THE NATURE AND EXTENT OF SOIL EROSION AND SEDIMENT CONTROL REGULATIONS IN MICHIGAN

Thesis for the Degree of M. S. MICHIGAN STATE UNIVERSITY Dale Dennis Kraus 1972

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ABSTRACT

THE NATURE AND EXTENT OF SOIL EROSION AND SEDIMENT CONTROL REGULATIONS IN MICHIGAN

By

Dale Dennis Kraus

Erosion and sediment, once thought of as rural problems, are causing extensive damage to the soil and water resources of developing urban and suburban areas. As such, it is becoming important that soil and water resources be managed and controlled as a whole and not on a fragmented basis by a few individual units of local government.

This study was designed to determine the nature and extent of soil erosion and sediment control regulations in Michigan. To accomplish this objective, existing federal, State, and local regulatory control procedures were examined. A questionnaire was used to determine the status of existing local soil erosion and sediment control ordinances. Accordingly the status of related zoning ordinances, subdivision regulations, building codes and housing codes were examined. An index was designed and used to rate the prominent provisions contained in the local soil erosion and sediment control ordinances reviewed. Sediment is a declared water pollutant, and its control is a function of both federal and Michigan governmental units. However, on the whole, statewide regulatory controls for soil erosion and sedimentation are found to be non-existant.

While the role of local governmental units to control soil erosion and sedimentation is increasing, their regulatory controls are not functionally coordinated. Accordingly, local soil conservation districts lack adequate powers to enforce the implementation and maintenance of soil erosion and sediment controls.

New legislation needs to be implemented to provide statewide minimum standards and formats for local units of government to adopt and implement soil erosion and sediment controls. Erosion and sediment control regulations should be coordinated along with the total concept of land use planning; yet they should remain flexible to meet the needs of individual areas.

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By

Dale Dennis Kraus

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

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Department of Resource Development



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CHAPTER I

INTRODUCTION

In an era of rapidly expanding suburbs, extensive alteration of the landscape, and intensive use of land is resulting in serious soil and water problems. Erosion resulting in sediment, once thought to be an exclusively rural problem, has become a serious problem in urban and suburban areas. Erosion and sedimentation from nonagricultural uses such as housing developments, industrial sites, roads, and recreational areas are making necessary costly repairs to gullys, washed out fills, roads, and embankments. The products of erosion clogs storm sewers and road ditches, muddies streams and silts lakes, rivers, and reservoirs.

Programs to alleviate such problems must be rooted in law. Without a legal foundation, program effectiveness becomes merely a phrase and program accomplishment merely an illusion.¹

¹Mel D. Powell, William C. Winter, and William P. Bodwitch, <u>Community Action Guidebook for Soil Erosion and</u> <u>Sediment Control</u> (Washington, D.C.: National Association of Counties Research Foundation, 1970), p. 18.

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Michigan has known two great population displacements --the first from farms to cities and the second from the cities to the suburbs. "In 1900, only 39 per cent of Michigan's 2.4 million residents lived in urban areas, . . ." "In 1966, over 90 per cent of Michigan's 8.1 million residents lived in urban or suburban areas, . . ."² The rate at which this change is occuring emphasizes the importance of the developing and implementing regulatory controls concerning Michigan's soil and water resources. Figure 1 illustrates the trends of Michigan's population displacement.

Statement of Purpose

This study is designed to explore the nature and extent of soil erosion and sediment control regulations as they exist in Michigan with major emphasis on non-agricultural lands. In order for this purpose to be accomplished, it will be necessary to examine the status of existing ordinances and how they fit into existing planning and regulatory schemes within the various governmental levels within Michigan. In addition to the major goals mentioned above, recommendations will be made concerning the need for new legislation and legislative revision.

²William J. Kimball and Gordon Bachman, "Focus on Land Use in Michigan," in <u>Land Use in Michigan</u>, Extension Bulletin No. 610, Natural Resources Series (E. Lansing: Cooperative Extension Service, Michigan State University, January, 1969), pp. 11-12.



Figure 1.--Michigan's Changing Population Source: U.S. Bureau of Census Dencennial Reports

Problem Description

This study is concerned with the subject of erosion and sediment control regulation within Michigan. Accordingly, the problem to be dealt with is not that of technical or physical measures that might be used to halt erosion or sedimentation, but rather the problem is one of regulatory controls or enforcement. Physical erosion and sedimentation is a recognized problem and the various physical controls needed to reduce its harm are generally available.

Regulatory measures to control erosion and sedimentation are fragmented throughout the vertical hierarchy of legislative jurisdiction. Regulations exist at the state, county, township, and municipal level. Overlapping of local regulatory controls are frequent and often unenforced. Accordingly some areas are effectively void of any type of erosion or sediment control regulation. Ordinances are either non-existant or funds, manpower, and technical knowledge are not available to enforce the regulations.

A study conducted in Kent County in 1969 found that land in the "Developing Urban" category had an erosion rate of 8.48 tons/acre/year as compared to the land in the "Agricultural" category which had an erosion rate of 1.11 tons/acre/year.³ An earlier study conducted in southeastern

³Terry A. Ringler and C. R. Humphrys, <u>Soil Erosion</u> <u>in a Urbanizing Watershed</u>, Research Report No. 133, Natural Resources (East Lansing, Michigan State University and Agricultural Experiment Station, March, 1971), pp. 5-6.



Figure 2.--Erosion from a single home construction site. A local example of the need for non-agricultural erosion and sediment control regulations. East Lansing, Michigan Michigan on a site by site basis, estimated annual soil loss from nine sites in four urbanizing categories at 17 to 540 tons per acre.⁴ Another study conducted in Maryland yielded the following statement:

Because construction denudes the natural cover and exposes the soil beneath, the tonnage of sediment derived by erosion from an acre of ground under construction in developments and highways may esceed 20,000 to 40,000 times the amount eroded from farm and woodlands in an equivalent period of time.⁵

It seems as if regulations need to be established or implemented to deal with erosion rates for the type of examples just stated.

At present there exists no state or regional legislation aimed solely at controlling erosion and sediment. As long as local governmental units or agencies comply with the various enabling statutes, they are free to design and adopt almost any type of ordinance to control erosion and sediment without falling into any overall regional guidelines. Since specific regional or state guidelines are non-existant, local governments may be tempted or encouraged to disregard erosion and sediment controls to attract large scale developments for

⁴J. H. Schmidt and A. W. Summers, "The Effect of Urbanization on Sedimentation in the Clinton River Basin" (Ann Arbor: University of Michigan, 1967).

⁵Ibid., p. 2, M. Gordon Wolman, <u>Problems Posed by</u> <u>Sediment Derived From Construction Activities in Maryland</u> (Report to the Maryland Water Pollution Control Commission, Annapolis 2, Maryland, January, 1964), p. 111.

tax purposes at the cost of proper soil management and ultimate sedimentation to waterways.

Conservation practices are widely known, but their affective implementation on non-agricultural uses such as housing developments, industrial sites, roads, and recreational areas depends largely on the extent to which erosion and sediment controls are adopted and enforced.

Erosion and sediment inflict heavy damages upon local governments, businesses, and citizens. Related financial costs to local communities must be born either through higher taxes or direct expenditures to repair damages to private or public property.⁶ If an existing regional or state regulatory agency is to forcefully regulate erosion and sediment, the problems of manpower, technical aid, and finances need to be overcome.

The problems associated with erosion and sediment control regulation become very complex and inter-related when examined closely. The intensity and number of problems vary from one area to the next, but certain major problems are identifiable to most areas. These being:

 The lack of state or regional guidelines with accompanying minimum erosion and sediment control standards;

⁶Powell, Winter, and Bodwitch, <u>Community Action</u> <u>Guidebook for Soil Erosion and Sediment Control</u>, p. 5.

- The fragmentation and sporadic existence of regulatory controls;
- 3. The lack of adequate inspections and implementation of existing state and local regulations.

Definition of Terms

Common reference for the definition of various terms used throughout this study is essential. The following definitions apply throughout this study unless otherwise indicated.

Erosion refers to soil erosion resulting from the influence of construction activities associated with the natural process of rainfall and its movement of soil particles. Likewise <u>sedimentation</u> refers to soil that has been carried and deposited from the construction site by the action of water. An <u>erosion and sediment control</u> <u>ordinance</u> refers to particular ordinances or sections of existing ordinances that have been designed and/or adopted for the sole purpose of soil erosion and sediment control. As used in this study the term <u>Ordinance</u> refers to a soil erosion and sediment control ordinance. An Ordinance does not include other types of regulatory controls that give brief mention to the erosion and sediment problem.

Other terms used in the description of this study that require a precise definition are given in a Glossary in Appendix A.

History

The first interest in soil erosion and sedimentation did not come from within Michigan nor from within the United States. Terraces were constructed and fields were irrigated long before America was ever discovered.⁷

One of the early efforts to conserve soil and to improve crops in the United States was initiated in the late 1600's.⁸ However, public awareness and concern about soil erosion or conservation was not recognized in the United States until the 1930's. In 1933 the Soil Erosion Service was established under the Department of Interior and 5 million dollars was appropriated for soil erosion prevention work on public and private lands.⁹ In the following years the Dust Bowl of the Great Plains states occurred which consisted of massive dust storms which carried silt particles eastward hundreds of miles. In 1935, the Soil Conservation Service was established in the Department of

⁷Raymond Furon, <u>The Problem of Water: A World</u> <u>Study</u>, trans. by Paul Barens (New York: American Elsevier Publishing Company, Inc., 1967), pp. 42-68.

⁸U.S. Department of Agriculture, <u>Early American Soil</u> <u>Conservationists</u>, Misc. Publications No. 449 (Washington, D.C., October, 1941), p. 58.

⁹History of the Soil Conservation Service in Michigan, Publication for Statewide Training Meeting of Soil Conservation Service: Personnel Committee (April 10-12, 1972), p. 3.

Agriculture and developed into the primary federal agency concerned with soil conservation.

Michigan soils had also taken a heavy toll by 1930 from the rapid expansion of lumbering and farming. Virgin soils were no longer in tact. Erosion by both wind and water had stripped much of the topsoil from cultivated fields and cut over forest lands.¹⁰

In 1929 Act 245 was passed which was the initial legislation responsible for the creation of the Water Resource Commission in the then Michigan Department of Conservation. "By 1930, soil erosion and declining fertility were recognized as acute problems in most sections of Michi-Soil and water conservation became major objectives in gan. the agricultural programs of the then Michigan State College and Cooperative Extension Service."¹¹ In 1935 the first erosion demonstration project in Michigan was established in Berrien County with headquarters at Benton Harbor. Similar demonstration projects were established in the Fenton area in Livingston County and in Grand Traverse County. In 1937 the Michigan Legislature, in Act 297 of the Public Acts of that year, adopted the Soil Conservation Districts Law and the State Soil Conservation Committee was established in the Michigan Department of Agriculture. Subsequently, in 1938,

¹⁰Russess G. Hill, "A Brief History of Soil Conservation Districts in Michigan," (September 5, 1965), pp. 1-2.

