

Rock Island County



Flood Fight Plan

DRAFT

2011 Edition

Flood-Fight Plan

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Forward

Except for severe storms, floods are the most common of natural disasters that occur in Rock Island County.

River Flooding occurs on rivers and streams when excessive water discharge causes river or stream channels to overflow. The Mississippi and Rock River as well as many other smaller streams in Rock Island County are all susceptible to river flooding.

Floods in the Mississippi River Basin can be classified as winter spring snowmelt or winter rain on snow events. The threat of flooding in Rock Island County is greatest in the months of March, April, May, although flood events have also occurred during other months of the year. Spring flood events have the potential to produce the highest peak flows when significant snowfall is present, followed by rising freezing levels, heavy rain, and wind increase the potential of flooding due to the restricting effect on river discharge flows.

Based upon the historical record (Annex 4) of flooding in the Mississippi and Rock River Basin and the severe impacts large flood events have had on the citizens of Rock Island County, there is a **high probability** of future flooding and a **high flood risk** for the people, businesses, and infrastructure located within the floodplain of the Mississippi and Rock River.

Executive Summary

This Plan, uses the National Response Framework (NRF) and the National Incident Management System (NIMS), establishes the mechanisms to:

- Maximize the integration of incident-related mitigation, preparedness, response, and recovery activities;
- Improve coordination and integration of, local, state, county, private-sector, and nongovernmental organization partners;
- Maximize efficient utilization of resources needed for effective incident management;
- Improve communications and increase situational awareness;
- Facilitate mutual aid and support to local , county, state governments;
- Facilitate Rock Island County (RICO) support;
- Provide proactive and integrated RICO response to catastrophic events; and
- Determine priorities and coordinate protection, response, and recovery of critical infrastructure.

This Plan is based upon guidelines contained in the National Response Framework (NRF). The NRF, as a core plan for national incident management, is linked to an array of incident or hazard-specific Federal contingency plans that are designed to implement the specific statutory authorities and responsibilities of various agencies. Therefore, RICO jurisdictions that partner with Federal agencies should be operating under the same guidelines to ensure complete and comprehensive coordination.

The Standard Operating Guidelines (SOGs) required for the implementation of this Plan are not included because of their voluminous nature. SOGs are the general operating guidelines for

jurisdictions and agencies and are maintained by those jurisdictions and agencies.

An annual review of the Plan will be undertaken by the RICO Emergency Management Agency (EMA) and those agencies having emergency assignments. The RICO EMA will insure that a list of all plan holders is maintained at the RICO EMA office and that updates are sent to each.

This Plan requires fair and equal treatment to all regardless of race, creed, color, national origin, sex, age, or handicap. First priority will always be to save lives, second is protection of the critical missions, and third is mitigation of damage to property.

The RICO jurisdictions will conduct all-hazard response and recovery operations using the Incident Command System (ICS). The ICS is the cornerstone of the RICO emergency and disaster mitigation, preparedness, response, and recovery program. This includes both governmental and non-governmental organizations that have a role in saving lives, caring for the injured, recovering the dead, mitigating property loss, and restoring services and facilities.

This Plan, including updates, remains in effect from the time of adoption until modified by changes in policy, planning guidance, or executive order.

James Bohnsack, Rock Island County Board Chairman

Date

Distribution List

RICO County Board Chairman

RICO Executive County Board Chairman

RICO Finance Committee Chairman

RICO Office of Counsel

RICO Information Technology

RICO Public Works

RICO Sheriff Department

RICO Resource Management

RICO Emergency Management Agency

Illinois Emergency Management Agency region 2

US Army Corps of Engineers (Rock Island Arsenal)

Cities, Villages, Towns of:

Rock Island

Moline

East Moline

Milan

Andalusia

Edgington

Coal Valley

Port Byron

Silvis

Cordova

Hillsdale

Illinois City

Reynolds

Rapid City

Carbon Cliff

Barstow

Campbells Island FD

Hampton

Coyne Center

Drury Twp

Andalusia Twp

Edgington Twp

Blackhawk Twp

Bowling Twp

Rural Twp

Coal Valley twp

Hampton Twp

Zuma Twp

Coe Twp

Canoe Creek Twp

Port Byron Twp

Cordova Twp

American Red Cross

MidAmerican Energy

Basic Plan

1. Purpose

a. This plan is a flood-fight mitigation, preparedness, response, and recovery plan that provides policy and guidance to Rock Island County (RICO) jurisdictions and local disaster mitigation, preparedness, response, and recovery operations. This plan details capabilities, concept of operations, incident management actions, authorities and responsibilities, and establishes mutual understanding among local, State, Federal, and other public and qualifying private nonprofit organizations. It provides for:

(1) Effective utilization of government and private sector resources in mitigating, preparing for, responding to, and recovering from the effects of flooding.

(2) Coordination, administration, and integration of the emergency management plans and programs of the Federal, State and local governments.

(3) An outline of local government responsibilities in relation to Federal disaster assistance programs under Public Law 93-288 (The Stafford Act), other applicable laws, the National Response Framework and other applicable local, state, Federal, response plans.

2. Situation

a. Rock Island County is subject to many flooding issues that could result in an emergency and/or disaster.

b. The RICO Emergency Management Agency (EMA) is the focal point within RICO for emergency planning, mitigation, preparedness, response, and recovery. The mission is to meet the needs of people facing emergencies and disasters by playing a lead role in (a) efforts to aid victims, (b) coordinating Federal, State and local effort to aid victims, (c) building the emergency management capacity of RICO and local governments, and (d) the general enhancement of emergency management by integration of its four functions - planning, preparedness, response, and recovery.

3. Assumptions

a. Incident management activities will be initiated and conducted using the National Incident Management System (NIMS).

b. Governmental jurisdictions are responsible for the safety and welfare of residents and visitors in time of a disaster, flooding or other incidents. Incidents are managed at the lowest possible geographic, organizational, and jurisdictional level.

c. Disasters may occur in and around RICO at any time and may cause varying degrees of damage, human suffering, injury, death, property damage, and economic hardship to individuals and private businesses, local government.

d. This plan assumes three organization levels of emergency preparedness and response; namely local, state and Federal levels of government. Preparedness, warning protection, and relief are general responsibilities of all levels of government working together. Emergency operations are initiated at the lowest level most appropriate for a rapid response to the situation.

e. RICO governmental jurisdictions, to varying degrees, have capabilities, plans, and procedures to provide for the safety and welfare of residents and visitors during times of emergency and will deploy resources in a timely fashion to the extent of their capabilities.

f. Federal and state agency resources and expertise can be mobilized to augment local efforts in relieving emergency or disaster related problems beyond the capabilities of both RICO and local governments.

g. Private and volunteer organizations can provide immediate life sustaining relief to individuals and families when such relief is not normally available from government resources. The private and volunteer organizations can directly support recovery efforts. These private organizations coordinate activities among themselves to prevent duplication of efforts or omission of needed assistance. Government agencies provide information, guidance, and coordination for use by these organizations. Private and volunteer

organizations cooperate with Federal, State, local coordination following a declaration of emergency or major disaster.

4. Concept of Operations

a. General

(1) When flooding is imminent or has occurred, jurisdictions affected have the primary emergency response responsibility and will respond to preserve life and property.

(2) When local jurisdictional resources cannot meet the needs created by the flooding, mutual aid compacts will call for the aid of any and all other signatories.

(3) When flooding conditions appear likely to exceed the combined capabilities of RICO and mutual aid compact signatories, jurisdictions will request the support of the State of Illinois through the Rock Island County - Emergency Management Agency (RICO-EMA) with approval from the Rock Island County Board Chairman or designee.

