Boardman Township Check-List: Drainage and Flooding Issues on Private Property

The Boardman Township Road Department strives to help the residents of this community in alleviating re-occurring drainage and/or flooding problems on private property, and is always willing to help homeowners by providing counsel and guidance or steering citizens in the right direction when the Road Department is unable to solve an immediate problem at hand.

The first step is to try and determine the exact source and nature of the problem, and subsequent steps will be the result of where the water problem is actually located.

Is the problem in the <u>home or basement</u>, OR in the <u>yard</u>?

> IF THE PROBLEM IS IN THE HOME OR BASEMENT:

If the problem is in the *home or basement*, try to determine what the source of the water is: does the water have a color or odor? Or, is it clear and odorless?

- 1. When the water has an odor or appears to be gray, this may indicate a sanitary sewer problem. In this case:
 - ✓ Check to ensure that the flapper valve in the center of the basement in the sanitary line is in working order
 - ✓ Check the sanitary back-flow valve to insure proper operation, if installed (a wise choice for protecting a home and basement from sanitary sewer back-up)
 - ✓ Call the Mahoning County Sanitary Engineer Department to find out if they are experiencing any sanitary sewer troubles in the specific area, and ask for a routine check of the sanitary lines to insure that there is no blockage. In many cases, a private drain service company may be needed to check for blockages in the lines from the home to the main sanitary line; this is the responsibility of all homeowners.
- 2. When water is clear and odorless, this may indicate the possibility of the failure of footer and/or downspout lines. In some cases, age plays a part in such failure. Over time, footer and/or downspout lines become clogged with dirt or debris, and can cause back-ups to occur in the basements of many homes. In older homes, downspouts that are tied into footer or sanitary lines may cause clear water to back-up into basements.

- ✓ A private drain service company may be needed to clear any clogs or blockages that exist in the lines.
- 3. When the water is clear and odorless, always take the time to check the operation of the sump pump to make sure it is working and to insure proper water flow out of the home, and <u>not</u> back into the basement (if installed, another wise choice for protecting a home and basement)
- 4. In all other cases when a homeowner has taken all the steps possible to ensure that a problem is not on private property:
 - ✓ Call the Boardman Township Road Department to verify if the problem is in fact related to the functioning of the storm system on the street. If the problem is within the street, the Road Department may have to clear the storm lines to alleviate any blockages that might be located.

➤ IF THE PROBLEM IS IN THE YARD:

The following are possible scenarios and brief explanations which may assist when determining what the next steps should be:

- 1. Is the source of the water due to low elevation (low spots) in the back or front yards?
 - ✓ <u>Low Elevation</u>: this may require the help of a private contractor to determine where the low spots exist and the best method to fill-in those areas. The best way to get proper drainage from those areas would be to pipe to an efficient system such as a street, storm line or other acceptable system. In such cases, the Boardman Road Department is always available for any line tie-ins that a contractor believes are necessary.
- 2. Are the downspouts not properly tied into a storm water system, or are they potentially blocked by debris and resulting in water flowing onto private property, yards or driveways?
 - ✓ <u>Downspouts</u>: if downspouts are blocked, a private drain service company may be needed to clean the lines in order to ensure proper flow. If the downspouts are not piped into a system, a private contractor would be needed to properly tie the downspouts into a storm water system. Again, the Boardman Road Department is always available for any line tie-ins that a contractor believes are necessary.

- 3. Is water flowing from an adjacent neighbor's yard overland because of landscaping that negatively impacts proper water flow, or downspouts that are not tied-in properly?
 - ✓ <u>Neighboring Water:</u> these scenarios may require the need for civil/legal action in a court of law involving private property owners. Another possible solution could come in the form of creative landscaping by homeowners, such as diverting the flow of water through a swale cut between neighboring properties to allow water to flow to the street or the nearest storm system. Again, the Boardman Road Department is always willing to advise and will mediate to the extent law allows.
- 4. Is water resulting in back-yard ponding?
 - ✓ Ponding: solutions that might be used for relief in back-yard ponding are:

French Drains may be installed throughout the yard and piped to the drainage system at the street or into the existing storm system.

Dry-Wells may be used if no system is available to the homeowner (in other words, dry-wells would be used in lieu of French drains).

