Public Information Meeting



Sump Pump Inspection Program

City of Boone, IA May 9, 2023



Introductions



- WHKS & Co. is a multidisciplinary Civil Engineering Firm headquartered in Mason City, Iowa, with offices in Ames, Rochester MN, East Dubuque & Springfield IL.
- Angie Kolz, PE is practice area leader for WHKS & Co water/wastewater department. WHKS has assisted over 50 lowa and Minnesota communities with sump pump I&I reduction projects.



Presentation Objectives

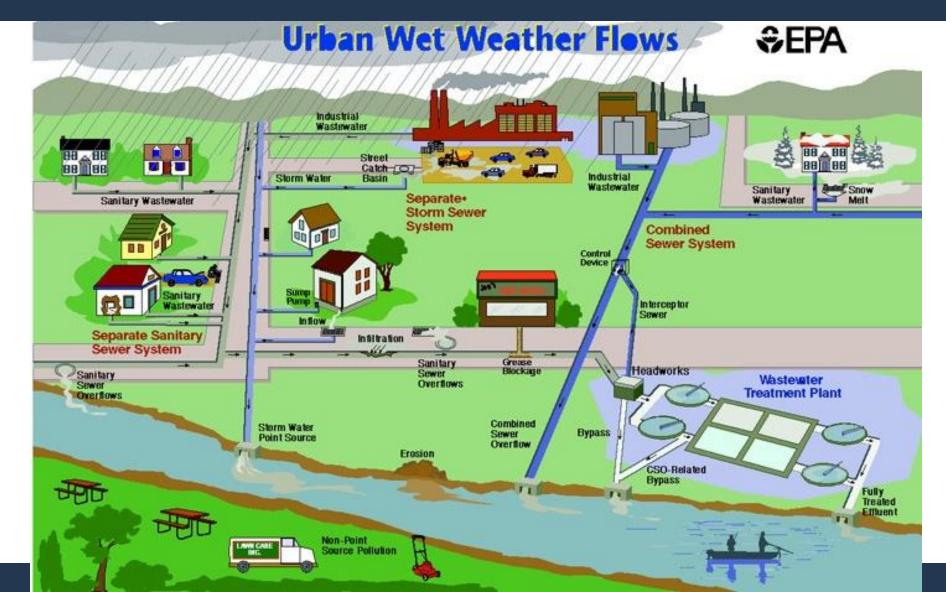


- Why is a sump pump program being recommended?
- Discuss program details
- Discuss next steps



