304 CMR 11.00: FOREST CUTTING PRACTICES

Section

11.01: Authority and Purpose

(1) Authority. The Director of the Division of Forests and Parks, Department of Environmental Management promulgates 304 CMR 11.00 pursuant to the authority granted under M.G.L. c. 132, §§ 40 through 46.

(2) Purpose. M.G.L. c. 132, §§ 40 through 46 establishes the State Forestry Committee to develop minimum forest cutting practices through promulgation of regulations. Cutting on forest lands shall be regulated and timber harvesters licensed to insure that the following values of interest are not jeopardized:

(a) continuation and increase of the supply of forest products;
(b) conservation of water;
(c) maintenance of air and water quality;
(d) prevention of floods;
(e) prevention of soil erosion;
(f) improvement of condition for wildlife; and
(g) improvement of conditions for outdoor recreation.

304 CMR 11.00 serves to assist the landowner in achieving the management objectives which the landowner has established for the land. 304 CMR 11.00 defines and clarifies administration of M.G.L. c. 132, §§ 40 through 46 by establishing standard definitions and uniform procedures by which landowners, licensed timber harvesters, and the Director of the Division of Forests and Parks can carry out their responsibilities under M.G.L. c. 132, §§ 40 through 46.

11.02: Statement of Jurisdiction

(1) Areas Subject to M.G.L. c. 132, §§ 40 through 46. 304 CMR 11.00 applies to all land devoted to forest growth owned or administered by private persons, corporations or organizations or by any federal, state, county, municipal or other public agency.

(2) Activities Subject to M.G.L. c. 132, §§ 40 through 46. 304 CMR 11.00 applies to any commercial cutting of a volume of products equivalent in volume to more than 25,000 board-feet or 50 cords on any parcel of land at any one time. Approval of a forest cutting plan under M.G.L. c. 132 means that the land is presently and primarily used in raising forest products and shall be maintained as forest land and continue to provide values as listed in 304 CMR 11.01(2).

(3) Activities Exempt Under M.G.L. c. 132, §§ 40 through 46. 304 CMR 11.00 does not apply to the following activities:

(a) Cutting for clearance or maintenance of rights-of-way for public utilities and public highways;
(b) Maintenance cutting in pastures;
(c) Cutting of any amount of forest products that is not for sale or barter, but is for the non-commercial use of the landowner or the landowner's tenant;
(d) Clearing land for cultivation or pasture when supported by physical evidence of such changed land use within one year after the cutting stops;

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(e) Clearing lands for the purpose of changing land use, such as the creation of a houselot, a subdivision, for mining gravel, or for any other activity requiring town or city permits, when supported by the issuance of the necessary permits prior to the start of cutting; and

(f) Small commercial harvests, cutting a volume equivalent to 25,000 board-feet or 50 cords of products or less from a parcel of land at any one time.

Any person proposing to cut trees who is not certain if the operation is exempt under M.G.L. c. 132, §§ 40 through 46 may ask the Director or the Director's Agent for a determination pursuant to 304 CMR 11.04(14).

(4) Forest Cutting Practices and M.G.L. c. 131, § 40, the Wetland Protection Act.

(a) The Massachusetts Wetlands Protection Act, M.G.L. c. 131, § 40, regulates activities which will remove, fill, dredge, or alter wetland resource areas. A project proponent must file a M.G.L. c. 131, § 40 Notice of Intent with the town or city conservation commission and the Massachusetts Department of Environmental Protection ("DEP") regional office before undertaking any activity subject to M.G.L. c. 131, § 40.

(b) Under the agricultural exemption section of 310 CMR 10.00, a forest cutting which is usually subject to M.G.L. c. 131, § 40 shall be exempt if the landowner meets the following requirements:

1. wetland resource areas are properly identified in the forest cutting plan;
2. the forest cutting plan is approved by the Director or the Director's agent;
3. the forest cutting plan is filed with the local Conservation Commission(s) as required under 304 CMR 11.04(2) allowing for an opportunity for comment;
4. the Director or the Director's Agent sends the approved forest cutting plan to the appropriate DEP regional office; and
5. the landowner faithfully executes the forest cutting plan.

(c) Forest cuttings exempt from M.G.L. c. 132, §§ 40 through 46 (*see* 304 CMR 11.02(3)) which involve wetland resource areas may be subject to M.G.L. c. 131, § 40, and may require the filing of M.G.L. c. 131, § 40 Notice of Intent prior to the start of the operation.

(d) Even though small commercial harvests as defined in 304 CMR 11.02(3)(f) and non-commercial harvests as defined in 304 CMR 11.02(3)(e), are exempt under M.G.L. c. 132, §§ 40 through 46 from complying with 304 CMR 11.00, landowners can submit a forest cutting plan pursuant to 304 CMR 11.00 to qualify for the exemption from M.G.L. c. 131, § 40 authorized under 310 CMR, 10.04(Agriculture). To gain an exemption from M.G.L. c. 131, § 40, the landowner must meet all the requirements detailed in 304 CMR 11.02(4)(b).

(e) The installation of permanent stream crossings and the construction of permanent roads involving fill in wetland resource areas requires the approval of the issuing authority (Conservation Commission or DEP) under M.G.L. c. 131, § 40. Temporary structures installed under the authority of an approved forest cutting plan must be removed within one year of the completion of the operation, unless otherwise permitted to remain as a permanent wetland alteration.

(f) For the purposes of 304 CMR 11.00, the definition of all wetland resource areas (including, but not limited to, streams, banks, lakes, ponds, swamps, marshes, bordering vegetated wetlands, and land subject to flooding) shall be those found in M.G.L. c.131, § 40 and 310 CMR 10.00.

(g) Failure to comply with the wetlands provisions of the forest cutting plan and 304 CMR 11.00 shall void the exemption from M.G.L. c. 131, § 40.

11.03: Definitions

Abutters of record on file with the assessor means:

(a) the abutters shown on a current town property map who are within 200 feet of a cutting area; or

(b) if there is no map, the abutters noted on the current assessment card of the property being cut who are within 200 feet of a cutting area; and,

(c) abutters otherwise known to the landowner who are within 200 feet of a cutting area.

Abutters of record on file with the assessor does not mean property owners with property separated from the cutting area by a publicly maintained way.

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ACEC (Area of Critical Environmental Concern) means an area containing concentrations of highly significant environmental resources that has been formally designated by the Secretary of Environmental Affairs pursuant to M.G.L. c. 21A, § 2(7) and 301 CMR 12.00.

Advance Regeneration means young trees which have become established in a forest before any special measures are undertaken to establish new growth.

Agents of the Director or Director's Agents means the trained foresters, fire wardens, regional supervisors, and other personnel, as appointed, by the Director to serve as his agents. The Director may cooperate with the University of Massachusetts, the United States Forest Service and any other appropriate public or private organization and may authorize their employees to serve as agents of the Director for the purpose of implementing and enforcing 304 CMR 11.00.

Agent of the Landowner or Landowner's Agent means the person appointed by the landowner as his agent to prepare the necessary paper work, oversee operations covered by the forest cutting plans or to act as a liaison with the Director or the Director's agent.

At Any One Time means the time period a cutting is done so long as work is reasonably continuous and not interrupted for a period longer than 180 days, or during the period covered by an approved forest cutting plan, whichever is longer.

Basal Area means the area in square feet of the cross section of a tree taken at breast height (4.5 feet above the ground).

Best Management Practices means forestry and harvesting practices used to prevent or minimize erosion and adverse impacts to wetland resource areas as contained in the current edition of the *Massachusetts Forestry Best Management Practices Manual* which is available through the regional offices of the Division of Forests and Parks.

BMP Manual means the current edition of the Massachusetts Forestry Best Management Practices Manual which is available through the regional offices of the Division of Forests and Parks. The BMP Manual is updated periodically as information becomes available.

Bordering Vegetated Wetlands means freshwater wetlands (wet meadows, marshes, swamps, and bogs) which border on creeks, rivers, streams, ponds, and lakes, as defined by 310 CMR 10.00. They are generally saturated by groundwater or covered by surface water long enough to produce hydric soil conditions and support wetland plant communities.

Buffer Strip means a forest area along roads where the intensity of cutting is restricted to maintain a forested appearance (*see* 304 CMR 11.05: Standards).

Certificate means the form completed and signed by the Director or the Director's agent which is sent to the landowner or the operator along with approved forest cutting plan and which must be posted at the entrance to the harvesting site whenever work is done.

Classified land means forest land classified under M.G.L. c. 61, the Forest Tax Law. The landowner manages classified land for the production of forest products under the terms of a forest management plan certified by the State Forester.