- ✓ Further information on rules and regulations for both French drains and drywells can be obtained through the Mahoning County Board of Health (see attached).
- 5. Is there general blockage in storm lines causing water to back-up from the street or, in rare instances, from those storm lines that run through backyards that may experience a back-up?
 - ✓ <u>Blockage</u>: a possible blockage in the storm line where it appears that a catch basin (or basins) is holding or not taking-in water would require a call to the Road Department. The Road Department then dispatches the Vactor Sewer-jet Truck to clean the basin(s) and jet the existing lines to alleviate the problem.

> IMPORTANT NUMBERS

\checkmark	Boardman Township Road Department:	(330) 726-4190
✓	Mahoning County Sanitary Engineers:	(330) 793-5514
✓	Mahoning County Highway Engineers:	(330) 799-1581
\checkmark	Mahoning County Board of Health:	(330) 270-2855

✓ Yellow Pages for Private Contractors including General Contractor, Landscape Contractor and Drainage Contractor

> FOR ADDITIONAL INFORMATION REFER TO ATTACHED DOCUMENTS:

- ✓ Mahoning County Board of Health: Downspout/Footer Drain Connection Installation Instructions
- ✓ Federal Emergency Management Agency (FEMA): Protecting Your Property from Flooding (Exterior Walls)
- ✓ Federal Emergency Management Agency (FEMA): Protecting Your Property from Flooding (Sewer Backflow Valves)
- ✓ Federal Emergency Management Agency (FEMA): Protecting Your Property from Flooding (Electrical System)
- ✓ Federal Emergency Management Agency (FEMA): Protecting Your Property from Flooding (Heating, Ventilating and Air Conditioning Equipment)

RECEIVED

MAHONING COUNTY BOARD OF HEALTH

IJAN 28 7000

APPROVED PERMITS ARE ISSUED UNDER FOLLOWING INSTALLATION REGUEATIONS ZONING

DOWNSPOUT/FOOTER DRAIN CONNECTION INSTALLATION INSTRUCTIONS

Section 1: NOTICE TO CONTRACTOR OR HOME OWNER.

An inspection permit Must be issued for the downspout and/or footer drain, where needed, before any work can be started. All work must be approved and inspected before any work is covered. Inspectors will be furnished a 24-hour notice for inspection time between 8:00 a.m. and 4:30 p.m. Monday through Friday. Inspections will be made the same day if request for inspection is called into the office before 9:30 a.m., otherwise it will be made following day. If the work completed does not meet the approval of the District Board of Health, Mahoning County, and requires another inspection, there will be a re-inspection fee. This must be paid before a re-inspection can be made.

Section 2: PERMIT EXPIRATION

Downspout/footer drain permits expire after one (1) year if installation is not completed. A new permit must be issued.

Section 3: OCCUPANCY PERMIT

An inspection of the downspout and or footer drains must be conducted before an occupancy permit from the Mahoning County Building Inspection Department is completed.

Section 4: ROUGH GRADING OF LOT MUST BE COMPLETE BEFORE DOWNSPOUT CAN BE CONSTRUCTED

When installing a downspout system, the District Board of Health will allow 4 or 5 downspouts on a 4" run. In practice this usually means running a 6" line to a split and covering each side of the house with 4" runs or running two 4" runs covering each side of the house. Four inch will not handle the volume of water during heavy rains thus the 6" or two 4"s. The pipe must be solid, not perforated and must be labeled with at least 3000 lb. crush weight. All lines shall be tied in to a storm sewer, if available, by gravity. This is not a new guideline but one which will be enforced as complaints are received.

All downspouts must be connected to the storm sewer if available, or emptied into the open road ditch, stream or properly constructed dry well. Where curbs exist, a 4" opening shall be provided in the curb. No splash blocks will be permitted. All downspouts shall be laid on solid foundation and a minimum of five (5) feet from the foundation. All downspouts must be carried to the front of the building and connected to the storm sewer or open road ditch. If for any reason the storm drains cannot be carried to the street and must run to the rear of the property because of insufficient fall in the front, a dry well may be installed. A dry well may be installed for three rain leaders. This dry well must be 8 feet square by 6 feet deep. Fill dry well with No. 3-2 gravel to a point where the storm sewer enters the dry well. Run 4 inches drain pipe across dry well. Drain pipe to have 2 inches coverage over top. In the center of dry well, a 2 foot length of 4" sewer pipe to be installed in a vertical position and hub brought up to finish grade. In hub of 4 inches sewer pipe install a perforated strainer. This will relieve pressure of dry well when same becomes flooded and storm water will flow over open land. Dry wells must be fifty feet from building line. Dry wells must have 25 cubic feet per rain leader and must be 20 feet from all adjoining lot lines. All piping shall be rigid and a minimum of 1000 lb. crush or better.

