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INTRODUCTION

Oxford Mining Company, LLC. (Oxford) is proposing to extract coal from the Baker Hendershot Area, located northeast of Zanesville, Ohio. This document was prepared in order to address the proposed project in accordance with a request by Oxford Mining Company, LLC for Section 404 authorization from the U. S. Army Corps of Engineers, Huntington District (COE) and for Section 401 authorization from the Ohio Environmental Protection Agency (Ohio EPA) for impacts to waters of the United States in association with the project. This document also contains an alternatives analysis as required by the COE for Section 404 Authorization and as required by the Ohio EPA for Section 401 Water Quality Certifications.

SITE DESCRIPTION

The proposed project lies within Sections 3 and 4 of Washington Township, Muskingum County, Ohio. The projected is located east of State Route 666 between Painters Hollow Road and Memory Road. It is located on the Adamsville 7.5 Minute USGS Quadrangle Maps (Figure 2). The site consists of undeveloped land with early successional forest traits and pastureland. The site is bordered by agricultural, residential, and forested property in all directions, much of which will be mined, is currently being mined and/or has been mined in the past.

WETLAND DELINEATION

A wetland delineation was conducted on the subject property by Oxford Mining Company in April 2010 in order to determine the location and extent of potential waters of the United States, including wetlands and streams. The wetland delineation was forwarded to the COE, Huntington District and the subsequent field review took place on September 15, 2010. Final approval was determined through an Approved Jurisdiction Determination on December 17, 2010. A copy of the Jurisdictional Waters Study has been included under Appendix A.

PROPOSED PROJECT

The No. 6 coal seam will be developed. Contour mining using the box cut method will be employed during development and augers will be utilized for coal extraction. Dozers, scrapers, loaders, and trucks will be used to mine and reclaim the area. The proposed permit area includes 140.1 acres, 53.3 acres will be strip mined and 22.2 acres will be auger mined.

APPLICATION COORDINATION

Per the reissuance of the Nationwide Permits by the COE, coordination with the U.S. Fish and Wildlife Service (FWS) and the State Historic Preservation Office is required prior to authorization of any activity under Section 404 of the Clean Water Act. In order to provide information regarding these requirements, a literature search of the information available from the FWS, the Ohio Department of Natural Resources (ODNR) and the Ohio Historic Preservation Office (OHPO) was conducted as described below.

FEDERALLY LISTED RARE AND ENDANGERED SPECIES

The FWS published list of endangered and threatened species in Ohio (3/2008) was reviewed. According to the list, *Myotis sodalis* (Indiana bat) is the only endangered species found distributed within Muskingum County that could possibly occur on-site.

According to Clark, B. K., et. al., *Myotis sodalis* is found in Ohio during summer months through September. Preferred habitat includes large living or dead trees with large cavities, cracks or exfoliated bark (1987). Tree species including *Ulmus americana* (American elm), *U. rubra* (slippery elm), *Quercus stellata* (post oak), *Q. rubra* (red oak), *Carya ovata* (shagbark hickory), *C. cordiformis*

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(bitternut hickory), *Populus deltoides* (Eastern cottonwood), *Acer saccharinum* (silver maple) and *Fraxinus pennsylvanica* (green ash) have been documented as used by reproductively active females in Michigan (Kurta, et. al., 1993).

The Indiana Bat PPD came into effect on May 15, 2004. The Baker Hendershot Area application was considered complete after the effective PPD was established, therefore, this area will need to have a bat survey conducted. This survey was conducted by Tragus Environmental Consulting, Inc. on May 19-May 20, 2010. This report was approved by FWS in a letter dated June 25, 2010.

STATE LISTED RARE AND ENDANGERED SPECIES

The ODNR was contacted for any information available concerning the presence of state listed endangered, threatened and proposed species or their habitat for the project site. ODNR was requested to provide information through a formal search of the ODNR Natural Heritage Database.

ARCHAEOLOGICAL AND HISTORICAL RECORDS

A Phase I Cultural Resources Management survey was completed for the Baker Hendershot Area , by Professional Archaeological Services Team (P.A.S.T.). No further work is recommended by the Archaeologists.

REQUIRED AUTHORIZATION

The U. S. Army Corps of Engineers administers the Nationwide permit program for the state of Ohio. On March 13, 2002, the COE published the final rule for the administration of its nationwide permit program regulations under the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and the Marine Protection, Research and Sanctuaries Act. The rule became effective on March 13, 2002 (COE, 3/13/02).

The COE permits authorize the discharge of dredged or fill material under Section 404 of the Clean Water Act and are not valid until the state of Ohio certifies that the proposed discharge is not in violation of the state's water quality standards (COE, 3/13/02).

Proposed impacts to waters of the United States include ephemeral, intermittent, and perennial stream impacts as well as wetland impacts associated with the mining operation. This project is proposing authorization under the Individual Permit (IP) process through Section 404 through the Corps of Engineers. A Section 401 Water Quality Certification is being sought from the Ohio EPA.

An alternatives analysis is required for the Section 404 permit and for the Section 401 Water Quality Certification through the antidegradation review. Due to the comprehensive nature of the requirements of the antidegradation review, one alternatives analysis is presented below in this form and is intended to provide information for purposes of both Section 404 and Section 401.

STREAM FEATURES / STREAM HABITAT ASSESSMENT

Oxford Mining Company conducted a stream survey and a jurisdictional delineation. This survey concluded that 13 stream features on site were determined to be jurisdictional. The Headwater Habitat Evaluation Index (HHEI) was used to give the perennial, intermittent and ephemeral streams a qualitative determination.

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A total of 6,501 linear feet of stream features were identified on the site; three (1) perennial streams (861 l.f.), nine (9) intermittent (5,303 l.f.), and three (3) ephemeral (337 l.f.). The permit boundary was later adjusted and Stream 1, Stream 2, Stream6, Stream 7, Stream 9, Stream 10, Stream 11, Stream 12, and Stream 13 are no longer within the permit boundary.

The majority of streams within the permit boundary originate as steep, rocky outcrops and/or hillside seeps that have been wholly or partially affected by previous mining activities. Streams substrates are primarily composed of sand and gravel, with smaller amounts of silt and detritus. Most of the remaining streams substrates are principally composed of cobble and gravel with lesser amounts of silt, sand, detritus and leaf-pack/woody debris. Channel development is typically fair to poor with little to no sinuosity. In general stream cover is sparse to moderate and consists of overhanging vegetation, logs, and woody debris.

Oxford found that the majority of the ephemeral features were dry during the field reconnaissance while the intermittent streams had a small amount of flowing water. Riparian zone width along the identified streams varied from narrow to very narrow, and primarily included immature forest, timbered forestland and old-field habitats.

None of the streams occurring on the site is listed in the Ohio EPA's *A Listing of Special Category Waters Identified in Ohio's Antidegradation Rule* (10/1/96) or the *State of Ohio Water Quality Standards* (Ohio EPA, 10/16/97). In addition, none of listed features is monitored by Ohio EPA.

JURISDICTIONAL WETLAND / WETLAND HABITAT ASSESSMENT

Oxford identified 13 (thirteen) wetland features within the original permit boundary. Five wetlands on site were determined to be jurisdictional and eight wetlands were determined to be non-jurisdictional. The permit boundary was later adjusted and WD-A, WD-B, WD-D, WD-E, WD-F, WD-G, WD-H, WD-I, WD-J, WD-K, and WD-M are no longer within the permit boundary. All wetlands are associated with disturbance activity including farming and/or cattle grazing, clear cutting, pre-law mining and the formation of flat areas around streams. Impacts to isolated wetland WD-C will be covered under an Ohio EPA Isolated Wetland Permit.

