

COLLEGE OF THE ENVIRONMENT



Internship Title:

Organization Worked For:

Student Name:

Internship Dates:

Faculty Advisor Name

Department

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STUDENT SIGNATURE

M Bailey

DATE:

Northwest Straits Foundation Rain Garden Internship

Margeaux Bailey

Introduction

The Northwest Straits Foundation hired me as an intern to coordinate and oversee the construction of a new rain garden at Mt. Erie Elementary School in Anacortes. My internship began in early Fall of 2021 and concluded in Spring of 2022. The goal of the project was to not only create a green space within the bus loop where children are dropped off and picked up but to build a storm water filtration system to improve storm water quality before it enters streams and it's final destination, the Salish Sea. This rain garden also provides continuous learning opportunities for the students at Mt. Erie Elementary School to gain knowledge about stormwater management practices and the opportunity to be environmental stewards. The Mt. Erie rain garden contains a variety of 130 plants including native species and benefits the Salish Sea through filtering up to 80 percent of pollutants and sediments before entering the Anacortes stormwater system.

January, 2022



May, 2023



This project was a unique opportunity provided by the Northwest Straits Foundation to utilize the knowledge and experience I have gained as an environmental science student and spearhead a multifaceted project as an undergraduate. It was

incredibly rewarding to apply my education in a professional setting, collaborating with staff and project partners to facilitate the goals of the rain garden.

My role as project coordinator included communicating and collaborating with our partners, Mt. Erie Elementary School, the City of Anacortes, HF Sinclair, the Skagit MRC, and Azusa Farms and Gardens. I was responsible for providing project plans and timelines, facilitating collaborative communication between partners, organizing planning meetings, supervising site excavation, creating project sketches and educational materials, and acting as a spokesperson for the Northwest Straits Foundation.

The rain garden was built at Mt. Erie Elementary School and will provide educational opportunities for the roughly 300 children that are students there. It was important to the foundation and our project partners to facilitate an event where the students could participate in the creation of the garden. This planting party occurred on March 26th and included approximately 50 volunteers. There were students, parents, teachers, Anacortes High School Green Club members, and foundation staff all in attendance.

Internships that create space for independent learning through large-scale projects are valuable and uncommon, especially within the Bellingham area. I am grateful the Northwest Straits Foundation curated this opportunity and I am excited for future interns to experience the same growth and learning this project provided for me.

Introductory Role and Experiences

In the initial stages of my internship, planning was supposed to begin in the summer of 2021 with construction occurring in September, 2021. This original completion goal was based on early fall being the ideal time for planting to occur. Planting in the fall allows for roots to become established before cold temperatures and wet conditions set in while avoiding summer drought. Around August, it became clear that it was necessary to push the planting to the springtime, the second best opportunity for the planting to occur.

During the time before the winter planning and spring planting, my role shifted towards supplemental aid where I became familiar with the programs and practices of the Northwest Straits Foundation. One experience that stood out was when I had the opportunity to participate in the final beach seining for the Bowman Bay Monitoring Project. This project, run by Jason Morgan, Marine



Projects Manager for the Northwest Straits Foundation, spanned 6 years and aimed to monitor the effectiveness of the Bowman Bay Restoration Project. This restoration project removed shoreline armor with the goal of restoring beach conditions for forage fish and migrating juvenile salmon. It was very special to have the opportunity to learn more about this project and fully realize the impact shore line restoration work has on not only the environment, but also the community.

Besides becoming familiar with the vast work done by the Northwest Straits Foundation team, I helped with marketing and media tasks like updating instagram and facebook posts and conducting volunteer interviews for monthly newsletters. This introductory period was a great way for me to become acquainted with the Northwest Straits Foundation and was the perfect training to teach me how to be a good representative for the non-profit.

