



Iowa Department of Natural Resources Flood Plain Management Program

Streambank Protection Project Guidance

Intended for use by a provide landowners (citizens) for a streambank protection project on their property.



DNR FPDS Permit Application Technical Assistance:

- Help Phone Line: 515-725-8415
- Help Email: floodplain-help@dnr.iowa.gov
- State Floodplain Rules (Iowa Administrative Code Chapters 70-75) <https://www.iowadnr.gov/environmental-protection/land-quality/flood-plain-management/regulations>
- PERMT (Permit Application) website: <https://programs.iowadnr.gov/permt/>

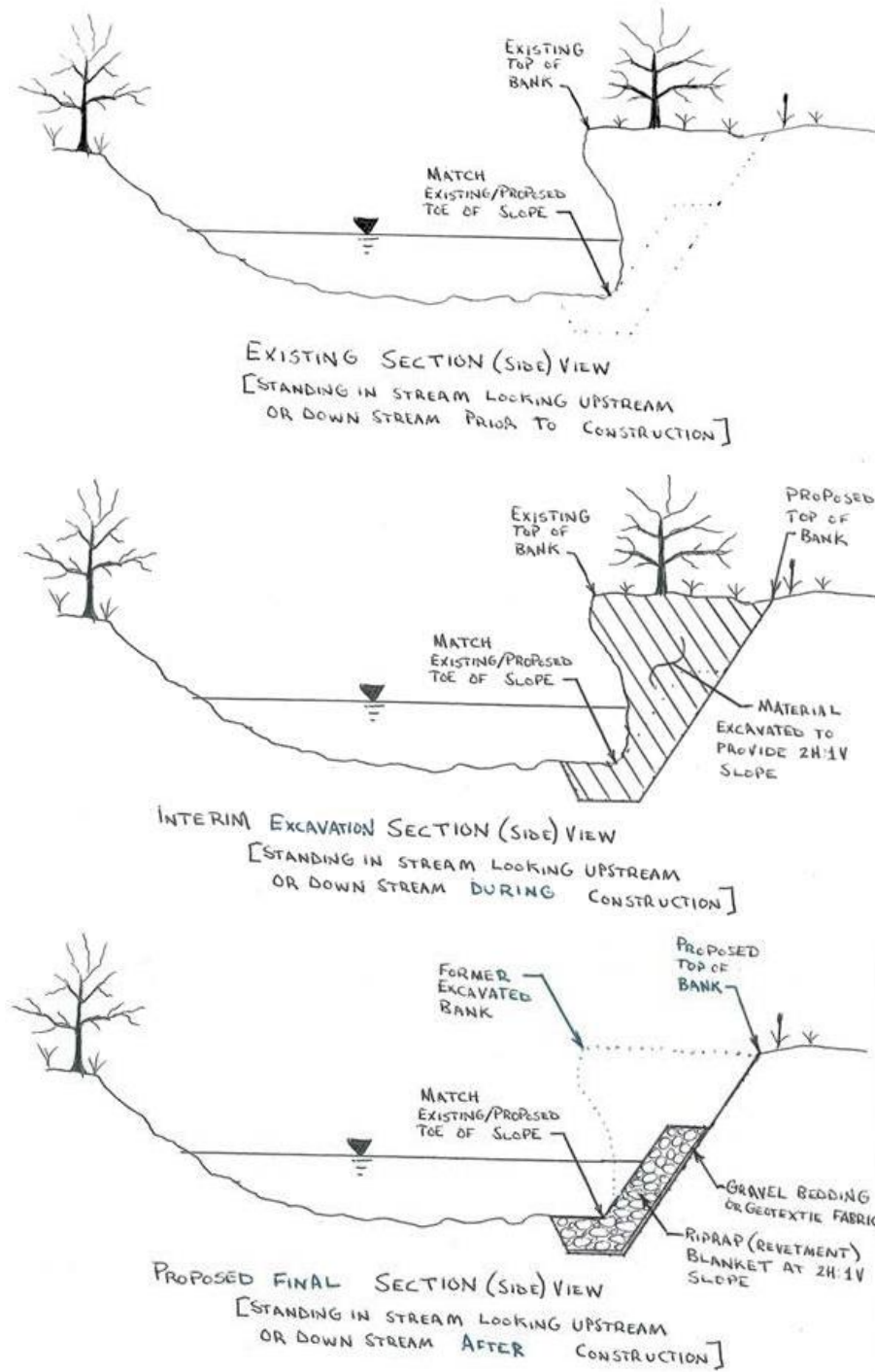
Step 1: Screen your project in [PERMT](#) to determine if a permit application is required for any part of your project. (Your project may include more than one project type.) PERMT results are based on Iowa Administrative Code 567 IAC 71(455B).

