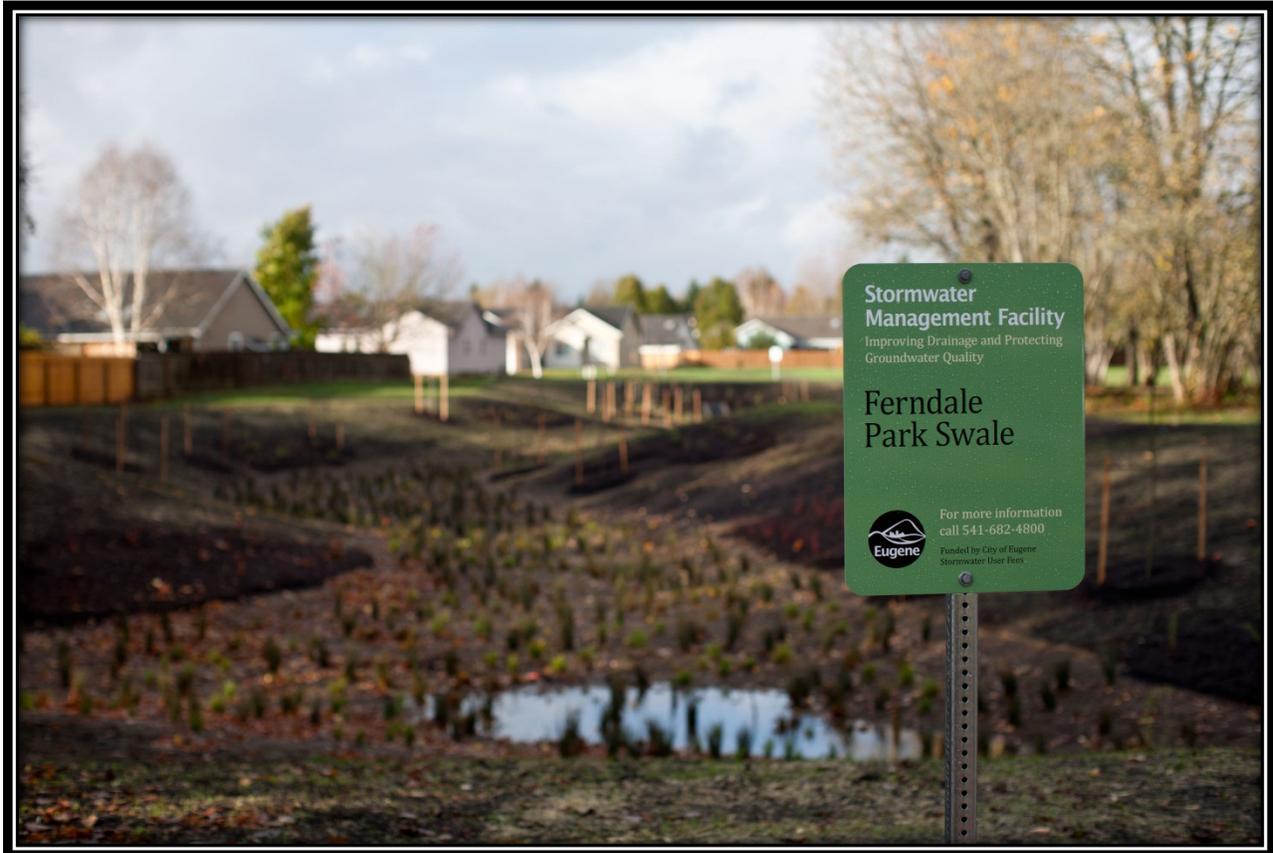


**Public Works Project of the Year - Supporting Information**  
Environmental  
Less than \$5 Million

**City of Eugene**

**Drywell Elimination Program: Shirley Area**

Feb 21, 2014



## Drywell Elimination Program Overview:

In 2011 the City of Eugene began a program to eliminate drywells called the Drywell Elimination Program. The program is the product of a long term basin master planning effort and anticipated changes in Oregon Department of Environmental Quality (DEQ) stormwater permit requirements for existing drywells.

