

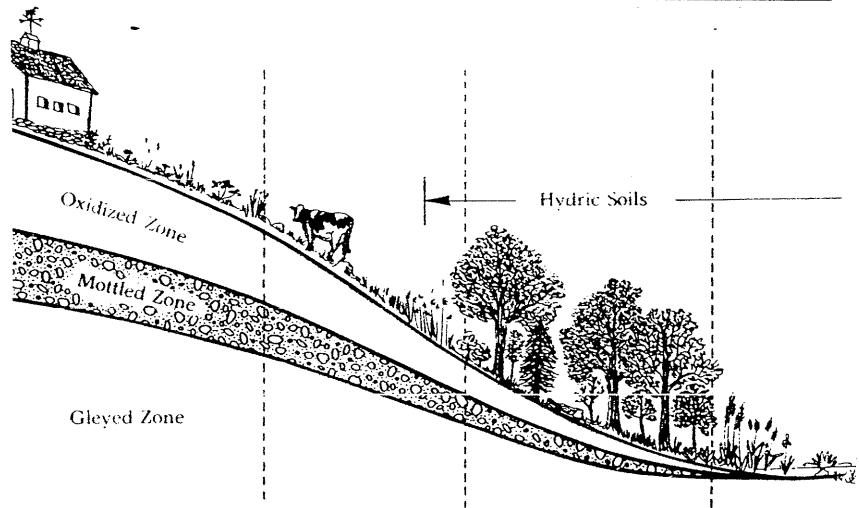


MACC Newsletter

September 1989

Vol. XVIII, No. 6

Digging Into Soils Issues



MODEL BYLAW OFFERS CONTROL OVER EROSION & SEDIMENTATION

A bylaw allowing local authorities, such as Conservation Commissions, to require measures reducing erosion and preventing off-site movement of sediment on any land parcel has been produced by the Middlesex and Essex Conservation Districts. This model provides a foundation for cities and towns to develop bylaws suited to particular situations in their area.

Under this model bylaw, extensive land-disturbing activities would require a full permit. Smaller projects are not subject to this full procedure, but would be required to obtain limited permits. Commissions could be authorized to adopt a fee schedule to cover costs of project review and could require applicants to pay consultant expenses.

No national or state-wide erosion control legislation exists. The Mass. Wetlands Protection Act and some local bylaws address erosion and sediment control only when the work is performed in or near a wetland. On upland sites, coordinated erosion and sediment control is seldom addressed in subdivision regulations or the site review process.

Erosion control is important for a variety of reasons. On sloping areas, the

(con't on page 5)

ROLE OF SOILS IN WETLAND IDENTIFICATION

For over a century, soil scientists have used soils information to assess maximum ground water levels. Traditionally, this was done for agricultural purposes; the emphasis focused on predicting whether the soil was dry enough to facilitate agricultural activities. Over time the concept of soil drainage classes was developed, ranging from excessively drained soils, which are coarse, sandy and droughty, to very poorly drained soils, which have standing water for a significant part of the growing season.

Although hydrology is the creating force behind any wetland, the presence of water is not evident consistently throughout the growing season. Most wetland regulations therefore rely on observable indicators such as vegetation (Massachusetts) or soils (Connecticut).

Some 15 years ago, the US Fish and Wildlife Service, realizing that wetlands provided more than just a habitat for waterfowl and beavers, initiated research on wetland classification, including ways to identify and delineate these areas. This cooperative work with the USDA Soil Conservation Service resulted in development of the "hydric soil" concept, defined as "a soil that is saturated,

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A MESSAGE FROM THE BOARD

USE OF SOILS IN WETLAND BOUNDARY DETERMINATIONS

Conservation Commissioners who review wetland boundary delineations under the Mass. Wetlands Protection Act (WPA) or local wetland bylaws are presented with a variety of opinions and delineation methods. In addition to using the various methods for determining the 50% wetland vegetation criterion, consultants often rely heavily on soils information, especially in disturbed areas. Of primary concern to Commissions should be the question of whether use of soils is justified and if so, when should this information be used?

Soil scientists have recognized that the formation and disappearance of hydric soils may take hundreds of years to occur. Thus, soils are an excellent long-term indicator of the hydrology of an area. On the other hand, vegetation will respond rapidly to changes in the hydrologic regime, often in a single growing season, and may therefore reflect the current conditions on a site more closely than soil information.

On the national level, the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) - the basis for wetland identification by the Army Corps of Engineers, the Environmental Protection Agency (EPA), US Fish & Wildlife and Soil Conservation Service - relies almost entirely on soils. The Federal Unified Method is touted as using a three-parameter approach to identify wetland boundaries, which consists of hydrophytic vegetation, hydric soils and wetland hydrology. It has been found, however, that as long as there are hydric soils the other two criteria will almost always be met. For example, an unaltered area of hydric soils dominated by facultative upland plants (i.e. ones usually found in uplands) and which does not contain any typical indicators of wetland hydrology would still be considered a wetland. The wetland hydrology criterion would be met because hydric soils are present. The hydrophytic vegetation criterion would be met because the area meets the hydrology criterion. The only undisturbed area containing hydric soils which would not be considered a wetland under the Federal Method would be one which was dominated entirely by upland (i.e. never occurring in wetlands) plants, a situation that is extremely rare under natural conditions.

The WPA, on the other hand, relies almost exclusively on wetland vegetation. The definition of Bordering Vegetated Wetlands (BVW) (310 CMR 10.55(2)(a)) contains the words "where the soils are annually saturated". Many Commissions and consultants have taken this to mean that soils should be used in wetland boundary determinations as a supplement to the 50% wetland vegetation criterion. However, conversations with John Felix, coordinator for Department of Environmental Protection (DEP) policies, indicate that DEP takes a dim view of any use of soils in wetland delineation. DEP has not yet published any formal policy, and one is sorely needed to give some guidance to Commissioners.

Traditionally, use of hydric soils in Massachusetts has been accepted in delineation of disturbed areas such as filled wetlands, mown lawns, or cropland. Even in these areas, it is Felix's opinion that vegetation indicators are preferable to the use of soils. Suggested indicators include identification of plant remains, buried rhizomes, and morphological modifications of crops.

