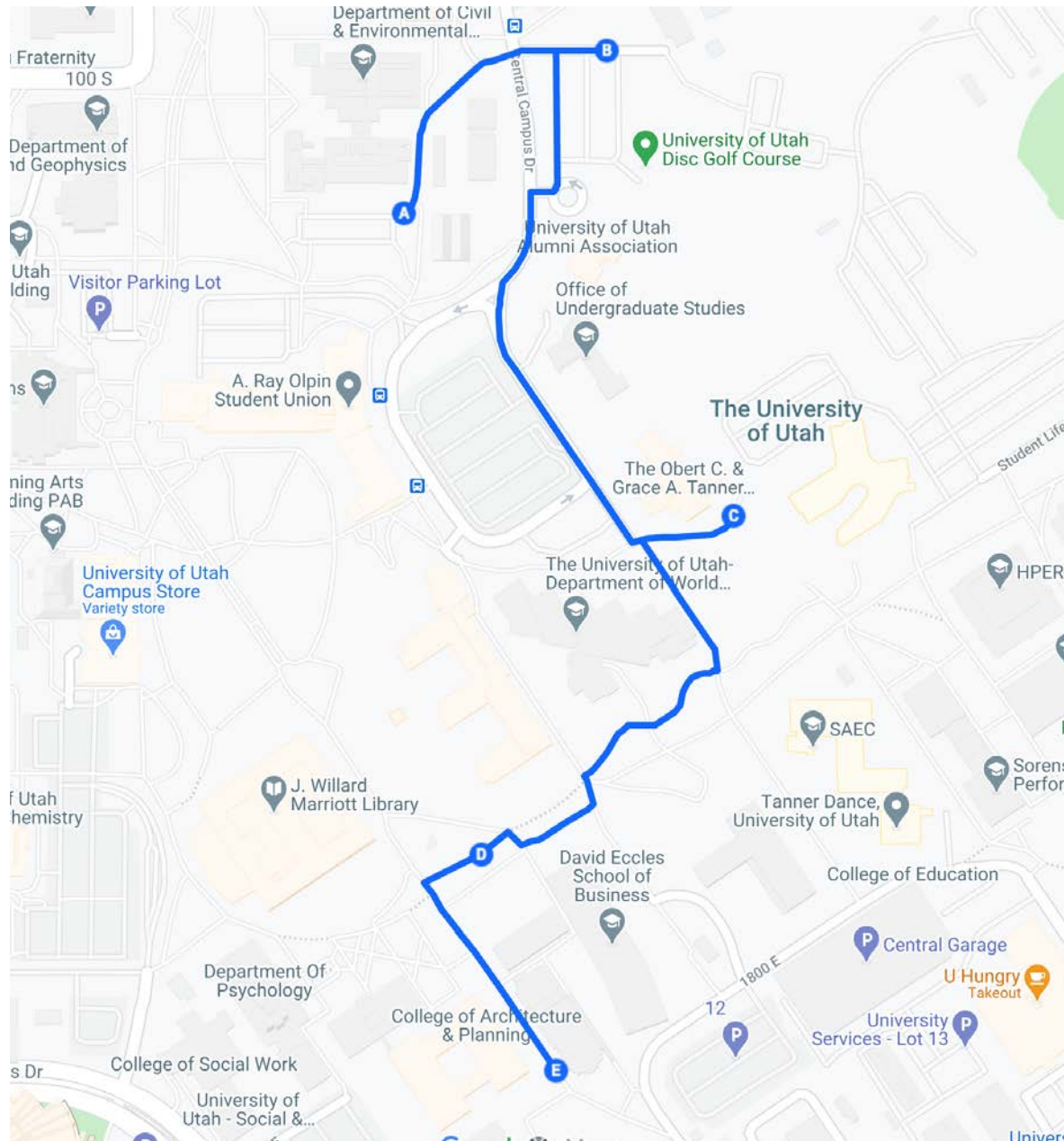


UU Green infrastructure campus walk



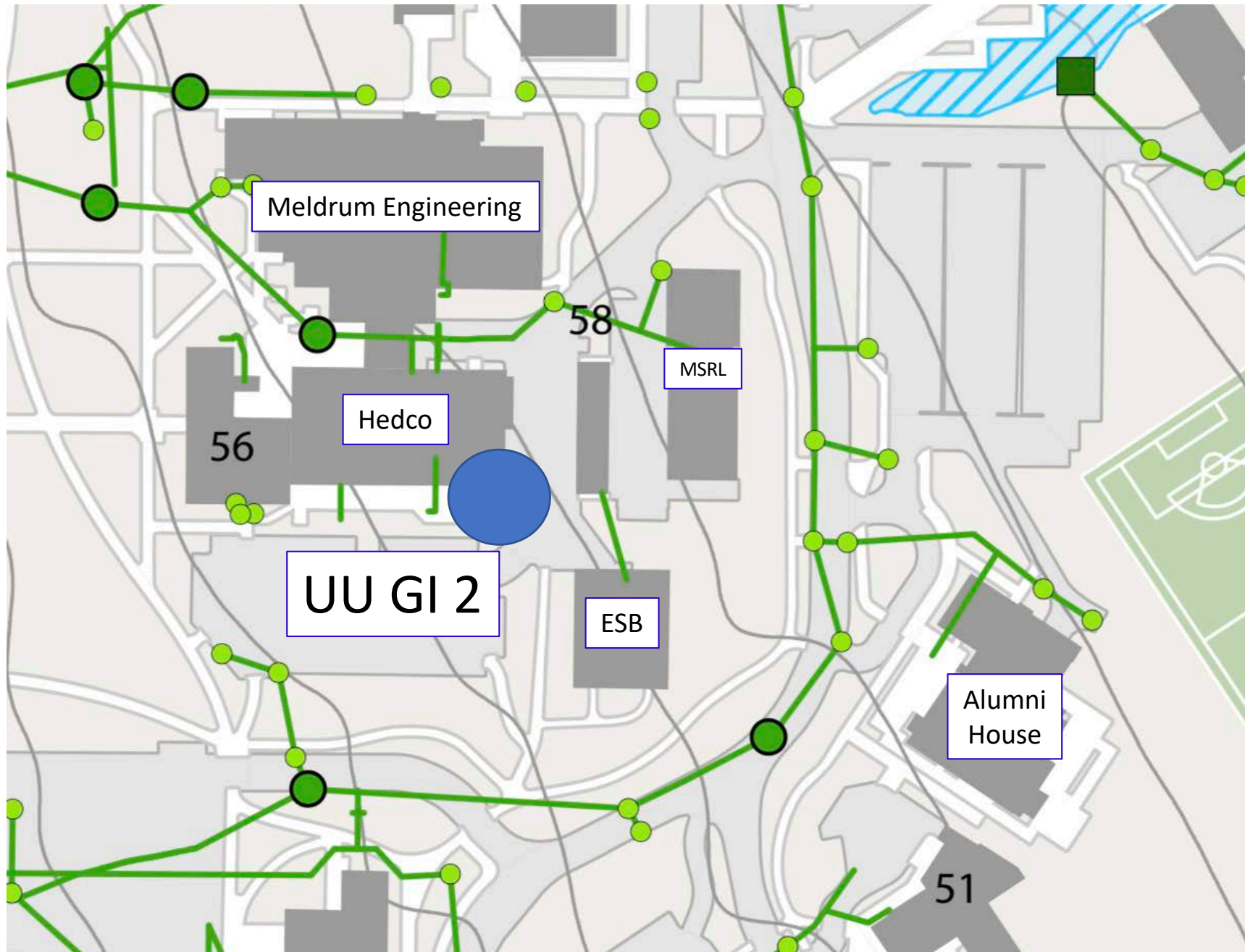
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GI to be seen on this walk