¹¹<u>Ibid</u>., pp. 1-2.

Ottawa County adopted the first soil conservation district in Michigan. Since 1938 all eighty-three counties have been included in soil conservation districts with Oceana County organizing into a soil conservation district in the spring of 1972.

The Soil Conservation Districts Act originally contained sections that provided for the adoption and enforcement of land use and treatment regulations. However these sections were repealed in 1945 because districts preferred to make technical assistance in erosion control and land use planning available upon request, rather than through enforcement procedures. As such, the majority of early effort of soil conservation were aimed at the agricultural and rural sectors of Michigan.

It was not until the Spring of 1970 that a local governmental unit adopted the first soil erosion and sediment control ordinance in Michigan.

Michigan's First Soil Erosion and Sediment Control Ordinance

On March 30, 1970, the city of Ann Arbor adopted the state's first erosion and sediment control ordinance (The Ann Arbor Soil Erosion, Sedimentation Control and Land Balance Ordinance). This initial action, along with the continued backing of the State Soil Conservation Service, Districts and Committee has been primarily responsible

for the current movement to adopt local erosion and sediment control ordinances.

As a part of its educational program, the Washtenaw County SCD in recent years has taken upon itself the task of conducting annual citizen conservation tours. Traditionally the tours were rural oriented with emphasis on agricultural conservation practices. However, in recognition of recent land use changes and in recognition of the increasing amount of urbanization taking place in the surrounding area, the 1969 conservation tour was conducted almost entirely within the city limits of Ann Arbor.

Concerned citizens, along with the mayor's committee on Natural Resources, recognized the amount of erosion and sedimentation occurring within the city of Ann Arbor.

Concern grew when a subdivision was approved by the planning board on what the committee felt would be a major sediment-producing area.

Corrective action was taken in the form of an erosion control plan prepared for the developer by the Soil Conservation Service technicians cooperating with the Washtenaw Soil Conservation District. Meetings were held with the developer, Soil Conservation District directors, and planning officials. A voluntary agreement was reached to control erosion and the resulting sediment during the construction of this particular subdivision.

The committee members, feeling this was not enough, then started aggressive action that would require all developers to include erosion control measures on any future projects. Working with officials, Soil Conservation District directors, builders, and planners, this committee set up a task force to examine and develop workable procedures for controlling erosion on developing areas.

In the meantime the Washtenaw Soil Conservation District cooperating with the Soil Conservation Service was developing standards and specifications for controlling urban erosion.

After public hearing, revisions, reviews, of both the ordinance and the standards and specifications, Ann Arbor became the first municipality in Michigan to pass an ordinance controlling erosion on construction sites.¹²

The above development and adoption of the ordinance represents only the second stage of controlling erosion and sedimentation. The first stage consists of the physical methods and technical skills to halt erosion and sedimentation. These methods are readily available. However, the third stage of enforcing erosion and sedimentation controls remains to be accomplished.

Following the adoption of Ann Arbor's city ordinance, the State Office of the U.S. Soil Conservation Service developed and distributed a model ordinance to local soil conservation districts. The districts in turn worked with other local units of government to encourage some type of erosion and sediment controls. In some instances this model ordinance was adopted as either a county or township ordinance with only minor alterations.

It was through these types of mediums that local governmental units became aware of the availability of erosion and sediment control ordinances as a means to regulate non-agricultural caused erosion and sedimentation.

¹²Robert G. Halstead, "Urban Sediment Control in Action," A Presentation at the Annual Meeting of the Soil Conservation Society of America (Columbus, Ohio, August 17, 1971), pp. 5-6.

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CHAPTER II

EROSION AND SEDIMENT CONTROL LEGISLATION

There are many statutes, enabling acts and regulatory agencies related to the environmental spectrum having influence over erosion and sediment control. They range in number and scope from the federal level to the village level. Most controls tend to be of a general nature, allowing the next smaller unit of government on the vertical scale to pre-empt the broader controls by the meeting of minimum standards.

Federal Regulation

As a result of the Water Quality Act of 1965, amended by the Clean Water Restoration Act of 1966, all states are required to enact water quality standards related to interstate waters or have such standards established by the federal government by default.¹ Pursuant to the Water Quality Act, standards must "enhance the quality" of waters and be accompanied by a plan for implementation and

¹"The purpose of this act is to enhance the quality and value of our water resources and to establish a national policy for the prevention, control, and abatement of water pollution." 79 Stat. 903 (1965); 33 U.S.C. Sec. 466, (1964 Supp. V.).

enforcement. Accordingly the water quality standards of all states are subject to review and approved by the appropriate federal agency.

Federal water quality standards declare that turbidity is a pollutant where it interferes with the beneficial use of water. Sediment thereby falls under the provision of the Water Quality Act of 1965 and the Federal Pollution Control Act of 1970.²

A Federal Water Pollution Control Administration was subsequently established under the 1965 Water Quality Act to deal with matters concerning water pollution and placed in the Department of Health, Education, and Welfare. Since its creation, the Federal Water Pollution Control Administration has been transferred to the Department of Interior in 1966 and again transferred to the Environmental Protection Agency in 1970. The Environmental Protection Agency now heads most of the pollution control and abatement activities previously assigned to the various federal departments and agencies.³

²62 Stat. 1155 (1948) as amended, 33 U.S.C. 446 to 446g, 466h to 466k, Amended Water Pollution Control Act Amendment of 1956, 70 Stat. 498 Federal Water Pollution Control Act Amendment of 1961, 75 Stat. 204; Water Quality Act 1965, 79 Stat. 903; Clean Water Restoration Act of 1966, 80 Stat. 1246, and the Federal Water Pollution Control Act of 1970, 33 U.S.C., as last amended by Pub. L. 91-224, 84 Stat. 91 (1970).

³Environment Reporter, "Federal Laws," pp. 51: 1601-1901.

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The U.S. Soil Conservation Service of the Department of Agriculture has taken the lead in the physical aspects of erosion and sediment control since its creation in 1935. The Soil Conservation Service functions to "assist" conservation districts, communities, watershed groups, federal and state agencies, and other cooperators with erosion control and water management problems in bringing about needed physical adjustments in land use. The purpose of the Soil Conservation Service is to conserve soil and water resources, improve agriculture and reduce damages caused by floods and sedimentation.⁴

Public Law 566 (The Watershed Protection and Flood Prevention Act) provides for cooperation between the federal government and the states and their subdivisions in a program to prevent erosion, flood water and sediment damages in watersheds.

In addition the Army Corps of Engineers, the Department of the Interior, and Transportation all as a matter of policy must deal with erosion and sedimentation. Accordingly they must cooperate with state and local governmental units to restrict and control erosion and sedimentation.

Michigan Regulations

On the state level, the Michigan Department of Agriculture, the Michigan Department of Natural Resources,

⁴Ibid., pp. 51: 0241-0501.

and the Department of State Highways, as a matter of policy, must cooperate with both federal and local units of government to curb erosion and sedimentation. However, the primary responsibility for this type of control lies at the state level.

The tenth amendment to the United States Constitution implies that the power to control natural resources be intrusted to the states.

The power not delegated to the United States by the Constitution nor prohibited by it to the States are reserved to the States respectively, or to the people.

The Michigan Constitution reaffirms the U.S. Constitution by stating in Article 4, Section 52:

The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety, and general welfare of the people. The Legislature shall provide for the protection of the air, water, and other natural resources of the state from pollution, impairment, and destruction.

Thus Michigan has ample authority and responsibility to establish regulatory controls restricting soil erosion and sedimentation.

Upon review of existing statutes, there is no specific regulations pertaining to erosion and sediment control. The State Soil Conservation Committee, under the provisions of Act 297 of the Public Acts of 1937, is established in the Michigan Department of Agriculture. The Committee has the function of "helping" local soil conservation districts to organize, administer, and coordinate their various programs. The local conservation districts are also entities of state government, but their function is likewise one of assisting, cooperating, and studying.

The Water Resource Commission in the Department of Natural Resources has the responsibility of applying water quality standards as specified by the Federal Water Quality Act and the Michigan Water Resource Commission Act. The Water Resource Commission adopted interstate water quality standards on June 28, 1967, and adopted intrastate water quality standards on January 4, 1968. Both of these standards recognize "suspended collodial and settleable materials" as a parameter of water quality--"No Objectionable unatural turbidity, color, or deposit in quantities sufficient to interfere with designated use."⁵

Section 6 of the Water Resource Commission Act, Public Act No. 245 of 1929, as amended reads

It shall be unlawful for any person directly or indirectly to discharge into the waters of the state any substance which is or may become injurious to the public health, safety, or welfare; or which is or may become injurious to domestic, commercial, industrial, agricultural, recreational, or other uses which are being or may be made of such waters; or which is or may become injurious to the value or utility of riparian lands; or which is or may become injurious to livestock, wild animals, birds, fish, aquatic life or plants or the growth or propagation thereof be prevented

⁵Water Resource Commission, Dept. of Natural Resources, State of Michigan, "Use Designation Areas for Michigan's Intrastate Water Quality Standards," (March, 1969), p. 5.

or injuriously affected; or whereby the value of fish and game is or may be destroyed or impaired.⁶

Thus it seems that the Water Resource Commission has at least the authority to monitor sediment pollution.

In April of 1971 a "Soil Erosion and Sediment Control Act" was introduced in the Michigan House of Representatives (substitute for House Bill-4709).⁷ The progress of the Bill has been delayed for various reasons and currently (June, 1972) it is in the Committee on Conservation and Recreation. The preface of H.B.-4709 reads

A bill to provide for the control of soil erosion; to protect the waters of the state from sedimentation; to prescribe the function of a state program; to promote for the promulgation of rules; and to provide remedies for violations.

H.B.-4709 also provides for statewide uniformity and requires that local units of government enforce the adopted rules and standards prescribed in the Bill.

A recent study conducted in Michigan concerning the power and the functions of local government indicates a need for structural reorganization. A need was found to exist for developing and implementing a comprehensive plan for an interrelated and interdependent system of local governments involving counties, townships, villages, and cities. Such reorganization is possible by strengthening the structure,

⁷See Appendix D for a copy of House Bill 4709.

