

FIELD MONITORING METHODS

VEGETATION MONITORING DATA COLLECTION, QAQC PROCEDURES

A portion of the Bioretention Hydrologic Performance Study is to measure and describe the vegetation communities within each of the monitored bioretention cells. The purpose of describing the vegetation community composition and percent cover is to compare the vegetation community in place after at least 10 years of performance to the plant community originally specified for each bioretention cell. This information will be used along with other site characteristics to assess bioretention lifespans.

The following document describes the vegetation conditions observed at each of the monitored cells. Attached are individual tables for each monitored cell listing the vegetation species observed, their percent cover within the monitored area, and the number of individual stems of woody plants growing within the cells. We also compared the species currently present to the species listed on the design plans and note where those lists differ.

METHODS

Bioretention cell plant composition and density was measured for selected monitoring sites in one of three possible approaches depending on site conditions. Only the bottom (area subject to inundation) of the bioretention cell was sampled for vegetation.

1. For bioretention cells that only had woody vegetation (shrubs and trees), the total number of stems were counted within the cell (density). A woody plant is considered and inventoried as a single individual, regardless of the number and size of stems emerging from a common root system. A woody sapling/tree with a single stem is also considered and inventoried as a single individual. However, a woody sapling/tree with multiple stems may be considered and inventoried as multiple individuals if the stems split below 50 centimeters in height (along the stem). In addition to a count of the number of stems within the cell, an estimate of the percent cover of the woody vegetation within the study area was made. The genus and species of the woody plants was recorded, as well as the wetland indicator status (WIS) of the species observed. WIS assignment to plant species is described below.
2. For bioretention cells with only herbaceous plant species, a quadrat along pre-determined points along a transect line(s) was used to estimate percent vegetation cover. A 25 cm x 25 cm quadrat was used to record the percentage of herbaceous vegetation versus the percentage of bare ground that covers each quadrat. Species were identified to genus and species and note made of the wetland indicator status

of the observed species. At a minimum 25% of the cell was sampled.

3. For bioretention cells with woody and herbaceous species, both sampling methods were used. Stem density was counted for the woody species and quadrats were used to estimate coverage of herbaceous vegetation.

WETLAND INDICATOR STATUS (WIS)

Native Plants

Wetland Indicator Status (WIS) is a status used to designate a plant species' preference for occurrence in a wetland or upland based on qualitative descriptions. The WIS for a given species will vary based upon region. Western Washington is in the Western Mountains, Valleys and Coast region. The WIS of plants within our region can be found on the USDA, Natural Conservation Service, Plants Database. Below are the categories and definitions for characterizing a plants preference for growing conditions:

OBL	Obligate Wetland	Hydrophyte	Almost always occur in wetlands
FACW	Facultative Wetland	Hydrophyte	Usually occur in wetlands, but may occur in non-wetlands
FAC	Facultative	Hydrophyte	Occur in wetlands and non-wetlands
FACU	Facultative Upland	Nonhydrophyte	Usually occur in non-wetlands, but may occur in wetlands
UPL	Obligate Upland	Nonhydrophyte	Almost never occur in wetlands

ORNAMENTAL PLANTS

The USDA assigns WIS to native plants and nonnative plants that occur frequently in the natural environment, such as Himalayan blackberry. In the bioretention cells, we found ornamental plant species, as well as native plants, had been installed. Since ornamental plants frequently do not have a WIS, we looked for an equivalent native plant, so we could assign the plant with a WIS where possible. For example, multiple varieties of red twig dogwood (*Cornus sericea*) were recorded in bioretention cells; varieties such as Mid-winter fire, or the variegated dogwood. Since these varieties do not have a WIS, we assigned the varieties the same WIS as the native red twig dogwood (FACW). As another example, ornamental Golden sedge (*Carex aurea*) was installed in one of the monitored bioretention cells. A native Golden sedge grows in Washington State and has a WIS of FACW, so we assigned the landscape variety the same WIS.

DATA ANALYSIS AND RESULTS

VEGETATION COMPOSITION RESULTS

Below is a summary of the vegetation cover results from each bioretention cell included in the study. The data collection methodology utilized and field observations at each cell are provided, as well as a description of the original construction planting list, if available, and comparison of the observed plant list versus the original plant list. We also note the constant head infiltration rate calculated by AESI at each cell.

Airport Boulevard (51st Avenue) Cell 1 (South) {Lot 2}

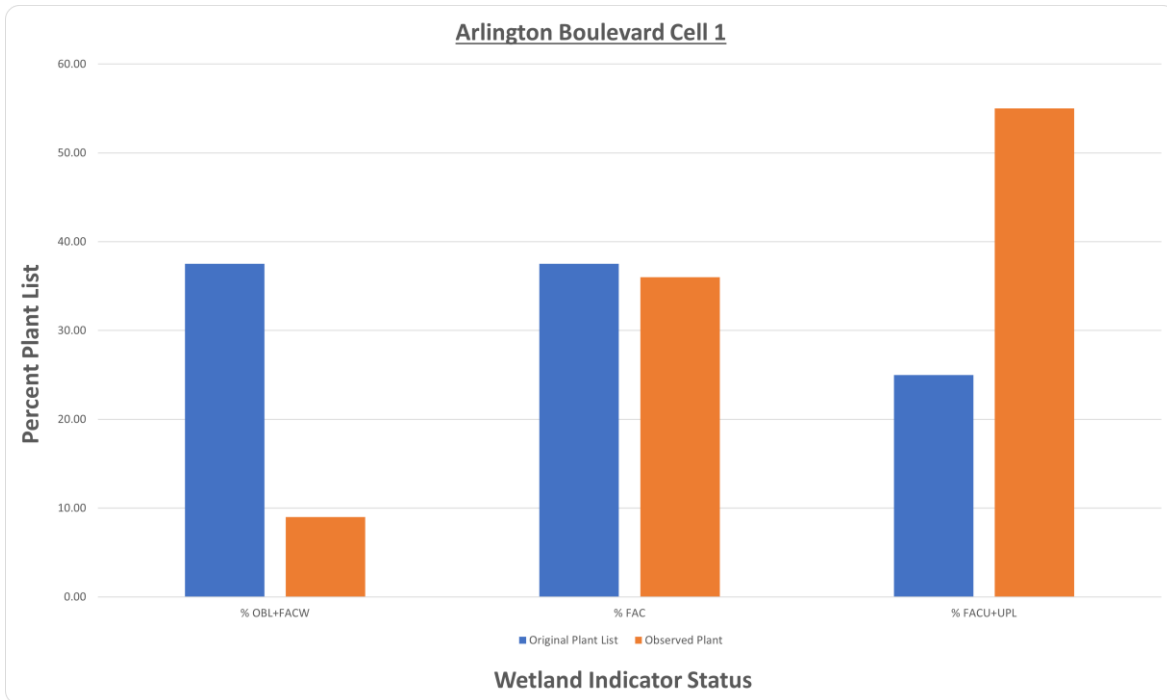
Vegetative cover was measured on August 23, 2023 at Arlington Airport Boulevard Cell 1. According to our field measurements, the bottom of this cell is approximately 699 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contained 28 woody plants and 70 woody stems. Woody cover was estimated at 30%. Percent cover of herbaceous vegetation was estimated in 260 quadrats in the cell. Overall, herbaceous cover was 100%.



Woody vegetation within the cell was composed of three different species: Oregon grape (*Mahonia aquifolium*), red maple (*Acer rubrum*), and snowberry (*Symphoricarpos albus*) which were all listed on the planting plan for the bioretention cell or in the surrounding landscape. Two additional woody species were specified for the cell, however neither was present during our site investigation.

Per the approved plan, this cell was intended to have been primarily herbaceous vegetation. The cell was planted with a mix of rush (*Juncus tenuis*), small-fruited bulrush (*Scirpus microcarpus*), and stalk-grain sedge (*Carex stipata*). None of these herbaceous species were observed in the cell during our study.

Herbaceous species observed in the cell include Canadian thistle (*Cirsium arvense*), velvet grass (*Holcus lanatus*), hairy cat's ear (*Hypochaeris radicata*), reed canarygrass (*Phalaris arundinacea*), English plantain (*Plantago lanceolata*), sheep sorrel (*Rumex acetosella*), common dandelion (*Taraxacum officinale*), and rye grass (*Lolium* sp.).



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU) while the design species were primarily FACW or OBL. Woody vegetation specified and observed have WIS ratings of FAC or FACU. The constant head infiltration rate measured by AESI was 83.3 inches per hour.

Airport Boulevard (51st Avenue) Cell 2 (North) {Lot 10}

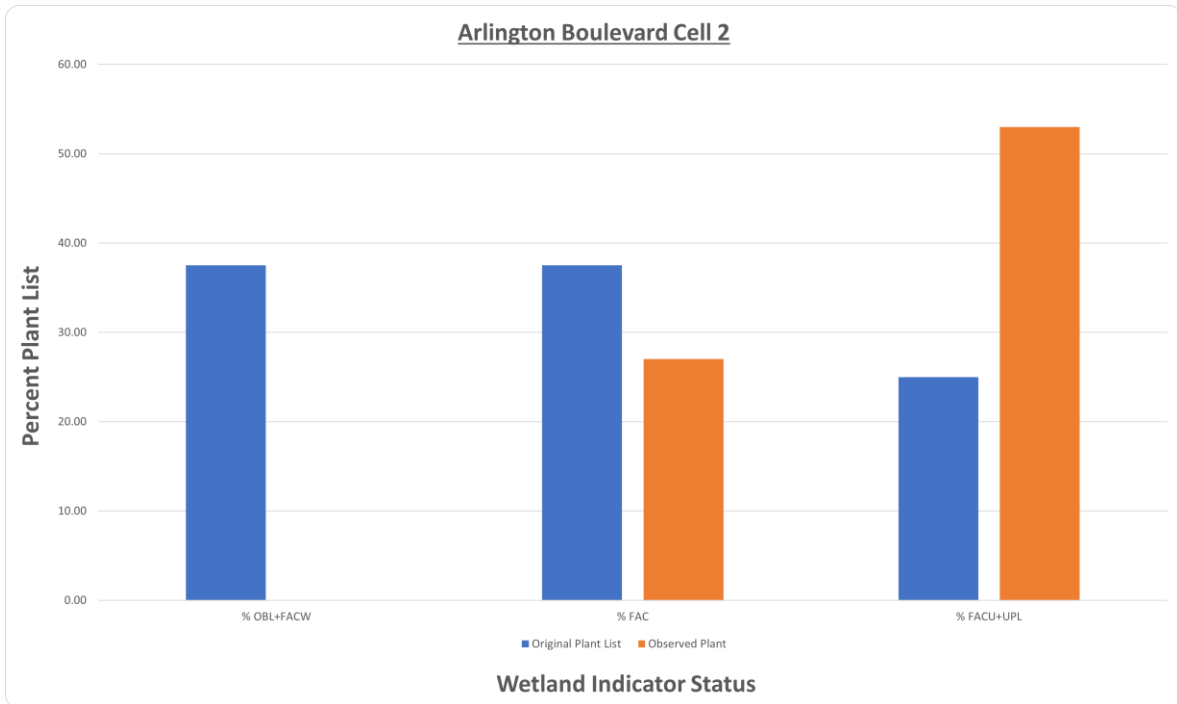
Vegetative cover at Arlington Airport Boulevard Cell 2 was measured on September 13, 2023. According to our field measurements, the bottom of this cell is approximately 165 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contained 5 woody plants and 5 woody stems. Woody cover was estimated at 2%. Percent cover of herbaceous vegetation was estimated in 62 quadrats in the cell.

Woody vegetation within the cell was composed of two different species: Oregon grape (*Mahonia aquifolium*) and snowberry (*Symphoricarpos albus*). Both species were listed on the planting plan for the bioretention cell or in the surrounding landscape. Two additional woody species were specified for the cell, however neither was present during our site investigation.



As with Cell 1, the approved plan shows this cell was intended to have been primarily herbaceous vegetation. The cell was planted with a mix of rush (*Juncus tenuis*), small-fruited bulrush (*Scirpus microcarpus*), and stalk-grain sedge (*Carex stipata*). None of these herbaceous species were observed in the cell during our study.

Herbaceous species observed in the cell include soft brome (*Bromus hordeaceus*), (*Ehrharta erecta*), orchard grass (*Dactylus glomerata*), sticky bedstraw (*Galium aparine*), (*Lepidium densiflorum*). For the full list of species observed, see data in Appendix A.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU) while the design species were primarily FACW or OBL. Woody vegetation specified and observed have WIS ratings of FAC or FACU. The constant head infiltration rate measured by AESI was 52 inches per hour.

Pick Quick {Basin C}

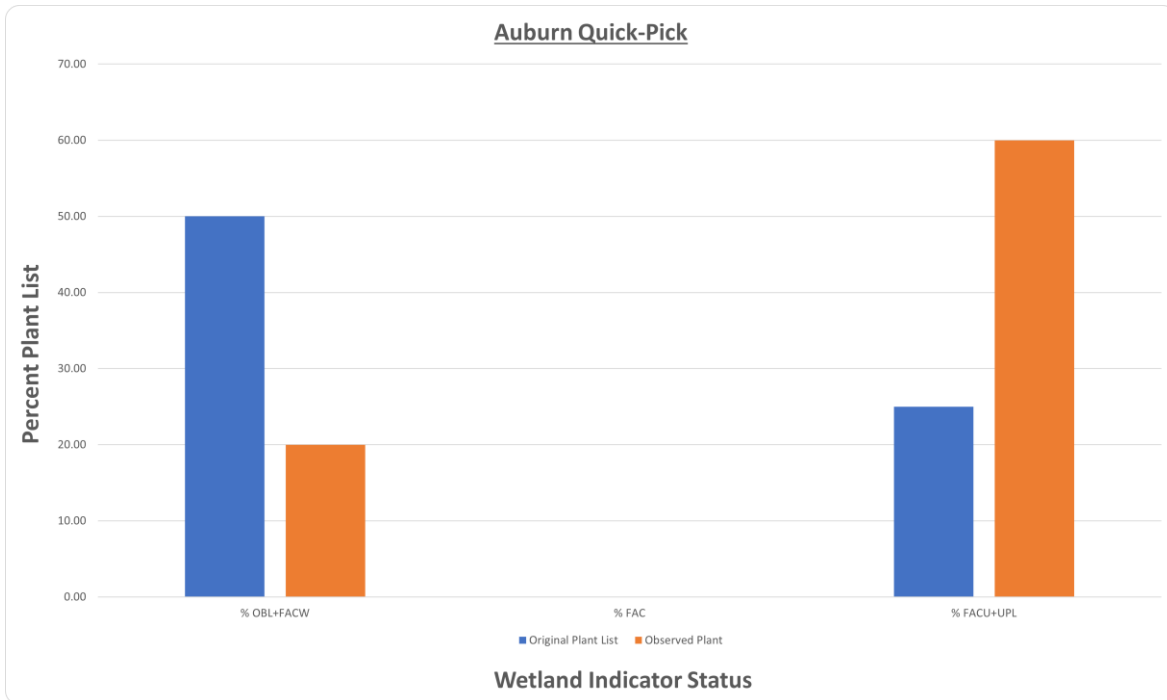
Vegetative cover at the Auburn Pick-Quick was measured on July 15, 2023. According to our field measurements, the bottom of this cell is approximately 1235 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 24 woody plants and 250-300 woody stems. Woody cover was estimated at 20%. Percent cover of herbaceous vegetation was estimated in 459 quadrats in the cell.

Woody vegetation within the cell was composed of four different species: a rose species (*Rosa* sp.), snowberry (*Symphoricarpos albus*), an ornamental dogwood shrub (*Cornus* sp.), and an unknown ornamental shrub. A rose species is listed on the planting plan for the bioretention cell. One additional woody species was specified for the cell, however it was not present during our site investigation.



The approved plan shows the rain garden cells at this site were intended to have a mix of herbaceous and woody vegetation. The cell was planted with a mix of rush (*Juncus tenuis*), small-fruited bulrush (*Scirpus microcarpus*), and stalk-grain sedge (*Carex stipata*). None of these herbaceous species were observed in the cell during our study.

Herbaceous species observed in the cell include soft brome (*Bromus hordeaceus*), (*Ehrharta erecta*), orchard grass (*Dactylus glomerata*), sticky bedstraw (*Galium aparine*), (*Lepidium densiflorum*). For the full list of species observed, see data in Appendix A.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU) while the design species were primarily FACW or OBL. Woody vegetation specified and observed have WIS ratings of FAC or FACU. The constant head infiltration rate measured by AESI was 35.7 inches per hour.

Bainbridge Island High School – Type 2 (Roof Cell)

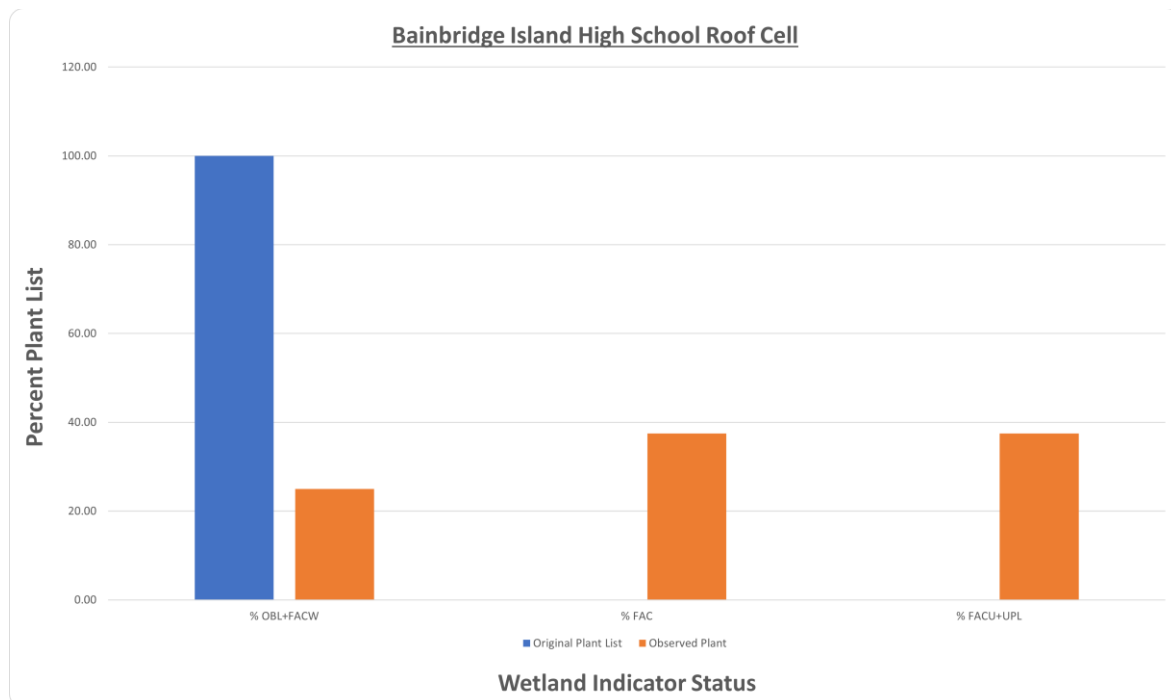
Vegetative cover at Bainbridge Island High School Cell 1 was measured on August 1, 2023. According to our field measurements, the bottom of this cell is approximately 600 square feet. The cell contained both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. Woody cover was estimated at 65% and the cell contains approximately 133 woody plants and approximate 1500 woody stems. Percent cover of herbaceous



vegetation was estimated in 223 quadrats across the cell.

Woody vegetation within the cell was composed of three different species: salmonberry (*Rubus spectabilis*), snowberry (*Symphoricarpos albus*), and a dogwood shrub (*Cornus* sp.). The only woody species listed on the original planting plan is *Cornus sericea*.

Herbaceous species observed in the cell included western lady fern, fringed willowherb, common nipplewort, sword fern, and stinging nettle. The original planting plan lists *Juncus ensifolius* for herbaceous species, which was not observed.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW and FACU while *Juncus ensifolius* has a WIS rating of FACW. Woody vegetation specified and observed have WIS ratings of FAC, FACW, and FACU. The constant head infiltration rate measured by AESI was 27.8 inches per hour.

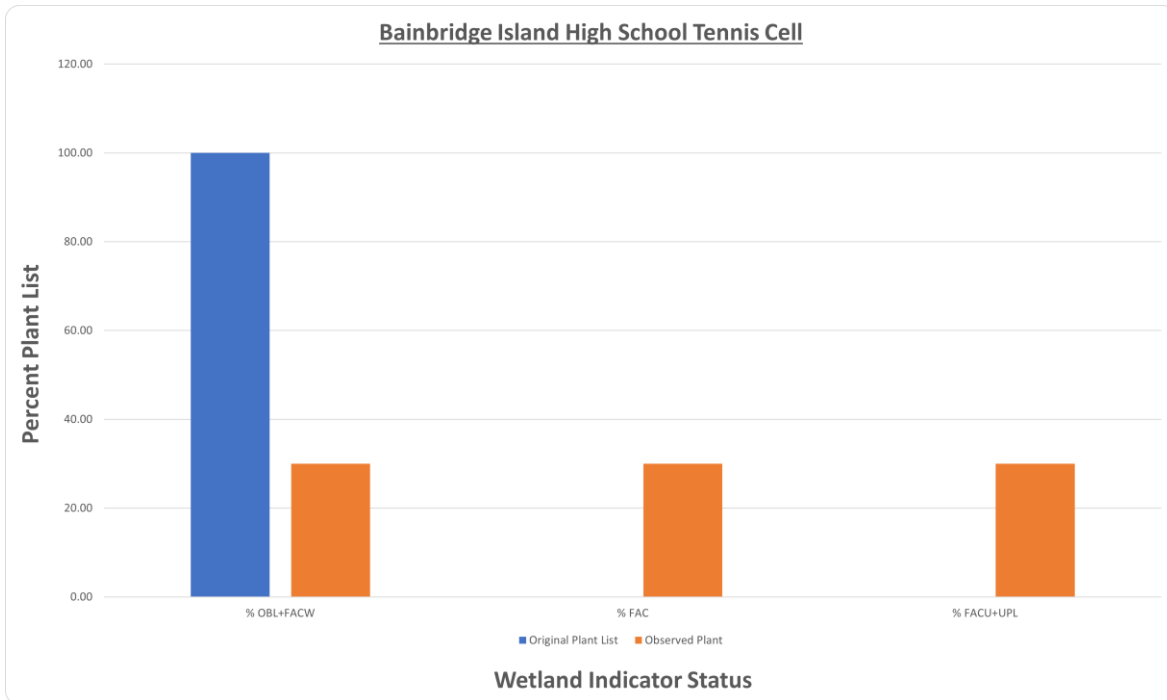
Bainbridge Island High School – Type 5 (Tennis Cell) (IT-2)

Vegetative cover at Bainbridge Island High School Cell 2 was measured on August 1, 2023. According to our field measurements, the bottom of this cell is approximately 1370 square feet. The cell contained both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. Woody cover was estimated at 44% and the cell contains approximately 17 woody plants and approximate 220 woody stems. Percent cover of herbaceous vegetation was estimated in 510 quadrats across the cell.



