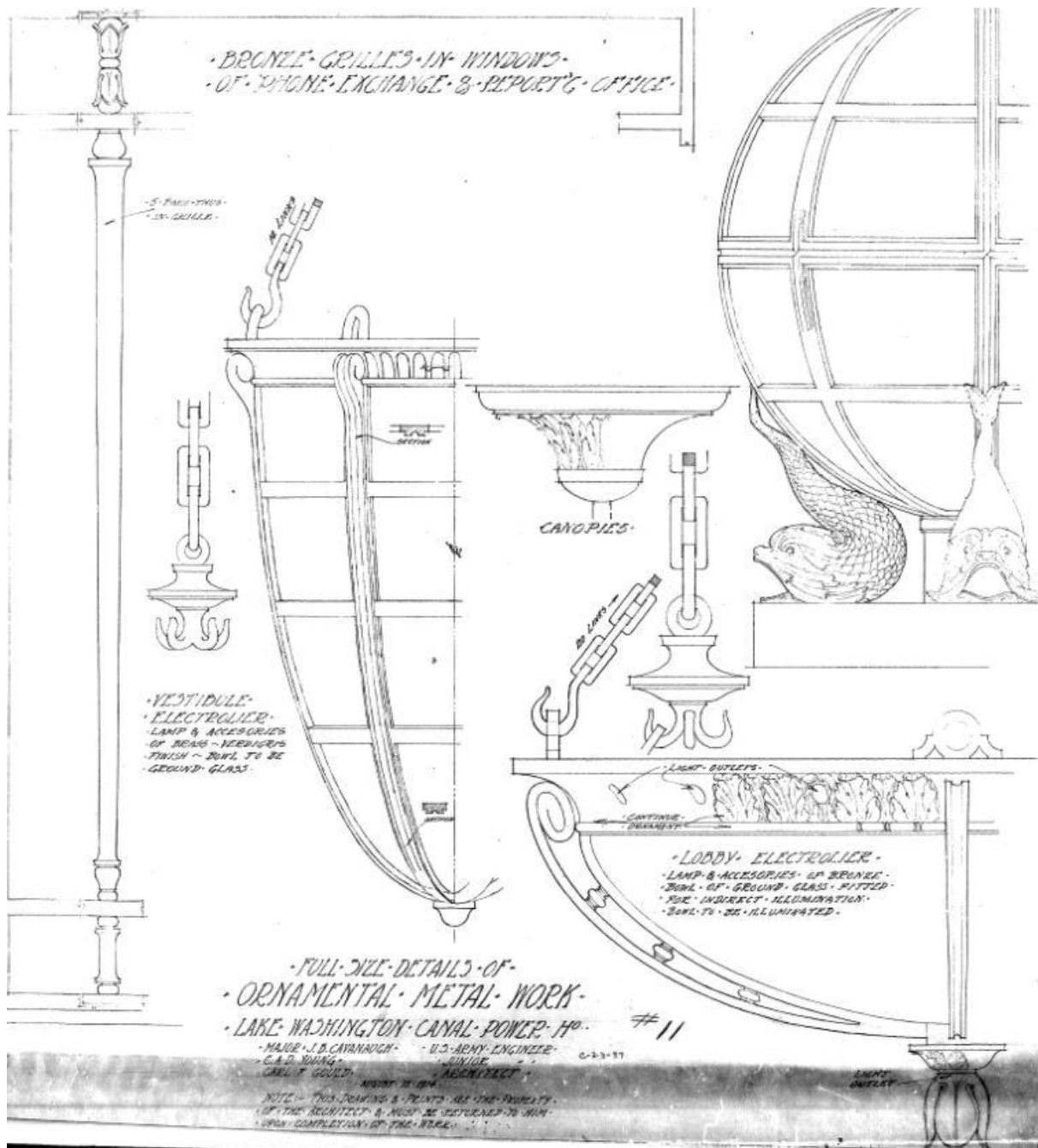


Figure 14 Bebb and Gould light standard ornamentation. Note Gould's name is written under the two Army engineers and the drawing is property of the architect. These lamps standards are still found at the south entrance of the Administration building and at the original main entrance to the project directly north of the Cavanaugh House. Locks archives

The drawings of the whole lock site that are available for review are consistently submitted by Sargent or his assistant C.A.D. Young (Locks archives).

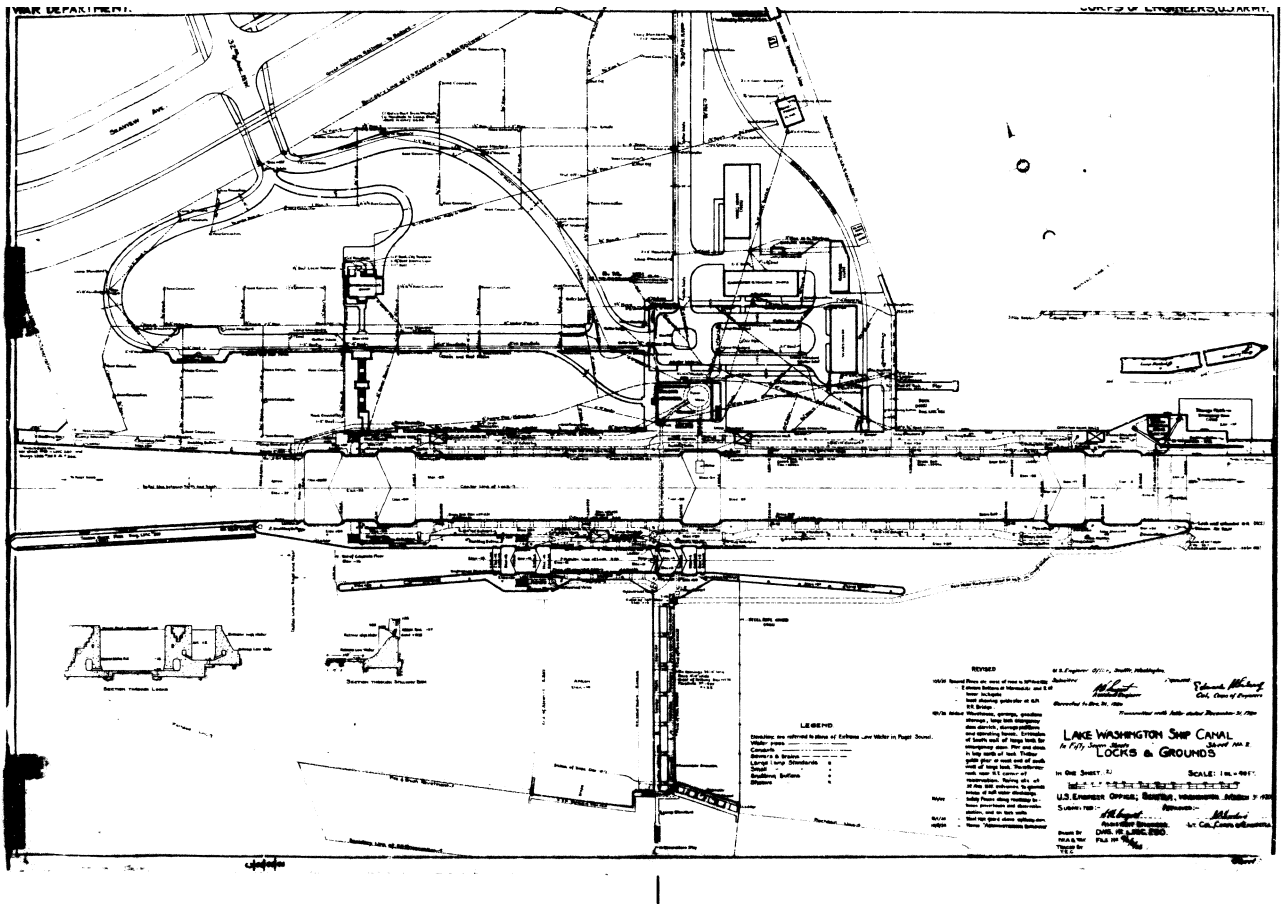


Figure 15 LWC-290 locks and grounds plan with firm of Bebb and Gould absent submitted by Sargent 31 March 1920. Locks archives

It has been hinted that Bebb and Gould or an associated landscape architect submitted the first plans for the grounds and planting beds and plants at the Locks. The search for an original and complete planting plan has continued to prove elusive (Freier 1989).

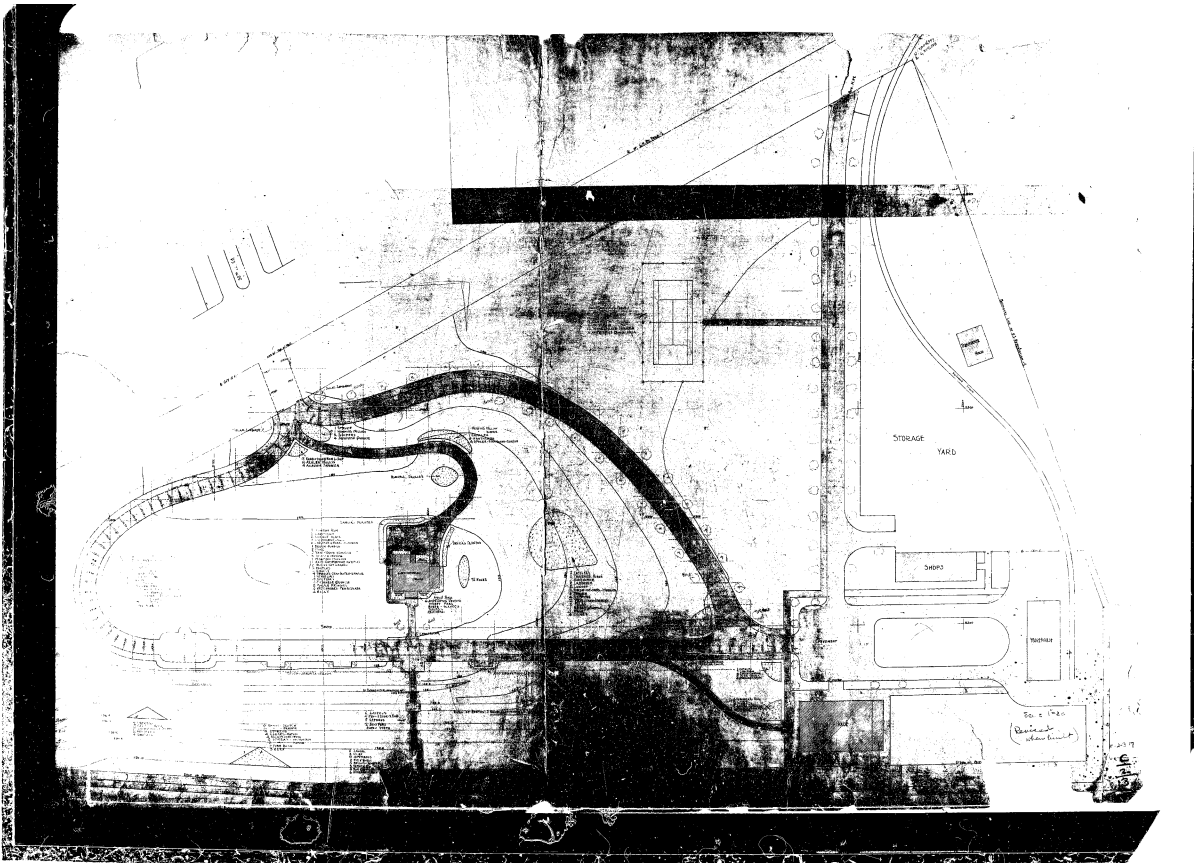


Figure 16 C-2-3-17 dated 1915 showing a planting plan and plant species but the preparer is obscured. Locks archives

The plan C-2-3-17 does not have an indication of a preparer and thus a definitive declaration as to who prepared the drawing cannot be made. The role of the firm Bebb and Gould as to the landscape of the lock site reservation is still unknown or undiscovered.

There is also evidence that implies that the SBPC could have furnished this drawing in designing the planting beds after receiving lock site plans (Letter to LTC Cavanaugh [19 November 1915]).

And yet much like the ornamentation of the Locks superstructure it is unknown as to why there was a drive to “landscape” the lock site reservation. It is clear only that it was.

It is possible there is still yet much to discover regarding the early days of construction at the Locks. Perhaps there are more documents related to the early days of planning at LWSC that remain to be rediscovered in other archives.

7.4 Original Era: Letters written by Sargent between Seattle District Army Engineers and Seattle Board of Park Commissioners

The grounds of the lock site were to be ornamented with trees and shrubs just as the firm Bebb and Gould had ornamented the superstructure of the Locks.

A letter dated 19 November 1915 Sargent submits to LTC Cavanaugh the “plan of reservation grounds at the Locksite.”

395



Figure 17 Lock site 19 October 1915. Locks archives

Sargent reasoned that the SBPC should provide to the government plants to adorn the reservation grounds free of charge as the grounds will be open to the public. Further it is envisaged that “if properly laid out the grounds can be made one of the most attractive

spots in Seattle” and be maintained modest cost to the government with Locks employees while not in care of the locks themselves (Letter to LTC Cavanaugh [19 November 1915]).

There is currently no evidence as to why Sargent thought the grounds at the lock site should be made “one of the most attractive spots in Seattle”, yet we know that Sargent, LTC Cavanaugh and successors commanding the Seattle District did exactly that.

Two years later Sargent is able to report to LTC Cavanaugh that 185 roses and 955 shrubs have been obtained to plant at the Locks but stating that no trees are available (Letter to LTC Cavanaugh [13 February 1917]).

Following Cavanaugh’s command Sargent requests yet again to Colonel C.L Sturdevant (COL Sturdevant) to ask SBPC to furnish dozens of trees and shrubs and nearly a hundred roses after the demise of the previously requested plant material (Letter to COL Sturdevant [10 February 1919]). Evidence of trees and shrubs in existing beds and detailed in later reports strongly suggests that SBPC did indeed provide the plants and they were planted (Freier 1989), (Koykka 1969).

Three years later under the command of Colonel E.H. Shulz (COL Shulz) there is a direct chain of communication in subsequent days from Sargent to COL Shulz to the Secretary of the SBPC in requesting over 70 trees (Letter to COL Shulz [16 February 1922], Letter to the Secretary of the SBPC [17 February 1922]). The receipt of these trees and shrubs can be attested to by the planting of the poplars by the first full time gardener, Henry S. McCarty in the 1920s (1920-1925) (Koykka 1969).

In the autumn of the same year COL Shulz again requests two dozen sycamore trees from SBPC (Letter to Secretary SBPC[1 November 1922]). These trees can be attested to by their subsequent removal by English near the Cavanaugh House in the 1940s and 1960s (Koykka 1969).

February 17, 1922.

To the Secretary,
Board of Park Commissioners,
Seattle, Washington.

Dear Sir:

Your office has very kindly co-operated with this district in the past in furnishing trees and shrubbery for the Lake Washington Ship Canal, and there are now needed the following, which can be used advantageously in beautification of these grounds:

30 Lombardy Poplars
30 or 40 American Linden trees
3 Red Camellias,
3 Weeping Silver Birch,
3 Japanese Cut Leaf Red Dwarf Maples
2 Bamboo trees.

Will you kindly notify this office whether you can furnish the above stock, and when and where the same can be obtained.

Yours truly,

Edward H. Schulz,
Colonel, Corps of Engineers.

Figure 18 COL Shulz's correspondence for trees in aid of "beautification of these grounds". Locks archives

From 1915 to 1922 there is concerted effort by Sargent and Seattle District commanders to ornament the grounds of the lock site. It is unknown as to why this was done yet through this correspondence it is known that this effort was made repeatedly and was a facet of the original mission.

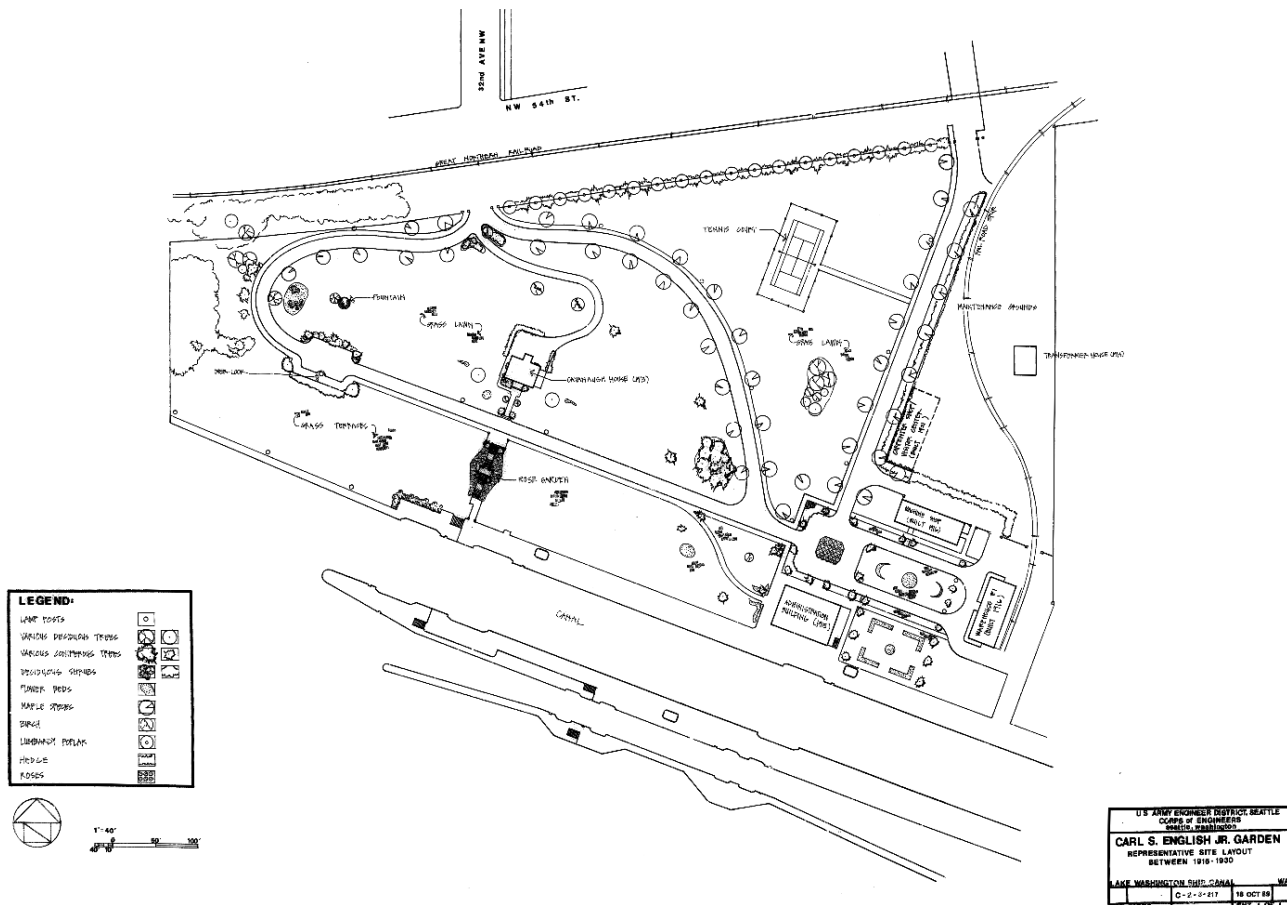


Figure 19 C-2-3-217 Locks grounds 1915-1930. Freier 1989

7.5 The Nascent Era: A new interpretation of English’s influence prior to 1941

English was hired in November of 1931 (Koykka 1969). Newly obtained information adds nuance to the time period English was a “Gardener’s Helper” (Locks archives).

FOBL rediscovered an internal document Locks document and 1938 newspaper article on English and the garden Locks changes the currently accepted interpretation of this time period and may provide hints that English may have had more influence between the years of 1932-1940.

A document suggesting increase in compensation for Locks employees is dated 30 March 1936. English is listed as “Gardener’s Helper” and his salary at that time was \$1500 per year. English is the lowest paid employee listed and his senior colleague, Eckerstrom is salaried at \$1680.

The document shows that the employees listed were to receive a \$60 dollar increase in pay by July of that year. Of note is the remarks section which tend to either describe the employee position or remarks on the employee. The remarks are delivered with brevity

For handyman James J. Holland hired in 1918 the remarks are clear. "Holland is very efficient in practically all lines."

English's remarks follow. "Mr. English is very proficient in the propagating and care of plants. Present salary less than a lineman" (Locks archives).

A Seattle Daily Times (today's Seattle Times) article from 3 May 1938 further illuminates English's role in the garden before 1941.

"Within a stone's throw of the Lake Washington Locks, where ships from foreign countries pass...there blossoms a rock garden filled with exotic plants from many a foreign land. The unusual garden spreads for 300 feet along the narrow concrete driveway at the Government Ship Canal Locks in Ballard. In it are more than 700 varieties of flowers and plants arrange so that at least one of them is in bloom nearly every day of the year. The garden is the work of Carl English Jr., 8546 30th Ave N.W., who has toiled painstakingly for four years to make the garden nearly as great an attraction as the Locks, which lure thousands of visitors a month."

The article goes on to mention that the plants are from all of North and South America, New Zealand, Europe and Asia. English raised all of these plants from seed he had exchanged from his vast resources of 600 native species he had collected for propagation and barter.

The article simultaneously illuminates and asks a question. Chiefly it explains that this rock garden (bed # 119 and 120) is the beginning of the English garden. This correlates with English's own assessment that the garden began in 1932 (English 1972). It also contains the origin of a theme of many different plants in one place, blooming at all time of the year, with, presumably, a mixture of layers and textures (English 1972), (Freier 1989).

From here, beginning in 1932 to 1974 English's vision for how a garden should look began and radiated outward. The article is also notable for the lack of any mention of Eckerstrom, while both Eckerstom and English are credited with constructing the rockery Eckerstrom goes unmentioned (Freier 1989), (Koykka 1969), ("Garden" 1938).

These two pieces of information help recreate this period of the garden. English was clearly being recognized both by his employer and by the press and public as a talented gardener whom was worthy of notice and acclaim.

Previously a first period of development between 1915-1940 was delineated as a time before the influence of English was prevalent on the grounds. A subsequent "cut-off" date

of 1941 was listed as the time in which radical changes characteristic of English and the garden as it is known today began. (Freier 1989).

This Nascent Era is a time when English was beginning to practice in his rock garden a gardening philosophy and practice that he would later reproduce, in different styles but not theory, over the entire grounds at the “cut off” date. This philosophy and practice radiated out from the beds of 119 and 120.

7.6 Fleming Era post-1989 report: Construction of Entryway Phase I & II including the Circular Drive, and the subsequent expansion of bed(s) 215 band stage plaza and fountain

The preparation and publication of the 1989 report was mid-way into Fleming’s career. While some of the changes that had brought the writing of the 1989 Report such as planting of trees in lawn areas ceased after publication two major events occurred at the Locks.

These two events fundamentally changed the original character of the Locks. The change in the roads and sidewalks thus changed the shape of many bed and planting areas. The garden’s character was reactive to this change in superstructure and operations.

7.6.1 Rehabilitation of the North Entryway 1979-1989

This project reconstructed the north entrance to the Locks and was completed in two phases.

Phase I added a new parking lot with associated landscaping installed by a landscape architectural firm, a historical consistent concrete guardhouse structure replacing a wooden guardhouse, new paving, and fencing (USACE 1998).

Phase II repaved the entire promenade and associated walkways, sidewalks, and road ways adjacent to the Administration Building and was completed in 1989 after publication of the 1989 report (USACE 1998).

7.6.2 Entryway Phase I

Phase I was completed in 1982 and changed the north entrance to allow for two entrances, one for visitors and one for employees while also adding a new parking lot. Originally vehicles

The plantings made in the new parking lot and adjacent were completed by a landscape architecture firm and consisted of mass plantings of single species. This action did not conform to the qualities of the garden and was inconsistent with the features that contributed to the LWSCNHD (Freier 1989).



Figure 20 Summer 1988 prior to Phase II construction. Note new guardhouse and paving. This paving would soon repave the promenade and all adjacent hard surfaces. Locks archives

7.6.3 Entryway Phase II

Entryway Phase II changed the project hard surfaces including the hard surface areas adjacent to the Administration Building and Visitor Center and to all of the garden beds adjacent. These changes adjacent to the Administration Building were suggested to against and instead their preservation was advised (Freier 1989).

The removal of sidewalks and altering of the road in the area adjacent to the Administration Building had a significant effect on the layout of the grounds and so to the garden beds surrounding.

The justification for this change in roads was not found. The roads and sidewalks themselves were not listed as a contributing factor on the nomination for the

Historic Register (USACE 1978). This roadway development also occurred before the programmatic agreement on preservation was implemented (USACE 1998).

The Circular Drive construction project, File # C1845 was the 2000 repaving of the curved road that runs for a quarter mile west of the promenade (Locks archives).

This project united the paving design element found in Entryway Phase II with the reset of the roadways at the Locks. Compared to the Entryway Phase II plan the project had very little impact on the character of the Locks superstructure. It did however, place much strain on Fleming and he was able after much effort to make sure that no trees that lined the road were harmed during construction (Carter 2018).



Figure 21 Looking north note the sidewalks, curbed promenade sidewalk, and planting beds. 21 May 1969. Locks archives

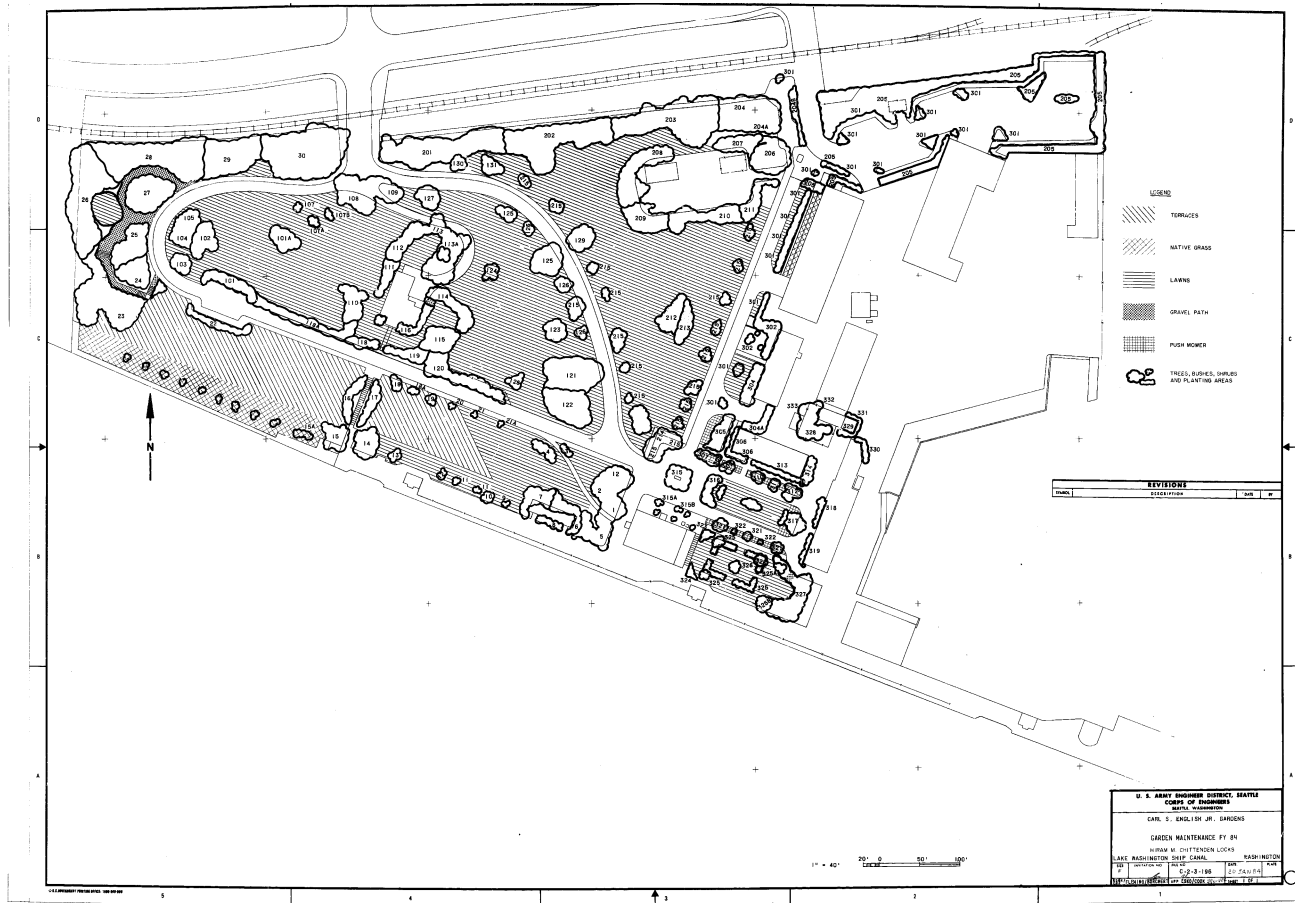


Figure 22 C-2-3-196 grounds and garden beds 1984. Locks archives



Figure 24 Looking north with view of promenade after Entryway II construction 27 June 1996. Note the change in vegetation and garden bed footprint. Locks archives

7.6.4 The expansion of bed(s) 215 including band stage and fountain

In reaction to the changes to the promenade and adjacent areas near the Administration Building the garden expanded at the southernmost end of the promenade.

In 1989 the NRS had developed a summer band program that hosted local musical acts free of charge on Saturdays and Sundays during the summer, the concerts were hosted on lawn in the center of the garden.

Due to the heavy traffic the lawns endured a temporary non-permanent band stage was installed. Although this action countermanded the 1989 Report the reasoning was that because of the change in use for the area there would be a heavily degraded lawn if the summer band program continued. Similarly, the garden beds adjacent the band stage expanded due to lawn degradation (Carter 2018).



Figure 25 28 June 1992 Seattle high school All-Star band performing, note the dry and apparently compacted condition of lawn and shading of it by trees. Locks archives

Fleming also installed a water feature to the immediate south of the band stage. The justification, which was approved, was that this replaced a similar fountain that was located on the lawns to the west of the Cavanaugh House (Carter 2018). This fountain had been installed by Eckerstrom in 1928. English removed this feature circa 1942 because of pipe and foundation failures (Koykka 1969).



Figure 26 Band stage and beds 214 and 215 4 May 2019. Stephen J. Munro

7.7 Present Era: Installation of a barrier fence at the Cavanaugh House

The Present Era has seen little change. The only notable event regarding a change of infrastructure was the 2012 installation of a security fence around the Cavanaugh House. There was a wooden fence that surrounded the residence and a portion of it remains today, although heavily degraded (Freier 1989).

This installation also produced the 2013 joint study on the landscape at the Locks ostensibly in mitigation for this action (NPS USACE 2013). The fence did not alter the beds themselves or cause either bed expansion or retraction.



Figure 27 House with wooden lathe fence 18 July 1967. Locks archives

8. CARL S. ENGLISH JR. BOTANICAL GARDEN MANAGEMENT PLAN

8.1 Intent

The intent of this plan is not to go into precise detail on each and every possible or probably eventuality the garden may face. An endeavor of that scale may prove impossible and even if it were achievable. Unforeseen variables and changes over time could easily be rendered useless and obsolete.

This plan needs to remain relevant and useful. The best way to assure this is to provide a basis of common understanding about the garden. This management plan is intended to provide the reader with a basis of “how to understand and think about the garden” in order to manage it properly for all eventualities rather than “what to do in the garden”.

This plan provides a foundation for how to approach management tactics and strategies in the garden. It is intended to give the reader proper situational awareness and to then compel that the right questions be asked before planning on a management action. In this way this plan encourages personal agency in management actions and it can be

used more effectively and provide guidelines on how to plan for both foreseen and unforeseen eventualities.

8.2 Operational context of garden within the mission of the LWSC

There are three primary operational facets of the LWSC mission:

- Provide navigation for vessels into and out of lakes Union and Washington to or from Puget Sound
- The freshwater level of lakes Union and Washington shall be maintained between 20 to 22 feet above sea level
- Minimize salt water intrusion into the inland lakes

The LWSC has an economic impact of 1.2 billion and is vital for dependent tribal governments, local government, private enterprise, and public use.

The LWSC is also the salmonid species passage artery provided by the Locks fish ladder to the Cedar and Sammamish river watersheds. This fish passage is a crucial mission and also is governed by federal law as related to ESA and treaty rights to the Muckleshoot and Suquamish nations.

A tourist attraction, the Locks hosts over a million visitors per year and provides pedestrian and bicycle access across the lock and dam to and from the Ballard and Magnolia neighborhoods in Seattle (McDowell 2017).

8.2.1 Garden in relation to LWSC operations

The garden's operation is subordinate to the operation of the LWSC. In **7.6** the garden was reactive to changes as a result of operational changes to the infrastructure of the Locks. Planting beds expanded only after the roadways were expanded and sidewalks removed thus creating space for the beds to fill in.

The garden is also subordinate in day to day operations related to the maintenance of the Locks. An example of daily operation subordination could be pruning trees so a crane could travel down the promenade to assist in Locks maintenance. Or, the decision circa 2000 of not replacing a tree adjacent to Cavanaugh House so Locks maintenance could have better access to it (Carter 2018).

The garden is limited in exposure to affecting operation concerns due to the original design. The garden has potential to interfere with operations only adjacent the promenade, administration building, lock wall, and Cavanaugh House.

8.2.2 Legal, regulatory, and designation framework

The garden is a contributing factor to the LWSCNHD and was designated by USACE in honor of English in 1974. The garden is regulated by NHPA, NEPA, AHPA, PBCUA,

ESA, ER-1130-2-540 and CFR: Title 36. This suite of laws, regulations, and designations need to be reviewed and considered when making management and operation decision about the garden.

8.2.3 Garden visitation

Current estimates of visitation to the Locks are estimated at near 1.25 million annually (McDowell 2017). The majority of these visitors are headed directly to the lock sides and the fish ladder and fish ladder viewing room as they head down the promenade. About ten percent will visit the gardens themselves (Freier 1989).

8.2.4 Residence of the Seattle District Engineer

The James B. Cavanaugh House constructed in 1913 to provide a residence to then LTC Cavanaugh during locks construction. It has been continually occupied since that time. In 1967 it was made the official residence of the Seattle District engineer which has been, with one exception, and continues to be a Colonel of the U.S. Army (Locks archives), (USACE 1998). This residency creates yet another layer of operational responsibility as the Locks and garden is the private residency Seattle District Commander. The contentment and security of the residents is of paramount importance for the LWSC.

8.3 Layers of garden development over the five garden eras

The garden has multiple layers of development in space, substance, and time. **6.11** introduced a new interpretation of garden eras based on the three identified and delineated in the 1989 Report, the Original from 1915-1941, English from 1941-1974 and Present from 1974-1989 (Freier 1989).

8.3.1 Original Era 1915-1930

The early plantings of the garden of plants were furnished SBPC (English 1972, Freier 1989, Koykka 1969). The first full time gardener, Henry S. McCarty was hired in 1920 and Gustaf Julius Eckerstrom (Eckerstrom) was hired in 1925 and served in capacity of lead gardener until 1941 (Freier 1989). During this time period landscape architect Otto Humdahl designed the “formal beds” to the east of the administration building in 1927 (Koykka 1969). This action is significant as it shows probable original intent that the grounds be treated more as a garden rather than a park.

8.3.2 Nascent Era 1932-1940

The influence of English began in 1932. Chiefly this influence is seen in the development of the “rockery” of beds 119 and 120. So remarkable was this rockery garden it was written about in a local paper (“Garden” 1938).

A closer examination of plant introductions during this time hint that English very well could have propagated and/or planted them. *Sequoiadendron giganteum* in bed 12 in 1933 and the *Cedrus libani* in bed 2 in 1934 hint at the aesthetic style and diverse species of plants English would later populate the grounds (Freier 1989, Koykka, 1969, USACE 1976).

Finally, English states plainly that the landscaping for the Lock's grounds began in 1916 but the garden as it would be commemorated in 1974 began in 1932. It is likely he would be referring to construction and planting of beds 119 and 120 and the subsequent planting written about in 1938 (English 1972).

8.3.3 English Era 1941-1974

The 1941 "cut off date" is both the promotion of English to manage the grounds and is the beginning of a complete transformation of plant material and expansion of current beds and creations of new ones (Freier 1989).

This era featured an explosion of labor, creativity, and plant introductions. English was ruthless in the substitution of the existing plant material. It was reckoned that 80% of the existing plants as of 1932 had been replaced 40 years on (English 1972).

Yet English did not alter the extant planting beds by removing them or the extant lines of trees. Existing planting beds were expanded and the plant material within them were changed and the species and variety of trees lining the roadways were changed but the beds themselves were not altered.

The character of the planting beds changed or were expanded yet many were kept during the English Era and through to the Present Era more or less as they appeared in 1930.

Beds 16, 17, 22, 101, 102, 108, 109, 212, 213, 315 and the formal beds of 325 along with the locations of tree lining the roadways fit this description. Beds 1,2,3,5,14, 318, and 319 were expanded. It appears English accentuated the landscape that already existed and never removed any beds save for a water feature (Koykka 1969).

The plants that he propagated by collection or exchange and he subsequently used to replace the original era plantings were unique. Slowly, they began to attract notice nationwide and locally by other botanic gardens and botanists (Dress 1957, Kruckeberg 1959).

After English retired in 1974 his successor Lyon made only a couple changes were made to the garden during his tenure in charge from 1974-1978 (Fleming 2015, Lyon 1978, USACE 1974, USACE 1976).

Lyon added a row of *Malus* species to the bottom of the largest terraced lawn in beds 15B, C, and D. Lyon also added an espaliered apple tree adjacent to the west wall of the Cavanaugh House (Freier 1989).

Lyon also continued the changing out of older tree species lining the loop road, presumably just as English would have done. Lyon and Fleming removed most of the original maples using chainsaw and crane. These trees were replaced with the same *Aesculus carnea* var. *Briottii* that lined the promenade. Lyon and Fleming decided to keep a few of the remaining Original Era maples (Fleming 2015). These trees still exist in 2019 in beds 127 the Sycamore maple, *Acer pseudoplatanus*, and 125 and 129 Norway maples *Acer plantanoides*.

8.3.4 Fleming Era 1978-2004

This era is critical to the stewardship to the garden and represents a time period of structural change to the grounds. Fleming spent the beginning of the time period coming to grips with managing the garden. During this time Fleming worked out how to steward the garden. This endeavor was aided by the 1989 Report and the work of Fleming and his assistant for over a decade, Jonny Martin (Fleming 2015).