- If a permit is not required, no additional steps are required. If you would like an official “no permit required” document, submit a permit application in PERMT.
- Go to step 2 if the PERMT screening results show that a permit application is required.

Step 2: Select which method will be used to build your project. (Method A or Method B)

- Method A (No Channel Obstruction): Project includes excavating the bank to form a stable slope. Proposed work will not create an obstruction in the channel. See example below.

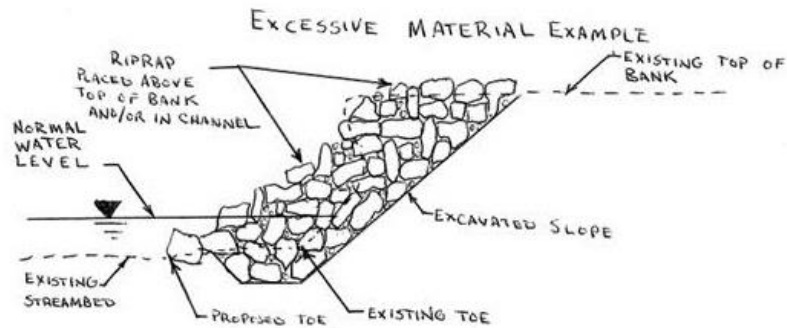
Example of Method A (No Channel Obstruction) Bank Stabilization Project
(Example Only. Not to be used for construction or permit application submittal)



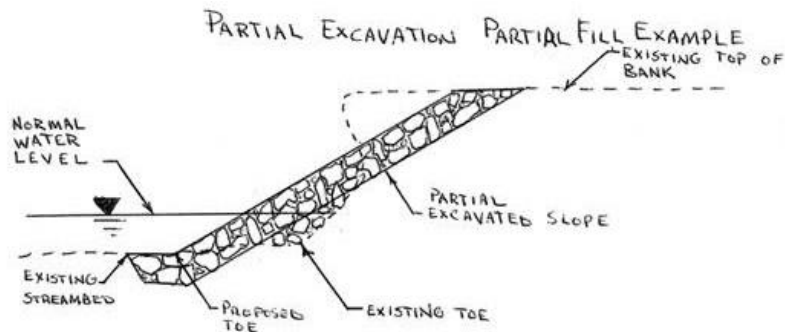
- Method B (Channel Obstruction): The bank will not be excavated to create a stable slope. Instead, material will be placed in the channel in a way that will reduce the original channel's cross-sectional area. See three examples below.

Three Examples of Method B (Channel Obstruction) Bank Stabilization Project Construction
(Examples Only. None to be used for construction or permit application submittal)

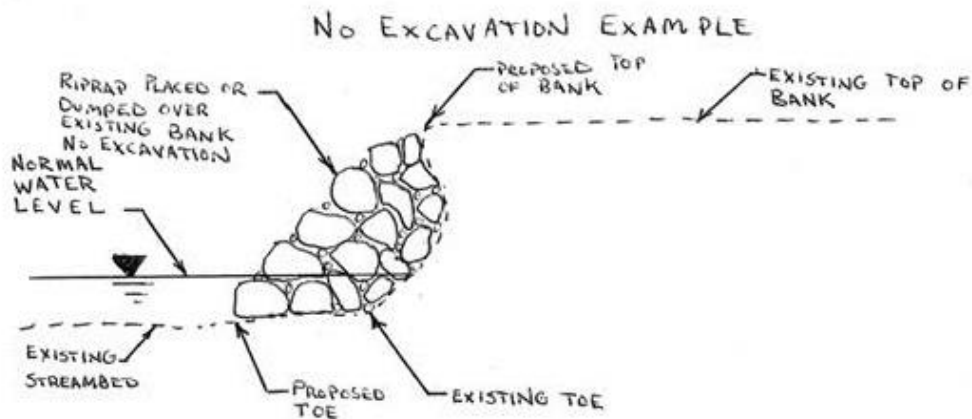
Example 1:



Example 2:



Example 3:



Step 3: Create construction plans according to your proposed method of construction.

Method A (No Channel Obstruction): Plans may be created by the applicant. Create a plan (overhead) view and a section (side) view of the proposed project. See instructions below.

Plan (overhead) View: From an aerial perspective, looking straight down. Similar to a map.

- ☐ Use a website to obtain background aerial imagery of the project location. Optional websites are listed below, but other websites may be used. Obtain the background imagery using screen captures, printing, or other methods:
 - <https://www.google.com/maps>
 - <https://www.bing.com/maps/>
 - <https://ortho.gis.iastate.edu/>
 - <http://iowaassessors.com/>
- ☐ Add project location(s) on the aerial map with a single, or multiple lines, showing the limits of the project. Lines may be created digitally or by hand.
- ☐ Add project length for each line provided, and cumulative length of all lines.
- ☐ Add project location latitude and longitude. This information is also provided as part of the screening tool results in PERMT.
- ☐ Create a final exhibit (pdf is preferred) of the Plan View, including all the above items (line, length, location). See a digital example below, but hand drawn lines on aerial maps will also be allowed.

Example of Bank Stabilization Plan View

(Example Only. Not to be used for construction or permit application submittal. Applicant should submit Plan View plan for site.)



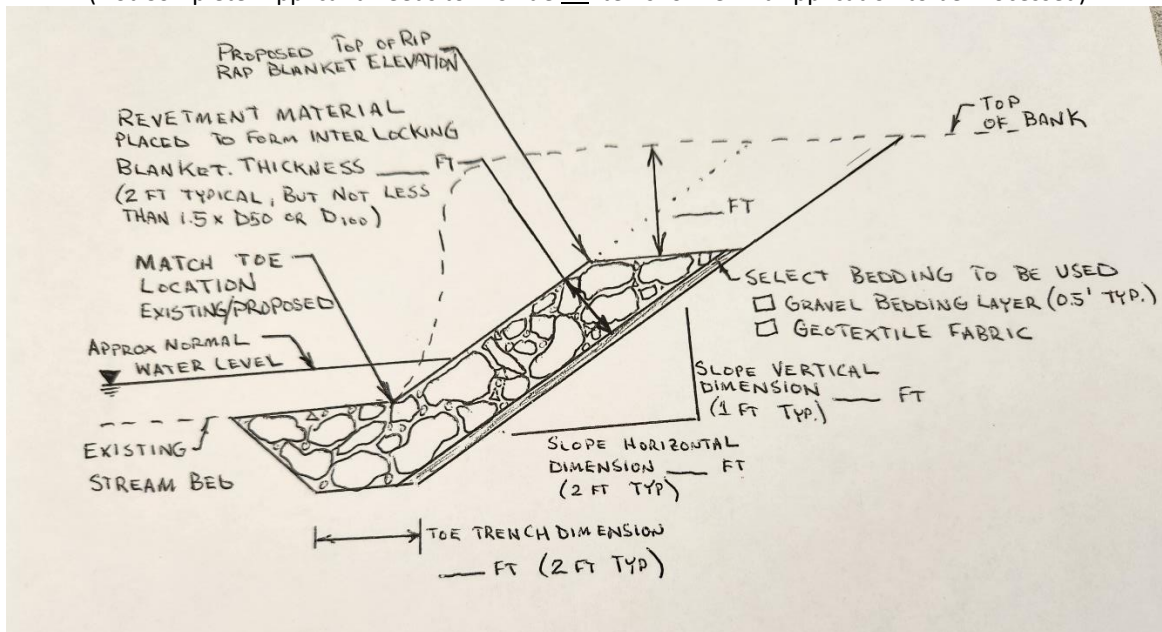
Section (side) View: From the perspective of standing in the center of the stream, looking directly upstream or downstream.