Den Trees means dead, rough or rotten trees that provide hollows or cavities for wildlife.

Director means the Director of the Division of Forest and Parks in the Department of Environmental Management.

Employee means a person whose hours of work and specific task assignments are under the control of the operator.

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Estimated Habitats of State-listed Rare Wetlands Wildlife means the approximated geographical extent of the wetland habitat used by state-listed rare wetlands vertebrate and invertebrate animal species for which a reported occurrence within the last 25 years has been accepted by the Natural Heritage and Endangered Species Program as shown on the current edition of the Massachusetts Natural Heritage Atlas.

Even-aged Stand means a stand where the difference in age between the oldest and youngest trees in the main canopy does not exceed 20% of the length of the rotation.

50% Basal Area means ½ the cumulative total of basal area of all live trees five inches or more in diameter breast height, before any trees were removed from a specified area.

Filter Strip means an area of land, adjoining the bank of a water body, where the cutting of trees and the disturbance of the ground are restricted in order to maintain conditions that shall help to infiltrate overland flow from precipitation into the ground and trap any sediments before they enter the water body (*see*: 304 CMR 11.05: Standards).

Forest Cutting Plan means a plan for the cutting of trees on forest land prepared and submitted in accordance with M.G.L. c. 132, §§ 40 through 46 and 304 CMR 11.00. A forest cutting plan shall meet the requirements for a notice of intent to cut under M.G.L. c. 132, §§ 40 through 46. Approved Forest Cutting Plan means a forest cutting plan which has been approved by the Director or the Director's Agent pursuant to 304 CMR 11.04 in the form it was submitted or together with amendments and requirements added by the Director or the Director's agent as conditions for approval. An approved forest cutting plan shall meet the requirement for a final work order required under M.G.L. c. 132, §§ 40 through 46.

Forest Land means land with at least 15% of the area occupied by the crowns of forest trees of any size that contains at least 7.5 square feet of basal area per acre; or that is a plantation containing at least 500 trees per acre; or land recently harvested that is in the process of regeneration.

Forest Cutting Practices means the silvicultural system used on a stand, the design of cutting areas, the logging practices and road and trail development used to extract forest products from a property.

Forest Products means wood products including, but are not limited to, sawlogs, cordwood and biomass.

Forestry means the science, art, and practice of managing and using for human benefit the natural resources that occur on and in association with forest lands.

High Grading means the selection of trees for cutting based solely on the economic value of individual trees which results in a residual stand dominated by poor quality trees and species.

High Priority Sites of Rare Species Habitats means the approximated geographical extent of the most important sites for rare plant and animal species in Massachusetts as determined by the Natural Heritage and Endangered Species Program and as shown in the current edition of the Massachusetts Natural Heritage Atlas.

Intermediate Cut means a silvicultural practice implemented in an establish stand during the period between seeding and maturity. It is done to improve the existing stand and regulate its growth without any effort directed at regeneration.

Land Devoted to Forest Growth means forest land.

Light-seeded Species means tree species which bear seed capable of being dispersed by the wind. This includes ash, aspen, basswood, birch, balsam fir, hemlock, larch, maple, pine, and spruce.

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Marking of Trees means placing a visible paint marks on both the bole of the tree at approximately breast height, and on the stump. The tree shall be marked so as to leave the stump mark visible following harvest.

Operator means a timber harvester who is licensed pursuant to 304 CMR 11.08 working on a cutting subject to M.G.L. c. 132, §§ 40 through 46.

Outstanding Resource Waters means waters designated as sources of public water supplies and designated for protection under 314 CMR 4.00 (Massachusetts Surface Water Quality Standards).

Parcel of Land means a single contiguous area of land in one ownership, which may be crossed by streams or traversed by public ways without thereby dividing the area into separate parcels.

Patch Cut means a clearcut of ¼ to one-acre in size.

Physical Evidence means acceptable evidence of a land use change to cultivation or pasture such as stump clearance, plowing, fertilizing, seeding to an agricultural crop, planting, or fencing.

Principal Skid Roads means the main skid road and its primary branches which will be used repeatedly enough by harvesting equipment to potentially disturb the forest floor, make ruts, compact soil and otherwise create conditions that can cause erosion.

Rare Species means those plant and animal species officially listed as endangered, threatened, or of special concern by the Massachusetts Division of Fisheries and Wildlife by regulations issued pursuant to M.G.L. c. 131A, the Massachusetts Endangered Species Act.

Regenerate a Stand means to replace a harvested stand with regeneration within five growing seasons of the completion of the harvest. One thousand seedlings, seedling sprouts or sapling sprouts per acre shall be adequate if of tree species suited to growing on the site and well distributed over the area. Advance growth must be left in a healthy condition for growth after the cutting of the old stand is complete. If advance regeneration is critical, the landowner shall note it on the forest cutting plan.

Regeneration means seedlings, seedling sprouts or sapling sprouts of tree species which may come from advance regeneration, natural seeding, sprouts from coppice, or from planting or direct seeding.

Regeneration Cut means a cut made with the dual purposes of removing the mature stand and creating conditions favorable for the establishment of regeneration. The particular silvicultural system and regeneration method employed dictate the timing and severity of the cut.

Road and Trail Standards means the governing standards for road and trail construction, maintenance, and stabilization listed in the BMP Manual.

Rotation means the planned number of years between the formation or regeneration of a stand and its final cutting at a specified stage of maturity.

Salvage means an operation made to cut and utilize trees which have been killed, badly injured, or clearly threatened usually by natural causes. It usually has no silvicultural objective other than the harvesting of the injured or threatened trees.

Sapling means a tree greater than one-inch dbh and less than 4.9 inches dbh.

Sapling Sprout means a single dominant tree of sprout origin resulting from the cutting of a sapling.

Seedling means a young tree of seed origin, less than one-inch dbh.

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Seedling Sprout means a single tree of sprout origin resulting from the cutting of a seedling.

Shade Tolerance means a relative measure of a species ability to grow and persist in various levels of light. Species which require full sunlight to grow, such as cherry or gray birch, are called intolerant. Species which persist in shaded conditions, such as hemlock or sugar maple, are called tolerant.

Silviculture means the branch of forestry concerned with the theory and practice of controlling forest establishment, composition and growth.

Stand means a contiguous group of trees sufficiently uniform in species composition, arrangement of age classes, and condition to be a homogeneous and distinguishable unit.

Standard, when used as a silvicultural term, means a healthy, well-formed tree suitable for producing sawlogs, permitted to remain after a coppice cutting.

Stocking means an indication of the number and density of overstory trees in a stand as compared to the desirable number and density for best growth and management. Stocking charts, which have been developed for the common forest types, serve as a guide to the choice of stand treatments by relating basal area per acre to trees per acre. The B-Level on these charts indicates the point where each tree has all the space it can use (the site is fully utilized). The A-Level represents 100% stocking. Stands below the C-Level are considered understocked.

Steep Slope means land with a gradient of 30% or more for a slope distance of 200 feet or more.

Stop Order means an order issued by the Director or the Director's agent to immediately shut down a cutting operation that fails to comply with the law, 304 CMR 11.00 or an approved forest cutting plan.

Stream means a body of running water, including brooks and creeks, which moves in a defined channel due to a hydraulic gradient, and which flows within, into, or out of an area subject to protection under 310 CMR 10.00. A portion of a stream may flow through a water control structure such as a culvert or bridge. Such a body of running water, which does not flow throughout the year (intermittent) is a stream except for the portion up-gradient from all bogs, swamps, wet meadows and marshes.

Take means as defined in M.G.L. c. 131A, the Massachusetts Endangered Species Act, or 321 CMR 10.00: MASSACHUSETTS ENDANGERED SPECIES ACT REGULATIONS.

Uneven-aged Stands means stands containing at least three age classes intermingled on the same area.

Vernal Pool means a confined basin depression which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, and which is free of adult fish populations. These areas provide essential breeding habitat for a variety of amphibian species such as the wood frog (Rana sylvatica) and spotted salamander (Ambystoma maculatum) and are important habitat for other wildlife species. A Certified Vernal Pool is an area that has been certified as a vernal pool by the Division of Fisheries and Wildlife.

Water Body means the ocean, its estuaries, ponds, lakes, rivers, creeks and streams.

Wetland Resource Areas means those areas subject to protection under M.G.L. C. 131, § 40, as defined in 310 CMR 10.00, which include but are not limited to: banks, freshwater wetlands and marshes which border on streams or ponds (bordering vegetated wetlands), land under waterbodies and land subject to flooding.