Commissioners should be aware that many consultants in Massachusetts use the Federal Method for delineation of all wetlands even under the WPA. Although the wetland line as determined under the Federal Method will often coincide with a boundary based strictly on 50% wetland vegetation criterion, in some cases these two lines will differ substantially. One occasionally finds situations where hydric soils extend upgradient of wetland vegetation. However, it's been the experience that a predominance of facultative wetland plants will more often extend upgradient of the hydric soil line. Thus a wetland boundary marked using the Federal Method may not include all areas of BVW protectable under the WPA.

Soils documentation can be valuable information that may aid Commissioners in evaluating a wetland boundary. Commissions may wish to evaluate soils information on disturbed sites, but a lack of hydric soils should never be accepted as justification for excluding areas of wetland plants from a BVW.

Wetland vegetation is the criterion that must be used in determining jurisdiction under the WPA and its Regulations. Commissions should closely examine wetland boundary delineations made using only the Federal Method, as the difference between the federal and state boundaries will often be significant. In cases where a project will require both state and Corps of Engineers wetland permits (i.e. in most projects involving wetland filling) there may need to be two separate wetland boundaries to accurately identify the different jurisdictions. In no case should Commissions accept a wetland boundary identified solely through use of hydric soils, as is frequently presented to Commissions during the winter months.

Michael Marcus, MACC Board of Directors
Ward Smith, New England Environmental, Inc.

SOILS

(con't from page 1)

flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Hydric soils can be recognized by the dominance of gray colors within 18 inches of the soil surface. Typically, they have organic rich topsoils or may be entirely organic. Although the hydric soils concept can be easily understood and learned, considerable experience often is needed to identify these soils in the field.

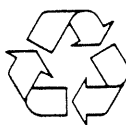
Use of soils information is a requirement in most federal wetland delineations. In Massachusetts, there has been some reluctance to use soils. Current Massachusetts wetland regulations may consider review of soils when the vegetation has been removed or altered. Agricultural activities typically are not limited to upland soils, but frequently include hydric soils, especially in meadows and hayfields. When hydric, these areas may be regulated wetlands if certain conditions are met. Another problem situation is where the vegetation only gradually changes or even comprises both wetland and upland species. Soils then may facilitate the delineation process and provide for a definitive line separating the wetland from the non-wetland.

Additional information about hydric soils can be obtained from Hydric Soils of New England. See Publications list.

Peter L.M. Veneman
Professor, Univ. of Massachusetts

NEWS FLASH: FILING FEE CHANGE

MACC has just learned there has been a change in the filing fee procedure. Upon filing a Notice of Intent, an applicant must write two checks: one to the Department of Environmental Protection (DEP) for 50% of the amount above \$25.00 and the other check made payable to the city/town for the remainder amount. Fees are to be used to administer the Wetlands Protection Act. This provision was included in the Supplemental Budget under Section 54 Chapter 287 of the Acts of 1989. Watch for more information from DEP. See Events, page 15, for dates of filing fee workshops.



CERTIFICATION PROCESS & STUDY OPPORTUNITIES IN SOIL SCIENCE

The recently issued Federal Manual for Identifying and Delineating Jurisdictional Wetlands establishes mandatory technical criteria for wetland identification (i.e. vegetation, soil and hydrology): In Massachusetts, although vegetation is the sole criterion for wetland delineation, Conservation Commissions and other permitting agencies will be requested to review the work of consultants who utilize this multi-parameter approach to wetland delineations. With respect to the identification of hydric soils, it is therefore important that Commissions understand the educational background and professional certifications that are typically presented by professionals employed in this environmental discipline.

Certification. In Massachusetts, soil certification is available from the American Registry of Certified Professionals in Agronomy, Crops and Soils (ARCPACS) and from the Society of Soil Scientists of Southern New England (SSSSNE).

ARCPACS, a membership activity of the American Society of Agronomy, offers certified professional categories that relate to soil scientists: Certified Professional Soil Scientist; Certified Professional Soil Specialist; Certified Professional Soil Classifier. Associate status has also been established. Educational requirements for both professional and associate levels in all of the categories are the same - a baccalaureate degree in a program of at least 15 credit hours of soils courses (e.g. Soil Physics, Soil Mapping, Soil Chemistry), with additional course requirements totaling a minimum of 60 credit hours.

Full professional status, however, is attainable only by those applicants with greater than five years related job experience. The first category commonly applies to professionals whose expertise and background specifically relates to the study or application of soil science, while the Specialist classification usually applies to an applicant with experience in the interpretation of soil surveys or other related information. ARCPACS requires job experience particular

to the practice of soil surveying for the Soil Classifier category. ARCPAC address is 677 S. Segoe Rd., Madison, WI 53711.

The SSSSNE offers "A" and "B" levels of Professional Soil Scientist certification. Minimum requirement for both levels is a baccalaureate degree in a program of at least 30 credit hours in biological, physical or earth sciences; and/or qualification as a Soil Scientist (Federal Government GS-5 level). The "A" level requires four or more years professional experience as a soil scientist in soil classification, mapping and interpretation.

Study Opportunities. Several options exist for Conservation Commissioners and others interested in earning college credit in soil science. A weekend course covering hydric soils as well as wetland delineation and mitigation is offered at Fitchburg State College during most fall semesters. UMass/Continuing Education also offers a wetland delineation course that addresses hydric soils.

The Council of Presidents of the New England Land-Grant Universities, through the UMass Department of Continuing Education, is developing a program tentatively titled "Regional Soil Science Certificate Program." While the curriculum is not yet finalized, courses in Soil Morphology/Mapping and Soil Physics will be held at the Waltham Experiment Station this fall. Completion of these courses may earn credit toward the Certificate. For more information contact Alice Szlosek, Div of Continuing Ed., 608 Goodell Bldg., UMass, Amherst (413) 545-2484. The University of New Hampshire at Durham (Continuing Education) has offered a similar program for several years.

In lieu of college credits, the SSSSNE holds conferences, usually on a biennial basis, on soils-related topics. For more information contact: SSSSNE, PO Box 258, Storrs, CT 06268.

