

Post-Flood Guidance For Local Floodplain Administrators



**Indiana Department of Natural Resources
Division of Water**



October 2008

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Foreword

The goal of this handbook is to provide guidance to local permit officials in the tasks associated with a flood event – this includes pre-flood preparation and post-flood responsibilities. Whether or not your community has experienced a flood, it will happen and you will need to be able to respond to the event to ensure that all post-flood reconstruction in your community's floodplain is compliant.

When established procedures are not in place, the difficulty of performing post-flood tasks is multiplied. A flood event in your community is truly a time of crisis. Hopefully this handbook will provide you with the tools and guidance necessary to properly respond to a flood event and ensure that your community is meeting all the requirements of your local floodplain regulations. By enforcing your local floodplain regulations, you can help to reduce your community's future flood damage.

This handbook focuses mainly on post-flood response. However, the preceding post-disaster procedures should be implemented after any disaster that impacts your community's special flood hazard area; this includes damage from wind, fire, earthquake, tornado, etc.

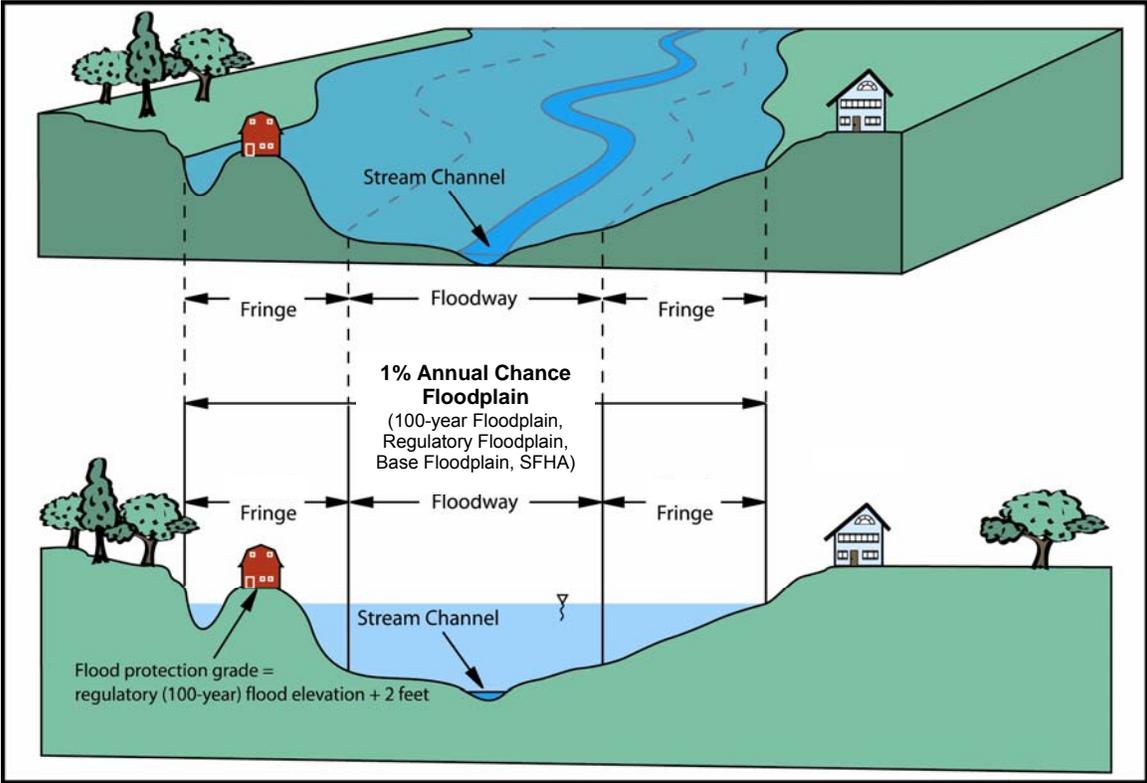


We invite you to visit our homepage at www.IN.gov/dnr/water, which will provide you with more information on the programs and regulations administered by the Indiana Department of Natural Resources, Division of Water.

Preparing before the Flood

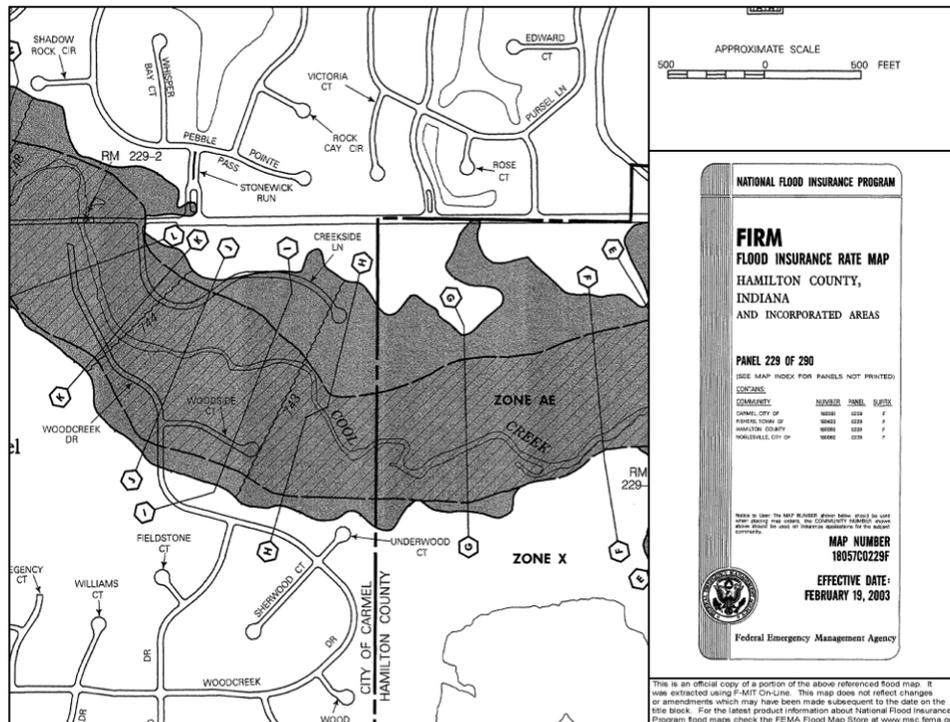
Does it snow every year in Indiana? Of course it does. Some communities typically have more snow than others, but generally all Indiana communities understand the hazards of a snow event. Even though some communities may do a better job than others, every community has a plan in the event of a snow. They make certain sand and salt are on hand, snowplows are readied, and State Police or National Weather Service reports are monitored. They know who is responsible for which roads, and they have a plan for the order in which roads will be cleared. But what if a community failed to prepare for snow, particularly a large snow event? Naturally, it would be chaotic, and potentially deadly. It is easy to conclude that the better prepared communities are, the more smoothly the process goes.