(4) RICO EMA in coordination with Illinois Emergency Management Agency (IEMA) will evaluate local requests for assistance based upon the level of local resource commitment and upon the availability of state resources. If the Governor determines local assets and resources have been fully utilized and state resources are available, he will authorize their commitment to the emergency.

(5) The RICO Emergency Operations Center (EOC) may be fully or partially activated and necessary EOC parties will be called to their EOC positions. All RICO resources will be committed through the RICO EOC. Damage and needs assessment teams (augmented by jurisdiction personnel) will be formed and dispatched to the impacted area(s).

(6) The RICO Board Chairman will directly supervise the RICO warning communications, dissemination of public information, emergency service functions, and coordinate the emergency functions of other RICO agencies.

(7) State disaster relief can be provided to local governments without a Declaration of Emergency by the Governor of Illinois when such resources are needed for life saving missions or to relieve immediate suffering and hardship.

6. Administration and Logistics

a. Planning, Mitigation and Preparedness

(1) RICO and local governments shall conduct hazard analysis surveys, develop programs to address the hazard, promote land use planning, and institute training and public information programs to provide for the effective use of all available resources and to avoid potential hazards. In the preparedness phase, resource lists must be updated, the emergency management system must be tested and evaluated through emergency preparedness exercises, personnel must be trained, and plans revised.

b. Response

(1) When advised that flooding is imminent or has occurred, the governmental jurisdiction will activate their jurisdictions flood-fight policies, SOG's, etc.

c. EOC Activation (Appendix 3/Command and Control)

(1) The RICO EOC is activated when field response units need support.

(a) Activation of the EOC may involve partial or full staffing, depending on the support required. The following list depicts the circumstance when the EOC may be activated:

(b) A local jurisdiction has requested activation of the EOC to support emergency operations;

(c) RICO County Board Chairman has declared an emergency;

(d) A local jurisdiction or state has declared a state of emergency and their EOC has been activated;

(e) RICO is requesting resources from outside its boundaries to the operational area and/or state and federal agencies, *except those resources used in normal day-to-day operations which are obtained through existing agreements such as fire or law enforcement mutual aid.*;

(f) RICO has received resource requests from outside its boundaries, *except those resources used in normal day-to-day operations, which are obtained through agreements such as fire or law enforcement mutual aid.*

(2) The following RICO personnel are authorized to activate the EOC:

(a) County Board Chairman

(b) Vice-County Board Chairman

(c) RICO Sheriff

(d) Director of RICO Emergency Management Agency

d. Recovery:

(1) Short term and long term actions taken to return the jurisdictions to normalcy in the same or better condition than before the incident.

(2) After the immediate threat to life and property has passed, or if a Presidential Declaration is received, RICO and Federal recovery operations will be coordinated and programs will be administered from the Joint Field Office (JFO).

(3) Typical recovery actions may include:

(a) Repair and replacement of damaged facilities;

(b) Cleanup and removal of debris;

- (c) Temporary housing and other assistance for disaster victims and their families;
- (d) FEMA low-interest loans to help private businesses with long-term rebuilding and hazard mitigation measures;
- (e) Decontamination and re-opening of facilities;
- (f) Restoration of public services (power, water, sewer, telecommunications);
- (g) Crisis counseling and mental health services;
- (h) Unemployment and displacement services
- (i) Planning and programs for long-term economic stabilization, community recovery, and hazard mitigation.

APPENDIX 1

1. Operational Guidelines

The following are suggested guidelines for operational flood-fighting efforts.

2. Sandbagging for Flood Protection

A properly built sandbag dike can prevent or reduce flood damage. The sandbag size, the fill material used, and method of placement all influence the effectiveness of the sandbag dike.