⁶Michigan Compiled Laws Annotated (St. Paul, Minn., West Publishing Co., Vol. 16, 1967), sec. 323.6.

powers, and functions of local units of government, provided clear policies related to intergovernmental relationships are established.⁸

One of the recommendations contained in the published portion of the above final study states, "It is recommended that the State be organized into regional districts for all planning and development activities."⁹ If such reorganization does develop, it may well provide an avenue for the coordination of minimum erosion and sediment control guidelines.

Local Controls

The Federal government and the state of Michigan have the authority and the capacity to offer guidelines and assistance to local governmental units confronted with erosion and sediment problems. However, the bulk of the responsibility to control a problem of this type must come from concerned citizens, professional conservationists, businesses, and most importantly from local officials. Decisions on how local resources are to be allocated and

⁸Subcommittee on Local Government Powers and Functions, "Position Statement on Local Government Powers and Functions: Third Report to the Governor's Special Commission on Local Government," (August 31, 1971), pp. 28-31.

⁹Governor's Commission on Local Government, <u>Report</u> of the Governor's Special Commission on Local Government, (March, 1972), p. 9.

used should incorporate local opinion and legal authority from the existing enabling laws.

Most types of local controls are implemented through one of the following types of ordinances, codes, regulations, or administrative rulings:

- A <u>Zoning Ordinance</u> which recognizes the physical limitations of soils, topography, existing and future land use plans;
- A <u>Subdivision Regulation</u> designed to promote the installation of adequate storm sewers and drainage facilities by the orderly layout and use of land;
- 3. A Flood Plain Ordinance which limits the extent and intensity of development in the designated flood plain;
- A <u>Building or Housing Code</u> which contains special procedures for soil stability and drainage;
- 5. A <u>Soil Erosion and Sediment Control Ordinance</u> separately adopted specifically to control nonagricultural based erosion and sedimentation.¹⁰

In Michigan, enabling statutes exist for the creation of regional, county, township, and municipal bodies. A local

¹⁰Powell, Winter, and Bodwitch, <u>Community Action</u> Guidebook for Soil Erosion and <u>Sediment Control</u>, pp. 7-12.

governmental body which contains any semblance to the previous mentioned codes, regulations or ordinances has the capacity to incorporate an erosion and sediment control amendment or the capability to develop and adopt a separate Ordinance.

It should be noted that when individual units of local government sporadically adopt regulations to control a problem of this type, certain areas are left without adequate regulations. Areas void of adequate zoning, subdivision, flood-plain, building and housing, or specific erosion and sediment control regulations then tend to attract developers because of the lack of adequate controls.

Existing Erosion and Sediment Control Ordinances

The status of existing erosion and sediment control ordinances is a difficult task to monitor on a statewide basis. Lines of communication are often lacking or corroded from non-use. However, Ordinances were found to exist at the city, township, and county level.

In March of this year a questionnaire was mailed to the seventy-one work unit offices of the Soil Conservation Service in Michigan via the State Conservationist.¹¹ The questionnaire asked for information concerning new or revised erosion and sediment control ordinances that have been

¹¹See Appendix B for a copy of the questionnaire.

adopted by local units of government. Also the questionnaire asked for Ordinances that were in the various stages of development. By the May 1st deadline, sixty-three of the work units replied.

All adopted Ordinances that were indicated in the questionnaire were obtained and reviewed to see if they were consistent with the earlier definition of an erosion and sediment control ordinance. Upon review, it was found that seven Ordinances were in existence that met the requirements of the earlier definition. These consisted of three county Ordinances, three township Ordinances, and one city Ordinance. In addition to the ordinances adopted, thirty-nine Ordinances were indicated in the development stage. Of these, nine were county Ordinances, twenty-seven were township Ordinances, and three were city Ordinances. (See Table 1.)

The exact number of erosion and sediment control ordinances is not the important measure to be stressed. It has been established that at least seven local Ordinances are in existence in Michigan and that several more are being considered for adoption.

As implied earlier, not all of the Ordinances indicated in the Soil Conservation Service questionnaire met the required definition of an erosion and sediment control ordinance. The questionnaire indicated that fifteen townships in Kalamazoo County had adopted such Ordinances. Upon
Governmental	Ado	pted Ordina	inces	Dev.
Level	Zoning Ord.	Sub. Reg.	Separate Ord.	Stages
City			1	3
Township	1	2		27
County	2		1	9

TABLE 1.--Soil Erosion and Sediment Control Ordinances.

examination it was revealed that the townships actually had adopted a model subdivision control ordinance without any specific mention or provision for erosion or sediment control. As such they were not credited to be erosion and sediment control Ordinances.

Local Commissions, Ordinances, Regulations, and Codes

Planning, zoning, subdivision, and building controls are well within the related spectrum of methods for controlling erosion and sediment. Indeed, many of the existing erosion and sediment controls are found within the framework of existing codes and ordinances.

Before proceeding further it may be well to delineate the difference between the functions of planning, zoning, and subdivision controls. Planning can be defined as: "intelligent forethought applied to the development of a community."¹²

¹²Soil Conservation Society of America, <u>Planning and</u> <u>Zoning for Better Resource Use</u>, (No Date), p. 3.

Or in more general terms: "the process of preparing programs or courses of action for accomplished land use objectives."¹³ Zoning, on the other hand, "is a basic regulatory technique to carry out the land use portion of a plan."¹⁴ Zoning is the major police power employed to control land use. It classifies and segregates the land according to its permitted use. Subdivision controls also provide for the orderly use of land, but their prime objective is somewhat more specific. They tell the landowner what he can and cannot do in dividing his land into lots and selling them for development.

In Michigan, planning commissions can be adopted on the regional, county, township, or municipal level. Zoning boards or commissions may be adopted on the county, township, and municipal level. Likewise subdivision controls may also be adopted on the county, township, and municipal level. As a result of this array of organizational tools, jurisdictional overlap exists which may cause fragmentation, duplication, and competition between the various levels of local government.¹⁵

¹³Frank P. Grad, "Land Use Planning," <u>Environmental</u> Law (New York: Matthew Bender & Company, 1971), Ch. 8, p. 17.

¹⁴Soil Conservation Society of America, <u>Planning and</u> <u>Zoning for Better Resource Use</u>, p. 3.

¹⁵Office of Planning Coordination, <u>Statewide Inven-</u> tory of Community and Area Planning in Michigan, Technical Report A-332, (February, 1970).

In reference to the <u>Statewide Inventory of Community</u> and Area Planning in Michigan, the following represent some of the major findings listed in the study:

- --A planning or zoning organization is found in all but two counties of the state.
- --More than half of the adopted zoning ordinances have been initiated without an existing or future land use plan as a guide.
- --Of all the levels of local government, cities are most heavily involved in the planning process.

Tables 2, 3, and 4 are illustrative of the status of existing local commissions, ordinances, regulations, and codes.

Table 3 indicates that the zoning ordinance is the most commonly adopted type of land use control. On a proportional basis, 44 per cent more of the cities have zoning ` ordinances than townships. Accordingly, 42 per cent more of the cities have subdivision regulations than do townships.

Upon comparison with adopted erosion and sediment control ordinances, it is notable that only one city in Michigan was found to have such an Ordinance. Upon comparison with the erosion and sediment control ordinances indicated by the Soil Conservation Service questionnaire to be in developmental stages, it is found that only three city Ordinances were proposed. It seems that the major

Commissions
ог
Boards
2Planning
TABLE

Enabling Act for		Local (3overnmenta.	l Units		По†а Ге†оТ
Local Gov't Units	Region	County	Township	City	Village	H 5 5 5 7
PA #281 Regional	ъ	1				۲
PA #282 County		63				63
PA #168 Township			197			197
PA #285 Municipal		г	11	206	67	285
Other				19	16	35
Total	ß	65	209	225	83	587
Source: Office c	f Planning Cc	ordinatic wichiczn	on, <u>Statewic</u>	de Inver	itory of Con A-332 (Fob	amunity 1070)

anα Area Flanning in Michigan, Technical Report A-332 (Feb., 1970).

Michigan contains 83 counties; 1,247 townships; 251 incorporated cities; and 281 incorporated villages. (1969) Note:

TABLE 3.--Zoning Boards or Commissions.

Enabling Act for	Ч	ocal Governm	ent Unit	ß	Total
LOCAL GOV'T UNITS	County	Township	City	Village	
PA #183 County Rural	26				26
PA #184 Twp. Rural		393			393
PA #207 City - Village			136	81	217
Total	26	393	136	81	636

Office of Planning Coordination, <u>Statewide Inventory of Community</u> and Area Planning in Michigan, Technical Report A-332 (Feb., 1970). Source:

TABLE 4	-Local Codes,	Ordinances,	and Regulati	ons.		
		ц	ocal Governm	ental Un	its	
Type of F	kegulation	County	Township	City	Village	Total
Zoning		17	479	205	104	805
Subdivisi	uo	6	95	123	38	265
Building		8	333	179	81	601
Housing		m	42	011	23	178
Total		37	949	617	246	1849
Source:	Office of Plan and Area Plann	ning Coordin ing in Michi	ation, <u>State</u> <u>gan</u> , Technic	wide Inv al Repor	entory of Co t A-332 (Feb	mmunity ., 1970).

incentive to adopt erosion and sediment control ordinances is on the township level rather than on the municipal level.

Private Action

The "environmental lawsuit," a private action initiated against actual or potential polluters, may prove to be an invaluable weapon in the fight to reclaim and preserve our natural environment.¹⁶

Until recent years, the major avenue of judicial action available to private individuals has been through the common law remedies of trespass or nuisance. However, through the adoption of certain Federal and Michigan statutes, an individual is now granted standing on environmental issues.

On the federal level the Administrative Procedures Act (A.P.A.),¹⁷ along with recent court ruling, would grant standing to individuals or groups who do desire to challenge certain actions relating to erosion or sediment control.¹⁸

¹⁶David W. McMorrow, ed., "The Environmental Lawsuit: Traditional Doctrines and Evolving Theories to Control Pollution," <u>Wayne Law Review</u>, XVI, No. 3 (Summer, 1970), 1084-1135.

¹⁷The Administrative Procedures Act, Public Law No. 89-544 80 Stat. 392 (1966), 5 U.S.C. Sec. 701, 702, 706, (Supp. V, 1965-1969), in Grad, <u>Environmental Law</u>, Ch. 12, p. 83.

¹⁸Court rulings upholding the A.P.A.: Flast v Cohen 392 U.S. 83 (1968); Scenic Hudson Preservation Conference v Federal Power Commission 354 F 2nd 608 (2nd Cir. 1965); Association of Data Processing Service Organization, Inc. v Camp 397 U.S. 150 (1970); <u>Wayne Law Review</u>, XVI, No. 3 (Summer, 1970), 1084-1135.

In short, whenever any person feels that a federal administrative agency has made a decision which does not promote efforts to prevent or eliminate damage to his legally protected interest in the environment he may, as an "aggrieved" person under the authority of <u>Data Processing</u> and the APA, bring an action in federal courts to obtain judicial review of the administrative action.¹⁹

Since all federal lands and projects are under the direction of some federal agency, an individual may bring suit against that agency if he can show that he has been adversely affected or aggrieved within the meaning of a relevant statute.

The National Environmental Policy Act of 1969 requires that,

. . . all agencies of the Federal Government shall . . . identify and develop methods and procedures, . . . which will insure that . . . environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations;²⁰

More specifically the National Environmental Policy Act requires: (1) an environmental impact statement; (2) a list of adverse environmental effects; (3) alternatives to the proposed action; (4) local short-term and long-term effects; and (5) any irreversible and irretrievable commitments on the resources involved in every recommendation or report on proposals for legislation and other federal actions affecting the quality of the human environment.

¹⁹<u>Wayne Law Review</u>, XVI, No. 3, 1093-1094.

²⁰Grad, "Environmental Litigation," <u>Environmental</u> Law, Ch. 12, p. 131. On the state level, Michigan has passed a similar statute enabling private action concerning environmental issues. The Environmental Protection Act, Public Act No. 127 of 1970, implies that any individual or governmental unit may sue or be sued in relation to an environmental issue.

The preface of the Act reads

An Act to provide for actions for declaratory and equitable relief for protection of the air, water or other natural resources and the public trust therein; to prescribe the rights, duties and functions of the attorney general, any political subdivision of the state, any instrumentability or agency of the state or of a political subdivision thereof, any person, partnership, corporation, association, organization, or other legal entity: and to provide for judicial proceedings relative thereto.²¹

Since the Act provides for the protection of the environment, it is logical to assume that the Act would apply to erosion and sediment damage. Thus a concerned individual could then claim that his legal right to a healthy and safe environment has been infringed upon by eroding soil and resulting sedimentation.

Statutes are available at both the federal and state level in Michigan which imply standing for judicial action against erosion and sediment. However, there are several limitations that apply to such environmental lawsuits.

The first limitation is the time factor. Damage from exposed soil may result before the court has time to

²¹Grad, Environmental Law, "Environmental Protection Act of 1970," Ch. 12, p. 148.

hear the case. Accordingly, injunctive relief after the act is of little benefit.

The second limitation is that of the burden-ofproof. The plaintiff initially bears the burden-of-proof. Often it is quite difficult to prove a probable environmental harm. However, under Section (3) of the Michigan Environmental Protection Act, the burden-of-proof is shifted to the defendant if the plaintiff can show a prima facie case that the defendant has caused or is likely to cause pollution.

The third limitation is that of cost. Judicial decisions are very expensive. Often private environmental lawsuits involve the hiring of expert witnesses and highly trained lawyers. However, individual costs can be sometimes lessened by the class-action suits rather than private suits.

Summary

In the absence of statewide guidelines specifically concerned with erosion and sediment control, the legal basis for local regulations is the various enabling statutes adopted by the state government of Michigan. With the authority of enabling legislation, local governments can attempt to regulate development activities to control water runoff, erosion and resulting sedimentation.

In reference to the Water Quality Act of 1965, Michigan has adopted both interstate and intrastate water quality standards. As a result, sediment has been recognized

as a pollutant, and it is subject to the control of the Water Resource Commission. Through the cooperation and technical assistance offered by other branches of State and Federal government, local governments have a fragmental means available to adopt local erosion and sediment control ordinances.

Private action to curb erosion and sedimentation is also available in the form of environmental lawsuits. Both federal and Michigan statutes make environmental litigation possible; however, environmental lawsuits often have limitations of time, the burden-of-proof, and high costs.

CHAPTER III

PROBLEM EXAMINATION

To examine the regulatory nature and extent of erosion and sediment controls in Michigan, the adequacy of existing State Controls will be examined. A method of developing a local erosion and sediment control program will be examined. And, finally, existing erosion and sediment control ordinances will be examined in relation to the provisional standards which they contain.

State Controls

Michigan has at its disposal an array of statutes, departments, and agencies aimed at monitoring and controlling pollution. The question to be examined here is whether Michigan needs additional controls at the state level of government aimed specifically at erosion and sediment control.

Act 17 of the Public Acts of 1921 vests in the Department of Natural Resources the duty to protect and preserve all the natural resources of the state.¹ Soil

¹Michigan Compiled Laws Annotated, XV, Ch. 29.

and water certainly qualify as natural resources, but there is no provision in the Act for the control of suburban, urban, or even rural based erosion.

The Water Resource Commission Act, Act 245 of the Public Acts of 1929 as amended, establishes the existence and function of the Water Resource Commission in the Department of Natural Resources. Section (6) of the Act states that it is unlawful for any person to discharge any "substance" into the waters of the state that is capable of causing "injuries."² As such, Act 245 is primarily a water quality act. It recognizes sediment as a pollutant, but lacks the procedural adequacy for controlling sedimentation problems. The Act is geared toward handling only a small number of cases because of its procedural limitations.

Water pollution control enforcement procedures beginning with the detection of occurring pollution, through staff contact of the source of entity. Staff contacts are made with the polluter seeking prompt attention and early corrective action. Where emergency conditions exist such as a suddenly developing and continuing discharge of serious pollutants, immediate control is requested. If failure to comply promptly with such a request is encountered, injunctive or other emergency action is sought by the Commission.

Where staff contacts do not produce satisfactory prompt solutions and the problem seems amenable to solution through reasonable voluntary effort, the polluters may be called in for a conference.

If a conference is not held or if voluntary action following a conference does not proceed fully and timely, the Commission issues a Notice of Determination and Hearing to the polluters and not less than four weeks nor more than eight weeks thereafter holds

²Michigan Compiled Laws Annotated, XVI, Sec. 323.6.

a hearing on the adoption of a proposed Final Order of Determination, which specifies waste restrictions and sets forth sequential performance dates concluding with the completion of construction of the necessary facilities and placing them in operation.

If the proposed Order is contested, the matter is referred to an employed, qualified Hearing Commissioner who hears the case. The Commissioner then reconvenes its hearing and may adopt the Order proposed by the Hearing Commission.

The recipient may within 15 days after issue, appeal the Final Order of Determination to the Circuit Court.³

A single case of pollution abatement must receive the direct attention of the Water Resource Commission at least twice, and more likely several times.

The Water Resource Commission, which is already occupied with other cases of pollution control, does not have the manpower and time to implement a statewide erosion and sediment control program. Even if manpower, time and funds permitted, the Commission is not in the position to deal with over-land erosion and deposition that does not enter the "waters of the state."

Act 297 of the Public Acts of 1937, the Soil Conservation District Law, provides for the creation of local districts as governmental subdivisions of the state.⁴ They function with the aid of the Soil Conservation Committee, which is a division in the Michigan Department of Agriculture, to provide technical assistance in erosion control

³Water Resource Commission, "Enforcement Procedures: Michigan Water Resource Commission," (Lansing, Michigan, April, 1971).

and land use planning. Although the districts have the power to sue or be sued, they lack enforcement powers which are often necessary to stop erosion and sedimentation in suburban and urban areas. Accordingly soil conservation districts were traditionally agricultural oriented, and have only recently dealt with suburban and urban problems.

Act 288 of the Public Acts of 1967, the Subdivisions Control Act, requires a developer to submit copies of subdivision plats for review to the various local and state agencies that may have interest in its developmental effects. A topographic map showing storm water drainage may be required, but the Act contains no specific provisions for erosion and sediment control.⁵

Subdivision controls offer a possible avenue for residential erosion and sediment control if they are adopted on a coordinated basis and if they contain specific erosion and sediment provisions.⁶ However, subdivision controls apply only to land planned for residential development. Thus furthering the fragmentation of regulatory controls.

The capacity for local units of government to establish local control varies. As indicated earlier, not

⁵Legislative Service Bureau, <u>State of Michigan Laws</u> <u>Relating to Planning</u> (Executive Office of the Governor, <u>LSB-P. No. 94, 1968</u>), Sec. 560.102-.264.

⁶Such examples are Montgomery and Prince George's County in Maryland. Maryland also contains statewide erosion and sediment control legislation.

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all levels of local government contain zoning ordinances, subdivision regulations, building codes or housing codes. The variability of standards and implementation on a local scale without specific statewide legislation leaves the door open to fragmented and inadequate controls.

The Task Force Approach

The task force approach is a method of organizing a local erosion and sediment control program. It typifies the approach used in developing Ann Arbor's "Soil Erosion, Sedimentation Control and Land Balance Ordinance" and similar ordinances adopted in Maryland.⁷

The value of the task force approach lies in its success in promoting a unified and realistic method of controlling erosion and sediment while at the same time encouraging orderly development practices.

In organizing a task force, representatives of local conservation agencies, citizen groups, developers, water management organizations, and units of state and local government are involved in developing a program of control.⁸ By involving as many people as possible there is a lesser chance of resistance between concerned individuals and

⁷Maryland-National Capital Park and Planning Commission, <u>Sediment Control Program</u>, <u>Montgomery County</u>, <u>Maryland</u> (March, 1967) and <u>Sediment Control Program</u> for <u>Prince George's County</u>, <u>Maryland</u> (September, 1968).

⁸Powell, Winter, and Bodwitch, <u>Community Action</u> <u>Guidebook</u> for Soil Erosion and <u>Sediment Control</u>, pp. 7-9.

already existing agencies. Another reason for obtaining involvement of diverse groups in the program is that the manpower resources available to the program can be increased by utilizing the personnel from the various existing groups. For example, soil technicians are generally available from local soil conservation districts, hydrologists are available through the Water Resource Commission, and professional engineers are generally available through local planning or building organizations.

The "Community Action Guidebook for Soil Erosion and Sediment Control" lists five stages in the development of a soil erosion and sediment control program:

 Formal recognition by local elected officials of the need for erosion and sediment control;

Formal recognition accomplishes two objectives: first, it represents an official statement that erosion and sediment problems exist, and, secondly, it establishes the position of "public interest" in favor of erosion and sediment control.

2. Formulation of administrative and legal controls;

The formation of administrative and legal controls is often a timely process. If statewide regulations are in existence, the time to channel authority may be shorter than if specific legislation were non-existent. Accordingly, as in the development of Ann Arbor's Ordinance, it may prove

helpful to have the program operate on a voluntary basis in order that the various parties can make the appropriate adjustments. After the program has been carried on in a trial basis it may then be desirable to structure the legal control and administration in the form of an ordinance.

 Assignment of specific responsibilities to local agencies;

The assignment of responsibilities will vary from one area to the next depending on the existing agencies and governmental units in a specific area. Generally the local planning commission and the local soil conservation district are involved as well as other entities of local government.

 Provisions for on-site inspection and maintenance of control devices;

On-site inspection and maintenance is an important function of local government. Inspection and maintenance insures that erosion and sediment control measures specified in approved project plans are properly installed and maintained.

5. Program evaluation.

Program evaluation is a final phase that is all too often overlooked. Periodic updating and improvement of local regulations are necessary to meet the changing soil, water, and human needs in a suburban or urban area.

⁹<u>Ibid</u>., pp. 8-12.

The task force approach represents only one alternative to local governmental units contemplating the adoption of erosion and sediment control. Such controls are usually in the form of local ordinances, codes or regulations. Following is an examination of the existing erosion and sediment control ordinances in Michigan.

An Erosion and Sediment Control Ordinance Index

There are four major vertical levels of governmental organization in which ordinances may be adopted in Michigan. Within these four levels of government, Ordinances may be adopted either separately or as an amendment to existing local regulations as illustrated in Figure 3.

(General Guidelines)	FEDERAL
(Enabling Statutes)	STATE
	REGIONAL
(Zoning Ordinances, Subdivision Regu- lations, Building	COUNTY
and Housing Codes)	TOWNSHIP
	CITY & VILLAGE

Figure 3.--Governmental Levels at Which Local Ordinances May Be Adopted. Due to the many levels of government and the various types of conjunctive regulations into which erosion and sediment control ordinances may be incorporated, analysis or examination becomes subjective in nature.

The majority of erosion and sediment control ordinances in Michigan have been in existence less than one year. In all instances such ordinances have been in existence less than thirty months. To make a complete field evaluation of the effectiveness of such ordinances would be misleading because of their short operative life. Accordingly, such a procedure would be beyond the scope or purpose of this study.

Instead, the following examination, conclusions and recommendations will be based on an exploratory inquiry into the face value of existing Ordinances and on the alternative modes of control discussed earlier. A general index was designed and applied to existing Ordinances. The underlying assumptions, standards, and the Index are described below.

Criteria and Assumptions

The various standards within the Index were arrived at by drawing upon relevant literature, by discussion with technical and professional personnel confronted with implementing existing Ordinances, and by examining the content of existing Ordinances adopted by the various levels of government.

TABLE 5 (+) (+) (2) (2.0.) (2.0.) (3.R.) (7) (7) (7)	A Soil Erosion and Sediment Con Contains provision; appears to be Provision implied; however, it is Does not contain provision. Separate Erosion and Sediment Con Incorporated in a Zoning Ordinanc Incorporated in a Subdivision Reg Municipal Ordinance. Township Ordinance.	trol des trol trol de.	Ordina uate w tionab Ordina on.	nce In hen fu le if nce.	dex. lly in provis	plemen tion is	ted. adequa	t e	
					Ordina	inces*			
	standards	-	5	m	4	ъ	9	2	*
l. Perm	it Beauirement	+	+	+	+	+	+	+	+
2. Pena	Ities for Violation	+ -	• + •	• + -	• + -	• + -	· + ‹	• + -	0
4. On-S	ite inspection Juring Construction ite Inspection Upon Completion	+ +	10	+ +	+ +	+ +	> +	+ +	1 +
5. Main	tenance Requirement	+	1	+	+	+	+	+	I
6. Fee 7. Bond	& Technical Knowledge Requirement	+ 1	01	01	00	0	+ +	+ +	0 +
8. Coor	dination	0	0	0	0	0	0	• 1	0
	Type of Ordinance	ט י	υ	U	H	E	H	W	E4
		2.0.	Z.O.	E+S	Z.O.	Z.O.	S.R.	E+S	S.R.
*A Key	to the Ordinance numbers is given	i in A	ppendi	ж В					
**Indic and	ated in S.C.S. questionnaire, but sediment control ordinance.	lacke	d defi	nition	al reg	uireme	nts of	an ero	osion

The following assumptions are incorporated into the Index.

- All Ordinances were reviewed in the context in which the particular ordinance was adopted (i.e., a zoning ordinance, subdivision regulation, etc.),
- All Ordinances were reviewed assuming complete legality and constitutionality,
- All Ordinances were reviewed assuming complete implementation.

Standards

The definitions, criteria, and ratings for the standards used in the Index are given below.

1. Permit Reguirement:

Definition--A form of authorization usually given in the form of a license to do grading, stripping, cutting, or filling which is issued by the designated official.

Criteria--A permit necessitates an application and a review procedure for a proposed development. Generally this requires the gathering of preliminary information concerning the site and compells the proprietor to comply with the Ordinance. For example, Article III Section D of the "Ostego County Soil Erosion and Sediment Control Ordinance and Regulations" requires that

Except as exempted by Article V, no person shall do any grading, stripping, cutting or filling unless he had valid grading permit issued by the Zoning Administration.

A separate application shall be required for each grading permit. Plans, specifications and timing schedules shall be submitted with each application for a grading permit. The plans shall be prepared or approved and signed by a professional engineer or by an architect. The Zoning Administrator may waive the preparation or approval and signature by the professional engineer or architect when the work entails no hazard to the adjacent property.

The "Scio Township Subdivision Ordinance" requires authorization in the form of a preliminary plat which must be prepared and approved before development starts. Through both methods of recourse the requirement under the above definition is satisfied.

Ratings--If authorizations or a permit is required, the standard was rated (+) plus. If approval was "encouraged" or implied, it was rated (0) zero. Accordingly, if the Ordinance contained no provision for authorization or a permit, it was rated (-) minus.

2. Penalties for Violation:

Definition--A violation occurs when the performance of any act is required or prohibited under the provision of an Ordinance and the proprietor fails to comply with such a provision. Definition--A penalty occurs when the proprietor has some form of restriction or punishment imposed upon him for a violation.

Criteria--The provisions for violation and penalties strengthen any Ordinance. However, the nature and extent of penalties contained varies from one Ordinance to the next. Penalties may include (1) a monetary fine or imprisonment; (2) a work order or stop work order; (3) a refusal to issue a Certificate of Occupancy; and/or (4) the authority to execute a bond as part of a penalty.

Ratings--An Ordinance which contains three or more of the above four possible penalties was rated (+) plus. If the Ordinance contained less than three, but at least one of the above penalties, it was rated (0) zero. Otherwise, the Ordinance was rated (-) minus.

3. On-Site Inspection During Construction:

Definition--An inspection made by a designated official during construction with specific interest in checking measures used to minimize erosion and sedimentation.

Criteria--The majority of erosion resulting from construction occurs during the construction period. Inspection provides the assurance that on-site activities are proceeding in compliance with approved plans

and regulations within the Ordinance. Article VI, Section A, of Cheboygan's "Soil Erosion and Sediment Control Amendment" to the County Zoning Ordinance reads

The requirements of this article shall be enforced by the Zoning Administrator who shall inspect or require adequate inspection of the work. If the Zoning Administrator finds any existing conditions not as stated in any application, grading permit, or approved plan, he may refuse to approve further work.

Ratings--If the Ordinance "specifically" states that on-site inspection will be made during the construction period it was rated (+) plus. If the Ordinance implied inspection during the construction period, it was rated (0) zero. Where no provision or indication of inspection was listed, the Ordinance was rated (-) minus.

4. On-Site Inspection Upon Completion:

Definition--An inspection made by a designated official upon the completion of construction with specific interest in checking to see if measures used to minimize erosion and sedimentation are in compliance with the Ordinance.

Criteria--Inspection of the site after completion of all construction is required in most instances before a Certificate-of-Occupancy is issued. This provides an opportunity for the inspector to check if the proprietor has complied with the various provisions of the Ordinance.

Ratings--An ordinance which specifies such an inspection was rated (+) plus. An ordinance which implies inspection upon completion was rated (0) zero. Accordingly, an Ordinance which contains no provision for inspection upon completion was rated (-) minus.

5. Maintenance Requirement:

Definition--Maintenance provides for the compliance of erosion and sediment control measures by the proprietor, subsequent owners, or units of local government after construction is complete.

Criteria--Maintenance implies that all permanent erosion control measures, devices, and plantings will be kept in effective working conditions. Maintenance requirement may be made a part of the general maintenance operations of local government, utilizing existing agencies and personal, or maintenance may be the requirement of subsequent owners. Ratings--Ordinances were rated (+) plus if they contained a maintenance provision, (0) zero if they implied maintenance, and (-) minus if no mention was made to the maintenance of erosion and sediment control devices.

6. Fee and Technical Knowledge:

Definition--A fee is a charge placed upon a proprietor when he applies for authorization for construction.

Definition--Technical knowledge refers to the ability and technical assistance the regulatory body and proprietor have or receive from professionals who deal with the physical problems of soil and water.

Criteria--A fee helps to compensate the cost of review, inspection, and enforcement of the provisions of the Ordinance. Inadequate funding is often the cause for less than optimum implementation of the authority contained in the Ordinance. Likewise, without adequate training or technical assistance, the ability to recognize the physical problems concerning erosion and sedimentation may be beyond the knowledge of designated inspectors.

Rating--An Ordinance which contains provisions for both fees and technical knowledge was rated (+) plus. An Ordinance was rated (0) zero if it failed to contain either a provision for fees or technical assistance. Accordingly, an Ordinance was rated (-) minus if it failed to provide provisions for technical training or assistance.

7. Bond Requirement:

Definition--A security deposit given by the proprietor of the site which is held by the regulatory unit in charge. A bond may be in the form of cash or it may be an instrument of credit approved by the regulatory body.

Criteria--A security bond provides for the protection of all exposed soil surfaces should the proprietor decide to delay or stop development. A bond also serves as a source of insurance that the proprietor will comply with the other provisions of the Ordinance.

Rating--If an Ordinance contained a provision for bonds, it was rated (+) plus; otherwise, it was rated (-) minus. In the case where the bond requirement was optional the standard was rated (0) zero.

