

Maine Land Use Planning Commission

Department of Agriculture, Conservation and Forestry



BASIS STATEMENT AND SUMMARY OF COMMENTS

FOR AMENDMENTS TO

CHAPTER 10: *LAND USE DISTRICTS AND STANDARDS REGARDING*

ROADS AND WATER CROSSINGS

May 8, 2019

STATUTORY AUTHORITY:

12 M.R.S. § 685-A, Subsection (3)

12 M.R.S. § 685-C, Subsection (5)(A)

EFFECTIVE DATE OF THE RULE AMENDMENT:

FACTUAL AND POLICY BASIS FOR THE RULE AMENDMENT:

The primary objectives of this rulemaking were to update the standards regarding roads and water crossings to be more consistent with the Maine Department of Environmental Protection's (DEP) standards in 06-096 CMR 305, Permit By Rule; to enhance public safety; and to provide for aquatic habitat connectivity in flowing waters. The proposed amendments also reorganize Section 10.27,D, Roads and Water Crossings, to improve readability.

Key changes to the rules include:

- A reorganization to group standards by roads, water crossings, and wetland crossings.
- Additional and improved provisions to minimize erosion and sedimentation of surface waters.
- New requirements for maintenance of roads, drainage structures, and crossings.
- A new instream work window of July 15 to September 30.
- New standards for temporary crossings.
- Improved standards for permanent crossings including sizing standards to accommodate a 25-year frequency storm event, a width standard for sizing crossings, a requirement to embed culverts below the streambed elevation, and a requirement for natural substrate installation for certain larger crossings.

PUBLIC NOTICE OF RULEMAKING

At a meeting held on January 10, 2019, the staff presented to the Commission the draft rule revisions and requested to post the revisions to public comment. The Commission voted to post the revisions including two amendments to public comment with a 30-day public comment period.

Notice of the rulemaking was provided in the Secretary of State's consolidated rulemaking notice on March 6, 2019. The Secretary of State's notice appeared in the Bangor Daily News, Kennebec Journal, Portland Press Herald, Lewiston Sun-Journal, and the Central Maine Morning Sentinel. E-mail notice was also provided to approximately 1,254 individuals. These included the Commission's mailing list of persons wishing to be contacted regarding issues relating to rule revisions and NRPA consistency. The notice was also e-mailed to several State agencies, Federal agencies, County administrators, contacts for tribal consultations, conservation organizations, and industry trade groups. In addition, the notice of the rulemaking and the proposed revisions were posted on the Commission's web site.

The record remained open until April 5, 2019 to allow interested persons to file written statements with the Commission, and for an additional 7 days until April 12, 2019 to allow interested persons to file written statements in rebuttal of statements filed up to April 5, 2019.

COMMENTS AND RESPONSES:

1. Standards for All Crossings

1.1. Summary of Comment

Would LUPC ever review crossings that are in DMR's purview e.g. for smelt or alewives, perhaps on one of the islands or Downeast somewhere? Maybe the Commission should add "and/or DMR" to the standard requiring Maine Department of Inland Fisheries and Wildlife (IF&W) approval to work outside of the in-stream work window.

Commenter

Army Corps of Engineers

Response

In consideration of this comment, the Commission consulted with the Department of Marine Resources (DMR). For crossings of non-tidal flowing waters in coastal locations, DMR felt that IF&W timing approval was sufficient. Crossings of coastal wetlands including tidal flowing waters, are not uses that are allowed without a permit subject to standards. Permits are required for crossings of tidal streams, and in-stream work windows for these crossings can be addressed during the permit application review process.

Action

No action taken.

1.2. Summary of Comment

A standard should be added that requires equipment to be cleaned of all vegetation and soil before transport to a new job site to prevent spread of invasive species, and to minimize spillage of engine fluids from getting into the water or soil.

Commenter

The Nature Conservancy

Response

The Commission has considered and understands the concerns raised by the commenter, but concluded that, given the extent and rural nature of its service area, requiring that equipment be washed between job sites is not practicable. Attempts for compliance with this type of standard could result in onsite surface water withdrawals during low flow periods and potential discharges of sediment or engine fluids into streams.

Action

No action taken.

