FAIRMOUNT PARK ELEMENTARY

Teacher Guide

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How to Use This Guide

This guide supports the Community Waters Science Unit Teacher Manual with information, maps, and images specific to your school and neighborhood. It is written for teachers; its goal is to provide a better understanding of what is happening with stormwater in and around your school. The points of interest and walking field trip route are suggestions and should be adapted as desired.

If you have any questions about these maps, accompanying lessons, or stormwater around your school, contact IslandWood staff at communitywaters@islandwood.org.

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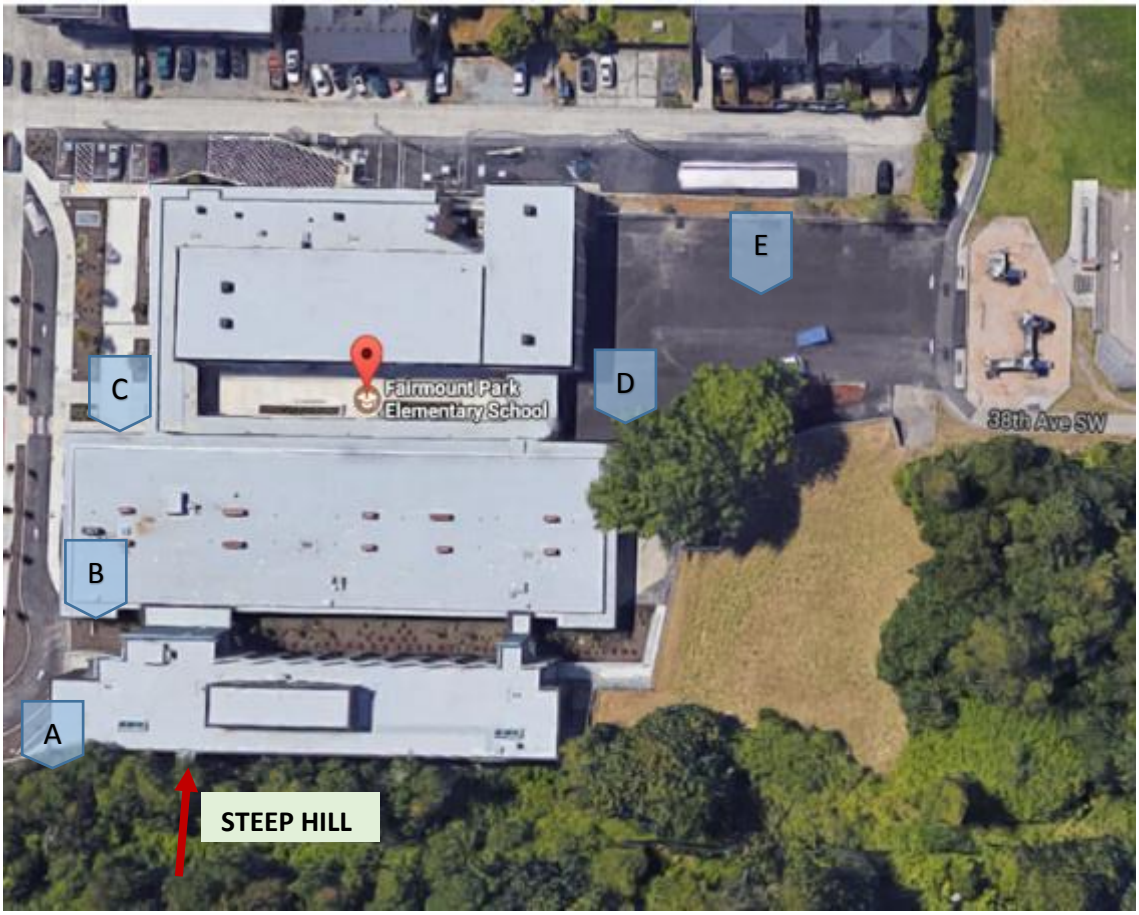
Stormwater in the Schoolyard – Lesson 3

This map and points of interest (photos and info) can be used to guide your class' exploration of the schoolyard. You will find the student worksheet for this lesson following the teacher guide version. Please use the extra space on the pages to add your own notes and questions! ☺