- Infiltration garden
- Stormwater mitigation
- Green roof
- Pollinator garden

There are many more GI sites on campus than we will see on this walk.

UU GI 2 – infiltration garden – diverting water before stormwater entry



Small circles indicate stormwater entry points; squares represent entry into green infrastructure

A UU GI 2 – diverting street runoff before entry into stormwater drains

Working for a GREENER U

INFILTRATION GARDENS

Mitigating Storm Runoff Problems

What is an infiltration garden?

When it rains in urban areas, the resultant runoff flows over paved areas, along gutters, and into storm drains where it is conveyed to the nearest stream. This traditional approach creates a flash flood of polluted water that is capable of physical, chemical, and biological damage to our natural water bodies. This infiltration garden, designed by Civil and Environmental Engineering graduate students Thomas Walsh and Dasch Houdeshel, will protect downstream waterways from unnecessary erosion and pollution by treating both rain and snowmelt runoff.

The native plants provide biological treatment of pollutants, such as nitrogen and phosphorus, from the impacted storm water and increase infiltration rates (the speed at which runoff can enter the subsurface soil). An unexpected benefit of this garden is the treatment of leaking water from the adjacent garage buildings which previously flowed across the parking lot, creating a nuisance. The image to the right highlights the hard surfaces that drain to this garden.

How is an infiltration garden different than other xeroscapes?

An infiltration garden accomplishes two important goals. First, the addition of a gravel storage reservoir allows for greater retention of water, which slowly infiltrates to the native soils and groundwater below, preventing negative runoff consequences. Second, the periodic floods that inundate this garden helps native plants establish extensive roots capable of accessing groundwater and, therefore, more effectively removing pollutants. For instance, the plants in this garden are known to root as deep as 30 feet to access water stored in the soil below and should not require supplemental irrigation.

How do we know if it works?

This garden is being surveyed monthly for general plant health by the American Water Resources Association and Water Environment Association of Utah Student Chapters. The chapter is reporting the status of the plant health to the University of Utah grounds maintenance managers and, together, the irrigation schedules are being adapted to minimize water use and maximize plant health. Vigorous plants are the key to maintaining the garden's main function as a filter and reservoir for stormwater runoff.

How did the Sustainable Campus Initiative Fund help?

Along with an engineering student's design student volunteers helped construct this garden. The Sustainable Campus Initiative Fund, also known as SCIF, oversees competitive grants for student projects that improve the University of Utah's environmental quality and make the campus more sustainable. SCIF is rooted in student's engagement with environmental issues. University of Utah students voted overwhelmingly in favor of the student-driven campaign to pay \$2.50 of their tuition each semester into SCIF. This popular program gives every student the opportunity to apply for a grant to plan and implement a sustainability project on campus. www.sustainability.utah.edu