11.04: Procedures

(1) Director to Develop Forest Cutting Plan Forms and Notice to Abutters Forms

(a) The Director shall develop and make available the form for the forest cutting plan together with instructions for its proper completion. The forest cutting plan form shall reflect the standards in the regulations relevant to cutting and logging and all applicants shall use these forms. The Director shall also develop standard operating procedures for checking and processing the forest cutting plan and for all necessary field inspections. The Director and the State Forestry Committee shall review experience with these forms and procedures periodically and, if necessary, revise them.

(b) The Director shall develop and make available a form landowners shall use to notify abutters of record on file with the assessor's office of the landowners intent to cut trees for forest products.

(2) Landowner's Submission of Forest Cutting Plan

(a) Any landowner, not exempt from M.G.L. c. 132, §§ 40 through 46, who plans to cut trees for forest products, shall provide the proper notification to the appropriate Massachusetts Department of Environmental Management ("DEM") regional office of the Division of Forests and Parks, the conservation commission(s) of the town(s) in which the cutting area lies, and the abutters of record on file with the assessor. The appropriate DEM regional office of the Division of Forest and Parks shall be the office serving the county in which cutting will begin. The landowner shall send the required notification forms by certified mail or by hand-delivery.

(b) Notification of the DEM Regional office and the conservation commission(s) shall consist of a properly completed forest cutting plan. Notification of abutters of record on file with the assessors owners shall consist of a properly completed form as developed by the Director.

(c) The DEM regional office and the conservation commission(s) shall receive the completed forest cutting plan form ten business days before cutting begins. The landowner shall mail or hand-deliver notification to abutters at least ten business days before cutting begins.

(d) A landowner shall provide all required information on the proposed forest cutting plan. However, the landowner may leave blank the operator name, address, and license number, and the starting date, if unknown at the time of the filing. Before cutting begins, a landowner shall provide, in writing to the appropriate DEM regional office, any information left blank.

(e) The landowner shall submit a legible forest cutting plan and associated maps. The landowner shall submit all maps on standard 8½ by 11 inch paper and to a scale adequate to clearly show the proposed operation. The landowner shall provide separate maps for wetland resource areas and critical areas, if the Director determines that including this information on one map makes it difficult to read.

(f) Before filing a forest cutting plan with the DEM Regional Office, a landowner may need to file an Environmental Notification Form (ENF) in accordance with M.G.L. c. 30, §§ 61 through 62H (The Massachusetts Environmental Policy Act ("MEPA")) and 301 CMR 11.00, if the forest cutting plan exceeds one or more MEPA thresholds. The landowner faces a good probability of exceeding MEPA thresholds if a forest cutting plan includes:

1. a clearcut exceeding 25 acres;
2. a clearcut within an ACEC, exceeding one acre;
3. an unbridged stream crossing within 1,000 feet upstream of a public water supply reservoir as measured along the course of the stream from the highwater mark of the reservoir; or
4. for an unbridged stream crossing in an ACEC within 2640 feet upstream of a public surface water supply reservoir as measured along the course of the stream from the highwater mark of the reservoir.

If the applicability of MEPA thresholds is not clear, the landowner should contact the MEPA unit for advice or a formal determination.

If a landowner is required to file an ENF under 301 CMR 11.04(2)(f), the landowner shall include a copy of the final decision of the Secretary of Environmental Affairs with the forest cutting plan.

(g) If classified land under M.G.L. c. 61 is being operated, the landowner shall provide a reasonable estimate of the stumpage value of the forest products to be cut, and properly paint or blaze the property boundaries within 50 feet of the cutting area.

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(3) Director's Approval Standards of Forest Cutting Plan.

(a) The Director or the Director's agent shall review the proposed forest cutting plan for conformance with M.G.L. c. 132, §§ 40 through 46 and the standards in 304 CMR 11.05.

(b) If the Director or Director's agent determines the proposed harvest is in compliance with M.G.L. c. 132, §§ 40 through 46 and the standards in 304 CMR 11.05., as well as the other requirements of M.G.L. c. 132, §§ 40 through 46 and 304 CMR 11.05, he shall approve the forest cutting plan.

(c) If in the determination of the Director or the Director's agent the proposed silvicultural system conflicts with the stated objectives of the landowner, the Director or the Director's agent may bring this conflict to the attention of the landowner who can then decide whether to redesign the harvest or to carry out the proposed harvest. The Director or the Director's agent may also make written comments on the forest cutting plan providing advice for meeting the landowner's objectives.

(d) If the proposed forest cutting plan is not in compliance with M.G.L. c. 132, §§ 40 through 46 or the standards in 304 CMR 11.05, the Director or the Director's agent shall notify the landowner and not approve the forest cutting plan. Until the landowner makes corrections to the forest cutting plan to bring it into compliance, the landowner can not begin operating on the land.

(4) Director's Consultation With Government Agencies Prior to Forest Cutting Plan Approval.

(a) The Director or the Director's agent may request technical comments from the local Conservation District regarding plans for erosion and sediment control, including such items as road, skid trail, and landing locations, ditches, culverts, water bars and other water control measures, stream crossings and stabilization and revegetation of roads, skid trails and landings.

(b) The Director or the Director's agent shall consult with the Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program ("NHESP") following the procedures in 304 CMR 11.04(6) for any forest cutting plan which includes rare wetlands wildlife habitat or high priority sites of rare species habitat.

(c) The Director or the Director's agent shall consider the comments of the public entity which manages the publicly maintained way in reviewing the proposed forest cutting plan where the landowner proposes a cut in the buffer strip to promote the public safety along the edges of publicly maintained ways under 304 CMR 11.05(1)(c).

(5) Director's Inspection of Cutting Area Prior to Approval of Forest Cutting Plan. The Director or the Director's agent may inspect the cutting area when necessary to determine the suitability of the forest cutting plan and the conformity of the work to it. The timing and number of field inspections may vary at the discretion of the Director or the Director's agent, except that an inspection shall be made before prior to the approval of any forest cutting plan involving wetland resource areas, rare or endangered species habitat or Certified Vernal Pools. When no such areas are involved, if the Director or the Director's agent has enough reliable evidence from other sources to determine that the forest cutting plan is suited to the forest situation and conforms to M.G.L. c. 132, §§ 40 through 46 and 304 CMR 11.00, he may approve a forest cutting plan without a field inspection. The Director shall give top priority to inspections of harvesting operations on watersheds upstream of public surface water supply reservoirs, particularly on watershed upstream of an unfiltered water supply and within ½ mile upstream of the reservoir or river intake.

(6) Special Approval Procedures for Areas Including Rare Wetlands Wildlife Habitat or High Priority Sites.

(a) Rare Wetlands Wildlife Habitat.

1. Upon receipt of a forest cutting plan, the Director or the Director's agent shall consult the most recent edition of the "Massachusetts Natural Heritage Atlas" to determine if the area to be impacted by harvesting falls within an Estimated Habitat of Rare Wetlands Wildlife.

2. If the proposed activity falls within an estimated habitat of rare wetlands wildlife, the Director or the Director's agent shall forward the forest cutting plan to NHESP.

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3. The Director or the Director's agent shall notify the landowner or the landowner's agent that the land subject to the forest cutting plan falls within an estimated habitat of rare wetlands wildlife and that approval of the forest cutting plan shall be delayed until NHESP has completed its 15 day review. As per 304 CMR 11.04(9)(c), the landowner shall be notified that no work can be conducted in areas subject to 304 CMR 11.00 until the forest cutting plan has been approved.

4. Upon receipt of the forest cutting plan, NHESP shall have 15 days to determine whether the proposed harvest will negatively impact estimated habitat of rare wetlands wildlife habitat and report to DEM. If NHESP has not responded within 15 business-days, the Director or the Director's agent shall presume that the forest cutting plan will not affect rare wetlands wildlife.

5. If NHESP determines that the proposed forest cutting plan shall negatively impact the estimated habitat of rare wetlands wildlife, it shall advise the Director or the Director's agent of its finding and recommend mitigation of the impact to the estimated habitat of rare wetlands wildlife.

6. Upon receipt of NHESP's recommendations, the Director or the Director's Agent shall modify the forest cutting plan to avoid negative impacts to the estimated habitat of rare wetlands wildlife and shall send NHESP a copy of the approved forest cutting plan.

(b) High Priority Site of Rare Species Habitat.

1. Upon receipt of a forest cutting plan, the Director or the Director's agent shall consult the most recent edition of the "Massachusetts Natural Heritage Atlas" to determine if the area to be harvested falls within a High Priority Site of Rare Species Habitat.

2. If the harvest falls within a high priority site of rare species habitat, the forest cutting plan shall be forwarded to NHESP.

