

Spokane Reach PCB Canine Surveys 2021



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September 2021

A. Methods

Canine surveys took place on August 29-31st 2021. The survey area was prioritized to the area between North Columbia Street (western perimeter) and Iron Bridge Court (eastern perimeter), the Iron Bridge (northern perimeter) and Trent Avenue (southern perimeter). The canine team was granted access to search the Riverwalk building on the right bank and properties owned by MGD LLC. (Figure 1). Canine and handler surveyed the priority area by searching both sides of the riverbank and by walking the perimeter of buildings and property lines within designated areas. Due to canine interest, surveys were extended westward to East Hamilton Street and north to East Cataldo Avenue Survey. Coverage was recorded using GPS track logger (Figure 2).



Figure 1. Target Area and Permission

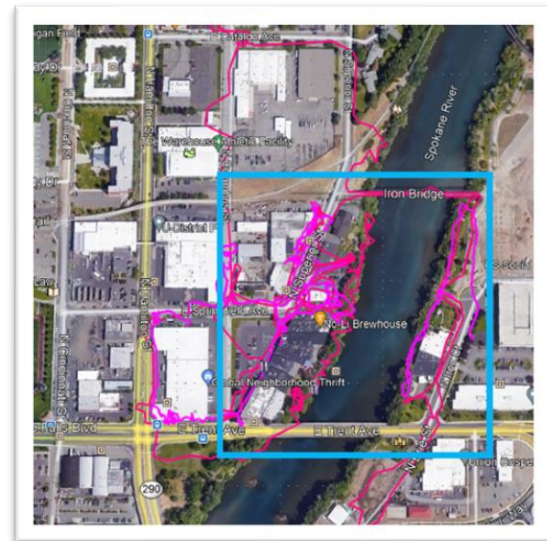


Figure 2. Study Area and Tracklog Coverage

The detection team also traveled the river by longboard to provide an additional perspective and better access to areas of the riverbank that were obstructed by vegetation. The detection dog had a change of behavior near a submerged stormwater outfall. The outfall is difficult to see from bank due to heavy shrubs and is just upstream from the SR3A-RB sample site. Several other submerged pipes and wreckage were observed and recorded during the float survey (Appendix A).

Canine detections were reported as “high” “medium” or “low” confidence. The degree of confidence is determined by the handler who specializes in reading and interpreting the changes of behavior exhibited by the dog when working into an odor. The detection dog, named Jasper, is trained to sit when he has located a target odor. The dog communicates a high-confidence detection by sitting (Figures 3 and 4). The dog is rewarded with a ball if the handler is confident in the positive detection (Figure 5). Areas with positive detections were surveyed multiple times to compare changes of behavior and determine confidence levels for each detection made by Jasper. Links to video footage of canine detections can be found in [PCB Canine project](#) folder.



Figure 3. Jasper detects target odor



Figure 4. Jasper sits to convey detection



Figure 5. Jasper is rewarded for detection

B. Findings.

While there were no definitive sources of PCBs detected along the right or left banks of the river, several buildings in the stormwater drainage area were detected by the dog and in a few instances the odor was also detectable by the handler. Other detections occurred at stormwater catch basin sites, drywell sites, and soil on the riverbank or next to buildings. GPS coordinates and descriptions of 19 detection areas were recorded during surveys (Figure Appendix A). Photos and video were also recorded and can be viewed in the [PCB Canine Project](#) folder.

The most significant finding was an active outfall, less than 10 meters upriver from the SR3A-RB PCB hotspot (Figure 6). This outfall discharges stormwater from the area where PCB-contaminated buildings were detected.

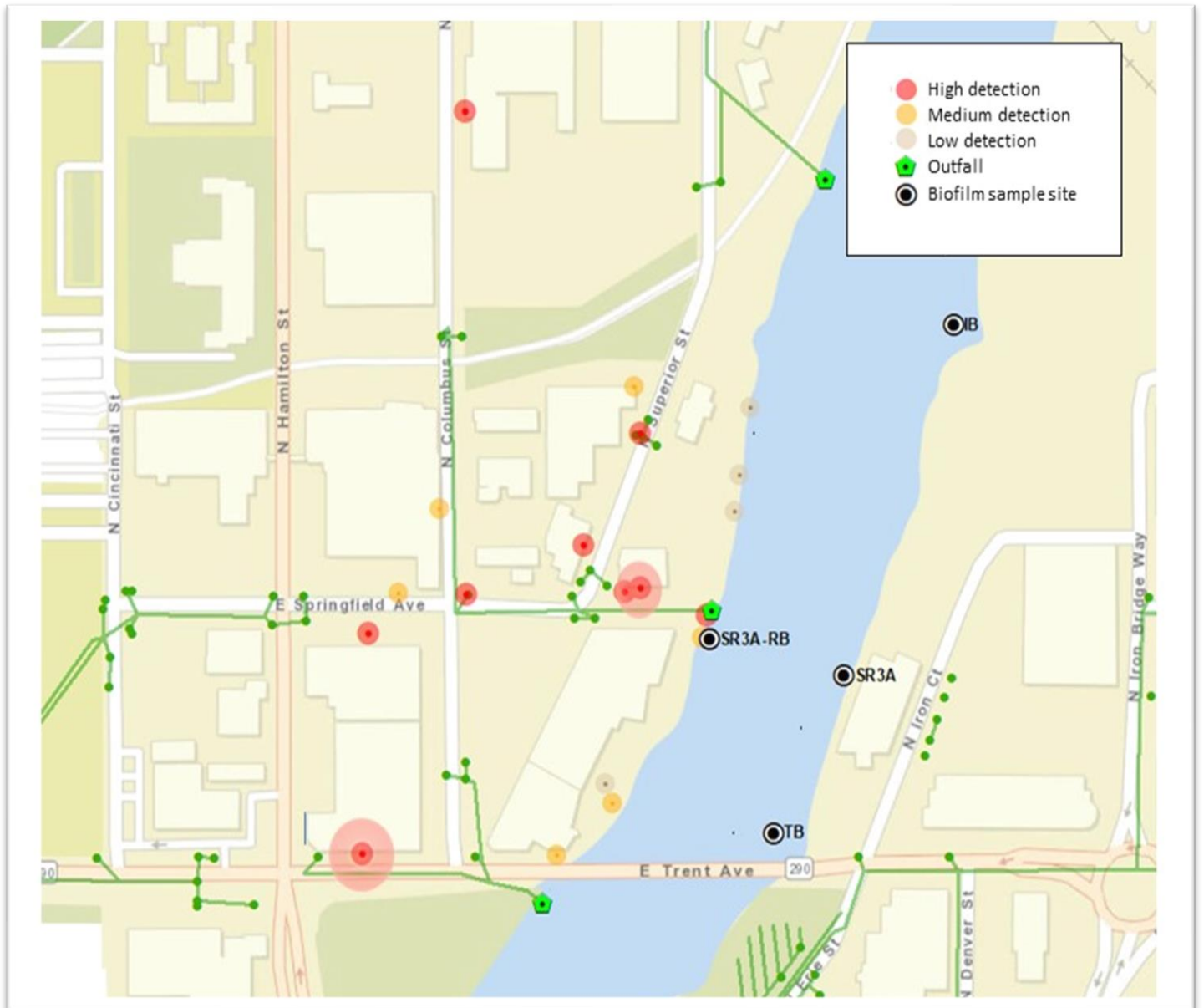


Figure 6. Map showing canine detections, outfalls and biofilm sample locations.

Canine PCB Detections: Overview with stormwater drainage basin layer.

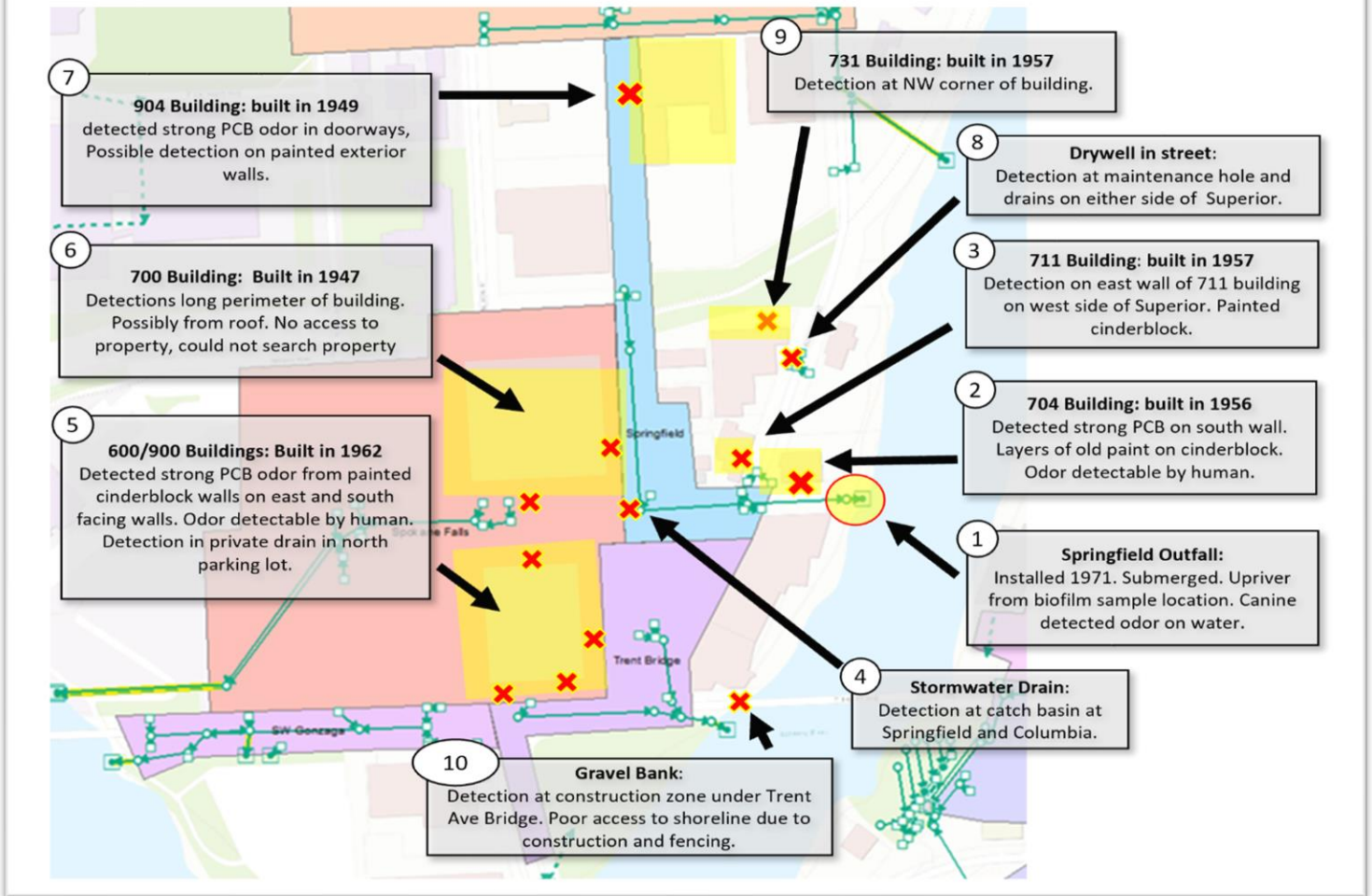


Figure 7. Top ten detection sites

There were 10 areas of high interest to the detection dog. The map above shows a summary of these 10 sites and the underlying stormwater system that drains directly into the Spokane River (Figure 7). Data for outfalls and stormwater lines can be found online at www.my.spokanecity.org and in the [PCB Canine Project](#) folder.

Sites are numbered 1-10 based on probable relevance to the SR3A-RB PCB hotspot. The following section provides a more detailed description for each site.

1. Springfield Street Outfall.

Canine detections were made along the bank and in water where the Springfield stormwater basin drains into the river (Figure 8). This stormwater line was installed in 1971 and the outfall is a bright green corrugated steel pipe that was submerged at time of surveys. There is heavy brush on the bank above the outfall, so Jasper did not work into the odor until getting down to the shoreline. Once there, he had high interest in the air between several large rocks and eventually pawed at the water near the submerged outfall. A video of our revisit to this site can be viewed in [PCB Canine Project](#) folder.

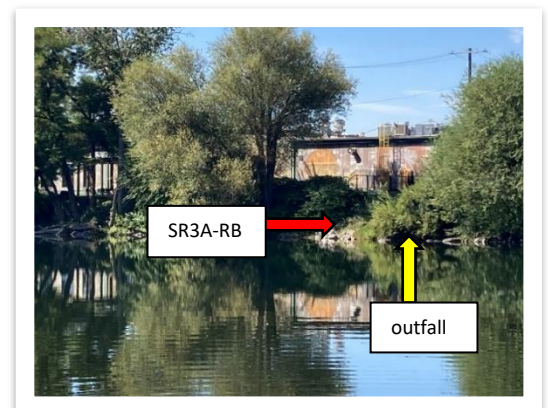


Figure 8. Springfield outfall and SR3A-RB hotspot.

2. Detection at 704 Building built in 1956

Jasper detected a strong PCB odor on south wall and west side of the building that is painted red. This building had layers of old paint that was peeling in some areas (Figure 9). The PCB odor was strong enough to be detected by the handler. Jasper also detected the target odor in a drainage area at the southwest corner of the building (Figure 10). Sampling soil within or near this drainage area is recommended.

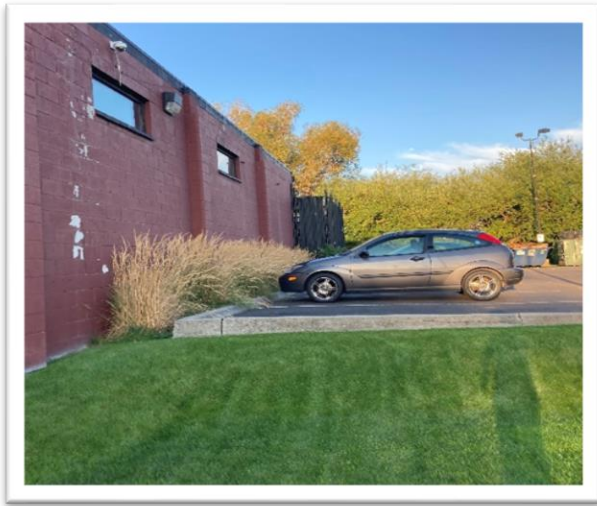


Figure 9. Building 704 south wall with PCB paint



Figure 10. Drainage area at SW corner of 704 building.

3. Detection at 711 Building built in 1957

Detections were made along east-facing wall of 711 building (Figure 11). This building was a cinderblock structure with multiple layers of old paint. Stronger detections were made under windows and at pillars (Figure 12). The team did not have access to the property so only the east side of building along N Superior Street was surveyed. Sampling of soil/gravel at base of building is recommended.



Figure 11. East face of 711 building.

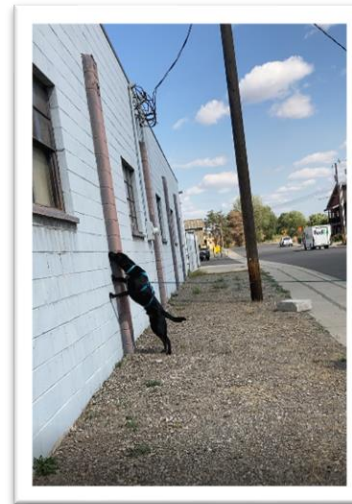


Figure 12. Detections at red paint

4. Detections at Stormwater drains installed in 1971

Jasper had a confident detection at catch basin at Springfield and Columbia. This drain collects stormwater from the 700 N Hamilton Street and 924/904 N Columbus Street buildings. It runs directly to the Springfield Street stormwater outfall. Video of detection can be viewed [here](#).