Section 5: FOOTER DRAINS

Footer drains can be run with schedule 40 pipe rigid, flex 1000 lb. crush or better and must be run to the sump on the inside of the structure.

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ARE YOU AT RISK?

If you aren't sure whether your house is at risk from flooding, check with your local floodplain manager, building official, city engineer, or planning and zoning administrator. They can tell you whether you are in a flood hazard area. Also, they usually can tell you how to protect yourself and your house and property from flooding.

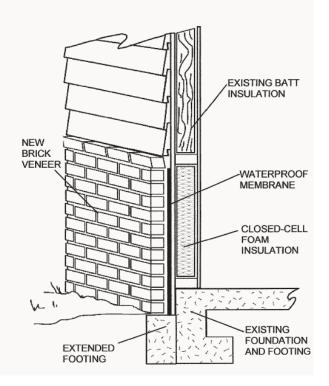
WHAT YOU CAN DO

Flood protection can involve a variety of changes to your house and property – changes that can vary in complexity and cost. You may be able to make some types of changes yourself; however, complicated or large-scale changes and those that affect the structure of your house or its electrical wiring and plumbing should be carried out only by a professional contractor licensed to work in your state, county, or city. One example of flood protection is adding a waterproof veneer to the exterior walls of your house. This is something that only a licensed contractor should do.

ADD WATERPROOF VENEER TO EXTERIOR WALLS

Even in areas where flood waters are less than 2 feet deep, a house can be severely damaged if water reaches the interior. The damage to walls and floors can be expensive to repair, and the house may be uninhabitable while repairs are underway.

One way to protect a house from shallow flooding is to add a waterproof veneer to the exterior walls and seal all openings, including doors, to prevent the entry of water. As shown in the figure, the veneer can consist of a layer of brick backed by a waterproof membrane. Before the veneer is applied, the siding is removed and replaced with exterior grade plywood sheathing. If necessary, the existing foundation footing is extended to support the brick. Also, because the wall will be exposed to flood water, changes are made to the interior walls as well so that they will resist moisture damage. In the area below the flood level, standard batt insulation is replaced with washable closed-cell foam insulation, and any wood blocking added inside the wall cavity is made of exterior grade lumber.



Add Waterproof Veneer to Exterior Walls

TIPS

Keep these points in mind if you plan to have a waterproof veneer added to the exterior walls of your house:

- ✓ Adding a waterproof veneer is appropriate in areas where the flood depth is less than 2 feet. When flood depths exceed 2 feet, the pressure on waterproofed walls increases greatly, usually beyond the strength of the walls. If greater flood depths are expected, consult with a licensed civil or structural engineer before using this method.
- Changes to the foundation of your house must be done by a licensed contractor, who will ensure that the work is done correctly and according to all applicable codes. This is important for your safety.
- ✓ If your house is being remodeled or repaired, consider having the veneer added as part of the remodeling or repair work. It will probably be cheaper to combine these projects than to carry them out separately.
- ✓ If your house has brick walls, you can still use this method. The new brick veneer and waterproof membrane are added over the existing brick.
- ✓ If your house is flooded by groundwater entering through the floor, this method will not be effective.

ESTIMATED COST

If you have a contractor add a waterproof brick veneer to your house, you can expect to pay about \$10 per square foot of exterior wall. For example, a 3-foot-high brick veneer on a house measuring 60 feet by 30 feet would cover about 540 square feet and would cost about \$5,400. This figure does not include the cost of sealing doors and other openings or extending the foundation.

OTHER SOURCES OF INFORMATION

Protecting Your Home from Flooding, FEMA, 1994

Repairing Your Flooded Home, FEMA-234, 1992

Flood Emergency and Residential Repair Handbook, FIA-13, 1986

Retrofitting Flood-Prone Residential Structures, FEMA-114, 1986

To obtain copies of these and other FEMA documents, call FEMA Publications at 1-800-480-2520. Information is also available on the World Wide Web at http://www.fema.gov.



ARE YOU AT RISK?

If you aren't sure whether your house is at risk from flooding, check with your local floodplain manager, building official, city engineer, or planning and zoning administrator. They can tell you whether you are in a flood hazard area. Also, they usually can tell you how to protect yourself and your house and property from flooding.