2. Fords

2.1. Summary of Comment

There were several comments received relating to the proposed standards for fords:

- a. The Department of Environmental Protection (DEP) is reportedly not a fan of fords and tends not to permit them. Should the LUPC be encouraging them, albeit subtly?
- b. The standards should limit the width and length of stream fords allowed by standard.
- c. The standards should specify a minimum depth of water and velocity that must be maintained through a ford at low flow conditions to clarify what is meant by “allowing fish passage.”

Commenter

Army Corps of Engineers

Response

The DEP has standards for fords in its current Permit-by-Rule program, 06-096 CMR 305 (PBR). The Commission’s original intent with including fords was to be more consistent with the PBR standards. However, after considering the comments and the limited applicability of the standards for fords, as drafted, the Commission decided to remove all of the ford related standards from Section 10.27,D,2,b, of the rule. Most water crossings associated with timber harvesting and agricultural management are regulated by the Maine Forest Service.

Action

The Commission deleted Section 10.27,D,2,b in its entirety:

- ~~**b. — Fords. Fords associated with timber harvesting or agricultural management activities must:**~~
- ~~(1) — Be less than 8 feet in width;~~
 - ~~(2) — Be lined with geotextile fabric or other equally effective material; and crushed stone, blasted ledge, washed stone, or gabion blankets for erosion control, when the natural~~

~~streambed does not consist of ledge or rock;~~

~~(3) — Allow for fish passage and maintenance of normal stream flows at all times of the year;~~

~~(4) — Not impound water; and~~

~~(5) — Be removed when no longer in use. Impacts to the streambed or bank must be restored to original condition to the fullest extent practicable.~~

3. Temporary Crossings

3.1. Summary of Comment

The Army Corps' Maine General Permit requires a minimum of 24-inch diameter culverts for temporary crossings, but that might have been a little short sighted. Is there any way for LUPC to go up to 3 feet in diameter? With 180 days encompassing spring flows, fall rains, or summer thunderstorms and hurricanes, flows could easily overcome a 2-foot diameter culvert.

Commenter

Army Corps of Engineers

Response

In consideration of this comment, the Commission consulted with a DEP stormwater engineer and the Natural Resources Conservation Service (NRCS), State Conservation Engineer. These engineers felt that a 24-inch diameter culvert is a reasonable minimum. Increasing the culvert size to 3 feet in diameter could involve a significant amount of stream alteration to install the culverts properly in small drainages. Given the following factors: 1) the input from the State and Federal engineers; 2) the standard is a minimum, and therefore, larger culverts are allowed where needed; 3) the crossings are intended to be short-term; 4) the standards include provisions to limit the potential for sedimentation; and 5) the proposed culvert diameter is consistent with the Corps' current requirements; the Commission decided not to increase the minimum culvert diameter requirement for temporary crossings.

Action

No action taken.

4. Permanent Crossings

4.1. Summary of Comment

Add the phrase "arch that spans the stream width" to the standard for crossings of streams used for navigation.

Commenter

Army Corps of Engineers

Response

The Commission considered this comment and concluded that adding a reference to spanning the channel in Section 10.27,D,2,d,(3) could add confusion. The rules contain a separate standard for

sizing crossings that addresses the need to span more than the width of the channel in Section 10.27,D,2,d,(6).

Action

No action taken.

4.2. *Summary of Comment*

There were several comments relating to the sizing of stream crossings including:

- a. A 25-year storm event in these days of climate instability is all too common. This sizing standard is a relic now; perhaps the Commission should seek guidance from DEP’s engineers or other resource agencies.
- b. In the standard that requires sizing for a 100-year storm event, add the phrase “or in waters that support federal or state listed threatened or endangered species,” and possibly “brook trout streams.”
- c. The sizing standard option for 3 times the cross-sectional area of the stream should be removed.
- d. The standard for sizing crossing widths to 1.2 times the channel width is great, but doesn't it conflict with designing for a 25-year storm event which will rarely meet the 1.2 times the channel width standard.

Commenters

Army Corps of Engineers and The Nature Conservancy

Response

The Commission’s intent in revising the sizing standards for water crossings was to make sure culvert sizes accounted for both the volume of water and the width of the channel. If the standards only account for the width of the channel, it is conceivable that a crossing could be designed with a low height or rise and not pass a sufficient volume of water. For most crossings, the Commission has concluded that sizing to meet both a 25-year storm event *and* 1.2 times the channel width, will pass an adequate amount of water volume and allow for passage of aquatic life, including Brook trout, and federal and state listed threatened or endangered species. Consultation with a DEP stormwater engineer and the NRCS State Conservation Engineer supported the Commission’s conclusion.

