

BROADVIEW- THOMSON K-8

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.



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. Parking area and storm drain

This area of pavement has lots of cracks! Why are these cracks here? How does water move differently on the smooth pavement versus the cracked pavement? Try pouring some water in the cracks. Are these cracks a problem for anyone who uses this area?

Note: The idea behind permeable pavers is that the water can seep through the space in between the pavers. These cracks may serve the same function, so it might enable students to grasp the idea of the pavers when you study solutions later.

**B. Playground and storm drain**

Notice the location of this storm drain.
Why would it have been placed here? Is there anything in the storm drain?

**C. Raised drain in play area**

Why might this drain be above the surface of the ground, when others are at the same level? Have students observed water going into this drain?

**D. Hills, pervious (rubber) surface**

Does water soak into these mini-hills,
or run off onto the asphalt?

If water soaks in, where does it go?



E. Drain in courtyard

F. Gutters and Downspouts

This downspout drains onto the courtyard... have students seen water coming from these pipes?



G. Courtyard

This area has a mix of pavement, soil, and trees and plants. Where does the water come from that goes into this drain? Can students find other drains in this courtyard? What would this area be like if there was no pavement here?

Mapping Your Schoolyard - Broadview Thomson K-8

Name:

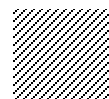
Date:



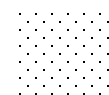
Include on your map:

- Symbols from the Key including surfaces, flow of water, 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



Impervious Surface



Pervious Surface



Direction of
water flow



Storm Drain

Add your own symbol here!

Local Stormwater Systems – Lesson 5

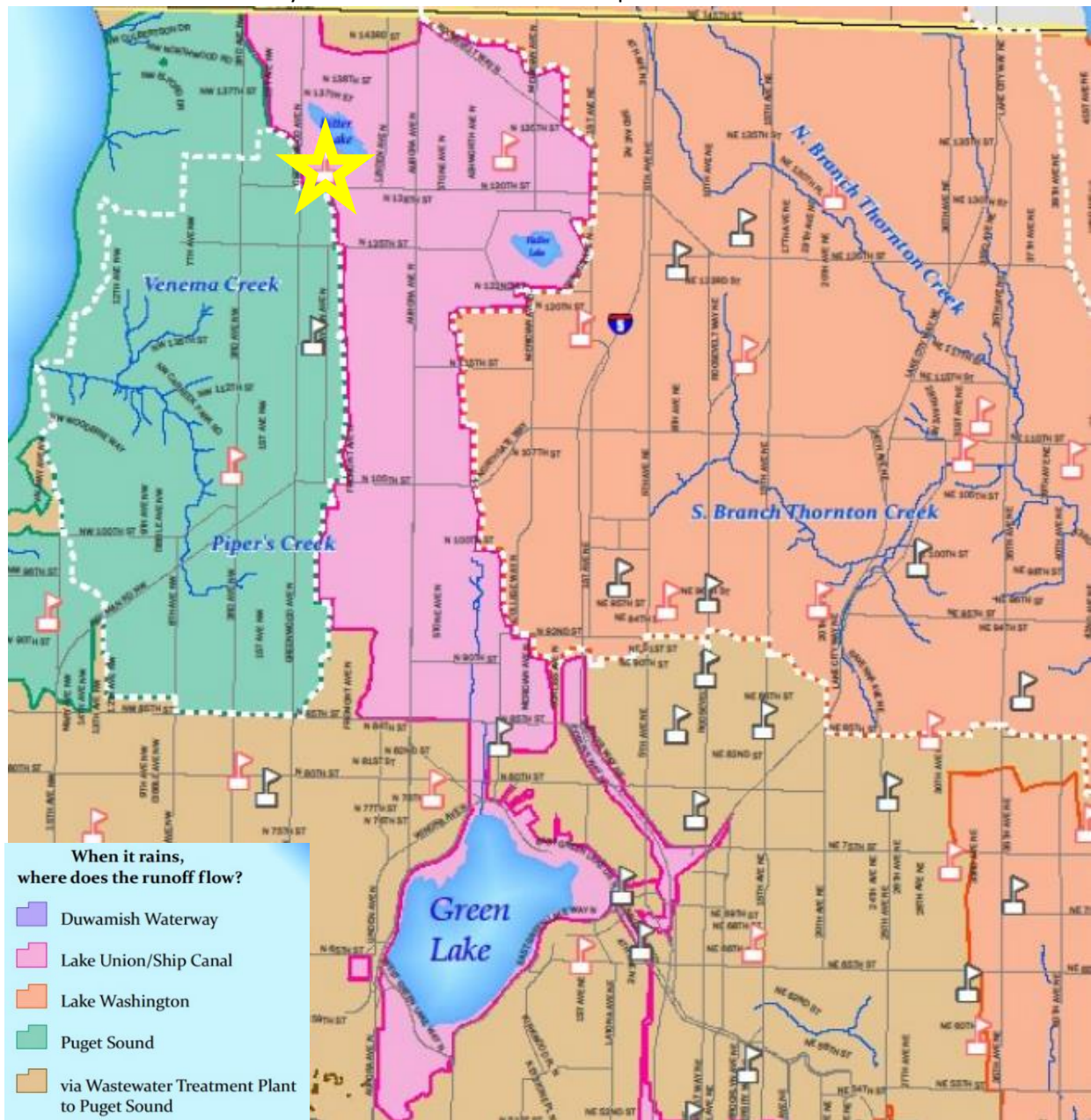
What happens with the Stormwater Pipes around your school?