These wetlands are named WD-A through WD-M in the jurisdictional determination report. These wetlands cover a total area of 2.04 acres.

To determine the appropriate category the ORAM Version 5.0 was used to rate each delineated wetland. The ORAM scores ranged from 18.5 to 49.5. The table found within the ODNR / DMRM Stream Buffer Zone Variance Request titled "OEPA Wetland Resources Table (ACOE & OEPA)" lists all wetlands identified during Oxford's delineation and their associated ORAM scores.

PROJECT ALTERNATIVES ANALYSIS - U. S. ARMY CORPS OF ENGINEERS

An alternatives analysis is being submitted to be used as supplemental information for the Section 404 review. Project specific alternatives are discussed below.

Extensive funds have been invested by Oxford Mining to evaluate the extent of environmental concerns, including the presence of Waters of the United States, soil sampling, hydrology studies, preliminary engineering, and an evaluation of the potential environmental impacts and mitigative measures.

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Selecting off-site alternatives can be difficult for coal projects such as this. Unlike most development projects, natural resource extraction, particularly mining of the #6 coal seam, is limited to geologic position on the landscape. As a result of these restrictions, Oxford Mining cannot seek off-site alternatives that allow them to achieve the project goal and not impact Waters of the U.S.

As indicated on the mining permit map, the majority of the ridgetops (upland area) are proposed to be mined through in order to remove a great deal of overburden to extract coal. The remaining hilltops will be used for topsoil storage for post-mining reclamation or will not be affected at all. With this in mind, upland spoil storage areas are not as practical seeing as most of the upland areas are to be mined through. Additionally, the cost of trucking the overburden to the upland areas is very costly and poses a safety hazard for the operators who are working in the active pit area (below those storage areas).

The proposed water impacts are easier described using detailed tables instead of lengthy, confusing narratives. These tables enumerating stream impacts, stream classification and length, associated with the below described alternatives are included within the text and have been integrated into design plans.

PROJECT ALTERNATIVES ANALYSIS - OHIO EPA

The analysis of the preferred design, minimal degradation, and non-degradation alternatives are discussed below. Each alternative includes a discussion of the expected magnitude of the lowering of water quality associated with each scenario. As required by the Anti-Degradation Rule, the anticipated impact of the proposed lowering of water quality on aquatic life and wildlife and the overall aquatic community structure and function is included. In addition, mitigative techniques are also discussed.

Oxford did not consider any alternative sites as a "spillover" for the Otsego mining area. The proposed Baker Hendershot area was selected because it allows for the economical recovery of the coal resources and is fairly close to the Otsego area (allowing for the economical moving of mining equipment from the Otsego area while it is idle) as well as allows for the opportunity to reclaim 60 acres of pre-mined lands. Another benefit of the proposed site is that it is located in a region with low population density. Also, no other site was considered due to the fact that coal reserves are associated with and located within the proximity of aquatic resources throughout the state. Therefore, there is no reason to believe that another site would result in a decrease in impacts to water quality.

Oxford has utilized best management and mining practices to minimize aquatic resource impacts onsite. The original permit limits have been revised to avoid and eliminate impacts to 3,189 linear feet of stream and 1.91 acres of wetlands within or near the proposed preferred design permit limits. The preferred design alternative includes impacts to 3,312 linear feet of stream and .07 acres of jurisdictional wetlands and .06 acres of isolated wetland (which will be covered under an Ohio EPA Isolated wetland permit and will not be discussed further within this application). These impacts reflect the most environmentally responsible and least damaging area needed to extract the coal resources efficiently without compromising the purpose and need of this project. Therefore, further avoidance of aquatic resources on site result in the project becoming economically and technically unfeasible. The minimal and non-degradation

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alternatives that were developed are described within this document and can be referred to in the attached drawings.

A brief description of each alternative design is given below. Each alternative design considered impacts to technical, economical, cultural, and natural resources and are discussed throughout the rest of this document.

PREFFERED DESIGN ALTERNATIVE

The proposed preferred design alternative is to mine the Middle Kittanning #6coal seam on a 140.1 acres site. Refer to the Preferred Alternative Design map for the mining plan. The use of contour mining and an auger will be the primary methods used for coal extraction. A highwall miner may be used to extract coal as well. Coal extraction is done through the removal of the over lying soil and rock layers above the coal (overburden) and then developing and stripping the coal seam using the box cut method. The coal seam to be mined by this process will be the #6. The #6 coal will also be mined using an auger, which mines the coal without any surface disturbance. After mining is complete the overburden and topsoil will be replaced to the approximated original contours. The site will be reclaimed by seeding, planting, and mulching according to the mine plan and streams and wetlands will be reconstructed according to the attached compensatory mitigation plan. This design proposes impacts to 3,312 linear feet of stream and .07 acres of wetlands.

MINIMAL DEGRADATION ALTERNATIVE

Oxford took great care to minimize impacts to the preferred design alternative to ensure the least environmentally damaging project while still ensuring that the project is still technically and economically feasible. The following minimal degradation alternative is less environmentally damaging but is not technically or economically feasible. This alternative will result in impacts to 1,055 linear feet of streams and 0 acres of jurisdictional wetlands.

The minimal degradation design alternative is to mine the Middle Kittanning #6coal seam on a 96.8 acres site. Refer to the Minimal Degradation Design map for the mining plan. Under this alternative the site would be mined and reclaimed in the same manner as the preferred design with the exception of a substantial loss in recovery of coal resources. A compensatory mitigation plan has not been developed for this alternative as to Oxford is pursuing the preferred design alternative.

NON-DEGRADATION ALTERNATIVE

Oxford took great care to minimize impacts to the preferred design alternative to ensure the least environmentally damaging project while still ensuring that the project is still technically and economically feasible. The following non degradation alternative is less environmentally damaging but is not at all technically or economically feasible. This alternative will result in no impacts to any aquatic resources.

The non degradation design alternative is to mine the Middle Kittanning #6coal seam on a 78.1 acres site. Refer to the Non Degradation Design map for the mining plan. Under this alternative the site would be mined and reclaimed in the same manner as the preferred design with the exception of a substantial loss in recovery of coal resources. A compensatory mitigation plan has not been developed for this alternative as to there is no proposed impacts.

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DESCRIPTION OF THE WORK (10A)

PREFERRED DESIGN

The preferred design alternative would impact 4 jurisdictional streams totaling 3,312 linear feet and 1 jurisdictional wetlands for a total of 0.07 acres. The proposed impacted waters are located within the Blount Run Watershed (HUC- 05040004-0305), which is associated with the Muskingum River basin. Fill will be primarily composed of shale/limestone and will be free of toxic materials. Construction of pollution control devices such as diversion ditches and ponds, the construction of haul road and staging areas, the extraction of coal resources, and reclamation are the reasons for fill to be placed within jurisdictional waters. All areas of construction will be performed to and held to DMRM standards. Approximately 4,140 cubic yards of fill will be placed within jurisdictional waters under this design alternative.

The stream mitigation plans (part 10k) demonstrate the methods to be used to reconstruct the stream channels during the reclamation process (only for the Preferred Design). The materials, which will be placed in the stream channel, and discharged in the active runoff, will be in the form of sandstones and shales. See the Drilling Reports included with the ODNR permit application for a description of the overburden. Also, see the pond data sheets for a description of the pond designs.

This alternative was designed to maximize coal seam development of the No. 6 coal seam. Coal yields have been estimated at 215,000 strip tons (No. 6) and 50,000 auger tons for a total of 265,000 tons. As a result of this design, 3,312 linear feet of stream channel (intermittent and ephemeral) and 0.07 acres of wetland will be impacted.

