A Model Ordinance for Erosion Control on Sites with Land Disturbing Activities

HERPICC
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A Federal Highway Administration LTAP Technology Transfer Center

1435 Win Hentschel Blvd., Ste. B100
West Lafayette, IN 47906-4150

(765) 494-2164
or
Toll · free Within Indiana
(800) 428-7639
Fax: (765) 496-1176
Preface

This model ordinance was developed by a task group composed of a county engineer, a county commissioner, county surveyors, land developers, and representatives of Indiana Department of Transportation, Indiana Department of Natural Resources, Indiana Farm Bureau, Indiana Department of Environmental Management, and Hoosier Heartland RC&D. The group was chaired by Ed Monke, Department of Agricultural Engineering, with Jennifer Kapp, HERPICC, serving as secretary. HERPICC gratefully acknowledges the contribution of each member of the task group. They are:

Jim Barnett, Indiana Farm Bureau, Inc.;
E. Donald Bengel, Porter County Surveyor;
Gregory Biberdorf, Soil Conservation, Indiana Department of Natural Resources;
Bob Bollman, Soil Conservation, Indiana Department of Natural Resources;
Wayne Capek, Division of Water, Indiana Department of Natural Resources;
Steve Collins, Division of Design, Indiana Department of Highways;
Joe B. Hays, Hoosier Heartland RC&D;
Jennifer Kapp, HERPICC, Purdue University;
Robert Kleinops, Normandy Farms, Inc.;
John McNamara, St. Joseph County Surveyor;
Ed Monke, Department of Agricultural Engineering, Purdue University;
Jim Ray, Indiana Department of Environmental Management;
John Schuler, Wabash County Commissioner;
Michael Spencer, Tippecanoe County Surveyor;
Bill Trakimas, Division of Water, Indiana Department of Natural Resources;
Ken Traylor, Kosciusko County Engineer; and
Will Wright, Will Wright Building Corp.
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General Principles

The objective of this ordinance is the control of soil erosion and sedimentation caused by land disturbing activities in the [county, city, or town]. Measures taken to control erosion and sedimentation should assure that sediment is not transported from a site by storm events. The following principles apply to all land disturbing activities within the [county, city, or town] and are helpful in the preparation of submissions required under this ordinance:

1. To minimize the potential for soil erosion, development should fit the topography and soils of the site. Areas with steep slopes where deep cuts and fills may be required should be avoided wherever possible, and natural contours should be followed as closely as possible.

2. Natural vegetation should be retained and protected wherever possible. Areas immediately adjacent to watercourses and lakes also should be left undisturbed wherever possible.

3. All activities on a site should be conducted in a logical sequence so that the smallest practical area of land will be exposed for the shortest practical period of time during development.

4. Sediment basins, silt traps, or filters should be installed prior to construction to remove sediment from runoff leaving the site.

5. The selection of soil erosion and sedimentation control measures should be based on an assessment of the probable frequency of climatic events likely to

Commentary

The principles outlined here have proven effective in minimizing soil erosion from a site with land disturbing activities and in reducing damage caused by the effects of the soil erosion. The principles should serve as guidelines for the preparation of site development and erosion control plans required by this ordinance.

Information and assistance are available from the following agencies.

Soil and Water Conservation District (SWCD) offices, located with the local field office of the USDA Soil Conservation Service (SCS) in each county. (Look in your phone book under "U.S. Government" or your county government for local addresses.) Provided are soil survey information, erosion control measure specifications in the Field Office Technical Guide, and technical assistance from SWCD and SCS personnel.

Highway Extension and Research Project for Indiana Counties and Cities (HERPICC), Civil Engineering Building, Purdue University, West Lafayette, IN 47907. Provided are information and publications on topics related to erosion, including A General Ordinance Establishing Storm Drainage Control.

County Cooperative Extension Service offices, located in most county seats. Provided are information on planning and community development with assistance by local agents or extension specialists from Purdue University.

Resource Conservation and Development (RC&D) Councils, located in about half of all Indiana counties. (Contact the local SWCD
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contribute to soil erosion and on evaluation of risks, costs, and benefits involved.

6. In the design of erosion control measures, aesthetics and the requirements of continuing maintenance should be considered.

7. Provision should be made to accommodate the increased runoff caused by changed soil and surface conditions during and after development. Drainageways should be designed so that their final gradients and resultant velocities will not cause channel scouring.

8. Permanent vegetation and structures should be installed as soon as practical during development.

Commentary

office to find out whether your county has a council.) Provided are assistance in approaching resource issues on a multi-county basis and reference material, including the Hoosier Heartland Urban Development Planning Guide, which is available from Hoosier Heartland RC&D, 5995 Lakeside Blvd., Suite B, Indianapolis, IN 46278.

Indiana Department of Natural Resources (IDNR), Division of Water, 2475 Directors Row, Indianapolis, IN 46241. Provided are floodplain determinations, insurance information, construction in floodway permits, and shoreline and bed alteration permits needed also for sediment discharge into public freshwater lakes. Information also is available on water-related construction issues.

Indiana Department of Natural Resources, Division of Soil Conservation, FLX 1 Building, Purdue University, West Lafayette, IN 47907. Provided are sources of assistance and consultation, relative to soil interpretations and erosion control measures, with regional specialists.
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The intent of this ordinance is to require practices that will control soil erosion and thereby reduce the amount of sediment and other pollutants leaving sites as a result of land disturbing activities. The ordinance applies to non-agricultural land disturbing activities, including commercial, institutional, residential, and highway development.

Sec. 1 AUTHORITY

This ordinance is adopted under the authority granted by Indiana Code § 36-1-4-11, § 36-7-4, and all acts supplemental and amendatory thereto. This authority provides for the administration, enforcement and amendment of this ordinance for controlling soil erosion in [county, city, or town].

Sec. 2 FINDINGS AND PURPOSE

(1) FINDINGS. The [administering authority] finds that soil erosion resulting from non-agricultural land disturbing activities causes a significant amount of sediment and other pollutants to be transported off-site to locations including ditches, streams, wetlands, lakes, and reservoirs.

(2) PURPOSE. The purpose of this ordinance is to conserve the natural resources; to protect the quality of air and water, and to protect and promote the health, safety and welfare of people, to the extent practicable by:

(a) Minimizing the amount of sediment and other pollutants, resulting from soil erosion due to land disturbing activities, from being transported off-site to adjacent public or private lands.
including ditches, streams, lakes, wetlands, and reservoirs.

Sec. 3 APPLICABILITY OF ORDINANCE
The ordinance applies to non-agricultural land disturbing activities on land within the boundaries and jurisdiction of the [county, city, or town].

Sec. 4 DEFINITIONS
(1) "Administering authority" means the designated unit of government given the authority to issue permits.

(2) "Person" means any entity, including any individual, corporation, or public body, holding title to or having an interest in land, operating, leasing, renting, or having made other arrangements with the title holder by which the title holder authorizes use of his or her land.

(3) "Agricultural land use" means use of land for the production of animal or plant life, including forestry, pasturing or yarding livestock, and planting, growing, cultivating, and harvesting crops for human or livestock consumption.

(4) "Non-agricultural land use" means commercial use of land for the manufacturing and wholesale or retail sale of goods or services, residential or institutional use of land intended primarily to shelter people, highway use of land including lanes, alleys, and streets, and other land uses not included under agricultural land use.

(5) "Land disturbing activity" means any man-made change of the land surface, including removing vegetative cover,

Agricultural land disturbing activities have been excluded from this ordinance because several federal and state programs are already addressing these problems. However, services of agencies such as the Soil Conservation Service of the United States Department of Agriculture or the Division of Soil Conservation of the Indiana Department of Natural Resources, designated primarily to help in the control of erosion and sedimentation on agricultural lands, are available to the non-agricultural sector as well.
excavating, filling, transporting, and grading. In the context of this ordinance, it includes only non-agricultural land disturbing activities on sites which also require a local improvement location permit or an approved subdivision plat.

(6) "Site" means the entire area included in the legal description of the land on which land disturbing activity has been proposed in the permit application.

(7) "Runoff" means the portion of precipitation from such sources as rainfall, snowmelt, or irrigation water that flows over the ground surface.

(8) "Erosion" means the detachment and movement of soil, sediment, or rock fragments by water, wind, ice, or gravity.

(9) "Erosion control measure" means a practice or a combination of practices to control erosion and resulting sedimentation.

(10) "Erosion control plan" means a written description of pertinent information concerning erosion control measures designed to meet the requirements of this ordinance as submitted by the applicant for review and approval by the [administering authority].

Sec. 5 DESIGN CRITERIA, STANDARDS, AND SPECIFICATIONS FOR EROSION CONTROL MEASURES

All erosion control measures including but not limited to those required to comply with this ordinance shall meet the design criteria,
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standards, and specifications for erosion control measures similar to or the same as those outlined in the Field Office Technical Guide of the USDA Soil Conservation Service.

Sec. 6 CONTROL OF EROSION AND SEDIMENT DURING LAND DISTURBING ACTIVITIES

Control of erosion and sediment is the responsibility of an applicant. Applicability and requirements are defined as follows:

(1) APPLICABILITY. This section applies to the following sites with land disturbing activities:

(a) Those requiring a subdivision plat approval or local improvement location permit for the construction of commercial, residential, or institutional buildings on lots of approved subdivision plats;

(b) Those involving grading, removal of protective ground cover or vegetation, excavation, land filling, or other land disturbing activity affecting a surface area of 10,000 square feet or more;

(c) Those involving excavation, filling, or a combination of excavation and filling affecting 400 cubic yards or more of soil, sand, gravel, stone, or other material;

(d) Those involving street, highway, road, or bridge construction, enlargement, relocation, or reconstruction; and

(e) Those involving the laying, repairing, replacing, or enlarging of an underground pipe or utility for a distance of 300 feet or more.

Commentary

The Field Office Technical Guide includes design specifications for all types of erosion control measures. The specifications are based on accepted engineering principles and are useful for both local officials and contractors. The guide is available in any county office of the USDA Soil Conservation Service. In addition, the Hoosier Heartland Urban Development Planning Guide is available from Hoosier Heartland RC&D, 5995 Lakeside Blvd., Suite B, Indianapolis, IN 46278

Some sites may already contain eroding areas. It is the purpose of this ordinance to also prevent the continuation of such erosion in the future.

Numerical values given in this section are only suggested values; others may be substituted to better fit a given situation.
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(2) EROSION AND OTHER SEDIMENT CONTROL REQUIREMENTS. The following requirements shall be met on all sites.

(a) Site dewatering. Sediment-laden water flowing from the site shall be detained by temporary sediment basins. Also, water shall not be discharged in a manner that causes erosion in the receiving channel.

(b) Waste and material disposal. Wastes or unused building materials, including but not limited to garbage, debris, cleaning wastes, wastewater, toxic materials, and hazardous substances, shall not be carried by runoff from a site. Proper disposal of all wastes and unused building materials, in line with the nature of the waste or material, is required.

(c) Tracking. Sediment being tracked from a site onto public or private roadways shall be minimized. This can be accomplished initially by a well planned layout of roads, access drives, and parking areas of sufficient width and length. However, protective covering also may be necessary.

(d) Sediment removal. Public or private roadways shall be kept cleared of accumulated sediment. If appreciable sedimentation occurs after a storm event, the sediment shall be deposited on the parcels of land, if in the site, from where it likely originated.

(e) Drain inlet protection. All storm drain inlets shall be protected against sedimentation with straw bales, filter fabric, or equivalent barriers meeting
accepted design criteria, standards, and specifications.

(f) Site erosion control. The following items apply only to the time period when land disturbing activities are taking place.

1. Runoff passing through a site from adjacent areas shall be controlled by diverting it around disturbed areas. Alternatively, the existing channel may be improved to prevent erosion or sedimentation from occurring.

2. Runoff from a disturbed area shall be controlled by one or more of the following measures.
   
a. Barring unforeseeable weather conditions, all disturbed ground left inactive for seven or more days shall be stabilized prior to [insert applicable date here], by seeding, sodding, mulching, covering, or by other equivalent erosion control measures.

b. With disturbed areas within a site of 10 acres or more, where drainage is in the same direction or where runoff will result in loss of soil, an abatement or recovery program is required. Where feasible, one or more sediment basins shall be constructed. Each sediment basin shall have a depth of at least three feet and have sufficient surface area to trap the sediment. The size of sedimenta-

For more information, refer to the SCS Field Office Technical Guide and the Hoosier Heartland Urban Development Planning Guide.

Dates may vary among counties, depending upon local climatic conditions and growing seasons.
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...ation basin should be at least one percent of its drainage area. Sediment shall be removed from time to time to maintain a minimum three-foot depth. When the disturbed area is stabilized, the sediment basin can be removed. However, if erosion is likely to continue, the sediment basin shall be maintained by the existing or subsequent landowners. The discharge rate from a sediment basin shall not cause scouring in the receiving channel.

c. With disturbed areas within a site of less than 10 acres, filter fences, straw bales, or equivalent erosion control measures, placed along all sideslope and downslope sides of the site, shall be required. Also, if concentrated runoff passes through the site, filter fences shall be placed along the edges of the concentrated flow area to reduce the amount of sediment removed from the site. However, if these measures are not sufficient to control off-site sedimentation, a sediment basin may still be required.

3. Erosion from all soil storage piles shall be controlled by placing straw bales, filter fence, or other appropriate barriers around the piles. Adjacent storm drain inlets shall be protected using similar fil-
ter barriers. Moreover, any soil storage pile containing more than ten cubic yards of material shall be located at least 25 feet upslope from a roadway or a drainage channel. Furthermore, if remaining in existence for more than seven days, the storage pile shall be stabilized by mulching, vegetative cover, tarps, or other means. Storage piles containing less than 10 cubic yards of material may be located closer than 25 feet to a roadway or a drainage channel but shall be covered with tarps or a suitable alternative if in existence for less than seven days. However, if a pile is in existence for more than seven days, barriers also shall be placed around the pile.

Sec. 7 MAINTENANCE OF EROSION CONTROL MEASURES

During the period of land disturbance at a site, all sediment basins and other erosion control measures necessary to meet the requirements of this ordinance shall be applied by the applicant or subsequent landowner. If sedimentation is likely to be a problem after land disturbing activities have ceased, some or all of the sediment basins and other erosion control measures shall be maintained by the applicant or subsequent landowner for as long as the problem exists.
Sec. 8 PERMIT APPLICATION, EROSION CONTROL PLAN, AND PERMIT ISSUANCE

No person shall begin a land disturbing activity subject to this ordinance without receiving approval of an erosion control plan. An application should be made at the time of the preliminary plat submittal or local improvement location permit application to minimize the time delay before a project can begin. By submitting an application, the applicant is implying that the [administering authority] has been given permission to enter the site to obtain information required for review of the erosion control plan.

(1) CONTENT OF EROSION CONTROL PLAN FOR LAND DISTURBING ACTIVITIES COVERING MORE THAN ONE ACRE IN A GIVEN SITE

(a) Existing site map. A map of existing site conditions on a minimum scale of one inch equals 100 feet and adequate to show the site and adjacent areas, including:

1. Site boundaries and adjacent lands which accurately identify the site location;
2. Lakes, streams, wetlands, channels, ditches, and other water courses on and adjacent to the site;
3. One hundred year floodplains, floodway fringes, and floodways;
4. Location of the predominant soil types as identified by the soil surveyor as determined by a certified professional soil scientist;
5. Vegetative cover such as grass, weeds, and trees;

Commentary

A signed letter or application form should be submitted to the administering authority requesting permission to perform land disturbing activities (describe) on a given parcel of land (identify including legal description). The letter should acknowledge the need of the administering authority to enter the site to obtain information for reviewing the erosion control plan. A statement to the effect that the applicant agrees to comply with the intent of the ordinance also should be included.

The site may include parcels of land which have been incorporated into the master plan of a previously approved subdivision. If these parcels have already been included in an erosion control plan, plans for these parcels as required under this ordinance are unnecessary.

The local unit of government may also identify other sensitive waters that need to be addressed by the erosion control plan.

Soil survey information is available from local offices of the USDA Soil Conservation Service. Soil scientists in Indiana are certified by the Indiana Association of Professional Soil Classifiers, Inc. and/or by the American Registry of Certified Professionals in
6. Location and dimensions of storm water drainage systems and natural drainage patterns on and immediately adjacent to the site;

7. Locations and dimensions of utilities, structures, roads, highways, and paving; and

8. Site topography at a contour interval not to exceed five feet.

(b) Plan of final site conditions. A plan of final site conditions on the same scale as the existing site map showing the site changes.

(c) Site construction plan. A site construction plan including:

1. Locations and dimensions of all proposed land disturbing activities;

2. Locations and dimensions of all temporary soil stockpiles;

3. Locations and dimensions of all erosion control measures necessary to meet the requirements of this ordinance;

4. Schedule of the anticipated starting and completion dates of each land disturbing activity, including the installation of erosion control measures needed to meet the requirements of this ordinance; and

5. Provisions for maintenance of the erosion control measures during construction.

Commentary

Agronomy, Crops, and Soils (ARCPACS). For more information, contact the State Soil Scientist, USDA Soil Conservation Service, 6013 Lakeside Blvd., Indianapolis, IN 46270.
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(2) CONTENT OF EROSION CONTROL PLAN FOR LAND DISTURBING ACTIVITIES COVERING LESS THAN ONE ACRE IN A GIVEN SITE. An erosion control plan statement describing the site and erosion control measures and including a development schedule and a simple map showing the locations of the control measures is all that is required.

(3) REVIEW OF EROSION CONTROL PLAN. The [administering authority] shall promptly review the application and erosion control plan in conjunction with the subdivision plat and local improvement permit application to determine whether the requirements of this ordinance have been met. If the conditions are met, the [administering authority] shall approve the plan, inform the applicant, and issue a permit. If the conditions are not met, the [administering authority] shall inform the applicant in writing and either may require additional information or may disapprove the plan. If requested additional information is submitted, the [administering authority] shall again determine whether the plan meets the requirements of this ordinance. If the plan is disapproved, the [administering authority] shall inform the applicant in writing giving reasons for disapproval.

(4) PERMITS

(a) Surety bond. As a condition of approval and issuance of the permit, the [administering authority] may require the applicant to provide a surety bond or an irrevocable letter of credit when the erosion control plan has been approved to guarantee a good faith ex-

Commentary

The administering authority may wish to establish a maximum length of time for the review process as a matter of policy.
execution of the erosion control plan and any permit conditions.

(b) Permit conditions. All permits shall require the applicant to:

1. Notify the [administering authority] at least 24 hours before commencing with any land disturbing activity;

2. Notify the [administering authority] of the completion of erosion control measures within seven days after their installation;

3. Obtain permission from the [administering authority] prior to modifying the erosion control plan;

4. Install all erosion control measures as identified in the approved erosion control plan;

5. Maintain all road drainage systems, storm water drainage systems, erosion control measures, and other facilities identified in the erosion control plan until the project has been terminated (see Sec. 7 for continuing maintenance responsibility);

6. Where legal, remove sediment resulting from land disturbing activities from adjacent surfaces and drainageways and/or repair erosion damage to adjacent surfaces and drainageways; and

7. Allow the [administering authority] to enter the site for verifying compliance with the erosion control plan or for performing any work necessary to
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bring the site into compliance with the erosion control plan.

Sec. 9 INSPECTION
To ensure compliance with the erosion control plan, the [administering authority] shall inspect sites having ongoing land disturbing activities at least once a month during the period between March 1 and November 30 and at least twice during the period between December 1 and February 28.

If land disturbing activities are being carried out without a permit, the [administering authority] shall issue a stop-work order pursuant to the provisions of IC § 36-1-4-11 and IC § 36-1-6-2.

Sec. 10 ENFORCEMENT
(1) The [administering authority] shall post a stop-work order if:
   (a) Any land disturbing activity regulated under this ordinance is being undertaken without a permit;
   (b) The erosion control plan is not being implemented in good faith; or
   (c) The conditions of the permit are not being met.
(2) Upon appeal to the [administering authority], a stop-work order or the revocation may be retracted.
(3) Ten days after posting a stop-work order, the [administering authority] may issue a notice of intent to the violator stating that 14 days after issuing the notice of intent the [administering authority] will use the surety bond to perform work necessary to provide compliance with this ordinance.

Commentary

Dates may vary among counties, depending upon work opportunities as regulated by climatic conditions.

These statutes provide the authority for local units of government to adopt ordinances and take actions to assure compliance with these ordinances.

Refer to General Principles given in the beginning section of this ordinance.
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(4) If, within five days after notification, a permit holder does not comply with the erosion control plan or permit conditions, the [administering authority] shall revoke the permit.

(5) Any person violating any of the provisions of this ordinance shall be subject to a forfeiture or fine of not less than [$] nor more than [§] and the costs of prosecution for each violation. Each day a violation exists shall constitute a separate offense.

(6) Compliance with the provisions of this ordinance also may be enforced by injunction.

Sec. 11 PROJECT TERMINATION

An orderly and timely termination of a project with land disturbing activities should be planned between all persons involved with a site.

(a) Nearing the end of the project, but prior to final land grading, seeding, and mulching, the person holding the permit should petition, in writing, the [administering authority] to allow the installation of utility lines on the site. Those persons involved in the installation of utility lines shall perform their work promptly to minimize the time period during which some of the land may be left in a relatively unprotected state. After the utility lines have been installed, the person holding the permit shall promptly complete all erosion control activities.

(b) When a project has been completed, the person holding the permit shall petition, in writing, the [administering authority] for approval of erosion control measures which are to remain on the site. The [ad-
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[administering authority] shall subsequently inspect the site to evaluate the adequacy of these control measures.

1. If the erosion control measures are approved, any surety bonds and/or letters of credit shall be released forthrightly. However, maintenance responsibilities (see Sec. 7) shall remain with the person owning the land.

2. If the erosion control measures are not approved because they are not in line with either the erosion control plan or the General Principles of this ordinance, the [administering authority] shall notify, in writing, the person holding the permit of unacceptable features. After a minimum period of two weeks during which corrective measures are taken, a petition, again in writing, may be sent asking the [administering authority] to evaluate the adequacy of the erosion control measures. If, in good faith, the [administering authority] again decides that the erosion control measures are inadequate, the [administering authority] may delay the release of any surety bonds and/or letters of credit for up to two months. After an agreed upon time period of two months or longer has elapsed without corrective measures being taken, the [administering authority] may use the surety bonds to finance changes or additions to the erosion control measures needed to complete the project.
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Sec. 12 ADMINISTRATIVE APPEALS AND JUDICIAL REVIEW

(1) LOCAL EXECUTIVE BODY OR BOARD OF APPEALS

(a) The local Board of Appeals or other similarly designated unit of government shall hear and decide appeals where it is alleged that there is error in any order, decision, or determination made by the [administering authority] in administering this ordinance.

(b) Upon appeal, the Board of Appeals or other similarly designated unit of government may authorize variances from the provisions of this ordinance which are not contrary to the public interest and, where owing to special conditions, a literal enforcement of the provisions of the ordinance will result in unnecessary hinderances.

(c) The Board of Appeals or other similarly designated unit of government shall use the rules, procedures, duties and powers authorized by statute in hearing and deciding appeals and in authorizing variances.

(2) JUDICIAL REVIEW. Final decisions of the [local executive body or Board of Appeals] are subject to review by [the court of record of the county, city, or town] provided an appeal is filed within 30 days from the date of the final decision of the [Board of Appeals or local governing body].

Commentary

The language of this section can vary considerably, depending upon local government structure. Indiana Code § 36-7-4 provides extensive definition of the manner in which zoning processes can deal with the appeals procedure and authorizing variances.