

NORTH POINT VFW REPAIR & LONG-TERM M&R FUND PROJECT

BROAD TOP TOWNSHIP

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NORTH POINT VFW REPAIR & LONG-TERM M&R FUND PROJECT

I. EXECUTIVE SUMMARY

For over twenty-five years, Broad Top Township has been actively working to remediate abandoned mine drainage (AMD) and other pollution within the Six Mile Run, Sandy Run and Longs Run watersheds. The 2001 AMD Assessment and Remediation Plan of the combined Six Mile Run and Sandy/Longs Run watersheds listed eighty AMD discharges within the watersheds. The 2002 Six Mile Run TMDL shows serious pollution problems resulting from abandoned coal mines and recommends that “a focused effort should be made by the DEP to make real and significant reductions to the loading of Six Mile Run whenever the opportunities arise.” This Project is such an opportunity.

This Project includes two parts: an immediate need for major repair and material replacement at the North Point VFW built in 1998 and establishment of a fund for future major maintenance and material replacement (M&R) at the twelve other AMD treatment systems the Township has completed since 2004. The newly constructed systems, which treat fifteen discharges within the Six Mile and Longs Run watersheds, have made significant improvements in the streams. These systems will require major expenditures for settling pond cleaning every ten years and material replacement every twenty-five years. Unless funds are found to pay for these required future expenditures, eventually the streams will become degraded again. By investing in a M&R Fund now the future quality of these streams can be assured and the benefits of compound interest can be used to help provide the necessary funding.

II. NEED AND JUSTIFICATION OF FUNDING

Although deep and surface coal mining have been major contributors to the economic base of the watershed for over one hundred and fifty years, environmental problems resulting from abandoned mines have exacted a cost environmentally, economically, and developmentally throughout the area. Acid mine drainage affects nearly all of the streams throughout the watersheds reducing the environmental, economic, aesthetic, and recreation value through diminished water quality. Although the last deep mine was closed in 1972, surface mining activities continue in the Township.

Broad Top Township formed a joint Citizens Watershed Advisory Committee with Coaldale Borough to determine its watershed priorities and activities. Long committed to the restoration and improvement of our area’s water quality, we have sought to find innovative and cost effective ways to treat AMD sites. The Township officials have supported and participated in numerous State and

Federally funded programs and projects which have eliminated many health and safety hazards to the area's residents and environment that were a result of past coal mining activities and practices.

In 2001 Broad Top Township used Growing Greener funds to perform an AMD assessment of the combined Six Mile Run and Sandy/Longs Run watersheds for the purpose of updating outdated water quality information and to establish a priority list for AMD remediation projects. TMDL Reports for the watersheds were completed in 2002 and the Restoration Plan was updated in 2005. Since the 2001 Assessment was unable to locate all the AMD sources in Six Mile and Sandy Run it is essential to treat all the known sources to meet the TMDL requirements.

In 1998 the North Point VFW was constructed to treat two discharges (SX0-D4 & SX0-D5) using a design done in 1995. It was constructed as a demonstration project to show that VFWs could be used to treat AMD discharges successfully in the Broad Top Coal Field. With the advent of Growing Greener funding the Township has systematically constructed AMD treatment systems to substantially clean up Longs Run (12 of 15 discharges treated) and to clean up the primary discharges in the headwaters of Six Mile Run (3 discharges). The Township has committed to perform routine operations and maintenance for all these systems but cannot afford to pay for non-routine major repairs or material replacement. This project includes two parts to deal with both an immediate need at North Point and the future needs at the recently constructed systems.

The North Point VFW was constructed in 1998 using materials provided through grants to the Township and equipment and labor provided by Cooney Coal Company for rec-in-lieu credit. Since it was designed in 1995 it did not include some design improvements which the Township includes in the treatment systems it has built since. It has always been very difficult to flush the VFW and with age it has become increasingly difficult. Also, the system was designed for only a twenty year life at a flow of 56 gpm. Monitoring in 1999 showed that actual flow averaged 86 gpm. In 1999 the water quality of the outflow was as planned with an average PH of 6.3. However, in 2005 the measured outflow PH dropped as low as 3.7 during periods of high flows. The Township proposes to repair the flushing mechanism to enable easy operation, drain the VFW and add limestone to provide for another fifteen years of operation at current flows and clean the final settling pond if necessary.

The second proposal is to establish an interest earning M&R Fund to pay for future major M&R for the twelve recently constructed AMD treatment systems. These systems were built with an expected life of twenty-five years before limestone replacement is necessary. In addition, the operations manuals for these systems recommend cleaning out the settlement ponds every ten years. These two items are major expenditures that the Township with its limited tax base cannot afford. However, if funds can be set aside now they can earn compound interest and this future work can be assured.

The systems involved treat twelve discharges affecting Longs Run and three discharges affecting Six Mile Run. The eleven Longs Run treatment systems have cleaned up almost all the AMD pollutant loading in Longs Run. The treatment system for the three discharges at Finleyville, completed in 2006, has similarly cleaned up much of Shreeves Run and is already making a visible improvement in water quality within Six Mile Run downstream. However, unless the required future M&R work is done, in another thirty to forty years Longs Run and Shreeves Run will again become AMD degraded. The proposed M&R Fund will ensure the continuation of these improvements in water quality into the future.

III. GOALS AND OBJECTIVES

The goal of this project is based on our commitment to the improvement of water quality throughout Broad Top Township by finding innovative and cost effective ways to remediate AMD discharge sites. This project will help the Township to continue to meet the pollutant load reductions required by the TMDL Report in the future and supports and complements other conservation and environmental needs of the region.

IV. PARTNERSHIPS

For over twenty-five years, the Broad Top Township supervisors have supported and participated in numerous AMD projects. Through these efforts we have developed partnerships and gained the support of numerous agencies, organizations, and our community.

Broad Top Long-Term Fund Project---Six Mile Run Area Watershed Committee

Throughout the decades of this project, Broad Top Township will maintain continual contact with property owners, the Bedford County Conservation District, the Bedford County Planning Commission, the Tussey Mountain School District, the Western Pennsylvania Coalition for Abandoned Mine Reclamation and the PA DEP.

The Township has completed several other cooperative projects within its watersheds, which displays our commitment to improving and protecting our watersheds. Those projects are listed in the table below:

Completed and Funded AMD Remediation Projects

Program/Sponsors	Project Location	Problem/Action	Date Completed
SIX MILE RUN WATERSHED			
RAMP	First Church of God	2 mine shaft openings, 1 airshaft and a concrete structure. Openings were closed, building was moved and buried and whole area was re-vegetated	1979
RAMP	Coaldale Borough	2-3 mine openings were closed. Area re-seeded.	1980/81
RAMP	Six Mile Run Fire Hall	Deep mine refuse pile. Leveled and seeded for fire company carnival.	1980/81
RAMP	New Enterprise	4 mine openings and 1 airshaft (next to Six Mile Run fire company); filled and closed.	1985-88
RAMP	Cartwright	Small subsidence in front yard of house. Re-graded and seeded.	1986
RAMP	David Thomas	1 main mine opening in a waterway. Closed, and wetland built to filter water.	1990
RAMP	Eichelberger I	Small wooden tipple, small highwall, 1 deep mine opening; closed and regraded.	1990
RAMP	Eichelberger II	Mine opening, airshaft, building, deep mine discharge and refuse pile. Closed and regraded.	1993
BAMR	Coaldale Post Office BD	Mine opening filled and closed.	1996
WPCAMR, DEPDMO, BCCD, BTT	North Point SAP	SAP passive treatment system installed for discharges at North Point.	1998
BAMR	Defiance North	Regraded a highwall area.	1999
WPCAMR, BCCD, BTT	Shreves Run Diversion Well		1999
PADEP GG, OSM	Finleyville Discharges	Passive treatment of 3 AMDs along Shreves Run. Substantially completed AMD project	2005/06