The Ohio Revised Code, Chapter 1513 Coal Surface Mining, §1513.16 Performance Standards, states the following:

> *.....conduct coal mining operations so as to maximize the utilization and conservation of the solid fuel source being recovered so that re-affecting the land in the future through coal mining can be minimized;*

Essentially, the statute requires that the applicant maximize mined resources on a site so there is no need to return at a later date and re-mine a reclaimed site. By removing as much coal as is technologically and feasibly reasonable, this standard is met.

The tables found within the ODNR / DMRM Stream Buffer Zone Variance Request lists all proposed stream and wetland impacts under the Preferred Design.

MINIMAL DEGRADATION ALTERNATIVE

This alternative was designed to maximize coal seam development while reducing impacts to surface waters. In order to avoid stream channel impacts this alternative proposes leaving and abundance of coal unmined as the coal underlies the streams and wetlands. The only area which could be minimized for impacts (as Oxford always minimizes impacts) is west of Stream 3 with the exception of minimal impacts to Streams 4 and 5. Most of these resources would have to be entirely avoided resulting in 2,257 feet of less impacts to streams and 0.07 acres of less impacts to wetlands.

The construction work and nature of the fill material being used during construction is the same as the preferred design alternative. Approximately 1,318.8 cubic yards of fill will be placed within jurisdictional waters under this design alternative.

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Coal yields for this alternative have been estimated at 128,710 tons of strip mined and auger coal recovered for an estimated loss of 136,290 tons. The minimization alternative eliminates the surface mining west of Stream 3. While the selection of this alternative would result in a reduced impact to waters of the US, it would also avoid previously impacted areas for which reclamation is proposed under the preferred alternative, leaving the State responsible for reclamation of these areas. Oxford Mining Company is prepared to reclaim AML within the project area at no cost to the State. Therefore, funds that would be used up for the reclamation of these streams could be beneficially used elsewhere in the State. In addition, substantial economic impacts to the mining operation would result and economically obtainable coal reserves would be left unmined. Information that demonstrates the social and economic impacts of this alternative, and why preservation of this aquatic resource is not a reasonable decision in light of those impacts, is provided in the Clean Water Act 404 Alternatives Analysis. Several minimization alternatives to extract the No. 6 coal seam were investigated. No minimization alternative would be technically feasible or economically practicable.

For the minimal degradation alternative coal reserves will be left in place as this is the only way to avoid streams.

There are no tables associated with this alternative.

NON-DEGRADATION ALTERNATIVE

The Non-Degradation Alternative involves the development of a smaller portions of the No. 6 coal seam and restricts mining to areas outside of stream drainages, away from surface waters and wetlands. This alternative allows no impacts to streams or wetlands. Under this alternative the No. 6 coal seam is expected to yield 38,704 tons of strip mined and auger coal recovered for an estimated loss of 226,296 tons. Access to the majority of the coal is limited because all of the coal is located below drainage (below stream and wetlands).

Locating haul roads, blending sites, storage areas for spoil, runoff drainages, and mobilizing equipment would be extremely difficult, impractical, and cost prohibitive. Also, to properly mine under this alternative several "first cuts" would have to be made to open up pits instead of mining continuously essentially stripping one large area (which would be the most efficient and cost effective). Initial cuts are always the most expensive for a site and take the most time. Potential revenues would not exceed costs, making mining impractical. The numerous technical and economic considerations prevent this alternatives acceptance.

MAGNITUDE OF THE LOWERING OF WATER QUALITY (10B)

PREFERRED DESIGN

Preliminary studies pertaining to water quality on-site were conducted as required by the ODNR permitting process. Overburden contained within the permit area is generally non-toxic and non-acidic. The overburden has a good buffering capacity. The coal seams, as well as any binders, partings, etc. are typically toxic and acidic. The coal seams will be removed by mining, and therefore removed as a toxic and acid-forming stratum. If these toxic and acid producing strata are disposed of properly, the mining and reclamation of this area should result in acceptable levels of water quality. If overburden is disposed of properly, as described in the ODNR application, this area should result in a neutral spoil and acid mine drainage will not be a concern.

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The majority of streams within the permit boundary originate as steep, rocky outcrops and/or hillside seeps. A most of the streams substrates are primarily composed of sand and gravel, with smaller amounts of silt and detritus. The remaining streams substrates are principally composed of cobble and gravel with lesser amounts of silt, sand, detritus and leaf-pack/woody debris. Channel development is typically fair to poor with little to no sinuosity. In general stream cover is sparse to moderate and consists of overhanging vegetation, logs, and woody debris. Average bankfull widths varied from very narrow (<1 meter) to almost 1.5 meters wide. Although surface mining will permanently impact several of these seeps and streams, the geology of the area, as well as abandoned and backfilled horizontal auger holes, will allow water to find a similar route as in pre-mining conditions. Despite any changes to the location of groundwater hyrologic sources, the water balance occurring on the site will not change.

Water quality may be temporarily impacted by mining activities. Mitigation techniques will be used to return water quality to pre-mining or better than pre-mining levels. In areas of reclaimed pre-law mining, water quality is expected to improve. Reclaimed and restored streams will be designed using natural channel design techniques to establish meanders and incorporate habitat features including pools and riffles and gravel/cobble substrate. Riparian vegetation including trees and shrubs will be reestablished along the banks.

No impacts are anticipated to occur to threatened/ endangered species or important commercial or recreational sport fish species as none are known to be found on the site. According to the Ohio Department of Natural Resources Natural Heritage Database, no existing or proposed state nature preserves or scenic rivers exist at the site.

MINIMAL DEGRADATION ALTERNATIVE

The magnitude of the lowering of water quality from the Minimal Degradation Alternative would be less than the Preferred Design as streams and wetlands west of Stream 3 will be avoided; however, the impact of lowering water quality in disturbed portions is generally expected to be minimized by the expansive placement of spoil. After completion of mining, during reclamation, proposed stream impacts will be mitigated on-site with natural channel design techniques.

No impacts are anticipated to occur to threatened/ endangered species or important commercial or recreational sport fish species as none are known to be found on the site. According to the Ohio Department of Natural Resources Natural Heritage Database, no existing or proposed state nature preserves or scenic rivers exist at the site.

NON-DEGRADATION ALTERNATIVE

The Non-Degradation Alternative will have no affect on water quality as there would be no impacts to streams or wetlands.

TECHNICAL FEASIBILITY AND COST EFFECTIVENESS (10C)

PREFERRED DESIGN

The preferred design alternative is technically feasible, cost effective and is available to proceed once all the necessary permits have been pertained. Oxford has the finances, personnel, experience, and equipment to mine and reclaim the proposed area in accordance with all applicable regulations.

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As stated earlier maximizing the coal recovery is one of the criteria used in the review of the SMCRA permit application by DMRM. The Ohio Revised Code. Chapter 1513 Coal Surface Mining. 1513.16 Performance Standards states the following:

….conduct coal mining operations so as to maximize the utilization and conservation of the solid fuel source being recovered so that re-affecting the land in the future through coal mining can be minimized:

This statute requires Oxford to maximize the coal resource on a site, so there is no need to return in the future to re-mine an already reclaimed site. This requirement is met by the removal of as much coal that is technically and feasibly reasonable. Oxford has determined that mining under the preferred design alternative is more economically feasible then the minimal or non-degradation alternatives.

To mine only a portion of the area that would need to be mined to maximize coal recovery, such as proposed under the minimal degradation alternative would not meet DMRM statute requirements. Also, mining in a different method other than what has been proposed for this area under the preferred design, other than compromising coal recovery, would create inefficiencies with drainage controls, spoil handling, and blending and grading during reclamation which would result in much greater costs as compared to the preferred design.

Surface mining activities often face operational and/or maintenance issues of which are likely to occur during the proposed project. However, Oxford has the finances, experience, personnel, and equipment to address any issues before they become a major problem that could potentially lead to increased surface water degradation. Some typical maintenance issues which could potentially lead to increased surface water degradation if not addressed adequately are failure to maintain properly working water pollution controls, failure to maintain haul road designs, gradients, and surface materials, failure to achieve stable backfills which could result in slips, failure to meet DMRM reclamation timetables, and failure to meet re-vegetation standards. Oxford is continually monitoring its mining and reclamation activities to ensure compliance with state and federal laws and efficiently responds to any issue as soon as one may occur.

As well as, having finances, experience, personnel, and equipment to address any issues before they become a major problem, Oxford is required to post performance bonds for the area under the DMRM permit. This bond is in the amount of $2,500 for each acre to be affected and $0.14 per each ton of coal produced. This bond is not fully refunded to Oxford until all performance criteria have been met and at least five years have gone by since reclamation was completed. Therefore, it is in Oxford's best interest to minimize impacts and to make sure the operation is ran as smoothly as possible without any major operational and/or maintenance issues.

MINIMAL DEGRADATION ALTERNATIVE

Please see above preferred design alternative discussion.

Despite the minimal degradation alternative being mined in the same manner as the preferred design (with exception of less impacts) lower estimated tonnage yields and gross revenues makes this alternative less cost effective. Increased costs are attributed to the handling of spoil material (removed overburden). Due to the location of sediment ponds, spoil storage is reduced, meaning spoil will need to be handled more than once with the use of trucks.

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NON-DEGRADATION ALTERNATIVE

This alternative is not technically feasible nor is it cost effective. This alternative has a very limited coal recovery area and compromises the operational area for earthmoving operations and construction as well as the operation of water pollution controls, which could lead to the increased potential of surface water degradation. The amount of resources it would take to mine this alternative properly is very excessive compared to the return of the coal resources that would be recovered. Access to the majority of the coal is limited because the coal is located below streams and wetlands. Avoiding any impacts to streams and wetlands would limit mining to hilltops and hillsides. Locating haul roads, blending sites, runoff drainages, and mobilizing equipment would be extremely difficult, impractical, and cost prohibitive. Also, to properly mine under this alternative several "first cuts" would have to be made to open up pits instead of mining continuously essentially stripping one large area (which would be the most efficient and cost effective). Initial cuts are always the most expensive for a site and take the most time. Potential revenues would not exceed costs, making mining impractical. The numerous technical and economic considerations prevent this alternative from being accepted by Oxford Mining.

DISSCUSSION OF REGIONAL SEWEAGE COLLECTION AND TREATMENT FACILITIES (10 D)

PREFERRED DESIGN

This alternative does not involve the collection and treatment of sewage.

MINIMAL DEGRADATION ALTERNATIVE

This alternative does not involve the collection and treatment of sewage.

NON-DEGRADATION ALTERNATIVE

This alternative does not involve the collection and treatment of sewage.

CONSERVATION PROJECTS FOR WATER QUALITY AND RECREATIONAL OPPORTUNITIES (10E)

PREFERRED DESIGN

No known government sponsored conservation projects are known to have been formed to specifically target improvement of water quality or to enhance recreational activities within the various unnamed tributaries the project discharges into.

MINIMAL DEGRADATION ALTERNATIVE

No conservation projects for water quality and recreational opportunities are known for this site.

NON-DEGRADATION ALTERNATIVE

No conservation projects for water quality are known for this site.

WATER POLLUTION CONTROL AND BEST MANAGEMENT PRACTICE COSTS (10F)

PREFERRED DESIGN

The preferred alternative method of mining will be contour mining and auger mining. Within the permit area, diversions will be constructed to divert sediment-laden water to the sediment ponds to protect stream channels. All water from the active mining area will be directed through

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sediment ponds prior to discharge into the natural drainage system. Discharge from ponds will meet all OEPA NPDES water quality standards.

The cost of these BMP structures have numerous variables to consider, such as construction, maintenance, certifications, reclamation and labor. Using estimates based on similar projects, sediment ponds typically cost $10,000 per acre. Sumps average $1,000 each. Diversion ditches are approximately $8.00 per linear foot to construct.

Best Management Practices include and are not limited to:

- Affecting only areas necessary for coal removal and associated activities.
- Generally limiting the disturbance of the area below the coal outcrop to the construction and maintenance of drainage control structures.
- Location of drainage control structures close to the active mine area and minimize acres affected.
- Removal of surface water within the pit areas will be accomplished using controlled pumping.
- Scheduling reclamation activities to minimize time in which affected areas are left without ground cover.
- Restoring vegetative cover utilizing a mixture or species that quickly provide the initial ground cover and provides permanent cover.
- Backfilling and rough grading will be completed within 60 days following coal removal or 1500 linear feet, whichever comes first.
- Resoiling will commence and be completed on graded areas during the first appropriate planting season following completion of grading unless precluded by climatic conditions.
- Resoiling should normally occur between April 1 and October 1.
- Permanent seeding will follow resoiling operations within 30 days unless precluded by climatic conditions.

The cost of water pollution controls associated with the project area is as follows:

Diversion Ditches	@$8.00 per linear foot	$100,000
Reclamation of 140.1 Acres	@$8,000 per acre	$1,120,800
Sediment Ponds	@$10,000 per acre	$50,200
Sumps	@$1,000 each	$10,000
Maintenance	@$25,000 per year	$125,000
Total		$1,406,000

MINIMAL DEGRADATION ALTERNATIVE

The minimal alternative method of mining will be contour mining and auger mining. Within the permit area, diversions will be constructed to divert sediment-laden water to the sediment ponds. All water from the active mining area will be directed through sediment ponds prior to discharge into the natural drainage system. Discharge from ponds will meet all OEPA NPDES water quality standards.

Best Management Practices include and are not limited to:

- Affecting only areas necessary for coal removal and associated activities.
- Generally limiting the disturbance of the area below the coal outcrop to the construction

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and maintenance of drainage control structures.

- Location of drainage control structures close to the active mine area and minimize acres affected.
- Removal of surface water within the pit areas will be accomplished using controlled pumping.
- Scheduling reclamation activities to minimize time in which affected areas are left without ground cover.
- Restoring vegetative cover utilizing a mixture or species that quickly provides the initial ground cover and provides permanent cover.
- Backfilling and rough grading will be completed within 60 days following coal removal or 1500 linear feet, whichever comes first.
- Resoiling will commence and be completed on graded areas during the first appropriate planting season following completion of grading unless precluded by climatic conditions.
- Resoiling should normally occur between April 1 and October 1.
- Permanent seeding will follow resoiling operations within 30 days unless precluded by climatic conditions.

The cost of water pollution controls associated with the project area is as follows:

Diversion Ditches	@$8.00 per linear foot	$80,000
Reclamation of 96.8 Acres	@$8000 per acre	$774,400
Sediment Ponds	@$10,000 per acre	$24,200
Sumps	@$1,000 each	$10,000
Maintenance	@$20,000 per year	$100,000
Total		$988,600

NON-DEGRADATION ALTERNATIVE

The non degradation alternative method of mining will be contour mining and auger mining. Within the permit area, diversions will be constructed to divert sediment-laden water to the sediment ponds. All water from the active mining area will be directed through sediment ponds prior to discharge into the natural drainage system. Discharge from ponds will meet all OEPA NPDES water quality standards.

