



Guiding Principles of the Environmental Stewardship Council



Indiana Mineral Aggregates Association
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The guidelines and standards were adapted and/or modified from the mining and reclamation regulations of various counties in Indiana and the following states and one province:

California
New York
Illinois
Ohio

Kentucky
Ontario, Canada
Michigan

Pennsylvania
New Hampshire
Washington

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A HISTORY OF THE ENVIRONMENTAL STEWARDSHIP COUNCIL

Development of the Self-Regulation Concept

A controversial ordinance requiring mining and reclamation permits was enacted by Owen County, Indiana on October 23, 1995. This ordinance led to litigation and renewed interest in the state legislature to enact a statewide mining and reclamation law applicable to industrial minerals operations. The Indiana Mineral Aggregates Association (IMAA) formed the Model Ordinance Committee (MOC) in 1995 in response to the actions by several county governments and state legislators favoring the enactment of mining, blasting and reclamation legislation governing the industrial minerals producers in Indiana.

As of June 2000, fifteen Indiana counties and several cities had mining and reclamation standards written into their zoning codes. Several other Indiana counties anticipate the addition of zoning standards governing mineral extraction.

The concept of self-regulation was developed by the MOC during a series of committee meetings and a draft proposal entitled *Indiana Aggregates Reclamation Consortium* was written on February 14, 1997. This draft was modified at subsequent meetings of the MOC and a second draft proposal was developed as of October 6, 1997. Included in the October 1997 version was a change of the committee name to the Indiana Mineral Aggregates Association Environmental Stewardship Council (ESC).

The Environmental Stewardship Council

In an effort to minimize the environmental impact of mineral extraction and to prevent the development of onerous over-regulation by local governing bodies, IMAA formed the ESC to develop voluntary standards and principles as guidelines for

responsible stewardship of the non-coal mineral resources of the State of Indiana.

Several consulting firms and two universities were contacted and asked to attend a meeting on December 17, 1997 to discuss the scope of a project designed to assist the ESC Committee in developing a set of mining, reclamation, and beautification guidelines. Following a January 9, 1998 proposal and a subsequent meeting with the ESC on January 20, 1998, Continental Placer Inc. (CPI) was contracted to write the *Guiding Principles of the Environmental Stewardship Council (Guiding Principles)*. This document was composed over a period of approximately six months and was edited during a series of meetings between CPI and the Committee.

Early in 1999, the ESC Committee asked those producers who attended the IMAA Winter Workshops to comment on a draft of the proposed *Guiding Principles*. During the following months the ESC Committee met several times and incorporated numerous comments into the draft of the *Guiding Principles*.

The ESC program was discussed in detail at several IMAA Board of Directors' meetings. An effort was undertaken to identify a person who would be willing to serve as the Site Review Coordinator (SRC). Such a person was identified in the early spring of 1999 and the ESC Committee recommended to the IMAA Board of Directors that this individual be employed as the SRC upon final adoption of the program. During this time, at the direction of the IMAA Board of Directors, the Executive Committee developed a means to finance the ESC program.

At the Annual Meeting of Members, the IMAA Board of Directors discussed the financing of the ESC program, preliminarily adopted the program

and scheduled the program for final adoption at the June 15, 1999, Board Meeting.

In the spring of 1999, the Executive Director and the individual designated as the Site Review Coordinator visited most of the member companies and explained the context of the *Guiding Principles*.

Content of the Guiding Principles

The *Guiding Principles* comprises a series of recommended practices and guidelines designed to assist Indiana industrial mineral producers to properly manage the environmental and social impacts of mineral extraction. The guidelines are comprehensive, practical, scientifically sound, and contain a minimum of legal jargon. They are adequate to present to legislators and state and local governmental agencies. These guidelines can also serve as an information resource when interacting with the public on issues concerning zoning and land use.

The *Guiding Principles* is designed to provide the flexibility needed to meet changes in mineral deposit and land use issues over time. A request for a variance or an appeal of a decision can be brought to the Technical Advisory Committee (TAC) if a producer desires to vary from the guidelines to fit site-specific needs or disagrees with an interpretation by the SRC. A second appeal process is provided in which issues that cannot be resolved at the TAC level can be brought to the ESC Board of Directors.

The *Guiding Principles* is divided into seven chapters. The first two chapters describe the ESC, its functions, and its relations with producers onsite. Chapters 3 through 6 provide guidelines and recommended practices for different aspects of environmental protection, beautification, and reclamation. Chapter 7 explains how applications and reports will be prepared for submission to the ESC and its committees.

Chapter 1 – Membership and Procedures summarizes the goals, philosophy and the basic structure of the ESC. Contained in Chapter 1 are the mission statement, structure of the ESC, duties and responsibilities of the officers, advisory committees to the ESC and qualification of members. Also covered is the employment of an experienced professional as SRC to process applications, make periodic site visits, and act as liaison between the producers and Committees and ESC Board of Directors.

Chapter 2 – General Provisions and Definitions consists primarily of definitions of the various terminologies used throughout the document. Other sections of this chapter discuss the purpose of the guidelines, effective dates, variances and appeals, and ESC access to the mineral extraction sites.

Chapter 3 – Operational Practices provides guidelines covering surface mining methods, setbacks and buffer zones, ingress and egress, and stripping practices. Flexibility has been designed into the operational guidelines in an effort to enable the smaller operators to remain competitive.

Chapter 4 – Environmental Protection provides a series of best management practices and pollution prevention plans designed to minimize the effects of mineral extraction on the surrounding environment. This chapter stresses a proactive approach to pollution prevention. The *Indiana Environmental Compliance Manual for the Aggregates Industry* is referred to as a source of comprehensive environmental regulations pertaining to the industry. Pollution prevention, surface water and drainage, sediment and erosion control, permanent water impoundments, dewatering, ground water and air quality issues are reviewed.

Chapter 5 – Reclamation Grading and Revegetation contains guidelines on the post-mining reclamation of mineral extraction sites. Recommended practices for grading and final slopes, stabilization of final highwalls, revegetation and post-mining land use are contained in this chapter.

Chapter 6 – Concurrent Mining and Reclamation discusses the concept of starting reclamation on one part of a site while mining continues elsewhere on the site. The advantages of concurrent reclamation to the producer and the citizens of Indiana are stressed in this chapter. Timing requirements for the completion of post-mining reclamation, and permanent and temporary cessation of mining are also addressed.

Chapter 7 – Reporting Format outlines the format in which applications and annual reports are to be submitted to the SRC.

Finally, four appendices contain an application form, the annual report form, standard map symbols, and a checklist for field inspection. A fifth appendix lists members of the Board of Directors and the TAC.

All participants in the ESC will be asked to submit an application for each mineral extraction site. A map of the property indicating the existing site conditions and the proposed stripping and mining plans will accompany the application. Within 24 months of the initial application, an additional map will be submitted showing the proposed reclamation, beautification, revegetation, and final post-mining land-form.

Information on the progress of reclamation and beautification at each extraction site will be submitted to the ESC annually.

The annual report is designed to summarize the progress of mining, beautification and reclamation of the individual mineral extraction sites and information on the acreage affected in the past year. No map will be required on an annual basis unless a substantial deviation from the original plan is proposed or anticipated by the operator.

The format of the application and annual report forms has been kept simple with fill-in-the-blank questions and simple checkmark answers, wherever possible. The purpose of the application and annual reports is to supply the required information with minimal additional paperwork burden on producers. Compliance monitoring of the member sites will be necessary to maintain credibility with the state and local governing bodies.

Benefits of Self-Regulation

Indiana is one of the few remaining states that have no comprehensive state regulations pertaining to non-coal minerals mining.

Considerable bureaucracy results from adding a Mining and Reclamation Department to a state government. The Ohio Division of Mines and Reclamation employs more than one hundred people and requires a minimum of two site inspections per year. Most reclamation laws require bonding of affected ground, application fees, filing fees and acreage fees on the land affected. Operators that are found to be out of compliance can be fined and/or forced to close under most of the states' existing legislation. Issues of differing interpretation of rules by different inspectors can add additional burden to operators.

Membership in the Environmental Stewardship Council will enable aggregate and industrial minerals producers to avoid the adverse effects of additional regulation and bureaucracy on their day-to-day business and profitability. The *Guiding Principles* can be utilized as a marketing or public relations tool with local officials and the general public.

Over regulation, multiple inspections, additional taxes and fees, bonding of affected acreage and differing interpretations of rules can be avoided by the adoption of and adherence to mining, beautification and reclamation guidelines composed and approved by industry representatives.

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Chapter 1

MEMBERSHIP AND PROCEDURES

The Indiana Mineral Aggregates Association (IMAA) is committed to the principles of responsible stewardship of the non-coal mineral resources of the State of Indiana. IMAA believes that site reclamation and beautification are essential activities to properly manage the impact of the extraction of these basic construction materials, which are necessary for the economic well being of the state.

In an effort to establish a meaningful reclamation and beautification program that benefits the greatest number of industrial mineral producers in Indiana, IMAA has formed the Environmental Stewardship Council (ESC) to define the recommended practices and guidelines for reclamation and beautification of non-coal mineral extraction sites.