Action

No action taken.

4.3. *Summary of Comment*

In the standard requiring natural substrate in the crossing, clarify that the requirement applies to new and replacement water crossings.

Commenter

Army Corps of Engineers

Response

The standards for water crossings in Section 10.27,D only apply to new crossings. They do not apply to replacement crossings, which are covered by a statutory exemption. 12 M.R.S. 658-B, (1-A). Applicability of the standards is addressed in the introductory paragraphs of Section 10.27,D.

Action

No action taken.

4.4. *Summary of Comment*

The “cross-sectional area of the flowing water” and the “cross-sectional area of the stream channel” are not necessarily equivalent. Using the term “flowing water” is not sufficient to describe the cross-sectional area required for a crossing. The term “flowing water” is referred to in the Maine Forest Service documents as that corresponding to the level of "normal high water", while Stream Smart and many in stream restoration work refer to it as "bankfull width," thus "bankfull cross-sectional area" or "cross-sectional area of flow at normal high water" would be better terminology. Also, the term “normal high water” should be clarified.

Commenters

United States Fish and Wildlife Service (US FWS), The Nature Conservancy, and Maine Audubon

Response

There appears to be a misunderstanding of the Commission’s use of the term “flowing water” and the Commission’s definition of that term and the term “cross-sectional area.” The Commission’s rules have definitions in Section 10.02 for the terms “flowing water” and “cross-sectional area.” They were not included in the rulemaking package, because the Commission was not proposing changes to the definitions.

“Flowing water,” consistent with the DEP’s definition for the term “river, stream, or brook”, is defined in part as:

A channel that has defined banks created by the action of surface water and has two or more of the following characteristics: ... Such waters are commonly referred to as rivers, streams, and brooks. Flowing water does not mean a ditch or other drainage way constructed, or constructed and maintained, solely for the purpose of draining storm water or a grassy swale.

“Cross-sectional area” is defined as:

The cross-sectional area of a stream channel shall be determined by multiplying the stream channel width by the average stream channel depth. The stream channel width is the straight line distance from the normal high water mark of one side of the channel to such mark on the opposite side of the channel. The average stream channel depth shall be the average of the vertical distances from a straight line between the normal high water marks of the stream channel to the bottom of the channel.

Given that the rules have these long-standing definitions, the Commission concluded that the rules are sufficient to describe the cross-sectional area required for sizing water crossings.

Action

No action taken.

4.5. *Summary of Comment*

The USDA Soil Conservation Service's name should be updated to the Natural Resources Conservation Service.

Also, there were two comments relating to methods for calculating the flow for storm events. One recommended only using the USGS StreamStats online hydrology tools (provided the sizing standard is increased to a 100-year storm event). The other recommended adding that tool, continuing to allow the Technical Release 55 (TR-55) model, and removing the second method that was listed in Section 10.25,D,2,d,(8),(b). The reasons included in the comments differed somewhat:

- a. There is a large discrepancy in the outputs of TR-55 and StreamStats, and TR-55 consistently overestimates flows coming out of landscapes with significant forest coverage and permeable soils;
- b. The StreamStats online hydrology tools should be sufficient, but will generally give lower discharges than the NRCS approach, causing some confusion and opportunity for abuse of the 25-year and 100-year standards.
- c. The second method listed in Section 10.25,D,2,d,(8),(b) may be dated and not worth including.

Commenters

US FWS, The Nature Conservancy, and Maine Audubon

Response

The Commission agrees that the agency name for the Natural Resources Conservation Service should be updated. In consideration of the methods for calculating the flow for storm events, the Commission consulted with a DEP stormwater engineer and the NRCS State Conservation Engineer. Both agreed that the second method listed in Section 10.25,D,2,d,(8),(b) is out dated and not worth including, but both felt that the TR-55 model was reasonable and should continue to be included as an option. The DEP engineer recommended adding the Technical Release 20 (TR-20) model, which is frequently used by Maine Licensed Professional Engineers on larger projects. The DEP was not familiar with the StreamStats on-line hydrology tools. However, the NRCS State Conservation Engineer indicated that StreamStats is now commonly used in the State for sizing culverts, including in NRCS projects. The NRCS State Conservation Engineer agreed that there is a large discrepancy between the outputs of the TR-55 model and the StreamStats tools. He recommended that if use of StreamStats is allowed by the Commission, use of the tools should be limited to the constraints of the model, and the storm event modeled for sizing culverts should be increased to a 100-year storm event to ensure adequate volume.

Action

The Commission changed Section 10.25,D,2,d,(4) and (8) as follows:

- (4) Except as provided in Section 10.27,D,2,d,(5) and Section 10.27,D,2,d,(8),(c), bridges, open-bottom arches, and culverts must be installed and maintained to provide an opening sufficient

in size and structure to accommodate flow from a 25-year frequency storm event, or with a cross-sectional area at least equal to 3 times the cross-sectional area of the flowing water.

- (8) Provided they are properly applied and used for circumstances for which they are designed, methods including but not limited to the following are acceptable to the Commission as means of calculating 25-year and 100-year frequency storm events and thereby determining crossing sizes as required in Section 10.27,D,2:
- (a) The USDA Soil-Natural Resources Conservation Service (NRSCS) Methods; specifically: “Urban Hydrology for Small Watersheds.” (Technical Release #55). USDA Soil Conservation Service (June 1986).
 - (b) ~~The United States Geological Survey Series; specifically: “Estimating the Magnitude of Peak Flows for Streams in Maine for Selected Recurrence Intervals.” (WRI 99-4008). United States Geological Survey, U.S.G.S. Maine Water Science Office (1999).~~ The USDA NRCS Method: “TR-20 – Computer Program for Project Formulation – Hydrology,” Second Edition, U.S. Department of Agriculture, Soil Conservation Service (March 1986).
 - (c) Provided that the only design storm used for sizing a crossing is a 100-year frequency storm event, the Commission may also allow use of the United States Geological Survey (USGS) method: StreamStats, a Web-based-Geographic Information Systems application (Geological Survey, U. S. (2019, April 19). USGS. Retrieved from StreamStats: <https://streamstats.usgs.gov/ss/>).

4.6. *Summary of Comment*

We recommend adding language to encourage the avoidance of wetlands when at all possible when building crossings.

Commenter

The Nature Conservancy

Response

The crossing of flowing waters and crossing wetlands are handled separately in the Section 10.27,D standards. Section 10.27,D,3 addresses avoidance of wetlands by stating:

The design and construction of roads, other than those located in areas below the normal high-water mark of standing or flowing waters, must avoid wetlands unless there are no reasonable alternatives, and must maintain the existing hydrology of wetlands.

Action

No action taken.

4.7. *Summary of Comment*

The rules should include references to acceptable methods that can be used to quantify the alignment and grade of existing stream channels to ensure that accurate metrics are used to develop designs.

Commenter

The Nature Conservancy

Response

The concern related to this comment is that channel measurements taken near existing culvert crossings may not represent natural stream conditions. The Commission agrees that in a culvert replacement project careful surveying is needed to ensure the best placement for the crossing. However, the Commission's water crossings standards do not apply to replacement of culvert crossings. See the statutory exemption for replacements in 12 M.R.S. §685-B(1-A)(A).

Action

No action taken.

4.8. *Summary of Comment*

The standards should clarify how to determine if a stream is used for navigation, and therefore requires 4 feet of headspace in the crossing.

Commenter

The Nature Conservancy

Response

The Commission's intent with this standard is to ensure that streams that are used for navigation can continue to be used for navigation after construction of a crossing. The standard is not intended to be limited to designated federal navigable waters under the Rivers and Harbors Act. The intent is for the standard to apply to all streams that people use for canoeing, kayaking, rafting, or operation of motorboats. Two key resources that the Commission will use as guides in determining if a stream is used for navigation will be the table of State Sponsored and Assisted Public Boat Access Sites maintained by the Maine Bureau of Parks & Lands: https://www.maine.gov/dacf/parks/water_activities/boating/public_boat_launches/boat_sites.shtml, and the list of streams identified as having significant resource values for whitewater boating and canoe touring in *The Maine Rivers Study Final Report*, Maine Department of Conservation, May 1981.