Planning and Preparation

Planning began in early January with the aim of completing the rain garden by the beginning of April. The initial stages of planning involved reaching out to key community partners that had previously been established when funding for the project was approved. These partners included the City of Anacortes City Works, Dianne Hennebert, Stormwater Manager for the City of Anacortes, and Azusa Farms and Gardens. Initial communication with these partners was fundamental in determining the steps that needed to be addressed and completed for the rain garden to be successful. Within these initial meetings, I identified the following parameters that need to be identified and considered when planning a community rain garden project:

- a) Identify partners: who is providing plants, soil, excavation, design, who will participate in the planting party, who is funding and supporting the project.
- b) Create a flexible project timeline: collaborative events are dependent on partner availability which may change over the course of the project.
- c) Prepare communications with all project partners and provide new information as necessary.
- d) Work with partners to set dates for excavation, soil spreading, and the planting party.
- e) Keep in mind there are other community stewards that will need to be updated about construction procedures and permitting. Ex: grounds keepers, city works.
- f) Plan planting party: set roles for each partner, how can everyone be involved?
- g) Send out invitations for the planting party: keep in mind the number of volunteers necessary (it takes ~3-5 minutes for one person to plant a

gallon bucket sized plant), flyers and an online sign up sheet are a good way to keep track of numbers and materials, a month's notice is appreciated.

It is important to note that one of the main goals of the rain garden was to build a community event involving many different partners to facilitate engagement and outreach while providing an education opportunity for the public. Building and designing the rain garden was only half of the project. Planning and facilitating community involvement was a large part of the planning phase.

The next step in the planning and preparation phase was to create a project timeline. Below is a project timeline produced to establish a framework for addressing the needs of the rain garden construction and community event.

Mid January:

- Design meeting with Everett Chu, Azusa Farms: introductions, discussion of rain garden layout, drainage concerns, building logistics.
- Set up a meeting with Kevin Schwartz and Diane Hennebert to discuss building requirements and school collaboration. When is an ideal time to start construction for the school in collaboration with the set timeline?
- Meeting with Diane Henebert to schedule excavation and construction date. Confirm with Kevin Schwartz.

Early February:

- Core partners confirmed and roles agreed upon.
- Meeting with Diane Henebert to schedule excavation and construction date. Confirm with Kevin Schwartz
 - Meeting took place on 2/3. Excavation planned for the last week of February over a few days. Planting will occur the weekend before spring break. Potentially over two weekends based on project scope.
- Initial partner engagement: Green club, Holly Fronteire, Mt. Erie Elementary School PTA and teachers.

End of February:

- Site prep and construction: Tuesday, February 22nd.
- Fill layers sourced and procured. Site will be filled in shortly after excavation for safety and to allow the soil to settle before planting.
- Initiate meeting with Mt. Erie Teachers to discuss curriculum preferences.
- Additional partner preparations: specific roles delegated and confirmed.

- Media releases with photos from site preparations.
- Set dates for planting and announce to partners and community.
- Educational signage designed.
- Material staging: landscaping materials and plants sourced and ordered.
- Communications and press releases.

March:

- Planting projects scheduled by participant groups - Green Club, Mt. Erie students, teachers, and PTA, Holly Frontier, community organizations
- Planting planning initiated. Reach out to partners to help source materials.
- Community work parties: March, 26th - Planting and celebration
- Educational programs and tools rolled out; although it may not be completed, but still in development. Goal: work with the green club to create educational materials and programs for the future. Education may not begin till fall of next year due to covid restrictions.
- Communications press release(s)

There were many different entities involved in the funding, planning, and planting of the rain garden. An abundance of excitement about the project made it very important to establish set roles for each partner, ensuring each entity had a role to play in the construction or planting of the rain garden. Below is a list of partners and potential partner roles.

1. Azusa Farms: rain garden design, plant supply.
2. Diane and City Works: site excavation and construction.
3. Green Club: Post construction site prep in March, educational roles.
4. Holly Fronteire: Press releases and planting party involvement, material donations.
5. Mt. Erie students: planting party involvement, set up for April Celebration
6. Mt. Erie teachers and PTA: planting party involvement, planning and set up for April celebration.
7. Samish Tribe: education, planting party involvement.