Best Management Practices include and are not limited to:

- Affecting only areas necessary for coal removal and associated activities.
- Generally limiting the disturbance of the area below the coal outcrop to the construction and maintenance of drainage control structures.
- Location of drainage control structures close to the active mine area and minimize acres affected.
- Removal of surface water within the pit areas will be accomplished using controlled pumping.
- Scheduling reclamation activities to minimize time in which affected areas are left without ground cover.
- Restoring vegetative cover utilizing a mixture or species that quickly provides the initial ground cover and provides permanent cover.
- Backfilling and rough grading will be completed within 60 days following coal removal or 1500 linear feet, whichever comes first.

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- Resoiling will commence and be completed on graded areas during the first appropriate planting season following completion of grading unless precluded by climatic conditions.
- Resoiling should normally occur between April 1 and October 1.
- Permanent seeding will follow resoiling operations within 30 days unless precluded by climatic conditions.

The cost of water pollution controls associated with the project area is as follows:

Diversion Ditches	@$8.00 per linear foot	$80,000
Reclamation of 78.14 Acres	@$8000 per acre	$625,120
Sumps	@$1,000 each	$10,000
Sediment Pond	@$10,000 per acre	$24,200
Maintenance	@$20,000 per year	$100,000
Total		$839,320

IMPACTS TO HUMAN HEALTH AND THE OVERALL QUALITY AND VALUE OF THE WATER RESOURCE (10G)

PREFERRED DESIGN

The proposed project is not expected to have any impacts on human health and overall value and water quality of the water resources on site. The aquatic resources on site are not used for recreational purposes or for human consumption for commercial, private, or industrial uses. The quality of the resources are discussed in the Description of the Aquatic Resources Affected. These resources have been degraded by past pre-law mining activities and it is anticipated that the mining and proper reclamation of this area will have an improvement on the areas water quality.

MINIMAL DEGRADATION ALTERNATIVE

No impacts are expected to occur to human health due to implementation of the Minimal Degradation Alternative.

NON-DEGRADATION ALTERNATIVE

No impacts are expected to occur to human health or to the overall quality and value of the water resource due to implementation of the Non-Degradation Alternative.

SOCIAL AND ECONOMIC BENEFITS TO BE GAINED (10H)

PREFERRED DESIGN

The preferred design alternative offers many significant social and economic benefits. The Baker Hendershot area is a "spillover". This means that this site will replace or except employees and mining equipment from an existing operation while it is idle. In this case the existing operation is Otsego which is fairly close in proximity to the proposed area (this will allow for a fairly economical move of Otsego's mining equipment to the Baker Hendershot area). Therefore the preferred design alternative will allow for Oxford's continual operation and employment of approximately 34 jobs directly associated with the site. It is said that for every mining job an additional 3.5 jobs are either maintained or created somewhere else in the economy, this means that approximately 153 jobs are either directly or indirectly related to the Baker Hendershot mine site. With the successful operation of the proposed project, many jobs will be either maintained or created in a region that is much less fortunate than other parts of the state due to

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high poverty levels. This region is in the need of good high paying jobs, which Oxford can provide if they are permitted to continue their mining operations as proposed. As of July 2012 the unemployment rate for this region was 9.6 percent compared to the state average of 7.3 percent.

Oxford Mining Company, while obligated to deliver coal resources that provide necessary energy for local communities, is dedicated to the preservation and enhancement of natural resources and water quality within the watershed. To meet these obligations, the company must permit adequate surface acreage with underlying coal. An important consideration in site selection is the depth of coal, which determines economical recovery by surface mining equipment. The choice of the area included in this permit application is the result of several years of consolidated exploration efforts to determine coal reserves and property acquisitions in fee or by lease to legally allow mining. As Oxford Mining Company depletes its existing permitted reserves; its continued economic viability is dependent upon permitting new areas.

Mining is a basic industry. As such, it creates jobs in ancillary businesses. Most directly, equipment suppliers and manufacturers, fuel companies, the electric service provider, and others who provide mining supplies and services will benefit. Additional employment will be created from downstream operations, including transportation, handling, and processing of the coal. The majority of these jobs will pay more than the average pay for the area. The local housing, food, clothing, and other retail businesses will benefit. It is obvious this operation will generate a significant amount of tax revenue for state and local governments.

The quality of the No. 6 coal seams are good, providing ease of marketability. This quality of coal is in high demand now and should be in demand even during poor market times. Direct sale of this coal would bring a premium price. Blending of this coal with coals of poorer quality will make the poorer coals marketable at a viable price. Consequently, this coal is essential for flexibility in marketing strategy. As such, it is a key element to the financial success of Oxford Mining Company.

Affordable energy is essential to the sustained growth of the United States and to preservation of the comfortable lifestyle its citizens enjoy. Coal is currently the fuel used to generate approximately half the electricity in the US. In fact, Ohio is currently ranked 4th in the nation for the consumption of coal, with approximately 90 percent of their electricity coming from coal. The continuous success and operation of coal mines like the proposed Baker Hendershot site will allow Oxford to continue to meet Ohio's market demands for coal and energy production at a fraction of the cost of other fuels.

Studies have estimated the US has a 300-year reserve of coal. All of this coal can be mined within the borders of the US, decreasing dependence on foreign sources for fuel.

The economic advantages to be realized by the mining of this coal are very significant. High paying jobs will be provided for an extended period of time. The direct jobs will create additional jobs in ancillary businesses within the local area. Tax revenues will be enhanced. The financial health of Oxford Mining Company will also be enhanced.

The social benefits are also significant. Increased tax revenues to local governments relate to better roads, schools, etc. Maintaining and increasing the use of coal, as the fuel of choice, will provide the lowest possible energy cost to consumers and decrease our dependence on foreign

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sources of fuel. For the reasons just stated, coal is essential as a component to any national energy policy and this operation should be given a high priority for permit issuance.

Social and economic benefits from the preferred alternative are significant. The continued successful operation of Oxford Mining Company will allow them to maintain 800 jobs. Currently, the market value for coal is approximately $40/ton. Under this alternative, mining will produce approximately 265,000 tons of coal. The "coal value" is therefore approximately $10,600,000. It is also important to realize that the vast majority of this coal value will be directly invested in the local and state economies for salaries, fuel, equipment, equipment maintenance, shipping, and materials, including seed and vegetation purchased for reclamation of the site. This coal value will secondarily be invested local restaurants, gas stations, mechanics shops, hardware stores, grocery stores, car dealerships, and housing. Oxford Mining Company is clearly a vital industry in the State of Ohio. Lost energy production may also seem inconsequential, but consider the impact of a 3-day power outage in a major metropolitan area. Every day of energy production is vital to our State.

Several taxes are assessed on each ton of coal mined within Ohio. Oxford will pay $0.55 per ton in federal excise taxes (black lung and other various federal programs), $0.35 per ton for reclamation of abandoned mine lands from the pre SMCRA era, and $0.25 per ton to the State for various programs. Oxford will pay $1.15 in state and federal taxes per each ton of coal mined from this site. Based on the estimated tonnage yield proposed within the mining application of 265,000 tons of coal removed, estimated combined state and federal tax revenue will total $304,750 which directly funds several state a federal programs. The proposed temporary lowering of water quality is necessary to accommodate important economic development and to meet a demonstrated public need as defined in rule 3745-1-50 of the Administrative Code:

3745-1-50(11)
"Public need" means an activity or project that provides important tangible and intangible gains to society that satisfies the expressed or observed needs of the public where accrued benefits significantly outweigh reasonably foreseeable detriments.