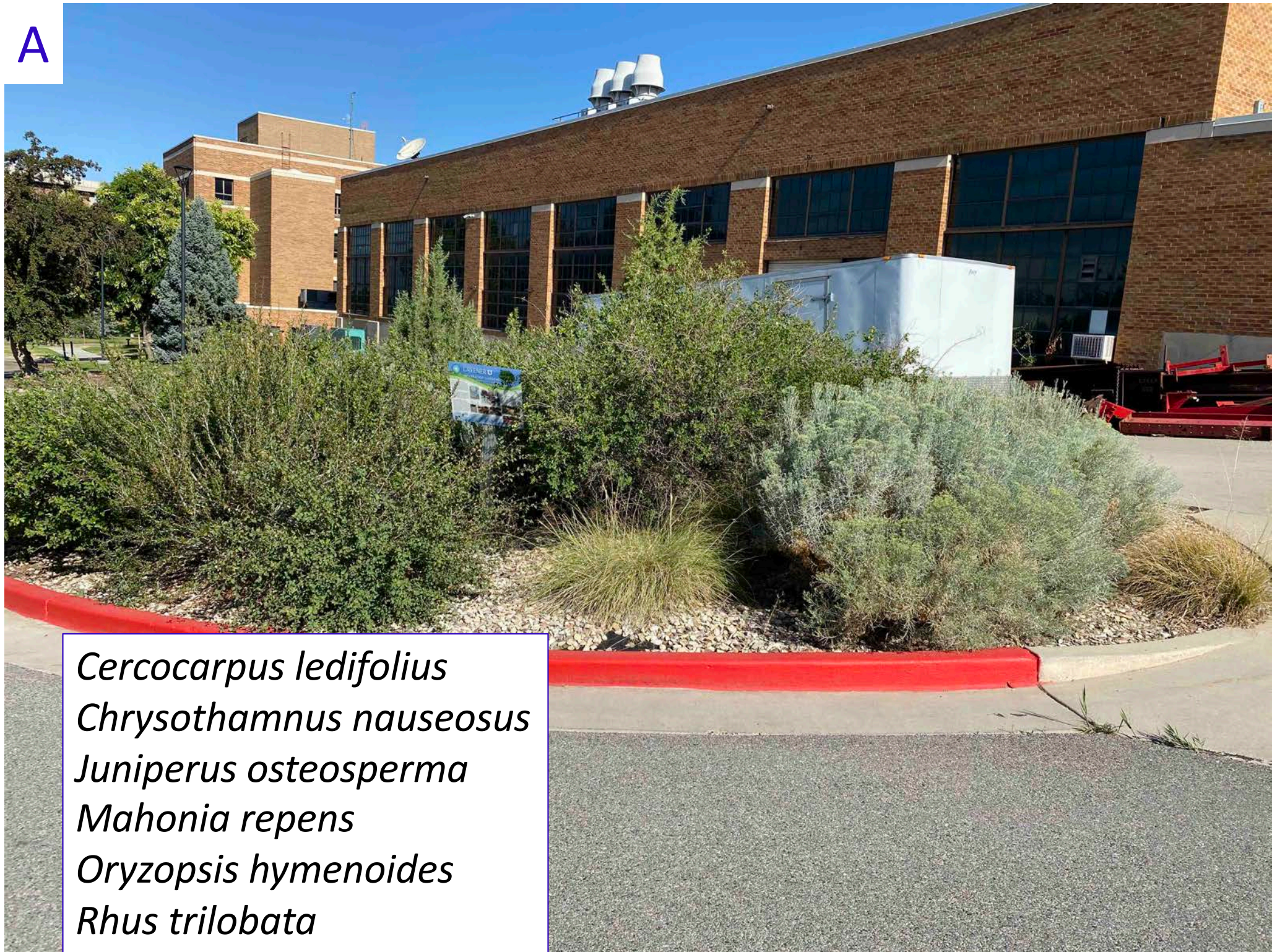
Map of Runoff-Generating Impervious Area with Bioretention Basin Delineated

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THE UNIVERSITY OF UTAH

A



Cercocarpus ledifolius
Chrysothamnus nauseosus
Juniperus osteosperma
Mahonia repens
Oryzopsis hymenoides
Rhus trilobata

A



Through roadway dips and the absence of a curb, water is diverted directly onto native, drought tolerant vegetation.

This infiltration garden was designed by civil engineering students.

B UU GI 1 – recharging ground water and reducing stormwater needs



Small circles indicate stormwater entry points; squares represent entry into green infrastructure

B

UU GI 1

Native drought tolerant and riparian species

Acer negundo

Chrysothamnus nauseosus

Chrysothamnus viscidus

Gutierrezia sarothrae

Mahonia repens

Oryzopsis hymenoides

Quercus gambelii

Rhus trilobata

Stipa comata



B



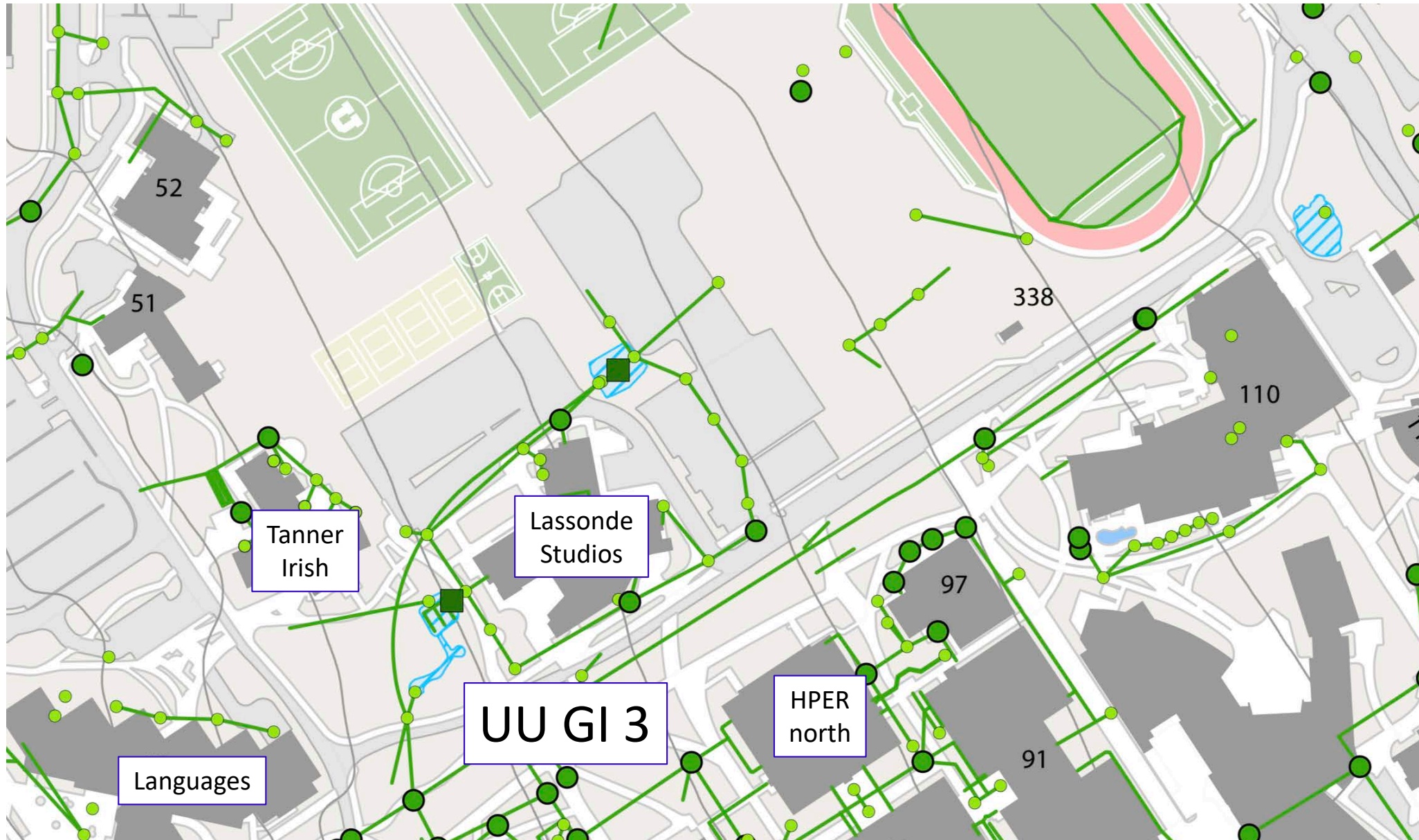
Native, drought tolerant species

B



Invasive species can also establish at green infrastructure locations. *Ailanthus altissima* (tree of heaven) is well established here on the south side of UU GI 1.

C UU GI 3 – recharging ground water and reducing stormwater needs



Small circles indicate stormwater entry points; squares represent entry into green infrastructure