The same is true for flooding. The better prepared, the more smoothly the process goes. *When* a flood will happen is less predictable than predicting when snow will fall. However, the areas where a flood will strike *are* predictable. Nearly all Indiana communities have some level of floodplain mapping that identifies flood hazards. The areas identified are those that have been determined to be at risk in the event of a 1% annual chance flood. The 1% annual chance floodplain is also known as the 100-year floodplain, regulatory floodplain, base floodplain, and Special Flood Hazard Area (SFHA).



Become Familiar with your Flood Risks

Local officials should utilize their floodplain maps and become familiar with the flood risks in their area. One way is to tour the areas that have been identified as a flood hazard. As the tour is being done, a list of the structures at risk should be compiled. Should the community have Geographical Information System (GIS) capabilities, the structures known to be at risk could be easily located and identified.



Permit Development Correctly

Most Indiana communities with flood hazards participate in the National Flood Insurance Program (NFIP). A participation requirement of the NFIP is that communities adopt and enforce floodplain regulations that meet all the Federal and State minimum requirements. By ensuring that new construction is compliant with the local ordinance, the need for future mitigation is eliminated or significantly reduced.

Public Awareness

Only a small percentage of people, in any given community, really understand the risks associated with flooding. With the current disclosure laws, some buyers of

property are informed that there is a flood risk; however, they may not understand the full implications of that risk.

To increase awareness about the risk of flooding in the community, newspaper articles or other forms of media can be used. For example, a community may find that the utility companies servicing the area may be willing to distribute information as an insert with their billings. In addition, educational programs can be implemented within the community. Some resources for these programs are the Indiana Department of Natural Resources (IDNR), Indiana Department of Homeland Security (IDHS), regional planning agency or special district, Federal Emergency Management Agency (FEMA), United States Geological Survey (USGS), and U. S. Army Corps of Engineers (USACE). A great resource for flood insurance information is www.floodsmart.gov.

Develop a Standard Operating Procedure (SOP)

What will need to be done? When does it need to be done? Who will do it? What do we need? Where do we get it? There are many questions when preparing for a flood. One of the biggest set backs to a community during/following a flood is confusion. When officials don't know where to start, valuable time, energy, resources can be wasted, and opportunities can be lost.

One of the most important steps a community can take is to pool its resources, both tangible and intangible. Individuals and groups within the community that are directly involved with flooding issues should compile a list of actions to be taken in time of flooding. Examples of individuals and/or groups that should be involved are: local permit official, floodplain administrator, building commissioner, building inspector, plan commission director, sheriff's department, emergency manager, police department, fire department, veterinarian, County Surveyor, IDNR, local Soil and Water Conservation District, County Cooperative Extension Service, community officials, Board of Health, Solid Waste Management Districts, and local utility companies. A team approach to floodplain management and flood response will enable the community to collaborate ideas through a diversified group effort.

The individuals involved in the development of an SOP need to consider many factors including, but not limited to:

- What are the flood sources and what areas do they impact?
- Are the flood sources subject to flash flooding, or is there time to prepare?
- What roadways/access roads are at risk?
- Are there individuals in the community trained to lead or participate in a flood fight?
- Are there areas that could be protected by sandbagging?
- Where do we get sandbags and sand?
- Who will prepare and place sandbags?
- What areas will need to be evacuated and when?
- How will areas be evacuated?

- Are there critical facilities at risk?
- Where can a shelter be established?
- Where can victims receive help?
- Who will coordinate with volunteer organizations?
- Are there farm animals that will need to be transported?
- Is there a facility to handle family pets that have to be evacuated or treated?
- Are there hazardous waste/materials that will require special actions?
- Who will document the flood damage – residential/commercial/public?
- Will all structures be allowed to repair/reconstruct based on State and local regulations?
- Will building permit fees be waived for flood victims?
- Are flood studies that provide base flood elevations and floodway delineations available for all the streams in the community?
- How will information be spread to victims?

Some communities may consider the establishment of a flood warning and response system. Ideally, this system would include flood forecasting, warning, and emergency preparedness. Communities can coordinate with the IDHS, National Weather Service (NWS), FEMA, USGS, and the USACE for assistance in developing a flood warning and response system.



Flood Response

While various groups will carry out flood-response activities, the following information pertains to the role of the local floodplain administrator.

Notify Public of Need for Permit for Repair/Reconstruction

A natural reaction for flood victims is to try to restore life “back to normal” as soon as possible. This thought process usually does not immediately include the reality of getting the proper permits. For some victims, the reality may be that they will have to elevate their structure. It’s important to encourage flood victims to remove any damaged contents and to begin activities to minimize the damage such as removing water soaked carpeting, cleaning, and drying. Anyone working in or around a flood-damaged structure should take safety precautions to avoid illness or injury. However, it should be clear that property owners obtain appropriate permits from the community’s floodplain administrator/building official before beginning repairs or reconstruction. Special attention should be given to any local, state, or federal regulations that may conflict or overlap, as whichever imposes the more stringent restrictions shall prevail.

Public notification can be given through the mass media (newspapers, radio, and television.) Notices can also be posted at sites such as disaster recovery centers or emergency shelters. *(See appendix, page 26, for sample news release.)*

Document Damage to Structures – Damage Assessments

The floodplain administrator and/or authorized staff should visit every area containing structures affected by flooding as soon as access is possible after floodwaters recede. A Depth Damage Field Estimate worksheet should be completed for each structure, indicating the depth (in feet) of floodwaters. *(See appendix, page 16, for worksheet.)* This is done by actual measurement based on visual watermarks and/or observed flood damage to the structure. The Depth Damage Field Estimate worksheet captures essential information to make substantial damage determinations for flood-related damages. The damage figures are based upon the USACE published Generic Depth-Damage Relationships (See www.usace.army.mil/cw/cecw-cp/library/egms/egms.html). Ideally a photo of each structure should be taken to accompany the worksheet. This helps identify the structure and document the condition of the structure.