Rain Garden Construction and Design

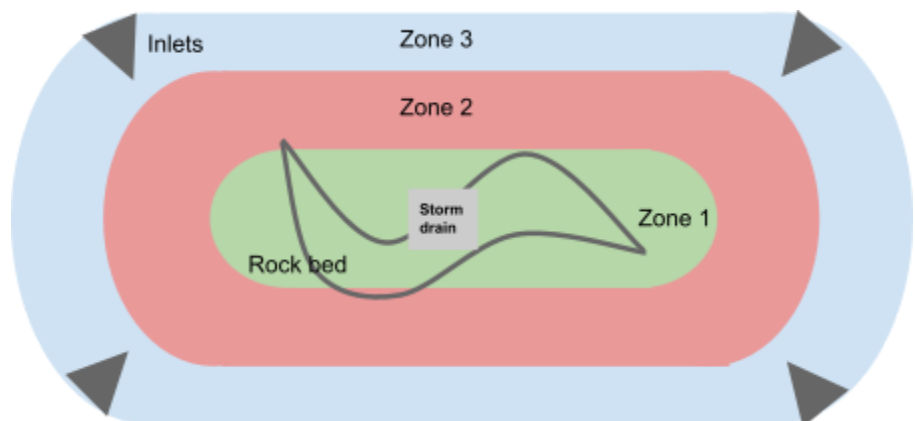
Site: Mt. Erie Elementary School bus roundabout.

The site is approximately 40 feet by 100 feet and has an area of 3500 square feet. There is a storm water drainage in the center of the site. A stormwater pipe runs diagonally from the south west corner to the north east corner. Runoff typically enters the garden at any of the four corners but primarily the south and northwest corners.



Design

While collaborating with Azusa Farms and Gardens, we opted to use a three zone design for the rain garden. The first zone is in the lowest depression of the rain garden where the storm drain is placed. It is expected that this area will fill with water and should contain native vegetation that can tolerate submersed conditions. This part of the rain garden will contain a rock bed to help facilitate excess water drainage through the storm water drain in the center of the rain garden. The rock bed will also help reduce storm drain clogging from leaves and sediment that collects in the bottom of the garden. This feature is essential due to the history of flooding during late fall when leaves fall off the cherry trees that surround the perimeter of the site and accumulate around the storm drain. Zone 2, as depicted in the diagram below, consists of native plants that have some water tolerance, but since they will not frequently be submerged, there can be more variation than in



zone 1. It is important to include a wide variety of plant species to promote diversity, attract different types of pollinators, and create more pollutant filtration. The third zone

will consist of plants with the lowest water tolerance and will also house walking paths and the resident cherry trees. Azusa Farms and Gardens curated a list for plant species that fit the criteria for each zone. Inlets at each corner of the garden will help direct water into the garden and off of the surrounding pavement. The corners were chosen as inlets after site observation showed water naturally flowing into the site at these locations.

Construction

The first excavation day occurred on February 22nd, 2022. Anacortes City Works conducted the excavation to remove grass, existing topsoil, and to create an indentation for the catch basin of the rain garden. It was important for excavation to begin after student drop-off and end before pick up in order to avoid interference with traffic. The site was tapped off and cones were set up to deter cars from parking along the loop. The storm water pipe was flagged to avoid breaking it during excavation. As excavation began, plastic “french drains” were discovered embedded underneath the entire site. This was a surprise which made excavation slightly more difficult. The curved shape of the excavation site was produced as a way of avoiding the cherry trees and protecting their roots. In the planning phase, it was determined that it would be ideal to remove the cherry trees, however the members of the school wanted them to remain so we were very careful to not disturb them during excavation.

On the second day of excavation, water began pooling up in the suite which initially raised some concern. The bottom layer of soil was almost entirely clay so water could not easily penetrate into the ground. The initial concern faded with the knowledge that the rain garden was designed to handle flooding along with the fact that native vegetation would also aid in removing excess water. A total of eight trucks of soil was removed from the site and replaced by topsoil sourced and delivered by Azusa Farms and Gardens.