The non-coal mineral resource industry recognizes the need for reasonable, cost-effective, efficient, and flexible guidelines for the reclamation and beautification of land impacted by mining. Industry strongly believes that these goals can be achieved through good stewardship of the land and mineral resources utilizing self-regulation and self-discipline. Industry also recognizes that significant differences due to the local geologic, geographic, and physical constraints of each extraction site must be taken into account.

The ESC has laid the groundwork for cooperation with the clay and shale producers, the gypsum producers, and the cement producers located throughout the state. The coal industry and the dimension limestone industry are not included as part of this plan because they have their own reclamation and beautification programs that are suited to their specific industries. Industry believes that self-

discipline and self-regulation are a reasonable, cost-effective means to accomplish the goals of reclamation and beautification of mineral extraction sites.

Mission Statement

The goal of the Environmental Stewardship Council is to formulate voluntary standards for reclamation and beautification of land affected by the extraction of aggregates. A consensus among industry, local and state governmental agencies, and the general public will enable the ESC to reach this goal. This will be accomplished by engaging in the following activities:

- Promoting the principles of land reclamation and beautification through educational workshops and short courses for industry;
- Providing technical support to the members of the ESC for the implementation of the *Guiding Principles*;
- Promoting comprehensive design planning for the reclamation and beautification of industry sites utilizing sound engineering and scientific principles;
- Interacting with local and state officials to promote self-regulation of the industry in Indiana by sponsoring cooperative efforts between academia, industry, governmental bodies, planning agencies, and the general public in the explanation of the *Guiding Principles*;
- Recognizing outstanding accomplishments of ESC members in the reclamation and beautification of specific mining sites;

Structure of the Council

The ESC will be composed of qualified Indiana non-coal mineral producers and will function as an entity of IMAA.

A Board of Directors consisting of not more than 15 individuals will govern the ESC:

The ESC Board Members will be selected by the IMAA Nominating Committee subject to Article 8, Elections, in the IMAA Bylaws. Confirmation by the membership is required.

Directors will be selected by the IMAA Nominations Committee from a pool of nominees submitted by the member companies.

Efforts will be made to balance the board with two directors elected from each Indiana Department of Transportation (INDOT) District (LaPorte, Ft. Wayne, Crawfordsville, Greenfield, Vincennes, and Seymour) to ensure representation by geographical location. This “balance” may not be possible, however, if qualified individuals are not available to serve. One of the directors from each INDOT District will represent sand and gravel interests; the other director will represent crushed stone interests. Dual representation by a particular company on the ESC Board of Directors will not be permitted. The term of office of each of these directors will be three years.

The Executive Director of IMAA and the SRC will be ex-officio, non-voting members of the ESC Board of Directors, the TAC and other committees deemed necessary by the Board of Directors.

Duties and Responsibilities of Officers

The ESC Chairman will chair all meetings of the ESC Board of Directors. The Chairman may exercise voting powers only in the event of a tie vote. The Chairman shall appoint a Vice-Chairperson and

a Secretary. The Chairperson will be an ex-officio member of all ESC Committees deemed necessary by the ESC Board of Directors. In the absence of the Chairman, the Vice-Chairman will chair all meetings of the ESC’s Board of Directors and will attend Committee Meetings.

The Secretary will maintain and keep the official minutes and records of the ESC at the IMAA office.

Records and Minutes

The official minutes and records of the ESC will be kept in the offices of IMAA.

Rules of Order and Quorum

The ESC will conduct its business following *Robert’s Rules of Order*, Newly Revised. A quorum of at least twenty five percent (25%) of the ESC directors present or virtually shall be required to conduct business.

Advisory Committees

The ESC will be supported by the Technical Advisory Committee (TAC) and a Site Review Team (SRT). Other support committees may be added as deemed necessary by the ESC Board of Directors.

Technical Advisory Committee (TAC)

The mission of the TAC is to:

1. Develop reasonable technical guidelines for responsible reclamation and beautification of aggregate extraction sites. The guidelines will be approved by the ESC Board of Directors;
2. Provide oversight and technical support for workshops on reclamation and beautification for participating companies;
3. Provide liaison between the academic community and participating companies for internships in reclamation and beautification;

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4. Provide technical support for workshops offered to governmental units by the ESC;
5. Develop guidelines in conjunction with the IMAA Public Information and Education Committee (PIE) for the annual recognition of exceptional achievements in the plant reclamation and beautification category;
6. Support other technical activities as deemed necessary by the ESC Board of Directors.

The composition of the TAC will be as follows: The ESC Board of Directors will appoint the members of the TAC. Two IMAA Associate Members may be invited to serve on the TAC. Two At-Large members may be added to the TAC with permission from the ESC Board of Directors. The TAC shall consist of not less than 6 but not more than 18 members. The TAC Chairman, Vice Chairman, and Secretary will be selected by the TAC and confirmed by the ESC Board of Directors. The TAC Chairman will conduct all TAC meetings. The Vice-Chair will conduct meetings in the absence of the TAC Chair. The Secretary will keep the minutes of the TAC meetings. The TAC Chair may vote only in the event of a tie. The TAC Chair is a member of the ESC Board of Directors. The IMAA Executive Director and the SRC will be ex-officio, non-voting members of the TAC.

Site Review Team (SRT)

The SRT is envisioned as a problem-solving team composed of six members as follows: The SRC, three members from the TAC, and two members from the ESC Board of Directors.

The SRC will select SRT members as needed, with the approval of the ESC Board Chairman.

The SRC will chair the SRT and organize all visits and meetings of the SRT. The SRC will be a voting member of the SRT.

The SRT will meet as needed to review the reports from the SRC concerning the plans of qualified members to ensure that the plan objectives are being accomplished and to confirm that the recommended guidelines are being met.

If deficiencies are found in a qualified member's plan, the SRC may request that the SRT visit the site. The members of the SRT will function as a review board and investigate problems. The SRT will report to the ESC Board of Directors and TAC concerning the deficiencies noted by the SRC.

Site Review Coordinator (SRC)

The SRC will be a qualified professional with extensive experience in the mineral aggregate extraction industry. The SRC should be familiar with geology, hydrology, the principles of reclamation, and plant beautification. The SRC will be an ex-officio, non-voting member of the TAC and The ESC Board of Directors.

The responsibilities of the SRC will include review of reclamation plans and periodic site visits with local-site managers to confirm compliance with the guidelines and approved reclamation plans. The SRC will report the results of the site visits and reviews to the TAC along with recommendations. As stated above, the SRC chairs and is a voting member of the SRT.

Qualification of Members

By action of the IMAA Board of Directors, membership in the ESC is a requirement of all producer members of IMAA. Any non-coal mineral extraction operation, with the exception of dimension limestone operations, able and willing to abide by

the recommended practices set forth by the ESC will be permitted to apply for membership in the ESC. Non-coal non-extraction mineral processing operations (such as fine grind plants, slag processing, stoneyards, etc.) may request exemption from the ESC requirements for Reclamation Maps, 10-Year Affected Acres Maps, and annual Location Reports. Members will submit a plan of reclamation and beautification. These plans will contain the details, methods of grading, the general scheme of the plantings to be accomplished, and a general schedule stating when these items will be accomplished.

Reporting Requirements

Annual reporting requirements may include activity reports and as necessary, maps of areas mined, areas reclaimed, and final proposed reclamation. At a minimum, they must include the items listed in the “Annual Reports” section of Chapter 7 and be submitted on the latest version of the “Annual Location Report” as given in Appendix B.

Annual Fees

Annual fees and plant review fees will be determined by the ESC Board of Directors and will be assessed to individual member plants. Each member plant will be assessed a man-hour fee based on the man-hours worked per year at the member plant times a rate to be determined by the ESC Board of Directors.

The man-hour fees will be used to support the ESC’s operations. Fees required from members of the ESC that are not IMAA members may be assessed at higher rates. Non-members will pay a one-time \$100 application fee. The non-member annual ESC fee is \$350 plus 2 cents per man hour, with a minimum annual fee of \$750. The ESC Board of Directors will determine all fees. All fees are non-refundable.

Reclamation Plans

Reclamation plans will be developed for each member site and will be submitted to the ESC for approval. The final plan submitted by the member plant will become the reclamation and beautification program and action plan. These plans will meet the guidelines unless a variance has been approved by the TAC. Reclamation and beautification performance will be evaluated by the TAC based on the ESC’s recommended practices and the plans submitted by the member plant.

Disqualification

Members failing to meet their reclamation and beautification plan may be disqualified unless some just cause can be shown. It is expected that some tangible progress will be accomplished annually. Failure of a member to comply with an approved plan may result in increases in their man-hour rate assessment. If a member plant fails to comply with its approved plan, the TAC may recommend the man-hour assessment be increased by one-third (1/3). Two consecutive annual inspections indicating a failure to comply with the approved plan may disqualify the enrolled producer from membership in the ESC.

Appeals

Any member may appeal a decision of the TAC to the ESC Board of Directors. Members facing disqualification may appeal to the TAC by outlining a corrective action and revised timetable. The TAC will review the amended plan and submit their recommendations to the ESC Board of Directors for final action.

Approval of Plans

The SRC and TAC will review all plans submitted. If the plan submitted meets the ESC’s guidelines and the appropriate fees have been paid, the plan will be approved by the ESC Board of Directors.

Chapter 2

GENERAL PROVISIONS AND DEFINITIONS

This document provides ESC members with industry guidelines for the development of mining, reclamation, and beautification of industrial mineral extraction sites. Numerous local, state, and federal regulations concerning land use and environmental issues already govern this industry. ESC members agree to conform to the standards set forth in this document. This document provides various governmental agencies and the citizens of Indiana with comprehensive principles by which to judge the performance of the industry within the state.

In 2005 IMAA revised the comprehensive guide entitled *Indiana Environmental Compliance Manual for the Aggregates Industry*. Governmental agencies personnel and interested citizens are encouraged to refer to this *Compliance Manual* for detailed information on environmental and regulatory issues affecting the aggregate industry. The concepts introduced here in the *Guiding Principles* expand upon that earlier effort by offering the aggregate industry unified practical means of conforming to environmental policies.

Effective Dates

On June 15, 1999, the IMAA Board of Directors approved the *Guiding Principles* and set the effective date of the ESC as July 1, 1999. Specifications and guidelines contained in this document will apply to all mineral extraction operations owned or operated by individuals or companies opting to become ESC members after this date. Applications for new operations of current members, acquisitions and new members shall conform to the timeline as stated in Chapter 7 under the Application for Membership.

Pre-existing Conditions

Mining practices, pre-existing conditions, and reclamation completed before the effective date of July 1, 1999, need not meet the requirements set forth in this document. Operations and/or properties acquired from non-ESC participants will be subject to reclamation only on areas affected following acceptance into IMAA/ESC membership. Previously affected areas are exempt from reclamation; however, reclamation of the entire property may create an economic advantage for the owner/operator.

Variances

The *Guiding Principles* cannot take into account every variable encountered in non-coal mineral extraction operations in Indiana. Although mining techniques are generally similar, individual extraction operations are affected by differing factors such as geological, hydrological, and topographical parameters; the mineral produced; the equipment utilized; the proposed post-mining land uses; location of nearby properties, and many other variables.

The principles contained in this document are guidelines that apply to the majority of circumstances encountered in this industry. Any ESC member will have the right to request variances from these principles. Variances from the guidelines must be based on sound mining, reclamation, and beautification principles. If deviations from specific recommendations are requested, the TAC will act as a review board. The TAC will examine written variance requests submitted by a member to determine if it departs in any way from the guidelines that provide for public safety and that address environmental compliance issues.

Deficiencies

If deficiencies in meeting the guidelines are noted in a submitted reclamation plan, the SRC will request that the operator correct the deficiencies and resubmit the plan. Questions pertaining to deficiencies in reclamation plans may also be appealed to the TAC.

The TAC will send the results and recommendations of all appeals to the ESC Board of Directors. Any member dissatisfied with a decision of the TAC may appeal to the ESC Board of Directors for a final decision on the issue.

Access to Extraction Sites

Upon proper advance notice, ESC members agree to allow the SRC and the SRT access to their individual sites at anytime during normal business hours. The SRC and members of the SRT will be trained in safety and hazard recognition in accordance with the standards of the Mine Safety and Health Administration (MSHA).

Definitions

Like any other business, the mineral extraction industry has its own technical jargon, which is a combination of engineering, environmental, mining and geological terms that apply to various aspects of the minerals industry.

Unless otherwise indicated in the context of this document, the following definitions of terms apply:

Access Road – A road designed and constructed to gain access to a mineral operation from a public road, highway, or thoroughfare.

Acid-forming Materials – Earth materials containing minerals, such as sulfides, that react with water to produce acid compounds.

Adjoining Property – Property immediately contiguous with property on which mineral extraction is occurring; land with a common property line.

Adjoining Property Owner – The owner(s) of adjoining property.

Affected Area – Any land area that is used to facilitate, or is physically altered by, a mineral extraction operation; surface disturbance from the removal of topsoil or overburden, mining, quarrying or dredging; any area covered by dams, impoundments, settling ponds, waste piles, stockpiles, repair areas, site barriers, shipping areas and processing plants. This term does not include associated production facilities.

Amended Area – A parcel added to the plan after the date of the initial application.

Aquifer – Subsurface geologic materials that have the capacity to store and to transmit ground water that may be extracted in quantities useful for specified purposes.

Associated Production Facilities – Asphalt plants, ready mix concrete plants, block plants, maintenance facilities, roadways, etc., for on-site businesses that are not directly related to mineral extraction activities (and are noted as such on the approved reclamation plan).

Backfill – Excavated material used to fill and grade a previously excavated area.

Burden – For materials to be blasted with an explosive charge, the distance from the borehole to the nearest free face or the distance between boreholes measured perpendicular to spacing. Also, all types of valueless rock or earthy material overlying valuable rock.

Chairman (ESC) – The Chairman of the Board of Directors of the ESC.

Compaction – Increasing the bulk density of a material by reducing the voids between the particles, which is usually accomplished by controlled placement of unconsolidated materials and/or by mechanical compression.

Council (ESC) – The Environmental Stewardship Council (ESC) of IMAA.

Dewatering – The withdrawal of ground water from an aquifer or from the saturated zone which may result in a lowering of the water level within the aquifer or a decline in the potentiometric surface within the saturated zone.

Dike – An artificial barrier designed to divert or restrain the flow of a stream or other body of water for the purpose of protecting an area from inundation from floodwater.

Director – A member of the Board of Directors of the ESC of IMAA.

Diversion – A channel constructed to divert, intersect, direct, or channel water from one location to another.

Embankment – An artificial deposit of material that is raised above the natural surface of the land and used to contain, divert, or store water; to support roads or railways; or to achieve similar purposes.

Grade – To reshape the affected area to a reasonably smooth configuration to achieve soil stability and to control erosion and sedimentation with adequate provisions for drainage appropriate to the intended future land use.

Ground Water – Subterranean water within the zone of saturation; water occurring in an aquifer.

Growing Season – The period during a one-year cycle, from the last killing frost in spring to the first killing frost in fall, in which climatic conditions are favorable for plant growth. This period normally extends from mid-April to mid-October in Indiana.

Haul Road – Any road within the affected area used to transport minerals, overburden, fuel, equipment, or personnel. (Roadways used exclusively for associated production facilities are not considered as haul roads.)

Highwall – An exposed face of overburden or bedrock in a surface mine, pit, or quarry.

Impoundment – A closed basin artificially constructed or naturally formed that is used to retain water, sediment, or waste.

Land Use – The specific functions, uses, or management-related activities of the proposed mineral extraction area, including pre-mining use and post-mining use.

Mast-producing tree – Forest trees that produce nuts that accumulate on the ground, providing food for animals, especially swine.

Mined-Out Area – Any area from which all of the economically recoverable mineral deposits have been removed.

Mining By-Products – Unused or excess material resulting from the mining and processing of the natural occurring mineral into a commercial product.

Non-coal Minerals – An aggregate or mass of mineral matter, whether coherent or non-coherent, extracted by surface mining. The term includes, but is not limited to, limestone and dolomite, sand and gravel, rock and stone, earth materials, clay, gypsum, industrial sand, and peat.

Non-coal Mineral Extraction Operation – All or any part of the process involved in the mining of non-coal minerals by removing overburden and mining directly from the mineral deposits, open pit mining, mining by dredging or quarrying, or surface work incidental to an underground mine.

Occupied Dwelling – A permanent building or mobile home that has become part of the real estate and is currently being used on a regular or temporary basis for human habitation or business purposes.

Operator – A person engaged in the extraction and/or surface mining of non-coal minerals.

Overburden – Soil, rock, or other materials that lie above a natural mineral deposit or between mineral deposits.

Owner – Owners in fee, life tenants, tenants for years, holders of remainder interests, holders of leaseholds or easements, and holders of mineral rights.

Permanent Impoundment – A body of water contained in an impoundment that includes a closed embankment, a pit, or a mine sump that is designed to be permanent.

Person – An individual, firm, partnership, municipality, corporation, or association.

Potentiometric Surface – An imaginary surface representing the total head of ground water, defined by the level to which the water will rise in a well. The water table is a particular potentiometric surface.

Reclamation – The remediation of all affected areas subject to the Guidelines prescribed by the operator's approved reclamation plan.

Reclamation Plan – An operator's written proposal, approved by the ESC, for the reclamation of affected area(s), including land-use objectives, specifications for grading, manner and type of revegetation, along with all maps and other supporting materials that may be required to meet these guidelines.

Reclaimed Area – Mined land that has been restored to useable land or a body of water. Land areas must be graded and re-vegetated or reforested to be considered as reclaimed.