What is I/I? Inflow and Infiltration





Consequences of I/I

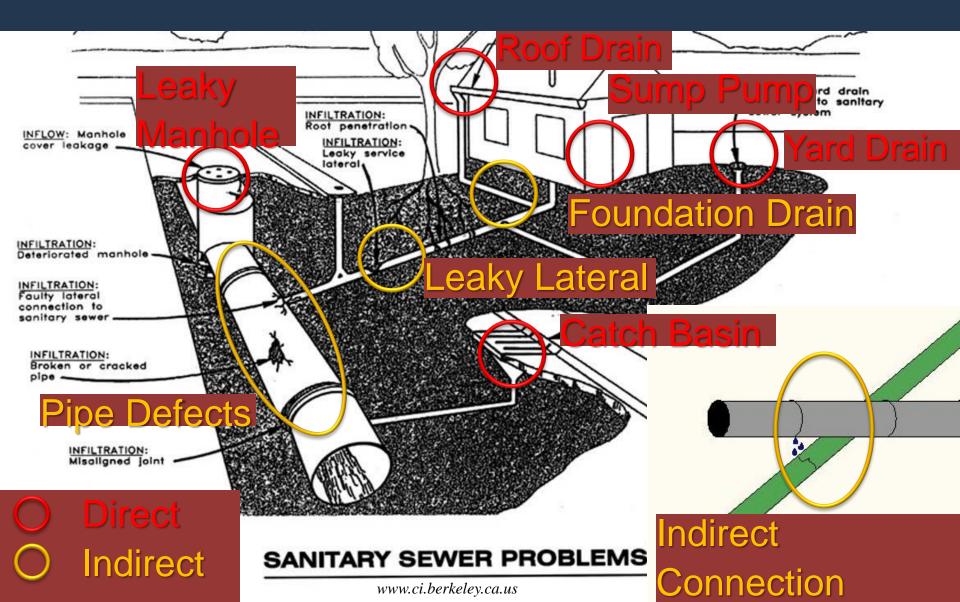






Some Sources of I/I





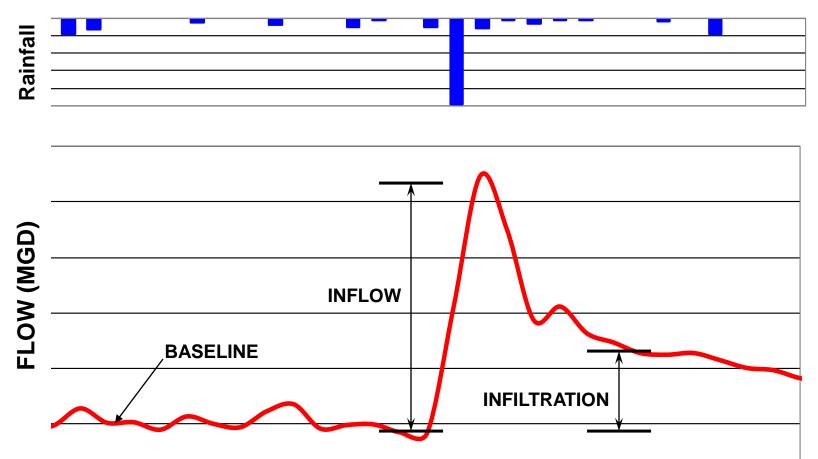
Inflow and Infiltration



Boone System Description:

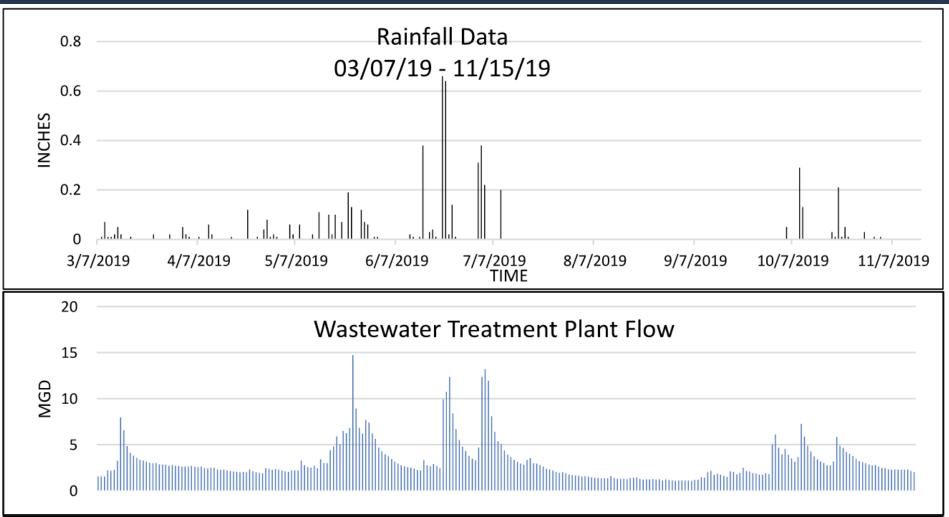
Average Dry Weather (ADW) flow (MGD): 2.1 Average Wet Weather (AWW) flow (MGD): 7.0