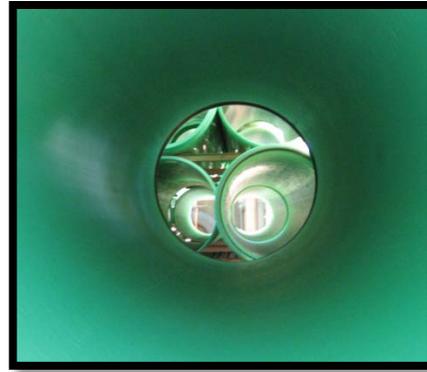
The goals of the Drywell Elimination Program (DEP) are to improve drainage, protect local water quality and develop connected stormwater systems. Prior to the beginning of the program, the City had over 160 drywells in areas with limited piped systems or waterways to receive stormwater. Over the next 20 years Eugene plans to eliminate most of its public drywells and replace them with stormwater management facilities that reduce the risk of polluting potential drinking water sources. The DEP program is funded by local Stormwater User Fees.

The City of Eugene completed scoping, design, and construction of two DEP pilot projects in 2012: DEP Shirley Area and DEP Escalante Area. The successful completion of these pilot projects is the result of extensive collaboration from work groups and agencies in and around the City of Eugene.

## DEP Shirley Area Project Overview:

The Shirley Street Area is a fully developed neighborhood in North Eugene (Santa Clara). The area had 16 City of Eugene drywells and limited existing stormwater connectivity. The neighborhood is a mix of Lane County and City of Eugene properties. A 4,800 feet storm water piping system was constructed through the existing neighborhood to redirect runoff from the existing drywells to a neighborhood treatment and infiltration swale. In the swale storm runoff filters through vegetation, infiltrates into the ground and, as needed, flows to an existing drainage way towards Spring Creek.

Because of the evolving ongoing permit negotiations, City staff kept in contact with Oregon DEQ through scoping, design, and construction of the project.



The most visible feature of the \$1,000,000 project was the construction of the 400 foot long swale in Ferndale, an undeveloped 4-acre Park site. The critical issues of the swale were swale design, downstream system capacity, and neighborhood acceptance.

## Swale Design

The design requirements of the Ferndale Park swale had several competing priorities:

1. The swale had to provide adequate treatment and infiltration for the 30-acre catchment area while also being easy to maintain by City staff.
2. The swale had to provide ample opportunity for infiltration while also providing an overflow for large rain events.
3. The size of the swale footprint had to be balanced with the desire for gentle side slopes to make it easy to access and to look as natural as possible.
4. The finished look of the swale had to be perceived by the neighborhood as an amenity to the park and blend in with the existing park without precluding future planned park improvements.



## Downstream System Capacity

The existing downstream storm system is under the jurisdiction of Lane County Oregon. City staff worked with County staff throughout scoping and design of the Shirley project. An agreement was reached that allowed the stormwater runoff for the Shirley Area neighborhood (a mix of City and County properties) to enter the existing Lane County storm system.

Through stormwater modeling we determined the downstream system had capacity for the increase in stormwater runoff. The project removed invasive vegetation and improved capacity of an existing channel in the park and upgraded the inlet structure into the County storm system.

## Neighborhood Acceptance

City Staff worked extensively with the active neighborhood group for project buy-in. Partly as a result of those productive discussions, the swale has become a stormwater amenity to the Park and the neighborhood. More detail about the neighborhood involvement can be read below in "Community Needs and Involvement".

## Construction Schedule & Management

The existing water table in Eugene, particularly in the North Eugene Santa Clara area, is as shallow as 7 feet below ground surface. The abundance of drywells in the Shirley Area and the lack of vertical separation between the drywells and the water table were deciding factors in identifying this area as the site for a Drywell Elimination Program pilot project.

Because of the shallow water table, phasing and scheduling of the work was a challenge. Contract work began in August 2012 and was substantially complete in November 2012. Through careful planning the project found a balance between waiting for the water table to be at its lowest and being able to complete the project (including seeding and planting) before the onset of the fall rains. A two-year plant establishment period began in November 2012. At the conclusion of the establishment period in November 2014 the swale vegetation will become the responsibility of City of Eugene Parks Maintenance staff.

Another aspect of the project that was a construction management challenge was maintaining the active drywells while the new stormwater facility was being completed. Throughout the construction of the 4, 800 feet of piped collection system the 16 drywells had to remain intact and active until the swale was completed and ready to accept runoff.

Other scheduling accomplishments included maintaining access to homes as well as maintaining access to Ferndale Park for park users.

## Safety

No lost time injuries were reported as part of the project. Individual safety programs were followed by the project contractor and their subcontractors.

