

# WASTEWATER COLLECTION BEST MANAGEMENT PRACTICES

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Collection Systems



# PRESENTATION OUTLINE

- ▶ Working in Sewers – Safe Work Permit
- ▶ Bypass Pumping (Pre and Post Inspections)
- ▶ Low Pressure Sewers
- ▶ Working in Wet Weather
- ▶ Debris in Sewers
- ▶ CCTV Process

# WORKING IN SEWERS-SAFE WORK PERMIT

## WASTEWATER AND DRAINAGE SERVICES SAFE WORK PERMIT

Permit No.: 19488

Contractor:	No. of Workers _____	Date of issue: _____		
	No. of Vehicles _____	Effective date: _____	From: _____	To: _____
	Contract No. _____	Time: _____	From: _____	To: _____
		Location(s): _____		

Description of Work: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

A. Site preparation (select appropriate activities and agree on responsibility)		City	Contractor	N/A
1. Electrical systems	<ul style="list-style-type: none"> <li>• de-energize</li> <li>• establish height of overhead lines _____ metres</li> <li>• tag and lock out</li> <li>• identify energized lines</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Pressurized systems	<ul style="list-style-type: none"> <li>• isolate and depressurize</li> <li>• install blinds</li> <li>• tag and lock out</li> <li>• purge (identify medium used) _____</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Identify and confirm underground and overhead structures, pipes and electrical lines	<ul style="list-style-type: none"> <li>• Obtain Utility Clearances</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Establish adequate ventilation and cover all sewer basins		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Establish and explain emergency response plans Personal Injury – contact 9-911 on ROPEC land lines; 911 elsewhere Cont act name _____ Phone no. _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Measure and monitor for gas	<input type="checkbox"/> Combustible <input type="checkbox"/> Toxic <input type="checkbox"/> O <sub>2</sub> <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Review and explain critical work procedures	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Complete Daily Workplace Inspection of site		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Ensure Equipment is inspected for use		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Designate no smoking areas _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Traffic Control _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Other _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**B. Controlled products and dangerous goods (both parties must complete this section)**  
 Where workers are exposed to a controlled product supplied by either party, a MSDS must be available, the product must be properly labeled, and the hazards must be identified.

1. Controlled products (WHMIS) \_\_\_\_\_
2. Dangerous goods (TDG) \_\_\_\_\_

**C. Protective equipment to be used**  
 Personal protective equipment ( hard hat     safety boots     eye protection     gloves     hearing protection)  
 Fire extinguisher     Safety harness     Personal retrieval device  
 Protective clothing     Breathing apparatus     Gas detection equipment  
 Other \_\_\_\_\_

**D. Special Instructions:** \_\_\_\_\_  
 \_\_\_\_\_

**E. All parties agree to:**  
 Comply with the Occupational Health and Safety Act and all applicable regulations and practices and conditions of this permit. Post a copy of this permit at the work site. Provide and maintain a safe workplace.

**F. The contractor Agrees to:**  
 Perform only the work specified in this permit. Ensure all individuals who will or might work on this work site have a complete understanding of the conditions of this permit and the nature of the work being performed.

Signature	Print Name	Phone No.
City Agent		
Contractor		

Distribution: White Copy: Contractor      Yellow Copy: See Procedure      Pink Copy: City Agent - Originator

- Confirm construction project work activity and location



- Ensure contractors are aware of the hazards they will be exposed to



- Share any specific operational concerns about the work location

## SAFE WORK PERMIT- PURPOSE

# BEST MANAGEMENT PRACTICES- SAFE WORK PERMIT

- ▶ The SWP is required anytime a public and active sanitary, storm or combined manhole is opened. The SWP shall be obtained anytime work has to be done on existing public sewers, which the City is already maintaining. It does NOT apply to new developments/sewers that have not been accepted by the City or new sewers not commissioned yet. Applicable work include but not limited to:
  - Confined space entry work
  - CCTV
  - Flushing of sewers/Sewer cleaning

## ▶ **How to obtain a Safe Work Permit?**

Fill out a request no later than a week prior to any field work. A request for safe work permit email is to be sent to [WWCSafeWorkPermit@ottawa.ca](mailto:WWCSafeWorkPermit@ottawa.ca). A coordinator will confirm date and time and will meet onsite in order to fill out a Safe work permit.