Features of the Fleming Era include:

- Following in the footsteps of English without a plan
- Significant guidance from Lyon was not provided other than maintaining the status quo.
- Learning better how to steward the garden by contacting English's peers at the University of Washington and Washington Park Arboretum
- Developing management strategies for the maturing vegetation in planting beds
- Absorbing the hard surface and structural changes wrought by Entryway Phases I and II
- Additions to the garden (Rose garden) and later respecting recommendations of the 1989 Report
- Preservation of English's plants
- Propagating existing English plants to have replacement on hand
- Maintaining lawn areas in respect to maturing vegetation and heavier traffic due to visitation and new event series
- Trying to keep beds intact by preventing people walking through them
- Addition of notable plants to the garden
- Intent to develop a management plan
- Attempt, nearly completed in 2004, to inventory and tag all the plants of the garden

Lyon did not leave Fleming with a management plan upon retirement. Fleming scrambled to figure out the best way to manage the grounds in the absence of a plan. In his estimate many of the beds were overgrown and some of the significant plants were in danger of being lost. On his own initiative Fleming took counsel from English's peers Mulligan of the Washington Park Arboretum and Kruckeberg to guide his decision making (Fleming 2015).

Fleming also experienced the most extensive reworking of the Lock's superstructure during Entryway Phases I and II. This work necessitated areas of garden to expand as related in 7.6.



Figure 28 Fleming, Alan Hernandez, and Jerry Gray in bed 204 adjacent to the front entrance circa 1993. Note the use of boulders in the bed. This area was changed by Entryway Phases I and II and the impossibility of maintaining lawns previously there. Locks archives

Fleming made some additions to the garden including the Rose garden and the planting of trees and addition of trails in lawn areas. The 1989 Report evaluated some of these actions and recommended that the trees and trails in lawns be removed while sparing the rose garden (Freier 1989).

Some notable additions is a trail and stairway that were added to in northwest part of the garden dubbed “The Cove”. The 1989 Report found this development inconsistent with the character of the garden. Its relative obscurity meant that it was of a low priority for removal (Freier 1989). Fleming viewed the stairs and trail as a way for people to experience an inaccessible part of the garden and enjoy the view afforded there (Fleming 2015). The path and stairway remain.

A rose garden adjacent the administration building in 1988 and two wooden trellis replacing a bed of open lawn and geometric shaped beds (Freier 1989). The reintroduction of roses and a rose bed was reasoned because beds 16 and 17 previously hosted roses thus providing a historical precedent (Carter 2018).



Figure 29 Lawn and beds where rose garden was installed circa 1970. Locks archives



Figure 30 Rose garden in 1989. The wooden trellis were removed after preparation of 1989 Report. The rose garden was later raised and grass removed. Locks archives

The maintenance of lawn areas to not be reduced, recommended by the 1989 Report also proved difficult. As the trees and shrubs in the beds matured grass was sapped of sunlight and could no longer be grown.

Increased traffic to the garden also necessitated the use of plants to act as a border so people would not trespass and disturb the plants in the planting beds. Many of these plants consisted of thorny or rapidly growing species.

Fleming was constantly surprised and at times in awe at the technical proficiency of English and his uncanny ability to place hard to grow plants in exactly the right place (Fleming 2015). This presented problems as English's extraordinary gifts as a botanist and horticulturalist made preserving his work difficult. Fleming was crestfallen by the loss of a plant English had raised and made much effort to build up a stock of replacements by vegetative cuttings ("Faces" 1992).

The garden began to experience two problems of operational management in respect to preservation of lawns and the preservation and integrity of English's plant collection. Three dilemmas begin to be experienced in the garden.

First, where English's trees and plants are preserved as they mature grass can no longer grow where it once did. Or a plant of English's is lost, yet the surrounding vegetation makes it impossible to replace the lost plant as it required full sun to grow and the bed is now too shady. Thirdly, as English's trees matures and grow, sometimes spectacularly so and of a far larger size than the tree grows in its native habitat, the associated shrubs and herbs English planted near these trees can no longer grow. While some English plants are preserved, some suffer, decline, and die in relation thus changing the character of the bed and of the garden.

To remedy the former and to add to the collection, during this period many significant new plants were added. Some arrived from the National Arboretum, some donated by Kruckeberg and his wife Mareen, and some purchased from specialty nurseries. Many of the plants introduced are rare in cultivation or in their native habitat.

Fleming also introduced a tradition of seasonal color displays featuring annuals and cold tender plants displayed in the spring and summer months.



Figure 31 Fleming and Jonny Martin planting a castle design filled with begonias for the 75th anniversary of the LWSC in 1992. Locks archives

Fleming was later promoted, like English, to SDH. He had intended that a management plan be prepared internally. He had planned to work with Seattle District Historic Landscape Architect Terry Taylor, who had developed planting plans at Fremont and Montlake Cuts, to draw up a management plan that would take into account historic features of the garden. The management plan went initially unfunded and Taylor's death postponed the project indefinitely (Carter 2018).

During these final years of his career Fleming also began to document the plantings via a Microsoft Access accession database and a plant tagging program via a Gardenware program. Fleming was able to document much of the garden but he fell just short of this goal before his retirement.

During his career Fleming was much respected, admired, and liked by Locks and Seattle District employees for his exemplary service in stewardship of the garden (Carter 2018). Fittingly, a bronze plaque featuring him and describing his contributions adorns the garden adjacent to the pond and band stage in bed 214A.

8.3.5 Present Era 2004- 2019

The present era is distinct in marking a break in the leadership structure that had managed the garden for the majority of its existence. This era marked was the first time in 63 years that there would be no SDH at the helm of the garden.

Two employees viewed by Fleming as possible successors, Alan Hernandez (Hernandez) and Brian Carter (Carter). At the time the staffing consisted of a General Salary (GS) 11 horticulturalist, Fleming, and two Wage Grade (WG) 8 gardeners, Hernandez and Carter. GS are white collar and managerial positions whilst WG are maintenance and non-managerial positions (OPM 2019).

Records show various tasks being handed off to Hernandez and Carter in the early 2000s that Fleming would have been in charge of to prepare them for the role as SDH (Locks archives). While this was accomplished and both employees were groomed for leading the garden neither would fulfill this role. Hernandez and Carter would soon leave the garden either through retirement or transfer by 2007 (Locks archives).

After 2007 the SDH position went unfilled and in the place of the previous staffing structure three WG level employees. By 2009, in place of the previous staffing structure of SDH and two gardeners three WG level gardeners filled those roles.

This left the role of managing the garden ostensibly to the NRM manager, a GS-12 position. It is unclear whether the job description associated with the GS-11 horticulturalist was thus also transferred to the GS-12 NRM manager.

Without a management plan in place the garden had lost a direct line of management style marked by authority and tradition in the form of an SDH. Like Fleming in 1978 the staff was adrift without a plan.

The three problems that plagued the garden during the Fleming era, maturing plants and loss of lawns, loss of plants and inability to replace them in kind due to cultural or physiological requirements, and the success of plants to the detriment of others, only became more pronounced.

While the loss of plants became more common due to maturity, disease, or damage cause by severe weather the garden still maintained accord with the LWSCNHD and the 89 Report. Yet the plant collection declined and there was difficulty in finding a remedy.

Questions continually presented themselves and could not be resolved effectively.

The unresolved questions follow:

- Who planted a plant?
- When did they plant it?

- What was the plants origin?
- What plants are important?
- What plants should be kept?
- What plants should be removed?
- What plants shall replace them?
- Shall and/or should a plant be replaced in kind?
- Which plants ought to be replaced?
- Which of English's plants can be reintroduced?
- What shall the character of the beds be in different parts of the garden and what determines this?
- What happens to lawn areas that can no longer grow grass due to shade?
- What texts or authorities are to be followed related to garden management?
- Have the proper texts and authorities been consulted?
- Are the proper texts and authorities being followed?
- Is this action detrimental to the contributing historic value of the garden in relation to the LWSCNHD?

Adding complexity to the lack of an SDH and a management plan any decisions that are made could be viewed as subjective, haphazard, or ahistorical.

Despite this ambiguity without a plan, planting beds have been renovated and many new plants have continued to be introduced to the garden.

8.4 A Botanical Sanctuary: What the garden is

8.4.1 English's botanical sanctuary

This garden is a "botanical sanctuary" (Kruckeberg 1959).

Carefully constructed and nurtured by a plant discovering botanist yet self-described "dirt gardener" (Dress 1957). English, who introduced four plant species to science (two of which would be given variety status) while scouring the mountains of Washington and Oregon made contributions to the knowledge of the currently accepted *Montiaceae*, *Plantaginaceae*, and *Talinaceae* (Freier 1989, Hitchcock and Cronquist 2018). He also introduced several hybrid plants to horticultural (Dress 1957, English 1947, Freier 1989).

What grew from these labors is a niche garden. This is the garden of a botanist with a gift for selecting plants suitable to horticulture and a highly skilled grower who could cultivate almost any plant he endeavored to. English also knew how to make the best of the challenging soil conditions at the Locks and had an uncanny ability to place a plant in exactly the right spot (English 1972, Lyon 1978). The garden is a reflection of

English's wide ranging and eclectic use of plants and the garden should continue to emulate this vision and practice.

The key to defining this garden are the two attributes that makes it genuinely unique. These two things are the singular setting at of the Locks and garden and the rare and unique plants that English weaved into the landscape.

8.4.2 English's plants



Figure 32 English's plant discoveries on display during the "Garden Tea" commemorating the garden during the LWSC Centennial. From left to right is *Lewisia columbiana* var. *rupicola*, *Penstemon euglaucus*, *Claytonia megarhiza* var. *nivalis*, and *Talinum okanoganense*. 20 May 2017

The plant listing published for the XI Botanical Congress in 1969 features a dizzying collection of plants from every continent plants grow (USACE 1976). Indeed, to the "knowing eye" the plant list becomes even more impressive.

The trees, shrubs, and plants are composed of every conceivable type of plant from conifers to palm trees, showy rhododendrons to common though far less exotic

though still distinctive native huckleberries. The plants also hail from almost every imaginable habitat from the sub-alpine of the Himalayas to the sub-alpine of the Pacific Northwest, the arid regions of the Great Basin to the North African desert.

English seemed to favor plants in the *Ericaceae* and *Fagaceae* family although it was difficult to pin down if he had any favorites at all given the range of plants he grew (Lyon 1978). Using the 1976 brochure as a guide, English's plantings are at once amazing and audacious.

English would grow any sort of plant from the hardscrabble and rugged jack pine (*Pinus banksiana*) and huckleberry oak (*Quercus vaccinifolia*) to ostentatiously beautiful and delicate plants of the genera *Magnolia* and *Rhododendron*. It is apparent that if English took a fancy to a plant he would propagate it and grow it and do this remarkably well.

English would also plant plants that he had collected that were perhaps not horticulturally significant but were botanically curious or of interest, such as the natural occurring "Azaleodendron", a cross between *Rhododendron macrophyllum* and *occidentale* he collected where the two species natural ranges overlap in southwestern Oregon, likely in Curry County, Oregon.



Figure 33 English's "Azaleodendron" in bed 211. This plant lacks the best attributes of both of its parents yet has a distinctive charm to itself as an individual and botanical and scientific specimen. Blooming 9 May 2019 it is at least 50 years old and could easily be missed by the unknowing eye. Stephen J. Munro

Not even weeds could escape the interest of English. A plant appeared on the grounds that was characteristic of the family *Solanaceae*. Lyon writes that English said it looked like a plant of the genus *Datura* while Lyon called it some kind of

“jimson weed”. A subtle “in joke” by Lyon, as “jimson weeds” are in the genus *Datura*. He and Lyon continued to let it grow in order to observe it careful that it did not go to seed (Lyon 1978).

At times English was unsuccessful in his attempts to cultivate plants he desired for the garden. The foxtail pine, *Pinus balfouriana*, an inhabitant of high places of California and particular favorite of English, would never be successfully grown in the garden. He and Lyon tried numerous times coax the tree into cultivation and Lyon himself was ultimately unsuccessful in this pursuit (Lyon 1978).

What remains a mystery is the breadth of plants that English had grown during his tenure that will stay unknown. The “700 varieties of flowers” described growing in beds 119 and 120 leaves a tantalizing hint as to what species of plants English did grow in the garden (“Garden” 1938). In **6.7.2** English’s seed catalogs represent a massive index of available seed that could have been used in the garden as well. These facts hint that English was an even more accomplished horticulturalist than he is even recognized as today. What other plants did English grow in the garden? This, at present unanswerable questions leaves much to contemplate regarding English’s horticultural and botanical nous.



Figure 34 Penstemon x Edithae a cross between P. barrettiae and P. rupicola English named for his wife. Photographed in garden display planter May 2018. Stephen J. Munro

During English's career at the working the Locks grounds his contemporaries referred to the grounds as a "botanical garden in miniature" or "horticultural mecca" (Dress 1957, Kruckeberg 1959). The garden is the life's work of a unique, hard-working, educated, dedicated, and creative individual thoroughly a product of the time he was

alive. Japanese gardens reflect the philosophy, culture and art of Japan so too does the garden reflect the philosophy and creativity of English (Habib et al 2013). The garden itself is a reflection of English in its unassuming utilitarian nature while singular and distinctive in content and character.



Figure 35 English leading a tour for the 1969 XI Botanical Congress in front of bed 316 featuring xeric plants and place rocks, note Elisabeth Carey Miller of the Seattle Garden Club to English's right This bed has changed dramatically due to the success of oak trees English planted there. Locks archives

8.5 How to emulate English in managing the garden

There is only one article that recorded English's commentary and aims for the garden. In the Summer 1972 article in *The Horticulturalist* English writes clearly and with brevity

regarding his commentary on the garden and the “aims to be accomplished.” The following commentary and “tenets” are the only record of what English himself intended for the garden. The following is intended to establish a shared understanding of English’s philosophy and intentions for his garden (English 1972).

8.5.1 English’s commentary

- Significant that the construction of the Locks also included a full time residence and a civil works project that set aside seven acres of grounds to be landscaped
- The “landscaping” of the garden began 1916 yet the “garden” began in 1932
- English was afforded complete independence in development of the garden
- Garden budget was small
- English grew nearly everything from seed he collected himself of through exchange or from plants he obtained in exchange (one plant purchase is known via Lyon)
- 80% of the plants that were extant on the grounds in 1931 had been replaced by English by 1972
- The performance of grading the Locks grounds was done with technical precision yet the fill soil used (Lawton series clay from the dredging for the Locks) created severe if not impossible conditions to grow plants on parts of the grounds
- The climate and weather of the Puget Sound lowlands provides a suitable place to test the suitability to cultivation of a wide range of plants

8.5.2 English’s tenets

- Continuously test out plants new to cultivation in the garden
- Keep pace with the expansion of plants suitable to cultivation in the region
- Share the choicer forms of plants grown in the garden to other botanic gardens and interested citizens
- Collect seed from the wild collected locally, regionally, and globally to propagate for plants in the garden
- Exchange seed and plants with other botanic gardens and citizens interested in botany, horticulture, and gardening worldwide
- Garden should consist of significant trees and shrubs with a rich mixture of unique herbaceous plants
- Endeavor to have noteworthy features of plants on display at all times of year in the form of flowers, coloring, or arrangement of the plants
- Create a brochure for the garden to aid educational opportunities for visitors

- Provide tours of the garden to any and all interested parties
- Staff the garden with employees with significant training in horticulture
- Employees properly advised in the objectives and philosophy of the garden
- A free hand granted to garden employees to continue development of the garden
- Continue to nurture “a garden that not only would be a joyous sight to see but also a garden worthy of serious study”

8.6 The landscape style of the English garden and 89 Report recommendations to conform to LWSCNDH as a contributing landscape

The 1989 Report identified that the garden is landscaped in the English landscape style which is a form of gardening and garden design that mimics nature. This produced a landscape of lawns resembling meadows, large shade trees, planting beds with curving lines eschewing right angles, and finally planting beds with a rich variety of plants both in size, shape, and character. This style of landscape was championed by the Olmstead brothers in Seattle at Volunteer Park and the Washington Park Arboretum, now the University of Washington Botanic Gardens Arboretum (Freier 1989).

The 1989 Report recommendations to maintain the historic character of the garden follow verbatim but reordered:

- Maintain diversity and interest of plant species. Do not plant like species together in large clumps. Continue to use the garden for botanical experimentation
- Maintain open grass areas (maintain as much grass as possible)
- Maintain lines of individual trees where lines exist or existed as seen in historic photographs. Do not fill-in with understory between trees
- Maintain undulating lines along borders
- Maintain variety of textures, colors, and flower forms
- Plant beds with multiple layers of different vegetation
- Allow vegetation to take as natural a form as possible (excluding extant hedges)
- New trails should not be added where trails did not previously exist
- Protect overused areas with cable and concrete post barriers on an as need and temporary basis
- When identifying plant species with markers, place the marker close to the sidewalk or place stepping stones in the bed to prevent people from walking in the beds

8.7 1994 Master Plan Section on the Botanical Garden

Repeated here is the section on the botanical garden, this report has changed the numbering for clarity. This section provides an essential guide to formulating plans in the garden and as it is within the Master Plan (MP) guides planning at the project.

Subjects under numbers 2 and 3 appear relatively clear yet operationally and physiologically are far more complicated to put into practice. The preservation of maturing vegetation can complicate or make impossible operationally and physiologically the objectives in 2 and 3.

Section 11.2.11 Botanical Garden

Preserve, maintain, and restore the garden in the style set forth by Carl S. English Jr. The following are recommended developments within the garden:

- (1) Remove elements which are inconsistent with the Historic District and Secretary of Interior's Standards as described in the 1989 Historic Grounds Report.*
- (2) Continue to actively pursue replacement of historically significant plant materials, which have died or been removed, with in-kind species. Tree species should be replaced as soon as feasible due to their impact upon visual and physical structure of the garden.*

The following are ongoing activities recommended to continue:

- (3) Preserve the botanical diversity of the garden by supplementing existing planting beds with new or experimental plant species which fit the character and style of the garden. Original sizes and shapes of plants beds shall be maintained to the extent possible and not necessarily expanded for these purposes.*
- (4) Maintain accurate records of plant material loss and replacement dates; collection, purchasing or propagation of replacement plants; and routine vegetative management performed within the garden.*
- (5) Enhance visitor enjoyment and understanding of the garden by identifying and labeling major/significant plants within the garden. Tagging system shall be durable and readable, yet inexpensive to purchase, install, and maintain (USACE 1994).*

8.8 Unique position of the garden in relation to LWSCNHD and NPS Treatment of Cultural Landscapes and desirability of garden as a cultural landscape

8.8.1 The USACE designation of the garden

The USACE designated the grounds at the Locks be named after Carl S. English Jr. on 11 December 1974.

It is rare that a part civil works project is named after a living person yet the Seattle District did so in naming the gardens after English shortly after his retirement. The USACE honoring English by garden designation is accompanied by a command signature and is unique to the USACE and LWSC (USACE 1974).

This USACE designation also preceded the nomination and NPS designation of the LWSCNHD by four years (USACE 1978). Later the garden was listed as a contributing historic landscape feature of the LWSCNHD (USACE 1998).

To form a basis for management this plan establishes 11 December 1974 as the precise time when the grounds became the garden and also the attributes that became a contributing historic landscape. The career of English is seen as primary and fundamental to this contributing historic landscape.

In this way the operation of the garden can meet the “push” of landscape style of the garden as a contributing landscape and the “pull” of the botanical and physiological elements of the garden.

8.8.2 English garden as a cultural landscape

Cultural landscape guidelines as set forth by the NPS shall be respected to preserve and maintain the LWSCNHD regarding management and operations of the garden. It is a responsibility to preserve the garden as a contributing landscape to the LWSCNHD.

The NPS cultural landscape standards are not prescriptive and are devised for the formulation of responsible preservation of those landscapes (NPS 1996).

The English garden could be not just a contributing landscape to the LWSCNHD but a “historic designed landscape” or a cultural landscape on its own. The definition of a historic designed landscape is “a landscape that was consciously designed or laid out by a landscape architect, master gardener, architect, engineer, or horticulturalist according to design principals, or an amateur gardener working in a recognized style or tradition” (NPS 1996).

It was identified that English worked in the English landscape style and his final title was SDH (Freier 1989). Clearly English met the above criteria for a historic designed landscape. It is an open question as to whether it would be advantageous in preserving the work and philosophy of English for the garden to be considered a “historic designed landscape” or simply remain a contributing landscape to the LWSCNHD.

Whatever designation that helps best protect the work and philosophy of English is recommended as the desired designation. The intent here to put the work of English above any particular designation.

9. CARL S. ENGLISH JR. BOTANICAL GARDEN PLAN: OPERATIONS AND MANAGEMENT

9.1 Plant Collection: 1982 and 2019

9.1.1 1982 Plant families, genera, and species

Mendelson's 1982 plant inventory was a significant achievement and was completed "by hand" using typewriter set catalog cards and final list. Mendelson's inventory yielded approximately:

- 76 families
- 216 genera
- 489 species

These numbers are approximate as they were hand counted from the inventory located in the 1989 Report's appendices and therefore could contain some margin of error.

9.1.2 2019 Plant families, genera, and species

This plant inventory was made possible using Microsoft Access. The current plant inventory or "accession database" was begun by Fleming 2003. Many hands have contributed to this database in the 16 years since it was created.

In fall 2016 gardener Anna Welland revamped the format of the inventory and adopted the Chicago Botanic Gardens 2012 Plant Documentation Plan and Policy located in **Appendix C**. This revamped format improved the ease of use considerably and provided a stable framework to work from. The 2019 plant inventory would not have been possible in the period of time allowed without her reorganization of the Accession database.

A decade of experience added this endeavor in plant recognition and identification yet there was much field check work and identification to be completed. Beds were field checked in April and May 2019. Only significant individual plants were counted. Most of these were deliberately planted yet some could have been recruits that appear to have been planted. Generally, recruits of ornamental plants and weedy species were omitted. It is hard to specify exactly what are recruits in beds and what aren't. Subjective as it is, experience working in the garden gives a good idea as to what types of plants commonly recruit in beds.

Results varied for families, genera, and species. These number variations were due to spelling errors, erroneous data entry, etc. As more effort was placed into correcting these errors combined with repeated field checks of plants in the garden the more

precise the inventory became. The final and inventory is both the most conservative and most precise list. See **Appendix A** for full planting list.

The 2019 plant inventory yielded approximately:

- 144 families
- 400 genera
- 883 species

9.2 Plant Collections Policy Background and Recommendations

9.2.1 Background

The garden has never had a formal collections policy. Emphasis has continually been placed on the propagation replacement of plants English had cultivated at the Locks (“Faces” 1992). There has also been a guideline to continue to experiment with new plants in the garden (Freier 1989, USACE 1994).

English collected or exchanged for seed, scions, and cuttings and was a superb propagator of plants so it followed that he grew the vast majority of plants for the garden by himself. There was little budget to purchase plants and given the sort of plants he was growing it is surmised to be highly improbable he could have purchased them anyway (English 1972). There are few instances of the garden purchasing plants under English (Locks archives, Lyon 1978).

During the Fleming Era vegetative propagation of plants continued but personal seed collection or exchange of seed appears to have ceased. Plants were obtained from the National Arboretum.

Nurseries began to offer unique and rare plants so purchases were made for them. Examples include the then Forest Farm or Siskiyou Rare Plant Nursery of Oregon which supplied the garden with many unique plants, some even that English discovered, grown or were plant hybrids he had developed.

Into the Present Era the nursery purchases continued. Seed collection trips (like English’s done on personal time) have renewed along with seed purchase and some exchange of seed and plants with gardens and individuals.

9.2.2 Recommendations for Collections

Since English’s retirement the collections focused around propagating remaining Rank 1 plants. Many plants that English cultivated are sometimes extremely difficult to grow. at English can again be emulated to guide a collections policy. Luckily, many more nurseries and even some seed companies offer wild collected seed and/or rare or unique plants in the region.

There is a shortage of space in the garden for the introduction of new plants. Care should be taken to select plants that follow the tradition of experimenting with rare plants in the garden. Propagation, cultivation, and purchase of common garden plants outside of use in seasonal color displays or on “formal beds” east of the Administration Building composed of commonly cultivated perennials and bulbs.

Collections recommendations:

- Collect seeds from the wild and then propagate for use in the garden
- Purchase wild collected seed some current companies include ALPLAINS, Inside Passage Seeds, and Northwest Native Seed
- Exchange for wild collected seed with gardens, clubs, and individuals
- Exchange for rare or unique seed from cultivation with gardens, clubs, and individuals
- Exchange rare and unique cuttings and plants with gardens, clubs, and individuals
- Purchase plants from nurseries that have grown their plants from wild collected seed or cuttings. Regional nurseries that currently practice this include Chimacum Woods Nursery, Cistus Design Nursery, Far Reaches Farm, Keeping it Green Nursery, Rhododendron Species Botanic Garden Nursery

9.3 Garden Plant Collections Documentation: Accession of plants

In 2003 the garden began to use Microsoft Access to inventory the plantings. This initial database was useful but incomplete. In 2016 the database was overhauled and the Chicago Botanic Garden’s Plant Inventory Plan accession methodology was adopted for use in the garden. This greatly enhanced the garden’s inventory capability and the current inventory would have proved impossible to accomplish in the time period allowed for preparation of this report and plan if this groundwork had not been laid.

9.4 Plant Significance Hierarchy

9.4.1 Introduction

As the garden matures and plants jostle for light and space crucial decisions regarding which plants are to be kept and protected and which need to be removed. As in **8.3.4** many of the difficulties encountered during Fleming’s tenure only became more pronounced.

In the garden all plants cannot be of equal importance or value. It would it be impossible to manage the garden if they were. A useful syllogism helps explain.

“All plants in the garden are equal in value (either valuable or expendable). The plants found in this particular bed are thus all equal in value (either valuable or expendable). All of these plants shall be (kept or removed).”

This position is unrealistic in maintenance of the garden. Some plants need to thrive and some plants need be removed to accomplish this. How then is it to be determined which plants are valuable and which are less so? Which plants shall be kept, which plants preferred to be kept, which plants have an indifferent status, which plants shall be removed immediately?

The Plant Significance Hierarchy (PSH) provides a schema to remedy these questions and provides a framework for actions. Plant Significance Hierarchy Definition

The PSH is an assignment of a ranking of significance to plants in the garden. These ranks are derived from the overarching goal to preserve the work on English and to maintain the historic integrity of the garden (Freier 1989, USACE 1994).

9.4.2 Plant Significance Hierarchy Intent

The PSH is introduced here in order to establish a mechanism to develop a management strategy that maintains the integrity of garden in accordance with the 1989 Report and the 1994 LWSC Master Plan.

The PSH is intended to mitigate personal subjectivity from decision making processes and management and operations strategy within the garden.

The PSH is a mechanism to meet management objectives and is foundational to other decision making trees or schema.

This mechanism includes the ranking and preservation criteria of a plant and the corresponding removal and replacement criteria.

Preservation and removal are mirror actions yet they are separated here to aid decision making. Depending on the action the emphasis for an individual plant or bed could be on preservation or removal. The criteria for preservation or removal differ in number of options.

A plant's preservation or removal status is not a call for action in itself. Instead, when action is necessary or being contemplated the preservation or removal status guides decision making and objectives.

By making a definitive ranking of plants a framework for objective decision making in garden management is now available. The ultimate intent of the PSH is to construct a process that leads to a relatively uniform agreement on the ranking and significance of plants in the garden by anyone who has read, understands, and applies it. A methodology for establishing the priorities for preservation, removal, replacement, and introduction of plants is introduced here.

Plants are ranked from 1 to 4 and follow:

9.4.3 Plant Significance Hierarchy Components

9.4.3.1 Rank

The rank of a plant determines its significance and this criterion then sets the preservation, removal, and replacement criteria. There are four ranks of plants in the garden and each corresponds to a different criterion.

9.4.3.2 Preservation Criteria

The rank of a plant corresponds to the preservation criteria of a plant. The preservation criteria are:

- Preserve always (excepting threat of imminent injury or death to Corps employees or visiting public and/or destruction to government property and/or if the plant is mortally diseased, dying, or dead)
- Preservation desired
- Preservation unnecessary or not required

9.4.3.3 Removal Criteria

The removal criteria is conditional upon the rank of the plant. The criteria for preservation are:

- Removal prohibited
- Removal not recommended
- No constraints on removal
- Remove

9.4.3.4 Replacement Criteria

The replacement criteria is utilized after a plant has been removed. There can be multiple replacement criteria and they are:

- Replace in place and in kind. If this is not possible for operational or physiologically significant reasons then replace in kind somewhere in the garden.

- Replace with plant of similar characteristics. Characteristics include plants of the same genus or family, a plant of a similar morphological similarity. This could be replacing a conifer with a conifer that is of a different genus or family yet appears, at first glance, similar. Or replacing a plant with one that possess a similar feature like peeling bark or showy blossoms.
- No criteria for replacement
- Replacement unnecessary
- Do not replace

9.4.4 Plant Significance Hierarchy

9.4.4.1 Rank 1: English Era Plants

The defining criterion are plants known to be planted by English by reference of the 1976 Brochure (except *Eucalyptus rodwayi*). In future the Accession data base shall contain all appropriate information on rank

- Preserve always
- Removal prohibited
- Replace in place and in kind where operationally and physiologically feasible

9.4.4.2 Rank 2: Significant plants of all other Eras

The defining criterion are plants from any of the four garden eras that are rare in the wild or cultivation, of distinct horticultural or botanical significance, of obvious aesthetic value, or of unique interpretive significance.

- Preserve always
- Removal prohibited
- Replace with plant of similar characteristics, no criteria for replacement, replacement unnecessary

9.4.4.3 Rank 3: Original Era plants

The defining criterion are the known remaining trees from the original plantings between 1917 and 1931.

English was ruthless in his removal and replacement of many of these plants that were typical of gardens east of the Mississippi (English 1972).

Lyon and Fleming had decided to preserve what known original trees were left after almost all of them had been deliberately removed by English, Lyon, and Fleming to make way for new and more horticulturally or botanically significant species (English 1972), (Fleming 2015), (Freier 1989) (Koykka 1969), (Kruckeberg 1959), (Lyon 1978).

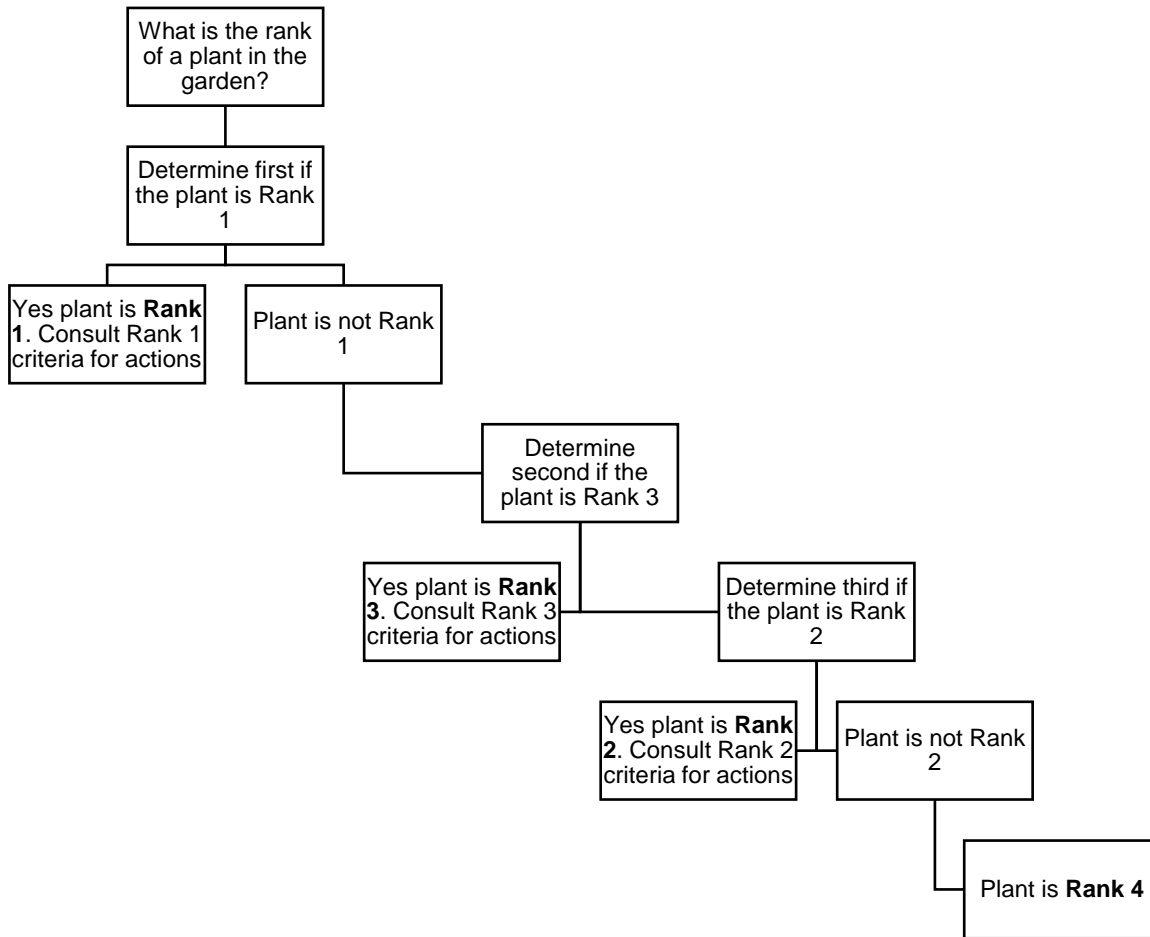
- Preserve desired
- Removal not recommended
- Replace with plant of similar characteristics, no criteria for replacement

9.4.4.4 Rank 4: All other plants

The criteria for these plants are ones that don't fall into the first three ranks of plants, they could ornamental plants deliberately planted, weeds or invasive weedy plants ornamental plants, and/or are recruits or wild volunteer plants

- Preservation unnecessary or not required
- No constraints on removal, remove
- No criteria for replacement, do not replace

9.4.5 Plant Significance Hierarchy Decision Tree



9.5 Planting Bed Evaluation: Context, Complexities, and Decision Tree

The garden is divided into dozens of beds. These beds may be on the edges of or in middles of lawns, and adjacent structures. In some cases bed numbers may denote individual trees. The majority of these single tree beds line the roads of the Locks and often have the same bed number specifically bed numbers 215 and 304.



Figure 36 The most current bed map of the garden drawn for Trees of Seattle 2004. Courtesy Arthur Lee Jacobson and Keala Hagmann

9.5.1 Context

In reference to 8.7 the 1994 LWSCMP 11.2.11 lays out the current policy for the garden:

Section 11.2.11 Botanical Garden

Preserve, maintain, and restore the garden in the style set forth by Carl S. English Jr. The following are recommended developments within the garden:

- (1) *Remove elements which are inconsistent with the Historic District and Secretary of Interior's Standards as described in the 1989 Historic Grounds Report.*
- (2) *Continue to actively pursue replacement of historically significant plant materials, which have died or been removed, with in-kind species. Tree species should be replaced as soon as feasible due to their impact upon visual and physical structure of the garden.*

The following are ongoing activities recommended to continue:

- (3) Preserve the botanical diversity of the garden by supplementing existing planting beds with new or experimental plant species which fit the character and style of the garden. Original sizes and shapes of plants beds shall be maintained to the extent possible and not necessarily expanded for these purposes.
- (4) Maintain accurate records of plant material loss and replacement dates; collection, purchasing or propagation of replacement plants; and routine vegetative management performed within the garden.
- (5) Enhance visitor enjoyment and understanding of the garden by identifying and labeling major/significant plants within the garden. Tagging system shall be durable and readable, yet inexpensive to purchase, install, and maintain (USACE 1994).

9.5.2 Obstacles to operational implementation of LWSCMP 1994

Numbers 2 and 3 both appear on their face rather straightforward but operational and physiological complexities present themselves routinely to hinder application of these policies practically.

Number 2 does not specify what exactly would be “historically significant plant materials”. The report and plan recognized historically significant plant materials as Rank 1 plants.

Section 3 forwards that “experimental plant species” should be used but also fails to specify. The recommendations for collections in **9.2.2** coupled with the Rank 2 designation should be used to understand this.

Complexities of decision making and accord with recommendations arise when plants physiologically cannot be replaced in kind and in place as stated in **LWSCMP 11.2.11**. In 2012 a Rank 1 and mature *Pinus sabiana* or grey pine suffered developed into a mortal injury because of the failure of a large limb just below the crown of the tree.

The wound left behind was severe enough that the tree had to be removed for operational regions, in this case visitor and employee safety. The tree could not be replaced in kind or in place. The surrounding understory trees and plants, particularly a mature Rank 2 *Quercus phillyraeoides*, Ubame oak, was growing beneath it. This oak was added later to the collection and is a rare tree in Seattle circa 2004. The garden is one of two public places this species could be observed (Jacobson 2004).

The success of this Rank 2 *Q. phillyraeoides* now physiologically prevents the reestablishment of the *P. sabiana* to the bed. The latter needs full sun to grow and the success of the former prevents this. A dilemma now arises.

Is the *P. sabiana* not replaced because of the *Q. phillyraeoides*?

Is the mature and relatively rare *Q. phillyraeoides* removed in order to reestablish the *P. sabiana*?

In this case the *P. sabiana* is also found in bed 327. The tree is not replaced in place and in kind do to physiological reasons yet, luckily, it is also not lost from the collection as it is found elsewhere.

As the garden matures these dilemmas will only increase in frequency. The requirement to meet the LWSCNHD and honor English's legacy presents difficult questions with answers that may be unsatisfactory and do not meet the objectives of 11.2.11 #2.

9.5.2.1 Beds

Beds are not to be expanded in accord with the LWSCNHD nor are they to be expanded for the sole purpose of introducing new plant materials. As discussed in 7.6. garden beds have been expanded where grass can no longer grow. Expansion of beds can be because of operations as in 7.6.1 and also in 7.6.2 reactive to construction or because of visitor use and activities 7.6.3. In each case the garden was reactive to operations of the LWSC.

The garden also reacts to maturing vegetation. Thin strips of lawn areas at the northwest and northeast sections of the garden eventually were turned into walking paths as turf could no longer grow there. While the 1989 Report states that no new trails should be added. Presumably, the grass was used for walking and in the absence of its ability to grow these walkways were presumably preserved.