Woody vegetation within the cell was composed of three different species: red alder (*Alnus rubra*), purple willow (*Salix purpurea*), and a dogwood shrub (*Cornus* sp.). Both *Cornus sericea* and *Salix purpurea* are listed on the planting plan for the bioretention cell.

Herbaceous species observed in the cell *Cirsium vulgare*, *Epilobium ciliatum*, *Hypericum perforatum*, *Lotus corniculatus*, *Nepeta cataria*, and *Rumex crispus*. The original planting plan lists *Juncus ensifolius* for herbaceous species, which we did not observe.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW and FACU while *Juncus ensifolius* has a WIS rating of FACW. Woody vegetation specified and observed have WIS ratings of FAC, FACW, and FACU. The constant head infiltration rate measured by AESI was 17.4 inches per hour.

145th Place {Raingarden #2}

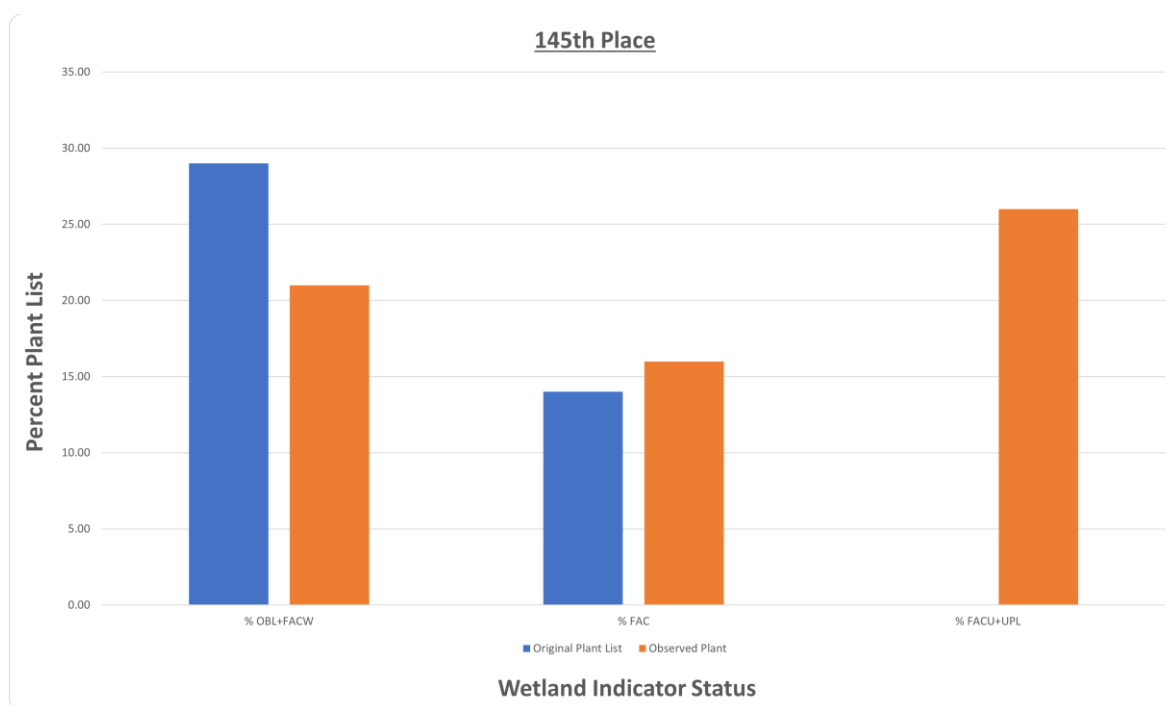
Vegetative cover at the Bellevue 1880 145th Place site was measured on June 9, 2023. According to our field measurements, the bottom of this cell is approximately 920 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 1 woody plant and multiple suckers growing from upslope woody plants. Woody cover within the cell was estimated at 7%. Percent cover of herbaceous vegetation was estimated in 342 quadrats in the cell.



Woody vegetation within the cell was composed of three different species: purple willow (*Salix purpurea*), low Oregon-grape (*Mahonia nervosa*), and nootka rose (*Rosa nutkana*). The original planting plans do not contain any woody species.

The approved site plans contain seven herbaceous species, including *Cistus salvifolius*, *Cornus stolonifera*, *Carex obnupta*, *Juncus acuminatus*, *Juncus tenuis*, *Eupatorium dubium*, and *Hakanochloa*. During our data collection, we did observe *Carex obnupta* within the cell, as well as two *Juncus* species that we were not able to identify.

Herbaceous species observed in the cell include *Cardamine hirsute*, *Carex obnupta*, *Epilobium ciliatum*, *Euphorbia Maculata*, *Geranium dissectum*, *Lactuca muralis*, *Lactuca serriola*, *Oemleria cerasiformis*, *Plantago major*, *Poa pratensis*, *Taraxacum officinale*, *Veronica americana*, and *Veron peregrina*. The full list of species observed is available in Appendix A.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU), but these species had wetter WIS ratings of FACW and OBL. The design species were primarily FACW or OBL. Purple willow has an WIS rating of OBL. The constant head infiltration rate measured by AESI was 40.5 inches per hour.

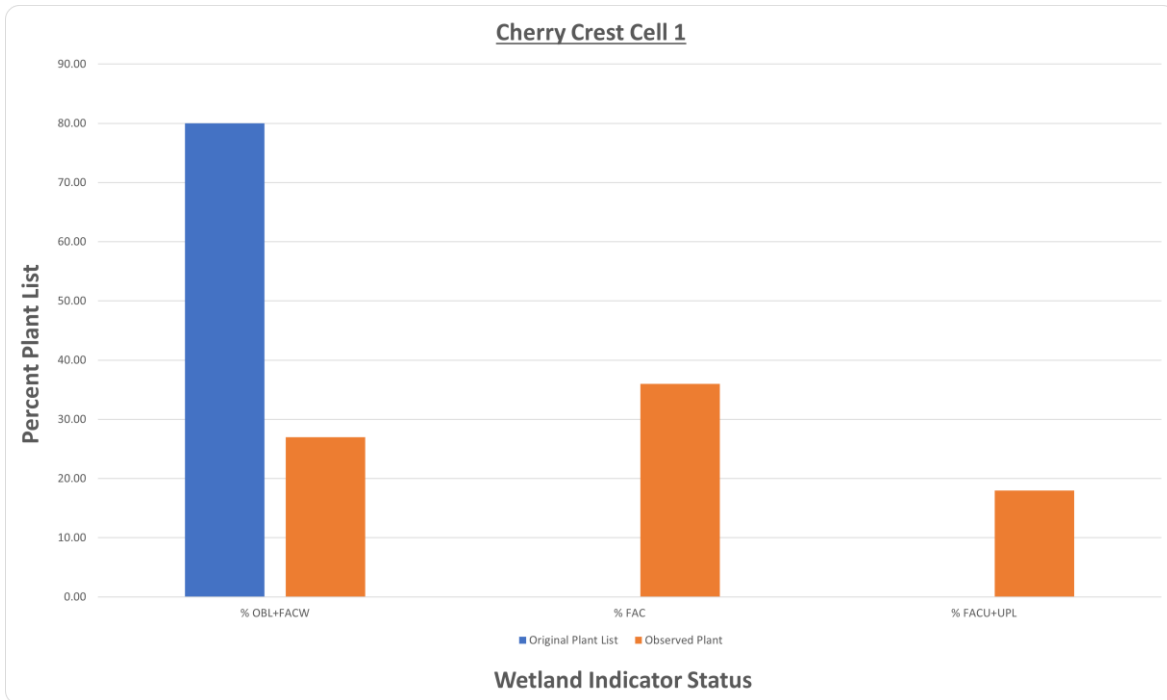
Cherry Crest Elementary - Raingarden 1

Vegetative cover at Bellevue Cherry Crest Elementary Cell 1 was measured on July 14, 2023. According to our field measurements, the bottom of this cell is approximately 1134 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 9 woody plants and 80 woody stems. Woody cover was estimated at 33%. Percent cover of herbaceous vegetation was estimated in 422 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: vine maple (*Acer circinatum*), nightshade (*Solanum dulcamara*), evergreen huckleberry (*Vaccinium ovatum*), and a dogwood species (*Cornus* sp.). *Cornus stolonifera* is listed on the original planting plan for the bioretention cell.

The approved plan shows the following herbaceous species: *Carex obnupta*, *Carex m. 'Ice Dance'*, *Juncus acuminatus*, and *Scirpus microcarpus*. During our data collection, two of these herbaceous species were identified. Herbaceous species observed in the cell include *Athyrium cyclosorum*, *Cardamine flexuosa*, *Carex obnupta*, *Circaea alpina*, *Claytonia sibirica*, *Epilobium ciliatum*, *Galium aparine*, *Geranium robertianum*, *Juncus effusus*, *Lapsana communis*, *Lactuca muralis*, *Mycelis muralis*, *Phalaris arundinacea*, *Polystichum munitum*, *Ranunculus repens*, and *Scirpus microcarpus*.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or wetter (FACW). The design species were primarily FACW or OBL. Woody vegetation specified and observed have WIS ratings of FAC, FACW, and FACU. The constant head infiltration rate measured by AESI was 5.6 inches per hour.

Cherry Crest Elementary - Raingarden 2

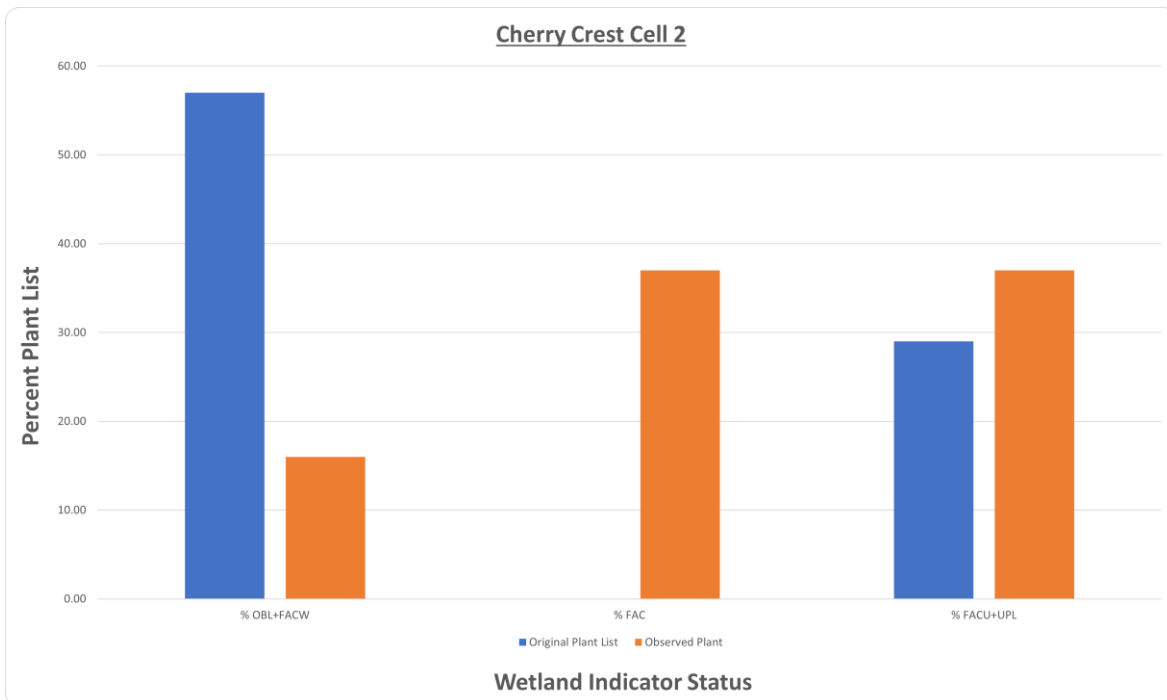
Vegetative cover at Bellevue Cherry Crest Cell 2 was measured on August 9, 2023. According to our field measurements, the bottom of this cell is approximately 1637 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 34 woody plants and approximately 120 woody stems. Woody cover was estimated at 41%. Percent cover of herbaceous vegetation was estimated in 609 quadrats in the cell.



Woody vegetation within the cell was composed of six species: salal, pacific rhododendron, red-flowering currant, salmonberry, snowberry, and evergreen huckleberry.

The original planting plan lists red-flowering currant, pacific rhododendron, and a dogwood species.

Thirteen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with a mix of slough sedge, small-fruited bulrush, ‘ice dance’ juncus, and tapertip rush.



Herbaceous species observed in the cell have WIS ratings of FAC, FACU, FACW, and OBL, while the design species were primarily FACW or OBL. Observed woody vegetation predominantly have WIS ratings of FACU, while design woody species were FACU and FACW. The constant head infiltration rate measured by AESI was 14.1 inches per hour.

Bellevue High School

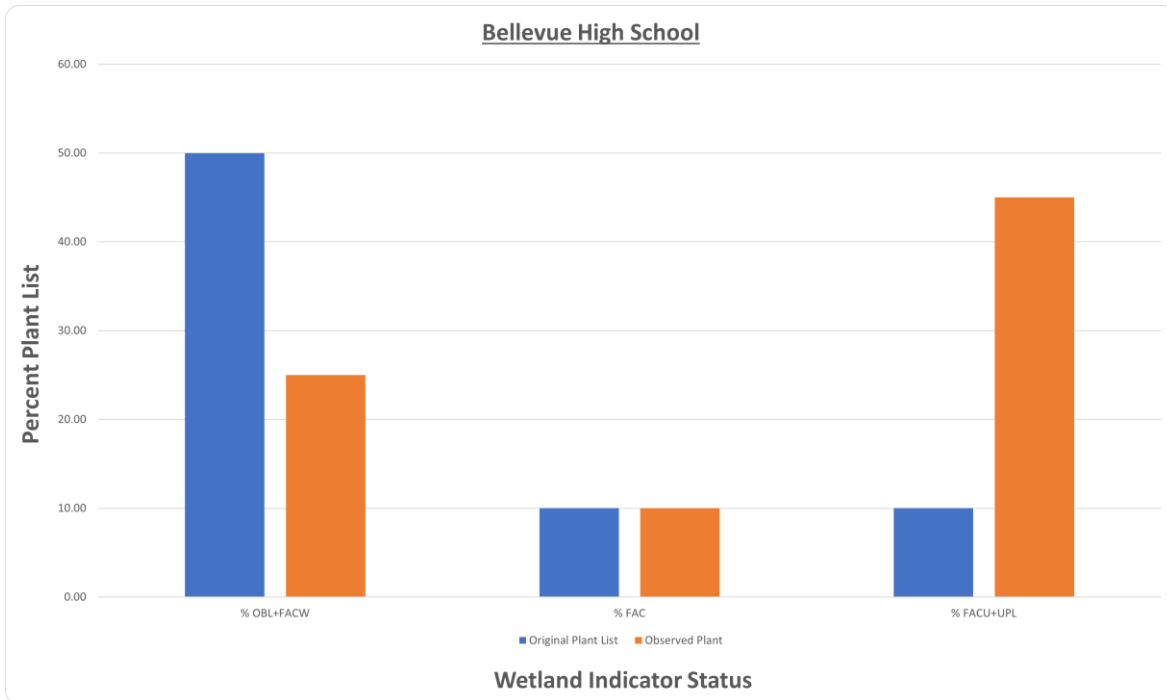
Vegetative cover at Bellevue High School was measured on July 14, 2023.

According to our field measurements, the bottom of this cell is approximately 4900 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 36 woody plants and 778 woody stems. Woody cover was estimated at 32%. Percent cover of herbaceous vegetation was estimated in 1822 quadrats in the cell.



Woody vegetation within the cell was composed of six different species: purple willow (*Salix purpurea*), ninebark (*Physocarpus capitatus*), red-flowering currant (*Ribes sanguineum*), nootka rose (*Rosa nutkana*), snowberry (*Symphoricarpos albus*), and a dogwood shrub (*Cornus* sp.). Only four species were listed in the original plan, with three in common: *Cornus sanguinea*, *Salix purpurea*, *Rosa nutkana*, and *Ribes sanguineum*.

The approved plan shows the rain garden cells at this site were intended to have a mix of herbaceous and woody vegetation. The cell was planted with a mix of *Juncus patens*, *Carex morrowii*, *Miscanthus sinensis*, *Scirpus acutus*, *Juncus acuminatus*, and *Carex obnupta*. During our study, herbaceous species observed in the cell include *Carex obnupta*, *Cirsium vulgare*, *Epilobium ciliatum*, *Geranium lucidum*, *Geranium robertianum*, *Juncus effusus*, *Lactuca serriola*, *Oxalis corniculata*, *Ranunculus repens*, *Rumex acetosella*, *Sonchus asper*, and *Taraxacum officinale*.



Herbaceous species observed in the cell predominantly have WIS ratings of FACU, but do include species with FACW and OBL WIS ratings. The design species were primarily FACW or OBL. Woody vegetation observed have WIS ratings of OBL, FACW, FAC or FACU. The constant head infiltration rate measured by AESI was 53.6 inches per hour.

Spiritridge Elementary - Raingarden 1

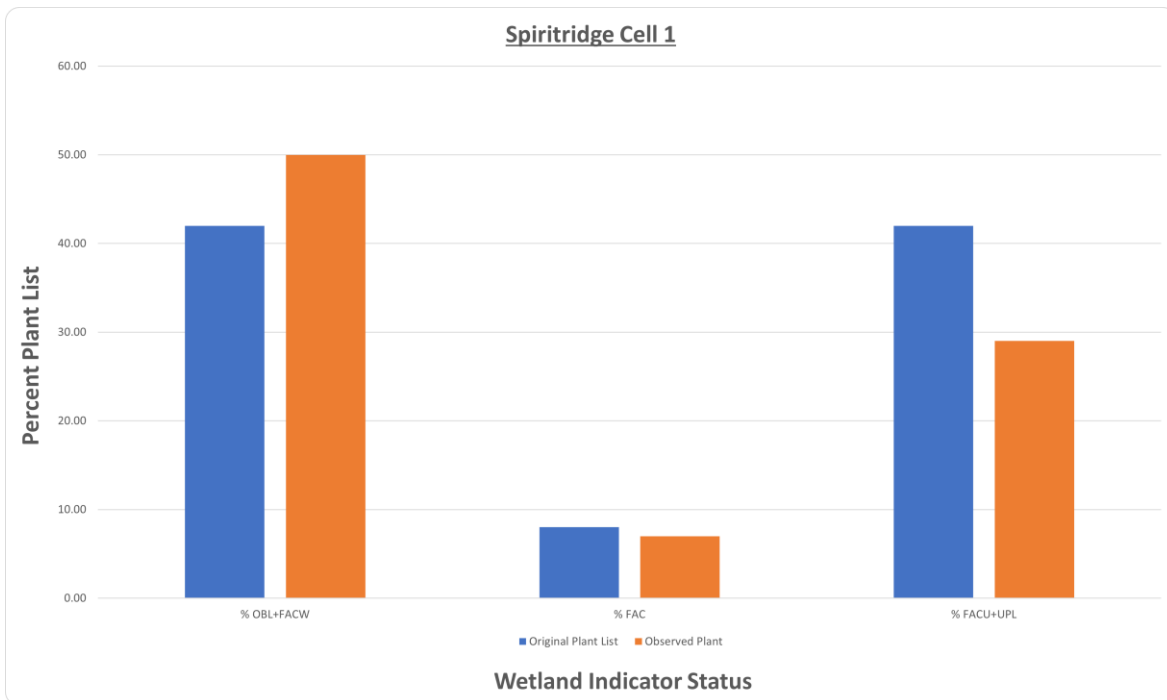
Vegetative cover at Bellevue Spiritridge Elementary Cell 1 was measured on July 14, 2023. According to our field measurements, the bottom of this cell is approximately 1372 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 22 woody plants and 885 woody stems. Woody cover was estimated at 41%. Percent cover of herbaceous vegetation was estimated in 510 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: ninebark (*Physocarpus capitatus*), Douglas' meadowsweet (*Spiraea douglasii*), salmonberry (*Rubus spectabilis*), and snowberry

(*Symphoricarpos albus*). A majority of the original planting plan consisted of woody species: Douglas’ meadowsweet (*Spiraea douglasii*), pacific rhododendron (*Rhododendron macrophyllum*), red-flowering currant (*Ribes sanguineum*), salal (*Gaultheria shallon*), salmonberry (*Rubus spectabilis*), ninebark species (*Physocarpus opulifolius*), snowberry (*Symphoricarpos albus*), and two dogwood variations (*Cornus sanguinea* and *Cornus stolonifera*).

The cell was also originally planted with *Carex obnupta*, *Juncus acuminatus*, and *Scirpus acutus*. None of which were observed in the cell during our study. Herbaceous species observed in the cell include *Epilobium ciliatum*, *Geranium robertianum*, *Juncus effusus*, *Lactuca serriola*, *Mycelis muralis*, *Persicaria lapathifolia*, *Phalaris arundinacea*, *Schoenoplectus tabernaemontani*, and *Sonchus asper*.



Herbaceous species observed in the cell predominantly have WIS ratings of FACW or FACU, while the design species were all OBL. Woody vegetation specified and observed have WIS ratings of FAC, FACW or FACU. The constant head infiltration rate measured by AESI was 2.3 inches per hour.