## Community Need and Involvement

One of the primary objectives of the project from conception through construction was the effective and efficient management of stormwater for the neighborhood. The project constructed a neighborhood scale facility as opposed to a multitude of curbside swales or small rain gardens to minimize the impact to individual property owners. It was a design decision that resulted in a more cost effective solution for the project, reduces maintenance costs and had less impact to the neighborhood.

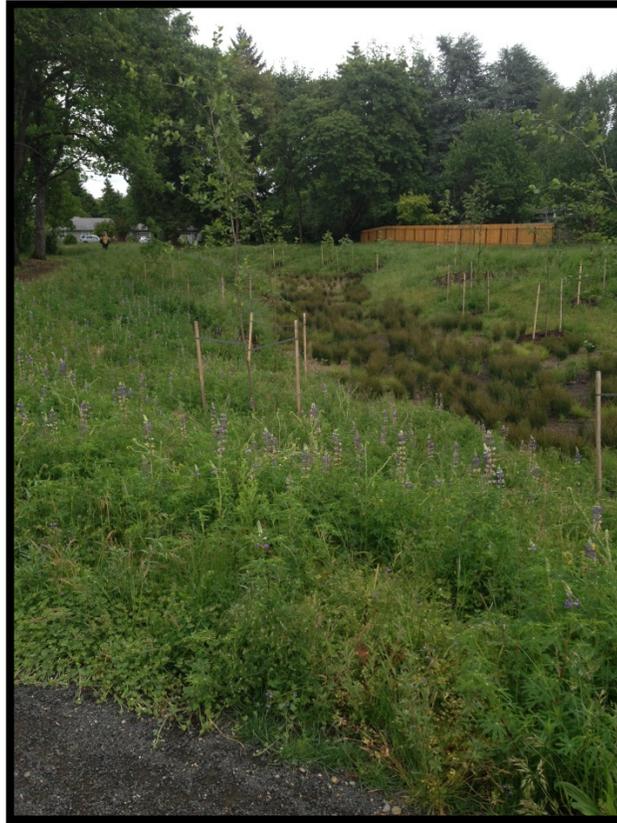
The City of Eugene acquired Ferndale Park in 2004 as a designated future park site. In 2008 City staff, along with the neighborhood, began an iterative and extensive process to develop a Park Master Plan for the site. Because of ongoing challenges to provide adequate maintenance funding, the development of the park has not move forward. Since then the Shirley Area neighbors have remained active and involved. Neighborhood volunteers have put in countless hours of work in the park. They regularly perform work such as clearing, mowing, planting, and watering.

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The Shirley Area project made a concentrated effort to make the new swale a positive addition to the park.

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- City staff coordinated the removal of damaged and invasive vegetation surrounding the site.
  - 900 feet of new gravel path was added on the site to allow easy foot traffic around the new swale and through the park. Upon opening, the path immediately began receiving heavy use from neighborhood park users.
  - The swale was planted with a mix of native seed mix, regional plants and low growing shrubs to help maintain sight lines
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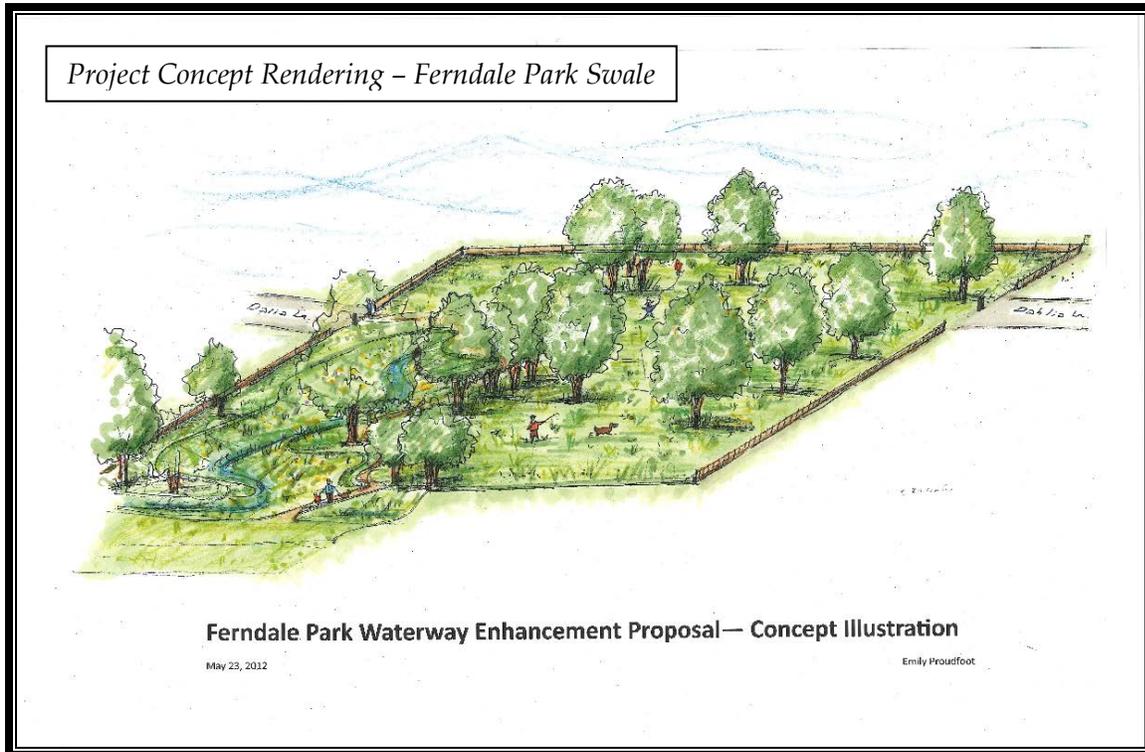