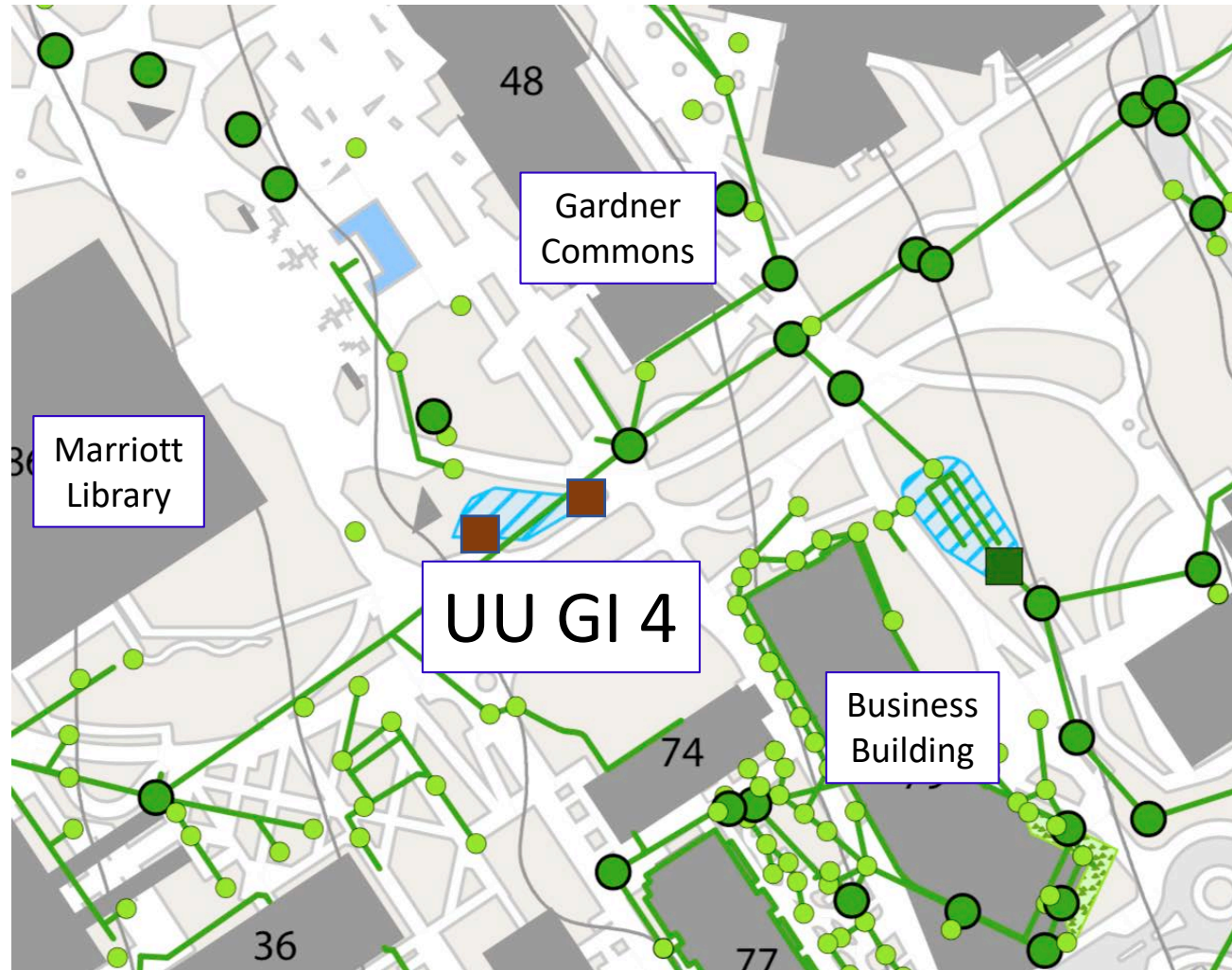
C



C



D UU GI 4 – recharging ground water and reducing stormwater needs

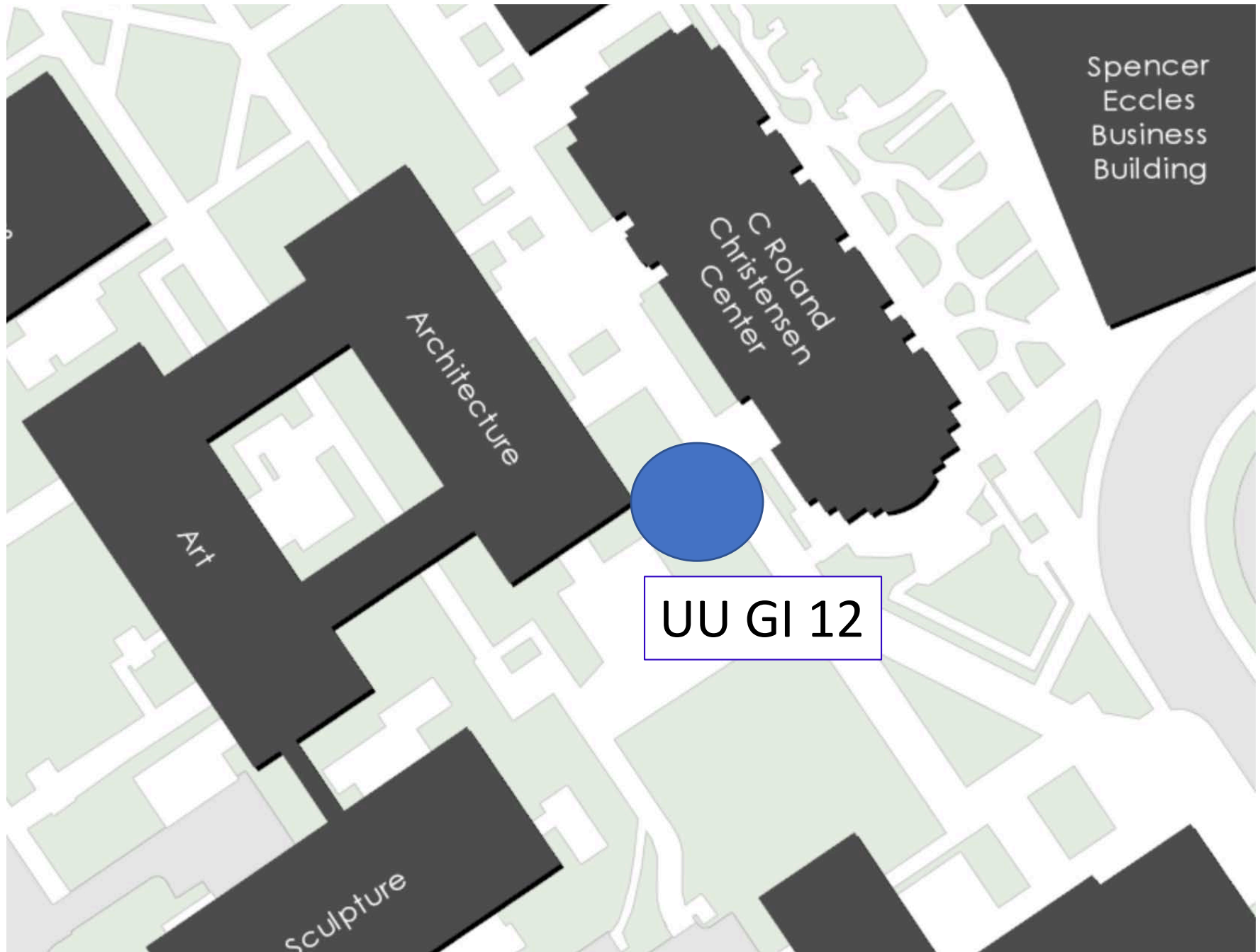


Small circles indicate stormwater entry points; squares represent entry into green infrastructure