8. Coordination:

Definition--Compliance with some form of regional or statewide supervision.

Criteria--Coordination of local controls is necessary if erosion and sedimentation are to be stopped on an area wide basis.

Rating--Since Michigan lacks statewide or regional erosion and sedimentation regulations, no Ordinance

was rated (+) plus. If the Ordinance was adopted on the county or township level it was rated (0) zero. If the Ordinance was adopted on the municipal level, it was rated (-) minus. If and when minimum regional or statewide erosion and sediment standards are adopted, local ordinances will then have to coordinate their efforts to comply with such standards.

Although above standards <u>7</u> and <u>8</u> are not considered necessary for the individual units of control, they may be highly advantageous in solving regulatory erosion and sediment problems. A bond requirement provides incentive and acts as an insurance policy for compliance with regulatory provisions. Likewise, areawide coordination helps to put a handle on the physical aspects of sedimentation. Sediment which causes problems in a local jurisdiction may have originated from a different area.

Review

Upon examination of the Index several trends seem to be indicated. All Ordinances contain provisions for permit requirements and for penalties for violation. On-site inspection upon completion and maintenance requirement provisions existed in every case except one. Regional coordination was lacking because of the lack of statewide guidelines. Provisions for bonds in the Ordinances examined seemed to be at the discretion of the particular regulatory

unit. Likewise, the requirements for fees and technical knowledge seemed to be at the descretion of the adopting units. Although on-site inspection during construction was not specified in every case it may nevertheless be carried out to a certain extent. Such provisions are often difficult to access at face value.

In addition to the standards contained in the Index, several other features existed in the Ordinances examined that deserve mentioning.

- All Ordinances contained a section for the definition of terms. Although this may seem somewhat trivial at first, it clearly delineates and identifies the provisions within the Ordinance and the persons required to implement it.
- All Ordinances contained a listing of specific data required by the review board or agency before approval was granted to start construction.
- 3. Except for subdivision regulations, Ordinances did not contain provisions for the meeting of any minimum size standards. Subdivision regulations apply only to sites that meet the local definition of a subdivision. Generally all "sites" were included that were within an Ordinance's jurisdiction.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

The nature of regulatory controls applicable to regulate erosion and sedimentation in Michigan vary considerably. Michigan and federal statutes recognize sediment as a water pollutant, but fail to provide standards for regulating and monitoring erosion. Sediment is monitored to a limited extent by the water quality parameters adopted by the Water Resource Commission, but overland erosion and its deposition are left unchecked. Generally, local Ordinances are sporadic in existence, inconsistent in context, and lack regional or statewide minimum standards.

The following conclusions and recommendations are based on the findings of this study.

Conclusions

- Michigan lacks adequate legislation to regulate the control of erosion and sedimentation as identified in this study.
- 2. The Water Resource Commission presently is incapable of handling the large number of problems related to

erosion and sedimentation under its present water quality standards.

- 3. There is an awareness movement on the part of local units of government concerning the need for adequate erosion and sediment controls.
- Generally there are an adequate number of local governmental units in existence to which erosion and sediment control regulation can be channeled.
- Local soil conservation districts lack adequate authority to enforce recommended conservation practices.
- 6. Existing Ordinances vary in the context in which they were adopted. Ordinances exist separately, or they exist as amendments to zoning or subdivision regulations.
- 7. A bond requirement helps to strengthen an Ordinance.
- Provisions for the assessment of fees aid the procedural requirements of review, inspection, and enforcement.
- 9. Adequate statutory laws exist for individuals or groups to receive standing in a court of law if they can show a reasonable possibility of potential or actual harm.

Recommendations

The purpose of organizing a program for erosion and sediment control is to provide for a consistent, comprehensive, and effective method of controlling erosion and sediment while at the same time causing as little disruption as possible to normal development practices.

 H.B.-4709 takes a giant step in the direction of providing a "unified soil erosion and sedimentation control Program." It is recommended that such a type of bill be adopted and implemented as soon as possible.

Since the H.B.-4709 is sponsored jointly by the Michigan Department of Agriculture and the Water Resource Commission, it is recommended that H.B.-4709 be amended to give local soil conservation district the authority to issue a temporary stop work order at their own discretion until the local unit of government or the Water Resource Commission has the time to take the needed action. It is also recommended that local units of government be made to comply with the minimum specifications of the local soil conservation districts until such a time when regional or statewide standards exist. Likewise, more emphasis needs to be given to all the ramifications of soil erosion and its deposition,

thereby not restricting erosion and sediment controls under the category of a water pollutant.

Accordingly, it is suggested that the procedures contained in Section 7 of the Water Resource Commission Act be modified to deal more rapidly with cases concerning sediment pollution.

- 2. It is recommended that local units of government implement temporary controls aimed at the control of urban and suburban erosion. The temporary controls should include the first seven standards listed in the previously designed Index. After the temporary controls have existed in a trial or voluntary period, they should then be incorporated into a separate or existing permanent ordinance. However, it may be desirable to delay permanent action until Michigan adopts minimum guidelines.
- 3. All units of local government should submit a copy of local land use plans, zoning ordinances, subdivision regulations, building codes and the like, to a statewide agency for review, thereby creating a state depository or library for this type of information. Statewide coordination can be accomplished only if existing local standards are known to regional agencies.

BIBLIOGRAPHY

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BIBLIOGRAPHY

- Albee Township Board of Commissioners. "Albee Township Zoning Ordinance." Saginaw County, Michigan, 1971.
- Billing, Norman. "Sediment Control Legislation." Paper presented at the Governor's Conference on Water Sediment Pollution, Lansing, Michigan, March 11, 1969.
- Cheboygan County Zoning Commission. "Cheboygan County Zoning Ordinance: Soil Erosion and Sediment Control Amendment." 1972.
- City of Ann Arbor. "Soil Erosion, Sedimentation Control and Land Balance Ordinance." March, 1970.
- Collins, Stephen E. "The Local Government's Role in Sediment Control." Division of Research and Standards, Baltimore County, Maryland, June, 1970.
- Extension Land Use Education Committee. Land Use in Michigan. Extension Bulletin No. 610, Natural Resource Series. East Lansing: Cooperative Extension Service, Michigan State University, January, 1969.
- Grad, Frank P. Environmental Law: Sources and Problems. Matthew Bender & Company, Inc., 1972.
- Halstead, Robert G. "Urban Sediment Control in Action." Paper presented at the Annual Meeting of the Soil Conservation Society of America in Columbus, Ohio, August 17, 1971.
- Joint Committee on Water Resource Planning. <u>State of</u> <u>Michigan, Laws Relating to Water</u>. Lansing, Michigan: Legislative Service Bureau, 1966.
- Maryland National Capital Park and Planning Commission. "Sediment Control Program, Montgomery County, Maryland," March, 1967.
- Maryland National Capital Park and Planning Commission. "Sediment Control Program for Prince George's County, Maryland." September, 1968.

- Mason County Zoning Commission. "Mason County Zoning Ordinance: A Land Use Ordinance for Mason County." December, 1971.
- McMorrow, David W., ed. "The Environmental Lawsuit: Traditional Doctrines and Evolving Theories to Control Pollution." <u>Wayne Law Review</u>, XVI, No. 3 (Summer, 1970), Wayne State University, Detroit, Michigan.
- Michigan, House of Representatives, "Substitute for House Bill No. 4709: Soil Erosion and Sedimentation Control Act of 1972." Introduced April 1, 1971, by Representatives Copeland, Goemaere, Smit, et al.
- Michigan. Michigan Compiled Laws, Annotated. (West, 1967).
- Michigan. Michigan Statutes, Annotated. (Callahan and Company, 1958).
- Office of Planning Coordination. Laws Relating to Planning. Lansing, Michigan: Legislative Service Bureau, 1968.
- Office of Planning Coordination. <u>Statewide Inventory of</u> <u>Community and Area Planning in Michigan</u>. Technical Report A-332, February, 1970.
- Oregon Township. "Oregon Township Zoning and Building Ordinance." Lapeer County, Michigan, 1972.
- Ostego County Board of Commissioners. "Ostego County Soil Erosion and Sediment Control Ordinance and Regulations." 1971.
- Powell, Mel D.; Winter, William C.; and Bodwitch, William P. <u>Community Action Guidebook for Soil Erosion and</u> <u>Sediment Control</u>. National Association of Counties Research Foundation, 1970.
- Ringler, Terry A., and Humphrys, C. R. Soil Erosion in an Urbanizing Watershed. Research Report 133, Natural Resources, Michigan State University, March, 1971.
- Schmidt, J. H., and Summers, A. W. "The Effect of Urbanization on Sedimentation in the Clinton River Basin." University of Michigan, 1967.
- Scio Township. "Scio Township Subdivision Ordinance." Washtenaw County, Michigan, 1971.
- Soil Conservation Society of America. <u>Planning and Zoning</u> for Better Land Use. (No date)

- State of Michigan. "Governor's Special Commission on Land Use Report--Appendix A." January, 1972.
- State Soil Conservation Committee, Michigan Department of Agriculture. "Michigan Soil Conservation Districts-Conservation - Self Government." June, 1971.
- U. S. Department of Agriculture--Soil Conservation Service. <u>Multiple-Purpose Watershed Projects</u>. Public Law 566, U.S. Government Printing Office, 1970.
- Water Resource Commission, Michigan Department of Natural Resources. "Enforcement Procedures: Michigan Water Resources Commission." Lansing, Michigan, April, 1971.

APPENDICES

APPENDIX A

APPENDIX A

GLOSSARY OF TERMS

- CERTIFICATION. A signed statement that specific constructions, or tests that were required have been completed to comply with the requirements of adopted regulations.¹
- CONSTRUCTION. The process of developing and building; including grading, stripping, cutting, or filling.
- DEVELOPMENT. The material change in use or appearance of any parcel of land. The act of building structures and installing site improvement.²
- GOVERNMENTAL AGENCY. Means any department, commission, independent agency, or instrumentality of the United States and of the State of Michigan, and any county, city, township, village, or other governmental unit.
- LAND USE. Means a use of land which may result in an earth change and which may result in or contribute to soil erosion and sedimentation, including but not limited to a subdivision and other residential development, an industrial and commercial development, private and public highway and local road and street construction, drainage ditch construction, logging operations, agricultural practices and mining.³
- LOCAL AGENCY. Any instrumentality of regional, county, township, city, or village government.
- PLAT. A map or chart of a subdivision of land.²
- PROPRIETOR. Any person or combination of persons, including a government agency undertaking any development. The term Proprietor includes such commonly used references as subdivider, developer, and owner.