Peak Instantaneous Wet Weather (PIWW) flow (MGD): 24.6 1170%



Inflow and Infiltration







I/I Removed Per \$\$ Spent

Bang for your Buck



More

Sump Pumps

Smoke & Dye Testing

Manhole Repairs – Casting & Chimneys

Pipe and Manhole Repairs of Active Leaks

Manhole Barrel or Other Pipe Repairs

Upsize Trunk Lines

Upsize Lift Stations

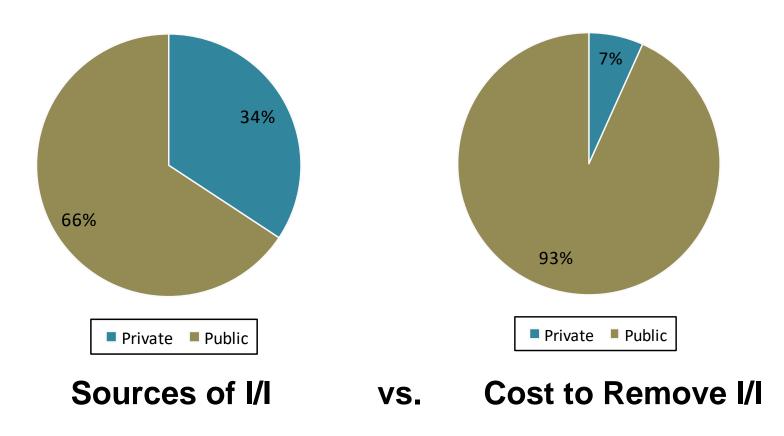
Upsize Wastewater Treatment Plant

Less



Example Flow Removal & Cost Public Sector vs. Private Sector





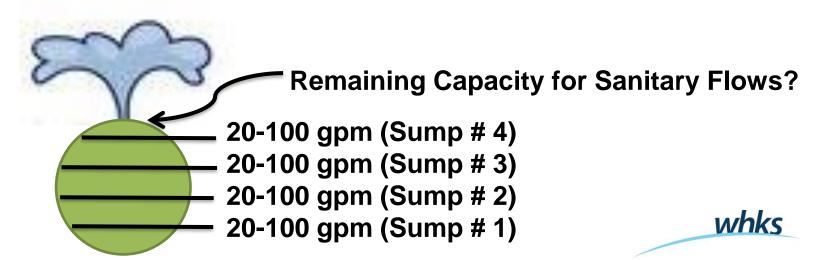
Example from Kutzky/Slatterly Pilot I/I Study, Rochester MN 2008
National averages range from 50/50 - 75/25

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Why a Sump Pump Program?



- A few sump pumps can make a big difference
 - Typical sump pump 20-100 gpm apiece
 - Typical 8" sewer capacity 350 gpm.
 - As few as FOUR pumps can take up the pipe capacity and cause a backup in the neighborhood.



Why a Sump Pump Program?



Perspective:

- 5%-10% violation rate typical out of 33,000 inspections completed in fifty communities
- Hypothetically, if 5% rate applied to Boone's proposed 2023 inspection area:
 - Approx. 500 buildings x 5% = 25 violations
 - If each violation contributed 50 gpm, 8 hours/day
 = 600,000 gpd
 - 2023 area = 8% of Average Wet Weather at WWTP (0.6 MGD / 7 MGD AWW = 8%)

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Why a Sump Pump Program? Talking Points

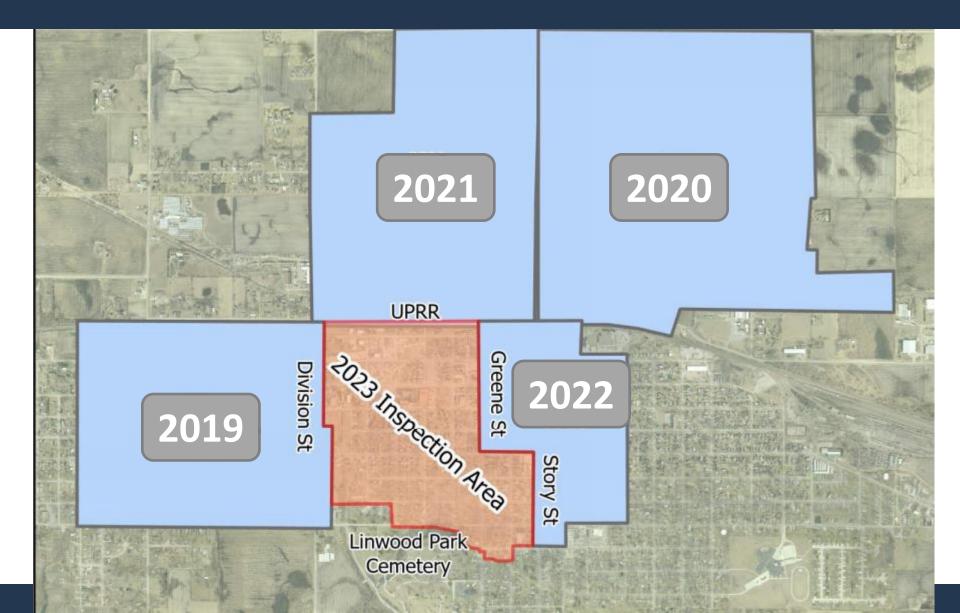


- The jump in flows during wet weather is evidence that clear water is entering the system.
- I/I sources are typically 50/50 Public vs Private, recent studies as high as 25/75 Public vs Private
- Removing Inflow/Infiltration (I/I):
 - Reduces Backups
 - Protects Health
 - Controls Costs