- The stormwater pipes (separate from sewer pipes) from your school grounds drain directly into Bitter Lake.
- Most of the water in your community that runs off East of Greenwood Avenue travels by ditches (dotted yellow lines) and pipes down the hill to the East.
- Water that runoffs off west of Greenlake Ave takes a different path. It combines with Sewer water into the orange pipe that leaves the Southwest corner of your map.

Where does the stormwater runoff end up?

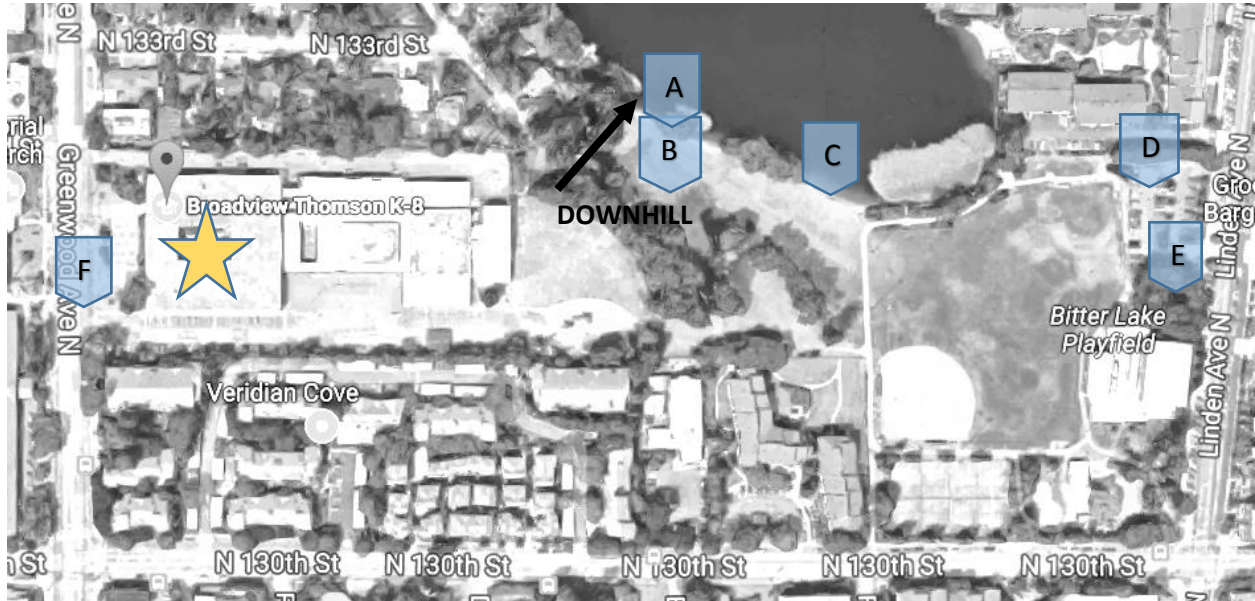
- The map on the next page shows where the runoff from different parts of the city ends up.
- The pink area shows that the water travels through pipes and ditches down to Green Lake and from there into Lake Union.
- While the green area on the map implies the water is going into Pipers Creek, that orange pipe actually ends up at the West Point treatment plant at Discovery Park. During a big storm the combined pipes can't handle of the water, and the water is partially treated (removing solids) next to Pipers Creek in Carkeek park before emptying into the Puget Sound.
- 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 the CSO during a big storm 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>.