Tara E. Tracy, Soil Specialist
Rizzo Associations, Inc.

BYLAW

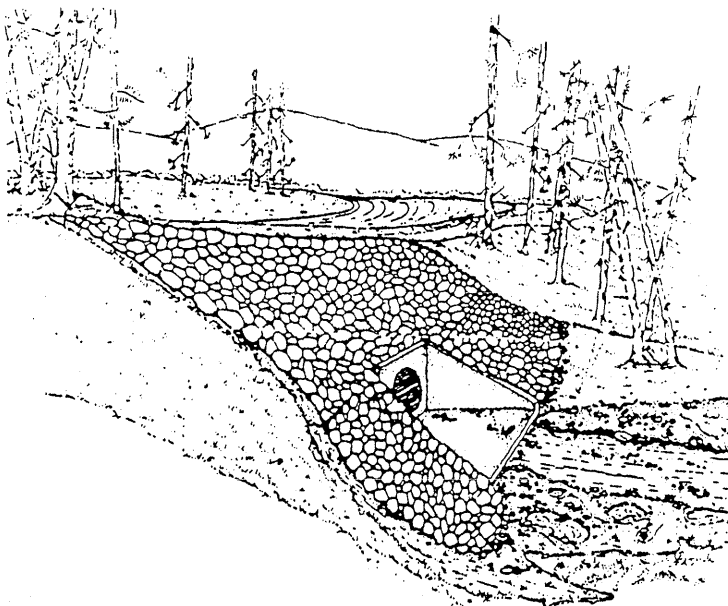
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very slow wearing away and movement of the soil is part of a natural process. However, humans accelerate erosion when they disturb soil by removing protective vegetation, creating steep slopes or concentrating the flow of water in unprotected areas. This erosion can undermine foundations or roadways. Erosion leaves behind a soil surface that is less fertile and harder to work because of the texture and gullies.

The effects of soil, when it moves off site as sediment, can be even more damaging. Moving downhill, it finds its way into streams, wetlands and ponds. It smothers plants, destroys wildlife habitat and decreases recreational value. Depending on the source, it may carry pesticides, nutrients or other pollutants. This sediment is costly to remove from reservoirs, storm sewers and streets.

This model bylaw was written by Beth Handler, an EIP intern, and reviewed by professionals such as Attorney Gregor McGregor, MACC Board of Directors. For more information on this model bylaw, contact the Middlesex Conservation District at (508) 263-2291 or the Essex Conservation District (508) 774-5578.

Mark DeBrock, District Conservationist
Middlesex Conservation District



LOCAL CONTROLS OVER EARTH REMOVAL

This article was excerpted from Conservation Law Foundation's "Legal Guide Series" written by Alexandra Dawson (MACC Board of Directors). The series is no longer in print, but MACC will mail a copy of the series pamphlet entitled "Earth Removal" and copies of Earth Removal bylaws for the cost of copying.

Mining of sand, gravel, loam and minerals can have a great impact on the environment. Unregulated mining may lead to such diverse disruptive effects as erosion, increased runoff, damage to water supplies, air pollution, noise, increased traffic, decreased property values and what a court decision called "a wasteland in the making". Yet no state-level permit is required for mining in Massachusetts except in great ponds, rivers and tidal areas. Activity on land is controlled, if at all, by municipal "earth removal" or "sand and gravel" bylaws or ordinances. A great majority of Massachusetts cities and towns do require some kind of permit for extraction of minerals, especially sand and gravel, and a few towns forbid mining altogether. Stringent conditions may be placed upon these industrial activities, and these conditions can be applied to existing as well as new operations.

Zoning vs. Nonzoning bylaws. Earth removal may be controlled by a general bylaw of the town adopted under G.L. Chapter 40, S.21(17) (a "Chapter 40" bylaw) or by a zoning bylaw adopted under G.L. Ch. 40A, the Zoning Enabling Act (a "Chapter 40A" bylaw). Each has its advantages and drawbacks. Adoption of a zoning bylaw requires a 2/3 vote of the town meeting. The permit power under a "Chapter 40A" bylaw must be put into the hands of the selectmen or the board of appeals, bodies that may lack appreciation of necessary environmental controls. Also, Ch. 40A, S.5 specifically prevents a town from using new zoning bylaws to ban existing uses.

"Chapter 40" bylaws require only a majority vote of town meeting. The permit power may be given to a special soils board or to the Conservation Commission or to any properly qualified body. However, Ch. 40, S. 21(17) requires that these bylaws must contain some troublesome

(con't on page 11)

SOIL SURVEYS: A USEFUL PLANNING TOOL

Soil survey maps for the entire state of Massachusetts have been completed. Surveys are available whether or not they have been formally published. The accompanying map shows the location and status of soil information. Maps may be obtained from the Conservation District or Soil Conservation Service (SCS) offices listed on page 7. An 8.5"x11" "Generalized Soils Map of Mass." is available from the SCS state office in Amherst. A large-scale map of the soils of the state will be offered in the future.

Soil surveys provide valuable information on soils - descriptions, locations and limitations. They are designed to be used by many people: farmers, engineers, builders, Conservation Commissions, other town boards and homeowners.

Soil survey maps are best suited for describing areas as opposed to describing specific points on the land. Although mapping is based on extensive field work, the scale of mapping does not allow delineation of small areas of a specific soil type. If the soil type is critical to the intended land use, on-site

investigations are recommended.

An excellent use of the soil survey information is in the development of land-use plans. Soil surveys will help show which areas can support more intensive land uses and which are better suited for open space, wildlife or recreation areas. Prime farmland, areas subject to flooding, wetlands and soils beneficial to groundwater recharge and protection can be identified.

Project planners will find soil surveys useful. They speed up the process of determining the need for detailed investigations and selecting locations for roads, pipelines and gravel/sand pits. Estimates of stormwater runoff are based on information found in soil surveys. Potential problem sites, such as high water tables, highly erodible soils and frost action, can be pinpointed using the soil survey. Soil surveys describe properties that affect siting and efficiency of septic system absorption fields.

Mark DeBrock, District Conservationist
Middlesex Conservation District

EROSION & SEDIMENTATION BILL: STILL ALIVE

House Bill 4576 (Rep. Robert Durand - Marlborough), an act to reduce erosion and sediment pollution, would give Massachusetts a uniform statewide Erosion and Sediment (E & S) Control Program. This bill would allow the Massachusetts State Commission for the Conservation of Soil, Water and Related Resources to promulgate standards and specifications to control soil erosion and sedimentation. The Commission would also be charged with developing administrative procedures for implementing the program as well as for an appeal process and an adjudicatory procedure for enforcement.

Basically, the bill would require:

1. E & S control plans for all projects covering land-disturbing activities on 5,000 square feet or more. Exclusions include minor landscaping activities, agricultural production on lands covered by a conservation plan, forestry operations covered by a forest cutting plan, and land-disturbing activities of

the Mass. Department of Public Works, provided such activities are covered by an erosion control plan.

2. Certification of E & S control plans by the local county Conservation District. Conservation Commissions would have an opportunity to enter into a cooperative agreement with the Districts, which would outline a role for them such as enforcement action.

3. Inspection and monitoring of projects by the Conservation District.

4. No certificate of occupancy be issued until the project is in compliance with the permanent measures called for in the certified erosion control plan.

Currently, H4576 is before the Committee on Natural Resources and Agriculture. Action can be expected sometime in September. Contact Shirley Mikelk (508) 885-2595 or MACC (617) 489-3930 for additional information.

Shirley Mikelk
Worcester County Conservation Districts

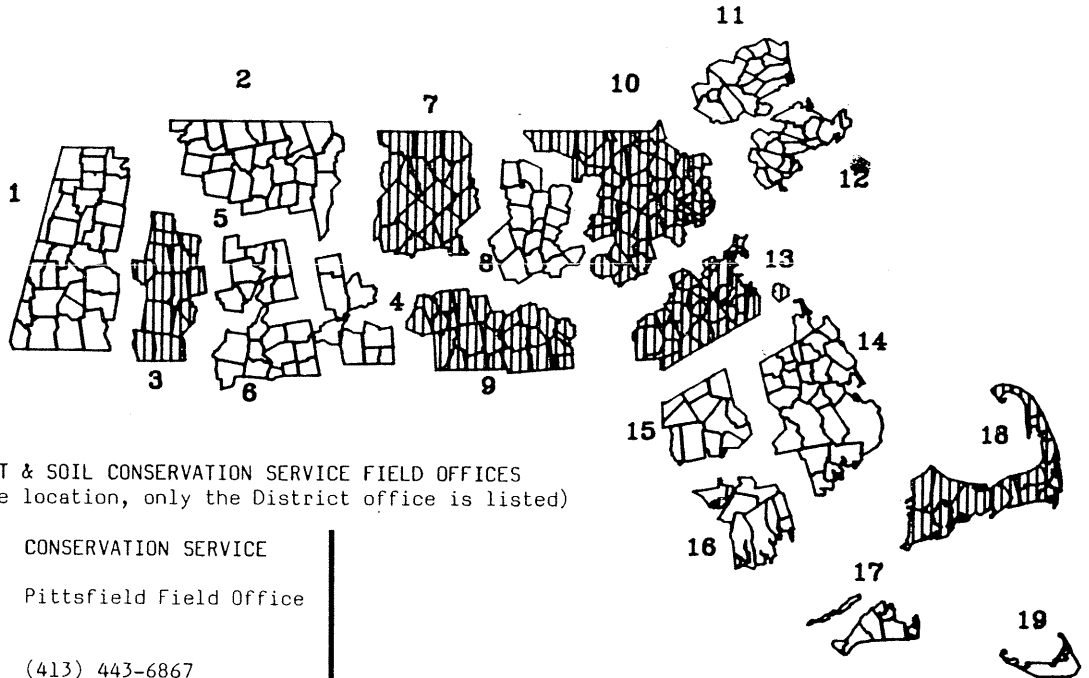
MASSACHUSETTS

Status

All of the state has been mapped and all data is available: some on an "interim" basis while the final report is being published.

Soil Map Regions

 interim report



CONSERVATION DISTRICT & SOIL CONSERVATION SERVICE FIELD OFFICES
(where offices are in same location, only the District office is listed)

DISTRICT	CONSERVATION SERVICE	DISTRICT	CONSERVATION SERVICE
1. <u>Berkshire Region:</u> Berkshire Conservation District 78 Center St (Arterial) Pittsfield, MA 01201 (413) 443-1776	Pittsfield Field Office (413) 443-6867	14. <u>Plymouth:</u> Plymouth Conservation District 40-48 North Main St. Middleboro, MA 02346 (508) 947-7863	Middleboro Field Office same (508) 946-0272
2. <u>Franklin Region:</u> Franklin Conservation District 4 Whalley St. Hadley, MA 01035 (413) 584-1416	Greenfield Field Office Rm 120 Hayburne Bldg 55 Federal St. Greenfield, MA 01301 (413) 772-0384	15. <u>Northern Bristol:</u> Bristol Conservation District 21 Spring St. Taunton, MA 02780 (508) 824-6668	Taunton Field Office same (508) 824-6668
3. <u>Western Hampshire & Hampden:</u> see No. 2 above	Hadley Field Office	16. <u>Southern Bristol:</u> see No. 15	
4. <u>Eastern Hampden & Hampshire:</u> see No. 2 above	same	17. <u>Dukes:</u> Dukes Conservation District P.O. Box 1696 Oak Bluffs, MA 02557 (508) 693-6480	see No. 18 below
5. <u>Hampshire central:</u> see No. 2		18. <u>Barnstable:</u> Cape Cod Conservation District P.O. Box 296 West Barnstable, MA 02668 (508) 362-6327	Barnstable field Office Flint Rock Rd. PO Box 709 Barnstable, MA 02630 (508) 362-9332
6. <u>Hampden central:</u> see No. 2 above		19. <u>Nantucket:</u> Nantucket Conservation District P.O. Box 2641, 9 Pheasant Dr. Nantucket, MA 02554 (508) 228-1700	
7. <u>Northwestern Worcester:</u> Worcester Conservation District RR 1, Box 265 McCormick Rd. Spencer, MA 01562 (508) 885-4275/2595	Holden Field Office 672-B Main St., Rm 10 Holden, MA 01520 (508) 829-6628	Statewide: Soil Conservation Service-State Office 451 West St. Amherst, MA 01002 (413) 256-0441	
8. <u>Northeastern Worcester:</u> see No. 7 above		Division of Conservation Services 100 Cambridge St Boston, MA 02202 (617) 727-9800 x290	
9. <u>Southern Worcester:</u> Southern Worcester Conservation District 672-B Main St. Holden, MA 01520 (508) 885-4275/2595	Acton Field Office same (508) 264-4516/4553		
10. <u>Middlesex:</u> Middlesex Conservation District 40 Nagog Office Park Acton, MA 01720 (508) 263-2291	Hathorne Sub-field Office same (508) 750-1056		
11. <u>Northern Essex:</u> Essex Conservation District 562 Maple St Hathorne, MA 01937 (508) 774-5578 <u>Southern Essex:</u> see No. 11 above	Walpole Field Office same (508) 668-1170		
13. <u>Norfolk & Suffolk:</u> Norfolk Conservation District 460 Main St. Walpole, MA (508) 668-0995			

RESEARCH PRODUCES REPLICATION PROJECT GUIDELINES

Administration of the Wetlands Protection Act Regulation 10:55(4)(b) - the section where Conservation Commissions may allow filling of up to 5,000 square feet of Bordering Vegetated Wetlands if a "replacement" area is constructed - is not simple. The following pointers, based on recent research, ensure that wetland replication projects are constructed with the most chance of success.

1. All parties should know that making a wetland is easier said than done. "Success" (75% wetland species within two years) requires time, money, and great care.

2. Applicants should provide a clear, detailed plan with the Notice of Intent (NOI). Replication plans should never be submitted after the hearing is closed.

3. Review the credentials of the applicant's engineer or consultant carefully. Visit a replication site on which the person has previously worked.

4. During the NOI review process, visit the site to evaluate the existing wetland, the replacement site and the wetland lines. At the hearing, ask questions to be sure the applicant has thought through complicated questions such as how the revegetation plan is being handled and how the site will be graded.

CAUTION: The Commission should not be drawn into devising the plan for the applicant. Replication methods are experimental. The applicant must assume the full cost and risk of the plan.

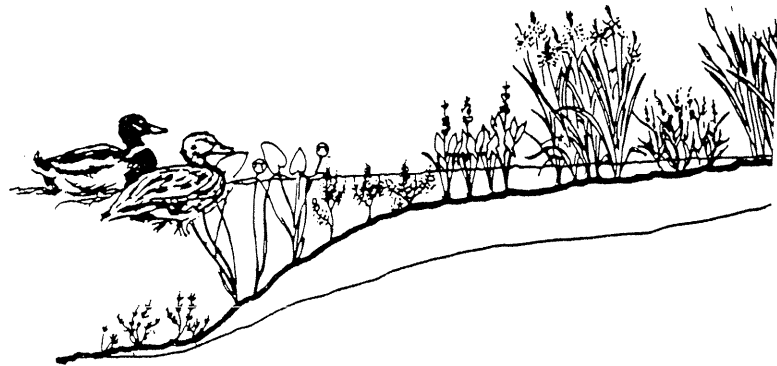
5. The Order of Conditions is the Commission's legal document for enforcement. Be sure the replication goals and methods are stated clearly and the plan referenced is current. Recommended conditions include:

a. Replacement area shall be created before wetland is filled/ altered and other construction is begun.

b. A wetland specialist with at least two to three year's experience with installing wetland replacement areas and a biology background shall supervise the installation.

c. The Certificate of Compliance will not be issued for at least two full growing seasons after installation.

d. Written reports shall be submitted



at the beginning of each season stating the condition of erosion controls and documenting the vigor and density of growth.

e. An "as-built report", along with an "as-built plan", shall be submitted and shall include excavation date and processes, wetland soil depth, planting (and replanting) dates and percentage of cover of individual species.

f. A performance bond will be required sufficient to cover expense of a consultant, excavation and revegetation.

g. Five thousand square feet is the maximum total amount of fill allowed for the entire project area. This clause shall be registered on deeds to individual lots.

h. Changes by the applicant may be permitted upon review by the Commission if the project doesn't work.

Extra advice:

1. Watch out for plans where more than one lot is encumbered.

2. Be wary of releasing bonds, even partially, before a Certificate is granted. If the replacement does not work, total reconstruction, not just replanting, may be necessary.

3. Take advantage of expert consultants by asking lots of questions and by being on site during the installation.


Frances H. Clark, Master's candidate,
Tufts University,
Sudbury Conservation Commission

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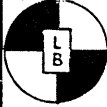
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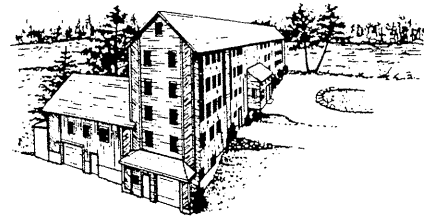
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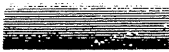
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(413) 733-0174

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(800) 462-8211

Lelito Environmental Consultants



North Shore
83 Pine Street
Peabody, MA 01960
(508) 535-7861

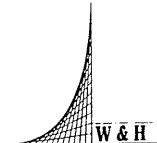


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PAID ADVERTISEMENTS

JOBS WITH CONSERVATION COMMISSIONS AND ENVIRONMENTAL NONPROFITS

MACC will print job announcements for Conservation Commissions free-of-charge! Please send us job description for Administrators and any other paid positions which involve working with a Cons. Comm. Job announcements for other environmental nonprofits will be printed depending on space available.

CONSERVATION ADMINISTRATOR TOWN OF BELCHERTOWN

Resp: administer and enforce WPA; advise applicants; review projects; manage office; liaison with other boards; assist Commission with resource management activities. Qual: Knowledge of WPA; admin. skills, oral & written skills; related env. experience. 23 hrs/wk, flexible schedule.

Salary: \$10,900 plus benefits
Contact: Kathy Ruhf, Chair, Conservation Commission, Town Hall, Belchertown, MA 01007.