MINIMAL DEGRADATION ALTERNATIVE

The Minimal Degradation Alternative proposes to produce approximately 128,710 tons of coal. Based on the previously noted average market coal value this alternative is valued at $5,148,400. Oxford will pay $1.15 in state and federal taxes per each ton of coal mined from this site. Based on the estimated tonnage yield proposed within the mining application of 265,000 tons of coal removed, estimated combined state and federal tax revenue will total $148,016.50 which directly funds several state a federal programs.

NON-DEGRADATION ALTERNATIVE

The Non-Deg Alternative proposes to produce approximately 38,704 tons of coal for a market value of $1,548,160. As previously discussed, with these recoverable tons the state and federal agencies stand to gain approximately $44,509.60.

Due to increased permitting, the process to obtain a coal-mining permit has slowed tremendously. This economically destroys coal-mining operators as they operate on a strict time frame. When this time frame is encroached upon, people lose jobs, and Ohio loses its coal supply. With this loss of coal, comes a loss of tax money, which Ohio collects per-ton of mined coal. This tax money is a substantial part of Ohio's economy, and without it, Ohio would be in

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extreme economic distress. This should be an important factor when considering the alternatives proposed within this application.

Approximately 34 employees are supported by approximately 120 other workers such as welders, mechanics, truck drivers, local businesses, engineers, and consultants. Approximately 150 local workers could be unemployed if this site does not operate on a timely and efficient level. In 2011, the average wage for surface mine workers was $46,654. In comparison, the median household income in Muskingum County was $40,894 (Ohio Department of Development).

The quality of life for the mine workers, as well as workers associated with the mining industry will greatly benefit by the development of this site and the smooth, timely transition of mining from one permitted area to the next. The majority of the workers directly and indirectly affected by this mine come from the local labor pool.

SOCIAL AND ECONOMIC BENEFITS TO BE LOST (10I)

PREFERRED DESIGN

No jobs or tax revenues are expected to be lost as a result of the project. Property values are not expected to be lowered as a result of the project and no negative impacts to either recreational or commercial opportunities associated with the site are expected as none currently exist.

MINIMAL DEGRADATION ALTERNATIVE

A few social and economic benefits are anticipated to be lost as a result of implementation of the Minimal Degradation Alternative. The loss of approximately 12 direct jobs and 42 indirect jobs and the loss of approximately $156,733.50 in tax dollars would be lost because of this alternative.

NON-DEGRADATION ALTERNATIVE

Significant social and economic benefits would be lost as a result of the implementation of the Non-Degradation Alternative. Most of the gained social and economic benefits provided above for the preferred design alternative would be lost under this alternative. The site will not be feasible to mine under this alternative due to technical and financial constraints.

ENVIRONMENTAL BENEFITS TO BE GAINED AND LOST (10J)

Preferred Design

Approximately 60 acres of pre-mined land will be reclaimed to the lands approximate original contours, which will establish original drainage patterns within the areas watershed and make the area safer for future land use. The proper reclamation of this land will also clean up the acid mine drainage (AMD) that is currently on site, which makes its way into downstream receiving waters causing degradation.

During mining, sediment ponds will reduce the sediment load being received downstream as well as creating retention time, which will reduce flooding events in Blount Run. Post mining these ponds will be removed and the land will be reclaimed to approximate original contours and seeded and mulched which will also help with downstream flooding and sediment loads. All impacted resources will be mitigated for onsite so there will be a no net-loss of aquatic resources. Wetland acreage will be gained onsite which will provide many environmental benefits such as water retention, providing habitat, and will act as a natural filter of water pollution. Reconstructed streams will allow for the natural flow of surface water on site as well

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as provide habitat. All mitigated resources will be planted with a wooded buffer which will provide additional habitat and will help with the improvement of water quality on site and downstream as well.

The Indiana Bat is the only threatened or endangered species that could possibly occur on site. However, a mist net survey was conducted and there was no presence of the Indiana Bat found on site. Mining will cause a temporary loss of habitat for aquatic life and wildlife. Once the site is reclaimed habitat for aquatic life and wildlife should be of better quality then before the site was mined do to the additional mitigated resources, the reclamation of previously mined mined areas, as well as, the cleaning up of the water quality on-site.

MINIMAL DEGRADATION ALTERNATIVE

Please refer to the preferred design alternative comment above. The only exception under this alternative is that there would be less impacts to aquatic resources on-site and less previously mined land reclaimed.

NON-DEGRADATION ALTERNATIVE

The Non-Degradation Alternative would not cause the gain or loss of any environmental benefits as the development of the mine would not be feasible.

PROPOSED MITIGATION TECHNIQUES (10K)

PREFERRED DESIGN – STREAM MITIGATION

The Preferred Design impacts approximately 3,312 linear feet of intermittent (3,169 ft) and ephemeral stream channel (143 ft). These impacts will occur as a result of several mining activities including coal removal, diversion construction, mine runoff transport, and temporary sediment pond construction. These impacts are unavoidable if coal extraction is maximized.

As stated in the mining application, these stream impacts are required to be reclaimed on-site by the Ohio Department of Natural Resources. Oxford Mining Company, LLC proposes to reclaim and restore 3,312 linear feet of channel on-site. This reflects the ODNR stream reconstruction length and plans.

Of the 3,312 linear feet of affected channel, 143 linear feet is considered to be ephemeral channel, which are unregulated entities through ODNR. Therefore, they are not addressed in the ODNR stream reconstruction plans.

The 3,169 linear feet of intermittent streams to be impacted by the project are proposed to be reconstructed onsite. Restoring the hydrology to these streams has been deemed a necessary task in order to complete successful mitigation. As part of reclamation throughout this section of the permit the applicant will make efforts to identify water coming from the highwall and attempt to direct that water to the future origin of the reconstructed intermittent streams. If found, water originating from the exposed highwall will be directed to the desired location using a clay lined drain. Because the possible location of the hydrologic source is unknown, designing and submitting engineering plans for such and effort would be too general for review.

The goals for on-site reclamation/restoration for streams is to restore the physical and biological integrity beyond current stream conditions. There are several important objectives within the mitigation plan:

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- provide a naturally stable stream channel
- improve the physical aquatic habitat features
- minimize mining impacts to the maximum extent practical

Relocation and reconstruction of streams on-site utilizing natural channel designs would provide all the desired habitat and stability features necessary to return the streams to pre-impact quality. This type of reconstruction is widely recommended by officials within ODNR and OEPA as well as across the country, as solutions to stream restoration as a means to improve the long term environmental quality of streams. There are many long term benefits derived from the efforts to restore streams, such as:

- stabilizing banks against erosion
- development of in-stream habitat features
- promoting vegetation of corridors will occur with native, wildlife friendly plants
- restoration of sediment and nutrient storage will be restored

The restoration techniques proposed for streams would provide a stable and functional stream channel and all the desirable channel habitat "features" currently found within the streams.

MINIMAL DEGRADATION ALTERNATIVE – STREAM MITIGATION

The natural channel design as explained for the Preferred Design will apply to the Minimal Degradation Alternative with the exception of additional restored stream length. Impacts have been reduced to 1,055 linear feet of intermittent stream channel.

As stated in the mining application previously filed by the applicant, these stream impacts are required to be reclaimed on-site by the Ohio Department of Natural Resources.

PREFERRED DESIGN – WETLAND MITIGATION

The Preferred Design impacts approximately .07 acres of jurisdictional wetlands. These impacts will occur as a result of several mining activities including coal removal and spoiling activities. These impacts are unavoidable if coal extraction is maximized.

As stated in the mining application, these wetland impacts are required to be reclaimed on-site by the Ohio Department of Natural Resources. Oxford Mining Company, LLC proposes to reclaim and restore a minimum of 0.105 acres of wetland on-site.

Please see the engineering sheet titled Wetland Mitigation Area, W1 which represents the proposed wetland mitigation area under the Preferred Design Alternative.

MINIMAL DEGRADATION ALTERNATIVE – WETLAND MITIGATION

The Minimal Degradation Alternative will not have any impacts to jurisdictional wetlands. Therefore, under this alternative wetlands will not be mitigated for.

STREAM & WETLAND MITIGATION PLAN

Proposed Construction Techniques – Pools and riffles are proposed to be constructed at the outside meander bends and runs, respectively. Natural movement of material through the channel will aid in further shaping those pools over time. Riffles will be constructed using

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practiced construction techniques for successful, functioning riffles that mimic natural riffle slope and produce accelerated flows that create the downstream pools.

Natural recruitment of native plants will be allowed in the on-site wetland mitigation areas. After permanent vegetation is established on the reclaimed areas, sediment loads in runoff should approximate pre-mining levels, which would result in satisfactory water quality. Post-mining surface water quantity should approximate quantities that existed prior to mining in the area. Therefore, there should be sufficient baseflow for the reconstructed streams.

Planting - Significant planting of native trees along the relocated/restored riparian corridors is planned. Trees and shrubs will be slightly staggered, per the ODNR plan, to increase shade coverage. The plan calls for 4 foot rows, with 8 foot spacing. This usually equates to 600 trees per acre and at a minimum width 50 feet on either side of the stream and 50 feet around the mitigated wetland where any disturbance within the buffer zone has occurred.

Species that have been selected for planting are native to the region and are cold hardy. Value to wildlife was also considered when preparing the plant species list. Disturbed areas, such as side slopes, will be seeded with a rapidly germinating annual cover mixture to provide erosion control and prevent the establishment of undesirable species. Planting will take place in the first growing season following completion of mining operations on each section of the site to allow for the most optimal conditions for establishment. All plant materials will be inspected prior to planting, and those showing signs of stress will be replaced. Plantings will be periodically inspected to ensure success.

On the basis of the above criteria, a list of species to be planted along the riparian corridors was developed and is included below. Final planting quantities and species types will be dependent on market availability at the time of planting.

Proposed Tree Planting List

Riparian Corridor – Trees

Botanical Name	Common Name
Acer spp.	Maple(s)
Betula nigra	River birch
Carya spp.	Hickory(s)
Celtis occidentalis	Common hackberry
Cercis Canadensis	Eastern redbud
Crataegus phaenopyrum	Washington hawthorne
Crataegus crusgalli	Cockspur hawthorne
Fagus grandifolia	Beech
Fraxinus pennsylvanica	Green ash
Fraxinus Americana	White ash
Gleditsia triacanthos 'inermis'	Honeylocust
Hamamelis virginiana	Common witchhazel
Liriodendron tulipifera	Tulip poplar
Liquidambar styraciflua	Sweetgum
Platanus occidentalis	Sycamore
Populus deltoids	Eastern cottonwood
Prunus serotina	Black cherry
Quercus alba	White oak

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Quercus palustris	Pin oak
Quercus rubra	Red oak

Upland Areas

Temporary and Permanent Vegetation
Temporary Vegetation: 2 lbs. Rye Grass and 1 BU. Cereal Grain per acre
Permanent Planting: 7 lbs. Birdsfoot Trefoil; 6 lbs. Red Top; 7 lbs. Perennial Ryegrass; and 17.5 lb. Appalow Lespedeza.

Temporary and permanent planting will be done simultaneously and will commence as soon as weather allows upon the completion of topsoil distribution.

An average of 2 tons of hay/straw per acre will be distributed by commercial mulching machines.

Preservation of Restored/Reclaimed Streams/Wetlands
The post mining land use will be used as pasture and grazing. This change in land use is allowed under the ODNR SMCRA permit. As part of the special conditions of the 401, 404 and SMCRA permits, each reconstructed aquatic resource (wetlands and streams) must be surrounded by a vegetated buffer zone a minimum of 50 linear feet in radius. This is the first step protective measure to ensure the success of the mitigated resource. The second protective measure will be to protect each mitigated resource and associated buffer zone with an environmental covenant. According to the Ohio EPA, the applicant will be required to protect each of the mitigated resources and buffer zones with either a conservation easement or environmental covenant. These legal mechanisms will encumber each current and future landowner from altering the land use within the bufferzone as well as degrading the quality of the resource. Once each environmental covenant is in place and the site is released from monitoring the mitigated resources, enforcement of the environmental covenant will be the responsibility of the Ohio EPA.

Oxford Mining Company, LLC. currently is working with the landowner to secure an environmental covenant for each of the mitigation areas on the Baker Hendershot Mining Area. Each of the mitigated resources will be protected under an environmental covenant upon the completion of mitigation construction. This includes the area concerning future streams, wetlands and buffer zones. Meetings with the landowners have been scheduled and dialogue concerning the matter is underway. This process is time consuming as details of the agreement must first be conveyed to the landowner before the decision making process can proceed. Upon completion of the agreements, each covenant will be recorded and submitted to the Ohio EPA to be added to the permit package.

Each covenant will protect the section of each stream and wetland that is to be reconstructed and a 50-foot buffer around the wetland mitigation area and on either side of stream (100 feet total). Language contained in each agreement will be borrowed from a general environmental covenant originally drafted by the Ohio EPA.

Stream Monitoring Methodology
The objective of stream monitoring is to ascertain whether restored or enhanced channels are meeting the criteria to replace lost functions. Several permanent sampling points on-site will be

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selected for specific monitoring activities. Sample point locations will be permanently marked in the field. The entire length of the stream will also be evaluated to look for any areas of concern.

Photographs of the station locations will be taken during monitoring sampling. Monitoring will take place once in early spring during high flow conditions and again in late summer during low flow conditions. Parameters to be monitored within the relocated channel include the following:

- Stream assessment data will be taken at each monitoring point.
- Along the length of the restoration reaches, riparian corridor plantings will be checked for abundance by performing stem counts of planted and volunteer trees

Data collected during sampling periods will be compiled into an annual report to be provided to the COE and Ohio EPA by December 31 of each of the monitoring years. These reports will provide information on habitat development and will include data results for the stream assessment. They will also include a photographic documentation of the restored reaches from fixed positions, as well as discussion on whether the stream is meeting the design goals. Please refer to the Baker Hendershot Mining Area Biological and Chemical Sampling Plan for more details concerning stream monitoring efforts post mining.

Wetland Monitoring Methodology

Initiation of Monitoring: Wetland monitoring will begin the first growing season following the construction of the mitigated wetland. Notice of the completion of the mining operation will be given to the Ohio EPA and to the U.S. Army Corps of Engineers.

Oxford Mining Company personnel (or experienced consultant) will monitor the restored wetland annually starting the first growing season following the construction of the mitigated wetland. This monitoring effort will continue for a period of five years. In addition, Ohio Department of Natural Resources, Division of Mineral Resource Management Inspectors will conduct monitoring of the completed restored wetland on a regular basis until final bond release is obtained. Final bond release is usually obtained five (5) years following any major repair or seeding completed within a specific area.

During the first year of monitoring, the permit will be delineated for the presence of streams and wetlands. This delineation will be verified by the Army Corps of Engineers. The performance standards for the mitigation area will be to attain Category 2 status by the end of the five year monitoring period regardless of the initial score of the wetland. Performance will be evaluated by functional assessment including completion of a VIBI for the wetland during years 3 and 5. The VIBI will be used as a quantitative tool to measure reconstructed wetland performance. Biologists will provide their professional opinion of the reconstructed wetland functions as they relate to the pre-mining conditions.