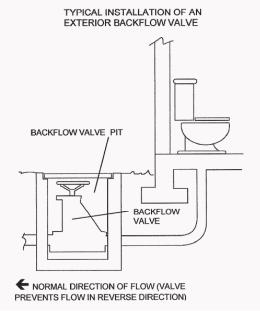
WHAT YOU CAN DO

Flood protection can involve a variety of changes to your house and property – changes that can vary in complexity and cost. You may be able to make some types of changes yourself; however, complicated or large-scale changes and those that affect the structure of your house or its electrical wiring and plumbing should be carried out only by a professional contractor licensed to work in your state, county, or city. One example of flood protection is installing a backflow valve to prevent sewage from backing up into your house. This is something that only a licensed plumber or contractor should do.

INSTALL SEWER BACKFLOW VALVES

In some floodprone areas, flooding can cause sewage from sanitary sewer lines to back up into houses through drain pipes. These backups not only cause damage that is difficult to repair, but also create health hazards.

A good way to protect your house from sewage backups is to install backflow valves, which are designed to block drain pipes temporarily and prevent flow into the house. Backflow valves are available in a variety of designs that range from the simple to the complex. The figure shows a gate valve, one of the more complex designs. It provides a strong seal, but must be operated by hand. So the effectiveness of a gate valve will depend on how much warning you have of impending flooding. Among the simpler valves are a flap or check valves, which open to allow flow out of the house but close when the flow reverses. These valves operate automatically but do not provide as strong a seal as a gate valve.



Install Sewer Backflow Valves

TIPS

Keep these points in mind if you have backflow valves installed:

- Changes to the plumbing in your house must be done by a licensed plumber or contractor, who will ensure that the work is done correctly and according to all applicable codes. This is important for your safety.
- ✓ Some valves incorporate the advantages of both flap and gate valves into a single design. Your plumber or contractor can advise you on the relative advantages and disadvantages of the various types of backflow valves.
- ✓ Valves should be installed on all pipes that leave the house or that are connected to equipment that is below the potential flood level. So valves may be needed on washing machine drain lines, laundry sinks, fuel oil lines, rain downspouts, and sump pumps, as well as sewer/septic connections.
- ✓ If you have a sump pump, it may be connected to underground drain lines, which may be
 difficult to seal off.

ESTIMATED COST

Having a plumber or contractor install one backflow valve will cost you about \$525 for a combined gate/flap valve or about \$375 for a flap valve. These figures include the cost of excavation and backfilling.

OTHER SOURCES OF INFORMATION

Protecting Your Home from Flooding, FEMA, 1994

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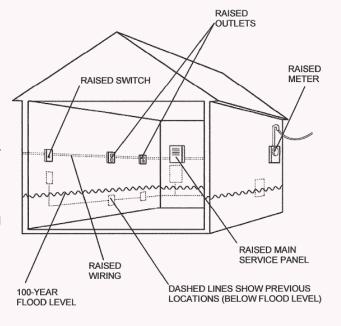
WHAT YOU CAN DO

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RAISE ELECTRICAL SYSTEM COMPONENTS

Electrical system components, including service panels (fuse and circuit breaker boxes), meters, switches, and outlets, are easily damaged by flood water. If they are inundated for even short periods, they will probably have to be replaced. Another serious problem is the potential for fires caused by short circuits in flooded systems. Raising electrical system components helps you avoid those problems. Also, having an undamaged, operating electrical system after a flood will help you clean up, make repairs, and return to your home with fewer delays.

As shown in the figure, all components of the electrical system, including the wiring, should be raised at least 1 foot above the 100-year flood level. In an existing house, this work will require the removal of some interior wall sheathing (drywall, for example). If you are repairing a flood-damaged house or building a new house, elevating the electrical system will be easier.



Raise Electrical System Components

TIPS

Keep these points in mind when you have your electrical system components raised:

- ✓ Electrical system modifications must be done by a licensed contractor, who will ensure that the work is done correctly and according to all applicable codes. This is important for your safety.
- ✓ Your contractor should check with the local power company about the maximum height that the electric meter can be raised.
- ✓ If your house is equipped with an old-style fuse box or low-amperage service, you may want to consider upgrading to a modern circuit breaker system and higher-amperage service, especially if you have large appliances or other electrical equipment that draws a lot of power.

ESTIMATED COST

Raising the electrical service panel, meter, and all of the outlets, switches, and wiring in a 1,000-square-foot, single-floor house will cost about \$1,500 to \$2,000. If this work is performed during the repair of a damaged house or construction of a new house, the cost may be much lower.