5. Detections at 600/900 Buildings built in 1962

Jasper detected strong PCB odor from painted cinderblock walls on east and south facing walls (Figures 13 and 14). Jasper indicated interest in entire building but concentrations along Trent Ave were strong enough to be smelled by the handler. Jasper also had a strong detection in the private drain in the north parking lot. Historical data shows that there was a company (United Body & Fender) that specialized in painting boats and autos throughout the 60's and 70's. The company address was 625 N Hamilton which sits at the NW corner of this building. Residual PCB contaminants could be in the property's private drainage wells. Determining if and when these catch basins were cleaned by the property owner is recommended. Testing this catch basin is highly recommended.



Figure 13. South side of 600/900 building

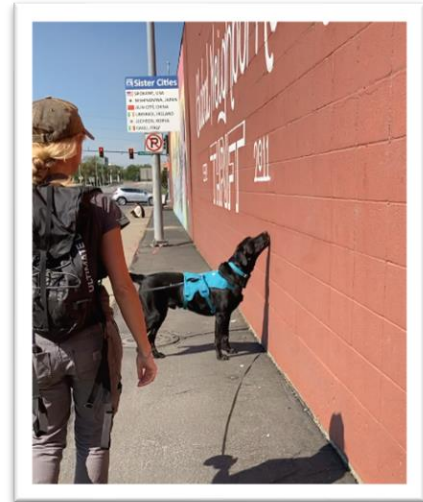


Figure 14. Jasper detecting PCB paint

6. Detections at 700 Building built in 1947

Canine detections were made at various locations around the perimeter of the 700 N Hamilton building complex. There was special interest in filtration planter boxes on west side of building, along N Hamilton Street (Figure 15). [Gratix](#) filtration boxes remove zinc from galvanized roofs and downspouts. These filtration boxes could also catch PCB pollution from old [Galbestos](#) metal roofing and siding which was made using zinc and PCB additives in the late 40's through late 70's. Aerial data from Google Earth shows that the roof was replaced or resealed in 2014.

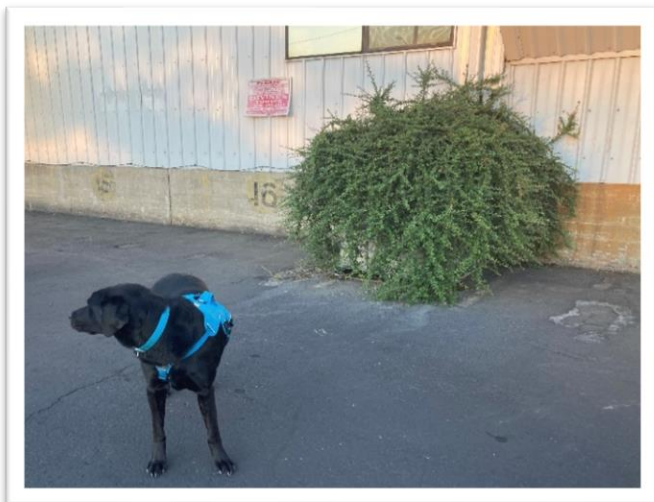


Figure 15. Gratix filtration container at 700 building

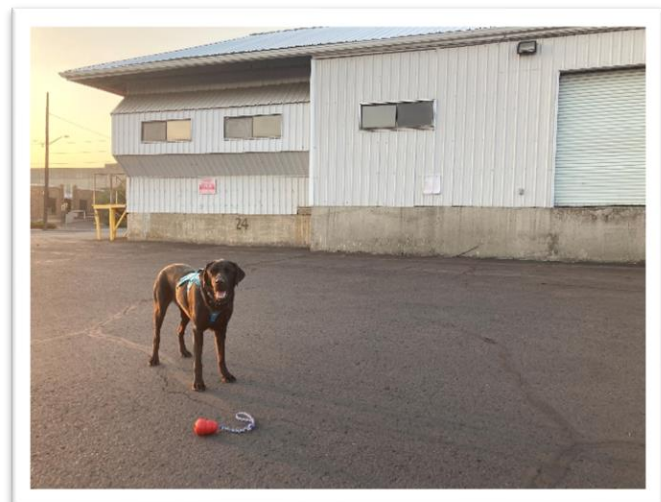


Figure 16. Jasper after detection at fence line of 700 building

Jasper also detected possible target odors along fence line at southern border of property (Figure 17). Special interest was also displayed along the east side of building complex, along N Columbus Street.