Program/ Sponsors	Project Location	Problem/Action	Date Completed
PADEP GG	SX0-D2 Discharge	Passive treatment of AMD along Six Mile Run. AMD project in progress.	2006
PADEP GG	Brewster Hollow Discharges	Passive treatment of 2 AMDs along Brewster Hollow Run. Planned AMD project	2006
PADEP GG	SX3-D9 & SX0- D16 Discharges	Passive treatment of 2 AMDs at the confluence of Shreeves & Six Mile Run. AMD project in progress.	2006/07
PADEP GG	Shreeves Run Regional Discharges	Passive treatment of 5 AMDs along Shreeves Run. Planned AMD project	2006/07
PADEP GG	SX2-D5 Discharge	Design for passive treatment of AMD along Spruce Hill Run. Planned AMD project	2006/07
PADEP GG	SX2-D6, SX2-D7 & SX2-D8 Discharges	Design for passive treatment of 3 AMDs along Spruce Hill Run. Planned AMD project	2006/07
PADEP GG	SX0-D6 Discharge	Design for passive treatment of AMD along Six Mile Run. Planned AMD project	2006/07
SANDY RUN WATERSHED			
RAMP	Heckman	Mine openings, 2 acres of deep mine refuse, and run-off into adjacent water supply. Closed and re-graded.	1980/81
OSM	T549 (Landfill Road)	Mine collapse restoration.	
OSM	T549 (Landfill Road)	Mine washout restoration.	
BAMR	Kimber Mountain (State Game Land #261)	Hazardous recreational water body; Dangerous highwall; Spoil area.	1990
BAMR, SCC5WA	BFHWA Landfill MP 10, 11, 12 SAPs	SAPs passive treatment systems installed for discharges at the Sandy Run Landfill (See Appendix A for water quality monitoring data).	2000
LONGS RUN WATERSHED			
RAMP	Mort	Highwall (500 ft. long) running behind several houses, 2 mine openings. Closed and re-graded.	1982-85
RAMP	Barton-Meck	Mine opening and small refuse pile, close to a house. Re-graded and seeded.	1986

Program/Sponsors	Project Location	Problem/Action	Date Completed
RAMP	Figard	Big mine opening next to house, and a highwall. Closed and re-graded.	Before 1990
RAMP	Zelanko	Coke ovens. Re-graded.	1991
BAMR	North Langdondale	Regraded a highwall area.	1998
PADEP GG	Longs Run Watershed	AMD near spoil pile. Diversion of surface water away from mine spoil pile believed to be a source of water for AMD.	2001
PADEP GG	Longs Run Regional 1	Passive treatment of 7 AMDs along Longs Run.	2005
PADEP GG	Longs Run Regional 2	Passive treatment of 6 AMDs along Longs Run. Partially completed AMD project.	2006

*Note*RAMP: Rural Abandoned Mine Program; BAMR: Bureau of Abandoned Mine Reclamation; WPCAMR: Western Pennsylvania Coalition for Abandoned Mine Reclamation; OSM: Office of Surface Mining; PADEP GG: Pennsylvania Department of Environmental Protection Growing Greener; PADEPDMO: Pennsylvania Department of Environmental Protection District Mining Office; BTT: Broad Top Township

V. SCOPE OF WORK

The first part of this proposal is to renovate the North Point VFW. In order to make the flushing system usable the VFW will be drained and the existing in-line control structure will be temporarily removed. Then the in-line structure will be reinstalled with an N12 pipe surrounding it as the Township uses on all its new construction enabling the flow control boards to be moved easily. In addition, the limestone in the VFW will be examined for flow restrictions and/or short circuits, measured to determine the quantity remaining and “stirred up”. The amount of limestone actually used in the last seven years will be calculated and the amount needed for another twenty-five years will be determined and added to the system along with the required compost. Flow measurements indicate that an additional 800 tons of limestone will need to be added to the system to extend its life for another twenty-five years based on the original design.

The second part of this proposal is to set up an M&R Fund to pay for long term major maintenance and material replacement for the existing twelve AMD treatment systems for which the Township is responsible. The fifteen discharges and the twelve treatment systems are listed below:

Existing Passive AMD Treatment Systems Anticipated Maintenance Needs					
Site ID	Average Flow (gpm)	Assumed Alkalinity Generation (mg/L)	Number of Ponds to Be Cleaned Every 10 Yrs.	Tons of Limestone Replaced Every 25 Yrs.	VFW or ALD Removal/Replacement
LRO-D2	4	100	1	266	1 LS Pond
LRO-D3	10	100	1	305	N.A.
LRO-D4	2	125	N.A.	76	1 - ALD

LRO-D5	12	100	2	438	N.A.
LRO-D6	3	125	2	84	1 - ALD
LRO-D7	11	100	1	431	N.A.
LRO-D8	4	100	2	206	N.A.
LRO-D9	N.A.	N.A.	2	N.A.	N.A.
LRO-D10	15	100	3	577	1 - VFW
LRO-D13/D15	20	125	2	1122	1 - ALD
LRO-D14	N.A.	N.A.	1	N.A.	N.A.
SX3-D1	125	75	3	4173	N.A.
SX3-D2	45	75		1406	N.A.
SX3-D3	65	75		1798	N.A.