While documenting the damage, the floodplain administrator and/or other authorized staff may wish to leave a door tag notice to advise the owner that an initial damage assessment has been done and that they are to contact the local floodplain administrator (building official) before proceeding with repair/reconstruction, and provide contact information for the floodplain administrator (building official.) *(See appendix, page 24, for door tag notice.)*

Needed items:

- Depth Damage Field Estimate worksheets
- Clipboard
- Door tag notices (suggested)
- Tape measure
- Pens/pencils
- Camera (suggested)



Using the Depth Damage Field Estimate worksheets allows a community to quickly separate flood-damaged structures into three groups:

1. Clearly non-substantial damage (less than 40%)
2. Clearly substantial damage (greater than 50%), and
3. Uncertain whether substantial damage (40-50%)

For structures clearly sustaining non-substantial damage, permits can be issued to repair at the existing elevation; provided no additional improvements or additions will be made and it does not conflict with any other regulations.

Substantial Damage

A structure is considered substantially damaged when the cost of repairing the structure back to its pre-damaged condition equals or exceeds 50% of the fair market value of the pre-damaged structure (**unless the community has adopted a more restrictive standard**).

Clearly substantially damaged structures must be brought into compliance with the community's building protection requirements. *(See appendix, page 19 for building protection requirements.)*

There may be occasion when obvious structural damage has occurred or poor condition of the existing home may be such that even the lesser depths of flood water appear to have caused great damage. This should be noted on the Depth Damage Field Estimate worksheet. If uncertain whether substantial damage has occurred, additional improvements and/or additions are proposed, or there is a dispute regarding a damage assessment, more information will be required in order to accurately determine whether they or not they are substantially damaged.

To more accurately determine the extent of damage, the permit official needs to have two pieces of information: the structure's pre-damaged fair market value and the cost to restore the structure back to its pre-damaged condition. If additional improvements or additions are planned, the cost of the additional improvements or additions must also be considered. In this task, the main objective for the permit official is to be consistent in the method used. Consistency leaves little room for argument about equality. The permit official needs to maintain the documentation in the permit file. This will become especially important when the community is reviewed by the State or FEMA for NFIP compliance.

A condensed procedural guide is provided in the index. *(See appendix, page 22, for Post-Flood Procedure after Initial Depth Damage Field Estimate.)* In addition to completing Depth Damage Field Estimates worksheets for each flood-damaged structure, the community should compile a complete listing of the damaged structures.

Structure's Pre-Damaged Value

The structure's pre-damaged value is the fair market value of the structure only, excluding the land. Some ways of determining the value are: a professional appraisal, a bill of sale (manufactured homes), an insurance settlement, or tax assessment records.

Cost of Repairs

The two main items on a cost of repairs list should include the materials used and the cost of labor. When calculating the cost of materials and labor, the fair market value must be used – even if the materials and/or labor are donated. Some exclusions in the cost of repair include debris removal, clean-up, building plans, and permit fees.

Residential Substantial Damage Estimator (RSDE) 2.2

RSDE software provides guidance on determining if a building is substantially damaged in accordance with the National Flood Insurance Program (NFIP) regulations. This is another tool that may be used to determine a damage estimate for residential structures. For a copy of the RSDE software contact IDNR, Division of Water, Floodplain Management Section.

Determining Floodplain Status

Another important step in the permitting process is to determine the structure's floodplain status. Is it located in the floodway or the flood fringe? This process can be accomplished by utilizing the floodplain mapping for the community or by having the IDNR complete a **Floodplain Analysis/Regulatory Assessment (FARA)** for the structure in question. *(See appendix, page 31, for FARA Form.)*

Types of maps used may be Flood Insurance Rate Maps (FIRM), Flood Boundary Floodway Maps (FBFM), or IDNR Flood Studies. Keep in mind that these maps can only be used if the floodway limits and elevations for the 1% annual chance flood (also known as 100 year flood, regulatory flood, or base flood) are shown for the water body involved. If the community does not have floodplain mapping that provides adequate information, a FARA from IDNR will be needed. **FARA requests should include a statement that the structure was damaged by flood.**

Repairs and Reconstruction in a Non-Boundary River Floodway

For flood-damaged non-residential structures, prior written approval (Construction in a Floodway permit) is required from DNR. For reconstruction of substantially-damaged residential structures located in floodway (non-boundary floodway), written approval and/or review from the IDNR is required. *(See appendix, page 18, for checklist for reconstruction of residences in a floodway.)* Written approval and/or review is not required from the IDNR, for non-substantially damaged residential structures in the floodway.

Repairs and Reconstruction in a Boundary River Floodway (Ohio River)

For flood-damaged non-residential structures, prior written approval (Construction in a Floodway permit) is required from IDNR. Written approval (Construction in a Floodway permit) from IDNR is required for repairs or reconstruction of a substantially damaged residential structure in the floodway of the Ohio River. Written approval is not required from the IDNR, for non-substantially damaged residential structures in the floodway.



Following the Local Ordinance

Once damage determinations are made, floodplain status has been determined, and any applicable state and/or federal permits have been obtained, the permit official may proceed to the next level. The permit official is responsible for seeing that all the applicable requirements of the community's floodplain regulations are met.

Building Protection Requirements

The building protection requirements and options outlined in the community's floodplain regulations should be referred to for guidance during the permitting process. *(See appendix, page 19, for building protection requirements.)* If a structure has been substantially damaged, substantially improved, or previously altered, the structure will have to be brought into compliance with the building protection requirements of the local floodplain ordinance. This includes elevating the structure to/above the FPG, using flood resistant materials to/below the FPG, adequate/compliant flood vents for enclosures below the FPG, protecting utilities, and ensuring that all other local floodplain regulations are met. An "as-built" Elevation Certificate is needed to verify compliance.



Increased Cost of Compliance

A home or business if damaged by a flood may be required to meet certain building protection requirements in your community to reduce future flood damage before they repair or rebuild. To help cover the costs of meeting those requirements, the National Flood Insurance Program includes Increased Cost of Compliance (ICC) coverage.

Flood insurance policyholders in an SFHA can get up to \$30,000 to help pay the cost to bring their home or business into compliance with the community's floodplain ordinance.

The local floodplain administrator plays a key role in the ICC process.

Written Notice

A community may choose to send written notice to all owners of flood-damaged structures. Owners who wish to claim ICC benefits will require a written notice of substantial damage (or repetitive loss) from the community in order to proceed. For ICC claims, the floodplain administrator (building official) will also need to verify that the finished construction is compliant in order for the insured to receive full payment under the ICC process. *(See appendix, pages 28-30, for sample damage determination letters.)*

Permits

While some property owners will seek out the local floodplain administrator (building official) for guidance and permits, which is not the case for all affected property owners. It is vital to follow-up with all owners of flood-damaged structures to ensure that the requirements are being met and that all applicable permits are obtained.

Document Retention

Copies of all flood-related documents should be kept in the community's permit file. Depth Damage Field Estimate worksheets and other information gathered for substantial damage determinations, Floodplain Analysis and Regulatory Assessments (FARA), approvals/permits, Elevation Certificates or other "as-built" certifications, inventory of flood-damaged structures, and any other supporting documentation should be maintained in the permit file.

Additional Permits

Additional permits, other than the local permit, may be required. For example, the Indiana Flood Control Act (IC 14-28-1) requires a State permit for construction in the floodway. Other permits may be needed from the Department of Health, Indiana Department of Environmental Management, and/or USACE.

Document Extent of Flooding

Depending on the size of the community and the area impacted, the task of documenting the extent of flooding can be daunting. However, this historical data is vital. Photographs and video of the affected area can be taken to assist in documenting the extent of damage to structures. Boundaries of inundation and high water marks can be set to establish the area and height the water encompassed.

Conclusion

Comprehensive pre-flood preparedness and post-flood response are essential for a successful floodplain management program. By being proactive and prepared, the local floodplain administrator ensures that reconstruction activities in the community's floodplain proceed in a manner to reduce or eliminate future flood damage.

This handbook focuses mainly on post-flood response. But remember, the preceding post-disaster procedures should be implemented after any disaster that impacts your community's special flood hazard area; this includes damage from wind, fire, earthquake, tornado, etc. Should you have questions on post-flood or post-disaster responsibilities, please contact the Floodplain Management Section of the IDNR Division of Water at:

Floodplain Management Section
Division of Water
Indiana Department of Natural Resources
402 West Washington Street, Room W204
Indianapolis, IN 47204-2641
(317) 232-4160 or Toll Free: (877) 928-3755
www.IN.gov/dnr/water

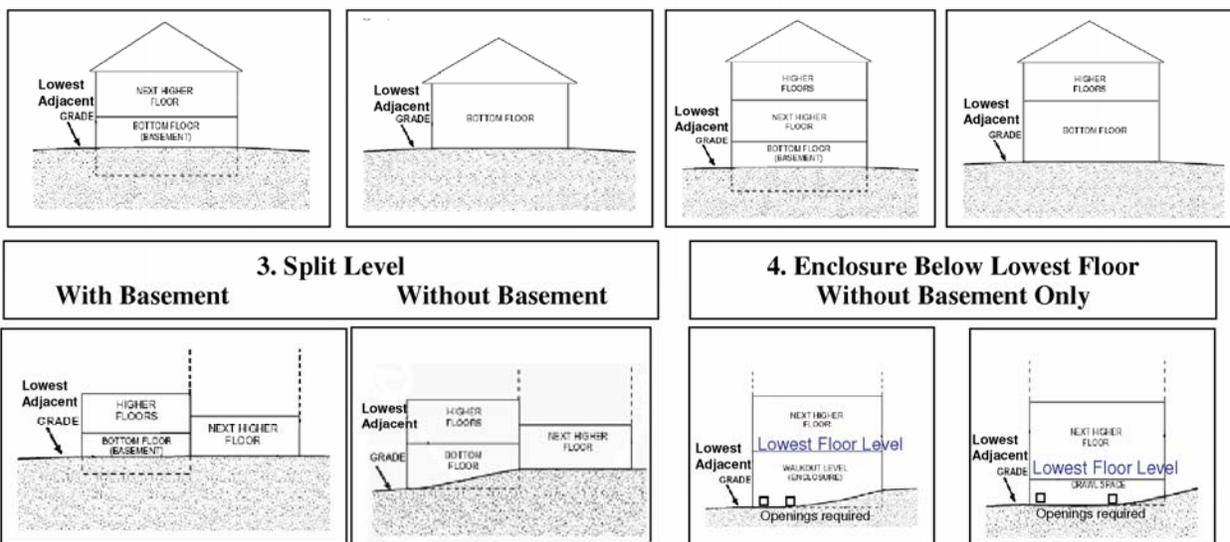
Appendix

DEPTH DAMAGE FIELD ESTIMATE				(jurisdiction)		(County)			
(owner or renter)			Spoken to? Yes / No			(phone)			
(street address)			(PO Community)			IN		(zip)	
DATE OF INSPECTION	DATE OF CONSTRUCTION	FIRM PANEL	SOURCE OF DAMAGE	DURATION OF FLOODING	TIME OF INSPECTION				
/ /	/ /		Flood	/ /	M.				
Structure located in:	Floodway	Flood Fringe	Floodway/Flood Fringe Limits Not Determined			Outside Identified Floodplain			
TYPE OF STRUCTURE:		ONE STORY	TWO OR MORE	SPLIT LEVEL	MANUFACTURED HOME				
Does structure have a basement?		Yes	No	Yes	No	Yes	No	Yes	No
	Depth in feet to LAG								
Structures with damages of ≥ 50% require use of Post-FIRM flood protection standards.	16	81.1%	80.7%	76.4%	69.2%	69.3%	84.4%	SD	SD
	15	81.1%	80.2%	76.4%	67.7%	69.3%	83.8%	SD	SD
	14	81.1%	79.5%	75.4%	65.9%	69.3%	81.7%	SD	SD
	13	81.1%	78.5%	73.7%	63.8%	69.3%	78.4%	SD	SD
	12	81.1%	77.2%	71.4%	61.4%	68.8%	73.9%	SD	SD
	11	81.1%	75.4%	68.4%	58.7%	67.2%	68.6%	SD	SD
	10	80.1%	73.2%	64.8%	55.7%	64.8%	62.6%	SD	SD
	9	77.7%	70.5%	60.8%	52.4%	61.6%	56.1%	SD	SD
Structures with damage estimates between 40% & 50% require further information to determine which flood protection standards apply.	8	74.2%	67.2%	56.4%	48.8%	57.8%	49.2%	SD	SD
	7	69.8%	63.2%	51.8%	44.9%	53.5%	42.3%	SD	SD
	6	64.5%	58.6%	46.9%	40.7%	48.6%	35.5%	SD	SD
	5	58.6%	53.2%	41.9%	36.2%	43.8%	28.9%	SD	SD
	4	52.2%	47.1%	36.9%	31.4%	38.6%	22.8%	SD	SD
	3	45.5%	40.1%	31.9%	26.3%	33.4%	17.4%		
	2	38.7%	32.1%	27.0%	20.9%	28.2%	12.9%		
	1	32.0%	23.3%	22.3%	15.2%	23.2%	9.4%		
Post-FIRM flood protection standards may be used to repair structures with damages of <50% but are not required.	0	25.5%	13.4%	17.9%	9.3%	18.5%	7.2%		
	-1	19.4%	2.5%	13.9%	3.0%	14.2%	6.4%		
	-2	13.8%	0.0%	10.2%	0.0%	10.4%	0.0%		
	-3	9.0%		7.2%		7.2%			
	-4	5.2%		4.7%		4.7%			
	-5	2.4%		2.9%		3.1%			
	-6	0.8%		1.9%		2.5%			
	-7	0.7%		1.7%					
-8	0.0%		1.7%						
Notes									
For help with completing and using this form, see explanatory notes on reverse.									
INSPECTED BY: (name/telephone)									
Posted (Yes / No) / / as:					INITIAL FIRM DATE			Rev	

The **DEPTH DAMAGE FIELD ESTIMATE** worksheet captures essential information to make Substantial Damage (SD) determinations for flood-related damages. It is intended that the worksheet should be mostly self-explanatory. The depth damage figures are based upon the USACE published Generic Depth-Damage Relationships (see <http://www.usace.army.mil/cw/cecw-cp/library/egms/egms.html>). The following are a few comments and clarifications that will assist you when filling out the worksheet.

1. **Jurisdiction:** Since a property's mailing address (e.g., *Post Office Community*) is not always the same as jurisdiction, enter the correct information for each structure.
2. **SOURCE OF DAMAGE** indicates whether the damage was the result of flood, fire, wind, etc. or a combination of sources. Use the DEPTH DAMAGE FIELD ESTIMATE worksheet for flood-related damages.
3. **DATE OF INITIAL FIRM** refers to the community's Flood Insurance Rate Map (FIRM). The initial date indicates when the flood area was first identified by FEMA. The SD determination process *does not apply* to structures built after this initial date. Check with the local floodplain administrator.
4. **FIRM PANEL:** Some communities have multiple panels. The panel number is found below the map title.
5. The **Depth in feet to Lowest Adjacent Grade (LAG)** refers to the level of the flood water (i.e., The table uses -8 feet as the basement floor level, so a depth of -6 feet results from 2 feet of floodwater in a basement).
6. Round depths to the nearest whole foot.
7. Property owners with structures that have damages in the 40% (shaded on table) should be asked for documentation of damage and repairs to ensure that the structure is not substantially damaged.
8. For a structure with a compliant **Enclosure Below Lowest Floor** (see figure 4 below) use lowest floor instead of lowest adjacent grade to measure depth of flooding. Compliant enclosures must have openings.
9. Since currently, **Manufactured Homes** are not included in the USACE depth-damage tables; consider a floodwater depth of one foot above the lowest floor to indicate substantial damage.
10. Local Floodplain Official must give property owners **written notice** that their structure has been determined to be substantially damaged along with instructions to comply with local permit requirements.

For general questions regarding the National Flood Insurance Program and your community's participation, call the Floodplain Management Section of the Indiana Department of Natural Resources, Division of Water at 317-232-4160 (toll free 877-928-3755).



Checklist for Submittal of Material Facts to Reconstruct a Substantially Damaged Abode in the Floodway*

Submitted to the Indiana Department of Natural Resources, Division of Water
(IC 14-28-1-24(B)(2))

- ❑ Submittal of a survey plot map of the parcel of land that contains documentation showing the dimensions of the original foundation for the abode or residence and existing ground elevations at the original foundation
- ❑ Documentation showing that the proposed reconstructed abode or residence does not extend beyond the original foundation of the abode or residence
- ❑ Documentation showing that the lowest floor elevation of the reconstructed abode will be at least two (2) feet above the one hundred (100) year flood elevation
- ❑ Documentation demonstrating that the abode or residence will be designed or modified and adequately anchored to prevent flotation, collapse, or lateral movement of the abode or residence resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy (Refer to FEMA 54 publication, page 71) FEMA Website: www.fema.gov (Enter publication name and number in the Search Box at the upper right hand corner of the screen)
- ❑ Documentation demonstrating that the portions of the reconstructed abode or residence below the base flood elevation plus two (2) feet, will be constructed with materials resistant to flood damage (Refer to FEMA Technical Bulletin 2, August 2008)
- ❑ Documentation demonstrating that the abode or residence will be reconstructed by methods and practices that minimize flood damages
- ❑ Documentation demonstrating that the abode or residence will be reconstructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and located to prevent water from entering or accumulating within the components during conditions of flooding (Refer to FEMA 54 publication, page 92)
- ❑ If the abode or residence will be reconstructed on solid foundation walls, documentation demonstrating that said foundation walls will have at least two (2) permanent openings (in addition to doors and windows) having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding and that the bottom of all openings shall be no higher than one foot above adjacent foundation interior grade **which must be equal to in elevation or higher than the exterior foundation grade** (Refer to FEMA Technical Bulletin 1, August 2008)

If your proposed plans to reconstruct your residence do not meet the above criteria or if fill will be used to elevate the residence, your project will be required to be reviewed under the formal permit application process.

**Submit documentation to:
Indiana Department of Natural Resources
Division of Water
402 W. Washington St., Room W264
Indianapolis, IN 46204**

***For repairs, additions, or reconstruction of a residence in a boundary river floodway (Ohio River), prior written approval (Construction in a Floodway permit) from DNR is required.**

Building Protection Requirements for Structures to be Reconstructed in the SFHA

General Standards

- (1) Structures shall be anchored to prevent flotation, collapse or lateral movement of the structure;
- (2) Structures shall be constructed with materials and utility equipment resistant to flood damage below the FPG;
- (3) Structures shall be constructed by methods and practices that minimize flood damage;
- (4) Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

Specific Standards

Non-Residential Construction. Any commercial, industrial, or non-residential structure (or manufactured) that has incurred substantial damage shall have the lowest floor, including basement, elevated to or above the FPG (two feet above the base flood elevation). Structures located in all “A Zones” may be floodproofed in lieu of being elevated if done in accordance with the following:

- (1) A Registered Professional Engineer or Architect shall certify that the structure has been designed so that below the FPG, the structure and attendant utility facilities are watertight and capable of resisting the effects of the regulatory flood. The structure design shall take into account flood velocities, duration, rate of rise, hydrostatic pressures, and impacts from debris or ice. Such certification shall be provided to the floodplain administrator.
- (2) Floodproofing measures shall be operable without human intervention and without an outside source of electricity.

Residential Construction. Any residential structure (or manufactured home) that has incurred substantial damage shall have the lowest floor; including basement, at or above the FPG (two feet above the base flood elevation). Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of floodwaters shall be provided in accordance with the Elevated Structures guidelines listed below.

Elevated Structures. A residential or nonresidential structure that has been substantially damaged may be reconstructed and elevated with fully enclosed areas formed by foundation and other exterior walls below the flood protection grade shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls. Designs for complying with this requirement must either be certified by a professional engineer or architect or meet the following minimum criteria:

- (1) provide a minimum of two openings having a total net area of not less than one square inch for every one square foot of enclosed area; and
- (2) the bottom of all openings shall be no higher than one foot above foundation interior grade (which must be equal to in elevation or higher than the exterior foundation grade); and
- (3) openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwaters in both directions.
- (4) access to the enclosed area shall be the minimum necessary to allow for parking for vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator); and
- (5) the interior portion of such enclosed area shall not be partitioned or finished into separate rooms.
- (6) portions of the building below the flood protection grade must be constructed with materials resistant to flood damage.

Structures Constructed on Fill. A residential or nonresidential structure may be reconstructed and elevated on a permanent land fill in accordance with the following:

- (1) The fill shall be placed in layers no greater than 1 foot deep before compacting to 95% of the maximum density obtainable with the Standard Proctor Test method.
- (2) The fill should extend at least ten feet beyond the foundation of the structure before sloping below the FPG.
- (3) The fill shall be protected against erosion and scour during flooding by vegetative cover, riprap, or bulkheading. If vegetative cover is used, the slopes shall be no steeper than 3 horizontal to 1 vertical.
- (4) The fill shall not adversely affect the flow of surface drainage from or onto neighboring properties.
- (5) The top of the lowest floor including basements shall be at or above the FPG.

Standards for Structures Constructed with a Crawlspace. A residential or nonresidential structure may be reconstructed and elevated with a crawlspace located below the flood protection grade provided that the following conditions are met:

- (1) The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and

- (2) Any enclosed area below the flood protection grade shall have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. Provide a minimum of two openings having a total net area of not less than one square inch for every one square foot of enclosed area. The bottom of the openings shall be no more than one foot above grade; and
- (3) The interior grade of the crawlspace must be at or above the base flood elevation; and
- (4) The interior height of the crawlspace measured from the interior grade of the crawlspace to the top of the foundation wall must not exceed four feet at any point; and
- (5) An adequate drainage system must be installed to remove floodwaters from the interior area of the crawlspace within a reasonable period of time after a flood event; and
- (6) Portions of the building below the flood protection grade must be constructed with materials resistant to flood damage; and
- (7) Utility systems within the crawlspace must be elevated above the flood protection grade.

Standards for Manufactured Homes. In an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as a result of a flood, the following conditions apply:

- (1) The manufactured home shall be elevated on a permanent foundation such that the lowest floor shall be at or above the FPG and securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. This requirement applies to all manufactured homes to be placed on a site. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces;

*** Please review your local floodplain ordinance to determine if more restrictive regulations have been adopted.**

Post-Flood Procedure after Initial Depth Damage Field Estimate

For structures that have been damaged a determination of floodplain status (Floodway/ Floodway Fringe) needs to be made. If the Special Flood Hazard Areas (SFHA) does not have a delineated floodway, then a **Floodplain Analysis and Regulatory Assessment (FARA)** should be submitted to IDNR.

Low Damage (0 to 39 % Damaged)

Floodway Fringe:

- **Residential/ Non-Residential Structure:**
 - Structure non-substantially damaged , no building protection requirements apply
 - Obtain local permit

Floodway:

- **Residential**
 - Structure non-substantially damaged , no building protection requirements apply
 - Obtain local permit
- **Non-residential**
 - Obtain a Construction in the Floodway Permit from IDNR
 - After obtaining a IDNR Floodway Permit, obtain local permit
 - No building protection requirements apply

Medium Damage (40 to 50 % Damaged)

Compare the Structure's Pre-Damaged Value to the Cost of Repair

- If repair costs are less than 50%¹ of the value of the structure, then the structure is non-substantially damaged (**See Low Damage**)
- If repair costs equal or exceed 50%¹ of the value of the structure, then the structure is substantially damaged (**See High Damage**)

High Damage (51 to 100 % Damaged)

Substantially Damaged structures must be brought into compliance with the local floodplain ordinance. For a list of Building Protection Requirements, see the document titled "**Building Protection Requirements that apply to Substantially Damaged Structures located in a SFHA in order for the Structures to be Reconstructed.**"*

Floodway Fringe:

- **Residential Structures**
 - Structure substantially damaged
 - Obtain local permit and meet building protection requirements of the local floodplain ordinance
 - Submit elevation certificate to Floodplain Administrator

- **Non-residential structures**
 - Structure substantially damaged
 - Obtain local permit and meet building protection requirements of the local floodplain ordinance
 - Submit elevation certificate or floodproofing certificate to Floodplain Administrator

Floodway:

- **Residential Structures²**
 - Option One: meet the requirements for plan review by Indiana Department of Natural Resources (IDNR) which are listed on the check list provided by IDNR
 - After obtaining a plan review approval, obtain local permit and meet building protection requirements of the local floodplain ordinance
 - Submit elevation certificate to Floodplain Administrator

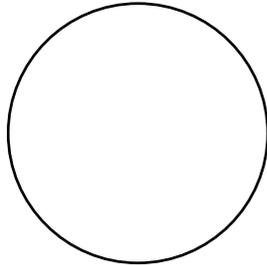
 - Option Two: Obtain a Construction in the Floodway Permit from IDNR
 - After obtaining a IDNR Floodway Permit, obtain local permit and meet building protection requirements of the local floodplain ordinance
 - Submit elevation certificate to Floodplain Administrator

- **Non-residential Structures**
 - Obtain a Construction in the Floodway Permit from IDNR
 - After obtaining a IDNR Floodway Permit, obtain local permit and meet building protection requirements of the local floodplain ordinance (either elevate to the FPG or dry floodproof to the FPG)
 - Submit elevation certificate or floodproofing certificate to Floodplain Administrator

¹ Please review your local floodplain ordinance to determine if more restrictive regulations have been adopted.

² Written approval (Construction in a Floodway permit) from IDNR is required for repairs or reconstruction of a substantially damaged residential structure in the floodway of the Ohio River.

**Sample Door Tag
Notice**



NOTICE

On _____, an initial damage assessment was completed for this structure as a result of the recent flood event.