2.1 Sandbag Size and Fill Materials

Bags must be filled and placed properly to give the best protection. Any available material can be used to fill sandbags, but sand is easiest to handle. Silt and clay will form a good dike but are more difficult to work with. Different size bags are available, but bags are easier to handle if weight is limited to between 35 and 40 pounds. This weight limit is particularly important when teenagers or older persons will be handling the bags and assisting with emergency operations and dike construction.

Typically sandbags are filled approximately half full and do not need to be tied, although they may be tied loosely near the top. It is desired that the sandbags lay flat when placed. Overfilled bags reduce the dike's effectiveness by leaving gaps between the bags, allowing water to seep through. **Figure 1** illustrates the correct and incorrect ways to prepare sandbags. Tying is not required for a correctly filled sandbag.

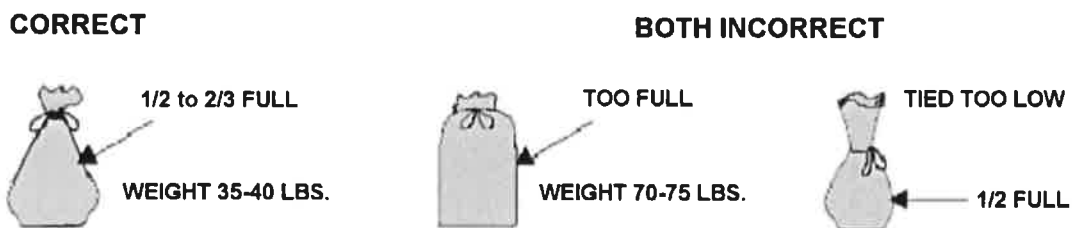


Figure 1 – Correct and incorrect sandbag preparation.

Ordinarily, filling sandbags is a two or three-person operation. One member of the team should place the bottom of the empty bag on the ground slightly in front of wide-spread feet with arms extended. This person may also want to kneel or sit to avoid back strain from bending. The throat of the bag is folded outward about 1-1/2 inches to form a collar and held in that position to allow a second team member to empty a shovelful of material into the open end, until the bag is 1/2 to 2/3 full. The third team member stacks and stockpiles the filled sandbags. Gloves should be used to avoid injury, and safety goggles are desirable during dry and windy days. For larger operations, bag-holding racks and funnels on the back of dump trucks, and other power loading equipment can be used to expedite the filling operation.

The following pages describe and illustrate a number of suggested techniques for using sandbags and other materials to build temporary flood protection dikes. Additional details are provided in Section 3.4.1 and shown on **Plates 1** through **3**.

Contact the Rock Island County Emergency Management Office for information on where to obtain sand/sandbags, 309/799-5166

2.2 Site Selection and Preparation

When selecting the location for a dike, consider the ground elevation, ground condition, obstructions, and alignment. For stability, the dike should be kept as short and low as possible. Avoid any obstructions that would weaken the dike, and do not build the dike against a building wall unless the wall has been designed to retain floodwaters. If possible, plan to leave at least 8 feet between the landward toe / base of the dike and any building or obstructions to allow for future dike raises, dike monitoring, construction equipment and vehicles, and to prevent damage to building walls and foundations.

Remove all ice and snow from a strip of land at least as wide as the base of the dike. If the dike will be more than 2 - 3 feet high, remove a strip of sod to create a bonding trench along the center line of the alignment to better anchor the dike in place, as shown in **Figure 2**.

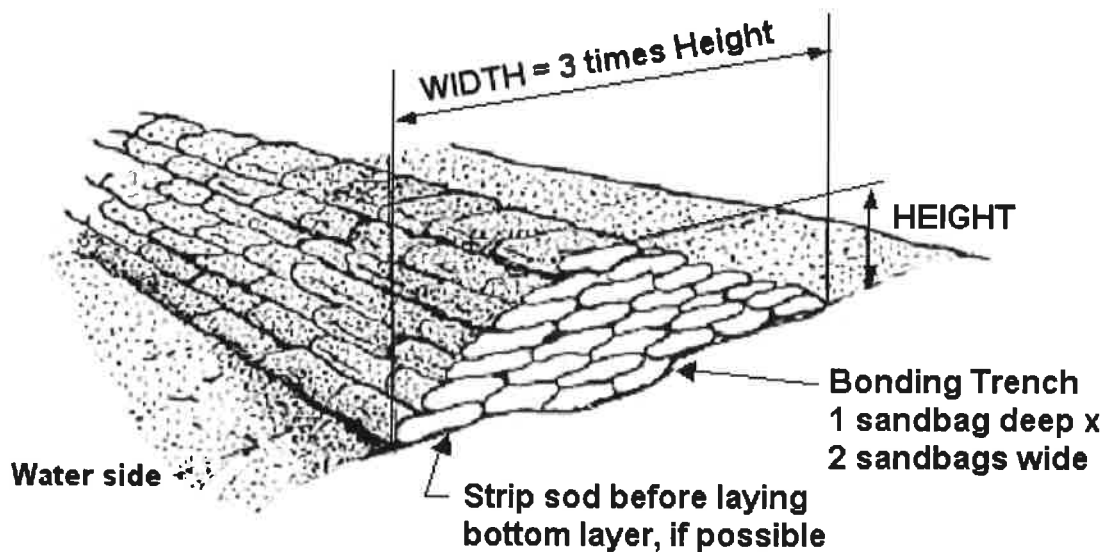


Figure 2 – Proportions of sandbag dike showing bonding trench at base.

2.3 Stacking Sandbags to Form a Dike

Overlap the sandbags as shown in **Figure 3**, placing the first layer of bags lengthwise along the dike and lapping the bags so the filled portion of one bag lies on the unfilled portion of the previous bag.

Direction of Flow



Figure 3 – Overlap sandbags lengthwise and parallel to river flow.

The bags should be placed lengthwise and overlapped parallel to the direction of the river flow. The bonding trench shown on **Figure 2** should be filled with a layer that is two sandbags wide by one sandbag high; the first full layer is then placed over this bonding trench. The base of the dike should be three times as wide as the dike is high.

The second layer of bags should be staggered perpendicular to the first layer and placed over the seams of the previous layer, with additional layers laid in alternating directions to the top of the dike, as shown in the "Correct" example in **Figure 4**. By alternating placement directions, the gaps and seams along the edges and corners in each layer below will be covered and filled in by a sandbag in the next overlying layer. **Plate 1** illustrates additional details of sandbag placement.

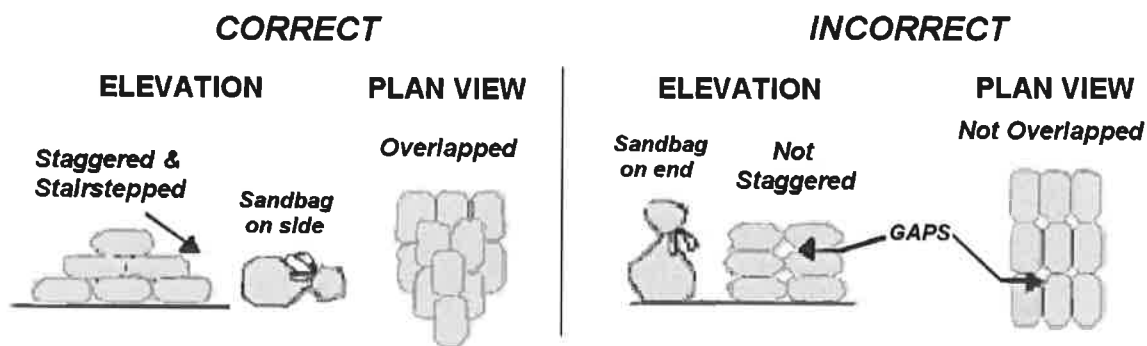


Figure 4 – Correct and incorrect placement of staggered sandbag layers.