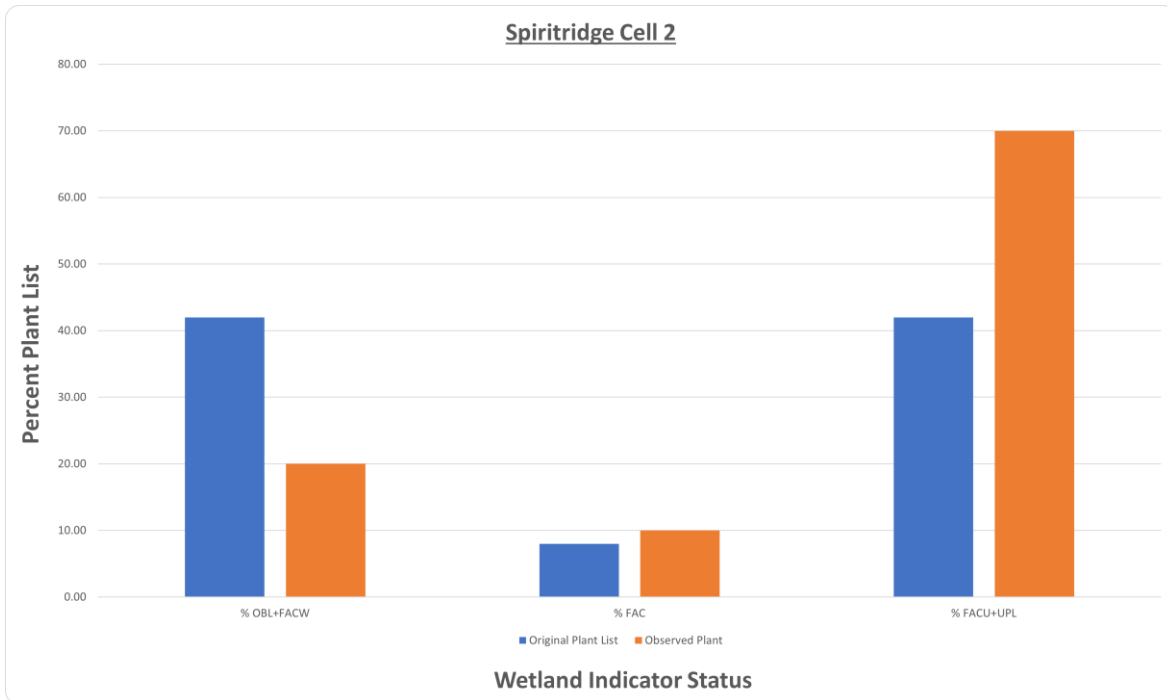
Spiritridge Elementary – Raingarden 2

Vegetative cover at Bellevue Spiritridge Elementary Cell 2 was measured on August 15, 2023. According to our field measurements, the bottom of this cell is approximately 1080 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 60 woody plants and 583 woody stems. Total woody cover was estimated at 115% due to multi-layered canopies. Percent cover of herbaceous vegetation was estimated at 400 quadrats in the cell.



Woody vegetation within the cell was composed of eight different species: ninebark (*Physocarpus opulifolius*), salmonberry (*Rubus spectabilis*), red-flowering currant (*Ribes sanguineum*), snowberry (*Symphoricarpos albus*), red elderberry (*Sambucus racemosa*), and a dogwood species (*Cornus* sp.). Woody species in the original planting plan consisted of Douglas' meadowsweet (*Spiraea douglasii*), pacific rhododendron (*Rhododendron macrophyllum*), red-flowering currant (*Ribes sanguineum*), salal (*Gaultheria shallon*), salmonberry (*Rubus spectabilis*), ninebark species (*Physocarpus opulifolius*), snowberry (*Symphoricarpos albus*), and two dogwood variations (*Cornus sanguinea* and *Cornus stolonifera*).

The cell was also originally planted with *Carex obnupta*, *Juncus acuminatus*, and *Scirpus acutus*. Of those species, only *Carex obnupta* was observed in Cell 2 during our study. Herbaceous species observed in the cell include *Carex obnupta*, *Chamaenerion angustifolium*, and *Polystichum munitum*.



Herbaceous species observed in the cell predominantly have WIS ratings of FACW or FACU, while the design species were all OBL. Woody vegetation specified and observed have WIS ratings of FAC, FACW or FACU. The constant head infiltration rate measured by AESI was 1.4 inches per hour.

Tyee Middle School {Bioretention Pond A}

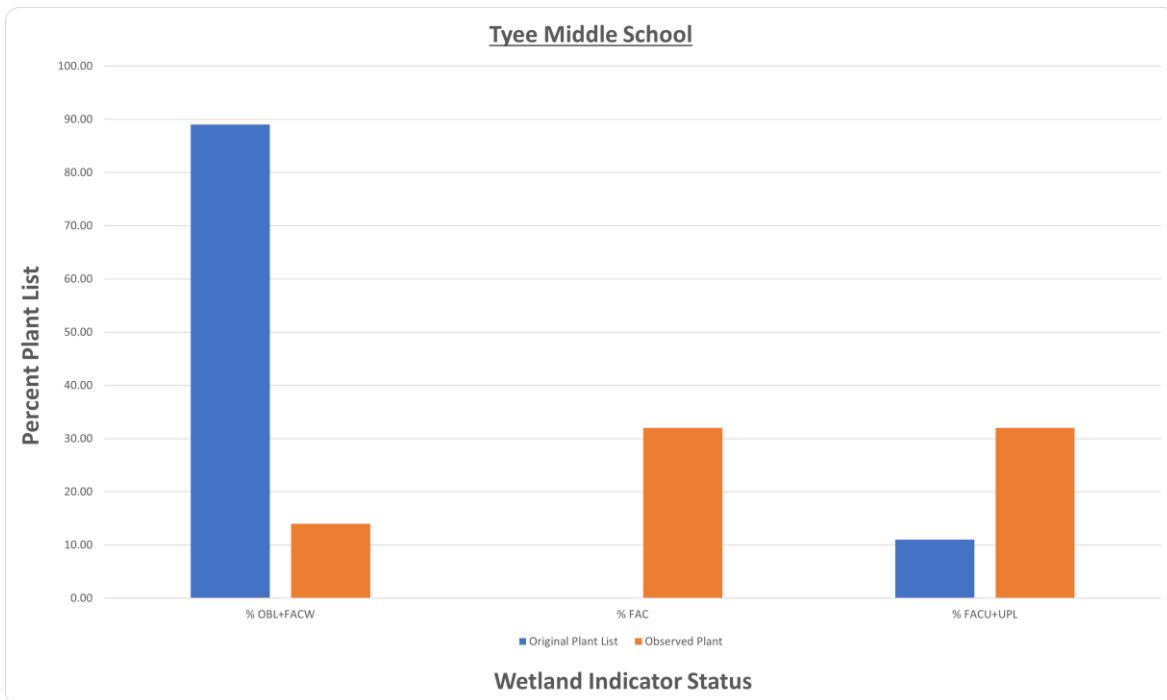
Vegetative cover at Bellevue Tyee Middle School was measured on August 18, 2023. According to our field measurements, the bottom of this cell is approximately 1840 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 91 woody plants and 460 woody stems. Woody cover was estimated at 56%. Percent cover of herbaceous vegetation was estimated in 684 quadrats in the cell.



Woody vegetation within the cell was composed of five different species: red maple (*Acer rubrum*), butterfly bush (*Buddleja davidii*), dogwood (*Cornus sanguinea*), low Oregon-grape (*Mahonia nervosa*), and purple willow (*Salix purpurea*). Woody species in the

original planting plan consisted of low Oregon-grape (*Mahonia nervosa*), California wax myrtle (*Myrica californica*), and dogwood (*Cornus sanguinea*).

The approved plan shows the rain garden cells at this site were intended to have a mix of herbaceous and woody vegetation. The cell was planted with *Carex obnupta*, *Scirpus microcarpus*, *Juncus acuminatus*, *Eleocharis palustris*, and *Scirpus acutus*. None of these herbaceous species were observed in the cell during our study. During our study, herbaceous species observed in the cell include *Cirsium arvense*, *Epilobium ciliatum*, *Schedonorus arundinaceus*, *Galium aparine*, *Geranium robertianum*, *Hypochaeris radicata*, *Juncus patens*, *Lapsana communis*, *Lactuca serriola*, *Lolium sp.*, *Mycelis muralis*, *Phalaris arundinacea*, *Poa pratensis*, *Ranunculus repens*, *Rumex crispus*, *Taraxacum officinale*, and *Vicia tetrasperma*.



Herbaceous species observed in the cell predominantly have WIS ratings of FACU, but also FACW and FAC. The design species were all OBL. Woody vegetation specified and observed have WIS ratings of FAC, OBL, and FACU. The constant head infiltration rate measured by AESI was 62.7 inches per hour.

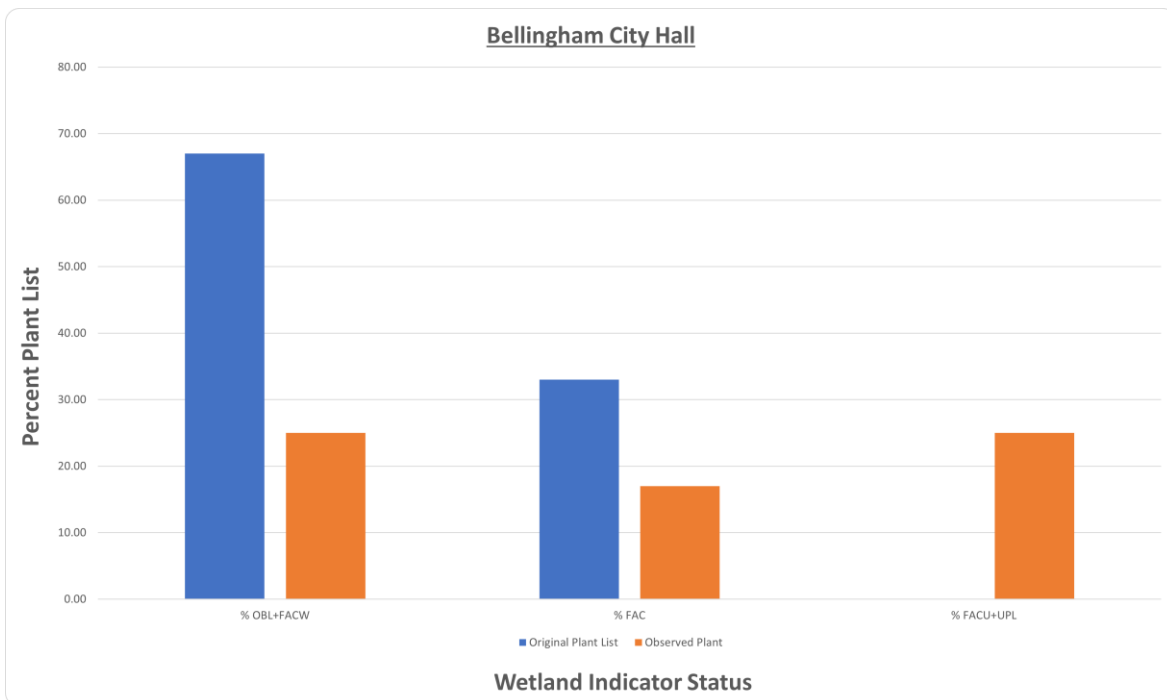
Bellingham City Hall (IT-1)

Vegetative cover at Bellingham City Hall was measured on June 15, 2023. According to our field measurements, the bottom of this cell is approximately 504 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains at least 8 woody plants and approximately 185 woody stems. Woody cover was estimated at 107%. Percent cover of herbaceous vegetation was estimated in 188 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: snowberry (*Symphoricarpos albus*), four-line honeysuckle (*Lonicera involucrata*), Douglas' meadowsweet (*Spiraea douglasii*), and a dogwood (*Cornus* sp.). The original planting plan included *Cornus sericea*, *Myrica gale*, and *Lonicera involucrata*.

Herbaceous species observed in the cell include *Carex obnupta*, *Galium aparine*, *Geranium robertianum*, and *Lapsana communis*. The cell was originally planted with *Athyrium filix-femina*, *Mimulus guttatus*, and *Carex obnupta*.



Herbaceous species observed in the cell have WIS ratings of OBL, FAC, and FACU. while the design species were OBL and FAC. Woody vegetation specified in the original plan have WIS ratings of OBL, FACW, and FAC, while observed woody vegetation have FACW, FAC and FACU. The constant head infiltration rate measured by AESI was 22 inches per hour.

Bloedel Donovan Park

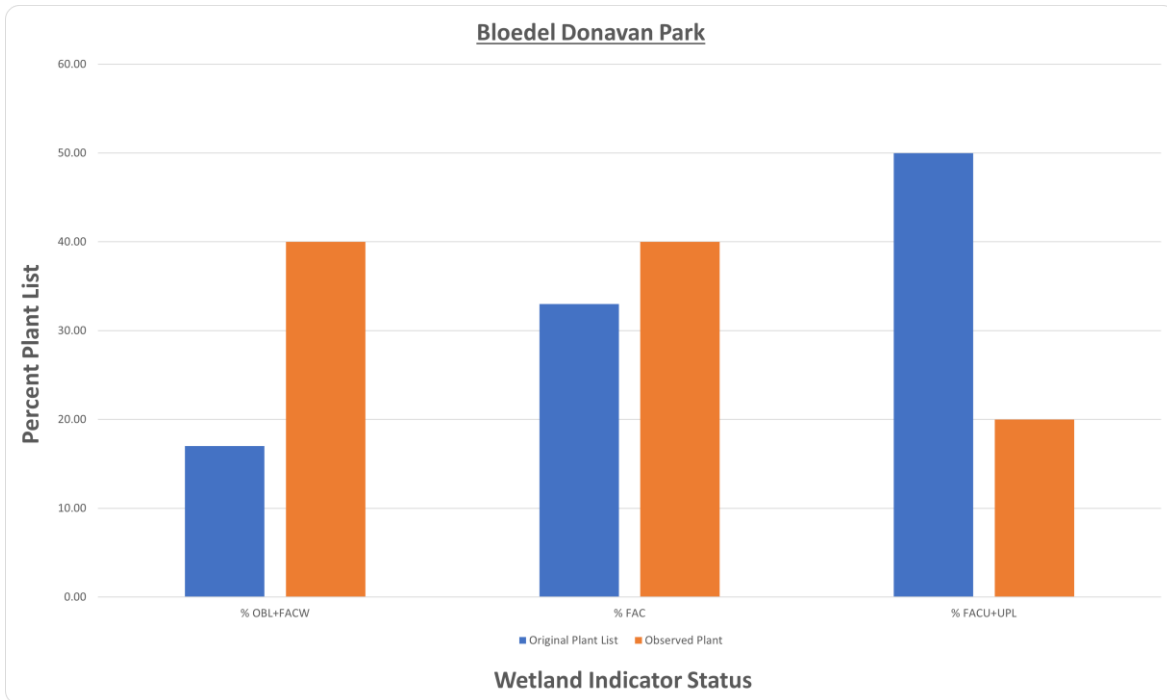
Vegetative cover at Bloedel Donovan Park was measured on June 15, 2023.

According to our field measurements, the bottom of this cell is approximately 609 square feet. The cell primarily contains dense woody vegetation with a minimal herbaceous layer. Both sampling methods were used to collect vegetation data. The cell contains at least 26 woody plants and approximately 1141 woody stems. Woody cover was estimated at 152%. Percent cover of herbaceous vegetation was estimated in 227 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: big-leaf maple (*Acer macrophyllum*), Nootka rose (*Rosa nutkana*), four-line honeysuckle (*Lonicera involucrata*), and a dogwood species (*Cornus* sp.). The original planting plan consisted entirely of woody vegetation species: *Spiraea douglasii*, *Rosa nutkana*, *Arctostaphylos uva-ursi*, *Lonicera involucrata*, *Vaccinium ovatum*, and *Symphoricarpos albus*.

Slough sedge (*Carex obnupta*) was the only herbaceous species observed in the cell during our study. No herbaceous species are listed in the original plant list.



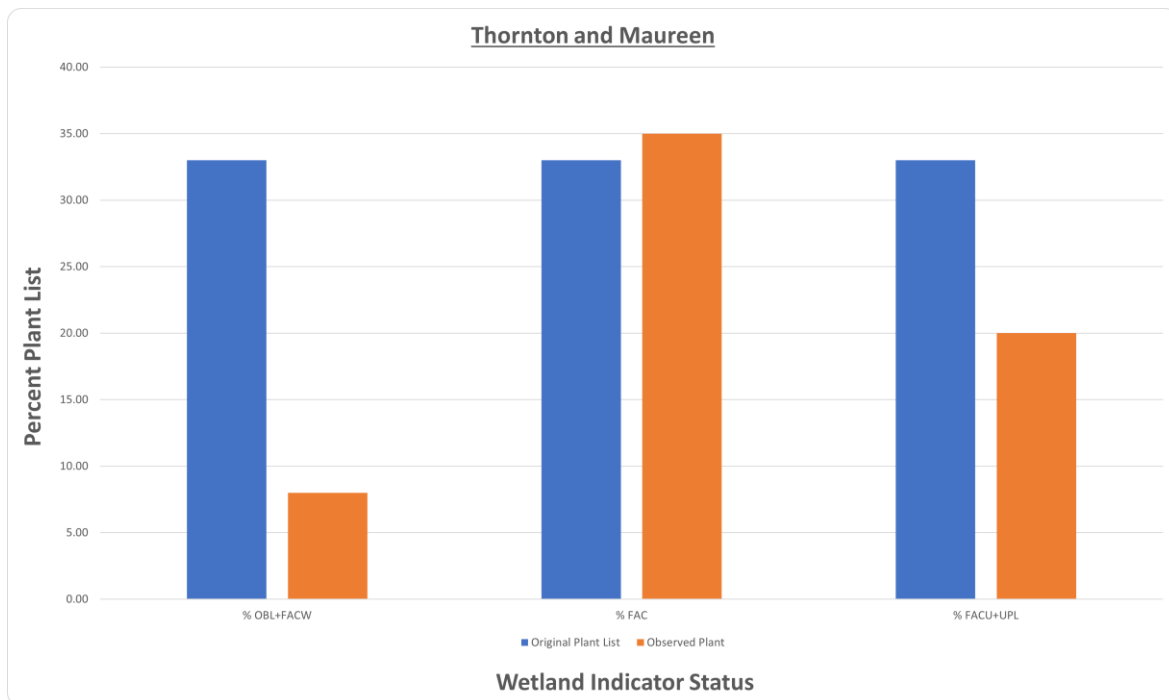
The herbaceous species observed in the cell has a WIS ratings of OBL. Woody vegetation specified and observed have WIS ratings of FAC, FACU, and FACW. The constant head infiltration rate measured by AESI was 94.1 inches per hour.

Thornton and Maureen

Vegetative cover at Ferndale Maureen-Thornton was measured on June 14, 2023. According to our field measurements, the bottom of this cell is approximately 995 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. No woody cover was observed and percent cover of herbaceous vegetation was estimated in 369 quadrats in the cell.

While no woody species were observed within the cell during our study, the original planting plan lists kinnikinnick (*Arctostaphylos uva-ursi*).

Thirty-three herbaceous species were observed in the cell, see the list of species in Appendix A. The original plant list shows *Carex obnupta* and *Aquilegia Formosa*. Observed herbaceous species have WIS ratings primarily consisting of FAC and FACU, whereas the planted species are OBL and FAC, respectively. The constant head infiltration rate measured by AESI was 6 inches per hour.



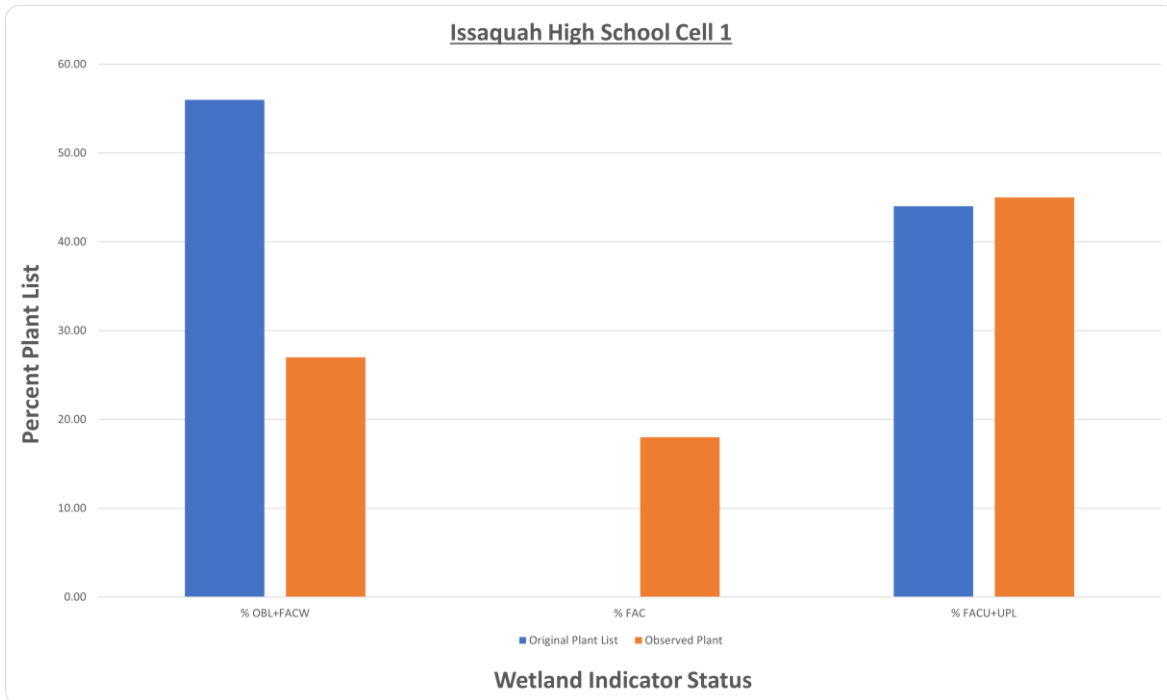
Issaquah High School Cell 1

Vegetative cover at Issaquah High School Cell 1 was measured on August 24, 2023. According to our field measurements, the bottom of this cell is approximately 1232 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 53 woody plants and approximately 450 woody stems. Woody cover was estimated at 93%. Percent cover of herbaceous vegetation was estimated in 456 quadrats in the cell.