Planting Party

The planting party occurred on March 26th, 2022. Approximately 50 volunteers including Northwest Straits Foundation staff, Azusa Farms staff, City of Anacortes staff, Mt. Erie Elementary School staff, students, parents, Anacortes High School Green Club members, and Holly Frontiere representatives came to help out with the planting. We began with a brief presentation of an educational poster where the students got to show off their rain garden knowledge. The presentation was followed by a planting demonstration and afterwards the volunteers jumped into action. The event was geared towards student participation and allowed children as young as 4 to get hands-on experience. Plants were laid out in each zone to make it easy for volunteers to participate. Students took initiative to name their plants and announce March 26th as each plant's birthday, excited to return a year later and see how the plants have changed. The younger volunteers will be able to watch the garden grow throughout their time at Mt. Erie Elementary School, a heartwarming outcome of the planting.

The planting party was a great success and it was incredible to see the community of Anacortes come together and build a special space. The rain garden will have lasting positive ecological effects while providing educational opportunities for students and a green space for community members to enjoy.



Students participating in the planting party.



Garden immediately after planting

Completed Rain Garden One Year Later:



Permanent educational signage



Inlet site and pathways



Lupin in bloom



Rock bed in zone 1

Reflection

The rain garden was an amazing internship opportunity and the success of the planting party was an extremely rewarding experience. It is exciting to think about how much the garden will grow and change as time passes. It was pretty cool to return a year later and see how much all the plants have grown and become established. I would like to return again next year and see how the rain garden looks during the wet, winter months.

I had so much fun working with the NWSF staff and partners, it was amazing getting to learn more about nonprofit operations and the work NWSF does. I valued the trust and independence I was given to complete the project and appreciate the help and support the NWSF staff provided.

This experience pushed me out of my comfort zone and allowed me to explore the responsibilities of a project lead. I was confronted with many questions and problems that forced me to get creative and persevere. Through this internship, I learned so much and it was a great introduction to non-profit environmental work. I gained a very good perspective about the amount of work it takes to coordinate a large project and feel I have built a solid foundation to use in future applications. The project was much more involved than I originally anticipated which was a welcome surprise. I had to fully utilize all the skills gained throughout my education, not only through my environmental science education, but through the overall problem solving and independent thinking skills I have gained during my time at Western Washington University. It was incredible to fully realize how my education at Western has prepared me to tackle difficult problems with confidence.

I want to end this report by thanking all the Northwest Straits Foundation staff and the City of Anacortes. It was so much fun getting to know everyone there. I am incredibly thankful to have had the opportunity to work on this project with such amazing and helpful people.

Supplemental Documents

Internship Contract:

For services contract #2021-12-Bailey between the Northwest Straits Marine Conservation Foundation and Margeaux Bailey

Position Overview: The Marine Conservation Intern will work closely with program staff on a diversity of marine conservation projects including rain gardens, environmental education, monitoring, restoration, public communications and related tasks.

This internship is designed to provide a college student with an opportunity to apply their academic studies and skills in designing and building rain gardens, developing environmental education curriculum, supporting field monitoring and restoration, and participating in public outreach and engagement.

Duties/Responsibilities

Rain Garden Project Support

Margeaux serves as project and field support intern. This includes, but is not limited to the following activities:

- Collaborate in the research and design a rain garden for Mt. Erie Elementary School, Anacortes.
- Recruit and coordinate volunteers to participate in the project
- Support administration and construction of the rain garden
- Celebrate completion and success with the community

Shore Friendly Program Outreach Support

Margeaux supports the Shore Friendly program. This includes, but is not limited to the following activities:

- Workshop development and coordination
- Assistance with social media
- Supporting homeowner site visits and data logs
- Conducting surveys

Field Project Support

Margeaux supports the Foundation's marine restoration and monitoring projects. This includes, but is not limited to the following activities:

- Nearshore monitoring
- Shoreline restoration
- Public education and communication

Simple educational poster I created geared towards elementary school learning:

