Iowa Department of Natural Resources
Flood Plain Management Program

FPID# _____

Applying for a Flood Plain Permit
Miscellaneous Structures, Obstructions or Deposits

To obtain a DNR Flood Plain Permit for your project, you must submit to this Department the following checklist and the supporting documentation itemized on this checklist. **Applications submitted without this information will be considered incomplete and will not be reviewed.**

- ☐ Completed DNR Form 542-1028 – "Determining if a Flood Plain Permit is Required – Miscellaneous Structures, Obstructions, or Deposits".
- ☐ Completed and signed DNR Form 36, *Joint Application Form – Protecting Iowa Waters*.
- ☐ Completed document - "Gaining Approval for Miscellaneous Structures, Obstructions or Deposits" – attached
- ☐ Two sets of engineering plans for the project. Please note that the plans must be prepared and certified by a professional engineer licensed in the State of Iowa.
- ☐ Completed and signed certification stating that the engineering calculations and analysis, if applicable, were prepared by a professional engineer licensed in the State of Iowa.

Reviewer's Notes:

Gaining Approval for
Miscellaneous Structures, Obstructions, or Deposits

Date: _____
Completed By: _____

1. Application: Completed and signed Joint Application Form Submitted (required)? ☐ Yes ☐ No

Please indicate if the project site is within the incorporated limits of a city by using the word 'in' when listing the city in Item 7 of the application. The application can be found online at the following link. http://floodplain.iowadnr.gov/

A copy of the application and supporting documentation must be sent to:

- Iowa DNR, Flood Plain Permit Program
- Iowa DNR, Sovereign Lands (Submit with the copy for the Flood Plain Management Program)
- U.S. Army Corps of Engineers (Submit to the address listed in the instructions)

Applicant Name:					
Location (in Quarter-Section-Tier-Range format):		Qtr.	Sec.	T N	R
County:		Stream(s):			

2. Engineering Plans: Two sets of certified plans submitted? ☐ Yes ☐ No

Note: A pre-application consultation with the Iowa DNR to discuss the level of design necessary for your project can be scheduled by calling (866) 849-0321.

The engineering plans must be at a suitable scale for the features that they are portraying and printed on paper no smaller than 11" x 17". The plans must include the project name, the engineer's address and phone number, a north arrow, a bar scale, a legend for symbols and abbreviations, and a revision box. Technical plan information should include, but is not limited to, the following information.

☐ Location map (Quad Maps Available at http://ortho.gis.iastate.edu/)
☐ A site plan showing the proposed structure, obstruction or deposit, the stream, property lines and ownership, borrow site (if on the flood plain), roads, buildings and any other pertinent physical features.
☐ At least one stream valley cross section taken perpendicular to the direction of flow through the project area representing typical conditions. The structure, obstruction or deposit should be depicted on the cross section. Extend the cross section beyond the project boundaries to where natural ground will be undisturbed. Additional cross sections may be required depending on the lineal extent of the project and whether there are natural or artificial control sections on the flood plain. The cross section location(s) must be included on a site plan. **Note**: You may call (866) 849-0321 for assistance in determining the number and location of the required stream valley cross sections.
☐ Table(s) of stream valley cross section coordinates (in station – elevation format)
☐ A stream slope based on a minimum of two survey shots taken a sufficient distance apart (at least 500 feet) to represent the stream slope within the reach.
☐ Construction specifications, when applicable.
☐ Elevation reference datum: _____ (NGVD29, NAVD88, other – explain)

3. Hydraulics & Hydrology:

Note: A pre-application consultation with the Iowa DNR to discuss the level of hydraulic analysis for your project can be scheduled by calling (866) 849-0321.

Does the community have a detailed Flood Insurance Study (FIS)? ☐ Yes ☐ No (*If "Yes" continue with Section **3.a**. If "No", Skip to Section **3.b**, for the situation where No Detailed FIS exists for the Stream)*

a. Detailed FIS Exists for This Stream

Does study include detailed information (floodway and 100 yr. flood) information for this stream?

☐ Yes ☐ No *(If "No", Skip to Section **3.b**, for the situation where no detailed FIS exists for the stream).*

If the proposed project is located within the floodway as delineated in the FIS, it will be necessary to provide hydraulic modeling showing that the project will not cause a rise (0.00 feet) in the 100-year flood elevation. To that end, you will have to follow the steps below for hydraulic modeling.

Was original hydraulic model obtained from FEMA library? (*For instructions on how to order study data from the FEMA Library, see http://www.fema.gov/plan/prevent/fhm/st_order.shtm)*

☐ Yes ☐ No

If "No", Explain: _____

If "No", what is source of information? _____

When analyzing the effects of a project where a detailed Flood Insurance Study (FIS) exists, the following series of hydraulic models should normally be performed in the specified order to create a "base" condition. Please check that these runs were done in the order listed:

Step #1) ☐ Original hydraulic model as received from FEMA.

Step #2) ☐ Original hydraulic model with corrections made.

Step #3) ☐ Corrected model with additional cross-section(s) located at the project site.

Step #4) ☐ Model from Step #3 with the project included.

The model resulting from Step #3 will be the "base" condition and will be used to determine the effects of the project on flood stages (e.g., backwater). *(Note: The hydraulic models specified above are the minimum needed to analyze the effects of the project on flood stages when a project is located within the delineated floodway. Additional modeling may be required.)*

A summary table should be prepared that shows the relevant water surface elevations (WSEL) at each model cross section for each of the relevant runs/plans: e.g., Effective FIS Base Model, Effective Base with Corrections, Effective Base with Corrections and Additional Cross Sections (Existing Conditions Model), Proposed Conditions Model, etc. The table shown below should be used to document WSELs. If additional cross sections need to be shown or if additional information is needed within the table, please attach a separate table to this document.

Provide electronic files, including input and output tables, on a disk. Label all models according to corresponding steps as listed above. Provide a brief hydrology and hydraulics summary report explaining and justifying each of the steps taken to modify the respective models in steps 2 through 4.

Cross section Number or Label	WSEL As Published in the FIS	WSEL Effective FIS Base Model (Step #1)	Δ WSEL FIS – (1)	WSEL Effective Base with Corrections (Step #2)	Δ WSEL (2) – (1)	WSEL Effective Base w/Corrections and Additional Cross Sections (Step #3)	Δ WSEL (3) – (2)	Proposed Conditions Model (Step #4)	Δ WSEL (4) – (3)

Have all of the referenced hydraulic models been submitted on disk or electronically?

☐ Yes ☐ No

After completion of the Above Section, Skip to Section 4, "Approval"

b. If No Detailed FIS Exists for This Stream

Hydrology: Design flood, e.g., 100-yr flood, other

Frequency _____ Discharge _____

Source of discharge information (Check One):

☐ USGS Regional Equations Report 87-4732
☐ USGS Regional Equations Report 00-4233
☐ Corps Study
☐ WRC 17B analysis of Gage Data
☐ Nearby Flood Insurance Study
☐ Other (Explain) _____

Stream Slope: _____ ft. /ft. _____ ft. /mi.
Source (topo map, *survey, other): _____

**(Note: If a surveyed profile is used to determine stream slope, the profile should be of sufficient length (at least 500 feet) to represent the stream slope within the reach.)*

Method of Hydraulic Analysis (Check One):

☐ HEC-RAS/HEC2 (Disk with input/output included? ☐ Yes ☐ No)
☐ Iowa DOT Bridge Backwater (Disk with input/output included? ☐ Yes ☐ No)
☐ Other (list) _____
☐ Rating curve included? ☐ Yes ☐ No
☐ Backwater (surcharge) calculations included? ☐ Yes ☐ No

Mannings "n" Values:

Provide justification for all "n" values used in the model in the space below or within an attached hydraulic summary report:

4. Approval:

As outlined in Iowa Administrative Code 567-72.11, miscellaneous structures, obstructions, or deposits must be designed to meet the following criteria.

a. Location. Miscellaneous structures, obstructions, or deposits shall not be located so as to individually or collectively conflict with 567—75.4(455B) governing the establishment of encroachment limits.

b. Protection. Miscellaneous structures, obstructions, or deposits shall be provided with the minimum level of flood protection associated with the designated damage potential as indicated in 72.5(1) governing buildings and building complexes.

Does the Project Satisfy All Criteria? ☐ Yes ☐ No

If no, provide explanation: _____

Additional Approval Criteria:

NFIP "No-Rise" Certification Criterion:

On a stream with a detailed FIS, FEMA requires that any levee that is located within the delineated floodway must result in "no-rise" (i.e., 0.00 ft. increase) in the 100 year flood profile when compared to the "base condition" model (see modeling process previously outlined in Section 4.a.). A certification of "no-rise" must be included in with the application if the project is within the delineated floodway.

Summary of Engineering Data
Miscellaneous Structures, Obstructions and Deposits

Applicant(s): _____

Location: Qtr _____ Sec _____ T _____ N R _____ County _____

Stream(s): _____

Drainage Area: _____ sq. mi.

Stream Slope and Source: Reach _____ ft/ft ft/mi Source: _____

Main Channel Slope _____ ft/mi Source: _____

Elevation of natural features: (Datum: _____)

Channel Bottom _____

Top of Bank _____

Average Flood Plain _____

Flood Frequency Data:

Design Frequency _____ yr.

Discharge* _____ cfs

Natural Stage _____ Ft (Datum: _____)

Encroached State _____ Ft (Datum: _____)

Backwater Due to Project _____ ft

Freeboard (if applicable) _____ ft

Offsets:

Minimum Calculated _____ ft

Minimum Proposed _____ ft

*Source of Discharge Information (check one):

- ☐ USGS Regional Equations Report 87-4732
- ☐ USGS Regional Equations Report 00-4233
- ☐ COE Study
- ☐ WRC 17B analysis of stream gage data
- ☐ Nearby flood insurance study
- ☐ Other (explain) _____