Woody vegetation within the cell was composed of seven different species: snowberry (*Symphoricarpos albus*), tall Oregon-grape (*Mahonia aquifolium*), ninebark (*Physocarpus capitatus*), Himalayan blackberry (*Rubus armeniacus*), California dewberry (*Rubus ursinus*), purple willow (*Salix purpurea*), and Douglas' meadowsweet (*Spiraea douglasii*). The original site plan lists Douglas-fir (*Pseudotsuga menziesii*), Nootka rose (*Rosa nutkana*), and Japanese meadowsweet (*Spiraea japonica*).

Herbaceous species observed in the cell include *Cardamine flexuosa*, *Chamaenerion angustifolium*, *Geranium robertianum*, and *Mycelis muralis*. The plant list includes *Polystichum munitum* and *Scirpus acutus*.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU) while the design species were FACU and OBL. Observed woody vegetation have WIS ratings of OBL, FACW, FAC, or FACU. Installed woody species had WIS ratings of FACU, OBL, and FACW. The constant head infiltration rate measured by AESI was 81.6 inches per hour.

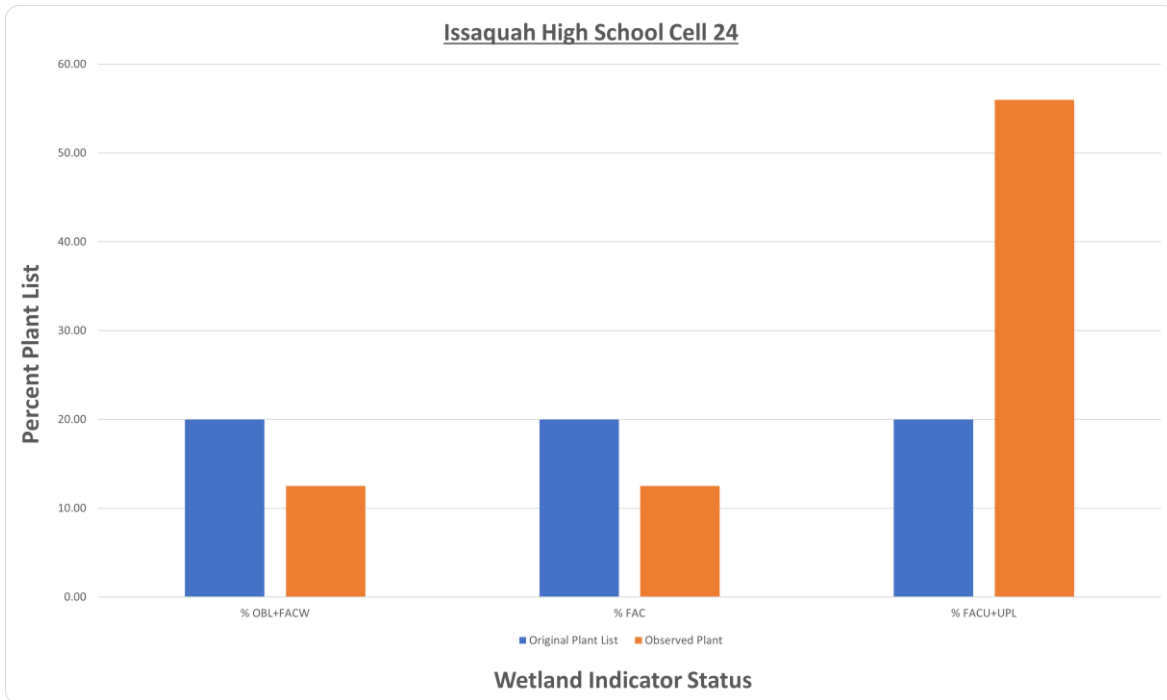
Issaquah High School Cell 24

Vegetative cover at Issaquah High School Cell 24 was measured on August 24, 2023. According to our field measurements, the bottom of this cell is approximately 1162 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 64 woody plants and approximately 450 woody stems. Woody cover was estimated at 132% due to multi-layered canopies. Percent cover of herbaceous vegetation was estimated in 432 quadrats in the cell.



Woody vegetation within the cell was composed of nine different species: Douglas-fir (*Pseudotsuga menziesii*), snowberry (*Symphoricarpos albus*), ninebark (*Physocarpus capitatus*), Himalayan blackberry (*Rubus armeniacus*), cut-leaf blackberry (*Rubus laciniatus*), salal (*Gaultheria shallon*), English holly (*Ilex aquifolium*), Japanese meadowsweet (*Spiraea japonica*), *Fragaria chiloensis* (coastal strawberry), David viburnum (*Viburnum davidii*), and a rose species (*Rosa* sp.). The original site plan lists Douglas-fir (*Pseudotsuga menziesii*), Nootka rose (*Rosa nutkana*), and Japanese meadowsweet (*Spiraea japonica*).

Herbaceous species observed in the cell include *Epilobium ciliatum*, *Geranium robertianum*, *Hypochaeris radicata*, *Juncus patens*, *Lactuca serriola*, *Poa pratensis*, and *Trifolium repens*. The plant list includes *Juncus effusus*.



Herbaceous species observed in the cell predominantly have WIS ratings of FACU while the design species was FACW. Observed woody vegetation have WIS ratings of FACU. Installed woody species had WIS ratings of FACW, FAC, and FACU. The constant head infiltration rate measured by AESI was 80.5 inches per hour.

Central Park Pad 3 {Raingarden}

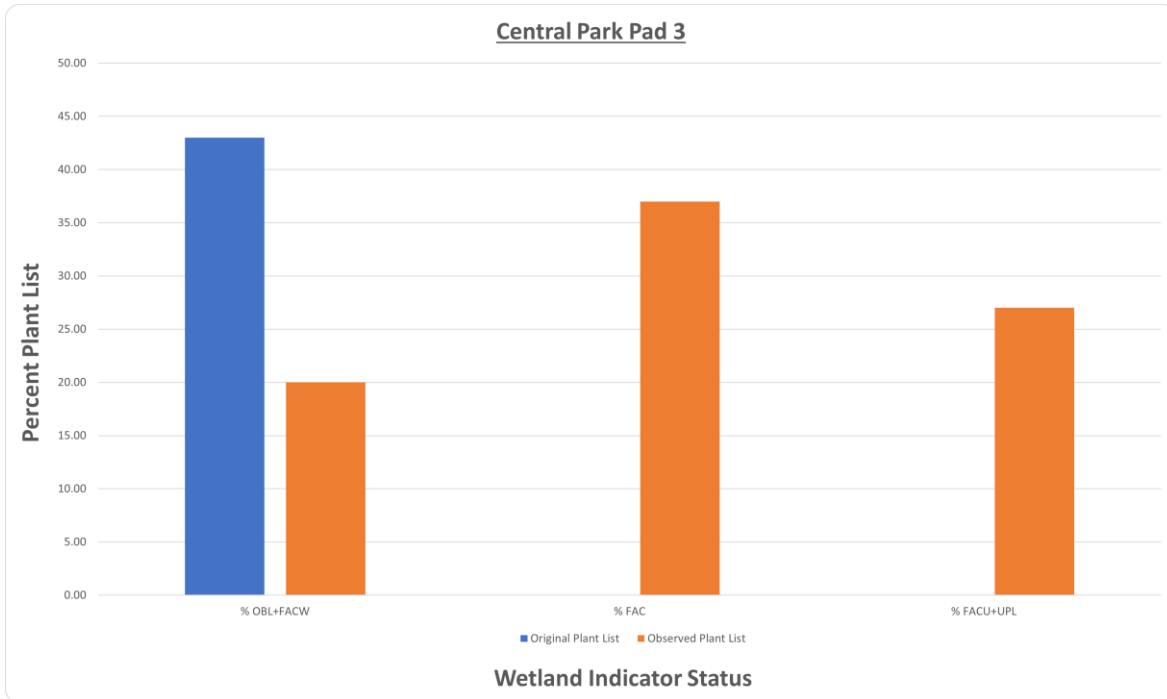
Vegetative cover at Issaquah Central Park Pad 3 was measured on July 28, 2023. According to our field measurements, the bottom of this cell is approximately 5904 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 30 woody plants and 800 woody stems. Woody cover was estimated at 55%. Percent cover of herbaceous vegetation was estimated in 2194 quadrats in the cell.



Woody vegetation within the cell was composed of nine different species: big-leaf maple (*Acer macrophyllum*), Cherry Plum (*Prunus cerasifera*), red osier dogwood (*Cornus alba*), Douglas hawhorn (*Crataegus douglasii*), salmonberry (*Rubus spectabilis*), pacific willow (*Salix lasiandra*), sitka willow (*Salix sitchensis*), Douglas' meadowsweet (*Spiraea*

douglasii), Japanese meadowsweet (*Spiraea japonica*), pond cypress (*Taxodium ascendens*), and western red cedar (*Thuja plicata*). The original planting plan listed *Ginkgo biloba*, *Taxodium distichum*, *Cornus 'Eddies White Wonder Dogwood'*, *Pennisetum orientale*, *Cornus sanguineum*, *Panicum virgatum*, and *Spiraea species*.

Eighteen herbaceous species were observed in the cell, see the list of species in Appendix A. The original plant list shows *Pennisetum orientale* and *Panicum virgatum*.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU) while the design species were primarily FACW or NI. Woody vegetation observed predominantly have WIS ratings of FAC or FACW, while specified species have ratings of OBL, FACW, or NI. The constant head infiltration rate measured by AESI was 18.4 inches per hour.

Rainier Boulevard

Vegetative cover at Issaquah Rainier Boulevard was measured on August 22, 2023. According to our field measurements, the bottom of this cell is approximately 261 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 15 woody plants and approximately 400 woody stems. Woody cover was estimated at 100%. Percent cover of herbaceous vegetation was estimated in 96 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: vine maple (*Acer circinatum*), dogwood (*Cornus alba 'kelseyi'*), burning bush (*Euonymus alatus*), and snowberry (*Symphoricarpos albus*). The original plant list only has one woody species: creeping Oregon-grape (*Mahonia repens*).

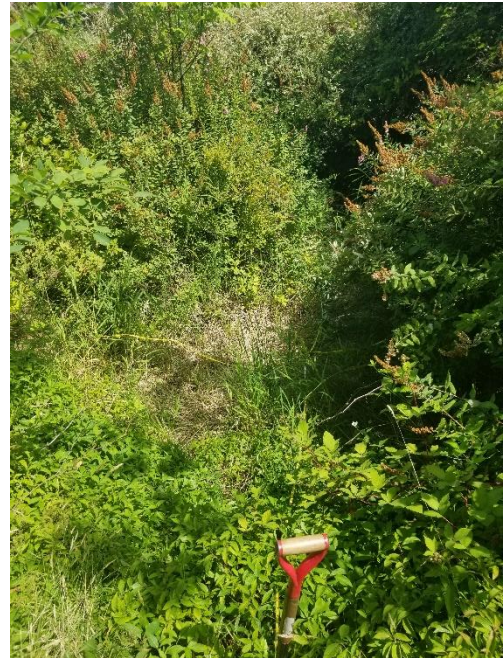
Herbaceous species observed in the cell include *Cirsium vulgare*, *Juncus effusus*, *Mycelis muralis*, and *Polystichum munitum*. The original planting plan listed *Narcissus delibes*, *Nassella tenuissima*, *Carex tenuiculmis*, *Euphorbia polychrome*, *Helictitrichen sempervirens*, and *Carex testacea*.

Herbaceous species observed in the cell have WIS ratings of FAC, FACW, or FACU. Observed woody vegetation have WIS ratings of FAC, FACW or FACU. None of the original design species have WIS ratings assigned. The constant head infiltration rate measured by AESI was 35.8 inches per hour.

Baron Residence {Plat 2}

Vegetative cover at the Baron Residence bioretention cell on Tester Road was measured on July 21, 2023. According to our field measurements, the bottom of this cell is approximately 450 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains six woody plants and 360 woody stems. Woody cover was estimated at 35%. Percent cover of herbaceous vegetation was estimated in 168 quadrats in the cell.

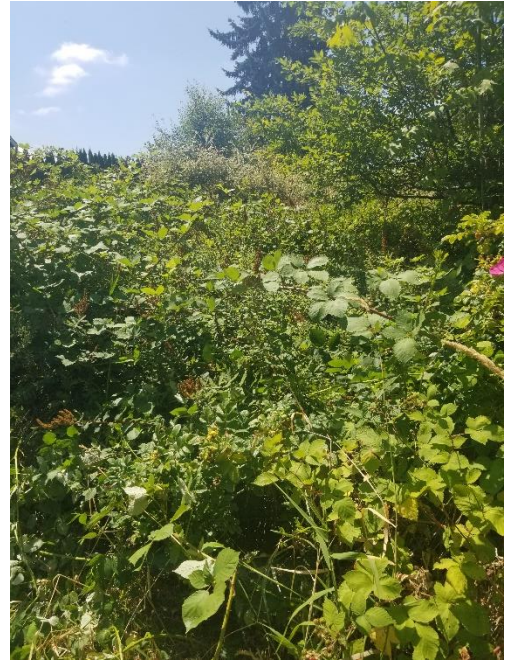
Woody vegetation within the cell was composed of two different species: Douglas' meadowsweet (*Spiraea douglasii*) and a dogwood species (*Cornus* sp.). Herbaceous species observed in the cell include *Agrostis stolonifera*, *Carex obnupta*, *Juncus articulatus*, *Juncus effusus*, *Lotus corniculatus*, *Phalaris arundinacea*, and *Ranunculus repens*. The original planting plans for this bioretention cell were not available.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or wetter (FACW and OBL) and woody vegetation WIS ratings of FACW. The constant head infiltration rate measured by AESI was 1.1 inches per hour.

Manry Residence {Plat 3}

Vegetative cover at the Baron Residence bioretention cell on Tester Road was measured on July 21, 2023. According to our field measurements, the bottom of this cell is approximately 800 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains seven native woody plants and 250 woody stems, as well as dense invasive woody cover. Total woody cover was estimated at 95%. Percent cover of herbaceous vegetation was estimated in 298 quadrats in the cell.



Woody vegetation within the cell was composed of three different species: Douglas' meadowsweet (*Spiraea douglasii*), Nootka rose (*Rosa nutkana*), and Himalayan blackberry (*Rubus armeniacus*). Herbaceous species observed in the cell consisted solely of reed canary grass (*Phalaris arundinacea*). The original planting plans for this bioretention cell were not available.

The herbaceous species observed in the cell has a WIS ratings of FACW and the woody vegetation WIS ratings of FACW or FAC. The constant head infiltration rate could not be measured at this cell, however the falling head infiltration rate measured by AESI was 0.5 inches per hour.

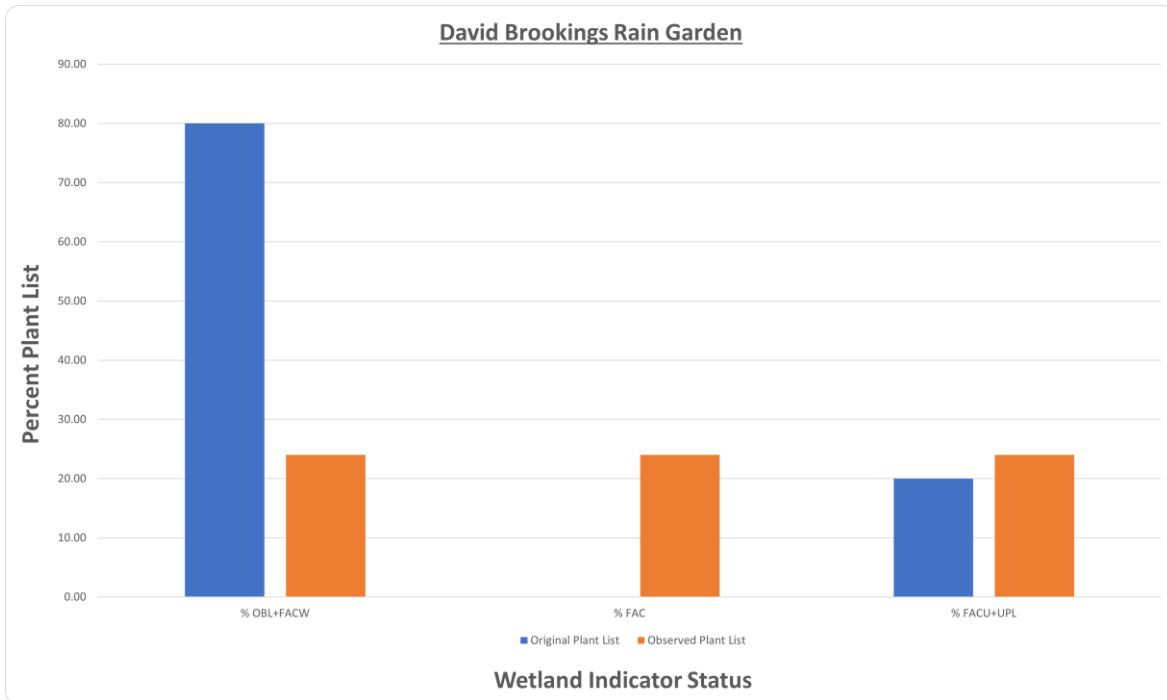
David Brookings Rain Garden

Vegetative cover at the David Brookings Rain Garden in Mount Vernon was measured on May 26 and June 1, 2023. According to our field measurements, the bottom of this cell is approximately 840 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 27 woody plants and 686 woody stems. Woody cover was estimated at 55%. Percent cover of herbaceous vegetation was estimated in 313 quadrats in the cell.

Woody vegetation within the cell was composed of five different species: salal, salmonberry, purple willow, pacific rhododendron, and two dogwood species (*Cornus* sp.). The original planting plan lists red osier dogwood, white dogwood, and purple willow.



Herbaceous species observed in the cell include slough sedge, fringed willowherb, wall lettuce, Siberian spring beauty, curly dock, field horsetail, sticky bedstraw, lesser herb-robert, lamp rush, nipplewort, reed canary grass, creeping buttercup, common dandelion, and sword fern. The original planting plan lists sword fern and spreading rush.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU) while the design species were FACU and OBL. Observed woody vegetation have WIS ratings of OBL, FAC, FACW, and FACU, while design species were FACW and OBL. The constant head infiltration rate measured by AESI was 8.3 inches per hour.

Rosehill Community Center {North Rain Garden}

Vegetative cover at Mukilteo Rosehill was measured on June 5 and June 6, 2023. According to our field measurements, the bottom of this cell is approximately 1040 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. Woody cover was estimated at 87%. Percent cover of herbaceous vegetation was estimated in 388 quadrats in the cell.



Woody vegetation within the cell was composed of five different species: cotoneaster, English holly, Norwegian maple, Himalayan blackberry, and a dogwood species. The

original planting plan lists ornamental woody species consisting of Maule's quince, strawberry tree, oakleaf hydrangea, common winterberry, rockspray cotoneaster, Bear's breech, Shantung maple, arctic fire dogwood, and Stewartstonian azalea.

Herbaceous species observed in the cell include *Cardamine hirsuta*, *Taraxacum officinale*, *Epilobium ciliatum*, *Geranium robertianum*, *Lotus corniculatus*, *Rumex crispus*, and *Sonchus asper*. No herbaceous species are listed in the original planting plan.

Herbaceous species observed in the cell predominantly have WIS ratings of FAC or FACU. Observed woody vegetation have WIS ratings of FAC, FACU, and FACW. None of the originally installed woody species has WIS ratings assigned. The constant head infiltration rate measured by AESI was 5.3 inches per hour.

Decatur {Rain Garden}

Vegetative cover at Olympia Decatur was measured on June 21, 2023. According to our field measurements, the bottom of this cell is approximately 481 square feet. The cell only contains herbaceous vegetation; therefore only the herbaceous sampling method was used to collect vegetation data. Percent cover of herbaceous vegetation was estimated in 179 quadrats in the cell.

Herbaceous species observed in the cell include *Agrostis stolonifera*, *Dactylus glomerata*, *Glechoma hederacea*, *Holcus lanatus*, *Hypochaeris radicata*, *Lactuca muralis*, *Lotus corniculatus*, *Poa pratensis*, *Ranunculus repens*, *Taraxacum officinale*, and deadnettle. The original plant list for the bioretention cell was not available.

Herbaceous species observed in the cell predominantly have WIS ratings of FAC or drier (FACU). The constant head infiltration rate measured by AESI was 65 inches per hour.



420 McPhee

Vegetative cover at Olympia 420 McPhee was measured on August 31, 2023. According to our field measurements, the bottom of this cell is approximately 750 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 40 woody plants and 5255 woody stems. Woody cover was estimated at 85%. Percent cover of herbaceous vegetation was estimated in 280 quadrats in the cell.

Woody vegetation within the cell was composed of two different species: black tupelo (*Nyssa sylvatica*) and red osier dogwood (*Cornus alba*). The original plant list for the bioretention cell was not available.

Herbaceous species observed in the cell include *Epilobium ciliatum*, *Juncus patens*, *Digitalis purpurea*, *Taraxacum officinale*, *Mycelis muralis*, *Euphorbia peplus*, *Oxalis corniculata*, and *Aquilegia vulgaris*.

Herbaceous species observed in the cell have WIS ratings of FACW, FACU, or NI. The original plant list was not available. The constant head infiltration rate measured by AESI was 9.3 inches per hour.



436 McPhee

Vegetative cover at Olympia 436 McPhee was measured on September 12, 2023. According to our field measurements, the bottom of this cell is approximately 820 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 33 woody plants and 525 woody stems. Woody cover was estimated at 88%. Percent cover of herbaceous vegetation was estimated in 305 quadrats in the cell.

Woody vegetation within the cell was composed of seven different species: salal, black tupelo, Douglas' meadowsweet, oak species, and two dogwood species (*Cornus alba*). Seventeen herbaceous species were observed in the cell, see the list of species in Appendix A. The original plant list for the bioretention cell was not available.

Herbaceous species observed in the cell predominantly have WIS ratings of FACU and woody vegetation have WIS ratings of FACW, FACU, and NI. The constant head infiltration rate measured by AESI was 9.6 inches per hour.

