

STORM OUTFALL INSPECTIONS AND TESTING, LESSONS LEARNED, CHANGES MADE

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CITY OF AVON LAKE



LETS START WITH THE BASICS FOR INVESTIGATING AN ILLICIT DISCHARGE

WHAT INFORMATION DO YOU HAVE, RIGHT NOW?

- Do you have your map of storm outfalls and their routes?
- Municipalities need to have a designated Stormwater Manager who is the person that initiates and follows through on the SWP3 submissions, reviews, updates and approvals and illicit discharges.
- City Engineer in most cases is the Stormwater Manager
- Plan requirements have grown to include review more than just water quantity but now must include water quality standards.
- Inspectors need to know who is in the chain of command, should have credentials. Who takes the samples and where do you have them tested?

WE ALL HAVE THE TYPICAL OUTFALLS...



CAN YOU GET TO THEM OR EVEN SEE THEM



MUNICIPAL PROGRAMS CONT.

- Do you know what outfalls you have? Do your response people also know and have access to the files?
- Inspectors need to know who to go to for reviews of field revisions and know what to look for in the field.
- When your office gets a call, or an inquiry from Facebook, how do you investigate issues?
- Are you proactive or reactive?
- Avon Lake has a lot of people watching.
- Social media is the latest watchdog....

DO YOU DO ANNUAL INSPECTIONS OF YOUR OUTFALLS

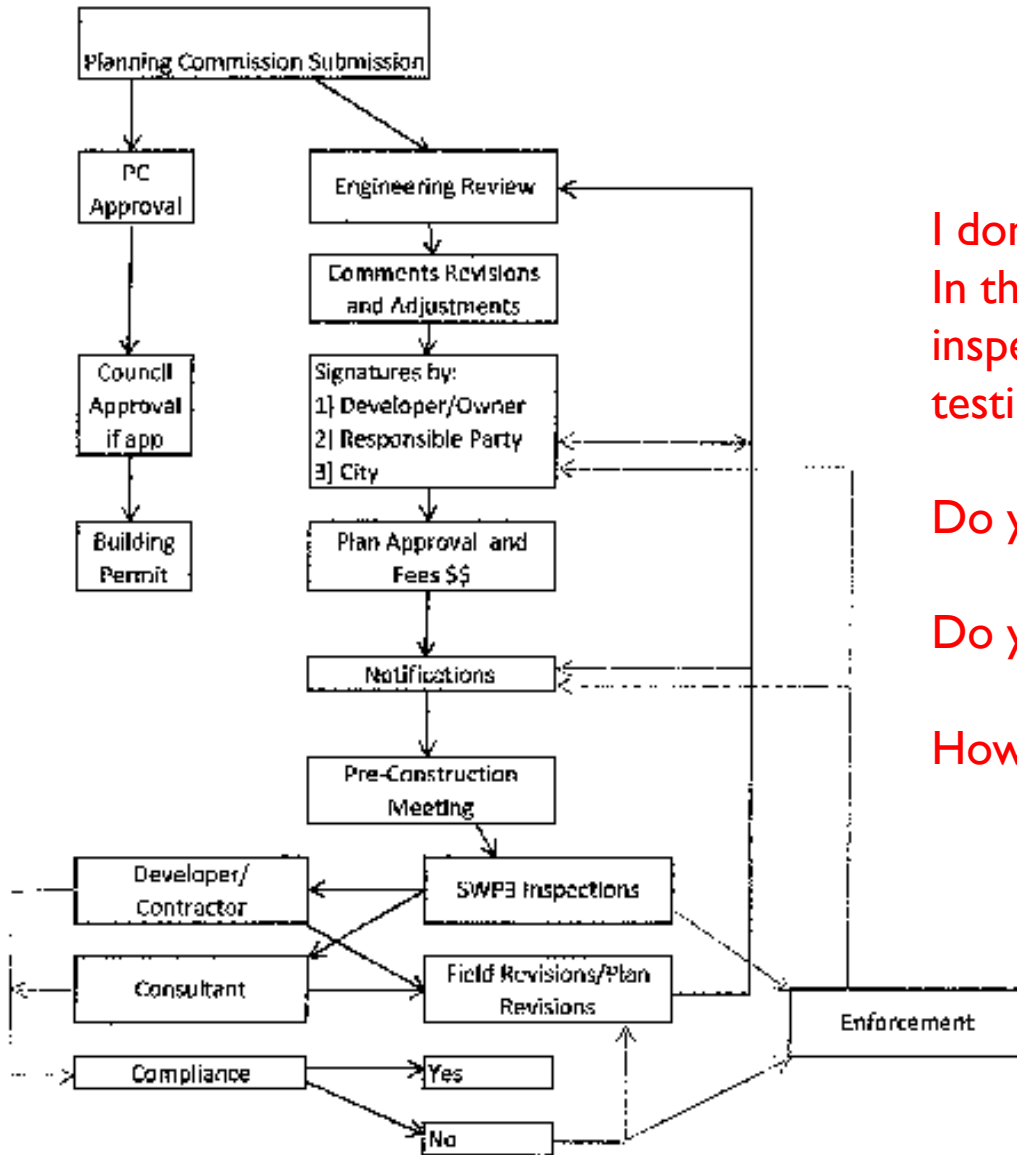
- Do you document conditions?
- Do you inspect for erosion around the outfall itself?
- When was the last time you put a camera in the outfall?
- Do you know the limits of the tributary areas for the outfall?
- Do you have all this in a GIS database or on paper maps?
- What about the storm outfalls from your municipal facilities? Are you testing your own runoff? You should.
- Do you have a documented process for all of this?