2.4 Sealing the Dike with Polyethylene Plastic Sheeting

The finished dike can be sealed with a sheet of polyethylene plastic (poly) to improve water tightness. The poly sheeting should be about 6 mils thick, and is generally available in 20-foot-wide by 100-foot-long rolls from construction supply firms, lumberyards, and farm stores. Section 3.4.1 can be consulted for additional details.

The poly must always be anchored at the bottom edge and weighted along the top and slope to be effective.

Three methods are recommended to anchor the poly on the riverward face of a sandbag dike. The most successful is shown in **Figure 5** and described as follows: (1) Poly is placed flat on the ground surface extending away from the bottom row of sandbags, and one or more rows of sandbags are placed over the flap. The poly is then unrolled over the anchoring row of sandbags, anchored again, and then up the slope and over the top of the sandbag dike, far enough to allow for anchoring with additional sandbags.

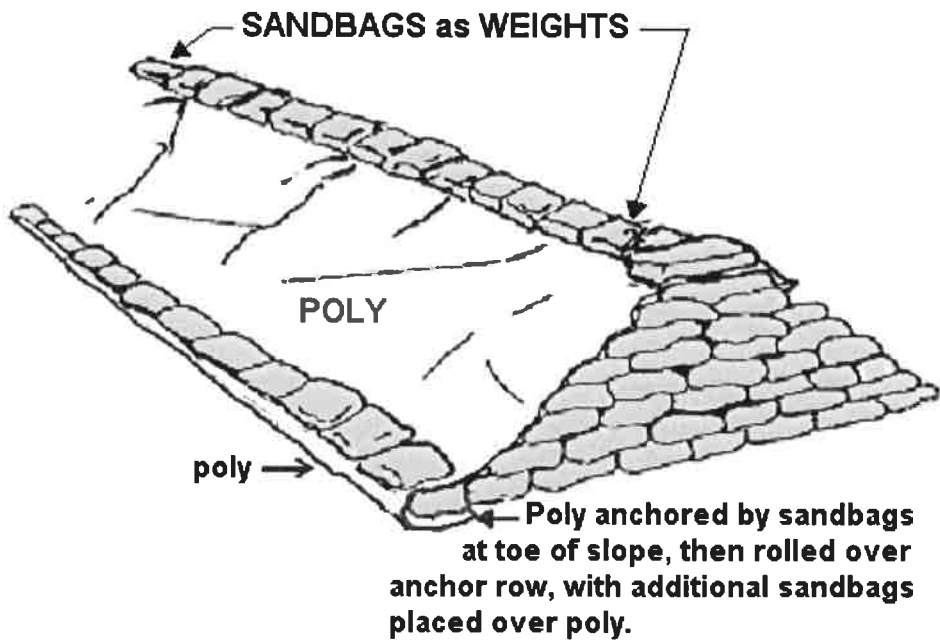


Figure 5 – Preferred method of tucking under and anchoring poly with two rows of sandbags.

Other methods available include: (2) At the base of the dike along the water side, spread a layer of dirt or sand one inch deep and about one foot wide along the bottom of the dike, to create a uniform surface to anchor the poly. Lay the poly sheeting so the bottom edge extends one to two feet beyond the bottom edge of the sandbags over the loose dirt. Place sandbags over the edge of the poly to anchor (**Figure 6**).