Riprap – Heavy irregular rocks used for erosion protection in areas subject to strong water currents, such as embankments, slopes, earthen dams, and shorelines.

Sedimentation Pond – Any natural or artificial structure or depression used to remove sediment from water and/or to store sediment.

Site Barrier – (See definition of visual barrier.)

Shothole – A hole drilled for the purpose of placing an explosive for blasting.

Slope – Average inclination of a surface from the horizontal plane, generally expressed as a ratio of a unit of horizontal distance to a unit of vertical distance (e.g., 3:1 or 3 ft of horizontal distance to 1 ft of vertical distance). The term may also be expressed as a percent or in degrees (e.g., 33% or 18°).

Spoil – Overburden and waste material that has been removed during the mineral extraction process.

Stemming – Inert material placed in a borehole for the purpose of confining or separating charges of explosive materials.

Surface Waters – Water confined to well-defined channels as continually flowing streams (perennial) or intermittently flowing streams.

Terrace – To grade in alternating slopes and plateaus to achieve soil stability and to control landslides, erosion, and sedimentation with adequate provisions for drainage appropriate to the intended future use.

Visual Barrier – A landscaped barrier constructed of earthen materials, vegetation, or a combination thereof for the purpose of mitigating the visual effects of mineral extraction operations. A properly constructed visual barrier can also reduce noise levels emanating from an extraction operation.

Water Table – The top of the zone of saturation in an unconfined aquifer.

Chapter 3**OPERATIONAL PRACTICES**

The ESC is committed to the responsible stewardship of the land and mineral resources of the state of Indiana and promotes industry adherence to acceptable operational guidelines. The proposed *Guiding Principles* are in addition to and in compliance with existing rules, regulations, and ordinances. In the absence of any such rules, regulations, and ordinances to the contrary, the *Guiding Principles* outlined in this chapter will be accepted and followed by industry producers who elect to become members of the ESC.

The *Guiding Principles* are not intended to dictate how ESC members mine and produce aggregate. Rather, the *Guiding Principles* are offered as recommended practices to assist operators in minimizing the environmental and aesthetic effects of mining.

Mining Methods

The geographic location and geologic parameters of the mineral deposit and the economics of mining determine mining methods and the equipment utilized in aggregate extraction. No single mining method or particular mining equipment applies to every industry operation in Indiana.

Mineral extraction requires considerable investment, is labor intensive, and is heavily regulated by existing statutes. The minerals industry historically has experienced very low profit margins. Efficient mining methods and the careful application of specialized equipment are the keys to survival in the mineral extraction industry.

Mineral extraction by environmentally compatible methods is of great importance, and it is in this spirit that the ESC has created the following guidelines for “smart mining.”

The applicant will submit a mining plan listing the mining methods utilized in its extraction process. The ESC approval will be limited to the mining plan, not the mining method. Specific details on the mining and reclamation reporting format can be found in Chapter 7 – *Reporting Format*.

Explosives

Detonation of explosives is a necessary component of the extraction of lithified mineral resources. The storage, handling, placement, and detonation of explosives will conform to the rules and regulations set forth by the appropriate agencies. Only persons trained and experienced in the design and safe use of blasting systems will perform blasting at ESC member facilities.

The ESC recommends that members monitor and record the effects of all blasting events. Blast effects to the nearest protected or inhabited structure will be predetermined by compliance with the Indiana Blasting Law 675 IAC 26, as adopted by the Fire Prevention and Building Commission of the State of Indiana. These standards are based on NFPA 495. Explosives, blasting agents, and detonators will be stored in compliance with Bureau of Alcohol, Tobacco, and Firearms regulations.

Setbacks and Buffer Zones

In an effort to perpetuate positive relations with the surrounding community, ESC members will establish setbacks and buffer zones to separate mineral extraction operations from adjoining properties. Buffer zones are typically integral with setbacks.

The following are the suggested guidelines for setbacks and buffer zones for adjoining properties, occupied dwellings, roadways, etc.:

1. No mining, stripping, overburden removal, stockpiling, or processing should occur within 50 feet of an adjoining property that is not owned or legally controlled by the operator.
2. No stockpiling or mineral processing should occur within 50 feet of the right-of-way of a public road, highway, or thoroughfare unless written approval is received from the owner of the right-of-way.
3. No mining, stripping, or overburden removal should occur within a distance determined by multiplying the thickness of the unconsolidated overburden by 1.5 feet plus 10 feet from the right of way of any public road, highway, or thoroughfare.
4. No mining, stripping, overburden removal, stockpiling, or processing should occur within 150 feet of an occupied dwelling or public building unless the dwelling is owned or legally controlled by the operator or written permission is granted by the owner of the public building.

Overburden materials may be used for landscaping purposes or for the construction of visual barriers within the buffer zones provided that the barriers do not encroach upon the adjoining property owner's land. All constructed visual barriers, landscaping, and plantings will be maintained in an attractive condition. In all cases, a minimum setback of 10 feet will be provided between the toe of the visual barrier and the adjoining property line.

Under special circumstances, the requirement for a setbacks and buffer zones may be waived upon receiving written permission from the owner of the adjoining property or right-of-way, with approval of the ESC.

Ingress and Egress

Roadways utilized to access public thoroughfares will be designed, constructed and maintained in the interest of public safety. Entrance roads should be attractively landscaped and maintained.

Access Roads

Entrance roads accessing public thoroughfares should be constructed to provide safe entrance onto the public road.

Outside the mineral extraction area, access roads should be designed and constructed to minimize erosion, sedimentation, and runoff. Access roads should be maintained to prevent the tracking of mud, dirt, and other debris from the mineral extraction operation onto public roadways.

Associated production facilities located on a mineral extraction site may utilize the existing access roads or additional access roads may be provided to serve the associated facilities.

Access roads should be blocked by means of gates or other barricades to prevent unauthorized vehicular access after normal business hours.

Haul Roads

Haul roads should be designed and constructed to prevent erosion and to control sedimentation. Haul roads, where necessary, should be engineered and constructed with appropriate crowns, properly sized drainage ditches, and diversions to prevent ponding of water and runoff outside the industry property.

Overburden Removal

Overburden removal from the surface of mineral deposits is an integral part of mining and the production of quality mineral products. The stripping (overburden removal) process will be performed in such a manner as to control the migration of sediment outside the affected area. A Storm Water Pollution Prevention Plan (SWPPP),

including the effects of overburden removal, will be developed for the property where required.

Overburden Retention

Reclamation of areas affected by mineral extraction requires materials needed to create slopes and graded terraces, for use as backfill, and for replacing soil in areas requiring re-vegetation.

A sufficient amount of overburden (topsoil, subsoil, caprock, non-specification material, etc.) should be retained on-site to complete the reclamation plan approved by the ESC. Materials in excess of those required by the reclamation plan may be sold or disposed of in a sound manner.

Storage of Overburden

Topsoil, subsoil, and other overburden materials removed to expose mineral deposits for mining should be stockpiled on stable ground within the affected area in a location where it will not interfere with mining. The overburden materials will be stockpiled in accordance with recommended practices that prevent damage to adjoining property from landslides, erosion, and sedimentation. Stockpiled overburden materials will be protected from wind and water erosion.

Chapter 4

ENVIRONMENTAL PROTECTION

The environmental resources of the state of Indiana are a legacy that must be preserved for future generations. By employing sound engineering practices in view of current scientific principles and by conscientious management practices, mineral extraction operations can be profitable enterprises while maintaining environmental compatibility.

Pollution Prevention

A proactive approach to pollution prevention remains the best means of avoiding the environmentally adverse effects of mineral extraction. ESC members will develop and utilize Best Management Practices and Pollution Prevention Plans to minimize the effects of mineral extraction on the surrounding environment. ESC members will meet the requirements of federal and state regulations pertaining to environmental protection, as outlined in the *Indiana Environmental Compliance Manual for the Aggregates Industry*.

ESC members agree to employ where necessary the following methods to prevent adverse environmental impact:

- Best Management Practices
- Storm Water Pollution Prevention Plans (SWPPP)
- Spill Prevention Control and Countermeasure (SPCC) Plans
- Waste Disposal Practices
- Environmental Awareness Training of Employees

Surface Water and Drainage

Measures designed to protect the quality and quantity of surface water are site specific. Factors

such as property location, topography, drainage patterns, soil types, annual precipitation, and surrounding land use determine the effect that a mineral extraction operation will have on surface water resources.

Appropriate measures will be designed, constructed, and maintained to minimize the negative effects of mineral extraction on the quantity and quality of water within the affected area and to prevent damage to the quality and quantity of surface waters outside the affected areas.

Sediment and Erosion Control

The following methods or combinations of methods can be used to prevent adverse effects of mineral extraction on surface water quality and quantity outside of the affected area:

1. Developing and using applicable Storm Water Pollution Prevention Plans (SWPPP).
2. Utilizing progressive mining, backfilling, grading, reclamation, and revegetation techniques in an effort to minimize the amount of land area disturbed at any one time (i.e. Concurrent Reclamation).
3. Using diversions and dikes to divert potential storm-water runoff away from and around affected areas.
4. Grading backfill, spoil piles, site barriers, stripping embankments, excavations, etc., to reduce the velocity of runoff.
5. Grading backfill, spoil piles, site barriers, stripping embankments, excavations, etc., toward the active pit and away from intermittent streams, perennial streams, and wetlands.
6. Retaining sediment within the affected area.