9.5.2.2 Lawns

The 1989 Report and the LWSC MP both stress that lawns are to be maintained and preserved. Yet this trend has become increasingly difficult as vegetations matures.

Beds 121, 122 and 123 according to C-2-3-217 were constructed in the Original Era (Locks archives). These beds represent the greatest refugia of Rank 3 plants on the project consisting of conifers *Chamaecyparis pisifera* or Japanese cypress in beds 122 and 123 and *Thuja occidentale* var. *zebrina* a variegated Western Red Cedar in bed 123.

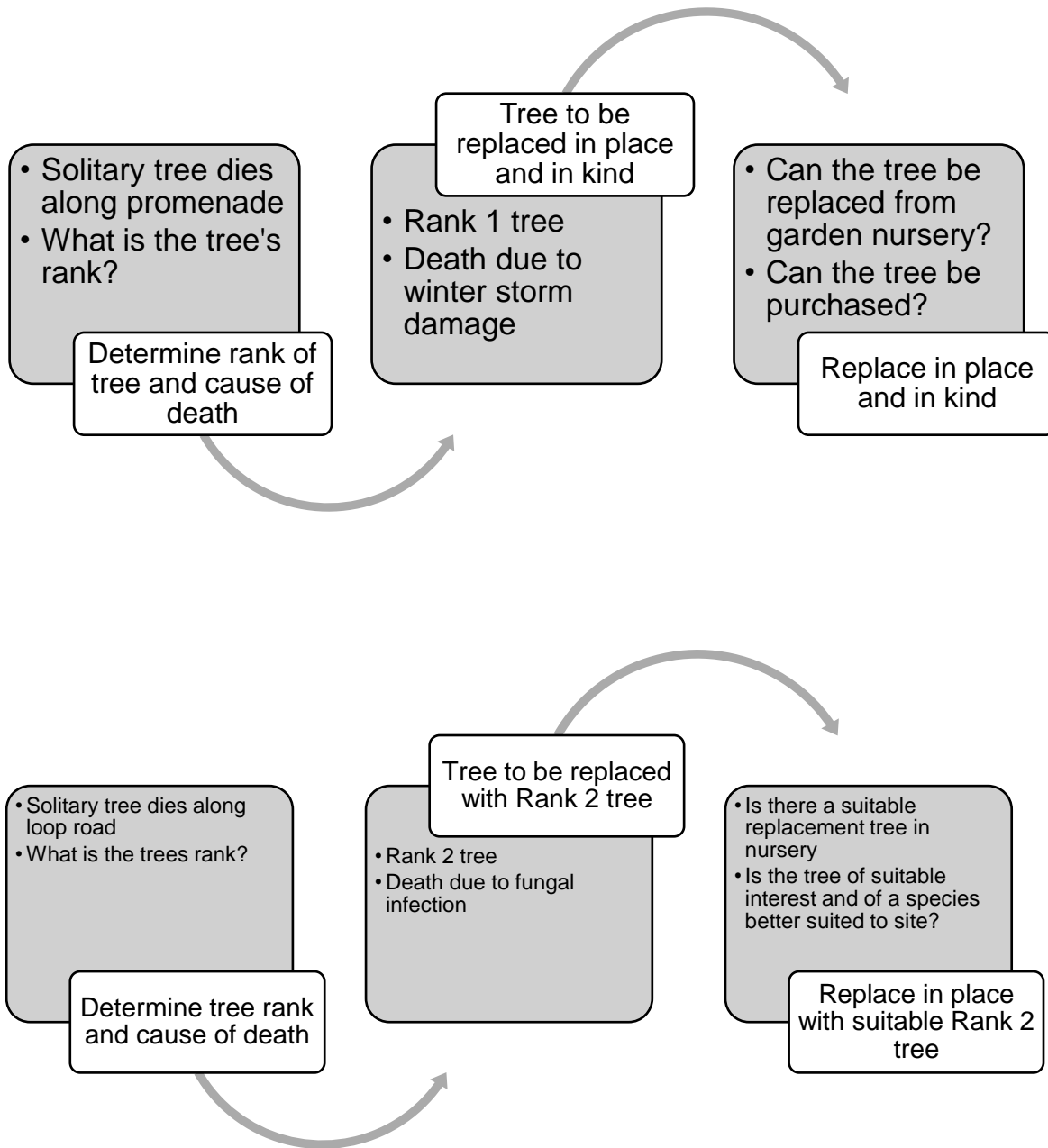
Apparently English approved of these Rank 3 plants in these beds and in beds 122 and 123 saw fit to accentuate the beds with other trees and shrubs including plants of the genus *Rhododendron*.

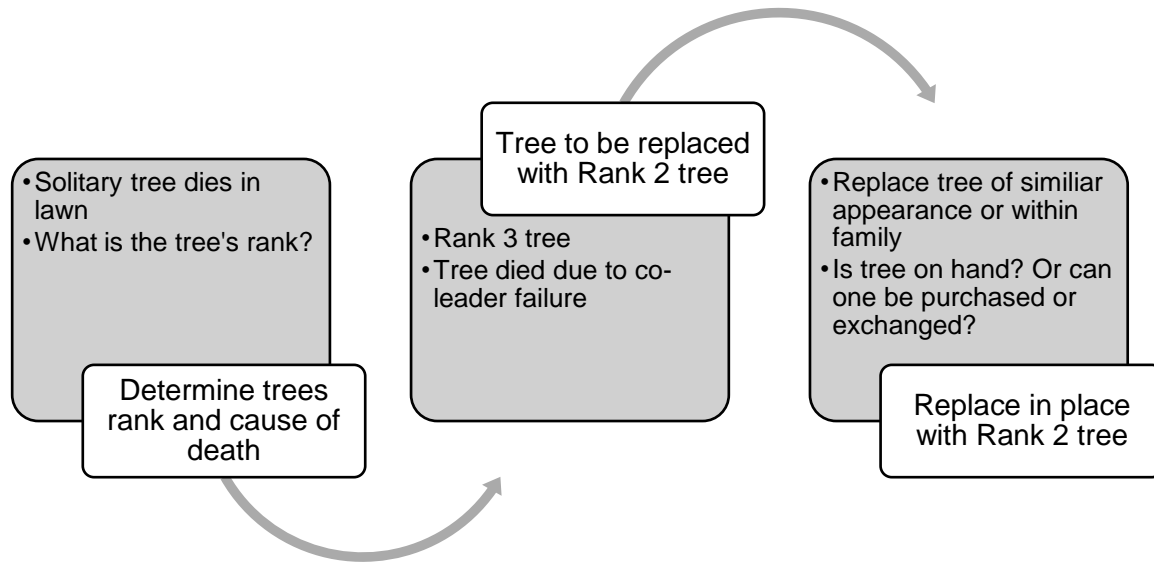
The majority of these conifers are alive and continue to grow. The *Thuja occidentale* var. *zebrina* has matured from a pyramidal golden tree to a massive multi-branched specimen. It is probably that soon this area will soon no longer be able to support grass. In that eventuality these two beds will have to merge.



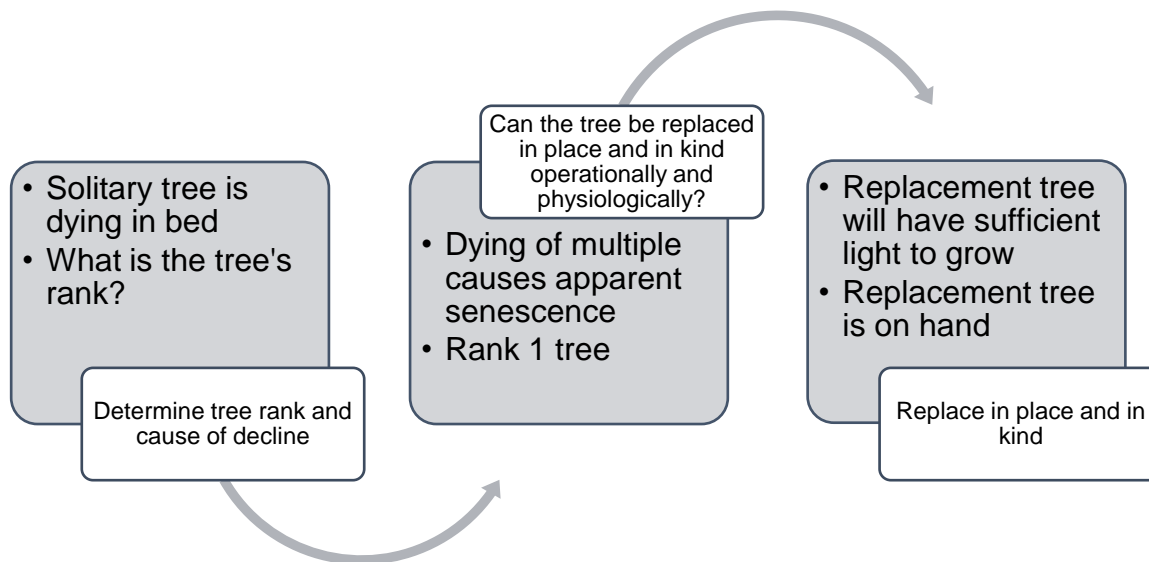
Figure 37 Beds 121-122, and 123 May 2019. Note the isthmus of lawn between the two beds and lack of healthy grass as maturing vegetation closes in. Stephen J. Munro

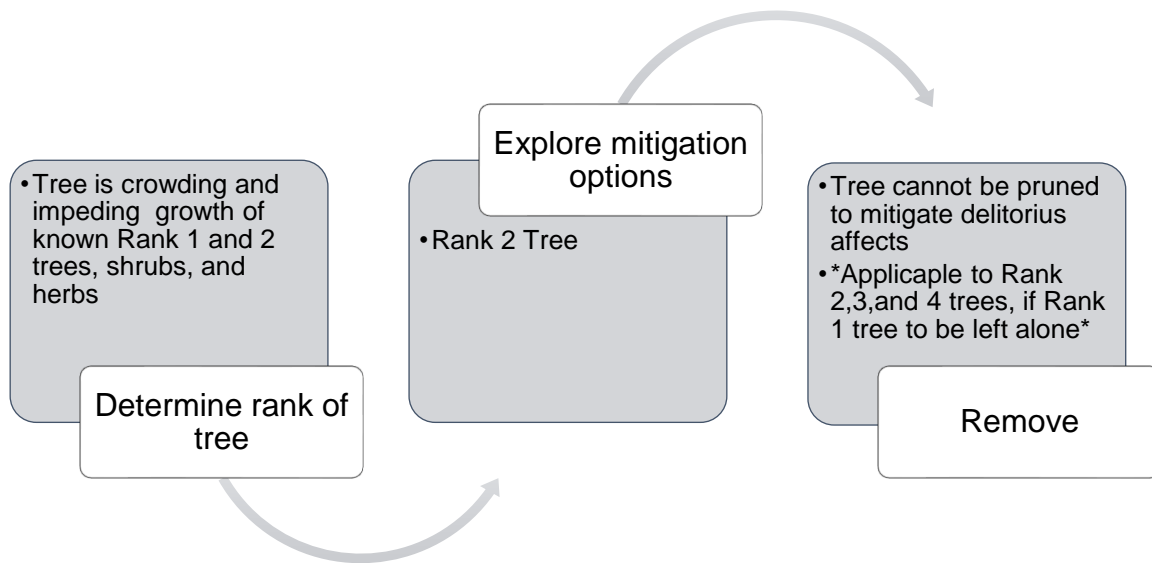
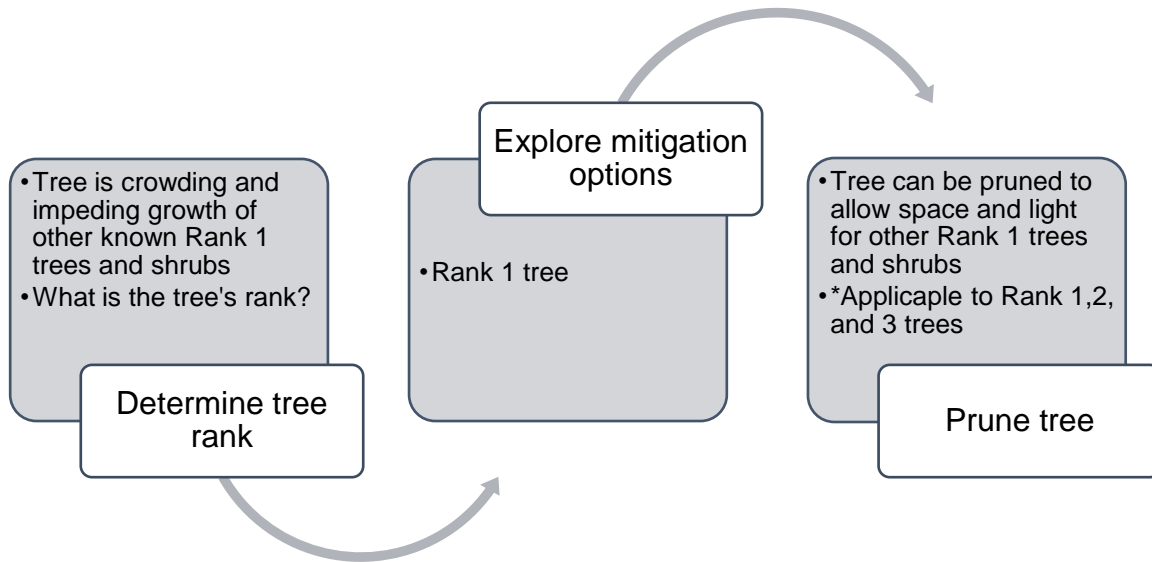
9.5.3 Decision Tree processes for Solitary Tree Replacement

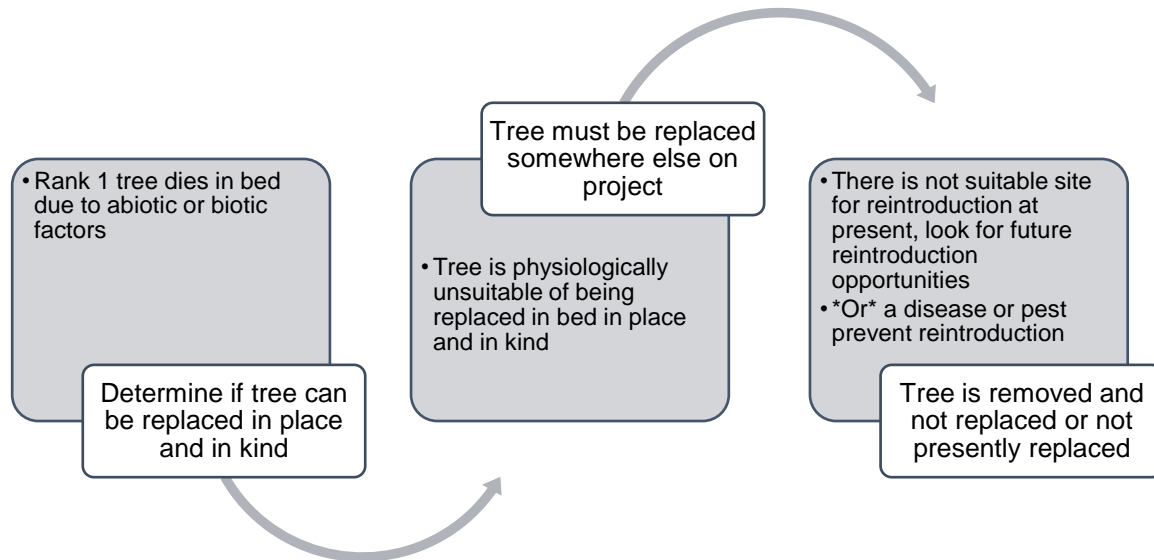




9.5.4 Decision Trees for solitary trees or shrubs in beds







9.6 Bed Renovation or Preservation: Evaluating beds in context using history of bed, bed integrity related to population of Rank 1 plants, relative health aesthetic appearance of bed, opportunities for enhancement

The cause of indecision regarding planting beds in the garden is a lack of understanding the historical context of the bed and the population of Rank 1 plants. The questions could be posited this way. Is this bed preserving English’s work, is it healthy, and/or does it require improvement?

A lack of understand of these factors leads to inertia in decision making and the degradation of planting beds over time. The lack of understanding is due to the lack of a management plan and the heretofore scattered information related to bed history and content. Information could be gathered on these beds but only after much study and the juxtaposition of multiple document.

Even equipped with all of the information available making a decision as to whether to renovate or preserve a bed is still difficult. Preservation of English’s work and accord with LWSCNHD is a priority yet as has been illustrated operational and physiological this is more complicated than at first glance.

Only a few beds retain the character and majority of Rank 1 trees, shrubs, and herbs as of 10 December 1974. These notable beds 5,6,7, and 8 conjoined beds 212/213, 318, 319, 327, 328, 330, 331, and 332 and to a lesser extent the conjoined beds 121/122. Every other bed in the garden has lost Rank 1 plants and has added Rank 2 and Rank 4 plants since 1974.

The following are recent bed renovations as examples of preservation or renovation.

9.6.1 Beds 212/213

These conjoined beds, colloquially known as the “swamp bed” were planted by English with a mixture of hydrophilic plants. In bed 212 dawn redwood, *Metasequoia glyptostroboides*, bald cypress, *Taxodium distichum*, bayberry, *Myrica californica*, European horsechestnut, *Aesulus hippocastanum*, and gunnera *Gunnera manicata* and in bed 213 tupelo, *Nyssa sylvatica*, sweetgum, *Liquidambar styraciflua*, and tulip tree *Liriodendron tulipifera*.

At some stage since 1974 golden bamboo, *Phyllostachys aureus* had been introduced to the bed and had run rampant obscuring the view into, out of , and through the bed. In 2003 Fleming had suggested that the bamboo be removed from the bed as it was not historic and was degrading the bed’s integrity (Locks archives).

In Summer of 2009 work began to remove the bamboo from the bed and after a series of mechanical removals and chemical control bamboo was extirpated from the bed. IN 2010 the sweet gum failed and was removed yet was then replaced in place and in kind.



Figure 38 gardener Stephen J. Munro clearing the 'Swamp Bed' 1 July 2009. Locks archives

After this initial clearing smaller measures were made to improve the bed over time. The gunnera plant which died of cold weather in the late 1970s cannot be reestablish because of lack of water likely because of surrounding tree maturity and the amount of water these trees uptake (Lyon 1978).

Though not listed in the bed in 1974, umbrella plant, *Darmera peltata* is clearly visible in a 1982 photograph yet had been lost. Sections of this plant growing in bed 15 were divided and transplanted to this area. Skunk cabbage, *Lysichiton americanus*, is also seen in photographs of this time. Due to physiological reasons of large trees and less available water that affected gunnera reestablishment, the reintroduction of this plant has also been unsuccessful.



Figure 39 The "Swamp Bed" 212/213 May 2019. Leaning *Malus* at right is a recruit to the bed. Stephen J. Munro

Two tree recruits had established themselves in the bed English yew, *Taxus baccata* and himalyan crab apple *Malus baccata* var. *himalaica*. The yew was removed in Autumn of 2018 before it became too large while the crab apple is growing at the edge of the bed and has been left because it is beautiful in bloom.

9.6.2 Bed 22

Dubbed the "Overlook Bed" this bed lies atop the largest terraced lawn with a concrete wall for viewing and stability of the surrounding concrete. It is a bed that has had a surprisingly little changes made to it during the English era given it consisted of plants present before his tenure.

As of 1974 the bed consisted of two large cherry laurels, *Prunus laurocerasus* on the flanks and in the center of the bed *Spiraea x Vanhoutei* with Fremont's tassel bush, *Garrya fremontii*.

By 1989 the *Spiraea* remained yet the tassel bush was gone and the cherry laurels had been replaced by tan oak, *Notholithocarpus densiflorus* on the east end of the bed and Japanese cedar, *Cryptomeria japonica* on the east end. An Indian plum, *Oemleria cerasiformis*, possibly a recruit, had established itself there and was flourishing. A Japanese maple, *Acer palmatum*, with superb red coloring had been planted in the middle of the bed but there was no record of its planting in the garden accession.

In 2011 root rot killed the tan oaks on the west end. This was due to irrigation water overapplication or unnoticed leaking of the irrigation system. Initially a Texas live oak, *Quercus fusiformis* establish in 2013 yet it died of root rot as well in 2016. After this failure a Applebox, *Eucalyptus bridgesiana* replaced it due to its attractiveness, novelty to garden, and unrelated plant family to avoid and mitigate susceptibility to fungal infection.

In 2015 the Japanese cedars were removed on the east end to make way for a rare Baker's cypress, *Cupressus bakeri* and a whiteleaf manzanita, *Artostaphylos viscida*. The *Spiraea* remained yet the plant had become unsightly and weed control was difficult with weeds growing amongst the stems of the plants. Garbage also collected in this area and was difficult to remove.

Since the bed was made up of Rank 3 plants excepting the tassel bush by 1974 and the plant editions since had either failed or were taking space that could be used by more meritorious specimens. This bed had little English Era influence on it and the plants that had been planted there since were not of sufficient merit to keep. The Japanese cedar could be found in two other beds of the project and the tan oak four other beds. The bed presented a wonderful opportunity to introduce many new plants to the garden due to the heat island effect it provided in addition to good drainage.



Figure 40 Bed 22 prior to renovation Summer 2016. Stephen J. Munro

In 2017 a full renovation of the bed was planned and executed. The plan consisted of moving the *Spiraea* to a concrete pier in the operations area of the project (one small *Spiraea*, growing with the Indian plum was left to keep the plant extant in the bed). Subsequently the maintenance section move a crane there to place rocks in the bed to add to the radiant heat qualities. After this was completed dozens of plants new to the garden from Cistus Design Nursery and Forest Farm along with Locks grown wild collected plants were added to the bed. This bed was to feature some plants previously lost to the garden and would provide an opportunity for plants requiring full sun and good drainage. Here plant family *Cactaceae* would be introduced for the first time along with a dozen new genera.



Figure 41 Lock and Dam mechanic Steven G. Hansen signals crane while gardener Stephen J. Munro places boulder October 2017. Michelle K. McMorran

When completed the bed had not only improved the operational safety and aesthetic condition of bed 22 and the overlook it had also added greatly to the plant diversity in the garden. It also provides a place to add plants English used to grow here in other beds but can no longer survive in their original beds due to physiological barriers such as shade.



Figure 42 Bed 22 May 2019. Stephen J. Munro

9.6.3 The Heritage Tree and preservation and reestablishment in beds 1,2, and 2A.

In 2004 shortly after Fleming's retirement the most iconic Rank 1 plant on the project was removed. The canyon live oak, *Quercus chrysolepsis* was nominated to be a Seattle Heritage Tree in the 1990s. Plant Amnesty of Seattle informed the garden of the nomination and it became a Heritage Tree shortly thereafter(Locks archives).

After a catastrophic limb failure in 2004 and after much investigation by multiple arborists the tree was removed to ensure employee and public safety. The tree itself was irreplaceable yet there was opportunity to replace the tree in place and in kind.



Figure 43 Michael Fleming in front of the Heritage Tree 2003. Locks archives

Near the Heritage tree in bed 2 grew a Deodara cedar, *Cedrus deodara* (English had thought the tree was a Cedar of Lebanon, *Cedrus libani* and listed it as such in 1974). This tree's appearance appeared frail in the 1990s and in a prescient action Carter planted a Cedar of Lebanon directly behind the tree in the early 2000s. In 2014 the Deodara cedar suffered a catastrophic failure of the branch and was removed. This left these beds with the loss of two major Rank 1 trees but there was opportunity to both renovate them and preserve their historic integrity.



Figure 44 Beds 1 and 2 with Heritage tree in left foreground and cedar on its right 21 May 1969. Locks archives

After the removal of the Heritage Tree numerous changes had been made to the shrub and herb of the bed layer. An opportunity for replacing the Heritage Tree was captured by replacing it in place and in kind. In emulation of English, the replacement tree's seed was collected near Collier tunnel Del Norte, Country California.

While this bed certainly will not look the same ever again it is still possible to renovate and preserve the work of English. In cases where it is possible it should be attempted.



Figure 45 Beds 1 and 2 cedar to left of shadow small oak above shadow three quarters to the right May 2019. Stephen J. Munro

9.6.4 Visitor Center bed renovation 2015

The bed directly abutting the Visitor Center to the west was a new one that owed its existence to the superstructure changes from Entryway Phase II in 1989. The bed has no historically precedent until then.

Consisting of a small number of Rank 1 trees adjacent to the building, this bed was composed of a variety of plants common to horticulture. In Winter of 2014 a large branch fell of a Himalayan white pine and destroyed the plants on the south side of the bed.

A large castle shaped hedge, in homage to the Corps of Engineers, which had been previously obscured from dense vegetation was now more visible.

Because of the novelty of this bed to the garden and the opportunity to add plants to the garden a renovation was planned in Spring of 2015. Large granite boulders had been added to the bed in 1993 and these were rearranged with some new granite stone added. A raised gravel bed was added and numerous new plant genera and species were added. These plants came from both wild collected seed grown plants from the Locks and from Far Reaches Farm Nursery. The concept for the bed envisaged a bed that could harbor new plants to the nursery and bring back plants previously lost to the garden.



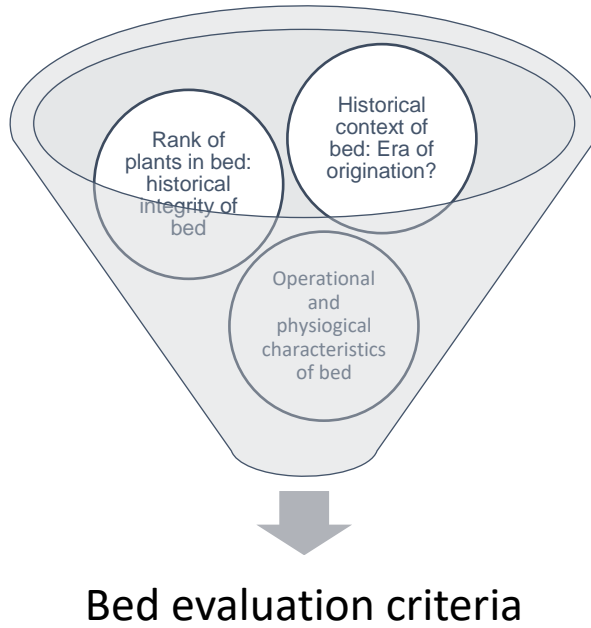
Figure 46 Visitor Center bed Spring 2015. Stephen J. Munro

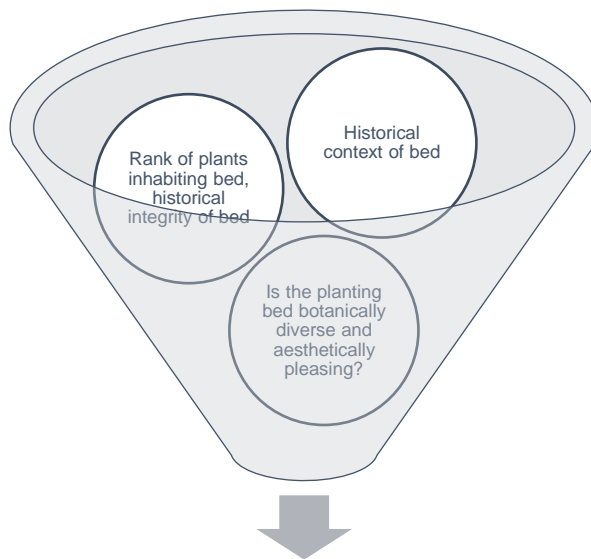
9.7 Bed Evaluation and Renovation Decision Processes

Bed evaluation and renovation should be evaluated upon the history of the bed to Rank 1 plants in the bed, and the operational and physiological advantages or disadvantages the

bed presents. All complexities cannot be envisaged yet the following decision trees are meant as an aid for evaluating beds.

What historical contexts should be considered when evaluating a bed? What era is this bed from? What plants inhabit the bed? What are the operational and physiological characteristics of the bed?

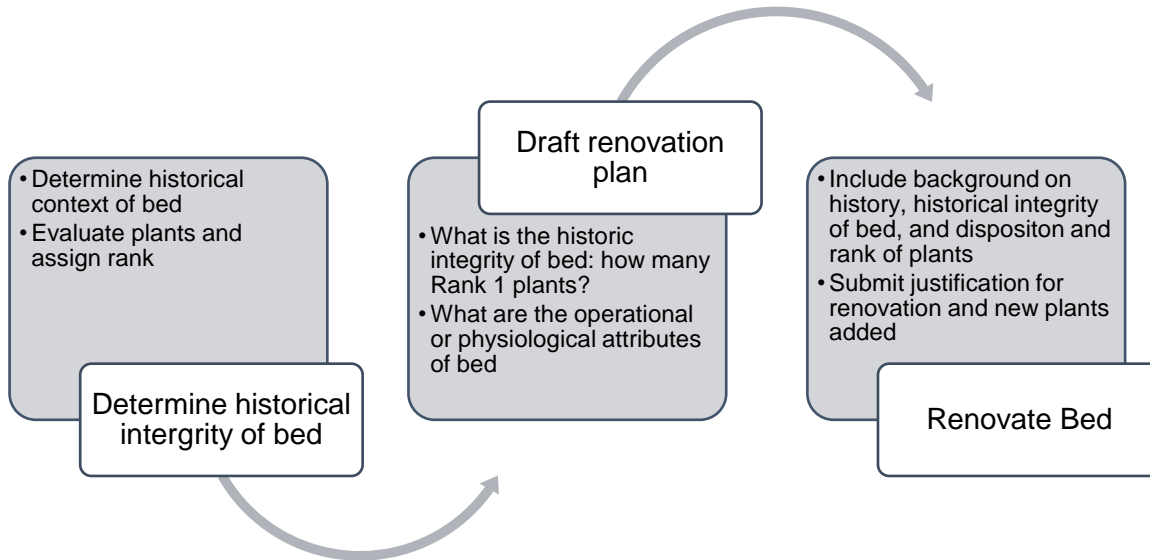




Bed renovation justification

9.7.1 Bed renovation decision process

Bed renovation should be documented. A brief overview of the bed, justification for renovation, and new plants added should be included.



10. BED AND AREA DESCRIPTIONS: A SUPPLEMENT TO THE 1989 REPORT

The 1989 Report is included in **Appendix B** and its bed and area descriptions starting on page 95 may be referenced along with this supplement. The objective of this section is not to reiterate the 1989 Report as the description there refer to the changes in the beds over time and their composition. This is a commentary on the current state of the beds.

An assessment on the historic disposition of the beds, commentary, and recommendations for near term changes are included below.

The most current map is reproduced again here:



Figure 47 The most current bed map of the garden drawn for *Trees of Seattle* 2004. Note Bed # 13 had been reintroduced and not shown here. Courtesy Arthur Lee Jacobson and Keala Hagmann

10.1 Bed and area descriptions and recommendations by number

The following is aided by a source which is a copy of 1976 Brochure with the description of extant plants in beds and in some cases their movement to other beds. The writing is in pencil and presumably done by Fleming circa 1978. ALJ also offers invaluable help with these descriptions from his 2004 tree survey. *The Encyclopedia of Rhododendron*

Species by Peter A. and Kenneth N.E. Cox was critical in sorting out the numerous rhododendrons growing in the beds and determining which were species or hybrids.

1, 2, 2A-These beds are in reality an amalgamation of beds previously distinct forming a triangle with a separate island of a lone canyon live oak *Quercus chrysolepsis* just west of the main bed. This area has endured much change yet attempts have been made to reintroduce and preserve the original plants of the bed. Its historic integrity is high in because of the reintroduction of its Rank 1 trees.

Its location also makes it a notable interpretive feature of the garden. Bed **2A** features a statuesque specimen of dawn redwood, *Metasequoia glytostroboides*. The beds also are home to a display garden of daylilies, a partnership between the LWSC and the Puget Sound Daylily Society.

3-This bed has integrity in the tree layer with both *Poncirus trifoliata* and *Quercus glauca*. The shrub layer has changed with the addition of *Bupleurum* and *Camellia* species.

4-The original holly oaks, *Quercus ilex* are still in this bed but the tree and shrub layer has changed. Wet conditions in the bed have influenced these changes. Drainage is a significant concern in this bed and the bed was excavated and refilled to allow for better drainage after the holly oaks showed decline in 2010. Subsequently the oaks have slowly recovered. In the wet portion of the bed ferns, *Gunnera* and *Darmera* have been added to the bed to take advantage of these conditions while also hoping to sop up water before it reaches the roots of the oaks.

5,6,7,8-Colloquially known as the “bathroom beds” these beds surround the “Comfort station” that was constructed in 1948. Photos show that English planted outside of this structure immediately after construction. (Freier 1989, Locks archives). Some trees and shrubs are found in 1974 had been moved or perished since. A significant species loss to the garden that has yet to be reintroduced is the *Fremontodendron californicum*. Yet many Rank 1 plants still remain and the impressive growth of the remaining plants have cloaked the structure. The *Mahonia haematocarpa* were moved here by Fleming from 315A after 1978 (Locks archives).

Notably, the original rhododendrons of the bed have reached tree like proportions. Significant rhododendrons include Rank 1 *Rhododendron* x ‘Cynthia’ in bed 6 adjacent to the female entrance door. *Rhododendron fortunei* var. *discolor* ‘Houlstonii’ group. This, the largest of the rhododendrons in bed 7 was originally described as *Rhododendron houlstonii* yet over time it has been nested within the current position (

9,10,11,12,13,14-These beds are with exception of beds 9 and 14 single trees. Beds 9 and 13 have changed species since 1974 with *Malus yunnanensis* in the former and Garry oak, *Quercus garryana* inhabiting the latter. Bed 14, featuring the giant sequoia is also populated with yucca.

15-This bed adjacent to the largest terraced lawn is composed of most of the original trees and shrubs. A robust population of *Darmera peltata*, perhaps relocated by Fleming is used to divide and repopulate this species in other areas of the garden. The two English *Rhododendron* hybrids also merit further investigation as to their registration.

16,17-These two beds flank the stairs leading from the Locks monolith to the Cavanaugh House have high integrity with almost all of the original trees and shrubs still extant in the bed. The coast live oak, *Quercus agrifolia* is perhaps even more impressive than the Heritage Oak of bed 1. Two significant members of *Fagaceae* also inhabit the bed *Castanopsis cuspidata* from the National Arboretum planted in the Fleming Era a Rank 2 plant

and *Lithocarpus edulis* a Rank 1 plant.

18,18A,19,20,21,21A-These line of oaks and beech were planted by English late in his tenure. Regular pruning is required of these oaks to ensure the physiological health of the surrounding trees and beds.

22-As described in **8.5.2** this bed is wholly new in composition and can serve as a “refugia” for plants requiring full sun and xeric conditions.

23-“The Cove” applies to beds 23,24,25,26,27 and 28 but beds will be treated in together or individually.

Outside of the current fence line was home to a massive pacific madrone, *Arbutus menziesii* is composed of now of a mix of large oaks and pines. A leaning Italian alder, *Alnus cordata* is a unique inhabitant. Due to the slope and out of the way nature of the bed the shrub and herb layer are dominated by weeds.

24,25-These beds are composed of most of the Rank 1 plants. In 2015 two planted or possibly planted scarlet oaks, *Quercus coccinea* were removed as they were retarding the growth of surrounding Rank 1 trees particularly the Interior live oak, *Quercus wislizeni*, and the mountain hemlock *Tsuga mertensiana*. Both trees are remarkably small in comparison to other Rank 1 examples of these threes in the growing in the garden.

The area had also been plagued by drug and alcohol use due to the lack of visibility into the area. There was even a fire in the area due to the dropping of a superheated glass pipe in the dry vegetation. Visitors and employees were wary in this area and began to avoid it. Litter of alcohol containers and hypodermic needles spurred action to remove ivy in the bed and thin the area out in 2015.

Several interesting shrubs have been added to the understory particularly *Camellia grisjii*, *Pseudotaxus chienii* and *Rhododendron sinofalconeri* the latter grown from wild collected seed from northern Vietnamese population. This bed can continue to be enhanced by the introduction of unique species that thrive in partial shade.

Notably this bed also harbors a large grove of the tan oak, *Notholithocarpus densiflorus*.

26-The Rank 1 conifers of this bed are still in evidence Bamboo that preceded Eckerstrom still inhabits the bed and is probably from some of the first plant deliveries from the SBPC (Freier 1989). Several large rhododendrons populate the bed which appear to be *Rhododendron x ponticum* hybrids. Several interesting *Acer* species have been added to the bed in recent years as well as the evolutionarily singular *Tetracentron sinense*.

This bed presents an opportunity to greatly expand the botanical collection particularly in the genus *Rhododendron* and other shade tolerant shrubs and herbs.

27-This bed contains many Rank 1 plants. A large *Rhododendron fortune* ssp. *discolor* was added to this bed as well as a smaller *Rhododendron yunnanense*. A superb Rank 1 example of *Rhododendron* 'Mrs. E.C. Stirling' with massive pink flowers is found at the northern edge of this bed.

Also found in this bed, and of curious origin in the rest of the garden, is a large *Rhododendron x ponticum* specimen. These large, purple flowered rhododendrons are found often in the garden particularly in beds 24,25,26,27,28,29,121,122,202,203, and 205. These are most likely the growth of root stock from rhododendron that English had grafted or are seedlings that were planted or allowed to grow. These rhododendrons are considered Rank 4 plants for the most part with a few Rank 2.

Whatever the origin for the majority of these plants in bed 27 the origin is obvious. A large *Rhododendron x ponticum* is found growing near the base of a rhododendron stump. If sufficient stock of replacement rhododendrons are built up (or other plants from the family *Ericaceae*) this specimen should be removed and replaced with a Rank 2 species.

28-The Rank 1 conifers of this bed are now either outside the fence or in the western white pine, *Pinus monticola* have died. New conifers have been added to the bed and several *Rhododendron x ponticum* hybrids are adjacent the loop road. As in bed 27 a stock of Rank 2 rhododendrons as replacement could hasten the removal and replacement of these hybrids with more desirable plants.

Of great significance and a new discovery for the garden, is the probable and original English hybrid *Rhododendron* 'Rose Haines' adjacent to the path. Efforts should be made to positively identify this rhododendron and propagate it extensively.