3. The Director or the Director's agent shall notify the landowner or the landowner's agent that the land subject to the forest cutting plan falls within a high priority site of rare species habitat, and that approval of the forest cutting plan shall be delayed until NHESP has completed its ten day review. The landowner shall be notified that any work conducted before the forest cutting plan has been approved may result in the taking of a rare species in violation of M.G.L. c. 131A.

4. Upon receipt of the forest cutting plan, NHESP shall have ten days to determine whether the proposed harvest may result in the taking of rare species and to report to the Director or the Director's agent. If NHESP has not responded within ten business-days, the Director or the Director's agent shall presume that the forest cutting plan will not affect rare species.

5. If NHESP determines that the proposed harvest may result in the taking of rare species, it shall advise DEM of its findings and make recommendations to avoid the potential taking.

6. Upon receipt of NHESP's recommendations, the Director or the Director's Agent shall modify the forest cutting plan to avoid a potential taking of rare species and send NHESP a copy of the approved forest cutting plan. If the above process has been followed and the landowner complies with the approved forest cutting plan, it shall be presumed that the landowner has avoided any potential violations of M.G.L.c. 131A.

(7) Director's Issuance of an Approved Forest Cutting Plan.

(a) When the Director or the Director's agent approves a forest cutting plan, he shall issue an approved forest cutting plan and a certificate promptly to the landowner, with copies of the approved forest cutting plan sent to the appropriate conservation commission(s) and DEP regional office(s).

(b) If the proposed cutting area is within the watershed upstream of a public surface water supply reservoir, the Director or the Director's agent shall send a copy of the approved forest cutting plan to the responsible water supply authority and the appropriate DEP regional office.

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(8) Appeal of Director's or Director's Agent's Decision Approving a Forest Cutting Plan. An applicant landowner or operator who is aggrieved by a decision of the Director or the Director's agent may appeal the decision within ten days of receipt of the decision, by writing to the Director of Forests and Parks, 19th floor, 100 Cambridge Street, Boston, MA 02202. The Director or his designee shall act as hearing officer and hold an informal hearing within ten days of receipt of the hearing request and render a written decision within five days of the hearing. An applicant landowner or operator may appeal this decision within 30 days to the superior court.

(9) Landowner's Compliance with an Approved Forest Cutting Plan.

(a) The landowner or landowner's agent and the operator are responsible for day-to-day compliance with an approved forest cutting plan.

(b) The landowner or the landowner's agent shall have responsibility for insuring that a copy of the approved forest cutting plan or, where applicable, the proposed forest cutting plan has been provided to the operator.

(c) The landowner may have cutting commence as soon as practical after the approved forest cutting plan has been issued by the Director or the Director's agent, and the required ten business day notification period has elapsed for all required notifications (DEM regional office, local conservation commission(s), and abutters of record on file with the assessor), unless the landowner has received a notice stating that a review by NHESP is required under 304 CMR 11.04(6). If the landowner is operating under the provision to begin operation after the ten business day notification period has elapsed, the landowner shall not operate on wetlands resource areas until the Director or Director's agent has issued an approved forest cutting plan.

(d) The landowner or the landowner's agent shall have the approved forest cutting plan on the site ready for inspection whenever work is done. If logging began without an approved forest cutting plan, a copy of the proposed forest cutting plan must be kept on the site ready for inspection whenever work is done, and all work must follow the proposed forest cutting plan.

(e) If logging began after the ten business day notification period has elapsed and if the Director or Director's agent disapproves the proposed forest cutting plan and the Director or Director's agent can not agree upon acceptable changes with the landowner or the landowner's agent, or if the required information has not been provided, the Director or the Director's agent may stop the work until he or she can issue an approved forest cutting plan.

(f) When a cutting is under way, the certificate shall be posted in a conspicuous place at the entrance to the cutting area. Where possible, it shall be posted next to a public way.

(10) Forest Cutting Plan Amendment.

(a) The landowner or landowner's agent shall notify the appropriate DEM regional office in writing of any change in an approved forest cutting plan, including operator and starting date, before a change takes place.

(b) After the Director or Director's agent has approved a forest cutting plan the landowner or the landowners agent may ask the Director or the Director's agent to amend the approved forest cutting plan in writing. The Director or Director's agent shall determine if the amendment is significant. If the amendment is significant, then the landowner or landowner's agent or operator shall file the amendment to the approved forest cutting plan under the procedures in 304 CMR 11.04. The Director or the Director's agent shall distribute the amended approved forest cutting plan as required in 304 CMR 11.04.

(11) Inspection by Director or Director's Agent and Issuance of Stop Orders.

(a) The Director or the Director's agent may conduct field inspections at any time during the operation. If the operation fails to follow the requirements of M.G.L. c. 132, §§ 40 through 46, 304 CMR 11.00, the approved forest cutting plan or - if applicable - a proposed forest cutting plan, the Director or the Director's agent may issue a stop order to immediately shut down the operation until the deficiency is remedied.

(b) The Director or the Director's agent may inspect operations to check compliance with M.G.L. c. 48, § 16, the Slash Law, and for conformity to M.G.L. c. 132, §§ 40 through 46 including such practices as the possession of a valid timber harvester's license, presence on the lot of a valid forest cutting plan, and the observance of appropriate filter and buffer strip widths.

11.04: continued

(c) The Director or a Directors' agent may issue a stop order for, among other reasons, failure to submit a notice of intent to cut and/or a forest cutting plan before an operation begins, failure to follow the forest cutting plan, starting an operation before the ten business-day waiting period has passed, and failure to correct any deficiency in the plan or the operation pointed out by the Director or the Director's agent.

(d) When the Director or the Director's agent issues a stop work order for an operation, the landowner, the landowner's agent and the operator shall immediately cease operating. The Director or the Director's agent shall work with the landowner or the landowner's agent and the operator to correct the matters not in compliance. The stop order shall stay in effect until the Director or the Director's agent revokes it. If the landowner or the landowner's agent believes the stop order was issued in error, the landowner or the landowner's agent may request the Director to hold a hearing on the stop order. The Director or the Director's designee shall hold the hearing within ten days of receiving a request for a hearing.

(12) Notification of Completed Operation.

(a) The landowner or the landowner's agent must notify the DEM regional office within two weeks of the completion of the operation. If the landowner or the landowner's agent wants to be present at the final inspection, he or she shall notify DEM of this intention at that time.

(b) When an operation is complete the landowner or the landowner's agent shall notify the DEM regional office within two weeks of the completion of the operation, and as soon thereafter as possible a final field inspection shall be made to determine whether the work conformed to the approved forest cutting plan. If notice is given two weeks before the work is finished, the final inspection shall be made within seven days of the completion date; with later notice, inspection may be made within 30 days after the completion date. If the work is satisfactory a final report shall be signed by the Director or the Director's agent certifying compliance with state forestry laws. If deficiencies exist, the final report shall not be signed until they have been corrected. The Director's agent shall then report to said Director on the nature of the operation, its extent, the amount of product cut, and such other information as said Director may require.

(13) Computation of Time. The ten-day waiting period that must elapse between the receipt of notice at the DEM regional office and the start of cutting shall be computed using business-days only. The period shall begin on the first business-day following the arrival of the notice of intent to cut at the regional office and shall end on the tenth business-day thereafter. All other time periods specified in the law or 304 CMR 11.00 shall be computed using calendar days, unless the last day falls on a Saturday, Sunday or legal holiday, in which case the last day shall be the next business-day.

(14) A Landowner's Request for a Determination of Exemption.

(a) If a forest landowner believes that a planned operation is exempt from the requirements of M.G.L. c. 132, §§ 40 through 46 and 304 CMR 11.00, he or she may ask the Director or the Director's agent for an exemption by submitting a notice of intent to cut in the usual way, together with a brief statement about the planned operation and why it should be exempt.

(b) If a landowner requests an exemption and the Director or the Director's agent judges that the operation is exempt, the landowner shall be so notified. If the operation is not deemed exempt, the landowner shall be required to file a forest cutting plan and go through the procedure in 304 CMR 11.00.

(15) Time an Approved Forest Cutting Plan is Valid. An approved forest cutting plan is valid for up to two years from the date of receipt at the DEM regional office. At least 30 days before the expiration date of the approved forest cutting plan, the landowner or the landowner's agent may submit in writing to the appropriate DEM regional office a request for an extension of the forest cutting plan. The request should include the reason for the request. At his/her discretion, the Director or the Director's agent may grant up to two one-year extensions of the forest cutting plan. All logging, engineering and stabilization requirements of the approved forest cutting plan must be fulfilled by the completion date of the operation or by the expiration date, whichever is sooner.

