

Use Attainability Analysis

(for waters without a use designation pursuant to OAC § 3745-1-07 and subject to an individual 401 water quality certification in accordance with ORC § 6111.30(A)(3))

SITE NAME/LOCATION Adamsville _____

SITE NUMBER Stream 40 RIVER BASIN _____

LENGTH OF STREAM REACH (ft) 1,431 LAT 40.0169103 LONG -81.94293 (at downstream point of reach)

DATE 09/24/10 ANALYST JCD

Assessment of Factors Affecting Attainment of Use (Physical Habitat, Biological, Chemical, Economic)

Physical Habitat

1. DRAINAGE AREA (acres and/or sq. mi.) _____

2. STREAM CHANNEL MODIFICATIONS: Yes No

If Yes, explain: _____

3. Substrate

TYPE		PERCENT
BLDR SLABS		_____
BOULDER (>256 mm)		_____
BEDROCK		70
COBBLE (65-256 mm)		20
GRAVEL (2-64 mm)		_____
SAND (<2 mm)		_____

TYPE		PERCENT
SILT		_____
LEAF PACK/WOODY DEBRIS		10
FINE DETRITUS		_____
CLAY or HARDPAN		_____
MUCK		_____
ARTIFICIAL		_____

4. Maximum Pool Depth (cm) 4

5. Average Bank Full Width (M) 1.2

6. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right ® as looking downstream)

RIPARIAN WIDTH (Per Bank)				FLOODPLAIN QUALITY Canopy (% open): _____ (Most Predominant Per Bank)				
L	R		L	R		L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

7. FLOW

Baseline Information:

Base Flow Conditions? Yes No

Quantity: _____

Date of last precipitation: _____

Elevated Turbidity? Yes No

Flow Regime (at the time of evaluation):

- Ephemeral Intermittent Perennial
 Stream flowing Moist channels Subsurface flow w/isolated pools Dry channel, no water

8. SINUOSITY (Number of bends per reach evaluated) (Check ONLY one box):

- None (0-1) Moderate (1-3) High (>3)

9. STREAM GRADIENT ESTIMATE

- Flat (0.5 ft/100 ft) (Flat-Moderate) Moderate (2 ft/100 ft) Moderate-Severe Severe (10 ft/100 ft)(>3)

Biological

- 1. Fish Observed** Yes No If Yes, were vouchers collected? Yes No

Species _____

- Macroinvertebrates Observed** Yes No If Yes, were vouchers collected? Yes No

Species _____

Chemical

- 1. Field Measurements:** Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____
Conductivity (µmhos/cm) _____

- 2. Grab Sample:** Taken Yes No (If yes, list results below)

Results: _____

Economic

Describe: N/A

Conclusions

Based on review of this assessment of factors affecting the attainment of use and in accordance with Biological Criteria for the Protection of Aquatic Life: Vol. II., Users Manual for Biological Field Assessment of Ohio Surface Waters, Section 8, Guidelines for Biological Criteria Use and Application (1987, as amended) for determining which aquatic life use designation applies to any given water body and knowledge of what this physical habitat will biologically support, the use designation defined in OAC 3745-1-07(B) that this water body is capable of attaining is: LRW

OXFORD MINING COMPANY, LLC
ADAMSVILLE SW MINE SITE
Proposal for Section 401 and 404 Authorization

APPENDIX D

Ohio County Unemployment Rates, December 2012

Poverty Rates by County, 2010

Muskingum County Profile

July 2013 Ranking of Ohio County Unemployment Rates

(Not Seasonally Adjusted)

Among the state's 88 counties, July 2013 unemployment rates ranged from a low of 4.5 percent in Mercer County to a high of 12.3 percent in Meigs County. Rates declined in 68 of the 88 counties statewide. The comparable rate for Ohio was 7.3 percent in July. (See table on next page.)

Six counties had unemployment rates below 6.0 percent in July. The counties with the lowest rates, other than Mercer were: Holmes, 4.9 percent; Delaware, 5.2 percent; Auglaize, 5.3 percent; and Geauga and Union, 5.8 percent.

Meanwhile, five counties had unemployment rates at or above 11.0 percent in July. The counties with the highest rates, other than Meigs were: Pike, 12.1 percent; Scioto, 11.1 percent; and Huron and Morgan, 11.0 percent.

EDITOR'S NOTE: These estimates, prepared in cooperation with the Bureau of Labor Statistics, U.S. Department of Labor, are based on 2012 benchmark and geared to county of residence. Unemployment rates for all Ohio counties as well as cities with populations of 50,000 or more are presented in the monthly ODJFS **Civilian Labor Force Estimates** publication. For updated statewide historical data, visit <http://ohiolmi.com/asp/laus/vbLaus.htm>, or contact the Bureau of Labor Market Information at (614) 752-9494.

July 2013 unemployment rates and nonagricultural wage and salary data for Ohio will be released by ODJFS on Friday, September 20, 2013. Unemployment rates for counties, cities, and metropolitan areas will be available on Tuesday, September 24, 2013. This information and the monthly statistical summaries they are based on are also available at <http://ohiolmi.com/laus/releases.htm>.

Ranking Report
Ohio Unemployment Rates by County
July 2013

Rank (b)	County	Unemployment Rate	Rank (b)	County	Unemployment Rate
1	Meigs County	12.3	45	Ashland County	7.4
2	Pike County	12.1	46	Hocking County	7.3
3	Scioto County	11.1	47	Wood County	7.3
4	Morgan County	11.0	48	Stark County	7.3
5	Huron County	11.0	49	Greene County	7.2
6	Adams County	10.5	50	Clark County	7.2
7	Jefferson County	10.3	51	Carroll County	7.2
8	Monroe County	10.3	52	Belmont County	7.2
9	Noble County	9.9	53	Sandusky County	7.2
10	Clinton County	9.9	54	Miami County	7.2
11	Vinton County	9.7	55	Butler County	7.1
12	Coshocton County	9.7	56	Portage County	7.1
13	Highland County	9.6	57	Hamilton County	7.1
14	Muskingum County	9.4	58	Van Wert County	7.1
15	Jackson County	9.1	59	Morrow County	7.0
16	Perry County	9.0	60	Champaign County	7.0
17	Athens County	9.0	61	Knox County	7.0
18	Crawford County	8.9	62	Licking County	6.9
19	Ashtabula County	8.9	63	Summit County	6.9
20	Mahoning County	8.6	64	Erie County	6.9
21	Gallia County	8.5	65	Clermont County	6.8
22	Trumbull County	8.5	66	Washington County	6.8
23	Richland County	8.5	67	Fayette County	6.7
24	Lucas County	8.5	68	Wyandot County	6.7
25	Columbiana County	8.2	69	Paulding County	6.7
26	Fulton County	8.2	70	Tuscarawas County	6.5
27	Lorain County	8.2	71	Logan County	6.5
28	Allen County	8.1	72	Lake County	6.5
29	Ross County	8.1	73	Wayne County	6.4
30	Montgomery County	8.1	74	Madison County	6.4
31	Ottawa County	8.0	75	Darke County	6.4
32	Hardin County	7.9	76	Franklin County	6.3
33	Brown County	7.9	77	Fairfield County	6.3
34	Marion County	7.9	78	Putnam County	6.1
35	Williams County	7.9	79	Medina County	6.1
36	Harrison County	7.8	80	Warren County	6.1
37	Guernsey County	7.8	81	Hancock County	6.1
38	Lawrence County	7.7	82	Shelby County	6.0
39	Preble County	7.7	83	Union County	5.8
40	Seneca County	7.6	84	Geauga County	5.8
41	Cuyahoga County	7.5	85	Auglaize County	5.3
42	Defiance County	7.5	86	Delaware County	5.2
43	Henry County	7.5	87	Holmes County	4.9
44	Pickaway County	7.4	88	Mercer County	4.5

[a] These estimates, prepared in cooperation with the Bureau of Labor Statistics, U.S. Department of Labor, are based on 2012 benchmark, geared to county of residence, and NOT seasonally adjusted. (b) Rankings are based upon unrounded unemployment rates.

Ohio Department of Job and Family Services
Office of Workforce Development
Bureau of Labor Market Information
Columbus 43215

Ohio

Poverty in Ohio by County 2007-2011 American Community Survey

Statewide Poverty
1,654,193
14.8%

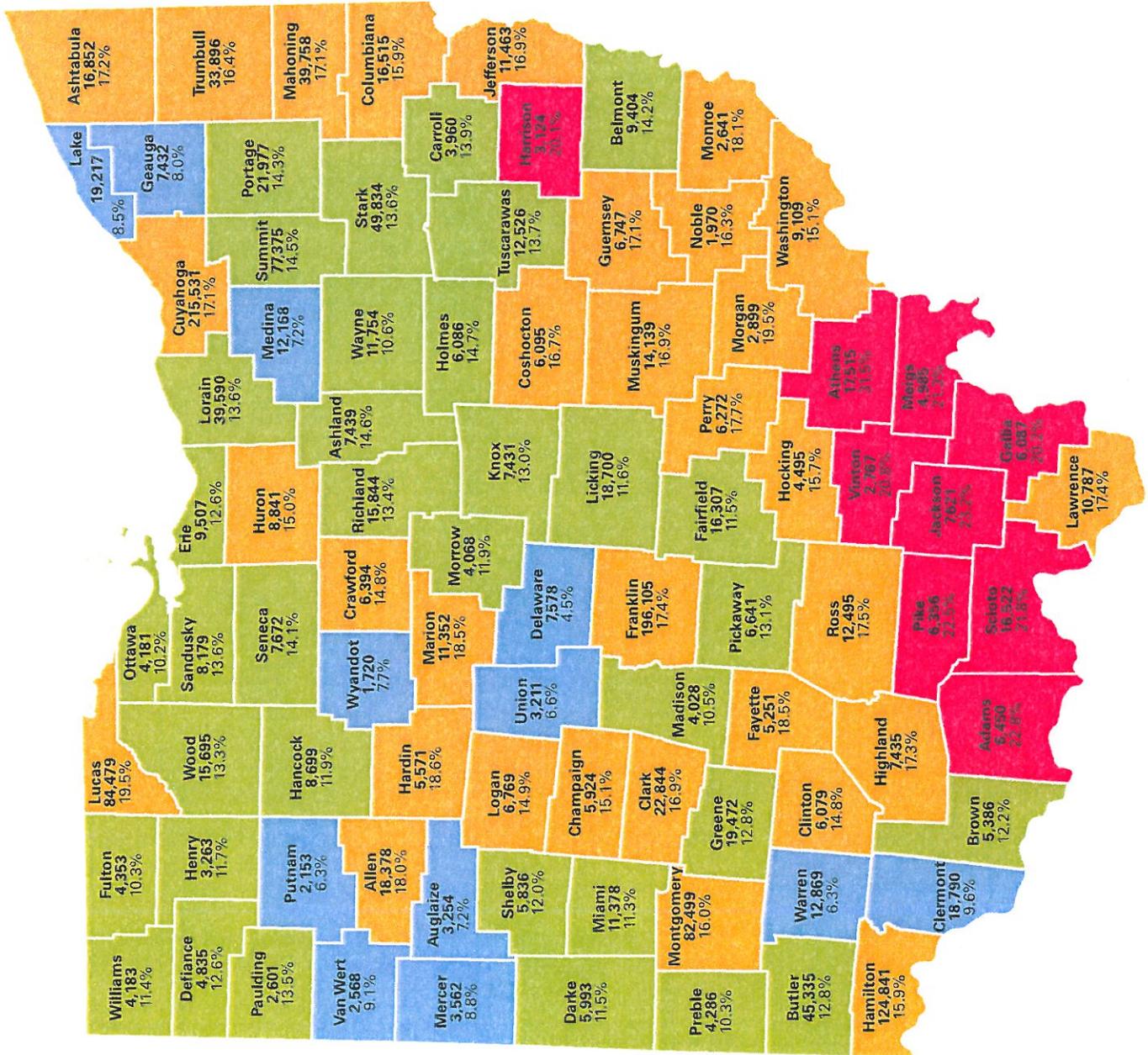
County Population
in Poverty

- 4.5% - 9.9%
- 10% - 14.7%
- 14.8% - 20%
- 20.1% - 31.5%

This map shows the 2007-2011 American Community Survey estimates of the number and percentage of persons in poverty by county

Source:
2007-2011 American Community Survey,
U.S. Census Bureau

Prepared by:
Office of Research
Ohio Development Services Agency
February 2013



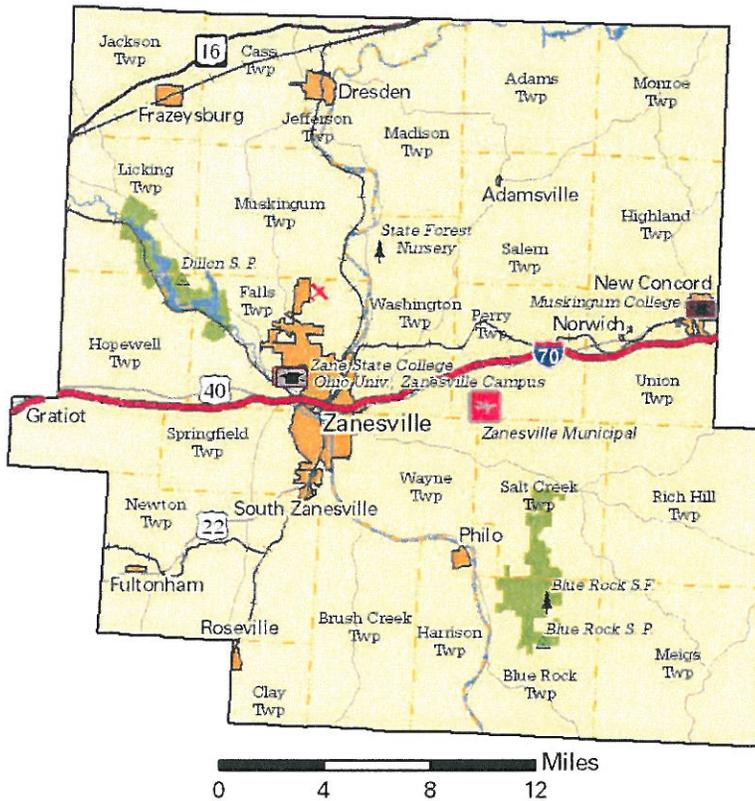
Ohio County Profiles



Prepared by the Office of Policy, Research and Strategic Planning

Muskingum County

Established: Act - March 1, 1804
2012 Population: 85,950
Land Area: 664.6 square miles
County Seat: Zanesville City
Named for: Native American word meaning "by the riverside"



Taxes

Taxable value of real property	\$1,448,709,030
Residential	\$998,615,190
Agriculture	\$140,924,420
Industrial	\$39,359,240
Commercial	\$261,962,260
Mineral	\$7,847,920
Ohio income tax liability	\$39,784,430
Average per return	\$1,088.05

Land Use/Land Cover

	Percent
Urban (Residential/Commercial/Industrial/Transportation and Urban Grasses)	3.27%
Cropland	16.49%
Pasture	15.75%
Forest	63.73%
Open Water	0.67%
Wetlands (Wooded/Herbaceous)	0.01%
Bare/Mines	0.10%

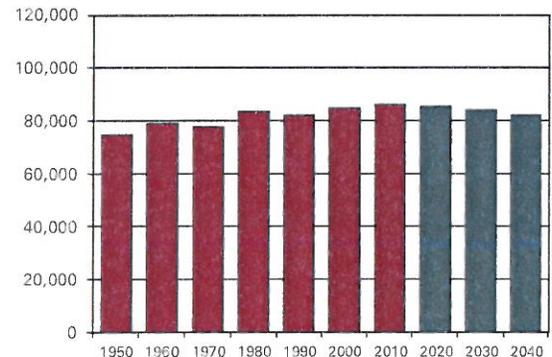
Largest Places

	Est. 2011	Census 2010
Zanesville city	25,531	25,487
Falls twp	8,147	8,131
Newton twp UB	5,168	5,157
Wayne twp	4,743	4,731
Muskingum twp	4,529	4,520
Washington twp	4,295	4,288
Springfield twp UB	3,659	3,653
Hopewell twp UB	3,011	3,005
Perry twp	2,626	2,621
New Concord vlg	2,494	2,491

UB: Unincorporated balance.

Total Population

Census	Population	Estimated
1800		2012 85,950
1810	10,036	
1820	17,824	
1830	29,334	
1840	38,749	
1850	45,049	
1860	44,416	
1870	44,886	
1880	49,774	
1890	51,210	
1900	53,185	
1910	57,488	
1920	57,980	
1930	67,398	
1940	69,795	
1950	74,535	2020 85,420
1960	79,159	2030 83,900
1970	77,826	2040 81,900
1980	83,340	
1990	82,068	
2000	84,585	
2010	86,074	



Population by Race	Number	Percent
ACS Total Population	85,997	100.0%
White	80,285	93.4%
African-American	2,651	3.1%
Native American	159	0.2%
Asian	225	0.3%
Pacific Islander	0	0.0%
Other	196	0.2%
Two or More Races	2,481	2.9%
Hispanic (may be of any race)	717	0.8%
Total Minority	6,252	7.3%

Educational Attainment	Number	Percent
Persons 25 years and over	57,431	100.0%
No high school diploma	7,770	13.5%
High school graduate	26,128	45.5%
Some college, no degree	11,368	19.8%
Associate degree	4,178	7.3%
Bachelor's degree	4,672	8.1%
Master's degree or higher	3,315	5.8%

Family Type by Employment Status	Number	Percent
Total Families	23,069	100.0%
Married couple, husband and wife in labor force	9,185	39.8%
Married couple, husband in labor force, wife not	3,262	14.1%
Married couple, wife in labor force, husband not	1,622	7.0%
Married couple, husband and wife not in labor force	3,245	14.1%
Male householder, in labor force	1,142	5.0%
Male householder, not in labor force	224	1.0%
Female householder, in labor force	2,962	12.8%
Female householder, not in labor force	1,427	6.2%

Household Income	Number	Percent
Total Households	34,121	100.0%
Less than \$10,000	3,199	9.4%
\$10,000 to \$19,999	5,243	15.4%
\$20,000 to \$29,999	4,494	13.2%
\$30,000 to \$39,999	4,336	12.7%
\$40,000 to \$49,999	3,635	10.7%
\$50,000 to \$59,999	2,941	8.6%
\$60,000 to \$74,999	3,343	9.8%
\$75,000 to \$99,999	3,419	10.0%
\$100,000 to \$149,999	2,611	7.7%
\$150,000 to \$199,999	510	1.5%
\$200,000 or more	390	1.1%
Median household income	\$39,538	

Population by Age	Number	Percent
ACS Total Population	85,997	100.0%
Under 5 years	5,339	6.2%
5 to 17 years	15,394	17.9%
18 to 24 years	7,833	9.1%
25 to 44 years	21,065	24.5%
45 to 64 years	23,363	27.2%
65 years and more	13,003	15.1%
Median Age	39.5	

Family Type by Presence of Own Children Under 18	Number	Percent
Total Families	22,981	100.0%
Married-couple families with own children	6,318	27.5%
Male householder, no wife present, with own children	845	3.7%
Female householder, no husband present, with own children	2,865	12.5%
Families with no own children	12,953	56.4%

Poverty Status of Families By Family Type by Presence of Related Children	Number	Percent
Total Families	22,981	100.0%
Family income above poverty level	19,915	86.7%
Family income below poverty level	3,066	13.3%
Married couple, with related children	538	17.5%
Male householder, no wife present, with related children	338	11.0%
Female householder, no husband present, with related children	1,741	56.8%
Families with no related children	449	14.6%

Ratio of Income To Poverty Level	Number	Percent
Population for whom poverty status is determined	83,570	100.0%
Below 50% of poverty level	5,866	7.0%
50% to 99% of poverty level	8,273	9.9%
100% to 149% of poverty level	9,084	10.9%
150% to 199% of poverty level	10,995	13.2%
200% of poverty level or more	49,352	59.1%

Geographical Mobility	Number	Percent
Population aged 1 year and older	84,847	100.0%
Same house as previous year	73,053	86.1%
Different house, same county	8,469	10.0%
Different county, same state	2,256	2.7%
Different state	919	1.1%
Abroad	150	0.2%

Percentages may not sum to 100% due to rounding.

Travel Time To Work

	Number	Percent
Workers 16 years and over	34,890	100.0%
Less than 15 minutes	11,916	34.2%
15 to 29 minutes	12,901	37.0%
30 to 44 minutes	4,545	13.0%
45 to 59 minutes	2,089	6.0%
60 minutes or more	3,439	9.9%
Mean travel time	24.5 minutes	

Housing Units

	Number	Percent
Total housing units	37,899	100.0%
Occupied housing units	34,262	90.4%
Owner occupied	23,913	69.8%
Renter occupied	10,349	30.2%
Vacant housing units	3,637	9.6%

Year Structure Built

	Number	Percent
Total housing units	37,899	100.0%
Built 2005 or later	1,437	3.8%
Built 2000 to 2004	2,750	7.3%
Built 1990 to 1999	4,454	11.8%
Built 1980 to 1989	3,579	9.4%
Built 1970 to 1979	5,162	13.6%
Built 1960 to 1969	3,860	10.2%
Built 1950 to 1959	3,795	10.0%
Built 1940 to 1949	2,227	5.9%
Built 1939 or earlier	10,635	28.1%
Median year built	1966	

Value for Specified Owner-Occupied Housing Units

	Number	Percent
Specified owner-occupied housing units	23,913	100.0%
Less than \$20,000	1,369	5.7%
\$20,000 to \$39,999	1,418	5.9%
\$40,000 to \$59,999	1,699	7.1%
\$60,000 to \$79,999	2,604	10.9%
\$80,000 to \$99,999	3,075	12.9%
\$100,000 to \$124,999	3,793	15.9%
\$125,000 to \$149,999	3,125	13.1%
\$150,000 to \$199,999	3,840	16.1%
\$200,000 to \$299,999	1,927	8.1%
\$300,000 to \$499,999	740	3.1%
\$500,000 to \$999,999	236	1.0%
\$1,000,000 or more	87	0.4%
Median value	\$111,800	

House Heating Fuel

	Number	Percent
Occupied housing units	34,262	100.0%
Utility gas	19,466	56.8%
Bottled, tank or LP gas	2,662	7.8%
Electricity	9,099	26.6%
Fuel oil, kerosene, etc	1,360	4.0%
Coal, coke or wood	1,211	3.5%
Solar energy or other fuel	381	1.1%
No fuel used	83	0.2%

Percentages may not sum to 100% due to rounding.

Gross Rent

	Number	Percent
Specified renter-occupied housing units	10,349	100.0%
Less than \$100	131	1.3%
\$100 to \$199	381	3.7%
\$200 to \$299	575	5.6%
\$300 to \$399	679	6.6%
\$400 to \$499	1,241	12.0%
\$500 to \$599	1,812	17.5%
\$600 to \$699	1,582	15.3%
\$700 to \$799	1,196	11.6%
\$800 to \$899	637	6.2%
\$900 to \$999	531	5.1%
\$1,000 to \$1,499	657	6.3%
\$1,500 or more	59	0.6%
No cash rent	868	8.4%
Median gross rent	\$596	
Median gross rent as a percentage of household income	30.5	

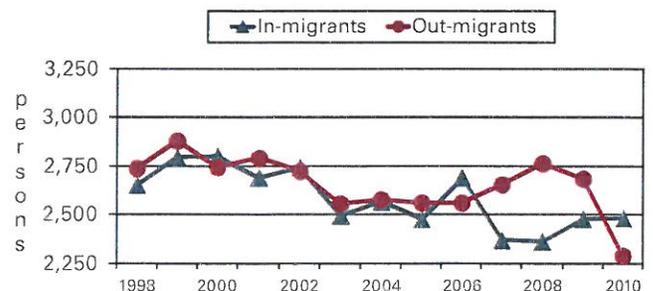
Selected Monthly Owner Costs for Specified Owner-Occupied Housing Units

	Number	Percent
Specified owner-occupied housing units with a mortgage	15,334	100.0%
Less than \$400	273	1.8%
\$400 to \$599	973	6.3%
\$600 to \$799	2,582	16.8%
\$800 to \$999	2,846	18.6%
\$1,000 to \$1,249	3,232	21.1%
\$1,250 to \$1,499	2,209	14.4%
\$1,500 to \$1,999	2,031	13.2%
\$2,000 to \$2,999	1,039	6.8%
\$3,000 or more	149	1.0%
Median monthly owners cost	\$1,077	
Median monthly owners cost as a percentage of household income	22.6	

Vital Statistics

	Number	Rate
Births / rate per 1,000 women aged 15 to 44	1,067	65.1
Teen births / rate per 1,000 females 15-19	149	48.8
Deaths / rate per 100,000 population	915	1,063.0
Marriages / rate per 1,000 population	563	6.5
Divorces / rate per 1,000 population	346	4.0

Migration



Agriculture

Land in farms (acres)	159,000
Number of farms	1,140
Average size (acres)	139
Total cash receipts	\$44,941,000
Per farm	\$39,422

Education

Public schools buildings	35
Students (Average Daily Membership)	16,113
Teachers (Full Time Equivalent)	873.5
Expenditures per student	\$9,204
Graduation rate	97.5
Non-public schools	3
Students	436
4-year public universities	0
Branches	1
2-year public colleges	1
Private universities and colleges	1
Public libraries (Main / Branches)	1 / 5

Transportation

Registered motor vehicles	98,657
Passenger cars	59,331
Noncommercial trucks	18,581
Total license revenue	\$2,779,554.89
Interstate highway miles	27.35
Turnpike miles	0.00
U.S. highway miles	40.12
State highway miles	198.40
County, township, and municipal road miles	1,407.29
Commercial airports	2

Voting

Number of registered voters	53,963
Voted in 2010 election	37,603
Percent turnout	69.7%

Health Care

Physicians (MDs & DOs)	173
Registered hospitals	3
Number of beds	694
Licensed nursing homes	7
Number of beds	755
Licensed residential care	4
Number of beds	389
Adults with employer-based insurance	59.0%
Children with employer-based insurance	56.3%

State Parks, Forests, Nature Preserves, And Wildlife Areas

Areas/Facilities	12
Acreage	23,279.17

Communications

Television stations	1
Radio stations	4
Daily newspapers	1
Circulation	13,020
Weekly newspapers	0
Circulation	0

Crime

Total crimes reported in Uniform Crime Report	3,194
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Finance

FDIC insured financial institutions (HQs)	2
Assets (000)	\$409,634
Branch offices	33
Institutions represented	10

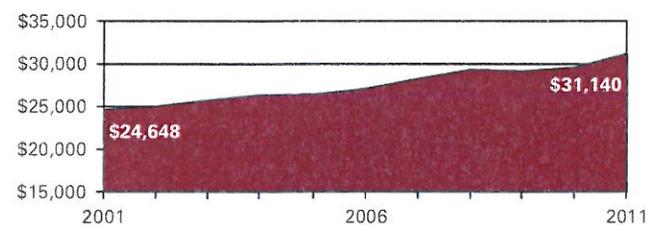
Transfer Payments

Total transfer payments	\$748,015,000
Payments to individuals	\$731,326,000
Retirement and disability	\$250,600,000
Medical payments	\$288,074,000
Income maintenance (Supplemental SSI, family assistance, food stamps, etc)	\$105,368,000
Unemployment benefits	\$40,297,000
Veterans benefits	\$13,633,000
Federal education and training assistance	\$28,518,000
Other payments to individuals	\$4,836,000
Total personal income	\$2,544,101,000
Dependency ratio	29.4%

Federal Expenditures

Direct expenditures or obligations	\$708,712,396
Retirement and disability	\$299,525,796
Other direct payments	\$215,615,598
Grant awards	\$162,366,756
Highway planning and construction	\$13,566,534
Temporary assistance to needy families	\$5,423,628
Medical assistance program	\$111,643,713
Procurement contract awards	\$7,512,406
Dept. of Defense	\$2,472,064
Salary and wages	\$23,691,840
Dept. of Defense	\$4,706,000
Other federal assistance	\$105,382,590
Direct loans	\$1,218,585
Guaranteed loans	\$70,182,267
Insurance	\$33,981,738

Per Capita Personal Income



Civilian Labor Force

	2007	2008	2009	2010	2011
Civilian labor force	38,700	38,100	38,700	38,300	38,000
Employed	35,700	34,800	33,900	33,200	33,600
Unemployed	3,000	3,300	4,800	5,100	4,400
Unemployment rate	7.7	8.6	12.4	13.2	11.5

Establishments, Employment, and Wages by Sector: 2011

Industrial Sector	Number of Establishments	Average Employment	Total Wages	Average Weekly Wage
Private Sector	1,755	27,128	\$913,367,995	\$647
Goods-Producing	295	4,714	\$236,700,689	\$966
Natural Resources and Mining	43	375	\$22,267,273	\$1,143
Construction	165	1,233	\$68,208,258	\$1,064
Manufacturing	86	3,106	\$146,225,158	\$905
Service-Providing	1,461	22,414	\$676,667,306	\$581
Trade, Transportation and Utilities	478	7,195	\$199,116,883	\$532
Information	16	510	\$16,896,606	\$637
Financial Services	168	986	\$40,200,674	\$784
Professional and Business Services	192	1,779	\$57,194,940	\$618
Education and Health Services	231	7,249	\$290,431,727	\$770
Leisure and Hospitality	213	3,446	\$46,004,584	\$257
Other Services	160	1,245	\$26,704,605	\$413
Federal Government		248	\$13,382,556	\$1,040
State Government		371	\$13,032,441	\$675
Local Government		4,333	\$156,089,241	\$693

Private Sector total includes Unclassified establishments not shown.

Change Since 2006

Private Sector	-4.7%	-8.9%	8.0%	18.5%
Goods-Producing	-19.4%	-29.5%	-3.9%	36.4%
Natural Resources and Mining	0.0%	3.3%	34.6%	30.3%
Construction	-26.0%	2.9%	66.0%	61.5%
Manufacturing	-14.9%	-39.4%	-22.5%	28.0%
Service-Producing	-0.9%	-2.9%	12.9%	16.4%
Trade, Transportation and Utilities	-0.6%	-12.9%	-3.9%	10.4%
Information	-11.1%	36.4%	42.1%	4.3%
Financial Services	-9.2%	-15.1%	-2.2%	15.1%
Professional and Business Services	-3.0%	8.4%	30.6%	20.2%
Education and Health Services	3.6%	5.2%	25.9%	19.6%
Leisure and Hospitality	7.0%	-0.6%	18.2%	19.0%
Other Services	-7.0%	-2.9%	5.8%	9.0%
Federal Government		-13.6%	-4.5%	10.8%
State Government		-14.7%	-7.5%	8.3%
Local Government		-3.8%	7.8%	12.0%

Business Numbers

	2008	2009	2010	2011	2012
Business starts	149	140	157	127	144
Active businesses	1,645	1,621	1,587	1,553	1,514

Residential

Construction

	2008	2009	2010	2011	2012
Total units	158	67	30	42	84
Total valuation (000)	\$8,551	\$2,245	\$2,762	\$1,389	\$6,525
Total single-unit bldgs	8	1	2	2	36
Average cost per unit	\$140,540	\$70,000	\$126,500	\$69,500	\$139,583
Total multi-unit bldg units	150	66	28	40	48
Average cost per unit	\$49,511	\$32,955	\$89,607	\$31,250	\$31,250

Major Employers

5 B's Inc	Mfg
AK Steel Holding Co	Mfg
Avon Products Inc.	Trade
AutoZone Inc	Trade
Dollar General Corp	Trade
Genesis HealthCare System	Serv
Longaberger Co	Mfg
Muskingum University	Serv
Muskingum County Government	Govt
Owens-Illinois/Owens-Brockway	Mfg
Wendy's Intl/New Bakery Co	Mfg
Zanesville City Schools	Govt

OXFORD MINING COMPANY, LLC
ADAMSVILLE SW MINE SITE
Proposal for Section 401 and 404 Authorization

APPENDIX E

Compensatory Mitigation Plan
Reconstruction and Mitigation Map
Jurisdictional Wetlands Mitigation Areas

**COMPENSATORY MITIGATION PLAN
PROPOSED ADAMSVILLE SW MINING AREA
for
OXFORD MINING COMPANY, LLC**

**Adamsville SW Mine Site
Washington Township, Muskingum County**

September 3, 2014

Prepared for:

**Oxford Mining Company, LLC
P.O. Box 427
Coshocton, Ohio 43812**

Prepared by:



Linn Engineering, Inc.

Civil Engineering Consultants

740-452-7434 • 1-800-991-7434

534 Market Street • P.O. Box 2086 • Zanesville, Ohio 43702-2086

PROJECT OVERVIEW

Project Name: Adamsville SW Mine Site

USACE Permit No.: LRH-2011-18

DMRM No. 10490

OEPA 401 No.

OEPA 402 No.

Project Location: Lat. 40° 00' 53" N, Lng. 81° 57' 40" W

Mitigation Site Location(s) (if different): mitigation will occur on site

Watershed(s) including 11 or 14 digit HUC: #05040004010-060

Location: Sections 2, 3 and Qtr Twp 2, Lot 10, T-1, R-7; Qtr Twp 3, Lots 12 and 13, and Qtr Twp 4, Lots 24 and 5, T-2, R-7; Washington Township, Muskingum County, Ohio
See Figure 1, the Project Location Map

Oxford Mining Company, LLC is planning to impact streams and wetlands on the Adamsville SW permit area (366.2 acres - Preferred Alternative) by surface mining operations in order to recover the #6 Middle Kittanning coal seam to meet contractual obligations to deliver coal. The applicant has estimated that the proposed project would result in the recovery of approximately 742,100 tons of coal.

Surface mining will be done by contour mining using the box cut method. Dozers, scrapers, loaders and trucks will be used to mine and reclaim this area.

Construction of the preferred alternative would result in the discharge of approximately 39 cubic yards of fill material into jurisdictional waters. As a result, the project will cause primary impacts to approximately 1,260 linear feet of perennial streams, 720 linear feet of intermittent streams, and 2,229 linear feet of ephemeral streams. One jurisdictional wetland (WTL-F) and two wetland fringe areas (WTLF-1 and WTLF-4), having a combined acreage of 0.60 acre, will be impacted during the mining process and therefor, mitigated for onsite. The total Materials discharged to jurisdictional waters overlie the coal, and primarily consist of shales and sandstones. Fill is required for the construction of the sediment ponds, coal extraction, haul roads, backfilling and grading and reclamation planting. These constructive uses are required for the intended purpose of obtaining and maximizing coal resources. Mining activities are anticipated to begin in May 2014, after issuance of permits, and remain active until May 2019.

The waters associated with this project are within HUC #05040004010-060 (Muskingum River below Symmes Creek, to above Licking River). The Muskingum River watershed is located within the middle Ohio River drainage basin (in Ohio), under the jurisdiction of the U.S. Corps of Engineers (Corps) Huntington District.

PROJECT IMPACTS AND AVOIDANCE MEASURES

The Preferred Alternative proposes to impact jurisdictional streams totaling 4,209 linear feet, consisting of approximately 1,260 linear feet of perennial channel, 720 linear feet of intermittent channel, and 2,229 linear feet of ephemeral channel, as well as 0.60 acre of wetland and wetland fringe. One coal seam is present in and surrounding the Adamsville SW Mine Site. Stratigraphically, the #6 coal outcrops around the lower to middle ridge elevations. In terms of its relationship to jurisdictional "waters", the #6 coal occurs proximal to streams and wetlands, such that impacts are unavoidable without sacrificing coal reserves and spoil storage.

In other words, it is neither practicable nor environmentally responsible to leave portions of the coal resource on the project site. These unrecovered resources would only serve as potential sources of acid mine drainage and provide a reason to re-affect these lands in the future. Therefore, responsible maximum utilization of the project site's coal resources requires the filling or mining through portions of some streams within the permit limits. Minimal degradation and avoidance alternatives were evaluated as part of the Clean Water Act, 404 Alternatives Analysis and are incorporated by reference.

Oxford recognizes the importance to minimize or avoid impacts were practicable and will take advantage of several opportunities to do so. The original study area consumed approximately 972 acres, extending from CR. 110 (Church Hill Rd) from the east, to TWP 392 from the north, and nearly intersecting SR 666 to the west. Based on the drill hole data provided for the Adamsville SW mine site and the previous mining activities, Oxford determined that they could properly extract the #6 coal seam and control drainage within a much smaller permit area. Therefore, the entire reach of Streams 1-16, 21, 23, 24, 28, 29, 31, 39, 41, 42, 43, 44, the majority of Streams 17, 19, 20, 22, 26, 35, 36, 37, 40 and Wetlands A, B, C, D, and H have all been protected by avoidance. Also, as proposed in the Preferred Alternative, the majority of ST-30 and its buffer zone will be avoided. In doing so, Oxford was also able to avoid the reaches of ST-34, ST-32, and Wetlands E and G in their entirety.

The Preferred Alternative represents the most responsible approach to developing the Adamsville SW Mine Site with regard to the quantity, quality and function of aquatic resources without compromising the general purpose of the project. It was determined that further minimization of impacts to wetlands and streams on the site would compromise the project's feasibility.

In summary, the non-degradation and minimal degradation alternatives impose economic hardships on the operator and local community. Upon consideration, the reduction in coal recovery imposed by these alternatives would not result in desirable utilization of Ohio's mineral resources.

SITE SELECTION

No alternate sites were considered in the following analysis because the selected site provides economical recovery of coal, and there is no reason to believe that an alternate site would result in

decreased impacts to water quality. The proposed site also has the benefit of being located in an area of low population density that is absent of high quality waters.

The proposed surface mining activity will make a substantial contribution to the coal resources needed to meet the energy demands of the public, thereby maintaining economic viability of an important local employer. The mining activity will also support the local community with jobs, ancillary spending, and tax revenues. Mitigation activities (which include reclamation to contemporary standards) within the project site will cause no cumulative impacts to water quality within the watershed.

MITIGATION GOALS AND OBJECTIVES

Scenario

The impacts to streams and wetlands are those proposed under the Preferred Alternative.

Goals and Objectives

- Site Selection: Factors related to site selection considered, 1) that mitigation be done on-site, 2) that mitigation be compatible with surrounding landuses, and 3) the site selected is in an area that will not be disturbed by future coal mining. The locations of stream and wetland mitigation are shown on the Aquatic Resource Reconstruction and Mitigation Map. Mitigation areas will continue to be under private ownership and will be subject to a conservation easement, the form of which is submitted in Appendix H.
- Stream Mitigation: Restore or construct stream length that results in no net loss of length or function. All impacted streams will be replaced/reconstructed at a 1:1 ratio in their approximate locations during the reclamation process.
- Wetland Mitigation: Create at least 1.5 times the area of impacted wetlands. In lieu of ephemeral stream mitigation, the area of impacted ephemeral streams will be added to the area of jurisdictional wetland mitigation. Impacts to jurisdictional wetlands (WTL-F, WTLF-1, and WTLF-4), as well as ephemeral streams, will be mitigated with the creation of two Wetland Mitigation Areas (WMA #1 and WMA #2). WMA #1 will coincide with the removal of sediment Pond 010, and WMA #2 with sediment Pond 008, respectively.

EASEMENTS OR ENCUMBRANCES

There are no known easements or encumbrances on the site other than the mining lease.

BASELINE INFORMATION

Impoundments

Existing Pit Impoundment	Type of Impoundment	Wetland Fringe (ac)	Area (ac)	Approx. Wtr Depth (ft)	Volume of fill below OHWM (cy)	Isolated	
						Yes	No
EWI-1	abandoned pit impoundment	0.20	0.49	4	3,162		X
EWI-2	abandoned pit impoundment		0.17	4	1,097		X
EWI-3	abandoned pit impoundment		0.86	4	5,550		X
EWI-4	abandoned pit impoundment	0.18	0.08	4	516		X
EWI-6	abandoned pit impoundment		0.12	4	774		X
Total		Non-Isolated	1.72		11,100		

Streams

Designation	Flow Regime	Water Depth (in)	Stream Width (ft)	Area (ac)	Length	Isolated	
						Yes	No
ST-17	Ephemeral	-	2.6	0.04	656		X
	Intermittent	-	3.0	0.06	936		X
	Perennial	3.5	5.9	0.10	736		X
ST-18	Perennial	2.0	2.5	0.46	7,997		X
ST-19	Ephemeral	-	3.0	0.03	405		X
ST-20	Ephemeral	-	2.6	0.02	319		X
ST-22	Ephemeral	-	1.6	0.01	355		X
	Perennial	3.1	4.6	0.16	1,564		X
ST-25	Perennial	1.6	3.0	0.02	281		X
ST-26	Ephemeral	-	3.0	0.06	880		X
	Intermittent	-	3.0	0.09	1,326		X
	Perennial	3.5	4.6	0.02	228		X
ST-27	Ephemeral	-	3.0	0.02	239		X
ST-30	Perennial	6.3	9.2	0.85	4,022		X
ST-32	Ephemeral	1.6	1.6	0.01	133		X
ST-33	Ephemeral	-	1.6	0.03	742		X
	Intermittent	-	2.3	0.02	290		X
	Perennial	2.8	3.0	0.02	263		X
ST-34	Perennial	3.1	3.0	0.03	496		X
ST-35	Perennial	2.4	2.0	0.07	1,572		X
ST-36	Intermittent	-	2.6	0.01	224		X
ST-37	Ephemeral	-	3.0	0.07	1,009		X
ST-38	Ephemeral	-	3.0	0.005	70		X
ST-40	Perennial	1.6	3.9	0.13	1,431		X
Total On-Site Stream Length (ft.)					26,174		

Wetlands

Wetland	Designation	ORAM Score	ORAM Category	Area (ac)	Isolated	
					Yes	No
WTL-E	PEM	46.5	2	0.44		X
WTL-F	PEM	50	2	0.22		X
WTL-G	PEM	45	2	0.34		X
EWI-1 fringe	Wetland Fringe	53	2	0.20		X
EWI-4 fringe	Wetland Fringe	51	2	0.18		X
Total			Non-Isolated	1.38		

MITIGATION WORK PLAN

The Mitigation Work Plan addresses the mitigation of aquatic features that were identified for impact under Baseline Information. The locations of stream and wetland mitigation are shown on the Aquatic Resource Reconstruction and Mitigation Map.

A. Description of Required Mitigation

Jurisdictional Streams Mitigation Summary

Perennial Streams

Jurisdictional Streams will be reconstructed in their approximate pre-mining locations.

Intermittent Streams

Jurisdictional Streams will be reconstructed in their approximate pre-mining locations.

Ephemeral Streams

Ephemeral streams will not be reconstructed, but, will instead be mitigated as additional wetland mitigation area. The chemical, physical, and biological functions lost due to the loss of ephemeral streams onsite are minimal and will be offset by the implementation of reclamation and BMP's. By their very nature ephemeral streams only carry water during and immediately after precipitation events. Due to this, the chemical function of these streams is limited and ultimately dependent upon the surrounding environment (i.e. quality of precipitation and surrounding landuse). This means that the chemical properties of the water being delivered to the intermittent via the ephemeral streams is more dependent on factors happening outside of these stream channels rather than within the ephemeral stream channels. The post mining landscape will allow precipitation/surface flow to be controlled and given the opportunity to percolate through the soil or be delivered directly to the intermittent streams. The resulting chemical functions provided by the post mining landscape will be highly dependent upon non stream factors.

These streams typically have relatively high gradients (>25%), low quality substrates, and small watersheds. As a result, these streams have very limited floodplains and possess relatively high probability for erosion. These factors limit the physical functions that each stream is able to provide including flood control, channel stability, and stormwater attenuation. The reclaimed landscape will be designed so that sheet flow will be controlled and eliminate the potential for erosion thus providing improved physical functions to the surrounding landscape.

Lastly, the biological function these streams provide is severely impaired due to the nature of the flow regime. True aquatic species (amphibians, fishes, and aquatic macroinvertebrates) typically do not reside in ephemeral streams as they cannot fulfill their life cycles without at least semi permanent aquatic habitat. Realistically, the biological functions associated with the ephemeral streams onsite are at best minimal and will likely

have very little impact on the biological function of the site collectively. Refer to Table 3: Gain-Loss Summaries.

Jurisdictional Wetlands Mitigation Summary

Mitigation of impacted Jurisdictional Wetlands will occur on site at two mitigation areas (WMA #1, WMA #2). These will be constructed within proposed sediment ponds 008 and 010 when they no longer benefit the mining operation.

Constructed Stream Design

The reconstructed channel should be dynamic in that its various parameters will be changing. For example, rock lining will displace, pools will cut, sediment will deposit, banks will erode - all of which occurs continually in natural channels. Therefore, the design is meant to function as a guideline for reconstruction. Actual site conditions may necessitate changes in the design. The channels will be observed during the maintenance period and changes in rock size, location, vegetation, grading and other features will be incorporated as needed with the goal of creating a reasonably stable "natural channel". The criteria around which streams will be reconstructed are that the length and function of intermittent and perennial streams must be the same as under pre-mining conditions, to the extent practicable.

B. Wetland Mitigation Design

In order for wetland mitigation area to be successful, they must have the following characteristics;

- be properly sized (surface area),
- have adequate hydric soils or organic substrate,
- have adequate hydrology, and
- be able to support diverse hydrophytic vegetation.

To enhance the potential for success, each wetland mitigation area will be designed to meet or exceed its required surface area. Mitigation areas will be configured to fit compatibly with their surround contours, whether original or reclamation. Prior to impacting a wetland, hydric soils will be excavated and stockpiled for later re-distribution into the mitigation area. Suitable organic material may supplement hydric soils as conditions warrant. In situations other than converting a sediment pond into a wetland, a clay liner will be specified. The liner is intended to retard seepage from the wetland basin and help moisture retention. Throughout the year the depth of water in the wetland mitigation area will vary, but elevations will be set to maintain a maximum of six (6) inches of water above the top of the hydric soils. Re-distributed hydric soils will serve to provide a seed base for the natural regeneration of hydrophytic vegetation. A supplemental seed mix is herein provided should densification and diversification of the plant community be needed.

C. **Mitigation Techniques and Specifications**

Stream Reconstruction

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 practiced construction techniques for successful, functioning riffles that mimic natural riffle slope and produce accelerated flows that create the downstream pools. A 50' buffer along reconstructed streams will be planted according to the riparian/wetland planting plan in Appendix F.

Wetland Mitigation

Wetland Mitigation Areas (WMA #1, WMA #2): Mitigation will occur within temporary sediment ponds 008 and 010 once these ponds are no longer beneficial to the mining activities. The wetland basin will be surveyed in the field (i.e. layout staking) to facilitate construction achieves the proper size and elevations. A maximum water depth of six (6) inches will be maintained. Relatively impermeable material (i.e. shale or clay) will be obtained on-site and placed in the bottom of the basin. This material will be placed in 9" uncompacted lifts and then compacted by repetitious passes of heavy earthmoving equipment to form an 18" thick layer. A 12" thick layer of uncompacted organic material or previously stockpiled hydric soils will be placed on the clay layer. Natural recruitment of native plants will be allowed in the on-site wetland mitigation area. A supplemental seed mix is herein provided should densification and diversification of the plant community be needed. A 50' buffer surrounding the basin will be planted according to the riparian/wetland planting plan in Appendix F.

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.

Erosion control

Sediment ponds, diversion ditches, silt fences, straw bale dikes, and sumps will be used, as necessary, to control drainage. All runoff from the disturbed area will be directed to either a sediment pond or sump, unless an exemption has been granted. Sumps will not be used as primary sediment control structures unless an exemption has been granted. Affecting as small an area as possible and temporarily seeding and vegetating the affected areas quickly will also be implemented.

Planting

Planting of native trees along the relocated/restored riparian corridors is planned. Trees and shrubs will be slightly staggered to increase shade coverage. The plan calls for rows on 4 foot centers with 8 foot spacing between seedlings. This usually equates to 600 trees per acre. The proposed survival rate of 80% will yield 480 trees per acre. Re-planting of vegetation (either of the same species or new native species) may be necessary to achieve

acceptable survival rates. Planting will be done in a swath 50' wide extending back from the top of the stream bank along both sides of the stream.

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. To control exotic vegetation any seed that is bought for introduction into the mitigation wetland site will be certified to be free of noxious and exotic vegetation. If upon inspection there is exotic or noxious vegetation discovered growing in the mitigation area, a plan will be developed to eliminate the offending vegetation from the mitigation site. 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.

Areas planted with riparian vegetation will not be cut or mowed in order to encourage the development of volunteer vegetation, so long as this vegetation does not compromise the success of the overall revegetation plan. Grazing of planted areas will also be avoided, as this will promote and sustain growth of the local vegetation. Species of tree, shrubs, grasses and legumes, which appear naturally will not be removed but remain to enhance the wildlife environment along the streams.

Upland Areas - Temporary and Permanent Vegetation

Temporary Vegetation: 2 lbs. Rye Grass per acre

Permanent Planting: 20 lbs. Orchard Grass; 3 lbs. Timothy; 2 lbs. Perennial Ryegrass; 6 lbs. Red Clover and 1 lb. Ladino Clover per acre.

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.

D. Timing of Mitigation Construction

Commencement of mitigation construction activities are dependent upon events, such as completion of reclamation grading or the determination that vegetation has been successfully established, rather than by a date or time period. Stream reconstruction and wetland mitigation are triggered by different events.