29-This bed retains only some of its Rank 1 plants and many recruit trees and shrubs now populate the bed. Several significant new species *Rhododendron* are now found here including *Rhododendron edgeworthii*, *Rhododendron insigne*, and (probably) *Rhododendron niveum*.

A supposed *Pieris japonica* 'Crispa' resides here and is quite large. However, it is not as "crisp", that is to say it is not as fine an example of this plant as the one located in bed 201.

This bed, all on the north border of the project is also populated by weedy species or Rank 4 recruits. Removal of these plants would aid aesthetically as well as providing more space for plant Rank 2 plants to be introduced.

30-This bed has lost two of its most significant Rank 1 trees, the Dove tree, *Davidia involucrata* and the Chilean cedar, *Libocedrus chilensis*. Attempts to reintroduce the latter have been unsuccessful and seed or nursery grown plants for the latter have not been found. Even so the bed has undergone renovation with many horticulturally and botanically significant plants have been added to this bed.

101-The flanks of this bed have historic integrity. The west end is the spot where English and Lyon unsuccessfully tried to cultivate *Pinus balfouriana*. This section of the bed still contains the Rank 1 Bristlecone pines, *Pinus aristata*. The east end of the bed contains the Rank 1 Japanese red pine, *Pinus densiflora* and yucca, *Yucca gloriosa*.

The conifers in the middle of the bed should be removed. They were added late in Fleming's career and many new, more desirable species could be added in their place.

101A-These Lawson cypress, *Chamaecyparis lawsoniana* were added by Fleming. He suggested that they be removed while the other conifers in bed 101be removed. Given the vulnerable status of Lawson cypress to phytophthora root rot, and their apparent health here, the opposite should be done.

102-The Rank 1 scarlet oak, *Quercus coccinea* has reached impressive proportions in this bed. A mountain hemlock, *Tsuga mertensiana* and Oriental spruce, *Picea orientalis* Several small notable shrubs have been added to the bed in the genera *Kalmia* and *Rhododendron*.

103-Possibly from the Nascent Era, the undetermined Rank 1 or 3 *Tilia platyphyllos* is still there.

104-This weeping cherry is struggling physiologically here due to shade.

105-Rank 1 *Magnolia kobus* var. *borealis* is still extant here.

107-Rank 1 Tupelo, *Nyssa sylvatica* is still extant here.

108,109-The "driveway beds" are significant as they were developed in the Original Era. The Rank 1 and Rank 3 plants are mostly represented here. Care should be taken to preserve the Rank 3 *Pinus densiflora* in both beds. Mendelson comments that bed 109 contains three varieties of *Rhododendron* 'Loderi' hybrids, 'Game Chick', 'King George', and 'Patience.' A notable addition to these beds in 109 is the Japanese cleyera, *Ternstroemia gymnanthera*.

110,111,112,113,113A,114,115,116,117,118: The Cavanaugh House Beds-The construction of a security fence sequestered these beds entirely or partially on private property of the SD Commander. These beds were recently renovated in April of 2019 with some plants added. 110 is notable as having no Rank 1 plants while all of the others were relatively intact. 110 recently had its Rank 1 Deodara cedar, *Cedrus deodara* reintroduced. Some plants growing adjacent the house in beds 116 and 117 were moved out to beds 110, 118, and 120. Numerous significant plants have been added to the house grounds after this renovation. In particular, the family *Orchidaceae* has been introduced from plants obtained from Keeping It Green Nursery, an adept propagator of orchids.

Growing in bed 114, the mutant tan-oak, *Notholithocarpus densiflorus f. attenuato-dentatus*, is one of most rare, significant, and delicate plants in garden. Its location on the house grounds is no accident. Fleming used the house grounds as a sanctuary for sensitive plants and planted this specimen there with the intent of keeping it as sheltered and safe as possible (Carter 2018).

The mutant on the house grounds is the direct descendent of a group of mutant seedlings discovered under a “mother tree” at the Forest Service’s Challenge Experimental Forest in Yuba Co., California in 1962. The mutant seedlings grew more slowly and appeared weaker than their non-mutant seedling kin.

The mutant has distinct morphological characteristics such as narrower and cut leaves and fewer stomata. On a plant eco-physiological level the mutant shows distinct differences in having lower nutrient uptake, yet higher photosynthetic rate, drought tolerance, and ability to grow in shade. The genetics that lead to this unique mutation appear to be present across the whole of the genus *Notholithocarpus* and mutant seedlings have occurred in other places. The survival rate is near zero for these seedlings (McDonald et al. 2013).

In 1974 the mother trees at the Challenge Experimental Forest were lost with no new mutant seedlings found. Due to the distinct rarity of this mutant and its apparent sensitivity cuttings were taken from surviving mutants and were sent far and wide to public horticultural operations in Washington and California. Mareen and (Arthur) Kruckeberg, were among these recipients (McDonald et al. 2013).

Mareen was the most successful of all propagators of this notoriously difficult to propagate plant. While working part-time in the garden, her son, Arle, presented a particularly robust cutting to Fleming in the early 1980s. Fleming later planted the tree at the house for the plant’s safety (Arle Kruckeberg 2016).

Mutants are only in cultivation in a few sites in Washington, Oregon, California, United Kingdom and the Netherlands. The trees all live in well-tended gardens and rich fertile soil along with fertilizer amendments are recommended to keep the mutants healthy (McDonald et al. 2013).

Due to the rarity of the mutant much care needs to be taken of the specimen at the house grounds. Our specimen is found in Bed 114 adjacent to the driveway. It is leaning and only 15' tall. Its health and survival is of primary importance to the garden and to botany.

118A-Fleming planted this bed in 1981 with four scarlet horse chestnuts, *Aesculus carnea* var. *Briottii*. He had found these in pots hidden near the stairway in 1981 seven years after English's retirement. English would leave plants as gifts for people in the garden and Fleming surmised that someone simply forgot to pick these up He planted bed 118A with these trees as an homage to English (Fleming 2015).

The 1989 Report makes clear that this bed is not consistent with the landscape style of the rest of the garden as the trees are planted with understory. It is desirable to be in accord with the 1989 Report yet the bed is populated by many mature and significant shrubs. It is recommended to investigate if these shrubs can be safely moved. If feasible the bed should be reverted to lawn with the four extant scarlet horse chestnuts left remaining. The Rank 2 shrubs should be moved to other areas of the garden particularly in the northwest and northern beds of the project.

119,120-The "Rockery" beds are of interest as these were where English believed the garden had begun and were notable for the hundreds of plants they once contained when the beds were exposed to more sun (English 1972, "Garden" 1938). These beds still have many Rank 1 trees and shrubs. Recent renovations have added plants from adjacent the Cavanaugh House and the garden nursery to the north side of bed 120.

121,122-The "Forest" beds are a notable refugia of Rank 3 conifers and are beds of the Original Era. Many Rank 1 plants still remain with the notable exception of the Chilean fire tree, *Embothrium coccineum* which has been reintroduced to bed 214A.

Please refer to **Figure 44**. In this figure, at the bottom of the bed two pink plants are apparent just to the left of the large *Rhododendron decorum*. These are *Rhododendron reticulatum*. In their place now are several *Rhododendron x ponticum* hybrid trees. It is unknown whether these were planted or are seedlings or root stock growth. In any case should the garden propagate or purchase suitable rhododendrons as replacement these should be removed and replaced with more distinctive and rare rhododendrons.

123-This bed contains the Rank 3 variegated Western red cedar, *Thuja plicata* 'Zebrina'. This tree has reached statuesque proportions and has undergone much pruning and cabling in the last decade to ensure structural integrity. This tree has had a dramatic change in form over the years. It has gone from a pyramidal form to the spreading octopus like proportions it currently displays. If this tree continues to thrive, almost inevitably this bed and the "Forest" beds will be amalgamated.

124-The Rank 3 Japanese cedar, *Chamaecyparis pisifera* of this bed split apart in 2015 and was replaced with the botanically significant *Foykenia hodgsonii* donated by Paul Jersky in 2018.

125,126,127,129-The trees that line this part of the loop road consist of maples in 125 and 127 that were spared by Fleming and Lyon in the late 1970s (Fleming 2015). Fleming also noted that the root systems of the maples he and Lyon removed (by crane) resembled those of conifers as the clay fill material prevented the roots from going deeper. These Rank 3 maples used to predominate the grounds before English removed most of them. 126 contains the Rank 1 California horsechestnut, *Aesculus californica*.

The two Norway maples of beds 125 and 129 are both poor in appearance but still in rather strong structural condition. While it is important to preserve the remaining Rank 3 plants if these plants continue to deteriorate they should be removed with haste. Rank 2 trees should replace these trees in the event of their demise.

201,202,203,204: The “North Border” beds-These beds contain the vast majority of their Rank 1 plants from 1974. English cannily fortified the north part of his garden with giant sequoia, *Sequoiadendron giganteum* creating a veritable wall. Notable inhabitants of beds 202 and 203 include the Rank 1 Yellowwood, *Cladrastis kentukea*, and a delightful grove of paw-paw *Asimina triloba*.

While bed 201 has undergone significant renovation 202, 203, 204 could be thoroughly cleared out and replanted. Mulch and compost will need to be added to ensure new plantings survive due to the extensive root systems of mature conifers nearby. If sufficient mulch is added a significant improvement could be made to these beds both in species composition and appearance.

205-The parking lot bed, installed after Entryway Phase I, was initially planted by a contracted landscape architecture firm. The 1989 Report found these landscape additions to be inconsistent with the character of the garden. In the Fleming Era many interesting species were added piecemeal to this area. Notably species of *Callistemon* are thriving in the bed and a serpentine endemic oak, *Quercus durata* donated by Kruckeberg, flourishes in the southeast corner. In the present era, after the removal of many large conifers in 2008 a dwarf conifer bed was added to the east end. New species should continue to be added to this bed to ameliorate the inconsistent nature of this bed.

205B-These Lawson cypress, *Chamaecyparis lawsoniana*, were added in the Fleming Era to distract from the adjacent building.

Garden Nursery-Envisaged as an area to showcase the propagation of significant plants in the garden. The nursery is now in need of repair and repaving. It no longer functions as intended and is in a dilapidated state.

206,207,208,209,210,211: The Nursery Beds-These beds surround what is now the garden nursery are relatively intact with Rank 1 plants. Many rhododendrons surround the bed, some Rank 1 and others from the Nordstrom garden or bred by Carter (Carter 2018).

These beds in conjunction with nursery renovation could be markedly improved. Of note is a newly identified *Pinus montezumae* in bed 211 and the Rank 1 Azaleodendron. Many new ferns have been added to the to the north side of 211 and are thriving.

Bed 206 is choked with Rank 4 plants and presents an opportunity for renovation.

214-This bed was original but was changed dramatically after Entryway Phase II. The pond was added circa 2000 and many shrubs were added as well as a dry river bed of cobbles. Chilean firetree, *Embothrium coccinuem* was added here for visitor enjoyment due to its proximity to the Visitor Center. It also mitigates the absence of it from the Forest beds of 121 and 122.

214A-This bed was added in conjunction with heavy visitor use as in **7.6.3**. Several new plants have been added to this bed including *Halesia caroliniana* 'Rosy Ridge' and two *Rhododendron reticulatum*. Interesting introductions into the herb layer could be made here as this bed experiences a good balance of sun and shade exposure.

215-These are the Rank 1 scarlet horsechestnuts, *Aesculus carnea* var. *Briottii*. A Nuttall oak, *Quercus texana* grown from seed collected in East Baton Rouge Parish, Louisiana replaced one of the loop road trees that spilt apart in and was removed in 2013.

301-These are Fleming Era Rank 4 red oaks, *Quercus rubra* added Fleming in the Fleming era. The southernmost one could be removed to aid the physiological health of plants in bed 302.

302-This bed is home to the favorite trinity of Lyon, the combination of Austrian pine, *Pinus nigra*, ginkgo, *Ginkgo biloba*, and grape vine, *Vitis coignetiae*. Apparently these were planted as a memorial yet the significance of this has been lost (Koykka 1969). The Fleming Era saw many choice rhododendrons added to this bed and features an outstanding 'Loderi' rhododendron 'King George' and several fine examples of *Rhododendron augustinii*. In 2018 many of these rhododendrons were cut back drastically as they were encroaching nearly six feet out into the paved plaza area. Recently a *Rhododendron macabeanum*, a superb large leaved and yellow flowered species, has been added to this bed.

304-"Visitor Center" discussed in **9.6.4**. This bed has not historic precedent except immediately adjacent to the Visitor Center itself. The rest of the bed was filled in and created after Entryway Phase II in 1989. All Rank 1 plants directly adjacent to the building are extant.

In the 2000s a castle hedge, the USACE emblem, was added in form of an *Ilex* hedge. This hedge was planned and installed chiefly by Carter. Fleming formerly would design a castle shape using begonias and other seasonal plant species. Later these displays became too costly and labor intensive ushering in the addition of the permanent castle hedge. (Carter 2018).

305-This bed contains the original palm tree featured on English's plant brochure. It was in bed 304 but was moved. In addition many Rank 1 plants are still found here notably Cretan maple, *Acer orientale*, a nearly evergreen maple and the wheel tree, *Trochodendron aralioides*. Several significant Rank 2 plants have been added including ligiri tree, *Idesia polycarpa*, *Mallotus japonicus*, *Parrotiopsis jaquemontiana* and the Rehder tree, *Rehderodendron macrocarpum*, and the endangered Florida torreyia, *Torreya taxifolia* donated by Paul Jersky.

In the island bed adjacent is a fine *Edgeworthia chryantha*, two *Lilium hansonii* and two rare and notable rhododendron species *Rhododendron platypodum* and *zaleucum* as well as the Chinese mayapple from Far Reaches Farm from in situ collected seed, *Sinopodophyllum hexandra*.

308-Rank 1 Ubame oak, *Quercus phillyraeoides*.

313-This bed was also altered dramatically due to Entryway Phase II. While it has no extant Rank 1 plants this bed is notable for the plethora of Rank 2 plants planted during the Fleming Era. Many unique and notable antipodean species inhabit this bed. Save for a couple of species all of the plants are from South America, Australia, or New Zealand. It is now customary to plant strictly antipodean species in this bed.

Some of the remarkable inhabitants of this bed are *Bursaria spinosa*, cider gum, *Eucalyptus gunni*, *Eucryphia* x 'nymansensis', wooly tea tree, *Leptospermum lanigerum*, banyalla, *Pittosporum bicolor*, cheeswood, *Pittosporum eugenoides*, and tarata, *Pittosporum tenuifolium*.

314-The two Rank 1 trees of this bed remain, yet in an altered state. In winter 2019 the Washington State champion huckleberry oak, *Quercus vaccinifolia* fell over due to heavy snow. The tree was resurrected by crane later but was coppiced at breast height due to employee safety concerns. Of note is the fact that the tree roots near the building turned fibrous and did not degrade the foundation. The tree is currently sprouting from the stump. The *Magnolia campbelli* var. *mollicomata* is flourishing in the extra light now provided.



Figure 48 LWSC maintenance employees resurrect the State Champion huckleberry oak. February 2019. Note the branch pruning to reduce weight and alleviate the heave of the bed adjacent building. Stephen J. Munro

315-The “Fuchsia Bed”. This bed originally was filled with ericaceous shrubs and English would plant fuchsias here after storing them inside all winter (Fleming 2015). Currently the Greater Seattle Fuchsia Society uses this bed as a display garden for fuchsias and two Rank 1 *Enkianthus campanulatus* are still found in the bed.



Figure 49 In front of the “Fuschia bed” COL Dewey presenting a safety award to LWSC Project Engineer Ralph C. Follestad while English looks on far left 15 May 1963. Locks archives

315A-These beds contained conifers in the Original Era, xeric plants in the English Era, and in the Fleming Era two weeping Alaska cedars, *Callitropsis nootkatensis*. In the Present Era these beds still contain the Alaska cedars and the Rank 1 *Mahonia dictyoa*.

316-This bed is home to what Lyon deemed English’s proudest achievement, the thriving netleaf and silverleaf oaks that he collected in Arizona, *Quercus hypoleucoides* and *rugosa*. This bed is also indicative of garden dilemmas. Refer to **Figure 35** and the small xeric plants English had growing in this bed can no longer grow here due to the unforeseen rampant success of the oaks. Currently, the only Rank 1 shrubs to remain are several stunted *Yucca harrimanae*.

Rose Garden and adjacent beds to north and south-The rose garden plants, not counted in the inventory consist of newer rose varieties. The older rose varieties, originally obtained from the Woodland Park Zoo were replaced in 2015. The beds immediately to the north and south of the rose garden contain many significant Rank 2 herbaceous species.

317-This bed still contains the Rank 1 or possibly even Rank 3 Hinoki cypress, *Chamaecyparis obtusa*. A fine Akebono Yoshino cherry *Prunus x yedodensis* 'Akebono' inhabits this bed as well as several fine rhododendrons added during the Fleming Era. Many significant herbaceous specimens could continue to be added to this bed.

318,319-These beds are fairly intact in Rank 1 plants. A fan palm, *Trachycarpus fortunei* a Rank 1 tree in bed 318 was in decline for several years before removal in 2016 and replanting in 2019. 319 had two notable Rank 2 plants the Californian Summer holly, *Comarostaphylis diversifolia* and *Exbucklandia populnea*.

320,321,322-These beds are cherry trees introduced in the Fleming Era and are 'Kwanzan' and Yoshino cherries.

323,324 The "Corner Beds"- Bed 323 contains the possible dwarf canyon live oak found on serpentine, *Quercus chrysolepsis* 'Nana'. Many Rank 2 shrubs, herbs, and bulbs have been introduced to this bed notably the newly described *Rhododendron eastmanii* from the uplands of South Carolina. Several western trilliums, *Trillium ovatum* have been introduced to this bed as well as checker lilies, *Fritillaria meleagris*. This bed should be continued to be used for choice and rare shrubs, herbs, and bulbs.

324 contains the Rank 1 *Magnolia x watsonii* and the neighboring netleaf oak, a Rank 2 plant has been heavily pruned to afford this magnolia better growing conditions. A fine display of bulbous plants including *Fritillaria imperialis*, *Nerine bowdenii*, and *Scilla peruviana* are notable specimens here.

325 The "Formal Beds"-These beds were installed by Otto Holmdahl circa 1927 (Koykka 1969). Currently the corners of these beds have cherry trees, two 'Whitcomb" on the east two beds and a Yoshino and 'Shirofugen' on the west beds. The beds mostly contain commonly found showy perennials. Of particular significance is a fine angel's fishing rod, *Dierama pulcherrimum* in the southwest bed.

326-This bed contains the reintroduced Rank 2 plant to replace the lost Rank 1 *Magnolia stellata*. This bed also contains common showy perennials.

327-This bed contains nearly all of the Rank 1 plants save two lost rhododendrons that are found growing elsewhere in the garden. A notable Rank 2 plant is the hybrid stewartia *Stewartia x Henryae*. A deformed Texas madrone, *Arbutus xalapensis* also clings to life there.

328,329,330,331,332,333 “Greenhouse Beds”-These beds are not visited by the public as they now lie behind the security fence, installed after September 11th, 2001 (Carter 2018). The majority of Rank 1 plants remain in these beds. Due to the proximity of many of the trees to buildings if the any of them perish they will be replaced by shrubs and herbaceous plants.

Notable features of these beds include rampant male and female kiwi vines, *Actinidia chinensis*, California dutchman’s pipe, *Aristolochia californica*, a venerable hedge of *Callistemon subulatus* and curiously, the humble Jack pine, *Pinus banksiana*.

11. FUTURE RECOMMENDATIONS

11.1 Update LWSCMP

Outside the scope of this paper it is critical that an updated LWSCMP be prepared in order to better manage the LWSC and consider the recommendations here for inclusion. Changes in management and assignment of the garden in various respect have to be done via OMPs and these must correspond to the current MP. Simply put, the garden cannot improve until the LWSCMP is updated.

11.2 Refurbish garden nursery

The garden nursery needs repairs. This area no longer functions as intended efforts should be made to plan and complete repairs.

11.3 Global atmospheric carbon dioxide levels, pests and invasive species

11.3.1 Global Carbon levels and affects and effects to plants in garden

Current carbon dioxide levels in the atmosphere are above 400 parts per million and precipitously rising per annum. This is an unprecedented and the concentration has not been this high in more than a million years (Keeling 2019). It is unclear what exactly will occur in the near term from this level of carbon dioxide. What is clear is the levels are unprecedented and an undeniable scientifically proven certainty.

The suitability of the plants current growing in the garden could be tested by the continuing higher concentration of carbon dioxide in the atmosphere. In addition, rising carbon dioxide levels could exacerbate a suite of knock on effects including pest proliferation, arrival of new pests, and spread of invasive plant species.

The garden has thrived despite adverse conditions since its inception, especially in relation to the soils at the lock site (English 1972, Lyon 1978). Much effort has been made to carve out suitable niches for plants to grow in light of the poor drainage. Weather and climate have traditionally been recorded and evaluated at the garden, yet this was in regards to cold temperatures and tender plants new to cultivation. If

temperature rise and the longer dry seasons continues strategies for preserving the garden will have to be considered.

Winter Damage at the Carl S. English, Jr., Gardens Hiram M. Chittenden Locks (Ballard)

Since the microclimate of the gardens at the "Ballard Locks" in Seattle is moderated by their proximity to Puget Sound, the damage (or lack of it) experienced there should be of particular interest to those who garden in a similar locality. During the winter of 1978/79, the lowest temperature recorded at the Locks was 18°F. This is eight or more degrees milder than temperatures recorded at the Arboretum during the same period.

The following information was supplied by Greg Simmons, Assistant Gardener.

Plants that suffered leaf drop or browning, shoot dieback or died to the ground:

- Billarderia longiflora* — shoot dieback.
- Callistemon citrinus* 'Splendens' — dead to the ground.
- Cistus salviifolius* — 60% leaf drop and browning, some shoot dieback.
- Danae racemosa* — 25% leaf drop and browning.
- Dendromecon rigida* ssp. *harfordii* — 10% leaf browning; some shoot dieback.
- Eucalyptus* sp. — 80% leaf drop and browning.
- Gaultheria shallon* — 40% leaf browning and shoot dieback.
- Hypericum androsaemum* — dead to the ground.
- Lapageria rosea* var. *albiflora* — dead to the ground.

- Lithocarpus densiflorus* — 50% leaf drop and browning.
- Pernettya mucronata* — 30% leaf browning.
- Quercus dumosa* — 60% leaf drop and browning.

Plants that suffered snow damage:

- Ceanothus thyrsiflorus* — all branches broken.
- Pinus sabiniana* — 40-foot tree came down.
- Quercus suber* — 20-foot tree lost its top.

Plants that showed little or no damage:

- Callistemon subulatus*
- Chamaerops humilis*
- Camellia reticulata*
- Choisya arizonica*
- Pinus patula*
- Quercus: agrifolia, glauca, hypoleucoides, reticulata, suber, vacciniifolia, wislizenii*
- Trachycarpus fortunei*

Figure 50 Garden cold damage Arboretum Bulletin 1979. Locks archives

For example, warmer temperatures or an introduced pest may prevent the continual planting of Scarlet horse chestnut, *Aesculus carnea* var. *Briotti* on the main promenade. In response future gardeners could plant an *Aesculus* relative from Mexico in the form of *Bilia* trees. Or, to have a tree with showy blooms and a similar stature like the South American *Jacaranda mimosifolia*, with impressive bluish purple blooms could be planted. There is some excitement and anticipation in the changes

that temperature averages, weather, moisture regimes, and climate may bring in the introduction of new plants in the region.

These potential and perhaps imminent changes to the garden should be planned for and suitable remedies recognizing the legal, regulatory, and designatory framework should be kept in mind.

11.3.2 Pathogens, pests and invasive species

Knock on affects and effects from higher carbon levels directly relate to the increased occurrence introduced pests and invasive species. Sudden oak death, caused by a water mold *Phytophthora ramorum* and prevalent in California and southern Oregon recently was found at Bloedel Reserve on Bainbridge Island. This organism destroys members of plant families *Ericaceae* and *Fagaceae* in particular. This organism was unknown in Washington State until recently (O'Neill 2017). As weather patterns become less predictable it is probable that arrivals of previously unknown or exotic organism in the region will become accelerate.

Compounding the changes in predictable weather patterns is the rapid introduction of introduced species to the region, some of which may have be deadly to the garden's plants. Washington State University Extension offices have recorded the introduction of 67 invertebrate species to the state since 1991 ('First" 2016). Increased introduction of species and disruption of weather patterns possibly increase the likelihood of introduced invertebrate pest outbreaks. The garden will continue to follow King County's regulations for invasive plant species in operation and management actions.

11.4 Accession Database and Plant tagging

Now that a thoroughly field checked list of plants is available the Accession Database can continue to be improved. While filling in all of the fields available in the database can continue apace several other actions should also be pursued. Firstly, the plants known to be planted by English should be identified in the database. Secondly, the plants in Mendelson's 1982 Inventory should be identified. Thirdly, Original Era plants should be identified.

Further analysis of the plants in the garden should be considered including measuring the changes in nomenclature with the relative increase or decrease in family, genera, and species number.

Plant tagging using metal tags should be completed shortly thereafter.

11.5 Events at the Garden

The 2017 Centennial celebrations at the LWSC were a great success and if celebrations occur on land and outside at the Locks they inevitably take place in the garden. Efforts should be directed to encourage other gardens, USACE entities, non-profit partners, and

clubs and societies to host events at the garden. Not only will they enhance the value of the garden it will also subtly let the public experience the beauty of the garden setting and expose them to the different plant species there.



Figure 51 COL John G. Buck with wife Kimberly to his left and Arthur Lee Jacobson to her left. 20 May 2017. Locks archives

11.6 “Serious Study”: The opportunities for study and partnerships with higher education, other botanic gardens, USACE entities, and individuals

The garden is an ideal place for study and this should be encouraged through partnerships and personal relationships.

11.7 Reinvigorate exchange

Efforts should be doubled in building relationships with gardens, societies, and individuals in exchange of seeds and plants.

11.8 Garden bed barriers

Increased visitation to garden will continue. In order to mitigate damage to beds by mammals of all kinds, barriers should be installed around all beds.

The first choice would be concrete bollards with black cabling (Freier 1989).

The second choice would be black metal posts and black cabling.

11.9 Update maps and geographic information systems data

The last map drafted for the garden was prepared in 1984 by Esko and Cook (Locks archives).

Updated geographic information systems (GIS) data should be collected and new planting bed maps drafted.

Plant information should also be collected to aid interactive mapping and interpretive opportunities for the visiting public.

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13. APPENDIX A: PLANT INVENTORY

The following plant inventory was completed using Microsoft Access and converting the data into an Excel spreadsheet pivot table and exporting to Microsoft Word. After much effort this was the least, worst option. Data used is available on a volunteer accession computer at the Locks.

The phylogenies of plants as well as the position of plants in families, genera, and species designations have changed dramatically with the advent of DNA analysis since the 1982 inventory. The 2018 edition of *Flora of the Pacific Northwest* is generally followed. Even so this inventory places families *Aceraceae* and *Hippocastanaceae* within *Sapindaceae* yet retains *Mahonia* as a genus rather than lumping it with *Berberis*. The latter has changed multiple times recently and further research should be reviewed before a change is accepted definitively.

The garden accession should maintain some independent discretion as to what nomenclature changes to accept and when to accept them.

Key for inventory:

- Bed number
- Accession number
- Family
- Genus
- Species
- Subspecies
- Variety
- Date of field check
- Initials of field check personnel

8 June 2019 Carl S. English Jr. Botanical Garden Plant Inventory

Bed #	Accession #	Family	Genus	species	ssp.	var.	cultivar	checked	In.
001	Q01.04.00.d	Fagaceae	Quercus	chrysolepsis				5/4/2019	SM
001	Q01.04.00.c	Fagaceae	Quercus	chrysolepsis				5/4/2019	SM
001	P19.03.00.l	Ericaceae	Pieris	japonica				5/4/2019	SM
001	R02.105.00	Ericaceae	Rhododendron	macrosepalum				5/11/2019	SM
002	M02.01.00.a	Berberidaceae	Mahonia	aquifolium				5/4/2019	SM
002	H06.01.00.d	Ranunculaceae	Helleborus	argutifolius				5/4/2019	SM
002	P17.01.00.g	Poaceae	Phyllostachys	aurea				5/4/2019	SM
002	A13.01.00.e	Araliaceae	Aralia	californica				5/23/2019	SM
002	L09.01.00.b	Caprifoliaceae	Leycesteria	formosa				5/4/2019	SM
002	M05.01.00.a	Taxodiaceae	Metasequoia	glyptostroboides				5/4/2019	SM
002	I03.10.01.c	Iridaceae	Iris	hollandica			'Carmen'	5/4/2019	SM
002	I03.10.02.c	Iridaceae	Iris	hollandica			'Excelsior'	5/4/2019	SM
002	H04.04.00.b	Plantaginaceae	Hebe	hulkeana				5/4/2019	SM
002	A29.01.00	Ranunculaceae	Anemone	hupehensis				5/4/2019	SM
002	P19.03.00.m	Ericaceae	Pieris	japonica				5/4/2019	SM
002	P42.01.00	Poaceae	Pseudosasa	japonica				5/4/2019	SM

002	C14.02.00	Pinaceae	Cedrus	libani		5/4/2019	SM
002	H14.01.00.c	Hydrangeaceae	Hydrangea	macrophylla		5/4/2019	SM
002	H14.01.00e	Hydrangeaceae	Hydrangea	macrophylla		5/4/2019	SM
002	F12.02.01.f	Onagraceae	Fuchsia	magellanica	globosa	5/4/2019	SM
002	F12.02.01.d	Onagraceae	Fuchsia	magellanica	globosa	5/4/2019	SM
002	F12.02.01.e	Onagraceae	Fuchsia	magellanica	globosa	5/4/2019	SM
002	V04.01.00.b	Apocynaceae	Vinca	minor		5/4/2019	SM
002	C04.01.00.c	Calycanthaceae	Calycanthus	occidentalis		5/4/2019	SM
002	C04.01.00.b	Calycanthaceae	Calycanthus	occidentalis		5/4/2019	SM
002	Q01.12.00.a	Fagaceae	Quercus	palustris		5/4/2019	SM
002	S17.02.00.a	Stachyuraceae	Stachyurus	praecox		5/4/2019	SM
002	C36.05.00.c	Cornaceae	Cornus	stolonifera		5/4/2019	SM
002	S27.01.00	Iridaceae	Sisyrinchium	striatum		5/4/2019	SM
002	B01.05.01	Berberidaceae	Berberis	thunbergii	'Crimson Pygmy'	5/4/2019	SM
002	I03.00.00.b	Iridaceae	Iris	x		5/4/2019	SM
002	I03.00.00.a	Iridaceae	Iris	x		5/4/2019	SM
002	H07.00.45	Liliaceae	Hemerocallis	x	'Sublime Lime'	5/4/2019	SM
002	H07.00.01	Liliaceae	Hemerocallis	x	'Ashwood Still Night'	5/4/2019	SM
002	H07.00.03	Liliaceae	Hemerocallis	x	'Black on Black'	5/4/2019	SM
002	H07.00.04	Liliaceae	Hemerocallis	x	'Buttered Popcorn'	5/4/2019	SM
002	H07.00.05	Liliaceae	Hemerocallis	x	'Double Gardenia'	5/4/2019	SM
002	H07.00.06	Liliaceae	Hemerocallis	x	'Flight of the Raven'	5/4/2019	SM
002	H07.00.07	Liliaceae	Hemerocallis	x	'Fooled Me'	5/4/2019	SM
002	H07.00.08	Liliaceae	Hemerocallis	x	'Hawaiian Coral'	5/4/2019	SM
002	H07.00.09	Liliaceae	Hemerocallis	x	'Jancie Brown'	5/4/2019	SM
002	H07.00.10	Liliaceae	Hemerocallis	x	'Joan Hood'	5/4/2019	SM
002	H07.00.11	Liliaceae	Hemerocallis	x	'King of Swing'	5/4/2019	SM
002	H07.00.12	Liliaceae	Hemerocallis	x	'King's Cotillion'	5/4/2019	SM
002	H07.00.13	Liliaceae	Hemerocallis	x	'Long Stocking'	5/4/2019	SM
002	H07.00.14	Liliaceae	Hemerocallis	x	'Little Fat Dazzler'	5/4/2019	SM
002	H07.00.15	Liliaceae	Hemerocallis	x	'Margaret Dickson'	5/4/2019	SM
002	H07.00.16	Liliaceae	Hemerocallis	x	'Move Over'	5/4/2019	SM
002	H07.00.17	Liliaceae	Hemerocallis	x	'Olympic Arrowhead'	5/4/2019	SM
002	H07.00.18	Liliaceae	Hemerocallis	x	'Olympic Mystery'	5/4/2019	SM
002	H07.00.19	Liliaceae	Hemerocallis	x	Oly. Plum Custard'	5/4/2019	SM
002	H07.00.20	Liliaceae	Hemerocallis	x	'Open My Eyes'	5/4/2019	SM
002	H07.00.21	Liliaceae	Hemerocallis	x	'Pandora's Box'	5/4/2019	SM
002	H07.00.22	Liliaceae	Hemerocallis	x	'Pink Playmate'	5/4/2019	SM
002	H07.00.23	Liliaceae	Hemerocallis	x	'Primal Scream'	5/4/2019	SM
002	H07.00.24	Liliaceae	Hemerocallis	x	'Raspberry Summer'	5/4/2019	SM
002	H07.00.25	Liliaceae	Hemerocallis	x	'Ruffled Apricot'	5/4/2019	SM
002	H07.00.26	Liliaceae	Hemerocallis	x	'Shaded Sunshine'	5/4/2019	SM
002	H07.00.27	Liliaceae	Hemerocallis	x	'Shiloh John anf Liam'	5/4/2019	SM
002	H07.00.28	Liliaceae	Hemerocallis	x	'Shinto Etching'	5/4/2019	SM
002	H07.00.29	Liliaceae	Hemerocallis	x	'Sherry Lanr Carr'	5/4/2019	SM
002	H07.00.30	Liliaceae	Hemerocallis	x	'Siloam Rose Dawn'	5/4/2019	SM
002	H07.00.31	Liliaceae	Hemerocallis	x	'Spider to the Fly'	5/4/2019	SM
002	H07.00.32	Liliaceae	Hemerocallis	x	'Super Seventy Three'	5/4/2019	SM
002	H07.00.33	Liliaceae	Hemerocallis	x	'Tupac Amaru'	5/4/2019	SM
002	H07.00.34	Liliaceae	Hemerocallis	x	'Underneath the Ice'	5/4/2019	SM
002	H07.00.35	Liliaceae	Hemerocallis	x	'Victorian Lace'	5/4/2019	SM
002	H07.00.36	Liliaceae	Hemerocallis	x	'Viracocha'	5/4/2019	SM
002	H07.00.37	Liliaceae	Hemerocallis	x	'Voices in the Fog'	5/4/2019	SM
002	H07.00.38	Liliaceae	Hemerocallis	x	'Yellow Ribbon'	5/4/2019	SM
002	H07.00.39	Liliaceae	Hemerocallis	x	'Wally'	5/4/2019	SM
002	H07.00.40	Liliaceae	Hemerocallis	x	'Siloam Tee Tiny'	5/4/2019	SM
002	H07.00.41	Liliaceae	Hemerocallis	x	'Grand Rough'	5/4/2019	SM
002	H07.00.42	Liliaceae	Hemerocallis	x	'Crimson Ninja'	5/4/2019	SM

002	H07.00.43	Liliaceae	Hemerocallis	x		'Funny Valentine'	5/4/2019	SM
002	H07.00.44	Liliaceae	Hemerocallis	x		'Autumn Minaret'	5/4/2019	SM
002	D14.00.00	Plantaginaceae	Digitalis	x			5/4/2019	SM
002	A34.00.00	Ranunculaceae	Aquilegia	x			5/4/2019	SM
002	H06.00.00	Ranunculaceae	Helleborus	x			5/4/2019	SM
003	B01.01.00.g	Berberidaceae	Berberis	darwinii			5/3/2019	SM
003	B07.01.00.a	Apiaceae	Bupleurum	fruticosa			5/3/2019	SM
003	Q01.06.00.b	Fagaceae	Quercus	glauca			5/3/2019	SM
003	C07.02.00.a	Theaceae	Camellia	japonica			5/3/2019	SM
003	P55.01.00	Rutaceae	Poncirus	trifoliata			5/3/2019	SM
003	R02.00.21s	Ericaceae	Rhododendron	x		Unknown hybrid	5/13/2019	SM
004	B05.03.01	Orchidaceae	Epipactis	gigantea			5/3/2019	SM
004	Q01.08.00.d	Fagaceae	Quercus	ilex			5/3/2019	SM
004	Q01.08.00.a	Fagaceae	Quercus	ilex			5/3/2019	SM
004	G13.01.00	Asteraceae	Grindelia	intergrifolia			5/3/2019	SM
004	G07.01.00.d	Gunneraceae	Gunnera	manicata			5/3/2019	SM
004	G07.02.00	Gunneraceae	Gunnera	monoica			5/3/2019	SM
004	H15.04.00.a	Clusiaceae	Hypericum	patulum			5/3/2019	SM
004	C24.01.00.a	Calycanthaceae	Chimonanthus	praecox			5/3/2019	SM
004	B05.03.02	Orchidaceae	Epipactis	royleana		Pinkish	5/3/2019	SM
004	T11.01.00	Liliaceae	Tricyrtis	x			5/3/2019	SM
004	C42.01.00.a	Iridaceae	Crocasmia	x crocosmiiflora			5/3/2019	SM
004	E06.03.00	Apiaceae	Eryngium	yuccifolium			5/3/2019	SM
005	M02.01.02	Berberidaceae	Mahonia	aquifolium	dictyota		5/3/2019	SM
005	E03.01.00.a	Ericaceae	Enkianthus	campanulatus			5/3/2019	SM
005	B01.01.00.e	Berberidaceae	Berberis	darwinii			5/3/2019	SM
005	M02.03.00	Berberidaceae	Mahonia	haematocarpa			5/3/2019	SM
005	I03.10.01.b	Iridaceae	Iris	hollandica		'Carmen'	5/3/2019	SM
005	I03.10.02.b	Iridaceae	Iris	hollandica		'Excelsior'	5/3/2019	SM
005	C43.01.00.d	Taxodiaceae	Cryptomeria	japonica			5/3/2019	SM
005	C43.01.00.e	Taxodiaceae	Cryptomeria	japonica			5/3/2019	SM
005	C43.01.00.f	Taxodiaceae	Cryptomeria	japonica			5/3/2019	SM
005	S28.03.01.b	Lamiaceae	Salvia	nemorosa		'Caradonna'	5/3/2019	SM
005	H15.04.00.b	Clusiaceae	Hypericum	patulum			5/3/2019	SM
005	V03.07.02.a	Caprifoliaceae	Viburnum	plicatum	tomentosum		5/3/2019	SM
005	R02.38.00.c	Ericaceae	Rhododendron	racemosum			5/3/2019	SM
005	F07.01.00.d	Oleaceae	Forsythia	suspensa			5/3/2019	SM
005	C27.01.00.a	Rutaceae	Choisya	ternata			5/3/2019	SM
005	N04.00.04.b	Amaryllidaceae	Narcissus	x		'Dutch Master'	5/3/2019	SM
005	F12.01.00.a	Onagraceae	Fuchsia	x			5/3/2019	SM
005	C42.01.00.b	Iridaceae	Crocasmia	x crocosmiiflora			5/3/2019	SM
006	B01.01.00.f	Berberidaceae	Berberis	darwinii			5/3/2019	SM
006	C03.01.00.a	Cupressaceae	Calocedrus	decurrens			5/3/2019	SM
006	C07.02.13.a	Theaceae	Camellia	japonica		'Tricolor Red'	5/3/2019	SM
006	R02.74.01.a	Ericaceae	Rhododendron	oreodoxa	fargessii		5/3/2019	SM
006	C24.01.00.b	Calycanthaceae	Chimonanthus	praecox			5/3/2019	SM
006	R02.38.00.a	Ericaceae	Rhododendron	racemosum			5/3/2019	SM
006	R04.01.00.a	Grossulariaceae	Ribes	sanguineum			5/3/2019	SM
006	S30.01.00	Asparagaceae	Scilla	tubergeniana			5/3/2019	SM
006	R02.00.04	Ericaceae	Rhododendron	x		'Broughtonii Aureum'	5/3/2019	SM
006	R02.16.01	Ericaceae	Rhododendron	x catawbiense		'Cynthia'	5/3/2019	SM
007	R07.01.00	Liliaceae	Ruscus	aculeatus			5/3/2019	SM
007	L11.01.00.a	Cupressaceae	Libocedrus	decurrens			5/3/2019	SM
007	N05.02.00.a	Fagaceae	Notholithocarpus	densiflorus			5/3/2019	SM
007	I03.02.00.a	Iridaceae	Iris	douglasiana			5/3/2019	SM
007	R02.13.02	Ericaceae	Rhododendron	fortunei	ssp. discolor	Houlstonii	5/6/2019	SM
007	C07.02.13.b	Theaceae	Camellia	japonica		'Tricolor Red'	5/3/2019	SM
007	R02.62.00	Ericaceae	Rhododendron	micranthum			5/23/2019	SM