7. Using sediment ponds designed and maintained to intercept the flow of storm water, reduce the velocity of flow, and trap and retain sediments held in suspension within the storm water.
8. Employing other sediment control devices to be used, as necessary, within the affected area such as:
 - Diversions
 - Dugout-Type Sediment Traps
 - Mulch
 - Riprap
 - Silt Fencing
 - Straw Bale Dikes
 - Vegetative Buffer Zones

Dams or embankments used to impound sediments will comply with the appropriate engineering and safety requirements of the IDNR, Division of Water, Dam and Levee Section. Sediment ponds will be designed and maintained to ensure that the discharge from the pond meets federal and state effluent requirements for suspended solids.

Permanent Impoundments

Water impoundments designed to remain on the property after completion of mining and final reclamation will be designed and constructed to be compatible with the end use of the property. The health and safety of the users of the land, the surrounding property owners and the general public will be considered in the design and construction of permanent water impoundments.

Levees, dams, or embankments used to impound water will meet the requirements of IDNR Division of Water and the IDEM.

Ground Water

Ground water is one of Indiana's most valuable natural resources, for it remains the principal source of fresh water for domestic and municipal uses. The ESC recognizes the importance of conserving and ensuring the quality of Indiana's ground water resources.

Dewatering

The mining of aggregate deposits may require the temporary lowering of the local potentiometric surface.

The applicable federal and state regulations pertaining to ground water withdrawal, wastewater discharge, water quality, water-resource management, and protection of domestic well owners are covered in detail in Chapters 6 and 7 of the *Indiana Environmental Compliance Manual for the Aggregates Industry*.

Most surface mining operations pump water in some form. Pumping serves three basic functions:

- To remove surface water runoff that collects in a pit or quarry during periods of heavy rainfall.
- To remove ground water from an aquifer to dewater an area in preparation for mining.
- To achieve some combination of surface and ground water removal.

Note: Some operations do not discharge water.

During the crushing process, water is required for mineral processing to wash the aggregate products and to remove the fine particles that adhere to the stone. Water used in the processing of mineral products is generally taken from the pit or quarry.

The ESC members will meet the requirements of the National Pollution Discharge Elimination System (NPDES) program.

Air

The ESC is dedicated to protecting and preserving the overall air quality of the state of Indiana. ESC members agree to meet federal, state, and local air pollution control requirements.

The primary air quality issue faced by most industry operators in Indiana relates to airborne particulate matter. Air emissions produced by the vast majority of industry operations are limited to fairly large, heavy, inert particles of fugitive dust that readily settle within the boundaries of the operator's property.

The *Indiana Environmental Compliance Manual for the Aggregates Industry* summarizes the pertinent legislation, permitting requirements, and performance standards for air emissions in Indiana.

Chapter 5

RECLAMATION GRADING AND REVEGETATION

The primary purpose for the establishment of the ESC is to develop and implement industry guidelines for reclamation and beautification of industry sites. Through the use of the best environmental management practices, responsible operating techniques, and good stewardship of Indiana's mineral resources, the ESC will accomplish its goal of self-regulation.

Mineral extraction is an interim land use that temporarily interrupts the existing land use. Upon completion of mining, the land can be reclaimed for a beneficial land use.

Reclamation of a mineral extraction site is a process of planned rehabilitation of land with a final end use as a goal. The ESC believes that it is in the best interest of its members and citizens of Indiana to reclaim land affected by mineral extraction. Comprehensive, well-managed reclamation will provide an operator with a valuable real estate asset and will provide the citizens of Indiana with productive rehabilitated real estate.

The ESC recognizes that it can be difficult to predict the long-term interim land use for a property. The operator's reclamation plan should be flexible enough to be altered to allow for changing land use trends.

A map of the proposed final reclaimed landform after completion of mining will be submitted to the ESC for approval. Specifications for the map are discussed in Chapter 7.

The reclamation principles contained in this chapter are minimum guidelines for ESC members. The guidelines for setbacks and buffer zones and ingress, and egress are outlined in Chapter 3.

Stabilization of Final Highwalls

Depending on the mineral produced and the topography and the geology of the site, it may be necessary to retain bedrock highwalls as permanent features at the completion of mining and reclamation. Final mined faces will be designed and configured to minimize the possibility of rock falls and slope failure.

Final bedrock highwalls that will remain as permanent landforms upon completion of reclamation shall be stabilized by one or a combination of the following methods to ensure the safety of future users of the property:

- Controlled blasting techniques
- Mechanical scaling of the highwall
- Benching
- Angle drilling of blast holes

Final highwalls will be relatively smooth and uniform with loose and overhanging rock removed to the static water level. Fencing, earthen, or vegetative barriers will limit access to these highwalls. Danger signs should be installed the length of the highwall where practical.

Overburden slopes will be graded as outlined in the next section of this chapter. A safety ledge of sufficient width to prevent a person from inadvertently walking off the edge of the highwall will be left between the highwall and the toe of the overburden.

Numerous highways throughout the hilly areas of the state are routed through road cuts that have been blasted through bedrock. Final highwalls left as permanent landforms upon completion of mining and

reclamation should conform to standards similar to those followed for highway road cuts constructed for the Indiana Department of Transportation (INDOT).

The ESC will approve the design and configuration of permanent highwalls. The permanent highwall design will be evaluated based on:

- Highwall thickness
- Depth of ground water
- Geological factors
- Future intended land use
- Highwall stabilization methods utilized

Stabilization of Soil and Loose Rock

Slope Materials

Unless unavailable on the property in its virgin state, sufficient volumes of overburden and spoil materials should be maintained on-site to complete the reclamation plan submitted to and approved by the TAC. Spoil will be placed, graded, and stabilized to minimize soil erosion, surface disturbance, and stream contamination. Sufficient water-retarding siltation control structures, diversion ditches, etc., as outlined in Chapter 4, will be utilized to control runoff and will be located as close as possible to the grading operations.

If approved by the TAC and after inspection by the SRC, environmentally safe reclamation materials may be imported to the site. Importing material for reclamation may require certain permits. The *Indiana Environmental Compliance Manual for the Aggregates Industry* summarizes the applicable rules and regulations concerning the disposal of solid waste.

Grading Slopes

Upon completion of reclamation, no vertical or near-vertical highwalls will remain in

unconsolidated deposits. Ridges, peaks, and slopes created by excavation, overburden removal, or spoil placement will be graded to a slope that provides for stability, prevents erosion, and supports vegetation. A stable final slope of unconsolidated material is generally expected to be a ratio of 3 feet, or more, horizontal to one-foot vertical (3:1).

The grading of slopes will be compatible with the surrounding topography and the proposed land use of the property. When an area undergoes reclamation, unconsolidated materials, including overburden at quarrying sites, will be graded to achieve soil stability and to control slope movement to prevent erosion and subsequent sedimentation. Final reclaimed slopes steeper than 3:1 will be approved by the ESC provided that these slopes will be stabilized by proven engineering practices as approved by the TAC. Final slopes in areas with an approved post-reclamation land use of forestland or wildlife habitat enhancement may exceed a 3:1 ratio. A reforestation plan will be provided for final slopes steeper than 3:1.

Grading Terraces

Terraces will be graded toward the slope at a grade of 3 to 10 percent. Outslopes between terrace benches will not exceed 2 feet horizontal to 1 foot vertical (2:1). Runoff will be controlled and routed to ditches at the intersection of terraces and outslopes. The final slope of a terraced grade will not exceed 1½ feet horizontal to 1 foot vertical (1½: 1). Ditches should be designed to prevent sedimentation, erosion, and slope movement. They should not exceed a slope of 20 feet horizontal to 1 foot vertical (20:1) unless specifically engineered for a steeper slope. Ditch slopes exceeding this measurement need specific approval by the TAC.

Post-Mining Re-vegetation

A vegetative cover will be established on all affected lands where vegetation is indigenous to the

area and where re-vegetation is consistent with the approved plan. Re-vegetation should provide a diverse, effective, and permanent vegetation cover capable of self-regeneration and plant succession.

Any area disturbed by mineral extraction will be covered with an amount and type of soil material sufficient to support the growth of the proposed vegetation cover. The required soil cover will be deposited and uniformly spread over the reclaimed and graded areas. Agricultural lime and fertilizer will be applied to the soil in amounts recommended by standard agricultural soil testing procedures and soil pH tests. Re-graded reclamation areas and slopes will be prepared and seeded at the beginning of the next growing season following completion of the final grading.

Ground Cover

Soil stabilizers and/or mulch should be applied, as necessary, to promote seed germination and prevent washing away of seeds. Soil materials should be prepared utilizing appropriate standard agriculture methods. Seedbed preparation will be accomplished along the contour of all slopes and the soil material loosened to a depth sufficient to promote proper seed germination.

Quick germinating, rapid-growing vegetative species capable of stabilizing the surface soil and preventing erosion will be sown. Vegetative materials used in reclamation will consist of grasses, legumes, herbaceous or woody plants, shrubs, trees, or some mixture consistent with the approved final land use for the property. Vegetation species will be chosen based on:

- Soil test results
- Post-mining land use
- Long-term erosion control
- Growth rates

- Ability to provide permanent vegetative cover
- Self-regeneration and plant succession capabilities
- Potential soil rebuilding abilities
- Potential benefits to wildlife

At least three grass and legume species will be applied as re-vegetative ground cover. One species will be a quick-growing variety to establish cover for the other species. At least one permanent legume species and two permanent grasses will be applied. Planting rates will be determined based on the recommendations of seed manufacturers and results of soil tests. Fresh, top-quality seeds will be used and legume seed will be properly inoculated prior to planting.

A minimum of 65 percent ground cover needs to be established at the end of the first growing season. Individual bare areas due to unsuccessful re-vegetation should not exceed one-half acre for any two acres planted at the end of the first growing season. Coverage of 85 percent will be established at the end of the second growing season.

Reforestation

The following is a recommended reforestation method: a minimum of four species of trees or shrubs will be planted in areas designated as forestland. Each of the four species should constitute at least 10 percent of the total plant stocking and no single species will exceed 50 percent. At least one conifer species and one hardwood or mast-producing tree species will be planted and at least 50 percent of the woody plants will be trees.

All areas designated forestland and planted with trees and shrubs will meet the ground cover specifications outlined above. To prevent erosion and minimize sedimentation during the establishment of

forest species, a minimum of 400 trees and shrubs per acre should survive the first growing season. At least 350 trees and shrubs per acre will be acceptable at the end of the second growing season.

Volunteer growth may be included in the survival counts, if it consists of appropriate species compatible with those stocked during reclamation. Any area larger than one-quarter acre in size that has failed to produce the required tree and shrub planting density after the second growing season will be restocked with the appropriate species.

Chapter 6

CONCURRENT MINING AND RECLAMATION

The ESC recognizes several advantages to concurrent reclamation and mining. Reclaiming an area already mined while continuing to mine in a new area can benefit the operator by providing significant cost benefits over the life of a mining operation. Limiting the size of the area mined at any one time reduces the potential for adverse environmental effects.

Some mineral deposits are more conducive to contemporaneous reclamation than others. Concurrent mining and reclamation require a thorough understanding of the mineral deposit being mined, and it involves a more comprehensive operational plan. The ability to utilize overburden materials for reclamation purposes without the need for stockpiling and subsequent rehandling provides an obvious financial benefit to the operator.

The cost of reclamation can be spread over the life of the mineral deposit, instead of increasing the cost and decreasing the profit margin in the last few years of operation.

Advantages

Advantages of concurrent mining and reclamation to operators include:

- Optimal personnel and equipment utilization
- Cost-effective reclamation
- Reclamation costs spread over the life of the operation
- Improved community relations
- Potential to develop a real estate asset

Advantages of concurrent mining and reclamation to the citizens of Indiana include:

- Less land area is affected by mining at any one time
- Visual effects are enhanced because the initial outside view of the operation includes reclaimed property
- Environmental concerns are minimized
- Public safety concerns are minimized

Reclamation Timing

ESC members agree to limit the amount of area affected by mining at their operations, whenever possible. Reclamation will begin on affected areas declared to be permanently inactive within one (1) year of cessation of mining. Final grading and contouring of mined out areas will be completed according to the reclamation plan approved by the ESC.

Areas incidental to mining other portions of the property such as haul roads, ramps, sumps, settling ponds, processing plants, and stockpile areas, need not be considered for reclamation until they are no longer in use.

Areas mined beneath the water table that are indicated as permanent impoundments on the approved reclamation plan will not require reclamation. The static water level defines the elevation of an impounded lake or pond upon cessation of pumping operations and requires no reclamation. Highwalls and slopes will be reclaimed to the static water level of permanent impoundments, according to the guidelines established in Chapter 5.

Revegetation will begin the next growing season after final grading efforts. When weather conditions and growing season permit, revegetation will be

accomplished simultaneously with the final grading process. Vegetative cover meeting the specifications outlined in Chapter 7 will be established at the end of the second growing season following the grading process.

Reclamation will be considered complete when the revegetation specifications outlined in Chapter 5 are met. If revegetation goals are not met after two growing seasons immediately following planting efforts, the operator will make additional applications of fertilizer, lime, mulch, seeds, seedlings, etc., as necessary to establish the minimum specifications.

Cessation of Mining

Mineral extraction is generally an interim land use but can encompass extended periods of time. The purpose of the *Guiding Principles* is to provide guidance and minimum specifications to assist the industry in the rehabilitation of surface mined land in Indiana.

Mining may be temporarily suspended due to market constraints, economic conditions, and other factors without completion of the final reclamation. Prior to temporary cessation of mining at any mineral extraction operation, drainage, sedimentation controls, and seeding will be established and demonstrably functional. During an interim temporary period of mining abatement, ESC members agree to perform routine inspections and to maintain the site to ensure public safety and environmental protection, (for example, maintaining warning signs, fencing, gates, sediment traps, etc).

Members will notify the ESC with a letter or email to the SRC of any temporary cessation of mining within thirty (30) days after such cessation. The letter or email shall specify the effective date of cessation. An industry operation will be considered as temporarily closed for a period not to exceed two

(2) years, unless otherwise extended by the ESC. If the closure extends beyond two years and the ESC has not approved an Interim Reclamation Plan, the member agrees to complete the reclamation in accordance with the guidelines outlined in this document. If a member plans to resume operations at a site that has been temporarily closed, the member will notify the SRC upon resuming operations.

Temporary closure of extraction operations due to adverse winter weather conditions is expected and will be considered routine winter shut down and not a temporary cessation of mining.

When mineral extraction operations and processing operations at a specific location have been completed, the ESC member will reclaim the site in accordance with the approved reclamation plan for the approved land use. Reclamation will be accomplished utilizing the timetable outlined in the section above, entitled "Reclamation Timing."

Upon completion of reclamation, normal maintenance of public safety, security, and environmental controls will be routinely inspected until such time as the member divests itself of the property.

Within two (2) years after the completion of reclamation, the operator will remove and dispose of all buildings, processing plants, equipment, parts, machine, tools, and structures not compatible with the approved reclamation plan.

Chapter 7

REPORTING FORMAT

Regular reporting by members will be necessary in order to assure that the public perception of the ESC is maintained at a standard of excellence. To be effective, applicability and interpretation of the *Guiding Principles* must be consistent for all industry operations in Indiana.

Upon joining the ESC, each member-operated site will submit an application for approval. Current information on the progress of reclamation at each extraction site (see Appendix B) will be submitted to the ESC annually. Temporary cessation and the completion of mining will be reported to the ESC. Changes or alterations in the approved reclamation plan may be requested and will require review by the TAC and approval by the ESC Board of Directors.

Application for Membership

An individual application for ESC membership will be provided for each mineral extraction site. Members with multiple mining sites agree to file applications for each individual mineral extraction site owned, operated or controlled by the member company.

Initial applications will be submitted in a format adopted by the ESC. Included with the initial applications will be one Application Map showing the existing conditions and proposed mining plan. A second Proposed Reclamation Map indicating the proposed topography after reclamation will be submitted to the ESC for approval within twenty-four (24) months of the date that the original application was approved. As a result of the annual inspection, an updated map may be requested by the SRC and

TAC to properly review the progress of the reclamation activity.

The application will include, at a minimum, the following information:

1. Mine Operating Company name, physical address, and mailing address
2. Physical address of extraction site
3. Land owner of extraction site
4. Person responsible for reporting
5. Physical location of the extraction site
6. Type of mining operation (surface quarry, dredge, etc.)
7. Commodity produced
8. Land area information including total acreage, acreage affected to date, and acreage reclaimed to date
9. Geological formations and thicknesses produced and stripped
10. Groundwater information including expected static water levels upon completion of mining and groundwater monitoring methods
11. Proposed post-reclamation land use
12. Comprehensive description of the planned reclamation process
13. Drainage and sediment control
14. Anticipated schedule of reclamation
15. Beautification efforts that have been accomplished or are anticipated

16. Re-vegetation plan upon completion of mining and reclamation
17. Location of any associated production facilities on site.

A copy of the ESC Application Form is found in *Appendix A*.

Annual Reports

Members of the ESC agree to submit annual reports detailing:

- The acreage newly affected within the past year;
- The acreage affected to date;
- The number of acres that have been fully reclaimed and revegetated per *Chapter 5* of this manual;
- Proposed modifications to the original mining and reclamation plan approved by the ESC.

Any proposed changes in the reclamation plan will require SRC approval. Upon review of the proposed changes or modifications submitted with the Annual Report, the SRC may require additional information be submitted by the operator (including additional and/or revised maps) before approving the modified plan.