OTHER SOURCES OF INFORMATION

Protecting Your Home from Flooding, FEMA, 1994

Repairing Your Flooded Home, FEMA-234, 1992

Flood Emergency and Residential Repair Handbook, FIA-13, 1986

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ARE YOU AT RISK?

If you aren't sure whether your house is at risk from flooding, check with your local floodplain manager, building official, city engineer, or planning and zoning administrator. They can tell you whether you are in a flood hazard area. Also, they usually can tell you how to protect yourself and your house and property from flooding.

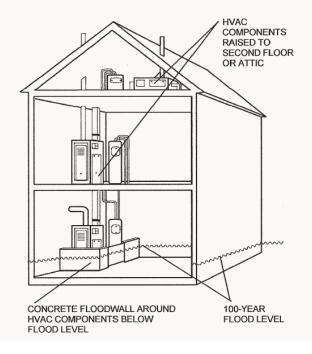
WHAT YOU CAN DO

Flood protection can involve a variety of changes to your house and property – changes that can vary in complexity and cost. You may be able to make some types of changes yourself; however, complicated or large-scale changes and those that affect the structure of your house or its electrical wiring and plumbing should be carried out only by a professional contractor licensed to work in your state, county, or city. One example of flood protection is raising the heating, ventilating, and cooling equipment in your house so that it is above the flood level, or surrounding it with a flood wall. These are things that only a licensed contractor should do.

RAISE OR FLOODPROOF HVAC EQUIPMENT

Heating, ventilating, and cooling (HVAC) equipment, such as a furnace or hot water heater, can be damaged extensively if it is inundated by flood waters. The amount of damage will depend partly on the depth of flooding and the amount of time the equipment remains under water. Often, the damage is so great that the only solution is replacement.

In floodprone houses, a good way to protect HVAC equipment is to move it from the basement or lower level of the house to an upper floor or even to the attic. A less desirable method is to leave the equipment where it is and build a concrete or masonry block floodwall around it. Both of these methods require the skills of a professional contractor. Relocation can involve plumbing and electrical changes, and floodwalls must be adequately designed and constructed so that they are strong enough and high enough to provide the necessary level of protection.



Raise or Floodproof HVAC Equipment

TIPS

Keep these points in mind when you have your HVAC equipment raised or floodproofed:

- Changes to the plumbing, electrical system, and ventilating ductwork in your house must be done by a licensed contractor, who will ensure that the work is done correctly and according to all applicable codes. This is important for your safety.
- ✓ If you are having your existing furnace or hot water heater repaired or replaced, consider having it relocated at the same time. It will probably be cheaper to combine these projects than to carry them out at different times.
- Similarly, if you have decided to raise your HVAC equipment, consider upgrading to a more energy-efficient unit at the same time. Upgrading can not only save you money on your heating and cooling bills, it may also make you eligible for a rebate from your utility companies.
- ✓ If you decide to protect your HVAC equipment with a floodwall, remember that you will need enough space in the enclosed area for system repairs and routine maintenance. Also, depending on its height, the wall may have to be equipped with an opening that provides access to the enclosed area. Any opening will have to be equipped with a gate that can be closed to prevent flood waters from entering.

ESTIMATED COST

Having your furnace and hot water heater moved to a higher floor or to the attic will cost about \$ 1,500. The cost of a floodwall will depend partly on its height and length. A 3-foot-high wall with a perimeter length of 35 feet would cost about \$1,000.

OTHER SOURCES OF INFORMATION

Protecting Your Home from Flooding, FEMA, 1994

Repairing Your Flooded Home, FEMA-234, 1992

Flood Emergency and Residential Repair Handbook, FIA-13, 1986

Retrofitting Flood-Prone Residential Structures, FEMA-114, 1986

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Sanitary Engineering Department of Mahoning County

RE: Backflow Control Program

761 Industrial Road Youngstown, Ohio 44509 (330) 793-5514 Fax (330) 792-5270 Email: SEinfo@MahoningCounty.org

Who is Eligible to Participate in the Program?

If you are a customer of the Mahoning County Sanitary Engineering Department for your sanitary sewer service you are eligible to participate in the program. If you are not sure if you are a customer of the Mahoning County Sanitary Engineering Department, contact the Business Office at 330.793.5514, Monday through Friday, 7:30 AM to 4:00 PM.

The following information and instructions are provided for eligible customers to participate in the **BACKFLOW CONTROL PROGRAM**.

MCSED customers are asked to read the following carefully to avoid delays in obtaining reimbursement for expenses and to insure the proper equipment is installed.