11.04: continued

(16) Landowner's Appointment of a Landowner's Agent.

(a) The landowner, whose land is being operated, may appoint in writing a landowner's agent to execute the necessary forms and give the required notifications. However, the landowner shall sign the proposed forest cutting plan along with the landowner's agent.

(b) The landowner's agent must sign the forest cutting plan and list his or her full name, address, and phone number on the forest cutting plan. The appointment of a landowner's agent does not absolve the landowner of liabilities for failure to comply with 304 CMR 11.00.

11.05: Standards

(1) Cutting Trees.

(a) Silviculture - The intent of these forest cutting standards is to provide the landowner with as much choice as possible in the selection of a silvicultural system suited to meet the landowner's objectives, while ensuring that forest land is cut in such a manner so as to maintain or regenerate a stand of healthy, vigorous growing trees so that the values listed in 11.01(2) are not jeopardized.

It is furthermore deemed to be in the interest of M.G.L. c. 132, §§ 40 through 46 that forest cuttings be properly described in terms of accepted silvicultural methods so that the impacts of the various choices can be reasonably understood and measured by both the landowner and the Director or the Director's agent. However, it is also understood that the variable character of Massachusetts' forests do not always lend themselves to purely textbook application of the listed systems so that leeway shall be given to the landowner to design a system best suited to meet his or her needs.

1. For each stand to be harvested, the landowner shall:

a. list the forest type on the forest cutting plan and associated maps using the types listed in 304 CMR 11.05(1)(a)7.

b. designate the trees to be harvested by marking, as defined, or by a detailed description in the forest cutting plan of the size, species, and quality of trees to be cut and the percentage of the basal area to be removed. The trees to be cut, the trees to be left standing, or the boundary of the cutting area must be clearly marked so as to be discernable by the Director or the Director's agent from the time the forest cutting plan is submitted through the duration of the operation.

c. state his or her management objectives on the forest cutting plan.

d. state the silvicultural system to be used, selected from those listed under 304 CMR 11.05(1)(a)6., and state whether it is an intermediate cut or a regeneration cut.

e. if the operation is a regeneration cut the landowner shall state the method used and the expected source of regeneration.

f. if the operation is an intermediate cut the landowner shall state the type of intermediate cut employed.

g. exceptions to or deviations from these standards or the listed silvicultural systems shall require a narrative justification and approval by the Director or Director's agent. The justification should be based upon silvicultural principles and shall state the future desired condition of the stand. Allowable exceptions include, but are not limited to, practices designed to meet the purposes listed in 304 CMR 11.01(2).

2. Clearcutting, coppice cuts, or any regeneration cut leaving less mature trees than those required for a seed tree cut (excepting the removal cut of shelterwood, seed tree or similar systems where, in the judgment of the Director's agent, the advance regeneration is of suitable size and stocking for release) shall meet the following standards:

a. The maximum size of the opening created shall be ten acres unless the source of the regeneration is seeding from surrounding stands, in which case the maximum size shall be five acres. Clearcuts larger than these limits shall require a specific reason to be given and approved in the forest cutting plan showing that environmental impact is less, or that environmental benefits would be enhanced, by a larger cut. In these cases, the forest cutting plan must also state the silvicultural justification for the larger area and list the provisions necessary to insure adequate regeneration and mitigation of environmental impacts.

b. Clearcuts separated by less than 100 feet of forest maintained at or above "B-Level" stocking shall be considered to be one clearcut.

11.05: continued

c. Clearcutting cannot occur within filter and buffer strips, on slopes of 60% or more, or within wetlands.

d. Where regeneration of a clearcut is to be obtained by seeding from surrounding uncut mature stands of light-seeded species, the clearcut shall be so shaped that all parts are within the effective seeding range of the dominant tree species within the adjoining uncut mature timber stand. The adjoining stand must be at least 2½ acres in size.

3. For seed-tree regeneration cuts, at least four seed trees of 20 inches D.B.H. or greater, or 12 seed trees of 14 to 20 inches D.B.H. must be left per acre. Seed trees must be full-crowned healthy trees of light seeded species of seed bearing age, well-suited to the site and left well distributed over the area.

4. For any regeneration cut, one of the following standards must be met:

a. More than 1,000 seedlings, seedling sprouts, saplings, or sapling sprouts per acre of tree species well suited to growing on the site are present as advance regeneration.

b. The stand shall be replanted with at least 1,000 seedlings per acre of tree species well suited to growing on the site.

c. The stand shall be direct seeded with seed of a tree species well suited to growing on the site in sufficient numbers to insure 1,000 seedlings per acre under normal conditions, or,

d. In the determination of the Director or the Director's agent, the conditions exist to meet the same standards as 304 CMR 11.05(1)(a)4.a. within five growing seasons through natural seeding and sprouting.

5. For any intermediate cut, the residual stand must contain sufficient numbers of healthy, undamaged trees greater than five inches D.B.H. to constitute a stocking level at or above "C-level" on the appropriate stocking chart.

6. Standard silvicultural systems

a. Even-aged systems

i. Clearcut

ii. Seed-tree

iii. Shelterwood

iv. Coppice

v. Coppice with standards

b. Uneven-aged systems. Selection

The *Chapter 132 Guidance Manual*, available through the DEM regional offices, contains descriptions of these systems as well as a listing of applicable silvicultural references.

7. Forest Types. All forest cutting plans shall identify forest types according to the following classification:

WP White Pine - Eastern white pine is pure or predominant. Grows well on moist sandy loam soils.

WK Eastern White Pine and Eastern Hemlock - A large assortment of hardwood is found with these conifers. Pine usually predominates. Although found in all counties, more usually found in Plymouth, Worcester and counties west.

WH White Pine - Hardwoods - Eastern white pine, northern red oak and other hardwoods predominate with red maple as the chief associates. Rarely a permanent type, but tends to develop into WK.

WO White Pine - Oak - Eastern white pine and northern red oak or black oak predominate. Type has some chestnut oak but usually black, red or scarlet. An assortment of hardwoods are associated.

RP Red Pine - Red pine, although able to reproduce naturally, is mostly found in plantations.

PP Pitch Pine - Pitch pine is pure or predominant. Chief associates are chestnut, scarlet and red oak. Found on dry soils predominantly near the coast, Cape Cod and Plymouth County, and scattered dry sites in Worcester, Franklin and Hampden Counties.

PO Pitch Pine - Oak - Pitch pine predominates with scarlet or red oak. In Massachusetts, found where the pure pitch pine type is found and usually the result of fire or cutting.

11.05: continued

HK Hemlock - Eastern hemlock is pure or predominant over many associates. Found throughout Massachusetts but more prevalent in Plymouth and west of Connecticut River. Often is the result of cutting of pine in a WK stand. Uncommon as a natural pure stand.

HH Hemlock - Hardwoods - Hemlock and yellow birch dominates the mixture with sugar maple, beech and red oak as associates. Found on moist sites.

TK Tamarack (Larch) - Tamarack is pure or predominant in the stand. Always associated with moist or wet sites. Uncommon and found mostly in north-western Massachusetts in very scattered stands.

CD Cedar - Either Atlantic white cedar or eastern red cedar are predominant over any other associates.

SN Spruce, Norway - Norway spruce is either pure or predominant and is the result of artificial reforestation.

SR Spruce, Red - Stand dominated by red spruce and associated hardwoods such as yellow birch, sugar maple, red maple and beech. Natural stands found only in Berkshire and northern Franklin Counties predominantly on upland sites.

SF Spruce - Fir - Stand consists predominantly of red or black spruce and balsam fir. Common associates are red maple and paper birch. Found only as a natural stand in Berkshire and northern Franklin Counties predominantly on wetter sites.

OR Northern Red Oak - Northern red oak is predominant with other oaks being the chief associates.

OH Oak - Hardwoods - Stands contain mixtures of red, white, black and scarlet oak, hickories and associated other hardwoods. Oaks and hickories predominate.

OM Mixed Oak - Stands predominantly black, white and red oak with associates of maple and birch. If treated, these stands usually become red oak only.

BW White Birch - White birch is pure or predominant. Pioneer type that is succeeded by spruce-fir, white pine or northern hardwoods.

BM Gray Birch - Red Maple - Gray birch and red maple predominate. Generally a pioneer type found on abandoned fields, tend towards dry sites but found in some moist areas.

BB Beech - Birch Maple - The true northern hardwood type - sugar maple, yellow birch and beech are the component species; many associated species. Climax type throughout Massachusetts, but predominantly in western Massachusetts.