The engineering estimate for the average pond cleaning in current dollars is \$2,000 each. The current cost of limestone delivered is \$20 per ton. The Township's estimate for the cost of "stirring up" and then replenishing limestone is \$3,000 per 500 tons. The engineering estimate of the average extra cost to replenish limestone in an ALD is \$2,000. The estimated combined current cost of pond cleaning at ten and twenty years and limestone replenishment at twenty-five years for the twelve systems is \$328,923. This is made up of \$64,036 for systems completed in 2004, \$35,166 for systems completed in 2005 and \$229,721 for systems completed in 2006.

Using an average inflation adjustment of 3% and an average investment return of 5% the current investment needed to pay for these future expenditures is only \$221,500. This amount today will pay for the estimated \$612,514 cost in future dollars of the work required to be done over the next twenty-five years. If an average investment return of 6% can be obtained only \$177,120 is needed today, while receiving only a 4% return would require \$278,395. The spreadsheets that provide these numbers are available electronically upon request.

The Township proposes to set up a special trust account with the advice of the Pennsylvania Local Government Investment Trust (PLGIT) to hold the M&R Fund. Payments from the M&R Fund can be pre-approved by an outside entity such as the Bedford County Conservation District if desired by the Department to ensure its proper use. The first part of this project will be to work out all the details needed to ensure the future operations of the M&R Fund.

Project Schedule

<u>Task</u>	<u>Time Frame</u>	<u>Responsible Party</u>
North Point VFW Repair & Material Replacement	Fall 2006	Broad Top Township
Determine Final M&R Fund Operations and Amount	Fall 2006	Broad Top Township, PLGIT & DEP
Begin M&R Fund Operation	January, 2007	Broad Top Township

Broad Top Long-Term Fund Project---Six Mile Run Area Watershed Committee

VI. MEASURABLE ENVIRONMENTAL RESULTS/BENEFITS

Repair and material replacement at the North Point VFW will restore it to full functionality to improve water quality in Six Mile Run. Establishing the M&R Fund will ensure the continued treatment of fifteen AMD discharges in Longs and Six Mile Run abating their discharge of AMD pollutants and continuing the required TMDL load reductions from these discharges for the next fifty years.

VII. COST ESTIMATE

The overall cost estimate for this project is \$245,270 as outlined below.

COST ESTIMATE FOR NORTH POINT VFW				
MATERIALS			QUANTITY	COST
LIMESTONE (TONS)	\$20.00	PER TON	800	\$16,000
COMPOST (CY)	\$10.00	PER CY	150	\$1,500
PIPE		LS		\$200
EROSION CONTROL FENCE (FT)	\$3.00	PER FT	150	\$450
SEED AND MULCH	\$300	PER ACRE	0.5	\$150
MATERIALS TOTAL				\$18,300
EQUIPMENT				
20 TON EXCAVATOR	\$41.00	PER HOUR	40	\$1,640
DUMP TRUCK	\$35.00	PER HOUR	30	\$1,050
EQUIPMENT TOTAL				\$2,690
LABOR				
LABORER/OPERATOR	\$25.00	PER HOUR	40	\$1,000
LABORER/OPERATOR	\$27.00	PER HOUR	40	\$1,080
SUPERVISOR/OPERATOR	\$35.00	PER HOUR	20	\$700
LABOR TOTAL				\$2,780
TOTAL				\$23,770

Match:

Unreimbursed administrative/coordination by Broad Top Township \$ 500
 Broad Top Township Cash Contribution \$ 3,140
 Total Match (15%) \$ 3,640

Total Cost of North Point VFW Project \$ 24,270
Funds Requested By North Point VFW Proposal \$ 20,630

Endowment of the M&R Fund \$221,500

Match:

Broad Top Township has no ability to provide a 15% match for this request in current dollars. However, the Township will provide for all future operating costs of the M&R Fund. The value of these future services will provide more than the full 15% match.

Total Funds Requested By Proposal \$242,130