# BY-PASS PUMPING (PRE AND POST INSPECTION)





## BY-PASS BACKGROUND

- ▶ A bypass is put in place to pump from one manhole to another so that the pipe section in the middle is dry to allow work or replacement
- ▶ This allows workers to repair or replace sections of sewer, or re-route the sewer around a new installation
- ▶ Most important consideration is maintaining required level of service through the sewers. Pumps must handle max dry weather flows and need to have a redundancy, and contractor must have a plan for wet weather if they are planning on working through wet weather.

# BEST MANAGEMENT PRACTICES- BYPASS PRE AND POST INSPECTION

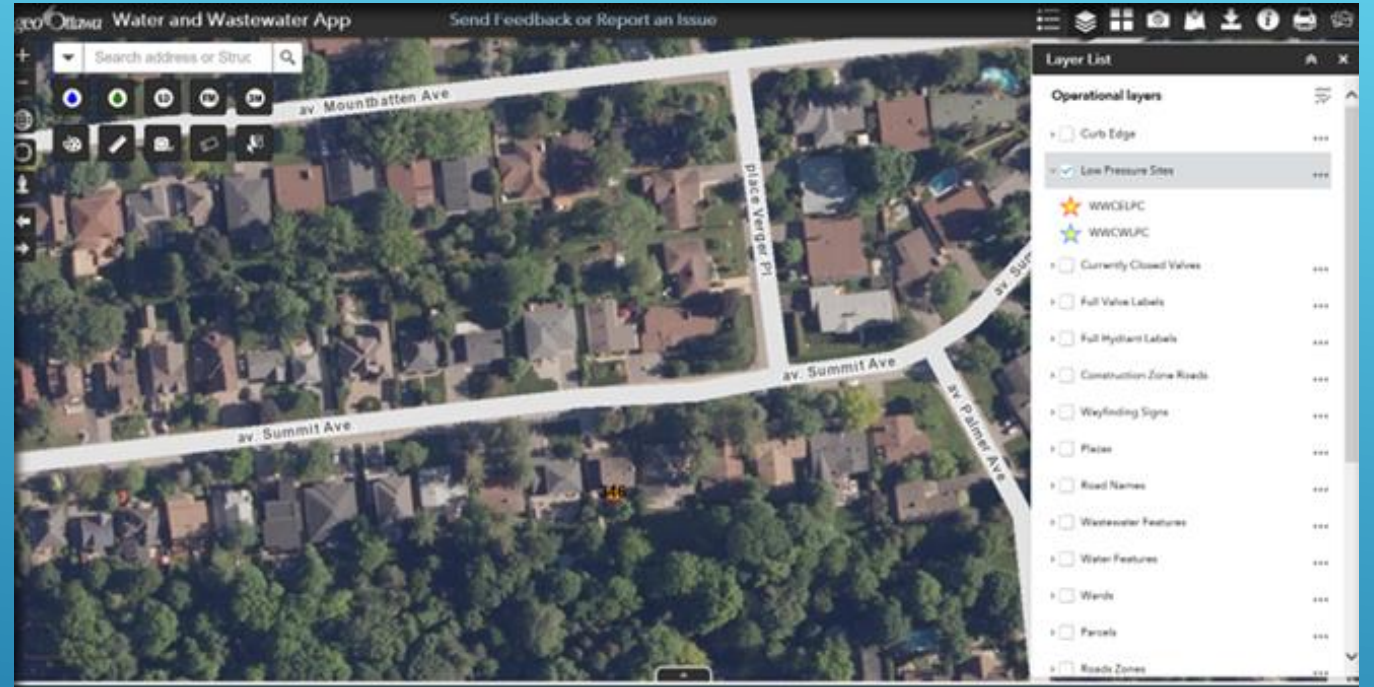
- ▶ Reach out to WWC Linear to request a bypass plan and setup to be reviewed  
[ISDSewerPlans@ottawa.ca](mailto:ISDSewerPlans@ottawa.ca)
- ▶ We ask for Sewer flow management plans to be submitted for approval for both sanitary and storm sewers(min 3 weeks)
- ▶ WWC Linear will assign a Licensed operator to inspect the bypass setup before bypass can be started (Pre-inspection)- Any active bypasses will fall on the running inspection list whereby a licensed operator is scheduled for routine site inspections
- ▶ When the bypass is complete, a licensed operator will be scheduled to ensure the setup was removed and sewer conditions are back to normal and the suction and discharge maintenance holes were left in a good condition.