BE Beech - Stands predominantly beech and sugar maple. Due to past cuttings, stands may be predominantly beech.

BL Black Locust - Black locust is pure or predominant. Often, initially the result of artificial reforestation. Many associated species.

PC Pin Cherry - This is a temporary type usually found for a few years after a clearing operation (either clear cutting or after a fire). Common associates are mixtures of many hardwoods.

BC Black Cherry - Northern hardwoods predominate, with black cherry the most common species.

RM Red Maple, Swamp Hardwoods - Stands are pure or contain mixtures of red maple, silver maple, black and green ash, American elm, river birch and sycamore. A large number of associated species are found in these forested wetlands.

SM Sugar Maple - Sugar maple is either pure or predominant. Small proportions of other northern hardwoods are found. Often the results of sugarbush management.

PA Poplar, Aspen or Willow - Stands dominated by quaking aspen, bigtooth aspen or willow. Paper birch, pin cherry and red maple are common associates of this pioneer type.

OT Other - Describe on forest cutting plan.

(b) All trees within or on the boundaries of a public way are *public shade trees* and are subject to special regulation under M.G.L. c. 87. The town tree warden or the designated city offical administers M.G.L. c. 87. Before such trees can be cut, the appropriate municipal official must give permission, after a public hearing.

11.05: continued

(c) Buffer strips shall be left along the edges of publicly maintained ways (except along forest management roads in federal, state, county or municipal forests, parks or reservations) to improve the visual quality of the landscape. Within these buffer strips, unless public safety along the road requires a different standard, no more than 50% of the basal area shall be cut at any one time and a waiting period of five years must elapse before another cut is made. The residual stand shall be composed of healthy growing trees well distributed over the area. Slash shall be disposed of as required by M.G.L. c. 48, § 16. Buffer strips shall extend 50 feet back from the outer edge of the highway, except for designated scenic roads, where it shall be 100 feet.

(d) Filter strips shall be left along the edges of all water bodies and Certified Vernal Pools. No more than 50% of the basal area shall be cut at any one time and a waiting period of five years must elapse before another cut is made. The residual stand shall be composed of healthy growing trees well distributed over the area. Exceptions to this standard may be granted by the Director or the Director's agent, if it is shown in the forest cutting plan that a heavier cut is necessary to protect the stream, the bank or water quality. Equipment restrictions within filter strips are listed under 304 CMR 11.05(2): Engineering and Logging. The filter strip shall extend 50 feet back from the bank, except in the following cases (all distances shall be measured along the slope):

1. Where slopes within the filter strip are 30% or greater, the filter strip shall extend 100 feet back from the bank, or to the point between 50 and 100 feet from the bank, where a break in the topography reduces the slope to less than 30%.
2. Along Outstanding Resource Waters and their tributaries (excluding Vernal Pools and bordering vegetated wetlands), streams which are 25 feet or more from bank to bank, and ponds of ten acres or greater, where the "Variable filter strip widths for municipal watersheds and critical areas" (Table 1) shall be used.

Table 1. Variable filter strip widths for municipal watersheds and critical areas. Required along Outstanding Resource Waters and their tributaries, streams measuring greater than 25 feet, bank to bank, and ponds greater than ten acres.

Slope (%)	Filter strip width (feet)
0	50
10	90
20	130
30	170
40	210
50	250
60	290
70	330
80	370
90	410
100	450

(e) Bordering Vegetated Wetlands require close attention to insure that they continue to perform their special water quality functions. No more than 50% of the basal area shall be cut at any one time as single trees or in small patches, and a waiting period of five years shall elapse before another cut is made. The residual stand shall be composed of healthy growing groups of trees well distributed over the site. Slash shall be disposed of as required by law (M.G.L. C. 48, § 16). Each area where trees will be cut in a wetland must be accurately shown on the forest cutting plan map, and the forest cutting plan must state the acreage of wetlands to be cut.

(f) For certified vernal pools, the landowner and operator shall keep tree tops and slash out of the pool depression. If an occasional top does land in the pool, the operator shall leave it only if it falls in during the breeding season (approximately March 1 through July 1) and its removal will disturb newly laid eggs or newly hatched amphibians.

(g) In high elevation land, the landowner may need special permits from the Conservation Commission in towns that have adopted M.G.L. c. 131, § 39A which provides for the Protection of the Mountainous Regions of Berkshire County

11.05: continued

(h) Scenic rivers - Cuts in areas designated under federal and state laws as scenic rivers or wild and scenic rivers may be subject to additional management requirements. *See* 16 U.S.C. §§ 1271 through 1287, and 21 M.G.L. § 17B, and 302 CMR 3.00 through 3.21.

(2) Engineering and Logging

(a) Roads, skid roads and skid trails shall be laid out, constructed, maintained and stabilized according to the principles set forth in the BMP Manual.

1. Adequate drainage ditches, culverts, and water bars shall be provided and runoff shall be led into appropriate filter strips or hay bale impoundments to remove sediments before discharging into wetlands, water bodies, or Certified Vernal Pools.

2. All principal skid trails shall be stabilized whenever they are to be left inactive for a period of over one month, or whenever the Director or the Director's agent determines such work to be necessary. All necessary and required erosion control and stabilization work shall be performed by the completion of the operation.

3. The forest cutting plan must include a narrative of the erosion control measures to be used. The forest cutting plan map must show the location of all truck roads, principal skid roads, stream and wetland crossings, and general skid road locations, as well as the general location of appropriate erosion control measures.

4. Special care shall be taken on sustained steep slopes (grades of 30% or more for a slope distance of 200 feet or more) to prevent erosion from roads, skid roads and skid trails by closely following the drainage and erosion control practices listed in the BMP Manual, particularly the water bars and other measures needed to stabilize steep skid roads. When such steep slopes are operated, the specific measures to be used to control erosion on these areas must be detailed in the forest cutting plan, and the steep slope areas must be indicated on the forest cutting plan map.

5. Wheeled or tracked harvesting equipment shall not be operated on slopes of 60% or more unless special permission is given by the Director or the Director's agent in the forest cutting plan. In these cases, the applicant must show that the soils are stable and that measures shall be used to minimize erosion during and following the operation.

(b) Wetland Resource Areas and Certified Vernal Pools shall have the following special attention:

1. Wetland resource areas that shall be crossed or logged in or lie adjacent to any harvesting activity shall be accurately shown and labeled on the forest cutting plan map.

2. Every reasonable effort shall be made, including trying to obtain a right-of-way over abutting ownerships, to avoid or minimize access through wetland resource areas. Where a crossing is essential, then existing old accessways shall be rehabilitated and used provided it is shown that this shall cause less disturbance than constructing a new accessway. Rehabilitation and new construction shall be done to the standards contained in the BMP Manual. Temporary forest drainage structures shall be removed at the completion of the operation and the site shall be stabilized. The installation of permanent stream crossings and the construction of permanent roads involving fill in wetland resource areas requires the approval of the town conservation commission under M.G.L. c. 131, § 40.

3. Bordering vegetated wetlands shall not be operated except when the ground is frozen, dry or otherwise stable enough to support the logging equipment used. When these conditions are not met, the forest cutting plan requires special approval by the Director or the Director's agent, after showing it shall help avoid significant environmental damage. The locations of such crossings shall be marked on the ground by paint or flagging when the forest cutting plan is filed, and clearly shown on the forest cutting plan map. If for any reason the crossing needs to be changed during the operation the Director or the Director's agent must be notified for approval, but no amendment of the forest cutting plan would be necessary if the site conditions and method of crossing remain the same.

4. Certified Vernal Pools - No equipment shall be allowed to operate within the vernal pool depression at any time of the year. Within the 50 foot filter strip, the filter strip restrictions must be followed.

11.05: continued

5. All stream crossings shall be built, maintained, and stabilized according to the principles set forth in the BMP Manual, and by methods shown on the table below. All stream crossings shall be made at right angles to the stream channel. When crossings involve fill or other closed or semi-closed structures which will obstruct flow, they shall be designed to accommodate at least the 25-year storm and built and maintained to the standards set forth in the BMP Manual. All banks and approaches to stream crossings must be adequately stabilized. All stream crossings shall be accurately mapped and labeled on the forest cutting plan map and marked on the ground with paint or flagging at the time the forest cutting plan is filed. If for any reason the crossing must be changed during the operation the Director or the Director's agent must be notified for approval, but no amendment of the approved forest cutting plan would be necessary if the site conditions and method of crossing remain the same.

Table 2. Acceptable mitigation methods for crossing streams.