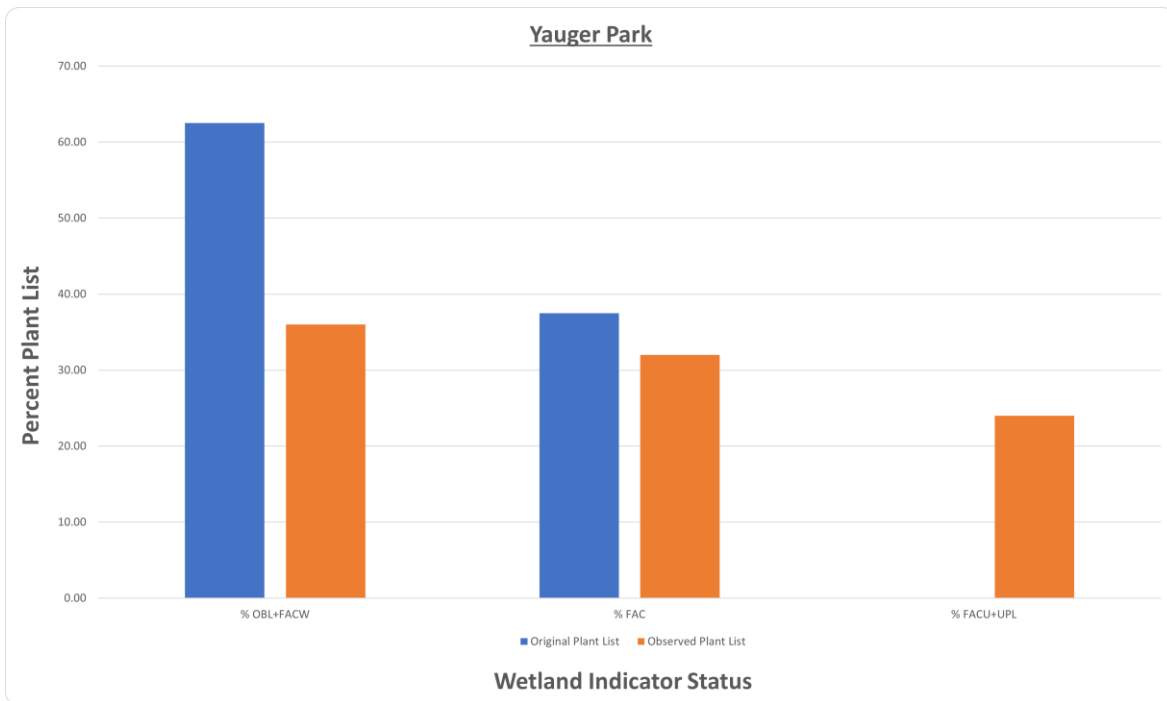
Yauger Park

Vegetative cover at Olympia Yauger Park was measured on June 21, 2023. According to our field measurements, the bottom of this cell is approximately 578 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 10 woody plants and 380 woody stems. Woody cover was estimated at 36%. Percent cover of herbaceous vegetation was estimated in 215 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: snowberry, Douglas' meadowsweet, regrowth from an unknown cut tree species, and a dogwood shrub. The original planting plan lists Oregon ash and vine maple.

Nineteen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with native wet mix consisting of slough sedge, lady fern, spreading rush, small-fruited bulrush, tapertip rush, swordleaf rush, and slender rush.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW, FACU, OBL, and NI, while the design species were primarily FACW, OBL, or FAC. Observed woody vegetation have WIS ratings of FACW or FACU, and design species were FAC and FACW. The constant head infiltration rate measured by AESI was 2.7 inches per hour.

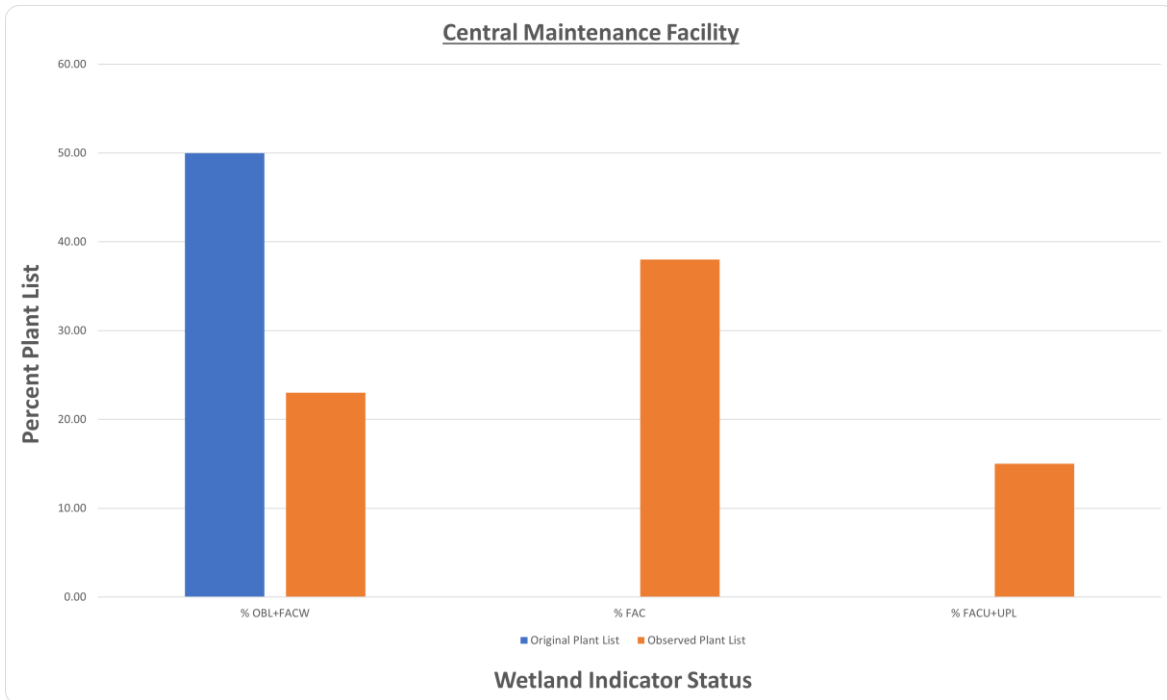
Central Maintenance Facility

Vegetative cover at the Pierce County Maintenance Facility was measured on July 15, 2023. According to our field measurements, the bottom of this cell is approximately 638 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 12 woody plants and 705 woody stems. Woody cover was estimated at 25%. Percent cover of herbaceous vegetation was estimated in 238 quadrats in the cell.

Woody vegetation within the cell was composed of three different species: cottonwood, purple willow, and a dogwood shrub. The original planting plan lists California wax myrtle, purple willow, and a dogwood species.

Eight herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with toughleaf iris, swordleaf rush, broadleaf lupine, cutleaf beardtongue, and sticky cinquefoil.





Herbaceous species observed in the cell predominantly have WIS ratings of FAC, FACW, FACU, or NI. The design herbaceous species were NI or FACW. Observed woody vegetation have WIS ratings of FAC, FACW, and OBL. The design species have ratings of FACW and OBL. The constant head infiltration rate measured by AESI was 38.6 inches per hour.

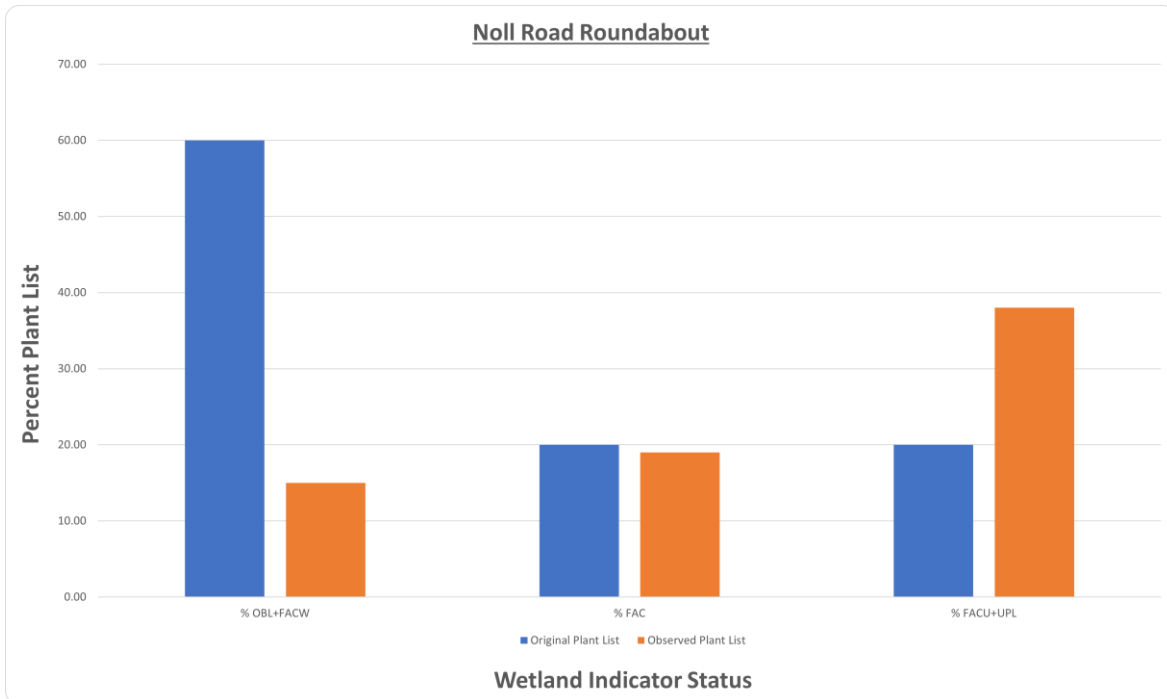
Noll Road Roundabout {Bioretention Cell}

Vegetative cover at Poulsbo Noll Road was measured on June 27, 2023. According to our field measurements, the bottom of this cell is approximately 852 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 250 woody stems and woody cover was estimated at 54%. Percent cover of herbaceous vegetation was estimated in 317 quadrats in the cell.

Woody vegetation within the cell was composed of six different species: ninebark, blackcap raspberry (*Rubus leucodermis*), snowberry, California dewberry, rose species, and a dogwood species. The original planting plan lists western red cedar, ninebark, snowberry, and two dogwood species.



Twenty herbaceous species were observed in the cell, see the list of species in Appendix A. The original planting plan does not list any herbaceous species.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC, FACU, FACW, OBL and NI. Observed woody vegetation have WIS ratings of FACW, FACU, and NI, while the design species have ratings of FACW, FAC and FACU. The constant head infiltration rate measured by AESI was 99.8 inches per hour.

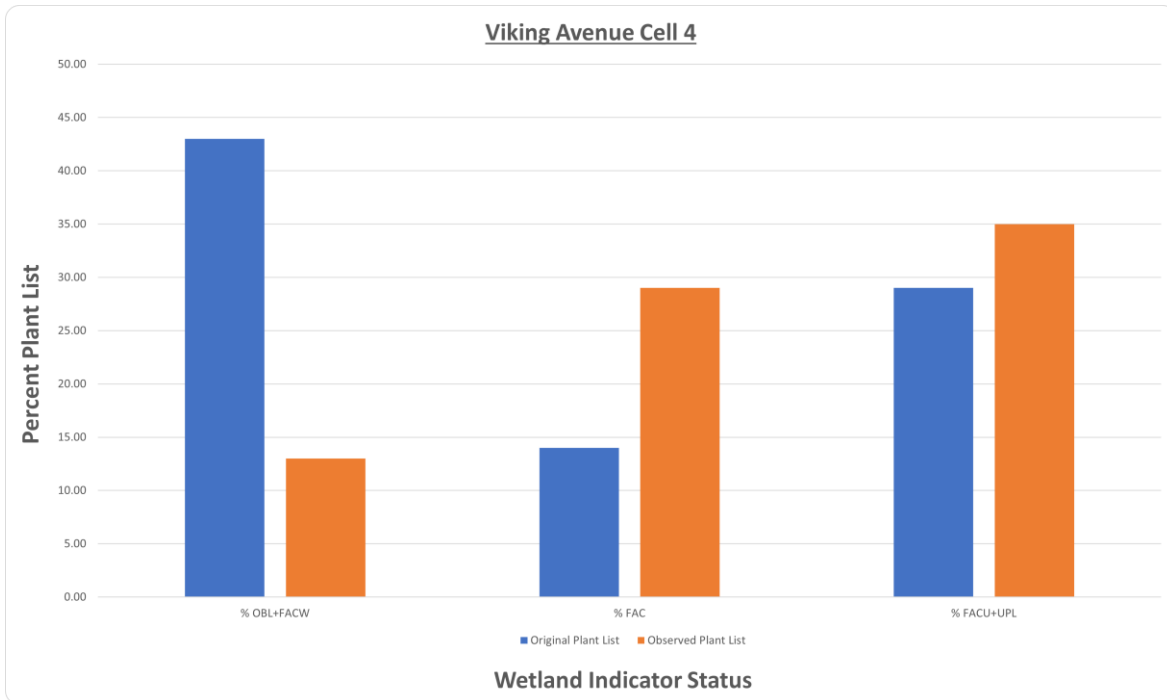
Viking Avenue Cell 4 (Lower)

Vegetative cover at Poulsbo Viking Avenue Cell 1 was measured on June 28, 2023. According to our field measurements, the bottom of this cell is approximately 208 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 23 woody stems and woody cover was estimated at 72%. Percent cover of herbaceous vegetation was estimated in 78 quadrats in the cell.



Woody vegetation within the cell was composed of two different species: snowberry and a dogwood species. Design species include evergreen huckleberry, snowberry, and dogwood.

Twenty-nine herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with small-fruited bulrush, stella d' oro daylily, shrubby cinquefoil, and awlfruit sedge.



Herbaceous species observed in the cell have WIS ratings of FACU, FAC, FACW, OBL and NI, while the design species were OBL, FAC and NI. Both observed and design woody vegetation have WIS ratings of FACW and FACU. The constant head infiltration rate measured by AESI was 20.8 inches per hour.

Viking Avenue Cell 1 (Upper)

Vegetative cover at Poulsbo Viking Avenue Cell 2 was measured on June 28, 2023.

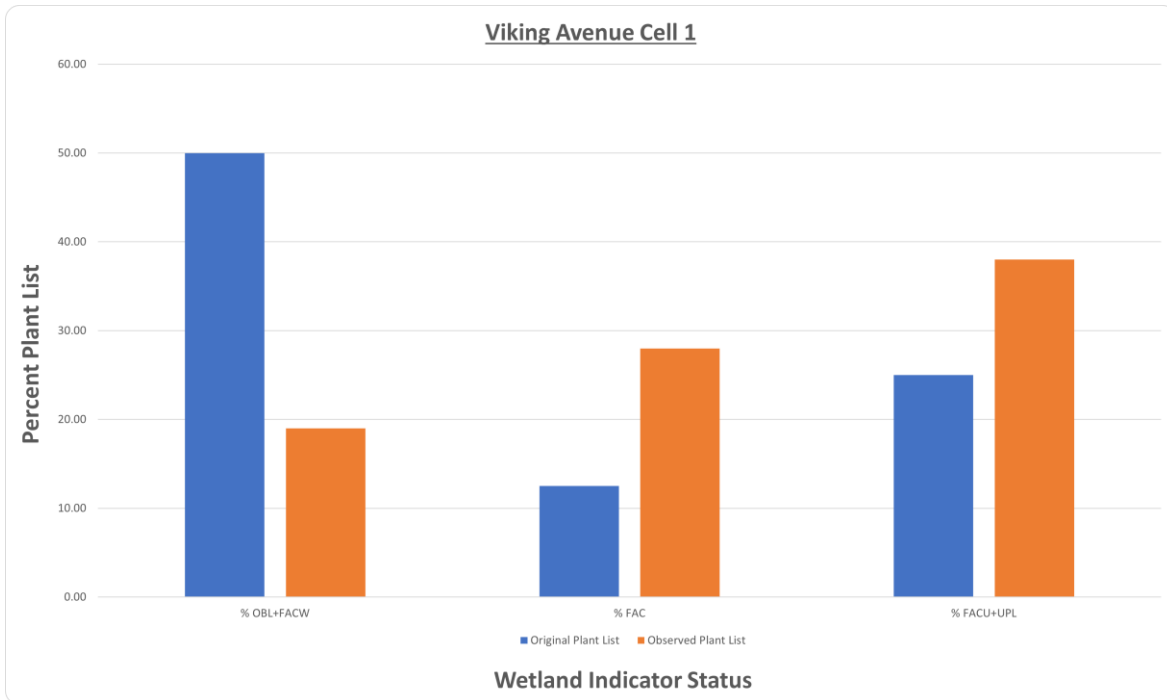
According to our field measurements, the bottom of this cell is approximately 544 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data.

The cell contains 15 woody plants and approximately 188 woody stems. Woody cover was estimated at 55%. Percent cover of herbaceous vegetation was estimated in 203 quadrats in the cell.

Woody vegetation within the cell was composed of four different species: Douglas' meadowsweet, pacific willow, elderberry and a dogwood species. The cell was planted with evergreen huckleberry, snowberry, and two dogwood species.



Twenty-eight herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with small-fruited bulrush, stella d' oro daylily, shrubby cinquefoil, and awlfruit sedge.



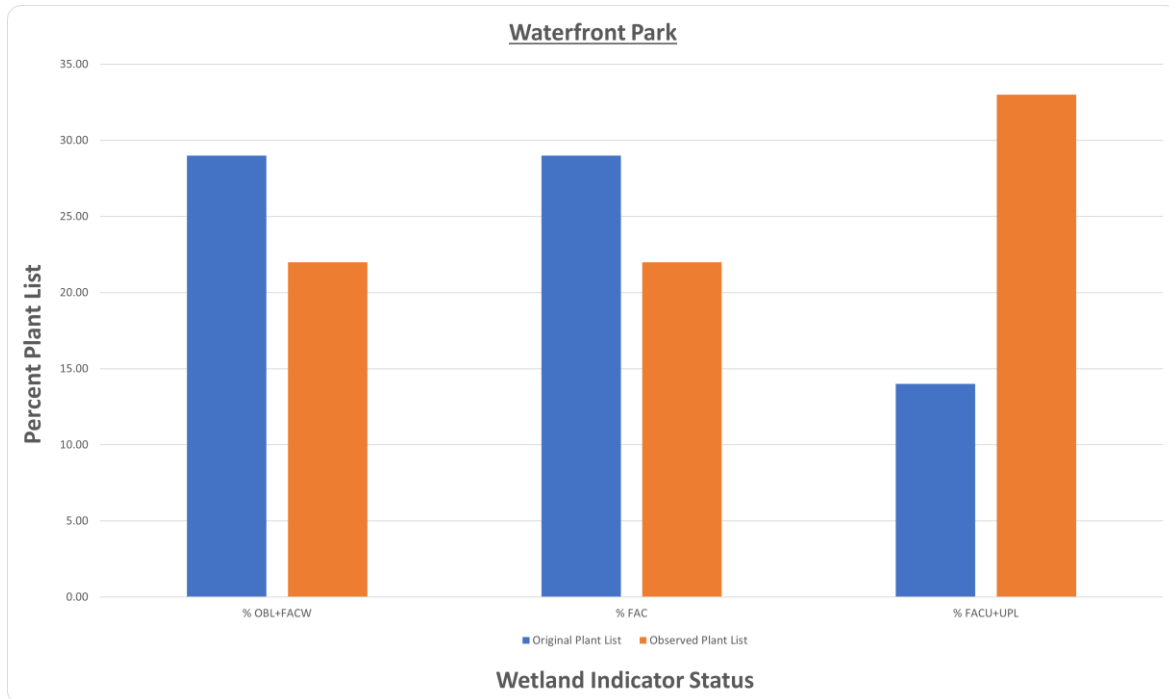
Herbaceous species observed in the cell have WIS ratings of FACU, FAC, FACW, and NI, while the design species were OBL, FAC and NI. Both observed and design woody vegetation have WIS ratings of FACW and FACU. The constant head infiltration rate measured by AESI was 4.3 inches per hour.

Waterfront Park {Anderson Parkway}

Vegetative cover at Poulsbo Waterfront Park was measured on June 28, 2023. According to our field measurements, the bottom of this cell is approximately 508 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 43 woody plants and approximately 924 woody stems. Woody cover was estimated at 90%. Percent cover of herbaceous vegetation was estimated in 189 quadrats in the cell.

Woody vegetation within the cell was composed of two different species: common boxwood (*Buxus sempervirens*) and a dogwood species. No woody species are listed on the original planting plan.

Seven herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with western columbine, slough sedge, toughleaf iris, swordleaf rush, lesser poverty rush, and two aster species.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC, FACW or FACU. The herbaceous design species were FAC, FACW, FACU, and OBL. Woody vegetation observed have WIS ratings of FACW or NI. The constant head infiltration rate measured by AESI was 48.1 inches per hour.