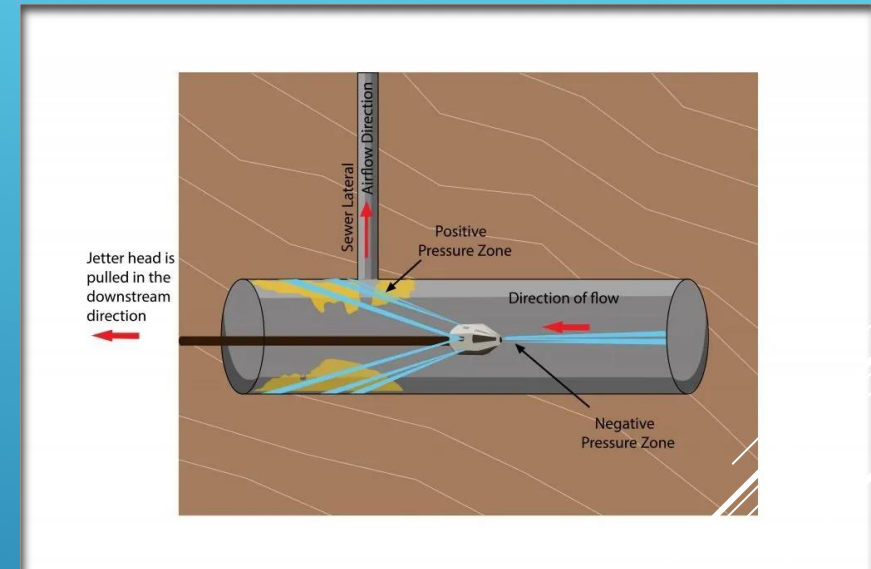
MY SFMP  
REQUIRES TO RUN  
CONTINUOUS  
DURING DRY AND  
WET WEATHER-  
WHAT ARE  
ADDITIONAL  
CONSIDERATIONS  
?

- ▶ Emergency Procedures Including wet weather contingencies
- ▶ Both active and standby Pumps have to be able to withstand the peak wet weather flow conditions
- ▶ These are minimum requirements in addition to other considerations:
  - ▶ Is there a worker onsite at all times?
  - ▶ Is there an autodialer alarm system?

# LOW PRESSURE SEWERS



- ▶ A low-pressure sewer is a sewer that has a history of blowbacks
- ▶ During the cleaning process, the use of high pressure water creates air pockets inside the sewer pipe that generally escape with no impact to a property's internal plumbing.
- ▶ In some cases, this air pressure can only escape through the sewer connection between the house and the City's sewer system, via the internal plumbing vent. If this passage is blocked, air pressure may escape through a toilet or drain. This can result in the release of odours, or on rare occasions sewage contaminated water, into a home or business – known as a "blow-back."