Action

No action taken.

5. Culvert Standards

5.1. *Summary of Comment*

There are steel-reinforced culverts commonly being installed in Maine now that do not require any cover, though often a small amount, perhaps 6 inches, can help extend the life of the structure. A better suggestion is to follow the manufacturer's recommendations for cover.

Commenter

US FWS

Response

The Commission agrees that it is best to use the manufacturer's recommendation for cover, when available. Since the manufacturer's recommendation may not always be available, the Commission concluded that the default standard of 1 foot of cover should not be removed.

Action

The Commission changed Section 10.27,D,2,d,(7),(g) as follows:

- (g) Be covered by soil to a minimum depth of 1 foot or according to the culvert manufacturer's specifications, ~~whichever is greater~~; and

6. Natural Substrate in Crossings

6.1. Summary of Comment

Note that there are many pipe arch and box culvert types out there that may be as wide as 10' at the rise limit (5'). It would be better to reword the natural substrate standard to prescribe substrate material installation "wherever practicable" rather than allowing a categorical exclusion for culverts less than 60 inches in diameter or rise, or eliminate the exclusion all together.

Commenters

US FWS, The Nature Conservancy, and Maine Audubon

Response

The Commission considered the option of wording the standard to require substrate material installation "wherever practicable." The Army Corps General Permit for the State of Maine contains a standard written as suggested by the commenter. However, that wording is subject to interpretation. The Commission concluded that it would be better to include a measurable standard for predictability and enforceability, particularly in a rule section for an activity allowed without a permit subject to standards. Based on the Commission's conversations with a DEP stormwater engineer, the NRCS State Conservation Engineer, and Maine SafetyWorks, the 60-inch limitation on crossing diameters or rises for substrate installation is reasonable. Reconstructing natural substrate in crossings that are *less than* 60-inches in height may not be practicable and raises significant safety concerns. Depending on size and configuration, many small culverts may be considered confined spaces according to OSHA standards (29 CFR1910.146) requiring special safety considerations.

Action

No action taken.

6.2. Summary of Comment

The standards should include more explicit guidelines on how to characterize the substrate of the

natural channel, and turn it into a graduated fill specification that can be obtained from a gravel pit.

Commenter

The Nature Conservancy

Response

Given the wide variety of stream substrates, varying site conditions, and differing levels of expertise in those constructing crossings in the Commission's service area, the Commission concluded that developing a graduated fill specification to use for replacing natural stream substrate was not practicable. In most cases, since the standards only apply to new crossings, the natural substrate existing at the crossing site can be removed, stockpiled, and used in reconstructing the natural substrate. If additional guidance is needed, the Commission will consider developing a separate guidance document for installations of crossings in its service area.

Action

No action taken.

7. Maintenance of Crossings

7.1. Summary of Comment

If many crossings are designed only to pass the 25-year storm event with discharge data from USGS StreamStats, and especially if the new structure has a bottom and is installed at an inappropriate elevation relative to the true stream bed elevation (absent sediments that may have been retained by previously undersized structures), it is likely that such a structure may develop a "hanging" outlet over time, which points to the inadequacy of the design, which should not simply be replicated as the proposed standards suggest, but upgraded to allow for greater flows.

Commenters

US FWS and Maine Audubon

Response

The Commission agrees that, if a crossing develops a problem over time, it could be the result of inadequate design and repairing the crossing simply by replicating the original design would not be the best solution. However, if elevation was the issue, upgrading to allow for greater flows may not be necessary. In response to this comment, the Commission revised the standard for maintenance to address the desired end result and provide for the passage of aquatic life.

The Commission considered the relationship between the statutory exception for the maintenance, repair, and replacement of culverts (12 M.R.S. §685-B(1-A)(A)) and the standard adopted in Section 10.27,D,2,c,(16) requiring long-term maintenance of crossings to facilitate passage of aquatic life. The statutory exception provides that a permit is not required for the repair, maintenance, or replacement of an existing road culvert if certain criteria are met. Section 10.27,D requires repair of a culvert, as necessary, to ensure natural channel characteristics and adequate passage of aquatic life. The Commission determined that the two provisions are not inconsistent. Culverts installed after the effective date of these rule revisions, and under the activity specific

standards of Section 10.27,D, must be maintained to facilitate passage of aquatic life for the lifespan of the crossing (for steel pipe, that is expected to be 20 years). If conditions develop that block passage, repairs are required in accordance with the standards. Culverts installed prior to the effective date of the rule revisions do not have required maintenance provisions, and may be replaced under the statutory exception, but fish passage is one of the criteria in the exception. In either case, a permit is not required.