2019-2023 Areas







Letter

April 21, 2023

Property Owner: Property Address:

Re: 2023 Sump Inspection Program - Public Information Meeting

Due to high wastewater flows in the sanitary sewer system during wet weather, the City of Boone has adopted an Ordinance prohibiting the discharge of clear water into the sanitary sewer system. Clear water from any roof, surface, ground, sump pump, footing tile, swimming pool, seepage collection system ("beaver system") or other natural precipitation is prohibited from discharging into the sanitary sewer.

The City will be conducting mandatory sump pump inspections to verify that sump pumps, roof drains, and other clear water sources are not connected to the sanitary sewer system. This year (2023) is the fifth year of the program, and it includes the west central portion of the City. Over 2,400 homes have been inspected in other areas of the City since the program began in 2019. Other areas of the City will be inspected over the next couple years. The engineering firm, WHKS & Co., is coordinating this program and will serve as Project consultant.

<u>Public Informational Meeting:</u> The City will host a public informational meeting on Tuesday, May 9, 2023, at 5:00 pm at Boone City Hall 2nd floor Auditorium to discuss the scheduling of inspections, length of inspection, proper sump pump connection and other miscellaneous items. The meeting will be broadcast. Please access the broadcast via www.zoom.us, Meeting ID: 827 8541 4672 and Passcode: 495950.

Thank you for your attention to this matter. If you have any questions, or require any additional information, please do not hesitate to contact Angie Kolz, WHKS & Co., toll-free 866-880-8004.

Sincerely,

William J. Skare, CPM City Administrator



923 8th St. P.O. Box 550 Boone, Iowa 50036-0550 Telephone; 515-432-4211 Fax: 515-433-0630

Scheduling



- All inspections are scheduled, no door-to-door inspections.
- Scheduling is fast and easy
- Schedule through website or telephone
 - BooneSump.com or toll free 1-866-880-8004
- Residents will receive a letter when it is time for their sector to schedule inspections.



Scheduling and Info Website BooneSump.com



Find Appointment Availability





		1	2	3	4	5	6
	7	8	9	10	11	12	13.
	14	15	16	17	18	19	20
	21	22	23	24	.25	26	27
UE	28	29	30				

Available times for 06/03/2009:

- C 12:00 PM 12:15 PM
- 12:15 PM 12:30 PM
- C 12:30 PM 12:45 PM
- C 12:45 PM 01:00 PM
- O 01:00 PM 01:15 PM
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- O 02:30 PM 02:45 PM
- C 02:45 PM 03:00 PM
- C 03:00 PM 03:15 PM
- O 03:15 PM 03:30 PM

The Inspection



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- Completed in under 15 minutes, many under 5 minutes
- Adult must be present
- Inspector looks at:
 - Sump pumps
 - Beaver drains
 - Roof drains
 - Site grading
- Occupant and inspector signs
- Notice of Violation and instructional diagrams given if needed