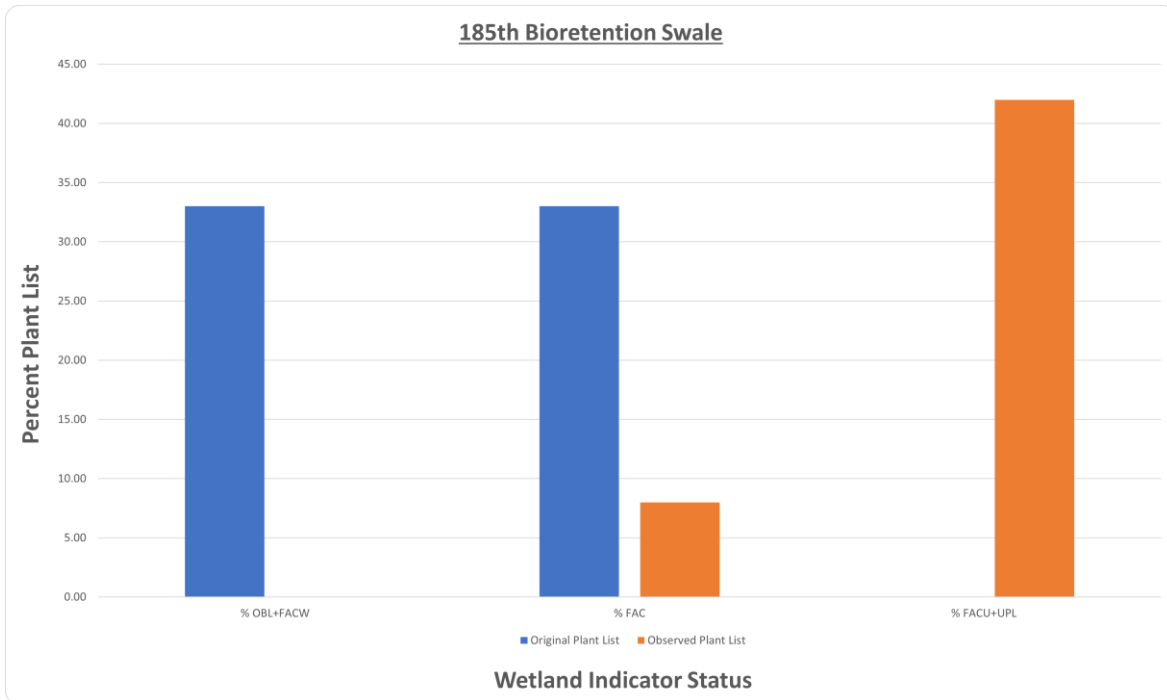
185th {Bioretention Swale #3}

Vegetative cover at Redmond 185th North was measured on July 7, 2023. According to our field measurements, the bottom of this cell is approximately 1936 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 43 woody plants and approximately 924 woody stems. Woody cover was estimated at 90%. Percent cover of herbaceous vegetation was estimated in 720 quadrats in the cell.



Woody vegetation within the cell was composed of two different species: bloodtwig dogwood and cotoneaster. The original planting plans list a dogwood species and an ornamental *Escallonia* species.

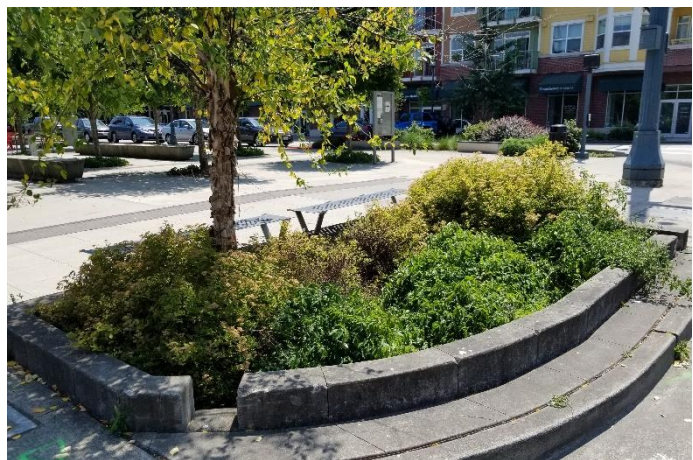
Eleven herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with shrubby cinquefoil.



Herbaceous species observed in the cell predominantly have WIS ratings of FACU and NI, while the design species was FAC. Observed woody vegetation observed have WIS ratings of NI and the design species was FACW. The constant head infiltration rate measured by AESI was 66.5 inches per hour.

Downtown Park

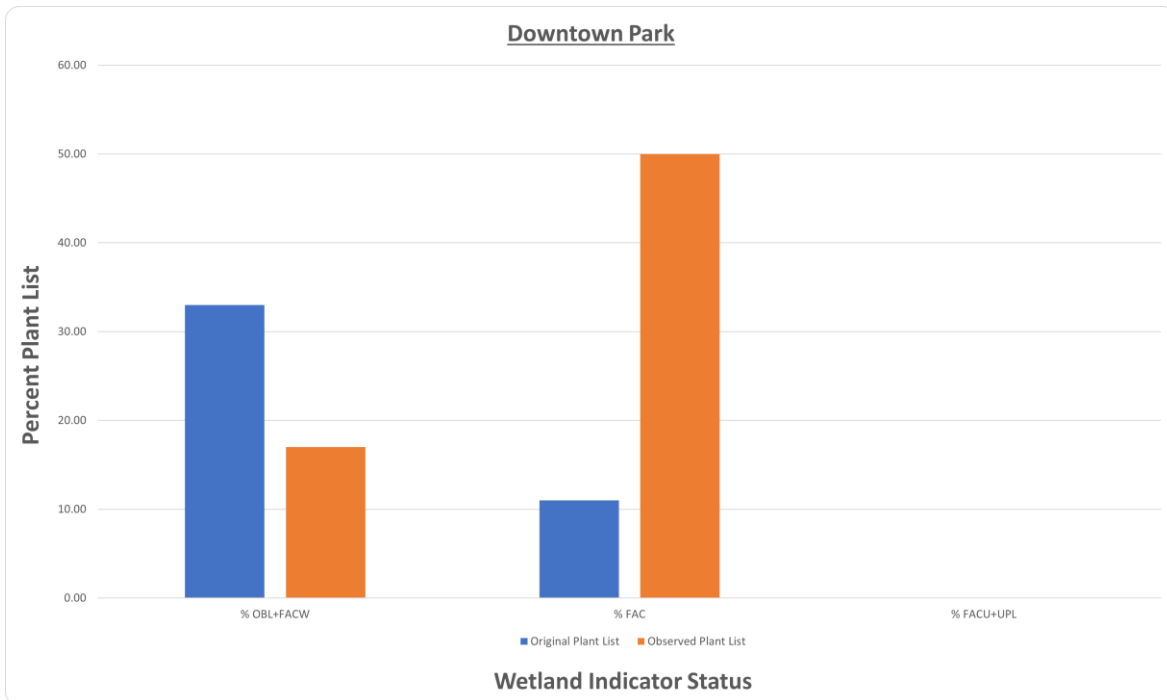
Vegetative cover at Redmond Downtown Park was measured on July 7, 2023. According to our field measurements, the bottom of this cell is approximately 153 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 43 woody plants and approximately 924 woody stems. Woody cover was estimated at 90%. Percent cover of herbaceous vegetation was estimated in 57 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: bloodtwig dogwood, paper birch, Japanese dogwood, and nightshade. The original planting plan lists

littleleaf linden, Canadian serviceberry, a dogwood species, little rascal holly, Japanese meadowsweet, and two Japanese zelkova varieties.

Herbaceous species observed in the cell consisted of sticky bedstraw (*Galium aparine*) and spreading rush (*Juncus patens*). The cell was planted with tapertip rush and spreading rush.



Herbaceous species observed in the cell predominantly have WIS ratings of FACW and FAC, while the design species were FACW and OBL. Observed woody vegetation have WIS ratings of FAC and NI, while the design species were FACW, FAC, and primarily NI. The constant head infiltration rate measured by AESI was 73.8 inches per hour.

Creekside Elementary {Rain Garden}

Vegetative cover at Sammamish Creekside Elementary was measured on August 22, 2023. According to our field measurements, the bottom of this cell is approximately 1500 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 63 woody plants and approximately 1328 woody stems. Woody cover was estimated at 90%. Percent cover of herbaceous vegetation was estimated in 556 quadrats in the cell.



Woody vegetation within the cell was composed of nine different species: vine maple, purple willow, ‘Kelsey’ dogwood, Douglas’ meadowsweet, goldenrod, Himalayan blackberry, California dewberry, shore pine, and a *Weigela* species. Ten herbaceous species were observed in the cell, see the list of species in Appendix A. The original plant list of this bioretention cell was not available.

Herbaceous species observed in the cell predominantly have WIS ratings of FAC or wetter (FACW and OBL) and woody vegetation observed have WIS ratings of FAC, FACU, FACW, OBL and NI. The constant head infiltration rate measured by AESI was 21.8 inches per hour.

Ashworth Avenue Cell 1 (18824)

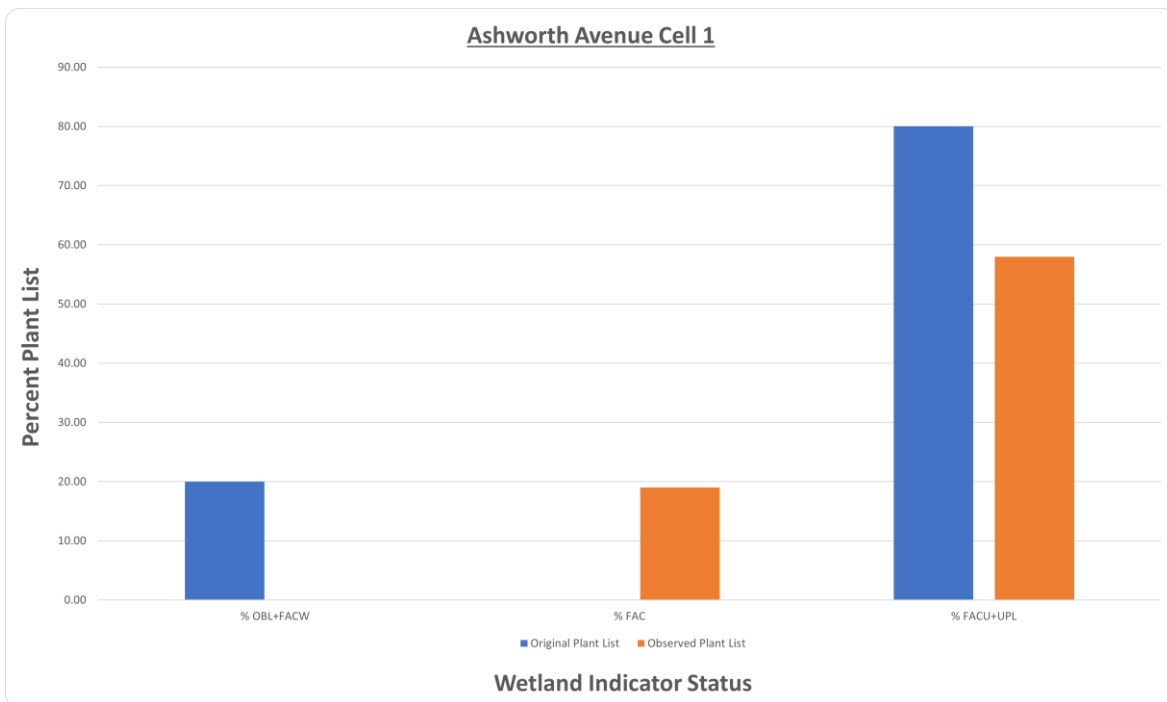
Vegetative cover at Shoreline Ashworth Avenue Cell 1 was measured on June 30, 2023. According to our field measurements, the bottom of this cell is approximately 477 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 15 woody plants and approximately 278 woody stems. Woody cover was estimated at 77%. Percent cover of herbaceous vegetation was estimated in 178 quadrats in the cell.



Woody vegetation within the cell was composed of eight different species: serviceberry, kinnikinnick, spurge laurel, coastal

strawberry, salal, tall Oregon-grape, red-flowering currant, and evergreen huckleberry. The original planting plan lists serviceberry, red-flowering currant, evergreen huckleberry, and salal.

Seventeen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was planted with slough sedge.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW, and FACU, and the design species was OBL. Woody vegetation observed and originally planted both have WIS ratings of FACU. The constant head infiltration rate measured by AESI was 8.8 inches per hour.

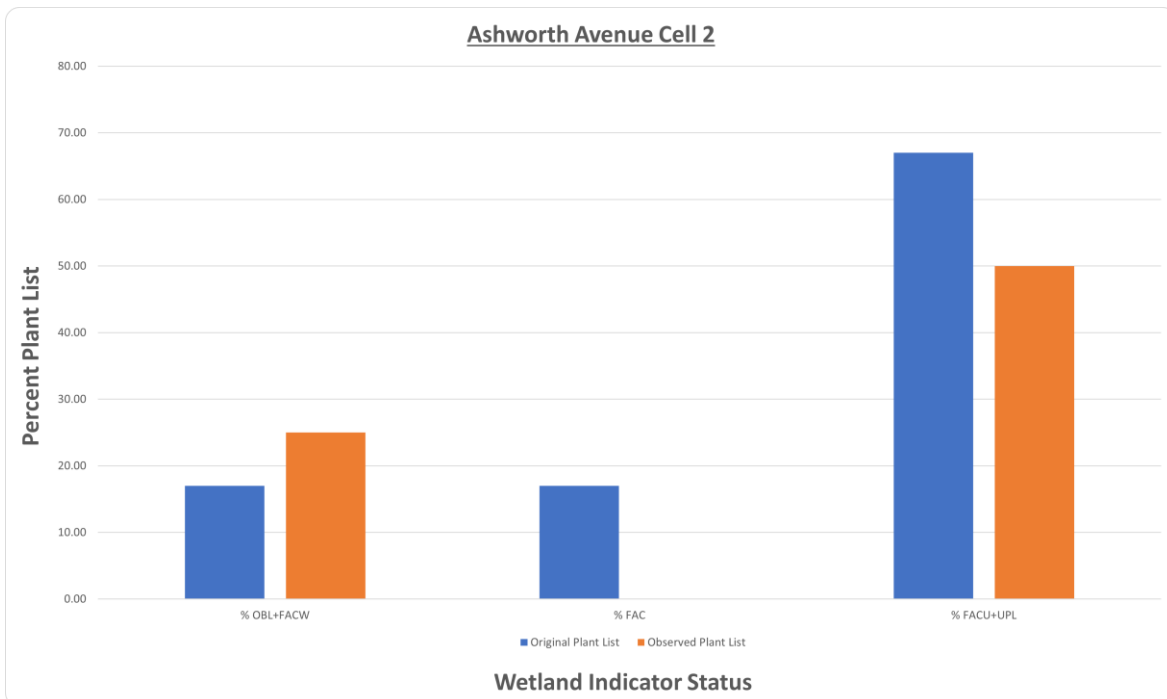
Ashworth Avenue Cell 2 (18834)

Vegetative cover at Shoreline Ashworth Avenue Cell 2 was measured on July 31, 2023. According to our field measurements, the bottom of this cell is approximately 592 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 35 woody plants and approximately 618 woody stems. Woody cover was estimated at 85%. Percent cover of herbaceous vegetation was estimated in 220 quadrats in the cell.



Woody vegetation within the cell was composed of five different species: baldhip rose, vine maple, coastal strawberry, salal, and evergreen huckleberry. The original planting plan lists serviceberry, vine maple, evergreen huckleberry, salal, and baldhip rose.

Seventeen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with slough sedge.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW, and FACU, and the design species was OBL. Observed and design woody vegetation have WIS ratings of FACU and FAC. The constant head infiltration rate measured by AESI was 25.6 inches per hour.

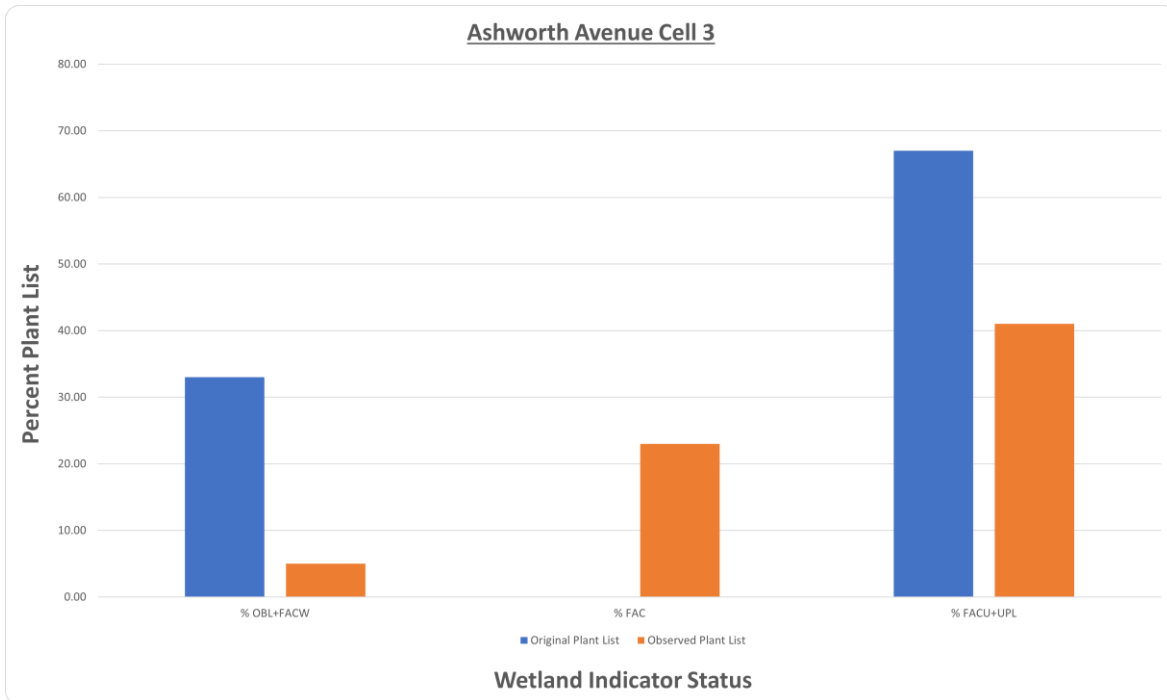
Ashworth Avenue Cell 3 (18538)

Vegetative cover at Shoreline Ashworth Avenue Cell 3 was measured on July 31, 2023. According to our field measurements, the bottom of this cell is approximately 108 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains one woody plant and approximately seven woody stems. Woody cover was estimated at 30%. Percent cover of herbaceous vegetation was estimated in 41 quadrats in the cell.



Woody vegetation within the cell was composed of one species: red-flowering currant. The originally planting plan lists red-flowering currant and kinnikinnick.

Herbaceous species observed in the cell consisted of slough sedge, common dandelion, and narrow-leaved everlasting-pea. The cell was originally planted with slough sedge.



Herbaceous species observed in the cell have WIS ratings of FACU, OBL, or NI, while the design species was OBL. Both observed and design woody vegetation has a WIS rating of FACU. The constant head infiltration rate measured by AESI was 6.3 inches per hour.

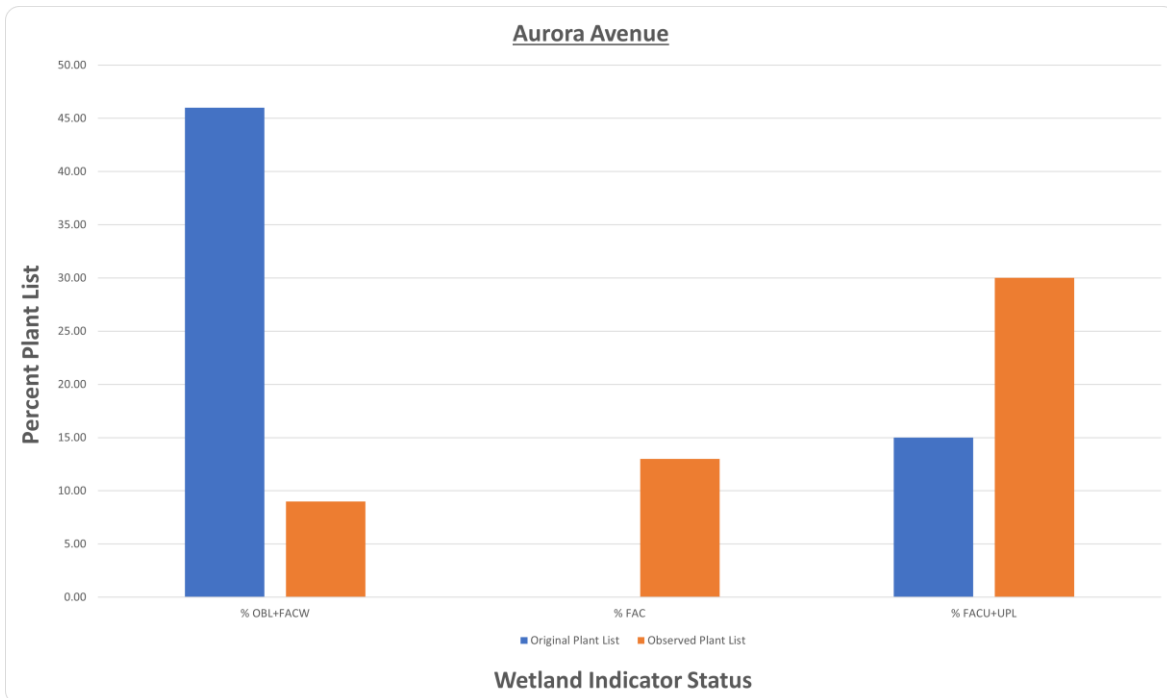
Aurora Avenue {Rain Garden Swale DR10-9}

Vegetative cover at Shoreline Aurora Fire Department was measured on June 30, 2023. According to our field measurements, the bottom of this cell is approximately 1160 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 25 woody plants and approximately 417 woody stems. Woody cover was estimated at 90%. Percent cover of herbaceous vegetation was estimated in 432 quadrats in the cell.



Woody vegetation within the cell was composed of five species: low Oregon-grape, serviceberry, French lavender, an ash species, and a dogwood species. The original planting plan lists purple willow, red osier dogwood, low Oregon-grape, creeping barberry, white ash, and European smoketree.

Eighteen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with lakeshore sedge, slough sedge, awlfruit sedge, tapertip rush, blue oat grass, stella de oro daylily, and french lavender.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW, FACU, OBL, and NI, while the design species were OBL or NI. Observed woody vegetation have WIS ratings of FACU and NI, while the planted woody species were FACU, NI, FACW, and OBL. The constant head infiltration rate measured by AESI was 8.4 inches per hour.