Action

The Commission made the following changes to Section 10.25,D,2,d,(16):

- (16) Water crossings must be maintained to facilitate passage of aquatic life. Culverts that develop “hanging” inlets or outlets, bed washout, or a stream channel that does not match the characteristics of the natural stream channel, such as substrate mobility and type, and channel slope, stability, and confinement must be repaired ~~to design conditions as necessary to~~ provide for natural channel characteristics and ensure adequate passage of aquatic life.

8. Wetland Crossings

8.1. Summary of Comment

For wetland crossings, 24-inch culverts are probably the absolute smallest the Commission should accept; the Army Corps’ State of Maine General Permit requires 3-foot culverts. However, cross pipes should be every 50 feet for large crossings. One 24-inch culvert every 300 feet probably will not be sufficient over time.

Commenters

Army Corps and The Nature Conservancy

Response

The Commission considered the Army Corps’ State of Maine General Permit in drafting the revisions to its road and water crossing standards, but was concerned that their wetland crossing standards may be overly burdensome for some land owners in the Commission’s service area. In response to the comments received, the Commission included wetland crossings in its consultation with the DEP stormwater engineer and the NRCS State Conservation Engineer. Both engineers suggested that culverts be installed every 100 feet and that culvert diameters of at least 18-inches would be reasonable for wetland crossings. The DEP engineer felt that that arrangement for wetland crossings would provide the same volume of flow through the road as a continuous porous layer design.

Action

Section 10.27,D,3 was revised as follows:

...

- a. Wetland crossings on mineral soils or those with surface organic layers up to 4 feet in thickness.**
 - (1) Fill may be placed directly on the organic surface compressing or displacing the

organic material until equilibrium is reached. With this method, culverts or other cross-drainage structures are used instead of porous layers to move surface and subsurface flows through the road fill material.

- (a) For road construction on mineral soils or those with surface organic layers less than 16 inches in thickness, culverts or other cross-drainage structures must be appropriately sized and placed at each end of each wetland crossing and at the lowest elevation on the road centerline with additional culverts at intermediate low points as necessary to provide adequate cross drainage. Culverts or other cross-drainage structures must be placed at maximum intervals of ~~300~~100 feet.
- (b) For road construction on surface organic layers in excess of 16 inches but less than 4 feet in thickness, cross drainage must be provided by placing culverts at each end of each wetland crossing and at the lowest elevation on the road centerline with additional culverts at intermediate low points as necessary to provide adequate cross drainage. Culverts or other cross-drainage structures must be placed at maximum intervals of ~~300~~100 feet. Culverts must be a minimum of ~~24~~18 inches in diameter, or the functional equivalent, and buried at least 6 inches below the soil surface.

...

b. Wetland crossings on soils with organic layers in excess of 4 feet in thickness.

...

- (3) Cross drainage must be provided by either a continuous porous layer, or appropriate placement of culverts or other cross-drainage structures and ditching as specified below:
 - (a) A continuous porous layer or layers must be constructed by placement of one or more layers of wood corduroy, large stone, or chunkwood separated from adjacent fill layers by geotextile fabric placed above and below the porous layer(s) such that continuous cross drainage is provided in the top 12 inches of the organic layer; or
 - (b) Cross drainage culverts or other cross-drainage structures must be placed at points where they will receive the greatest support. Culverts or other cross-drainage structures must be a minimum of ~~24~~18 inches in diameter, or the functional equivalent, and buried at least 6 inches below the soil surface. Where necessary to maintain existing water flows and levels in wetlands, ditches parallel to the roadbed on both sides must be used to collect surface and subsurface water, carry it through the culvert(s), and redistribute it on the other side. Such ditches must be located three times the depth of the organic layer from the edge of the road fill. Unditched breaks must be left midway between culverts to prevent channelization.