EXECUTIVE DIRECTOR NEW ENGLAND WILDLIFE CENTER

Challenging position of 6 yr. old nonprofit providing wildlife treatment and rehabilitation, env. education & env. research programs. Unique opportunity for enthusiastic individual with strong interest in wildlife and environment.

Salary: Negotiable
Contact: Send resume & cover letter to Beverly Smith, Search Committee, 10 Clark Rd, Hingham, MA 02043.

DISTRICT SUPERVISOR NORFOLK COUNTY CONSERVATION DISTRICT

Supervisors are members of the Board of Supervisors, a group responsible for coordinating and effecting conservation of natural resources in Norfolk County. Bd. meets once a month. Must be 18 yrs and land occupier in Norfolk County.

Salary: Volunteer position
Contact: Send resume or statement of interest background to Norfolk County Conservation District, Bd. of Supervisors, 460 Main St., Walpole, MA 02081 (508) 668-0995.

CHIEF CONSERVATION RANGER TOWN OF LINCOLN

Permanent, part-time position with responsibilities for management of visiting public, protection of conservation land, hiring, training and supervision of seasonal staff, interpretation and rule enforcement. Should have Associates degree or equivalent, knowledge of env. protection laws, and 1 yr. experience.

Salary: starting \$9.94/hr
Contact: Barbara Walther, Conservation Admin., PO Box 353 Lincoln Ctr., MA 01773 (617) 259-8850.

EROSION (con't from page 5)

exemptions not found in zoning bylaws: they cannot regulate mining on land in public use, nor can they forbid earth removal done "in compliance with the requirements of a subdivision plan approved by the town planning board." The latter exemption can lead to presentation of "fake" subdivision plans. To prevent this, the municipal planning board should adopt subdivision regulations to restrict earth removal in subdivisions to what is necessary for site preparation and construction, and regulate the excavation. The planning board can adopt such regulations without town meeting action. Finally, "Chapter 40" bylaws can apparently control only "removal of soil, loam, sand or gravel"; other minerals are not mentioned in the statute. As a result of all these difficulties, some towns have adopted both types of bylaw!

Permit Conditions. Recent court cases indicate how far regulations can go. In *Kelleher v. Board of Selectmen of Pembroke* (1973 Mass. App. Ct. Adv. Sh. 187), the Appeals Court approved a "Chapter 40" bylaw that allowed the selectmen to impose a variety of conditions upon earth removal permits. Applicants were required to produce a viable plan for grading, reloaming and reseeding, including a statement of where the required topsoil would come from and what it would cost. Water courses and wet areas were to be delineated on plans; drainage was to be controlled during the work. A 300-foot buffer area would be imposed along public ways. Hours of operation were regulated.

New permit requirements may be applied to all existing operations as well as new ones. This is true whether your town chooses a "Chapter 40" or a "Chapter 40A" bylaw. It may not be possible to require restoration of areas excavated before restoration standards were established, because that would penalize the operator for acts which were legal when they were done. However, all work done after the new bylaw takes effect may be made subject to it.

CRISIS FOR CONSERVATION DISTRICTS

For over 40 years, Conservation Districts in Massachusetts have been the clearinghouse for soils information. Conservation Districts' mandate is to assist in promoting soil and water conservation. We have helped landowners and developers to implement simple, inexpensive but necessary soil erosion control systems on their land. But even though the state as a whole pays millions of dollars to remove sediment from culverts, and the potential water quality impact on water supplies remains great, it seems that in Boston we are perceived as expendable.

Because of budget cuts for the coming fiscal year, the state has withdrawn all financial support for Districts. What they had received from the state was a relatively meager sum: \$5,500 per district per year plus special project funding, for a total of \$100,000. To a few districts, state support is not critical, but for most it composes a significant percentage of their operating budgets, and allows them the freedom to dedicate time and resources toward programs, not fundraising. Most of the Districts' funding comes from our fundraising efforts, mainly tree and bulb sales programs.

The end of state support for the Districts has many ramifications. First, because most Districts will be facing a 20-50% cut in revenue, many services and programs could be cut, such as workshops on soils and hydrology, aquifer studies, and assistance in completing Open Space Plans. Secondly, the USDA Soil Conservation Service (SCS) offers technical assistance to Mass. residents through a Memorandum of Understanding with the Districts. If a District becomes insolvent, the agreement is ended. It is possible that SCS would then withdraw some or all of its operations from the state, resulting in the loss of up to \$2 million of technical services.

Obviously, if this happens, we can expect more soil erosion and more non-point source pollution. Local communities experiencing rapid growth can expect no District assistance in planning for that growth. Individual landowners looking for soils or hydrology assistance, can expect limited help in the future.

Concerned Conservation Commissioners and other readers can assist the Districts by either writing or phoning the Executive Office of Environmental Affairs at 100 Cambridge St., Boston, MA 02202, (617) 727-9800 and request a fair and reasonable level of funding for the Districts.

Pierce Rigrod
Mass. Assn. of Conservation Districts

SHORING UP SHORELINE PROTECTION

Conservation Commissioners and other readers committed to protection of coastal, riverine and great pond resource areas must now provide strong support for strong Chapter 91 Regulations. This support can be best shown in any of the five public hearings scheduled by the Department of Environmental Protection (DEP) and in written comments to the DEP due by or before Sept. 15, 1989. MACC will strongly recommend that DEP improve Ch. 91 Regulations by not granting exemptions for the Mass. Department of Public Works and by more strictly limiting options for "dockominiums". Colonial law mandated that Massachusetts protect waterfronts and waterfront access for the public. It is time for Chapter 91 Regulations to help today's public to insure waterfront rights for future generations.

All public hearings are at 7:00pm.
Lakeville - Sept. 7, Boston - Sept. 11,
Springfield - Sept. 12, Gloucester - Sept.
13, W. Barnstable - Sept. 14. For
locations & directions call DEP (617)
929-5695 or MACC (617) 489-3930.

COMMISSIONS REPORT HAPPENINGS

*Chilmark Commission worked with the local Planning Board and Vineyard Open Land Foundation to maintain public access to Peaked Hill and continues to pursue getting conservation restrictions for a walking trail between conservation areas in town.