THERE ARE OUTFALLS FROM YOUR TRIBUTARY AREAS AND FROM YOUR CONSTRUCTION SITES. DO YOU TREAT THEM ALL THE SAME OR DIFFERENT?

- Both have outlets
- Both have contributing drainage areas that are defined
- Both have unique characteristics for erosion control. Are they all in place?
- What inspection policies are you creating?
- Are they being followed and conditions documented.
- Are you doing follow up inspections and testing if an illicit discharge is discovered?



SWP3 APPROVAL FLOW CHART
MS4 Municipalities

I don't see anything
In this about outfall
inspections and
testing....

Do you?

Do you do it?

How often?

NO THAT WAS NOT A WIRING DIAGRAM FROM AN OLD PONTIAC...JUST A FLOW CHART FOR THE APPROVAL PROCESS

Things are not always that complicated. Sometimes we just have to open our eyes.

When it comes to investigating illicit discharges you need to create a policy. Then adapt it as you work on and discover issues.



SWCD'S AND CONSULTING ENGINEERS

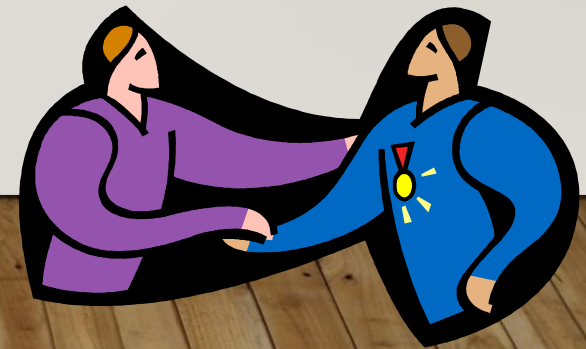
- Who does the outfall inspections?
- Who does your SWP3 plan review, if this is an outfall for an active site?
- Need to have a designated Stormwater Manager that coordinates all of this.
- This is the person that initiates and follows through on the SWP3 submissions, reviews, updates and approvals, inspections.
- Plan requirements have grown to include review more than just water quantity but now must include water quality standards. Outfall inspections from the site for erosion control.
- Inspectors need to know who is in the chain of command
- Revisions/updates will happen
- Outfall inspections anyone.....

WHAT WE DID, AT FIRST.

- Avon Lake started by looking into cross connections from old combined sewer areas
- We found more than we bargained for
- We had sanitary in the storm and storm I&I in the sanitary
- We bit off a lot at first. Five years of biting to be truthful
- We are still finding connections even to this day.....

PRE-CONSTRUCTION MEETING

- Construction site runoff and erosion is our biggest issue.
- We go over SWP3 plans with Contractor, with a focus on there off site discharge
- Have all responsible parties signed the plans?
- Does everyone know what BMP's are required?
- Are there BMP's or special preserve areas that need special attention?
- Do you know who the contact person will be on the site?
- Hopefully this will not be the only time you shake hands...



INSPECTION REQUIREMENTS

- Inspections need to start prior to any site work
- Inspections include all sites where the overall plan for development disturbs one or more acres
- This includes off site areas for fill/borrow
- Initial inspections need to assure that items such as perimeter controls, sediment ponds etc have been installed within seven days of grubbing and prior to any grading
- WHAT CREDENTIALS DOES

THE INSPECTOR HAVE...? Don't

Know, then find out.