[Sewer Blowbacks – Releasing the pressure! \(vapar.co\)](#)  
[Sewer cleaning | City of Ottawa](#)

## LOW PRESSURE SEWERS- BACKGROUND

Maintaining Low Pressure List up to date (PMs need to contact WWC to confirm)

Informing residents ahead of activities in low pressure sewer areas so that they can take extra precautions

Liasing with Contractors to provide a contingency plan for when working in low pressure sewers

Investigating blowbacks and updating low pressure list

- BEST MANAGEMENT PRACTICES- LOW PRESSURE SEWER



## How do I know the sewer is part of a low-pressure system?

- ▶ WWC Team will verify if a project's scope will include low pressure sewers. Submit the request via the coordinator assigned to your project or [wwcrequests@ottawa.ca](mailto:wwcrequests@ottawa.ca)
- ▶ The GIS Layer for low pressure sewer is continuously being updated where new locations are added or locations are removed, so it's preferable to connect directly with your project coordinator to the latest information

## What is the expectation when a contractor is cleaning?

- ▶ Resident notification 24 hours prior to cleaning activities
- ▶ Licensed Operator will be scheduled to go to site and supervise the cleaning operation
- ▶ WWC Coordinator will do spot checks
- ▶ Cleaning Activities:
  - ▶ NO CLEANING TO BE DONE ABOVE 600 PSI
  - ▶ Proper vent in system for maximum air flow
  - ▶ Upstream and downstream maintenance hole covers open
- ▶ Resident notification once the cleaning is complete

# LOW PRESSURE SEWERS-QA



WORKING IN WET WEATHER

# WET WEATHER CONSIDERATIO NS IN CAPITAL PROJECTS

- ▶ During periods of heavy rain or snowmelt, sewer pipes may experience excess flow above and beyond their capacity. When this happens, sewer backups or overflows into the environment (CSO and SSO).
- ▶ Declaration of Wet Weather is the responsibility of RTC control room. Information will then be passed on to the contractors by our supporting team.
- ▶ Wet weather planning and consideration should be an important component of capital projects during design.

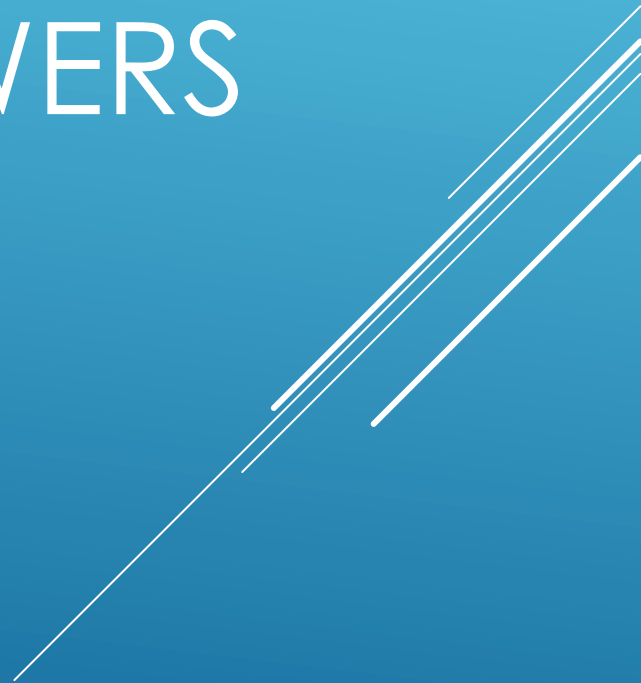
# BEST MANAGEMENT PRACTICES- WORKING IN WET WEATHER

- ▶ Capital Projects
  - ▶ Avoid (if possible) or minimize (where feasible) working during wet weather. Pause and re-initiate after the wet weather conditions have passed/subsided
  - ▶ Account for a communication plan which includes reaching out to sewer operations in an event of an emergency (24/7 Line: Control Room at 613-292-5805)
  - ▶ Increase the frequency of contractor inspections and setup onsite monitoring until the wet weather passes
  - ▶ Ensure By-Pass Plans include Wet Weather Contingencies