*Ferndale Park Swale*

*Ferndale Park Gravel Path*



Building neighborhood buy-in was a crucial part of the design and scoping of the project. City of Eugene Parks representatives were instrumental in facilitating those conversations. A small community meeting was held during project scoping to introduce the project and was followed up by an online web survey. City staff then met one-on-one with interested neighbors on site numerous times to discuss the project and to work through questions and concerns. It was a challenge to garner support for a fully-funded project when the neighborhood had been waiting for funding for their park facilities. The project included funding for the completion of a new process to update and edit the Ferndale Park Master Plan.



The construction included clearing and regrading a portion of the existing channel that flows through the site. City staff organized a volunteer planting event that provided neighbors an opportunity to plant additional native plants within the existing channel.

Since the completion of the swale construction the neighbors have continued their volunteer work in the Park and have created a seating area adjacent to the swale.



*Volunteer Installed Seating*



*Neighborhood Group Meeting*

### Sustainable practices

The project incorporated sustainability in a number of ways. In Ferndale Park, clean excavated material (approximately 3,000 cubic yards) was taken to two locations, a park and a future park, for use as fill. The work was a coordinated effort between the City of Eugene Engineering division and the Parks and Open Space division. Other innovative and sustainable efforts included the donation of downed trees for neighborhood firewood, coordination of limited volunteer planting, and the donation of excess soil to the neighborhood children for their discretionary use in the park to build jumps for their bikes.

### Environmental Considerations

Throughout the project care was taken to protect the surround park and neighborhood. The following items were of particular importance:

Existing Park - The haul route and work zone within Ferndale Park were completely fenced off to minimize the disturbance within the Park.

Dust - Care was taken to minimize the dust created by truck traffic moving in and out of the park. The contractor coordinated periodic watering of the grade to keep dust out of the houses surrounding Ferndale Park.

Water - Keeping the existing drywells in place and active during the construction of the infiltration swale was one method used to prevent sediment and pollutant discharge downstream.

Plants - Native and low maintenance plants were used to reduce watering needs and create a natural environment.



*Swale Outlet*

### Additional Considerations

The successful start to the Drywell Elimination Program is the result of collaboration in and around the City of Eugene, Lane County and the Oregon Department of Environmental Quality. Each agency had a key role in starting this successful program that is accomplishing the goals of improving drainage, protecting local water quality, and developing connected stormwater systems through the elimination of public drywells. The City of Eugene has now completed four Drywell Elimination Program projects and continues to plan annual projects.

### Award Winning Project

The Drywell Elimination Program Shirley Area project received the Oregon Chapter APWA Public Works Project of the Year 2013 for Environmental Project Less than \$5 Million.



*Oregon APWA Environmental Project of the Year*

Swale Construction Photos



June 2012



September 2012



October 2012



November 2012

## Swale Post-Construction Photos



May 2013



July 2013



Sept 2013



Nov 2013