Inspection Form

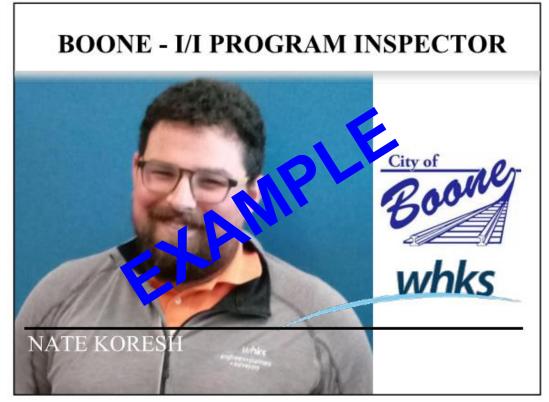


	City of Boone Sump Pump Inspection Report						
Init	tial Inspection						
1.	Owner and Address:						
	a. Owner Name(s):						
	b. Address:						
	c. Occupants Name (If different):						
	d. Owner Address (s): (If different)						
2.	Date of Initial Inspection:						
3.	3. Date of construction and Building Type? Building built in year(ex. 19						
Note residential, apt., commercial, industrial:							
4	History of backups or flooding? Note date, source, and actions taken:						
	Thousand the state of the state						
5.	Does building have: a. Yes No Exterior grading sloping towards the building?						
	b. Yes No Roof drains that go into the ground? c. Yes No Basement?						
	c. Yes No Basement? d. Yes No Seepage collection (beaver) system?						
	e. Yes No Sump pit?						
6.	If building has a roof drain that goes into the ground, which of the following apply?						
	a. It is properly constructed to discharge to open air or storm system. b. It is improperly constructed to discharge into the sanitary sewer system.						
	c. Discharge location not determined.						
7.	If there is a seepage collection (beaver) system, which of the following apply?						
	a. It is properly constructed to discharge into a sump pit b. It is improperly constructed to discharge into the sanitary sewer system.						
	c. Discharge location not determined.						
8.	If there is a sump pit, which of the following apply?						
-	 a. Pump is properly plumbed to discharge outside the basement through rigid piping. 						
	 Dump is improperly plumbed to discharge into the sanitary sewer system. Pump has the capability of discharging into the sanitary sewer system (ex. flex hose). 						
	d. There is a pit with no pump. Plumbing is checked as (a) (b) or (c) if present. e. Discharge location not determined.						
9.	Other comments (exterior drains, uncapped cleanouts, inactive sump pit, etc):						
10.	Photos taken of Interior Sumps and Collection System, and Building Exterior? ☐Yes ☐No						
11.	If 6b, 7b, 8b or 8c was checked, a Violation Notice was given to the Occupant or Owner directing them to correct the violation by (date):						

Prop	erty Address						
	Page 2 of 2						
	†						
DIAGRAM: roof drains into ground, exterior drains, improper grading, sump pits and pumps, sump pump discharges, beaver systems, sanitary grinder pumps, etc							
B. Subsequent Inspection 1. Date of subsequent inspection:							
Inspection conducted by							
Does the building now comply with the applicable Ordinance for the City of Boone? ■Yes ■No							
I hereby verify that the City Representative has inspected the above-described sump pump and the information set forth above is true and correct to the best of my knowledge.	I hereby verify that the City Representative has inspected the above-described sump pump and the information set forth above is true and correct to the best of my knowledge.						
Occupant/Owner Date	City Representative Licensed Plumbers: sign with license #. Date						

Inspector Identification





- All inspections are scheduled
- No door-to-door
- WHKS logos on
 - Badges
 - Clothing
 - Vehicles



Installation Examples: Sump Pumps

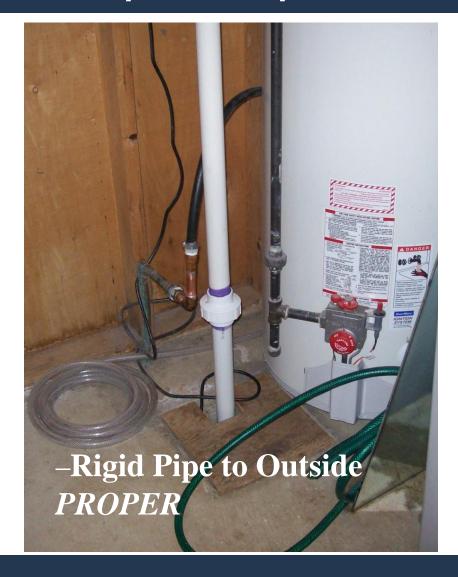


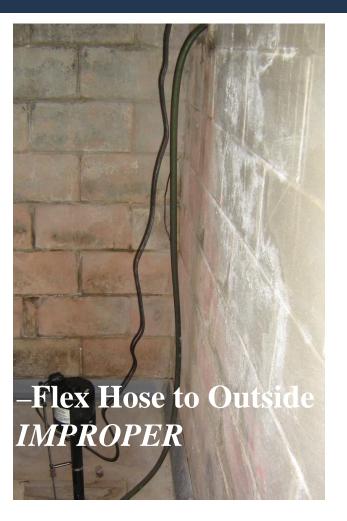


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Installation Examples: Sump Pumps









Installation Examples: Sump Pumps





Flex Hose to Sanitary via stool

No.