*Littleton Commission, with the help of volunteers, have produced several booklets on open space areas.

*Uxbridge Commission has implemented a three-year plan for dewatering Put Pond.

THE HYDRO-FILE ©

News & Information on Wetland Plants

WATER LILIES: AS THEY LIVE AND BREATHE

Hiking through the moors of Nantucket Island is never a disappointment for aspiring botanists. New wildflowers and fragrances await discovery on the Island. During a hike in early fall, a friend brought me to an area in the moors and asked me to smell the air. A sweet scent perfumed the air, its origin being a small, hidden kettlehole laden with the Fragrant Water Lily (*Nymphaea odorata*).

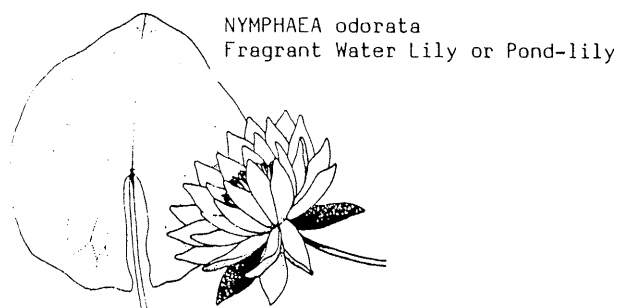
The botanical family to which all water lilies belong is Nymphaeaceae. This family consists of eight or nine genera and approximately 50 to 60 species. All are aquatic plants and originate from a rootstock (rhizome) buried in muddy sediment of lakes and ponds. In most species, flowers open at dawn and close at dusk. Dancing leaves and flowers on the water surface inspired Linnaeus to choose the family name, "flowers of the water nymphs" (Nymphaeacea). The genus *Nymphaea* includes the Fragrant Water Lily (*N. odorata*) and the Tuberous Lily (*N. tuberosa*) whose flowers encompass a broad color spectrum ranging from white through blue, pink and red. A second genus is *Nelumbo* and it includes the sacred Lotus of Persia and Asia, *Nelumbo nucifera*. The most familiar genus is *Nuphar*, the Common Pond Lilies, which are widely distributed throughout North America.

Inhabiting an aquatic environment with rhizomes buried in muddy sediment presents these aquatic plants with anaerobic-related stresses. Virtually all wetland plants have evolved structural and physiological mechanisms that have allowed them to adapt to anaerobic conditions. Root anoxia (oxygen deprivation) is a typical environmentally induced stress imposed on plants such as Water Lilies. *Nuphar luteum*, the Yellow Water Lily, has adapted so that an adequate supply of oxygen is provided to its rhizomes while carbon dioxide is exported. Specifically, the Yellow Water Lily has evolved a gas-pressure gradient, generated by the heat of sunlight and resulting in

transport of oxygen to the root stocks. Air flows in the youngest emergent leaves carrying oxygen through the lacunae (an extensive system of gas spaces) down the petiole to the rhizome. Older leaves of the Yellow Water Lily have increased porosity, and lose their capacity to support pressure gradients. However, gases are allowed to freely flow through. The air spaces of the emergent young leaves are continuous with those of the older leaves.

Subsequently, older leaves vent pressure generated in young leaves and create a pressurized flow-through system. This flow-through system results in the physiological effect of transporting oxygen to the rhizomes. Additionally, this system allows the older leaves to export carbon dioxide produced by respiration in the rhizomes.

Jeanne Kelly
Consultant, Lelito Environ. Consultants



ACT REGULATES RECORDING OF PLANS

On July 11, 1989 Governor Dukakis signed into law Chapter 218 that amends MGL Ch 131 Section 40. This act becomes effective 90 days after the signing. The full text is below.

"The fourteenth paragraph of section 40 of chapter 131 of the General Laws, as appearing in the 1986 Official Edition, is hereby amended by adding the following sentence: If the final order, determination or notification requires the recording of a plan which 1) shows the location of the work, 2) is prepared by a registered professional engineer or land surveyor and 3) is in recordable form, no work proposed in the notice of intention shall be undertaken until such plan has been recorded in the registry of deeds or, if the land affected thereby is registered land, in the registry section of the land court for the district wherein such land lies."

COMMISSIONS PROMOTE PUBLIC AWARENESS

*On August 16, Weymouth Conservation Commission sponsored a wetlands informational meeting where realtors, developers, engineers, citizens, Conservation Commissions, other town offices and anyone interested in wetlands were encouraged to attend. Representatives from EPA, DEP and MACC were on hand to discuss wetlands from the federal, state and local perspectives. The meeting was well attended and the Commission found the experience to be both educational and inspirational.

*To "increase public awareness and interest", Shirley's Conservation Commission recently published the first of a series of local newspaper articles focusing on "the conservation process to preserve (their) town's open spaces and wetland resources." Outlining Commission responsibilities, definitions of "wetland" and general aspects of the Wetlands Protection Act, the news article goes on to describe environmental impacts of wetland alterations plus a local example of "flooding brought on by cumulative ... filling in floodplains over the years.

MORE MACC FALL WORKSHOPS

For general information and details on the September and October workshops see the July/August Newsletter or call MACC office.

WINTER WETLAND DELINEATION: Field course will review plant identification in winter.

Central Region: Sat. Nov. 4, 1989

Time: 8:30am - 4:00pm

Instructors: Elizabeth Bagdonas (Bolton CC, Consultant) & Dennis Lowry (Consultant)

Facilitator: Caroline Simmons (MACC Ex. Dir., Pepperell CC)

Place: Gardner Heritage State Park, Visitor Center

Directions: From Rt. 2 take Gardner exit (Rt 68). Go North on Main St. to Central St. (Rt. 101). Turn right. Go 1/4 mile, turn left on Park St.; then left onto Lake St. to parking area.

Southeast Region: Sat. Nov. 18, 1989

Time: 8:30am - 4:00pm

Instructors: William Zinni (US Fish & Wildlife) & Kenneth Wood (former US F & W)

Facilitator: Tania Assaykeen (MACC Board of Directors)

Place: Stony Brook Nature Center & Wildlife Sanctuary, Norfolk

Directions: From intersection of Rt. 1A & Rt. 115 take 115 North 2 miles to second left (North St.). Sanctuary entrance on right.