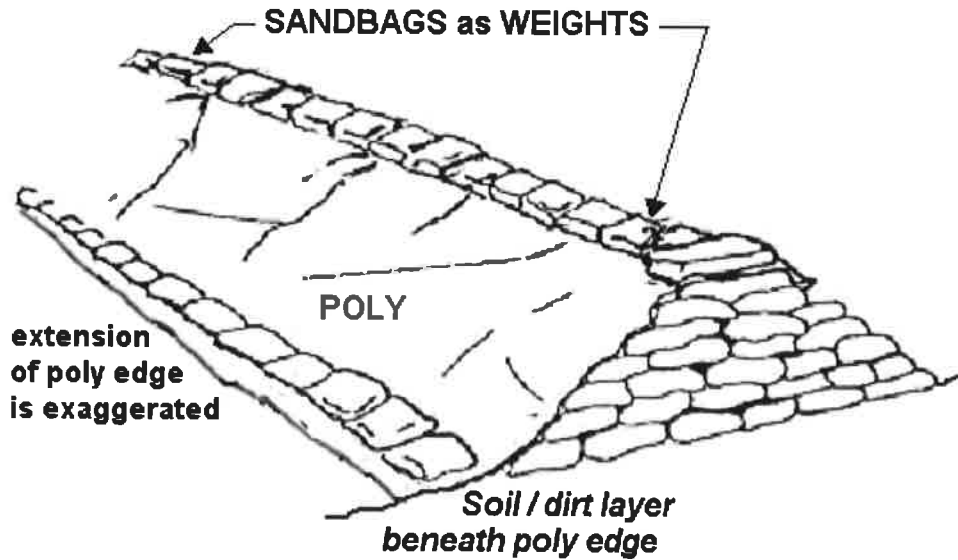


Figure 6 – Poly edge placed over dirt and anchored with a row of sandbags.

A third method to anchor the poly is: (3) Excavate a 6-inch or deeper trench along the toe of the levee, place poly in the trench, and backfill the trench, compacting the backfill material or placing a row of sandbags over the trench to prevent loss of the backfill material (**Figure 7**). This method will be unsuitable if water levels have reached the sandbags at the toe of the dike. In all cases the poly is unrolled up the slope and over the top, and anchored along the top with additional sandbags.

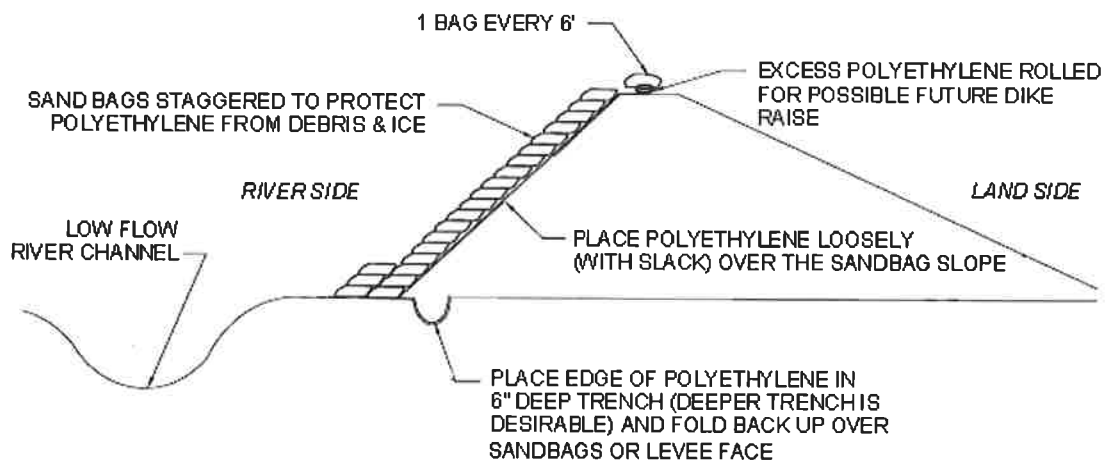


Figure 7 – Poly anchored within a trench – placed under dry conditions.

Poly should be placed from downstream to upstream along the slopes and the next sheet upstream overlapped by at least 3 feet, as shown on **Figure 8**. Overlapping in this direction prevents the current from flowing under the overlap and tearing the poly loose. Lay the poly sheeting down very loosely, as the pressure of the water will make the poly conform easily to the sandbag surface if the poly is loose. If the poly is stretched too tightly the force of the water against the poly and sandbags could puncture the poly. Once the poly is placed, additional sandbags, boards, and/or loose dirt placed over the poly are needed to anchor the poly in place and prevent the wind or river current from disturbing it. These anchors are not shown on the illustration. Avoid puncturing the poly with sharp objects or by walking on it.