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Installation Examples: Beaver Drains





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Installation Examples: Beaver <u>Drain / Tile</u>







Installation Examples: Tile Pit





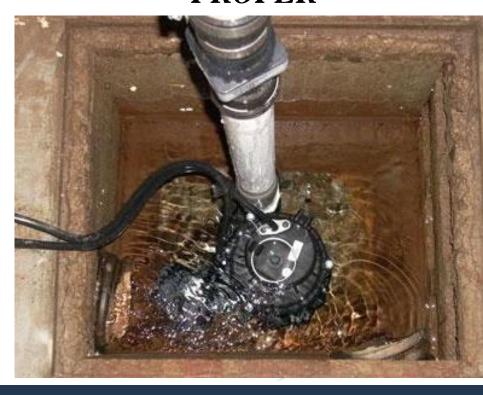
Tile Pit into Floor Drain

"Running Trap"

IMPROPER

Plugged + Pump Installed

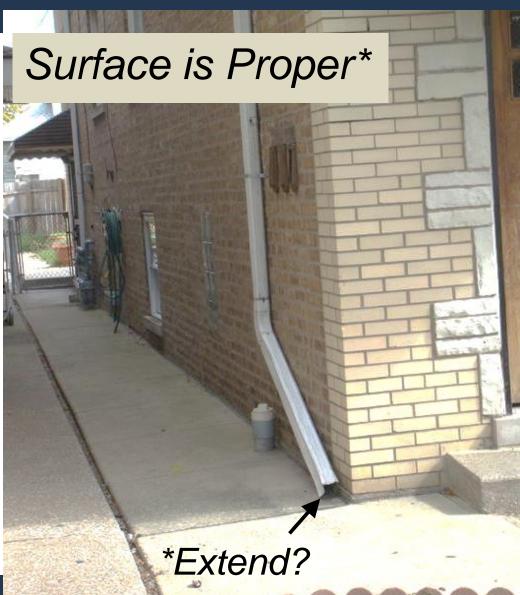
PROPER



Roof Drains



Underground and ties into Sanitary, *Improper*









Flexible Pipe



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Curb outlet

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Air Gap & underground pipe





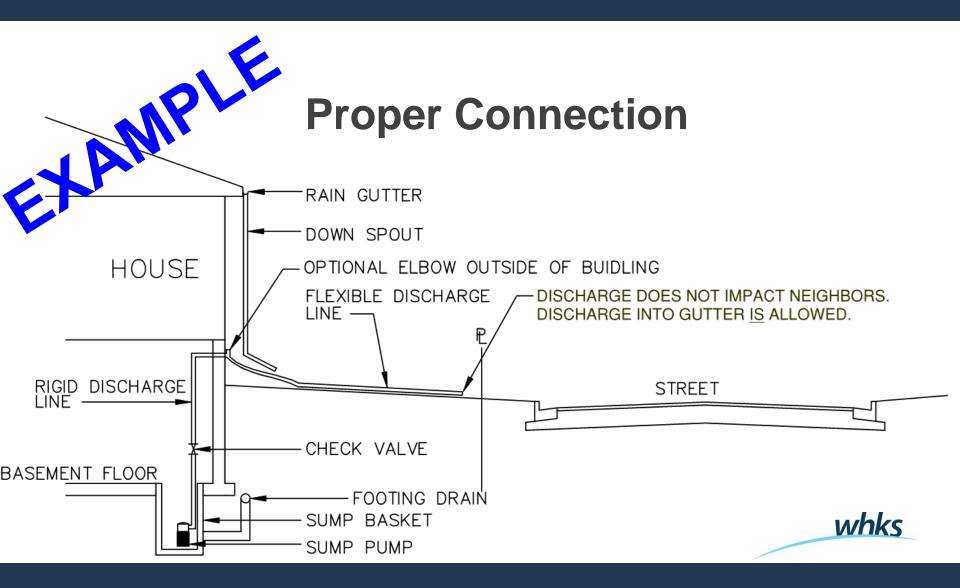


Legal, but not a good idea



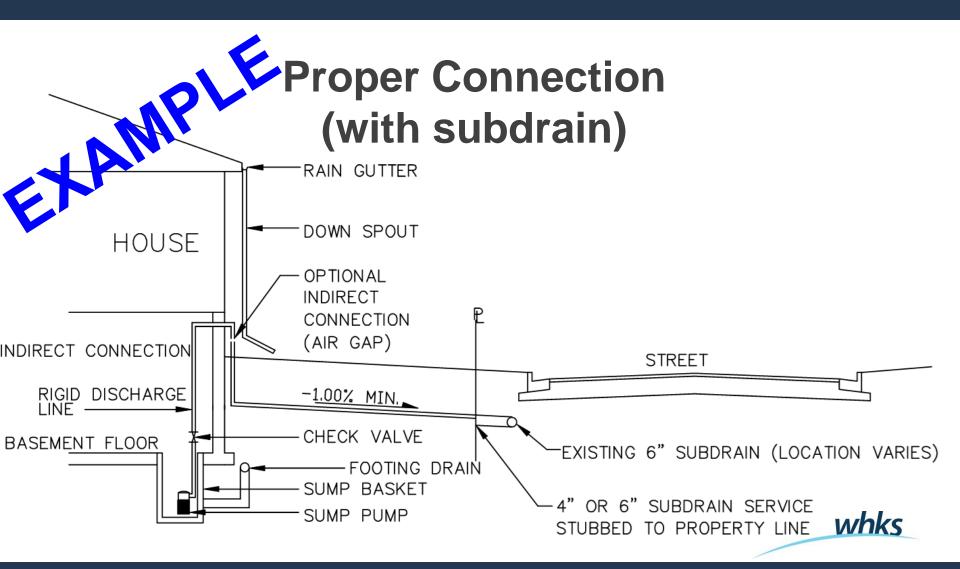
Sump Pump Diagrams





Sump Pump Diagrams





Inspection Timeline



ltem	Date
2023 Public Meeting	May 9, 2023
Receive Letters and Start Inspection	May – July 2023

