Monastery Run - AMD Abatement Project

Project Background:
Project Name: Monastery Run
Project Number: AMD 65(2533)101.1
Problem Area: 2533
Municipality: Unity Township
County: Westmoreland
Topographic Map: Latrobe
Latitude/Longitude: 40° 17’ 52” N, 79° 24’ 30” W
Receiving Stream: Fourmile Run

Project Goals:
The goal of this project was to abate high Iron, alkaline discharges from eight different sites with a series of passive treatment wetland ponds. The mine runoff enters Fourmile Run before flowing into Monastery Run, heavily polluting this stream. The polluted water then flows from Monastery Run into Loyalhanna Creek. This creek is a very important cold water fishery and recreation area for local residents. These activities continue upstream of the pollutant area, but have ceased downstream.

Project Information:
These mine discharges first came to the attention of state officials during a 1972 inspection of mine drainage, known as Operation Scarlift. At the time, the drainage was found to be acidic, but it has since gone more alkaline. The Department of Environmental Protection's Bureau of Abandoned Mine Reclamation sampled the site again in 1993 and found that the pollution was still present, with Iron levels of between 40-80 mg/L. The site lies on property owned by the Wimmer Corporation, who also owns the land occupied by Saint Vincent College, which is directly south of the project site. Officials from the college, as well as the Loyalhanna Creek Mine Drainage Coalition were supporters of and sponsors for this project.

Project Design Information:
At the site designed by BAMR, a four-celled aerobic wetland with a series of internal dikes to control and direct flow was constructed on a wetland that was already in existence because of past mining activities. The first cell consists of an aerobic wetland/sediment pond; this water then flows into the second aerobic wetland cell. Cell three is a compost wetland which contains limestone and mushroom compost. The water then flows from cell three to cell four, which is another aerobic wetland, before being released back into Monastery Run.

After a few years of successful abatement and operation, however, changes had to be made to this wetland system. The ponds were designed for a maximum flow of 868 gallons per minute, but eventually started taking on flows that were more than five times this amount. This wetland, known as Wetland #1, was connected to Wetland #2 to help ease the burden on the first wetland. They were connected with an inverted siphon that carries effluent water from Wetland #1 through a pipe, under Fourmile Run, and into Wetland #2.

Another operation that was undertaken after the conclusion of the initial construction was the redirecting of the discharge that emanated from a large borehole known as the "Bubbler." This hole discharged about 500 gallons of polluted water into Monastery Run each minute. A new borehole was drilled and led into the wetland treatment system and the original "Bubbler" borehole was sealed off to prevent it from continuing to discharge.

Project Description:
AMD flows from Fourmile Run, into Monastery Run, and is then diverted into Wetland #1. The first treatment cell serves as an aerobic wetland as well as a sedimentation pond that allows Iron to precipitate out of the water. Internal concrete dikes then direct the flow into the second cell, an aerobic wetland, before flowing into the compost wetland contained in the third cell. The water undergoes one more series of treatments in the aerobic wetland of the fourth cell before the effluent water is diverted into Wetland #2 to allow for any additional pollution abatement that may be necessary.

Property Owner Information:
This property is owned by the Wimmer Corporation, who also owns the land occupied by the adjacent St. Vincent College. The college used this site to allow for educational opportunities for their students as well as for field work for AmeriCorps volunteers.

Conclusions and Recommendations:
Once the first wetland was connected to the second via an underground pipe, the initial positive results returned to the abatement project. With less stress being put on the system to remedy the heavier discharges that came about unexpectedly, the wetland ponds can now remove as much pollution as possible without overloading the system. Through frequent monitoring and regular necessary maintenance, it is hopeful that this site can continue to work properly over its 25 year expected life-span and beyond.
*CMB

Directions to Site:

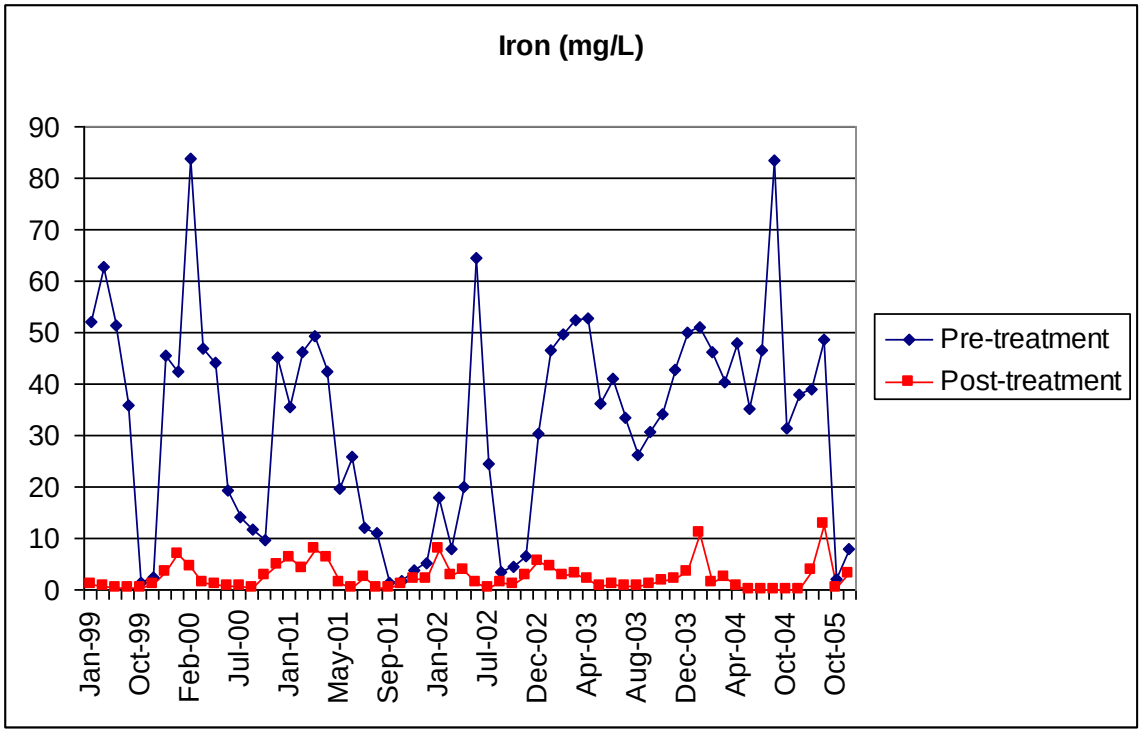
Start – 286 Industrial Park Road, Ebensburg

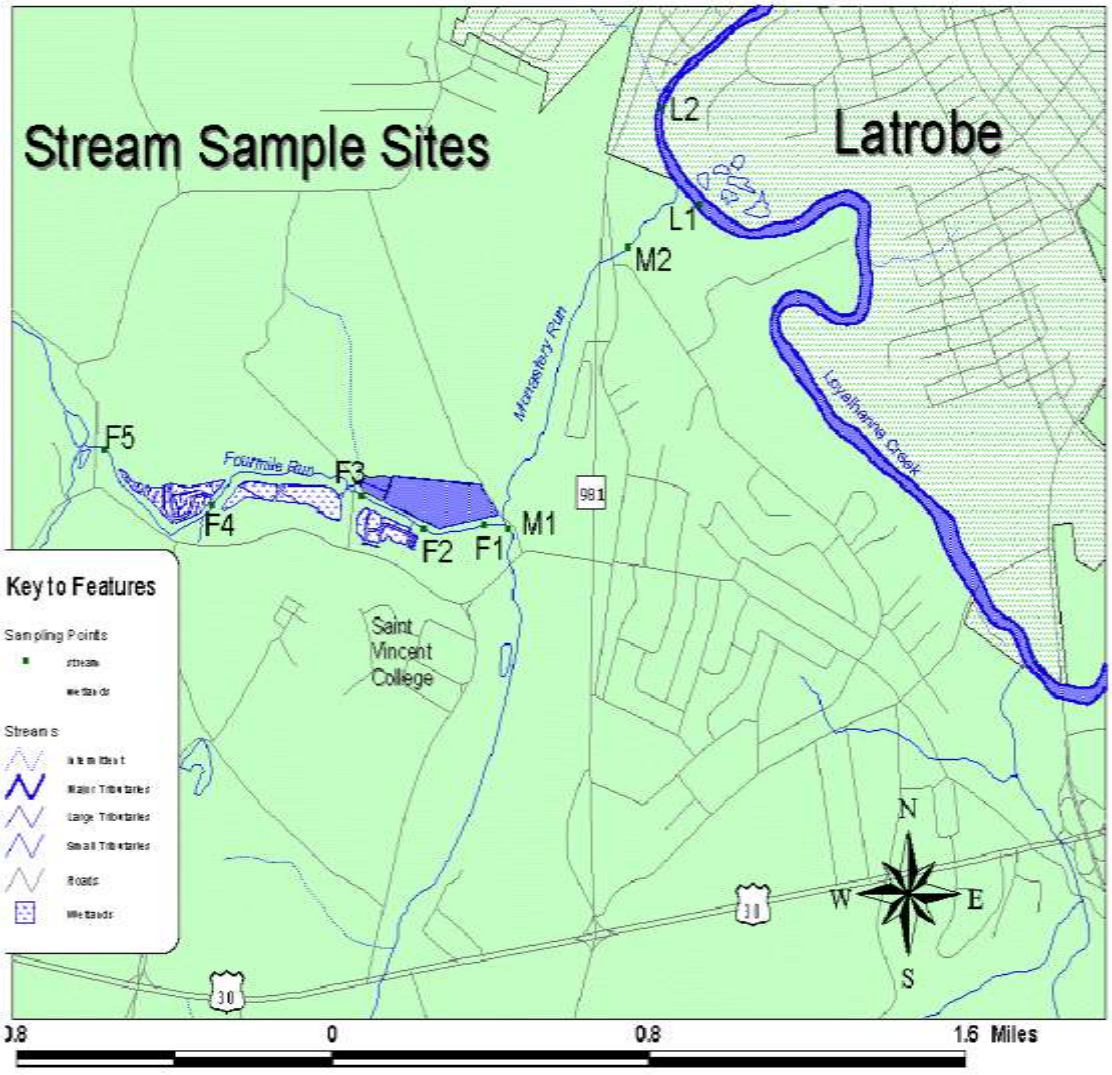
- Turn **left** at Mini Mall Road	0.3 mi
- Turn **left** at US-22	0.1 mi
- Take the **ramp** onto US-219 S	29.4 mi
- Take the US-30 **exit**	0.3 mi
- Turn **right** at US-30 W	23.2 mi
- Turn **right** at Monastery Dr	1.7 mi
- **Continue** on Beatty County Rd	0.4 mi

Parking for site is on the right.

Data: (data from St. Vincent College website)

- Pre-treatment point is outflow from Wetland #1 to Wetland #2. Post-treatment point is the outflow of Wetland #3. Flow data not present.




Stream Sample Sites
Latrobe
L2
L1
M2
F5
F4
F3
F2
F1
M1
Fourmile Run
Monastery Run
Loyalhanna Creek
981
Saint
Vincent
College
30
N
W
E
S
Key to Features
Sampling Points
Streams
Major Tributaries
Large Tributaries
Small Tributaries
Roads
Wetlands
0.8
0
0.8
1.6 Miles