# DEBRIS IN SEWERS





MHSA30168

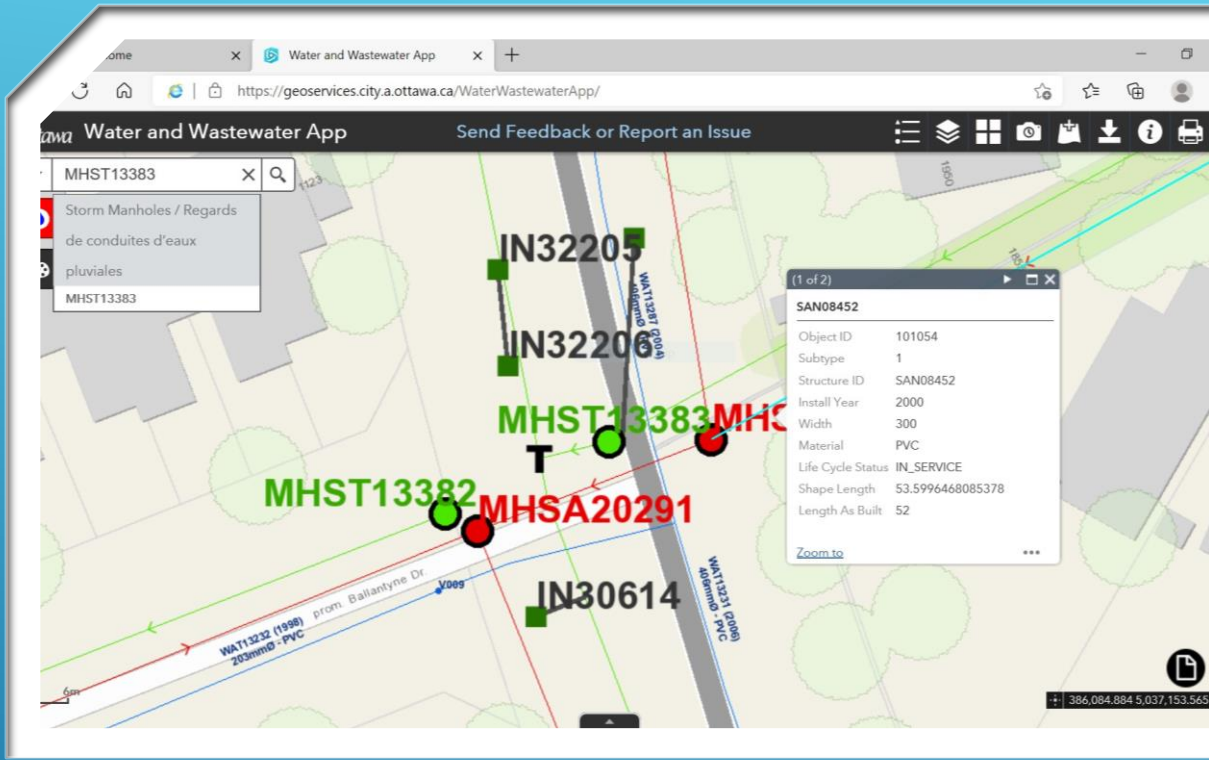


MHSA30169  
Blocked sewer large  
pile of asphalt



sewer issues resulting from construction debris (asphalt) blocking flow







# Asphalt in manhole on Larkin Street





MILLBROOK CRES - CHIPPING  
MHSA75782 - WO#13457437  
2023-Oct-11



Construction Debris 97 yoho dr





CLOSED CIRCUIT TELEVISION-CCTV



# CCTV- CAPITAL PROJECTS

- ▶ Pre-construction CCTV: Completed to document pre-construction conditions that might be impacted
- ▶ Post Construction CCTV: Completed to confirm quality of installation and to confirm any deficiencies that require follow up. Multiple post construction CCTV can be completed (First and Final CCTV)