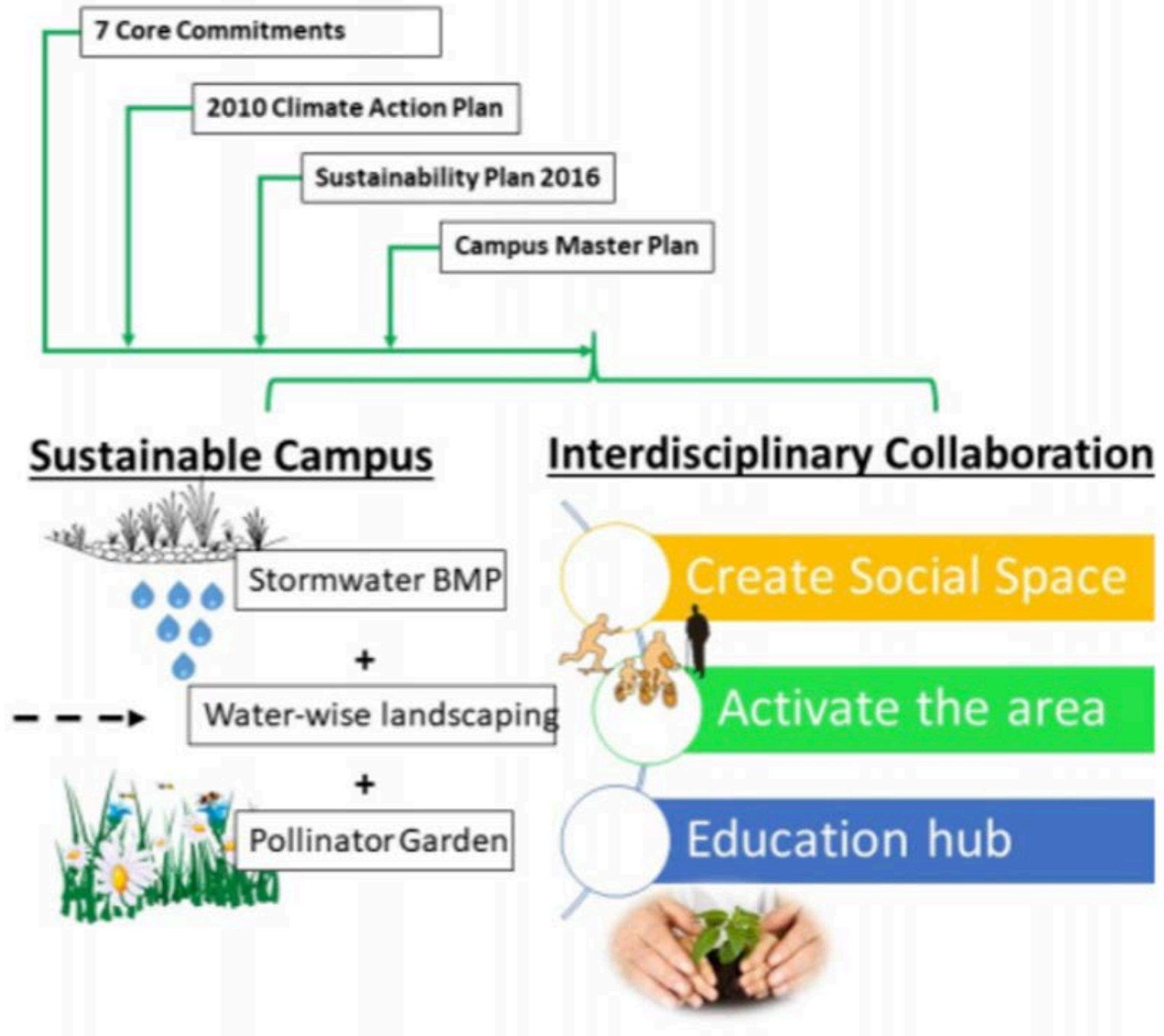
D



E UU GI 12 – pollinator garden



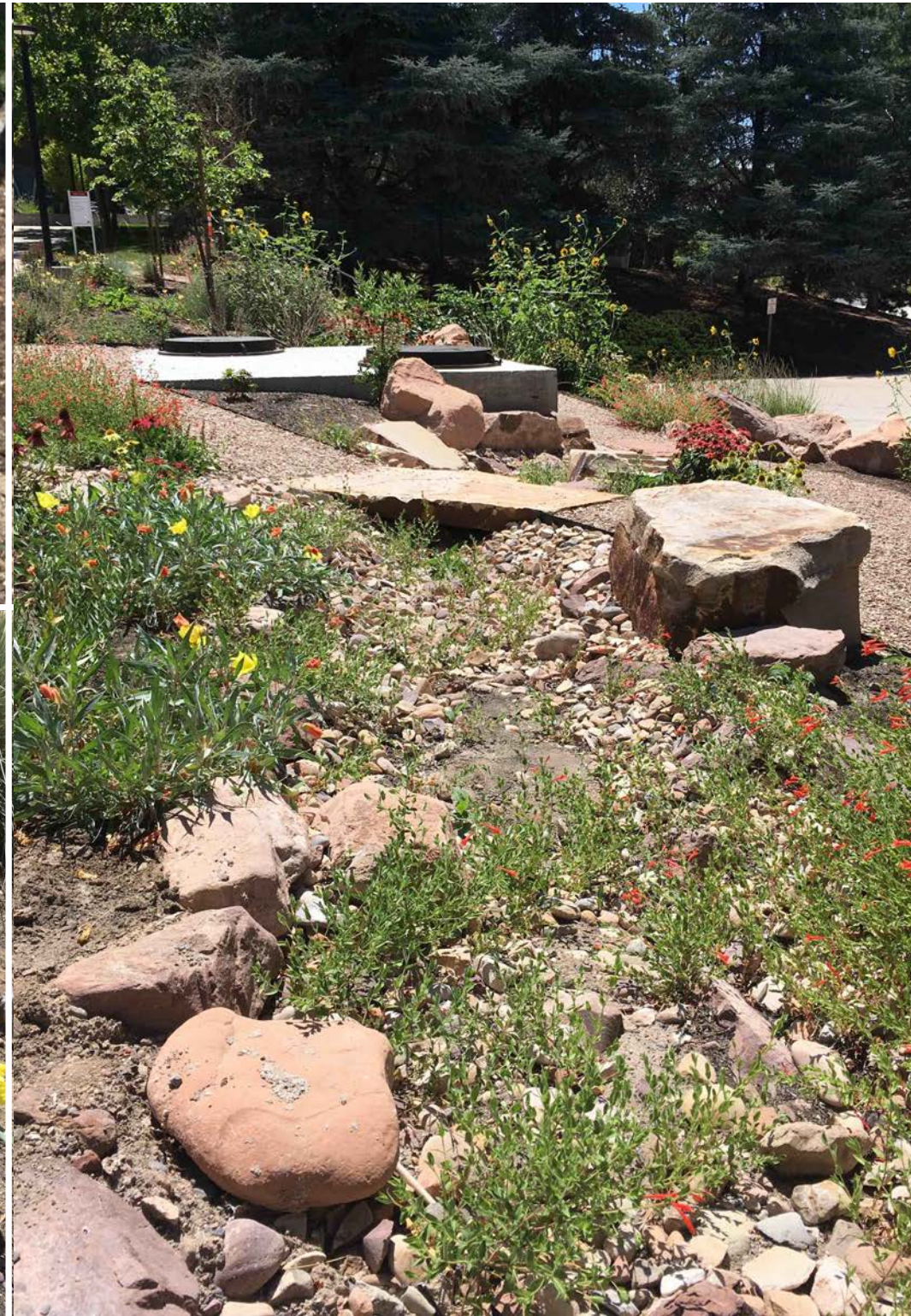
E UU GI 12 – pollinator garden



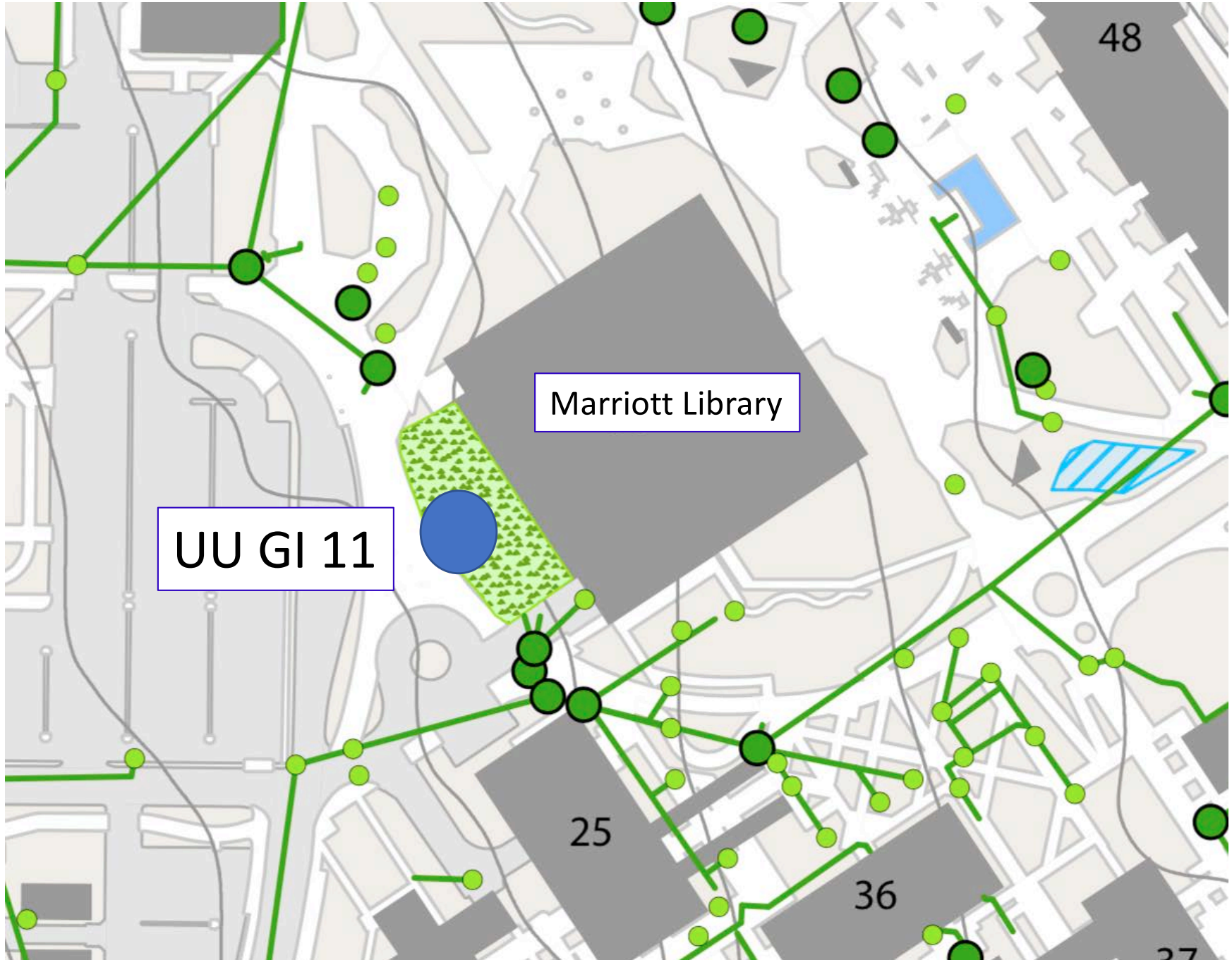
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E



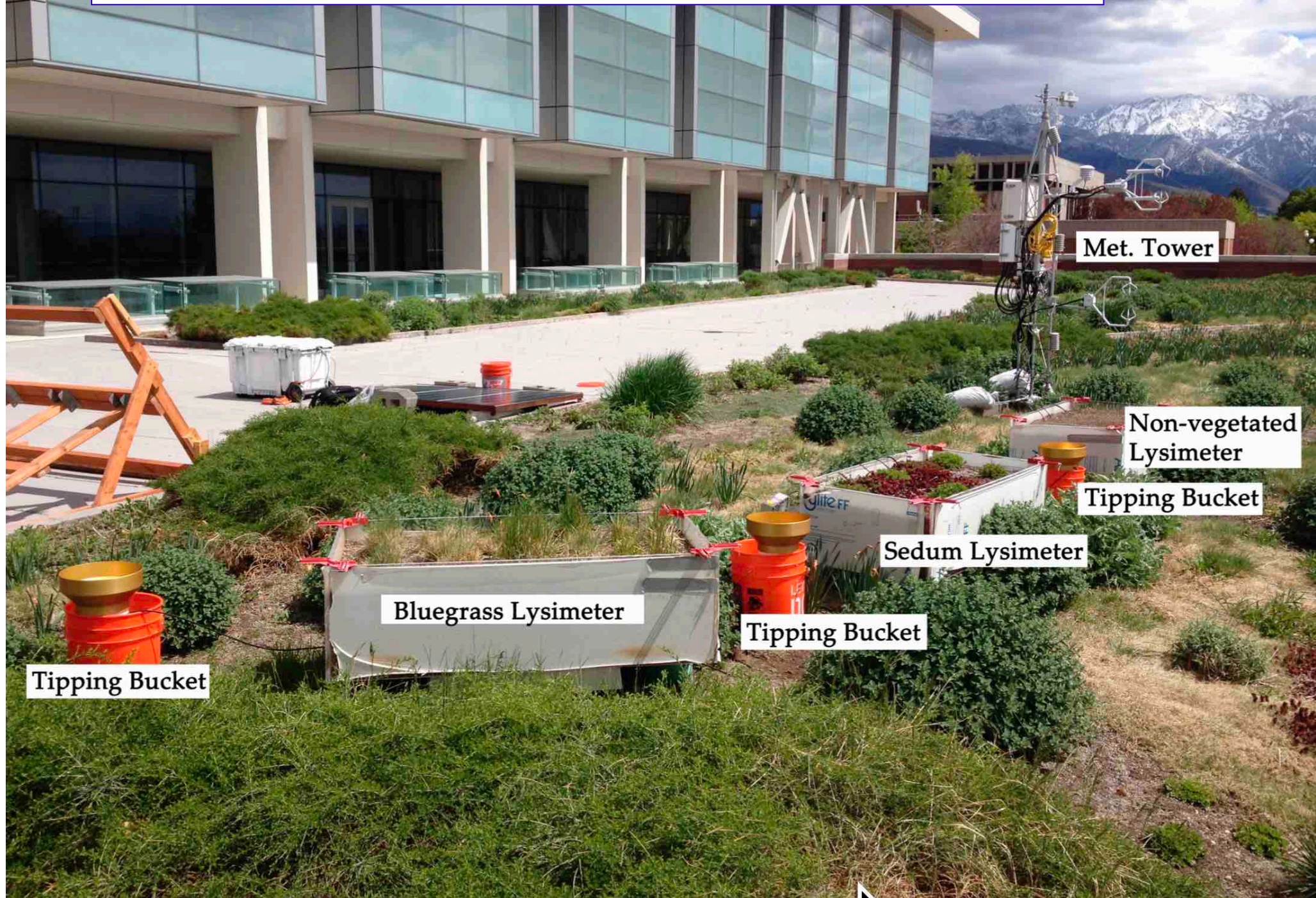
UU GI 11 – roof garden on west side of Marriott Library