When do you need to do inspections?

- Inspections need to occur at least once per month
- MS4's can establish more frequent inspections
- Within 24 hours of a rainfall greater than 1/2 inch for site inspections when looking for erosion inspections.



SITE INSPECTION PROTOCOL



- 1) Identify yourself to owner
- 2) Tell them the purpose of your visit
- 3) Best to visit when weather conditions are clear and at least 72 hours after a rainfall event, looking for dry weather flow.....
- 4) Need to inspect the administrative issues as well as the BMP's
- 5) BE SAFE, first and foremost
- 6) If access to the outfall is restricted take samples from upstream manhole
- 7) BE SAFE, don't go into any manhole without proper gear. We utilize equipment that does not require a person to enter a manhole.
- 8) BE SAFE.

Are you still here with me?

It's not as bad as it may look so keep going...



HOW WE DID OUTFALL INSPECTIONS

- We had our Inspection team open up manholes or climb into ditches and over bluffs to access the storm pipes.
- We had a dozen CSO 's that are now closed but some...
- Tested during dry weather events only.
- Worked upstream on the system to identify sources.
- Did not always find them. People dumping can be sneaky.
- People pooing, not so much

HOW WE DO OUTFALL INSPECTIONS NOW

- We had our Inspection team open up manholes or climb into ditches and over bluffs to access the storm pipes. (same)
- We had a dozen CSO 's that are now closed but some...are now SSO'
- Inspections with a drone for hard to reach locations. There is a learning curve.
- Worked upstream on the system to identify sources.
- Still not always find them.
- People pooing, not so much.
- We are on our second drone because Lake Erie winds are not kind to drones.

WHAT WE ARE DOING NEXT

- Council has created a SID along the lakeshore
- The SID will allow the City to assist homeowners in building erosion control structures through low interest loans
- City has focused, initially, on contacting property owners on either side of our storm outfalls
- City wants to work with these owners to install and improve the storm outfalls

THE SID'S ARE HUGE!!!!

- This program could possibly be one of the biggest joint Owner/City erosion projects in the history of the City.
- If we can work to not only improve the conditions of the outfalls AND improve access to them while protecting the Lake Erie shoreline that will be ROCK SOLID (all pun intended) monumental!!!!



LESSONS LEARNED FROM OUR INSPECTION PROGRAM

- Don't drop your camera into a manhole.
- Clean your sample collector.
- Work with your testing lab for appropriate times and days to deliver samples.
- We have used our push camera to do investigations
- People think that dumping leaves in a creek prevents erosion
- Water still runs downhill
- Shoreline Contractors are unique....

OUTFALL INSPECTION CHECKLIST

- Bring pad and pencil
- Use the SWP3 and/or Mapping as your checklist
- Note any special or unique areas
- Note where BMP's are not working properly
- Note where plan needs to be revised or updated to existing conditions
- Document problems in detail
- Copy appropriate people on report
- Take your time
- Don't rush



ENFORCEMENT PROGRAM

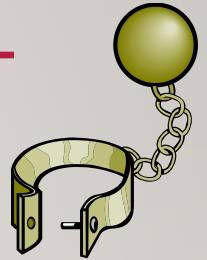
- Enforcement does not need to be a bad word
after all it's not a four letter word
- Policy for enforcement needs to be escalated
- Inspector needs to clearly document all aspects especially
areas that are a problem
- Having a competent inspector is key
when issues arise

Avon Lake has an appeals board for violations



ENFORCEMENT ESCALATION

- Voluntary Compliance- make them want to do what is right
- Does not need to include handcuffs
- Letter with deficiencies and a time frame to correct them
- Stop Work Orders
- Revocation of Building Inspections
- Penalties
- Increased penalties daily
- Example $\text{fine} = (\$200/\text{day})^n$ where $n = \# \text{ days/times this issue has occurred}$
- Do not jump directly into fines
- Remember...Voluntary Compliance



WHERE TO THESE PEOPLE GO?

- The Appeals Board in Avon Lake are members of the Environmental Affairs Advisory Board. People can, but never have appealed a finding.
- In a recent case a 30 yr old home was found to have been cross connected. The City swapped laterals the next day.
- Informing people of violations usually comes back to education. Many people believe stormwater is treated.
- Continue with your educational programs. Lake Erie Starts Here!!!

THANK YOU FOR YOUR TIME

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