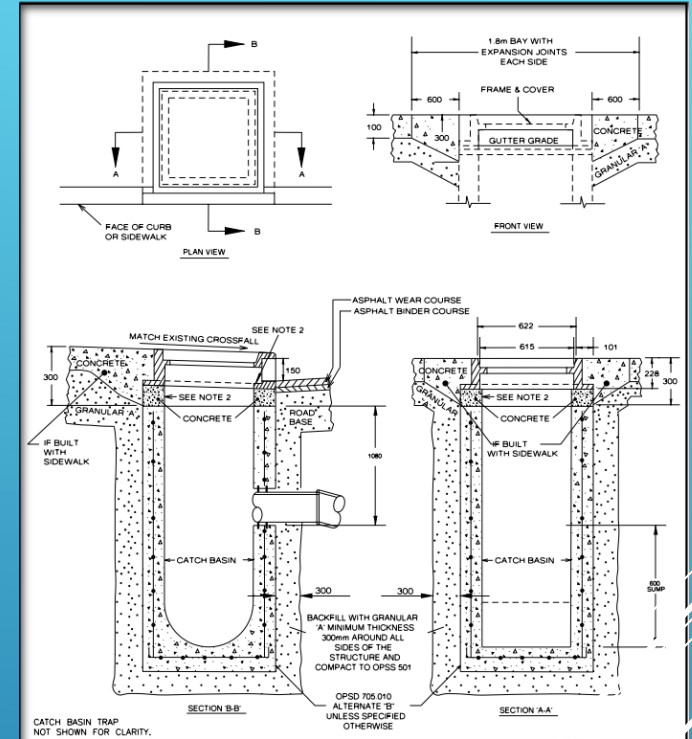
# BEST MANAGEMENT PRACTICES- CCTV

- ▶ Obtain Safe Work Permit from WWC linear staff via [WWCSafeWorkPermit@ottawa.ca](mailto:WWCSafeWorkPermit@ottawa.ca)
- ▶ Verify contractor certification requirements via NASSCO PACP
- ▶ Use actual structure IDs
- ▶ IF CAMERA gets stuck, contact the project coordinator for support –for after hours contact RTC Control Room **613-292-5805**
- ▶ Submit CCTV videos to the project's assigned WWC Coordinator. Coordinator will review the submission and provide summary comments to Project Team

# CCTV FEEDBACK FROM OPERATIONS

- ▶ Missing Sewer Structure IDs
- ▶ Poor video qualities
- ▶ NASSCO PACP Certification Requirement due to:
  - ▶ Camera angle
  - ▶ Camera lighting
  - ▶ Focusing on defect
  - ▶ Camera too low/high in pipe
  - ▶ Dirty lens/fog in pipe
  - ▶ Speed of the camera
  - ▶ Incomplete video (Roots)
  - ▶ Incomplete video (Grease)
  - ▶ Incomplete video (Debris)
  - ▶ Incomplete video (High water levels)
  - ▶ Incomplete video (Parked cars)
  - ▶ Incomplete video (Construction zone)
  - ▶ Failure to record every defect
  - ▶ Lack of experience from operator

- ▶ Catch Basin (CB) on the road gets hit with busses, heavy traffic all day long, they don't last long...
- ▶ WWC Operations spends ~ \$ 5 Million every year to replace broken CBs on the road. When planning on installing new CBs, curb inlets are the way to go. Their life span is much longer than a road CB.



# CURB INLETS

Descriptor	Email
To Submit a SFMP	<a href="mailto:ISDSewerPlans@ottawa.ca">ISDSewerPlans@ottawa.ca</a>
To Obtain a Safe Work Permit	<a href="mailto:WWCSafeWorkPermit@ottawa.ca">WWCSafeWorkPermit@ottawa.ca</a>
For Sewer Discharge Requests	<a href="mailto:sdr_dde@ottawa.ca">sdr_dde@ottawa.ca</a>
For Wastewater Collection Locates	<a href="mailto:WWCL_CEUL@ottawa.ca">WWCL_CEUL@ottawa.ca</a>
WWC Low Pressure List Verification	<a href="mailto:wwcrequests@ottawa.ca">wwcrequests@ottawa.ca</a>

To request WWC LINEAR operator support, complete the following form:



Microsoft Edge  
PDF Document

# KEY CONTACTS



THANK YOU

HASSAN CHEHADE,

SENIOR PROCESS ENGINEER WW LINEAR COLLECTION



QUESTIONS

