

# Final Report

## Keating Industrial Park Pollution Prevention Initiative, Graham Creek Drainage

Prepared for

District of Central Saanich  
and Georgia Basin Action Plan

March 31, 2006

By

Peninsula Streams Society  
9860 West Saanich Road  
Sidney, BC V8L 4B2  
(250) 363-6480

## Table of Contents

Page 2 Introduction

Page 3 Methodology

Page 4 Results

P 4, Summary

P 4-8, Tabulation of survey answers.

P 8, Cases encountered while the survey was occurring.

Pp 8-9, Public Meeting

Page 10 Analysis

Page 12 Conclusion

## INTRODUCTION

Since 1991 the Hagan Creek Watershed Project has worked to improve the health of Hagan and Graham Creeks on the Saanich Peninsula. In June of 2001 the Project started a Water Quality Protection Initiative within the Keating industrial area. Water quality monitoring at strategic locations in the creeks and storm drain tributaries of the creeks consistently showed pollution. The objective arose to work with businesses to address storm water runoff from impervious surfaces. Several years of dormancy came to an end with the financial support of the District of Central Saanich and the Georgia Basin Action Plan in 2005-06. As a result, the Keating Industrial Pollution Prevention Initiative actually made contact with business owners and managers to find the most likely sources of storm water pollution and raise awareness. With that knowledge, effective direction and information can be provided to businesses for changing their practices in a way that will reduce storm water pollution. The methodology, results, analysis and our conclusions follow.

## METHODOLOGY

First, the section of the Keating industrial area served by storm drains routed to the ditch located behind Associated Sheet Metals on KirkPatrick Crescent was delineated. The ditch is referred as “Stinky Ditch” by those who sample the water in that site. Stinky Ditch drains to Graham Creek which supports cutthroat trout.

Secondly, all the addresses within the delineated drainage were listed. After generating a list of 130 addresses, we sent letters of introduction and a brochure with the following results.

- 8 were returned because the business had moved;
- 8 were returned noted “No such address.”
- 7 were returned noted “Unknown” with a handwritten notice that the address was vacant;
- 1 was returned with a notice of incomplete address for lack of a unit number.

In the process, we also developed or modified existing materials such as a self assessment survey, a general housekeeping survey, a stewardship decal and a brochure regarding storm drain pollution. Before initiating telephone contact with the businesses, we tried the survey with an initial test run.

The test run of the survey revealed some important issues. Despite being a business that had gone to considerable effort voluntarily to make their operations clean, the manager was not willing to be take part if the results of the survey could be traced to the business. The manager’s concern was that CRD or other regulatory authorities would have access to the survey data and use it in a punitive way. This led us to offer confidentiality for businesses and to emphasize that Peninsula Streams Society is a community based organization gathering information in the process of the survey – we are not a regulatory agency.

At that point, telephone contact with each valid address on the list was initiated with the goal of making an appointment to conduct a “General Housekeeping Survey.” Actual businesses with telephone numbers totalled 103. Several of these phone numbers and business names turned out to be located on the same site. For example, Canadian Waste and Waste Management have different phone numbers, but are run from the same facility. One survey is done in that case. The list was updated with new businesses and removal of departed ones as work proceeded. Of the 103 telephone numbers, 12 phone numbers were confirmed to represent 5 locations. After subtracting the multiple contacts for a single site, 96 business sites remained. At least two contact attempts were made for each of the 96 sites if there was no personal interaction on the first attempt.

Twenty –four declined to take part in the general housekeeping survey. Forty-six took part in the survey. In some cases, personal interviews were not practical. Contacts still contributed by returning a self assessment survey or completing the “General Housekeeping Survey” over the telephone.

Peninsula Streams Society advertised and held a public meeting to report on the survey results and the water quality problems observed over time in Stinky Ditch. The public meeting was an opportunity to provide the results of the survey to those who took part and continue developing the interpersonal networks essential to the success of stewardship initiatives.

## RESULTS.

### SUMMARY

Since Peninsula Streams Society received funding, the Keating Industrial Pollution Prevention Initiative has completed the following tasks:

- Made a mailing list of businesses for letter contact based on drainage into Graham Creek.
- Developed a brochure.
- Sent a letter of introduction and a copy of the brochure to 106 confirmed addresses.
- Completed an initial “dry run” survey with one business.
- Made at least two attempts to contact each business by telephone.
- Completed 41 on-site survey interviews distributing brochures and decals.
- Completed an additional 5 surveys over the phone or by mail.
- Traced the source of paint in “Stinky Ditch” and worked with the business.
- Gathered best management practice materials for 8 topics.
- *Peninsula News Review* printed an article regarding the program.
- Designed and had made “Pollution Prevention Partner” decals which are distributed with site visits.
- Held a public meeting to report on “General Housekeeping Survey” results.

### SURVEY RESULTS

The following results are tabulations of 44 surveys. The survey took the form of a “General Housekeeping Survey” usually administered in person on the business site. There were 4 exceptions. Three of the 44 were done by telephone and 1 was a self assessment survey returned by mail. Since the public meeting, another self assessment survey arrived by fax and a rescheduled on site survey has occurred. The data from those 2 additional surveys is not included with the following results.

### INDOORS

21 businesses reported having a floor drain  
21 were not aware of any floor drains  
1 was not sure  
1 mail survey had a different format

Of the 21 floor drains,  
7 routed to the sewer  
4 routed to the storm drain  
9 did not know  
1 was sealed

Floor cleaning methods indicated  
24 swept  
23 mopped  
13 vacuumed

11 deferred to the janitor

Cleaners varied with many interviewees not being sure. The replies follow:  
Water, unsure, dust bane, dish soap, degreaser if needed, neutral pH cleaner, water, dish soap, concrete cleaner, bleach, vinegar, as bio-degradable as possible, tenant's choice, disinfectant, general floor cleanser with industrial cleanser about every 5 years, unsure, household products, general floor cleaner, depends, water, green clean with 3 eco labels, all approved for health inspector, unsure, enzymes, bleach, Pine Sol, unsure and Mr. Clean.

Spills in the shop area are dealt with by:

20 used some sort of absorbent and swept.  
11 mopped or used towels for spills  
other options listed included pressure washing, grease trap use, chemical spill procedures required by WMIS, evaporation and hose.

Respondents indicated use of garbage for disposal 34 times and recycling 10 times. Thirty-six indicated a cost for disposal and 2 said that there was no cost. An exciting bit here - One business reported use of a bio-degradable compound containing a bacteria that digests petroleum products. The compound is saved for later use without the need to dispose of it.

## OUTDOORS

Catch basins

38 contacts reported 78 catch basins. Of the 78, 4 were set up with "top hats" to intercept sediment and catch petroleum compounds in absorbent material. Two grease traps were also reported.

Catch basin locations included yards, parking areas, loading docks and wash stalls

Frequency of cleaning varied with replies of

11 unsure  
4 when full or rarely  
4 as needed  
8 indicated a specific frequency  
3 not done  
2 sites had full basins noted during the visit. One of these had 13 catch basins.

Clean-out and maintenance of the basins was done by

3 hired it out  
14 deferred to the landlord  
14 indicated their staff  
2 were unsure  
2 would hire it out  
1 honest person replied "nobody"

The issue of catch basin maintenance is well illustrated by the following example. One business hired out cleaning of the grease trap, but the same site's strata council had no concern for the catch basin which was backed up on the visit.

#### Oil-water separators

6 sites reported having oil-water separators. All were able to respond readily with a clean-out frequency ranging from "as needed" to 6 months. Four of the 6 hired someone to clean them and 2 did it in-house. Logs of clean-out times were common.

Use of soaps and degreasers with oil-water separators concerns us. Please refer to analysis.

#### Garbage bins

Of 36 garbage bins reported, 5 were shared and 34 were covered. The hundreds of empty bins stored in the refuse companies' yards were not included in the tally.

#### Outside storage of materials

Twenty-two sites reported storing materials outside. The list of materials ranged from a few miscellaneous items to entire retail yards of building or garden supplies. We did not ask in enough detail about metals such as fencing material stored outside on impervious surface. This is an area of concern regarding the heavy metals entering the storm drain system.

### WASTE PRODUCTS

Twenty-three businesses reported having scrap metal on site. Nine mentioned being under cover whether by roof or lid. One was located over a permeable surface. All reported that all the scrap metal products were recyclable. Cost to recycle ranged with volume. Six reported it cost them and 6 made some money. Eight were in a place of there being both costs and profits that made the net hard to figure, or they were at a no cost and no profit level.

#### Products Recycled

- 33 Paper
- 31 Cardboard
- 10 metals
- 8 bottles/cans
- 7 waste oil
- 6 plastic
- 5 batteries
- 2 pallets
- 2 anti-freeze

#### Ease of recycling



- 3 no
- 2 both cost and credit
- 2 unsure
- 1 pre-paid by eco fees

#### PAINT

- 19 use paint
- 21 do not use paint

The types of paint used run the spectrum from artists' tubes to powder coat.

#### Waste paint

- 7 stored it in the can for the next job
- 4 recycled it
- 2 let it evaporate or dry for disposal
- 1 delivered it to the "Product Care Depot"

#### Paint Recycling

- 4 reported it as easy
- 3 reported it's not easy
- 1 reported it as sometimes easy

#### Paint recycling cost

- 4 yes
- 1 prepaid by eco-fee

#### CASES

Two incidents occurred during the time that the survey was being conducted. Both illustrate how multiple causes are frequently involved along with lack of information. One was discovery of green paint in "Stinky Ditch" during a visit to monitor. In this case the source was apparent and the business contact helpful. An employee rinsed paint brushes rather than letting them dry for disposal as had been the previous practice. He rinsed them into a storm drain that he had reason to believe went to the oil-water separator since drawings that came with the site indicated a connection. That business has shut down their use of the wash pad outside and is seeking technical solutions before re-opening it for use.

The second incident occurred on the Sandhill Creek side of the Keating area shortly before Christmas. Again, PSS staff arrived to monitor the Creek. In this case oil was floating in the rain water going down the storm drain. The storm drain was located in a parking lot neighbouring the source at HiRise Salvage. A pipe in the oil-water separator had broken out of sight of staff. The initial greeting from the parking lot owner, parking lot lease-holder and HiRise Salvage was rocky. The response from various governmental organizations tasked with response to pollution spills required days. In the aftermath, the owner of HiRise approached Ian Bruce of Peninsula Steams Society asking how to improve the situation to prevent another occurrence. Ian has deferred on that request since he is a biologist rather than an engineer, but the rapprochement is welcome.

#### PUBLIC MEETING

The meeting was advertised in the *Peninsula News Review* on March 17. *Peninsula News Review* also ran an announcement in the “Community Calendar.” Letters were sent to all those businesses that indicated they wanted an invitation during their survey interview. Some letters unfortunately arrived the day of the meeting. One manager phoned his regrets and asked for a copy of the results. A second business also communicated regrets in being unable to attend and extended a willingness to be of service.

Turnout for the meeting included 20 people representing the diverse areas of interest:

- Five people from businesses in the Keating industrial area
- Members of the public interested in the issues
- A reporter from the *Peninsula News Review*
- Staff from the Municipality of Central Saanich
- Staff and members from Peninsula Streams
- Staff from 3 companies providing services or products helpful to reducing storm water pollution.
- One municipal councillor

Besides briefing those present on the water quality results and presenting the results of the survey, the public meeting provided an opportunity to extend the interpersonal networks that are key to the success of stewardship initiatives. One business manager asked regarding tracing floor drains to determine if they routed to septic or storm water systems. New technology was also on hand for people to see.

## ANALYSIS

The survey results revealed where best to focus our energy for pollution reduction. In general businesses that are regulated observe the regulations of their industry related to WMIS, WCB, and industrial standards. Recycling is common and reported to be easy and available for common items such as paper, cardboard and waste oil.

The problem areas reveal themselves in those entries to the system that are not regulated. Three areas of concern presented themselves – storm drains, floor drains and oil/water separators.

### STORM DRAIN CATCH BASINS

The issue that has large potential for introducing pollution combined with a high possibility that increasing awareness will reduce the problem is catch basins. Thirty-eight contacts reported 78 catch basins and two grease traps. The grease traps are maintained. Frequently the catch basins are not. Only 8 of the 38 contacts had a ready answer regarding frequency of maintenance. Tenants expect landlords to do the maintenance. Owners or managers are not on site to notice or inspect the basins. Strata Council owners seem to lose track of who is responsible for the task. Storm drain catch basins frequently do not occur to people as an area of concern. Seven out of 38 (18%) replied that maintenance was not done, was done rarely or was done when the basin was full. While Peninsula Streams Society staff did not inspect every catch basin, at least 15 were observed to be full.

A likely avenue of approach based on this information is to contact property owners explaining the problem with pollution, the existence of a by-law and an offer of assistance in the form of information on companies that provide clean out service – possibly with some coordination among neighbours to reduce the costs. Further mileage from the contact effort might be made by getting permission to paint a fish near their storm drain(s) to remind people of the destination of the system. Girl Guides in Brentwood are available for fish painting. When this idea was presented in a survey interview conducted following the public meeting, the contact was receptive to the idea. He indicated a willingness to take part and mentioned that awareness was the biggest problem.

### FLOOR DRAINS

Only half of those interviewed indicated an awareness of floor drains on their site. Four of those were reported as storm drain system entry points. Nine were not sure where the drains went. The public meeting provided information on how to contact the municipality to answer the question whether the drains end up in septic or storm systems. While this is clearly a smaller volume with fewer access points, the issue of confusion about where a drain goes obviously can add to the pollution load. Another area of mystery is what cleaning compounds are actually used. Many businesses hire someone to clean and leave those decisions to the cleaners. The combination of lack of awareness of a floor drain going to the storm system combined with some potent cleaning products used on a regular basis can add up.

A likely avenue of approach is to send information to those contacts that were unsure of where their systems drain and to have the information available for future questions. Those drains that do lead to the storm drain system could be marked for future tenants' information.

### OIL-WATER SEPARATORS

While oil-water separators are regulated, the regulations do not address the issue of storm water pollution. Those businesses that have oil-water separators clearly pay attention to maintenance and operate with concern for the impact of hydrocarbon spills on the environment. The difficulty occurs when soaps and degreasers are used for routine tasks. Businesses that have installed oil-water separators have done so because they need them for cleaning industrial parts or equipment or washing cars and trucks frequently. The petroleum products on their own would be separated from the mix if they were not emulsified by soaps, detergents or degreasers. Once emulsified, the petroleum products wash through the system with the water. A second concern occurs with the impact of the cleaning products as well. Only one of the separator systems appeared to be routed to the septic system. It was located indoors and was turned on by a switch. The others were outside and seemed to be part of the storm water system.

This is a thorny problem. It represents a significant input of hydrocarbon compounds, but the solution is not easy. Businesses have invested in the separator systems because they require ways to clean industrial equipment, parts and machinery. Discovering how to meet those requirements without polluting the streams remains to be done. Recognition that oil-water separators have limits is a starting point in the search for solutions. Some technical expertise exists. Two companies present at the public meeting had cleaning products that were low in impact. One in particular "polished" the oil back out of emulsification rapidly. Its suitability for car washes and industrial use is not clear. This is clearly an area where technical expertise and innovation would help.

### INSPIRATION

The dismay regarding the thorny issue of oil-water separators is countered by the resourcefulness and clear concern observed at many business sites. Several businesses went to great lengths to reduce their impact. Four have installed "top hats" in their catch basins to intercept pollutants. The top hat fits into the catch basin much like an upside down top hat. Sediment is intercepted by the fabric barrier and oil absorbing material is added. The oily pads are replaced or wrung out when full. Another business has gone to great expense and effort to install recovery tanks for their runoff. Another business showed remarkable resourcefulness in collecting waste oil. They even installed a waste oil heater for winter heating to use some of what they collect.

The process of talking to various people about the issue brought out interesting information. One woman who runs a janitorial supply company informed us of the phase out and later phase in of zinc in floor finishing products. Another owner questioned refrigerator/freezer cooling water in the storm drains as a source of copper. These are not simply interesting points. These conversations illustrate the power of having diverse

people involved in an issue. Their particular backgrounds and areas of interest contribute to defining problems and finding solutions.

## CONCLUSIONS

Stewardship initiatives make sense for raising public awareness. A systematic approach over time will lead to a reduction in pollutants. Many businesses contributing small amounts of toxins add up to a pollution problem. Each of those businesses has to be made aware of their possible contribution.

First in the systematic approach has been monitoring. We know what pollutants flow into Stinky Ditch. Telling people that levels of pollution beyond toxic levels in certain heavy metals, fecal coliform, ammonia, and polycyclic aromatic hydrocarbons (solvents) exist indicates that a problem deserving their attention is occurring.

Second, the process of conducting the survey initiated a dialogue that is essential. On the one hand we were able to inform businesses that a problem exists, and we are endeavouring to reduce it. The businesses in turn were able to help by providing information needed to define the sources of the problem. Their consolidated answers direct attention to catch basin maintenance as the primary issue followed by determining where floor drains empty. A better look at material stored on impervious surfaces is in order too. Solutions are already available and providing information on the problem is a key first step for the locations involved.

A trickier issue for a stewardship initiative is oil-water separators since they are less about raising awareness and more about technology set up to solve a different problem. Nonetheless, conversations with those who use oil-water separators are essential to finding out how to meet their needs while reducing toxic loads on the environment.

The obvious next step is an effort to assure that property owners and businesses know that storm drain maintenance is important, how to do it and facilitate implementation. This effort must also include those businesses that did not take part in the survey process. While a response rate of 46 businesses as of March 31, 2006, out of 96 (48%) indicates tremendous good will and is a high response rate in the world of surveys, the problem requires participation of the entire community not just half.

Continued public relations such as press reports, facilitating catch basin clean out, painting fish on storm drains or floor drains routed to the storm drain system is essential to including the entire community.

Increasing community awareness is only part of the equation in reducing storm drain pollution. At some point, enforcement of existing by-laws is required. The survey shows that most of the business population pays attention to reducing their impact by recycling and following various regulations, e.g. WMIS. Inevitably, there will be a few locations that will see the issue as unimportant unless enforcement of the by-laws calls their attention to it.

Over time, as the awareness increases, changes in practice will occur. Changes in practice will lead to lower levels of toxic substances flowing into Stinky Ditch. As a

result of doing the survey, awareness regarding storm water issues has been increased, clarity regarding what needs to happen next to reduce pollution has been achieved and relationships regarding storm water issues have been formed. All these are significant steps needed for community education to take root in the area in order to make changes over time.