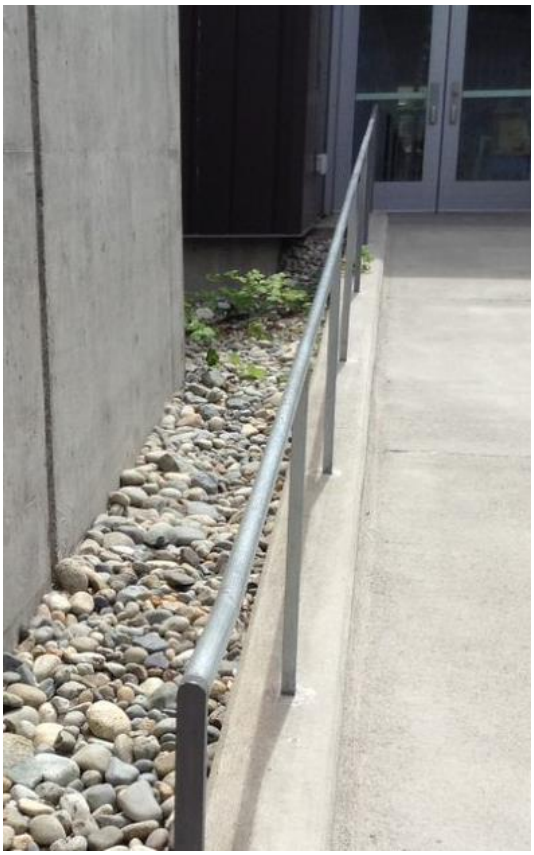
A. Storm drain & rock retaining wall

Notice the rock wall at the bottom of the hill next to the school. Rock walls are sometimes built to hold sloped ground in place, and if they are planted, plant roots help hold soil together rather than washing away.

B. Planted area on slope

How would this area handle stormwater? How might it be different if this area was covered by rooftop or pavement?

How does this area get used?



C. Gravel/rocks next to building

Why do might people have put these rocks here, instead of plants or pavement? What do you notice here when it rains a lot?

D. Gutters/Disconnected Downspout

Some downspouts drain into the ground near houses, while others are attached directly to the buildings sewer or stormwater pipes. Some go to locations where the water can soak in while others drain to the street or sewer systems. This downspout has been "disconnected" from the underground pipes so that the roof water drains into the ground instead of into sewer system. Does all the water that comes out get absorbed into the ground, or does some run off? How does a disconnected downspout help with stormwater runoff problems? Can students find other downspouts themselves? Where do you think the water might go from other parts of the roof?

Slope and retaining wall

Stormwater that can't absorb into the ground runs off it. The slope of the ground affects where this water flows and how fast. Consider the slope and surfaces of this area: where will the water end up?

E. Storm drain

Storm Drains move water into underground pipes to take it somewhere else. Anything that gets carried into the drain may end up in a local stream, lake, or Puget Sound. Why do you think the drain was built in this location? Where does water come from that goes into this drain? Why might it have been placed in this place? Is the drain working properly? What is in the drain?

Mapping Your Schoolyard – Fairmount Park

Name: _____ Date: _____

Include on your map:

- Symbols from the Key including flow of water, surfaces, and storm drains.
- Partially pervious surfaces can be shown with less dots.
- Label locations of litter, pollution and places where puddles form.
- Sketch any specific **stormwater problems** you see or are aware of.
- Sketch larger plants and bushes.

Map Key

Add your own symbol here!

Direction of water flow

Pervious Surface

Impervious Surface

Storm Drain

Local Stormwater Systems – Lesson 5

What happens with the Stormwater Pipes around your school?

- Depending on where rain falls on your school it could end up going into a stormwater pipe or a pipe that combines stormwater with wastewater. The thin green "house/building stormwater" lines on the map show the routes the water takes from the storm drains (blue dots).
- Most of the stormwater falling on your school, including any falling on your school's roof, enters the combined stormwater and sewage system (orange) and flows south. This is a big deal because it can cause combined sewer overflows (see below).
- The school storm drains north of the foursquare area and all the storm drains on neighborhood streets enter stormwater pipes and flows south under Fauntleroy Way SW.