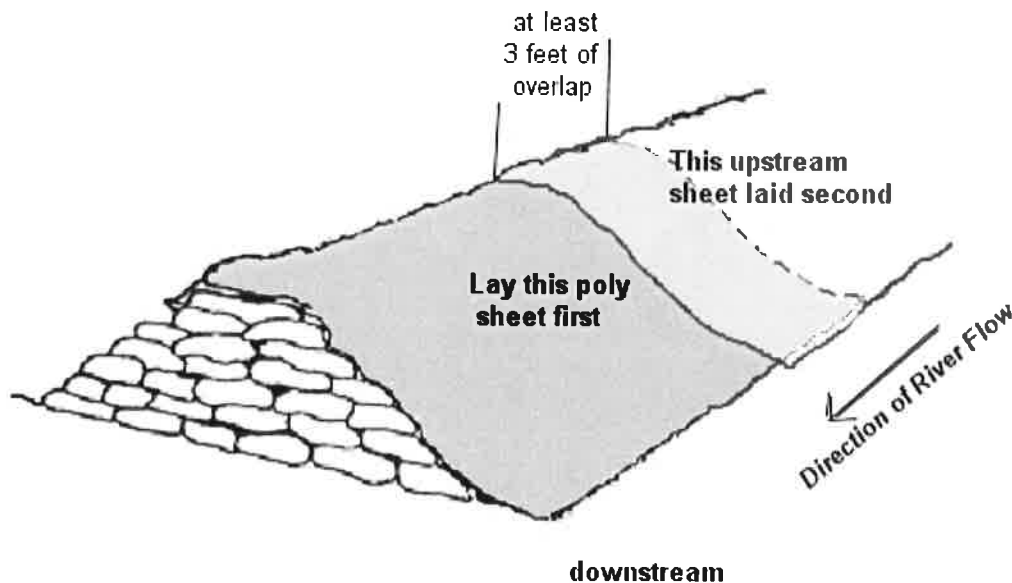


Figure 8 – Poly placement from downstream to upstream with overlap shown.

Plate 2 and **Plate 3** summarize the methods of anchoring poly sheeting along the riverward face of the dike. **Plate 2** shows placement when dry conditions are present, and **Plate 3** shows placement in the wet, after water has risen to a level along the side of the sandbag dike or levee.

2.5 Number of Sandbags Needed

The following information in **Table 2.1** indicates the approximate number of sandbags that are needed for dikes of various heights and lengths. Note that 5 feet high is the practical limit of a sandbag dike. If a higher sandbag dike is needed, alternative means of construction should be considered. The preferred height limit is 3 feet.

Table 2.1 - Estimated number of sandbags needed per foot of length and height of dike.

ESTIMATED NUMBER OF SANDBAGS PER LINEAR FOOT OF DIKE	
Height in Feet	Bags Required
1	5
2	10
3	21
4	36
5	55

DIKE HEIGHT	NUMBER OF SANDBAGS REQUIRED FOR LENGTH OF DIKE									
	50 FT	100 FT	175 FT	200 FT	250 FT	300 FT	350 FT	400 FT	450 FT	500 FT
1 Foot	250	500	750	1,000	1,250	1,500	1,750	2,000	2,250	2,500
2 Feet	850	1700	2,550	3,400	4,250	5,100	5,950	6,800	7,650	8,500
3 Feet	1,800	3,600	5,400	7,200	9,000	10,800	12,600	14,400	16,200	18,000
4 Feet	3,100	6,200	9,300	12,400	15,500	18,600	21,700	24,800	27,900	31,000