- SEDIMENT. Means solid particulate matter, mineral or organic, that has been deposited in water, is in suspension in water, is being transported, or has been moved from its site of origin by the process of soil erosion.³
- SOIL EROSION. The wearing away of land surface by action of wind, water, gravity or a combination thereof.³
- URBANIZATION. The characteristic of becoming more city-like and less urban.

¹Michigan Soil Conservation Service, "Model for Developing Soil Erosion and Sediment Control Ordinance and Regulations," (1970).

²Washtenaw County Metropolitan Planning Commission, <u>Model Subdivision Regulation Ordinance</u> (Ann Arbor, Michigan, 1970), pp. 4-9.

³Michigan House of Representatives, House Bill No. 4709.

APPENDIX B

SOIL CONSERVATION SERVICE QUESTIONNAIRE

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE Room 101, 1405 South Harrison Road East Lansing, Michigan 48823

March 27, 1972

ADVISORY INTERA - MI - 2

To: Area and District Conservationists

Fr: Arthur H. Cratty, State Conservationist

Re: INTERA-16 States, Counties, etc.

Action required by May 1, 1972

We are interested in obtaining a state listing of the new or revised erosion and sediment control ordinances that have been adopted by units of government, and those that presently are in the development stage.

Please complete the following questionnaire and return to Palmer G. Skalland through channels.

Work Unit_____

Name of the unit of government	Approximate Date Ordinances Adopted	Ordinances in the Development Stage

Results of

Soil Conservation Service

Questionnaire

	Adopted Ordinances		Development Stages			
Work Units	County	Township	City	County	Township	City
Area l: Chatham Crystal Falls Escanaba					1	
Houghton Kingsford				1	1	
Manistique	-	-	-	-	-	-
Ontonagon				_		
Stephenson	-	-	-	-	-	-
Area 2: Bellaire Beulab				1		
Boyne City Cadillac Kalkaska Lake Leelanau Onekama Reed City				T	1	
Scottville Traverse City	1					
Area 3: Alpena Cheboygan	1			2	12	
East Tawas Gaylord	1			T		
Gladwin Harrison Harrisville Pogora Citu	-	-	-	-	- - 1	-
Roscommon Standish West Branch	-	-	-	1 -	-	-
Area 4: Allegan Big Rapids Cassoplis Centerville Fremont				1		
Grand Haven						

65

	Adopted Ordinances			Development Stages		
Work Units	County	Township	City	County	Township	City
Grand Rapids Hastings Ionia Kalamazoo Muskegon Paw Paw St. Joseph	-	- *15	-	- 1	-	-
Area 5: Bad Axe Bay City Caro Corounna						
Ithaca Lapeer Midland Mt. Morris		1		1	3 2	
Port Huron Saginaw Sandusky St. Johns		1				
Area 6: Adrain Ann Arbor Charlotte Coldwater Hillsdale Howell		1	1		1	1
Jackson Mason Marshall Monroe					1	
Mt. Clemens Pontiac Wayne					2	
Total	3	3	1	9	27	3

*Lacked definitional requirements of an erosion and sediment control ordinance.

(-) Work units that failed to answer questionnaire.

Key to Ordinance Numbers⁺

No.	Name
1	"Cheboygan County Zoning Ordinance."
2	"Mason County Zoning Ordinance."
3	"Otsego County Soil Erosion and Sediment Control Ordinance and Regulations."
4	"Albee Township Zoning Ordinance," (Saginaw County)
5	"Oregon Township Zoning and Building Ordinance," (Lapeer County)
6	"Scio Township Subdivision Ordinance," (Washtenaw County)
7	"Ann Arbor's Soil Erosion, Sedimentation Control and Land Balance Ordinance," (City of Ann Arbor, Michigan)
*	"Kalamazoo Model Subdivision Control Ordinance"

⁺As used in the designed Index.

APPENDIX C

MODEL FOR DEVELOPING SOIL EROSION AND SEDIMENT CONTROL ORDINANCE AND REGULATIONS

An Ordinance to establish rules and regulations for controlling soil erosion and sedimentation within all development in the County of

The	(Jurisdiction)	 County,	Michigan
Orda	ins:		

ARTICLE I TITLE AND PURPOSE

A. TITLE

This Ordinance will be known as the "_____ County Soil Erosion and Sediment Control Ordinance."

B. PURPOSE

Excessive quantities of soil are eroding from areas that are undergoing development for non-agricultural uses such as housing developments, industrial sites, roads, recreation and wildlife areas. This soil erosion makes necessary costly repairs to gullys, washed out fills, roads, and embankments. The resulting sediment clogs storm sewers and road ditches, muddies streams and silts lakes, rivers and reservoirs. Sediment is expensive to remove and limits the use of water for most beneficial purposes. Sediment choked streams are unsightly and their reduced channel capacity can result in flooding and associated damages, including the threat to public health and safety. The purpose of this ordinance is to control soil erosion and the resulting sedimentation from occuring on developing areas by requiring proper provisions for water disposal and the protection of soil surfaces during and after construction in order to promote the safety, public health, convenience and general welfare of the Community.

ARTICLE II DEFINITIONS

A. RULES_APPLYING TO TEXT

For the purpose of this Ordinance certain rules of construction apply to the text as follows:

- Words used in the present tense include the future tense; and the singular includes the plural, unless the context clearly indicates the contrary.
- The term "shall" is always mandatory and not discretionary; the word "may" is permissive.
- The word or term not interpreted or defined by article shall be used with a meaning of common or standard utilization.

B. DEFINITIONS

The following definitions shall apply in the interpretation and enforcement of this Ordinance, unless otherwise specifically stated:

- <u>Certification</u>: A signed, written statement by the (Designated Official) that specific constructions, inspections or tests where required have been performed and that such comply with the applicable requirements of this Ordinance or regulations adopted.
- <u>Cut</u>: Portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to excavated surface.
- 3. <u>Debris Basin</u>: A barrier or dam built across a waterway or at other suitable locations to retain rock, sand, gravel, or silt or other material.
- <u>Diversion</u>: A channel with or without a supporting ridge on the lower side constructed across or at the bottom of a slope.
- <u>Embankment</u>: A man-made deposit of soil, rock or other materials.
- Erosion: The wearing away of the land surface by the action of wind, water or gravity.
- 7. Excavation: See Cut.

- <u>Existing Grade</u>: The vertical location of the existing ground surface prior to cutting or filling.
- 9. Fill: See Embankment.
- 10. <u>Finished Grade</u>: The final grade or elevation of the ground surface conforming to the proposed design.
- 11. <u>Grading</u>: Any stripping, cutting, filling, stockpiling, or any combination thereof and shall include the land in its cut or filled condition.
- 12. <u>Grading Permit</u>: A permit issued to authorize work to be performed under this Ordinance.
- 13. <u>Grassed Waterway</u>: A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct surface water from a field, diversion or other site feature.
- 14. <u>Mulching</u>: The application of plant or other suitable materials on the soil surface to conserve moisture, hold soil in place, and aid in establishing plant cover.
- 15. <u>Natural Ground Surface</u>: The ground surface in its original state before any grading, excavation or filling.

- 16. <u>Permittee</u>: Any person to whom a permit is issued in accordance with this Ordinance.
- 17. <u>Professional Engineer</u>: An engineer duly registered or otherwise authorized by the State of Michigan to practice in the field of civil engineering.
- 18. <u>Regulated Grading</u>: Any grading performed with the approval of and in accordance with criteria established by the (Designated Official).
- 19. <u>Sediment</u>: Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, or gravity as a product of erosion.
- 20. Sediment Basin: See Debris Basin.
- 21. <u>Sediment Pool</u>: The reservoir space allotted to the accumulation of submerged sediment during the life of the structure.
- 22. <u>Slope</u>: Degree of deviation of a surface from the horizontal usually expressed in percent or degree.
- 23. <u>Soil</u>: All unconsolidated mineral and organic material of whatever origin that overlies bedrock which can be readily excavated.

- 24. <u>Soil Engineer</u>: A professional engineer who is qualified by education and experience to practice applied soil mechanics and foundation engineering.
- 25. <u>Site</u>: Any plot or parcel of land or combination of contiguous lots or parcels of land where grading is performed or permitted.
- 26. <u>Stripping</u>: Any activity which removes or significantly disturbs the vegetative surface cover including clearing and grubbing operations.
- 28. <u>Structural Rock Fills</u>: Fills constructed predominantly of rock materials for the purpose of supporting structures.
- 29. <u>Temporary Protection</u>: Stabilizations of erosive or sediment producing areas.
- 30. <u>Vegetative Protection</u>: Stabilizations of erosive or sediment producting areas by covering the soil with:
 - Permanent seeding, producing long-term
 vegetative cover,
 - b. Short-Term seeding producing temporary vegetative cover, or
 - c. Sodding, producing areas covered with a turf of perennial sod-forming grass.
- 31. <u>Watercourse</u>: Any natural or artificial watercourse, stream, river, creek, ditch, channel, canal, conduit, culvert, drain, waterway, gully,

ravine or wash in which water flows in a definite direction or course, either continuously or intermittently, and which has a definite channel, bed and banks, and shall include any area adjacent thereto subject to inundation by reason of overflow or flood water.

- 32. <u>County Drain Commissioner</u>: The (_____) County Drain Commissioner.
- 33. <u>County Health Department</u>: The (_____) County Health Department.
- 34. <u>County Planning Commission</u>: The (_____) County Metropolitan Planning Commission.
- 35. <u>County Plat Board</u>: The (_____) County Plat Board.
- 36. <u>County Road Commission</u>: The (_____) County Road Commission.
- 37. <u>Government Agency</u>: Means any department, commission, independent agency, or instrumentality of the United States and of the State of Michigan, and any county, city, township, village, authority district, or other governmental unit.

ARTICLE III APPLICATION PROCEDURE

A. INITIAL

The developer is encouraged to consult the general development plans and detailed plans of any unit of government that effect the tract to be developed and the area surrounding it before he submits a preliminary plat for review. He should also become acquainted with the zoning ordinance, standards and requirements, this ordinance, and other ordinances which regulate the development of land in the County. He should also discuss the concepts of the proposed development with the (_____) Planning Commission and with the staff of the (_____) Metropolitan Planning Commission.

B. COMPLIANCE

No site plan or plat shall be approved unless it includes soil erosion and sediment control measures in accordance with the technical standards of the local Soil Conservation District. No approval for occupancy of any building will be granted unless all needed erosion control measures have been completed or substantially provided for in accordance with this ordinance and the standards and specifications of the local Soil Conservation District. The developer shall bear the final responsibility for the installation and construction of all required erosion control measures

according to the provisions of this ordinance and to the standards and specifications of the local Soil Conservation District.