007	H03.02.00.a	Hamamelidaceae	Hamamelis	mollis			5/3/2019	SM
007	M01.11.00.a	Magnoliaceae	Magnolia	sargentiana	robusta		5/3/2019	SM
007	P19.04.00.a	Ericaceae	Pieris	taiwanensis			5/3/2019	SM
007	R02.00.15	Ericaceae	Rhododendron	x		'Princess Elizabeth'	5/6/2019	SM
007	R02.00.06	Ericaceae	Rhododendron	x		'Cory Koster'	5/6/2019	SM
007	M01.13.01	Magnoliaceae	Magnolia	x soulangiana		'Alba'	5/3/2019	SM
008	C35.01.00	Agavaceae	Cordyline	banksii			5/3/2019	SM
008	C19.03.00.c	Rosaceae	Cercocarpus	betuloides			5/3/2019	SM
008	P19.02.00.e	Ericaceae	Pieris	formosa			5/3/2019	SM
008	H09.03.00	Saxifragaceae	Heuchera	glabra			4/23/2019	SM
008	C23.01.00.c	Arecaceae	Chamaerops	humilis			5/3/2019	SM
008	Q01.07.00.c	Fagaceae	Quercus	hypoleucoides			5/3/2019	SM
008	H09.02.00	Saxifragaceae	Heuchera	micrantha			4/23/2019	SM
008	L20.01.00	Rosaceae	Leucosideum	sericea			5/3/2019	SM
009	M04.06.00	Rosaceae	Malus	yunnanensis	veitchii		5/6/2019	SM
010	C21.03.00.a	Cupressaceae	Chamaecyparis	pisifera			5/6/2019	SM
011	A05.04.00.a	Sapindaceae	Aesculus	indica			5/23/2019	SM
011	A05.04.00.b	Sapindaceae	Aesculus	indica			5/23/2019	SM
012	M05.01.00.b	Taxodiaceae	Metasequoia	glyptostroboides			5/6/2019	SM
013	Q01.27.00	Fagaceae	Quercus	garryana			5/6/2019	SM
014	S08.01.00.e	Taxodiaceae	Sequoiadendron	giganteum			5/6/2019	SM
014	Y01.03.00.g	Agavaceae	Yucca	gloriosa			5/6/2019	SM
015	M06.01.00.a	Myricaceae	Myrica	californica			5/6/2019	SM
015	R06.02.00.b	Rosaceae	Rubus	deliciosus			5/6/2019	SM
015	E12.03.00	Celastraceae	Euonymus	fortunei			5/6/2019	SM
015	M01.01.00.a	Magnoliaceae	Magnolia	obovata			5/6/2019	SM
015	F10.01.00.c	Oleaceae	Fraxinus	ornus			5/6/2019	SM
015	D20.01.00.f	Saxifragaceae	Darmera	peltata			5/6/2019	SM
015	R02.00.21h	Ericaceae	Rhododendron	x		Unknown hybrid	5/10/2019	SM
015	R02.00.21i	Ericaceae	Rhododendron	x		Unknown hybrid	5/10/2019	SM
015	M01.06.00	Magnoliaceae	Magnolia	x kewensis		'Wada's Memory'	5/6/2019	SM
015A	M04.04.01.d	Rosaceae	Malus	x purpurea		'Eleyi'	5/6/2019	SM
015A	M04.04.01.a	Rosaceae	Malus	x purpurea		'Eleyi'	5/6/2019	SM
015A	M04.04.01.b	Rosaceae	Malus	x purpurea		'Eleyi'	5/6/2019	SM
015A	M04.04.01.c	Rosaceae	Malus	x purpurea		'Eleyi'	5/6/2019	SM
015B	M04.01.01	Rosaceae	Malus	zumi	calocarpa		5/6/2019	SM
015B	M04.01.01.a	Rosaceae	Malus	zumi	calocarpa		5/6/2019	SM
015B	M04.01.01.b	Rosaceae	Malus	zumi	calocarpa		5/6/2019	SM
015C	P11.01.00	Hamamelidaceae	Parrotia	persica			5/6/2019	SM
016	P34.01.00	Pinaceae	Pseudolarix	amabilis			5/6/2019	SM
016	S14.01.00.e	Rosaceae	Sorbus	aucuparia			5/6/2019	SM
016	S14.01.00.f	Rosaceae	Sorbus	aucuparia			5/6/2019	SM
016	P21.03.00.a	Pinaceae	Pinus	bungeana			5/6/2019	SM
016	R02.12.00.b	Ericaceae	Rhododendron	decorum			5/6/2019	SM
016	M01.03.01.b	Magnoliaceae	Magnolia	grandiflora		L.	5/6/2019	SM
016	P21.21.00	Pinaceae	Pinus	koraiensis			5/6/2019	SM
016	R02.59.00.c	Ericaceae	Rhododendron	maddenii	crassum		5/6/2019	SM
016	C36.03.00.a	Cornaceae	Cornus	mas			5/6/2019	SM
016	A03.08.00a	Sapindaceae	Acer	maximowiczianum			5/6/2019	SM
016	C04.01.00.a	Calycanthaceae	Calycanthus	occidentalis			5/6/2019	SM
016	S17.02.00.c	Stachyuraceae	Stachyurus	praecox			5/6/2019	SM
016	M01.09.00	Magnoliaceae	Magnolia	salicifolia			5/6/2019	SM
016	G03.03.00.a	Ericaceae	Gaultheria	shallon			5/6/2019	SM
017	M01.01.00	Magnoliaceae	Magnolia	acuminata	cordata		5/6/2019	SM
017	Q01.01.00.b	Fagaceae	Quercus	agrifolia			5/6/2019	SM
017	A03.01.00	Sapindaceae	Acer	buergerianum			5/6/2019	SM
017	P21.03.00.b	Pinaceae	Pinus	bungeana			5/6/2019	SM
017	U01.01.00.a	Lauraceae	Umbellularia	californica			5/6/2019	SM

017	R02.89.00b	Ericaceae	Rhododendron	calophytum			5/6/2019	SM
017	I03.02.00.b	Iridaceae	Iris	douglasiana			5/6/2019	SM
017	L19.01.00	Fagaceae	Lithocarpus	edulis			5/6/2019	SM
017	Q01.11.00.a	Fagaceae	Quercus	myrsinifolia			5/6/2019	SM
017	R02.33.00.d	Ericaceae	Rhododendron	polylepis			5/6/2019	SM
017	C11.01.00.a	Fagaceae	Castanopsis	sieboldii			5/6/2019	SM
017	Q01.19.00.c	Fagaceae	Quercus	vaccinifolia			5/6/2019	SM
017	M01.17.00.a	Magnoliaceae	Magnolia	x veitchii			5/6/2019	SM
018	Q01.03.00.a	Fagaceae	Quercus	cerris			5/13/2019	SM
018A	Q01.02.01	Fagaceae	Quercus	robur			5/13/2019	SM
019	Q01.02.00	Fagaceae	Quercus	x			5/13/2019	SM
020	Q01.10.00	Fagaceae	Quercus	mongolica			5/13/2019	SM
021	F01.01.00	Fagaceae	Fagus	grandifolia			5/13/2019	SM
021A	Q01.23.00	Fagaceae	Quercus	gambelii			5/13/2019	SM
022	P06.07.00c	Plantaginaceae	Penstemon	barrettiae			5/6/2019	SM
022	O10.01.00	Cactaceae	Opuntia	basilaris	basilaris		5/6/2019	SM
022	O10.01.01	Cactaceae	Opuntia	basilaris		'Peachy'	5/6/2019	SM
022	Q01.24.00	Fagaceae	Quercus	berberidifolia			5/6/2019	SM
022	E08.06.00	Myrtaceae	Eucalyptus	bridgesiana			5/6/2019	SM
022	Z02.01.01	Onagraceae	Zauschneria	californica		'Silver Select'	5/13/2019	SM
022	R13.01.01	Rhamnaceae	Rhamnus	californica		'Eve Case'	5/6/2019	SM
022	O04.01.00.c	Rosaceae	Oemleria	cerasiformis			5/6/2019	SM
022	A34.01.01	Ranunculaceae	Aquilegia	chrysantha	chrysantha		5/6/2019	SM
022	A16.14.01	Ericaceae	Arctostaphylos	columbiana		'Lost Lake'	5/6/2019	SM
022	N05.02.01	Fagaceae	Notholithocarpus	densiflorus		var. echinodius	5/6/2019	SM
022	C13.07.00	Rhamnaceae	Ceanothus	dentatus			5/6/2019	SM
022	Q01.25.01	Fagaceae	Quercus	douglasii		Cache Creek	5/6/2019	SM
022	M02.15.00	Berberidaceae	Mahonia	druckerei			5/6/2019	SM
022	Q01.26.00	Fagaceae	Quercus	dumosa			5/6/2019	SM
022	O10.02.00	Cactaceae	Opuntia	fragilis		'Columbiana'	5/6/2019	SM
022	M02.12.00	Berberidaceae	Mahonia	fremontii			5/6/2019	SM
022	Q01.27.01	Fagaceae	Quercus	garryana		breweri	5/6/2019	SM
022	A16.17.01	Ericaceae	Arctostaphylos	glandulosa		'Rogue Gem'	5/6/2019	SM
022	M02.14.01	Berberidaceae	Mahonia	haematocarpa		'Santa Fe'	5/6/2019	SM
022	A16.18.01	Ericaceae	Arctostaphylos	hookeri		'Green on Black'	5/6/2019	SM
022	T22.01.00	Asparagaceae	Triteleia	hyacinthina			5/6/2019	SM
022	O10.03.01	Cactaceae	Opuntia	imbricata		'Guadalupe'	5/6/2019	SM
022	F13.06.00a	Liliaceae	Fritillaria	lanceolata			5/6/2019	SM
022	S29.06.00	Crassulaceae	Sedum	laxum			5/6/2019	SM
022	C19.02.00.d	Rosaceae	Cercocarpus	ledifolius			5/6/2019	SM
022	C13.11.01	Rhamnaceae	Ceanothus	maritimus		'Point Sierra'	5/6/2019	SM
022	A16.16.00	Ericaceae	Arctostaphylos	mendocinoensis			5/6/2019	SM
022	A16.04.00.b	Ericaceae	Arctostaphylos	nummularia			5/6/2019	SM
022	A03.11.00.b	Sapindaceae	Acer	palmatum			5/6/2019	SM
022	O10.04.01	Cactaceae	Opuntia	phaeacantha		'Millard County'	5/6/2019	SM
022	M02.13.01	Berberidaceae	Mahonia	piperiana		'Spoonleaf'	5/6/2019	SM
022	O10.05.01	Cactaceae	Opuntia	polyacantha		'Imnaha Blue'	5/6/2019	SM
022	N04.06.01	Amaryllidaceae	Nerine	sarniensis		'Antique Rose'	5/6/2019	SM
022	Z02.02.01	Onagraceae	Zauschneria	septentrionalis		'Waynes Silver'	5/6/2019	SM
022	A16.07.00.b	Ericaceae	Arctostaphylos	viscida			5/6/2019	SM
022	N04.07.01	Amaryllidaceae	Nerine	x		'Blue Flash'	5/6/2019	SM
022	A16.13.01	Ericaceae	Arctostaphylos	x		'Game Lake'	5/6/2019	SM
022	A16.15.01	Ericaceae	Arctostaphylos	x		'Pacific Mist'	5/6/2019	SM
022	L24.09.00b	Montiaceae	Lewisia	x		Locks hybrid	5/6/2019	SM
022	C02.06.01	Myrtaceae	Callistemon	x		'Woodlanders Hardy Red'	5/6/2019	SM
022	S16.01.01	Rosaceae	Spirea	x vanhouttei			5/6/2019	SM
022	A15.03.00.b	Ericaceae	Arbutus	xalapensis			5/23/2019	SM
023	L01.01.00.a	Fabaceae	Laburnum	anagyroide			5/7/2019	SM

023	P17.01.00.a	Poaceae	Phyllostachys	aurea		5/7/2019	SM
023	Q01.05.00.c	Fagaceae	Quercus	coccinea		5/7/2019	SM
023	A10.01.00	Betulaceae	Alnus	cordata		5/23/2019	SM
023	H12.01.00.a	Rosaceae	Holodiscus	discolor		5/7/2019	SM
023	C14.03.00	Pinaceae	Cedrus	libani		5/7/2019	SM
023	P21.12.00.c	Pinaceae	Pinus	nigra		5/7/2019	SM
023	L04.01.00.a	Pinaceae	Larix	occidentalis		5/7/2019	SM
023	A03.11.00.d	Sapindaceae	Acer	palmatum		5/6/2019	SM
023	B03.03.00	Betulaceae	Betula	pendula		5/7/2019	SM
023	B03.03.00	Betulaceae	Betula	pendula		5/7/2019	SM
023	B03.03.00	Betulaceae	Betula	pendula		5/7/2019	SM
023	P21.16.00.a	Pinaceae	Pinus	pinea		5/7/2019	SM
023	B03.02.00	Betulaceae	Betula	pubescens		5/7/2019	SM
023	B03.02.00	Betulaceae	Betula	pubescens		5/7/2019	SM
023	E08.03.00	Myrtaceae	Eucalyptus	rodwayi		5/7/2019	SM
023	P21.22.00.b	Pinaceae	Pinus	sylvestris		5/7/2019	SM
023	A15.02.00.a	Ericaceae	Arbutus	unedo		5/23/2019	SM
023	R02.00.03.b	Ericaceae	Rhododendron	x	'Brittania'	5/7/2019	SM
024	R02.52.00.b	Ericaceae	Rhododendron	coeloneurum		5/7/2019	SM
024	C46.03.00	Betulaceae	Corylus	columna		5/7/2019	SM
024	D07.01.00	Saxifragaceae	Deutzia	gracilis		5/7/2019	SM
024	A02.02.00.c	Pinaceae	Abies	holophylla		5/7/2019	SM
024	M01.05.00.b	Magnoliaceae	Magnolia	kobus	borealis	5/7/2019	SM
024	C36.02.01.a	Cornaceae	Cornus	kousa	chinensis	5/7/2019	SM
024	R02.95.00	Ericaceae	Rhododendron	magniflorum		5/7/2019	SM
024	T10.03.00.a	Pinaceae	Tsuga	mertensiana		5/7/2019	SM
024	T06.02.00.b	Cupressaceae	Thuja	plicata		5/7/2019	SM
024	R02.93.00	Ericaceae	Rhododendron	sinofalconori		5/7/2019	SM
024	C40.01.00	Rosaceae	Crataegus	submollis		5/7/2019	SM
024	P05.01.00.a	Paulowiaceae	Paulownia	tomentosa	'Lilacina'	5/7/2019	SM
024	A15.02.00.g	Ericaceae	Arbutus	unedo		5/23/2019	SM
024	L14.01.00b	Liliaceae	Lilium	x	Asiatic hybrid	5/7/2019	SM
025	R02.09.00.a	Ericaceae	Rhododendron	cerasinum		5/7/2019	SM
025	R02.09.00.b	Ericaceae	Rhododendron	cerasinum		5/7/2019	SM
025	P56.01.00	Pinaceae	Pseudotsuga	chienni		5/7/2019	SM
025	C07.06.00	Theaceae	Camellia	grijsii		5/7/2019	SM
025	K01.02.00.a	Ericaceae	Kalmia	latifolia		5/7/2019	SM
025	R02.50.00	Ericaceae	Rhododendron	magniflorum		5/7/2019	SM
025	R02.26.00.b	Ericaceae	Rhododendron	minus		5/7/2019	SM
025	V01.02.00.a	Ericaceae	Vaccinium	ovatum		5/7/2019	SM
025	T06.02.00.c	Cupressaceae	Thuja	plicata		5/7/2019	SM
025	T06.02.00.i	Cupressaceae	Thuja	plicata		5/7/2019	SM
025	L14.01.00.c	Liliaceae	Lilium	x	Asiatic hybrid	5/7/2019	SM
025	R02.24.00.k	Ericaceae	Rhododendron	x kosteranum		5/14/2019	SM
026	P17.01.00.c	Poaceae	Phyllostachys	aurea		5/7/2019	SM
026	A03.03.01.a	Sapindaceae	Acer	davidii	grosseri	5/7/2019	SM
026	N05.02.00.b	Fagaceae	Notholithocarpus	densiflorus		5/7/2019	SM
026	C14.02.00.f	Pinaceae	Cedrus	deodara		5/7/2019	SM
026	T10.02.00	Pinaceae	Tsuga	heterophylla		5/7/2019	SM
026	A02.02.00.a	Pinaceae	Abies	holophylla		5/7/2019	SM
026	A03.08.00b	Sapindaceae	Acer	maximowiczianum		5/7/2019	SM
026	T06.02.00.d	Cupressaceae	Thuja	plicata		5/7/2019	SM
026	A03.10.00	Sapindaceae	Acer	rufinerve	'Albolimbatum'	5/7/2019	SM
026	M04.05.00	Rosaceae	Malus	sargentii		5/7/2019	SM
026	P16.02.00.a	Rosaceae	Photinia	serratifolia		5/7/2019	SM
026	T03.01.00	Trochodendraceae	Tetracentron	sinense		5/7/2019	SM
026	H10.01.00.b	Malvaceae	Hibiscus	syriacus		5/7/2019	SM
026	C27.01.00.c	Rutaceae	Choisya	ternata		5/7/2019	SM

026	R02.00.21u	Ericaceae	Rhododendron	x		Unknown hybrid	5/13/2019	SM
027	R02.03.00.b	Ericaceae	Rhododendron	arboreum			5/6/2019	SM
027	R02.12.00.f	Ericaceae	Rhododendron	decorum			5/18/2019	SM
027	P21.05.00.a	Pinaceae	Pinus	densiflora			5/7/2019	SM
027	P19.01.00.a	Ericaceae	Pieris	floribunda			5/6/2019	SM
027	L08.02.00a	Ericaceae	Leucothoe	fontanesiana			5/4/2019	SM
027	R02.13.01.b	Ericaceae	Rhododendron	fortunei	discolor		5/18/2019	SM
027	S10.01.00.b	Rutaceae	Skimmia	japonica			5/7/2019	SM
027	T06.02.00.e	Cupressaceae	Thuja	plicata			5/7/2019	SM
027	A02.04.00	Pinaceae	Abies	sachalinensis			5/6/2019	SM
027	P32.06.06.a	Rosaceae	Prunus	serrulata		'Shogetsu'	5/6/2019	SM
027	R02.00.21f	Ericaceae	Rhododendron	x		Unknown hybrid	5/7/2019	SM
027	R02.00.21g	Ericaceae	Rhododendron	x		Unknown hybrid	5/7/2019	SM
027	R02.07.02	Ericaceae	Rhododendron	x griffithianum		'Mrs. E.C. Sterling'	5/7/2019	SM
028	L01.01.00.b	Fabaceae	Laburnum	anagyroide			5/7/2019	SM
028	A02.06.00	Pinaceae	Abies	cephalonica			5/7/2019	SM
028	P21.05.00.d	Pinaceae	Pinus	densiflora			5/7/2019	SM
028	C14.02.00.g	Pinaceae	Cedrus	deodara			5/7/2019	SM
028	E12.02.00.b	Celastraceae	Euonymus	europaeus			5/7/2019	SM
028	A02.02.00.b	Pinaceae	Abies	holophylla			5/7/2019	SM
028	P21.08.00.a	Pinaceae	Pinus	jeffreyi			5/7/2019	SM
028	C39.02.00.b	Rosaceae	Cotoneaster	lacteus			5/7/2019	SM
028	L36.01.00	Primulaceae	Lysimachia	latifolia			5/9/2019	SM
028	R02.08.00.a	Ericaceae	Rhododendron	orbiculare	cardiobasis		5/7/2019	SM
028	C07.04.00.a	Theaceae	Camellia	sasanqua			5/7/2019	SM
028	B08.01.00.a	Buxaceae	Buxus	sempervirens			5/7/2019	SM
028	R02.00.21c	Ericaceae	Rhododendron	x		Unknown hybrid	5/7/2019	SM
028	R02.00.21t	Ericaceae	Rhododendron	x		Unknown hybrid	5/13/2019	SM
028	R02.00.25a	Ericaceae	Rhododendron	x		'Rose Haines'	5/20/2019	SM
028	P16.01.00.a	Rosaceae	Photinia	x fraseri			5/7/2019	SM
029	A26.01.00.b	Rosaceae	Amelanchier	alnifolia			5/13/2019	SM
029	L01.01.00.c	Fabaceae	Laburnum	anagyroide			5/13/2019	SM
029	M02.01.00.f	Berberidaceae	Mahonia	aquifolium			5/11/2019	SM
029	L25.01.00.b	Caryophyllaceae	Lychnis	coronaria			5/13/2019	SM
029	M01.02.00.b	Magnoliaceae	Magnolia	cylindrica			5/13/2019	SM
029	C03.01.00.b	Cupressaceae	Calocedrus	decurrens			5/13/2019	SM
029	L11.01.00.b	Cupressaceae	Libocedrus	decurrens			5/7/2019	SM
029	I03.09.03	Iridaceae	Iris	germanica		'Night Ruler'	5/13/2019	SM
029	I03.09.03	Iridaceae	Iris	germanica		'Mother Earth'	5/13/2019	SM
029	C39.06.00.b	Rosaceae	Cotoneaster	henryanus			5/13/2019	SM
029	I03.10.01.d	Iridaceae	Iris	hollandica		'Carmen'	5/13/2019	SM
029	I03.10.02.c	Iridaceae	Iris	hollandica		'Excelsior'	5/13/2019	SM
029	P19.03.01.a	Ericaceae	Pieris	japonica		'Crispa'	5/13/2019	SM
029	C07.02.00.b	Theaceae	Camellia	japonica			5/13/2019	SM
029	M01.07.01.b	Magnoliaceae	Magnolia	liliiflora		'Nigra'	5/13/2019	SM
029	T06.02.00.f	Cupressaceae	Thuja	plicata			5/11/2019	SM
029	C07.04.00.b	Theaceae	Camellia	sasanqua			5/13/2019	SM
029	B08.01.00.b	Buxaceae	Buxus	sempervirens			5/13/2019	SM
029	M01.16.00.c	Magnoliaceae	Magnolia	tripetala			5/13/2019	SM
029	R02.00.21b	Ericaceae	Rhododendron	x		Unknown Hybrid	5/13/2019	SM
029	C39.08.00	Rosaceae	Cotoneaster	x watereri			5/13/2019	SM
029	R02.46.00.d	Ericaceae	Rhododendron	yunnanense			5/13/2019	SM
030	S29.01.01	Crassulaceae	Sedum	acre		'Aureum'	5/13/2019	SM
030	M02.01.03	Berberidaceae	Mahonia	aquifolium	pinnata		5/13/2019	SM
030	M02.01.00c	Berberidaceae	Mahonia	aquifolium			5/13/2019	SM
030	P06.04.01	Plantaginaceae	Penstemon	barbatus		'Bashfull'	5/13/2019	SM
030	C47.01.00.c	Fabaceae	Cytisus	battandieri			5/13/2019	SM
030	R08.02.00	Rosaceae	Rosa	canina			5/13/2019	SM

030	S24.02.01	Caryophyllaceae	Silene	caroliniana		'Short and Sweet'	5/13/2019	SM
030	J04.05.00	Cupressaceae	Juniperous	cedrus			5/13/2019	SM
030	M01.02.00.c	Magnoliaceae	Magnolia	cylindrica			5/13/2019	SM
030	B01.01.00.d	Berberidaceae	Berberis	darwinii			5/13/2019	SM
030	V03.03.00.d	Caprifoliaceae	Viburnum	davidii			5/13/2019	SM
030	H12.01.00.b	Rosaceae	Holodiscus	discolor			5/13/2019	SM
030	D11.01.00.b	Rosaceae	Dryas	drummondii			5/23/2019	AW
030	R02.54.00	Ericaceae	Rhododendron	edgeworthii			5/13/2019	SM
030	G02.01.00.b	Garryaceae	Garrya	elliptica			5/13/2019	SM
030	Y01.01.00.b	Agavaceae	Yucca	filamentosa			5/13/2019	SM
030	P19.01.00.b	Ericaceae	Pieris	floribunda			5/13/2019	SM
030	I03.09.02	Iridaceae	Iris	germanica		'Stepping Out'	5/13/2019	SM
030	I03.09.03	Iridaceae	Iris	germanica		'Liaison'	5/13/2019	SM
030	R02.101.00	Ericaceae	Rhododendron	insigne			5/13/2019	SM
030	C07.02.00.c	Theaceae	Camellia	japonica			5/13/2019	SM
030	L24.06.01	Montiaceae	Lewisia	longipetala		'Little Peach'	5/13/2019	SM
030	C51.01.01	Plantaginaceae	Chelone	lyonii		'Armtipp02'	5/13/2019	SM
030	P28.04.00	Dryopteridaceae	Polystichum	munitum			5/13/2019	SM
030	S32.01.01.b	Adoxaceae	Sambucus	nigra		'Eva'	5/13/2019	SM
030	G06.02.00	Proteaceae	Grevillea	noelii			5/13/2019	SM
030	F10.01.00.a	Oleaceae	Fraxinus	ornus			5/13/2019	SM
030	P02.03.00.a	Paeoniaceae	Paeonia	pacifica			5/13/2019	SM
030	I03.08.01	Iridaceae	Iris	pallida		'Agretea Variegata'	5/13/2019	SM
030	H16.01.01	Asparagaceae	Hesperaloe	parviflora		'Lutea'	5/13/2019	SM
030	E14.10.01	Asteraceae	Echinacea	purpurea		'Pink Double Delight'	5/13/2019	SM
030	Y01.06.00	Agavaceae	Yucca	rostrata			5/13/2019	SM
030	C27.09.00.d	Cistaceae	Cistus	salvifolius			5/13/2019	SM
030	M01.11.00.b	Magnoliaceae	Magnolia	sargentiana	robusta		5/13/2019	SM
030	S29.02.00	Crassulaceae	Sedum	sediforme			5/13/2019	SM
030	P28.02.01	Dryopteridaceae	Polystichum	setiferum		'Plumosodivisilobum'	5/13/2019	SM
030	I03.07.01.b	Iridaceae	Iris	sibirica		'Butter and Sugar'	5/13/2019	SM
030	I03.07.02	Iridaceae	Iris	sibirica		'Ceasar's Brother'	5/13/2019	SM
030	C38.01.00	Hamamelidaceae	Corylopsis	sinensis	sinensis		5/13/2019	SM
030	C38.01.00.d	Hamamelidaceae	Corylopsis	sinensis	sinensis		5/13/2019	SM
030	S29.03.01	Crassulaceae	Sedum	spathifolium		Cape Blanco'	5/13/2019	SM
030	S29.04.01	Crassulaceae	Sedum	spurium		'John Creech'	5/13/2019	SM
030	P44.01.01	Polemoniaceae	Phlox	subulata		'Candy Stripe'	5/13/2019	SM
030	S28.02.01.b	Lamiaceae	Salvia	suncrest		'Lemon Light'	5/13/2019	SM
030	X01.01.00.a	Melanthiaceae	Xerophyllum	tenax			5/11/2019	SM
030	C27.01.00.f	Rutaceae	Choisya	ternata			5/13/2019	SM
030	R02.47.00.b	Ericaceae	Rhododendron	thomsonii			5/13/2019	SM
030	P21.19.01	Pinaceae	Pinus	thunbergii		'Oculus Draconis'	5/13/2019	SM
030	H21.00.00	Asparagaceae	Helianthus	tuberosus			5/13/2019	SM
030	A15.02.00.b	Ericaceae	Arbutus	unedo			5/23/2019	SM
030	B01.03.00.c	Berberidaceae	Berberis	verruculosa			5/13/2019	SM
030	P45.01.02	Ranunculaceae	Pulsatilla	vulgaris	grandis	'Papageno'	5/13/2019	SM
030	D04.01.00	Agavaceae	Dasyliirion	wheeleri			5/13/2019	SM
030	Y01.00.01	Agavaceae	Yucca	x		'Color Guard'	5/13/2019	SM
030	E14.00.01	Asteraceae	Echinacea	x		'Flame Thrower'	5/13/2019	SM
030	E14.00.02	Asteraceae	Echinacea	x		'Pica Bella'	5/13/2019	SM
030	H17.01.01	Asteraceae	Helenium	x		'Short 'n' Sassy'	5/13/2019	SM
030	S29.00.00	Crassulaceae	Sedum	x		'Autumn Charm'	5/13/2019	SM
030	V08.00.01.a	Plantaginaceae	Veronica	x		'Whitewater'	5/11/2019	SM
030	S33.00.00	Poaceae	Stipa	x			5/13/2019	SM
030	M11.01.01.a	Polygonaceae	Muehlenbeckia	x		'Little Leaf'	5/13/2019	SM
030	G09.00.01.b	Rosaceae	Geum	x		'Mango Lassi'	5/13/2019	SM
030	P30.00.01	Rosaceae	Potentilla	x		'Melton Fire'	5/13/2019	SM
030	P32.01.00	Rosaceae	Prunus	x blireana			5/13/2019	SM

030	L29.02.01	Lamiaceae	Lavandula	x chaytoriae		'Silver Sands'	5/13/2019	SM
030	B01.04.00.c	Berberidaceae	Berberis	x stenophylla			5/13/2019	SM
101	M02.01.00.b	Berberidaceae	Mahonia	aquifolium			5/10/2019	SM
101	P21.01.00.b	Pinaceae	Pinus	aristrata			5/10/2019	SM
101	P21.01.00.c	Pinaceae	Pinus	aristrata			5/10/2019	SM
101	P21.01.00.e	Pinaceae	Pinus	aristrata			5/10/2019	SM
101	Y01.03.00.e	Agavaceae	Yucca	gloriosa			5/10/2019	SM
101	C39.05.00.b	Rosaceae	Cotoneaster	horizontalis			5/10/2019	SM
101	C39.05.00.	Rosaceae	Cotoneaster	horizontalis			5/10/2019	SM
101	C21.01.01.c	Cupressaceae	Chamaecyparis	nootkatensis		'Pendula'	5/10/2019	SM
101	C21.01.01.d	Cupressaceae	Chamaecyparis	nootkatensis		'Pendula'	5/10/2019	SM
101	C21.01.01.e	Cupressaceae	Chamaecyparis	nootkatensis		'Pendula'	5/10/2019	SM
101	P21.16.00.b	Pinaceae	Pinus	pinea			5/10/2019	SM
101	V03.07.02.c	Caprifoliaceae	Viburnum	plicatum			5/10/2019	SM
101	P18.03.00.b	Pinaceae	Picea	pungens			5/10/2019	SM
101	P21.22.01	Pinaceae	Pinus	sylvestris		'Argentea'	5/10/2019	SM
101	A15.02.00.h	Ericaceae	Arbutus	unedo			5/23/2019	SM
101	H03.04.00.a	Hamamelidaceae	Hamamelis	virginiana			5/10/2019	SM
101A	C21.04.00.a	Cupressaceae	Chamaecyparis	lawsoniana			5/10/2019	SM
101A	C21.04.00.b	Cupressaceae	Chamaecyparis	lawsoniana			5/10/2019	SM
102	S14.01.00.b	Rosaceae	Sorbus	aucuparia			5/10/2019	SM
102	E03.01.00.c	Ericaceae	Enkianthus	campanulatus			5/10/2019	SM
102	R02.65.00.b	Ericaceae	Rhododendron	catawbience			5/2/2019	SM
102	Q01.05.00.e	Fagaceae	Quercus	coccinea			5/10/2019	SM
102	R02.10.00	Ericaceae	Rhododendron	concinnum			5/10/2019	SM
102	K01.02.00.b	Ericaceae	Kalmia	latifolia			5/10/2019	SM
102	T10.03.00.b	Pinaceae	Tsuga	mertensiana			5/10/2019	SM
102	P18.05.00	Pinaceae	Picea	orientalis			5/10/2019	SM
102	R02.24.00.f	Ericaceae	Rhododendron	x kosteranum			5/10/2019	SM
102	E11.01.01	Berberidaceae	Epimedium	x perralchicum		'Wisley'	5/10/2019	SM
103	T07.01.00.a	Tiliaceae	Tilia	platyphyllos			5/10/2019	SM
104	P32.12.03.a	Rosaceae	Prunus	pendula		Pendula Pl. Rosea'	5/10/2019	SM
105	M01.05.00.a	Magnoliaceae	Magnolia	kobus	borealis		5/14/2019	SM
106	P32.09.01	Rosaceae	Prunus	x subhirtella		'Autumnalis Rosea'	5/10/2019	SM
107	N03.01.00.d	Nyssaceae	Nyssa	sylvatica			5/10/2019	SM
107B	P32.06.02.f	Rosaceae	Prunus	serrulata		'Kwanzan'	5/10/2019	SM
108	A26.01.00.e	Rosaceae	Amelanchier	alnifolia			5/14/2019	SM
108	P32.02.00	Rosaceae	Prunus	cerasifera			5/13/2019	SM
108	V01.01.00	Ericaceae	Vaccinium	corymbosum			5/13/2019	SM
108	P21.05.00.b	Pinaceae	Pinus	densiflora			5/13/2019	SM
108	P19.02.00.a	Ericaceae	Pieris	formosa			5/13/2019	SM
108	P19.03.00.a	Ericaceae	Pieris	japonica			5/13/2019	SM
108	L13.01.00.b	Oleaceae	Ligustrum	japonicum			5/13/2019	SM
108	A15.01.00.a	Ericaceae	Arbutus	menziesii			5/23/2019	SM
108	V03.06.00.a	Caprifoliaceae	Viburnum	opulus			5/13/2019	SM
108	Q01.13.00.b	Fagaceae	Quercus	phillyraeoides			5/13/2019	SM
108	V02.02.00.c	Berberidaceae	Vancouveria	planipetala			5/11/2019	SM
108	R02.34.02	Ericaceae	Rhododendron	ponticum		'Cheiranthifolium'	5/13/2019	SM
108	R02.34.01	Ericaceae	Rhododendron	ponticum			5/13/2019	SM
108	S32.02.00	Adoxaceae	Sambucus	racemosa			5/13/2019	SM
108	E20.03.00b	Liliaceae	Erythronium	revolutum			4/8/2019	SM
108	P28.02.02	Dryopteridaceae	Polystichum	setiferum		'Divisilobum'	5/13/2019	SM
108	R02.41.00	Ericaceae	Rhododendron	smirnowii			4/25/2019	SM
108	L13.02.002	Oleaceae	Ligustrum	vulgare			5/13/2019	SM
108	R02.00.03.a	Ericaceae	Rhododendron	x		'Brittania'	5/13/2019	SM
108	R02.31.01b	Ericaceae	Rhododendron	x obtusum		'Hi No Crimson'	5/13/2019	SM
108	M01.13.02	Magnoliaceae	Magnolia	x soulangiana		'Rustica Rubra'	5/13/2019	SM
109	R02.12.00.c	Ericaceae	Rhododendron	decorum			5/13/2019	SM

