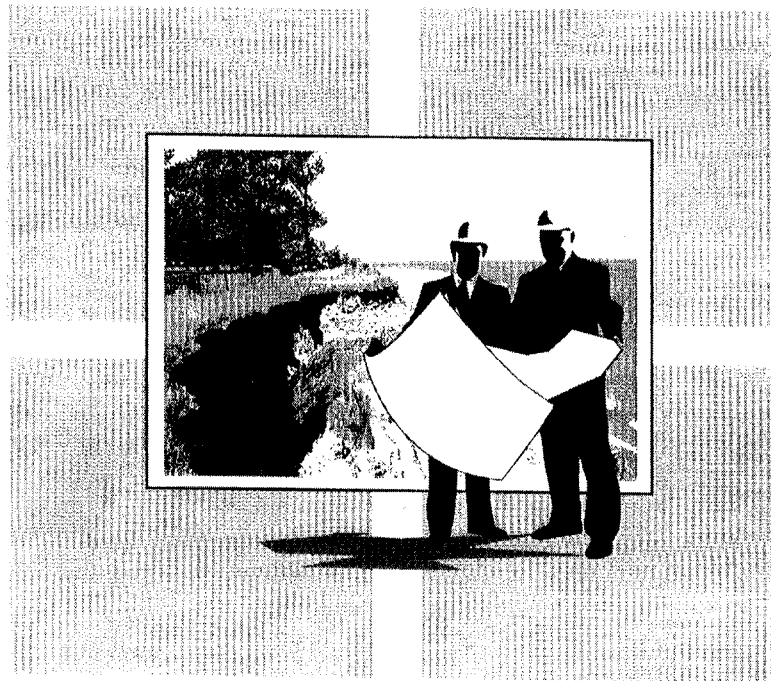


**Contractors
For
Shoreline Protection
And
Bluff Stabilization
Services**



The Lake Erie Coastline

The glaciers that carved out the Great Lakes Basin during their advance in the Pleistocene Epoch (10,000 years ago) are responsible for the sediments that make up the bluffs. These unconsolidated glacial sediments include sand, gravel and clay, all of which are very vulnerable to erosion.

The Pennsylvania portion of the Lake Erie coastline is at risk from two coastal hazards: **bluff recession and shoreline erosion**. Bluff recession is the landward retreat of the bluff face caused by erosive forces along the shoreline. The average rate of bluff recession along Lake Erie is approximately one foot per year. Shoreline erosion occurs when the amount of beach sand replenished by littoral drift processes is exceeded by erosional forces. The two main factors responsible for natural beach erosion are increases in lake levels and/or human activity.

The rates at which these processes occur vary from area to area, depending upon a variety of factors, including vegetative cover, soils, hydrology, bedrock geology, slope gradient, offshore bathymetry and human activity.

What Causes Bluff Recession and Shoreline Erosion?

Bluff recession is primarily caused by wave erosion at the toe of the bluff and can be exacerbated by groundwater seepage, surface water runoff and human activity, such as improper land use management practices. One of these exacerbating factors alone will not significantly weaken a bluff, but a combination of these forces may start the process of recession in motion.

A stable shoreline exists when there is a balance between beach replenishment and erosional processes. When this

balance is disturbed, shoreline erosional processes such as increased lake levels and/or human activity increase the amount of sediment lost from the beach, thereby offsetting the amounts replaced by littoral drift processes.

How Can Bluff Recession and Shoreline Erosion Be Prevented?

Through proper land use management practices, both bluff recession and shoreline erosion processes can be slowed, though not prevented. Some examples are listed below:

Shoreline Protection Measures

Revetments are concrete blocks placed on banks to absorb the energy of incoming waves. These structures protect only the land immediately behind them, not adjacent areas. If placed in the water, revetments do not encourage sediment buildup and little, if any, beach will occur.

Groins are concrete structures that extend perpendicular from the shore. Groins interrupt the natural wave movement of beach sediment by trapping and retaining sand on the updrift side of the groin.

Bluff Face Re-contouring and Stabilization Measures

Biotechnical slope protection combines the use of biodegradable wood cribbing and wet soil vegetation. The structure provides support for the bluff at a groundwater seepage area, while the vegetation absorbs the groundwater, eventually revegetating the bluff face.

Dewatering intercepts groundwater before it reaches the bluff face. Wells and groundwater trenches can collect groundwater for re-channeling to the base of the bluff.

Vegetation is a natural and inexpensive method to help stabilize the bluff. Plant root systems hold soil together and absorb surface and groundwater. Plant leaves intercept the impact of raindrops and allow water absorbed by the root system to return to the atmosphere through a process called evapotranspiration.

Your First Contact Should Be...

The Pennsylvania Department of Environmental Protection (DEP), Coastal Resources Management Program offers free Technical Advisory Services (TAS) to property owners affected by shoreline erosion and bluff recession. The TAS consists of on-site inspections and recommendations on shoreline protection, surface and groundwater control, bluff stabilization, and use of vegetation to stabilize loose soil. There is no charge for the TAS. The contact for this free service is Donald Benczkowski (814) 217-9634.

Then, locate a Qualified Contractor...

Pennsylvania Sea Grant has compiled the following list of companies that design, manufacture and install shoreline protection and bluff stabilization structures. The contractors on this list have attended a **Best Management Practices workshop for Professionals**, presented by Pennsylvania Sea Grant and the Coastal Resource Management Program. These workshops, funded by the Great Lakes Commission and Coastal Resources Management Program, provided current scientific information to familiarize participants with bluff processes and recommended meth-

ods for work done in erosion-prone areas along Lake Erie bluffs and ravine systems.

Please note: this list is provided as a public service and is not meant as an endorsement of any particular company. Obtain appropriate credentials before contracting any professional services.

Consulting Engineers

Czop/Specter

Mr. Mark Kukla
Mr. Mark Anderson
Mr. Israel Gray
69 East Main Street
North East, Pa 16428
814-725-4310
E-mail: mkukla@czopspecter.com
manderson@czopspecter.com
igray@czopspecter.com

Herbert, Rowland and Grubic

Mr. Dave Sterrett, Engineer
Mr. Jim Feath
P.O. Box 9423
Erie, PA 16505
814-881-4786
E-mail: dsterret@hrg-inc.com
jfeath@hrg-inc.com

Urban Engineers

Mr. Tim Polaski
Mr. Matt Jonas
1319 Sassafras Street
Erie, PA 16501
814-453-5702

(continued on next page)

Email: mejonas@urbanengineers.com

Porter Consulting

Mr. Daniel Thumm

Mr. Kevin Mullen

Mr. Justin Dickey

Mr. Bill Mechlenburg

814 North Main

Meadville, PA 16335

814-337-4447

Email: admin@pcengineers.com

Technical Engineering and Design

Mr. Rick Glende

Mr. Ed Turk

575 Golden Oak Parkway Suite E

Oakwood Village, OH 44146

216-901-9466

Email: teddraft@roadrunner.com

capstoneec@wowway.com

CT Consultants

Mr. Tim Lannon

Mr. Tim Hadden

35000 Kaiser Court

Willoughby, OH 44094

440-951-9000

Email: tlannon@ctconsultants.com

thadden@ctconsultants.com

Matrix Engineering, Inc.

Mr. John Matricardi

12815 Detroit Ave.

Lakewood, OH 44107

216-226-6520

Email: matrixlake@aol.com

Kusmer and Associates

Mr. Bob Kusmer
622 W. State Street
Fremont, OH 43420
419-332-1027
Email: kusmer.associates@sbcglobal.net

Matczak Architects

Mr. John Evans
4509 West 26th
Erie, PA 16505
814-836-8500
Email: John@gjmaia.com

Environmental and Ecological Services and Products**Andrew Martin and Associates**

Mr. Joseph Hudson
2700 West 21st Street, Suite 16
Erie, PA 16506
814-838-9591
E-mail: jhudson@enviroconsult.biz

Ernst Conservation Seed

Mr. Greg Kedzierski
9006 Mercer Pike
Meadville, PA 16335
800-873-3321

Davey Tree Service

Ms. Ana Burns
Ms. Ruth Ann Sobnosky
1500 N. Mantua Street
Kent, OH 44240
330-673-5685x37
Email: ana.burns@davey.com
Ruthann.sobnosky@davey.com

Hagg Environmental Company

Mr. Bob Haag
Ms. Ruth Haag
315 East Market Street
Sandusky, OH 44870
419-621-9311
Email: ruth.hagg@hagghg.com

Landscape Architects/Landscapers

Dahlkemper Landscape Architects and Contractors

Mr. Dan Dahlkemper
Mr. David Marino
Mr. Tony Gingrich
1650 Norcross Road
Erie, PA 16510
814-825-3252
E-mail: Dan@dahlkemperlandscape.com
Dave@dahlkemperlandscape.com
Tony@dahlkemperlandscape.com

David Laird Associates

Mr. Keith Miller
1557 West 26th Street
Erie, PA 16508
814-456-0330
E-mail: kmiller@lairdsurvey.net

Stuart's Landscape

Mr. Bob Stuart
670 Stuart Road
Falls Creek, PA 15840
814-371-5298
E-mail: rstuart@brockwaytv.com

Hess Landscaping

Mr. John Ballard
901 Middle Road
North East, PA 16428
814-725-9616
E-mail: ballardj@velocity.net

Perma-Gro Landscape Co.

Mr. Michael Hamper
1498 State Route 46 S
Jefferson, OH 44047
440-576-6217
Email: permagro@embarqmail.com

Schmidt Copeland Parker Stevens

Mr. Michael Kannard
1220 West 6th Street, Suite 3
Cleveland, OH 44113
216-696-6767x112
Website: www.scpsohio.com

The Plant Place

Mr. Bill Darrin
11232 Perry Highway
Meadville, PA 16335
814-724-2444

Real Estate Agencies

Howard Hanna

Mr. Elmer LeSeur III
Mr. Bill Schaaf
Ms. Jeanette Hayes
5620 Peach Street
Erie, PA 16509
814-864-3200
E-mail: elesuer@howardhanna.com

(continued on next page)

schaafappr@aol.com
jahayes@gte.net

REMAX Realty

Mr. Douglas Prozan
Ms. Nedra Lehrian
Ms. Loretta Dwyer Schaal
2701 Evanston Ave.
Erie, PA 16505
Email:stellar@gmail.com
dprozan@prozan.com
nedlehrian@aol.com
lorettaschaal@remax.net

Coldwell Banker Realty

Ms. Sue Gerrety
Ms. Kathe Rafferty
2100 West 8th Street
Erie, PA 16505
814-452-2100x135
Email: sgerrety@eriemoves.com
kathe@coldwellbanker.com

Bay City Real Estate

Mr. Alan Taylor
3544 West 12th Street
Erie, PA 16505
814-835-8000
Email: al@goaltaylor.com

ERA Signature Realty

Ms. Sue Busse
2950 West 12th Street
Erie, PA 16505
814-838-5015
Email: suebusse@eriehome.com

Surveyors

Benchmark Surveying

Mr. Lynn Hofius
12612 Route 19
Waterford, PA 16441
814-796-2053
E-mail: Benchmrk1@earthlink.net

David Laird Associates

Mr. Keith Miller
1557 West 26th Street
Erie, PA 16508
814-456-0330
E-mail: kmiller@lairdsurvey.net

Welka and Associates

Mr. Tony Lusianno
3200 West 32nd Street
Erie, PA 16506
814-833-3900
E-mail: tlusianno@welka.com

Trucking Firms

Denny's Trucking Company

Mrs. Brenda Pyle
Mr. Dennis Pyle
9000 Wattsburg Road
Erie, PA 16509
814-825-0976
E-mail: p2004@adelphia.net

Renick Trucking and Excavating

Mr. Steve Renick
14601 Beason Road
Edinboro, PA 16412
814-734-8932

Eagle Excavating

Mr. Mark Mihalik
2388 Countyline Road
Madison, OH 44057
440-466-1776
Email: eagle_ex@windstream.net

Please note: If you are considering any type of construction you must contact your township officials for building and zoning permits. A list of township officials is included here:

City of Erie Zoning Officer *

626 State Street
Erie, Pa 16505
814-870-1265

Fairview Township Zoning Officer

7471 McCray Road
Fairview, PA 16415
814-474-5942

Girard Township Zoning Officer *

10140 Ridge Road
Girard, PA 16417
814-774-4738

Harborcreek Township Zoning Officer

5601 Buffalo Road
Harborcreek, PA 16421
814-899-3171

Lake City Borough Zoning Officer

2350 Main Street

(continued on next page)

Lake City, PA 16423
814-774-2116

Lawrence Park Township Zoning Officer

4230 Iroquois Avenue
Erie, PA 16511
814-899-2305

Millcreek Township Zoning Officer

3608 West 26th Street
Erie, Pa 16505-2037
814-833-1111

North East Township Zoning Officer

10300 West Main Road
North East, PA 16428
814-725-8606

Springfield Township Zoning Officer

13300 Ridge Road, Box 274
West Springfield, PA 16443
814-922-3274

* Staff from the City of Erie and Girard Township (Pennsylvania) have attended Best Management Practices for Professionals workshops.

Additional sources of information regarding this subject include:

Bureau of Forestry

Erie County Service Forester
12723 Route 19
Waterford, PA 16442
814-796-6787

**Chautauqua County Soil and Water
Conservation District**

3542 Turner Road
Jamestown, NY 14701
716-664-2351
Email: chaut-co@soilwater.org

Crawford County Conservation District

21742 German Road
Meadville, PA 16335
814-763-5269

Erie County Department of Planning

140 West 6th Street, Room 111
Erie, PA 16501
814-451-6336

Erie County Conservation District

1927 Wager Road
Erie, PA 16509
814-825-6403

Erie County Department of Health

606 West 2nd Street
Erie, PA 16507
814-451-6700

Lake County Soil and Water Conservation District

125 East Erie Street
Painesville, OH 44077
440-350-2730

Lake County Ohio

125 East Erie Street
Painesville, OH 44077
440-350-5900

Storm Water Management Department (continued on next page)

440-350-5900

Planning Department: 440-350-2740

New York Department of Environmental Conservation

625 Broadway

Albany, NY 12233

518-402-8013

Northeast Ohio Areawide Coordinating Agency (NOACA)

1299 Superior Ave.

Cleveland, OH 44114

216-241-2414

Ohio Department of Transportation

1980 West Broad Street

Columbus, OH 43223

614-466-7170

Ohio Department of Natural Resources

105 W Shoreline Drive

Sandusky, OH 44870

419-609-4112

Ohio Environmental Council

1207 Grandview Ave, Suite 201

Columbus, OH 43212

614-487-7506

Ohio Environmental Protection Agency

Central Office

P.O Box 1049

Columbus, OH 43216

614-644-3020

Coastal Resources Management Program

Tom Ridge Environmental Center

301 Peninsula Drive, Suite 4

(continued on next page)

Erie, PA 16505
814-217-9634

-or-

Rachel Carson State Office Building
400 Market Street, P.O. Box 2063
Harrisburg, PA 17105-2063
717-772-5621

PA Department of Environmental Protection

Northwest Region
230 Chestnut Street
Meadville, PA 16335
814-332-6982

PA Fish and Boat Commission

Northwest Region Office
11528 State Highway 98
Meadville, PA 16335
814-337-0444

Pennsylvania Sea Grant

Tom Ridge Environmental Center
301 Peninsula Drive, Suite 3
Erie, PA 16505
814-217-9015

Western PA Conservancy

800 Waterfront Drive
Pittsburgh, PA 15222
412-586-2333

United States Army Corps of Engineers

Pittsburgh District

Wm. Moorehead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222-4186
412-396-7158

**United States Army Corps of Engineers
Great Lakes and Ohio River Division**

550 Main Street, Room #10032
Cincinnati, OH 45202
513-684-3010

US Forest Service

29 Forest Service Drive
Bradford, PA 16701
814-363-6086

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NOTES