Banks	Streambed	Acceptable Mitigation Methods
Shallow (<1 ft.)	Rocky	Ford (with approaches stabilized),corduroy, culvert, bridge
	Soft	Corduroy, corduroy with culvert,bridge
Steep (>1 ft.)	Rocky	Corduroy, culvert, bridge
	Soft	Corduroy, culvert, bridge

6. Where a culvert is to be used, the forest cutting plan must state the diameter of the culvert based upon the culvert sizing table in the BMP Manual.

7. Within 1,000 feet upstream of a public water supply reservoir, measured along the course of the stream from the highwater mark of the reservoir, all stream crossings must use a temporary bridge. Exceptions to this require filing of an environmental notification form in compliance with 304 CMR 11.04(2)(f).

8. All soils exposed during work shall be stabilized as needed according to the standards set forth in the BMP Manual.

(c) Filter Strips shall be left along the edges of all water bodies and Certified Vernal Pools. To prevent soil compaction it is essential that no logging equipment run over the surface of the ground within the filter strip, except

1. to reduce environmental damage which is shown to be necessary by a statement in the approved forest cutting plan, or

2. at a stream crossing, or

3. on a pre-existing logging road or

4. in filter strips greater than 50 feet, beyond 50 feet from the water body.

In these cases, equipment can operate in the area beyond 50 feet of the waterbody in order to harvest trees, provided that no principal skid trail is located within the filter strip, that disturbance of the forest floor is kept to a minimum, and any disturbed soil is promptly stabilized. In all cases, cut trees shall be pulled out of the strip and slash shall be treated as required by law (M.G.L. c. 48, § 16).

(d) Landings shall have all unnatural debris such as cans, papers, discarded tires, metal parts and other junk removed. Waste wood such as branches, cut log ends and logs shall be placed neatly to improve the appearance of the landing and promote rapid decay. The soil shall be stabilized and if necessary seeded to grass at the end of the operation. To reduce the tracking of mud onto public roads to a safe level during the operation, part of the access road shall be graveled or mulched, or use shall be curtailed during wet weather or mud shall be immediately removed from the public road.

(3) Volume Standards. For the purposes of determining volumes on lots claiming an exemption or on lots where no forest cutting plans are filed, or for settling disputes relative to M.G.L. c. 132, §§ 40 through 46, the following standards shall be used (merchantable material left on the lot, but not utilized, shall be included):

(a) Equations - All volumes shall be measured in terms of board feet or cords. Board foot and cord volumes are defined as follows:

11.05: continued

1. Board foot volumes shall be computed using the Form Class 78 International ¼-Inch Log Rule. The formula is:

Install Equation Editor and double-click here to view equation.

where,

DBH = diameter at breast height
HT = merchantable height in feet
F = 0.78

2. Cord volume shall be computed using a conversion factor of one cord equals 80 cubic feet of solid wood. The formula for computing cubic foot volume is as follows:

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where:

$V1 = .001 \times DBH$
$V2 = 1.94 + (.01 \times DBH)$
$V3 = (.026 \times HT) - (.000156 \times HT^2) + (.32 : HT)$

3. For the purpose of determining threshold volumes on harvests involving both board feet and cords, two cords shall be considered equal to 1,000 board feet.

(b) Measurement Standards

1. Board Feet - minimum diameters for board foot volume are assumed to be ten inches DBH for both softwoods and hardwoods to an eight-inch top-diameter (outside bark).
2. Cordwood - minimum diameters for cubic foot volume are six inches DBH to a four-inch top diameter (outside bark).
3. DBH - diameter at breast height (four and one-half feet) to the nearest one-inch class (for example, a 10-inch tree ranges from 9.6 to 10.5 inches). If the trees have been severed, the DBH shall be estimated using the equations and procedures given in "Predicting Diameter at Breast Height for Stump Diameters for Northeastern Tree Species" by Eric H. Wharton, USDA Forest Service, NE-322, 1984. Stump heights are assumed to be one foot or less.
4. Height - height shall be measured (or estimated) in number of half-logs to a top diameter outside the bark of eight inches for sawlogs and four inches for cordwood. A half-log is eight feet. If the trees are cut, the height shall be measured either using the tops left, if in place, or by making a local height over diameter curve from trees left within the cut. If all trees and tops are removed, the height-over-diameter curve shall be made from the closest like timber stand.
5. Soundness - Trees shall be given full measure for height and diameter. Any defect in the tree shall be accounted for by application of a soundness factor, as shown in Table 3. The volume to be deducted for defect from each half-log shall be obtained by multiplying the soundness factor by the gross volume of the half-log. The half-log volume shall be determined by multiplying total tree volume by the appropriate percentage from Table 4.

Table 3. Determining tree defect (soundness).

Soundness Class	Factor	Soundness Range
1	1.00	96 - 100
2	.93	89 - 95
3	.86	82 - 88
4	.78	73 - 81
5	.65	50 - 72

11.05: continued

Table 4. Guide to the percentage of a tree's total volume contained in each half-log.

Log Height	Number of half-logs									
	1	2	3	4	5	6	7	8	9	10
1.0	56	44								
1.5	41	32	27				Percentage of total			
2.0	33	26	22	19			volume per half-log			
2.5	27	23	19	17	14					
3.0	24	20	18	15	13	10				
3.5	22	19	17	14	13	9	6			
4.0	20	17	16	13	12	9	8	5		
4.5	19	16	15	12	11	9	8	6	4	
5.0	18	15	13	12	11	9	8	6	5	3

Half-logs less than 50% sound shall not be tallied. The soundness factor shall be applied to the volume measure of half-logs of sound volume greater than or equal to 50%.

6. Tops - the tops of sawlog trees shall not be included for the purposes of determining the threshold volumes when they are lopped in accordance with the slash law (M.G.L. c. 48, § 16).

11.06: Rare and Endangered Species

M.G.L. c. 131A (The Massachusetts Endangered Species Act) and 321 CMR 10.00 prohibit the taking of any state-listed rare plant or animal species. Forest cutting plans must comply with the applicable endangered species statues and regulations. Forest cutting plans for lands containing estimated habitat of rare wetlands wildlife or high priority sites of rare species habitat are subject to the special approval procedures in 304 CMR 11.04(6).

11.07: Guidelines

Although the following practices are not mandatory under M.G.L. c. 132, §§ 40 through 46, their adoption is strongly recommended because they will benefit both the landowner and the public. If any of these practices are made part of an approved forest cutting plan, they become legal requirements.

(1) Wildlife Habitat Protection. Wildlife of various kinds have special habitat requirements. The harvesting of trees creates changes which may benefit some species and harm others. Silvicultural systems may be designed to improve habitat conditions for some species or to protect habitat. Landowners seeking specific information of species habitat requirements can refer to the document: "Forest Wildlife of Massachusetts" by DeGraaf and Richards, available through the Cooperative Extension Service, or can ask their Service Forester for advice.

(2) Vernal pools. Vernal pools provide critically important habitat for a number of rare and endangered species in Massachusetts. Certain precautions should be taken when harvesting in the vicinity of such pools to minimize impacts and preserve the character and physical environment that these species require. Although these pools may only actually be filled with water for a brief period of time in the spring, the most important measure that can be taken to protect the habitat is to recognize pool locations even in the "dry" season and take precautions to preserve the local environment around the pools. Several standards within 304 CMR 11.00 apply to "certified vernal pools." Application of those standards, and the guidelines listed below, to all vernal pools will further protect and enhance these critical habitats.

(a) Heavy equipment should not be permitted in vernal pool depressions at any time of the year. It is also necessary to avoid locating landings, skid roads or haul roads through or near these depressions. It is important that the depressions not fill in with sediment from nearby areas of disturbed soil.

(b) Similarly, stacking logs or otherwise creating soil compaction in vernal pool depressions should not be permitted.

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(c) Operating logging machinery within approximately 50 feet of a vernal pool during mud season (generally March and April), should be avoided. Ruts deeper than six inches can disrupt migration routes of endangered salamanders. There should be no ruts deeper than six inches within 200 feet of a vernal pool. Similarly, the actual vernal pool depressions should not be physically altered so that its ability to seasonally hold water is impaired.

(d) Tree tops or slash should not be allowed to fall or be placed into vernal pool depressions. While many amphibians use downed woody material to attach their eggs to, no additional material should be added to a pool. If tops or branches do fall into a depression, they should be removed. Similarly, existing natural woody material should *not* be removed from vernal pool depressions.

(e) It is important that the temperature and relative humidity at the soil surface be maintained in the cool, moist condition necessary for amphibians that use vernal pools. Thus, it is important that these vernal pools and an area within 50 feet of these pools be maintained in a shaded and mostly undisturbed condition.