High confidence detections were not made at this site because access was limited. The PCB source could be from inside building, from the roof, or siding. Sanborn maps of the area shows that Trues Oil Company operated at this location in the 1950's. It is possible that residual oil contaminants have saturated the ground in and around this facility. Sampling the soil and debris at fence line (N Springfield) and sampling soil along west side of building (N Columbus St) and at southern fence line is recommended.

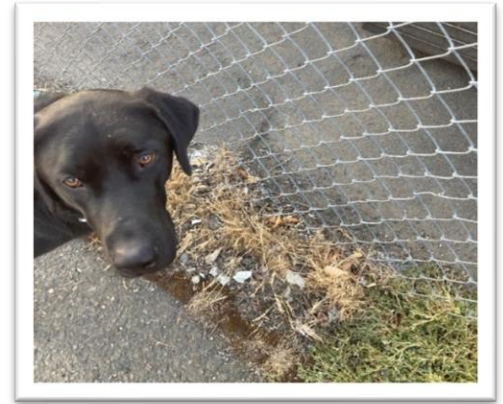


Figure 17. Debris at south fence line of 700 building.

7. Detections at 904/924 Building built in 1949

Multiple canine detections were made along north and west sides of the building. Strong detections were made in both main entrances on the west side of the building and along N Columbus Street. Although this building was outside of the priority survey area, it is significant because it is at the north end of the Springfield storm water basin. Sampling of soil and any low point along Columbus, especially near entrances where runoff water from this area might accumulate, is recommended.

8. Detections at Drywell in N Superior Street

A confident detection was made at a maintenance hole and drains on either side of N Superior Street. The drain could be collecting runoff from metal storage yards on west side of N Superior Street. Testing catch basin sediment is recommended.

9. Detections at 731 Building built in 1957

A detection was made at the NW corner of the 731 building. Low access to property made it difficult to determine PCB source material. Odor could have been coming from a storage yard behind building. Sampling of catch basins in the nearby drain on Superior would likely capture possible PCB contamination from this site.

10. Detections at Gravel Bank

A detection was made at the gravel bank in bridge replacement construction area under Trent Ave Bridge. There was very poor access to this area due to construction activity and fenced off areas. The detections were made during the river float survey, just upriver from Trent Bridge outfall. Sampling biofilm at Trent Bridge outfall is recommended. Run off from the 600/900 building would be discharged at this site.

11. Other detections of interest

Jasper had a low to moderate response to green cinderblock columns on the Riverwalk building and had a moderate response to similar cinderblock debris found on bank near the Riverwalk building (Figures 18 and 19).

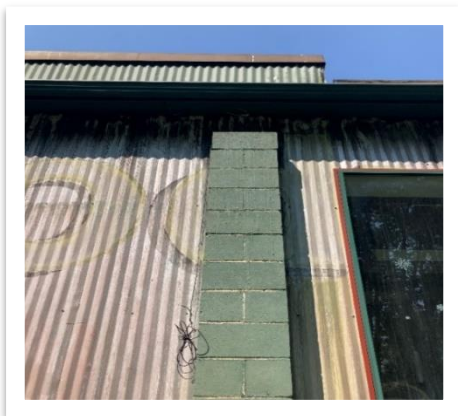


Figure 18. Green column at Riverwalk building



Figure 19. Green cinderblock debris on bank

C. Conclusions

Based on the PCB detections made in this area, the canine detection team has concluded that the source of PCBs is likely from buildings and contaminated soil within the Springfield stormwater basin which discharges to an outfall near the SR3A-RB PCB hotspot. The number of buildings positive for PCB in the survey zone suggests that there may be higher levels of PCBs in three stormwater basins that serve this area: Springfield, Trent Bridge and Spokane Falls. Testing the level of PCBs in biofilm at each outfall and testing catch basins in these mainlines could help determine if the PCB hotspot is caused by building materials and historic operations that took place here, or if the source is underground and not detectable by a detection dog.