(Community Name) requests that you contact our office as soon as possible to obtain a building permit for the storm related damage to your property. There is no cost for this permit

Office hours are 8:00 am to 5:00 pm
Monday through Friday

(Community Name)
Floodplain Administrator
Address
Phone Number

Sample Damage Notice

This is to notify you that your structure has been identified as a possible damaged structure located in the floodplain due to the recent disaster. Under the authority of **(Local Floodplain Ordinance #)** _____ any reconstruction or repair activity on this structure will require a permit from the **(Local Building Permit Department)** _____. Failure to obtain the necessary permit will result in fines in accordance with provisions of the community's floodplain ordinance.

Please contact the **(Local Building Permit Department)** _____ to obtain the necessary permits prior to the start of any reconstruction activity. Thank you.

(Local Permit Office) _____

Phone (____) ____-_____

Sample News Release

_____ **(Community Name)** Residents
Reminded to get building permits for repairs to damaged
structures.

Residents of _____ **(Community Name)** are reminded that with the recent disaster, many structures in the community may have experienced structural damage. Repairs and/or reconstruction activities to structures damaged due to the disaster that are located in the floodplain will require a local building permit from the _____ **(Name of local permit office)** as required by **(Community Name)** local floodplain ordinance. Failure to obtain the necessary permits can result in fines up to _____ **(dollar amount from local floodplain ordinance)**. In addition, depending on a property's location, a permit may be required from the Indiana Department of Natural Resources prior to the start of any reconstruction activity.

For more information on the permitting process, contact
_____ **(local permit official)** at _____

Sample Notice of Violation and Stop Work Order

This is to notify you that your structure, (type of structure) located at (address of structure) has been identified as substantially damaged as a result of recent flooding.

Under the authority of (Local Floodplain Ordinance #) any reconstruction activity for your structure would require a permit from the (Local Building Permit Department). If your structure is located in the floodway portion of the floodplain, a review of plans and/or a permit will be required from the Department of Natural Resources, Division of Water prior to issuance of a local permit.

A recent site inspection indicates that reconstruction work has been started on your structure. This constitutes a violation of (Local Floodplain Ordinance#) and you are now ordered to stop **all** work on the structure. Failure to comply with this stop work order can result in fines begin placed against you and will place this matter into litigation.

Please contact me at (phone #) to set up a time to discuss this violation and how to proceed.

(Floodplain Administrator Name)

Floodplain Administrator

(Community Name)

Sample Notice of Determination: Non-Substantial Damage

[Community]
[Department]
[Address Line 1]
[Address Line 2]
[City], [State] [Zip Code]
[Phone Number]

[Date]
No Substantial Damage

[Name]
[Address Line 1]
[Address Line 2]
[City], [State] [Zip Code]

NOTICE OF DETERMINATION

Dear [Name]:

As a result of a substantial damage determination, the [City/Town/County] has determined that your **structure received damages that were less than 50% of the pre-damage structure value** as the result of the flooding that occurred [Date] through [Date].

Under the requirements of the [Community] Floodplain Management Ordinance dated [Date], structures located within the 100-year floodplain that receive damages less than 50% of the structure value can be rebuilt on the original site, but must obtain a permit prior to making repairs.

Be advised that all repairs, reconstruction and new construction are subject to the provisions of the [City/Town/County] Building Code. The dimensions of the original footprint cannot increase or be altered without a permit. New construction must be evaluated in combination with any reconstruction or repairs to determine if the total value of the construction exceeds 50% of the structure value. Construction activities that occur without a proper permit are considered to be non-compliant and may result in daily fines and/or the removal of the non-compliant construction.

Members of our Department are prepared to meet with you at our office to discuss the substantial damage determination process and to provide guidance for reconstruction or repair of your structure. To schedule a meeting or discuss questions regarding this determination, please contact me or [Other Staff Member] at [Phone Number] between the hours of [Time] and [Time], [Day] through [Day].

Sincerely,

[Title]
[Department]

Sample Notice of Determination: Substantial Damage

[Community]
[Department]
[Address Line 1]
[Address Line 2]
[City], [State] [Zip Code]
[Phone Number]

[Date]
Substantial Damage

[Name]
[Address Line 1]
[Address Line 2]
[City], [State] [Zip Code]

NOTICE OF DETERMINATION

Dear [Name]:

As a result of a substantial damage determination, the [City/Town/County] has determined that your **structure received damages exceeding 50% of the pre-damage structure value** as the result of the flooding that occurred [Date] through [Date].

Under the requirements of the [Community] Floodplain Management Ordinance dated [Date], structures located within the 100-year floodplain that receive damage of any origin, whereby the cost of restoring the structure would equal or exceed 50% of the structure value, must be brought into compliance with the Ordinance. For residential structures with more than 50% damage, the structures must either be removed from the floodplain or have the lowest floor (including basement) elevated 2 feet above the 100-year flood elevation. Failure to comply with this requirement will result in daily fines and/or legal action by the City against the owner of the structure.

Under the National Flood Insurance Program, the Increase Cost of Compliance (or ICC) program may provide additional financial assistance to either elevate or remove flood-damaged structures from the floodplain. ICC applies to flooded structures that are substantially damaged.

Be advised that all repairs, reconstruction and new construction are subject to the provisions of the [City/Town/County] Building Code and will require a permit. Construction activities that occur without a proper permit are considered to be non-compliant and may result in daily fines and/or the removal of the non-compliant construction.

Members of our Department are prepared to meet with you at our office to discuss the substantial damage determination process and to provide guidance for reconstruction or repair of your structure. To schedule a meeting or discuss questions regarding this determination, please contact me or [Other Staff Member] at [Phone Number] between the hours of [Time] and [Time], [Day] through [Day].

Sincerely,

[Title]
[Department]

Sample Notice of Determination: Substantial Damage with Dollar Amounts

[Community]
[Department]
[Address Line 1]
[Address Line 2]
[City], [State] [Zip Code]
[Phone Number]

[Date]
Substantial Damage

[Name]
[Address Line 1]
[Address Line 2]
[City], [State] [Zip Code]

NOTICE OF DETERMINATION

Dear [Name]:

As a result of a substantial damage determination, the [City/Town/County] has determined that your **structure received damages exceeding 50% of the pre-damage structure value** as the result of the flooding that occurred [Date] through [Date].