Where does the stormwater runoff end up?

- Two sets of pipes can be confusing for students so we have separated them into different large-scale maps. The map with green pipes shows the stormwater only pipes and the one with orange pipes shows the combined pipes. You could give some groups the stormwater pipe map and other groups the combined pipe map or you could decide to focus with the class on one or the other.
- The stormwater pipes flow south and west until they empty into Puget Sound at Lowman Beach Park.
- The combined stormwater pipes also flow south and then west to Lowman Park but from there they are pumped north all the way to the West Point Sewage Treatment Plant to be treated before entering Puget Sound at Discovery Park. The red line on the map ends up at the treatment plant.
- **Key point:** In extreme weather events the sewage and stormwater in the combined pipes can end up flowing directly into Puget Sound offshore from Lowman Beach as a "combined sewer overflow" (CSO). To reduce the number of CSOs, King County built the "Murray Wet Weather Facility" across the street from Lowman Park with an underground million gallon holding tank. It has interpretive signs and might be worth a visit! You can learn more about it at: http://kingcounty.gov/depts/dnrp/wtd/capital-projects/completed/murray-cso-control.aspx
- We suggest watching the "**Drained: Urban Stormwater Pollution**" video (OPTION B) from 0:00 to 2:11 during Lesson 5. Point out to your students that what is shown is a stormwater pipe only outflow. During a big storm the CSO outflow would have everything described, PLUS everything from the sewers (including human waste). You can find this video linked on communitywaters.org or at https://vimeo.com/51603152.

Stormwater East of 35th Ave SW:

- Most of the stormwater that falls in your area east of 35th Ave SW (including Camp Long) ends up flowing into Longfellow creek (before emptying into Elliot bay).
- If you have students from the Highpoint Development, a lot was done there to help with stormwater. The features installed there include swales, large retention ponds, and smaller wetland ponds. They end up treating 10% of the watershed that feeds Longfellow Creek! You can learn more at:

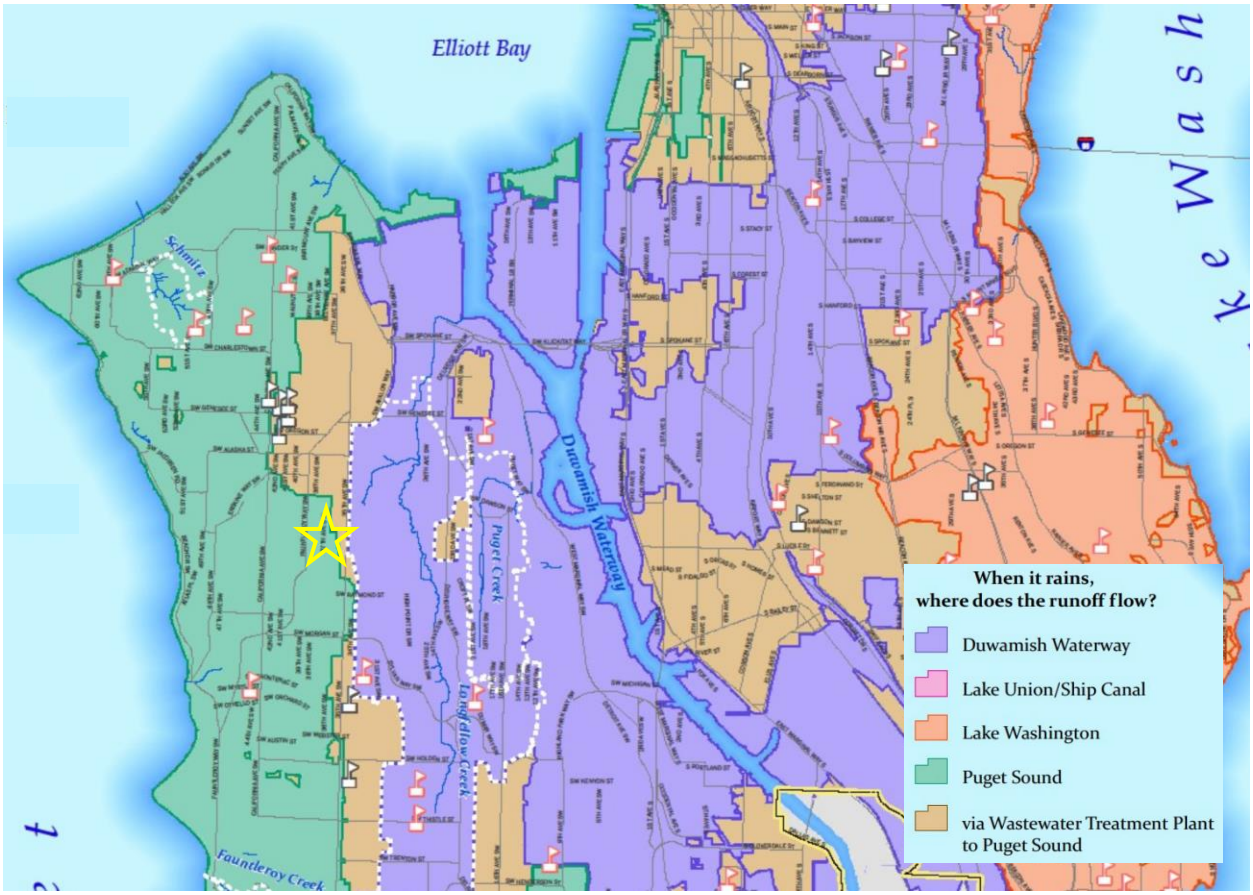
http://www.seattle.gov/util/EnvironmentConservation/Projects/GreenStormwaterInfrastructure/CompletedGSIProjects/HighPointNaturalDrainageSystem/index.htm