C. DATA REQUIRED

The developer must submit the following information for the entire tract of land, whether or not the tract will be developed in stages:

- A boundary line survey of the site on which the work is to be performed.
- Description of the features, existing and proposed, surrounding the site of importance to the proposed development.
- 3. Description of general topographic and general soil conditions on the site (available from the (_____) Planning Commission or the Soil Conservation District.
- Location and description of existing and future man-made features of importance to the proposed development.
- 5. Plans and specifications of soil erosion and sedimentation control measures in accordance with standards and specifications of the Soil Conservation District.
- A timing schedule indicating the anticipated starting and completion dates of the development

sequence and the time of exposure of each area prior to the completion of effective erosion and sediment control measures.

D. PERMITS

- <u>Requirement</u>: Except as exempted by Article V, no person shall do any grading, stripping, cutting or filling unless he has valid grading permit issued by the (Designated Official).
- 2. <u>Application</u>: A separate application shall be required for each grading permit. Plans, specifications and timing schedules shall be submitted with each application for a grading permit. The plans shall be prepared or approved and signed by a professional engineer or by an architect. The (Designated Official) may waive the preparation or approval and signature by the professional engineer or architect when the work entails no hazard to the adjacent property.

ARTICLE IV PRINCIPLES AND STANDARDS

A. IMPLEMENTATION

Since considerable soil erosion can take place during construction, development plans shall contain proposed erosion and sediment control measures. These measures

shall be incorporated into the final plat and final construction drawings. Erosion and sediment control measures shall conform to the standards and specifications established by the (______) Soil Conservation District. The measures shall apply to all features of the construction site, including street and utility installations as well as to the protection of individual lots. Measures shall also be instituted to prevent or control erosion and sedimentation during the various stages of development.

B. GENERAL DESIGN PRINCIPLES

Practical combinations of the following general principles will provide effective sediment control when properly planned and applied:

- The development plan shall be fitted to the topography and soils so as to create the least erosion potential.
- 2. Permanent vegetation and improvements such as streets, storm sewers or other features of the development, capable of carrying storm run-off in a safe manner, shall be scheduled for installation to the greatest extent possible before removing vegetation cover from an area.
- Whenever feasible, natural vegetation shall be retained and protected.

- 4. Where inadequate vegetation exists, temporary or permanent vegetation shall be established.
- 5. The smallest practical area of land shall be exposed at any one time during development.
- 6. When land is exposed during development, the exposure shall be kept to the shortest practical period of time.
- Critical areas exposed during construction shall be protected with temporary vegetation and/or mulching.
- 8. Sediment basins (debris basins, desilting basins, or silt traps) shall be installed and maintained to remove sediment from run-off waters from land undergoing development.
- 9. Provisions shall be made to effectively accomodate the increased run-off caused by changed soil and surface conditions during and after development.
- 10. The permanent final vegetation and structures shall be installed as soon as practical in the development.

C. DEVELOPMENTAL STANDARDS

All development plans, specifications and timing schedules, including extentions of previously approved plans, shall include provisions for erosion and sediment control in accordance with the standards and specifications established by the (_____) Soil Conservation District.

 Technical standards for the design and installation of erosion and sediment control measures are on file at the offices of the (_____) Soil Conservation District and other governmental agencies.

D. MAINTENANCE

Individuals or developers carrying out soil erosion and sediment control measures under this Ordinance, and all subsequent owners of property on which such measures have been installed, shall adequately maintain all permanent erosion control measures, devices and plantings in effective working condition.

ARTICLE V VARIANCES AND EXCEPTIONS

The (Legislative Body of Jurisdiction) shall have the authority to interpret this Ordinance and may in specific cases grant variances and exceptions to these requirements providing such variance or exception is in harmony with the general purpose and intent of the requirements.

ARTICLE VI INSPECTION AND ENFORCEMENT

The requirements of this Ordinance shall be enforced by the (Designated Official) who shall inspect or require adequate inspection of the work. If the (Designated Official) finds any existing conditions not as stated in any application, grading permit, or approved plan, he may refuse to approve further work. APPENDIX D

SUBSTITUTE FOR HOUSE BILL NO. 4709

(Final Draft)

A bill to provide for the control of soil erosion, to protect the waters of the state from sedimentation; to prescribe the functions of state and local agencies; to require preparation of a state program; to provide for the promulgation of rules; and to provide remedies for violations.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

Sec. 1. This act shall be known and may be cited as the "soil erosion and sedimentation control act of 1972".

Sec. 2 (1) "Authorized public agency" means a public agency to which authority has been delegated by a local agency pursuant to section 7 (2) to enforce soil erosion and sedimentation control requirements for lands and activities under its jurisdiction.

(2) "Commission" means the water resources commission of the department of natural resources.

(3) "Department" means the state department of agriculture.

(4) "Earth change" means a man-made change in the natural cover or topography of land which may permit soil erosion and resulting sedimentation of the waters of the state. (5) "Land use" means a use of land which may result in an earth change and which may result in or contribute to soil erosion and sedimentation of the waters of the state, including but not limited to subdivision and other residential development, private and public highway and local road and street construction, drainage ditch construction, logging operations, agricultural practices and mining.

(6) "Local agency" means a county, city, village or charter township.

(7) "Public agency" means a county road commission, county drain commission, school board or any other local unit of government which is not a local agency.

Sec. 3. (1) "Sediment" means solid particulate matter, mineral or organic, that has been deposited in water, is in suspension in water, is being transported, or has been removed from its site of origin by the processes of soil erosion.

(2) "Soil conservation district" means a soil conservation district authorized by section 5 of Act No. 297 of the Public Acts of 1937, as amended, being section 282.5 of the Compiled Laws of 1948.

(3) "Soil erosion" means the wearing away of land by the action of wind, water, gravity or a combination thereof.

(4) "State agency" means a principal state department.

Sec. 4. (1) By July 1, 1973, the department, with the assistance of the soil conservation districts, and with the approval of the commission, shall prepare a unified statewide soil erosion and sedimentation control program. The program shall identify land uses which may be governed by this act and shall include recommendations, guidelines, and specifications for the control of soil erosion for the identified land uses to prevent sedimentation of the waters of this state.

(2) The commission shall make available to the department:

(a) Information on the effects of sediments on water quality and the damages of water resources that may be attributed thereto.

(b) The location of those waters of this state which are degraded or have potential for being degraded by sedimentation.

(c) Water quality standards which shall be included in the program to protect the designated uses of the waters of this state.

Sec. 5. (1) By October 1, 1973, the commission, with the assistance of the department, shall prepare rules for a unified soil erosion and sedimentation control program. The rules shall provide for the approval and development of land use plans, erosion control and sedimentation control.

The commission shall submit copies of the rules to state, local and public agencies affected by this act.

(2) The commission shall adopt and promulgate the rules in accordance with and subject to Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Compiled Laws of 1948.

Sec. 6. (1) Within 6 months after the effective date of the rules promulgated pursuant to section 5, a local agency shall submit to the commission an ordinance embodying the provisions of the rules for those lands under that agency's jurisdiction. The ordinance shall further outline the procedures and methods by which the agency shall implement and enforce the provisions of the rules and the means by which the commission shall be notified of any violation thereof. The commission shall submit the ordinance to the appropriate soil conservation district which shall review the provisions thereof and submit to the commission within 60 days its comments thereon. Upon approval of the ordinance by the commission, the local agency shall adopt the ordinance.

(2) (a). Within 6 months after the effective date of the rules promulgated pursuant to section 5, a state, local or public agency shall submit to the commission soil erosion and sedimentation control procedures for all land uses and developments normally undertaken by such agency. In the case of a local or public agency, the commission shall submit such procedures to the appropriate soil conservation district

for review, which shall within 60 days submit its comments thereon to the commission. In the case of a state agency, the commission shall submit such procedures to the department for review, which shall within 60 days submit its comments thereon to the commission.

(2) (b). After approval of such procedures by the commission, all affected land uses and developments undertaken by the state, local or public agency shall be undertaken pursuant thereto. If determined necessary by the commission and upon request by a state, local or public agency, the commission may grant a variance to the provisions of this subsection.

(3) If the commission finds and determines that a local agency's soil erosion and sedimentation control procedures are adequate for land uses or developments normally undertaken by that agency or any authorized public agency thereof, authority may be delegated to that local agency by the commission to carry out the provisions of subsection (2) of this section as they pertain to public agencies.

Sec. 7. (1) The ordinance adopted pursuant to section 6 of this act shall be enforced by each local agency as to lands under its jurisdiction except that county enforcement shall not be extended to lands in cities, villages and charter townships.

(2) A local agency may delegate its authority as prescribed by subsection (1) of this section to a public agency, but in any case, the local agency shall file notice of all violations of the ordinance with the commission.

(3) A local agency may contract with a soil conservation district for the purpose of assuring compliance with the ordinance, but the local agency shall provide for the enforcement of the ordinance and shall notify the commission of all violations thereof.

Sec. 8. Before a local agency approves a plat, pursuant to sections 112, 113 and 114 of Act No. 288 of the Public Acts of 1967, being sections 560.112, 560.113 and 560.114 of the Compiled Laws of 1948, for a development or land use, the developer or land user shall certify to the local agency that he will comply with all requirements as contained in its soil erosion and sedimentation control ordinance adopted pursuant to this act. The developer of land user, at the time of certification, shall post a performance bond equivalent to 10 percent of the assessed valuation of the property upon which the development or land use shall be undertaken.

Sec. 9. To assure statewide uniformity for soil erosion and sedimentation control, ordinances adopted pursuant to section 6 (1) shall take precedence over any other ordinance of a local agency containing soil erosion

and sedimentation control provisions, except where such other ordinance is more restrictive.

Sec. 10. A local agency which fails to enforce an ordinance adopted pursuant to section 6 (1) or in any way permits, allows or suffers the continuation of soil erosion which may result in the sedimentation of the waters of this state by and of its inhabitants or persons occupying, using or developing lands from which sedimentation originates, is subject to the remedies as prescribed in section 7 of Act No. 245 of the Public Acts of 1929, as amended, being section 323.7 of the Compiled Laws of 1948.

Sec. 11. The commission and the department, in order to carry out their functions under this act, may promulgate other rules in accordance with and subject to Act No. 306 of the Public Acts of 1969, as amended.

Sec. 12. This act shall take effect January 1, 1973.