Broadview Thomson 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.



Suggested Route: Walk from school through field to edge of Bitter Lake; walk along edge of lake to restoration area/native planting at southeast end of lake. Walk along trail to small hillside forest between Community Center and parking lot. If time, at crosswalk, cross Linden Ave to view the buildings (apartments, etc), or visit Broadview Public Library at Greenwood Ave N. to view planter that takes in water from Library roof.

Points of Interest



A. View of lake with lawn (and geese):

How does rain runoff going over this lawn affect the lake? Who would be affected by too much stormwater going into the lake? How could the geese affect the water?

**B. Storm drain in the lawn**

Why might this drain be here even though it's surrounded by pervious surface (lawn)? Is this drain covered by anything (leaves, trash)?

**C. Erosion**

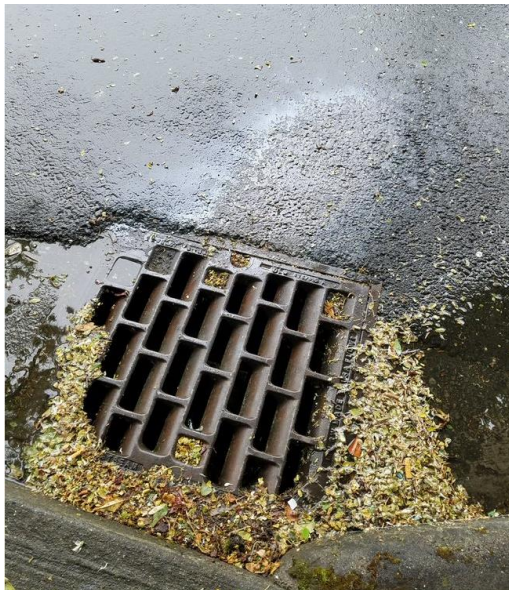
Look how water has created its own path to the lake. Where is this water draining from? Is this a "problem", and if so, to whom? Why might the water not soak into the grass in this area?

**D. Oil/chemical stains in parking lot and drain**

Looking at the parking spots outside the church, can students see dark marks left there by cars? How might we know this is from cars and not just water? Where could these chemicals/oil end up?

**E. Forest**

What do you think happens to stormwater here? What other creatures live here? How might they be affected by stormwater? What would be different if this area were something other than forest?

**F. Storm drain**

This image was taken in spring and shows this drain collecting lots of leaves from nearby trees, and an oil spot next to it. What do the drains have near or in them today?

**G. Rain barrel**

This rain barrel collects water from the roof for the gardens. How is this rain barrel helping with stormwater? Where does the water go after it is collected? How could this system be more effective?

Note the bare soil downhill from the grass and rain barrel – what might happen on that slope if it rains?