- If you have a lot of students whose water would end up in Longfellow Creek, you could also show them the Option A video from this Lesson.

Please Note: *The pipes information provided here is our best estimate of the stormwater flow in your community based on the information we have currently. If you encounter more information in the course of your investigation please let us know so we can update future versions of this document.*

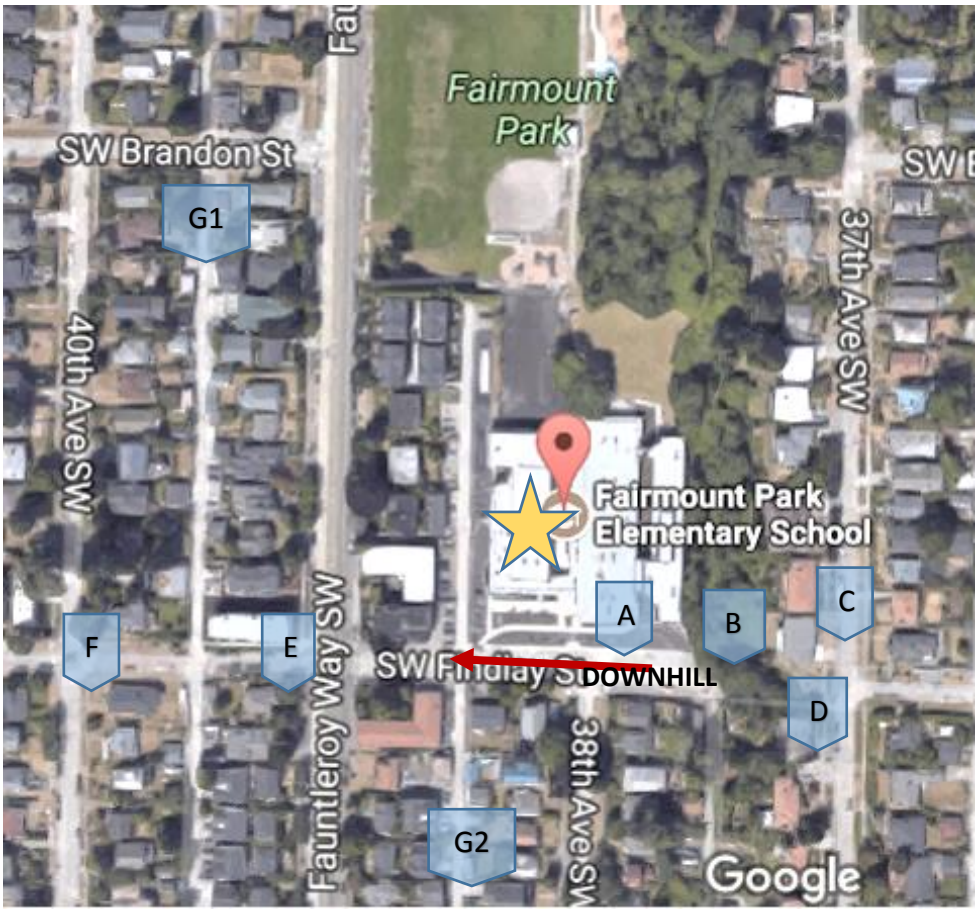
Stormwater Runoff Destination Map

Fairmount Park has a yellow star around it on the map.



Stormwater in Our Community – Lesson 6

Please use this map and points of interest as suggestions for your walking field trip, recognizing there may be other things of importance to note in other areas. It may be useful to bring the stormwater pipes map with you for reference. Questions posed are intended to be posed to students as desired.



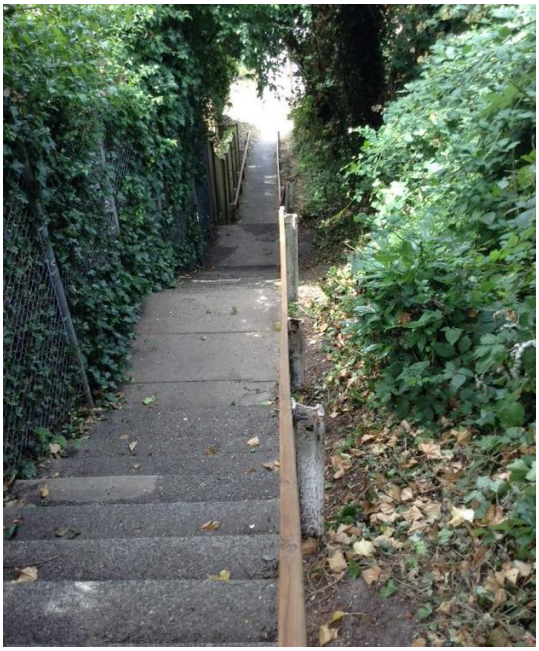
Suggested Route:

Items B, C and D are up steep stairs to the east of the school; you may want to divide the walk into two parts or choose items A-D or A, E, F, G. Item G has two similar options – visiting one would be sufficient.

Points of Interest

A. Slope/downhill view from steep slope

As rain water drains down the hill toward the school, does it have an effect on this area? What is downhill from here?



B. Steep slope and stairs

As students walk up (or down) the stairs, have them think about how the plants on this hill might be working to slow down or absorb stormwater from the top of the hill. What if this area had no plants? How might that affect the school below?