An example of the Annual Report format is included in *Appendix B*.

Graphic Format – Application Map

The initial ESC membership application will include an Application Map indicating the existing site conditions and the proposed stripping and mining plan.

1. Property lines for the extraction site and adjoining properties;
2. Ownership of the extraction site and adjoining properties;
3. All existing surface water bodies including perennial and intermittent streams, lakes, wetlands, and ponds;
4. All houses, buildings, processing plants, and stockpiling areas;
5. Roads, highways, public thoroughfares, and railroads;
6. Existing and previously surfaced mined areas, highwalls, spoil piles, stripping, and waste disposal areas (pre-July 1, 1999);
7. A minimum of ten (10) years of mining area;
8. Haul roads, quarry ramps, conveyor lines, and pipelines used as means of transporting raw material.

Graphic Format – Proposed Reclamation Map

A second map titled “Proposed Reclamation Map” will be provided within 24 months of ESC membership showing the proposed reclamation, revegetation, and post-mining landform (reclaimed property). One (1) reclamation map will be required, unless the post-reclamation final landform is to be significantly modified from the original proposal.

The proposed reclamation map will contain the following information:

1. Topography needs to be shown in some form such as: contours, cross-section, shading or other approved methods with intervals appropriate for the topography of the site. (e.g. 2’, 5’, 10’, or 20’).
2. Completed berms shall be shown by typical cross-section indicating a maximum 3:1 slope.

3. Ownership of the extraction site and adjoining properties.
4. Property lines for the extraction site and adjoining properties showing 50-foot offsets from property lines and 150-foot buffers from occupied dwellings.
5. All surface water bodies including perennial and intermittent streams, lakes, wetlands, ponds.
6. Reclamation notes shall indicate the final disposition of houses, buildings, processing plants and stockpiling areas.
7. Public roads, highways, thoroughfares, railroads, power lines, telephone lines, buried pipelines, buried cables, and other utilities.
8. The location of any underground portals.
9. Cemeteries, parks, and other public lands.
10. Existing and pre-July 1, 1999 surface mined areas, highwalls, spoil piles, stripping, and waste disposal areas.
11. The limit of surface mining on the site (Mining Limits).
12. Location of sediment control structures and devices, dams, impoundments, and diversions.
13. Location of proposed permanent impoundments to include estimated static water elevations.
14. Location of active groundwater monitoring wells.
15. Final slope of unconsolidated material that is expected to be 3:1 (horizontal to vertical), however engineering controls are an option.
16. Remaining highwall (if applicable) evaluated based on future land use.
17. Any clarification to the above can be included in note form on the map.

Graphic Format – Updated Reclamation and Affected Area Maps

Beginning in 2029, and at ten- (10)-year intervals thereafter, an updated Reclamation Map will be required for submission to the ESC to verify utilization of the member property.

The map shall display the property as a drawn map or aerial photo format. The property boundary line and all other requirements of the Reclamation Map shall be shown. Additionally, the total affected area as of the date of the map shall be delineated. Additional information may be shown if desired to enhance the clarity of the graphic presentation.

Although paper maps produced at scales and with the information cited above and below are a means of portraying the layout and infrastructure of a given extractive site, the ESC recognizes that methods by which information may be portrayed graphically are continually changing. The ESC, therefore, recognizes that alternative methods of portraying this information must be considered. Aerial photographs flown for the required scales may, for example, be used as a base on which elevation control and other features are added. Geographical information systems (GIS) technology may also be utilized.

Graphic Format – All Maps

A system of standard map symbols will be utilized on all maps, cross-sections, drawings, to provide the SRC and TAC with easily interpreted, standardized information. *Appendix C* contains the standard symbols to be used on all maps submitted to the ESC. Deviation from these symbols will be allowed provided the map legend provides a clear explanation of the symbols used. All maps will be oriented with north toward the top of the map where possible. The map shall include a north arrow.

The ESC members agree to generate all maps to a scale appropriate to the size and extent of the property. The scale of each map will be provided. Maps will be at a scale no greater than 1 inch = 500 feet, unless approved by the TAC. Maps submitted in an electronic format should use a bar scale. All maps will include the entire mineral extraction site, plus an area extending at least 500 feet beyond the boundaries of the extraction area.

An applicant shall provide a location map consisting of data normally included on a USGS topographic map, on which is indicated the property location and the quadrangle name. The lower right-hand corner of the map will contain the title block indicating:

- Title of the map (e.g. Application Map, Proposed Reclamation Map, Amendment Map, etc.).
- Member company name, location, MSHA mine number.
- Map scale and contour interval.
- Township, Range, and Section Designation.
- Municipality, Township, and County.

Annual Inspection Check List

Appendix D contains an inspection check list designed to aid the SRC in processing applications and maps. A list of items needing to be evaluated during the SRC's site visits is also included in the checklist.

This list should help members generate their applications, maps and cross-sections. The site inspection portion of the checklist will aid in anticipating site reviews.

Appendix A

Environmental Stewardship Council

Application Form

Information provided on this form is confidential. Staff will use this information to prepare reports for the Technical Advisory Committee and the Site Review Team.



Date: _____ ESC Membership No: (MSHA Mine ID No.) _____

Type of Application *(check one)*

Original: _____ Amendment: _____
Revision: _____ Change of Ownership: _____

Company Information

Company Name: _____ Phone: _____
Address: _____ Fax: _____

Email: _____

Contact Person: _____ Title: _____

Business Structure *(check one)*

Corporation: _____ Sole Proprietorship: _____
Partnership: _____ Other (explain): _____

Extraction Site Location

Plant Name: _____ Phone: _____
Address: _____ Fax: _____

Email: _____

Local Contact: _____ Title: _____
County: _____ Township: _____
Municipality: _____ USGS Quadrangle: _____
Twp.: _____ Range: _____ Sec.: _____

Property Information

Name of Surface Ownership	Name of Mineral Rights Ownership	Acreage

*Total Acreage: _____

* Total Acreage to be Affected: _____

*** Represented by this application**

** Acreage Mined: _____

** Acreage Reclaimed: _____

** Acreage Graded to be Revegetated: _____

*** Before 7/1/1999**

Type of Operation *(check one)*

Operation Type	Wet ✓	Dry ✓	Both ✓
Sand & Gravel Pit			
Sand Pit			
Limestone / Dolomite Surface Quarry			
Clay Pit			
Shale Surface Quarry			
Sandstone Surface Quarry			
Underground Mine			
Dimension Stone			
Slag Crushing			
Fine Grind Operation			
Stoneyard/Sales Yard only			
Other (explain)			

Geological Information

Commodity <i>(limestone, sand, etc.)</i>	Geological Formation <i>(if applicable)</i>	Thickness <i>(feet)</i>	Produced ✓	Stripped ✓

Groundwater Information

Is groundwater removed from the aquifer at this site? Yes _____ No _____

If the groundwater pumping is a closed system, approximately
what percentage of the groundwater is recycled: _____ %

Number of monitoring wells on site: _____ *(indicate location on mine map)*

How often are wells monitored: _____

Is this site registered as a Significant Water Withdrawal Facility? Yes _____ No _____

Does this operation have an NPDES Permit? Yes _____ No _____

Does this operation pump surface water from any stream? Yes _____ No _____

 If yes, what stream?

Permanent Impoundments

(Please number permanent impoundments and indicate size, depth, etc. and show the location(s) on the accompanying map.)

Impoundment # <i>(P-1, P-2, etc.)</i>	Size <i>(acres)</i>	Depth <i>(feet)</i>	Mean Water Level Elevation

Does a written Storm Water Pollution Prevention Plan (SWPPP) exist for this site?

Yes _____ No _____

Does a written Spill Prevention Control and Countermeasure (SPCC) plan exist for this site?

Yes _____ No _____

Operational Information

Mining Equipment Utilized for Reclamation

(check where appropriate)

Equipment Utilized	✓
Dragline	
Dredge	
Shovel	
Hydraulic Excavator (backhoe)	
Wheel Loader	
Off-road Haul Trucks	
Highway Dump Trucks	
Drilling Rigs	
Other <i>(explain)</i>	
Other <i>(explain)</i>	

Processing

Do Associated Production Facilities Exist On-site?	Yes ✓	No ✓
Hot-Mix Asphalt		
Cold-Mix Asphalt		
Ready Mix Concrete		
Concrete Block		
Concrete Pipe		
Pre-stressed Concrete		
Recycled Asphalt		
Recycled Concrete		
Trucking Company		
Other (explain)		

Reclamation / Land Use

Land Use

Indicate, in general terms, the pre-mining land use for the property at this site.

In general terms, what is the proposed post-mining land use for the property?