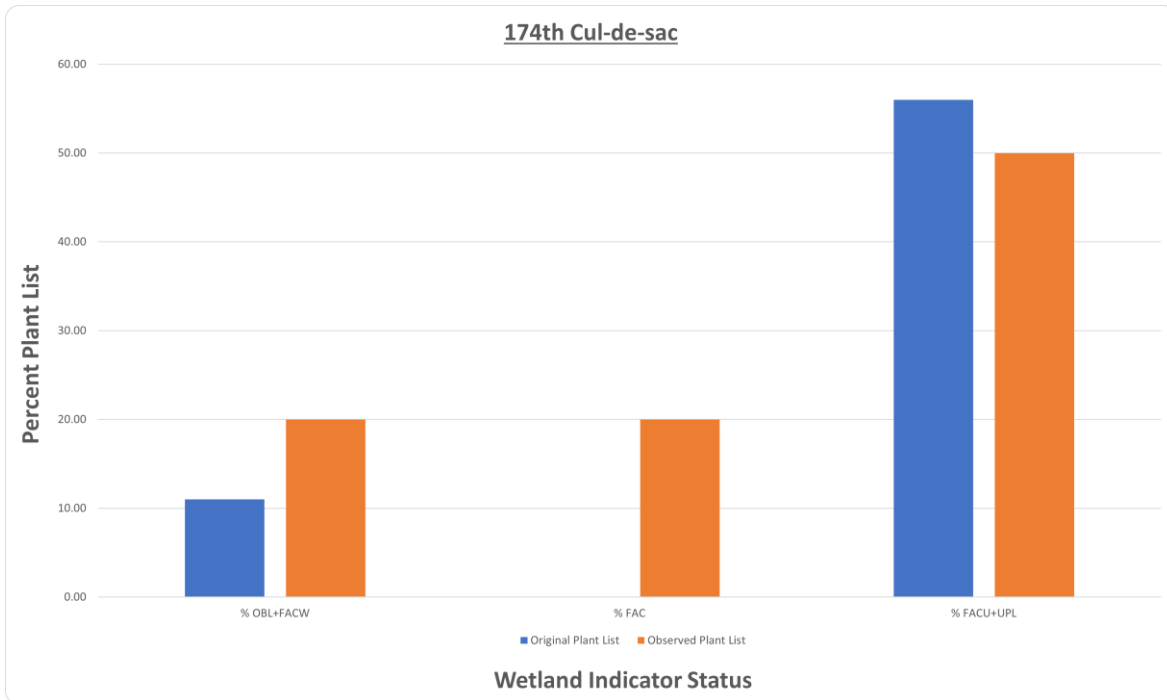
174th Cul-de-sac

Vegetative cover at Snohomish County 4216 174th Place NW was measured on August 23, 2023. According to our field measurements, the bottom of this cell is approximately 260 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 11 woody plants and approximately 36 woody stems. Woody cover was estimated at 37%. Percent cover of herbaceous vegetation was estimated in 96 quadrats in the cell.



Woody vegetation within the cell was composed of four species: tall Oregon-grape, Himalayan blackberry, English laurel, and evergreen huckleberry. The original planting plan lists salal, kinnikinnick, creeping buttercup, and evergreen huckleberry.

Herbaceous species observed in the cell consisted of slough sedge, nipplewort, swordfern, creeping buttercup, nodding smartweed, and common dandelion. The cell was originally planted with slough sedge, blue oat grass, sword fern, and broadleaf stonecrop.



Herbaceous species observed in the cell have WIS ratings of FACU, FACW, and OBL, while the design species were FACU, OBL and NI. Observed and design woody vegetation have WIS ratings of FACU and FAC. The constant head infiltration rate measured by AESI was 17.6 inches per hour.

25th Avenue {Site 7A}

Vegetative cover at the Bothell 25th bioretention cell was measured on July 20, 2023. According to our field measurements, the bottom of this cell is approximately 320 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 16 woody plants and 870 woody stems. Woody cover was estimated at 95%. Percent cover of herbaceous vegetation was estimated in 118 quadrats in the cell.



Woody vegetation within the cell was composed of four different species: tall Oregon-grape (*Mahonia aquifolium*), salmonberry (*Rubus spectabilis*), red-flowering currant (*Ribes sanguineum*), and Douglas' meadowsweet (*Spiraea douglasii*). No woody species are shown on the original plant list.

Herbaceous species observed in the cell include lesser herb Robert, sword fern, and stinging nettle. The cell was originally planted with slough sedge, Buchanan's sedge, weeping brown sedge, and lesser poverty rush.



Herbaceous species observed in the cell have WIS ratings of FAC or drier (FACU), while the design species were OBL, FAC or NI. Observed woody vegetation have WIS ratings of FACU, FAC and FACW. The constant head infiltration rate measured by AESI was 40.1 inches per hour.

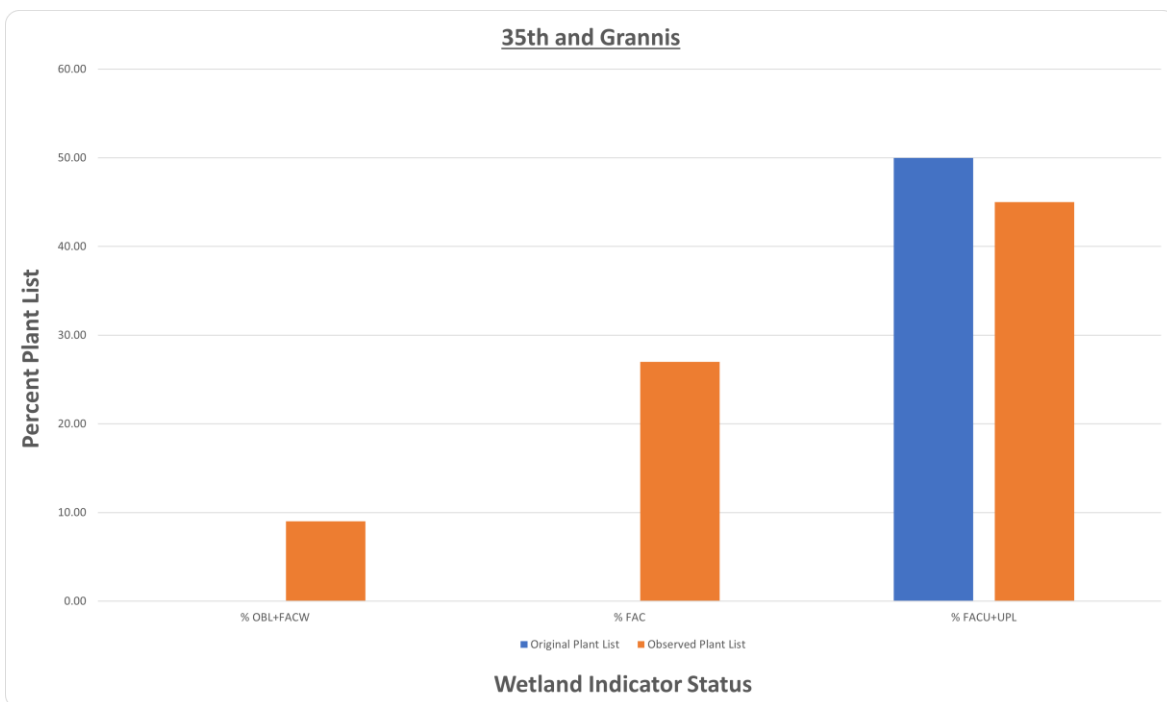
35th and Grannis {Raingarden #2}

Vegetative cover at Bothell 35th and Grannis was measured on July 20, 2023. According to our field measurements, the bottom of this cell is approximately 820 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 31 woody plants and approximately 300 woody stems. Woody cover was estimated at 93%. Percent cover of herbaceous vegetation was estimated in 305 quadrats in the cell.



Woody vegetation within the cell was composed of two different species: red-flowering currant (*Ribes sanguineum*) and English laurel (*Prunus laurocerasus*). The only woody species on the original plant list was red-flowering currant.

Herbaceous species observed in the cell include *Cirsium arvense*, *Dicentra Formosa*, *Digitalis purpurea*, *Epilobium ciliatum*, *Geranium robertianum*, *Prunella vulgaris*, *Ranunculus repens*, and *Rumex crispus*. The original plant list shows a “wet native seed mix” but no specific species are listed.



Herbaceous species observed in the cell have WIS ratings of FACU, FAC, and FACW, while the design species were described as wet and therefore were likely FACW or OBL. Red-flowering currant has a WIS rating of FACU and English laurel does not have an assigned WIS. The constant head infiltration rate measured by AESI was 2.7 inches per hour.

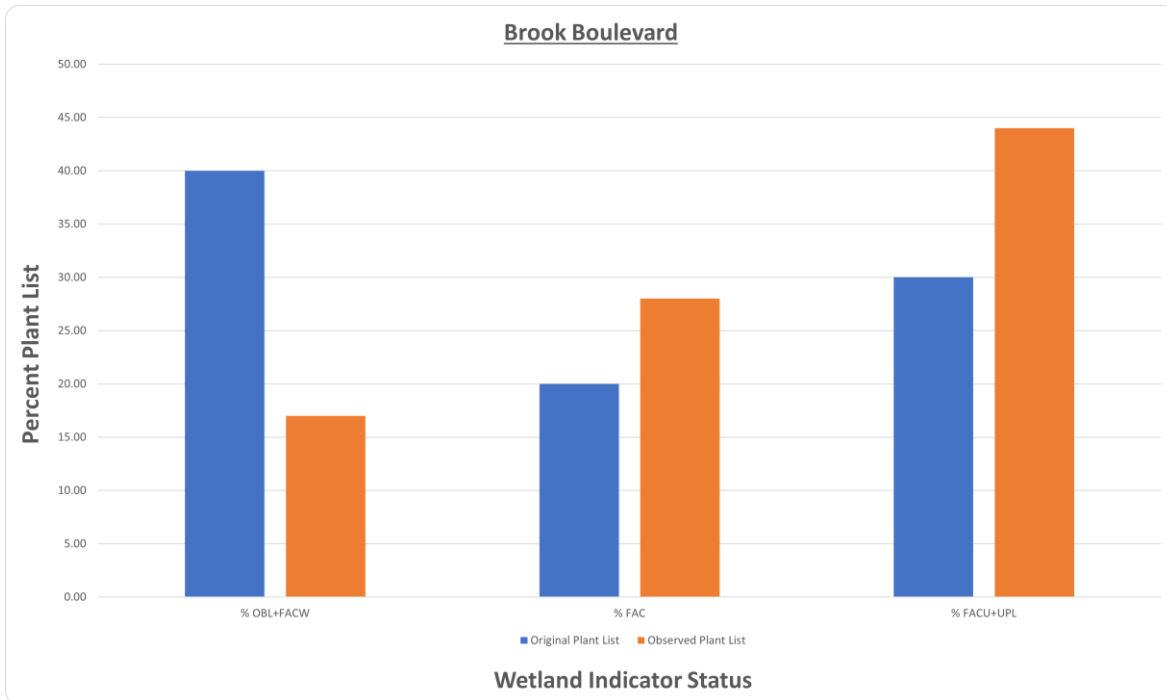
Brook Boulevard {Site 2E}

Vegetative cover at Bothell Brook Boulevard was measured on July 20, 2023. According to our field measurements, the bottom of this cell is approximately 564 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains approximately 15 woody plants and approximately 428 woody stems. Woody cover was estimated at 49%. Percent cover of herbaceous vegetation was estimated in 210 quadrats in the cell.



Woody vegetation within the cell consisted of five species: red-flowering currant (*Ribes sanguineum*), salal (*Gaultheria shallon*), tall Oregon-grape (*Mahonia aquifolium*), snowberry (*Symphoricarpos albus*), and a dogwood species (*Cornus* sp.). The only woody species on the original plant list is salal.

Herbaceous species observed in the cell include *Agrostis stolonifera*, *Carex obnupta*, *Galium aparine*, *Hypochaeris radicata*, *Lotus corniculatus*, *Phalaris arundinacea*, *Plantago lanceolata*, *Poa pratensis*, *Ranunculus repens*, *Sonchus asper*, and *Taraxacum officinale*. The original plant list shows slough sedge, mountain rush, lesser poverty rush, tufted hairgrass, golden blue-eyed grass, sword fern, deer fern, and roemer's fescue.



Herbaceous species both specified and observed in the cell have WIS ratings of OBL, FACW, FAC, and FACU. Woody vegetation specified in the original plan has a WIS rating of FACU and observed woody vegetation primarily have WIS ratings of FACU. The constant head infiltration rate measured by AESI was 32.8 inches per hour.

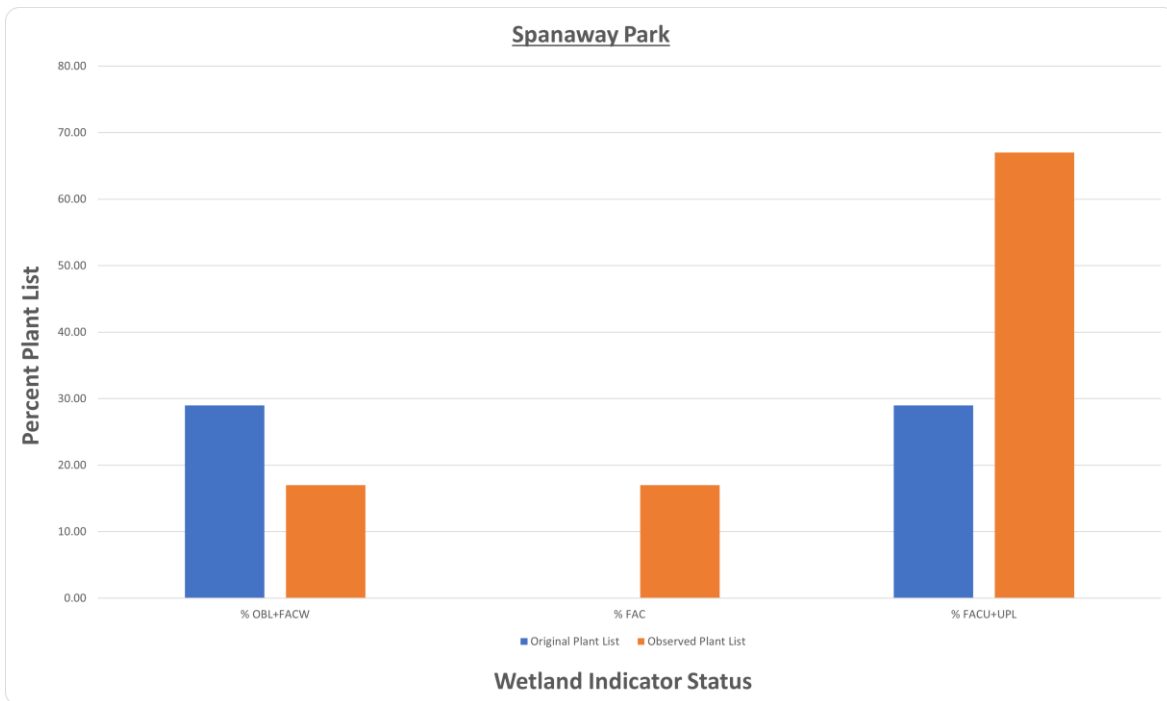
Spanaway Park {Bioretention Area B}

Vegetative cover at Spanaway Park was measured on July 3, 2023. According to our field measurements, the bottom of this cell is approximately 494 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains 95 woody plants and approximately 1291 woody stems. Woody cover was estimated at 51%. Percent cover of herbaceous vegetation was estimated in 184 quadrats in the cell.

Woody vegetation within the cell was composed of four species: low Oregon-grape, snowberry, a dogwood species, and Douglas-fir. The original planting plan lists dwarf dogwood, creeping snowberry, low Oregon-grape, rock rose, and Pt. Reyes ceanothus.



Nine herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with shrubby cinquefoil and swordleaf rush.



Herbaceous species observed in the cell have WIS ratings of FACU, FAC, and OBL, while the design species were FACW and NI. Observed and design woody vegetation have WIS ratings of FACU and FACW. The constant head infiltration rate measured by AESI was 103.3 inches per hour.

Dunn Residence

Vegetative cover at the Dunn Residence bioretention cell at 6022 153rd was measured on August 31, 2023. According to our field measurements, the bottom of this cell is approximately 480 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains four woody plants and approximately 81 woody stems. Woody cover was estimated at 31%. Percent cover of herbaceous vegetation was estimated in 180 quadrats in the cell.



Woody vegetation within the cell was composed of four species: cotoneaster, bell heather, fortune's spindle, and black cherry plum. Herbaceous species observed in the cell consisted of common velvetgrass, hairy cat's ear, red fescue, Kentucky blue grass, creeping buttercup, and white clover. The original planting plan for this bioretention cell was not available.

Herbaceous species observed in the cell predominantly have WIS ratings of FAC and the observed woody species do not have assigned WIS ratings. The constant head infiltration rate could not be measured at this cell, however the falling head infiltration rate measured by AESI was 5.2 inches per hour.

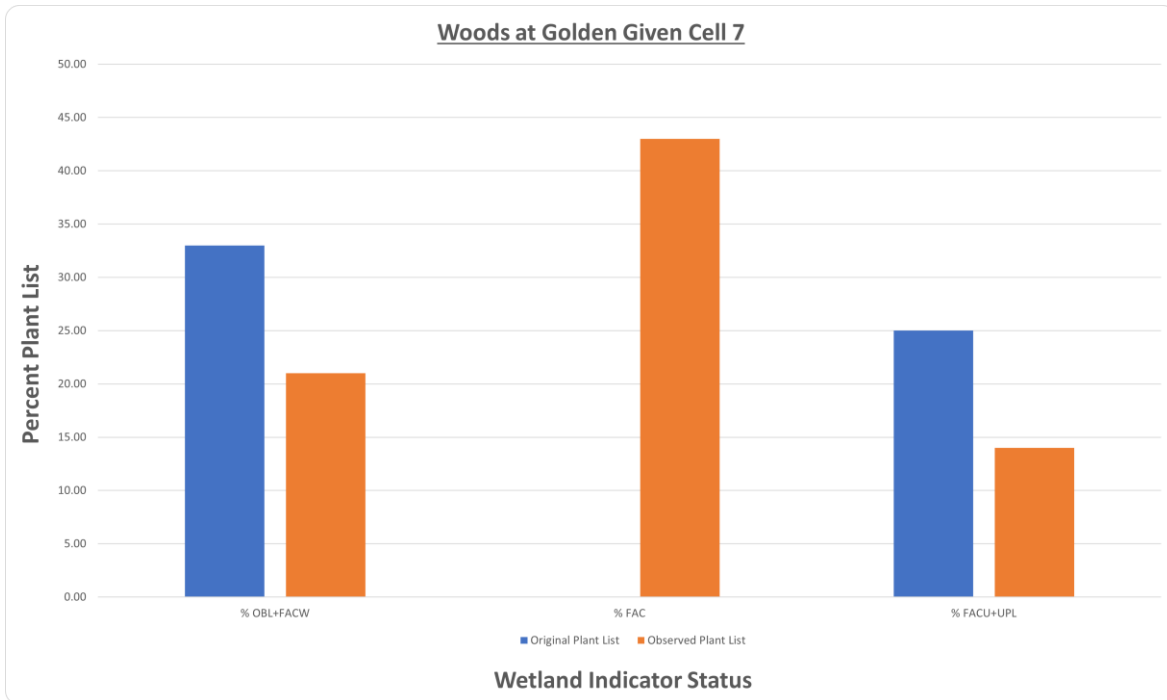
Woods at Golden Given Cell 7

Vegetative cover at Woods at Golden Given Cell 1 was measured on July 23, 2023. According to our field measurements, the bottom of this cell is approximately 629 square feet. The cell does not contain woody vegetation; therefore only the herbaceous sampling method was used to collect vegetation data. Percent cover of herbaceous vegetation was estimated in 234 quadrats in the cell.



While the bioretention cell does not currently have any woody vegetation, the original planting plan lists Douglas' meadowsweet, dogwood, fragrant sumac, low Oregon-grape, creeping snowberry, a blueberry species, and an apple tree species.

Fourteen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with tufted hair grass, ice dance sedge, swordleaf rush, stella d'oro daylily, and a New Zealand sedge variety.



Herbaceous species observed in the cell have WIS ratings of FAC, FACW, and FACU, while the design herbaceous species were FACW or NI. The design woody species have WIS ratings of FACW, FACU, and UPL. The constant head infiltration rate measured by AESI was 0.1 inches per hour.

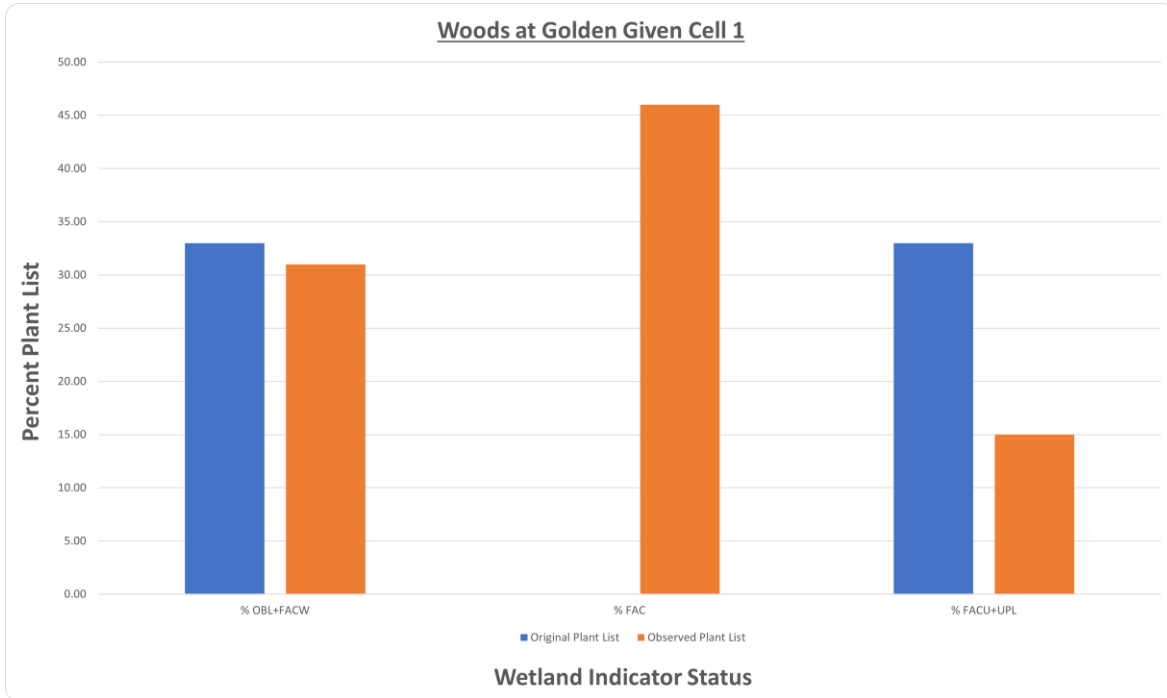
Woods at Golden Given Cell 1

Vegetative cover at Woods at Golden Given Cell 1 was measured on July 23, 2023. According to our field measurements, the bottom of this cell is approximately 432 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains one woody plant and approximately 12 woody stems. Woody cover was estimated at 15%. Percent cover of herbaceous vegetation was estimated in 168 quadrats in the cell.