- ☐ Use the “Example of Bank Stabilization Section View” template below to create a section (side) view of your project.
- ☐ Make sure the cross section includes all of the following items
 - ☐ Existing ground (bank) location line and label

- ☐ Existing and proposed toe location (at intersection of bank and channel bed)
- ☐ Dimensions
 - ☐ Revetment (riprap) thickness
 - ☐ Horizontal slope length
 - ☐ Vertical slope height
 - ☐ Toe trench length
 - ☐ Top of revetment (riprap) to top of bank (revetment may not extend above top of bank)
 - ☐ Selection of base material (gravel and/or geotextile fabric)
- ☐ Any linework and labels for any additional items unique to your project. (grout, alternate materials, topsoil, etc...)
- ☐ Optional Item (Not Required): Utilize the [River Restoration Toolbox](#) for designs that integrate stream stability with wildlife habitat and floodplain function. Some items may require use of Method B.

Example of Bank Stabilization Section View

(Not Complete. Applicant Needs to Provide All Items for Permit Application to be Processed)



All of the following need to be confirmed and used by a contractor for use of these plans:

- ☐ All required items on the two previous pages have been added to the plan and cross section plans.
- ☐ The streambank is prepared by excavating a slope or terracing prior to the placement of riprap.
- ☐ The disposal of the excavated spoil material or placement of revetment directly on top of the streambank in the form of a levee or dike is prohibited. Any spoil material resulting from streambank shaping is disposed outside the flood plain. In some instances, you may be allowed to spread the spoil less than six inches thick across the flood plan and away from the top of bank. The spoil must not be placed in a floodway area as delineated in a flood insurance study.
- ☐ Generally accepted revetment material includes field stone, quarry rock and broken concrete. When using broken concrete, all exposed reinforcing steel is removed or cut flush with the surface of the concrete prior to placement. Any concrete slabs larger than three feet across are broken into smaller pieces prior to placement. The use of asphalt or other solid waste is prohibited. The typical thickness of a revetment blanket does not exceed 3 feet.
- ☐ The revetment material shall not extend vertically above the adjacent/natural top of bank.
- ☐ The revetment material, with any additional surfacing, shall be placed so that the resulting channel cross section is not more restrictive than the adjacent natural upstream and downstream channel cross section.
- ☐ The maximum bank slope needs to be compatible with the proposed cover materials (i.e.: 3(H):1(V) for vegetation, 1.5(H):1(V) for riprap).

Method B (Channel Obstruction): Plans may need to be designed by a professional engineer if the project will create an additional obstruction to the channel. See applicable sections of the Iowa Administrative Code → 567 IAC 72(455B) for approval criteria. This would include 567 IAC 72.9(1~4) for the bank stabilization work. Complete items for a no-rise or C/LOMR review as required. (See separate [1D or 2D no-rise and C/LOMR guidance document](#).)

If the project requires professional engineer design, the plans shall be certified by a professional engineer registered in the state of Iowa, and the engineer shall provide associated hydrologic and hydraulic modeling for channel obstruction projects as required. If you're unsure if it needs professional engineering plans, please call or email the help line with questions. (See first page of this guidance document for contact information)

For locations involving restoring the bank to a pre-storm erosion conditions, see streambank restoration document. Restoration projects may reduce H&H required for approval. (See separate [Streambank Restoration guidance document](#).)

Optional Item (Not Required): Utilize the [River Restoration Toolbox](#) for designs that integrate stream stability with wildlife habitat and floodplain function. Some items may require use of Method B.

Step 4: Use PERMT to submit a permit application and attach the submittal items listed for your proposed method of construction (Method A or Method B) from step 3.