REQUIREMENTS OF THE SANITARY ENGINEERING DEPARTMENT

1> If you are eligible and to qualify for the 50% reimbursement up to a maximum of \$2,500, a gate valve and sump pump shall be installed. The removal of the footer drains from the sanitary sewer shall be completed prior to reimbursement.

Eligible properties with an existing sump pump will be inspected prior to reimbursement for an installed gate valve. Note: See requirements of Board of Health.

- To obtain reimbursement for costs to have the footer drains removed from the sanitary sewer, sump pump installed and gate valve placed on the sanitary sewer lateral, eligible home/property owner(s) are to obtain at least two (2) estimates from master plumbers or other Mahoning County approved contractors. Residents contacting businesses to do the work should inquire as to experience in performing the work to be done.
- ★ Homeowners performing work on their property will not be reimbursed for any labor costs.

Note: See requirements of Board of Health.

3> When all work is completed, eligible home/property owner(s) shall provide Mahoning County proof of payment to the contractor for work performed. Before reimbursement of fifty percent (50%) of cost up to a maximum of \$2,500 is paid by this department, the homeowner/property owner shall sign a statement releasing the County from all liability in connection with the work or the proper operation of the gate valve and sump pump.

REQUIREMENTS OF THE MAHONING COUNTY BOARD OF HEALTH

- 1> Work shall be performed by a master plumber. Note: While the Board of Health requires the work to be performed by a master plumber, property owners/homeowners are permitted to work on their own property and shall obtain all necessary permits prior to beginning work. The work shall be properly performed and meet all Board of Health Requirements.
- 2> Permits must be obtained from the Board of Health for the sump pump installation, gate valve and general inspection of work.
- 3> The Board of Health must inspect the work prior to completion of work, i.e., the covering of piping.

If the work has been previously completed and a reimbursement for costs is requested, the homeowner/property owners should contact the Board of Health to see if an inspection of the work was done at the time of performance. If the work has not been inspected by the Board of Health, inspection of the existing sump pump and gate valve shall be made prior to reimbursement.

The Board of Health maintains a list of master plumbers. Please contact the Board of Health at (330)270-2855 for a list of master plumbers to perform the work.

The steps outlined above are intended to allow eligible property owners to proceed with the work and insure reimbursement of fifty percent (50%) of the cost to a maximum of \$2,500 by the Sanitary Engineering Department. Eligible property owners may proceed with the work and do not need to contact this office prior to the work. Once work is complete and costs paid by the eligible property owner, documentation may then be submitted to the department for payment.

PAGE 3

Reimbursements through this program will be made in sixty (60) to ninety (90) days from receipt of all required documents.

Any questions may be directed to this office at (330) 793-5514 ext 404, Monday through Friday, 8 AM to 4 PM.

Very truly yours,

Seseph V. Warino, P.E., P.S.

Sanitary Engineer, Mahoning County

cc: Board of Health

File

revised 09/13/04

For the consideration of \$, the receipt and sufficiency of which is hereby acknowledged, the undersigned
owner of the property located at
(address),
The County has implemented a program to assist homeowners with chronic wastewater backflows during heavy rain events and flooding conditions. (See Resolution 94-152). The program was implemented without and admissions as to liability for the cause of the backflow problems.
The undersigned has demonstrated the necessary requirements to qualify for the program in which the county had agreed to contribute a portion of the cost to install a sump pump and/or gate valve. Contribution is made under the authority granted pursuant to Ohio R. C. Section 6117.02 and 6117.012 to assist the undersigned correct backflow problems.
The undersigned states attempts were made to obtain at least two (2) estimates for the work performed but only one company and/or individual provided an estimate within a reasonable time to have the work performed. The non responding company and/or individual name(s) listed below.* Initial here if only one estimate was obtained and used for the work performed.
It is understood and agreed that the assistance in paying for the installation of the sump pump and/or gate valve by Mahoning County, the Mahoning County Commissioners or the Mahoning County Sanitary Engineering Department, by whom liability is expressly denied.
It is further agreed and understood that Mahoning County has not installed the sump pump and/ or gate valve and has not selected the company and/ or individual to perform the installation. Mahoning County does not warrant the products installed or workmanship of the installation of the sump pump and/ or gate valve. Furthermore, Mahoning County does not guarantee or warrant that the installation of the sump pump and/ or gate valve will eliminate, diminish, or correct the backflow problems experienced.
The undersigned declares that the terms of this settlement have been completely read and are fully understood and voluntarily accepted.
* Name(s) of non-responding company and/or individual

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