Damage: [\$ Amount]

Market Value: [\$ Amount]

Flood Zone: [Zone]

Under the requirements of the [Community] Floodplain Management Ordinance dated [Date], structures located within the 100-year floodplain that receive damage of any origin, whereby the cost of restoring the structure would equal or exceed 50% of the structure value, must be brought into compliance with the Ordinance. For residential structures with more than 50% damage, the structures must either be removed from the floodplain or have the lowest floor (including basement) elevated 2 feet above the 100-year flood elevation. Failure to comply with this requirement will result in daily fines and/or legal action by the City against the owner of the structure.

Under the National Flood Insurance Program, the Increased Cost of Compliance (or ICC) program may provide additional financial assistance to either elevate or remove flood-damaged structures from the floodplain. ICC applies to flooded structures that are substantially damaged.

Be advised that all repairs, reconstruction and new construction are subject to the provisions of the [City/Town/County] Building Code and will require a permit. Construction activities that occur without a proper permit are considered to be non-compliant and may result in daily fines and/or the removal of the non-compliant construction.

Members of our Department are prepared to meet with you at our office to discuss the substantial damage determination process and to provide guidance for reconstruction or repair of your structure. To schedule a meeting or discuss questions regarding this determination, please contact me or [Other Staff Member] at [Phone Number] between the hours of [Time] and [Time], [Day] through [Day].

Sincerely,

[Title]
[Department]

Form: Request for Floodplain Analysis and Regulatory Assessment

State Form 50356 (R/7-02) Page 1 of 2



Request for Floodplain Analysis and Regulatory Assessment

(No Fee Is Required For This Assessment)
This is Not an Application for a Permit

Individual citizens should use this form for floodplain information requests such as:

- Flood Insurance determinations required by a mortgage lender
- Permit requirements for construction of a proposed structure or obstruction in a floodway (examples: fence, building, fill, excavation, pond, bridge, culvert, bank protection)
- Requirements for construction of a house or placement of a manufactured home

1. Type of request (Check All That Apply):

- Flood Insurance Determination
- 100-Year Flood Elevation Determination (Base Flood Elevation Determination)
- Information for a LOMA (Letter of Map Amendment)/LOMR (Letter of Map Revision)
- Floodway Determination
- Residential Structure Existing Replacement Proposed
- Non-Residential Structure Existing Proposed, describe _____
- Addition to a Building Residential Non-Residential
- Bridge or Culvert New Replacement Rehabilitation
- Other, describe _____

Floodplain assessments require accurate site location information that you must provide with your request. Failure to submit complete information may result in a lengthy delay.

2. **Site Location:** Section _____, Township _____ N / S, Range _____ E / W; Grant No. _____

Site Address _____, City _____

County _____, Nearest Stream / Water Body _____

3. Site Map / Description:

The following location or map information must be submitted in order to process your request.

Additional information may be requested.

- For all flood insurance determinations, use map type 3a (where applicable) and 3b. See examples on page 2.
- For sites in urban areas use map type 3a, 3b, or 3d. See examples on page 2.
- For sites in rural areas use map type 3b, 3c, or 3d. See examples on page 2.

4. **Contact Person:** Name _____

Address _____, City _____, State _____, Zip _____

Telephone (____) _____, Fax (____) _____, Email _____

Signature _____, Date _____

Send completed form and supporting information to:

Indiana Department of Natural Resources
Division of Water
Attention: Technical Services Section
402 West Washington St., Room W264
Indianapolis, IN 46204-2641



Processing may require 4 to 6 weeks.

Contact a Division of Water Technical Services Representative if you need help completing this form.

Phone: (317) 232-4160 Toll Free: (877) 928-3755 Fax: (317) 233-4579
Email: water_inquiry@dnr.state.in.us

Agency Use Only

FARA No. _____
CSC Initial _____

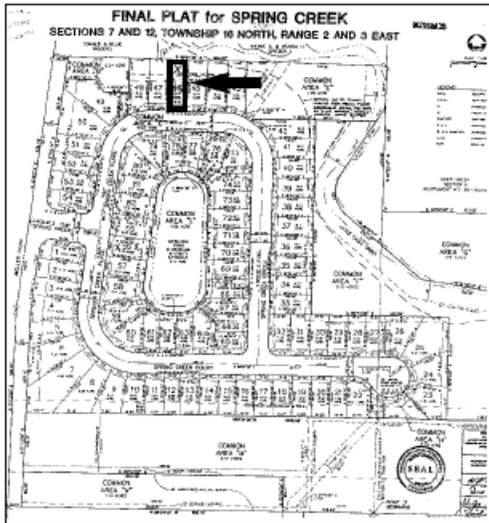
Date Stamp

Request for Floodplain Analysis and Regulatory Assessment Site Map/Description Instructions and General Guidelines

Before the Division of Water can evaluate your request, an accurate site location map must be submitted. Examples of acceptable maps are shown below. All maps must include a scale and a north arrow.

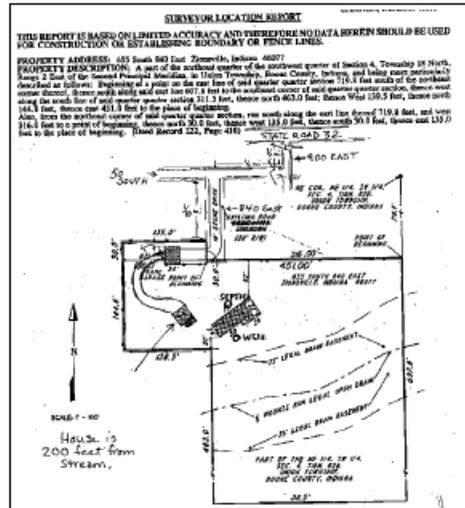
3a) Subdivision Plat with Lot # marked

This information may be obtained from the County Recorder's Office



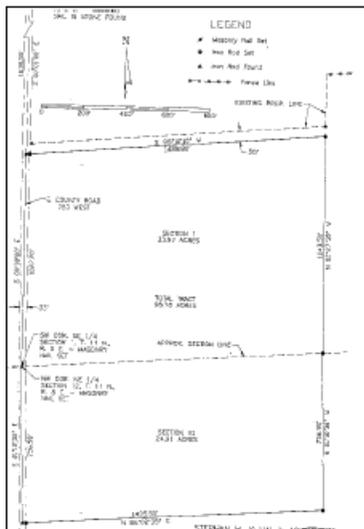
3b) Surveyor Location Report (mortgage survey) and Legal Description

This information may be filed with documents received at the mortgage closing



3c) A copy of the Property Survey

This information may be obtained from the County Recorder's Office



3d) A copy of the USGS topographical survey map with site location marked

This information may be obtained from DNR Map Sales Office Phone: (317) 232-4180