Have students pour water to the side of the stairs and note how fast it travels (or not).

C. Storm drain

Where is this drain collecting water from, and why might it be placed here? Can you see other drains?

D. Rooftop, Gutters

From here, you can actually look on the roof of some houses to see the gutters and where the rooftop water ends up. Roofs are made out of materials that break down over time, putting those materials (and sometimes chemicals that are within them) into the runoff. Where is this roof runoff ending up?

E. Gutter/downspout chain

This is a unique and decorative way of transporting runoff from roofs: using a chain or linked cups (instead of a downspout) to direct the water down and often into something that collects the water. Rain chains are widely used in Japan.

Where are these rain chains collecting water from?

F. Disconnected downspout

Here's another downspout that's been disconnected. Why might this homeowner decided to have their roof runoff go into the grass?

G1. Pervious surface

Pavers are tiles made from brick, stone or concrete, which are arranged with spaces in between that allow water to soak through. What happens when water hits the surface of the pavers? Where will the water go from here? Why might this homeowner decided to put in pavers here?

G2. Pavers/ pervious surface

These pavers look different than the others, but serve the same purpose: allowing water to go through and into the ground, but still allowing a car to drive on top.

If you check out both pervious surface driveways, compare the two: how are they different/similar? Why might someone choose one type over the other?