1. Clearcutting should not be permitted in these areas. Some forest cover must be maintained to provide continuous shade and protection from high temperatures at the soil surface. It is necessary to not leave only trees with small or damaged tops, or those that appear to be dead or dying. Established understory vegetation such as mountain laurel, hemlock, or naturally established advanced regeneration can provide shade. Similarly, shade can be provided by vigorous hardwood sprouting following a harvest.

2. Disturbance of the mineral soil within 50 feet of a vernal pool depression should be avoided for several reasons. First, it is important that sediment not accumulate in vernal pool depressions. Second, the exposure of mineral soil removes the natural insulation provided by the accumulated litter on the forest floor. This litter can be several inches thick, and can keep actual soil moisture and temperature from getting too high, even if exposed to direct sunlight. For these reasons, it would be best to operate in the vicinity of vernal pool depressions when the ground is frozen and covered with snow. Under other dry conditions, it would be advisable to not operate machinery within 40 feet of a pool depression, and to winch timber (if any is cut within this radius) out of this area. Finally, it would be advisable not to operate within 50 feet of a vernal pool depression during mud season, so as to not create ruts.

(3) Isolated Vegetated Wetlands. These are areas that are generally saturated by groundwater or covered by surface water long enough to produce hydric soil conditions and which, under normal circumstances, support wetland plant communities. Isolated wetlands have many of the same characteristics as bordering vegetated wetlands, except that they do not border on a pond, lake, or stream, and are therefore not defined as wetland resource areas by M.G.L. c. 131, § 40.

Isolated wetlands may perform some important water quality functions, and may also provide wildlife habitat. In order to maintain their ability to perform these functions it is suggested that the standards required for Bordering Vegetated Wetlands also be applied to isolated wetlands, that is; avoid them if possible, cross them only when the ground is dry, frozen, or otherwise stable, and harvest no more than 50% of the basal area at any one time.

(4) Riparian areas. Land immediately adjacent to streams and rivers (riparian areas) are important for the protection of water quality, fish and wildlife habitat. Forested riparian areas filter sediment, pollutants, and nutrients from surface runoff, slow water movement, and reduce flooding, provide streams with shade and a source of nutrients, provide habitat for fish and wildlife, and serve as migration corridors for animals. Filter strips along streams and water bodies serve to protect water quality during timber harvesting (*see*: 304 CMR 11.05: Standards). The following guidelines may be used to provide additional protection for sensitive streams (tributaries to water supply reservoirs, high-quality trout streams, and rare species habitat) as well as protection for fish and wildlife habitat.

(a) In riparian areas runoff is slowed as it moves across and through plants, leaves, and other debris on the forest floor, dropping sediment carried in the water. This settling process keeps sediments and nutrients from flowing into lakes and streams. Some of the water soaks into the soil reducing peak flow levels in streams and replenishing groundwater that helps maintain stream flows. Plant roots take up nutrients that have dissolved in the runoff and

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soaked into the soil, further reducing the amount of pollution carried into lakes and streams. It is important to protect the characteristics of riparian areas that remove sediments and nutrients, prevent erosion, and control flooding.

1. Maintain a 15-foot no-cut zone along high quality streams, tributaries to water supply reservoirs, and streams that provide habitat for rare species.

2. Use variable width filter strips (*see*: 304 CMR 11.04: Standards) for high quality trout streams and streams that provide habitat for rare species.

3. Avoid soil compaction and rutting within 200 feet of streams.

(b) Trees and shrubs along stream banks shade streams, reducing summer water temperatures and increasing dissolved oxygen in the water. Cold-water fish such as trout require cool water and high levels of dissolved oxygen. Stream shading is critical for maintaining cold-water fisheries.

Plants along the stream banks are an important source of nutrients for stream ecosystems. Leaves, seeds, fruits, and invertebrates that fall into the water from overhanging plants can account for up to 75% of the nutrients in some streams. Tree limbs and branches that fall into streams provide cover for fish and other aquatic organisms, as well as perches and basking areas for reptiles, amphibians, and birds. Large trees that fall into streams often create riffle areas and plunge pools, critical habitat for fish and other aquatic organisms.

The roots of trees growing on or near stream banks stabilize the soil and reduce erosion. Exposed tree roots and undercut banks along streams also provide important cover for wildlife.

1. Maintain a 15-foot, no-cut zone along high-quality trout streams and streams that provide rare species habitat.

2. Minimize the cutting of trees directly on the stream bank. Allow large trees and snags to remain within the riparian zone. Do not create large openings in the canopy within these areas, especially along trout streams.

3. Avoid, to the extent possible, the use of riprap to stabilize banks.

(c) Riparian areas are particularly valuable habitats for wildlife. Songbird diversity and abundance tend to be higher in riparian forests than in other forested areas. Many birds, reptiles, and amphibians are dependent on streams and areas adjacent to them (water thrushes, kingfisher, mink, wood turtle, two-lined, dusky, and spring salamanders). Forested riparian areas are also important migration and dispersal corridors for wildlife. Habitat quality can be maintained in riparian zones by protecting certain habitat characteristics. Reptiles and amphibians may be concentrated in areas close to streams; minimizing disturbance in these areas will also help protect local populations of these species.

1. Maintain areas within 200 feet of a stream in a forested condition.

2. Minimize the use of heavy equipment within 200 feet of streams and other water bodies.

3. Preserve important habitat characteristics within 200 feet of streams and water bodies (stone walls, rock jumbles, understory tangles, down logs, hollow logs, snags and trees with cavities).

(5) Engineering and Logging Guidelines are listed in the BMP Manual.

(6) Contracts. A written contract for a timber sale is critically important to insure that the landowner and operator are both aware of their rights and responsibilities. In some instances, the landowner should require a performance bond. The landowner should be assured that the operator carries adequate insurance. In many instances, the parties may find it desirable to make the approved forest cutting plan a part of the timber sale contract.

11.08: Timber Harvester License

(1) The Director shall issue a Massachusetts Timber Harvester License annually to a person, firm, or corporation when the applicant:

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(a) submits a completed application on a form approved by the Director;
(b) pays by a negotiable check or money order the currently established annual fee;
(c) submits evidence that the applicant is familiar with, and has consistently complied with, the Massachusetts and applicable federal laws governing forest land, forestry, and forest harvesting; and
(d) certifies that the applicant is in compliance with state tax laws and other state and local laws, ordinances, and regulations governing forestry property, public health, and safety.

(2) A timber harvester license is valid only for the person which it is issued. A firm or corporation may hold a timber harvester license for employees identified on its application; however, each employee so named shall meet the requirements of 304 CMR 11.08(1)(a), (c) and (d). Every person, firm, or corporation harvesting wood products for hire or profit on an operation not exempt from M.G.L. c. 132, §§ 40 through 46 shall have his, her or its own timber harvester license.

(3) The landowner or the landowner's agent shall notify in writing the Director or the Director's agent of the name, address, phone number, and license number of all licensed timber harvesters operating under an approved forest cutting plan.

(4) The landowner shall have a licensed timber harvester on the site whenever work is done.

(5) Each licensed timber harvester shall obtain a copy of the approved forest cutting plan and have a copy on the site whenever work is done. The licensed timber harvester is responsible for compliance with the terms of the approved forest cutting plan and 304 CMR 11.00.

(6) After an opportunity for hearing is provided, the Director may revoke or suspend a licenses for any violation of M.G.L. c. 132, §§ 42 through 46 or regulations promulgated thereunder. The Director shall consider evidence of criminal conviction in another jurisdiction under laws and regulations analogous to those identified in 304 CMR 11.08(1)(c) and (1)(d), or revocation of a timber harvester license issued in another state, sufficient ground for withholding, suspending, or revoking a Massachusetts Timber Harvester License.

11.09: Severability

If any provision of any part of 304 CMR 11.00, or the application thereof, is held to be invalid, such invalidity shall not affect any other provision of 304 CMR 11.00.

11.10: Effective Date

(1) 304 CMR 11.00 shall take effect on January 1, 1996 and shall apply to all notices of intent to cut and forest cutting plans filed on or after that date and any subsequent procedures related to such filings made on or after that date.

(2) All proceedings and actions commenced under M.G.L. c. 132, §§ 40 through 46 prior to the effective date of 304 CMR 11.00 shall remain in full force and effect under the prior applicable regulations except that the Director or the Director's Agent shall not grant more than one one-year extension any forest cutting plan approved prior to the effective date of 304 CMR 11.00.

REGULATORY AUTHORITY

304 CMR 11.00: M.G.L. c. 132, §§ 40 through 46.