Woody vegetation within the cell was composed of one species: sitka willow. The original planting plan lists Kelseyi dogwood, fragrant sumac, low Oregon-grape, creeping snowberry, and a blueberry species.

Twelve herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with tufted hair grass, ice dance sedge, swordleaf rush, and a New Zealand sedge variety.



Herbaceous species observed in the cell predominantly have WIS ratings of FAC, while the design species were FACW or NI. The observed woody species has a WIS rating of FACW and the design species have WIS ratings of FACU, FACW, and UPL. The constant head infiltration rate measured by AESI was 27.8 inches per hour.

Lahti Drive {Bioinfiltration Swale}

Vegetative cover at Whatcom County Lahti Drive was measured on August 10, 2023. According to our field measurements, the bottom of this cell is approximately 304 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains six woody plants and approximately 30 woody stems. Woody cover was estimated at 6%. Percent cover of herbaceous vegetation was estimated in 113 quadrats in the cell.



Woody vegetation within the cell was composed of two species: low Oregon-grape and snowberry. The originally planting plan lists snowberry, red-flowering currant, mock orange, oceanspray, and tall Oregon-grape.

Nine herbaceous species were observed in the cell, see the list of species in Appendix A. The original planting plan does not list any herbaceous species.

Herbaceous species observed in the cell have WIS ratings of FAC, FACW, FACU, and NI. Observed and design woody vegetation have WIS ratings of FACU. The constant head infiltration rate measured by AESI was 43.2 inches per hour.

West Tributary {Brownsville Drive}

Vegetative cover at Whatcom County Lahti Drive was measured on August 10, 2023. According to our field measurements, the bottom of this cell is approximately 2190 square feet. The cell contains both woody and herbaceous vegetation; therefore both sampling methods were used to collect vegetation data. The cell contains one woody plant and approximately 20 woody stems. Woody cover was estimated at 5%. Percent cover of herbaceous vegetation was estimated in 814 quadrats in the cell.



Woody vegetation within the cell was composed of one species: Nootka rose. Twenty-three herbaceous species were observed in

the cell, see the list of species in Appendix A. The original planting plan mentions bulrush species and seed mix, but does not provide further specifications.

Herbaceous species observed in the cell have WIS ratings of FAC, FACW, FACU, OBL, and NI. Observed woody vegetation has a WIS rating of FAC. The constant head infiltration rate measured by AESI was 76 inches per hour.

Yelm Highway

Vegetative cover at Yelm Highway was measured on July 19, 2023. According to our field measurements, the bottom of this cell is approximately 987 square feet. The cell does not contain woody vegetation; therefore only the herbaceous sampling method was used to collect vegetation data. Percent cover of herbaceous vegetation was estimated in 367 quadrats in the cell.



Fifteen herbaceous species were observed in the cell, see the list of species in Appendix A. The cell was originally planted with a mix of rush (*Juncus tenuis*), small-fruited bulrush (*Scirpus microcarpus*), and stalk-grain sedge (*Carex stipata*). None of these herbaceous species were observed in the cell during our study.

Herbaceous species observed in the cell have WIS ratings of FAC, FACU, FACW, and OBL. The constant head infiltration rate measured by AESI was 17.4 inches per hour.

Overall Results

Overall, the vegetation conditions in the 50 bioretention cells included in the study varied across a wide spectrum. Many factors contribute to the differing conditions observed in each cell, such as hydrologic inputs, infiltration rates, sun exposure, radiant heat, disturbance, and maintenance activities.

The data results presented below are comprehensive of all the sites. Table 1 compares the plants listed on the original design plans, when available, to the list of observed plant species. Plants which do not have a designated WIS were not included in the data calculations.

Table 1. Summary of average number of all original and current species lists from all 50 sites.

Original Plant List		Observed Plant List		Percent of Original List Remaining	
Avg. # Herbs	Avg. # Woody	Avg. # Herbs	Avg. # Woody	Avg. # Herbs (%)	Avg. # Woody (%)
3.1	3.9	11.9	3.9	13.4	56.0

On average, only 13.4% of originally planted herbaceous species were still present within the bioretention cells. However, 56% of woody species listed in the design plans are still present. A visual representation of these results is provided in the graph below.

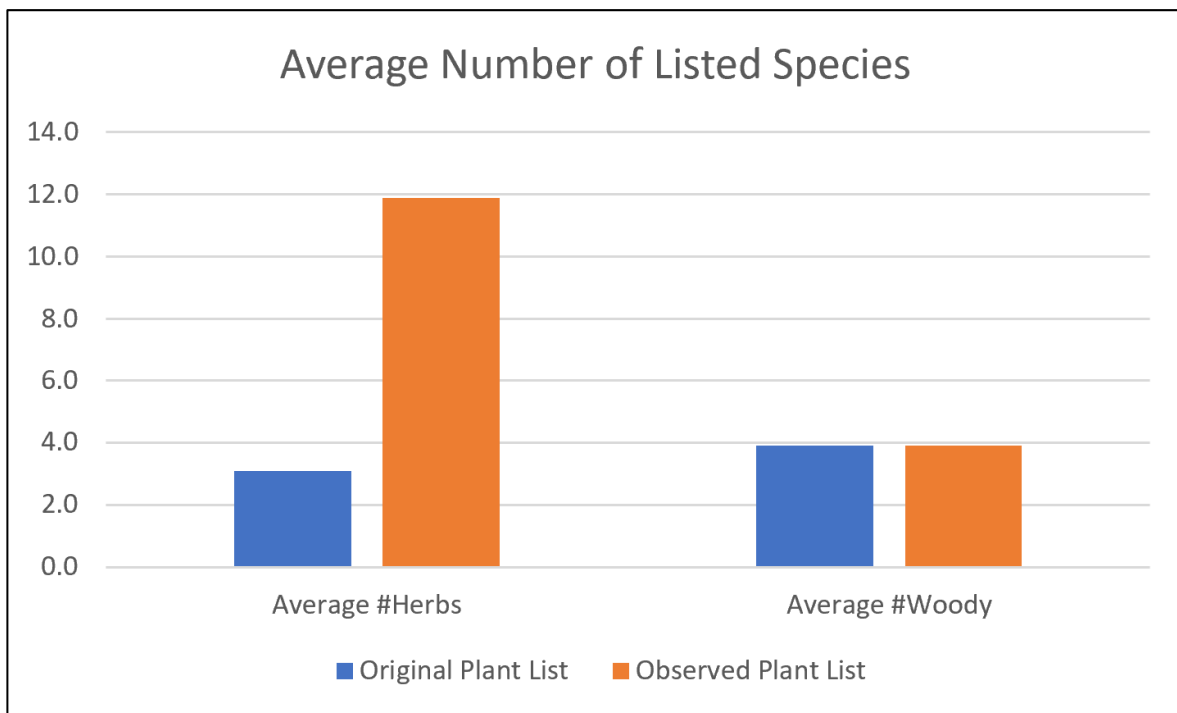
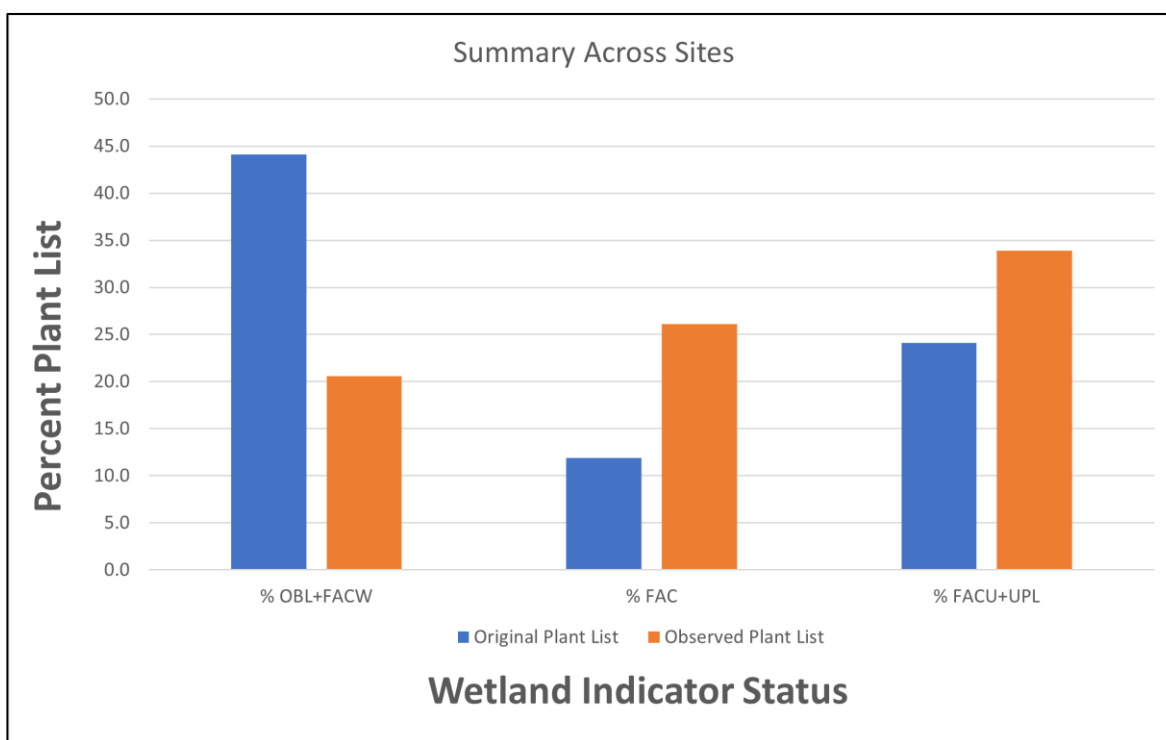


Table 2. Summary of average percent distribution by WIS of original and current plant lists from all 50 sites.

Original Plant List			Observed Plant List		
Avg. % OBL+FACW	Avg. % FAC	Avg. % FACU+UPL	Avg. % OBL+FACW	Avg. % FAC	Avg. % FACU+UPL
44.1	11.9	24.1	20.6	26.1	33.9

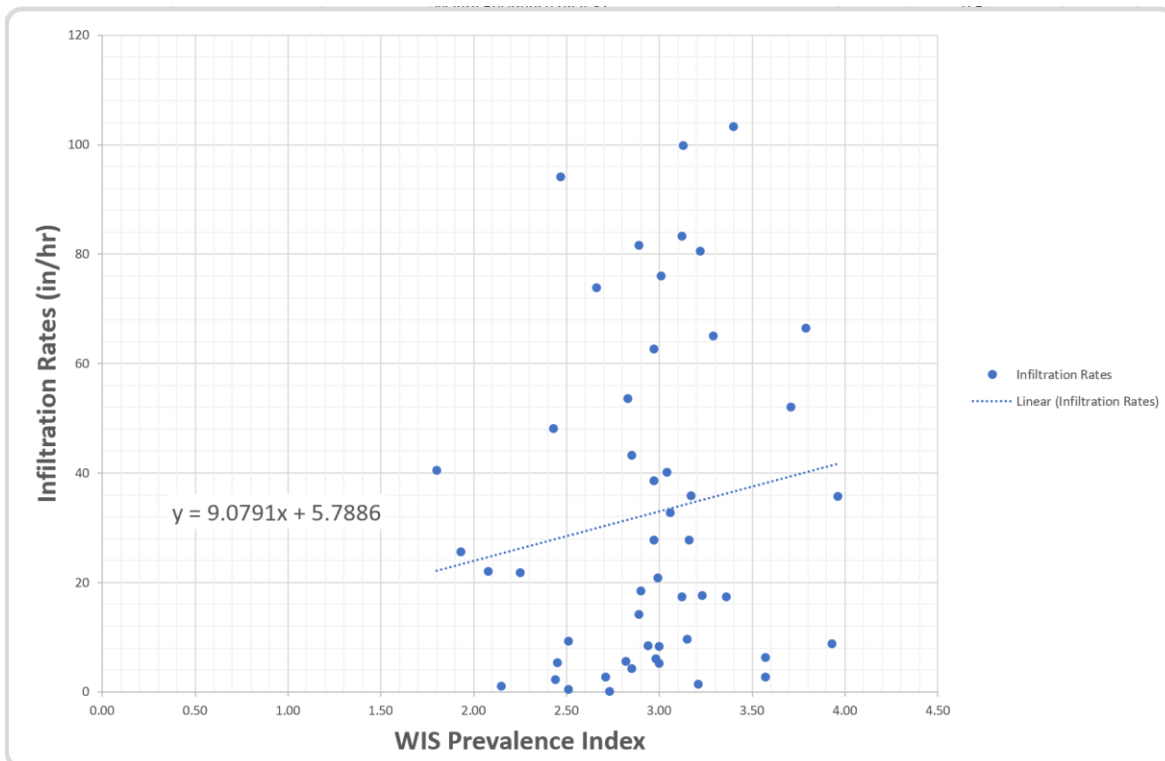
Table 2 provides a summary of the percent of the grouped WIS categories across all sites from the original plant list and the observed plant list ten or more years later. On average, 44.1% of plants listed on the original planting designs had a WIS of Obligate or Facultative, species which prefer wetter conditions. However, only 20.6% of plant species observed in this study prefer wetter conditions, on average. Plants preferring drier conditions comprised 24.1% of original plant lists on average while 33.9% of observed plant species meet this criteria on average.



In order to analyze the overall WIS representation of each site, a weighted WIS average was calculated using the prevalence index formula and observed cover data for each species at each site. The prevalence index is a calculation typically used to analyze vegetation on wetland data forms. Each species is organized based on WIS and the cover for each species in each WIS category is totaled. The cover of obligate plants is multiplied

by 1 to numerically represent that category, by 2 to represent facultative wetland plants, by 3 for facultative plants, by 4 to represent facultative upland plants and by 5 to represent upland plants. The sum of all five WIS categories are totaled, then divided by the cover total sum prior to the weighted calculations. The result is the prevalence index.

In the graph below, the prevalence index of each site is plotted against the infiltration rate of each site as measured by AESI.



Although there is a wide range of infiltration rates associated with each prevalence index, the linear regression line is upward trending. The upward trend may be influenced by high infiltration rate outliers. Lower infiltration rates appear to favor plant species with lower WIS, thus indicating that the cell stays wetter longer.

Conclusion

The overall trend appears to be plant communities adapted to drier environments are prevalent in the cells studied. Most of the sites originally planted with plant species preferring wetter conditions appear to have shifted to species preferring drier conditions, indicating the long-term hydrologic conditions of the bioretention cells were not necessarily suitable for species preferring wetter hydrologic regimes. Some sites appear to receive low stormwater runoff inputs relative to the size of the cell while others receive greater water volumes relative to cell size. These variations in inflow volumes will affect the final distribution of plant types. For example, several bioretention cells are dominated

by plant species with WIS ratings of FACW or OBL, indicating those cells have wetter hydrologic regimes and species preferring those conditions thrived after original installation, or those species colonized the site. Sites with infiltration rates >60 in/hr tend to support plant species more adapted to drier conditions while infiltration rates <60 in/hour support a diversity of plant communities relative to WIS. Most of the bioretention cells appear suitable to species with a WIS rating of FAC, as species having this rating are highly adaptable to changing hydrologic regimes.

Finally, it should be noted that the prevalence index for any one site is an aerial average and does not take into account spatial differences in the WIS values of the plant distributions within the cell. As noted in the BHP I project previously, the WIS values of the plants near the point of inflow could be weighted toward a wetter WIS value than those areas farther from the inflows.

DRAFT 2 - Bioretention Hydrologic Study III

Site Names	Cell Data		Plant Species Results						Wetland Indicator Status					
	Total Area (m2)	Surveyed Area	Original Plant List		Observed Plant List		Percent of Original List Remaining		Original Plant List			Observed Plant List		
			# Herbs	# Woody	# Herbs	# Woody	# Herbs (%)	# Woody (%)	% OBL+FCW	% FAC	% FACU+UPL	% OBL+FCW	% FAC	% FACU+UPL
Airport Boulevard (51st Avenue) Cell 1 (South)	64.9	16.2	3	5	8	3	0	60	37.5	37.5	25	9	36	55
Airport Boulevard (51st Avenue) Cell 2 (North)	15.3	3.8	3	5	13	2	0	100	37.5	37.5	25	0	27	53
Pick-Quick	114.74	28.69	2	2	6	4	0	50	50	0	25	20	0	60
Bainbridge Island High School-Type 2 (Roof Cell)	55.74	13.94	1	1	5	3	0	100	100	0	0	25	37.5	37.5
Bainbridge Island High School-Type 5 (Tennis Cell) (IT-2)	127.3	31.82	1	2	7	3	0	100	100	0	0	30	30	30
145th Place	85.5	21.38	6	1	16	3	17	0	29	14	0	21	16	26
Cherry Crest Elementary-Raingarden #1	105.35	26.43	4	1	18	4	50	100	80	0	0	27	36	18
Cherry Crest Elementary-Raingarden #2	152.08	38.02	4	3	13	6	25	67	57	0	29	16	37	37
Bellevue High School	455.22	113.8	4	6	14	6	17	100	50	10	10	25	10	45
Spiritridge Elementary-Raingarden #1	127.37	31.84	3	9	10	4	0	100	42	8	42	50	7	29
Spiritridge Elementary-Raingarden #2	100	25	3	9	3	7	33	62.5	42	8	42	20	10	70
Tyce Middle School	171	42.75	5	9	17	5	0	75	89	0	11	14	32	32
Bellingham City Hall	46.82	11.71	3	3	8	4	33	67	67	33	0	25	17	25
Bloedel Donovan Park	56.6	14.15	0	6	1	4	NA	33	17	33	50	40	40	20
Thornton and Maureen	91.9	22.97	2	1	40	0	50	0	33	33	33	8	35	20
Issaquah High School-Cell #1	114	28.5	2	7	4	7	0	57	56	0	44	27	18	45
Issaquah High School-Cell #24	108	27	1	4	7	9	0	100	20	20	20	12.5	12.5	56
Central Park Pad 3	548.49	137.12	2	5	19	11	0	40	43	0	0	20	37	27
Rainier Boulevard	24	6	6	1	4	4	0	0	NA	NA	NA	25	12.5	37.5
Baron Residence	41.8	10.45			7	2						67	33	0
Manry Residence	74.32	18.58			1	3						50	50	0
David Brookings Rain Garden	78	19.5	2	3	20	5	50	100	80	0	20	24	24	24
Rosehill Community Center	96.6	24.2	0	9	7	6	NA	22	NA	NA	NA	15	23	38
Decatur	44.7	11.175			11	0						0	45	36
420 McPhee	70	17.5	1	3	10	2	0	0	NA	NA	NA	33	8	25
436 McPhee	76.18	19.045			17	7						17	4	37.5
Vauger Park	53.7	13.425	6	2	19	4	33	50	62.5	37.5	0	36	32	24
Central Maintenance Facility	59.27	14.82	5	3	8	3	0	67	50	0	0	23	38	15
Noll Road Roundabout	79.15	19.79	0	5	20	6	NA	60	60	20	20	15	19	38
Viking Avenue Cell 4 (Lower)	19.32	4.83	4	3	29	2	0	67	43	14	29	13	29	35
Viking Avenue Cell 1 (Upper)	50.54	12.64	4	4	28	4	0	25	50	12.5	25	19	28	38
Waterfront Park	47.2	11.8	7	0	7	2	0	0	29	29	14	22	22	33
185th	179.86	44.97	2	1	10	2	0	100	33	33	0	0	8	42
Downtown Park	14.21	3.55	2	7	2	4	50	29	33	11	0	17	50	0
Creekside Elementary	139	34.75			10	9						47	37	5
Ashworth Ave-Cell 1 (18824)	44.3	11.08	1	4	18	8	0	100	20	0	80	0	19	58
Asworth Ave-Cell 2 (18834)	10.04	2.51	1	5	3	1	0	80	17	17	67	25	0	50
Ashworth Ave-Cell 3 (18538)	54.99	13.75	1	2	17	5	100	50	33	0	67	5	23	41
Aurora	107.8	26.9	7	6	18	5	14	50	46	0	15	9	13	30
174th Cul-de-sac	24	6	4	5	6	4	50	20	11	0	56	20	20	50
25th	29.73	7.43	4	0	3	4	0	NA	25	25	0	14	29	57
35th and Grannis	76.18	19.05	NA	1	9	2	NA	100	0	0	50	9	27	45
Brook Boulevard	52.39	13.1	8	2	13	5	12.5	50	40	20	30	17	28	44
Spanaway Park	45.89	11.47	2	5	8	4	0	60	29	0	29	17	17	67
Dunn Residence	45	11.25			6	4						0	50	10
Woods at Golden Given-Cell 7	58.44	14.61	5	7	14	0	0	0	33	0	25	21	43	14
Woods at Golden Given-Cell 1	40.13	10.03	4	5	12	1	0	0	33	0	33	31	46	15
Lahti Drive	28.24	7.06			9	2						18	36	27
West Tributary (Brownsville Drive)	203.46	50.87			23	1						17	54	25
Yelm Highway	91.69	22.92	3	1	16	0	0	0	NA	NA	NA	12.5	31	50
Total Numbers			128	163	594	196	534.5	2241.5	1677.5	453.0	916.0	1028.0	1306.5	1696.5
Average per cell			3.1	3.9	11.9	3.9	13.4	56.0	44.1	11.9	24.1	20.6	26.1	33.9
Range			0-8	0-9	1-40	0-11	0-100	0-100	0-100	0-37.5	0-80	0-67	0-54	0-67
			n=41	n=42	n=50	n=50	n=38	n=41	n=38	n=38	n=38	n=50	n=50	n=50

*NA. None of the plants had an assigned WIS or were not identified by species.

<-- original planting plan not available