MACC FALL WORKSHOP REGISTRATION FORM

Name _____ Commission _____

Address _____ Phones _____

I would like to register for the following workshops:

___ 10/21 Plum Island ___ 10/21 Woods Hole ___ 11/4 Gardner ___ 11/18 Stony Brook

Enclosed is \$_____, payable to MACC (\$10.00 member/Commissioner, \$20 non-mem.).

Return two weeks in advance to: MACC-10 Juniper Rd., Belmont, MA 02178 (617) 489-3930

UPCOMING EVENTS

FILING FEE WORKSHOPS

- Tue. Sept 19 - Harvey Wheeler Community Ctr., Concord
 - Thu, Sept 21 - Lenox Town Hall
 - Mon, Sept 25 - Barnstable Town Hall
 - Wed, Sept 27 - Fitchburg State College at Randall (Science) Hall
 - Thu, Sept 28 - DEP, 1 Winfer St. Boston (1:00pm - 3:00pm)
- DEP has scheduled more workshops open to all interested person. No registration is required. The first four are from 7:00pm - 9:00pm and are cosponsored by the respective towns. Contact DEP for directions (617) 292-5695.

ANNUAL CONFERENCE OF MASS. ASSOC. OF HEALTH BOARDS

Sat, Sept 23 - Program includes sessions on cancer clusters, private well protection, and environmental review regulations for Bds. of Health. Attendees will receive copies of new publications: Private Well Protection Handbook and Public and Environmental Health Review Model Regulations. Place: Worcester Foundation for Exp. Biology, 222 Maple Ave. Shrewsbury; Time: 8:00am-5:00pm; Fee: \$50 non-members, \$30 members; Contact: MAHB, 56 Taunton St. Plainville, MA 02762 (508) 695-1128.

WETLAND ISSUES IN LAND USE AND REAL ESTATE

Wed & Thur, Sept 27 & 28 - Comprehensive conference to address legal and technical wetland issues focusing on changing federal, state and local wetland regs. Place: Westford Regency Conference Ctr.; Time: 8:00am-5:00pm each day; Fee: \$395/2 days, \$275/1 day, Nonprof.- \$265/2 days, \$175/1 day, discount for early registration; Contact: Sally Zielinski, Resources Education Institute, Inc. 60 Thoreau St. Suite 210, Concord, MA 01742 (508) 369-3590.

MANDATORY OPEN SPACE DEVELOPMENT: CAN WE DO IT?

Fri, Sept 29 - Workshop for Mass. and Vermont professional and citizen planners to learn about and discuss how to preserve farmland and other special open spaces, including the legal context within which local regs can be structured. Place: Brickers' Restaurant conference room, Greenfield; Time: 1-4:30; Fee: \$5 students, \$10 before 9/21, \$15 at door; Contact: Jeanne Armstrong, Mass/Vermont Conference, c/o LandUse, PO Box 317, Hadley, MA 01035 (413) 584-9951.

MASS. AUDUBON'S WATERSHED FUTURES

Sat, Nov 11 - Conference will review the state of watershed management and protection in Mass. and identify important legislative and planning needs to secure their future integrity. Workshop topics include methods & incentives for achieving regional cooperation, state and fed. regulatory approaches, public/private partnerships, MACC is a cosponsor. Place: Clark Univ., Worcester; Time: 8:30am-4:00pm; Fee: \$25, \$15 student; Contact: Watershed Futures, Mass Audubon Society, South Great Rd, Lincoln, MA 01773 (617) 259-9500.

ACQUIFER PROTECTION SEMINAR

Mon, Nov 13 - Scott Horsley and Jon Witten will introduce innovative strategies to protect groundwater resources, including tools and options for local govt. and water quality impact assessments of land uses. Place: Hyatt Regency, Cambridge; Fee: \$245, \$195 govt. & nonprof. (early reg. discount); Contact: Marla Meyer, Horsley & Witten, Inc. PO Box 7, Barnstable, MA 02630 (508) 362-5570.

FROM THE PUBLICATIONS LIST

ENCLOSED is the NEW MACC PUBLICATIONS CATALOGUE showing one list price. MACC members and Conservation Commissions in good standing (dues paid up-to-date) receive a 10% discount off the list prices - except for the Environmental Handbook for Conservation Commissioners (\$7.00 members, \$15.00 non-mem)! Prices are in effect as of SEPTEMBER 15. All prices include postage unless indicated otherwise. Orders over \$60.00 must include postal insurance (\$1.60). Send request for publications with check made payable to MACC. The number in parentheses is the book number which can be used along with the title when ordering. Please allow 1-3 weeks for delivery.

HYDRIC SOILS OF NEW ENGLAND. R.W.Tiner & P.L.M. Veneman, 1987. Designed to familiarize people with hydric soils and their application to wetland identification. Color plates. (104) \$8.00

FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS. 1989. Contains the mandatory technical criteria for each of the three basic parameters, vegetation, hydrology and soils, used by all federal agencies. This document is available from the Superintendent of Documents, US Govt Printing Office, Washington, DC 20402 (202) 783-3238. Stock number 024-010-00683-8. Cost approx. \$8.00.

OPEN SPACE MAPS OF ESSEX COUNTY. Essex County Greenbelt Association has printed new open space maps depicting protected land and water resources in Essex County. Maps measure 25"x38", printed in black, white & blue. They include topography, streets, buildings and waterways. \$7.50 per map, \$50.00 for set of 8. Contact: Greenbelt's office at (508) 768-7241.

EROSION AND SEDIMENTATION CONTROL GUIDELINES. DEQE Div. of Water Supply and Montachusett Regional Planning Commission, 1983. Technical information on the erosion process and appropriate control measures. (25) \$4.50.

NEW STOCK IN T-SHIRTS!.

Wetlands/Wildlife design: Mint
Duck & Cattail design: Red
Heron design: Aqua & Pink
All 100% cotton available in small, med, large & Xlarge. (Other colors available but not in all sizes). All designs \$10.00.



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