109	P21.05.00.c	Pinaceae	Pinus	densiflora		5/13/2019	SM
109	P19.02.00.b	Ericaceae	Pieris	formosa		5/13/2019	SM
109	T04.01.00	Pentaphragaceae	Ternstroemia	gymnanthera		5/13/2019	SM
109	S10.01.00.d	Rutaceae	Skimmia	japonica		5/13/2019	SM
109	L08.03.00.b	Ericaceae	Leucothoe	keiskei		5/13/2019	SM
109	R02.00.19	Ericaceae	Rhododendron	x	Loderi 'Game Chick'	5/13/2019	SM
109	R02.00.18a	Ericaceae	Rhododendron	x	Loderi 'King George'	5/13/2019	SM
109	R02.00.20	Ericaceae	Rhododendron	x	Loderi 'Patience'	5/13/2019	SM
109	R02.31.03.a	Ericaceae	Rhododendron	x obtusum	'Hi No Mayo'	5/13/2019	SM
110	A03.16.00.c	Sapindaceae	Acer	capillipes		5/23/2019	SM
110	A03.02.00b	Sapindaceae	Acer	circinatum		4/27/2019	SM
110	B02.01.00.i	Saxifragaceae	Bergenia	cordifolia		5/25/2019	SM
110	O03.02.00.b	Oleaceae	Osmanthus	delavayi		4/9/2019	SM
110	L19.04.00	Fagaceae	Lithocarpus	henryi		5/25/2019	SM
110	P19.03.00.b	Ericaceae	Pieris	japonica		5/25/2019	SM
110	K02.01.02	Rosaceae	Kerria	japonica	'Pleniflora'	5/25/2019	SM
110	C07.02.03	Theaceae	Camellia	japonica	'Candida'	5/25/2019	SM
110	P32.08.00.b	Rosaceae	Prunus	lusitanica		5/25/2019	SM
110	H14.01.00f	Hydrangeaceae	Hydrangea	macrophylla		10/12/2016	AW
110	R02.59.00.b	Ericaceae	Rhododendron	maddenii	crassum	4/9/2019	SM
110	C04.01.00.e	Calycanthaceae	Calycanthus	occidentalis		5/25/2019	SM
110	A15.02.00.i	Ericaceae	Arbutus	unedo		5/23/2019	SM
111	R02.03.00.c	Ericaceae	Rhododendron	arboreum		5/25/2019	SM
111	E02.01.00b	Proteaceae	Embothrium	coccineum		5/25/2019	SM
111	M04.00.02	Rosaceae	Malus	domestica	'Esopus Spitzenberg'	5/13/2019	SM
111	S20.00.00.b	Styracaceae	Styrax	japonicus		5/25/2019	SM
111	M01.23.00	Magnoliaceae	Magnolia	sapaensis		5/30/2019	SM
111	P32.06.05.a	Rosaceae	Prunus	serrulata	'Shiro-fugen'	5/25/2019	SM
111	P32.06.08.b	Rosaceae	Prunus	serrulata	'Ukon'	5/25/2019	SM
111	M01.16.00.b	Magnoliaceae	Magnolia	tripetala		5/25/2019	SM
111	R02.00.21a	Ericaceae	Rhododendron	x	Unknown Hybrid	5/7/2019	SM
111	R02.00.21j	Ericaceae	Rhododendron	x	Unknown hybrid	5/10/2019	SM
111	R02.00.21o	Ericaceae	Rhododendron	x	Unknown hybrid	5/13/2019	SM
112	R02.05.00.d	Ericaceae	Rhododendron	augustinii		5/13/2019	SM
112	L08.01.00.b	Ericaceae	Leucothoe	davisiae		5/13/2019	SM
112	P19.01.00.c	Ericaceae	Pieris	floribunda		5/13/2019	SM
112	L08.02.00b	Ericaceae	Leucothoe	fontanesiana		5/13/2019	SM
112	M04.03.01.a	Rosaceae	Malus	halliana	'Parkmanii'	5/13/2019	SM
112	C07.02.00.e	Theaceae	Camellia	japonica		5/25/2019	SM
112	M01.07.00	Magnoliaceae	Magnolia	liliflora		5/13/2019	SM
112	C36.03.00.c	Cornaceae	Cornus	mas		5/13/2019	SM
112	C01.01.00.a	Verbenaceae	Callicarpa	mollis		5/13/2019	SM
112	Q01.12.00.b	Fagaceae	Quercus	palustris		5/13/2019	SM
112	P32.12.03.a	Rosaceae	Prunus	pendula	Pendula Pl. Rosea'	5/13/2019	SM
112	P32.12.03.b	Rosaceae	Prunus	pendula	'Pendula'	5/13/2019	SM
112	V03.08.00.a	Caprifoliaceae	Viburnum	rhytidophllum		5/13/2019	SM
112	C07.04.01	Theaceae	Camellia	sasanqua	'White Doves'	5/13/2019	SM
112	P32.06.06.b	Rosaceae	Prunus	serrulata	'Shogetsu'	5/13/2019	SM
112	A15.02.00.c	Ericaceae	Arbutus	unedo		5/23/2019	SM
112	Q01.20.00.b	Fagaceae	Quercus	wislizenii		5/13/2019	SM
112	R02.00.21q	Ericaceae	Rhododendron	x	Unknown hybrid	5/13/2019	SM
112	R02.18.00.a	Ericaceae	Rhododendron	x gandavense		5/13/2019	SM
112	R02.24.00.i	Ericaceae	Rhododendron	x kosteranum		5/13/2019	SM
112	R02.24.00.j	Ericaceae	Rhododendron	x kosteranum		5/13/2019	SM
112	P32.10.01.a	Rosaceae	Prunus	x yedoensis	'Akebono'	5/13/2019	SM
112	P32.10.00.a	Rosaceae	Prunus	x yedoensis		5/13/2019	SM
113	R02.05.00.e	Ericaceae	Rhododendron	augustinii		5/14/2019	SM
113	Z02.01.00	Onagraceae	Zauschneria	californica		5/13/2019	SM

113	B02.01.00g	Saxifragaceae	Bergenia	cordifolia			5/13/2019	SM	
113	W02.01.00a	Polypodiaceae	Woodwardia	fimbriata			4/27/2019	SM	
113	C36.01.00.a	Cornaceae	Cornus	florida			5/13/2019	SM	
113	F15.01.00.b	Hamamelidaceae	Fothergilla	gardenii			5/13/2019	SM	
113	C36.03.00.b	Cornaceae	Cornus	mas			5/13/2019	SM	
113	R02.62.00a	Ericaceae	Rhododendron	micranthum			5/23/2019	SM	
113	R02.40.00.a	Ericaceae	Rhododendron	schlippenbachii			5/11/2019	SM	
113	P28.02.00b	Dryopteridaceae	Polystichum	setiferum			5/13/2019	SM	
113	C25.01.00	Oleaceae	Chionanthus	virginicus			5/11/2019	SM	
113	D17.00.00	Caryophyllaceae	Dianthus	x			5/13/2019	SM	
113	R02.00.21n	Ericaceae	Rhododendron	x		Unknown hybrid	5/13/2019	SM	
113	G09.00.2	Rosaceae	Geum	x		'Borisii'	5/13/2019	SM	
113	H06.05.01.b	Ranunculaceae	Helleborus	x hybridus		'Cherry Blossm'	5/13/2019	SM	
113	R02.46.00.f	Ericaceae	Rhododendron	yunnanense			5/4/2019	SM	
113A	B03.02.00	Betulaceae	Betula	pubescens			5/25/2019	SM	
114	A03.16.00.a	Sapindaceae	Acer	capillipes			5/23/2019	SM	
114	G02.04.01	Garryaceae	Garrya	issaquahensis		'Carl English'	4/27/2019	SM	
114	C07.02.01.b	Theaceae	Camellia	japonica		'Auburn White'	5/11/2019	SM	
114	O02.02.00	Liliaceae	Ophiopogon	japonicus			5/25/2019	SM	
114	P02.02.01.b	Paeoniaceae	Paeonia	lutea		ludlowii	5/25/2019	SM	
114	R02.30.00.a	Ericaceae	Rhododendron	mucronulatum			5/25/2019	SM	
114	R02.103.00	Ericaceae	Rhododendron	nova			4/16/2019	SM	
114	C38.02.00	Hamamelidaceae	Corylopsis	pauciflora			5/25/2019	SM	
114	R02.108.00	Ericaceae	Rhododendron	periclymenoides			5/20/2019	SM	
114	R02.38.00.d	Ericaceae	Rhododendron	racemosum			5/25/2019	SM	
114	A03.17.00	Sapindaceae	Acer	sieboldianum			5/23/2019	SM	
114	C38.01.00.e	Hamamelidaceae	Corylopsis	sinensis		sinensis	5/25/2019	SM	
114	R02.100.00b	Ericaceae	Rhododendron	x		Azaleodendron'	4/25/2019	SM	
114	R02.00.21k	Ericaceae	Rhododendron	x		Unknown hybrid	5/10/2019	SM	
115	A03.03.01.d	Sapindaceae	Acer	davidii		grosseri	5/23/2019	SM	
115	C14.02.00.c	Pinaceae	Cedrus	deodara			4/9/2019	SM	
115	A13.02.00.b	Araliaceae	Aralia	elata			5/23/2019	SM	
115	M04.03.01.b	Rosaceae	Malus	halliana		'Parkmanii'	5/25/2019	SM	
116	C27.02.01	Rutaceae	Choisya	arizonica		'Aztec Pearl'	4/9/2019	SM	
116	F13.09.00b	Liliaceae	Fritillaria	camschatcensis			4/9/2019	SM	
116	H25.02.01	Helwingiaceae	Helwingia	chinensis			5/13/2019	SM	
116	H25.02.02	Helwingiaceae	Helwingia	chinensis			5/13/2019	SM	
116	P38.01.00b	Polypodiaceae	Polypodium	guttatum			5/13/2019	SM	
116	S38.01.00b	Berberidaceae	Sinopodophyllum	hexandrum		chinese	MD97150 ex Yunnan	4/27/2019	SM
116	R02.23.00.c	Ericaceae	Rhododendron	indicum			4/9/2019	SM	
116	P19.03.00.c	Ericaceae	Pieris	japonica			4/9/2019	SM	
116	P21.10.01.a	Pinaceae	Pinus	mugo		mugo	4/9/2019	SM	
116	P21.10.02	Pinaceae	Pinus	mugo			'Carsten's Wintergold'	5/11/2019	SM
116	B03.01.00.b	Betulaceae	Betula	nana			4/9/2019	SM	
116	V01.05.01	Ericaceae	Vaccinium	nova			4/16/2019	SM	
116	S19.03.00.b	Theaceae	Stewartia	rostrata			4/9/2019	SM	
116	R02.33.00.a	Ericaceae	Rhododendron	rubiginosum			5/2/2019	SM	
116	P28.02.00.d	Dryopteridaceae	Polystichum	setiferum			5/13/2019	SM	
116	A28.02.00	Pteridaceae	Adiantum	shastense			5/25/2019	SM	
116	M01.12.00	Magnoliaceae	Magnolia	sieboldii			4/9/2019	SM	
116	C13.04.02	Rhamnaceae	Ceanothus	thyrsiflorus		'Skylark'	4/9/2019	SM	
116	S04.01.00.b	Saxifragaceae	Saxifraga	umbosa			5/13/2019	SM	
116	C66.00.01	Orchidaceae	Cypripedium	x		'Emil'	5/13/2019	SM	
116	C66.00.02	Orchidaceae	Cypripedium	x		'Phillip'	5/13/2019	SM	
116	C66.00.03	Orchidaceae	Cypripedium	x		'Gisela'	5/13/2019	SM	
117	P38.01.00a	Polypodiaceae	Polypodium	guttatum			5/13/2019	SM	
117	P19.03.00.d	Ericaceae	Pieris	japonica			4/9/2019	SM	
117	R.02.100.00b	Ericaceae	Rhododendron	lilliflorum			5/13/2019	SM	

117	L14.08.00	Liliaceae	Lilium	mackliniae		4/16/2019	SM
118	M02.01.00.d	Berberidaceae	Mahonia	aquifolium		5/11/2019	SM
118	T18.01.01.a	Liliaceae	Tulipa	bakeri	'Lilac Wonder'	5/13/2019	SM
118	P06.07.00b	Plantaginaceae	Penstemon	barrettiae		4/2/2019	SM
118	P22.01.00.b	Anacardiaceae	Pistacia	chinensis		3/21/2019	SM
118	C27.01.00.a	Cistaceae	Cistus	creticus		5/14/2019	SM
118	V03.03.00.b	Caprifoliaceae	Viburnum	davidii		5/14/2019	SM
118	P19.02.00.c	Ericaceae	Pieris	formosa		5/14/2019	SM
118	P19.03.00.e	Ericaceae	Pieris	japonica		5/14/2019	SM
118	L23.00.00	Fabaceae	Lupinus	latifolius		5/10/2019	SM
118	O01.03.00	Asteraceae	Olearia	macrodonata		3/21/2019	SM
118	H14.01.00.c	Hydrangeaceae	Hydrangea	macrophylla		4/9/2019	SM
118	H14.01.00.d	Hydrangeaceae	Hydrangea	macrophylla		4/9/2019	SM
118	T10.03.00.d	Pinaceae	Tsuga	mertensiana		12/2/2009	SM
118	P21.10.00.a	Pinaceae	Pinus	mugo		5/14/2019	SM
118	L02.01.00	Ericaceae	Rhododendron	neoglandulosum		5/11/2019	SM
118	C13.04.04	Rhamnaceae	Ceanothus	thyrsiflorus	'Millerton Point'	5/11/2019	SM
118A	E03.01.00.e	Ericaceae	Enkianthus	campanulatus		5/14/2019	SM
118A	E03.03.00	Ericaceae	Enkianthus	chinensis		5/14/2019	SM
118A	C46.01.00	Betulaceae	Corylus	heterophylla	yunnanensis	5/14/2019	SM
118A	C39.05.00.g	Rosaceae	Cotoneaster	horizontalis		5/14/2019	SM
118A	C36.02.00.b	Cornaceae	Cornus	kousa		5/14/2019	SM
118A	C38.03.00.a	Hamamelidaceae	Corylopsis	spicata		5/14/2019	SM
118A	V03.01.00.b	Caprifoliaceae	Viburnum	x bodnantense		5/14/2019	SM
118A	V03.05.00.c	Caprifoliaceae	Viburnum	x burkwoodii		5/14/2019	SM
118A	A05.02.01.o	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
118A	A05.02.01.p	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
118A	A05.02.01.q	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
118A	A05.02.01.n	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
119	H06.01.00	Ranunculaceae	Helleborus	argutifolius		5/25/2019	SM
119	A03.16.00.b	Sapindaceae	Acer	capillipes		5/23/2019	SM
119	I01.03.01.a	Aquifoliaceae	Ilex	crenata	'Helleri'	5/25/2019	SM
119	A03.03.00.b	Sapindaceae	Acer	davidii		5/23/2019	SM
119	O03.03.00	Oleaceae	Osmanthus	heterophyllus		5/25/2019	SM
119	V02.01.00.a	Berberidaceae	Vancouveria	hexandra		5/25/2019	SM
119	P19.03.00.f	Ericaceae	Pieris	japonica		5/25/2019	SM
119	S15.01.00.c	Fabaceae	Spartium	junceum		5/11/2019	SM
119	H14.01.01	Hydrangeaceae	Hydrangea	macrophylla		4/9/2019	SM
119	T10.03.00.c	Pinaceae	Tsuga	mertensiana		5/11/2019	SM
119	P10.01.00.a	Ericaceae	Pernettya	mucronata		5/25/2019	SM
119	M02.06.00	Berberidaceae	Mahonia	nervosa		5/25/2019	SM
119	M02.06.00.b	Berberidaceae	Mahonia	nervosa		5/25/2019	SM
119	H06.03.00.a	Ranunculaceae	Helleborus	niger		5/25/2019	SM
119	I01.05.00.a	Aquifoliaceae	Ilex	pedunculosa		5/25/2019	SM
119	E01.02.00.d	Elaeagnaceae	Elaeagnus	pungens		5/25/2019	SM
119	M01.15.00	Magnoliaceae	Magnolia	stellata		5/25/2019	SM
119	M01.16.00.a	Magnoliaceae	Magnolia	tripetala		6/4/2019	SM
119	B01.00.00	Berberidaceae	Berberis	x		7/24/2008	
119	P16.01.00.b	Rosaceae	Photinia	x fraseri		5/25/2019	SM
119	R02.31.00	Ericaceae	Rhododendron	x obtusum		5/25/2019	SM
119	R02.31.01a	Ericaceae	Rhododendron	x obtusum	'Hi No Crimson'	5/13/2019	SM
119	R02.31.02	Ericaceae	Rhododendron	x obtusum	'Hi No Digiri'	5/25/2019	SM
120	A26.01.00.d	Rosaceae	Amelanchier	alnifolia		5/25/2019	SM
120	T19.01.00	Cephalotaxaceae	Torreya	californica		3/21/2019	SM
120	R02.11.00.b	Ericaceae	Rhododendron	davidsonianum		4/25/2019	SM
120	I03.02.00.c	Iridaceae	Iris	douglasiana		5/25/2019	SM
120	G02.01.00.c	Garryaceae	Garrya	elliptica		5/25/2019	SM
120	P19.01.00.e	Ericaceae	Pieris	floribunda		5/25/2019	SM

120	T08.01.00.e	Arecaceae	Trachycarpus	fortunei			5/11/2019	SM
120	Q01.08.00.c	Fagaceae	Quercus	ilex			5/25/2019	SM
120	P19.03.02	Ericaceae	Pieris	japonica		'Pygmaea'	5/25/2019	SM
120	C36.02.00.a	Cornaceae	Cornus	kousa			5/25/2019	SM
120	L06.01.00.a	Myrtaceae	Letospermum	lanigerum			5/25/2019	SM
120	H14.01.00.b	Hydrangeaceae	Hydrangea	macrophylla			4/9/2019	SM
120	R02.54.00	Ericaceae	Rhododendron	macrophyllum			3/21/2019	SM
120	R02.99.02	Ericaceae	Rhododendron	nitidulum		nitidulum	5/11/2019	SM
120	M01.01.00.c	Magnoliaceae	Magnolia	obovata			5/25/2019	SM
120	R02.32.00.b	Ericaceae	Rhododendron	occidentale			4/25/2019	SM
120	R02.74.01.b	Ericaceae	Rhododendron	oreodoxa		fargessii	4/9/2019	SM
120	A03.11.01	Sapindaceae	Acer	palmatum			5/25/2019	SM
120	A03.11.03	Sapindaceae	Acer	palmatum		'Autumn Glory' 'Dissectum' Atropurpureum'	5/23/2019	SM
120	M02.07.00.b	Berberidaceae	Mahonia	pumila			5/25/2019	SM
120	R02.38.00.b	Ericaceae	Rhododendron	racemosum			4/25/2019	SM
120	M14.01.01	Saxifragaceae	Mukdenia	rossii		'Crimson Fans'	5/25/2019	SM
120	P32.06.05.c	Rosaceae	Prunus	serrulata		'Shiro-fugen'	5/25/2019	SM
120	G04.03.00	Fabaceae	Genista	tinctoria			5/11/2019	SM
120	D07.02.00b	Saxifragaceae	Deutzia	x kalmiiiflora			3/21/2019	SM
121	M04.07.01.a	Rosaceae	Malus	baccata		'Himalaica'	5/14/2019	SM
121	M08.01.00.a	Asparagaceae	Maianthemum	bifolium		'Kamtschaticum'	5/14/2019	SM
121	A03.03.01.b	Sapindaceae	Acer	davidii		grosseri	5/14/2019	SM
121	S10.01.00.e	Rutaceae	Skimmia	japonica			5/14/2019	SM
121	M01.01.00.b	Magnoliaceae	Magnolia	obovata			5/14/2019	SM
121	C21.03.00.e	Cupressaceae	Chamaecyparis	pisifera			5/14/2019	SM
121	C21.03.01.b	Cupressaceae	Chamaecyparis	pisifera		'Squarrosa'	5/14/2019	SM
121	S14.05.00	Rosaceae	Sorbus	rehderiana			5/14/2019	SM
121	R02.00.21d	Ericaceae	Rhododendron	x		Unknown Hybrid	5/7/2019	SM
121	R02.15.01.b	Ericaceae	Rhododendron	x caucasicum		'Rosa Mundi'	5/14/2019	SM
122	M08.01.00.b	Asparagaceae	Maianthemum	bifolium		'Kamtschaticum'	5/14/2019	SM
122	G05.01.00.a	Ginkgoaceae	Ginkgo	biloba			5/14/2019	SM
122	R02.89.00c	Ericaceae	Rhododendron	calophytum			4/16/2019	SM
122	S31.01.00	Hydrangeaceae	Schizophragma	corylieum			5/23/2019	SM
122	R02.12.00.a	Ericaceae	Rhododendron	decorum			5/14/2019	SM
122	P19.01.00.f	Ericaceae	Pieris	floribunda			5/14/2019	SM
122	S43.01.00	Hydrangeaceae	Schizophragma	integrifolia			5/18/2019	SM
122	P19.03.00.g	Ericaceae	Pieris	japonica			5/14/2019	SM
122	S10.01.00.f	Rutaceae	Skimmia	japonica			5/14/2019	SM
122	C43.01.00.c	Taxodiaceae	Cryptomeria	japonica			5/14/2019	SM
122	C07.02.00.g	Theaceae	Camellia	japonica			5/14/2019	SM
122	C34.01.00	Liliaceae	Convallaria	majalis			5/14/2019	SM
122	H03.02.00.b	Hamamelidaceae	Hamamelis	mollis			5/14/2019	SM
122	K04.01.00.b	Sapindaceae	Koelreuteria	paniculata			5/14/2019	SM
122	R02.34.00	Ericaceae	Rhododendron	ponticum			5/13/2019	SM
122	Q01.21.00.a	Fagaceae	Quercus	prinus			5/14/2019	SM
122	S07.01.00.a	Taxodiaceae	Sequoia	sempervirens			5/10/2019	SM
122	P05.01.00.b	Paulowiaceae	Paulownia	tomentosa		('Lilacina')	5/14/2019	SM
122	R02.00.09.b	Ericaceae	Rhododendron	x		'Gomer Waterer'	5/13/2019	SM
122	R02.69.00	Ericaceae	Rhododendron	x arbutifolium			4/30/2019	SM
123	T06.01.00.b	Cupressaceae	Thuja	occidentalis		'Aurea Variegata'	5/14/2019	SM
123	T06.01.00.a	Cupressaceae	Thuja	plicata		'Zebrina'	4/9/2019	SM
124	F16.01.00	Cupressaceae	Fokienia	hodgsonii			5/14/2019	SM
125	A03.13.00.b	Sapindaceae	Acer	platanoides			5/14/2019	SM
126	A05.01.00.a	Sapindaceae	Aesculus	californica			5/23/2019	SM
126	A05.01.00.b	Sapindaceae	Aesculus	californica			5/23/2019	SM
127	A03.14.00	Sapindaceae	Acer	pseudoplatanus			5/14/2019	SM
128	H15.10.00	Clusiaceae	Hypericum	bellum			5/11/2019	SM
128	T08.01.00.i	Arecaceae	Trachycarpus	fortunei			5/3/2019	SM

128	H15.07.00	Clusiaceae	Hypericum	lancastreri			5/11/2019	SM
128	H15.04.00.c	Clusiaceae	Hypericum	patulum			5/11/2019	SM
128	H15.08.00	Clusiaceae	Hypericum	pseudohenryi			5/11/2019	SM
128	H15.02.00	Clusiaceae	Hypericum	subsessil			5/11/2019	SM
129	A03.13.00.a	Sapindaceae	Acer	platanoides			5/14/2019	SM
16	R02.13.01.a	Ericaceae	Rhododendron	fortunei	discolor		5/18/2019	SM
201	B02.01.01	Saxifragaceae	Bergenia	aff. Purpurascens			5/6/2019	SM
201	C32.02.00.a	Clethraceae	Clethra	alnifolia			5/6/2019	SM
201	K05.01.00.a	Caprifoliaceae	Kolkwitzia	amabilis			5/6/2019	SM
201	I02.01.00	Schisandraceae	Illicium	anisatum			5/6/2019	SM
201	I01.01.00.a	Aquifoliaceae	Ilex	aquifolium			5/6/2019	SM
201	R03.03.01	Anacardiaceae	Rhus	aromatica		'Low Grow'	5/6/2019	SM
201	R02.05.05	Ericaceae	Rhododendron	augustinii	augustinii	'Whalley Form'	5/6/2019	SM
201	R02.05.06	Ericaceae	Rhododendron	augustinii	augustinii	'RSF Best Purple'	5/6/2019	SM
201	R02.05.04	Ericaceae	Rhododendron	augustinii	augustinii		5/6/2019	SM
201	C19.03.00.b	Rosaceae	Cercocarpus	betuloides			5/6/2019	SM
201	D23.01.01	Colchicaceae	Disporum	cantonense			5/6/2019	SM
201	B14.01.00.a	Berberidaceae	Berberidopsis	corallina			5/6/2019	SM
201	D07.03.01	Saxifragaceae	Deutzia	crenata		'Nikko'	5/6/2019	SM
201	H20.01.00.b	Fabaceae	Hippocrepis	emerus			5/6/2019	SM
201	D12.02.01.a	Dryopteridaceae	Dryopteris	filix-mas		'Barnesii'	5/6/2019	SM
201	C36.01.00.b	Cornaceae	Cornus	florida			5/6/2019	SM
201	I03.03.00	Iridaceae	Iris	foetidissima			5/6/2019	SM
201	I03.09.01	Iridaceae	Iris	germanica		'Red Zinger'	5/6/2019	SM
201	S08.01.00.a	Taxodiaceae	Sequoiadendron	giganteum			5/6/2019	SM
201	Y01.03.00.d	Agavaceae	Yucca	gloriosa			5/6/2019	SM
201	S17.01.00	Stachyuraceae	Stachyurus	himalaicus			5/6/2019	SM
201	I03.10.01.a	Iridaceae	Iris	hollandica		'Carmen'	5/6/2019	SM
201	I03.10.02.a	Iridaceae	Iris	hollandica		'Excelsior'	5/6/2019	SM
201	C39.05.00.c	Rosaceae	Cotoneaster	horizontalis			5/6/2019	SM
201	C39.07.00	Rosaceae	Cotoneaster	integrifolius			5/6/2019	SM
201	D04.02.00.a	Nyssaceae	Davidia	involutrata			5/6/2019	SM
201	P19.03.01.b	Ericaceae	Pieris	japonica		'Crispa'	5/6/2019	SM
201	S22.02.00	Oleaceae	Syringa	laciniata			5/6/2019	SM
201	C27.06.00.c	Cistaceae	Cistus	ladanifer		'Maculates'	5/6/2019	SM
201	P21.09.00.a	Pinaceae	Pinus	lambertiana			5/6/2019	SM
201	R02.57.00.a	Ericaceae	Rhododendron	leucaspis			5/13/2019	SM
201	R02.57.00.b	Ericaceae	Rhododendron	leucaspis			5/6/2019	SM
201	P12.01.00c	Hydrangeaceae	Philadelphus	lewisii			5/6/2019	SM
201	P02.02.01.c	Paeoniaceae	Paeonia	lutea	ludlowii		5/6/2019	SM
201	C54.01.01	Cupressaceae	Cupressus	macrocarpa		'Goldcrest Wilma'	5/6/2019	SM
201	C50.01.00.a	Dryopteridaceae	Cyrtomium	macrophyllum			5/6/2019	SM
201	C34.01.02	Asparagaceae	Convallaria	majalis		'Albostriata'	5/6/2019	SM
201	C34.01.01	Asparagaceae	Convallaria	majalis		'Variegata'	5/6/2019	SM
201	H09.02.02.a	Saxifragaceae	Heuchera	micrantha		'Dark Secret'	5/6/2019	SM
201	H09.02.03.a	Saxifragaceae	Heuchera	micrantha		'Lime Marmalade'	5/6/2019	SM
201	A29.04.01	Ranunculaceae	Anemone	nemorosa		'Stars in the Night'	5/6/2019	SM
201	G01.01.00.b	Amaryllidaceae	Galanthus	nivalis			5/6/2019	SM
201	N02.01.00	Nothofagaceae	Lophonozia	obliqua			5/6/2019	SM
201	G10.00.00	Rubiaceae	Galium	odoratum			5/6/2019	SM
201	S20.05.01	Styracaceae	Stryax	officinale	redivivus		5/6/2019	SM
201	M08.02.00	Asparagaceae	Maianthemum	oleraceum			5/6/2019	SM
201	I08.02.01	Balsaminaceae	Impatiens	omeana		'Silver and Pink'	5/23/2019	AW
201	O06.01.00	Oxalidaceae	Oxalis	oregana			5/6/2019	SM
201	F10.01.00.b	Oleaceae	Fraxinus	ornus			5/6/2019	SM
201	C09.04.01	Cyperaceae	Carex	oshimensis		'Everillo'	5/6/2019	SM
201	T12.01.00d	Melanthiaceae	Trillium	ovatum			4/9/2019	SM
201	C13.06.01	Rhamnaceae	Ceanothus	pallidus		'Marie Simon'	5/6/2019	SM

201	G04.02.00.b	Fabaceae	Genista	pilosa			5/6/2019	SM
201	V02.02.00	Berberidaceae	Vancouveria	planipetala			5/6/2019	SM
201	V02.02.00.b	Berberidaceae	Vancouveria	planipetala			5/6/2019	SM
201	O02.01.01.a	Liliaceae	Ophiopogon	planiscapus		'Nigrescens'	5/6/2019	SM
201	P28.03.00.a	Dryopteridaceae	Polystichum	polyblepharum			5/6/2019	SM
201	R02.33.00.b	Ericaceae	Rhododendron	polylepis			5/6/2019	SM
201	S01.01.00.b	Salicaceae	Salix	purpurea		'Nana'	5/6/2019	SM
201	H14.03.00.b	Hydrangeaceae	Hydrangea	quercifolia			5/6/2019	SM
201	A30.01.01	Lamiaceae	Ajuga	reptans		'Pink Lightning'	5/6/2019	SM
201	A30.01.02	Lamiaceae	Ajuga	reptans		'Burgundy Glow'	5/6/2019	SM
201	A30.01.03	Lamiaceae	Ajuga	reptans		'Mint Chip'	5/6/2019	SM
201	M13.01.00	Lamiaceae	Mentha	requienii			5/6/2019	SM
201	V03.08.00.b	Caprifoliaceae	Viburnum	rhytidophllum			5/6/2019	SM
201	E07.01.00.b	Escalloniaceae	Escallonia	rubra			5/6/2019	SM
201	A31.01.00.a	Aspleniaceae	Asplenium	scolopendrium			5/6/2019	SM
201	S07.01.00.b	Taxodiaceae	Sequoia	sempervirens			5/6/2019	SM
201	P32.06.04.a	Rosaceae	Prunus	serrulata		'Shirotae'	5/6/2019	SM
201	P32.06.06.d	Rosaceae	Prunus	serrulata		'Shogetsu'	5/6/2019	SM
201	I03.07.01	Iridaceae	Iris	sibirica		'Butter and Sugar'	5/6/2019	SM
201	A40.02.01	Ranunculaceae	Actaea	simplex		'Black Negligee'	5/6/2019	SM
201	C07.05.00	Theaceae	Camellia	sinensis			5/6/2019	SM
201	A09.04.01	Amaryllidaceae	Allium	stipitatum		'Mount Everest'	5/23/2019	SM
201	S28.02.01	Lamiaceae	Salvia	suncrest		'Lemon Light'	5/6/2019	SM
201	R03.01.00.a	Anacardiaceae	Rhus	typhina			5/6/2019	SM
201	P21.20.00.a	Pinaceae	Pinus	wallichiana			5/6/2019	SM
201	R02.76.01	Ericaceae	Rhododendron	wardii	puralbum		5/6/2019	SM
201	P40.02.00	Pinaceae	Pseudotsuga	wilsoniana			5/6/2019	SM
201	C06.00.01	Asparagaceae	Camassia	x		'Blue Melody'	5/6/2019	SM
201	E11.00.01	Berberidaceae	Epimedium	x		'Pink Elf'	5/6/2019	SM
201	C27.00.01.	Cistaceae	Cistus	x		'Grayswood Pink'	5/6/2019	SM
201	C61.00.01.b	Ericaceae	Cassiope	x		'Muirhead'	5/6/2019	SM
201	M11.01.01.b	Polygonaceae	Muehlenbeckia	x		'Little Leaf'	5/6/2019	SM
201	A29.02.01	Ranunculaceae	Anemone	x hybrida		'Fantasy Cinderella'	5/6/2019	SM
201	H06.05.01.a	Ranunculaceae	Helleborus	x hybridus		'Cherry Blossm'	5/6/2019	SM
201	H06.05.02	Ranunculaceae	Helleborus	x hybridus		'White Pearl'	5/6/2019	SM
201	H06.05.03	Ranunculaceae	Helleborus	x hybridus		'Amethyst'	5/6/2019	SM
201	D07.02.00a	Saxifragaceae	Deutzia	x kalmiflora			5/6/2019	SM
201	P32.10.00.e	Rosaceae	Prunus	x yedoensis			5/6/2019	SM
202	Q01.22.00	Fabaceae	Quercus	arizonica			5/6/2019	SM
202	G05.01.00.d	Ginkgoaceae	Ginkgo	biloba			5/6/2019	SM
202	O03.02.00.a	Oleaceae	Osmanthus	delavayi			5/6/2019	SM
202	G02.01.00.f	Garryaceae	Garrya	elliptica			5/6/2019	SM
202	M05.01.00.b	Taxodiaceae	Metasequoia	glyptostroboides			5/6/2019	SM
202	A22.01.00.a	Cornaceae	Aucuba	japonica			5/6/2019	SM
202	C28.01.00.a	Fabaceae	Cladrastis	kentukea			5/6/2019	SM
202	P12.01.00a	Hydrangeaceae	Philadelphus	lewisii			5/6/2019	SM
202	P40.01.00.b	Pinaceae	Pseudotsuga	menziesii			5/6/2019	SM
202	P21.10.03.a	Pinaceae	Pinus	mugo	uncinata		5/6/2019	SM
202	E01.01.00.c	Elaeagnaceae	Elaeagnus	multiflora			5/6/2019	SM
202	Q01.13.00.c	Fagaceae	Quercus	phillyraeoides			5/6/2019	SM
202	R02.00.21e	Ericaceae	Rhododendron	x		Unknown hybrid	5/7/2019	SM
202	R02.00.21p	Ericaceae	Rhododendron	x		Unknown hybrid	5/13/2019	SM
202	C42.01.00.c	Iridaceae	Crocsmia	x crocosmiiflora			5/6/2019	SM
203	T11.01.00.a	Taxaceae	Taxus	baccata			5/6/2019	SM
203	C31.01.00.b	Clethraceae	Clethra	barbinervis			5/6/2019	SM
203	O03.05.00.b	Oleaceae	Osmanthus	decorus			5/6/2019	SM
203	G02.01.00.g	Garryaceae	Garrya	elliptica			5/6/2019	SM
203	T08.01.00.d	Arecaceae	Trachycarpus	fortunei			5/6/2019	SM

203	S08.01.00.b	Taxodiaceae	Sequoiadendron	giganteum		5/6/2019	SM
203	S18.01.00.a	Lardizabalaceae	Stauntonia	hexaphylla		5/6/2019	SM
203	M02.04.00	Berberidaceae	Mahonia	japonica		5/6/2019	SM
203	B01.02.00.a	Berberidaceae	Berberis	julianae		5/6/2019	SM
203	P12.01.00b	Hydrangeaceae	Philadelphus	lewisii		5/6/2019	SM
203	D09.03.00	Ebenaceae	Diospyros	lotus		5/6/2019	SM
203	P40.01.00.c	Pinaceae	Pseudotsuga	menziesii		5/6/2019	SM
203	R02.106.00	Ericaceae	Rhododendron	mollicomum		5/20/2019	SM
203	C21.03.01.a	Cupressaceae	Chamaecyparis	pisifera	'Squarrosa'	5/6/2019	SM
203	T06.02.00.g	Cupressaceae	Thuja	plicata		5/6/2019	SM
203	S07.01.00.c	Taxodiaceae	Sequoia	sempervirens		5/6/2019	SM
203	L16.01.00.a	Hamamelidaceae	Liquidambar	styraciflua		5/6/2019	SM
203	C27.01.00.g	Rutaceae	Choisya	ternata		5/6/2019	SM
203	A19.01.00.b	Annonaceae	Asimina	triloba		5/6/2019	SM
204	L31.01.00.a	Amaryllidaceae	Leucojum	aestivum		5/14/2019	SM
204	E12.01.00	Celastraceae	Euonymus	alatus		5/14/2019	SM
204	C46.04.02	Betulaceae	Corylus	avellana	'Contorta'	5/14/2019	SM
204	A03.02.00	Sapindaceae	Acer	circinatum		5/14/2019	SM
204	G02.01.00.h	Garryaceae	Garrya	elliptica		5/14/2019	SM
204	R02.95.01	Ericaceae	Rhododendron	falconeri	eximium	4/25/2019	SM
204	S08.01.00.c	Taxodiaceae	Sequoiadendron	giganteum		5/10/2019	SM
204	H13.01.00.b	Liliaceae	Hyacinthoides	hispanica		5/14/2019	SM
204	S02.01.01.b	Buxaceae	Sarcococca	hookeriana	humilis	5/14/2019	SM
204	C39.05.00.d	Rosaceae	Cotoneaster	horizontalis		5/14/2019	SM
204	J01.01.00.a	Oleaceae	Jasminum	humile		5/14/2019	SM
204	P19.03.00.h	Ericaceae	Pieris	japonica		5/14/2019	SM
204	S13.01.00	Fabaceae	Sophora	japonica		5/14/2019	SM
204	S16.02.01	Rosaceae	Spirea	japonica		5/14/2019	SM
204	C07.02.00.h	Theaceae	Camellia	japonica		5/14/2019	SM
204	C17.01.00.d	Cercidiphyllaceae	Cercidiphyllum	japonicum		5/14/2019	SM
204	C14.03.01	Pinaceae	Cedrus	libani	'Nana'	5/25/2019	SM
204	P40.01.00.e	Pinaceae	Pseudotsuga	menziesii		5/14/2019	SM
204	T06.02.00.h	Cupressaceae	Thuja	plicata		5/14/2019	SM
204	V03.08.00.c	Caprifoliaceae	Viburnum	rhytidophllum		5/13/2019	SM
204	S02.02.01.c	Buxaceae	Sarcococca	ruscifolia	'Chiliensis'	5/14/2019	SM
204	P32.06.04.b	Rosaceae	Prunus	serrulata	'Shirotae'	5/14/2019	SM
204	P32.06.05.e	Rosaceae	Prunus	serrulata	'Shiro-fugen'	5/14/2019	SM
204	C27.01.00.h	Rutaceae	Choisya	ternata		5/14/2019	SM
204	D12.03.00	Dryopteridaceae	Dryopteris	tokyoensis		5/25/2019	SM
204	R02.39.01.b	Ericaceae	Rhododendron	x ponticum	'Purple Splendor'	5/7/2019	SM
204	R02.46.00.e	Ericaceae	Rhododendron	yunnanense		5/2/2019	SM
204A	P21.06.01.b	Pinaceae	Pinus	cembroides	'Cembroides'	5/25/2019	SM
205	P18.01.00.a	Pinaceae	Picea	abies		5/14/2019	SM
205	C27.02.00	Cistaceae	Cistus	albidus		5/14/2019	SM
205	A26.01.00.a	Rosaceae	Amelanchier	alnifolia		5/14/2019	SM
205	C13.01.00.b	Rhamnaceae	Ceanothus	arboreus	'Concha'	5/14/2019	SM
205	O03.01.00	Oleaceae	Osmanthus	armantus		5/14/2019	SM
205	P32.12.00	Rosaceae	Prunus	armeniaca		5/14/2019	SM
205	S41.01.00	Poaceae	Seseria	autumnalis		5/14/2019	SM
205	P21.02.01	Pinaceae	Pinus	banksiana	'Schoodic'	5/14/2019	SM
205	G05.01.01	Ginkgoaceae	Ginko	biloba	'Mariken'	5/14/2019	SM
205	P21.03.01	Pinaceae	Pinus	bungeana	'Diamant'	5/14/2019	SM
205	A02.06.01	Pinaceae	Abies	cephalonica	'Meyer's Dwarf'	5/14/2019	SM
205	P22.01.00.a	Anacardiaceae	Pistacia	chinensis		5/9/2019	SM
205	C02.01.00	Myrtaceae	Callistemon	citrinus		5/14/2019	SM
205	P36.01.00.a	Rosaceae	Pyracantha	coccinea		5/14/2019	SM
205	P21.04.02	Pinaceae	Pinus	contorta	'Spann's Dwarf'	5/14/2019	SM
205	P35.01.00.b	Styracaceae	Pterostyrax	corymbosus		5/10/2019	SM