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Long Range I/I Plan: Field Investigations



- Private:
 - Building Inspections
- Public:
 - Smoke and Dye Testing
 - Manhole Inspections



Smoke Testing



- Inexpensive & Quick
- Detect inflow sources & structural damage
 - Roof leaders, drains, faulty connections
 - Pipe cracks, leaking joints
- Procedure
 - Public Notification: Newspaper, TV, Radio
 - Testing: Assisted by City staff
- Results
 - Cracked chimneys, pavement
 - Cross connections with roof drains
 - Pipe defects



Manhole Inspection

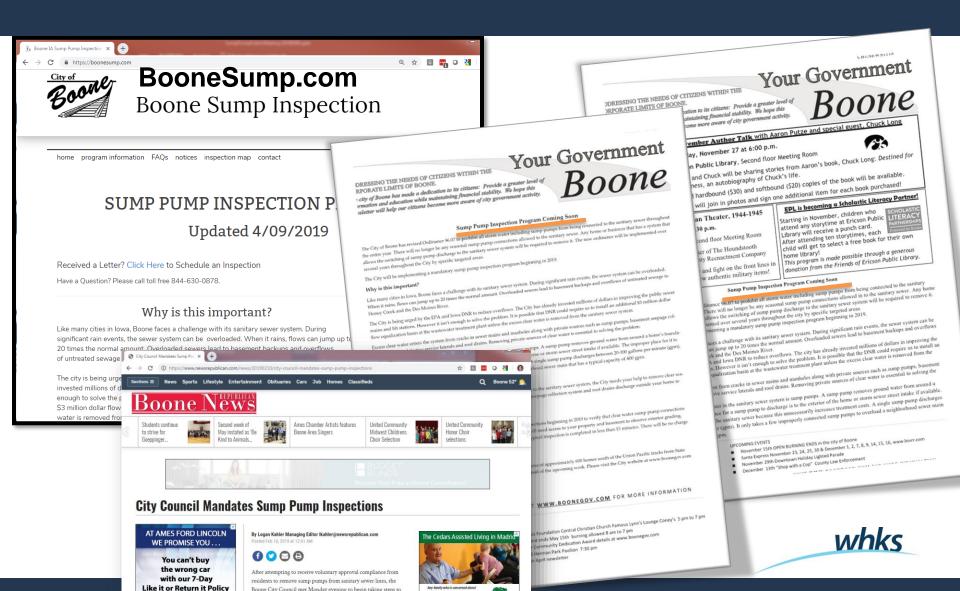


- I/I defects
 - Cover, frame seal, chimney, barrel
- Confirmed/updated system configuration
 - Location, depth, pipe size



Public Info





Boone City Council met Monday evening to begin taking steps to mandate a program that will involve inspections of sump pumps and

Questions?





Contact and Project Information



- Contact/ Project information
 - Angie Kolz, PE

akolz@whks.com

515-663-9997