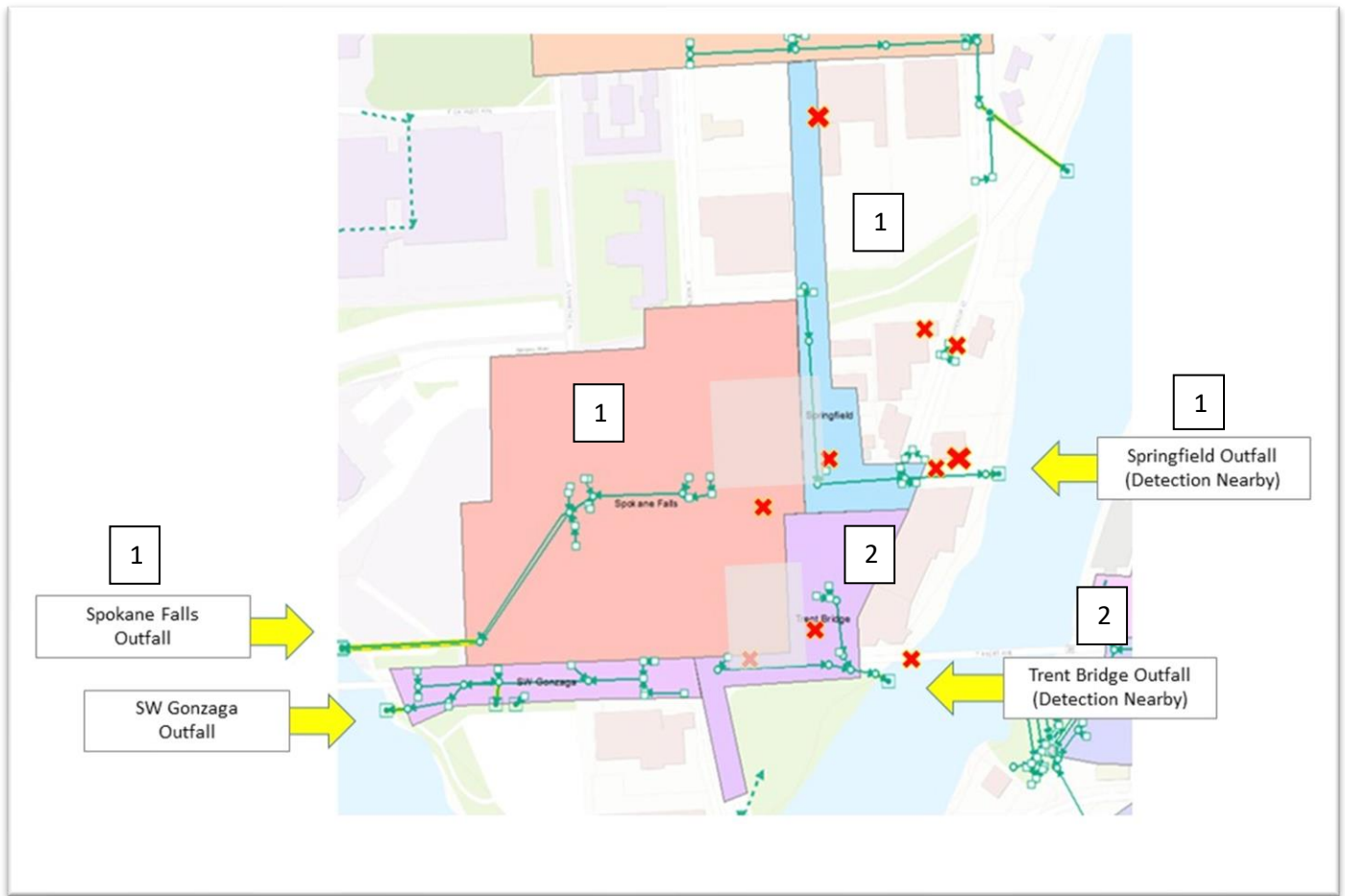


Figure 20. Springfield, Trent Bridge and Spokane Falls basin and outfalls.