Monitoring Reports

An annual monitoring report, including evaluation forms and site photographs, will be submitted to the U. S. Army Corps of Engineers and Ohio EPA prior to December 31st of each monitoring year to fulfill permit conditions. The report will detail yearly performance of the stream and wetland mitigation areas. Riparian plantings will also be subject to a 5-year monitoring period, in which understory growth and coverage will be monitored. In lieu of monitoring the survivorship of planted trees, success of riparian areas and buffer zones will be based on the number of living trees are within the protected area. This will include all

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volunteer trees growing at the time of monitoring. The riparian area will be planted at a rate of 600 trees per acre. Traditionally a survivorship of 80% has been required for tree plantings. Therefore, our target will be 480 living trees per acre within the protected area.

Evaluation forms will be completed during the appropriate monitoring year for each mitigation resource. At the end of the five-year monitoring period, stream mitigation areas should meet or exceed its proposed categorizations. If, at the end of the 5-year monitoring period, the Corps and/or Ohio EPA determine that the mitigation areas have not met the proposed categorizations, the applicant will coordinate with the agency to determine what action should be taken to further enhance the mitigation areas.
An annual monitoring report will be submitted to the U. S. Army Corps of Engineers and the Ohio EPA to fulfill permit conditions. The report will detail yearly performance of the mitigation site and include the following elements.

- **Location:** coordinates, maps
- **Stream Assessment**
- **Stream Length**
- **Wetland Size**
- **Wetland Classification Category**
- **Assessment Methods**
- **Existing Hydrology:** water sources, hydroperiod, historical hydrology - if applicable, drainage area, results of water quality analysis - if applicable
- **Existing Vegetation:** list of species onsite, species density, general age/health of vegetation, native/non-native/invasive status, map showing plant communities
- **Existing Wildlife Usage:** presence of habitat for common and threatened/endangered species
- **Historic and Current Land Use**
- **Current Land Owner**
- **Watershed Information:** impairment status, description of watershed land uses, size/width of natural buffers, overall description of surrounding habitat, relative amount of aquatic resource area the mitigation site represents within the local watershed

The monitoring reports referred to in the above paragraphs are separate from those listed in the Baker Hendershot Mining Area Biological and Chemical Sampling Plan. Reports associated with that document will adhere to the plans and schedule listed therein.

Mitigation Timing

Due to the complexity and duration of the coal mining process, mitigation for stream impacts onsite are tied to the phasing and reclamation schedule for a mine. The applicant is willing to make the following commitments regarding mitigation requirements.

- After coal removal, backfilling and re-grading will take place contemporaneously as required under our SMCRA permit.

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BEST MANAGEMENT PRACTICES FOR CONSTRUCTION

All sediment controls that are utilized will be kept in place during mining activities and until the site has been stabilized and reclaimed. All areas disturbed during mining will be seeded to encourage the establishment of a vegetative cover and decrease erosion potential.

MANAGEMENT AND MAINTENANCE

Site maintenance and management during mining and post mining will be conducted by Oxford Mining and/or subcontractors. Specifications for any necessary repairs will be developed as needed for the site. The need for maintenance of mitigation areas within the five year monitoring period will be determined during the annual field visits. Each mitigation area will be evaluated annually for the tree planting mortality, grazing and the presence invasive plants. Maintenance activities related to these issues will be developed and scheduled as needed to ensure the long term success of the mitigation areas. In the specific case that the mitigation planting is mowed, the party responsible for mowing mitigation plantings would be in violation of the SMCRA permit for interrupting activities on a mine site. In addition, the party would also be in violation of the environmental covenant placed on the mitigation area and held by the Ohio EPA. Upon identifying the party responsible for this type of vandalism, the Ohio EPA would have the authority to levee enforcement actions at that time.

If any of the wetland invasive species included on Table 1 of the ORAM Long Form are found to be present within the wetland mitigation area the applicant will take a course of action to prevent the spread of the species. These species include:

Lythrum saclicaria	Purple Loosestrife
Myriophyllum spicatum	Eurasian Water Milfoil
Najas minor	Lesser Naiad
Phalaris arundinacea	Reed Canary Grass
Phragmites australis	Common Reed Grass
Potamogeton crispus	Curly Pondweed
Ranunculus ficaria	Lesser Celandine
Rhamnus frangula	Glossy Buckthorn
Typha angustifolia	Narrow Leaf Cattail
Typha xglauca	Hybrid Cattail

During the monitoring period, if an invasion is detected, an abatement plan will be developed specific to the species in question and level of infestation. The plan will be submitted to the Ohio EPA for review and approval such that the plan can be implemented in a timely fashion. With regard to each species, abatement actions will adhere to the manual and chemical control measures listed within the Invasive Plants of Ohio and Plant Conservation Alliance Factsheets. The manual and chemical measures that have the potential to be implemented all include the removal of plants by hand (for small populations) and the application of herbicides approved for use in aquatic habitats (for larger populations). Please refer to the attached Invasive Plants of Ohio and Plant Conservation Alliance Factsheets for more information concerning recommended control measures for individual species.

BIOLOGICAL SAMPLING PLAN & ADAPTIVE MANAGEMENT PLAN

As a condition for the Baker Hendershot Individual 401 water quality certification, the Ohio Environmental Protection Agency has requested that a biological sampling plan and an adaptive management plan (AMP) be developed. Please refer to the Baker Hendershot Mining Area

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Biological and Chemical Sampling Plan for details concerning the timeline, methodology, and locations of the sampling regime. Please refer to the Adaptive Management Plan for the Baker Hendershot Mining Area for measures and actions to be taken in the event of a degradation.

CONCLUSIONS

A permit application requesting authorization for impacts to waters of the United States on a mineral extraction project has been prepared by Oxford Mining Company, LLC. This document provides information to address permit application requirements for a Section 404, Individual Permit (IP) from the U. S. Army Corps of Engineers, Huntington District and a Section 401 Water Quality Certification from the Ohio Environmental Protection Agency. An alternatives analysis in the form of information required for a state Antidegradation Review is also provided. Information requested by the COE and the Ohio EPA was presented for Preferred Design, Minimal Degradation, and Non-Degradation alternatives and mitigation techniques were proposed for site impacts.

A total of 6,501 linear feet of stream features were identified on the site; one (1) perennial stream (861 l.f.), nine (9) intermittent streams (5,303 l.f.), and three (3) ephemeral streams (337 l.f.). The majority of streams within the permit boundary originate as steep, rocky outcrops and/or hillside seeps.

Oxford identified 13 (thirteen) wetland features within the original permit boundary. Five wetland on site were determined to be jurisdictional. The permit boundary was later adjusted and eleven wetlands are no longer within the permit boundary. All wetlands are associated with disturbance activity including farming and/or cattle grazing, clear cutting, previously mined land and the formation of flat areas around streams. These wetlands are named WD-A through WD-M in the delineation report. These wetlands cover a total area of 2.04 acres.

Under the Preferred Design, the applicant proposes to surface mine and auger mine resulting in impact to 3,312 linear feet of stream and 0.07 acres of wetlands. The Preferred Design will yield approximately 265,000 tons of coal. Under the Minimal Degradation Alternative, the applicant proposes to surface mine and auger mine resulting in impacts to 1,055 feet of stream and 0 acres of wetland. The Minimal Degradation Alternative will yield approximately 128,710 tons of coal. The Non-Degradation Alternative makes mining economically infeasible. Oxford Mining is prepared to start work with the only economically feasible alternative, which is the Preferred Design.

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