Is there a zoning ordinance governing land use that applies to the site? Yes ____ No ____

If yes, is the future intended land use compatible with the local zoning? Yes ____ No ____

Are there presently land uses on the site other than mining? Yes ____ No ____

If yes, please explain. _____

Proposed Reclamation Method

Briefly describe the proposed methods and plan(s) for reclaiming and grading of areas affected by mining.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

Proposed Revegetation Plan

Ground Cover:

Perennial Grass Species	pounds / acre
Legume Species	pounds / acre
Nurse Crop (annual grass or grain)	pounds / acre

Type of fertilizer to be used: _____

Type of mulch to be used: _____

Mulching rate per acre: _____

Will liming materials be applied? Yes _____ No _____

Lime rate per acre: _____

Tree or Shrub Species	Approximate Spacing	Plants per Acre

Beautification

Beautification Plan	Completed ✓	Planned ✓
Site Barriers		
Landscaped Site Barriers		
Entrance / Main Gate Improvement		
Vegetative Barriers		
Wildlife Enhancement Area		
Scrap Removal		
Flower Planting		
Sign Improvement		
Other (explain)		
Other (explain)		
Other (explain)		
Other (explain)		
Other (explain)		

Required Attachments:

Application Mine Plan Map

Reclamation Map to be submitted within twenty-four (24) months.

All information and data contained in this document and all attachments are true and correct to the best of my knowledge.

Signed this _____ day of _____, _____.

Signature _____

Printed Name _____

Title _____

Appendix B

Environmental Stewardship Council



Annual Location Report

Information provided on this form is confidential. Staff will use this information to prepare reports for the ESC Board of Directors, and the Technical Advisory Committee.

Date _____ ESC Membership No: (MSHA Mine ID No.) _____

Reporting Year: January 1, _____ to December 31, _____
Year _____ of ESC Program

Company Name: _____
Contact Person: _____ Contact Title: _____
Plant Name: _____ Contact Phone: _____
Plant Address: _____ Plant Phone: _____
Contact Email: _____

Mining Area #	Acres Affected During Reporting Year	Acres Affected To Date*	Acres Reclaimed During Reporting Year	Acres Reclaimed To Date*
Pre-1999				
TOTALS				

* Since joining the Environmental Stewardship Council.

List any proposed changes, additions, deletions or modifications to the approved Reclamation Plans. Include any changes in timing of reclamation, beautification, or revegetation.

I, the undersigned, certify that the information contained in this Annual Report is true and correct to the best of my knowledge.

SIGNATURE

PRINTED NAME

TITLE

Appendix C

ESC Standard Map Symbols
(slight variations are acceptable)

Permanent Impoundment

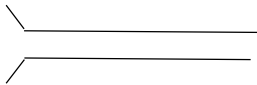


(number each impoundment)

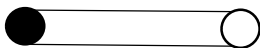
Sediment Pond / Water Bodies



Spillway

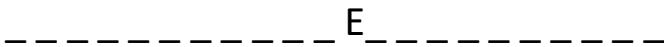


Overflow Pipe

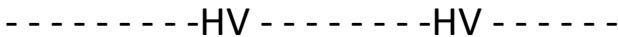


(note inside diameter)

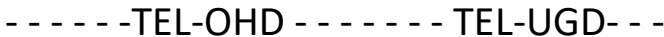
Electric Distribution Line



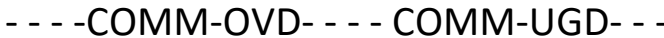
Electric Transmission Line (>5KV)



Telephone Line (Overhead or Underground)



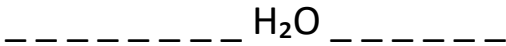
Communications (Television, Internet, Fiber Optic)...(Overhead or Underground)



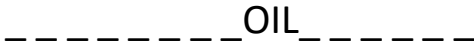
Gas Line



Water Line



Oil Line



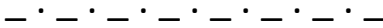
Occupied Building



Unoccupied Building



Proposed Final Highwall



Beginning Mining Point

BEGIN

Ending Mining Point

END

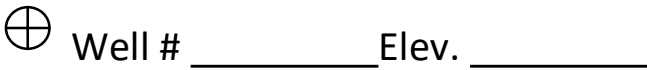
Direction of Mining



ESC Standard Map Symbols

(slight variations are acceptable)

Groundwater Monitoring Wells



Contour Lines



Property Lines



Diversion Ditch



Natural Drainage



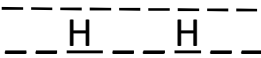
Pumped Drainage



Intermittent Natural Drainage



Haul Road



Hard Surface Road



Gravel or Driveway



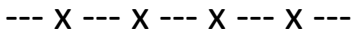
Drift or Slope Entry



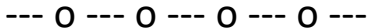
Planted Trees



Existing Highwall / Active Mining Face



Toe of Overburden



Cross Section



Proposed Spoil Area



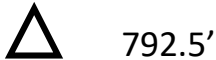
Sump



Dike



Benchmark with elevation



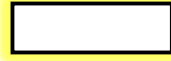
Slope Symbol



ESC Standard Map Symbols

(slight variations are acceptable)

Application Area (entire periphery)



(black/yellow line)

Area previously affected



(solid red line)

Area to be affected in next 5 years



(dashed red line)

Area where grading is complete



(purple cross hatch)

Area where revegetation is complete



(green cross hatch)

Overburden storage / spoil piles



(shaded brown)

Amended Areas



(shaded yellow)

Area where reclamation is complete
including vegetation specifications after
second season,



(shaded green)

Typical Map Title Block

Application Map	September 1, 2021
Indianapolis South Plant	Member MSHA ID. No.: 120-0001
Center Township	Section 19
City of Indianapolis	Township 15 North
Marion County	Range 4 East

Appendix D

Environmental Stewardship Council

Annual Location Inspection

Information provided on this form is confidential to the member company and the ESC Staff.



ESC Member Co.		Plant Name	
MSHA Mine ID No.		Date	

Field Inspection	Yes √	No √	Comments
Public Safety Issues			
Fencing, property access restrictions			
No trespassing / warning signs			
Truck speed limits posted/ traffic controls			
Environmental Issues			
Discharge water controls			
Groundwater monitoring			
Erosion controls (mulch, diversions, riprap, etc.)			
Fugitive dust from haul roads, stockpiles, processing, etc.			
Community Relations Issues			
General housekeeping			
Setbacks meet plan			
Progressive reclamation			
Vegetative barriers, maintenance			
Maintenance of front entrance / company sign			
Best Management Practices			
Overburden removal, storage			
Drainage / sediment control			
Reclamation			
Concurrent mining & reclamation			
Approved fill			
Grades / contours			
Final highwall stabilization			
Revegetation			
Ground cover after first growing season			
Ground cover after second growing season			
Tree / shrubs coverage after first growing season			
Tree / shrubs coverage after second growing season			

Site Review Coordinator Comments:

Suggested Remedial Action Needed:

Inspected by:	
Signature:	

Appendix E

ENVIRONMENTAL STEWARDSHIP COUNCIL

BOARD OF DIRECTORS

Brian Peters, Mulzer Crushed Stone
ESC Board Chair (2021)

Garrett Cockrum, Martin Marietta
ESC Vice Chairperson, TAC Chairperson (2021)

Name	Company	Term Ends*	INDOT District	Representing
Max Williams	Martin Marietta	2021	Greenfield	Crushed Limestone
Randy Boisvert	Hanson Aggregates	2021	Crawfordsville	Crushed Limestone
John Berscheit	Rieth-Riley Construction	2021	LaPorte	Sand and Gravel
Danny Powell	Rogers Group, Inc.	2021	Vincennes	Crushed Limestone
Ryan Beer	Elkhart County Gravel, Inc.	2022	Fort Wayne	Sand and Gravel
Laurie Webb	US Aggregates, Inc.	2022	Crawfordsville	Sand and Gravel
Jerry Matlock	Beaver Gravel Corporation	2022	Seymour	Sand and Gravel
Nathan Ehrhart	Stone Street Quarries, Inc.	2022	Fort Wayne	Crushed Limestone
Ken Wanstrath	New Point Stone Co.	2023	Seymour	Crushed Limestone
David Klene	CGS Services, Inc.	2023	Greenfield	Sand and Gravel
Brian Duncan	Irving Materials, Inc.	2023	LaPorte	Crushed Limestone
Brad Powell	VCNA Prairie, Inc.	2023	Vincennes	Sand and Gravel
Calvin Lee	Indiana Mineral Aggregates Association	Ex Officio – Executive Director		
Douglas Lozier	Indiana Mineral Aggregates Association	Ex Officio – Site Review Coordinator, ESC Secretary		

*Term ends at close of IMAA Winter Workshops, typically in January of the following year.

ENVIRONMENTAL STEWARDSHIP COUNCIL

TECHNICAL ADVISORY COMMITTEE (TAC)

Garrett Cockrum, Martin Marietta TAC Chairperson (2021)
--

Cory Kiser	Jurgensen Aggregates Group
Gregg Hebbe	Shelby Materials
Wenona Fosselman	Mulzer Crushed Stone
Brian Peters	Mulzer Crushed Stone – ESC Chairperson
Calvin Lee	IMAA, Executive Director – Ex Officio
Douglas Lozier	IMAA, Site Review Coordinator – Ex Officio, TAC Secretary