Appendix A. Data Table of Canine Detections

Detection ID	Canine Detection Level	Description	Possible PCB source material	Location long	Location lat
D01	HIGH	South wall of 704 building. Paint with possible high PCB	PCB in paint. High PCB odor.	-117.3937727	47.66328128
D02	HIGH	909 E Trent Ave. south face of building (Paint)	Old paint on cinderblock wall	-117.3959558	47.66196918
D03	HIGH	Jasper pawed at water. Just downstream of submerged stormwater outfall pipe.	PCB runoff at stormwater outflow	-117.3932536	47.66314711
D04	HIGH	Drain in 636 parking lot. Private, might not have been cleaned for many years.	PCB runoff from 636 building complex	-117.395913	47.663058
D05	HIGH	Wastewater Drain at Columbia and Springfield	PCB runoff from nearby buildings	-117.3951402	47.66324468
D06	HIGH	Private Drywell at 704. interest in and around this low catch point for runoff water.	PCB runoff from 704 building paint	-117.3938972	47.66325903
D07	HIGH	East face of cinderblock (painted) side of 909 building.	Old paint on cinderblock wall	-117.3942227	47.66348806
D08	HIGH	Maintenance hole to drywell. Interest in catch basin on both sides of street	PCB runoff from nearby buildings	-117.39377	47.66404
D09	HIGH	904 building. Detection in west entrances. Runoff goes to Spring Street outfall.	Paint or caulking around door/window.	-117.395155	47.665629
D10	MEDIUM	In gravel fill area at river's edge where road construction is taking place	Unsure. Construction could have disturbed contaminated soil	-117.3944237	47.6619614
D11	MEDIUM	Soil on bank, no pinpoint. At biofilm sample site.	PCB runoff in soil	-117.393307	47.66303305
D12	MEDIUM	Old cinderblocks with green paint	Paint on demolished cinderblocks	-117.3939921	47.66221498
D13	MEDIUM	South side of 700 Hamilton. Dirst/debris along fence. Possible sample site for 700 building	Runoff from 700 building roof or old business operations.	-117.395677	47.66325665
D14	MEDIUM	Gravel between 700 building and road. west side of road. General interest in this area. Not from paint or caulk. From roof or soil layer under gravel.	Unsure. Could be in the soils around the building or from roofing and siding material.	-117.3953531	47.66367309
D15	MEDIUM	751 Building north side of Building (paint or caulking, No access to property.	Paint or caulk on building OR catching odor from stock yard in back.	-117.3938156	47.66427176
D16	LOW	Low interest in soil on bank	unknown/contaminated runoff water	-117.3929037	47.6641715
D17	LOW	Low interest in broken concrete on backside of Riverwalk complex.	unknown/contaminated runoff water	-117.3929899	47.66383982
D18	LOW	Low interest: dirt on bank	unknown/contaminated runoff water	-117.3930278	47.66365533
D19	LOW	Low interest: cinderblock column on Riverwalk building (riverside)	Possibly old paint	-117.3940503	47.66231055
	OBSERVATION	In river/Under water. Junk in Water: old tires ect. (Approx location)		-117.39288	47.66404
	OBSERVATION	In river/Under water. Possible old barrel under water near Trent Ave Bridge (Approx location)		-117.39304	47.66207
	OBSERVATION	In river/Under water. Old pipe remnants under water (Approx location)		-117.39251	47.66259
	OBSERVATION	In river/Under water. STORM WATER OUTFALL: green pipe. Dog had high interest in water near here		-117.3932288	47.6631434
	OBSERVATION	In river/Under water. Junk in Water: old tires ect. (Approx location)		-117.39288	47.66404
	OBSERVATION	In river/Under water. Possible old barrel under water near Trent Ave Bridge (Approx location)		-117.39304	47.66207
	OBSERVATION	In river/Under water. Old pipe remnants under water (Approx location)		-117.39251	47.66259