UU GI 11 – roof garden on west side of Marriott Library



UU GI 11 – roof garden on west side of Marriott Library



Met. Tower

Non-vegetated
Lysimeter

Tipping Bucket

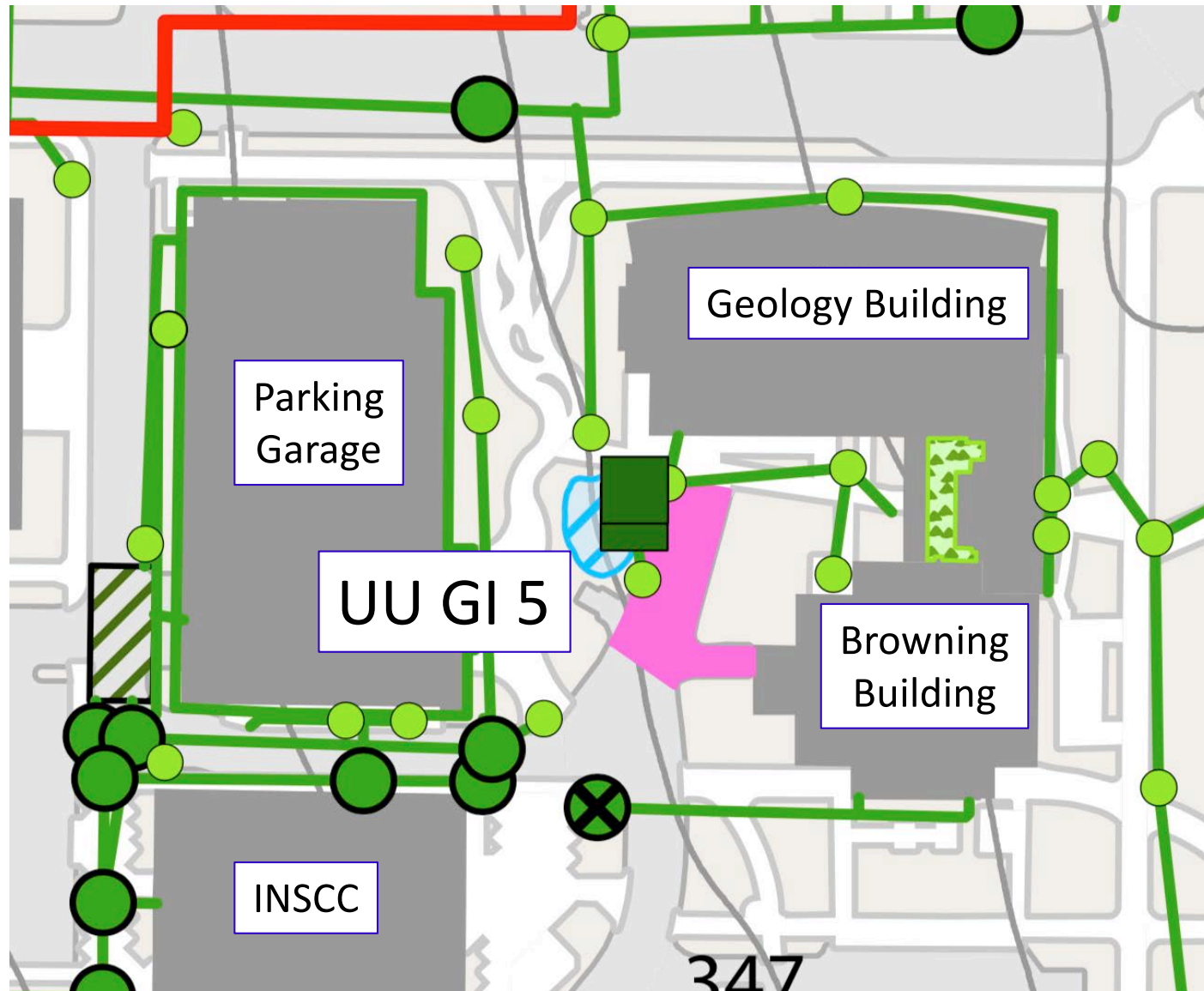
Sedum Lysimeter

Tipping Bucket

Bluegrass Lysimeter

Tipping Bucket

UU GI 5 – retention pond on west side of Geology Building



Small circles indicate stormwater entry points; squares represent entry into green infrastructure

UU GI 5 – retention pond on west side of Geology Building