205	I01.03.02	Aquifoliaceae	Ilex	crenata		'Convexa'	5/14/2019	SM
205	B01.01.00.a	Berberidaceae	Berberis	darwinii			5/14/2019	SM
205	P16.04.00.a	Rosaceae	Photinia	davidiana			5/14/2019	SM
205	V03.03.00.a	Caprifoliaceae	Viburnum	davidii			5/14/2019	SM
205	A03.03.01.e	Sapindaceae	Acer	davidii	grosseri		5/14/2019	SM
205	A03.03.01.c	Sapindaceae	Acer	davidii	grosseri		5/14/2019	SM
205	C03.01.00.d	Cupressaceae	Calocedrus	decurrens			5/14/2019	SM
205	L11.01.00.c	Cupressaceae	Libocedrus	decurrens			5/9/2019	SM
205	C14.02.01	Pinaceae	Cedrus	deodara		Raywood's dwarf	5/14/2019	SM
205	Q01.28.00	Fagaceae	Quercus	durata			5/10/2019	SM
205	E12.02.00.a	Celastraceae	Euonymus	europaeus			5/14/2019	SM
205	T08.01.00.j	Arecaceae	Trachycarpus	fortunei			5/9/2019	SM
205	B07.01.00.b	Apiaceae	Bupleurum	fruticosa			5/14/2019	SM
205	P27.01.00	Pinaceae	Pinus	greggii			5/9/2019	SM
205	R06.03.00.b	Rosaceae	Rubus	hispidus			5/14/2019	SM
205	C39.05.00.h	Rosaceae	Cotoneaster	horizontalis			5/9/2019	SM
205	J01.01.00.b	Oleaceae	Jasminum	humile			5/14/2019	SM
205	L03.01.01	Lythraceae	Lagerstromemia	indica		'Natchez'	5/14/2019	SM
205	C43.01.01	Taxodiaceae	Cryptomeria	japonica		'Sekkan-sugi'	5/14/2019	SM
205	B01.02.00.d	Berberidaceae	Berberis	julianae			5/14/2019	SM
205	C36.02.00.d	Cornaceae	Cornus	kousa			5/14/2019	SM
205	C39.02.00.c	Rosaceae	Cotoneaster	lacteus			5/9/2019	SM
205	Q01.11.00.b	Fagaceae	Quercus	myrsinifolia			5/9/2019	SM
205	C04.01.00.d	Calycanthaceae	Calycanthus	occidentalis			5/9/2019	SM
205	H06.04.00.c	Ranunculaceae	Helleborus	orientalis			5/14/2019	SM
205	C02.02.00.b	Myrtaceae	Callistemon	pallidus			5/14/2019	SM
205	P21.14.01.b	Pinaceae	Pinus	parviflora		'Glauca'	5/14/2019	SM
205	A06.01.00.b	Lardizabalaceae	Akebia	quinata			5/23/2019	SM
205	C02.03.00	Myrtaceae	Callistemon	salignus			5/14/2019	SM
205	C27.09.00.b	Cistaceae	Cistus	salvifolius			5/14/2019	SM
205	S07.01.00.d	Taxodiaceae	Sequoia	sempervirens			5/10/2019	SM
205	P32.06.08.d	Rosaceae	Prunus	serrulata		'Ukon'	5/14/2019	SM
205	P32.06.08.e	Rosaceae	Prunus	serrulata		'Ukon'	5/14/2019	SM
205	C38.01.00.b	Hamamelidaceae	Corylopsis	sinensis	sinensis		5/9/2019	SM
205	C38.03.00.b	Hamamelidaceae	Corylopsis	spicata			5/9/2019	SM
205	P21.22.02	Pinaceae	Pinus	sylvestris			5/14/2019	SM
205	A03.04.00.b	Sapindaceae	Acer	tataricum	ginnala		5/14/2019	SM
205	S33.01.01	Poaceae	Stipa	tenuissima		'Pony Tails'	5/9/2019	SM
205	C27.01.00.i	Rutaceae	Choisya	ternata			5/14/2019	SM
205	V03.09.00.b	Caprifoliaceae	Viburnum	tinus			5/14/2019	SM
205	A15.02.00.e	Ericaceae	Arbutus	unedo			5/23/2019	SM
205	A16.06.00.a	Ericaceae	Arctostaphylos	uva-ursi			5/14/2019	SM
205	Q01.19.00.d	Fagaceae	Quercus	vaccinifolia			5/10/2019	SM
205	B01.03.00.a	Berberidaceae	Berberis	verruculosa			5/14/2019	SM
205	P21.20.00.b	Pinaceae	Pinus	wallichiana			5/14/2019	SM
205	C39.04.00.a	Rosaceae	Cotoneaster	wardii			5/9/2019	SM
205	A49.00.01	Asteraceae	Aster	x		'Day Dream'	5/14/2019	SM
205	O01.02.01.c	Asteraceae	Olearia	x		'Talbot de Malahide'	5/14/2019	SM
205	S02.00.00	Buxaceae	Sarcococca	x			5/14/2019	SM
205	R02.00.12	Ericaceae	Rhododendron	x		'Moonstone'	5/14/2019	SM
205	P44.00.01	Polemoniaceae	Phlox	x		'Emerald Blue'	5/14/2019	SM
205	D19.00.00	Ranunculaceae	Delphinium	x			5/14/2019	SM
205	P32.07.01.c	Rosaceae	Prunus	x		'Okame'	5/14/2019	SM
205	P16.01.00.c	Rosaceae	Photinia	x fraseri			5/14/2019	SM
205	A16.02.00	Ericaceae	Arctostaphylos	x media			5/23/2019	SM
205	R02.39.01.a	Ericaceae	Rhododendron	x ponticum		'Purple Splendor'	5/14/2019	SM
205	B01.04.00.a	Berberidaceae	Berberis	x stenophylla			5/14/2019	SM
205B	C21.04.00.c	Cupressaceae	Chamaecyparis	lawsoniana			5/11/2019	SM

206	O03.05.00.c	Oleaceae	Osmanthus	decorus		5/14/2019	SM
206	G02.01.00z	Garryaceae	Garrya	elliptica		5/14/2019	SM
206	M01.05.00	Magnoliaceae	Magnolia	kobus	borealis	5/14/2019	SM
206	S19.02.00.d	Theaceae	Stewartia	pseudocamellia		5/14/2019	SM
206	R02.107.00	Ericaceae	Rhododendron	sanctum		5/20/2019	SM
206	P32.06.05.d	Rosaceae	Prunus	serrulata	'Shiro-fugen'	5/14/2019	SM
206	P32.06.06.e	Rosaceae	Prunus	serrulata	'Shogetsu'	5/14/2019	SM
206	P32.06.08.f	Rosaceae	Prunus	serrulata	'Ukon'	5/14/2019	SM
206	H03.04.00.c	Hamamelidaceae	Hamamelis	virginiana		5/23/2019	SM
206	V03.05.00.a	Caprifoliaceae	Viburnum	x burkwoodii		5/14/2019	SM
207	C14.02.00.e	Pinaceae	Cedrus	deodara		5/14/2019	SM
207	G02.01.00.j	Garryaceae	Garrya	elliptica		5/14/2019	SM
207	P19.01.00.g	Ericaceae	Pieris	floribunda		5/4/2019	SM
207	L03.01.02	Lythraceae	Lagerstromemia	indica	'Watermelon Red'	5/10/2019	SM
207	P19.03.00.i	Ericaceae	Pieris	japonica		5/4/2019	SM
207	C36.02.00.c	Cornaceae	Cornus	kousa		5/14/2019	SM
207	H14.01.00.a	Hydrangeaceae	Hydrangea	macrophylla		5/4/2019	SM
207	P32.06.08.a	Rosaceae	Prunus	serrulata	'Ukon'	5/4/2019	SM
207	P32.06.06.c	Rosaceae	Prunus	serrulata	'Shogetsu'	5/4/2019	SM
208	A03.18.00	Sapindaceae	Acer	carpinifolium		5/14/2019	SM
208	Q01.04.00.b	Fagaceae	Quercus	chrysolepsis		5/4/2019	SM
208	C14.02.00.a	Pinaceae	Cedrus	deodara		5/14/2019	SM
208	C14.02.00.b	Pinaceae	Cedrus	deodara		5/14/2019	SM
208	I03.03.00.a	Iridaceae	Iris	foetidissima		5/4/2019	SM
208	L13.01.00	Oleaceae	Ligustrum	japonicum		5/4/2019	SM
208	A01.01.00.d	Acanthaceae	Acanthus	mollis		5/14/2019	SM
208	P21.12.00.a	Pinaceae	Pinus	nigra		5/4/2019	SM
208	R02.08.00.b	Ericaceae	Rhododendron	orbiculare	cardiobasis	5/4/2019	SM
208	C07.04.00.e	Theaceae	Camellia	sasanqua		5/14/2019	SM
208	A15.02.00.f	Ericaceae	Arbutus	unedo		5/23/2019	SM
208	P16.03.00	Rosaceae	Photinia	villosa		5/4/2019	SM
208	M04.00.01	Rosaceae	Malus	x	'Almey'	5/4/2019	SM
208A	C21.04.00.d	Cupressaceae	Chamaecyparis	lawsoniana		5/14/2019	SM
209	T11.01.00.b	Taxaceae	Taxus	baccata		5/4/2019	SM
209	T02.01.00.b	Taxaceae	Taxus	brevifolia		5/4/2019	SM
209	B01.01.00.b	Berberidaceae	Berberis	darwinii		5/14/2019	SM
209	R02.12.00.e	Ericaceae	Rhododendron	decorum		5/4/2019	SM
209	I03.03.00.b	Iridaceae	Iris	foetidissima		5/4/2019	SM
209	S20.01.00.d	Styracaceae	Styrax	japonicus		5/4/2019	SM
209	V03.11.00	Caprifoliaceae	Viburnum	odoratissimum		5/4/2019	SM
209	A05.06.00	Sapindaceae	Aesculus	pavia		5/23/2019	SM
209	P32.06.06.f	Rosaceae	Prunus	serrulata	'Shogetsu'	5/4/2019	SM
209	C27.01.00.k	Rutaceae	Choisya	ternata		5/14/2019	SM
209	R02.00.21l	Ericaceae	Rhododendron	x	Unknown hybrid	5/13/2019	SM
209	R02.00.21m	Ericaceae	Rhododendron	x	Unknown hybrid	5/13/2019	SM
209	R02.07.01	Ericaceae	Rhododendron	x griffithianum	'Alice'	5/4/2019	SM
210	R02.03.01	Ericaceae	Rhododendron	arboreum	cinnamomeum	5/4/2019	SM
210	A13.01.00.d	Araliaceae	Aralia	californica		5/23/2019	SM
210	Q01.04.00.a	Fagaceae	Quercus	chrysolepsis		5/4/2019	SM
210	P36.01.00.b	Rosaceae	Pyracantha	coccinea		5/4/2019	SM
210	G02.01.00.e	Garryaceae	Garrya	elliptica		5/4/2019	SM
210	M04.02.00.a	Rosaceae	Malus	floribunda		5/4/2019	SM
210	P36.02.00.c	Rosaceae	Pyracantha	fortuneana		5/4/2019	SM
210	S20.01.00.e	Styracaceae	Styrax	japonicus		5/4/2019	SM
210	B01.02.00.b	Berberidaceae	Berberis	julianae		5/4/2019	SM
210	R02.79.00	Ericaceae	Rhododendron	metternichii		5/4/2019	SM
210	A01.01.00.c	Acanthaceae	Acanthus	mollis		5/4/2019	SM
210	V03.06.00.b	Caprifoliaceae	Viburnum	opulus		5/4/2019	SM

210	S19.04.00	Theaceae	Stewartia	serrata		5/4/2019	SM
210	P16.02.00.b	Rosaceae	Photinia	serratifolia		5/4/2019	SM
210	B04.01.00.e	Blechnaceae	Blechnum	spicant		5/23/2019	AW
210	Q01.18.00.a	Fagaceae	Quercus	suber		5/4/2019	SM
210	R02.00.10.a	Ericaceae	Rhododendron	x	'Humming Bird'	5/4/2019	SM
210	R02.00.22a	Ericaceae	Rhododendron	x	Unknown Loderi Hybrid	5/7/2019	SM
210	R02.00.24	Ericaceae	Rhododendron	x	'Earl of Athlone	5/13/2019	SM
210	P48.01.01	Scrophulariaceae	Phygelius	x rectus	'Moonraker'	5/4/2019	SM
211	H06.01.02	Ranunculaceae	Helleborus	argutifolius	'Janet Starnes'	5/4/2019	SM
211	R02.05.00.c	Ericaceae	Rhododendron	augustinii		5/4/2019	SM
211	U01.01.00.b	Lauraceae	Umbellularia	californica		5/4/2019	SM
211	A33.01.01	Brassicaceae	Arabis	caucasica	'Lotti White'	5/4/2019	SM
211	P39.03.00.b	Primuaceae	Primula	elatior		5/4/2019	SM
211	D12.02.01.c	Dryopteridaceae	Dryopteris	filix-mas	'Barnesii'	5/4/2019	SM
211	H18.01.01	Asparagaceae	Hosta	fortunei	'Minuteman'	5/4/2019	SM
211	F15.01.00.a	Hamamelidaceae	Fothergilla	gardenii		5/4/2019	SM
211	F15.01.01	Hamamelidaceae	Fothergilla	gardenii	'Blue Mist'	5/4/2019	SM
211	R01.01.01	Rosaceae	Raphiolepis	indica	'Baybreeze'	5/4/2019	SM
211	P19.03.00.j	Ericaceae	Pieris	japonica		5/4/2019	SM
211	C07.02.00.i	Theaceae	Camellia	japonica		5/4/2019	SM
211	C17.01.00.b	Cercidiphyllaceae	Cercidiphyllum	japonicum		5/4/2019	SM
211	B01.02.00.c	Berberidaceae	Berberis	julianae		5/4/2019	SM
211	C50.01.00.c	Dryopteridaceae	Cyrtomium	macrophyllum		5/4/2019	SM
211	H09.02.03.b	Saxifragaceae	Heuchera	micrantha	'Lime Marmalade'	5/4/2019	SM
211	V04.01.01	Apocynaceae	Vinca	minor	'Bowel's'	5/4/2019	SM
211	R02.26.00.a	Ericaceae	Rhododendron	minus	minus	5/4/2019	SM
211	S19.01.00.a	Theaceae	Stewartia	monadelpha		5/4/2019	SM
211	P11.00.00	Pinaceae	Pinus	montezumae		5/4/2019	SM
211	Q01.11.00.c	Fagaceae	Quercus	myrsinifolia		5/4/2019	SM
211	C21.01.00	Cupressaceae	Chamaecyparis	nootkatensis		5/4/2019	SM
211	S20.02.00.b	Styracaceae	Styrax	obassia		5/4/2019	SM
211	A03.11.02.c	Sapindaceae	Acer	palmatum	'Dissectum'	5/4/2019	SM
211	P28.03.00.b	Dryopteridaceae	Polystichum	polyblepharum		5/4/2019	SM
211	S19.02.00.b	Theaceae	Stewartia	pseudocamellia		5/4/2019	SM
211	H14.03.00.a	Hydrangeaceae	Hydrangea	quercifolia		5/4/2019	SM
211	P09.01.00	Fabaceae	Petteria	ramentacea		5/4/2019	SM
211	E11.02.01	Berberidaceae	Epimedium	roseum		5/4/2019	SM
211	S19.03.00.a	Theaceae	Stewartia	rostrata		5/4/2019	SM
211	A31.01.00.c	Aspleniaceae	Asplenium	scolopendrium		5/4/2019	SM
211	E11.02.02	Berberidaceae	Epimedium	sulfurium		5/4/2019	SM
211	A03.04.00.a	Sapindaceae	Acer	tataricum		5/4/2019	SM
211	C27.01.00.j	Rutaceae	Choisya	ternata		5/4/2019	SM
211	C30.02.00	Verbenaceae	Clerodendrum	trichotmum		5/4/2019	SM
211	A19.01.00.a	Annonaceae	Asimina	triloba		5/4/2019	SM
211	N04.05.00	Amaryllidaceae	Narcissus	x	Fragrant Rose	5/4/2019	SM
211	H18.00.02	Asparagaceae	Hosta	x	'First Frost'	5/4/2019	SM
211	R02.00.10.b	Ericaceae	Rhododendron	x	'Humming Bird'	5/4/2019	SM
211	R02.00.22b	Ericaceae	Rhododendron	x	Unknown Loderi Hybrid	5/7/2019	SM
211	R02.100.00a	Ericaceae	Rhododendron	x	'Azaleodendron'	5/4/2019	SM
211	O03.04.00.a	Oleaceae	Osmanthus	x burkwoodii		5/4/2019	SM
211	H06.02.00	Ranunculaceae	Helleborus	x sternii	'Blackthorn'	5/4/2019	SM
211	R02.46.00.a	Ericaceae	Rhododendron	yunnanense		5/4/2019	SM
212	M04.07.01.c	Rosaceae	Malus	baccata	'Himalaica'	5/11/2019	SM
212	T01.01.00.a	Taxodiaceae	Taxodium	distichum		5/11/2019	SM
212	I03.02.00.f	Iridaceae	Iris	douglasiana		5/11/2019	SM
212	M05.01.00.c	Taxodiaceae	Metasequoia	glyptostroboides		5/11/2019	SM
212	A05.03.00	Sapindaceae	Aesculus	hippocastanum		4/29/2019	SM
212	N03.01.00.c	Nyssaceae	Nyssa	sylvatica		5/11/2019	SM

213	M06.01.00.d	Myricaceae	Myrica	californica		5/11/2019	SM
213	T01.01.00.b	Taxodiaceae	Taxodium	distichum		5/11/2019	SM
213	D20.01.00.a	Saxifragaceae	Darmera	peltata		5/11/2019	SM
213	L16.01.00.b	Hamamelidaceae	Liquidambar	styraciflua		5/11/2019	SM
213	N03.01.00.a	Nyssaceae	Nyssa	sylvatica		5/11/2019	SM
213	L17.01.00	Magnoliaceae	Liriodendron	tulipifera		5/11/2019	SM
214	P35.01.00.a	Styracaceae	Pterostyrax	corymbosus		5/14/2019	SM
214	D05.01.00.d	Lardizabalaceae	Decaisnea	fargesii		5/23/2019	SM
214	P21.10.01.b	Pinaceae	Pinus	mugo	mugo	5/14/2019	SM
214	F07.01.00.b	Oleaceae	Forsythia	suspensa		5/14/2019	SM
214	C16.02.00.a	Plumbaginaceae	Ceratostigma	willmottianum		5/14/2019	SM
214A	H04.07.00.b	Plantaginaceae	Hebe	brachysiphon		5/14/2019	SM
214A	P21.06.01.c	Pinaceae	Pinus	cembroides		5/14/2019	SM
214A	J04.01.02	Cupressaceae	Juniperus	chinensis	'Sargentii'	5/14/2019	SM
214A	N01.01.00.a	Berberidaceae	Nandina	domestica		5/14/2019	SM
214A	E12.02.00.c	Celastraceae	Euonymus	europaeus		5/14/2019	SM
214A	C13.02.00	Rhamnaceae	Ceanothus	griseus	horizontalis	5/14/2019	SM
214A	J04.03.01	Cupressaceae	Juniperus	horizontalis	'Wiltonii'	5/14/2019	SM
214A	C17.01.00.c	Cercidiphyllaceae	Cercidiphyllum	japonicum		5/14/2019	SM
214A	D03.03.00.b	Thymelaeaceae	Daphne	mezereum		5/14/2019	SM
214A	A01.01.00.b	Acanthaceae	Acanthus	mollis		5/14/2019	SM
214A	P32.04.01	Rosaceae	Prunus	mume	'Peggy Clark'	5/14/2019	SM
214A	L18.01.00	Liliaceae	Liriope	muscari	'Majestic'	5/14/2019	SM
214A	R02.32.00.d	Ericaceae	Rhododendron	occidentale		5/2/2019	SM
214A	A03.11.02.b	Sapindaceae	Acer	palmatum	'Dissectum'	5/14/2019	SM
214A	A03.11.02.a	Sapindaceae	Acer	palmatum	'Dissectum'	5/14/2019	SM
214A	M02.07.00.a	Berberidaceae	Mahonia	pumila		5/14/2019	SM
214A	L18.02.00	Liliaceae	Liriope	spicata	'Silver Dragon'	5/14/2019	SM
214A	V09.02.00	Scrophulariaceae	Verbascum	thapsus		5/14/2019	SM
214A	O01.00.00	Asteraceae	Olearia	x	'Haastii'	5/18/2019	SM
214A	H07.00.00.a	Liliaceae	Hemerocallis	x		5/14/2019	SM
214A	F08.01.01	Rosaceae	Fragaria	x ananassa	'Pink Panda'	5/14/2019	SM
214B	H02.01.01	Styracaceae	Halesia	carolina	'Rosy Ridge'	5/11/2019	SM
214B	E02.01.00a	Proteaceae	Embothrium	coccineum		4/27/2019	SM
214B	S42.01.00	Lamiaceae	Stachys	cooleyae		5/3/2019	SM
214B	S19.06.00	Theaceae	Stewartia	koreana		5/14/2019	SM
214B	L23.02.02	Lamiaceae	Lamium	maculatum	'Chequers'	5/14/2019	SM
214B	R02.96.00	Ericaceae	Rhododendron	reticulatum		5/14/2019	SM
214B	P01.01.01	Buxaceae	Pachysandra	terminalis	'Green Carpet'	5/14/2019	SM
215	T20.01.00a	Saxifragaceae	Tellima	granidiflora		5/3/2019	SM
215	L14.05.00.a	Liliaceae	Lilium	pardalinum		5/14/2019	SM
215	Q01.29.00	Fagaceae	Quercus	texana		5/10/2019	SM
215	A05.02.01.c	Sapindaceae	Aesculus	x carnea	'Briotii'	5/14/2019	SM
215	A05.02.01.e	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
215	A05.02.01.f	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
215	A05.02.01.g	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
215	A05.02.01.h	Sapindaceae	Aesculus	x carnea	'Briotii'	5/23/2019	SM
215	A05.02.01.r	Sapindaceae	Aesculus	x carnea	'Briotii'	5/14/2019	SM
23A	G03.04.00	Ericaceae	Gaultheria	wardii		5/21/2019	SM
301	Q01.14.00.a	Fagaceae	Quercus	rubra		5/11/2019	SM
301	Q01.14.00.i	Fagaceae	Quercus	rubra		5/11/2019	SM
301	Q01.14.00.d	Fagaceae	Quercus	rubra		5/11/2019	SM
301	Q01.14.00.e	Fagaceae	Quercus	rubra		5/11/2019	SM
301	Q01.14.00.f	Fagaceae	Quercus	rubra		5/11/2019	SM
301	Q01.14.00.g	Fagaceae	Quercus	rubra		5/11/2019	SM
301	Q01.14.00.c	Fagaceae	Quercus	rubra		5/11/2019	SM
302	R02.05.01	Ericaceae	Rhododendron	augustinii	'Marine'	5/14/2019	SM
302	R02.05.02	Ericaceae	Rhododendron	augustinii	'Tower Court'	5/14/2019	SM

302	R02.05.03	Ericaceae	Rhododendron	augustinii		'Electra'	5/14/2019	SM
302	R02.05.00.b	Ericaceae	Rhododendron	augustinii			5/14/2019	SM
302	V06.01.00.a	Vitaceae	Vitis	coignetiae			5/11/2019	SM
302	P19.02.00.d	Ericaceae	Pieris	formosa			5/14/2019	SM
302	H13.01.00.c	Liliaceae	Hyacinthoides	hispanica			5/14/2019	SM
302	S02.01.01.a	Buxaceae	Sarcococca	hookeriana	humilis		5/14/2019	SM
302	C07.02.07	Theaceae	Camellia	japonica		'J.C.Williams'	5/14/2019	SM
302	C07.02.00.j	Theaceae	Camellia	japonica			5/14/2019	SM
302	C36.02.00.e	Cornaceae	Cornus	kousa			5/14/2019	SM
302	P54.01.00	Theaceae	Polyspora	longicarpa			4/23/2019	SM
302	R02.102.00	Ericaceae	Rhododendron	macabeanum			4/25/2019	SM
302	C49.02.00	Iridaceae	Crocus	minimus			5/14/2019	SM
302	M02.06.00.a	Berberidaceae	Mahonia	nervosa			5/14/2019	SM
302	P21.12.00.b	Pinaceae	Pinus	nigra			5/14/2019	SM
302	H18.01.01	Asparagaceae	Hyacinthus	orientalis		'Carnegine'	5/14/2019	SM
302	H18.01.02	Asparagaceae	Hyacinthus	orientalis		'Valentine Mix'	5/14/2019	SM
302	S06.01.00	Sciadopityaceae	Sciadopitys	verticillata			5/14/2019	SM
302	R02.00.07	Ericaceae	Rhododendron	x		'Dormouse'	5/14/2019	SM
302	R02.00.11.a	Ericaceae	Rhododendron	x		'Maxwellii'	5/14/2019	SM
302	R02.00.18b	Ericaceae	Rhododendron	x		Loderi 'King George'	5/14/2019	SM
302	F12.01.00.b	Onagraceae	Fuchsia	x			5/14/2019	SM
302	R02.19.01	Ericaceae	Rhododendron	x gandavense		'Altaclarensis'	5/14/2019	SM
302	R02.46.00.b	Ericaceae	Rhododendron	yunnanense			5/14/2019	SM
303	H04.02.00.a	Plantaginaceae	Hebe	cupressoides			5/25/2019	SM
303	H04.05.00	Plantaginaceae	Hebe	ochracea		'James Steriling'	5/25/2019	SM
303	A01.02.00.a	Acanthaceae	Acanthus	spinosa			6/5/2019	SM
304	L31.01.00.b	Amaryllidaceae	Leucojum	aestivum			5/14/2019	SM
304	C67.01.00	Caryophyllaceae	Cerastium	arvense			5/3/2019	SM
304	M18.01.00	Lamiaceae	Monarda	austroappalachiana			5/14/2019	SM
304	A34.03.00	Ranunculaceae	Aquilegia	barnebyi			5/14/2019	SM
304	P06.07.00a	Plantaginaceae	Penstemon	barrettiae			4/2/2019	SM
304	S37.01.00	Liliaceae	Scoliopus	bigelovii			5/14/2019	SM
304	G05.01.00.b	Ginkgoaceae	Ginkgo	biloba			5/14/2019	SM
304	I03.13.00.a	Iridaceae	Iris	bracteata			5/14/2019	SM
304	I03.13.00.b	Iridaceae	Iris	bracteata			5/14/2019	SM
304	G02.05.00	Garryaceae	Garrya	buxifolia			5/14/2019	SM
304	F13.09.00c	Liliaceae	Fritillaria	camschatcensis			4/9/2019	SM
304	A16.12.01	Ericaceae	Arctostaphylos	edmundsii		'Rosy Dawn'	5/14/2019	SM
304	D21.01.00	Iridaceae	Dierama	floriferum			5/14/2019	SM
304	D08.02.01	Papaveraceae	Dicentra	formosa	Oregana	'Langtrees'	5/14/2019	SM
304	A50.01.00	Theaceae	Adinandra	glischrolma			5/7/2019	SM
304	C13.10.01	Rhamnaceae	Ceanothus	gloriosus		Anchor Bay	4/9/2019	SM
304	S30.02.00	Asparagaceae	Scilla	hyacinthoides		MT, 2054	5/14/2019	SM
304	I03.14.00	Iridaceae	Iris	innominata			5/14/2019	SM
304	S28.04.00	Lamiaceae	Salvia	involutrata			5/14/2019	SM
304	P32.06.03	Rosaceae	Prunus	jamasakura		'Takasago'	5/14/2019	SM
304	C07.02.01.a	Theaceae	Camellia	japonica		'Auburn White'	5/11/2019	SM
304	C07.02.04	Theaceae	Camellia	japonica		'Cuspidata'	5/14/2019	SM
304	C07.02.08	Theaceae	Camellia	japonica		'Jupiter'	5/14/2019	SM
304	C07.02.00.l	Theaceae	Camellia	japonica			5/14/2019	SM
304	C07.02.00.k	Theaceae	Camellia	japonica			5/14/2019	SM
304	F13.06.00c	Liliaceae	Fritillaria	lanceolata			4/2/2019	SM
304	C19.02.00.c	Rosaceae	Cercocarpus	ledifolius			5/14/2019	SM
304	M17.01.00	Phrymaceae	Mimulus	lewisii x cardinalis			5/14/2019	SM
304	T19.01.00	Saxifragaceae	Tolmiea	menziesii			5/14/2019	SM
304	A43.01.00.b	Saxifragaceae	Astilbe	nova			5/14/2019	SM
304	R02.32.00.a	Ericaceae	Rhododendron	occidentale			5/14/2019	SM
304	E20.02.00a	Liliaceae	Erythronium	oreganum			5/14/2019	SM

304	T12.01.00b	Melanthiaceae	Trillium	ovatum			5/14/2019	SM
304	S04.02.01	Saxifragaceae	Saxifraga	paniculata	'Rosea'		5/14/2019	SM
304	L14.05.00.b	Liliaceae	Lilium	pardalinum			5/14/2019	SM
304	P21.15.00.a	Pinaceae	Pinus	patula			5/25/2019	SM
304	J04.04.00	Cupressaceae	Juniperus	pingii	NAPE131		5/14/2019	SM
304	C26.00.00	Agavaceae	Chloroglaum	pomeridianum			5/11/2019	SM
304	C07.03.00.a	Theaceae	Camellia	reticulata			5/14/2019	SM
304	E20.03.00a	Liliaceae	Erythronium	revolutum			5/14/2019	SM
304	M17.01.00	Phrymaceae	Mimulus	ringens			5/14/2019	SM
304	A29.03.00	Ranunculaceae	Anemone	rivularis	FRF MD97144		5/14/2019	SM
304	C07.04.00.d	Theaceae	Camellia	sasanqua			5/14/2019	SM
304	A43.01.00.a	Saxifragaceae	Astilbe	species	OGG1440		5/14/2019	SM
304	I08.01.00	Balsaminaceae	Impatiens	tinctoria			5/14/2019	SM
304	A16.07.00.a	Ericaceae	Arctostaphylos	viscida			5/14/2019	SM
304	P21.20.00.c	Pinaceae	Pinus	wallichiana			5/14/2019	SM
304	C07.01.00	Theaceae	Camellia	x	Bow Bells'		5/14/2019	SM
304	E10.02.00	Cunoniaceae	Eucryphia	x intermedia			5/14/2019	SM
304	L14.04.01	Liliaceae	Lilium	x martagon	'Claude Shride'		5/14/2019	SM
304	A34.04.00	Ranunculaceae	Aquilegia	x micrantha			5/14/2019	SM
304A	L31.01.00.b	Amaryllidaceae	Leucojum	aestivum			5/14/2019	SM
304A	H06.01.00.a	Ranunculaceae	Helleborus	argutifolius			5/14/2019	SM
304A	A13.01.00.a	Araliaceae	Aralia	californica			4/29/2019	SM
304A	O03.05.00.a	Oleaceae	Osmanthus	decorus			5/14/2019	SM
304A	C17.01.00.a	Cercidiphyllaceae	Cercidiphyllum	japonicum			5/14/2019	SM
304A	S19.01.00.c	Theaceae	Stewartia	monadelpha			5/14/2019	SM
304A	S19.02.00.a	Theaceae	Stewartia	pseudocamellia			5/14/2019	SM
304A	P33.01.00	Rosaceae	Pseudococydonia	sinensis			4/25/2019	SM
304A	D08.00.00	Papaveraceae	Dicentra	x			5/14/2019	SM
305	F13.11.00	Liliaceae	Fritillaria	acmopetala			4/25/2019	SM
305	V05.01.00	Verbenaceae	Vitex	agnus-castus			4/23/2019	SM
305	T09.01.00.c	Trochodendraceae	Trochodendron	aralioides			5/14/2019	SM
305	H06.01.00.b	Ranunculaceae	Helleborus	argutifolius			4/25/2019	SM
305	P39.01.00	Primulaceae	Primula	auricula			4/25/2019	SM
305	V07.01.00	Verbenaceae	Verbena	bonariensis			5/11/2019	SM
305	A13.01.00.b	Araliaceae	Aralia	californica			5/23/2019	SM
305	E16.01.00	Thymelaeaceae	Edgeworthia	chrysantha			4/25/2019	SM
305	C45.01.00	Primulaceae	Cyclamen	coum			5/14/2019	SM
305	P21.05.00.d	Pinaceae	Pinus	densiflora			5/14/2019	SM
305	T08.01.00.h	Arecaceae	Trachycarpus	fortunei			4/25/2019	SM
305	C45.02.00	Primulaceae	Cyclamen	hederifolium			5/14/2019	SM
305	M01.04.00	Magnoliaceae	Magnolia	heptapeta			5/14/2019	SM
305	S38.01.00	Berberidaceae	Sinopodophyllum	hexandrum	chinese	MD97150 ex Yunnan	4/27/2019	SM
305	P27.01.00	Asparagaceae	Polygonatum	hirtum			4/25/2019	SM
305	Q01.08.00.b	Fagaceae	Quercus	ilex			5/14/2019	SM
305	P03.01.00	Hamamelidaceae	Parrotiopsis	jacquemontiana			4/25/2019	SM
305	S10.01.00.i	Rutaceae	Skimmia	japonica			5/14/2019	SM
305	M09.01.00	Euphorbiaceae	Mallotus	japonicus			4/25/2019	SM
305	T12.03.00	Melanthiaceae	Trillium	kurabayashii			4/25/2019	SM
305	R14.01.00	Styracaceae	Rehderodendron	macrocarpum			5/14/2019	SM
305	F13.01.00a	Liliaceae	Fritillaria	meleagris	mix		4/25/2019	SM
305	A09.01.00.a	Amaryllidaceae	Allium	moly			5/23/2019	SM
305	R02.91.00	Ericaceae	Rhododendron	platypodum			4/25/2019	SM
305	I05.01.00	Salicaceae	Idesia	polycarpa			4/25/2019	SM
305	C07.03.00.b	Theaceae	Camellia	reticulata			5/14/2019	SM
305	S02.02.01.b	Buxaceae	Sarcococca	ruscifolia	'Chiliensis'		4/25/2019	SM
305	A03.20.00	Sapindaceae	Acer	sempervirens			5/14/2019	SM
305	A03.19.00	Sapindaceae	Acer	sikkimense	FMWJ 13166		5/23/2019	SM
305	A01.02.00.c	Acanthaceae	Acanthus	spinosus			5/14/2019	SM

305	P19.04.00.d	Ericaceae	Pieris	taiwanensis		4/25/2019	SM
305	T19.02.00	Cephalotaxaceae	Torreya	taxifolia		4/25/2019	SM
305	P01.01.00	Buxaceae	Pachysandra	terminalis		4/25/2019	SM
305	J02.01.00	Calcolariaceae	Jovellana	violacea		5/14/2019	SM
305	A09.00.01	Amaryllidaceae	Allium	x	'Globe Master'	5/23/2019	SM
305	C45.00.00	Primulaceae	Cyclamen	x		5/14/2019	SM
305	R02.82.00	Ericaceae	Rhododendron	zaleucum		5/14/2019	SM
306	A24.03.00	Flacourtiaceae	Azara	dentata		5/23/2019	SM
306	A13.02.00.a	Araliaceae	Aralia	elata		5/23/2019	SM
308	A24.02.00	Flacourtiaceae	Azara	microphylla		5/14/2019	SM
308	Q01.13.00.a	Fagaceae	Quercus	phillyraeoides		4/25/2019	SM
309	A11.01.00.a	Amaryllidaceae	Amaryllis	belladonna		5/23/2019	SM
309	R02.35.00	Ericaceae	Rhododendron	lutescens		4/25/2019	SM
309	C59.02.00	Liliaceae	Calochortus	venustus		5/14/2019	SM
313	P52.01.01	Bromeliaceae	Puya	aff. Humilis	BK10509.18	4/23/2019	SM
313	A27.02.00	Iridaceae	Aristea	africana		4/23/2019	SM
313	P47.01.00	Podocarpaceae	Phyllocladus	alpinus		4/23/2019	SM
313	L33.01.00.a	Myrtaceae	Luma	apiculata		5/14/2019	SM
313	L33.01.00.b	Myrtaceae	Luma	apiculata		5/14/2019	SM
313	E08.05.00	Myrtaceae	Eucalyptus	archeri		4/23/2019	SM
313	S39.01.00	Colchicaceae	Sandersonia	aurantica		5/14/2019	SM
313	A38.01.00	Alstroemeriaceae	Alstroemeria	aurea		5/14/2019	SM
313	A42.01.00.b	Apiaceae	Aciphylla	aurea		5/14/2019	SM
313	P24.02.00	Pittosporaceae	Pittosporum	bicolor		4/23/2019	SM
313	B04.02.00	Blechnaceae	Blechnum	chilense		4/23/2019	SM
313	A32.01.00.b	Elaeocarpaceae	Aristotelia	chilensis		5/23/2019	SM
313	B14.01.00.c	Berberidaceae	Berberidopsis	corallina		4/23/2019	SM
313	A27.01.00	Iridaceae	Aristea	ecklonii		4/23/2019	SM
313	P24.04.00	Pittosporaceae	Pittosporum	eugenioides		4/23/2019	SM
313	L10.01.00.c	Iridaceae	Libertia	formosa		4/23/2019	SM
313	E10.01.00.b	Cunoniaceae	Eucryphia	glutinosa		4/23/2019	SM
313	E08.01.00	Myrtaceae	Eucalyptus	gunni		4/23/2019	SM
313	L06.01.00.c	Myrtaceae	Letospermum	lanigerum		4/23/2019	SM
313	A38.01.01	Alstroemeriaceae	Alstroemeria	ligtu	incarnata	4/23/2019	SM
313	S13.02.00	Fabaceae	Sophora	microphylla		4/23/2019	SM
313	E10.04.00	Cunoniaceae	Eucryphia	moorei		4/23/2019	SM
313	D22.01.00	Iridaceae	Diplarrena	morea		4/23/2019	SM
313	L05.01.00	Lauraceae	Laurus	nobilis		4/23/2019	SM
313	C18.01.00.a	Fabaceae	Cercis	occidentalis		4/23/2019	SM
313	C02.02.00.a	Myrtaceae	Callistemon	pallidus		4/23/2019	SM
313	C41.01.00	Elaeocarpaceae	Crinodendron	patagua		5/14/2019	SM
313	P32.05.00	Rosaceae	Prunus	sargentii		4/23/2019	SM
313	P32.06.02.a	Rosaceae	Prunus	serrulata	'Kwanzan'	4/23/2019	SM
313	A44.01.00	Asparagaceae	Albuca	shawaii		4/23/2019	SM
313	A09.02.00	Amaryllidaceae	Allium	sphaerocephalum		5/23/2019	SM
313	D26.01.00	Columelliaceae	Desfontainia	spinosa		4/23/2019	SM
313	B10.01.00	Pittosporaceae	Bursaria	spinosa		4/23/2019	SM
313	P15.01.01.a	Agavaceae	Phormium	tenax	'Atropurpurea'	4/23/2019	SM
313	P24.03.00	Pittosporaceae	Pittosporum	tenuifolium		5/25/2019	SM
313	T21.01.00	Ericaceae	Trochocarpa	thymifolia		4/23/2019	SM
313	L14.07.00	Liliaceae	Lilium	tigrinum		4/23/2019	SM
313	P50.02.00	Rosaceae	Polylepis	tomentella	BK10509.20	5/14/2019	SM
313	L23.01.00	Campanulaceae	Lobelia	tupa		4/23/2019	SM
313	G06.01.00.c	Proteaceae	Grevillea	victoriae		5/14/2019	SM
313	G06.01.00c	Proteaceae	Grevillea	victoriae		4/23/2019	SM
313	D17.01.00	Winteraceae	Drimys	winteri		4/23/2019	SM
313	A38.00.01	Alstroemeriaceae	Alstroemeria	x	'Glory of the Andes'	4/23/2019	SM
313	C42.00.01	Iridaceae	Crocsmia	x	'His Majesty'	4/23/2019	SM

313	C42.00.02	Iridaceae	Crocoshmia	x			'Pauls Best Yellow'	4/23/2019	SM
313	L14.06.00	Liliaceae	Lilium	x			Chinese Trumpet mix	4/23/2019	SM
314	M01.08.00.a	Magnoliaceae	Magnolia	campbellii		mollicomata		5/14/2019	SM
314	F10.01.00.d	Oleaceae	Fraxinus	ornus				5/6/2019	SM
314	Q01.19.00.b	Fagaceae	Quercus	vaccinifolia				5/14/2019	SM
315	E03.01.00.f	Ericaceae	Enkianthus	campanulatus				5/14/2019	SM
315	A09.01.00.b	Amaryllidaceae	Allium	moly				5/23/2019	SM
315	H06.03.00.c	Ranunculaceae	Helleborus	niger				5/14/2019	SM
315	H06.04.00.a	Ranunculaceae	Helleborus	orientalis				5/14/2019	SM
315	A01.02.00.b	Acanthaceae	Acanthus	spinosus				5/14/2019	SM
315	S04.01.00.a	Saxifragaceae	Saxifraga	umbosa				5/14/2019	SM
315	F12.01.00.c	Onagraceae	Fuchsia	x				5/14/2019	SM
315A	M02.09.00	Berberidaceae	Mahonia	fortunei				5/14/2019	SM
315A	M02.03.00	Berberidaceae	Mahonia	haematacarpa				5/14/2019	SM
315A	C21.01.01.a	Cupressaceae	Chamaecyparis	nootkatensis			'Pendula'	5/14/2019	SM
315A	C21.01.01.b	Cupressaceae	Chamaecyparis	nootkatensis			'Pendula'	5/14/2019	SM
315A	V01.04.01.a	Ericaceae	Vaccinium	vitis-idaea	minus			5/14/2019	SM
315A	V01.04.01.b	Ericaceae	Vaccinium	vitis-idaea	minus			5/14/2019	SM
316	Y01.05.00	Agavaceae	Yucca	aloifolia				5/13/2019	SM
316	P26.01.00.a	Podocarpaceae	Podocarpus	alpinus				5/13/2019	SM
316	H24.01.00	Rosaceae	Heteromeles	arbutifolia				5/13/2019	SM
316	A45.01.00	Asphodelaceae	Aloe	aristata				5/13/2019	SM
316	P21.01.00.d	Pinaceae	Pinus	aristata				5/13/2019	SM
316	R12.01.01	Hypoxidaceae	Rhodohypoxis	baurii			'Dulcie'	5/13/2019	SM
316	C10.01.00.c	Hydrangeaceae	Carpenteria	californica				5/11/2019	SM
316	C10.01.01.a	Hydrangeaceae	Carpenteria	californica		'Elisabeth'		5/11/2019	SM
316	C10.01.01.b	Hydrangeaceae	Carpenteria	californica		'Elisabeth'		5/11/2019	SM
316	A16.01.00	Ericaceae	Arctostaphylos	canescens				5/23/2019	SM
316	T05.02.01	Lamiaceae	Teucrium	chamaedry			'Prostretus'	5/11/2019	SM
316	A09.05.00	Amaryllidaceae	Allium	cyaneum				5/23/2019	SM
316	H12.01.00.c	Rosaceae	Holodiscus	discolor				5/13/2019	SM
316	Y01.01.00.a	Agavaceae	Yucca	filamentosa				5/11/2019	SM
316	T05.01.01.a	Lamiaceae	Teucrium	fruiticans			'Azureum'	5/13/2019	SM
316	Y01.04.00	Agavaceae	Yucca	harrimaniae				5/13/2019	SM
316	H04.04.00.a	Plantaginaceae	Hebe	hulkeana				5/13/2019	SM
316	Q01.07.00.a	Fagaceae	Quercus	hypoleucoides				5/13/2019	SM
316	Q01.07.00.b	Fagaceae	Quercus	hypoleucoides				5/13/2019	SM
316	G04.01.00.a	Fabaceae	Genista	lydia				5/13/2019	SM
316	P12.02.01	Hydrangeaceae	Philadelphus	microphyllus				5/6/2019	SM
316	G04.02.00.c	Fabaceae	Genista	pilosa				5/11/2019	SM
316	M02.13.00	Berberidaceae	Mahonia	piperiana				5/13/2019	SM
316	Q01.15.00.a	Fagaceae	Quercus	rugosa				5/13/2019	SM
316	M02.08.01.b	Berberidaceae	Mahonia	x wagneri			'Pinnacle'	5/13/2019	SM
317	A29.05.01	Ranunculaceae	Anemone	blanda				5/13/2019	SM
317	K03.02.00.a	Asphodelaceae	Kniphofia	buchanaai				5/13/2019	SM
317	H23.01.00	Melanthiaceae	Helonias	bullata				5/13/2019	SM
317	P38.00.00	Passifloraceae	Passiflora	caerulea				5/13/2019	SM
317	O04.01.00.b	Rosaceae	Oemleria	cerasiformis				5/13/2019	SM
317	B14.01.00.b	Berberidaceae	Berberidopsis	corallina				5/13/2019	SM
317	E11.01.00.b	Berberidaceae	Epimedium	grandiflorum				5/13/2019	SM
317	F04.01.00.a	Araliaceae	Fatsia	japonica				5/13/2019	SM
317	K02.01.01	Rosaceae	Kerria	japonica			'Albiflora'	5/13/2019	SM
317	F03.01.00	Araliaceae	Fatshedera	lizei				5/13/2019	SM
317	R02.29.01	Ericaceae	Rhododendron	mucronatum			'Amethystinum'	5/3/2019	SM
317	H06.03.00.d	Ranunculaceae	Helleborus	niger				5/13/2019	SM
317	C21.02.00	Cupressaceae	Chamaecyparis	obtusa				5/13/2019	SM
317	A05.07.00.a	Sapindaceae	Aesculus	parviflora				5/23/2019	SM
317	V03.07.02.b	Caprifoliaceae	Viburnum	plicatum		tomentosum		5/13/2019	SM

317	R02.38.00.e	Ericaceae	Rhododendron	racemosum		5/2/2019	SM
317	R02.33.00.b	Ericaceae	Rhododendron	rubiginosum		5/2/2019	SM
317	C65.01.00	Brassicaceae	Cardamine	trifolia		5/25/2019	SM
317	C61.00.01	Ericaceae	Cassiope	x	'Muirhead'	5/11/2019	SM
317	R02.00.11.b	Ericaceae	Rhododendron	x	'Maxwellii'	5/2/2019	SM
317	R02.00.21r	Ericaceae	Rhododendron	x	Unknown hybrid	5/13/2019	SM
317	C42.01.01.b	Iridaceae	Crococsmia	x crocosmiiflora		5/13/2019	SM
317	R02.31.01c	Ericaceae	Rhododendron	x obtusum	'Hi No Crimson'	5/13/2019	SM
317	P32.10.01.c	Rosaceae	Prunus	x yedoensis	'Akebono'	5/13/2019	SM
318	S21.01.01.a	Caprifoliaceae	Symphoricarpos	albus	'Laevigatus'	4/23/2019	SM
318	A11.01.00.b	Amaryllidaceae	Amaryllis	belladonna		5/23/2019	SM
318	B02.01.00.d	Saxifragaceae	Bergenia	cordifolia		4/23/2019	SM
318	M01.03.01.a	Magnoliaceae	Magnolia	grandiflora	L.	4/23/2019	SM
318	H03.01.00	Hamamelidaceae	Hamamelis	japonica		4/23/2019	SM
318	C24.01.00.c	Calycanthaceae	Chimonanthus	praecox		4/23/2019	SM
318	C07.03.00.c	Theaceae	Camellia	reticulata		4/23/2019	SM
318	R04.01.00.e	Saxifragaceae	Ribes	sanguineum		4/23/2019	SM
318	P04.01.00.a	Vitaceae	Parthenocissus	tricuspidata		5/14/2019	SM
319	B02.01.00.e	Saxifragaceae	Bergenia	cordifolia		4/23/2019	SM
319	A16.08.00	Ericaceae	Comarostaphylis	diversifolia		4/23/2019	SM
319	M01.03.01.c	Magnoliaceae	Magnolia	grandiflora	L.	4/23/2019	SM
319	E22.01.00	Hamamelidaceae	Exbucklandia	populnea		4/23/2019	SM
319	R04.01.00.f	Saxifragaceae	Ribes	sanguineum		4/23/2019	SM
319	P04.01.00.b	Vitaceae	Parthenocissus	tricuspidata		4/23/2019	SM
319	V03.01.00.a	Caprifoliaceae	Viburnum	x bodnantense		4/23/2019	SM
319	L21.01.00	Caprifoliaceae	Lonicera	x heckrottii		4/23/2019	SM
320	P32.06.02.h	Rosaceae	Prunus	serrulata	'Kwanzan'	5/14/2019	SM
320	P32.06.02.i	Rosaceae	Prunus	serrulata	'Kwanzan'	5/14/2019	SM
321	P32.10.00.f	Rosaceae	Prunus	x yedoensis		5/14/2019	SM
321	P32.10.00.g	Rosaceae	Prunus	x yedoensis		5/14/2019	SM
322	P32.06.02.k	Rosaceae	Prunus	serrulata	'Kwanzan'	4/25/2019	SM
322	P32.06.02.l	Rosaceae	Prunus	serrulata	'Kwanzan'	4/25/2019	SM
322	P32.06.02.m	Rosaceae	Prunus	serrulata	'Kwanzan'	4/25/2019	SM
323	Q01.04.01	Fagaceae	Quercus	chrysolepsis		4/23/2019	SM
323	T12.05.00	Melanthiaceae	Trillium	erectum		4/23/2019	SM
323	C66.01.00b	Orchidaceae	Cypripedium	formosanum		4/23/2019	SM
323	L14.08.00	Liliaceae	Lilium	hansonii		6/8/2018	SM
323	P02.04.00	Paeoniaceae	Paeonia	mairei		4/23/2019	SM
323	T12.01.00c	Melanthiaceae	Trillium	ovatum		4/23/2019	SM
323	S19.02.00.e	Theaceae	Stewartia	pseudocamellia		4/23/2019	SM
323	A47.01.00	Araceae	Arisaema	sikokianum		4/23/2019	SM
323	R02.80.00	Ericaceae	Rhododendron	tephropeplum		4/23/2019	SM
323	A28.03.00	Pteridaceae	Adiantum	venustum		5/11/2019	SM
324	N04.05.00	Amaryllidaceae	Nerine	bowdenii		5/14/2019	SM
324	C45.03.00	Primulaceae	Cyclamen	purpurascens		5/14/2019	SM
324	Q01.15.00.b	Fagaceae	Quercus	rugosa		5/14/2019	SM
324	E20.00.01	Liliaceae	Erythronium	x	'Pagoda'	4/2/2019	SM
324	M01.19.00	Magnoliaceae	Magnolia	x watsonii		5/14/2019	SM
325	E06.01.00	Apiaceae	Eryngium	alpinum		5/14/2019	SM
325	B16.01.00	Fabaceae	Baptisia	australis		5/11/2019	SM
325	T20.01.00b	Saxifragaceae	Tellima	grandiflora		5/3/2019	SM
325	L21.02.00	Caprifoliaceae	Lonicera	involuta		5/20/2019	SM
325	C27.07.00.c	Cistaceae	Cistus	laurifolius		5/3/2019	SM
325	S30.03.00	Asparagaceae	Scilla	peruviana		4/25/2019	SM
325	E06.02.00	Apiaceae	Eryngium	planum		5/14/2019	SM
325	D21.02.00	Iridaceae	Dierama	pulcherrimum		5/9/2019	SM
325	P32.06.05.f	Rosaceae	Prunus	serrulata	'Shiro-fugen'	5/14/2019	SM
325	L14.07.00b	Liliaceae	Lilium	tigrinum		1/5/2018	SM

325	F06.01.00.b	Rosaceae	Filipendula	vulgaris		5/14/2019	SM
325	H01.00.01	Saxifragaceae	Heuchera	x	'Plum Pudding'	5/14/2019	SM
325	H01.00.02	Saxifragaceae	Heuchera	x	'Lime Ricky'	5/14/2019	SM
325	H01.00.03	Saxifragaceae	Heuchera	x	'Pewter Moon'	5/14/2019	SM
325	P32.09.05.b	Rosaceae	Prunus	x subhirtella	'Whitcombii'	5/14/2019	SM
325	P32.09.05.c	Rosaceae	Prunus	x subhirtella	'Whitcombii'	5/14/2019	SM
326	A35.01.00	Ranunculaceae	Aconitum	carmichaelii		5/14/2019	SM
326	L15.01.00	Limnathaceae	Limnanthes	douglasii		5/14/2019	SM
326	H01.01.00	Poaceae	Hakonechloa	macra	'Aureola'	5/14/2019	SM
326	M10.01.01	Poaceae	Miscanthus	sinensis	'Morning Light'	5/14/2019	SM
326	M01.15.00.c	Magnoliaceae	Magnolia	stellata		5/11/2019	SM
326	N04.05.00b	Amaryllidaceae	Narcissus	x	Fragrant Rose	1/5/2018	SM
326	C42.01.01.a	Iridaceae	Crocasmia	x crocosmiiflora	'Jackanapes'	5/14/2019	SM
326	C42.01.02	Iridaceae	Crocasmia	x crocosmiiflora	'Lucifer'	5/14/2019	SM
326	C42.01.03	Iridaceae	Crocasmia	x crocosmiiflora	'Norwich Canary'	5/14/2019	SM
327	W01.00.01	Caprifoliaceae	Weigela	x	nova	4/23/2019	SM
327	T09.01.00.b	Trochodendraceae	Trochodendron	aralioides		4/23/2019	SM
327	A13.01.00.c	Araliaceae	Aralia	californica		5/23/2019	SM
327	C10.01.00.b	Hydrangeaceae	Carpenteria	californica		4/23/2019	SM
327	B02.01.00.f	Saxifragaceae	Bergenia	cordifolia		4/23/2019	SM
327	L08.01.00.a	Ericaceae	Leucothoe	davisiae		4/23/2019	SM
327	A04.01.02.c	Actinidiaceae	Actinidia	deliciosa		5/23/2019	SM
327	E13.01.00	Boraginaceae	Ehretia	dicksonii		6/15/2009	SM
327	T08.01.00.g	Arecaceae	Trachycarpus	fortunei		4/23/2019	SM
327	E10.01.00.a	Cunoniaceae	Eucryphia	glutinosa	'Flora Pleno'	4/23/2019	SM
327	H13.01.00.d	Liliaceae	Hyacinthoides	hispanica		4/23/2019	SM
327	C23.01.00.d	Arecaceae	Chamaerops	humilis		4/23/2019	SM
327	C07.02.09.a	Theaceae	Camellia	japonica	'Magnoliaeflora'	4/23/2019	SM
327	P21.08.00.b	Pinaceae	Pinus	jeffreyi		4/23/2019	SM
327	S19.01.00.b	Theaceae	Stewartia	monadelpha		4/23/2019	SM
327	A03.09.00.b	Sapindaceae	Acer	negundo		4/23/2019	SM
327	J03.01.00	Juglandaceae	Juglans	nigra		4/23/2019	SM
327	A05.05.00	Sapindaceae	Aesculus	octandra		5/23/2019	SM
327	C24.01.00.d	Calycanthaceae	Chimonanthus	praecox		4/23/2019	SM
327	S19.02.01	Theaceae	Stewartia	pseudocamellia		4/23/2019	SM
327	P21.18.00.c	Pinaceae	Pinus	sabiniana		4/23/2019	SM
327	F07.01.00.c	Oleaceae	Forsythia	suspensa		4/23/2019	SM
327	A06.02.00	Lardizabalaceae	Akebia	trifoliata		5/23/2019	SM
327	M01.18.00	Magnoliaceae	Magnolia	virginiana		4/23/2019	SM
327	R02.43.00.c	Ericaceae	Rhododendron	williamsianum		4/23/2019	SM
327	M01.10.00	Magnoliaceae	Magnolia	x loebneri	'Leonard Messel'	4/23/2019	SM
327	A15.03.00.a	Ericaceae	Arbutus	xalapensis		5/23/2019	SM
328	A17.01.00	Aristolochiaceae	Aristolochia	californica		5/3/2019	SM
328	H02.01.00	Styracaceae	Halesia	carolina		5/3/2019	SM
328	R02.12.00.d	Ericaceae	Rhododendron	decorum		5/3/2019	SM
328	G02.02.00	Garryaceae	Garrya	flavescens		5/3/2019	SM
328	L10.01.00.b	Iridaceae	Libertia	formosa		5/3/2019	SM
328	C15.01.00	Ulmaceae	Celtis	occidentalis		5/3/2019	SM
328	K04.01.00.a	Sapindaceae	Koeleruteria	paniculata		5/3/2019	SM
328	C02.04.00.a	Myrtaceae	Callistemon	subulatus		5/3/2019	SM
328	H03.04.00.b	Hamamelidaceae	Hamamelis	virginiana		5/3/2019	SM
329	H11.01.00	Lardizabalaceae	Holboellia	angustifolia		5/3/2019	SM
329	P36.01.00.c	Rosaceae	Pyracantha	coccinea		5/3/2019	SM
329	L14.03.00	Liliaceae	Lilium	columbianum		5/30/2019	SM
329	L10.01.00.a	Iridaceae	Libertia	formosa		5/3/2019	SM
329	F13.06.00d	Liliaceae	Fritillaria	lanceolata		5/6/2019	SM
329	F13.06.00b	Liliaceae	Fritillaria	lanceolata		5/3/2019	SM

329	E20.02.00b	Liliaceae	Erythronium	oreganum		5/3/2019	SM
329	C15.02.00.a	Ulmaceae	Celtis	reticulata		5/3/2019	SM
329	D09.01.00.d	Ebenaceae	Diospyros	virginiana		5/3/2019	SM
330	S11.01.01.b	Liliaceae	Smilax	aspera	'Maculata'	5/3/2019	SM
330	P21.02.00.b	Pinaceae	Pinus	banksiana		5/3/2019	SM
330	A12.01.00.a	Vitaceae	Ampelopsis	brevipedunculata	'Marimowiczii'	5/23/2019	SM
330	F05.01.00.a	Moraceae	Ficus	carica		5/3/2019	SM
330	G02.01.02	Garryaceae	Garrya	elliptica	'James Roof'	5/3/2019	SM
330	C23.01.00.b	Arecaceae	Chamaerops	humilis		5/3/2019	SM
330	A20.01.00	Liliaceae	Asparagus	officinalis		5/3/2019	SM
330	Q01.19.00.a	Fagaceae	Quercus	vaccinifolia		5/3/2019	SM
331	S11.01.01.a	Liliaceae	Smilax	aspera	'Maculata'	5/3/2019	SM
331	O04.01.00.a	Rosaceae	Oemleria	cerasiformis		5/3/2019	SM
331	A04.01.01.	Actinidiaceae	Actinidia	deliciosa		5/23/2019	SM
331	P36.02.00.a	Rosaceae	Pyracantha	fortuneana		5/3/2019	SM
331	C23.01.00.a	Arecaceae	Chamaerops	humilis		5/3/2019	SM
331	C02.04.00.b	Myrtaceae	Callistemon	subulatus		5/3/2019	SM
332	A06.01.00.a	Lardizabalaceae	Akebia	quinata		5/23/2019	SM
CP1	S42.02.00	Sarraceniaceae	Sarracenia	alta		5/20/2019	AW
CP1	D29.02.00	Droseraceae	Drosera	filiformis		5/20/2019	AW
CP1	D29.01.00	Droseraceae	Drosera	intermedia		5/20/2019	AW
CP1	D28.01.02	Droseraceae	Dioneae	muscipula	'B52'	5/20/2019	AW
CP1	D28.01.03	Droseraceae	Dioneae	muscipula	'G16'	5/20/2019	AW
CP1	D28.01.04	Droseraceae	Dioneae	muscipula	'DC XL'	5/20/2019	AW
CP1	S42.03.00	Sarraceniaceae	Sarracenia	purpurea		5/20/2019	AW
CP1	D29.02.00	Droseraceae	Drosera	rotundifolia		5/20/2019	AW
CP1	S42.00.02	Sarraceniaceae	Sarracenia	x	'Black and Tan'	5/20/2019	AW
CP1	S43.00.01	Sphagnaceae	Sphagnum	x		5/20/2019	AW
CP1	S43.00.01	Sphagnaceae	Sphagnum	x		5/20/2019	AW
CP2	P54.01.00	Lentibulariaceae	Pinguicula	grandiflora		5/20/2019	AW
CP2	S42.01.02	Sarraceniaceae	Sarracenia	leucophylla	'Burgundy'	5/20/2019	AW
CP2	S42.01.00	Sarraceniaceae	Sarracenia	leucophylla		5/20/2019	AW
CP2	S42.01.01	Sarraceniaceae	Sarracenia	leucophylla		5/20/2019	AW
CP2	D28.01.01	Droseraceae	Dioneae	muscipula	'King Henry'	5/20/2019	AW
CP2	S42.00.01	Sarraceniaceae	Sarracenia	x	'Caroline'	5/20/2019	AW
CP2	S42.00.01	Sarraceniaceae	Sarracenia	x	'Caroline'	5/20/2019	AW
GH	S26.01.00.c	Lauraceae	Sassafras	albidum		5/23/2019	SM
GH	B13.02.00	Solanaceae	Brugmansia	aurea		6/4/2019	SM
GH	I06.01.00	Solanaceae	Ichroma	australe		5/30/2019	SM
GH	E08.04.00	Myrtaceae	Eucalyptus	bicostata		5/23/2019	SM
GH	T12.02.00	Melanthiaceae	Trillium	chloropetalum		5/11/2019	SM
GH	A03.12.00	Sapindaceae	Acer	crataegifolium		5/23/2019	SM
GH	C52.01.00	Fagaceae	Castanea	dentata		5/23/2019	SM
GH	A03.21.01	Sapindaceae	Acer	glabrum	douglasii	5/3/2019	SM
GH	H25.01.01	Helwingiaceae	Helwingia	himalaica		6/4/2019	SM
GH	T23.01.00	Saxifragaceae	Telesonix	jamesii		6/4/2019	SM
GH	W01.01.00	Caprifoliaceae	Weigela	middendorffiana		5/11/2019	SM
GH	H02.02.01.a	Styracaceae	Halesia	monticola	'Arnold Pink'	5/23/2019	SM
GH	H02.02.01.b	Styracaceae	Halesia	monticola	'Arnold Pink'	5/23/2019	SM
GH	P53.01.00	Blechnaceae	Parablechnum	nova-zelanduae		5/23/2019	SM
GH	C36.04.00.b	Cornaceae	Cornus	nuttallii		5/23/2019	AW
GH	T13.01.00	Talinaceae	Talinum	okanoganense		5/11/2019	SM
GH	P11.01.01	Hamamelidaceae	Parrotia	persica	'Persian Lace'	5/23/2019	AW
GH	A03.15.00	Sapindaceae	Acer	shirasawanum		5/23/2019	SM
GH	P18.02.01	Pinaceae	Picea	sitchensis	'Haida'	5/30/2019	SM
GH	C52.01.01	Bignoniaceae	Chitalpa	tashkentensis	'Pink Dawn'	5/23/2019	SM
GH	T20.01.00	Melastomataceae	Tibouchina	urvilleana		6/4/2019	SM
GH	B13.00.01	Solanaceae	Brugmansia	x	'Cherub'	6/4/2019	SM

GH	B13.01.01	Solanaceae	Brugmansia	x candida		'Grand Marnier'	6/4/2019	SM
GH	A05.02.01.l	Sapindaceae	Aesculus	x carnea		'Briotii'	5/23/2019	SM
RGN	P25.02.01	Campanulaceae	Platycodon	astra	white		5/14/2019	SM
RGN	N04.01.00	Amaryllidaceae	Narcissus	cantabricus			5/14/2019	SM
RGN	C62.01.00	Zingiberaceae	Cautleya	cathcartii			5/11/2019	SM
RGN	P39.03.00.a	Primulaceae	Primula	elator			5/14/2019	SM
RGN	D12.02.01.b	Dryopteridaceae	Dryopteris	filix-mas		'Barnesii'	5/14/2019	SM
RGN	I04.01.00	Campanulaceae	Isotoma	fluviatilis			5/14/2019	SM
RGN	I07.01.01	Brassicaceae	Iberis	gibraltarica		Lavish	5/14/2019	SM
RGN	V02.01.00.c	Berberidaceae	Vancouveria	hexandra			5/14/2019	SM
RGN	C50.01.00.b	Dryopteridaceae	Cyrtomium	macrophyllum			5/14/2019	SM
RGN	L23.02.01	Lamiaceae	Lamium	maculatum		'White Nancy'	5/14/2019	SM
RGN	H09.02.02.b	Saxifragaceae	Heuchera	micrantha		'Dark Secret'	5/14/2019	SM
RGN	H09.02.03.b	Saxifragaceae	Heuchera	micrantha		'Lime Marmalade'	5/14/2019	SM
RGN	T15.00.01	Ranunculaceae	Thalictrum	nova	CDHM 14584		9/18/2017	SM
RGN	R11.00.01	Saxifragaceae	Rodgersia	nova	aff. Sambucifolia		5/14/2019	SM
RGN	S25.01.00	Caryophyllaceae	Saponaria	ocymoides			5/14/2019	SM
RGN	T11.02.00	Liliaceae	Tricyrtis	ohsumiensis			5/11/2019	SM
RGN	P28.03.00.c	Dryopteridaceae	Polystichum	polyblepharum			5/14/2019	SM
RGN	P51.01.00	Papaveraceae	Pteridophyllum	racemosum			5/14/2019	SM
RGN	S23.01.01.a	Asteraceae	Santolina	rosminifolia		'Lemon Fizz'	5/14/2019	SM
RGN	H09.01.02	Saxifragaceae	Heuchera	sanguinea		'Bressingham Hybrid'	5/14/2019	SM
RGN	G08.02.01	Geraniaceae	Geranium	sanguineum		'Vision Pink'	5/14/2019	SM
RGN	A31.01.00.b	Aspleniaceae	Asplenium	scolopendrium			5/14/2019	SM
RGN	C55.01.00	Papaveraceae	Corydalis	solida			5/14/2019	SM
RGN	D08.01.01.a	Papaveraceae	Dicentra	spectabilis		'Alba'	5/14/2019	SM
RGN	S04.03.01	Saxifragaceae	Saxifraga	stolonifera			5/14/2019	SM
RGN	B05.01.02	Orchidaceae	Bletilla	striata		'Big Bob'	5/14/2019	SM
RGN	B05.01.00.b	Orchidaceae	Bletilla	striata			5/14/2019	SM
RGN	C08.00.01	Campanulaceae	Campanula	x		'Ringsabell Mulberry Rose'	5/11/2019	SM
RGN	C08.00.02	Campanulaceae	Campanula	x		'Samantha'	5/11/2019	SM
RGN	G12.00.01.a	Gentianaceae	Gentiana	x		'Goetterdammerung'	5/14/2019	SM
RGN	T18.00.01	Liliaceae	Tulipa	x		'China Town'	5/14/2019	SM
RGN	V08.00.01.b	Plantaginaceae	Veronica	x		'Whitewater'	5/11/2019	SM
RGN	A34.00.01	Ranunculaceae	Aquilegia	x		'Fragrant Fantasy'	5/14/2019	SM
RGN	T15.01.01	Ranunculaceae	Thalictrum	x		'Evening Star'	5/14/2019	SM
RGN	G09.00.01.a	Rosaceae	Geum	x		'Mango Lassi'	5/14/2019	SM
RGN	B05.02.01.a	Orchidaceae	Bletilla	yokohama		'Kate'	5/14/2019	SM
RGP1	L24.01.02	Montiaceae	Lewisia	columbiana	columbiana		5/14/2019	SM
RGP1	P06.06.00	Plantaginaceae	Penstemon	davidsonii	menziesii		5/14/2019	SM
RGP1	A34.05.00	Ranunculaceae	Aquilegia	flavescens			5/14/2019	SM
RGP1	L35.01.00	Apiaceae	Lomatium	grayi			5/14/2019	SM
RGP1	C64.01.01a	Montiaceae	Claytonia	megarrhiza		nivalis	5/14/2019	SM
RGP1	L24.03.00	Montiaceae	Lewisia	nevadensis			5/14/2019	SM
RGP1	P06.05.00	Plantaginaceae	Penstemon	procerus			5/14/2019	SM
RGP1	S29.03.00	Crassulaceae	Sedum	spathifolium			5/14/2019	SM
RGP2	A02.08.00	Pinaceae	Abies	amabilis		'Spreading Star'	5/13/2019	SM
RGP2	F13.09.00a	Liliaceae	Fritillaria	camschatcensis			4/9/2019	SM
RGP2	L24.01.01a	Montiaceae	Lewisia	columbiana	rupicola		4/1/2019	SM
RGP2	L24.01.03	Montiaceae	Lewisia	columbiana	wallowensis		5/14/2019	SM
RGP2	D19.03.00	Ranunculaceae	Delphinium	menziesii			5/13/2019	SM
RGP2	A46.00.00	Caryophyllaceae	Arenaria	nova			5/14/2019	SM
RGP2	S29.05.00	Crassulaceae	Sedum	oreganum			5/14/2019	SM
RGP2	T12.01.00a	Melanthiaceae	Trillium	ovatum			5/11/2019	SM
RGP2	C06.01.00.d	Asparagaceae	Camassia	quamash			5/14/2019	SM
RGP2	P06.00.01	Plantaginaceae	Penstemon	rupicola x barrettiae		'Edithae'	5/14/2019	SM
RGP3	L24.02.00	Montiaceae	Lewisia	cotyledon	cotyledon		4/1/2019	SM

RGP3	L24.02.01	Montiaceae	Lewisia	cotyledon	purdyi		4/1/2019	SM
RGP3	S29.06.00b	Crassulaceae	Sedum	laxum			5/14/2019	SM
RGP3	L24.07.00	Montiaceae	Lewisia	leeana			4/1/2019	SM
RGP3	K07.01.00	Plantaginaceae	Keckiella	lemmonii			5/14/2019	SM
RGP3	P06.09.00	Plantaginaceae	Penstemon	newberryi	berryi		4/2/2019	SM
RGP3	L24.09.00c	Montiaceae	Lewisia	x		'Locks Deep Red'	5/14/2019	SM
RGP5	R02.100.00	Ericaceae	Rhododendron	campylogynum			5/14/2019	SM
RGP5	R02.02.00	Ericaceae	Rhododendron	collettianum			5/2/2019	SM
RGP5	R02.53.02	Ericaceae	Rhododendron	dalhousiae		rhabdotum	5/14/2019	SM
RGP5	R02.98.01	Ericaceae	Rhododendron	diversipilosum		'Milky Way'	5/14/2019	SM
RGP5	C66.01.00a	Orchidaceae	Cypripedium	formosanum			5/14/2019	SM
RGP5	R.02.100.00	Ericaceae	Rhododendron	liliiflorum			5/14/2019	SM
RGP5	R02.99.01	Ericaceae	Rhododendron	nitidulum		omeiense	4/25/2019	SM
RGP5	V01.05.00	Ericaceae	Vaccinium	nova			4/1/2019	SM
RGP5	R02.104.00	Ericaceae	Rhododendron	nuttallii			5/14/2019	SM
RGP5	B17.01.00	Gesneriaceae	Briggsia	rosthornii			5/14/2019	SM
RGP5	A48.01.01	Ericaceae	Agapetes	serpens		'Nepal Cream'	5/14/2019	SM
RGP5	A48.02.01	Ericaceae	Agapetes	smithiana		major	5/14/2019	SM
RGP5	D03.04.00b	Thymelaeaceae	Daphne	x		'Rick Lupp'	5/14/2019	SM
RGS	M07.02.01	Liliaceae	Muscari	aucheri		'Ocean Magic'	5/14/2019	SM
RGS	E15.01.00	Asphodelaceae	Eremurus	bungei			5/14/2019	SM
RGS	H04.01.00.a	Plantaginaceae	Hebe	caledonia			5/14/2019	SM
RGS	A33.01.03	Brassicaceae	Arabis	caucasica		'Lotti Deep Rose'	5/14/2019	SM
RGS	T16.01.01	Asteraceae	Tanacetum	coccineum		'Robinson's Red'	5/14/2019	SM
RGS	M18.02.01	Lamiaceae	Monarda	didyma		Balmy Rose	5/14/2019	SM
RGS	H22.01.01	Asteraceae	Heliopsis	helianthoides		Dubble Sunstruck	5/14/2019	SM
RGS	I03.11.01	Iridaceae	Iris	juno		bacharita	5/14/2019	SM
RGS	B11.01.00	Asteraceae	Bellium	minutum			5/14/2019	SM
RGS	S28.01.00	Lamiaceae	Salvia	nana		'Curling Waves'	5/14/2019	SM
RGS	P46.01.01	Papaveraceae	Papaver	nudicaule		'Champagne Bubbles'	5/14/2019	SM
RGS	N04.02.00	Amaryllidaceae	Narcissus	obvallaris			5/14/2019	SM
RGS	P02.03.00.b	Paeoniaceae	Paeonia	pacifica			5/14/2019	SM
RGS	F13.02.00	Liliaceae	Fritillaria	pallidiflora			5/14/2019	SM
RGS	O02.01.01.c	Liliaceae	Ophiopogon	planiscapus		'Nigrescens'	5/14/2019	SM
RGS	S23.01.01.b	Asteraceae	Santolina	rosmrinifolia		'Lemon Fizz'	5/14/2019	SM
RGS	E15.2.01	Asphodelaceae	Eremurus	ruiter		'Pinocchio'	5/14/2019	SM
RGS	T17.01.00	Lamiaceae	Thymus	serpyllum			5/14/2019	SM
RGS	L29.00.01.a	Lamiaceae	Lavandula	stoechas	stoechas	'Kew Red'	5/14/2019	SM
RGS	P44.01.02	Polemoniaceae	Phlox	subulata		'Barsixtynine'	5/14/2019	SM
RGS	P45.01.02.b	Ranunculaceae	Pulsatilla	vulgaris	grandis	'Papageno'	5/14/2019	SM
RGS	G12.00.01.b	Gentianaceae	Gentiana	x		'Goetterdammerung'	5/14/2019	SM
RGS	S27.02.00	Iridaceae	Sisyrinchium	x		'Devon Skies'	5/14/2019	SM
RGS	L14.00.00.b	Liliaceae	Lilium	x			5/14/2019	SM

**14.HISTORIC GROUNDS REPORT: CARL S. ENGLISH JR. BOTANICAL GARDEN
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**15.CHICAGO BOTANIC GARDEN PLANT DOCUMENTATION PLAN AND POLICY
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